1. Legal Ad

    Documents:

        PB LEGAL AD 1-23-18.PDF

2. Agenda

    Documents:

        PB AGENDA 1-23-18.PDF

3. Maine Medical Center

    3.I. Report

        Documents:

            MMC (REPORT).PDF

    3.II. Report Attachments

        Documents:

            MMC (REPORT ATTACHMENTS).PDF

    3.III. Applicants Submittal (1 Of 3)

        Documents:

            MMC (APPLICANTS SUBMITTAL) 1 OF 3.PDF

    3.IV. Applicants Submittal (2 Of 3)

        Documents:

            MMC (APPLICANTS SUBMITTAL) 2 OF 3.PDF

    3.V. Applicants Submittal (3 Of 3)

        Documents:

            MMC (APPLICANTS SUBMITTAL) 3 OF 3.PDF

    3.VI. Plans (1 Of 2)

        Documents:

            MMC (PLANS) 1 OF 2.PDF

    3.VII. Plans (2 Of 2)

        Documents:

            MMC (PLANS) 2 OF 2.PDF

4. 400 West Commercial Street

4.I. Report

Documents:

W. COMMERCIAL ST. - 400 (REPORT).PDF

4.II. Report Attachments

Documents:

W. COMMERCIAL ST. - 400 (REPORT ATTACHMENTS).PDF

4.III. Applicants Submittal

Documents:

W. COMMERCIAL ST. - 400 (APPLICANTS SUBMITTAL).PDF

4.IV. Plans

Documents:

W. COMMERCIAL ST. - 400 (PLANS).PDF

5. 171 Auburn Street

5.I. Report

Documents:

AUBURN ST. - 171 (REPORT).PDF

5.II. Report Attachments

Documents:

AUBURN ST. - 171 (REPORT ATTACHMENTS).PDF

5.III. Applicant's Submittal

Documents:

AUBURN ST. - 171 (APPLICANTS SUBMITTAL).PDF

5.IV. Public Comment

Documents:

AUBURN ST. - 171 (PUBLIC COMMENT).PDF

5.V. Plans

Documents:

AUBURN ST. - 171 (PLANS).PDF

6. 66 Congress Street

6.I. Report

Documents:

CONGRESS ST. - 66 (REPORT).PDF

6.II. Report Attachments

Documents:

CONGRESS ST. - 66 (ATTACHMENTS).PDF

6.III. Applicant's Submittal

Documents:

CONGRESS ST. - 66 (APPLICANTS SUBMITTAL).PDF

6.IV. Additional Public Comment

Documents:

ADDITIONAL PUBLIC COMMENT (NINI MCMANAMY 1-22-18).PDF

6.V. Plans

Documents:

CONGRESS ST. - 66 (PLANS).PDF

LEGAL ADVERTISEMENT
PORTLAND PLANNING BOARD
MEETING AGENDA

The Portland Planning Board will hold a meeting on Tuesday, January 23, 2018, Council Chambers, 2nd Floor, City Hall, 389 Congress Street.

Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov

Workshop – 4:30 p.m.

i. Level III Site Plan; Maine Medical Center (MMC) East Tower and Visitor Parking Garage Vertical Expansions; 22 Bramhall Street, Maine Medical Center, Applicant. (4:30 – 6:00 p.m. estimated time) The Portland Planning Board will hold a workshop to consider the proposal to add two (2) floors to the East Tower, relocate the heliport to the East Tower, and to expand the visitor garage with three (3) levels of parking for 225 vehicles. The proposal adds 137,961 sq. ft. to the MMC hospital complex. The property is within the Institutional Overlay Zone (IOZ) and MMC has an Institutional Development Plan approved by the Planning Board.

Public Hearing – 7:00 p.m.

i. Level III Site Plan, Conditional Use and Site Location of Development Re-approval; 400 West Commercial Street; New Yard, LLC - Canal Landing, LLC., Applicant. (7:00 – 7:45 p.m. estimated time) The Board will hold a public hearing on a proposal by the applicant seeking re-approval of an expired approval for a boat maintenance and marine retail facility. The proposed marine retail and New Yard administrative offices have a total square footage of 24,600 with parking for 55 vehicles. The boat maintenance facility is located along a portion of Commercial Street and between the railroad line and the Fore River with a total of 3 access points off Commercial Street. The site is in the Waterfront Port Development Zone (WPDZ) and is subject to review under Portland's conditional use and site plan standards.

ii. Level III Site Plan; Lyseth/Lyman-Moore Campus; 171 Auburn Street; Portland Department of Parks, Recreation and Facilities, Applicant. (7:45 – 8:30 p.m. estimated time). The Board will hold a public hearing on the proposed site improvements, which re-configure the traffic circulation within the campus to separate bus and vehicle drop off areas, create well-defined pedestrian accessways, and improve the drainage and parking layout. The school campus is zoned ROS, R-2 and stream protection. The overall disturbance of the site is over 4 acres and is subject to site plan review.

iii. Level III Site Plan; St. Lawrence Arts Center; 66 Congress Street; Friends of the St. Lawrence Church, Applicant. (8:30 - 9:15 p.m. estimated time) The Planning Board will hold a public hearing on a proposed building addition to include a 401 seat theater, lobby area, promenade room and accessory uses in the basement. The building addition is 6,715 sq. ft. A Conditional Rezoning Agreement #58, as amended, regulates the site and the addition will be reviewed under the site plan ordinance. The addition is also subject to Historic Preservation Review.

SEAN DUNDON, CHAIR – PORTLAND PLANNING BOARD

CITY OF PORTLAND, MAINE

PLANNING BOARD

Sean Dundon, Chair
Brandon Mazer, Vice Chair
Elizabeth Boepple
David Eaton
Carol Morrissette
Maggie Stanley
Lisa Whited

AGENDA
PORTLAND PLANNING BOARD MEETING

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PUBLIC HEARING – 7:00 p.m.

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATIONS AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETINGS HELD ON JANUARY 9, 2018:
Workshop: Boepple, Eaton, Mazer, Morrissette, Stanley and Whited present; Dundon absent.
Public Hearing: Boepple, Eaton (recused for second item), Mazer, Morrissette, Stanley and Whited present; Dundon absent.

4. REPORT OF DECISIONS AT THE MEETINGS HELD ON JANUARY 9, 2018:

i. Planning Board Meeting Schedule. Mazer moved and Whited seconded a motion to endorse the Planning Board schedule for 2018. Vote: 6-0, Dundon absent.

ii. R-6 Interim Planning Overlay Zone. Morrissette moved and Mazer seconded a motion to find the proposed R-6 Interim Planning Overlay Zone is consistent with the comprehensive plan and recommends for adoption the proposed amendments, as amended, to the City Council. Vote: 6-0, Dundon absent.

iii. Level III Site Plan and Subdivision; 583-605 Stevens Avenue; Seacoast at Baxter Woods Associates, LLC., Applicant. Morrissette moved and Mazer seconded the motion to waiver the standard aisle width to allow 22 feet. Vote: 5-0, Eaton recused and Dundon absent. Morrissette moved and Mazer seconded the motion to find the proposal is in conformance with the Inclusionary zoning provisions and approves the conditional use application. Vote: 5-0, Eaton recused and Dundon absent. Morrissette moved and Mazer seconded the motion to approve the subdivision plan with four (4) conditions of approval. Vote: 5-0, Eaton recused and Dundon absent. Morrissette moved and Mazer seconded the motion to approve the site plan with eight (8) conditions of approval. Vote: 5-0, Eaton recused and Dundon absent.

5. NEW BUSINESS

i. Level III Site Plan, Conditional Use and Site Location of Development Re-approval; 400 West Commercial Street; New Yard, LLC - Canal Landing, LLC., Applicant. (7:00 – 7:45 p.m. estimated time) The Board will hold a public hearing on a proposal by the applicant seeking re-approval of an expired approval for a boat maintenance and marine retail facility. The proposed marine retail and New Yard administrative offices have a total square footage of 24,600 with parking for 55 vehicles. The boat maintenance facility is located along a portion of Commercial Street and between the railroad line and the Fore River with a total of 3 access points off Commercial Street. The site is in the Waterfront Port Development Zone (WPDZ) and is subject to review under Portland's conditional use and site plan standards.

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Memorandum
Planning and Urban Development Department
Planning Division

To: Sean Dundon, Chair and Members of the Portland Planning Board

From: Jean Fraser, Planner

Date: January 19, 2018

Re: MMC East tower and Visitor Garage Vertical Expansion
22 Bramhall Street
Maine Medical Center (MMC)

Project #: 2017-289 CBL: 053D007/054H001/064C001

Meeting Date: January 23, 2018

I. INTRODUCTION

Maine Medical Center (MMC) has requested a preliminary review of the Level III Site Plan Application to extend the existing East Tower vertically by two stories (approx. 60,000 sq ft) to accommodate 64 single-occupancy inpatient beds, and to extend the existing Visitor's Garage on Congress Street by 3 stories vertically to provide an additional 225 parking spaces. The application also refers to work at the Central Utility Plant and includes the relocation the Helipad to the top of the East Tower.

It is understood that the 64 single-occupancy bedrooms will not add patient capacity as they would allow existing double-occupancy patient rooms elsewhere to be single-occupancy.

The application is the first of three Site Plan applications associated with the short-term MMC expansion plans. The proposals follow on from the City's recent adoption of an MMC Institutional Overlay Zone and the associated Institutional Development Plan and Regulatory Framework (both attached to this Memo). The review includes aspects of the MMC IOZ Regulatory Framework that required action at the time of the first site plan (TDM and Signage Plans).

It is anticipated that there will be two PB Workshops on the East Tower/Visitors Garage proposals. This first Workshop is expected to focus on the following topics:

- Design, including Street Activation
- Helipad
- Construction Management Plan overview, plus East Tower

Future topics would include:

- Construction Management Plan in more detail
- Transportation Demand Management (TDM) Plan
- Site Plan Details

Applicant: Maine Medical Center; Alexander Green, Director of system Planning and Regulatory Compliance
Agent and Engineer: Sebago Technics Inc
Architect: Perkins + Will; Jeffrey Keilman, Senior Project Manager, Senior Associate

Required Reviews:

Applicant's Proposal	*Applicable Standards*
Addition of 60,940 sq ft to the East Tower; addition of 77,021 sq ft to the Visitor Garage	Level III Site Plan Review 14-526
Additions that would increase height; helipad	MMC IOZ Regulatory Framework

Waiver Requests: None identified at this time.

II. PROJECT DATA

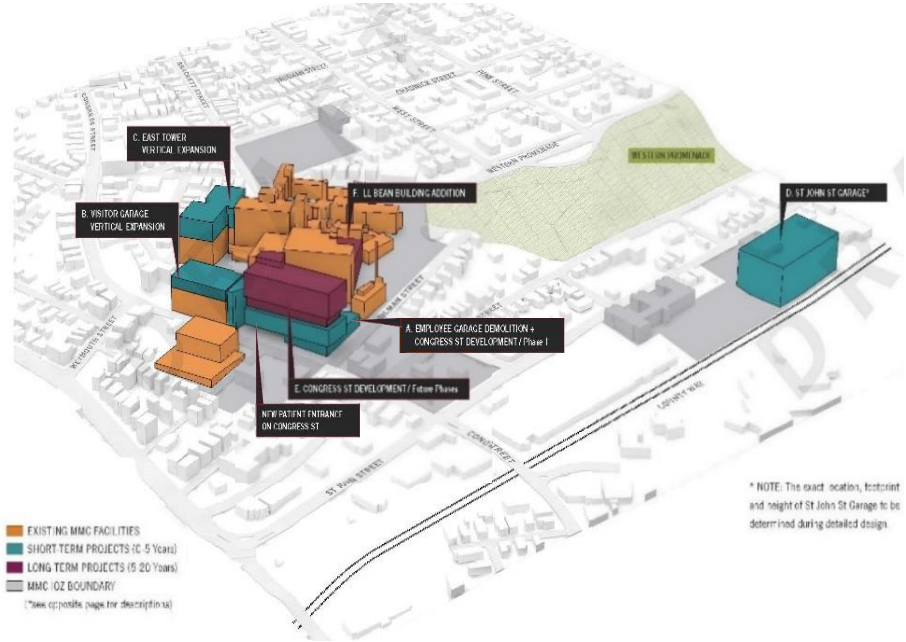
SUBJECT	*DATA for EAST TOWER*	*DATA for VISITORS GARAGE*
Existing Zoning	IOZ	
Existing Use	Hospital	Hospital parking garage
Proposed Use	Hospital- adding single rooms for 64 patient beds	Hospital parking garage – 3-story addition for 225 parking spaces
Parcel Size	12.52 acres	
Impervious Surface Area **--Existing** **--Proposed** **--Net Change**	 415,220 sq ft 0sq ft 0sq ft	 415,220 sq ft 0 sq ft 0 sq ft
Total Disturbed Area	0	0
Building Footprint **--Existing** **--Proposed** **--Net Change**	 30,470 sq ft 0 sq ft 0 sq ft	 25,674 sq ft 0 sq ft 0 sq ft
Building Floor Area **--Existing** **--Proposed** **--Net Change**	 152,350 sq ft 213,290 sq ft 60,940 sq ft	 200,000 sq ft 277,021 sq ft 77,021 sq ft
Parking Spaces **--Existing** **--Proposed** **--Net change** **--# of handicapped spaces**	 2,328 (entire campus) 2,553 225 6	
Bicycle parking Spaces **--Existing** **--Proposed** **--Net change**	 193 (entire campus) 0 0	
Estimated Cost of the Project	TBD	

III. SITE AND CONTEXT

The approved Institutional Development Plan (IDP) (Attachment 4.) provides information regarding the hospital site and its development over the years, along with context information. Photographs of the existing buildings (to be expanded) are included below.

IV. PROPOSALS

The submissions include a description of the proposals and plans and graphics of the proposed "overbuild". The graphic to right is extracted from the IDP in Att.4 (pages 44/45)

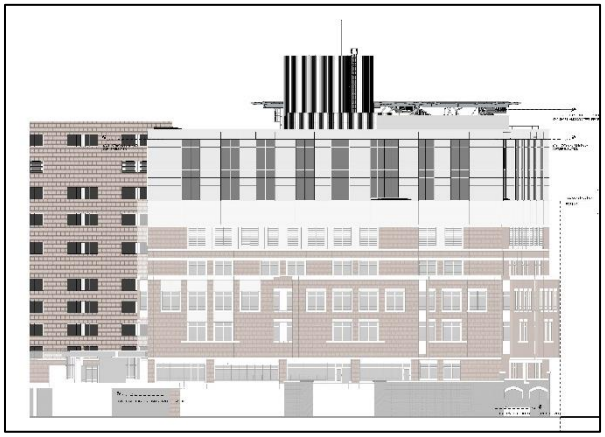


East Tower: Addition of two floors (64 patient rooms, single-occupancy):

Existing from south

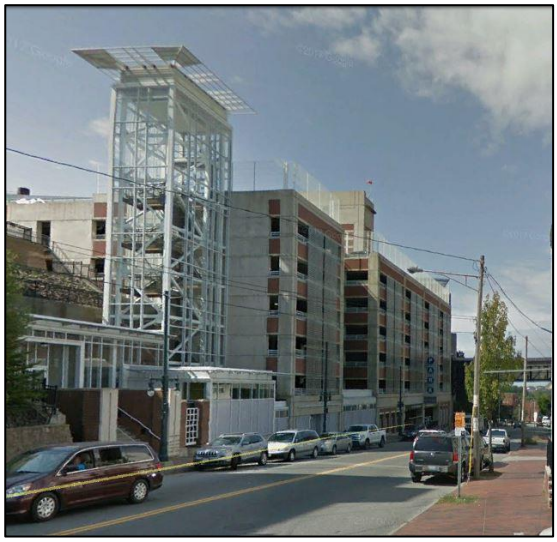
Proposed, comparable rendering (see WSQ – 1)

Rendering as viewed from east (Ellsworth Street) showing secondary helipad (see WS Q – 1 which includes additional renderings & before/after comparisons)



South elevation, showing part of east elevation (Plan 14F)

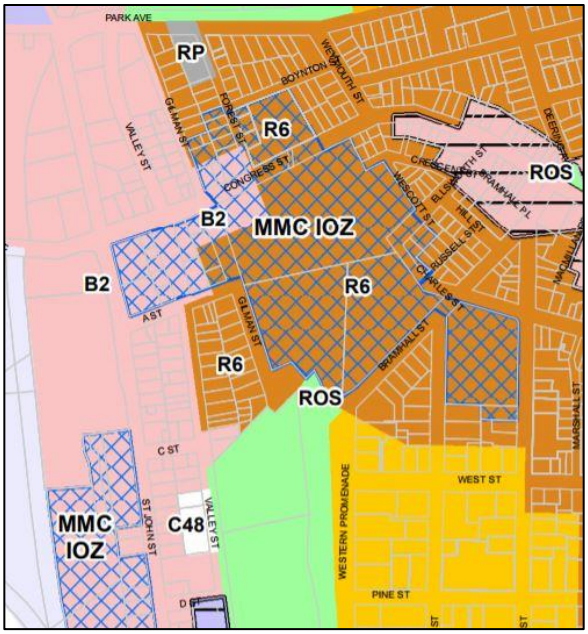
Visitor Garage: 3 additional floors of parking spaces: (renderings not submitted)



Existing as viewed looking west

Proposed west elevation

V. ZONING ANALYSIS and REVIEW



Overview

The zoning map at right shows the recently adopted MMC IOZ in blue cross hatch:

The MMC IOZ *Regulatory Framework* (Attachment 5) is the zoning ordinance that applies to the proposed site plan projects; this was reviewed by the Planning Board in early 2017 and adopted by the City Council in December 2017.

The proposed additions to the East Tower and the Visitors Garage were included in the IDP background material for the zoning amendment, and the proposals now under site plan review are consistent with what was discussed during that review.

Table 1 below summarizes the Regulatory Framework provisions that apply to the current review and includes staff comments:

TABLE 1 RELEVANT EXTRACTS FROM MMC IOZ REGULATORY FRAMEWORK (entire document is in Att. 5)

MMC IOZ Regulatory Framework provisions	***MMC Site Plan submissions to address the RF provisions***	***Staff Comments***
(c) Uses: Note under list: 1. Mixed Uses: In recognition that Maine Medical Center is part of a mixed-use area of the City, with important existing services and businesses that serve the local and wider community, healthcare facility development fronting onto Congress Street and St. John Street shall activate the public realm, to the extent able, with uses such as service and retail/restaurant, landscaping, active building entrances, pocket parks, etc., on the ground or other publicly accessible level, consistent with the design intent contained in the approved Institutional Development Plan (IDP). In areas identified in the IDP as "Priority zone for commercially oriented/retail uses," usable ground floor retail, restaurant, or comparable community-oriented use that provides services to local residents and employees both during the day and evening hours is required. In areas labeled "Street activation through location of windows, entrances, etc.," usable ground floor retail, restaurant, or community oriented use is encouraged to the extent practicable. Such uses, where constructed or facilitated as part of a healthcare related development, are expressly permitted whether ancillary or supporting the healthcare facility or not, and shall be open and welcoming to the general public in addition to employees or visitors of Maine Medical Center.	The current submission does not include proposals for the existing empty retail units along the base of the Visitors Garage.	Staff consider that the entire building is subject to the review and therefore MMC needs to develop strategies to address any "blank walls' along Congress Street in accordance with the Regulatory Framework and the IDP Design Guidelines/Fig 5.15 re Street Activation (p117 of IDP in Att. 4 to this Memo)
Maximum Building Height: East Tower: 150 feet (the IDP indicated a future height of 141 ft including helipad)	Submitted proposals indicate a height of just over 146 ft but part of the helipad appears to be higher	Clarification required as to helipad height compared to the average grades identified in the IDP.
Maximum Building Height: Visitors Garage: 125 feet (the IDP indicated a future height of 119 ft)	Submitted proposals indicate a height of 119 ft excluding part of the stair tower	Appears to meet dimensional requirements as stair and elevator overruns are considered appurtenances.
Transition Zones – none at these locations	N/A	N/A
Setbacks: East Tower - 20 ft Visitors Garage - up to 40 ft	N/A	N/A

Design Guidelines	See Design Review below	
(f) Signs: 1. At the time of first site plan review following IDP approval, a unified campus-wide Signage Plan shall be submitted for review and approval by the Planning Authority. Any update to such plan due to a change in name or logo shall not require amendment to the IDP. 2. Signs shall be designed in accordance with the campus-wide Signage Plan. All signs shall be designed in proportion and character with building facades and adjacent street typology. All signs shall be coordinated with the building and landscaping design and be constructed of appropriate permanent, high quality materials and finishes.	The applicant has submitted the Signage Plan (Plan 11) that illustrates how the existing signage fits into the campus. The current proposals for the East Tower and Visitors Garage do not necessitate any additional signage, so this plan comprises the current Signage Plan.	Staff anticipate that this Strategy would be updated to take account of the signage needs of the new St Johns Garage and new hospital building (future site plans).
(g) Transportation: (TDM) 1. Transportation Demand Management (TDM): a. At the time of the first site plan review following IDP approval, MMC shall submit a campus- wide TDM Plan substantially in accordance with those TDM objectives and strategies identified in the approved Institutional Development Plan. The TDM Plan may be phased into short-,mid-, and long-term actions to allow for progressive implementation over time. b. The TDM Plan shall be designed to provide transportation choice with the goal of reducing parking demand and single-occupancy vehicle trips to and from MMC by employees and visitors. c. The TDM Plan shall establish parking and trip reduction targets associated with the short-term (0-2 years), mid-term (2-5 years), and the long-term (5+ years), as well as a data collection plan.	The applicant has submitted a TDM Plan (Att. WS S-7).	This is currently under review and detailed comments will be forwarded to the applicant this week, and this will be a topic for the second PB workshop.
(g) Transportation: (Parking) 2. Parking: a. Parking requirements in the IOZ shall be established at the time of site plan review based on a parking study that includes a campus-wide analysis of demand and supply. The parking demand study shall determine parking requirements and shall be sufficient to alleviate parking pressure on surrounding neighborhoods. b. Parking studies developed by MMC shall integrate parking and trip reduction achievements and data contained in the TDM Plan.	The applicant submitted a Parking Demand Study (Att WS S-8) that identifies shortfalls in both visitor and employee parking supply and elaborates on the background information in the approved IDP. The proposals will temporarily remove 2 levels of parking during construction, but will result in a net increase of 225 visitor parking spaces when complete.	Tom Errico, City's consultant traffic engineering reviewer, comments: *During the construction of the Visitor parking garage, the top two floors of the existing garage will be taken out of service. The applicant should provide parking management details addressing the loss of the noted parking spaces.* Staff note that 6 handicapped spaces are included in the 225 new spaces, and request confirmation that this meets ADA requirements
(h) Environment. Development proposed by MMC shall be designed to integrate with the surrounding context, including open space and pedestrian networks and infrastructure.		Staff would like to understand how the Visitor Garage integrates into the surrounding pedestrian network both during construction and after it is completed.
(i) Mitigation measures. MMC shall mitigate site plan impacts to off-premise infrastructure in a manner proportionate to those impacts. Mitigation may include financial or in-kind contributions to existing or planned City projects focused on mitigating the impacts of MMC development. Mitigation contribution shall be determined based on the City's standard procedure in effect at the time of site plan review.		The Construction Management Plan may have impacts on off-premise infrastructure; this is under review.

1. Helipad. MMC shall be governed by the provisions of the Helistop Overlay Zone with the following exceptions: a. Setback requirements of Section 14-327(3); and b. Fencing requirements of Section 14-327(4).	See review comments below.

Design Review in context of MMC IOZ Regulatory Framework

The City's Urban Designer, Caitlin Cameron, has provided a preliminary design review in the context of the Regulatory Framework (Attachment 3); it is quoted below:

The projects at 22 Bramhall Street – East Tower and Visitor Garage expansion - were reviewed according to the adopted IOZ IDP and Regulatory Framework standards by Caitlin Cameron, Urban Designer, Jean Fraser, Planner, and Nell Donaldson, Senior Planner.

In the case of both proposals, the new construction is limited to vertical expansion of existing buildings. The proposals do not alter the footprints, plans, existing materials, or access points to each building. Therefore, the design evaluation is generally limited to the impact on the overall campus design, long views to the campus, and Congress Streetscape.

Design Review Comments*: (questions and unmet standards in red)*

- Please provide a rendering showing the visitor garage project in context on Congress Street.
- More information is requested regarding materials – label materials on elevations.
- More information is requested regarding site lighting.

IDP Design Guidelines

1. New buildings will be designed to contribute to the campus vision and organizational goals identified in the Master Facility Plan and the Transportation Plan, and best practice design standards for healthcare.

East Tower: The East Tower expansion seeks to introduce a contemporary tower that prioritizes the patient experience while also taking advantage of its visual prominence by creating a simple but strong contemporary statement that knits together some of the varying design components of the existing surrounding buildings. The stated MMC vision includes integrating inside and outside – achieved here through the internal circulation and window size and placement, as well as a "50 year palette" that selects materials based on cues from nature to create timeless environment. This vision includes Sky, Sea, and Land as concepts for material/color selection. The white metal panel and large curtain wall system intend to evoke the "sky" – light, recessive, neutral. Planning Board may want to consider if this East Tower design meets this vision for timelessness, integration of inside/outside, and a reflection of modern delivery of healthcare – these design decisions will likely inform future choices for other parts of the campus.

Visitor Garage: The architectural character remains consistent by continuing the existing material palette and expression. In the case of Congress Street, the City's priority is the building interface with the street – keeping the urban street wall edge, activating the ground floor, providing a sense of scale and enclosure for the pedestrian. The MMC vision includes creating a sense of place while allowing new design reflect its location in Portland and Maine, as well as the historic context of the hospital and surrounding neighborhoods. In this case – those goals are met or at least existing conditions are improved upon.

2. The overall composition and experience of the campus will be considered for cohesive identity from approaches along Congress Street and I-295.

East Tower: The addition introduces a new design aesthetic to the MMC campus. The applicant proposes this as the first of several phases that incorporate the vision for the campus as described above and in the applicant's submittal. Staff think this design creates a more visible and contemporary identity to the campus – if approved, future designs should be evaluated for cohesiveness with this new direction.

Visitor Garage: The architectural character remains largely the same as the existing condition and is found to be consistent with the established character. The building addition increases the visibility of the campus from those long views.

3. Building entrances will be oriented toward, located adjacent to, accessible from, a sidewalk in a public right-of-way to create a pedestrian-oriented environment.

East Tower: Not applicable – entrances remain the same with existing ground floor.

Visitor Garage: The existing building has two retail entrances facing Congress Street and steps with a door to access the circulation tower for the garage. The garage currently only has vehicle entrances facing Congress Street which pedestrians can use but there is not a designated pedestrian path/door. From Crescent Street, there is a pedestrian path and doorway.

4. Building designs will relate to and be compatible with the existing, or – in areas of change – planned character of residential and commercial neighbors. Design elements and characteristics to consider include:

- Building placement and relationship to the street
- Overall massing and scale
- Roof forms
- Proportion, directional expression, and composition of facades
- Rhythm of solids to voids
- Rhythm and proportion of openings
- Rhythm of entries and projections
- Relationship of materials, texture, and color

East Tower: The addition is simple in its massing, roof form, and material palette. These two additional floors also change the overall proportion of the building's massing and façade composition. Staff support the direction given the constructability constraints and the limitations of the existing façade character. The window openings are places and scaled to reflect the long views and tower scale of the building. They establish a rhythm consistent with existing building and campus design. The white metal in contrast with the red brick make the proportions top-heavy, but the applicant makes the case that brick is not a viable option for the building addition and that white color palette was selected to integrate with the existing materials and details without introducing yet another element.

Visitor Garage: The massing, roof forms, rhythms, and material relationships remain mostly unchanged from the existing conditions. Scale is the most significant change to this building – staff have requested street view renderings to understand how that scale change will be experienced on the street.

5. Façade materials of buildings will be of high quality, and contribute to an attractive public realm.

East Tower: The applicant indicated the material choices are limited by construction constraints as well as the existing material palette. The proposal is simple white metal panel intended to visually blend with the existing white materials as well as provide a light, recessive quality to the increase in mass and height. Vi sual interest will be provided by material pattern, fenestration, and shadow lines created by angled windows on each façade.

Visitor Garage: The proposal maintains the existing material palette of brick, concrete, and metal screen. Staff agree this is a logical selection to provide consistency to the building. However, staff are concerned about the loss of the canopy on the stair tower as an architectural feature.

6. The design process will consider long views of new buildings including roofs and associated structures to minimize visual impacts and provide visual interest. Rooftop appurtenances will be either screened from view or integrated into the building design, and will not be visible from adjacent streets, Western Promenade, or the Congress Street approach (helipad excluded).

East Tower: The rooftop mechanicals are screened in a way that minimizes their impact and appearance and are visible only from a few directions.

Visitor Garage: Rooftop appurtenances have not been adequately screened or integrated into the building design - this is especially of concern for the long views.

7. Vibrant, contributing and sustainable active ground floors will be provided to add activity and a sense of place to the priority node identified in the City's Comprehensive Plan.

East Tower: Not applicable

Visitor Garage: Staff request the applicant provide more information regarding the ground floor activation facing Congress Street. The building includes storefront, doors oriented to Congress Street, canopies, and adequate site lighting, however, the space is currently vacant and has a translucent film covering the windows and impeding the visual connection and activity from the sidewalk.

8. In areas where the occurrence of limited blank facades along public right-of-ways are unavoidable due to changes in topography or building use requirements, the following strategies will be used to mitigate visual impact:
- providing elements of visual interest along any black walls facing public streets, and,
- working with the City of Portland to ensure adequate lighting of public sidewalks to create a safe pedestrian experience.

East Tower: Not applicable
Visitor Garage: See comment 7. above.

9. Any parking structure within the IOZ will:
- screen views of cars from the public rights-of-way
- provide elements of architectural interest on upper floors to contribute positively to long views and gateway approaches
- for garage structures within 20' of the public right-of-way, meet street activation intent according to street type

East Tower: Not applicable
Visitor Garage: Screening methods will follow the established existing design – solid wall with metal mesh railing with a trellis accent – this current condition successfully screens cars/headlights from Congress and Crescent streets. The current design includes a curtain wall stair tower with an accentuated canopy feature – this roof element appears to be removed from the new addition and rooftop mechanicals are shown without screening or design integration. Staff suggest keeping an element like the canopy will help screen the rooftop mechanicals and meet the guideline of providing architectural interest on upper floors – especially considering with the increased height, these elements will become even more visible from long views. For street activation, see comments 7. above.

Building Relationship to Public Street

1. Urban Main Street (Congress Street)

MMC buildings abutting Congress St will be designed to:
- *Provide urban-levels of density*
- *Create an urban street wall that provides a sense of enclosure to the public realm*
- *Have their primary orientation towards Congress Street*
- *Activate the public sidewalk with building entrances, lobbies, etc.*
- *To the extent possible, given programmatic needs, provide visual interest and ensure pedestrian safety with views into and out of the building along the public sidewalk*
- *To the extent possible, given programmatic needs, provide space for community-oriented uses such as services or retail that can be shared between MMC users, neighbors, and the broader Portland community*
- *Support the existence of neighborhood amenities such as restaurants and other retail uses providing services to local residents and employees both during the day and evening hours.*

In addition to the guidelines listed above, buildings that have frontage on Congress Street and that include parking components will activate portions of or place liner buildings along the ground floor facing Congress Street.

East Tower: Not applicable
Visitor Garage: The building addition maintains the urban street wall already established. The existing building's primary orientation is towards Congress Street. Entrances are not proposed to be changed – there are several existing entrances oriented to Congress Street. For activation, see comment 7. above.

Crime Prevention Through Environmental Design (CPTED)

MMC will incorporate the following design strategies that have been demonstrated to deter crime:
- *Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials*
- *Providing clear and properly-sized signs in safe locations to ensure safe wayfinding*
- *Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines*
- *Designing street-level elevations to minimize potential hideouts*

- *To the extent possible, given clinical program demands, providing views in and out of building ground floors populated by users to serve as "eyes on the street"*
- *Generating foot traffic on public sidewalks with pedestrian entrances*

  East Tower: Please indicate any changes to the site lighting or ground level building interface.

  Visitor Garage: Please indicate any changes to the site lighting or ground level building interface.

Mitigating Impacts Through Design

Minimizing Shadow Impacts - Shadow impacts were evaluated as part of the IDP process. Both projects increase building height and will inevitably have some shadow impact – the garage height will increase the shadow cast across Congress Street but, as the applicant has argued, shadows on Congress Street are unavoidable due to the terrain, orientation, and street position. Refer to Plan 13 for shadow analysis of the approved IDP building heights – a couple of residential buildings are impacted in the winter by the increased height.

Context-Sensitive Lighting Design – More information is requested regarding site lighting for both projects.

Mitigating Wind Impact – No information was provided to evaluate this item.

Preserving and Enhancing Viewsheds – The building expansions do not impact Western Promenade viewsheds. Each of these expansions will increase the visibility of the campus from multiple long views.

Regulatory Framework

1. Mixed Uses: . . . *healthcare facility development fronting onto Congress Street and St. John Street shall activate the public realm, to the extent able, with uses such as service and retail/restaurant, landscaping, active building entrances, pocket parks, etc., on the ground or other publicly accessible level, consistent with the design intent contained in the approved IDP. . . .*

East Tower: Not applicable

Visitor Garage: See comment 7. above.

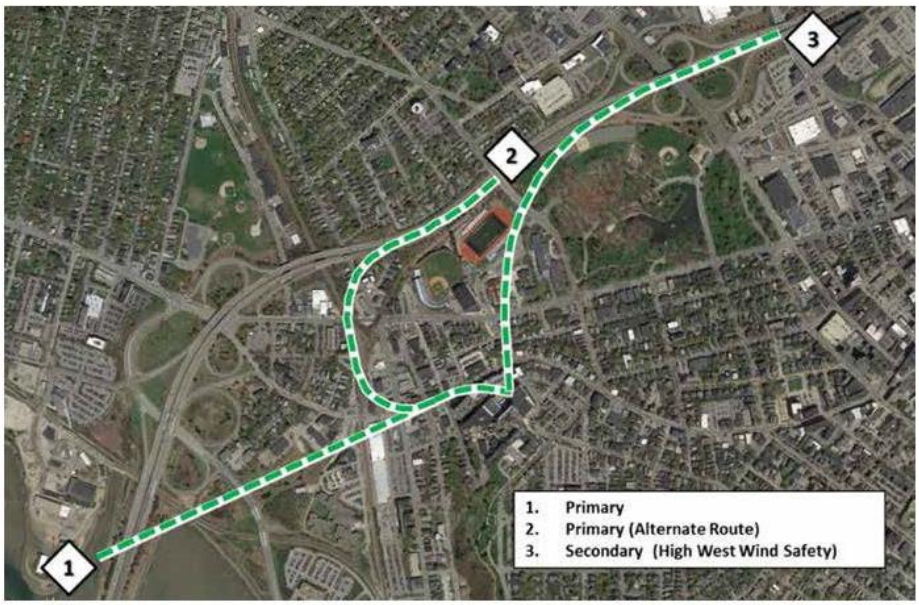
Review of helipad in context of Regulatory Framework, IDP & Zoning (Helistop Overlay Zone)

There is an existing "Single Configuration" helipad (heliport) on the top of the existing employee garage; the helipad needs to be relocated as the garage is proposed to be demolished in the near future. MMC's IDP (Att. 4, page 94) includes background information regarding the proposed relocation of the helipad to the top of the East Tower, and the objective to retain flight routes as existing. It includes the following graphic which indicates that a third route would be added for high wind situations:

The Submission includes the FAA application and supporting information (Att. WS S-5) that:

- Shows the same flight routes but does not qualify the use of the new (third) route as being secondary;
- Clarifies that the proposal is for a "Double heliport configuration" with a connecting taxiway. The primary landing area would be at the northeast corner of the East Tower which is the furthest (approximately 240 feet) from residential properties;
- Indicates that the number of landings per month could rise over the next 5 years from 250 per month to 750 per month.

Fig.4.5 Proposed Flight Routes for the new MMC Helipad



NOTE: Path #3 is new and will only be used under high wind conditions if required by the Federal Aviation Administration.

The Helistop Ordinance requires:

(a) Helistops which have more than five landings per month:
(1) All such helistops must comply with all applicable Federal Aviation Association regulations, including those for marking of landing areas.
(2) All take-off, landing and parking areas at such a helistop site shall be surfaced with grass or with a dust-proof material.
(3) Each landing pad shall be set back at least two hundred (200) feet from any residence, school or church. Each landing pad shall be set back at least fifty (50) feet from any commercial or industrial structure. All setbacks shall be measured from the edge of the landing pad.
(4) The area in which a landing pad is located shall be enclosed by a fence or other barrier of not less than three (3) feet in height or shall be secured by a locked gate, as approved by the fire department.
(5) All such helistops shall be subject to review under article V of this chapter.

The Regulatory Framework does not require MMC to meet provisions (3) and (4) - it is understood that they relate to the fact that the secondary landing area is less than 200 feet from a few residential properties (appears to be about 80 feet) and that fencing is not practicable, although this is not discussed in the IDP.

Staff request further information should be submitted regarding the sound impacts of the proposed helipad. Although the applicant has submitted a *Heliport Noise Study* (Att WS S-6), further clarity is requested as to the scale and nature of the sound impacts compared to the existing situation.

VI. STAFF REVIEW – SITE PLAN

The following comments cover relevant items that are not already addressed above. Comments relate to the East Tower and Visitor Garage proposals as the proposals for the Central Utility Plant have not been outlined in detail except in the CMP.

Transportation Standards:

- *Impact on Surrounding Street Systems*
  The vertical expansion of the East Tower is to allow for the conversion of double-occupancy rooms elsewhere into single rooms and replacing the patient beds in the 64 single bed rooms being added. Thus the number of hospital beds remains unchanged.

  The vertical expansion proposals have been reviewed by the City's consultant Traffic Engineer Tom Errico and he comments:
  This proposed project is not expected to increase traffic volumes and thus at completion will not have a significant impact on traffic conditions. I would note that a Traffic Movement Permit will be required in conjunction with the Congress Street Medical Office Building where additional employees are programmed. The TMP will require a comprehensive Traffic Impact Study. (Att 1)

***Environmental Quality*:**

- *Water Quality/ Stormwater Management/Erosion Control* - this is still under review

Public Infrastructure and Community Safety

- *Public Safety & Fire Prevention* - this is still under review

- *Availability and Adequate Capacity of Public Utilities* - Letters from the utilities confirming capacity should be submitted as part of the final submission.

Site Design

- *Exterior Lighting* - Further information is required regarding any exterior building mounted lighting or revised exterior lighting
- *HVAC and Mechanical Equipment* - the applicant has indicated this information is not yet available and a condition of approval may be appropriate

- *Signage and Wayfinding*- Staff are concerned about the pedestrian access/routes and associated wayfinding along Congress Street and would request further consideration be given to that issue in conjunction with addressing the street activation.

Construction Management Plan

The applicant has submitted Construction Management Plan (prepared by Turner, the contractor for this project) and an associated Traffic Evaluation of traffic and parking impacts related to the CMP for the East Tower (Atts WS I – 3 and WS S – 9B respectively).

The applicant will provide an overview at the PB Workshop. Staff requested further information and review for the proposed closure of Congress Street (weeks), particularly regarding the impacts on emergency services and on traffic flows and detour routes. The staff review of the CMP includes representatives from the Police, Fire, Parking, DPW, Traffic and Planning. The staff suggest that the CMP be a key topic for the second PB workshop.

The staff review has therefore focused on the East Tower CMP proposals that include the closure of Wescott Street and conversion of Crescent and Ellsworth to two-way operation. The City's Consultant Traffic Engineering reviewer Tom Errico has commented (Att 1.):

The following are initial East Tower Traffic Control Plan comments:

- *The City does not support the conversion of Ellsworth Street to two-way flow between Congress Street and Crescent Street. The applicant has noted this to be acceptable. The plans should be revised to reflect this change.*
- *It is unclear if the bump out at the Crescent Street/Wescott Street intersection is to be removed. If it is to remain, vehicle turning templates should be provided for review and approval.*
- *Detailed routing and vehicle turning information for truck deliveries shall be provided for review and approval.*
- *It is my understanding that the Fire Department will be providing comments regarding concerns for Emergency Department vehicle access. (see Att 2)*
- *Specific parking information shall be provided as it relates to fully understanding current on-street parking usage, location of on-street parking prohibitions, and how existing properties parking needs will be addressed given loss of on-street spaces.*

VII. NEXT STEPS

- Provide further details regarding the Central Utility Plant proposals
- Respond to design comments and related requests for info (eg re height, street activation, site design details; integration with pedestrian network)
- Address concern about interim loss of parking and associated management
- Clarify sound impacts of the relocated helipad
- Address comments on East Tower CMP
- Submit utility letters for final submissions
- Address Planning Board comments

ATTACHMENTS

Memo Attachments

1. Initial Traffic Comments
2. Fire Department Comments on CMP
3. Preliminary Design Review Comments
4. MMC Institutional Development Plan (IDP) as approved by PB
5. MMC IOZ Regulatory Framework (Ordinance 14-282) as adopted by CC

Public comments (none received to date)

Applicants Submittal (numbering as per applicant)

WS - 1 Cover Letter
WS A Application Form
WS A -1 East Tower Data Sheet
WS A -2 Visitor Garage Data Sheet
WS B Right Title Interest
WS C State and Federal Approvals
WS D Zoning Assessment
WS E Easements
WS G Financial and Technical Ability
WS H - Boundary Survey
WS I - 3 CM Plan January 18
WS J Traffic Study
WS M City Master Plans
WS N Utilities
WS O Solid Waste
WS Q - 1 Design Review Update January 18
WS Q Design Review
WS R HVAC
WS S - 2 Bicycle Parking
WS S - 3 East Tower Code Report
WS S - 4 Visitor Garage Code Report
WS S - 5 Heliport FAA Submittal
WS S - 6 Heliport Noise Study
WS S - 7 TDM Plan
WS S - 8 Parking Demand Study
WS S - 9B CM East Tower MOT January 18
WS S-10 Project Description

Plans (numbering as per applicant)

Plan 1 Boundary Survey (8 sheets)
Plan 2I Recording Plan
Plan 2J Recording Plan
Plan 5 Site Plan
Plan 10A Visitor Garage Lighting Plan
Plan 10B Heliport Lighting Plan
Plan 11 Signage Plan
Plan 13 Shadow Analysis
Plan 14A East Tower Level 6 Floor Plan
Plan 14B East Tower Level 7 Floor Plan
Plan 14C East Tower East Elevation Janua...
Plan 14D East Tower North Elevation Jan...
Plan 14E East Tower West Elevation Janu...
Plan 14F East Tower South Elevation Janu...
Plan 14G Visitor Garage Level P8 Floor Pl...
Plan 14H Visitor Garage Level p8 Floor Pl...
Plan 14I Visitor Garage Level P10 Floor Pl...
Plan 14J Visitor Garage Level P11 Floor Pl...
Plan 14K Vistitor Garage East Elevation Ja...
Plan 14L Visitor Garage North Elevation J...
Plan 14M Visitor Garage West Elevation J...
Plan 14N Visitor Garage South Elevation J...
WS Q - 1 Design Review incl renderings1....

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

MMC Visitor Garage and East Tower Project - Initial Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com> Thu, Jan 18, 2018 at 11:33 AM
To: Jean Fraser <jf@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>

Hi Jean – the following outlines my initial comments as it relates to the above noted project. Please note that the comments do not include a review of the Congress Street Traffic Control Plan.

- This proposed project is not expected to increase traffic volumes and thus at completion will not have a significant impact on traffic conditions. I would note that a Traffic Movement Permit will be required in conjunction with the Congress Street Medical Office Building where additional employees are programmed. The TMP will require a comprehensive Traffic Impact Study.

- During the construction of the Visitor parking garage, the top two floors of the existing garage will be taken out of service. The applicant should provide parking management details addressing the loss of the noted parking spaces.

- The following are initial East Tower Traffic Control Plan comments:

    - The City does not support the conversion of Ellsworth Street to two-way flow between Congress Street and Crescent Street. The applicant has noted this to be acceptable. The plans should be revised to reflect this change.

    - It is unclear if the bump out at the Crescent Street/Wescott Street intersection is to be removed. If it is to remain, vehicle turning templates should be provided for review and approval.

    - Detailed routing and vehicle turning information for truck deliveries shall be provided for review and approval.

    - It is my understanding that the Fire Department will be providing comments regarding concerns for Emergency Department vehicle access.

- Specific parking information shall be provided as it relates to fully understanding current on-street parking usage, location of on-street parking prohibitions, and how existing properties parking needs will be addressed given loss of on-street spaces.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
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Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

MEMORANDUM

To: FILE

From: Jean Fraser

Subject: Application ID: 2017-289

Date: 1/18/2018

1/17/2018

Circulation--The ambulance emergency room entrance should remain open to one way traffic. The area can be difficult to maneuver in its current design. Making the patient delivery area a two way drop off doesn't seem achievable.

1/17/2018

The Fire Dept is opposed to the closing of Congress Street, doing so will create difficulty for all ambulances in getting their patients to the hospital emergency room. The proposed detours will create high congestion on all streets leading to the hospital emergency department.

Planning and Urban Development Department
Planning Division

Subject: IOZ Design Review – 22 Bramhall (Maine Medical)

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, January 17 2018

The projects at 22 Bramhall Street – East Tower and Visitor Garage expansion - were reviewed according to the adopted IOZ IDP and Regulatory Framework standards by Caitlin Cameron, Urban Designer, Jean Fraser, Planner, and Nell Donaldson, Senior Planner.

In the case of both proposals, the new construction is limited to vertical expansion of existing buildings. The proposals do not alter the footprints, plans, existing materials, or access points to each building. Therefore, the design evaluation is generally limited to the impact on the overall campus design, long views to the campus, and Congress Streetscape.

Design Review Comments*: (questions and unmet standards in red)*

- Please provide a rendering showing the visitor garage project in context on Congress Street.
- More information is requested regarding materials – label materials on elevations.
- More information is requested regarding site lighting.

IDP Design Guidelines

1. New buildings will be designed to contribute to the campus vision and organizational goals identified in the Master Facility Plan and the Transportation Plan, and best practice design standards for healthcare.

East Tower: The East Tower expansion seeks to introduce a contemporary tower that prioritizes the patient experience while also taking advantage of its visual prominence by creating a simple but strong contemporary statement that knits together some of the varying design components of the existing surrounding buildings. The stated MMC vision includes integrating inside and outside – achieved here through the internal circulation and window size and placement, as well as a "50 year palette" that selects materials based on cues from nature to create timeless environment. This vision includes Sky, Sea, and Land as concepts for material/color selection. The white metal panel and large curtain wall system intend to evoke the "sky" – light, recessive, neutral. Planning Board may want to consider if this East Tower design meets this vision for timelessness, integration of inside/outside, and a reflection of modern delivery of healthcare – these design decisions will likely inform future choices for other parts of the campus.

Visitor Garage: The architectural character remains consistent by continuing the existing material palette and expression. In the case of Congress Street, the City's priority is the building interface with the street – keeping the urban street wall edge, activating the ground floor, providing a sense of scale and enclosure for the pedestrian. The MMC vision includes creating a sense of place while allowing new design reflect its location in Portland and Maine, as well as

the historic context of the hospital and surrounding neighborhoods. In this case – those goals are met or at least existing conditions are improved upon.

2. The overall composition and experience of the campus will be considered for cohesive identity from approaches along Congress Street and I-295.

East Tower: The addition introduces a new design aesthetic to the MMC campus. The applicant proposes this as the first of several phases that incorporate the vision for the campus as described above and in the applicant's submittal. Staff think this design creates a more visible and contemporary identity to the campus – if approved, future designs should be evaluated for cohesiveness with this new direction.

Visitor Garage: The architectural character remains largely the same as the existing condition and is found to be consistent with the established character. The building addition increases the visibility of the campus from those long views.

3. Building entrances will be oriented toward, located adjacent to, accessible from, a sidewalk in a public right-of-way to create a pedestrian-oriented environment.

East Tower: Not applicable – entrances remain the same with existing ground floor.

Visitor Garage: The existing building has two retail entrances facing Congress Street and steps with a door to access the circulation tower for the garage. The garage currently only has vehicle entrances facing Congress Street which pedestrians can use but there is not a designated pedestrian path/door. From Crescent Street, there is a pedestrian path and doorway.

4. Building designs will relate to and be compatible with the existing, or – in areas of change – planned character of residential and commercial neighbors. Design elements and characteristics to consider include:

- Building placement and relationship to the street

- Overall massing and scale

- Roof forms

- Proportion, directional expression, and composition of facades

- Rhythm of solids to voids

- Rhythm and proportion of openings

- Rhythm of entries and projections

- Relationship of materials, texture, and color

East Tower: The addition is simple in its massing, roof form, and material palette. These two additional floors also change the overall proportion of the building's massing and façade composition. Staff support the direction given the constructability constraints and the limitations of the existing façade character. The window openings are places and scaled to reflect the long views and tower scale of the building. They establish a rhythm consistent with existing building and campus design. The white metal in contrast with the red brick make the proportions top-heavy, but the applicant makes the case that brick is not a viable option for the

building addition and that white color palette was selected to integrate with the existing materials and details without introducing yet another element.

Visitor Garage: The massing, roof forms, rhythms, and material relationships remain mostly unchanged from the existing conditions. Scale is the most significant change to this building – staff have requested street view renderings to understand how that scale change will be experienced on the street.

5. Façade materials of buildings will be of high quality, and contribute to an attractive public realm.

East Tower: The applicant indicated the material choices are limited by construction constraints as well as the existing material palette. The proposal is simple white metal panel intended to visually blend with the existing white materials as well as provide a light, recessive quality to the increase in mass and height. Vi sual interest will be provided by material pattern, fenestration, and shadow lines created by angled windows on each façade.

Visitor Garage: The proposal maintains the existing material palette of brick, concrete, and metal screen. Staff agree this is a logical selection to provide consistency to the building. However, staff are concerned about the loss of the canopy on the stair tower as an architectural feature.

6. The design process will consider long views of new buildings including roofs and associated structures to minimize visual impacts and provide visual interest. Rooftop appurtenances will be either screened from view or integrated into the building design, and will not be visible from adjacent streets, Western Promenade, or the Congress Street approach (helipad excluded).

East Tower: The rooftop mechanicals are screened in a way that minimizes their impact and appearance and are visible only from a few directions.

Visitor Garage: Rooftop appurtenances have not been adequately screened or integrated into the building design - this is especially of concern for the long views.

7. Vibrant, contributing and sustainable active ground floors will be provided to add activity and a sense of place to the priority node identified in the City's Comprehensive Plan.

East Tower: Not applicable

Visitor Garage: Staff request the applicant provide more information regarding the ground floor activation facing Congress Street. The building includes storefront, doors oriented to Congress Street, canopies, and adequate site lighting, however, the space is currently vacant and has a translucent film covering the windows and impeding the visual connection and activity from the sidewalk.

8. In areas where the occurrence of limited blank facades along public right-of-ways are unavoidable due to changes in topography or building use requirements, the following strategies will be used to mitigate visual impact:

- providing elements of visual interest along any black walls facing public streets, and,

- working with the City of Portland to ensure adequate lighting of public sidewalks to create a safe pedestrian experience.

East Tower: Not applicable

Visitor Garage: See comment 7. above.

9. Any parking structure within the IOZ will:

- screen views of cars from the public rights-of-way

- provide elements of architectural interest on upper floors to contribute positively to long views and gateway approaches

- for garage structures within 20' of the public right-of-way, meet street activation intent according to street type

East Tower: Not applicable

Visitor Garage: Screening methods will follow the established existing design – solid wall with metal mesh railing with a trellis accent – this current condition successfully screens cars/headlights from Congress and Crescent streets. The current design includes a curtain wall stair tower with an accentuated canopy feature – this roof element appears to be removed from the new addition and rooftop mechanicals are shown without screening or design integration. Staff suggest keeping an element like the canopy will help screen the rooftop mechanicals and meet the guideline of providing architectural interest on upper floors – especially considering with the increased height, these elements will become even more visible from long views. For street activation, see comments 7. above.

Building Relationship to Public Street

1. ***Urban Main Street (Congress Street)***

   MMC buildings abutting Congress St will be designed to:

   - *Provide urban-levels of density*
   - *Create an urban street wall that provides a sense of enclosure to the public realm*
   - *Have their primary orientation towards Congress Street*
   - *Activate the public sidewalk with building entrances, lobbies, etc.*
   - *To the extent possible, given programmatic needs, provide visual interest and ensure pedestrian safety with views into and out of the building along the public sidewalk*
   - *To the extent possible, given programmatic needs, provide space for community-oriented uses such as services or retail that can be shared between MMC users, neighbors, and the broader Portland community*
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   In addition to the guidelines listed above, buildings that have frontage on Congress Street and that include parking components will activate portions of or place liner buildings along the ground floor facing Congress Street.

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- *To the extent possible, given clinical program demands, providing views in and out of building ground floors populated by users to serve as "eyes on the street"*
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Context-Sensitive Lighting Design – More information is requested regarding site lighting for both projects.

Mitigating Wind Impact – No information was provided to evaluate this item.

Preserving and Enhancing Viewsheds – The building expansions do not impact Western Promenade viewsheds. Each of these expansions will increase the visibility of the campus from multiple long views.

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1. ***Mixed Uses: . . .*** *healthcare facility development fronting onto Congress Street and St. John Street shall activate the public realm, to the extent able, with uses such as service and retail/restaurant, landscaping, active building entrances, pocket parks, etc., on the ground or other publicly accessible level, consistent with the design intent contained in the approved IDP. . . .*

   East Tower: Not applicable

   Visitor Garage: See comment 7. above.

Att. 4

Maine Medical Center
MaineHealth

Institutional Development Plan

Maine Medical Center
MaineHealth

Institutional Development Plan

FINAL / October 9, 2017
Submitted to Portland City Council for Review

This document is valid until superseded by an approved update.

About This Plan

DATE: October 9, 2017
STATUS: Final / Submitted to Portland City Council for Review

Maine Medical Center (MMC) applied in January, 2017 for a zoning amendment to create an **MMC Institutional Overlay Zone (IOZ)** to allow MMC to modernize and expand their Bramhall St campus. The IOZ ordinance that provides the framework for this zoning was enacted by the City of Portland Code of Ordinances effective May 31, 2017.

The IOZ requires eligible institutions to submit an **Institutional Development Plan (IDP)**, a stand-alone document that describes the institution's tentative plans for the future, in addition to a **Regulatory Framework**, a land use code component that establishes the parameters to allow each institution to grow as envisioned in the IDP. The IDP and Regulatory Framework are institution-specific supplements to the more general provisions provided in the IOZ ordinance, and designed to provide a full list of variances from underlying zoning that are adopted by the Portland City Council.

Since January, MMC has met weekly with members of the neighborhood associations and City staff from Planning and other departments, to develop its IDP. This IDP was approved and the accompanying Regulatory Framework was recommended for approval to the City Council by the City of Portland Planning Board on September 26, 2017.

Once approved by the City Council, the MMC Regulatory Framework will establish the boundary for the MMC IOZ and provide zoning requirements that govern MMC's long-term development within the IOZ. Individual projects proposed by MMC in the IOZ in the future for such properties will be reviewed for zoning compliance with the MMC Regulatory Framework and any underlying zoning requirements that are not superseded by the IOZ.

This document was prepared for MMC by Perkins+Will with input from MMC, VHB, Gorrill Palmer, Sebago Technics, Colliers, Turner, and HeliExperts International. MMC would like to thank its neighbors in the Western Promenade, St John Valley, Parkside, West End, and Libbytown and the City of Portland for their contributions to the IDP process.

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CHAPTER ONE

INTRODUCTION

Maine Medical Center has been a member of the Portland community, a Portland landmark and a destination for excellent health care since it was built as Maine General Hospital in 1874. The campus has grown in size and complexity within its footprint to meet growing demand and changes in healthcare technology and care delivery.

ABOUT MAINE MEDICAL CENTER

Maine Medical Center (MMC) is a complete health care resource for the people of greater Portland, the entire state of Maine, and northern New England.

MMC is the state's largest medical center, licensed for 637 beds and employing more than 6,000 people. MMC's unique role as both a community hospital and a tertiary referral center requires an unparalleled depth and breadth of services, including the state's only medical school, through a partnership with Tufts University School of Medicine, and a world-class biomedical research center, the Maine Medical Center Research Institute.

The MMC care model includes the state's largest multispecialty medical group, Maine Medical Partners. Maine Medical Partners provides a wide range of primary, specialty, and subspecialty care delivered through a network of more than 40 locations throughout Maine.

Maine Medical Center is named one of "America's Best Hospitals" by US News & World Report. MMC's Trauma Center is the busiest in Maine, providing the most advanced tertiary care in the state.

MISSION, VISION AND VALUES

Maine Medical Center is dedicated to maintaining and improving the health of the communities it serves by:

- Caring for its community
- Educating tomorrow's caregivers
- Researching new ways to provide care

It proudly carries its unique responsibility as Maine's leader in patient care, education and research. MMC is dedicated to the traditions and ideals of not-for-profit healthcare. It provides care to all who seek it.

MMC's efforts to execute its Mission are aimed at achieving a simple, yet powerful Vision: "Working together so (Maine's) communities are the healthiest in America."

MMC is guided by a set of Values, helping to meet and exceed the expectations of those it is privileged to serve. MMC's Values:

- Patient-Centered
- Integrity
- Ownership
- Excellence
- Respect
- Innovation

PROGRAMS AND SERVICES

MMC provides a scope and depth of specialty and subspecialty inpatient and surgical care that is unparalleled in Maine.

MMC is the only Level I American College of Surgeons (ACS) trauma center in Maine and has the only Level III Neonatal Intensive Care Unit (NICU) and the only kidney transplant program in the state. MMC is an American Nurses Credentialing Center (ANCC) Magnet Hospital and has received numerous awards including: Best Regional Hospitals (2016-2017) from US News and World Report, Gold Seal of Approval and Top Performer in Key Quality Measures from the Joint Commission.

MMC is also the leading provider of tertiary services in the State of Maine. Tertiary services are defined as a set of Medicare severity diagnosis-related groups (MS-DRGs) that are rare and complex, require collaboration across treatment modalities, complex treatment decisions dependent upon unique diagnostic tests, regionalized care, and associated with complex co-morbidities and complications.

MMC's clinical services are organized into six service lines listed in **Table 1.1** at right. More information is available on the MMC website at http://www.mmc.org/care-and-services

Table 1.1 List of MMC Service Lines

ADULT MEDICINE	**MMC's Adult Medicine Service Line extends across the continuum of care, spanning from primary care, to emergency and critical care, medical services for hospitalized adults, subacute rehabilitation and long-term care. It includes a wide array of specialty programs and services including Digestive Health, Endocrinology, Geriatrics, Infectious Disease, Nephrology, and Palliative Care. This service line also includes the procedural areas of Endoscopy and Transplantation.**
CARDIOVASCULAR	**MMC's Cardiovascular Service Line addresses the treatment needs of patients with cardiovascular diseases such as coronary artery disease, valvular heart disease, congestive heart failure, arrhythmias, congenital heart disease, and peripheral vascular disease.**
ONCOLOGY	**MMC's Oncology Service Line provides health services to patients diagnosed with cancer such as medical oncology, radiation oncology, gynecological oncology, and surgical oncology.**
SURGICAL	**MMC's Surgical Service Line addresses specific health problems requiring surgical intervention including cancer, cardiovascular disease, eye diseases and injuries, gastric and intestinal diseases and injury, gynecological diseases and injury, joint and bone diseases and injury, neurological and spinal diseases and injury, bariatric, trauma, and genito-urologic diseases and injury.**
NEUROSCIENCES	**MMC's Neurosciences Service Line addresses the treatment needs of patients with neurological diseases such as stroke, epilepsy, neuro-oncology, multiple sclerosis, neuroendovascular diseases, Parkinson's disease, Alzheimer's disease and dementia, neuromuscular diseases, peripheral nerve and muscle conditions, and spine disorders as well as an array of neurodiagnostic services including electroencephalography (EEG) and sleep lab.**
WOMEN'S AND CHILDREN'S	**MMC's Women's and Children's Service Line addresses the health problems and needs of women and of children under 18 years of age with such clinical services as child birth and pediatric subspecialties including, neonatology, pediatric medicine, oncology, cystic fibrosis, gastroenterology and nutrition, cardiology and cardiac surgery, nephrology, neurology, pulmonology, ophthalmology, orthopedics, and urology.**

HISTORY

MMC opened its doors in 1874 as Maine General Hospital on Bramhall Hill, at the northern end of the tree-lined Western Promenade and adjacent to the Bramhall Reservoir.

The campus, designed by architect Francis Fassett, included four pavilions around a central administration building. The east pavilion and two outbuildings were erected first, providing patients with sweeping views of Casco Bay and the Fore River. The hospital was designated as the training facility for the Portland School for Medical Instruction and the Medical School of Maine at Bowdoin College, and had its own School of Nursing. Built of red-brick in Italian Gothic style, Maine General soon became a local landmark and a destination for the most up-to-date medical care in the state.

The opening of Union Station (1888) down the hill at Congress and St John Sts brought commercial uses to the area and improved access to the hospital. The hospital also catalyzed development of the area with medical uses such as the 1891 Maine Eye and Ear Infirmary as well as residential uses. The Western Promenade neighborhood gained prominence at the turn of the century as high-end homes and apartment buildings were built near the hospital and improvements were made to the

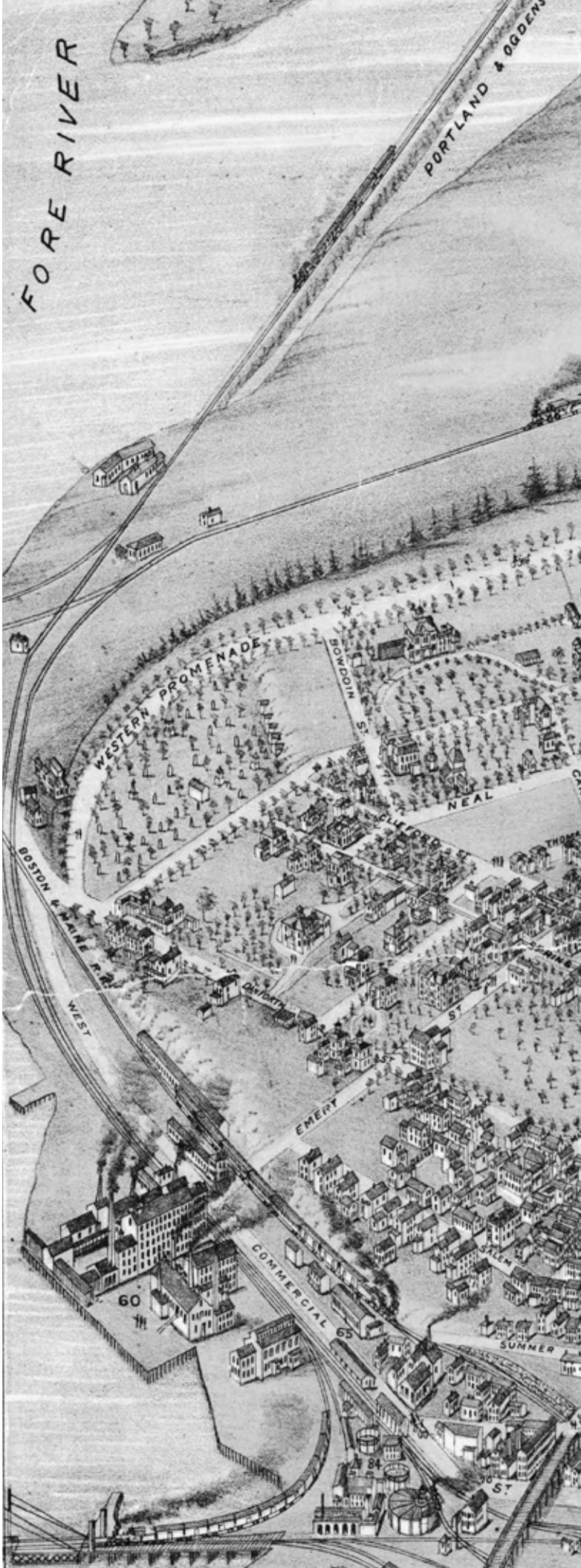


Fig.1.1 1876 Bird's eye view of Portland.

MAINE CENTRAL R.R.
ST. JOHN ST.
CARTER
FOREST
WEYMOUTH
ELLSWORTH
WESTERN PROMENADE
BRAMHALL ST.
CHADWICK ST.
WEST ST.
PINE ST.
VAUGHAN ST.
CARLETON ST.
BRACKETT ST.
CONGRESS ST.
GROVE ST.
PORTLAND ST.
GRANT ST.
SHERMAN ST.
CUMBERLAND AVE.
MELLEN ST.
AVE.
STATE ST.
DEERING
SPRING
CLARK
DANFORTH
PARK
HIGH
YORK ST.
CENTER
10
11
25
26
59

Western Promenade parklands. Maine General Hospital modernized its facilities through the 1920s and added a third pavilion in 1929.

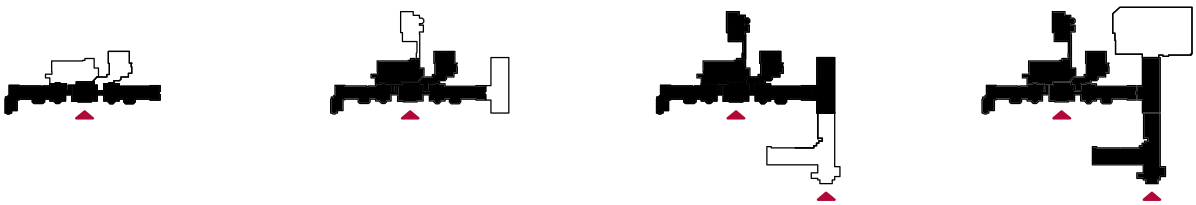
In 1951, Maine General Hospital, the Maine Eye and Ear Infirmary, and Children's Hospital merged to become MMC. Two new pavilions were added in 1956 to provide modern patient rooms. Suburban growth and the construction of interstate highways in the 1960s increased demand for parking at the Medical Center, which was met by converting the Bramhall Reservoir into a surface parking lot (current South Lot).

In 1968, MMC doubled the size of its facilities with the addition of the eleven-story Richards Wing. The campus expanded its footprint down towards Congress St with the addition of its first parking garage (now known as Employee Garage) in the 1970s. In the late 1970s, MMC became a teaching hospital for the University of Vermont College of Medicine.

In 1985, MMC opened the six-story LL Bean Building, another major addition to the campus. The Bean Building housed the new Neonatal Intensive Care Unit (NICU), operating suites, and specialty departments; it also now houses the Barbara Bush Children's Hospital (BBCH). The Dana Building was built in 1987, adding much-needed classroom and conference space to the campus.

Through the 2000s, MMC has renovated and expanded its facilities to meet its role requirements as the highest acuity provider of healthcare in the state. In 2008, MMC opened the 190,000 SF East Tower including new units for prenatal care, labor, delivery and recovery, neonatal intensive care, and mother-baby units. The Emergency Department expanded into the basement of the East Tower the

Fig.1.2 Historical evolution of MMC



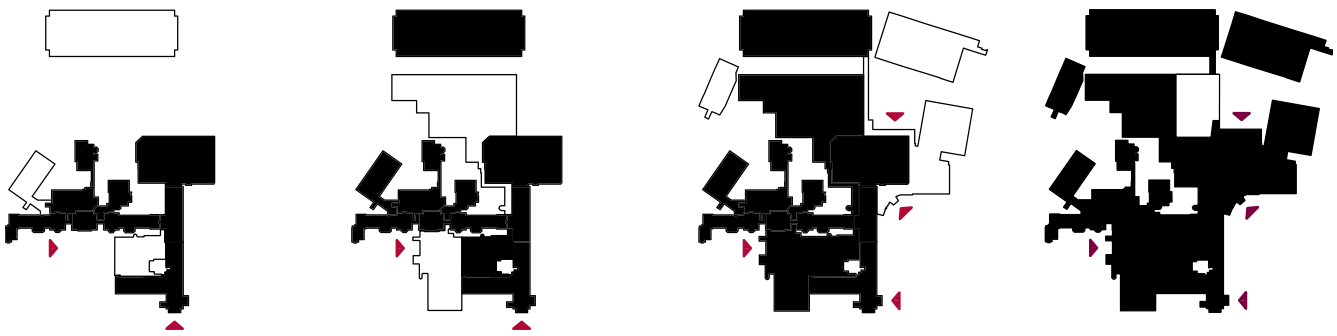
1890s 1920s 1950s 1960s

following year. The campus transformation project also included a new central utility plant and the 512-car Patient and Visitor Garage.

As its partnership with the University of Vermont came to a close, MMC initiated a new training program for medical students at the Tufts University School of Medicine in 2011. Today, MMC also hosts students from the Geisel School of Medicine at Dartmouth and University of New England College of Osteopathic Medicine.

In 2015, MMC completed construction on a portion of the LL Bean building roof to add new operating rooms and perioperative care beds.

Today, MMC is undertaking a new planning effort driven by the need to replace semi-private patient rooms with private rooms and to provide additional surgical capacity. The plan also provides an opportunity to address infrastructure needs, parking, wayfinding, and overall building organization to improve the delivery of care (see **Chapter 2** for details).



1970s **1980s** **2000s** **PRESENT DAY**

CAMPUS CONTEXT

MMC Bramhall campus is located at a high point in the west end of the Portland peninsula that is renowned for the Western Promenade—an 18-acre park and national historic landmark designed by the Olmsted Brothers, among others. The campus abuts the Western Promenade in a dense urban setting that serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics.

The campus, which serves the entire state of Maine as well as eastern New Hampshire, is located within less than a mile's distance of I-295, which links Portland to destinations across New England. To the north, the campus fronts on Congress St —Portland's main street that extends along the spine of the peninsula to Portland's downtown and beyond. The MMC campus is located at the western gateway into the City.

Fig.1.3 Bird's eye view of the campus in its urban context

Fig.1.4 Bird's Eye View of the Campus in Context, Looking North

ADJOINING NEIGHBORHOODS

The 21.8-acre MMC Bramhall campus abuts four distinct neighborhoods. To the west and north is the St John Valley Neighborhood, a diverse area featuring a wide mix of uses including industrial warehouses, a large food processing plant, bus garages and facilities, single-family residential, local and chain restaurants, multi-family rentals, and alternative grocery stores. St John Valley, and the largely residential Parkside neighborhood to its east, are among the most ethnically and racially diverse in Portland. (City of Portland GIS Maps, 2010 Diversity Index). The two neighborhoods share easy access to Hadlock Field, Fitzpatrick Stadium, and Deering Oaks Park north of Park Avenue.

The Western Promenade neighborhood is located to the south of the medical campus. The focal point and namesake of the neighborhood is the 18-acre linear park that wraps the 120-feet tall escarpment, providing sweeping views of the Fore River. Designated as a park as early as 1836, and designed in 1905 by the Olmsted Brothers. The Western Promenade neighborhood and large sections of the adjoining West End neighborhood are included in the West End local historic district in recognition of their cohesive residential character featuring major architectural styles from 1850 to the 1920's (see Historic Resources at right).

ZONING CONTEXT

Development on the MMC campus has been historically governed by Contract Zone agreements C41 (main campus) and C18 (Congress St Medical Building).

At the request of the City, and with input from its neighbors, MMC has developed an Institutional Development Plan (IDP) in the new Institutional Overlay Zone (IOZ). See **Fig.1.5 on page 19** for a map of MMC's IOZ in its zoning context.

HISTORIC RESOURCES

The MMC Bramhall campus abuts the West End Historic District, one of the eleven locally-designated historic districts in the City of Portland (see **Fig.1.5 on page 19** for district boundary). The locally-designed West End Historic District includes the Western Promenade, an 18-acre public park that dates back to the 1830s.

The West End Historic District was added to the National Registry of Historic Places (NRHP) under the name "Western Promenade Historic District" in 1984. The Western Promenade was also added to the NRHP database as a Historic Landscape in 1989.

MMC's IOZ boundary includes the Maine Central Railroad General Office Building located at 222 St John St, which was added to the NRHP in 1988. The IOZ boundary also includes McGeachey Hall at 216 Vaughan St, which is listed as a contributing structure to the Western Promenade Historic District (see **Fig.1.5 on page 19** for locations).

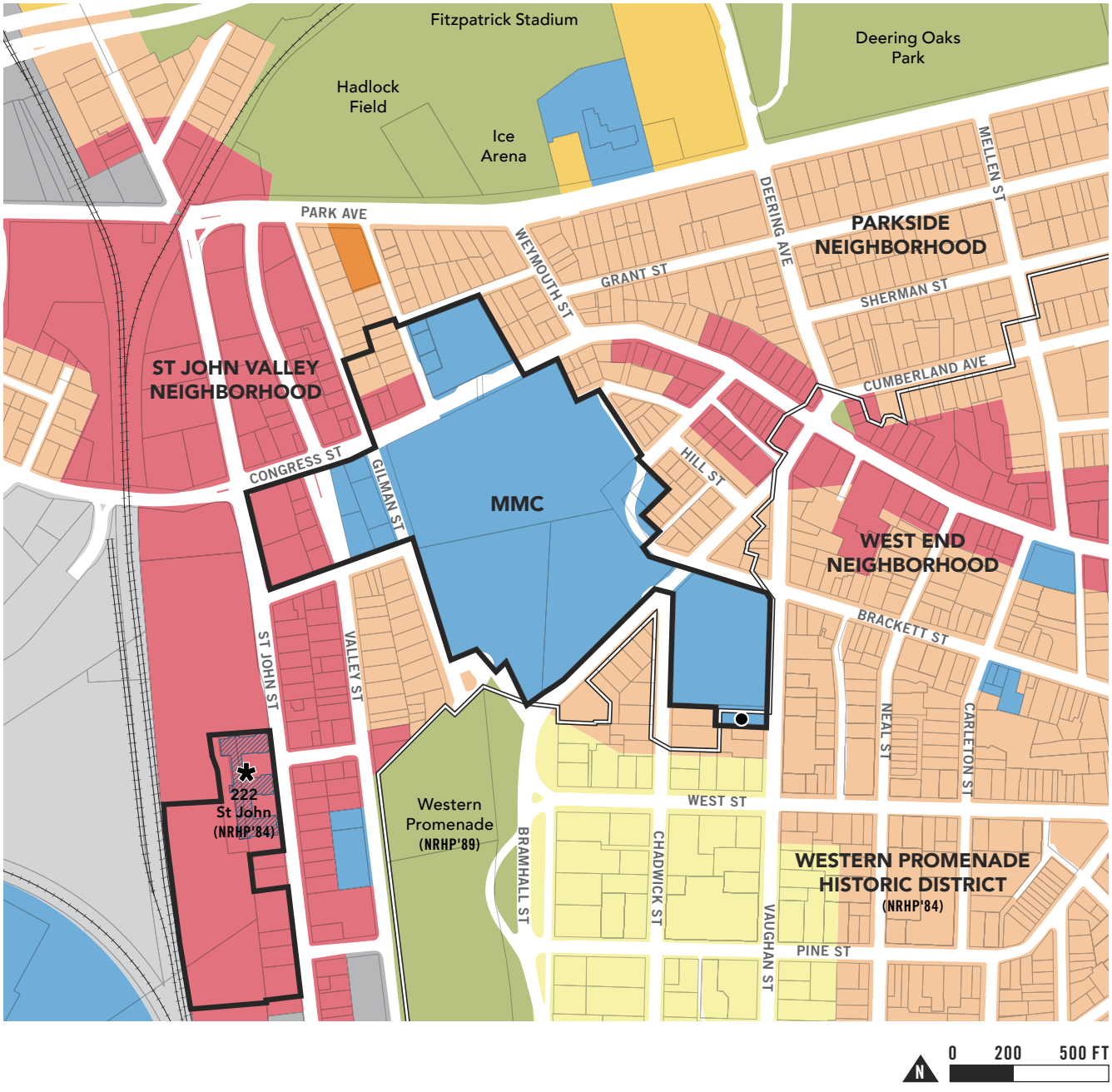
Any development within the IOZ boundary that is adjacent to or within 100 feet of any designated landmark, historic district, or historic landscape district will be subject to applicable requirements listed in Article 5 (Site Plan) of the City of Portland Land Use Ordinance.

Fig.1.5 MMC Campus: Neighborhood and Zoning Context (Data Source: City of Portland GIS)

MMC Institutional Overlay Zoning (IOZ) District Boundary
West End Local Historic District Boundary
NRHP-Listed Structure within IOZ Boundary
Contributing Structure to National Historic District within IOZ Boundary
Parcel Boundaries

CITY OF PORTLAND EXISTING ZONING DISTRICTS

R4 Residential
R5 Residential
R6 Residential
RP Residential Professional
B2 or B2b Business Community
IL Industrial - Low Impact
IM or IMb Industrial - Moderate Impact
ROS Recreation Open Space
Contract Zones (including existing MMC Contract Zones 18 and 41)



PROPERTY OWNERSHIP

MMC owns and leases a number of properties across the City of Portland. These properties are listed and identified on a map on the following pages (see **Fig.1.7** and **Tables 1.2 and 1.3** on the following pages).

Properties that have a functional relationship to the MMC Bramhall campus, which is the subject of this IDP are highlighted with an * on **Tables 1.2 and 1.3**. Per the requirements of the IOZ, a functional relationship is defined as uses or activities that are integrally linked to the day-to-day operations of the MMC Bramhall Campus, without which activity at MMC would be severely limited in one or more services.

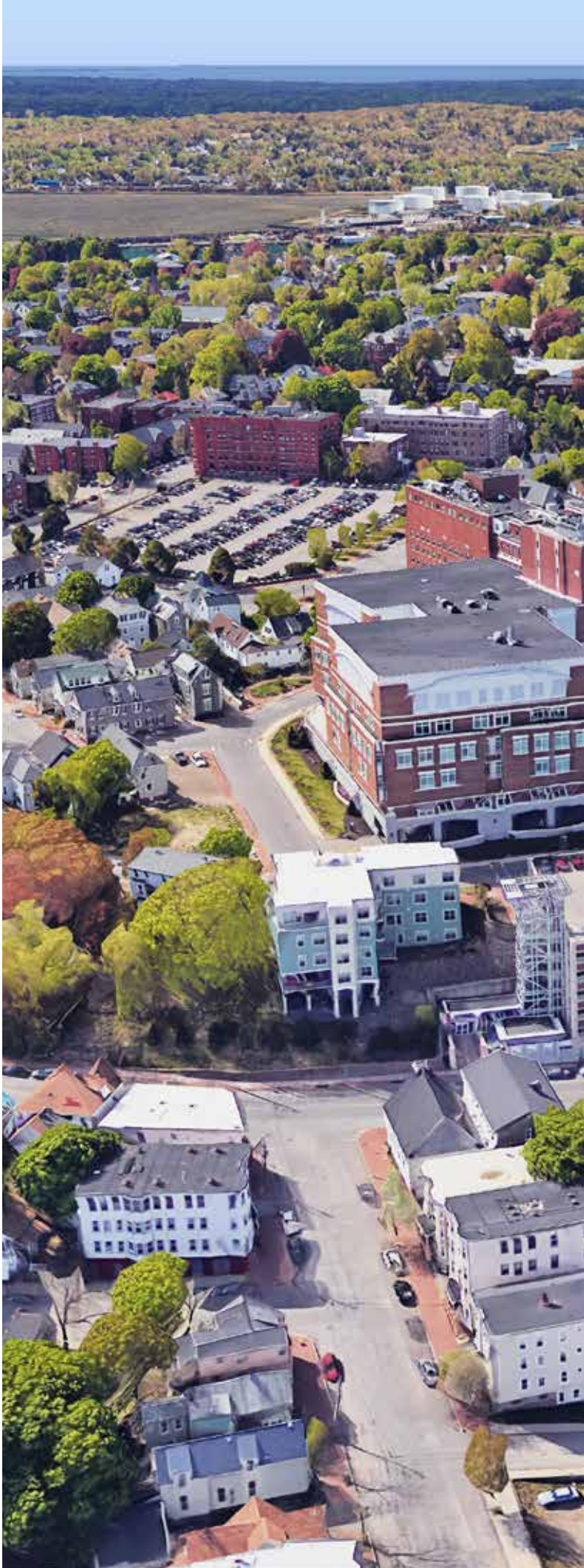


Fig.1.6 Bird's Eye View of the Campus in Context, Looking South

Maine Medical Center

Fig.1.7 Map of MMC-Owned Parcels and Leased Properties

All Parcels within the City of Portland owned by Maine Medical Center or MMC Realty Corp.

Locations where MMC leases space (map extent only)

Table 1.2 List of Properties Owned by MMC within the City of Portland

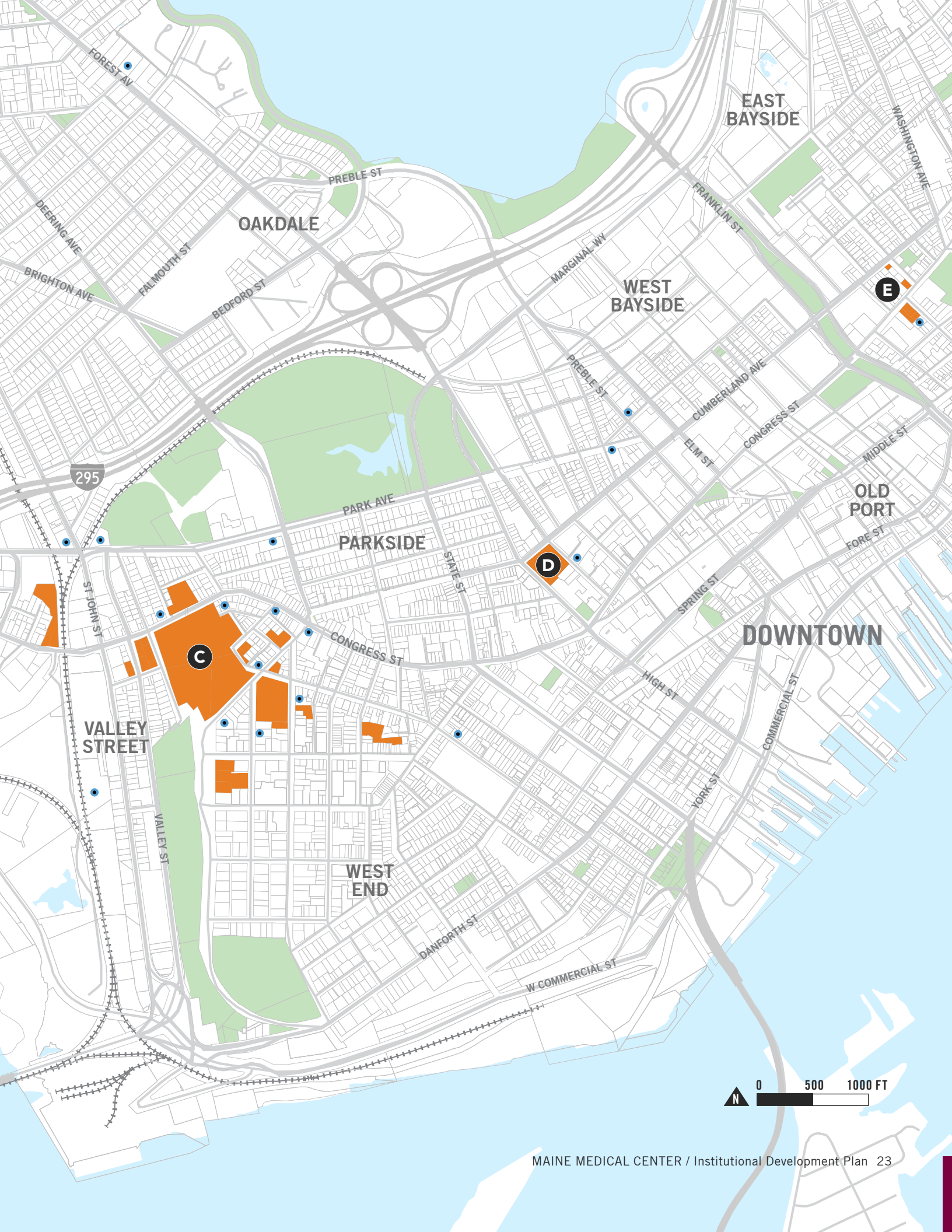
Parcel Address	*Current Use*
A MMC BRIGHTON CAMPUS	
335 Brighton Ave	MMC Brighton
367 Brighton Ave	Residential
27 Hollis Rd	Residential
136 Prospect St	Residential
142 Prospect St	Residential
170 Prospect St	Residential
B MMC BEHAVIORAL HEALTHCARE	
556 St John St	Medical Office
D GATEWAY GARAGE BUILDING	
177 High St	Business Office
429 Cumberland Ave	Business Office
Note: MMC does not own but leases parking spaces in the Gateway Garage.	
E PORTLAND FAMILY MEDICINE	
272 Congress St	Medical Office
263 Congress St	Parking Lot
148 Cumberland Ave	Parking Lot

Parcel Address	*Current Use*
C MMC BRAMHALL CAMPUS AREA	
22 Bramhall St	MMC Bramhall
930 Congress St	Medical Office
932 Congress St	Business Office
887 Congress St	Medical Off. / Pkng
308 Brackett St	Parking (South Lot)
993 Congress St	Parking
995 Congress St	Business Office
98 Chadwick St	Maint. Garage
94 Chadwick St	Parking / Storage
47 Bramhall St	Business Office
229 Vaughan St	Business Office
216 Vaughan St	Medical Office
66 Bramhall St	Medical Office
19 West St	Medical Office
120 West St	Residential
34 Ellsworth St	Vacant Land
40 Ellsworth St	Vacant Land
231 Western Prom	Residential
227 Western Prom	Vacant Land
44 Gilman St	Parking
52 Gilman St	Medical Office
261 Valley St	Parking
262 Valley St	Parking
264 Valley St	Vacant Land

Table 1.3 List of Properties Leased by MMC in the City of Portland

Parcel Address	*Current Use*
131 Chadwick St	Business Office
180 Park Ave	Business Office
233 Vaughan St	Business Office
241 Oxford St	Business Office
315 Park Ave	Business Office
39 Forest Ave	Business Office
509 Forest Ave	Business Office
7 Bramhall St	Bus. Off. / Pkng
794 Congress St	Business Office
295 Park Ave	Medical Office
20 Portland St	Medical Office
818 Congress St	Medical Office
181 High St	Parking
222 St John St	Parking

Parcel Address	*Current Use*
905 Congress St	Parking
98-100 India St	Parking
183 Brackett St	Residential
25-29 Crescent St	Residential
321-325 Brackett St	Res. / Pkng
75 St. James St	Storage
85 St. James St	Storage
Located off the map extent:	
12 Andover Road	Medical Office
1250 Forest Ave	Medical Office
1577 Congress St	Medical Office
901 Washington Ave	Business Office
190 Riverside St	Business Office
87 Central Ave	Medical Office


EAST BAYSIDE
WASHINGTON AVE
FRANKLIN ST
FOREST AV
PREBLE ST
OAKDALE
DEERING AVE
FALMOUTH ST
BRIGHTON AVE
BEDFORD ST
MARGINAL WY
WEST BAYSIDE
E
PREBLE ST
CUMBERLAND AVE
CONGRESS ST
ELM ST
MIDDLE ST
295
PARK AVE
PARKSIDE
OLD PORT
FORE ST
STATE ST
D
SPRING ST
ST JOHN ST
CONGRESS ST
C
DOWNTOWN
HIGH ST
COMMERCIAL ST
VALLEY STREET
YORK ST
VALLEY ST
WEST END
DANFORTH ST
W COMMERCIAL ST
N
0
500
1000 FT

COMPLIANCE WITH THE COMPREHENSIVE PLAN

MMC, being a long term member of the Portland community, recognizes the Comprehensive Plan contains the City's overall goals for growth and change through the articulation of a variety of policy directives and goals for the development. Among other things, the Plan addresses the City's infrastructure, commercial/business development, transportation resources, industry, and commerce and residential housing plans.

The MMC IDP and Regulatory Framework are in basic harmony with the City's overarching goals and policies. With its IDP and Regulatory Framework, MMC has balanced and accommodated the many City goals and policies in a way that advances the City's overall best interests while at the same time addresses the high priority healthcare needs of Portland's residents and the people of the State of Maine. This balancing is exactly the type of flexibility that the City's recently drafted IOZ ordinance is meant to facilitate.

The Comprehensive Plan challenges the City to "support the vision of large, transformative projects [such as the MMC modernization project] through strategic, cost effective, and incremental actions" (*Comprehensive Plan*, p.74).

MMC IDP: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In this IDP, MMC conveys the need to modernize its facility in order to meet the healthcare needs of the people of northern New England. This includes not only upgrading clinical space and providing for the needs of patients and families, but also continuing its investment in its personnel and their ability to travel to and from the workplace and secure needed parking. The adopted 2035 Comprehensive Plan "promotes the orderly expansion of institutional uses, such as educational and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies" (*Comprehensive Plan*, p.45).

Economic Growth

Employee engagement indicators reveal that one of the issues of greatest importance to current and future employees, in addition to compensation, is parking availability. In order to attract a high quality, highly educated workforce, MMC factors into its operations these two important considerations. Following the completion of its short-term modernization project, MMC projects a growth in its employment base into the future in part because of its status as an excellent academic medical center. Portland's Comprehensive Plan promotes the growth in employment base and supports sustainable growth in education and medical institutions (*Comprehensive Plan*, pp. 44 and 88)

Transportation

MMC has considered its transportation needs holistically, factoring into its future development alternative means of transportation. Since 2009, MMC has implemented a Transportation Demand Management (TDM) plan called "Get on Board!". MMC is updating that plan and considering enhancements to encourage more walking, cycling, and public transportation by its employees.

MMC's ability to promote alternative modes of transportation and success in TDM relies on the availability of a regional system of safe and reliable alternative modes of transportation. Therefore, MMC supports the City's effort to 'explore the technical and financial feasibility of a Transportation Management Association (TMA) as a means of improving access to, and mobility around, downtown, and the waterfront.' (Comprehensive plan, p.76)".

MMC has been, and continues to be, committed to the process and has often been cited by the City of Portland Planning Department as a TDM role model in the City.

Environment

A clean environment is important for healing and health. MMC is environmentally conscious and engages in recycling to minimize the generation and environmental impacts of solid waste. The Hospital conserves water when possible, and has switched away from pesticides to more organic landscape solutions reflecting Portland's goal of "model[ling] environmentally sound landscape management practices, such as planting native species, and limiting the use of pesticides and fertilizers" (*Comprehensive Plan*, p. 20). Buildings are built with energy efficiency standards in mind. Local farmers visit the campus weekly during harvest months and employees are encouraged to support the local food movement. The Comprehensive Plan also notes the need to "support a healthy, resilient, and sustainable food system by collaborating with local and regional stakeholders" (*Comprehensive Plan*, p.20).

MMC REGULATORY FRAMEWORK: COMPLIANCE WITH THE COMPREHENSIVE PLAN

In keeping with the goals of the Comprehensive Plan, MMC has projected its future expansion needs, taking into account the neighborhood context in which it is situated. MMC has minimized future expansion into residential areas adjacent to its campus, thereby preserving housing stock in the City (*Comprehensive Plan*, pp. 48-50). It has appreciated the neighborhood involvement in

its zoning process and has been responsive to the concerns raised.

MMC is taking the bold step of reorienting its front entrance to Congress St, which serves as a gateway corridor to the City of Portland. The area presently is commercial in nature and in need of investment and activation as is recognized by the City's *Comprehensive Plan* (pp. 84, 86). Welcoming the public at the new entrance accomplishes a number of land use goals: it adds tremendous activity to the streetscape, with people coming and going. It also eliminates traffic in the residential neighborhoods of the West End and Western Promenade by providing clear wayfinding directly off of Interstate 295 and the major arterials entering the City. Further, investment in this area will transform the area with the expectation that other properties in the vicinity will likewise invest. In fact, the owners of Union Plaza, located at the junction of Congress St and St John St, testified before the Portland Planning Board that they have been waiting for such investment before they took the step of redesigning and investing further in that property. MMC expects, and is excited about, a transformation of the area into a more vibrant, active and clean area, good for local merchants, hospitality businesses, restaurants and residents.

The *Comprehensive Plan* identifies the St John St / Congress St area as a "priority node, an area that has seen disinvestment, grown in sprawling patterns, simply have the potential to serve as focal points for change in the forms of increased density or, height, streetscape improvements, or diversification of uses to better serve neighborhood needs" (*Comprehensive Plan* p. 84, see **Fig.1.8 on page 27**). MMC's IDP will serve as the catalyst to stimulate new development, investment and reinvestment in this area of the City.

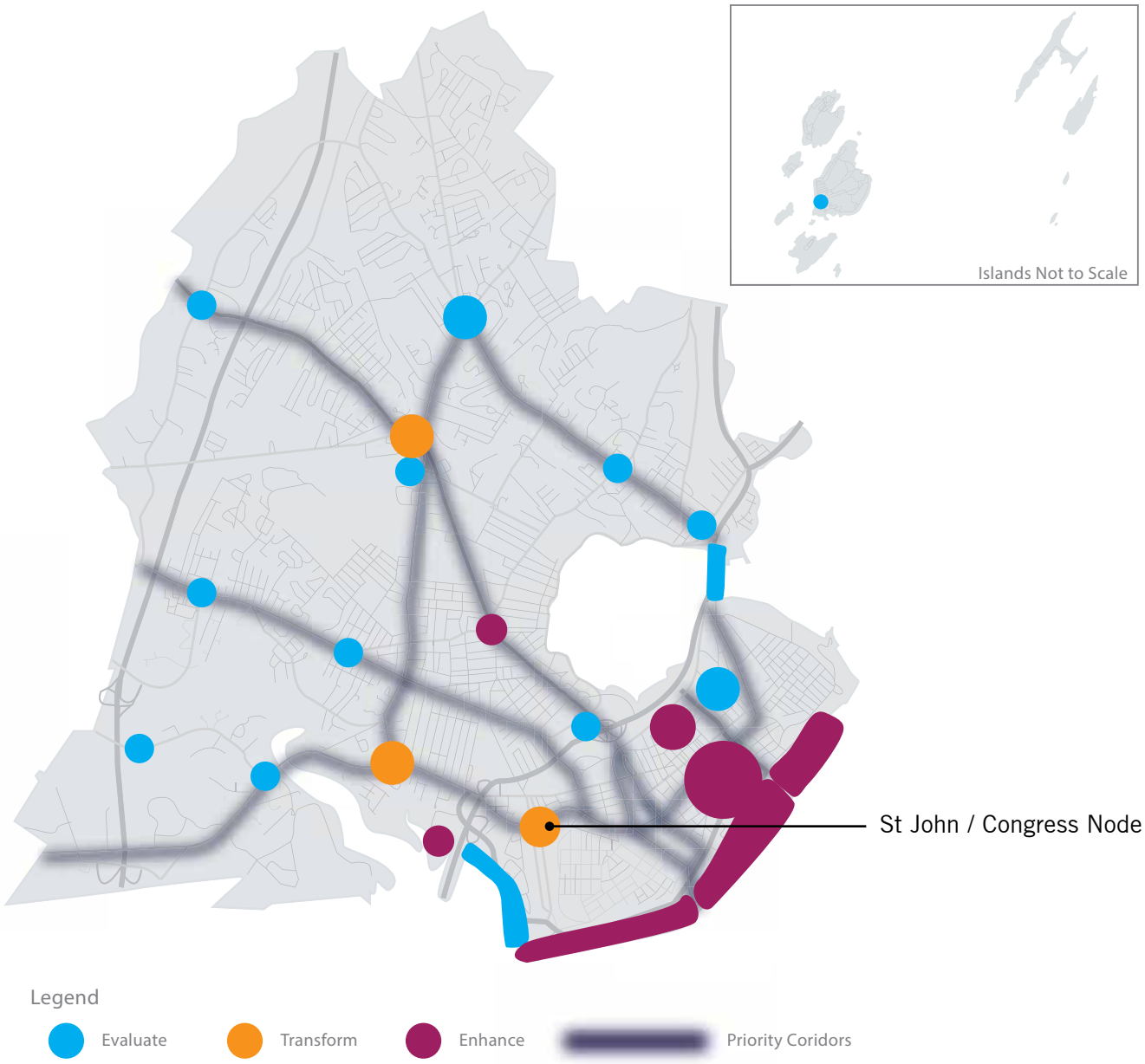
MMC's IOZ Regulatory Framework provides the mechanism for thoughtful, future development to transform the priority corridor identified by the City into an area of "additional mixed uses, higher density growth to take advantage of the transit benefits and services that well-designed, diverse corridors can offer" (*Comprehensive Plan*, p.84).

CONCLUSION

From an analysis of MMC's IDP, it becomes clear that the IDP is consistent with the City's Comprehensive Plan and the purposes contained within the City's IOZ ordinance.

From an analysis of the Regulatory Framework that accompanies MMC's IDP, it becomes clear that the Regulatory Framework is consistent with the City's Comprehensive Plan and with MMC's IDP.

Fig.1.8 Diagram Showing Priority Nodes and Corridors, City of Portland Comprehensive Plan (2017)



PUBLIC INPUT ON IDP

MMC appreciates the importance of maintaining an open dialogue with its neighbors and keeping its neighbors up to date on its evolving plans for replacement and modernization at its Bramhall Campus. In August 2016, MMC leadership met with the neighborhood representatives of its four adjacent neighborhood groups: St John Valley, West End, Western Promenade, and Parkside to explain its need to modernize its campus. Shortly thereafter the Libbytown Neighborhood Association was added to the group.

Since November 2016, MMC has met on a monthly basis with two representatives of each neighborhood ("Expansion Group") to engage in a productive dialogue regarding the City's new IOZ process and MMC's IDP. The City's Planning Director and the City's District 2 Councilor has been invited to each of these monthly meetings. The minutes of the monthly meetings are distributed to the Group members who are asked to disseminate them to respective neighborhood constituents.

MMC also has created a website (http://www.mmc.org/modernization) to ensure open communication with the community at large and specifically its adjacent neighbors. The minutes of each Expansion Group meeting are posted on the website, as are any updates or current events occurring which involve MMC's plan. These include dates for the Planning Board workshops and hearings and a link to the City's Planning website. A designated contact

Fig.1.9 Public Meeting #1 (January 12, 2017): Open House Portion for Collecting Public Comments

email has been established where residents can ask questions, provide suggestions, etc., and a text about sign-up is provided for those who want to receive them.

Finally, to date, MMC has held two larger neighborhood meetings where information has been shared about MMC's needs and its plans to address its issues of bed capacity, operating needs and transportation and parking. These meetings have been well attended and have allowed time for participants to ask questions, voice opinions and to get answers. The minutes of these meetings are posted on the MMC website as well as submitted to the City of Portland.

MAJOR AREAS OF PUBLIC CONCERN

At the initiation of MMC's Master Facility Planning engagement with its neighbors, it was recognized there would be concerns identified by neighborhood residents that would require ongoing dialogue and an openness to new ideas or suggestions. It was understood that there may be many areas where consensus of approach will be reached, and other areas where reasonable minds could differ. MMC and the participants in this process have identified the following "areas of major public concern":

- By far the biggest concern with the MMC proposed IDP revolves around transportation and parking, and specifically with the location of future parking structures;
- The extent of IOZ boundaries and a fear of property acquisition by MMC in residential zones;
- Fear of loss of local amenities, and the desire for mixed-use development that includes street-level retail and restaurants;
- Patients, visitors, or employees smoking in the neighborhood; and,
- Hope for continued public engagement between MMC and its neighbors.

MMC's IDP has addressed each of these concerns in the following chapters. In addition, the public indicated concern with the height of the proposed Gilman St parking structure as well as the need for a well-thought-out Construction Management Plan to apply during the course of construction. MMC has listened to each of these concerns and has addressed them as follows:

- MMC has relocated the parking structure from Gilman St to a nearby location that is tucked behind existing buildings on St John St. By doing so it was able to lower the height of the structure while also removing it from the priority node designated by the City for gateway treatment.
- MMC has hired Turner Construction Company to manage the daily operations of construction. Turner is well-versed in managing construction projects adjacent to residential uses and has agreed to comply with all requirements of the City Construction Management Template, which is attached as an appendix to this IDP.

CHAPTER TWO

MASTER FACILITY PLAN

As it nears its 150th anniversary, Maine Medical Center continues to improve its facilities and services to fill its role as Maine's leader in patient care, education, and research. MMC is engaged in master facility planning to address clinical, building, and parking needs.

MASTER FACILITY PLANNING PROCESS

The goal of any healthcare facility planning process is to evaluate the suitability of the campus or facility to meet anticipated needs for the delivery of healthcare with enough flexibility to allow for adjustments within an ever-changing healthcare market. Future development opportunities are identified in this process.

Maine Medical Center's campus has grown in size and complexity throughout the years. This growth brought changes in programmatic and infrastructure needs and to allow it to serve patients in the State.

PLANNING FACTORS SPECIFIC TO HEALTHCARE

There are a multitude of factors to consider in healthcare planning that are unique to the industry and some that limit the ability to plan too far into the future. Due to the unpredictability of many of these factors, healthcare planning beyond three years with relative accuracy is challenging. Therefore, healthcare planning is typically completed in three-year increments. For example, the rate of change in healthcare payment and policy often follows federal and state election cycles but can change as often as annually. A summary of factors that affect healthcare planning is included in the **Table 2.1** at right.

MMC'S MASTER FACILITY PLAN: PROCESS

Each of the following are aspects of a master facility plan and have been evaluated to determine the needs and projected growth for MMC.

Facility Assessment

The baseline for any master plan is to evaluate the current state of the campus including age of buildings, capacity of infrastructure, and appropriateness of building layout to accommodate the modern delivery of healthcare. This helps the organization identify areas which must be addressed by any future facility work.

Programmatic Requirements

Anticipating the healthcare needs of a community is challenging beyond a three-year period. Healthcare facilities are designed to last several years and attempt to anticipate change by allowing for flexibility and multi-use spaces. Best-practices and industry standards in healthcare delivery are used as benchmarks to anticipate programmatic needs.

Adjacencies

Maximizing key programmatic adjacencies is next in developing a functional master plan once a campus baseline and programmatic requirements are understood. Currently dispersed programs and long travel distances existing on the campus are to be evaluated and studied as an opportunity for improvement. Assessing the flow patterns and travel distances enables proper reorganization of program adjacencies for current and future design interventions.

Table 2.1 Planning Factors Specific to Healthcare

Factor	Definition
POPULATION	Changes in utilization due to population growth: — Population increase or decrease — Population aging — Population distribution — Consumer preference
EPIDEMIOLOGY	The underlying causes of disease (divided into two categories): — Disease-based: Estimates the incidence and prevalence that are impacted in the long-run by preventative measure (i.e. vaccinations effectiveness) — Behavioral-based: Changes in disease incidence and prevalence due to behavioral and sociocultural factors (i.e. obesity, smoking, diet)
ECONOMICS	Macro-economic factors that affect healthcare utilization: — Employment — Healthcare Consumer Price Index — Gross domestic product growth or decline — Employer-based coverage levels — Benefit level and out-of-pocket expense — Regional/Local healthcare environment
PAYMENT & POLICY	Legislative and market-driven reform, including specific payment and policy innovations that will impact utilization: — Health insurance coverage expansion — Bundled payment initiatives/pilots — Accountable Care Organizations (ACOs) — Publicly-funded prevention and wellness initiatives
INNOVATION & TECHNOLOGY	Structural technology that shifts the site at which care is delivered or innovations that affect utilization across different care settings: — Imaging and diagnostics — New therapeutics — Pharmaceutical advancements — Quality innovations
SYSTEMS OF CARE	Increased efficiency resulting from better care coordination and serve integration across various care sites: — Clinical Integration: Use of evidence-based practices and elimination of redundant care — Alignment: Coordination between providers, including inpatient and outpatient providers — Information Technology: Includes computerized physician order entry (CPOE) and e-care
WORKFORCE AVAILABILITY	The healthcare workforce is highly specialized which requires years of training. The availability of qualified individuals can severely limit a healthcare organization's ability to provide care.

KEY INSTITUTIONAL NEEDS

MMC's facility needs are multi-factorial but can be summarized into four categories:

1. Clinical Need
2. Building Need
3. Campus Reorganization
4. Parking Need

1. CLINICAL NEED

Increasing Severity of Case Mix

MMC treats Maine's sickest patients and estimates that the average patient seeking care at MMC will continue to get sicker. MMC's case mix index (CMI) was 1.86 in fiscal year 2015 (October – September); the highest in the state of Maine. A hospital's case mix index is calculated by finding the average severity of diagnosis-related groups at that hospital. The average case mix index for a hospital in the United States is 1.31 (CMS.gov). MMC's CMI grew to over 2.00 in fiscal year 2016 and is expected to continue to increase in the future.

Bed Shortage

Over half of MMC's inpatient beds are located in semi-private rooms (see **Fig.2.2)**. MMC closes an average of 60 inpatient beds in semi-private rooms every day to prevent infection due to disease-resistant organisms (DROs), or to address behavior related issues or other room sharing restrictions. This, along with construction closures for renovations and repairs, reduces MMC's licensed bed capacity of 637 beds to an effective bed capacity closer to 560 on an average day (see **Fig.2.3).**

On a routine day, MMC can expect approximately 100 admissions from Surgery and the Emergency Department and 35 to 50 transfer requests per day from other healthcare and provider organizations. When 500 patients are in the hospital and over 60 beds are closed, a limited number of inpatient beds are available for new patients. Inpatient beds are specialized for medical/surgical, intermediate care,

Fig.2.1 MMC's Case Mix Index: Historic Data and Projections

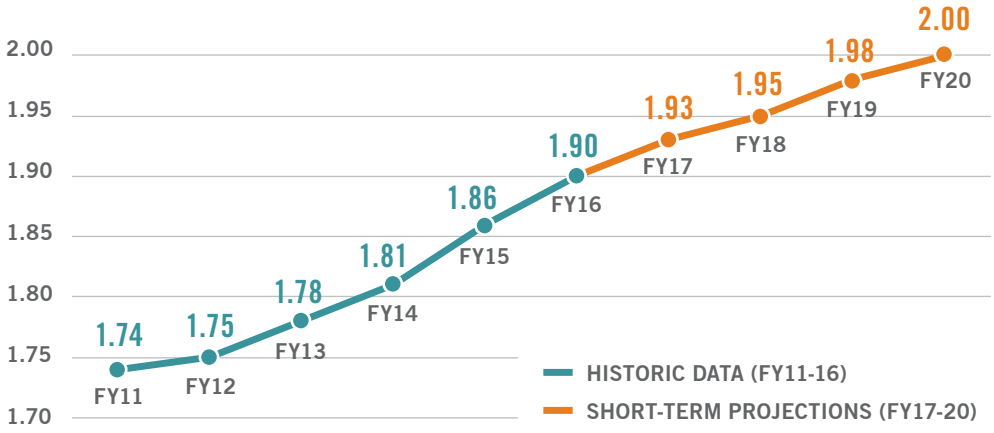


Fig.2.2 Existing Inventory of Private vs Semi-Private Beds

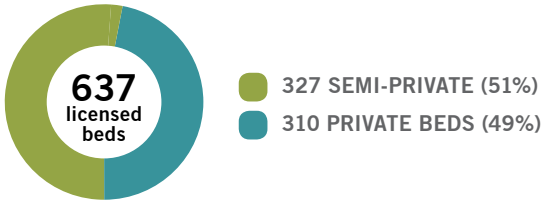
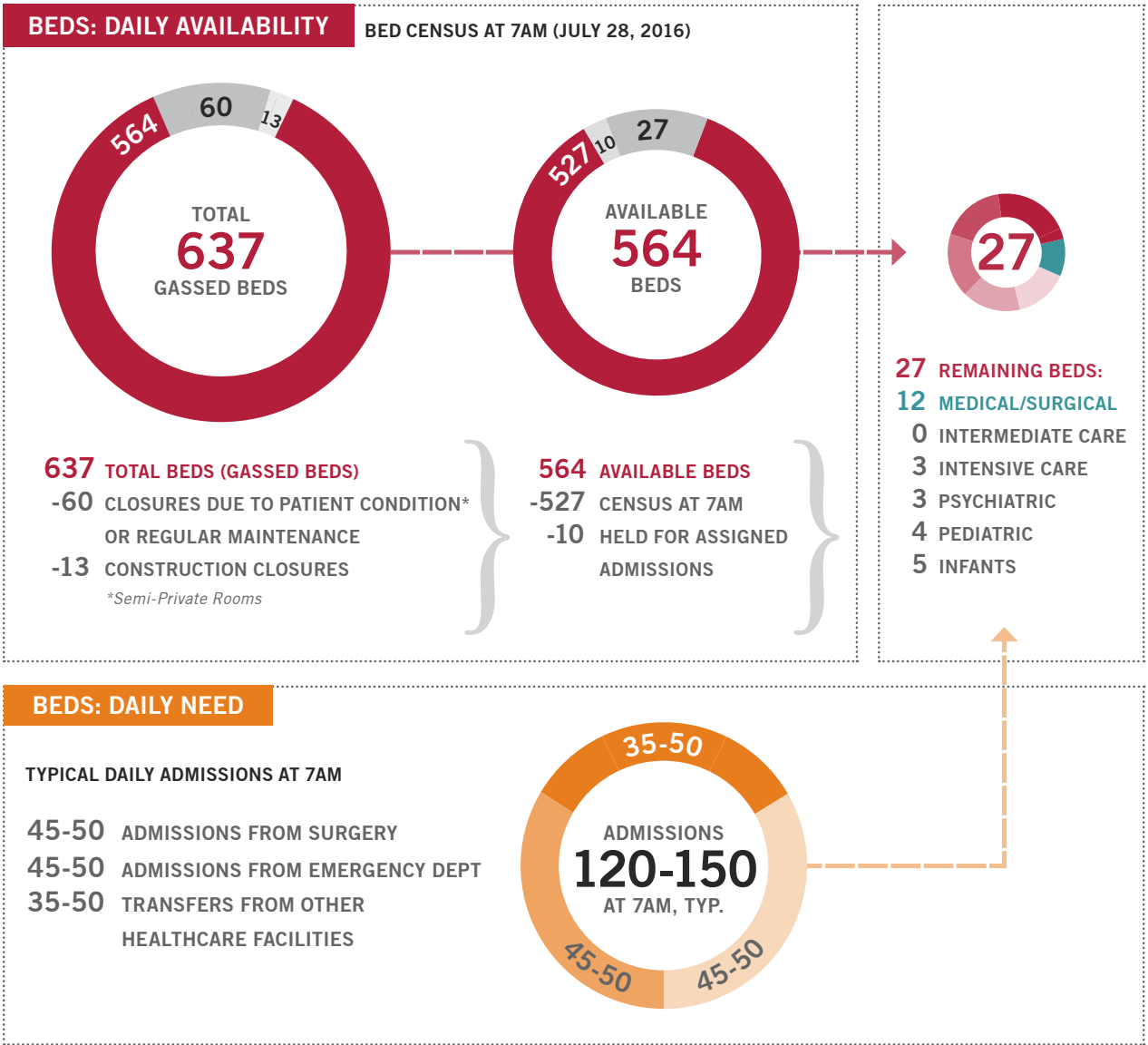


Fig.2.3 A Day in the Life of MMC: Bed Shortage



intensive care, psychiatric, pediatric, or infant care services. The actual number of beds available for specific populations of patients is much smaller. For example, if a patient needs a critical care bed but, the only beds that are available are general medical/surgical, then MMC struggles to meet that patient's needs.

Fig.2.3 demonstrates a snapshot of the challenge MMC is faced with daily to meet the needs of the community due to bed shortages. The challenge is expected to grow in complexity as patients get sicker and require highly specialized care. Many of the rooms are also too small and not flexible enough to meet the demands of the growing universality of medical equipment. The Master Facility Plan recommends adding private patient rooms and procedural capacity to meet current needs and to plan for the future. Adding new private rooms was also identified as a key strategy to decompress existing buildings, maximizing infrastructure capacity.

2. BUILDING NEED: AGING FACILITIES

The age of campus buildings is the first key element of assessing the overall suitability as structures for continued use in healthcare delivery. Facilities at MMC date back to the 1870's with the construction of the Maine General Building. Since the early 1900s, MMC has grown to meet the needs of patients. Close to 77% of MMC's clinical activities occur in buildings more than 30 years old.

MMC regularly conducts building assessments to inform future investment and development decisions on campus. The assessments evaluate the condition of building structure and systems, and compliance with current building codes and regulations including fire safety. The 2015 assessment illustrates the age and condition of the buildings on campus (see **Fig.2.4 and Fig.2.5**). Among those that are listed, continued investment is cautioned in the Pavilions, the Richards Building and the LL Bean Building, which together host a large percentage of the hospital's bed inventory. These include a large number of semi-private beds that must be replaced by beds in private rooms to conform to current patient care standards. The Employee Garage is identified for replacement in the short-term due to its structural challenges.

MMC's Care teams work collaboratively with MMC's Facilities and Engineering teams to ensure patients are cared for in the best possible environment. This requires continuous maintenance and improvements to the facilities. The remaining opportunities for

improvement and retrofits in the existing buildings are marginal. It is impossible to enlarge operating rooms or make semi-private rooms private without major disruptions to the delivery of patient care, reduction in capacity, major facility expansion, or some combination.

The proposed short-term projects (see page 40) will partially replace and modernize MMC's campus to meet anticipated future need. Proposed patient rooms will be private and adaptable to the level of care needed by patients. They will be "universal rooms" capable of being occupied by a wide spectrum of patient populations from intensive care to general medical or surgical care. Procedure rooms will be large enough to fit the equipment and technology needed for the complex procedures that patients increasingly require at MMC.

3. CAMPUS REORGANIZATION

Healthcare facility plans seek to optimize adjacencies between critical departments to reduce travel distances across campus for staff and patients.

Currently dispersed programs and long travel distances present an opportunity for future improvement on the MMC campus. The planning team assessed multiple flow patterns and travel distances to enable proper reorganization of program adjacencies to improve safety and efficiency of healthcare delivery, and ease of wayfinding for patients and families.

4. PARKING NEED

MMC hosts a wide variety of people on the Bramhall campus every day. Patients, families, staff, and students all require access to the facility. Patients and families from all over northern New England come to MMC for care. These people do not live close enough to take advantage of alternative methods of transportation like buses, cycling, or walking that are provided locally. Clinical and support staff require safe, reliable, and often emergent, access to the facility in order to provide services to patients. Providing parking is a priority at MMC, and a key driver of the Master Facility Plan (see **Chapter 3. Transportation Plan** for details).

Fig.2.4 Existing Facilities by Age

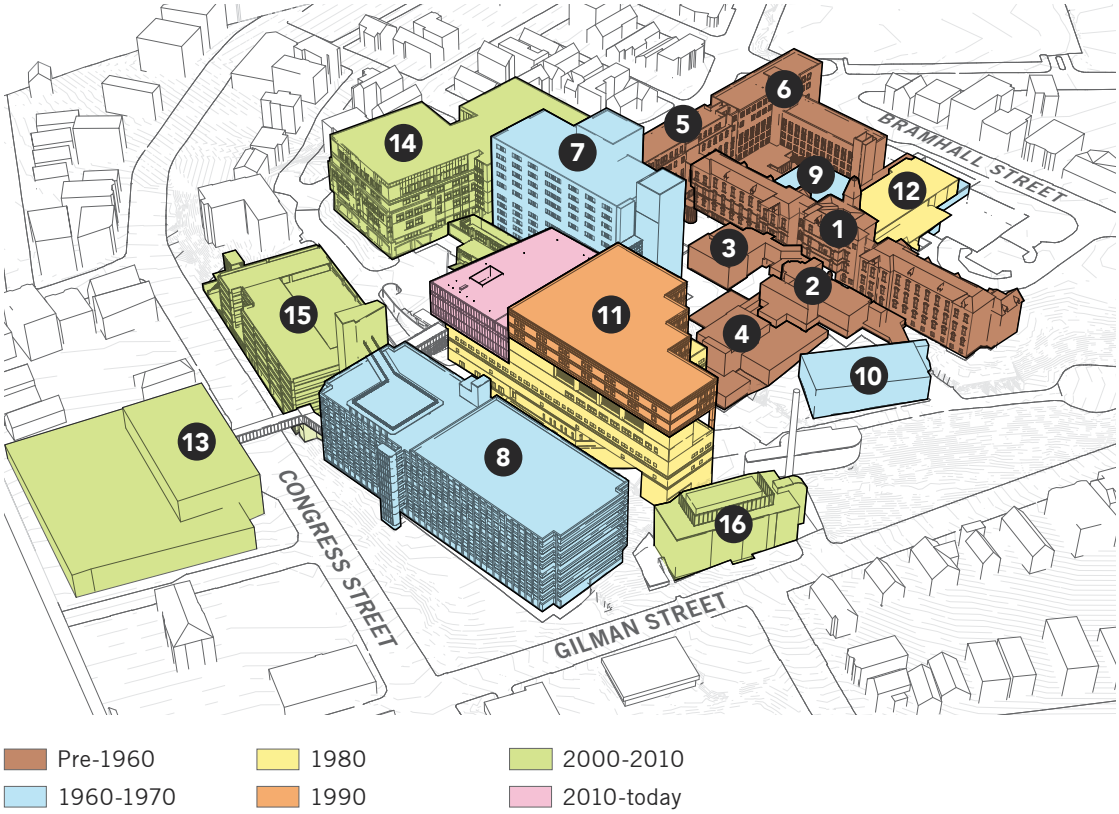


Table 2.2 Inventory of Existing Facilities

#	Building Name	Date	Gross SF
1	Maine General	1870s	72,920
2	Annex B	1870s	36,250
3	Annex C	1870s	13,190
4	Annex A	1929	10,110
5	Pavilion A	1929	66,380
6	Pavilions C & D	1956	83,460
7	Richards Building	1968	228,920
8	Employee Garage	1970s	--
9	Diagnostics Building	1976	89,150
10	Engineering Services Bldg	1978	23,840
11	LL Bean Building	1985	231,830
12	Dana Building	1987	19,310
13	Congress St Medical Office Building	1999	47,000
14	East Tower	2008	200,000
15	Patient and Visitor Garage	2008	--
16	Central Utility Plant	2008	--
		TOTAL	**1,122,360 GSF**

Fig.2.5 2015 Facility Assessment Results

Continued investment in this building is:

Recommended Cautioned Not recommended for future use.

See Table 2.2 on opposite page for building numbers.

PROJECTED DAILY CENSUS

While the number of patients, visitors, and employees on MMC's Bramhall campus varies day-to-day, a daily census estimate can be produced for a typical week day using a variety of data sources, including the annual patient counts (see **Table 2.3 at right**). The estimated daily census of individuals on campus is included in **Table 2.4** and exceeds six-thousand individuals.

The anticipated change in campus users over time is summarized in **Table 2.4**. MMC developed this estimate considering the following summarized factors:

- MMC is Maine's largest medical center, the only American College of Surgeons Level 1 trauma center, only American Academy of Pediatricians Level III nurseries and the largest academic medical center, in partnership with Tufts University School of Medicine and is therefore best equipped to meet the rising patient need.
- The number of Maine residents seeking care outside of Maine has been decreasing over the past several years.
- MMC's share of inpatient discharges has increased over the past several years.
- MMC's Case Mix Index is increasing.
- Complex healthcare services are consolidating across the country.

MMC uses national healthcare consulting firm Sg2 and The Advisory Board to consider additional factors impacting the evolving healthcare industry and local demand for services. Additional factors considered in the volume estimate include the following and those listed in **Table 2.1 on page 33**:

- Changes in healthcare utilization as a result of changes in the population within the hospital's service area;
- Changes in the underlying causes of disease (i.e. incidence and prevalence of disease and the impacts of a focus on prevention) and behavioral-based impacts to health (i.e. smoking and obesity);
- Macro-economic factors affecting healthcare utilization (i.e. employment, employer-based insurance coverage, health care consumer price index);
- Legislative and market-driven healthcare reform;
- Innovations in technologies and models of care;
- Improvements in the systems of care that improve coordination among providers; and,
- Continuous process improvements within care models that reduce potentially avoidable admissions and 30-day readmissions.

The Projected Daily Census is the basis of calculations for future campus transportation needs discussed in the following chapter.

Table 2.3 Historic Data: Annual Census of Patients on Bramhall Campus (FY 2013-2016)

	2013	2014	2015	2016
Inpatient Discharges	29,253	29,401	30,196	30,889
Outpatient Activity	138,626	132,257	140,862	154,434
Bramhall Outpatient Clinics	39,829	40,694	38,209	39,709
TOTAL	**207,708**	**202,352**	**209,267**	**225,032**

Table 2.4 Individuals on Campus on an Average Week Day: 2016 Estimates and 2026 Projection

	2016 (FYE Sept-Oct)	Forecast, 2026	Projected 10-Year Growth	CAGR (2016-2026)
Inpatient Discharges	100	110	7.84 %	0.76 %
Inpatient Visitors	250	270	7.84 %	0.76 %
Outpatient Activity	600	620	4.45 %	0.44 %
Outpatient Visitors	600	620	4.45 %	0.44 %
Bramhall Outpatient Clinics	150	150	-1.79 %	-0.18 %
Employees: Shift 1 (inc. volunteers)	3,640	3,900	6.96 %	0.67 %
Employees: Shift 2	210	220	6.96 %	0.67 %
Employees: Shift 3	520	550	6.96 %	0.67 %
Students on Campus: Medical	100	110	10 %	0.96 %
Students on Campus: Nursing	100	100	10 %	0.96 %
Other Students (PA, Pharma, etc.)	20	25	10 %	0.96 %
Non-MFP Related Contractors	25	25	--	--
TOTAL / AVERAGE	**6,315**	**6,700**	6.43 %	0.63 %

CAGR = Combined Annual Growth Rate

Assumptions:

- Daily inpatient discharges for 2016 estimated from annual count, using six-day weeks to accommodate for reduced activities Sun-Tue.
- Daily outpatient activity for 2016 estimated from annual count, using five-day weeks.
- Inpatient visitors estimated at 2.5 per patient for the base year of 2016.
- Outpatient visitors estimated at one per patient for the base year of 2016.
- 60% of employees are estimated to be on campus at one time for the base year of 2016.

IDENTIFICATION OF PROJECTS

In considering all possible scenarios for development to meet the goals outlined above, the Master Facility Plan has identified the following necessary projects needed to modernize of the MMC Bramhall campus:

- Vertical expansion of East Tower to add private, universal patient rooms;
- Removal of the Employee Garage, which is nearing the end of its structural lifespan;
- Construction of a new building in place of the Employee Garage that can provide new private, universal patient rooms and surgery suites in close proximity to the Emergency Department and the hospital's core diagnostic and treatment services located in the LL Bean Building;
- Providing a new patient entrance on Congress St that clarifies the arrival sequence for the majority of patients and visitors arriving on campus via Congress St, and parking in the Visitor Garage; and,
- Construction of a new Employee Garage within walking distance to campus will provide reliable access to parking spaces for all campus employees who choose to drive to work.

See **Fig.2.6** on the opposite page for an illustration of projects included in the Master Facility Plan.

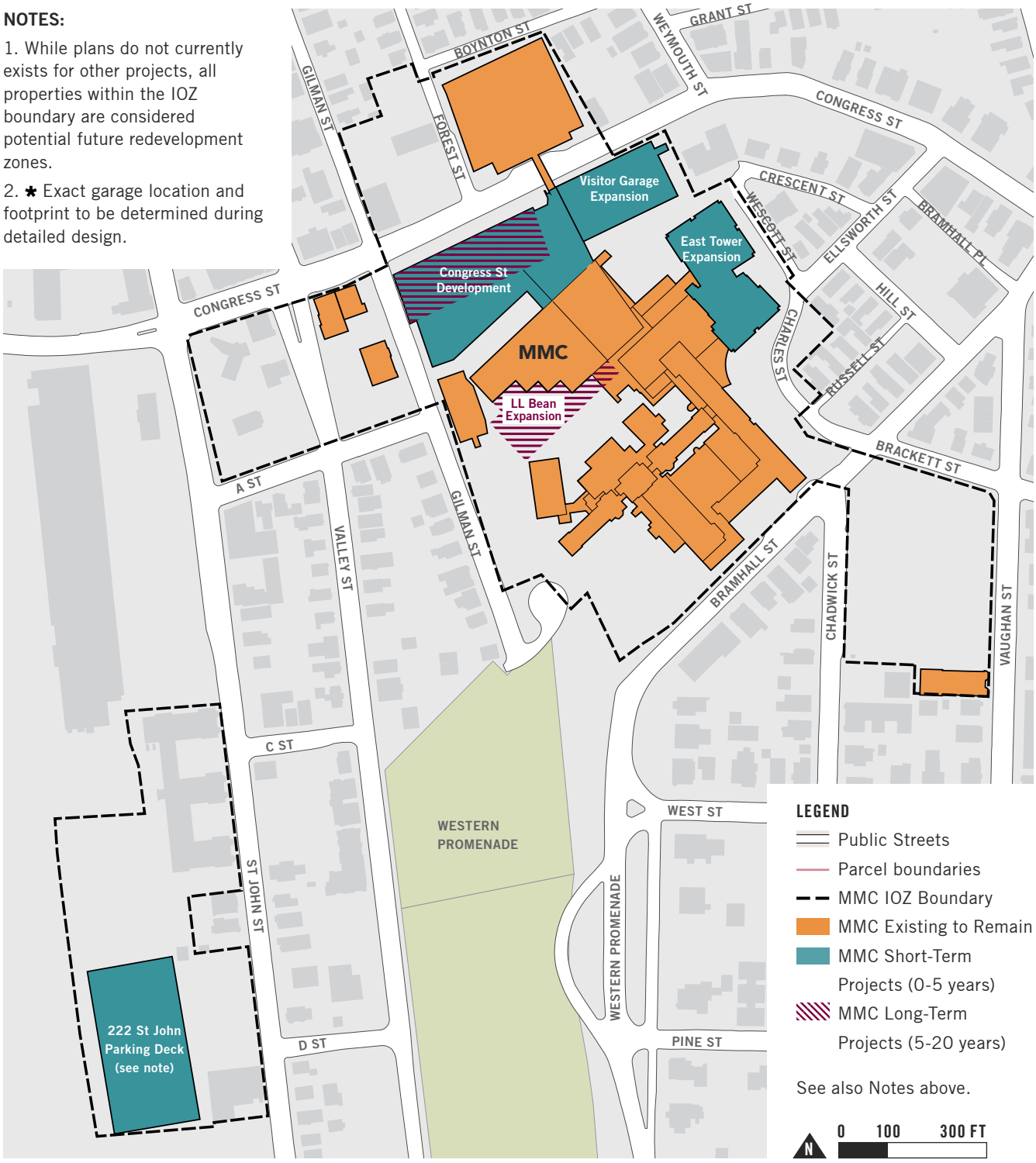
The short- and long-term project plans do not represent the only projects within this timeframe. Due to the various factors impacting healthcare planning and their short horizons, there may be other projects proposed within this timeframe.

Fig.2.6 MMC Facilities Master Plan: Projects

NOTES:

1. While plans do not currently exists for other projects, all properties within the IOZ boundary are considered potential future redevelopment zones.

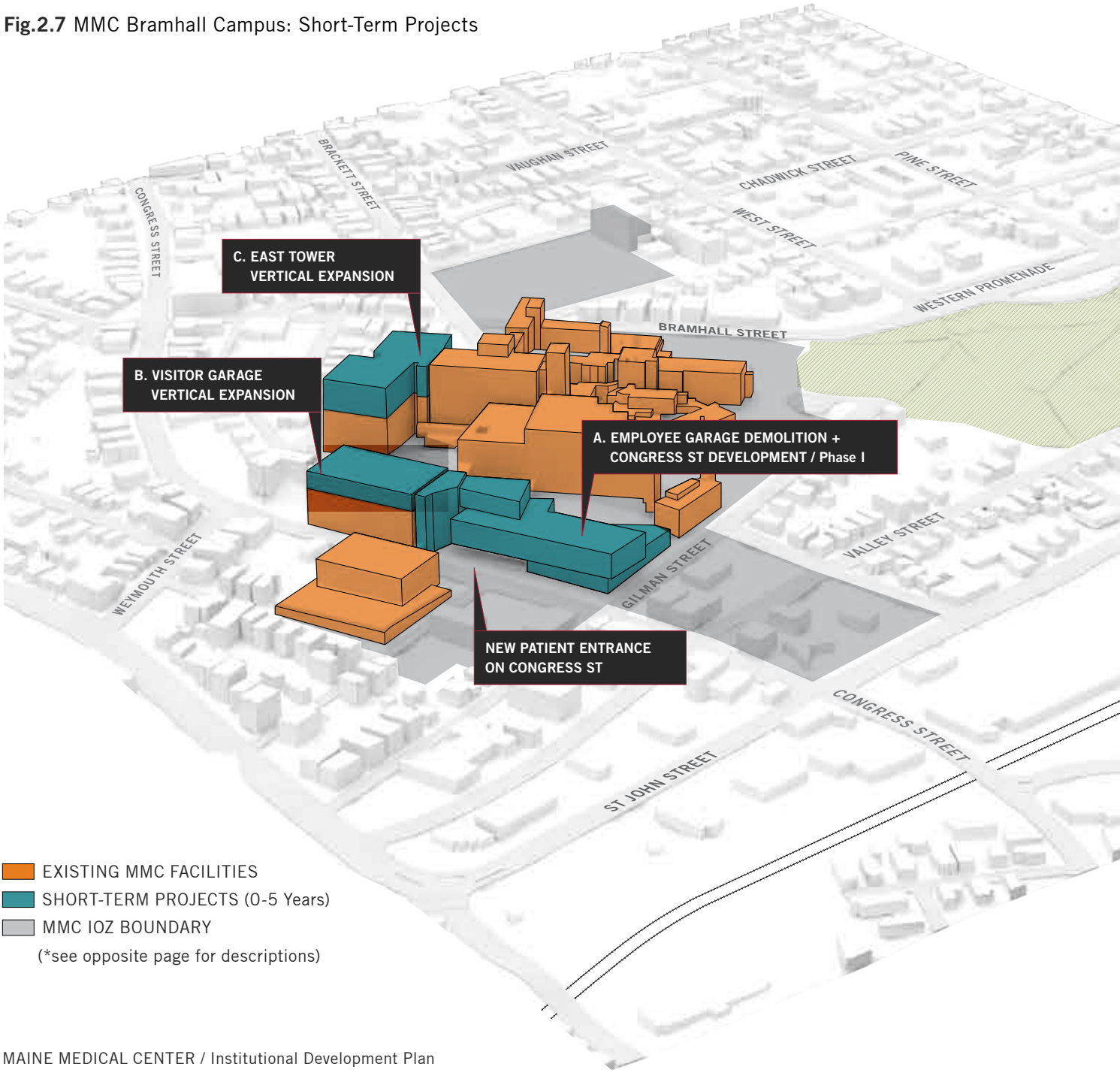
2. ✱ Exact garage location and footprint to be determined during detailed design.



SHORT-TERM PROJECTS (0-5 YEARS)

A series of short-term projects are in the planning stages to meet MMC's current needs and to improve the efficiency of care delivery. These do not represent the only projects that could be proposed within this timeframe: due to the various factors impacting healthcare planning and their short time horizons (0-3 years), there may be other projects proposed within this timeframe.

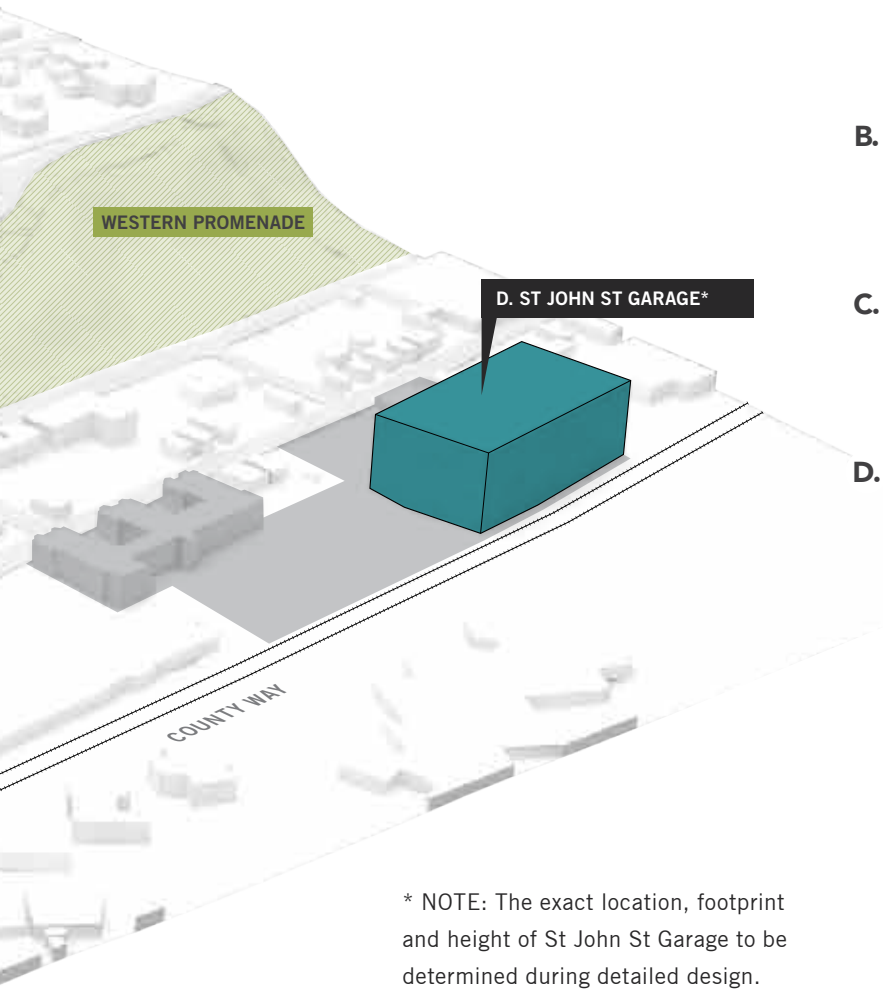
Fig.2.7 MMC Bramhall Campus: Short-Term Projects



Demolitions

A. Employee Garage Demolition

The 2015 building assessment does not recommend continued investment in this structure (see **Fig.2.5 on page 39**).



* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

Additions / New Construction

A. Congress St Development, Phase I (285,000 GSF)

New six-story building along Congress St on former site of the Employee Garage, plus two-story connector to the LL Bean Building. Building program includes: a new patient entrance, universal, private inpatient beds and new procedure rooms. The new entrance changes the campus's orientation to Congress St.

B. Visitor Garage Vertical Expansion

Addition of three floors at top to accommodate 225 new parking spaces.

C. East Tower Vertical Expansion (60,000 GSF)

Addition of two floors at top to accommodate 64 inpatient beds and relocated heliport.

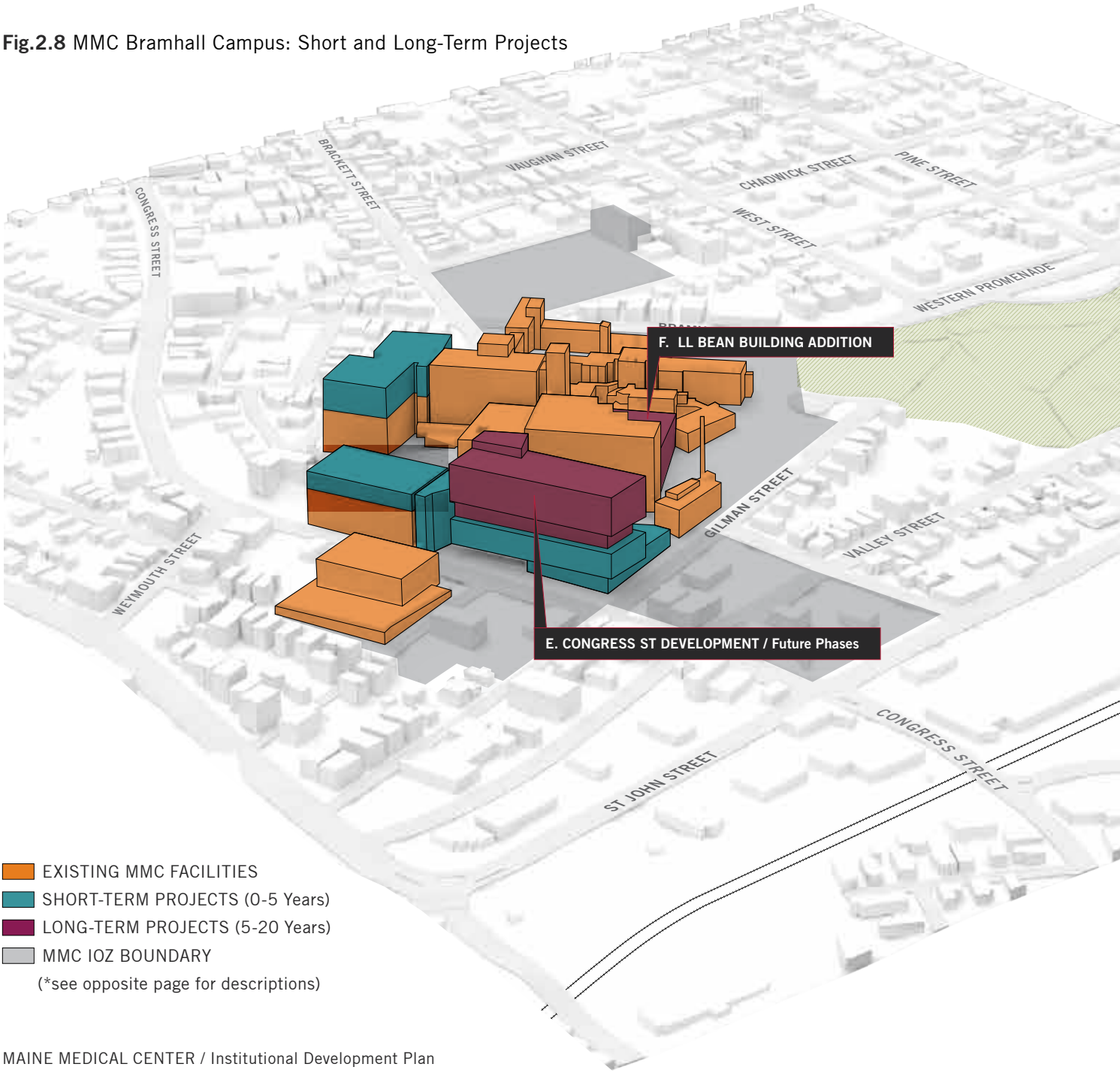
D. St John St Garage

New 10-story, free-standing garage at 222 St John St to accommodate roughly 2,200 new parking spaces. The garage replaces spaces lost in the Employee Garage, in addition to consolidating parking from multiple surface lots owned or leased by MMC. (See **Chapter 3. Transportation Plan** for details).

LONG-TERM PROJECTS (5-20 YEARS)

The facility planning process has also identified potential long-term projects that are identified below. Given the changing nature of the healthcare industry, it is currently uncertain if these projects will be implemented. MMC will continue to evaluate its facility needs following the implementation of short-term projects by 2022. These do not represent the only projects that could be proposed within this timeframe: due to the various factors impacting healthcare planning and their short time horizons (0-3 years), there may be other projects proposed within this timeframe.

Fig.2.8 MMC Bramhall Campus: Short and Long-Term Projects



Additions / New Construction

E. Congress St Development, Future Phases (Approx. 300,000 GSF)

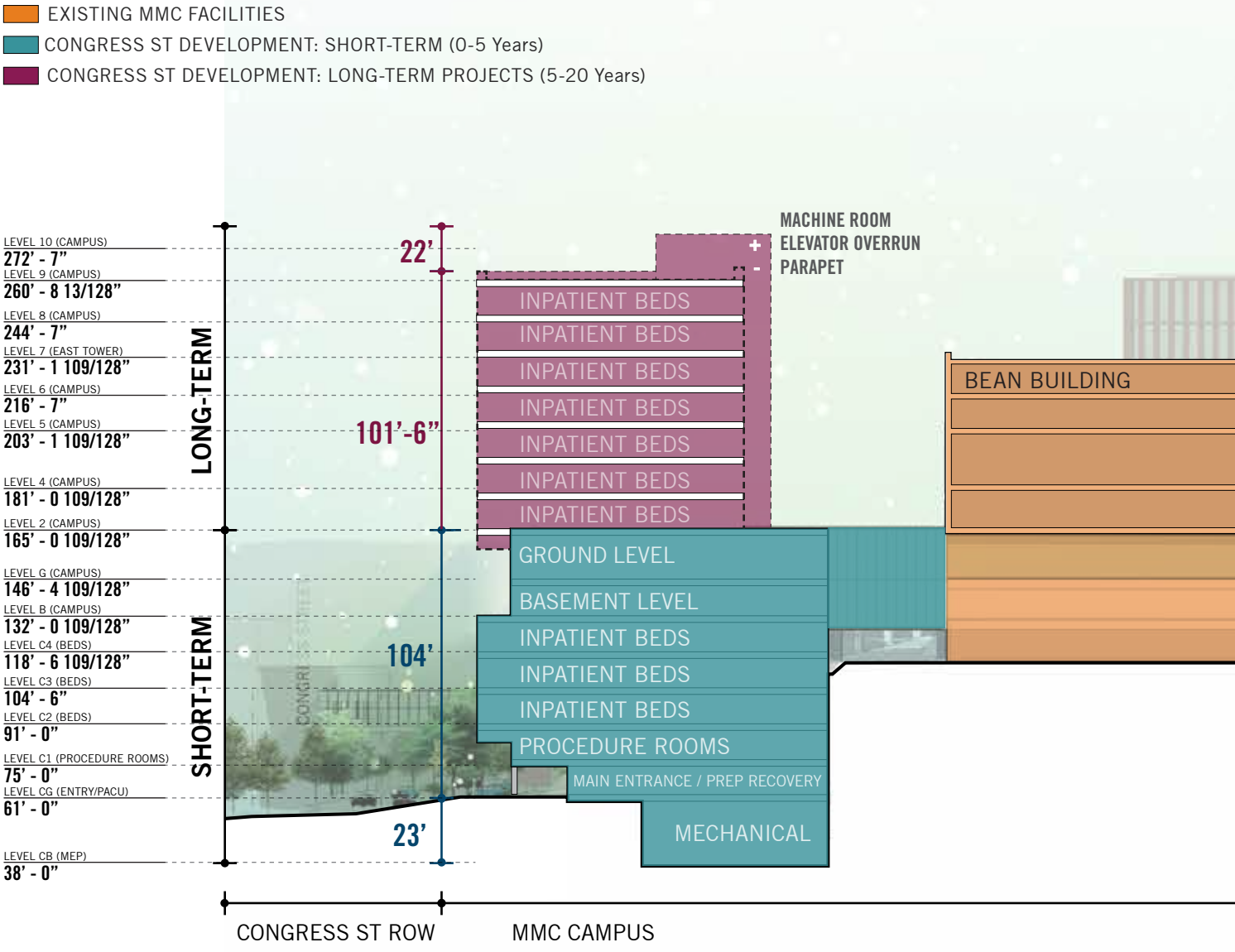
Future vertical expansion to include additional private inpatient beds.

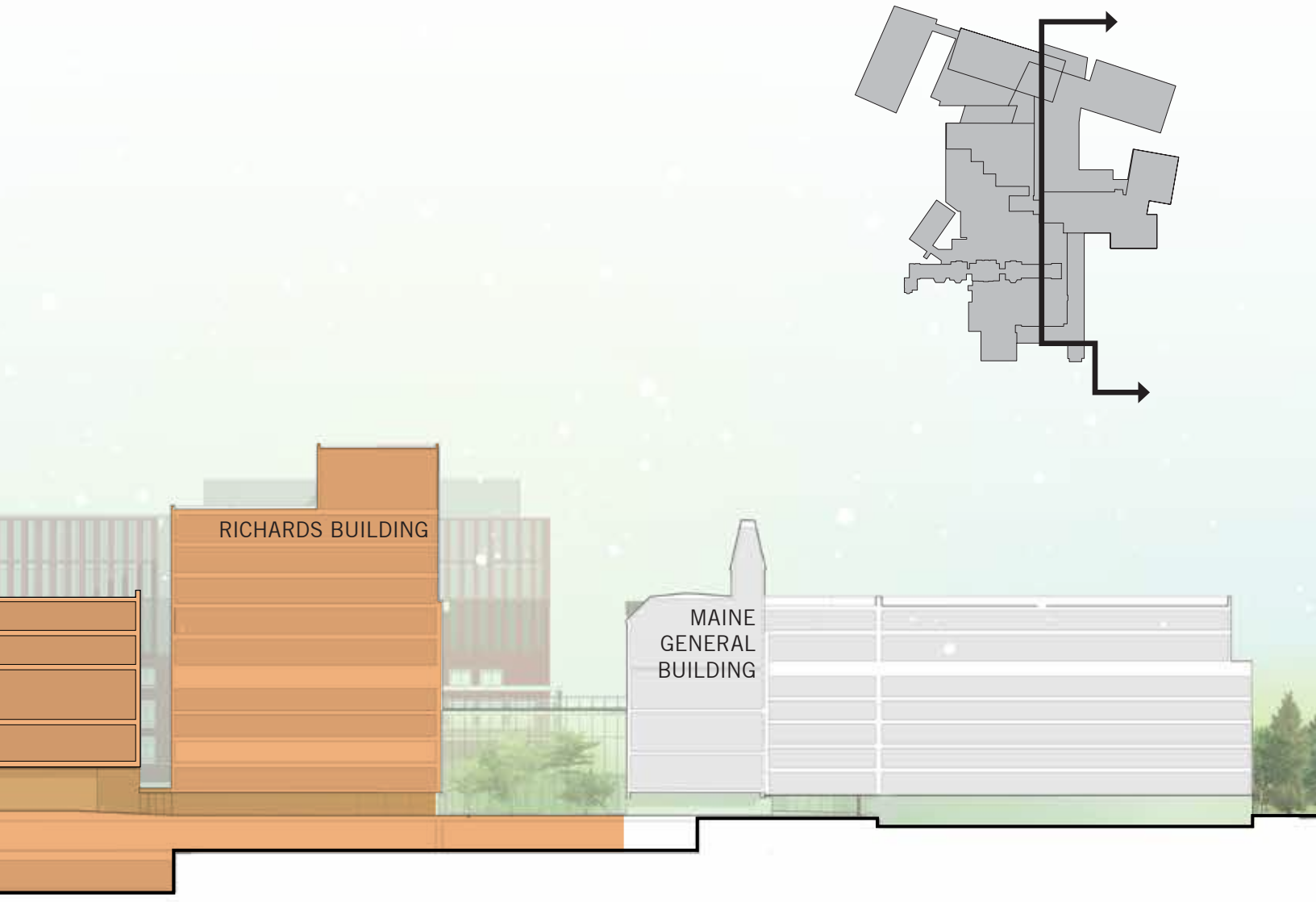
F. LL Bean Building Expansion (Approx. 120,000 GSF)

Expansion of diagnostics and treatment, and interventional platforms. If necessary, existing Laundry Building and Engineering Services Building may be modified or removed to facilitate expansion.

* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

Fig.2.9 MMC Bramhall Campus: Longitudinal Cross-Section through the Proposed Congress St Development

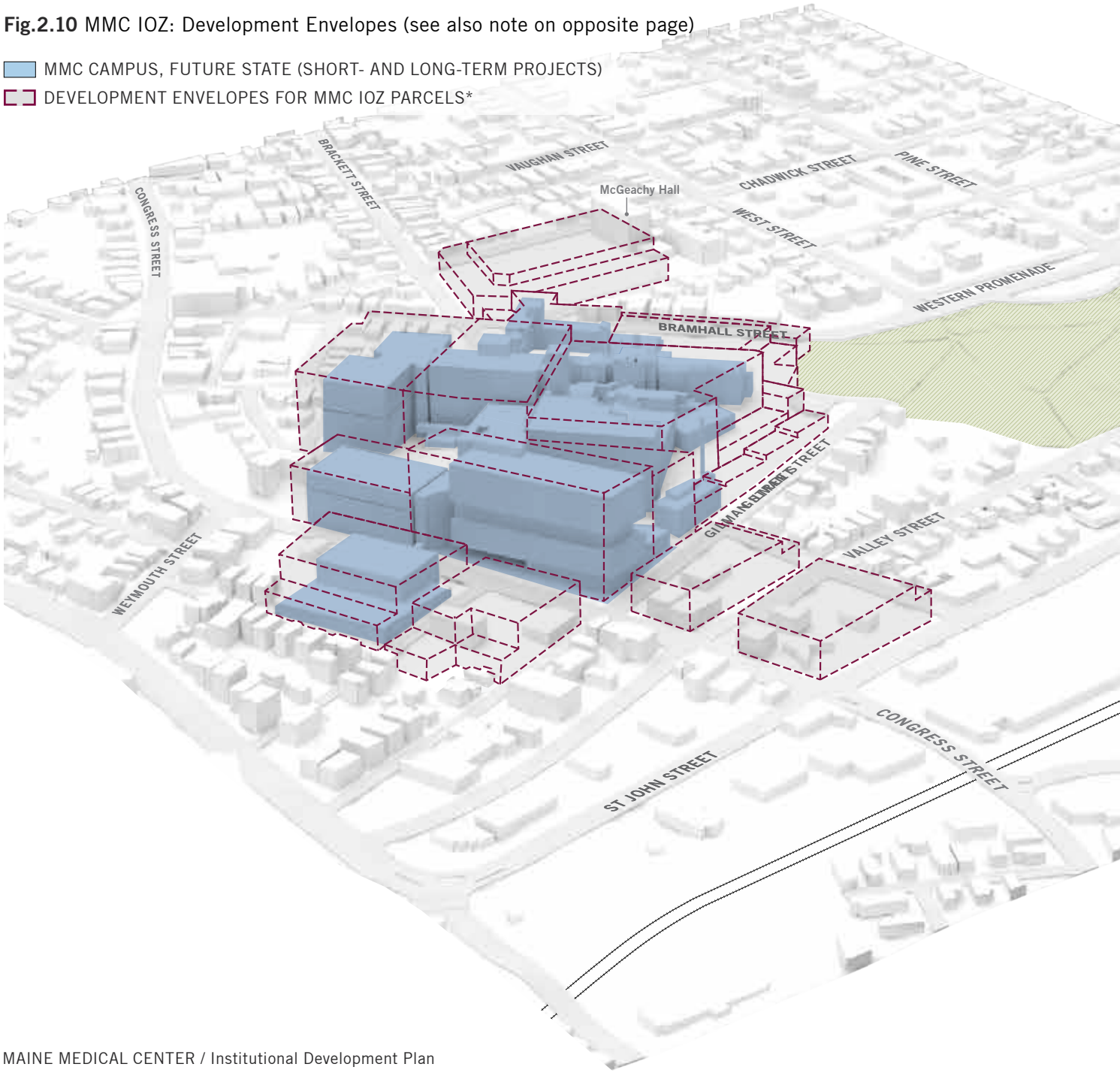



RICHARDS BUILDING
MAINE
GENERAL
BUILDING

LONG-TERM DEVELOPMENT ENVELOPES

While MMC's Master Facility Plan does not identify specific projects other than those listed on the previous pages (see Fig.2.7 on page 42), all parcels included within MMC's IOZ boundary are considered to be potential zones for redevelopment that supports the effective delivery of healthcare services by MMC to our community in the long-term. Towards this end, MMC has identified context-appropriate uses (see **Table 2.5** at right), development envelopes and design criteria for all IOZ parcels.

Fig.2.10 MMC IOZ: Development Envelopes (see also note on opposite page)



NOTE: **Fig.2.10** illustrates the maximum height envelopes listed in the MMC IOZ Regulatory Framework. Per the IOZ, the development envelopes only apply to properties that MMC holds right, title, or interest at the time of development. All future development within the IOZ boundary is subject to review for compliance with guidelines and requirements included in MMC's IDP, Regulatory Framework and City of Portland site plan review requirements.

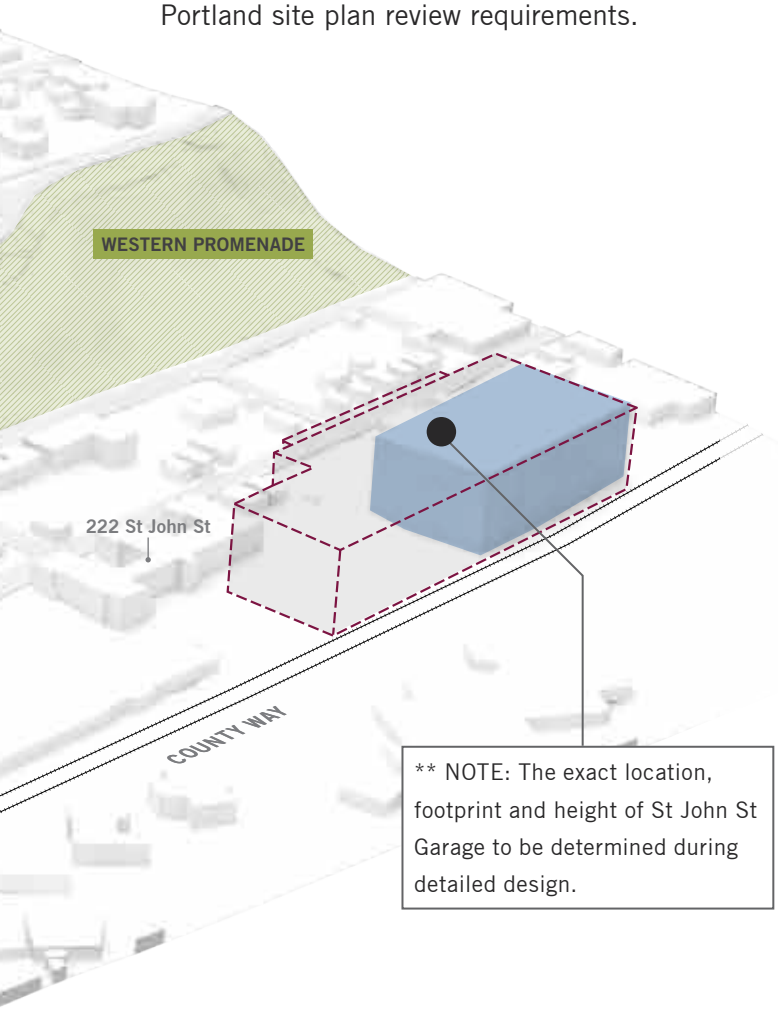


Table 2.5 MMC Potential Future Uses

MMC may locate the following uses within its IOZ boundary:

In addition to the uses permitted in the underlying zone, the following uses are permitted as a matter of right:

Healthcare facilities including but not limited to the following ancillary and/or supporting uses:

- **Hospital**
- **Medical Office / Clinic**
- **Laboratory Center / Services**
- **Research and Development (R&D) Laboratory or Facility**
- **Educational Facility / Conference Center**
- **Administrative / Business Office**
- **Accessory Service or Trade Uses**
- **Guest House**
- **Multi-family housing for healthcare staff and students**
- **Rehab / Skilled Nursing Facility**
- **Retail Facility**
- **Restaurant / Café**
- **Employee Service Amenities**
- **Day Care Center**
- **Fitness Center or Gymnasium**
- **Parking Lot**
- **Parking Garage**
- **Bicycle Storage**
- **Heliport**
- **Antenna Station**
- **Outdoor use areas, such as green areas, parks, gardens, art installations, and other active and passive non-commercial recreation spaces**

CHAPTER THREE

TRANSPORTATION PLAN

Maine Medical Center is developing a long-term transportation plan that will improve campus access, circulation, and wayfinding for patients and visitors. Ongoing initiatives are aimed at providing alternative transportation options to reduce traffic and parking impacts as well as to be responsive to neighborhood concerns about a large parking structure near residential properties.

TRANSPORTATION PLAN: OVERVIEW

Maine Medical Center is developing a long-term Transportation Plan that will improve campus access, circulation, and wayfinding for patients and visitors. It is also developing a Transportation Demand Management (TDM) plan focused on reducing the number of single occupancy vehicles on campus. Ongoing initiatives are aimed at providing alternative transportation options to reduce traffic and parking impacts.

MMC's Transportation and TDM plans are designed to address neighborhood concerns, and to improve campus access, circulation, and wayfinding for patients, visitors, physicians, and staff. The Transportation Plan will be developed and refined during the Maine Department of Transportation (MDOT) required Traffic Movement Permit (TMP) process, with input from the Medical Center's neighbors and City of Portland's traffic engineer. The TDM includes an explanation of the assessment of the Hospital's parking needs to adequately support the Bramhall Campus, and includes strategic initiatives aimed at providing alternative transportation options to reduce long-term traffic and parking impacts. The goal is to provide effective and intuitive transportation solutions that emulate best management practices in transportation infrastructure and operations that support tertiary academic medical centers, enhance and optimize the patient experience, and improve overall traffic flow in the surrounding area.

The purpose of this chapter is to provide an overview of the key transportation elements of the Transportation Plan and the TDM.

The Traffic Management Permit process may require modifications that MMC does not anticipate. The following provides MMC's best analysis of traffic generation and traffic patterns in the short term.

VEHICULAR ACCESS AND CIRCULATION

MMC's service area includes all of Maine and parts of New Hampshire. The majority of MMC patients and visitors do not live within walking distance or near public transportation and arrive by car (see **Fig.3.1 on page 57** for a map of patient origin). The nature and acuity of patient needs create a challenge to the use of alternative modes of transportation. This situation is not atypical for a hospital, but rather is the norm, even in locations with a robust public transit system.

MMC is open to patients every hour, every day of the year. Most MMC staff and physicians, who also fill shifts 24 hours a day, do not live within walking distance or near public transportation (see Fig.3.6 for a map of MMC employee residences). Work responsibilities that require the use of an automobile, a lack of transit options to accommodate staff schedules, seasonal weather extremes, and an insufficient bicycle infrastructure in the surrounding municipalities are all factors that contribute to a high drive share by staff.

EXISTING VEHICULAR FLOWS

Vehicle access and circulation on the MMC Bramhall Campus was planned and designed to maintain a safe and efficient transportation system. Most notably, the concept of separating patients, employees, emergency department operations and loading/service are all considerations that exist at MMC currently and have been approved by the City of Portland. Existing vehicular circulation patterns in and around the Bramhall campus are illustrated on **Fig.3.2 on page 58** and summarized below.

One advantage of its proximity to I-295 is the ease of vehicular access to campus by patients/visitors, employees, and emergency and service vehicles, and the avoidance of high traffic volumes in neighborhood streets.

Patients and Visitors

Patients and visitors have several choices when accessing the hospital. Through a strong wayfinding and signage plan, they are directed to park directly in the Patient / Visitor Garage or the South Lot. They also have access to a convenient patient drop-off area that is located off of Bramhall St, with direct access to parking in the South Lot.

Well-designed curbside drop-off / pick-up areas for patients and visitors are critical to the functionality of any medical center campus. These amenities provide the opportunity for patients and visitors to quickly reach their destination, without the need to park their vehicle, and in some cases, having to

walk long distances, often times unprotected from weather conditions.

MMC provides both inpatient and outpatient care at the Bramhall campus. Outpatient care services experience higher curbside demands for patient drop-off / pick-up activities because of the shorter visits whereas inpatient care generates less turnover, but requires greater accessibility. In addition to general patient access and egress by private vehicles, MMC drop-off / pick-up zones also experience other demands created by taxis (including ride-share such as Uber, Lyft, etc.), shuttle buses, short-term deliveries (like flowers, etc), and staff—vehicles that do not necessarily park, but intend to only drop-off passengers and then exit the hospital campus.

Emergency Department Access

MMC's Emergency Department (ED) is located near the main entrance but is clearly delineated and separated from it. Within the ED area, ambulances have their own dedicated area and are separated from patient ED access and short-term ED parking.

Staff Access

Staff primarily park in the Employee Garage, which is located on Congress St with access off of Gilman St. Other employee parking locations include the various satellite lots listed in **Fig.1.7 on page 22**. This design limits the mixing of patient and staff traffic, resulting in fewer staff vehicles near patient access zones.

Service Access

Trucks destined for MMC are directed to a dedicated loading and service facility located off of Gilman St, separate from all active patient access and circulation functions. MMC does not accept large deliveries from any location other than through the loading dock area.

EXISTING TRAFFIC CONDITIONS

An analysis of existing traffic conditions on and around the Bramhall Campus was completed by Gorrill Palmer, a South Portland based land development, transportation and municipal engineering firm. Gorrill Palmer observed several street intersections during the morning and afternoon in December 2016. In order to estimate the peak summer traffic volume on the two busiest intersections observed (Congress St / St John St and Congress St / Valley St), trip counts were increased by 1.1% on St John St and 11.4% on Congress St. The trips observed are summarized on **Table 3.1** below.

Table 3.1 Seasonally Adjusted 2016 Volumes

	2016 ESTIMATED VOLUMES		MMC TRAFFIC AS A PERCENT OF TOTAL TRAFFIC	
INTERSECTION	AM	PM	AM	PM
Valley St. / Congress St.	1,170	1,200	17%	7%
Congress St. / Saint John St.	1,860	2,100	14%	7%

Fig.3.1 Dot Density Map Showing Patient Origin by Zipcode (2016)

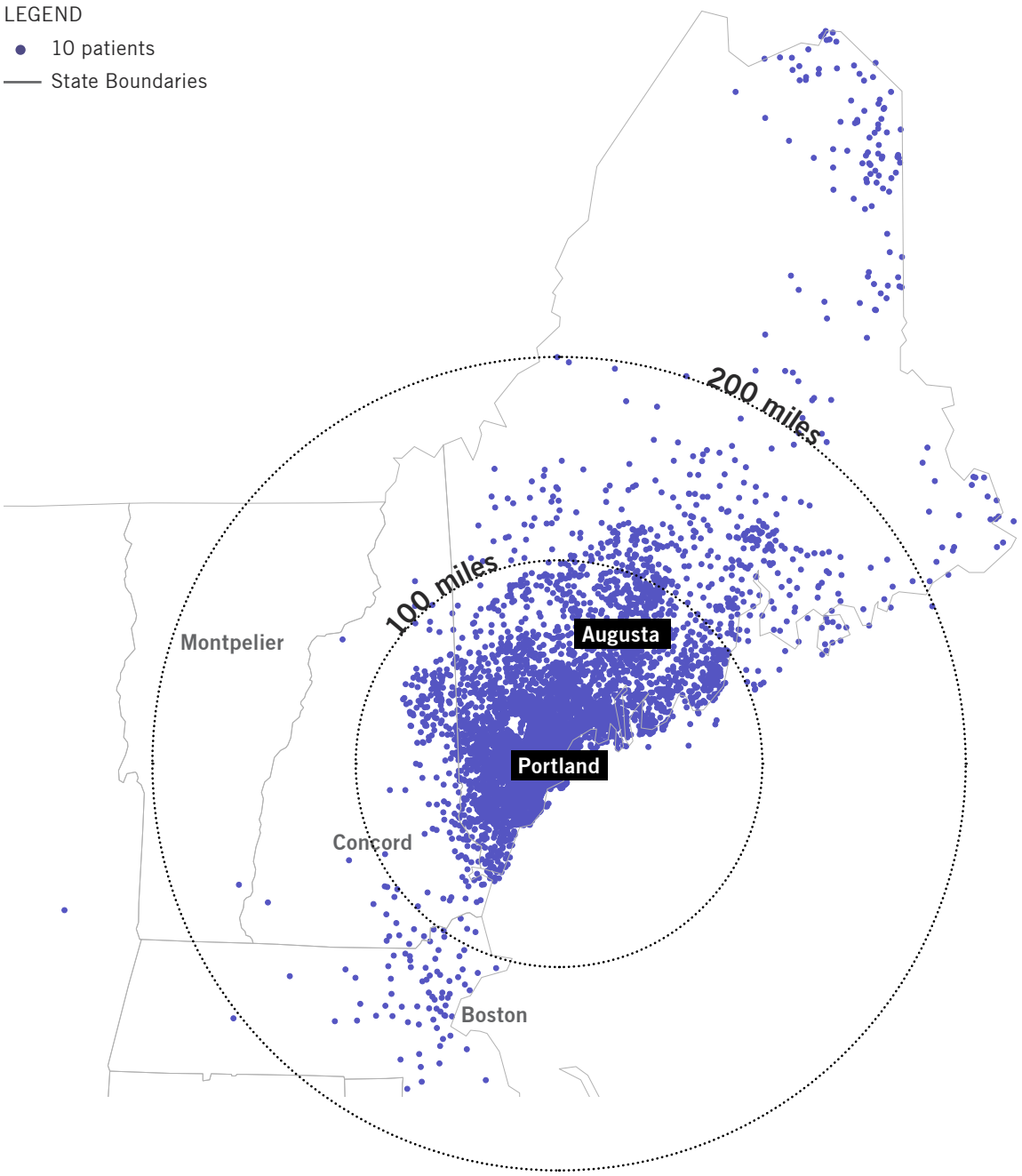


Fig.3.2 MMC Existing Circulation Routes and Access Points

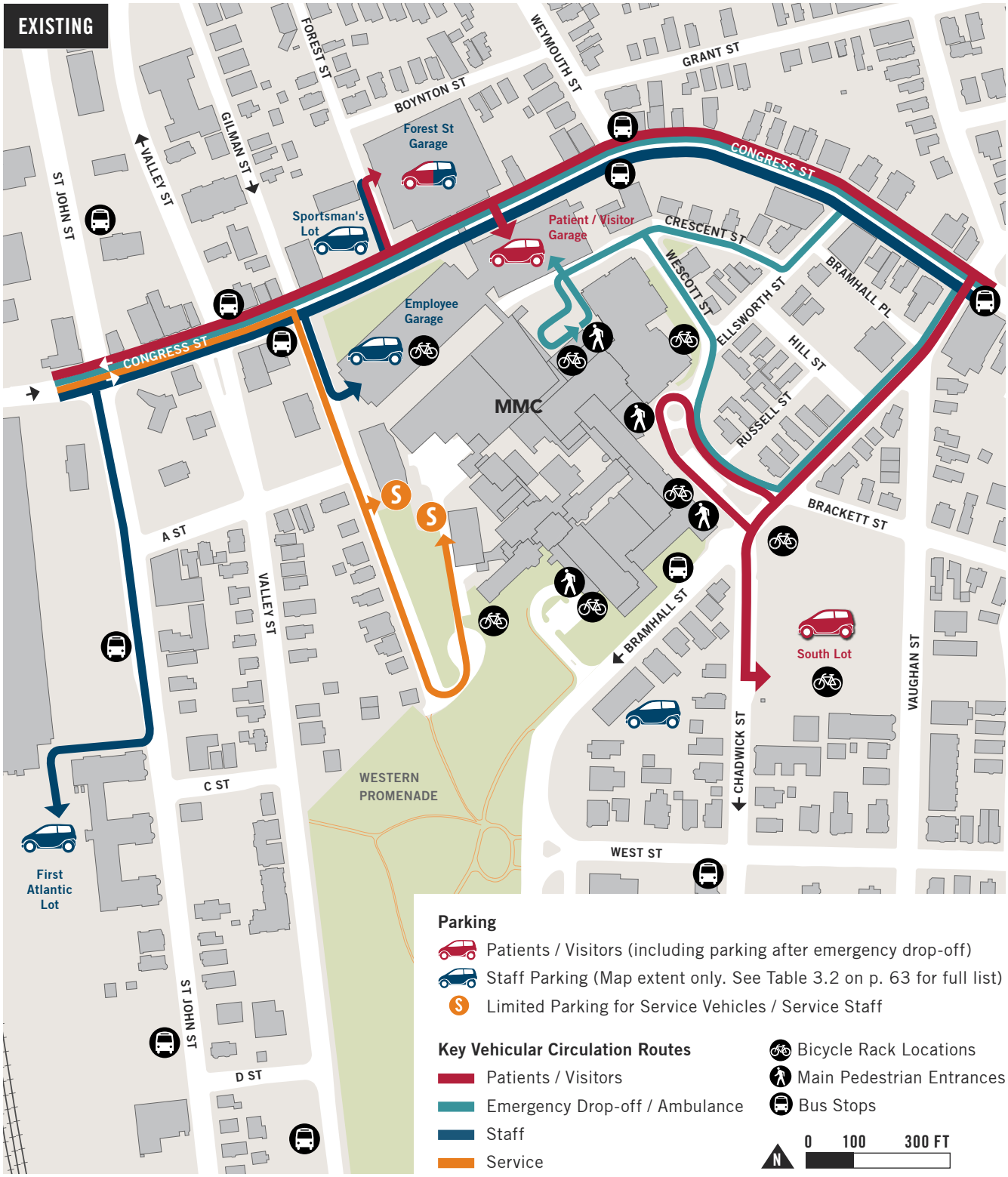
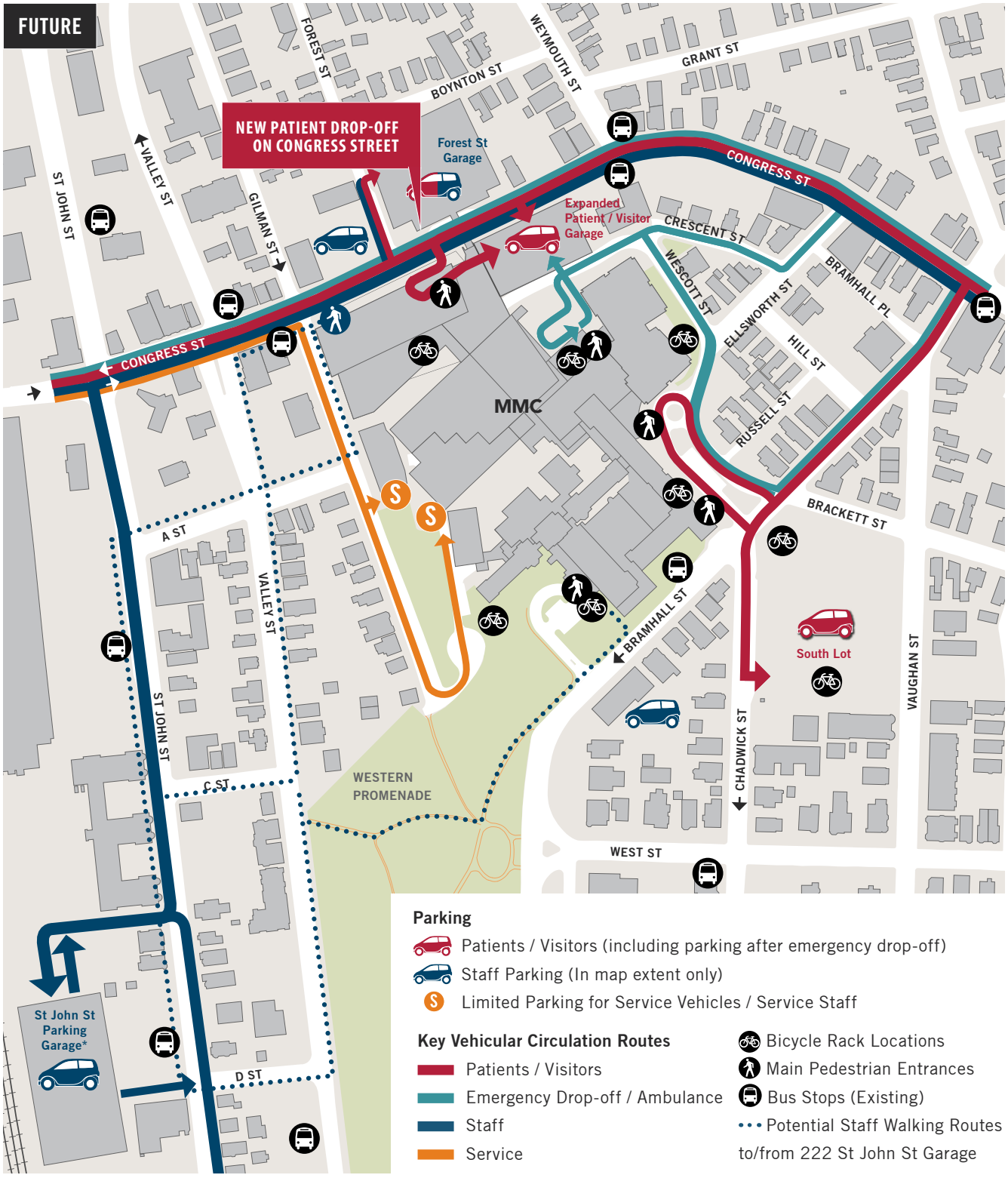


Fig.3.3 Transportation Plan (Future): Circulation Routes and Access Points



* NOTE: The exact location, footprint and access for St John St Garage to be determined during detailed design.

The safety evaluation considered crash data provided by MaineDOT for the period of 2014-2016, the most recent available at the time the analysis occurred. In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order for a location to be classified as an HCL:

1. A critical rate factor (CRF) of 1.00 or more for a three-year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average, and:
2. A minimum of eight crashes over the same three-year period.

Based on the crash data provided by MaineDOT, the HCLs in the vicinity of the site are: the intersection of Congress St with Bramhall St and Deering Ave, the intersection of Congress St with Gilman St, the intersection of Park Ave with Valley St, Congress St from Forest St to Weymouth St, and St. John St from Congress St to just south of Park Ave.

PROPOSED MODIFICATIONS TO ACCESS AND CIRCULATION

Proposed New Entrance

MMC's short-term projects include a new entrance on Congress St to improve access and egress for patients and visitors. Today, most motorists arrive on campus via Congress St: they either park off Congress St in the Patient / Visitor Garage, or use Bramhall St to reach the emergency room or entrance on Charles St, which also allows access to the Patient / Visitor Garage on an upper floor.

It is anticipated that the new Congress St entrance will be used primarily by vehicles dropping off or picking up patients, shuttle buses, or short-term deliveries (like flowers, etc). The entrance will be designed to allow vehicles to either exit back onto Congress St or directly enter the adjacent Patient / Visitor Garage after passing through the drop-off zone without having to go back onto the public street. The Charles St entrance (at the East Tower) will remain open and continue to accommodate some defined patient demand. Changes to patient / visitor circulation and the impacts on Congress St traffic operations will be studied as part of the Traffic Movement Permit Application (TMP) process.

The new entrance on Congress St is expected to improve access to the campus while reducing vehicular traffic on neighborhood streets. Work is currently underway to identify design options for the new entrance and drop-off that minimizes impact on existing pedestrian, bicycle, transit and vehicular traffic along Congress St. The proposed site plan will be reviewed as part of the State's Traffic Movement Permit (TMP) Application during the City's Site Plan review process.

Proposed Employee Parking

As part of MMC's short-term projects, the existing Employee Garage will be demolished. MMC is collaborating with a third-party developer to build a 2,200 space parking garage at 222 St John St. All staff parking will be consolidated to this new location.

PROJECTED TRAFFIC IMPACT

As mentioned previously, the traffic impacts of the MMC Short-Term Projects will be studied comprehensively as part of the Maine Department of Transportation (MaineDOT) Transportation Movement Permit (TMP) application process delegated to the City of Portland.

Some of the traffic items reviewed as part of the TMP will include:

- Trip generation methodology.
- Trip distribution assumptions.
- Weekday morning and evening traffic operations/capacity analyses.
- Average and 95% queue analyses for key intersection approaches.
- Pedestrian and bicycle safety evaluations.
- Identification of potential mitigation to address identified deficiencies created or exacerbated by the proposed development.

A high-level analysis of the projected changes in traffic as a result of estimated growth in the City of Portland and MMC's short-term projects was completed. Traffic volumes in the vicinity of MMC's Bramhall campus are anticipated to increase by approximately 3.5% between 2016 and 2023, without any MMC development, due to background traffic growth throughout the City. This increase is based on an estimated growth of 0.5% per year and compares the 2016 traffic volumes to the 2023 Pre-development traffic volumes (with no MMC development).

If the MMC employees utilize the 222 St John St garage, then traffic volumes at the intersection of St John Street / Congress Street may increase by approximately 17% and traffic volumes at the intersection of Valley St / Congress St may decrease by approximately 5% during peak commuter hours between 2016 and 2023. This increase compares the 2016 (seasonally adjusted) predevelopment traffic volumes to the 2023 Postdevelopment traffic volumes (with MMC development). This change in traffic volumes is due to the additional garage traffic (i.e. MMC expansion), the relocation of the existing employee garage traffic from Gilman Street to St John Street, and the background City traffic growth.

In 2023, the development of the employee parking garage at 222 St John St may increase total traffic volumes at the intersection of St John St / Congress St by approximately 12% during the peak commuter hours and approximately 56% during the peak hours of MMC shift changes that primarily occur during non-peak commuter hours. This is the increase

between 2023 Predevelopment volumes (with no MMC development) and 2023 Postdevelopment volumes (with MMC development). This increase is due to the additional garage traffic and the relocation of existing employee garage traffic from Gilman to St. John. Although the percentage increase during the peak hour of MMC shift changes appears high, the traffic volumes during the non-commuter peak hours with additional MMC development are still lower than the volumes during the peak hours of commuter traffic without significant additional MMC development.

MMC's traffic volume is expected to decrease at other intersections near satellite parking locations as a result of consolidating parking at 222 St John St. Although traffic due to MMC is anticipated to decrease at intersections near the satellite parking lots, total traffic volumes at those intersections may not change significantly, since different users may still utilize the lots. However, regardless of traffic volumes, there will be less vehicle miles travelled on the roadway network, since MMC employees will no longer be driving around the streets seeking out the last remaining parking spaces.

PARKING

MMC offers its patients, visitors, physicians, and employees several options for parking. MMC currently controls approximately 2,877 total off-street parking spaces either via ownership or through leases with others that specifically serve the Bramhall Campus. Of the 2,877 spaces, 2,027 parking spaces are subscribed to staff and physicians. About 1,538 of these employee parking spaces are located on the Bramhall Campus..

In addition to their on-campus parking spaces, MMC controls an additional 489 spaces for employees in remote parking facilities that serve the Bramhall Campus. Off-site spaces that are used by employees require shuttle services to the Bramhall Campus by dedicated shuttle services. **Table 3.2** on the following page provides a summary of existing MMC parking facilities. MMC has continued to see demands on the existing supply intensify due to increased patient volumes and higher acuity patients (longer lengths of stay).

In order to assess MMC's existing and future parking demand, a nationally recognized consulting firm was hired that specializes in this work. Vanasse Hangen Brustlin, Inc. (VHB) began working with MMC in January 2017. VHB also has done work for the City of Portland.

EXISTING PARKING ANALYSIS

The existing parking garages and surface lots are not equipped to readily collect and compile entrance, exit, and occupancy data electronically. As a result, in order to collect baseline data,

Table 3.2 Existing Parking Spaces

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS 850 patient / visitor 1,538 employee spaces	Employee Garage	0	1,274	1,274	Owned
	Patient / Visitor Garage	480	0	480	Owned
	South Lot	370	0	370	Owned
	887 Congress (Forest St Garage)*	0	178	178	Owned
	7 Bramhall St	0	26	26	*Leased*
	905 Congress St (Sportsman Lot)	0	60	60	*Leased*
OFF-CAMPUS 489 employee spaces	222 St John St (First Atlantic Lot)	0	283	283	*Leased*
	181 High St (Gateway Garage)	0	100	100	*Leased*
	993 Congress St (Classic Lot)	0	97	97	Owned
	321 Brackett St	0	9	9	*Leased*
	TOTAL PARKING SPACES	850 Patient / Visitor	2,027 Employee	2,877 Total	

* The Forest St Garage has an additional 222 spaces that are dedicated to medical office staff and patients.

detailed hourly parking occupancy counts were conducted on March 8, 2017 and March 9, 2017 by VHB. The goal of these parking counts was to collect temporal parking data at the Employee garage, the Patient / Visitor garage, and the South Lot to confirm parking surge (between daytime and evening staff shift changes) and overnight demand. Hourly counts were conducted from 5am to 12pm, 3pm to 8pm, and 10pm to 12am. This data have been compiled to quantify the existing conditions parking demand estimates.

Additional parking occupancy counts were conducted daily between April 24, 2017 and April 28, 2017 at 10am and 2pm by MMC. MMC parking was 93% occupied throughout the week.

Overall, existing parking demand conditions at MMC were quantified via a combination of distinct actions:

- Weekday occupancy parking counts were conducted to understand utilization at key points in time to assess peak occupancy, overnight occupancy, and intervals of weekday garage entries and exits. These counts were conducted in March and April 2017.
- Intermittent spot checks of parking utilization and access/egress were conducted from January through March 2017 by MMC and its consulting team.

- MMC Parking and Security staff and the City of Portland Parking Director provided input regarding their observations and experiences relating to the utilization of parking.

These counts, observations and input indicate that the parking system typically operates at or above capacity during weekday daytime.

CURRENT PARKING SHORTAGE

MMC's 850 patient/visitor parking spaces equates to +/- 1.33 parking spaces per bed. This is low when compared to other New England and national peers. Patient drive rate is consistently high among large academic medical centers regardless of location. Therefore it is appropriate and reasonable to compare MMC patient parking needs on a space per bed basis to highly urban, suburban, and rural settings. MMC would need about 340 additional patient/visitor parking spaces to achieve the midpoint parking space/bed ratio (approximately 1.87) of its peers.

MMC's 2,027 staff parking spaces equates to about 3.18 parking spaces per bed. This ratio is also low when compared to other peer institutions. When studying employee parking needs, it is important to compare institutions that would reside in similar contexts where driving behavior and auto mode shares would be similar.

During the analysis, MMC's consultant team attempted to identify comparable medical centers. A significantly similar comparison medical center does not exist due to the number of factors impacting parking. The medical centers that were determined to be somewhat similar and adequate comparisons had median parking ratios of 1.87 for patients/visitors and 4.38 for employees.

Under current conditions, MMC will require 150-200 additional on-campus parking spaces to alleviate current staff parking shortfalls that have been estimated via observations and data collection activities and eliminate on-street parking by MMC staff. To help existing demand pressures, MMC continues to pursue a number of strategies to address its constrained parking situation, including:

- The study of enhanced Transportation Demand Management (TDM) actions to reduce single-occupancy vehicle trips and parking demand,
- Moving employees to off-campus locations (both program and parking), and,
- Securing additional remote parking and serving that remote parking with convenient shuttle services for staff.

MMC's existing decentralized parking solution creates management challenges and is an employee dissatisfier. Management challenges include multiple shuttle routes that add to traffic congestion on Portland's streets and the high cost of servicing and operating multiple shuttles. MMC employees frequently share that the employee parking at the Bramhall Campus is unreliable. There are eight

parking locations available for MMC employees. When one location is full, employees have to search other locations for available parking which adds to traffic congestion on Portland's streets. On days when MMC is near or at capacity, finding a parking spot in a reasonable amount of time is a challenge.

PLANNING GOALS FOR PARKING

With regard to Parking, MMC's goal is to accomplish the following key objectives:

1. Support a predictable arrival experience for patients and visitors,
2. Where feasible, allow for segregation of MMC patients/visitors and staff parking,
3. Address neighborhood concerns of MMC staff occupying on-street parking spaces,
4. Provide a parking supply that is sufficient to support the Medical Center,
5. Rely upon an enhanced TDM program to help reduce vehicle trips and parking demands when reasonably feasible.

FUTURE DEMAND PROJECTIONS

Future patient, visitor, staff and physician parking needs were quantified based on an assessment of MMC's patient volume (inpatient and outpatient activity) and staff growth projections. The demand for patient care at MMC is growing as described under **"Projected Daily Census" on page 40**. MMC anticipates that the overall patient demand will grow by approximately 8 percent over the next ten years (or 0.75 percent per year). Similarly, employment at MMC is expected to grow by approximately 7 percent over the next ten years (or 0.7 percent per year). We expect patient and patient-related and employee parking demand will increase at similar rates. This demand will be offset by Transportation Demand Management methods described later in this chapter. These expected trends have been used to estimate the increased parking needs of the Hospital.

The following key points summarize MMC parking activity under current conditions, and provide the context for assessing and understanding the parking objectives that are proposed for the transportation plan:

- Under current conditions, the MMC parking system typically operates at or above capacity during weekday daytime hours.
- The hospital requires about 150-200 additional on-campus parking spaces to alleviate current 2017 staff parking shortfalls. These estimates are based on several iterations of counts, observations, and input from MMC, as described previously.
- When compared to other peer academic medical centers, MMC generally has a lower parking-to-licensed bed ratio both for its patients as well as its physicians and staff. There is not an industry standard method for comparing hospital parking supply. The number of patient beds was used as the common factor in this analysis because of its relative uniformity among academic medical centers.

PROPOSED MODIFICATIONS TO PARKING

MMC's short-term projects include:

1. Patient / Visitor Garage Addition: MMC will expand its existing 480-space Patient / Visitor Garage by three levels to accommodate an additional 225 spaces by 2019.

2. New St John St Garage: MMC will deconstruct the existing 1,274-space Employee Garage and will construct a replacement garage that will supply approximately 2,200 spaces for MMC. MMC intends to provide a reliable and complete parking solution for employees.

FUTURE PATIENT / VISITOR PARKING

Once the Patient / Visitor Garage Addition is completed, the patient parking supply will be adequate to meet the growing needs of the patients and visitors.

MMC's short-term projects will increase patient/visitor parking supply from 850 spaces to 1,075 spaces. As a ratio of parking spaces per bed, MMC's on-campus patient parking system will improve from an existing ratio of 1.33 (a rate that is low when compared to peers) to 1.68 (average to its peers).

FUTURE EMPLOYEE PARKING

In total, MMC estimates a need for 500-600 additional staff/physician parking spaces to accommodate future demands and resolve the existing parking shortage. The 2,200 employee parking spaces in the new St John St Garage are intended to accomplish the following:

- Accommodate expected staff growth,
- Provide for replacement parking to support demolition of the existing Employee Garage,
- Consolidate existing remote surface parking, and
- Reduce parking by staff on surrounding neighborhood streets.

This increase in employee parking supply will improve MMC's ratio of employee parking to patient beds from their existing ratio of 3.18, which is very low when compared to peer academic medical centers.

The proposed St John St Garage will consolidate the majority of MMC's employee parking which will improve employee satisfaction and minimize management challenges. A smaller and more reliable shuttle service will be available to MMC employees getting to and from the parking garage. In addition, the St John St location is 3 tenths of a mile from the Bramhall Campus and MMC will encourage walking.

ALTERNATIVE TRANSPORTATION

MMC supports and aims to increase the use of alternative transportation by its employees, patients and visitors through the implementation of its Transportation Demand Management (TDM) Plan outlined on page 74. Ongoing collaboration with the City of Portland, local and regional transit agencies, and neighborhood and advocacy organizations is planned to ensure the improvement of pedestrian, bicycle and transit infrastructure and networks serving the campus.

MMC solicited input from neighbors on the topics of vehicular, bicyclist and pedestrian safety around the campus at its January 12, 2017 Open House. Key findings from this meeting are summarized at the end of this section under the heading "Future Transportation Planning Considerations." MMC has shared the Open House results with the City of Portland and neighborhood representatives. MMC will continue working with neighbors, City staff, and elected officials to address vehicular, pedestrian and bicyclist safety concerns around its campus as part of its ongoing community engagement process (see page 130).

PUBLIC TRANSIT ACCESS

METRO provides bus service throughout the Greater Portland region and makes stops within walking distance to the MMC Bramhall campus. The campus is also served by the ZOOM Turnpike Express route operated by ShuttleBus–ZOOM.

Multiple METRO routes accessible from the campus provide connections to the nearby Portland Transportation Center (PTC) and the Downtown Hub, which are served by additional METRO and regional bus lines. The PTC also serves as the local connection to Amtrak's Downeaster service that runs along the coast between Boston and Brunswick. See **Fig.3.4** and **Table 3.3** on the following pages for an illustration of bus routes and bus stops within walking distance of the MMC campus. All buses serving the campus are equipped with bike racks to enable multi-modal commutes.

MMC supports mass transit commutes and provides financial incentives to employees choosing public transit as part of its Transportation Demand Management (TDM) program. MMC will provide enhanced incentives and work with METRO to improve transit access for all campus users as part of its future TDM Plan. See "Supporting Mass Transit Commutes" on page 78 for details.

Detailed design of each new development on campus will consider the location of nearby transit stops, and identify any necessary changes to locations to better serve transit users.

Fig.3.4 Map of Existing Transit Routes and Stops

MMC Main Pedestrian Entrance
Bicycle Rack Locations
Existing Bus Stops around Campus (see opposite page for transit route legend)

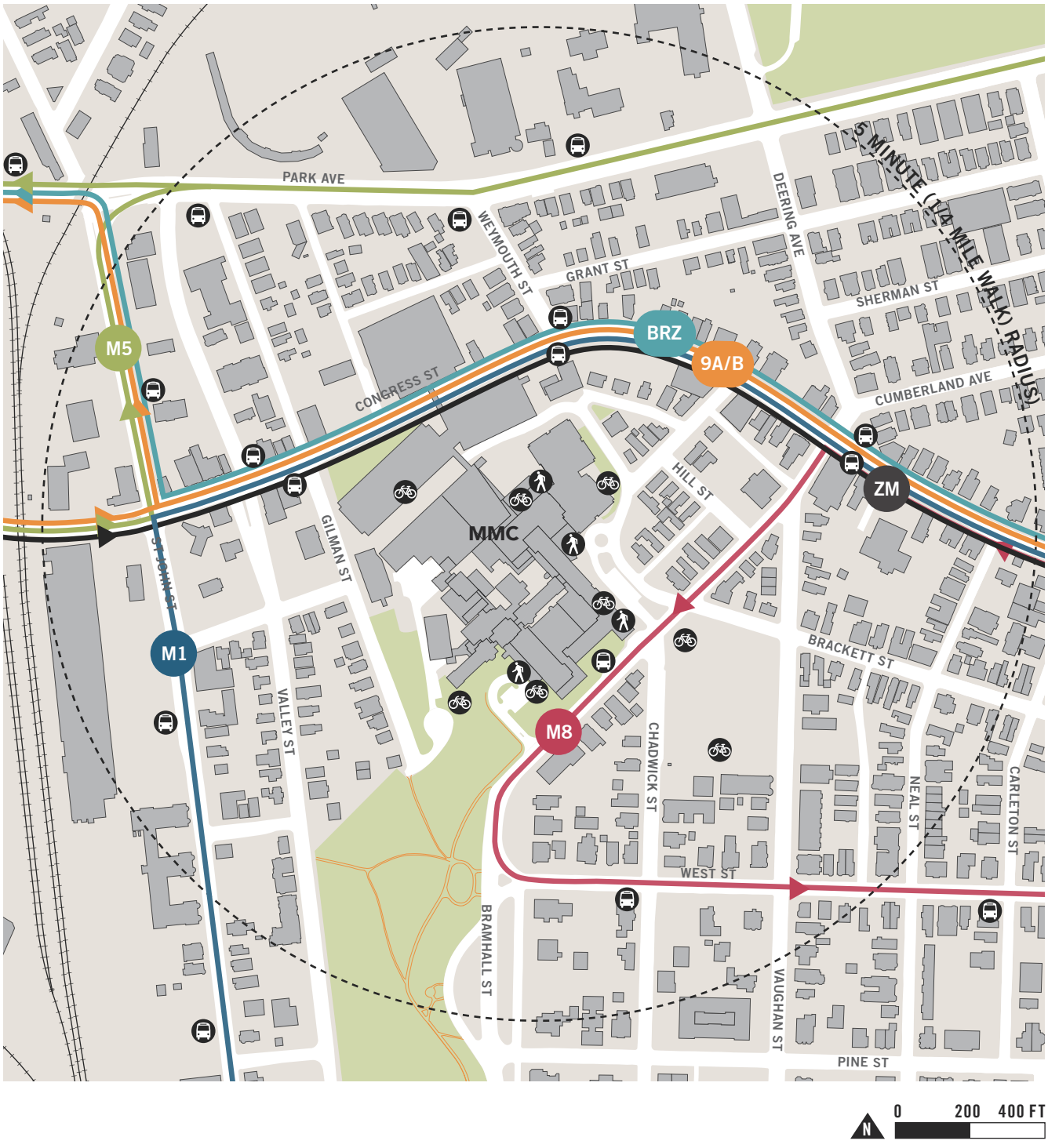


Table 3.3 Bus Routes Serving MMC Bramhall Campus

The following bus routes are accessible within a five minute walk of the MMC campus. See **Fig.3.4 on** opposite page for location of routes and bus stops.

M1 **M1 – CONGRESS STREET**
Connection to Portland Transportation Center (PTC), Downtown, Munjoy Hill and Eastern Promenade

M5 **M5 – JETPORT / MAINE MALL**
Connection to Downtown, Hannaford Plaza, Maine Mall and Portland Jetport

M8 **M8 – PENINSULA LOOP**
Connection to Downtown, Franklin Towers, Whole Foods Plaza and Hannaford Plaza

9A/B **M9A / 9B – NORTH DEERING VIA STEVENS AVENUE**
Connection to MMC Brighton campus, Highlands, Rosemont, and North Deering

BRZ **METRO BREEZ EXPRESS (BRZ)**
Connection to PTC, Downtown, Falmouth, Yarmouth, Freeport

ZM **ZOOM Turnpike Express (ZM)**
Connection to Biddeford and Saco

Rte #	Closest Stop	Times of Operation	Headways
M1	Congress St	5:35am to 11:10pm (M-F) 7:45am to 6:05pm (Sat) 8:10am-6:35pm (Sun)	Varies between every 30 minutes during daytime to every 45 minutes late evenings
M5	St John St	5:30am to 10:45pm (M-F) 6:05am to 10:45am (Sat) 7:55am to 6:40pm (Sun)	Varies between 25-35 minutes during weekdays (daytime) to every 40-45 minutes on weekend evenings
M8	Bramhall	6:40am to 6:00pm (M-F) 7:50am to 6:17 pm (Sat) 9:35am-4:17pm (Sun)	Varies between every 30-40 minutes during weekdays to every hour during weekends
M9A/9B	Congress	5:35am to 10:35pm (M-F) 7:35am to 10:30pm (Sat) 8:35am-4:35pm (Sun)	Varies between 10 minutes on weekday mornings to every 1 hours on weekends and evenings
BRZ	Congress	6:00am to 7:45pm (M-F) 8:20am to 6:10pm (Sat) No Sunday Service	Varies between 45 minutes on weekday mornings to every 2 hours on Saturdays
ZOOM	Bramhall and Congress	6:00am to 6:40pm (M-F) No Weekend Service	5 buses in the morning b/w 6am-8:17am 6 buses in the afternoon b/w 2:46pm-5:35pm

Fig.3.5 Heatmap Showing Popular Bicycle Routes in the Area, as Recorded by Strava App Users

less more

Source: Based on self-tracking app data mapped by Strava Labs (labs.strava.com/heatmap)

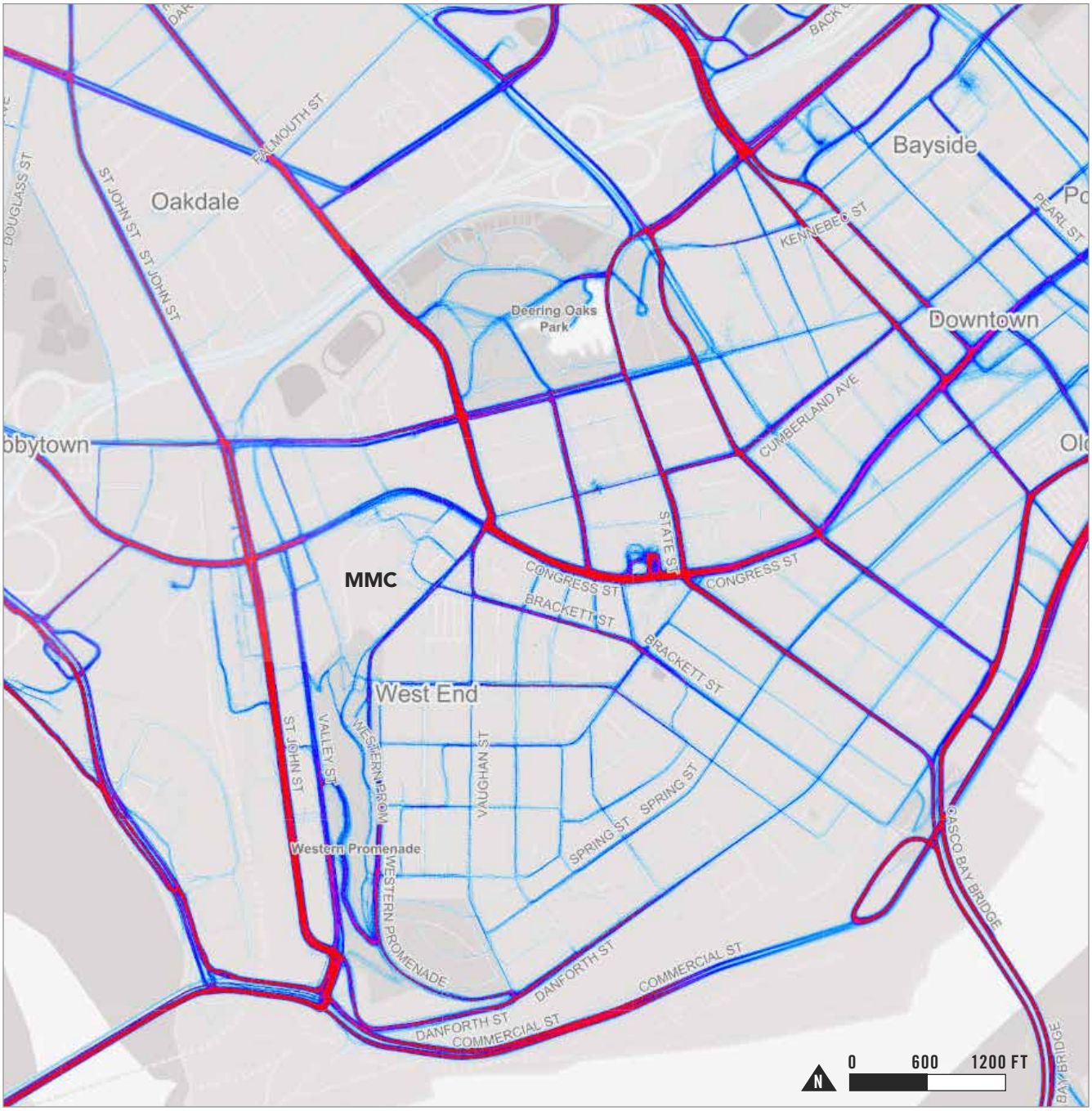


Fig.3.6 Portland Bikeway and Pedestrian Network *(Source: City of Portland, 2014)*

EXISTING FACILITIES

- Bicycle Lane
- Paved Shoulder
- Neighborhood Byway
- Shared Use Pathway
- Shared Lane, with Marking
- Shared Lane

PLANNED FACILITIES

- On Road Bikeway
- Neighborhood Byway
- Shared Use Pathway or Rail with Trail

BICYCLE ACCESS AND STORAGE

As shown in **Fig.3.5 on page 70**, bicycling is prevalent within the City of Portland, however, bike use at and around the MMC campus is generally lower than in other Portland locations. This could be a result of the severe grades in the Bramhall neighborhood, but also the lack of strong municipal bicycling infrastructure, including dedicated bike lanes, paths and sharrows.

MMC is committed to supporting bicycle access to the Bramhall campus by all users, including employees. In recent years, the hospital has invested in bicycle racks, showers, and lockers, and currently has the capacity to accommodate parking for up to 193 bicycles on campus (see **Fig.3.2 on page 58** for locations). MMC aims to continue support employees who bike to work as a part of its TDM plan (see "Supporting Bicycle Commutes" on page 79).

MMC is an advocate of the City of Portland's Bikeway Network Plan, which will provide bicycle infrastructure on campus adjacent streets with linkages to existing and planned shared use pathways (see **Fig.3.6 on page 71**).

Detailed design of each new development on campus will identify any necessary changes to bike infrastructure to better serve the needs of those arriving by bike.

PEDESTRIAN ACCESS AND CIRCULATION

Whether they arrive on campus by car, by bus or by bicycle, all campus users are pedestrians at some point in their journey to their MMC destination. Like other medical centers of its size, MMC provides elevated, covered, and temperature-controlled pedestrian walkways between its parking garages and key campus circulation corridors. This limits exposure to adverse weather conditions, facilitates wayfinding for patients / visitors, and minimizes on-street vehicle / pedestrian conflicts.

MMC also maintains its network of campus pathways and campus-adjacent public sidewalks to ensure safe pedestrian access to campus facilities (see **Fig.3.2 on page 58** for location of key pedestrian entrances).

MMC will complete a campus-wide ROW Plan at the time of its first site plan review that includes sidewalk materials to clarify the need for any variations from current city policies and how they would be integrated into the public realm. In order to improve slip resistance and ADA accessibility, MMC may request waivers from the city's sidewalk material policy under site plan review.

MMC aims to improve pedestrian access to campus with future building projects by orienting building entrances to public streets and providing active ground floor uses where possible. (See "Design Guidelines" on page 116 for details.). MMC will also work with the City and other stakeholders

including the St. John Valley Neiighborhood Association to identify potential improvement that could be implemented to pedestrian routes between the proposed St John Garage (see **Fig.2.7 on page 44**) and the core campus.

FUTURE TRANSPORTATION PLANNING CONSIDERATIONS

MMC continues to solicit input from its neighbors to identify transportation-related issues and possible improvements that should receive additional consideration during the planning and design of future projects by MMC and the City. Key issues identified in this process to date include the following:

- Chadwick Street: A portion of Chadwick Street is one-way. The conversion to two-way could reduce the amount of traffic going further into the West-end neighborhood and help slow vehicular speeds to levels that are safer for pedestrians and bicyclists.
- Chadwick Street at West Street: Neighbors have observed low compliance with stop-signs and two-way travel on one-way streets.
- Vaughan Street at Bramhall Street: This is a difficult intersection geometry for pedestrians, cyclists and vehicles.

TRANSPORTATION DEMAND MANAGEMENT (TDM)

MMC has an active Transportation Demand Management (TDM) program that was one of the first in the state of Maine when launched in 2008. The program aims to reduce MMC's impact on peninsular traffic by subsidizing and marketing of alternative commute options including walking, bicycling, public transit, and rideshare. Known as "Get on Board!," this voluntary program has grown each year through increased enrollment.

In 2017, MMC engaged VHB, a consulting firm with expertise in this area, to update and enhance its TDM program and to inform its long-term plans for parking, in particular.

This section provides a summary of VHB's analysis of existing employee commuter behavior, and outlines proposed updates to the "Get on Board!" program that will be implemented in the near- and long-term to further reduce single-occupant vehicle (SOV) commutes by employees.

EMPLOYEE COMMUTES: 2017 BASELINE

As part of its efforts to monitor and enhance the "Get on Board!" program, MMC recently administered a voluntary transportation survey with its employees. The survey showed that 9% of employees use alternatives to SOV commutes (see **Fig.3.7 on page 75**). Based on the expert knowledge and experience of VHB, the high percentage of employees driving to work alone and parking near campus is not unexpected given the nature of the services provided, the dispersed geographic footprint of where MMC employees live, and the availability of viable transportation alternatives to driving. Detailed analysis of employee driving distance to work is illustrated in **Fig.3.8** and **Fig.3.9** on the following pages.

FUTURE TDM TARGETS

Based on a review of census data, employee travel origin and destination information, existing employee travel mode split, and transportation survey results, MMC believes it can further reduce the portion of employees driving alone to work, thus reducing trip making and resultant parking demands. An initial estimate is that an additional 1.5% of the daytime population could be shifted into alternative modes of accessing the campus. This represents approximately 65 fewer individuals driving alone to campus.

The reduction would be achieved through MMC's existing TDM initiatives, as well as new strategies that will be implemented over time. MMC will endeavor to increase its employees' overall use of alternative modes of travel beyond the target identified above through further enhancements or program expansions in the coming years and depending upon initiatives by the City, GPCOG, and others.

MMC's enhanced TDM Plan draws on national best practices and suggested examples from the City of Portland Planning Staff. City suggestions included evaluating the Downtown Parking Management

Fig.3.7 MMC Bramhall Campus Employees Commuting Mode Split (2017)

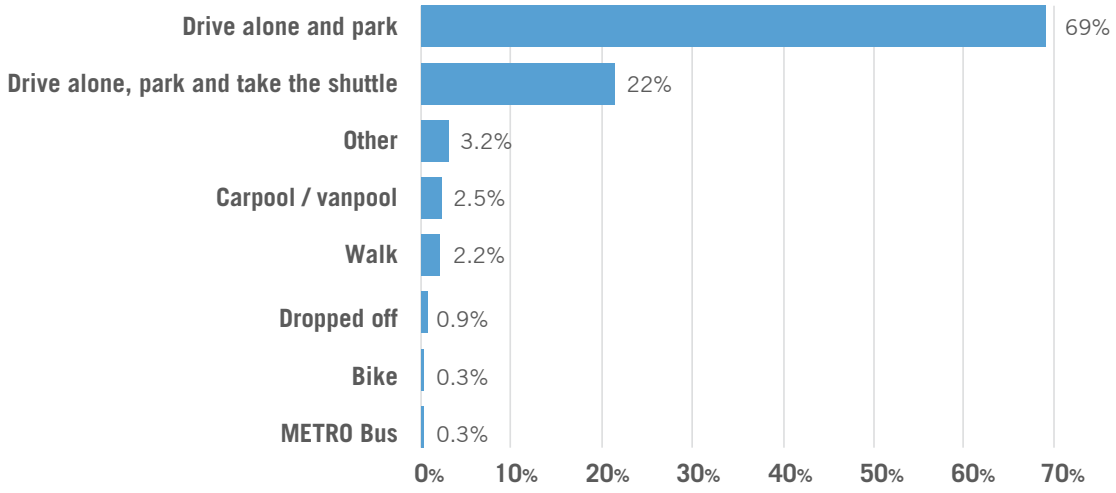


Fig.3.8 MMC Bramhall Campus Employees, Distance to Work by Type of Employee

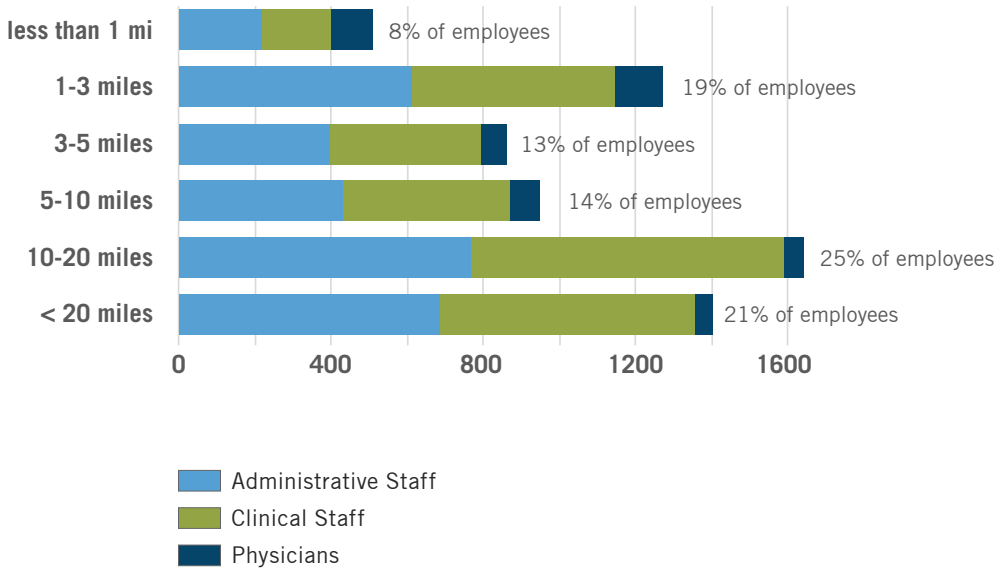
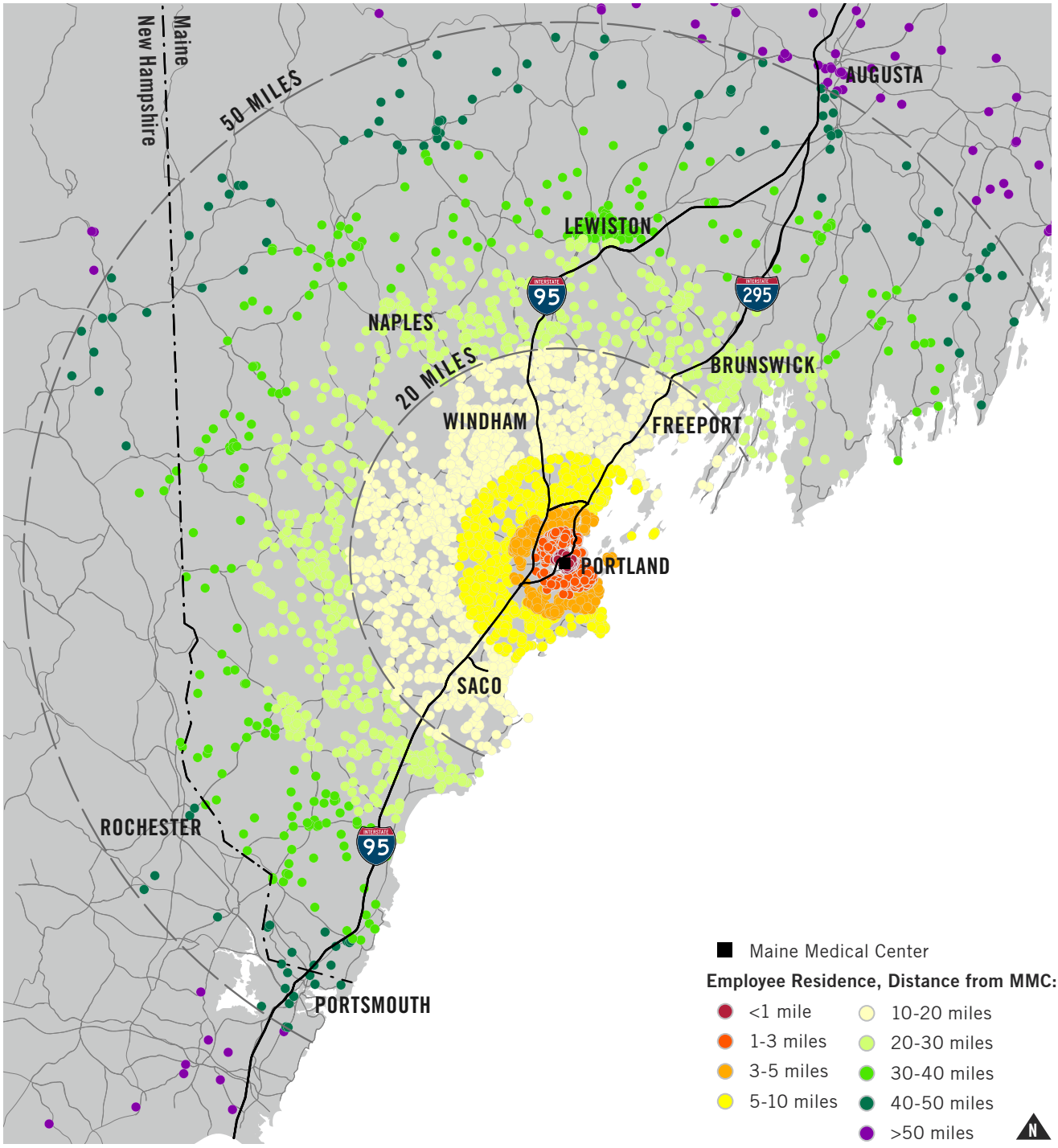


Fig.3.9 Map of MMC Bramhall Campus Employee Residences Illustrating Distance to Work and Travelsheds



Plan for Burlington, VT, an Institutional Parking Management Plan also for Burlington, VT, and a Transportation Demand Management Study for Downtown Syracuse, NY. Additionally, MMC also examined the commuting program instituted by Boston's Longwood Medical and Academic Area (LMA), known as CommuteWorks, and operated by MASCO, a consortium of hospitals, colleges and universities, and other related institutional uses. These programs were evaluated because of their efforts to manage SOV driving in a highly concentrated employment district.

Applicable Best Practices

- Collaboration among organizations in the area impacted
- Regular communication and education of alternative transportation benefits
- Pay for parking
- Complimentary support programs (i.e. guaranteed ride home, carpool)
- Regular monitoring of commute mode (i.e. surveys, automated data collection)

TDM PROGRAM COMPONENTS

Individual program elements and related incentives of MMC's TDM program are outlined below. These include continuation of existing initiatives, as well as the following new initiatives / enhancements that will be implemented starting in 2018:

- Data Collection
- "Get on Board!" Coordinator
- Increased Education of Employees about the "Get on Board!" Program
- Bi-Annual Transportation Survey
- Regional Connections Partnership
- Enhanced Transit Fare Discount / Partnership with METRO
- Enhanced Carpool/Vanpool Matching
- Active Transportation Incentives

MMC aims to achieve a 1.5 percent reduction in SOV commutes 5 years after the approval of the IDP. This target will be revised when a new baseline is established.

Data Collection

MMC will explore methods to improve data collection and implement a reasonable system to collect data on the transportation habits of employees and parking garage utilization.

"Get on Board!" Coordinator (New)

MMC will enlist the services of a "Get on Board!" Coordinator responsible for the implementation, operation and continuing sustainability of MMC's TDM. This individual will continually monitor the

program, its operations and future opportunities to reduce vehicle dependency by staff at MMC. The Coordinator will also be responsible for data collection and TDM updates as required.

Increased Education of Employees about the "Get on Board!" Program (New)

MMC will be enhancing the "Get on Board!" promotion and education process by periodically educating existing employees of the options and benefits available through the "Get on Board!" program. Additionally, newsletters will be distributed highlighting the environmental, health and other benefits of TDM.

Bi-Annual Transportation Survey (New)

MMC will conduct a Transportation Survey of its employees every 2 years to collect data about commuting mode split, barriers to TDM use and marketing effectiveness. Information from this survey will be included in the TDM plan updates.

Regional Connections Partnership (New)

MMC will seek to form partnerships with other major employers in the region, including the City of Portland, to foster a holistic approach to transportation demand management. The partnerships would enable the exchange of TDM-related information and experiences between institutions, and it would foster a community that is focused on promoting alternative transportation in the City of Portland.

Supporting Mass Transit Commutes (Enhanced)

MMC employees can purchase discounted bus tickets and Shuttle-Bus Zoom tickets conveniently in the cafeteria. MMC buys the tickets at the regular price and offers them to employees at the reduced prices listed in **Table 3.4** below. This is a clear demonstration of MMC's commitment to making "Get on Board!" work.

Table 3.4 MMC Current Transit Incentives

	MMC COST	EMPLOYEE COST
METRO (10 RIDES)	$13.50	$8
S. PORTLAND (10 RIDES)	$13.50	$8
ZOOM (10 RIDES)	$39	$29.60
ZOOM MONTHLY	$100	$84.50
ZOOM QUARTERLY	$260	$197.50

MMC will fully subsidize the cost of METRO bus tickets for employees who wish to use the bus for the foreseeable future so long as the cost of METRO bus tickets remains as illustrated in **Table 3.4**. If METRO bus ticket costs change, then MMC will evaluate utilization and work with METRO to find the best solution to support employees who wish to use the METRO. Subsidizing METRO tickets would provide employees with an additional financial incentive to use the transit system serving the MMC district.

METRO's existing routes and schedules cannot meet all of MMC's employees' transportation needs, however. Although the MMC campus is well served by bus transit (See **Fig.3.4 on page 68**), the limited hours of operation and the long headways

between runs do not provide a viable alternative to the car even for those employees who can walk to a bus stop from their residence. (See **Table 3.3 on page 69).**

MMC intends to explore a partnership with the Greater Portland Transit District (METRO) to identify strategies for increasing MMC ridership, such as service updates and/or pricing agreements. The formation of a partnership could be mutually beneficial, by providing METRO with feedback for increasing ridership while maximizing the usefulness of the transit system for MMC employees. As MMC formalizes its ties to other local institutions through a regional partnership, its collaboration with METRO could also extend to other employers.

Supporting Employee Carpools (Enhanced)

"Get on Board!'s" most successful initiative to date has been its carpooling program. Most of these connections are ad-hoc. MMC will promote increase participation by actively matching potential riders. Additionally, while Go Maine is the primary administrator of vanpools in the state, MMC will work to proactively identify and assist with the formation of vanpools.

The employee "Get on Board!" portal is linked to the GoMAINE Commuter Connections website, which is an alternative commuting program operated by MDOT. GoMAINE provides commuters with additional commuting resources and benefits that supplement those provided by MMC. These benefits include a carpool ride-matching program and a rewards program for participants.

Supporting Bicycle Commutes (Enhanced)

The MMC campus is located in close proximity to popular bicycle corridors, including St John and Congress Sts which connect riders to destinations across the City of Portland (see **Fig.3.5 on page 70**). MMC has worked diligently to support bicycle commuters. In 2008, MMC installed five strategically-located bike racks and ten bike lockers on their Bramhall Campus. Three new bicycle racks were added in the vicinity of the Main entrance and in the South Lot in 2016, bringing total storage capacity to 193 bicycles across campus (see **Fig.3.2 on page 58** for location of bicycle racks on campus). Bicycle commuters also have access to a shared toolshed with basic tools.

MMC will undertake an internal marketing program which offers fun and useful prizes for those participating in alternative modes of transportation. Making alternative transportation fun and a community-wide effort is likely to increase participation by some who might not otherwise engage in the process.

Pay for Parking

MMC will charge its employees no less than $3 per paycheck to utilize MMC parking. MMC employees are paid bi-weekly. MMC will evaluate employee parking fees in the mid-term.

Guaranteed Ride Home (GRH) Program

For those employees who regularly use alternative modes of transportation to and from its Bramhall Campus, MMC will guarantee a ride home in emergency situations.

UCar

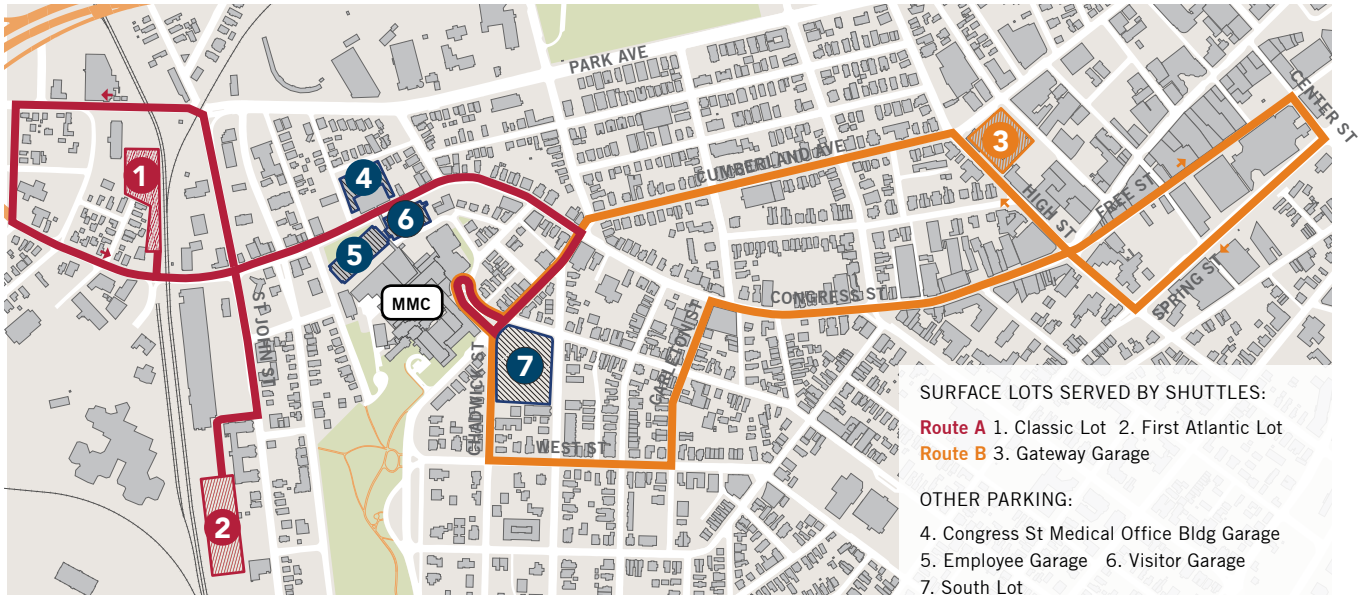
Working with UHaul and the City's Parking Department, MMC will continue to monitor the use of the UCar presently located in its Congress St parking garage. In the event an additional car is warranted, MMC will work with its partners in finding a suitable location on the main campus for the storage and use of the UCar.

MMC Employee Shuttles: Current Service

The MMC employee shuttle operates Monday-Friday from 6am to 11pm. The number of shuttles running to off-site parking locations at any given time varies from 1-5 shuttles depending on traffic volume. These off-site lots fill to capacity on a daily basis. The employee shuttle service has three distinct routes and schedules:

A. Service to and from the off-site 1st Atlantic and Classic parking lots runs from Monday through Friday from 6am to 11pm, in a continuous loop. The 1st Atlantic parking lot (222 St John St) is utilized first in the mornings. Once it nears capacity, service shifts to the Classic parking lot (993 Congress St). Return trips in the evenings service both lots.

Fig.3.10 Map of MMC Shuttle Routes A & B.



B. The Gateway shuttle moves employees between the MMC Bramhall campus, the Gateway office building / garage and the MaineHealth home office at 110 Free St. The shuttle leaves every 20 minutes from the south entrance Monday through Friday from 6am to 4pm. Transportation is provided on an "On Call" basis between 4pm and 11pm. This shuttle also provides a limited courtesy transportation service to patient families staying at the Ronald McDonald House (250 Brackett St.).

C. A courtesy shuttle runs between Brighton Medical Center (335 Brighton Ave) and MMC every 20 minutes from 6am to 4pm.

The shuttles provide a predictable alternative to employees commuting between the three sites while reducing vehicular traffic in and around campus.

MMC has instituted a shuttle service for contractors from the Classic Parking Lot (993 Congress St) to the hospital to reduce traffic and parking impact on the campus and surrounding neighborhoods. In 2015, MMC added a 20-space contractor lot on Forest St. Only essential contractor vehicles are permitted to park on campus: contractor parking passes are distributed by the Engineering Department on a case-by-case basis.

MMC Employee Shuttles: Future Routes

Once the St John St garage is complete and the majority of MMC employee parking is consolidated to that location, a new shuttle route will be established that reduces the amount of traffic around City streets and provides a reliable method of transportation for MMC employees. Future shuttle routes will be determined during the site plan review process.

CHAPTER FOUR

ENVIRONMENTAL AND INFRASTRUCTURE PLAN

Sustainable and resilient infrastructure is key to ensure safe and efficient operations of healthcare facilities in the 21st century. Maine Medical Center is seeking to advance its good stewardship of environmental and infrastructure resources through its Institutional Development Plan.

NATURAL RESOURCE PROTECTION

The Maine Medical Center Bramhall campus is located at a high point in the west end of the Portland peninsula. There are several locations where natural resources are significant:

- The Western Promenade, a culturally significant public park that is listed in the National Registry of Historic Places (NRHP'89, see **Fig.4.1)**;
- MMC-owned landscape along Bramhall St abutting the Western Promenade and serving as a foreground to the Maine General Building and original hospital structure;
- MMC, located in an urban setting, maintains small landscaped areas that provide visual respite from surrounding hard scape. These areas are well maintained, flowers watered and mulched and trees fertilized in order to preserve the pleasing aesthetics important to its neighbors, employees and patients; and,
- MMC-owned natural area along Gilman St. This steeply sloping zone contains natural vegetation consisting primarily of mature evergreen tree growth which serves as a natural buffer between the hospital and residences on Gilman St.

The Western Promenade, in particular, is a treasured resource for the public, including employees, patients and visitors to the MMC Bramhall Campus. It is a site from which to take in views of the countryside and the White Mountains. The Master Facility Plan utilizes vertical expansion and/or previously developed sites to minimize impact on natural resources and maintain existing campus open spaces. The plan does not encroach upon or negatively impact any of the natural resources listed above.

Fig.4.2 on page 85 illustrates the location of these natural resources in relation to the proposed short- and long-term projects.

Fig.4.1 MMC IOZ: Relationship to the Western Promenade

Fig.4.2 MMC Environmental Protection and Operations Plan

* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

STORMWATER MANAGEMENT

The MMC Bramhall campus is located at a high point in the west end of the Portland peninsula. From the high point of the property along Bramhall St, runoff from the site drains west, north and east entering the to the City of Portland's separated storm drain system and combined sewer system. The campus terrain and location of high slopes that contribute to stormwater flows is illustrated on **Fig.4.3 on page 86**.

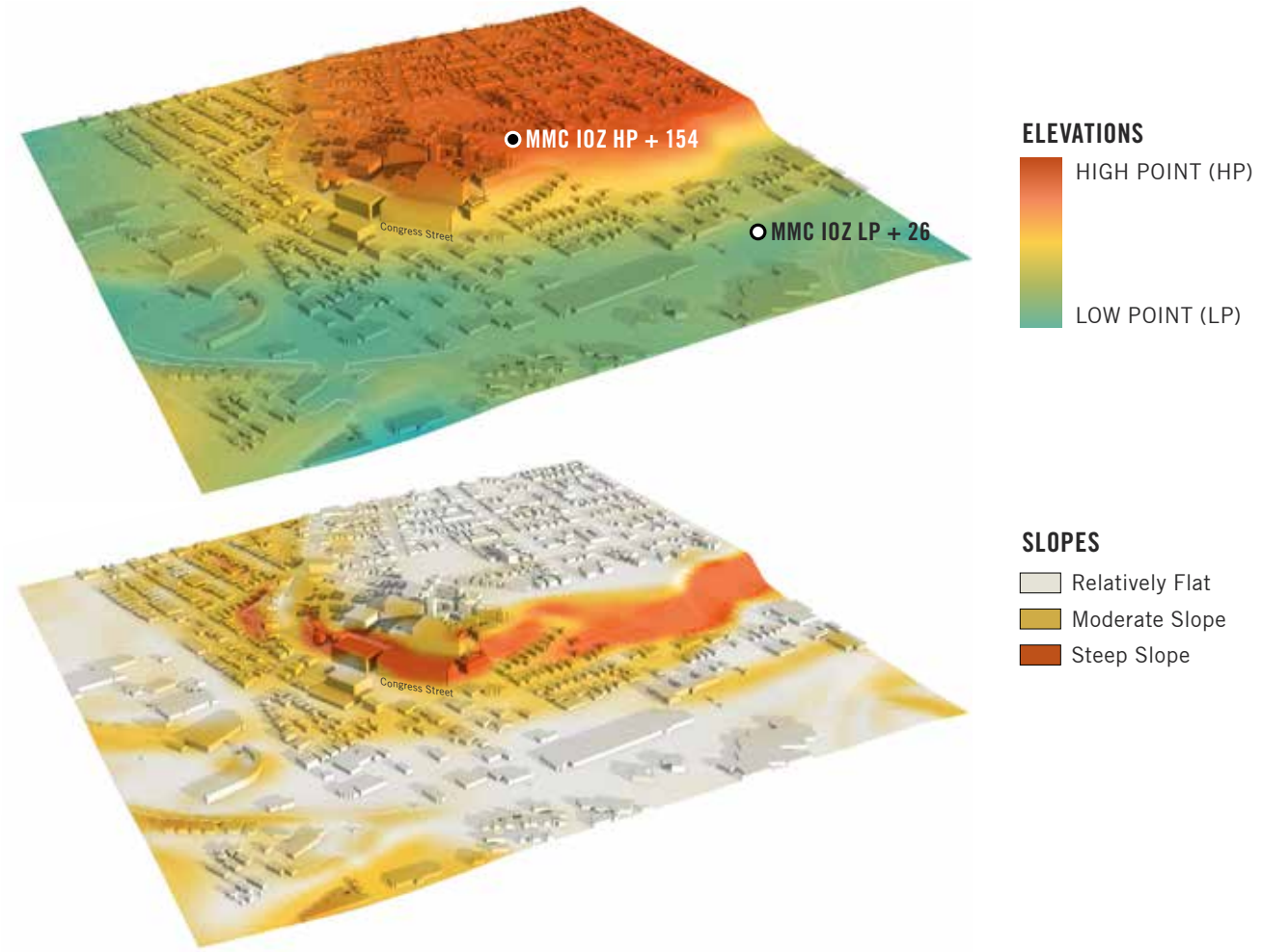
FEMA Floodplains

The campus is not located in a FEMA-designated flood zone. The 100-year flood zone boundary is located at the western edge of the Pan Am rail line and consists of flood-prone flats along the Fore River.

EXISTING STORMWATER INFRASTRUCTURE

In general, the campus redevelopment over the last 15 years has collected runoff from parking lots and new rooftops into a separated storm drainage

Fig.4.3 Diagrams Illustrating Elevation and Location of Steep Slopes around MMC Campus
(See **Fig.5.5 on page 106** for a map of existing elevations within the MMC IOZ boundary).



system, including storm drains in the public right of way. Where feasible, the on-site separated drainage system has been connected to a municipal separated storm drain. This includes the storm drains in A St constructed by the City in 2001 and Gilman St constructed by MMC in 2005.

2004 Improvements

The campus' stormwater conditions were most recently evaluated in a stormwater management report prepared by Sebago Technics, Inc. in 2004 as part of the Planning Board's review of the Bramhall campus expansion project, which included the construction of the Women and Infants Center, Emergency Department Expansion, Congress St Parking Garage and the Central Utility Plant. To meet stormwater treatment requirements for the expansion, MMC installed two Downstream Defender Stormwater treatment units to treat runoff from impervious areas on the site. The redevelopment separated and redirected stormwater runoff from approximately 6.3 acres of existing development from the combined sewers in Crescent St, Ellsworth St, and Congress St to the separated storm drain in A St. A 6' diameter unit was installed in the Congress St Parking Garage and a 10' diameter unit was installed in Gilman St.

Discharges into the City Combined Sewers

Other locations abutting the campus including Congress, Wescott, Charles, Bramhall, and Bracket Sts are only served by the City's combined sewers. At these locations, MMC's recent drainage construction terminates in a separated storm drain manholes connected to adjacent City combined sewer manholes to provide points of connections for future municipal separated storm drains.

Detailed information on MMC's stormwater discharges into the City's combined sewer and separated storm water infrastructure is outlined on **Fig.4.4 on page 88**.

FUTURE STORMWATER FLOWS

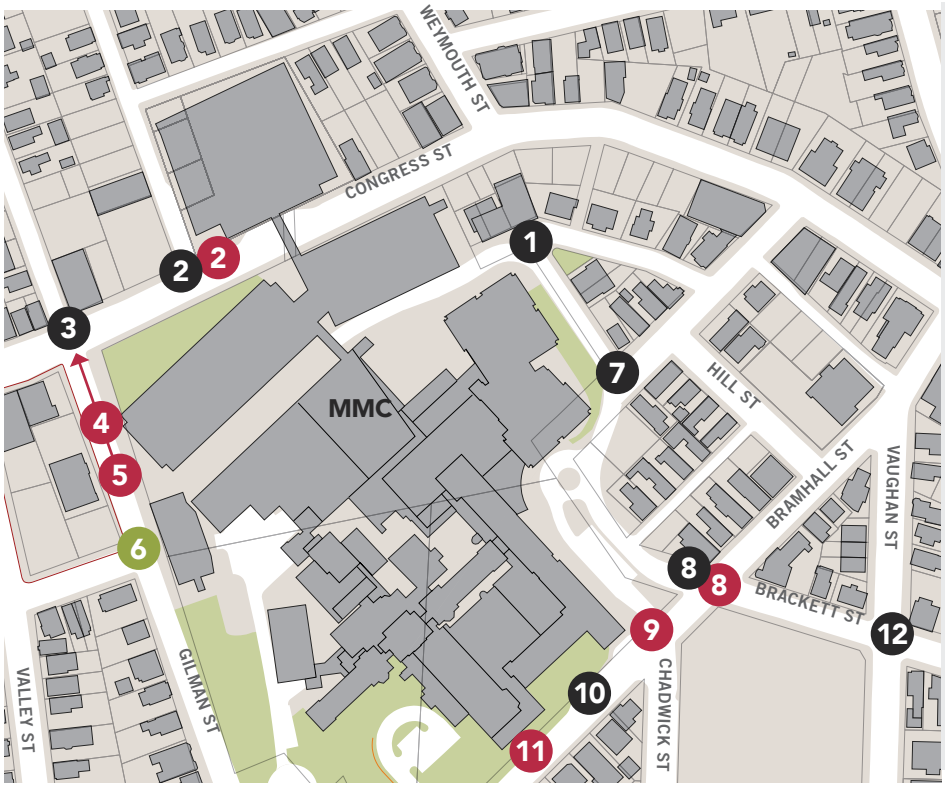
Any development or redevelopment of sites by MMC will be required to meet the City's stormwater management ordinance requirements and mitigate any increases in discharges to the extent practicable.

Projected Impacts of Proposed Development

A high level assessment of short- and long-term projects identified as part of MMC's Master Facility Plan shows no significant change to the amount of impervious surface or peak rate of run-off at the proposed project sites, as outlined below. A detailed discussion about the impacts of any future development will be part of site plan review.

- Proposed vertical additions to existing East Tower and Visitor Garage will not change the amount of impervious surface.
- Replacement of the Employee Garage with the proposed Congress St Development is not anticipated to increase impervious surfaces. The current design of the project site redevelopment includes an extensive green roof component and proposes

Fig.4.4 Existing Sewer Connection Points



Locations where MMC separated stormwater enters the City combined sewer system

Locations where MMC separated stormwater enters the City storm water system

Locations where MMC separated sanitary sewer enters the City combined sewer system

LOC.	MMC STORM WATER FLOWS	MMC SANITARY FLOWS
1	Runoff from the campus and storm drains constructed by MMC in Wescott St enters a combined sewer manhole at the intersection of Wescott St and Crescent St. The outfall of this system a 12" combined sewer that drains in a westerly direction along Crescent St, eventually draining to Park Ave via sewers in Ellsworth St, Congress St and Weymouth St.	N/A.
2 2	Separated runoff from the MMC parking garage enters the municipal combined sewer at the intersection of Congress St and Forest St. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains north in Forest St to Park Ave.	Sanitary sewer outfalls from the MMC parking garages enter the municipal combined sewer at the intersection of Congress and Forest St. The sewer outlet from this manhole is an 18" reinforced concrete pipe that drains north in Forest St to Park Ave. Areas tributary to this system include the Emergency Department, Women and Infants Center and Richards Wing.
3	Runoff from areas of the campus along Congress and Gilman St enter catch basins connected to the City's combined sewer system at the intersection of Gilman and Congress St. From this point the combined sewer drains north in Gilman St to Park Ave. Runoff in the roadway that bypasses the catch basins at the intersection runs west along Congress to St John St.	Sanitary sewer flows from #4 and #5 enter the City combined sewer at this location.

LOC.	MMC STORM WATER FLOWS	MMC SANITARY FLOWS
4	N/A.	The sanitary sewer serving the LL Bean Building, Annex B / Maine General Bldg, and the Engineering Services Building enters the City's 12" concrete sewer in Gilman St. From this point the sewer drains north in Gilman St to Congress St (#3) and continues to Park Ave.
5	N/A.	The sewer service from the Central Utility Building enters the 12" concrete City sewer in Gilman St, a short distance above Location 4.
6	Runoff at the intersection of Gilman St and A St at the upstream end of a separated storm drainage system constructed by the City of Portland in 2001 as part of the St John St sewer separation project. The storm drain was extended along A St, from its intersection with St John St to a drain manhole in Gilman St opposite the MMC Central Utility Plant. This storm drain was extended to the hospital property specifically for the purpose of providing a point of connection for separated stormwater runoff from the hospital. In 2005 MMC constructed drainage on campus to collect runoff from areas of the site including the existing emergency room parking area, LL. Bean Wing, and service areas abutting the Central Utility Plant to the A St storm drain. This project also extended the separated storm drain in Gilman St to the south, separating runoff in Gilman St and the Dana Center from the City's combined sewers.	N/A.
7	Runoff at the intersection of Ellsworth St and Wescott St. Separated storm drains constructed by MMC in 2005 connect to a combined sewer system manholes in Ellsworth St. The combined sewer drains in an east in Ellsworth St towards to Congress St.	N/A.
8 8	Separated storm drainage from the MMC parking lot enters the combined sewer in Charles St at its intersection with Bramhall St.	Sanitary sewer manhole in the intersection of Bramhall and Brackett Sts where sewer services from Pavilions A and C connect to the City sewer. The outfall of the manhole at this location is a 15" sewer that drains to the east in Bramhall St.
9	Runoff from small areas of the site along Bramhall St enters the combined sewer system at Location 8.	Sewer service from the south end of Pavilion A enters a City sewer manhole at the intersection of Bramhall and Chadwick St. From this location, the sewer continues east to Location 8.
10	Small areas along Bramhall St enter catch basins in the city right-of-way	N/A.
11	N/A.	Sewer manhole in Bramhall St where a sewer service from the Dana Center enters the City sewer in Bramhall St. From this location, the sewer continues east to Location 9.
12	Runoff at the intersection of Brackett St and Vaughan St where separated MMC storm drains in the Brackett St parking lot connects to the combined sewer draining southeast in Bracket St.	N/A.

removals of existing impervious area. The net impact of this design is expected to result in no increase in the peak rates of runoff from the site. It is expected that the primary post-development stormwater connection will be to the Forest St combined sewer at the intersection of Congress St and Forest Sts..

- 222 St John St is served by a separated stormwater drainage system that travels west under the railroad tracks and past the Cumberland County jail site and Fore River Parkway to discharge to the Fore River. The proposed new parking structure on this property is not anticipated to significantly change the amount of impervious surface or peak rate of run-off.

SANITARY FLOWS INTO CITY COMBINED SEWERS

Issues in areas of the City's stormwater, sewer drainage, and fire hydrant systems in the vicinity of MMC's campus have been identified by City officials but have not been quantified. MMC understands that the site plan review process for individual projects may include measures that minimize new impacts to the combined sewer system. The MMC campus discharges sanitary flows into the City of Portland's combined sewer system at approximately seven locations, as illustrated in **Fig.4.4 on page 88**. This information is provided to the best of MMC's knowledge after researching its own records and those of the City of Portland. Due to the age of the public sewer system and MMC's buildings, record plans of the existing sewer systems may be incomplete and additional currently unidentified connections may exist. We are unaware of capacity issues in the City's existing system at the connection points from the campus to the City sewer system located in the public right of way. Drainage studies completed for the 2004 Bramhall campus expansion and approved through the site plan process did not identify deficiencies at the connection points to the City system.

MMC anticipates increased use of city combined sewers for sanitary flows associated with its short- and long-term projects. The increased sewer flow loads and exact connection locations will be determined during the Site Plan review process as required by the City of Portland:

- The East Tower expansion is anticipated to increase sanitary flows in the combined sewer located at the intersection of Congress and Forest Sts, which connects to the Forest St combined sewer.
- The Congress St Development is anticipated to increase sanitary flows in the combined sewer located at the intersection of Congress and Forest Sts, which connects to the Forest St combined sewer. The Congress St Development may also include a sewer connection that increases sanitary flows into the combined sewer located at the intersection of Congress and Gilman Sts that ultimately discharges to the Gilman St combined sewer.

ENERGY CONSERVATION

CURRENT CONSUMPTION

Because MMC, of necessity, is such a large consumer of energy, it utilizes the services of an energy procurement broker, Competitive Energy Services, to provide it with strategic energy consulting services and management of energy procurement activities for electricity, natural gas, and oil in order to maximize efficiency and to ensure MMC achieves the most competitive pricing. MMC purchases its energy through a competitive bid-based energy procurement process.

In calendar year 2016, MMC consumed:

- 411 gallons of oil,
- 1,633,686 CCF of natural gas, and,
- 35,375,765 Kw-Hr of electricity.

CONSERVATION EFFORTS

Central Utility Plant (2008)

In 2008, MMC's 22 Bramhall St campus went live with its upgraded and centralized utility plant. The Central Utility Plant (CUP) was designed to provide better management of and more efficient results for energy consumption by the hospital. The plant produces steam, chilled water, and back-up power for the Bramhall campus. The peak tonnage of the plant is currently close to 2,400 tons per hour of chilled water.

Since 2008, MMC has experienced dramatic energy consumption decreases directly resulting from the state of the art utility plant. The CUP controls both electrical and gas utilization, and heating and chilling functionality, and will service the short-term modernization project under development at the Bramhall campus, with a minor upgrade to the existing systems. The CUP contains state-of-the-art dual natural gas /oil system allowing for switching between oil and gas depending upon price and availability.

Infrastructure Improvements

In addition to its conservation methods in the electric, oil and gas arena, MMC has also undertaken investment in infrastructure upgrades at its 22 Bramhall Campus to reduce building air changes and temperature set-points allowing for the monitoring and control of humidity and temperature during high demand use times. Upgrades in sequencing and timing of set points have achieved efficiencies of HVAC run times and energy demand.

Further, MMC has been investing in lighting and plumbing features that allow for reduced energy consumption. LED lights have been installed in its garages and in the public corridor within the Bean Building. Low flow plumbing fixtures with aerators are installed when replacements or renovations are required. These fixtures lower overall water consumption at the hospital.

Future MMC projects are expected to integrate with ongoing major utility initiatives impacting the area including Unitil's Natural Gas SURE project and the City's LED street light conversion program.

Table 5.1 Projected Electricity Demand

		Projected Net Energy Demand	Potential On-Site Energy Production (Rooftop PV)
East Tower Vertical Expansion	Utilizing new systems for efficiency	300 KW	--
Visitor Garage Vertical Expansion	Utilizing existing systems	350 KW	150 KW
Congress Street Development	Net demand with the deletion of the existing garage currently on site	1,700 KW	
St John St Garage	Stand-alone project not connected to core campus primary metered system	230 KW	500 KW
Central Utility Plant Expansion	Additional summer cooling demand	1,800 KW	
TOTAL ENERGY DEMAND		4,380 KW	650 KW

Green Buildings

The historic Maine General Hospital incorporated natural light and ventilation as an important part of the healing process. To continue this legacy, new campus buildings will take advantage of natural light, heat, and ventilation to improve building performance while also contributing positively to the healing qualities of patient and family spaces. Specific designs will aim to lower Energy Use Intensity (EUI) beyond the traditional code minimum baseline. Use of industry standards such as LEED will serve as a model for evaluating the sustainability of future MMC buildings.

PROJECTED ENERGY DEMANDS

Each project in the Master Facility Plan has specific needs and vary in their impacts. The proposed projects combined are anticipated to generate 5,400 KW of additional electricity demand (see **Table 5.1** above for details). MMC is currently working with Central Maine Power to identify capacity for the projected electricity loads.

The steam loads are met by MMC's CUP and will not impact city infrastructure. The CUP has the capacity needed to service MMC's short-term growth needs. The gas infrastructure has capacity to handle any increases to the current steam load.

OPERATIONAL SUSTAINABILITY

HAZARDOUS WASTE MANAGEMENT

MMC has a Hazardous Materials and Waste Plan supported by policies for the handling and disposal of hazardous waste, universal hazardous waste and biomedical waste.

Biomedical and Hazardous Waste

Biomedical waste sharps, biomedical waste, pathological waste (tissues, etc), and hazardous pharmaceutical and other chemical waste are collected by MMC Environmental Services or contractors, and stored at secure locations across campus prior to pick up, transfer, and ultimate disposal by contractors. DEA controlled substances are wasted at the point of generation (e.g. medication rooms), solidified, and collected by MMC Environmental Services at a secure holding room for pick-up, transfer and ultimate disposal by contracted vendor. All hazardous materials leave the campus through the loading docks (see **Fig.4.2**).

MMC's short-term projects are not expected to create significant increases waste volumes. No changes are currently planned to hazardous materials storage and transfer locations on campus.

Grease Discharge

MMC will be installing a grease trap system capable of separating grease from waste water as part of its short-term projects.

Soiled Linen

MMC has its own Linen Services department that is responsible for overseeing the processing of laundry for all of MMC and Maine Medical Partners (MPP) locations. The plant is located in Westbrook, and the linen is transported between these locations by MMC's Materials Management team.

SUSTAINABLE OPERATIONS

MMC expects to continue, and where possible, expand on the following sustainable operation strategies as part of its long-term plan.

Campus Recycling

MMC separates paper and cardboard out of the waste stream through on-campus recycling. MMC Kitchen and Café provide recycling for can and bottle returnables, and separate compos items from the waste stream. MMC has also switched to reusable needle boxes to reduce plastic waste. Expired medical equipment and devices are reprocessed by contractors.

Landscaping

MMC contracts with an outside landscaping company. In renewing its contract, MMC is requiring the use of organic pesticides and fertilizers for all planting and green space on campus.

Snow Removal

MMC contracts with an outside snow removal company. The environment requires the use of melting agents, but MMC has taken steps to minimize its use by installing heated sidewalks at the front entrance and South lot entrance as well as the Emergency Department entrance. MMC will continue to use replace calcium chloride instead of salt, when possible, to reduce environmental impact of snow removal.

NOISE IMPACT

MMC's Master Facility Plan aims to minimize noise and disturbance both for the benefit of its neighbors and its patients. Key to this is relocating the main campus entrance to Congress St. This will limit traffic and associated noise from moving up onto the hill. The relocation of the helipad will maintain current flight paths, which were designed to minimize neighborhood noise impacts by following the recommended approach to the hospital over the Congress St corridor as opposed to over dense residential areas. MMC will document the noise complaints it receives electronically and at its dedicated noise complaint phoneline at 207-662-6699, and review all such complaints with the neighborhood council as they arise.

MITIGATING IMPACT OF HELIPAD OPERATIONS

MMC's helipad is currently located on top of the Employee Garage, which is slated for deconstruction in the short-term per MMC's Master Facility Plan (MFP). The MFP calls for a new helipad to be built on top of the East Tower following its planned vertical expansion (see "Short-Term Projects" on page 44).

MMC is in the process of identifying preferred flight routes for the new helipad, to be approved by the City of Portland, that will minimize noise impact of helicopter flights on surrounding residential areas. Initially, such preferred flight routes shall be proposed to the Federal Aviation Administration (FAA) as shown on the flight map (see **Fig.4.5 on page 95**). At the initiative of either the City or MMC, the map of preferred flight routes may be amended from time to time by agreement between MMC and the City. MMC will notify all flight providers likely to use the Helicopter Landing Pad of such preferred routes, and shall take the following measures to ensure that such preferred routes are utilized whenever weather conditions, safety considerations and the best interests of the patient being transported permit, with the expectation that this will be the usual case.

MMC will instruct all providers which regularly use the Helicopter Landing Pad that pilots must file an exception report with the Air Medical Provider Administration of Lifeflight of Maine or its

Fig.4.5 Proposed Flight Routes for the new MMC Helipad

NOTE: Path #3 is new and will only be used under high wind conditions if required by the Federal Aviation Administration.

successor entity for operations modified for safety considerations or at the direct request of Approach Control at the Portland International Jetport. Logs of these exception reports will be made available to MMC and to the City upon request but no more frequently than annually.

When and if the Portland Jetport has the capacity to maintain and preserve data which specifically identifies flight routes actually taken by aircraft utilizing the Helicopter Landing Pad, the City shall consult such data to review compliance with this paragraph, and MMC, upon request of the City, shall be responsible for the cost of translating this data into usable form but not for the costs of the flight monitoring.

MMC will continue to engage providers of helicopter emergency medical transport who are accredited by the Commission on Accreditation of Medical Transport Systems (CAMTS) or its successor agency (unless special circumstances warrant a non-accredited provider, such as the Air National Guard, US Coast Guard and others), and who operate in compliance with the "Fly Neighborly Guide," third edition (and any subsequent revisions) prepared by the Helicopter Association International.

Helicopter landings on the Helipad shall be used for emergency patient care only, and on the rare occasion for emergency management training by federal or state management agencies or US military or government aircraft.

Compliance with Helistop Overlay Zone Regulations

Because the proposed helipad location is on the roof of an existing structure, the landing pad shall not be required to meet the setback requirements of Section 14-327(3), or the fencing requirements of Section 14-327(4) of the Helistop Overlay Zone.

MMC will continue to honor the following exception to the Helistop Overlay Zone included in the 2005 Conditional Rezoning Agreement (Order 172-04/05):

1. Equipment. In generating any specifications in connection with the negotiation of any contract or agreement with any provider of emergency medical transport by helicopter, MMC will specify that helicopters utilizing the Helicopter Landing Pad (with the exception of U.S. military or government aircraft) are relatively new turbine powered aircraft meeting requirements under ICAO Annex 16 Chapter 8 for in-flight noise levels and complying with FAA airworthiness standards, 14 CFR part 36.11 and 14 CPR 21 Sub-part D, or any amended or successor requirements or standards.

MMC shall conduct a noise study as part of the site plan process if any changes to the helipad are being proposed, and work to mitigate any potential noise impacts.

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CHAPTER FIVE

DESIGN

Maine Medical Center aims to continue its tradition of design excellence with its new campus projects. Future buildings will be designed to improve care delivery while also providing a new gateway to Portland on Congress St.

DESIGN DRIVERS

The campus transformation of Maine Medical Center (MMC) draws its inspiration from its site, history, programmatic needs and most importantly the desire to create a sense of place. Specifically, the Hospital will reflect its location within Portland and of Maine. Within this framework, the Hospital aims to preserve the historic character of the existing campus yet provide the opportunity for new identities to develop that represent the modern delivery of healthcare and the future of MMC.

Fig.5.1 MMC Campus: Key Design Drivers

COMMUNITY

Positive Patient, Family & Community Experience

ADAPTABILITY

Spatial and Programmatic Flexibility

HEALING

Spaces that Promote Healing

A NEW GATEWAY ON CONGRESS STREET

MMC key design drivers and interventions envisioned for the MMC balance the clinical needs of the hospital with the campus' place within the City of Portland. Included is a primary effort to improve the built environment of MMC's campus relationship with its urban context. This is achieved by focusing the new entrance towards Congress St to create an improved presence on the urban edge of the campus. This key intervention improves the visitor and patient experience from arrival to the City all the way to entering MMC buildings themselves. Providing a new entry on Congress St connects a campus entry directly to the existing and expanded visitor parking garage, simplifying the drop-off and parking sequence. This move creates a clear arrival sequence from drop-off, to parking, to movement through the MMC campus.

AN EFFICIENT, WELL-ORGANIZED CAMPUS

The inclusion of a new entry coupled with clear primary circulation along the ground level connects major interior programmatic functions with the site, further reinforcing the wayfinding and activating the building interior and exterior. Engaging with Congress St with a sensitivity to human scale and experience will be the focus of the transition between exterior to interior including transitions from urban to natural environments. This approach extends to vertical connections, both physical and visual, to mitigate the large grade changes that exist on campus and with the surrounding sites. These interventions will provide a positive patient

Fig.5.2 Artists' rendering of new Congress Street entrance, part of the proposed Congress Street Development (Note: Façade design is subject to change during detailed design.)

and visitor experience as well as improve the surrounding neighborhood.

DESIGN THAT SUPPORTS HEALING

The creation of healing environments is an essential element to the design within the IOZ boundary. This will be achieved through the incorporation of access to and views of nature and natural daylight, which are proven to improve positive patient outcomes within a healthcare environment. Proper location and use of glass and transparency provides connections to the exterior to improve patient, visitor and staff experience but also to further reinforce wayfinding, and activate and energize the streetscape.

A SUSTAINABLE AND RESILIENT CAMPUS

Hospitals are vital partners within the communities they serve. Due to this relationship, design modifications will further improve MMC's status as a resilient campus that provides both a responsive exterior environment and healing indoor environment. Buildings take advantage of natural light and air, coupled with the use highly efficient mechanical systems. These drivers will reduce the energy necessary to operate the buildings, further increasing resilience in the face of unanticipated events.

CONTEXTUAL LANDSCAPE FRAMEWORK

The long-term landscape framework for the MMC campus draws its inspiration from the landscape typologies of coastal Maine reconciled to the site's rich historical and urban context. The campus commands a high promontory adjacent to the historic Western Promenade, and extends down the hill to Portland's bustling main street, Congress. The landscape design will respond to this context with elements that provide transitions between the historic and pastoral to contemporary and urban.

The landscape design at the southern end of the campus is conceived as a visual extension of the Western Promenade's historic landscape design, while the new entrance on Congress St is thought to be a contemporary expression aligned with modern healthcare design. The new entrance on Congress St is contemplated to accommodate ADA-compliant access from the street along with stairs and a vehicular drop-off. The streetscape improvements along Congress St itself will rely on the existing City standards, providing continuity along the length of the street and completing the transition to the urban realm.

The intermediate landscape spaces may be located on the campus to provide the transition between these two primary expressions, with landscapes and outdoor spaces that include courtyards, viewing gardens and green roofs.

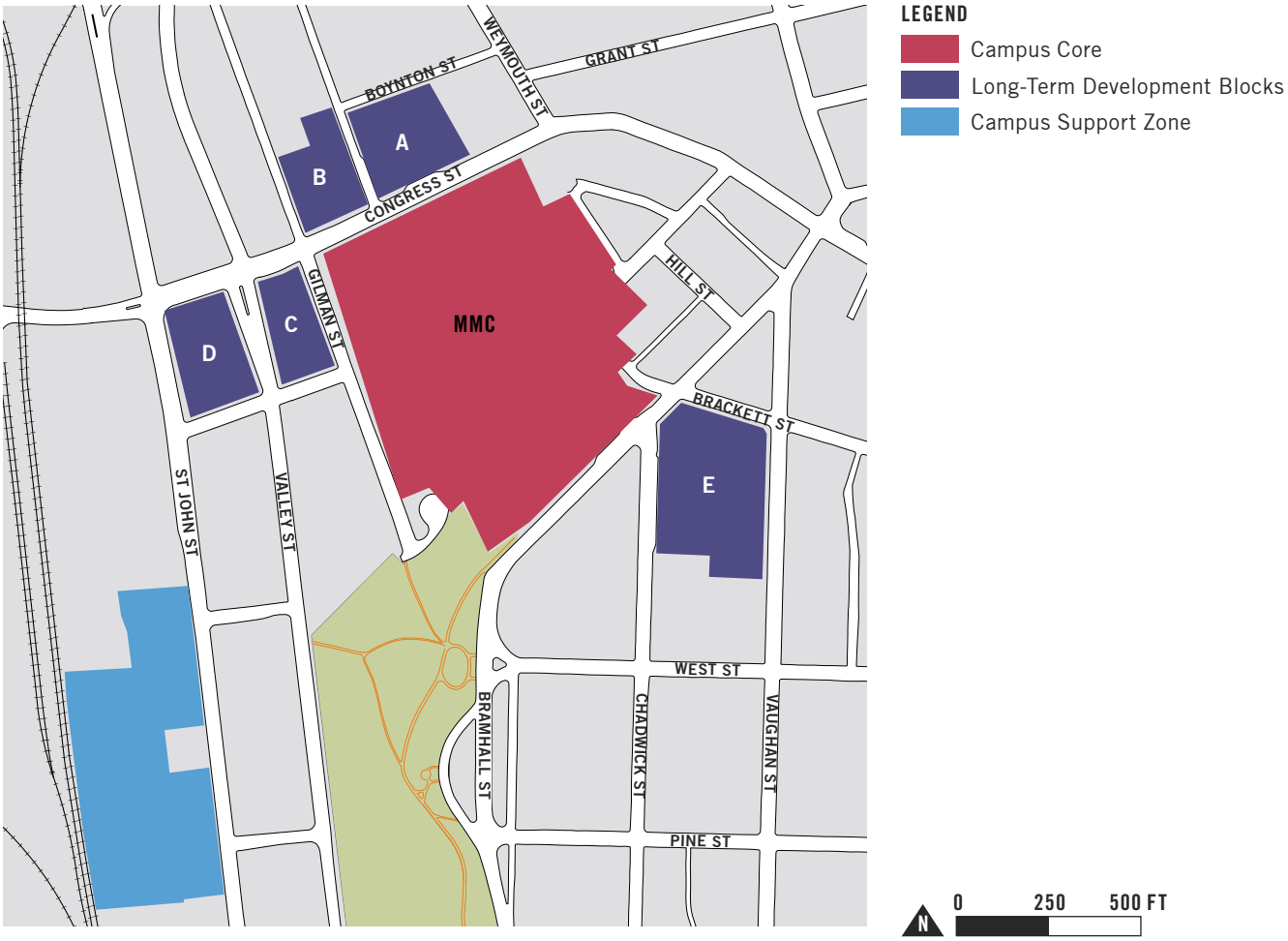
NEIGHBORHOOD INTEGRATION

Like many urban medical centers established in the 19th century, neighborhoods have grown up around MMC while the Medical Center has continued to grow. The historically synergistic relationship between MMC and surrounding neighborhoods, commercial corridors and parks is described in detail under "History" on page 10). The growth of MMC in the automobile era brought forward challenges related to traffic and parking that are common to medical centers located in urban settings. These issues continue to be at the forefront of MMC's ongoing dialogue with its neighbors and the City, and are addressed in the "Transportation Plan" section of this document (see page 53). Equally important to the relationship between MMC and its neighbors, however, is the integration of campus buildings, open spaces, and parking lots into the physical fabric of the neighborhoods through careful consideration of location, height / massing, use, and overall design.

As outlined in the introduction to this chapter, improving the interface between campus and community was an objective of the MMC Master Facility Plan. The new hospital building proposed in the short-term will transform MMC's frontage on Congress St, which was previously defined by parking structures only.

During the IDP process, the City of Portland encouraged MMC to look beyond its limited zoning boundary to identify areas for potential long-term growth. MMC has worked with abutting land owners

Fig.5.3 MMC IOZ Development Zones



and the City to identify key parcels contiguous with its core campus that can accommodate potential expansion of healthcare-related or supporting uses in the long-term (see **Fig.5.3**).

A majority of these are under-developed parcels on either side of Congress St—an area envisioned for transformation into a new gateway node in the City's Comprehensive Plan (see **Fig.1.8 on page 27).** Nearby but non-contiguous parcels along St John St were identified to accommodate additional supporting uses, and in particular, the potential for a future employee parking deck.

The following sections summarize MMC's methodology for identifying an appropriate height envelope for these future development zones that will ensure appropriate integration with and transition into adjoining neighborhoods.

DETERMINING MAXIMUM HEIGHTS: OVERVIEW OF METHODOLOGY

MMC has used a multi-part methodology to determine the appropriate height profile for potential future development within the IOZ boundary:

1. Project Definition. The Master Facility Plan has identified heights for short- and long-term projects that reflect MMC's campus modernization needs. These approximate heights, which are expected to be refined through detailed design, were taken as a starting point to determine maximum heights for the proposed building sites.

2. Urban Design Analysis. Heights for zones that are not identified for specific projects were determined using context-sensitive urban design best practices from urban hospital campuses and health districts around the US. These included:

    » Enabling larger and taller buildings within the campus core while providing height transitions to the scale of residential and historic neighborhoods along campus edges (see "Transitional Zones" **page 110**);

    » Testing future development blocks for a variety of uses appropriate for mixed-use health districts to identify heights that accommodate desired uses; and,

    » Using computer-generated shadow analysis of existing versus proposed height profiles to minimize potential shadow impacts of future development on adjoining public spaces and properties (see "Minimizing shadow impacts" **page 122** for details).

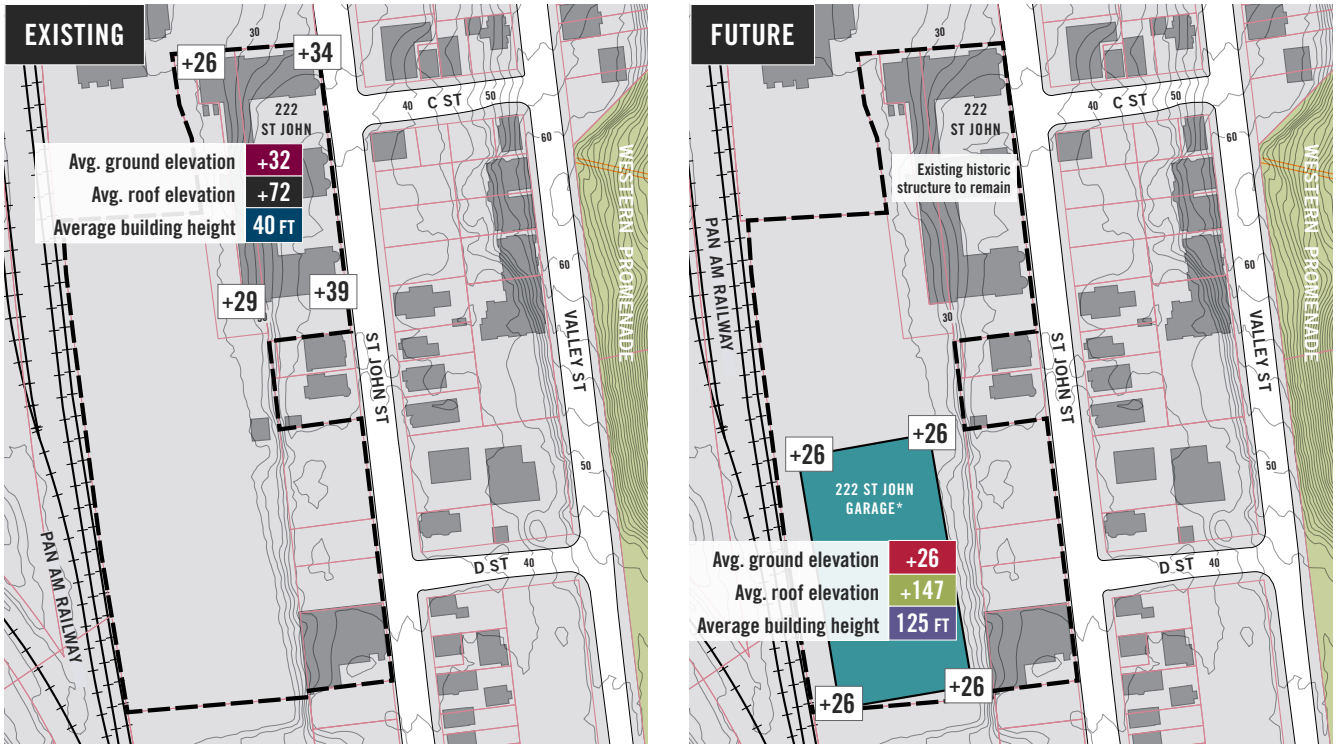
3. Slope Analysis. A 3D terrain model was used to optimize maximum heights based on the average grade of each building site and/or development zone within the IOZ.

4. Visioning. MMC has worked with the City of Portland planning staff to identify maximum and minimum heights and number of stories for new development along Congress St that can provide "gateway" experience that is called for in the City's Comprehensive Plan. The target heights have been identified as 75 feet (6 stories) maximum, and 3 stories minimum along Congress Street. (Note: Actual heights listed vary depending on the average slope within each block).

The resulting future height profiles, which are the basis of the maximum heights requested in the Regulatory Framework, are illustrated in **Fig.5.4** through **Fig.5.8,** along with the existing height profiles for ease of comparison.

The regulatory framework also identifies the maximum number of stories allowed within each

Fig.5.4 Existing and proposed future heights for long-term development parcels along St John Street

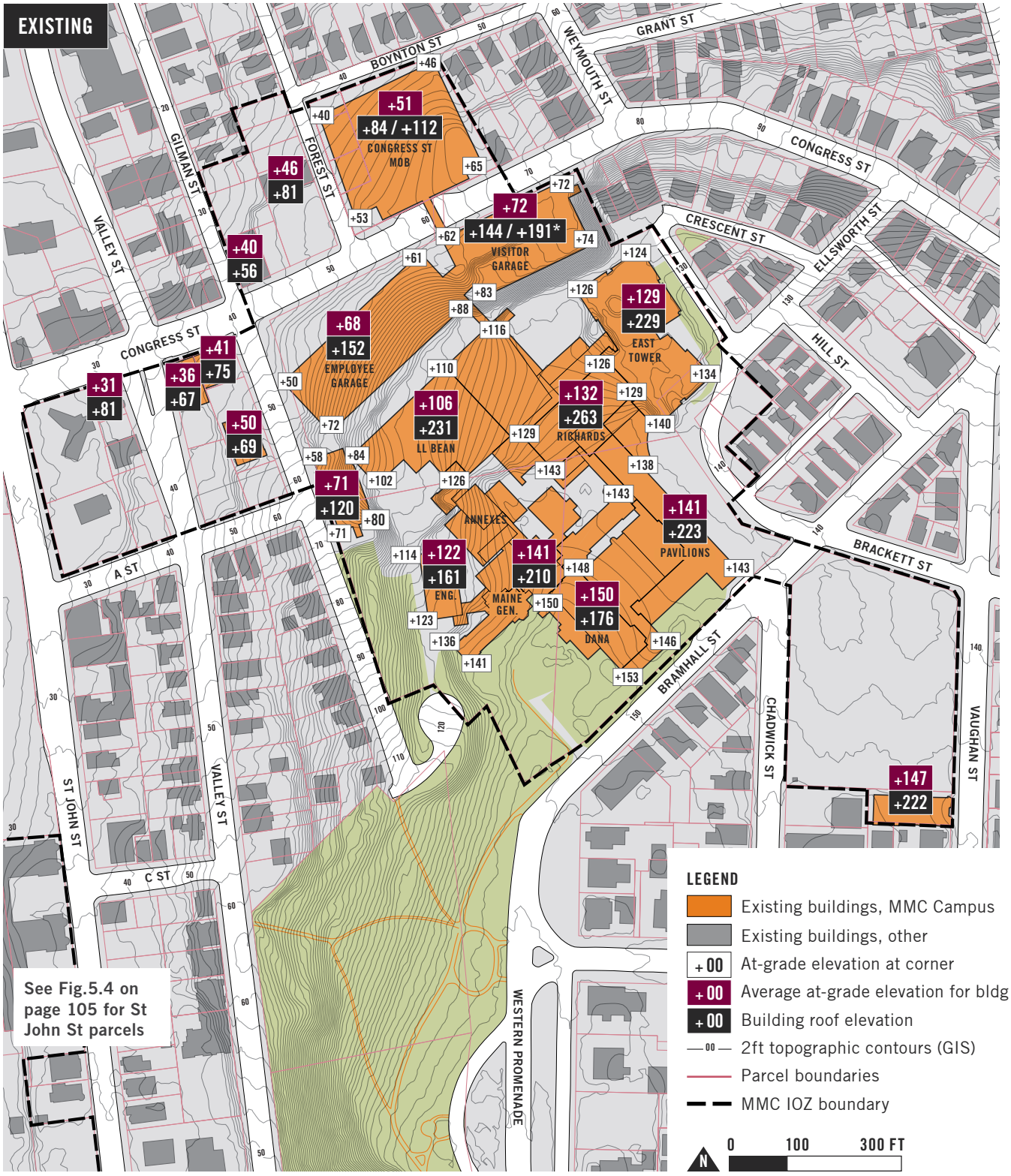


*** NOTE: The exact location, footprint and access to St John Garage to be determined during detailed design.**

height zone, which are based on a minimum floor-to-floor height of 10ft for allowed uses. Floor heights of actual buildings will vary widely based on program use, and can exceed 20ft for intensive healthcare uses.

A 3D rendering of the maximum height envelopes requested in the Regulatory Framework can be seen in **Fig.5.13 on page 114.**

Fig.5.5 Existing Structures within IOZ: At-Grade and Rooftop Elevations



* Height of existing elevator tower on the Visitor Garage, excluding mechanical room on top of tower.

Fig.5.6 MMC Long-Term Development Vision: At-Grade and Rooftop Elevations

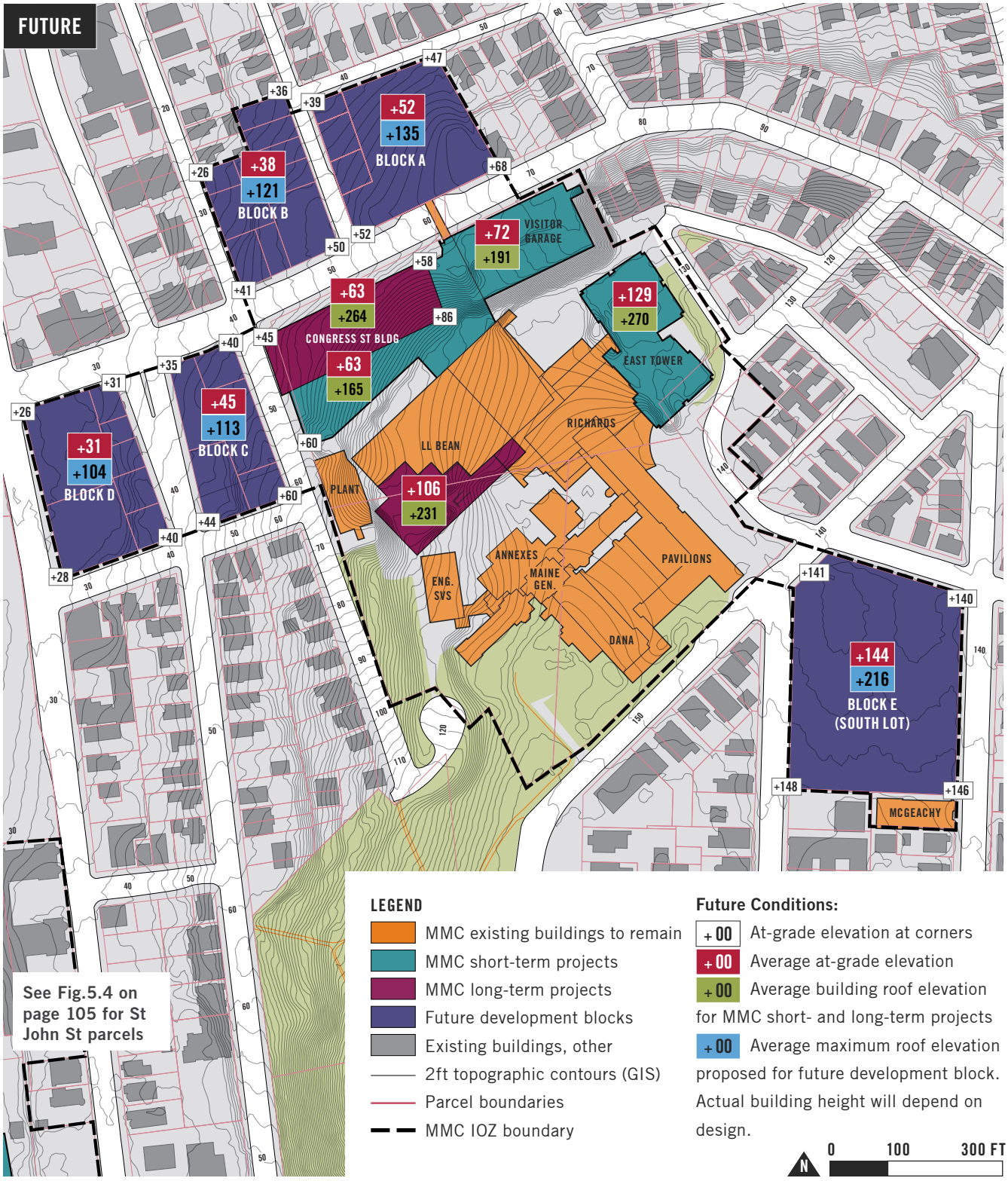
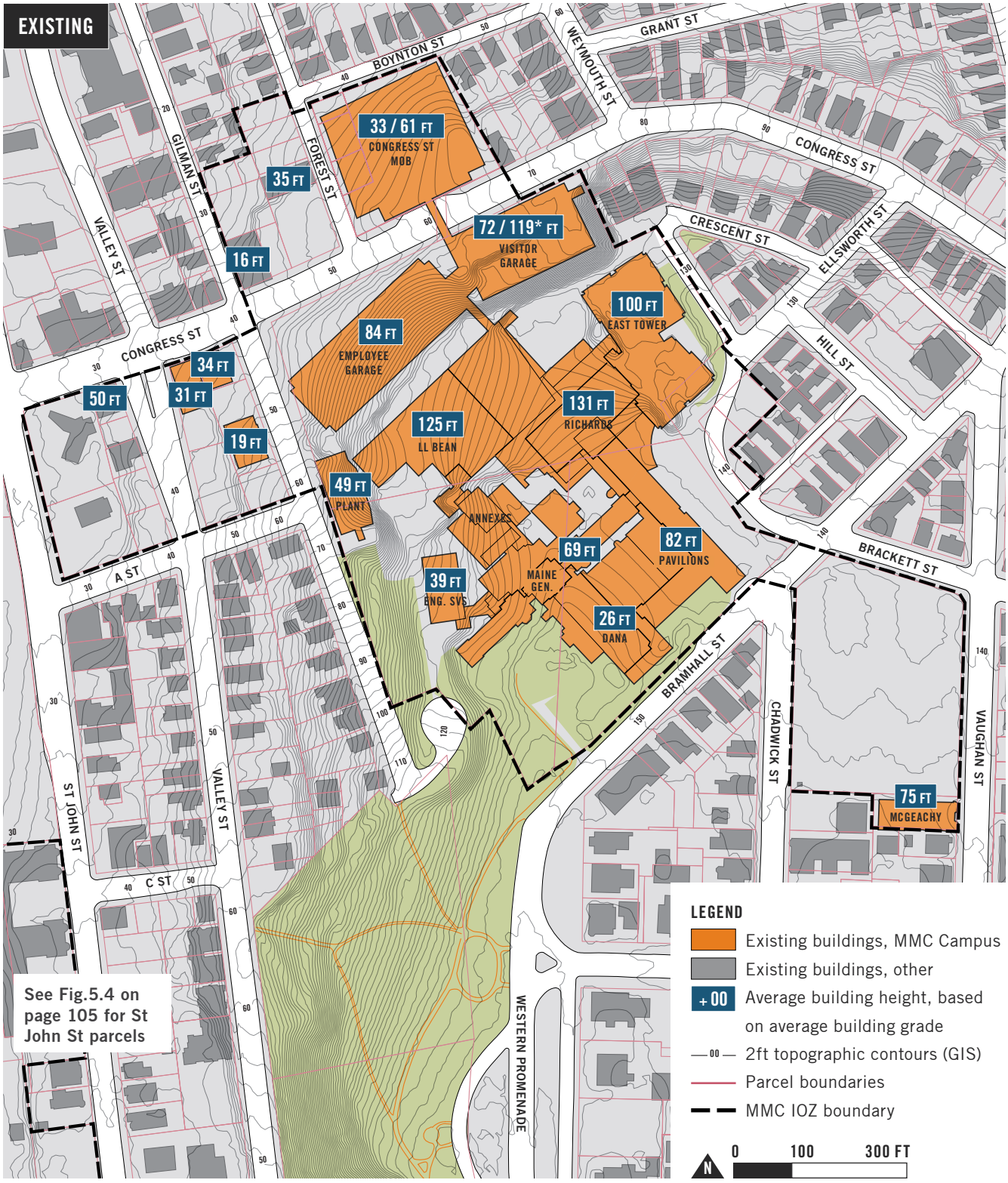
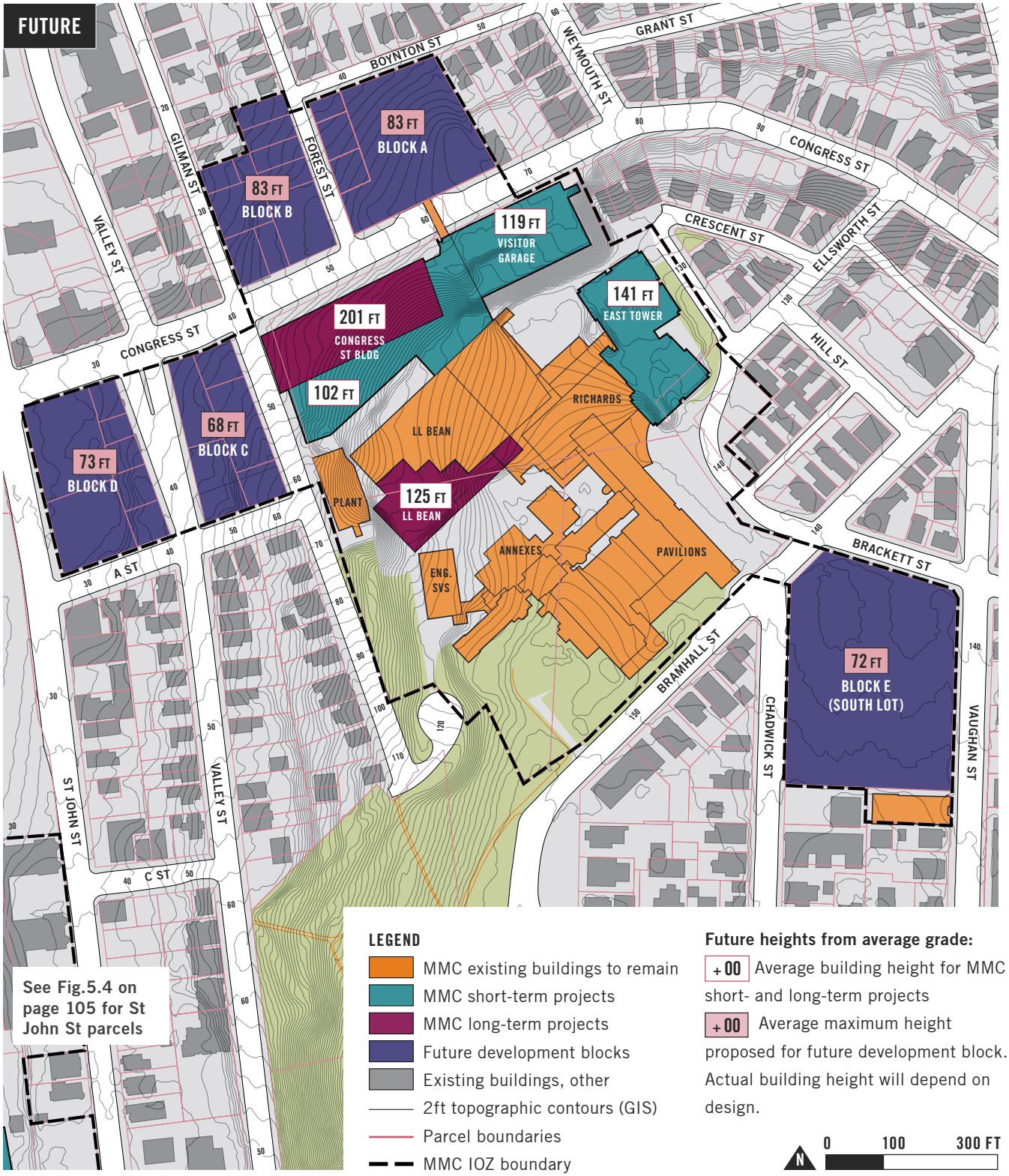


Fig.5.7 Existing Structures within IOZ: Average Building Heights at Average Grade



* Height of existing elevator tower on the Visitor Garage, excluding mechanical room on top of tower.

Fig.5.8 MMC Short- and Long-Term Projects: Average Building Heights at Average Grade



TRANSITIONAL ZONES

In accordance with urban design best practices, MMC has identified "transitional zones" along the edges of the IOZ boundary that abut residential zones where the height of new development can step down to better integrate with the character of local residential streets and neighborhoods. A diagram illustrating this concept is shown in **Fig.5.9** below**.** The location of specific transitional zones within the IOZ is illustrated in **Fig.5.10** on the following page.

Transition zones are designed to create a consistent scale of development on either side of a given public street. To achieve this goal, most transition zones dictate a height limit matching the maximum height allowed by the zone across the street. The specific depth of the transition zone where the height limit applies is typically determined by using the "transitional height plane" test whereby a 45˚ angle line is extended inward from the maximum height line. This test ensures that taller structures on the inner side of the parcel do not negatively impact views from the public street whose character is being preserved.

MMC has used this widely accepted practice to identify and set a 50-ft depth to transition zones illustrated in **Fig.5.10** and required as part of the Regulatory Framework. Diagrams illustrating the testing of key MMC IOZ transitional zones with the "transitional height plane" are included on the following pages.

Fig.5.9 Transition zones: concept diagram

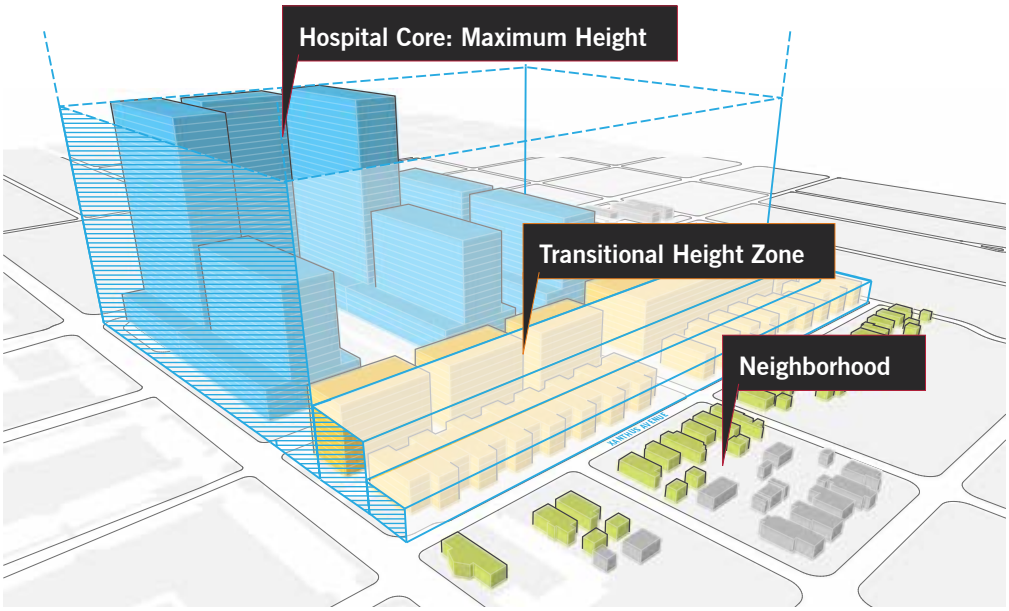


Fig.5.10 Map of proposed transitional zones within MMC IOZ

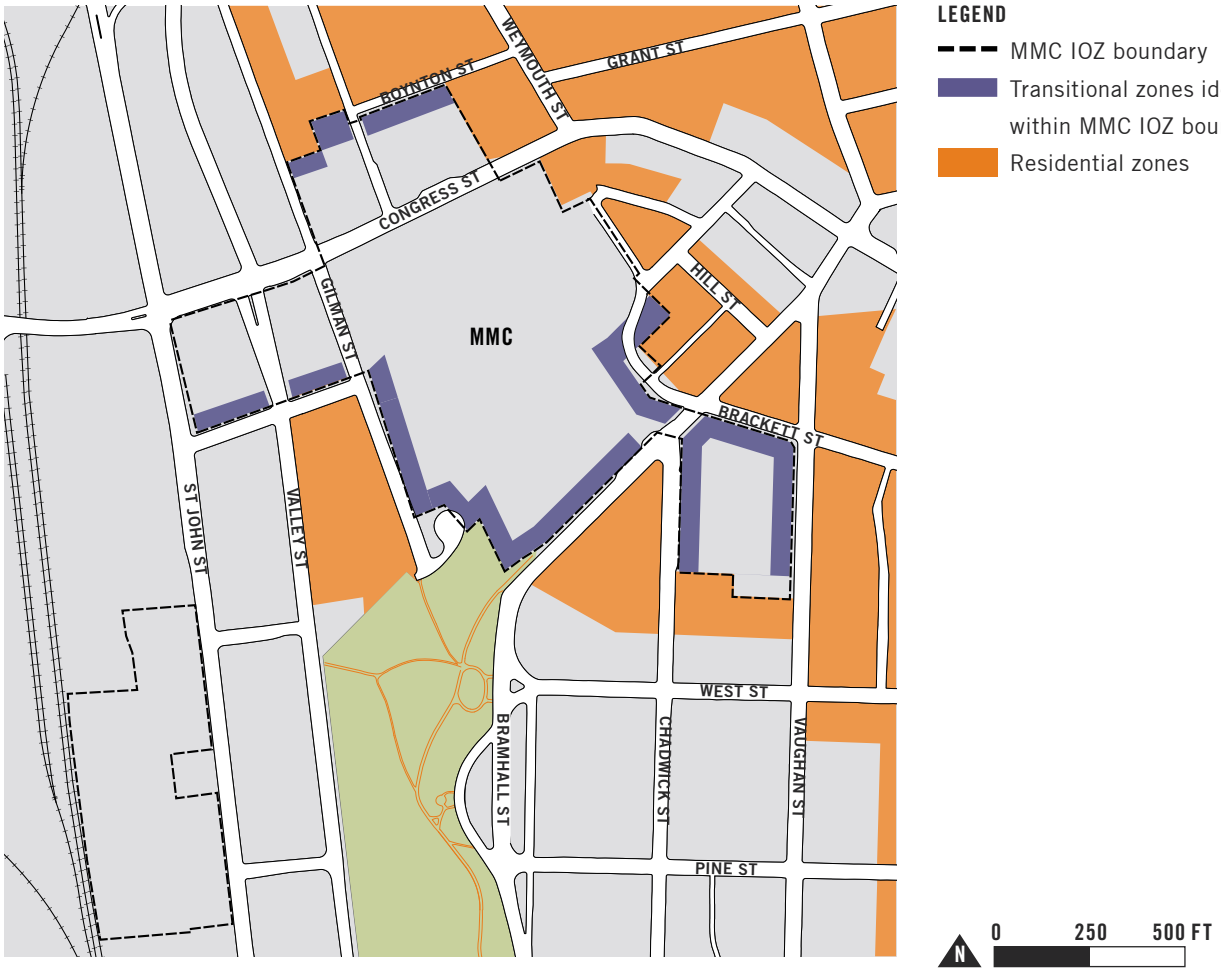
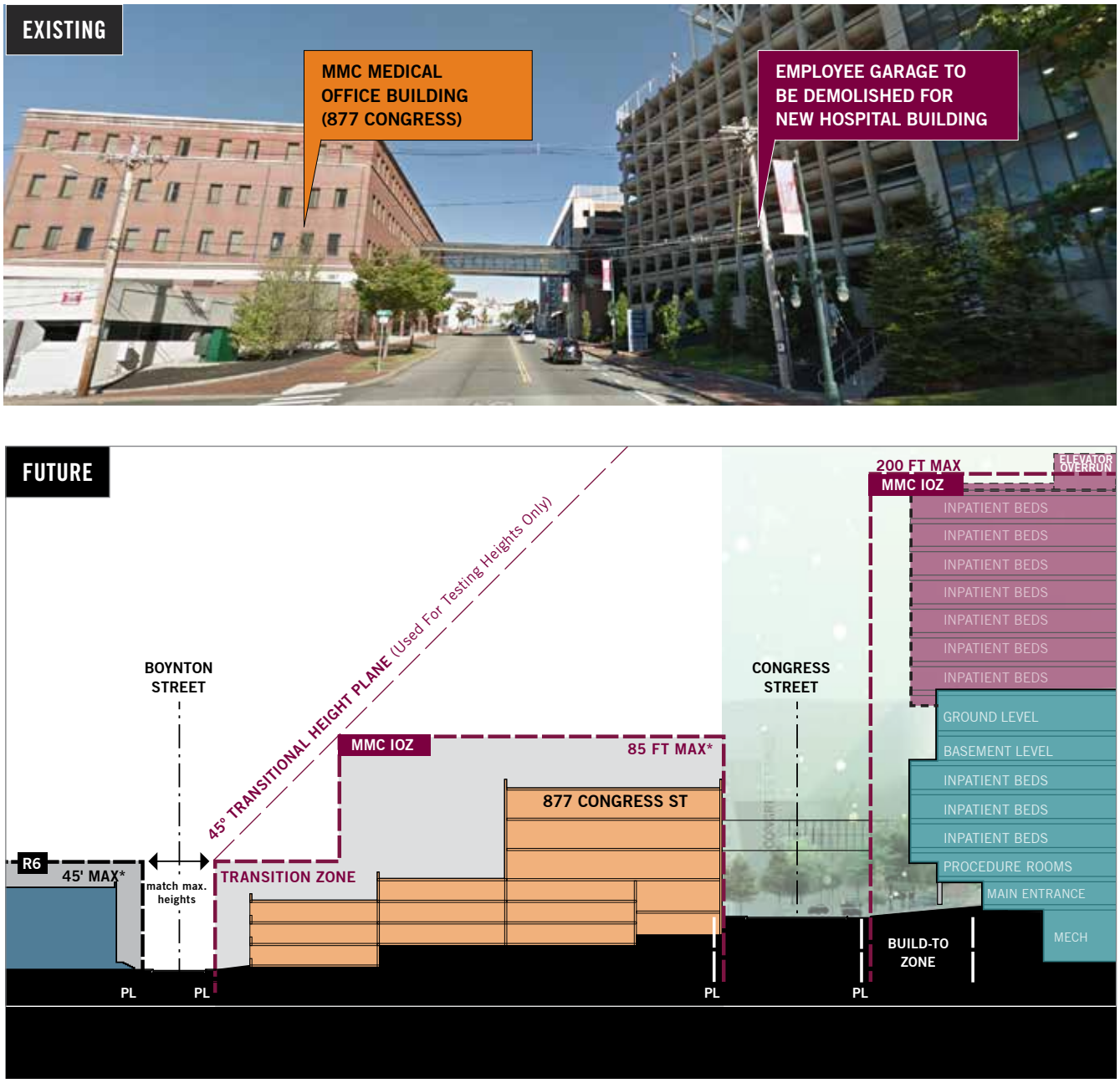
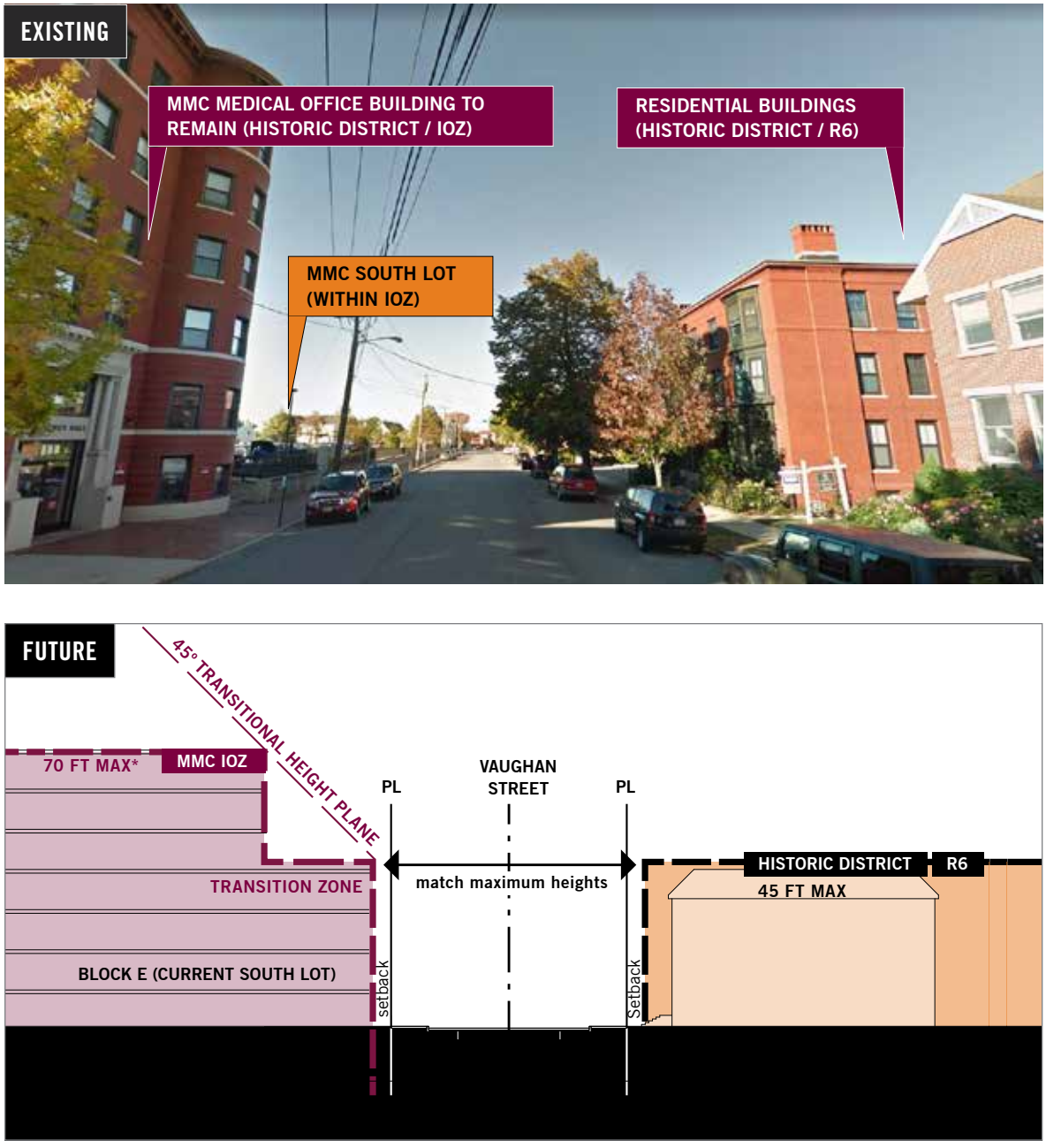


Fig.5.11 Cross-section illustrating height transition from MMC IOZ to Boynton St residential zone north of Congress St



* Average maximum height needed to provide a 75-ft tall structure along Congress St given changes in topography across this site. See "Determining Maximum Heights" on page 104 for details on methodology.

Fig.5.12 Cross-section illustrating height transition from future development Block E (South Lot) within the MMC IOZ to the West End Historic District on Vaughan Street

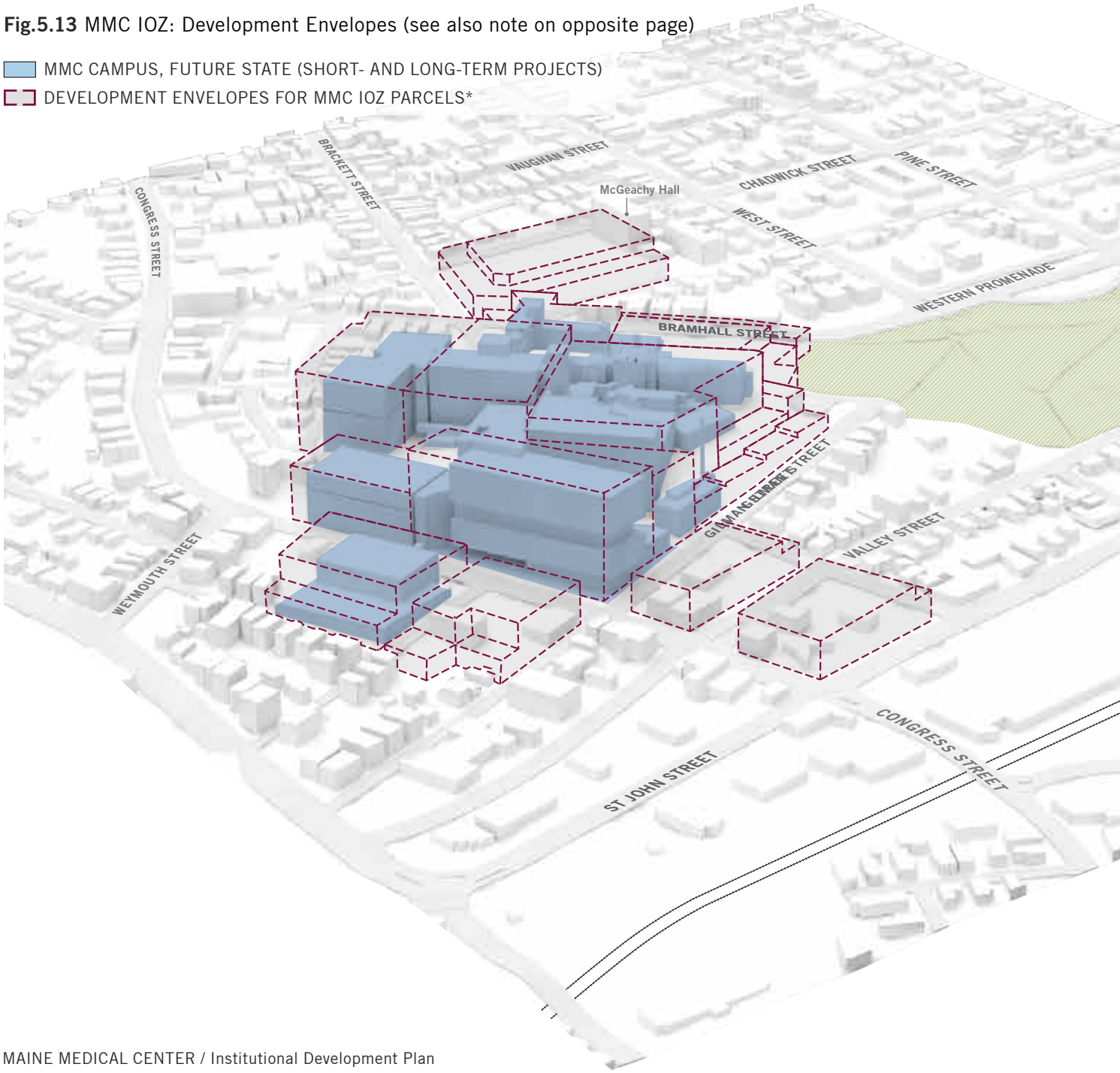


* Average maximum height needed to provide a 75-ft tall structure along Congress St given changes in topography across this site. See "Determining Maximum Heights" on page 104 for details on methodology.

LONG-TERM DEVELOPMENT ENVELOPES

While MMC's Master Facility Plan does not identify specific projects other than those listed on the previous pages (see Fig.2.7 on page 42), all parcels included within MMC's IOZ boundary are considered to be potential zones for redevelopment that supports the effective delivery of healthcare services by MMC to our community in the long-term. Towards this end, MMC has identified context-appropriate uses (see **Table 5.1** at right), development envelopes and design criteria for all IOZ parcels.

Fig.5.13 MMC IOZ: Development Envelopes (see also note on opposite page)



NOTE: **Fig.5.13** illustrates the maximum height envelopes listed in the MMC IOZ Regulatory Framework. Per the IOZ, the development envelopes only apply to properties that MMC holds right, title, or interest at the time of development. All future development within the IOZ boundary is subject to review for compliance with guidelines and requirements included in MMC's IDP, Regulatory Framework and City of Portland site plan review requirements.

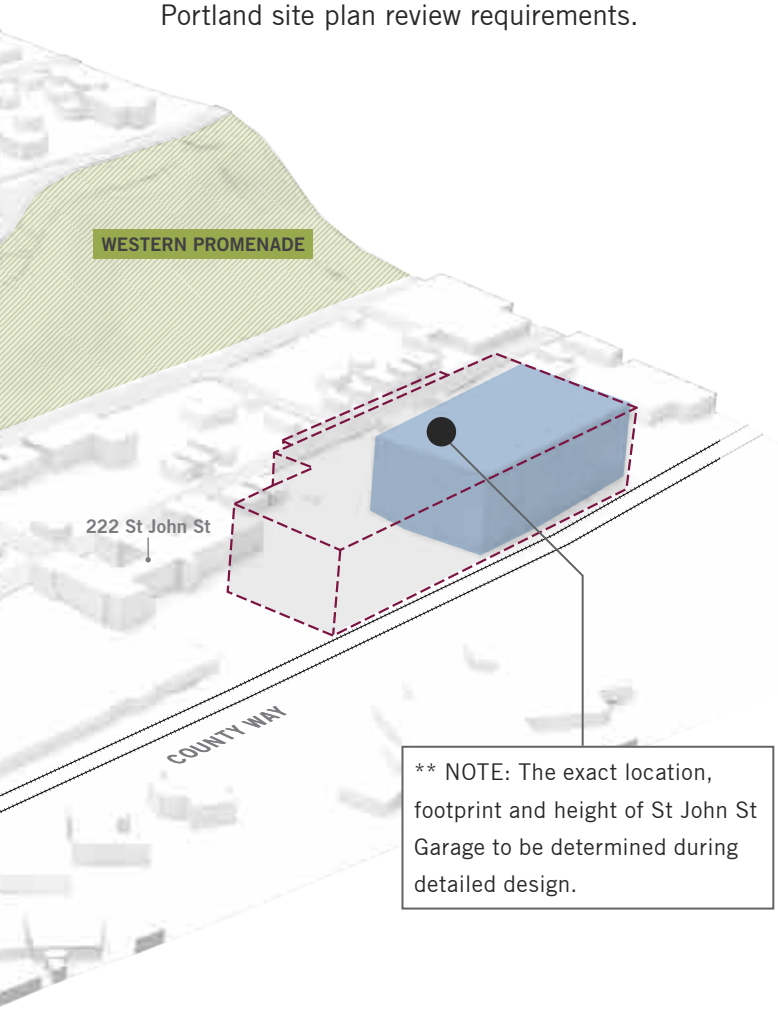


Table 5.1 MMC Potential Future Uses

MMC may locate the following uses within its IOZ boundary:

In addition to the uses permitted in the underlying zone, the following uses are permitted as a matter of right:

Healthcare facilities including but not limited to the following ancillary and/or supporting uses:

- **Hospital**
- **Medical Office / Clinic**
- **Laboratory Center / Services**
- **Research and Development (R&D) Laboratory or Facility**
- **Educational Facility / Conference Center**
- **Administrative / Business Office**
- **Accessory Service or Trade Uses**
- **Guest House**
- **Multi-family housing for healthcare staff and students**
- **Rehab / Skilled Nursing Facility**
- **Retail Facility**
- **Restaurant / Café**
- **Employee Service Amenities**
- **Day Care Center**
- **Fitness Center or Gymnasium**
- **Parking Lot**
- **Parking Garage**
- **Bicycle Storage**
- **Heliport**
- **Antenna Station**
- **Outdoor use areas, such as green areas, parks, gardens, art installations, and other active and passive non-commercial recreation spaces**

DESIGN GUIDELINES

MMC has collaborated with the City of Portland planning staff and sought input from its neighbors to create context-specific "Design Guidelines" for future development within the IOZ boundary. These Guidelines, which are outlined below, are informed by design best practices seen in Portland, and in and around urban hospitals across the US; from City staff recommendations; and from information presented by neighbors in the various public forums held by MMC. They are intended to assist future development in the IOZ to meet the goals and vision for the MMC campus and create context-sensitive buildings.

GENERAL GUIDELINES

MMC will follow these general guidelines for building design within the IOZ boundary:

1. New buildings will be designed to contribute to the campus vision and organizational goals identified in the Master Facility Plan and the Transportation Plan (see Chapters 2 and 3), and best practice design standards for healthcare.

2. The overall composition and experience of the campus will be considered for cohesive identity from approaches along Congress St and I-295.

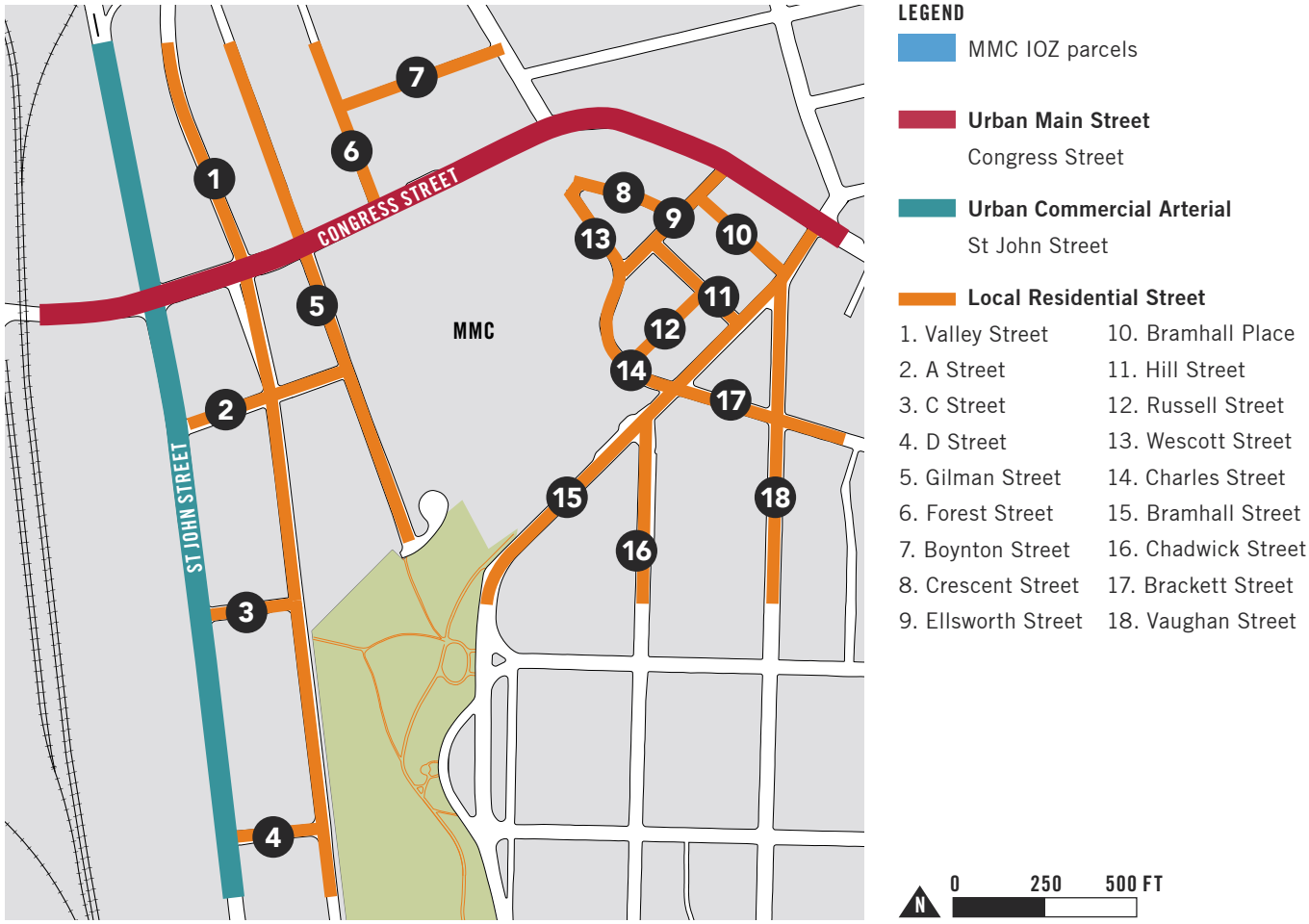
3. Building entrances will be oriented toward, located adjacent to, or accessible from, a sidewalk in a public right-of-way to create a pedestrian-oriented environment.

4. Buildings designs will relate to and be compatible with the existing, or—in areas of change—planned character of residential and commercial neighbors. Design elements and characteristics to consider include:
    - » Building placement and relationship to the street
    - » Overall massing and scale
    - » Roof forms
    - » Proportion, directional expression, and composition of facades
    - » Rhythm of solids to voids
    - » Rhythm and proportion of openings
    - » Rhythm of entries and projections
    - » Relationship of materials, texture, and color
5. Façade materials of buildings will be of high quality, and contribute to an attractive public realm.

6. The design process will consider long views of new buildings including roofs and associated structures to minimize visual impacts and provide visual interest. Rooftop appurtenances will be either screened from view or integrated into the building design, and will not be visible from adjacent streets, Western Promenade, or the Congress Street approach. (The helipad cannot be screened for safety reasons.)

7. Vibrant, contributing and sustainable active ground floors will be provided to add activity and a sense of place to the priority node

Fig.5.14 Typologies of Public Streets in and around MMC IOZ

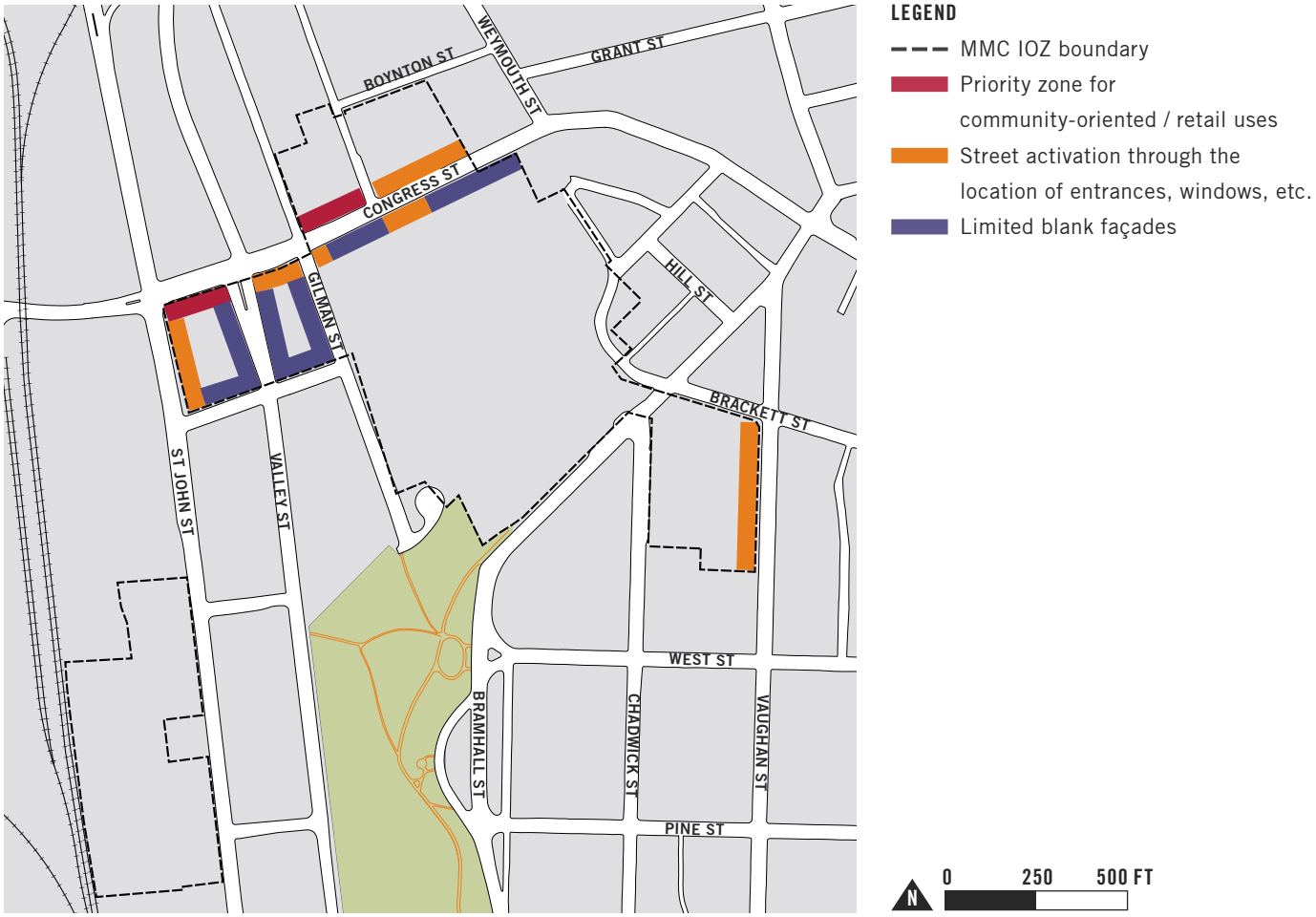


identified in the City's Comprehensive Plan. **Fig.5.15 on page 118** illustrates zones along Congress St deemed to be most suitable for community-oriented uses / retail.

8. In areas where the occurrence of limited blank façades along public right-of-ways are unavoidable due to changes in topography or building use requirements, the following strategies will be used to mitigate visual impact:
   - » providing elements of visual interest along any blank walls facing public streets, and,
   - » working with the City of Portland to ensure adequate lighting of public sidewalks to create a safe pedestrian experience.

Fig.5.15 on page 118 illustrates potential locations of blank walls within the IOZ boundary.

Fig.5.15 Frontage: Types of Activation



9. Any parking structure within the IOZ will:
   - » screen views of cars from public rights-of-way;
   - » provide elements of architectural interest on upper floors to contribute positively to long views and gateway approaches; and,
   - » for garage structures within 20' of the public right-of-way, meet street activation intent according to street type (see **Fig.5.15** above).

BUILDING RELATIONSHIP TO PUBLIC STREET

In walkable urban environments, buildings are designed with pedestrian scale and uses in mind. Buildings contribute to the public realm through the siting and design of street-facing façades, and of lower floors that engage with street-level activity.

A building's relationship to a public street should be informed by the typology of that street, which in turn is defined by the character of existing or planned development lining the street. MMC has identified three distinct typologies of streets within the MMC's IOZ boundary (see **Fig.5.14 on page 117)**. Design guidelines for future redevelopment along these street types are outlined below.

1. Urban Main Street (Congress Street)

Congress St is considered by many to be Portland's "main street". The winding street is defined by "zero-lot line" developments that border the sidewalk, and a series of civic monuments and squares distributed along its length. The IDP planning process has identified an opportunity to extend this "main street" feel from the emergent Bramhall Square (at Bramhall and Congress Sts) all the way to the railroad crossing where Congress St emerges from the influence of the I-295 interchange. MMC aims to contribute positively to the regeneration of Congress St in this area by ensuring orderly redevelopment of abutting IOZ parcels.

MMC buildings abutting Congress St will be designed to:

- provide urban-levels of density;
- create an urban street wall that provides a sense of enclosure to the public realm;
- have their primary orientation towards Congress St;
- activate the public sidewalk with building entrances, lobbies, etc.;
- to the extent possible, given programmatic needs, provide visual interest and ensure pedestrian safety with views into and out of the building along the public sidewalk;
- to the extent possible, given programmatic needs, provide space for community-oriented uses such as services or retail that can be shared between MMC users, neighbors and the broader Portland community; and,
- support the existence of neighborhood amenities such as restaurants and other retail uses providing services to local residents and employees both during the day and evening hours.

The topography and orientation of Congress St in this zone, however, poses significant challenges to achieving some of these design goals. The steady, steep climb of the street makes it impractical for large footprint buildings to align ground floor windows with the rising profile of the sidewalk (see

Fig.5.5 on page 106 for an analysis of building ground elevations). The east-west orientation of the street, combined with the more than 50-ft rise of Bramhall Hill south of Congress St, makes it challenging to provide an urban street wall that does not shade Congress St for most of the time (see shadow studies on page 124). To the extent possible, MMC buildings will utilize the general guidelines related to blank façades to mitigate these conditions (see page 117).

In addition to the guidelines listed above, buildings that have frontage on Congress St and that include parking components will activate portions of or place liner buildings along the ground floor facing Congress St. MMC has no plan to develop a stand-alone garage on Congress St as of the date of this IDP.

2. Urban Commercial Arterial (St John Street)

St John St is a significant arterial linking vehicular traffic between I-295 / Park Drive / Congress Street to the north, and Veterans Memorial Bridge / W Commercial Street to the south. The commercially-zoned street is flanked by a wide variety of uses that hint at its railroad-era origins (warehouses and workers' homes) as well as its current-day arterial use (strip centers and fast food restaurants). While it has some elements of a walkable street such as sidewalks and on-street parking, large stretches of the street prioritize the car with frequent curb-cuts, and street-facing parking lots.

MMC's IOZ boundary abuts St John Street between Congress and A Streets. MMC envisions this block to be redeveloped, in the long-term, in accordance with the Congress St design guidelines outlined on the previous pages. The new development will aim to provide architectural definition to the corner of Congress and St John Streets, and—to the extent possible—extend the character developed for the Congress St frontage along St John St.

3. Local Residential Street

The MMC IOZ boundary is crossed by and abuts a number of local streets that are lined with a wide variety of residential structures ranging from 3-4 story multi-family apartments on Boynton St to single-family mansions along the Western Promenade. During the IDP process, MMC has worked with the City of Portland planning staff, the Planning Board, and neighborhood representatives to identify a balanced approach to redevelopment along local streets that provides appropriate height transition from institutional to residential character. This approach is outlined in detail under "Transitional Zones" on page 110.

Fig.5.16 Photographs illustrating existing character of streets in and around the MMC IOZ

Urban Main Street (Congress Street)

Urban Commercial Arterial (St John Street)

Local Residential Street

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

MMC aims to create a safe environment for all in and around its campus. MMC will incorporate the following design strategies that have been demonstrated to deter crime:

- Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials
- Providing clear and properly-sized signs in safe locations to ensure safe wayfinding
- Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines
- Designing street-level elevations to minimize potential hideouts
- To the extent possible, given clinical program demands, providing views in and out of building ground floors populated by users to serve as "eyes on the street"
- Generating foot traffic on public sidewalks with pedestrian entrances

MITIGATING IMPACTS THROUGH DESIGN

MMC is committed to addressing any perceived negative impacts that campus development may have on adjoining neighborhoods. This includes actions to mitigate impacts of daily campus operations, which are discussed under "Operational Sustainability" on page 93. A plan for mitigating construction impacts is outlined, along with a plan for continuous neighborhood input and engagement, in the "Neighborhood Engagement" chapter on page 128. This section summarizes strategies that may be used, as appropriate, to minimize negative impacts of proposed new development.

Minimizing Shadow Impacts

In order to understand the potential shadow impact of proposed campus projects on surrounding properties, MMC has prepared detailed shadow studies during the Master Facility Planning process (see **Fig.5.17** through **Fig.5.20** on the following pages). The overall building heights were kept to a minimum to minimize shadow impacts in areas such as Congress St where street alignment and topographic changes contribute to longer shadows. The proposed Congress St Development (see "Short-Term Projects on page 44) was pulled back from the street to the extent possible to minimize this impact, while also providing a more generous public sidewalk that supports pedestrian activity in front of this new gateway structure.

Context-Sensitive Lighting Design

The location and context of buildings are considered in the design of artificial lighting for new development. While a majority of this work is completed later during the design process and presented during Site Plan review, MMC has already incorporated some preliminary concepts related to lighting intensity into its Master Facility Plan. A key example is the concept design for the Congress St Development, which is intended to animate the Congress St frontage 24/7 with light emanating from its glazed circulation and waiting areas facing the street on the lower floors.

Mitigating Wind Impact

Upon final design of applicable site plans, MMC will consult with the City of Portland's Arborist to selectively determine the placement of trees or other landscape features on any new landscape areas to minimize any wind impacts created by the mass of new development.

Preserving and Enhancing Viewsheds

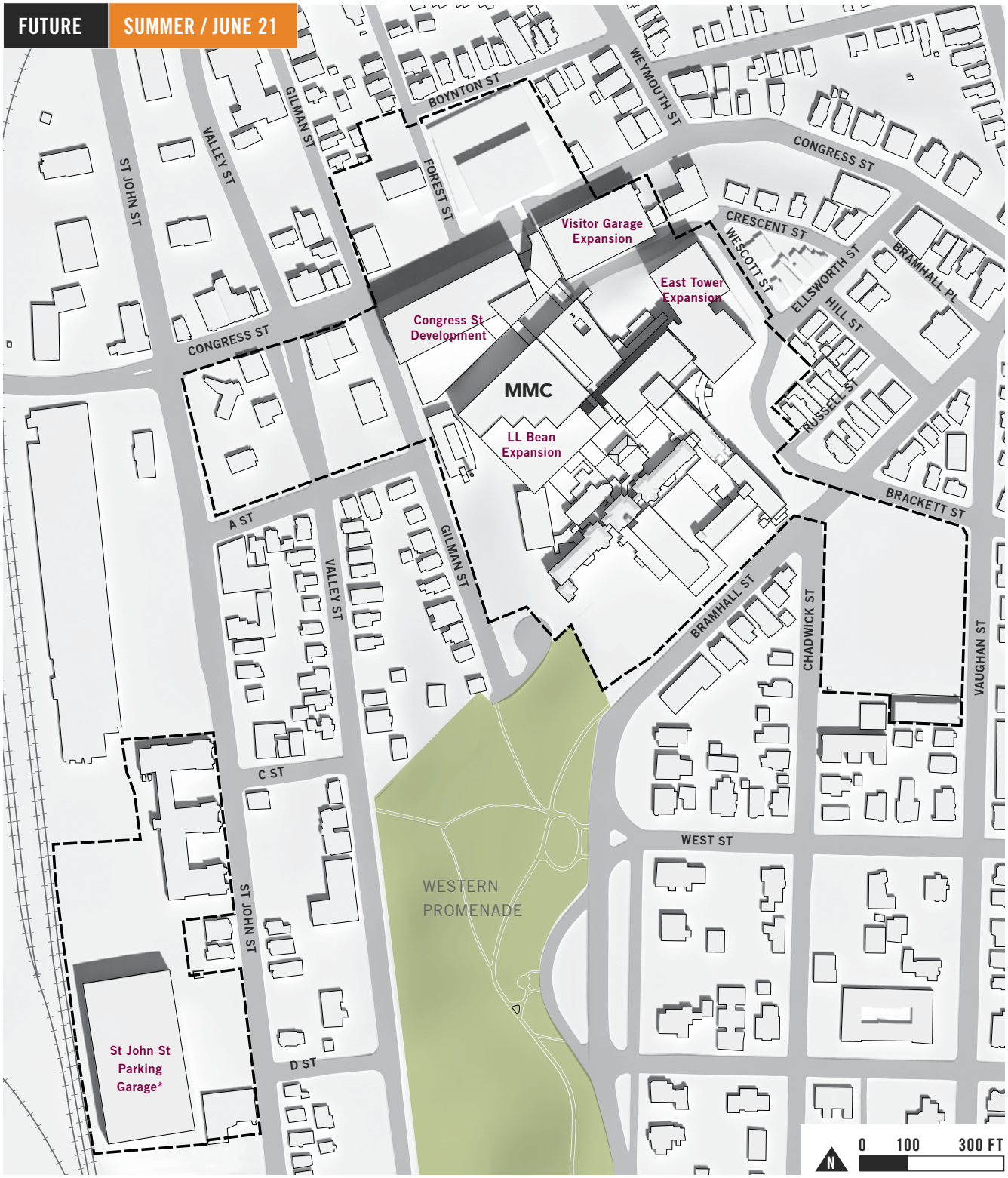
MMC understands the significance of historic and gateway viewsheds to the Portland community. The Maine General Hospital, a landmark civic building situated atop a hill, was designed to complement the sweeping views of the Fore River from the Western Promenade. Likewise, MMC will design new buildings along Congress St to provide an aesthetically pleasing gateway experience for all entering into the peninsula at this point.

MMC embraces the historic Western Promenade as a site from which to take in views of the countryside and the White Mountains, and a valuable open space amenity for campus users as well as for the broader community.

MMC has met with the Parks Department to review the potential impact of the proposed 222 St John St Garage to public views from the Western Promenade towards the White Mountains, and will work to mitigate potential impacts through design. MMC will also work to minimize potential impacts to the Maine Central Railroad Building as a designated historic landmark.

Fig.5.17 Computer-generated shadow study / Existing conditions on June 21, noon

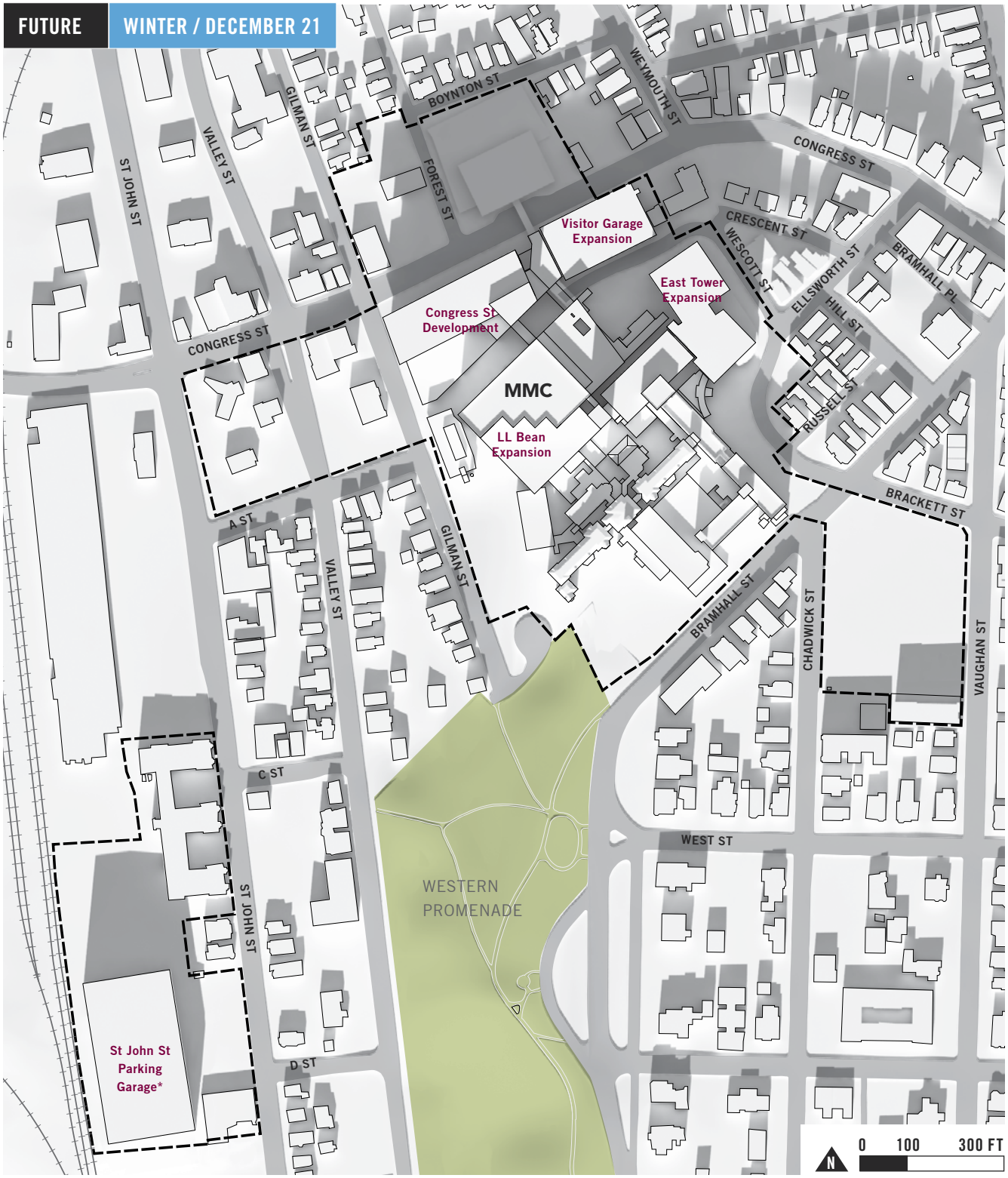
Fig.5.18 Computer-generated shadow study / Proposed long-term projects on June 21, noon



* NOTE: Exact garage location and footprint to be determined during detailed design.

Fig.5.19 Computer-generated shadow study / Existing conditions on December 21, noon

Fig.5.20 Computer-generated shadow study / Proposed long-term projects on December 21, noon



* NOTE: Exact garage location and footprint to be determined during detailed design.

CHAPTER SIX

NEIGHBORHOOD ENGAGEMENT

Maine Medical Center strives to be a good neighbor to surrounding communities. Ongoing dialogue and exchange of information and ideas is a core tenant of MMC's neighborhood engagement plan.

ONGOING COMMUNITY ENGAGEMENT

MMC's number one priority is superior patient care. In order to achieve this goal, it must address its employees' needs. However, MMC also recognizes that realizing its vision depends on its success as a corporate citizen and a neighbor.

MMC's main campus is situated at the intersection of several diverse residential and mixed-use neighborhoods. MMC considers itself a part of the West End, Western Promenade, Parkside, St John Valley, and Libbytown neighborhoods (see **Fig.1.5 on page 19**). MMC values its role in these neighborhoods and seeks to be a productive force in maintaining their health and quality of life. To this end, MMC endeavors to maintain an open dialogue with its neighbors, to quickly and fairly resolve disputes, and to ensure that its growth enhances its neighborhoods' vibrancy, economy, and livability. Building and maintaining trust is essential to successfully achieving these shared goals. MMC commits to building and maintaining trust not only by providing superior care to its neighbors and the larger community, but by clearly communicating and consistently engaging its neighbors on both the institution's core mission and neighborhood concerns.

It is important for MMC, its neighbors and the City to maintain the dialogue that has been established during the development of MMC's IDP. As a result, MMC proposes the following ongoing community engagement to ensure the surrounding neighbors are kept apprised of MMC's future development plans, and to understand any neighborhood issues related to the operations of the MMC campus, the following engagement process shall be established:

- On a quarterly basis, MMC's Chief Operating Officer shall host a group meeting comprised of the following members:
  - » the President or Chair (or a designee of the same) of the following Neighborhood Associations: St John Valley, Western Promenade, West End, Parkside, and Libbytown
  - » The Director of Planning at the City of Portland, and,
  - » The District 2 Portland City Councilor
- The group shall develop a Charter by which these quarterly meetings shall be conducted and minutes shall be made of each meeting. The Charter and the minutes shall be delivered to the City's Neighborhood and Island Liaison within 30 days of their adoption.
- In addition, the group shall annually complete a "checklist of actions" to be addressed by the group and the completed checklist shall also be filed with the City's Neighborhood and Island Liaison.

- To further an open dialogue, MMC will engage neighbors in more routine dialogue during major planning efforts. These meeting invitations shall also be extended to the Director of Planning at the City of Portland and to the District 2 Councilor.
- During construction, MMC shall provide contact information for a designated community liaison on its website for day-to-day inquiries and comments. Inquiries and comments shall be logged by MMC and responses shall be provided by MMC in a timely fashion.
- MMC shall also employ social media to make information about a pending project readily available to the public. This shall include a dedicated website page and a dedicated email address for residents to ask questions, provide suggestions or voice concerns.
- Finally, MMC will set up a text alert system to notify any subscriber of advance construction impacts which may be necessary during construction.

CONSTRUCTION MANAGEMENT PRINCIPLES

The following section provides an overview of the construction management principles that MMC has identified to minimize impacts from noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding buildings and communities. It is MMC's full intent to schedule and conduct operations in a manner that will minimize, to the extent feasible, the disturbance to the public in areas adjacent to the work and to occupants of buildings in the vicinity. MMC will adhere to the Construction Management Template requirements attached to the IDP as Appendix A.

COMMUNICATION INITIATIVES

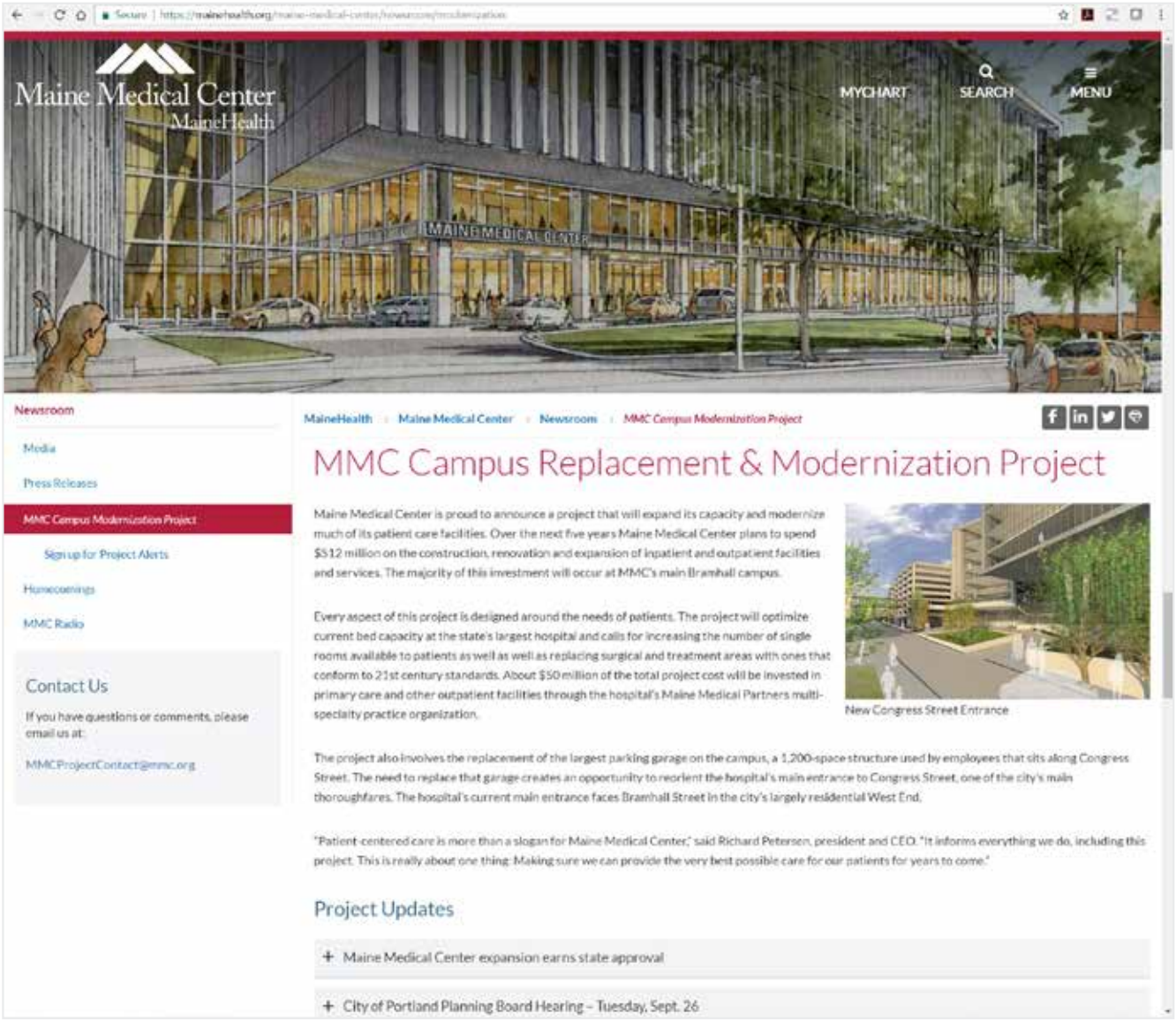
MMC will provide a method of communication between City of Portland, neighbors, and the construction team based on the anticipated impact of the construction project. For large construction projects, MMC will use its website, social media, and provide a dedicated email address to enable communication with its neighbors.

For short-term projects identified in the Master Facility Plan, MMC will implement a communication strategy using social media and texting to alert surrounding neighbors of activities that may cause disruption.

MMC has created a dedicated webpage on its website devoted to the short-term projects to inform the public of important information related to the Project (http://www.mmc.org/modernization).

Information and updates on the Project are regularly posted including project updates, neighborhood meeting minutes, Portland Planning Board information related to the project, news releases, fact sheets and frequently asked questions. As construction commences, important alerts regarding construction activity such as activities impacting roadways, potential creation of dust, vibration, or noise, etc. will also be posted. To the extent possible, MMC will provide two week advance notice of such activities.

Fig.6.1 Screenshot of MMC Website dedicated to the Project at http://www.mmc.org/modernization.



MMC has created a dedicated email address that allows members of the public to ask questions and provide information. These emails will be answered in a timely fashion by the people directly involved in the construction activities.

Information about the construction project will be proactively shared on a regular basis for the duration of the project.

CONSTRUCTION SCHEDULE

MMC will provide an estimated project schedule at the beginning of a construction project and provide regular updates through-out construction. The frequency of construction schedule updates will be determined by the project's estimated impact on the surrounding area.

CONSTRUCTION MANAGEMENT PLAN

Prior to construction, MMC will develop comprehensive Logistics and Safety Program. Maintaining normal campus operations and public safety, and minimizing impacts to areas surrounding the campus, will be the primary considerations in this process. MMC will utilize the City's Construction Management Plan template to develop a Construction Management Plan that will be submitted with a Site Plan application.

PROJECT WORK HOURS

Construction work hours will be predetermined before the start of any construction project and limited in order to minimize impact on the areas surrounding campus and to complete the project expediently.

PUBLIC SAFETY AND ACCESS

Pedestrian walkways and business access will be clearly marked and maintained through-out the construction period.

In general, secured fencing will be used to isolate construction areas from pedestrian traffic and Police Details will be provided, when necessary, to facilitate traffic flow. MMC will work to ensure the sidewalk protection minimizes impact to pedestrian and vehicular flow. The specific configuration of sidewalk protection and pedestrian access around the site will vary depending on the phase of the work being performed. Construction procedures will be designed to meet all OSHA safety standards for specific site construction activities. MMC will provide sufficient temporary site lighting to ensure the safety of all pedestrians accessing the sidewalks around the site, including lighting at all covered pedestrian walkways, until permanent street lights are installed. Residents will be able to contact MMC at a designated email posted prominently on the project website (see **Fig.6.1 on page 132**). MMC will also provide regular updates to the Fire Department regarding any detours necessitated by construction.

CONSTRUCTION NOISE IMPACTS

MMC is committed to mitigating construction noise impacts. Increased community sound levels, however, are an inherent consequence of construction activities. When these events are scheduled, advance notice will be provided.

CONSTRUCTION TRAFFIC AND PARKING IMPACTS

Construction Workers

For Short-Term Projects, the number of workers required during the construction will vary with an estimated average daily workforce of 150 during the peak of construction. Jobsite personnel shall park at an off-site parking area and will be shuttled to the construction site. MMC will work with the Construction Management Company to identify an off-site parking location and shuttle service. No personal vehicles will be allowed to park at the project construction site or in the adjacent residential streets. The construction company and its subcontractors shall encourage the use of public transportation by their workers, if available.

Truck Routes and Volumes

Truck routes shall be as far away as possible from residential and other sensitive uses.

MMC may install wayfinding signage at strategic locations identifying no travel zones for construction vehicles. Once at the site, all vehicles will be brought within the fence line and will make every attempt to avoid queueing on public roadways, unless during specific times, as addressed on the site logistics plans.

Construction Staging Areas

Construction staging areas shall be as far away as possible from residential and other sensitive uses.

CONSTRUCTION AIR QUALITY IMPACTS

To reduce emission of fugitive dust and minimize impacts on the local environment, MMC will adhere to a number of strictly enforced mitigation measures. These include the use of wetting agents to control and suppress dust; covering stock piles of soils and trucks transporting debris; managing construction practices to reduce unnecessary transfers of loose materials; periodic cleaning of streets and sidewalks; and, use of wheel wash stations.

IMPACT TO SURROUNDING BUILDINGS AND RESIDENCES

Foundation surveys of surroundings buildings and homes will be completed within a reasonable distance from the anticipated center of construction and in accordance with current regulations. The results of foundational surveys will be shared with the City of Portland and the property owner.

MMC COMMUNITY BENEFITS

MMC provides much to the City of Portland community including employing over 2,000 Portland Residents. These benefits are not only to our adjacent neighbors but also to the residents elsewhere in the City and the state of Maine.

SMOKING POLICY AND RELATED INITIATIVES

MMC, as a health care institution, understands that smoking is an addiction that has harmful effects—effects from directly inhaling nicotine, as well as the effects of second hand smoke. The effects are serious and can be life threatening. In order to advance its vision to make the people in Maine the healthiest in America, MMC, like other businesses in the City of Portland—including the City itself—has instituted a no smoking policy on its premises.

But the hospital also recognizes that addiction is difficult to overcome and the ability to quit smoking is often difficult. That is why MMC offers assistance to its employees, patients and visitors to quit smoking and to reduce and eliminate noxious fumes in the environment. MMC provides free smoking cessation classes to its employees. It offers free nicotine gum to visitors to the hospital in an effort to reduce the desire to smoke. MMC has conducted periodic "walk-abouts" in the neighborhood to talk with people about smoking and its health impacts.

Neighborhoods throughout the City all deal with unwanted smoke. MMC has heard the concerns of its neighbors relating to people walking on the public sidewalks in their neighborhoods while smoking.

Whether or not people smoking in MMC's adjacent neighborhoods are affiliated with the Hospital, MMC has taken significant measures to respond in a positive fashion to these concerns. MMC provides education about smoking and resources to assist in quitting (such as providing the hotline telephone number for the Center for Tobacco Independence). The Hospital has taken steps to alleviate the unsightliness of cigarette butts on public streets near its campus. As documented in its MMC Neighborhood Council Meeting minutes of June 23, 2016, MMC has purchased 30 "butt butlers" for use by the City in areas around the MMC main campus. In 2016, MMC and the neighbors collaboratively walked the neighborhood and identified areas for installation of the butt butlers.

At the request of the neighborhood representatives, MMC also modified its smoking policy as follows:

- Limits the distance from entrances within which individuals can smoke from 50 feet to 20 feet;
- Remove MMC Tobacco Free signs installed along the perimeter of the open "South Lot" (Bramhall, Chadwick, Vaughan, and Brackett Sts).
- Letter to employees sent by the MMC CEO and COO regarding these changes and the expectations for employees to abide by them
- MMC has hired a trash removal vendor to collect cigarette butts and trash in the areas surrounding the hospital. This vendor

provides such service between April 1 and first snow, on M, W, and F at 4–6 hours per day.

- MMC has a telephone line dedicated to the receipt of concerns from neighbors regarding MMC related events in their neighborhoods.

MMC is committed to its ongoing efforts to address this public health issue of tobacco use.

NEIGHBORHOOD GARDEN

The St John Valley Neighborhood (SJVNA) requested the use of property owned by MMC at 268-270 Valley St. In an effort to respond to the neighbors, MMC contacted the City for guidance on how it permitted use of public property for such community gardens. MMC fashioned an agreement with SJVNA which mimicked the Agreement used by the City for use of its land by gardening neighbors. As of June 2016 SJVNA was looking into procuring insurance of the same type required by the City.

NEIGHBORHOOD CLEAN UP DAYS

MMC has sponsored neighborhood clean-up days in the past in an effort to partner which its adjacent Neighborhood Associations to beautify the neighborhood. It has supplied lunch, trash bags, gloves and water for those participating.

SNOW BAN PARKING

MMC allows its neighbors the use of its parking garage at 887 Congress St on those days when the City calls a snow ban.

CITY-WIDE BENEFITS

MMC is actively involved in giving back to the City of Portland. The following initiatives provide some examples of the actions undertaken by MMC to give back to the community.

- MMC-Preble St Learning Collaborative: MMC nurse practitioners, primary care residents, medical students, and MMC Homeless Health Partners, have provided services to the most vulnerable underserved people in Portland, allowing them access to quality, barrier-free health care.
- Portland School Based Health Clinics were successful due to the partnership between MMC and Portland Public Health.
- Portland School Athletic Contributions: The Sports Medicine division at MMC's Family Medicine Center provides physical exams and training room support for area school teams, marathons and other sports events.
- MMC RN Health Fairs: MMC RN's routinely hold community health fairs on MMC's time to benefit vulnerable populations. Locations of health fairs include: the Preble St Teen Center, Boys and Girl's Club of Portland, and the Florence House, a permanent shelter for chronically homeless women. The events are frequently accompanied by a collection of supplies.

- Sagamore Village Health Center: MMC has provided staff and support at the Sagamore Health Resource Center, a community-based nurse managed clinic that provided public health, primary care and mental health services to residents. MMC collaboration with the USM School of Nursing and Portland Housing Authority in providing these services. In addition to staff and administrative support, MMC provided direct financial support to the Health Clinic.

- MMC Care Partners: A "safety net" program designed to provide care for those who cannot afford commercial insurance but are not eligible for government programs. CarePartners provides administrative support to help serve the target population, including comprehensive eligibility assessment, care management, and access to low cost or free pharmaceuticals.

- Virology Treatment Center: A resource to patients and physicians caring for patients with HIV / AIDS; it also provides education and conducts clinical trials, including many that otherwise would not be available in the community.

- International Clinic: Provides services and healthcare education to immigrants and refugees from around the world who have settled in Portland.

- Northern New England Poison Center: MMC is the home of the NNEPC. The NNEPC provides a 24x7 hotline and chat service to provide 24x7 consultation with healthcare professionals and the public regarding accidental pediatric or geriatric poisonings, therapeutic errors and adverse effects/ interactions, management of drug- or poison-related suicide attempts and substance abuse misadventures, environmental exposure, food poisoning and other toxic exposures. The Center also provides education for the public and healthcare professionals, including school nurses and law enforcement, assists with preparedness and toxic-surveillance for events including food or water contamination/ tampering, weapons of mass destruction, regional antidote management, and infectious disease.

- Sexual Assault Response Services of Maine (SARSSM): MMC, through its Emergency Department, teaches classes to support SARSSM. Emergency department members present at meetings and conferences in support of these services.

- The Maine Medical Center Research Institute (MMCRI) is the largest hospital-based biomedical research facility in northern New England. Many clinicians author scholarly work or participate in various studies and research activities, and the institute offers a summer

student program. Residents and community members participate in clinical trials to manage and treat diseases and medical conditions, which would otherwise not be available in the community.

- MMC Classroom Facilities at the MMC Dana Center are used by health care mission focused community groups for meetings and educational sessions. Local Chapters of Alcoholics Anonymous, Al-Anon, the National Alliance for the Mentally Ill and Take Off the Pounds Sensibly meet weekly at the Dana Center. HOPE Support Group, Making Strides against Breast Cancer, an Autism Parent Support Group, and Survivors of Suicide are some of the organizations that make use of MMC's facilities on a weekly basis throughout the year.
- MMC's Certified Nursing Assistant (CNA) Program: In affiliation with Portland Adult Education this program has graduated approximately 1,200 graduates to date. Offered 3 times a year at no charge to students, this state-approved 180-hour course incorporates experienced MMC nursing staff as faculty/ mentors within classroom presentations, skills labs, and supervised clinical experiences. Clinical nurses and others throughout MMC instruct and mentor these student team members, highlighting MMC's belief in CNAs as integral to the comfort, care, and outcomes of our patients and services. An average of 75 participants attend per session. Near the end of this eleven-week program, students take the state certification examination during the course at no cost to the student.
- Medical Explorers: Provides opportunity for High School students to experience a combination of lecture, experiential learning, and hand-on skills practice. MMC also offers summer internships and opportunities through the school year for High School students to meet, observe and interact with many disciplines in the medical profession.
- Doc for a Day: MMC provides students, chosen from underrepresented minority groups or educationally or economically disadvantaged backgrounds, an overview of what is involved in becoming a physician, and participate in hands on clinical activities in the simulation lab.
- Disaster Preparedness and Emergency Services: MMC is deeply involved in disaster planning at the local and State levels. It is one of three state Regional Resource Centers for Emergency Preparedness, and the hospital has a full-time Director of Emergency preparedness. Additionally, MMC is a member Southern Maine Regional Resource Center for Health Emergency Preparedness, which coordinates all Emergency Preparedness Activities of the Southern 4 Counties of Maine including: York, Cumberland, Sagadahoc and Lincoln. These Public Healthcare Emergency services include

Fig.6.2 Photographs from Community Benefit Events Supported by MMC

The Annual Maine Children's Cancer Program (MCCP) Walk

Tobacco Cessation Program

Park Clean-Up

services and support to other local Hospitals and Medical Centers, Laboratories, Clinics and Ambulatory Centers, Assisted Living and Long Term Care Facilities and Home Health Agencies in the greater Portland Community.

- Financial Support to Community Agencies: MMC supports financially and provides in kind services to various community agencies and sponsors events throughout the City, including the Heart Walk; American Cancer Society walk, Hospice of Southern Maine, Let's Go Program, Ronald McDonald House, March of Dimes and National Multiple Sclerosis Society. MMC and its employees participate in the United Way, which donations benefit numerous local agencies.

APPENDICES

Appendix A / Construction Management Plan Template

Appendix A: Construction Management Plan Template

DRAFT 7-31-2017 General Construction Management Plan Template

Construction Management Plan
General Template
[Applicant and Project Name]

Construction Management Plans shall depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The City's goal for a construction management plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

The Construction Management Plan will be submitted as part of the Site Plan Review and it shall address the construction logistics for a project. The Construction Management Plan shall include the following submissions: 1) a construction management site plan, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories below.

A. Construction Management Principles
The following narrative provides an overview of the construction management principles that the [Applicant and Contractor] has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

B. Development Review of Construction Management Plan
[Applicant and Contractor] shall submit a construction management plan that provides a comprehensive logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. The plan minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process. The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits
Prior to scheduling a preconstruction meeting and the issuance of any city required permits, [Applicant and Contractor] shall meet all of the requirements contained in Section 14-530. Development review fees and post approval requirements and 14-532. General requirements and enforcement of Portland's Land Use Code.

Other permits, as applicable, include

1. **Street Opening and Street Occupancy Permits:** Construction activity in the public right-of-way are controlled by Chapter 25 and sewer and stormwater system connections are controlled by Chapters 24 and 32 of the Land Use Code. All required permits shall be obtained through the Department of Public Works and the requests shall conform with the approved construction management plan.

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2. **Blasting:** Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
3. **Building Code:** Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

[Applicant and Contractor] will work diligently to implement a communication strategy as outlined below. The communication strategy is intended to ensure that all construction operations are performed in accordance with all agreements, ordinances and special permits applicable to this project. The Construction Manager will work closely with adjacent abutters, businesses and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. The final construction management plan shall provide for the following:

1. Contact Person and contact information for the [applicant and contractor] and who is available 24 hours
2. Construction Signage posted on the site with Contact Information for Contractor
3. Describe any additional communication strategies
4. All construction site signage is temporary and shall be removed at project completion.

E. Construction Schedule

1. The contractor shall submit a schedule or time line for the construction project, including any Phasing.
2. Hours of Construction. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit (Attachment 1) and Section 25-129. Noise, dust and debris (Attachment 2).
3. Extended Hours or Night Work: Pursuant to Section 17-18, this section not apply to emergency utility work or "Situations where the public works authority or the office of building inspections determines that the construction activity is of a unique character which cannot reasonably be completed or performed during the permitted hours and which is not of a recurring nature, provided that prior to engaging in such activity the contractor or his representatives gives notice of the time and scope of such proposed activity, the notice to be given in a manner approved by the public works authority."
4. Material Deliveries: Schedule and designated location for delivery of materials and boxed goods.

F. Security & Public Safety

1. The Construction Management Plan will depict all proposed fencing or other barriers and access gates (with knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*
3. Fire Safety Program. An overall construction of demolition fire safety program shall be developed. Essential items to be emphasized include the following:
    - Good Housekeeping
    - On-site security

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- Installation of new fire protection systems as construction progresses
- Preservation of existing systems during demolition
- Organization and training of an on-site fire brigade
- Development of a pre-fire plan with the local fire department
- Rapid communication
- Consideration of special hazards resulting rom previous occupancies
- Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations

4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.
2. Sewer and Stormwater: Sewer and stormwater water system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and or collector streets are required to submit a satisfactory 'maintenance of traffic" (MOT) plan prior to any site plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

   Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for n the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

   - Construction speed signing may be used as needed to slow traffic
   - Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
   - In extreme situations, flaggers may be required.

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- Police detail is required at lighted intersections and may be requested by the City's transportation engineer or his designee.

All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

The final Construction Management Plan will address maintaining the site in a safe condition and will include the following:

1. Regular trash and debris removal
2. Street cleaning and damage controls
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).
4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.
    1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice
    2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or site lines with the piles of snow.
    3) Clear all walks & ramps with the work zone
    4) Sand or Salt as needed
    5) Clear all basin or drainage to help snow melt
    6) This would include Monday-Friday Sat/Sunday/Holidays

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I. Erosion Control and Preservation of Trees

1. The [contractor] shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.
2. The [contractor] shall maintain all tree and landscaping preservation measures as depicted on the landscaping plan (Exhibit) within the area of construction.
3. The storage of materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Construction Management Plan shall depict location of the material staging areas, the location on onsite temporary construction trailers, the location on onsite truck delivery holding areas, the location onsite truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. An open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The delivery holding area shall be shown on the plan and shall not be blocked during construction. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of the trucks until they can be unloaded. Once at the site all vehicles well be brought within the fence line and will make every attempt to avoid queueing on public streets.
3. Delivery Truck Holding Areas Off-Site: In the event that adequate on-site area for holding of trucks is not available, an off-site marshalling area will be utilized for trucking. The designated off-site location will be identified in the construction management plan.

K. Parking During Construction

1. Construction Parking: Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided. The parking arrangements shall be included in the construction management plan.
2. Parking: Where existing facilities are remaining in operation during construction, the construction management plan shall identify how the parking for employees and others shall be managed.
3. Truck Routes and Volumes: The Construction Management Plan shall address the designated truck routes and expected truck volumes.

L. Special Measures as Necessary

For construction work that will take place over a long period (e.g. 12 months or more), involve major demolition/ deep excavation/ piling and/or special construction techniques, or are located near sensitive uses (e.g. medical care facilities, schools), the Construction Management Plan should provide details and demonstrate that all appropriate special measures have been taken to avoid, minimize, or possibly compensate for potential impacts. This may include taking baseline measurements before construction, such as arranging to

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photograph the foundations of nearby properties upon consent of the owners, in order to assess any future impacts of vibration, noise, etc.

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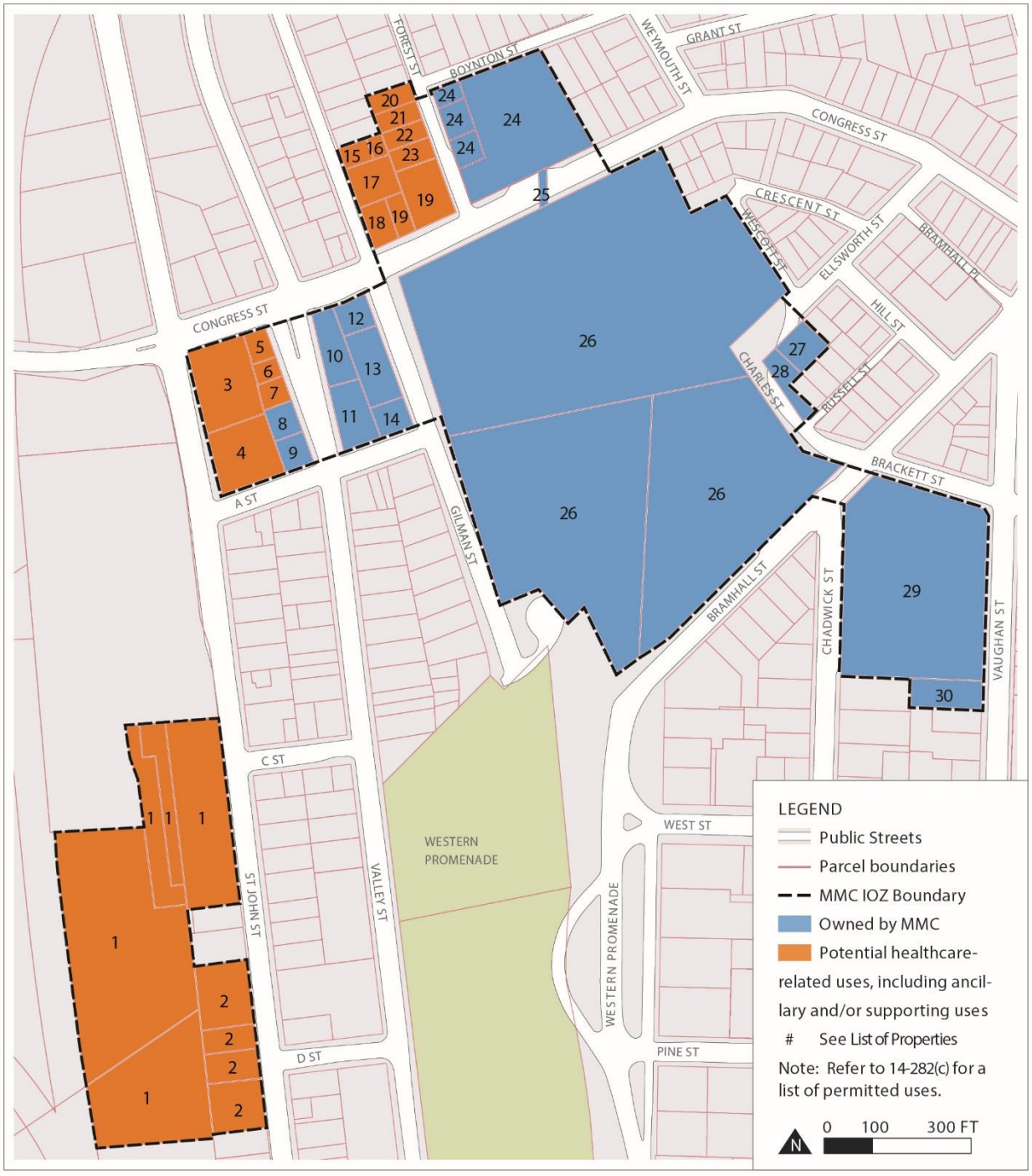
14-282. Maine Medical Center Institutional Overlay Zone Regulatory Framework.

(a) Applicability. All development proposed by Maine Medical Center (MMC) within the boundary of the Institutional Overlay Zone (IOZ) shall be consistent with the approved Institutional Development Plan (IDP), consistent with the Comprehensive Plan, and meet applicable standards of the land use code, unless such standards are superseded by the following Regulatory Framework. This Regulatory Framework shall govern future development by MMC within the IOZ unless amended by the Portland City Council upon formal application of MMC.

1. The MMC Institutional Overlay Zone shall have the boundaries depicted in the map, below, and shall include the properties listed in the table, below.

MMC IOZ Boundary



List of Properties Included in the MMC IOZ

Map#	Legal Description	Address	Acreage	Ownership
1	64-A-2-8-9-11 74-A-7 / 75-A-6	222 St John St	4.6516	Owned by others
2	68-D-1-3-13-14-16	180 St John St	0.9494	Owned by others
3	65-G-1	950 Congress St	0.4628	Owned by others
4	64-B-1	275 St John St	0.4163	Owned by others
5	65-G-2	942 Congress St	0.0659	Owned by others
6	65-G-3	940 Congress St	0.0482	Owned by others
7	65-G-4	274 Valley St	0.0667	Owned by others
8	65-G-5	268-270 Valley St	0.0978	MMC
9	64-B-2	262-266 Valley St	0.0895	MMC
10	65-H-1	932 Congress St	0.1864	MMC
11	65-H-9	261 Valley St	0.2185	MMC
12	65-H-2	930 Congress St	0.1040	MMC
13	65-H-5	52 Gilman St	0.2384	MMC
14	65-H-8	44 Gilman St	0.1128	MMC
15	65-E-22	85 Gilman St	0.0565	Owned by others
16	65-E-32	85 Gilman St	0.0282	Owned by others
17	65-E-24	81 Gilman St	0.1653	Owned by others
18	65-E-28	919 Congress St	0.1059	Owned by others
19	65-E-29-30	909 Congress St	0.3233	Owned by others
20	65-E-19	22 Forest St	0.0826	Owned by others
21	65-E-21	18 Forest St	0.0831	Owned by others
22	65-E-23	14 Forest St	0.0826	Owned by others
23	65-E-25	12 Forest St	0.0883	Owned by others
24	53-I-1-2-3-12	887 Congress St	1.3400	MMC
25	53-X-1	Congress St Air Rights and Pedestrian Walkway	---	MMC
26	53-D-7 54-H-1 64-C-1	22 Bramhall St	12.563	MMC
27	54-C-6	34 Ellsworth St	0.1341	MMC
28	54-C-10	40 Ellsworth St	0.1155	MMC
29	54-I-1	308 Brackett St	2.5200	MMC
30	63-B-8	214 Vaughan St	0.1983	MMC

Notes:

1. Properties owned by MMC are listed under MMC or MMC Realty Corp.
2. MMC will not extend its functionally-related Bramhall campus hospital operations beyond the boundary of the IOZ within the City of Portland without further amendment to the IDP. This includes any expansion of functionally-related operations that displace residential uses outside of the IOZ boundary. A functional relationship is defined as uses or activities that are traditionally or customarily linked to the day-to-day operations of the MMC Bramhall Campus that would relocate a significant proportion of the total employee population or activities.

(b) Updates and amendments.

1. It is intended that the IDP will be updated on a regular basis to ensure that the data is current and that the document remains accurate. Accordingly, monitoring reports will be filed every three years and shall include a summary of progress on IDP implementation and of acquisitions and divestment since the date of IDP approval. At the time of the submission of the monitoring report, MMC shall identify any updates to the IDP which may result from updated master planning, changes in baseline information, or changes in the adjacent neighborhoods which affect MMC, to allow the IDP to remain current. Updates and minor amendments not described below shall be reviewed administratively by the Planning Authority.

2. Minor amendments that impact phasing of the long-term development blocks or change the approach to parking, transportation, neighborhood engagement or design shall be reviewed by the Planning Board for consistency with the objectives of the IDP. In addition to consistency with the objectives of the IDP, review of phasing and development program amendments shall focus on integration with the campus and impacts on transportation or infrastructure. This review may occur simultaneously with the site plan review of an anticipated project.

3. Major amendments shall be reviewed by the Planning Board and are required under the following circumstances:

    a. A change to the Regulatory Framework is required;

    b. The IDP is no longer representative of the institutional mission or approach to community as a result of redevelopment in the area or City upgrades to neighborhood planning (such as roadway changes, infrastructure upgrades, community design, lighting, etc.); or

    c. Development proposed by MMC is inconsistent with the master facility plan, transportation plan intent, design plan intent, or environment and infrastructure plan intent identified in the IDP.

4. Annual monitoring reports will be submitted for MMC's Transportation Demand Management (TDM) Plan. TDM monitoring reports shall include a summary of progress toward targets established in the TDM Plan.

(c) Uses. In addition to the uses permitted in the underlying zone, the following uses are permitted as a matter of right.

List of Uses Permitted by Right within the IOZ	
Healthcare facilities including but not limited to the following ancillary and/or supporting uses: • Hospital • Medical Office / Clinic • Laboratory Center / Services • Research and Development (R&D) Laboratory or Facility • Educational Facility / Conference Center • Administrative / Business Office • Accessory Service or Trade Uses • Guest House • Multi-family Housing for Healthcare Staff and Students • Rehab / Skilled Nursing Facility	• Retail Facility • Restaurant / Cafe • Employee Service Amenities • Day Care Center • Fitness Center or Gymnasium • Parking Lot • Parking Garage • Bicycle Storage • Heliport • Antenna Station • Outdoor use areas, such as green areas, parks, gardens, art installations, and other active and passive non-commercial recreation spaces

1. Mixed Uses: In recognition that Maine Medical Center is part of a mixed-use area of the City, with important existing services and businesses that serve the local and wider community, healthcare facility development fronting onto Congress Street and St. John Street shall activate the public realm, to the extent able, with uses such as service and retail/restaurant, landscaping, active building entrances, pocket parks, etc., on the ground or other publicly accessible level, consistent with the design intent contained in the approved Institutional Development Plan (IDP). In areas identified in the IDP as "Priority zone for

commercially oriented/retail uses," usable ground floor retail, restaurant, or comparable community-oriented use that provides services to local residents and employees both during the day and evening hours is required. In areas labeled "Street activation through location of windows, entrances, etc.," usable ground floor retail, restaurant, or community oriented use is encouraged to the extent practicable. Such uses, where constructed or facilitated as part of a healthcare related development, are expressly permitted whether ancillary or supporting the healthcare facility or not, and shall be open and welcoming to the general public in addition to employees or visitors of Maine Medical Center.

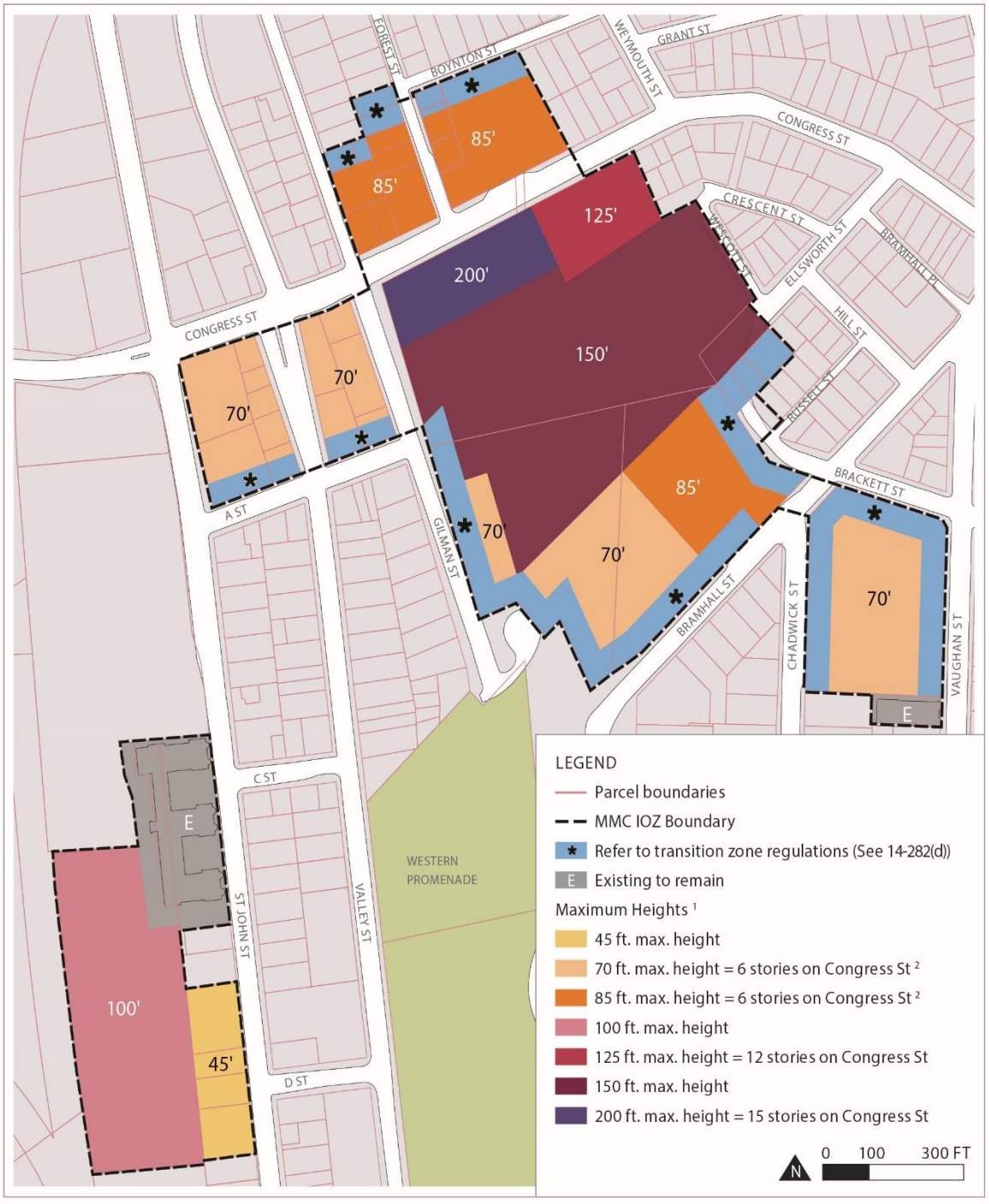
(d) Dimensional requirements. The MMC Institutional Overlay Zone shall have the dimensional requirements listed in the table and depicted in the maps, below.

Dimensional Requirements	
Max. Building Heights	Max. building heights for new buildings within the IOZ shall be governed by the Maximum Building Heights Map, or by the Transition Zones clause of this table (see below) for those buildings located in Transition Zones. Refer to IDP "Chapter 5. Design" for methodology on determining heights.
Minimum Building Heights	Three stories, except in transition zones, where the minimum building height shall be two stories. Minimum building heights shall not apply to building awnings, associated kiosks, pavilions or similar building components.
Maximum Building Length	Length of proposed parking garage at 222 St John St shall not exceed 500 feet as measured roughly parallel to St John St.
Minimum Building Setbacks	Minimum building setbacks shall be governed by the Minimum Setbacks Map. Additional requirements are listed in the Transition Zones and Congress Street Build-to-Zone sections of this table.
Congress Street Build-to-Zone*	A Build-to-Zone is identified for some properties that abut Congress Street. See Minimum Setbacks Map for the location of Build-to-Zone. i. The Congress Street Build-to-Zone extends between 0 to 40 feet from the right-of-way boundary. ii. Buildings located in these parcels must have a minimum of 70% of the façade facing Congress Street located within the

Transition Zones	Transition zones are identified inside the IOZ boundary in areas where the IOZ abuts or is located across a public right-of-way from a residential zone or a historic-designated district. See Maximum Building Heights Map for location of transition zones. i. Transition zones shall extend 50 feet into the parcel from the parcel boundary. ii. Transition zones that abut a Residential zone with or without an intervening public right-of-way shall have a maximum height limit that matches the maximum height permitted within that Residential zone. iii. In areas where the IOZ abuts a Residential zone without an intervening public right of way, minimum side and rear yard requirements of the abutting Residential zone apply within the IOZ boundary, unless noted otherwise in Minimum Setbacks Map.

*A "build-to zone" is the area on the lot where all or a portion of the street-facing building facade must be located, measured as a minimum and max. yard (setback) range from the public right-of-way boundary.

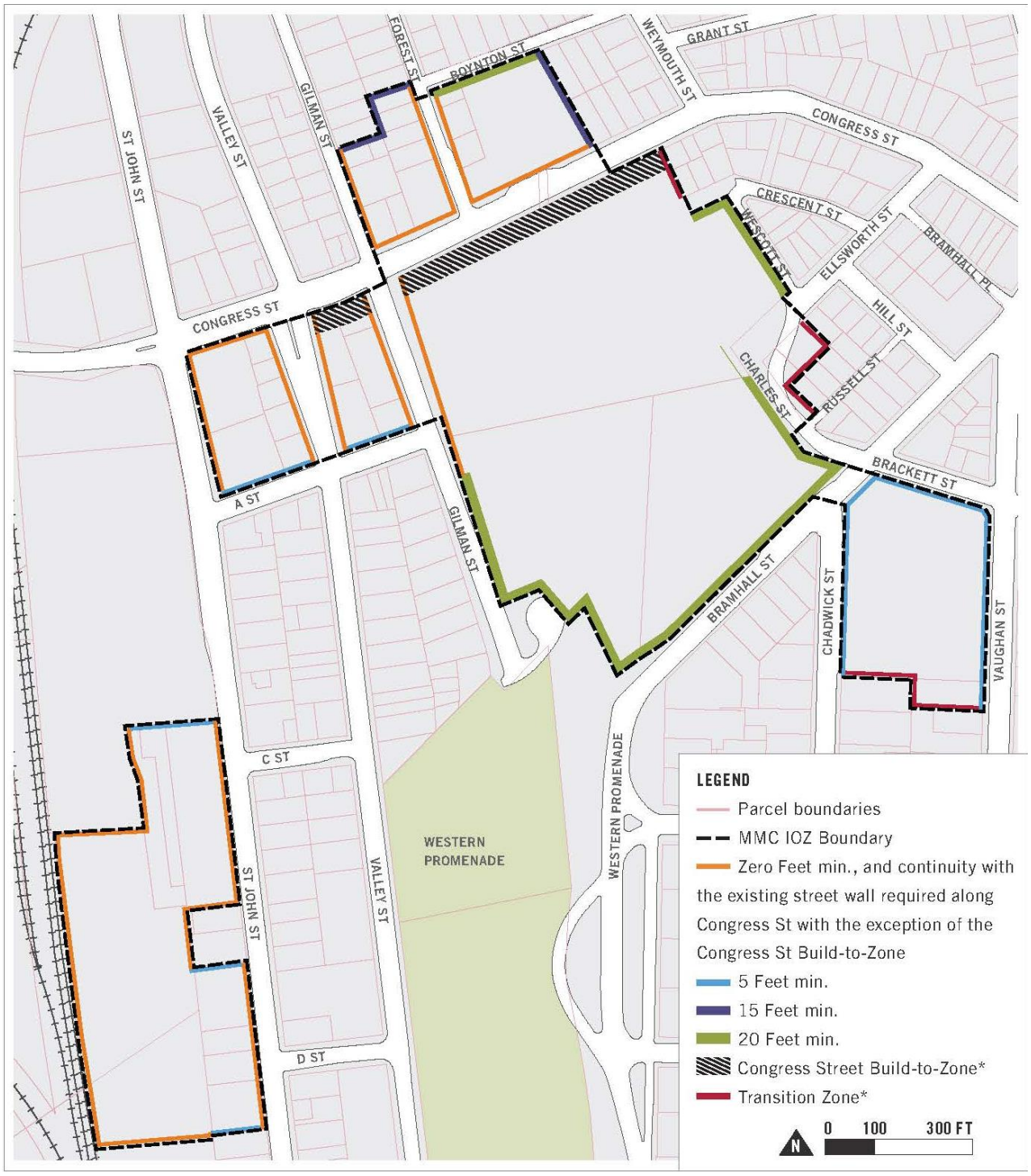
Maximum Building Heights



Notes: 1. Minimum building heights also apply. Refer to 14-282(d).

2. For buildings with residential use above the ground floor, the following height maximums apply: 70 ft. maximum height = 7 stories, and 85 ft. maximum height = 8 stories.

Minimum Setbacks



* **Note:** See Table 4.1 Dimensional Requirements.

(e) Design. New buildings within the IOZ shall adhere to the Design Guidelines set forth in Chapter 5: Design of the IDP and the site plans standards of the City of Portland.

(f) Signs.

1. At the time of first site plan review following IDP approval, a unified campus-wide Signage Plan shall be submitted for review and approval by the Planning Authority. Any update to such plan due to a change in name or logo shall not require amendment to the IDP.

2. Signs shall be designed in accordance with the campus-wide Signage Plan. All signs shall be designed in proportion and character with building facades and adjacent street typology. All signs shall be coordinated with the building and landscaping design and be constructed of appropriate permanent, high quality materials and finishes.

(g) Transportation.

1. Transportation Demand Management (TDM):

   a. At the time of the first site plan review following IDP approval, MMC shall submit a campus- wide TDM Plan substantially in accordance with those TDM objectives and strategies identified in the approved Institutional Development Plan. The TDM Plan may be phased into short-,mid-, and long-term actions to allow for progressive implementation over time.

   b. The TDM Plan shall be designed to provide transportation choice with the goal of reducing parking demand and single-occupancy vehicle trips to and from MMC by employees and visitors.

   c. The TDM Plan shall establish parking and trip reduction targets associated with the short-term (0-2 years), mid-term (2-5 years), and the long-term (5+ years), as well as a data collection plan.

2. Parking:

   a. Parking requirements in the IOZ shall be established at the time of site plan review based on a parking study that includes a campus-wide analysis of demand and supply. The parking demand

study shall determine parking requirements and shall be sufficient to alleviate parking pressure on surrounding neighborhoods.

b. Parking studies developed by MMC shall integrate parking and trip reduction achievements and data contained in the TDM Plan.

(h) Environment. Development proposed by MMC shall be designed to integrate with the surrounding context, including open space and pedestrian networks and infrastructure.

(i) Mitigation measures. MMC shall mitigate site plan impacts to off-premise infrastructure in a manner proportionate to those impacts. Mitigation may include financial or in-kind contributions to existing or planned City projects focused on mitigating the impacts of MMC development. Mitigation contribution shall be determined based on the City's standard procedure in effect at the time of site plan review.

(j) Neighborhood Integration and neighborhood engagement.

1. For the purpose of keeping surrounding residential areas appraised of its future development plans, and to address any neighborhood issues related to the operations of the MMC Bramhall campus, MMC shall adhere to the ongoing community engagement principles identified in the approved Institutional Development Plan.

2. MMC shall conduct ongoing community engagement, including the formation of a Neighborhood Advisory Committee comprised of representatives of MMC, the Parkside neighborhood, the West End neighborhood, the Western Promenade Neighborhood Association, the St. John Valley neighborhood, the Libbytown neighborhood, and the City.

(k) Construction management.

1. At the time of site plan review, MMC shall submit a Construction Management Plan substantially in accordance with those construction management principles identified in the approved Institutional Development Plan for review and approval by the Planning Authority.

2. The Construction Management Plan shall include a construction schedule, as well as strategies for managing neighborhood communication and noise, air quality, traffic, and parking impacts associated with the construction as set forth on the Construction Management Template developed by the City and attached and incorporated to the IDP as Appendix A.

(l) Other requirements.

1. Helipad. MMC shall be governed by the provisions of the Helistop Overlay Zone with the following exceptions:

   a. Setback requirements of Section 14-327(3); and

   b. Fencing requirements of Section 14-327(4).

2. Snow Ban Parking. When the City of Portland declares a Snow Parking Ban, MMC shall make parking available to neighbors in a designated parking area on or near its campus upon the following condition:

   a. Hours: Due to the patterns of patient flow in the hospital, the hours of snow ban parking for registered vehicles during an announced City of Portland Snow Parking Bans are 6:00 p.m. until 6:00 p.m. Vehicles that are not moved out of these parking areas by the applicable time each morning are subject to towing at the owner's expense.

3. Healthy Communities- Recognizing that a stable residential and commercial environment is key to the health of any neighborhood, MMC commits to supporting its existing and future neighbors in the St. John Valley, Parkside, West End, Western Prom and Libbytown neighborhoods. Accordingly, MMC shall implement and participate in the healthy communities programs as described below.

   a. Caring Community Grants- MMC shall develop an annual grant program with available funds of up to $30,000. Goals, priorities, eligibility requirements, program guidelines and allocation approach will be developed by the MMC Neighborhood Council, as described in Chapter 6

of the IDP approved on September 26, 2017. Neighborhood associations or other entities located or operating in the St. John Valley, Parkside, West End, Western Promenade and Libbytown neighborhoods may apply for grant funding relating to the following initiatives:

i. Neighborhood Investment and Infrastructure- focused on creating strong, safe, accessible and vibrant neighborhoods;

ii. Quality of life- Focused on improving access to recreation, arts or cultural experiences in the neighborhoods;

iii. Diversity and Inclusion- Focused on fostering the building of relationships and understanding among diverse groups, including capacity building and outreach activities;

iv. Public Safety- Focused on supporting public safety programs through training programs, equipment or other means in the neighborhoods; and

v. Environmental sustainability- Focused on preventing waste, increasing recycling or supporting other programs that work to improve the environment.

b. Healthy Neighborhoods Program- MMC shall initiate and adopt a memorandum of understanding (MOU) by and between the MMC, the City of Portland, an identified Community Housing Development Organization and any other community partners that may be identified later establishing a Healthy Neighborhoods program. Such a program shall be designed to fund and execute housing and community improvement and development programs in St. John Valley and the other neighborhoods surrounding MMC’s Bramhall Campus.

Memorandum

Maine Medical Center

To:	Members of the City of Portland Planning Board
From:	Jeff Sanders, Chief Operating Officer, MMC
Date:	December 15, 2017
Re:	Site Plan Application: East Tower and Visitor Garage Expansions

Maine Medical Center is pleased to submit this Level III Site Plan Application for the East Tower and Visitor Garage expansion. This is the first of three site plan applications related to MMC's Short-Term Development plan outlined in the Institutional Development Plan approved by the Planning Board on September 26, 2017.

INTRODUCTION

The East Tower and Visitor Garage Expansions represent a significant step towards modernizing the facilities at Maine Medical Center. Almost 80% of the clinical care space at MMC is over 30 years old. MMC is constantly innovating in these facilities to meet patient needs. The patient acuity at MMC is the highest in the State of Maine. MMC had an average Case Mix Index of 1.99 in 2017 while the average in the state was 1.23. These patients require advanced equipment, skilled care teams, and, most of all, private rooms.

MMC inpatient services are currently compressed into semi-private inpatient rooms. This creates a daily capacity challenge at MMC to manage the growing demand. The challenge is exacerbated by the need to close up to 60 beds per day due to patient condition, construction, or staffing. The objective of the East Tower expansion is to begin to decompress the campus by decoupling semi-private rooms and adding more private rooms.

Approximately 49% of MMC's inpatient rooms are private today. MMC's private room ratio will be almost 80% once the expansion of the East Tower and construction of the Congress building is complete. The license bed count of 637 will remain the same. These projects will significantly increase the number of private rooms at MMC and correspondingly reduce bed closures that will improve the operational efficiency and patient and care giver experience.

MMC anticipates that the East Tower and Visitor Garage expansions will be complete in the fall of 2020.

The first phase of this project also adds 225 parking spaces to the patient and family garage at MMC. This application includes a detailed parking analysis that outlines the need for more patient and visitor parking on-campus. Providing adequate parking to patients and families during their time at MMC is essential to a low-stress visit and patient and visitor experience.

PROJECTED DAILY CENSUS

The information below expands on the daily census information provided in MMC's Institutional Development Plan on pages 40-41 specifically for the purposes of the East Tower and Visitor Garage expansion site plan application.

The number of patients, visitors, and employees on MMC's Bramhall campus varies day-to-day. For the purpose of the Site Plan application for the East Tower and Visitor Garage expansions, MMC estimated the daily census for a typical week day. The estimated daily census is included in Table 1 - Estimated Number of Individuals on Campus on an Average Week Day in 2016 and 2020.

Table 1 - Estimated Number of Individuals on Campus on an Average Week Day in 2016 and 2020

Fiscal Year End (Oct-Sept)	Historic 2016	Forecast 2020	4 Year Growth	Net Add 2016-2020
Individuals on Campus on an Average Week Day				
Inpatient Discharges	99	100	1.01%	1
Inpatient Visitors	248	250	1.01%	2
Outpatient Activity	594	600	1.01%	6
Outpatient Visitors	594	600	1.01%	6
Bramhall Outpatient Clinics	153	150	-1.79%	(3)
Employees				
Shift 1	3,639	3,700	1.68%	61
Shift 2	206	210	1.86%	4
Shift 3	519	530	2.12%	11
Students				
Medical	100	105	5.00%	5
Nursing	86	90	4.65%	4
Other (PA, Pharm, etc.)	20	20	0.00%	-
Non-MFP Related Contractors	25	25	0.00%	-
Total Individuals on an Average Day	**6,282**	**6,380**	**6.65%**	**98**

The estimated net change in individuals on campus per day will be approximately 100 between 2016 and 2020. The estimated increase of 100 individuals is anticipated to be spread throughout the 24 hour per day operations at MMC. However, outpatients, visitors, and the majority of shift 1 employees will likely be on campus between 7:00 AM and 6:00 PM.

Approximately 5% of the estimated increase can be directly attributed to the East Tower and Visitor expansion. This is the result of the estimated number of beds per day that MMC will be able to keep open as a result of the 64 private universal rooms in the East Tower Expansion. The rest of the increase is estimated as a result of growing demand for MMC services and the expected efficiencies gained on the Bramhall campus and at other MMC care locations and pending decisions about vacated spaces at Bramhall.

HEALTHY COMMUNITIES

MMC is in the process of developing a community grant program that will make $30,000 available annually. The program is already undertaking its first project in the Bramhall Square Park. There is a process underway to redesign the park which will improve the quality of life in the neighborhood.

MMC has initiated discussions with the City of Portland and a Community Housing Development Organization to establish a Health Neighborhoods program.

CONCLUSION

We are excited about these projects and the enhancements they will provide our patients, visitors and care teams. This project will improve MMC's ability to meet the needs of patients in our community by de-coupling semi-private rooms and providing adequate parking for patients and families. We look forward to reviewing the Site Plan Application for the East Tower and Visitor Garage Expansions.

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Maine Medical Center East Tower / Visitor Garage Vertical Expansions
Proposed Development Address:	22 Bramhall Street
Project Description:	Add 2 floors to East Tower/ Relocate Heliport to East Tower /Add 3 levels to garage
Chart/Block/Lot:	053D007 / 054H001/ 064C001
Preliminary Plan	No
Final Plan	Yes

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	Maine Medical Center : Attn : Alexander Green
Business Name:	Maine Medical Center
Address:	22 Bramhall Street
City/State:	Portland, Maine
Zip Code:	04102
Work #:	207-662-3689
Home #:	
Cell #:	
Fax #:	
E-mail:	AGreen@mmc.org

OWNER

Name:	Same as Applicant
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

AGENT/REPRESENTATIVE

Name:	William Conway, Sebago Technics
Address:	75 John Roberts Road
City/State:	South Portland , Maine
Zip Code:	04106
Work #:	207-200-2055
Home #:	
Cell #:	
Fax #:	
E-mail:	wconway@sebagotechnics.com

BILLING (to whom invoices will be forwarded to)

Name:	Maine Medical Center / Attn : Alexander Green
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

ENGINEER

Name:	Sebago Technics
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

SURVEYOR

Name:	Sebago Technics
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

ARCHITECT

Name:	Perkins + Will
Address:	225 Franklin Street Suite 1100
City/State:	Boston, Massachussetts
Zip Code:	02110
Work #:	617-478-0300
Home #:	
Cell #:	
Fax #:	
E-mail:	Jeffrey.Keilman@perkinswill.com

ATTORNEY

Name:	Maine Health Corporate Counsel : Attn : Penelope St. Louis
Address:	110 Free Street
City/State:	Portland, Maine
Zip Code:	04101
Work #:	207-661-7157
Home #:	
Cell #:	
Fax #:	
E-mail:	STLOUP@mmc.org

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	William Conway
E-mail:	wconway@sebagotechnics.com
Name:	Jeffrey Keilman
E-mail:	Jeffrey.Keilman@perkinswill.com
Name:	
E-mail:	

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☐	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☑	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☐	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☑	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☐	Traffic Movement	$1,500.00
☐	Stormwater Quality	$250.00
☐	Subdivision	$500.00 + applicable fee for lots/units below
	# of Subdivision Lots/Units [ ] x $25.00 each	$
☐	Site Location	$3,500.00 + applicable fee for lots/units below
	# of Site Location Lots/Units [ ] x $200.00 each	$
☐	Change of Use	
☐	Flood Plain	
☐	Shoreland	
☑	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
TOTAL APPLICATION FEE DUE:		$ 2,500.00

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($52.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	12.52 Acres	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	0	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	415,220	sq. ft.
Impervious Area (Total Proposed)	0	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	56,144	sq. ft.
Building Footprint (Total Proposed)	0	sq. ft.
Building Floor Area (Total Existing)	352,350	sq. ft.
Building Floor Area (Total Proposed)	137,961	sq. ft.
ZONING		
Existing	IOZ	
Proposed, if applicable	IOZ	
LAND USE		
Existing	Hospital	
Proposed	Hospital	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)	N/A	
# of Lots (Total Proposed)	N/A	
# of Affordable Housing Units (Total Proposed)	N/A	
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)	N/A	
# of Two-Bedroom Units (Total Proposed)	N/A	
# of Three-Bedroom Units (Total Proposed)	N/A	
PARKING SPACES		
# of Parking Spaces (Total Existing)	2328	
# of Parking Spaces (Total Proposed)	225	
# of Handicapped Spaces (Total Proposed)	6	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	193	
# of Bicycle Spaces (Total Proposed)	0	
ESTIMATED COST OF THE PROJECT	$ 70,000,000.00	

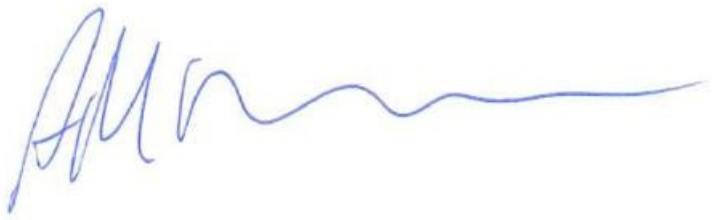
VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	ALEXANDER M. GREEN, DIR. PLANNING, MMC
Date:	12/12/2017



PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
		1	Completed Application form
		1	Application fees
		1	Written description of project
		1	Evidence of right, title and interest
		1	Evidence of state and/or federal approvals, if applicable
		1	Written assessment of proposed project's compliance with applicable zoning requirements
		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
		Proposed grading and contours;	
		Existing structures with distances from property line;	
		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
		Preliminary infrastructure improvements;	
		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
x		1	* Completed Application form
x		1	* Application fees
x		1	* Written description of project
x		1	* Evidence of right, title and interest
x		1	* Evidence of state and/or federal permits
x		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
x		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
x		1	* Evidence of financial and technical capacity
x		1	Construction Management Plan
N/A		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
N/A		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
x		1	Stormwater management plan and stormwater calculations
x		1	Written summary of project's consistency with related city master plans
x		1	Evidence of utility capacity to serve
x		1	Written summary of solid waste generation and proposed management of solid waste
x		1	A code summary referencing NFPA 1 and all Fire Department technical standards
x		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
x		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
x		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
x		1	**Final Site Plans including the following:**
x		Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);	
x		Existing and proposed structures on parcels abutting site;	
N/A		All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;	
x		Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;	
N/A		Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;	
N/A		Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;	
N/A		Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;	
x		Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;	
N/A		Location of all snow storage areas and/or a snow removal plan;	
x		A traffic control plan as detailed in Section 1 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);	
N/A		Location and proposed alteration to any watercourse;	
N/A		A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for wetlands;	
N/A		Existing soil conditions and location of test pits and test borings;	
N/A		Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;	
N/A		A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;	
N/A		Grading plan;	
N/A		Ground water protection measures;	
N/A		Existing and proposed sewer mains and connections;	

- Continued on next page -

N/A		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
N/A		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
N/A		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
N/A		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
X		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
X		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
N/A		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
X		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
X		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
N?A		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
X		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

V. EAST TOWER PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	12.52 Acrres	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	0	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	415,220	sq. ft.
Impervious Area (Total Proposed)	0	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	30,470	sq. ft.
Building Footprint (Total Proposed)	0	sq. ft.
Building Floor Area (Total Existing)	152,350	sq. ft.
Building Floor Area (Total Proposed)	60,940	sq. ft.
ZONING		
Existing	IOZ	
Proposed, if applicable	IOZ	
LAND USE		
Existing	Hospital	
Proposed	Hospital	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)		
# of Residential Units (Total Proposed)		
# of Lots (Total Proposed)		
# of Affordable Housing Units (Total Proposed)		
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)		
# of One-Bedroom Units (Total Proposed)		
# of Two-Bedroom Units (Total Proposed)		
# of Three-Bedroom Units (Total Proposed)		
PARKING SPACES		
# of Parking Spaces (Total Existing)	2328	
# of Parking Spaces (Total Proposed)	225	
# of Handicapped Spaces (Total Proposed)	6	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	193	
# of Bicycle Spaces (Total Proposed)	0	
ESTIMATED COST OF THE PROJECT	$TBD	

VISITOR GARAGE

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

TOTAL AREA OF SITE	12.52 Acres	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	0	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	415,220	sq. ft.
Impervious Area (Total Proposed)	0	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	25,674	sq. ft.
Building Footprint (Total Proposed)	0	sq. ft.
Building Floor Area (Total Existing)	200,000	sq. ft.
Building Floor Area (Total Proposed)	77,021	sq. ft.
ZONING		
Existing	IOZ	
Proposed, if applicable	IOZ	
LAND USE		
Existing	Hospital Parking Garage	
Proposed	Hospital Parking Garage	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)		
# of Residential Units (Total Proposed)		
# of Lots (Total Proposed)		
# of Affordable Housing Units (Total Proposed)		
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)		
# of One-Bedroom Units (Total Proposed)		
# of Two-Bedroom Units (Total Proposed)		
# of Three-Bedroom Units (Total Proposed)		
PARKING SPACES		
# of Parking Spaces (Total Existing)	2328	
# of Parking Spaces (Total Proposed)	225	
# of Handicapped Spaces (Total Proposed)	6	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	193	
# of Bicycle Spaces (Total Proposed)	0	
ESTIMATED COST OF THE PROJECT	$ TBD	

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Know all Men by these Presents, That

I William H. Bailey of Portland in the State of Maine

in consideration of the Sum of Two Hundred and fifty Dollars paid by The Maine General Hospital, a Corporation established by law at Portland the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital heirs and assigns forever,

Bailey to Maine General Hospital

U. S. I. R. 50 cents W. H. B. June 6. 1870.

a certain lot of land situated on the Northwestern slope of Bramballs Hill in Portland, the same being lot numbered nine, on a plan made by Howe and Osgood September 1863 recorded in the Cumberland Registry of Deeds in Plan Book number two page 36. The said plan is of a tract of land extending from the rear of the State Arsenal lot to Congress street. The lot hereby conveyed is about forty feet in breadth and about sixty feet in length on the Southwest side of an unopened street laid down on said plan; the same conveyed to me by Moody F. Walker Oct. 14. 1863. Subject to the location of said street over any part of said lot, subject also to a mortgage for $137.50 given to Moody F. Walker which mortgage with all unpaid interest thereon, the present grantee is to assume and discharge.

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital heirs and assigns, to their use and behoof forever. And I do covenant with the said Grantee heirs and assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I will and my heirs, shall and will warrant and defend the same to the said Grantee heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Grantor and Elvira W. my wife ~~of the said~~ in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hand and seal this sixth day of June in the year of our Lord one thousand eight hundred and seventy.

~~Signed, Sealed and Delivered~~ in presence of

P. Barnes to W. H. B. — William H. Bailey. Seal.

Joseph S. Bailey to E. W. B. — Elvira W. Bailey. Seal.

State of Maine. Cumberland, ss. June 6th 1870. Personally appeared the above-named William H. Bailey and acknowledged the above instrument to be his free act and deed. Before me,

P. Barnes Justice of the Peace.

Received June 6. 1870, at 12 o'clock 54 m., P. M., and recorded according to the original.

Attest, Eben Leach Register.

Know all Men by these Presents, That

I, Hugh Carney of Portland in the State of Maine

Book 377 Page 297

in consideration of the sum of Five Hundred Dollars paid by The Maine General Hospital, a Corporation established by law at Portland aforesaid the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital ~~heirs~~ and assigns forever,

Carney to Maine General Hospital

U. S. I. R. 50 Cents No. 6. June 6. '70

a certain parcel of land situated on the North-western slope of Bramhall hill in Portland, bounded on the East by the State Arsenal lot and on the North by land of the City; the same conveyed to me by Moody F. Walker Oct. 14, 1863, in two lots about forty feet in width by about sixty feet in length, which are numbered two and four on a plan of the same and adjoining lands made by Howe and Osgood Sept. 1863, which is recorded, under date of January 21, 1864 in Plan Book number two page 36 of the Cumberland Registry of Deeds. Subject to the location of Ash street over any part of said lots.

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital ~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee ~~heirs~~ and assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Grantor and Bridgett D. my wife ~~of the said~~ in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hand and seal this sixth day of June in the year of our Lord one thousand eight hundred and seventy.

Signed, Sealed and Delivered in presence of

P. Barnes to No. 6.
Witnessed by Edward N. Bates

Hugh his × mark Carney Seal.
Bridgett Carney Seal.

State of Maine
Cumberland, ss. June 6th 1870. Personally appeared the above-named Hugh Carney and acknowledged the above instrument to be his free act and deed. Before me,

P. Barnes Justice of the Peace.

Received June 6 1870, at 12 o'clock 54 m., P. M., and recorded according to the original.

Attest, Eben Leach Register.

State of Maine, Cumberland ss. Portland May 19th 1870.
Then personally appeared the abovenamed Sarah M. Bridges and acknowledged the foregoing instrument to be her free act and ded.

Before me, George R Davis, Justice of the Peace

Received May 19. 1870 at 5 h. 20 m. P. Me. and recorded according to the original.

Attest. Eben Leach Register

Agreement of Joseph S. Bailey with Maine Hospital

Agreement made the 27th day of April 1870 by Joseph S Bailey of Portland for the conveyance of certain land to the Maine General Hospital.

For a valuable consideration the said Bailey agrees to convey by deed of warranty to the Maine General Hospital, upon the conditions hereinafter named, a certain parcel of land situated on the slope of Bramhall's Hill in Portland, being the western part of a parcel of about two acres extending from the Arsenal ground to Congress street, formerly owned by M. F. Walker and others, described as divided into lots on a plan made by Kent and Osgood in 1863 through which two acre parcel a street called Oak street has recently been laid out, and being all of said two acre parcel, except the ten lots nearest the Arsenal and except the part of the street adjoining the ten lots. The conveyance hereby agreed to be made is to include the fee of the land covered by the new street west of the ten lots, but subject to the location of the street.

This agreement is to be in force for the term of forty days from and after this date.

The conditions upon which the conveyance is to be made, are, that the Hospital shall within the said forty days pay to the said Bailey, or to his written order, the sum of two thousand dollars, upon which payment the ded is to be made and delivered, and shall therefore make and deliver to the said Bailey or to his written appointment, its two several negotiable promissory notes, one for two thousand dollars payable in two years from the date of the deed, and one for one thousand dollars payable in three years from the same date, both with interest half yearly at the rate of seven and one half per cent. per annum, with liberty to pay not less than one thousand dollars on said notes at any time before maturity, together with a mortgage of the premises to secure the same, and shall assume and pay according to its tenor a mortgage now subsisting

on a part of said premises, for one thousand dollars, given by said Bailey in 1866 in six years, subject to which mortgage this agreement is made, interest accrued on said mortgage to the date of this conveyance to be paid by said Bailey.

In witness whereof, the said Bailey has hereunto set his hand and seal the day and year first above written.

U. S. Inter. Revenue 5 cts. J. S. B. Apl. 27. 1870.	Witness, P. Barnes	Joseph S. Bailey. Seal.

State of Maine. Cumberland ss. On this 21st day of May 1870, personally appeared Joseph S. Bailey and acknowledged the foregoing instrument by him subscribed to be his free act and deed.

Before me, P. Barnes, Justice of the Peace.

Received May 21, 1870 at 4h. 10m. P.M. and recorded according to the original.

Attest: Eben Leach Register

U. S. I. R. $2.00 H. T. L. May 21. 1870.	Know all men by these presents that I, Horatio T. Libby of Portland in the County of Cumberland and State of Maine, in consideration of Two Thousand Dollars paid by John Lindsey of Standish in the County of Cumberland and State of Maine,	Libby to Lindsey

the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the said John Lindsey, a certain lot of land and the buildings thereon situated on the Southwesterly side of Chestnut Street in said Portland and bounded beginning at the Northerly corner of land of Benjamin Tukey formerly Leonard Crosse's land and running thence Northwesterly on said street thirty five feet; thence Southwesterly at right angles with said street sixtynine feet to a stake or stones; thence Southeasterly on a line parallel with said street thirtyfive feet to a stake or stones; thence at right angles with the last line by Mrs. A. Hay's land and said Tukey's land sixtynine feet to the bound begun at containing about two thousand and four hundred feet; being a part of the land conveyed to me by Miriam Libby sals by deed dated January 18th 1854, and recorded in Cumberland Registry of Deeds Book 252, Page 27. Subject to a mortgage to the City of Portland on which is now due about two thousand dollars.

Portland May 7th 1874.
This mortgage having been paid and fully satisfied, is hereby cancelled and discharged.
John Lindsey
Witness

To have and to hold the above granted premises

their hands and seals this twentieth day of October A. D. 1870.

Richard D. Rice {President of Maine Central Railroad Company

Countersigned by Joshua Nye, Treas. of Maine Central R. R. Co.

William L. Putnam Seal
Artemas Libbey Seal.
James T. Patten. Seal.

Cumberland ss. Oct. 20, 1870. Then personally appeared Richard D. Rice, President of the Maine Central Railroad Company and acknowledged the foregoing instrument to be the free act and deed of said Corporation, before me,

Josiah H. Drummond Justice of the Peace.

Received Nov. 2, 1870 at 2 h. 30 m. P. M. and recorded according to the original.

Attest: Eben Leach Register

City of Portland to Me. Gen. Hospital

Whereas the City Council of the City of Portland, upon the petition of the Maine General Hospital, praying that the City would grant to the Corporation certain lands for the purpose of enlarging the building site of the Hospital, and rendering the same more commodious and useful for the objects thereof, by concurrent order of the two Branches, passed by the same respectively, on the 23d and 24th days of May 1870, and approved by the Mayor on the 31st day of the same month, ordered, that the prayer of the petition be granted, and that a deed in furtherance thereof be executed and delivered for the conveyance prayed for.

Now, know all men by these presents that the City of Portland, in pursuance of the foregoing order, and in consideration of Ten Dollars paid by the Grantee hereinafter named, the receipt whereof is hereby acknowledged, doth hereby give, grant, bargain, sell and convey to the Maine General Hospital, a Corporation established by law at Portland aforesaid, a certain parcel of land, belonging to the City, situated on the slope of Bramhall's Hill, bounded on

the Northeast by a line, as now fenced, in continuation of the Northeast side line of the Maine State Arsenal lot, and on the Southwest by lands of Joseph S. Bailey and others, and extending Westward, between those limits, from the Arsenal lot to Congress street.

Also another parcel of land belonging to the City, situated on the Southwest side of the Arsenal lot and of the lands of Bailey and others, having a front on a line in continuation of the Northwest side line of Arsenal street as far as to the Northeast side line of a contemplated street, and extending Westwardly from Arsenal street between the contemplated street on the South and the Arsenal lot and Bailey land on the North to Congress street.

The said contemplated street is laid down and designated by the name of Gilman street on a Plan made by J. F. Chappell, Engineer, May 21, 1870, to which Plan, verified as required by the Order of the City Council, by the signature of the City Treasurer, reference is made for more exact ascertainment of the position and courses of said street.

This conveyance is made upon the condition that the lands hereby granted and conveyed shall be held for the purposes of the Hospital, as a part of its building site and grounds; and that whenever the same shall cease to be so used, they shall revert to the City.

Also upon the further condition, that if the Hospital shall acquire a title to the lands of Bailey and others above mentioned, and the contemplated street shall, at any time, thereafter be laid out and opened across the same, as described on said Plan, no damages or compensation shall be claimed by the Hospital therefor.

To have and to hold the premises, with the privileges and appurtenances thereof, to the said Maine General Hospital, to its use and behoof forever, subject to the conditions aforesaid.

In witness whereof, these presents are subscribed and sealed, in behalf of the City, by Henry W. Kenney, City Treasurer, duly authorized by the Order aforesaid, this fourth day of June in the year of our Lord

one thousand eight hundred and seventy.
Signed, sealed and
delivered in presence of } Henry W. Kersey
Benj. Kingsbury Jr. City Treasurer.

State of Maine.
Cumberland ss. On this sixth day of August 1870, personally appeared Henry W. Kersey and acknowledged the foregoing instrument by him subscribed to be the deed of the City of Portland.
Before me,
Benj. Kingsbury Jr. Justice of the Peace.

Received Nov. 14, 1870 at 1h. P.M. and recorded according to the original.
Attest: Eben Leach Register

2
P. & O. R. R. Co
to
Davis et als

U. S. I. R. $800.00 P. & O. R. R. Co By S. J. A. Pres. Nov. 1, 1870

Know all men by these presents, that the Portland and Ogdensburg Railroad Company, a corporation established by the Legislature of the State of Maine, and authorized and empowered by the Legislature of New Hampshire to construct and extend its Railroad across said State of New Hampshire, subject to the laws thereof relating to Railroads, and having its principal office for the transaction of business at Portland in the County of Cumberland and State of Maine, for the purpose of effecting the several trusts and securities hereinafter set forth, created and declared, designed to enable and provide for the more speedy construction and equipment of the Railroad of said Company, and in consideration of One Dollar paid by the Grantees and Trustees hereinafter named, doth hereby give, grant, bargain, sell and convey to Woodbury Davis, Samuel E. Spring, and Weston F. Milliken, all of Portland aforesaid, Gentlemen, their survivors and successors as hereinafter designated, all that part of the Railroad of said Company extending and to be extended from the terminus in Portland, in the State of Maine to Bartlett in the State of New Hampshire, located and to be located within said limits, called the Portland and Ogdensburg Railroad, including all the rights of way and lands taken and

Discharge Book 102 Page 65

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Page 450

Know all Men by these Presents, That

I Phinehas Barnes of Portland, in the County of Cumberland, State of Maine

in consideration of Four Thousand and Seventy one 97/100 Dollars paid by

The Maine General Hospital, a corporation established by the Laws of said State

the receipt whereof I do hereby acknowledge, do hereby remise, release, bargain, sell and convey, and forever quit claim unto the said Maine General Hospital, its successors

~~heirs~~ and assigns forever, all my right, title and interest in and to Twenty several lots of land situated on the Northwestern slope of Bramhall Hill in said Portland described and numbered on a plan of a tract of about two acres, extending from the Maine State Arsenal Grounds, to Congress Street which plan was made in September 1863, by Howe and Osgood, and is recorded in the Cumberland Registry of Deeds, in Plan Book, number two, page thirty six - the lots hereby conveyed being numbered one, three, five, seven, eight, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty one, twenty two, twenty three, and twenty four. 1. 3. 5. 7. 8. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22, 23 & 24. together with all my right title, and interest in and to the land adjoining any of said lots, embraced within the location of Noble Street, as laid out by the City the last year: The design of this Deed being to discharge liens mentioned in Deeds to said Barnes from Moody F. Walker & wife dated 6 June 1870, recorded in said Registry, Book 377, page 302 & from Joseph S. Bailey dated 6 June 1870, recorded in said Regis. by Book 377, page 301, the mortgage obligations of said Barnes mentioned in said Deeds, having been discharged, by said Hospital.

Barnes
to
Maine G Hospital

U. S. I. R.
I. 4. 50.
P. B.
July 18/71.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to them the said Corporation, its successors

~~heirs~~ and assigns forever. And I do covenant with the said Corporation its successors

~~heirs~~ and assigns, that I will warrant and forever defend the premises to them the said Corporation its successors

~~heirs~~ and assigns forever, against the lawful claims and demands of all persons, claiming by, through, or under me.

In Witness Whereof, I the said Phinehas Barnes, and Ann B. Butler wife of the said Barnes, in testimony of her relinquishment of her right of Dower in the above described Premises

have hereunto set my hand and seal this Eighth day of July in the year of our Lord one thousand eight hundred and seventy one.

Signed, Sealed and Delivered in presence of
Wilfred Barnes to P. B.
Wilfred Barnes to A. B. B.

P. Barnes. Seal.
Ann B. Barnes. Seal.

State of Maine
Cumberland, ss. 8th July 1871. Personally appeared the above-named Phineas Barnes and acknowledged the above instrument to be his free act and deed. Before me,

James T. McCobb. Justice of the Peace.

Received July 11 1871, at 11 o'clock 21 m., A. M., and recorded according to the original.

Attest, Eben Leach Register.

with interest, and all cost and expenses, including all sums paid by said Grantee or assigns for insurance of the premises and for taxes: paying the surplus, if any, to the said Grantors, or their assigns: and such sale shall forever bar the said Grantors, and all persons claiming under them from all right and interest in the premises, at law or in equity. It being mutually agreed that the said Grantee or assigns may purchase at said sale, and that no other purchaser shall be answerable for the application of the purchase money.

In witness whereof, we the said Grantors, Emily F. Bailey and Benjamin H. Bailey have hereunto set our hands and seals this thirteenth day of January in the year of our Lord eighteen hundred and seventy one.

Signed, sealed, and delivered in presence of Benj. Kingsbury Jr. — Emily F. Bailey. Seal — Benj H. Bailey. Seal

State of Maine.
Cumberland ss. Portland, January 13, 1871. Then personally appeared the abovenamed Benjamin H. Bailey and Emily F. Bailey and acknowledged the foregoing instrument to be their deed.

Before me,
Benj. Kingsbury Jr. Justice of the Peace.

Received Jan. 14, 1871 at 12 h. 29 m. P. M. and recorded according to the original.
Attest: Eben Leach Register

State of Maine
to
Maine General Hospital

State of Maine.

Resolves in favor of the Maine General Hospital.

Resolved, That all the right, title and interest of this State in and to the lot of land, not including the buildings thereon, situated on Bramhalls Hills, in the City of Portland and County of Cumberland, being the present site of the State Arsenal, is hereby granted to the Maine General Hospital, a corporation established by act of the Legislature, passed February twenty-fourth, one thousand eight hundred and sixtyeight, to have and to hold to

said corporation for the purpose of erecting and maintaining thereon its hospital buildings; and when such land ceases to be so used, it shall revert to the State. But this grant shall not take effect until it is shown to the satisfaction of the Governor that said Corporation has raised by responsible private subscriptions or donations the sum of Twenty Thousand Dollars; nor until the Governor has certified on a copy of this resolve certified by the Secretary of State, that the aforenamed condition precedent has been complied with; but when that is done, the grant shall take effect; and the recording of such certified copy, with the Governor's certificate thereon, in the Registry of Deeds in the County of Cumberland, shall be sufficient record evidence thereof.

Resolved That when said Corporation has raised, received into its treasury and actually expended towards the construction of its hospital buildings on said lot, the sum of Thirty thousand dollars, and this fact is shown to the satisfaction of the Governor, he may draw his warrants on the Treasurer of State for the sum of Ten thousand dollars in favor of said Corporation and payable to its Treasurer; and when said Corporation has so raised, received into its Treasury and expended in the construction of its hospital buildings the sum of Ten thousand dollars more, or Fifty thousand dollars in all, including the Ten thousand from the State, and this fact is shown to the satisfaction of the Governor, he shall draw his warrants on the Treasurer of State for the sum of Ten thousand dollars more in favor of said Corporation and payable to its Treasurer; and the sum of Twenty thousand dollars is hereby appropriated to carry into effect the purposes of this Resolve, to be paid from any money in the Treasury not otherwise appropriated.

In the House of Representatives March 18, 1870.

Read and passed finally.

Reuben Foster Speaker

In Senate March 18" 1870

Read and passed finally.

Wm. H. Bolster President.

March 19th. 1870. Approved. Joshua L. Chamberlain, Governor.

State of Maine

Office of Secretary of State,

Augusta, Dec. 15. 1870

I hereby certify that the foregoing is a true copy of the original as deposited in this Office.

Franklin M. Drew.

Secretary of State.

I, Joshua L. Chamberlain Governor of Maine in compliance with the terms of the Resolve of which the foregoing is a copy certified by the Secretary of State, hereby certify that it has been shown to my satisfaction that the Maine General Hospital the corporation within named has raised by responsible private subscriptions and donations the sum of twenty thousand dollars.

In witness whereof I have hereunto set my hand this sixteenth day of December A. D. 1870.

In presence of
F. L. Chamberlain
Charlotte M. Packard

Joshua L. Chamberlain
Governor of Maine.

Received Jan. 16. 1871 at 2h. 44m. P. M. and recorded according to the original.

Attest: Eben Leach Register

U. S. I. R. Fifty cts. N. H. K. Jan. 13. 1871

Kneeland to Kneeland

Know all men by these presents, that I, Wm. M. Kneeland of Stoneham, Mass. in consideration of Four Hundred Fifty Dollars to me paid by Seth Kneeland of Harrison, County of Cumberland, State of Maine, the receipt whereof is hereby acknowledged, do hereby sell, remise, release, and forever quitclaim unto the said Seth Kneeland all my right, title and interest in and to a certain farm or parcel of real estate described as follows, to wit, the same deeded to me by the said Seth Kneeland by his deed; said deed dated Jany. fourth 4. 1869, said deed recorded Book 364 Page 288, being the same farm Seth Kneeland now lives on in Harrison all taxes excepted.

To have and to hold the above released premises, with all the privileges and appurtenances to the same belonging, to the said Seth, his heirs and assigns, to their use and behoof forever. And I the said

Know all Men by these Presents, That

I, Bartholomew Wren of Portland, in the county of Cumberland, State of Maine

in consideration of five hundred dollars paid by

The Maine General Hospital, a corporation doing its business in said Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors its and their heirs and assigns forever, a certain lot of land on the easterly side of (what is or lately was) Ash Street, in said Portland, being sixty five feet in length, & running back from the line of said Ash Street & forty feet in width, being the same lot indicated as number six (No. 6) on a certain plan of land surveyed for Moody F. Walker September 23, 1863, by Howe & Osgood Civil Engineers, which plan is placed on file in the office of the Registry of Deeds for Cumberland county for the purpose of reference in the matter of conveyances that have been or may be made by said Moody F. Walker of the lots of land specified in said plan. The same property conveyed to me by said Moody F. Walker by deed dated the 14th October 1863 recorded in said Registry Book 323 page 199.

Wren, To Maine Gen. Hospital

U.S.I.R.
$0.50
B. W.
Sept. 15.
1871.

To Have and to Hold the aforegranted and bargained Premises, with all the privileges and appurtenances thereof, to the said Corporation, its successors, its & their heirs and assigns, to their use and behoof forever. And I do covenant with the said Corporation its successors its & their heirs and assigns, that I am lawfully seized in fee of the Premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Corporation to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors, its & their heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Bartholomew Wren and Margaret wife of the said Bartholomew Wren in testimony of her relinquishment of her right of dower in the above described premises, have hereunto set our hands and seals this twenty eighth day of August in the year of our Lord one thousand eight hundred and Seventy one

Signed, Sealed and Delivered in presence of

James T. McCobb — Bartholomew Wren — Seal

Witness — Margrett her + mark Wren — Seal

Michael White

Cumberland, ss. 15 September 1871 Personally appeared the above-named Bartholomew Wren and acknowledged the above instrument to be his free act and deed. Before me,

James T. McCobb Justice of the Peace.

Received Sept. 18 1871, at 4 o'clock 17m. P.M., and recorded according to the original.

Attest, Register.

Book 408
Page 457

Know all Men by these Presents, That

The City of Portland, a corporation in the County of Cumberland, State of Maine, in consideration of One Dollar & other considerations paid by The Maine General Hospital, a corporation in said State & County & City,

the receipt whereof We do hereby acknowledge, do hereby remise, release, bargain, sell, and convey, and forever QUIT-CLAIM unto the said Maine General Hospital, its successors ~~heirs~~ and assigns forever, all our right, title, and interest in and to a lot of land, on Portland the slope of "Bramhalls Hill", in said city, To. being the land which lies between the M. General land owned by said Hospital & Gilman Hospital Street & Arsenal Street extended westerly & southerly, bounded: Beginning at the southwest corner of a lot of land conveyed to said Hospital by said city in 1870, thence southwesterly on the northerly line of Arsenal Street produced 138 feet, more or less, to Gilman Street, thence northerly by east line of Gilman Street 653 feet, more or less, to Bailey's land, thence southeasterly by Bailey's land 71 feet, more or less, to land of said Hospital, thence by said Hospital land 544 feet, more or less to point of beginning: Provided, That the Powder House now on said lot be allowed to remain, without expense to the city until such time as the city shall provide some other house for powder, or remove this one from the lot.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said Grantees, their successors and assigns, their heirs & assigns forever. ~~And do covenant with the said heirs and assigns, that will warrant and defend the premises to the said heirs and assigns forever, against the lawful claims and demands of all persons, claiming by, through, or under~~

In Witness Whereof, We the said Grantors, by Henry W. Hersey City Treasurer, authorized thereto by vote of the City Council of said City, approved the 2 March instant have hereunto set our hand and seal this sixth day of March in the year of our Lord one thousand eight hundred and seventy-five.

Signed, Sealed, and Delivered in presence of

3 printed words erased & 1 interlined before execution.

S. B. Beckett.

City of Portland
by H. W. Hersey, Treas.

State of Maine.

Cumberland, ss. March ---, 1874. Personally appeared the above-named Henry W. Hersey and acknowledged the above instrument to be his free act and deed, & the free act & deed of said city.

Before me S. B. Beckett, Justice of the Peace.

Received March 19, 1875, at 9 o'clock, 45 m., A.M., and recorded according to the original.

Attest, Henry C. Houston Register.

Know all Men by these Presents, That

I, Margaret E. L. Sherman, of Norwalk, in the County of Fairfield and State of Connecticut,

in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine, and located at Portland, in the County of Cumberland and State of Maine the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated on the northwesterly side of Arsenal Street in said Portland, bounded and described as follows: Beginning at a point on said northwesterly side of Arsenal Street where the northeasterly side line of land of said Maine General Hospital, formerly known as the Arsenal Lot, adjoins the lot hereby conveyed; thence running northeasterly by said Arsenal Street forty (40) feet to a point; and from these two points extending northwesterly, adjoining said land of Maine General Hospital and keeping a width of forty (40) feet, one hundred (100) feet more or less to Ellsworth Street.

Meaning and intending hereby to convey the same premises conveyed to William H. Bigelow by John B. Brown by deed dated March 30, 1863, recorded in Cumberland Registry of Deeds, Book 317, page 321, my title to the same having been acquired as devisee under the will of said William H. Bigelow, extract from which is recorded in said Registry of Deeds, Book 627, page 231, in which will I am designated as Margaret Eva Lena Taylor, and by deed of Joshua L. Taylor to me dated January 11, 1897, recorded in said Registry of Deeds, Book 640, page 282.

Said premises are conveyed subject to a mortgage to Portland Savings Bank upon which there is due the principal sum of $1,650, which the grantee hereby assumes and agrees to pay as a part of the consideration hereof.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except said mortgage; that I have good right to sell and convey the same to the said grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons. except as aforesaid.

In Witness Whereof, I, the said Margaret E. L. Sherman, and I, John C. Sherman, husband of the said Margaret E. L. Sherman joining in this deed as grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises, have hereunto set our hand s and seal s this third day of December in the year of our Lord one thousand nine hundred and twenty-six.

Signed, Sealed and Delivered in presence of

John F. Dana to M.E.L.S.
Geo. Davis, C. G. Hanson } as to J.C.S.

Margaret E. L. Sherman Seal.
John C. Sherman Seal.

State of Maine, CUMBERLAND, ss. December 3, 1926. Personally appeared the above named Margaret E. L. Sherman and acknowledged the above instrument to be her free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received December 4, 1926, at 9 o'clock - m. A. M., and recorded according to the original.

Know all Men by these Presents, That

I, Emma W. Hill of Portland in the county of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations, paid by Maine General Hospital, a corporation existing by law, with an established place of business in said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated in said Portland, and bounded and described as follows: Beginning at the intersection of the northerly side line of Arsenal street and the westerly side line of a passageway extending from Arsenal street to Ellsworth street;thence north 20° west sixty-one and five tenths (61.5) feet by the westerly side line of said passageway to a point;thence south 70°west about thirty-four and three tenths (34.3) feet to land formerly of Nathan Moses; thence southerly by said Moses land sixty-seven (67) feet to a point on the northerly side of Arsenal street;thence north 60° 58' east by the northerly side line of Arsenal street thirty-four (34) feet,more or less, to the point of beginning.

Together with the rights of the grantor in a twelve (12) foot passageway.

Meaning and intending to hereby convey the same premises conveyed to Everett L. Hill by Milcah M. Gwynn,by deed dated February 2,1920, recorded in Cumberland Registry of Deeds,Book 1042, page 256, and the same conveyed to this grantor by said Everett L. Hill by deed dated October 15,1924, recorded in Cumberland Registry of Deeds,Book 1168, page 351.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee,its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Emma W. Hill and Everett L. Hill,husband of the said Emma W. Hill,joining in this deed as grantor, and relinquishing and conveying his rights by descent and all other rights in the above described premises have hereunto set our hand s and seals this sixteenth day of December in the year of our Lord one thousand nine hundred and twenty-seven.

Signed, Sealed and Delivered in presence of

John B. Kehoe to both

Emma W. Hill Seal.
Everett L. Hill Seal.

State of Maine, CUMBERLAND, ss. December 16, 1927. Personally appeared the above named Emma W. Hill and acknowledged the above instrument to be her free act and deed.

Before me, John B. Kehoe, *Justice of the Peace.*

Received December 16, 1927, at 11 o'clock 10 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

I, Harriet L. Stevens of Portland in the County of Cumberland and State of Maine,

in consideration of one ($1.00) dollar and other valuable considerations, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon,situated in said Portland, bounded and described as follows: Beginning on the westerly side of a twelve (12) foot passageway leading from Arsenal Street to Ellsworth Street at a point sixty-one and five-tenths (61.5) feet distant from the intersection of the northerly side line of Arsenal Street with the westerly side line of said passage-way; thence south seventy (70°) degrees west,thirty-four and three-tenths (34.3) feet,more or less, to land formerly of Nathan Moses;thence northerly by said Moses land thirty-three (33) feet, more or less, to the southerly side line of Ellsworth Street;thence easterly along the southerly side line of Ellsworth Street thirty-four (34) feet, more or less, to its intersection with the westerly side line of said passageway;thence southerly along the westerly side line of said passageway thirty-eight and five-tenths (38.5) feet, more or less, to the point of beginning.

The above described premises are in the northerly portion of the premises conveyed to Shailer G. Cushing by Seth C. Gordon by his warranty deed dated September 21, 1907, and recorded in Cumberland County Registry of Deeds,Book 814,page 37.

Being the same premises conveyed to me under the name of Hattie L. Stevens by Perley W. Stevens by warranty deed dated December 24, 1912, and recorded in said Registry of Deeds, Book 906,page 161.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee,its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all encumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Harriet L. Stevens, and I, Perley W. Stevens,husband of the said Harriet L. Stevens,joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises have hereunto set our hands and seals this nineteenth day of February in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

R. E. Snow to both

Harriet L. Stevens Seal.

Perley W. Stevens Seal.

State of Maine, CUMBERLAND, ss. February 19, 1928. Personally appeared the above named Harriet L. Stevens and acknowledged the above instrument to be her free act and deed.

Before me, Reuben E. Snow, *Justice of the Peace.*

Received March 20, 1928, at 2 o'clock30 m. P. M., and recorded according to the original.

Book 1290
Page 192

Know all Men by these Presents, That

I, Eunice M. Chase (formerly Eunice Margaret Graham) of Portland, in the County of Cumberland and State of Maine,

in consideration of One dollar ($1.00) and other valuable considerations, paid by Maine General Hospital,a corporation organized and existing under the laws of said State of Maine, and located at said Portland,
the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said

Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land with the buildings thereon,situated on the westerly side of a thirty foot passage way leading Northerly from Ellsworth Street,in the City of Portland, State of Maine, and now known as Charles Street,and bounded and described as follows,namely;

Beginning in the westerly side line of said Charles Street at the northeasterly corner of land now or formerly of Charles A. Donnell,thence northerly, by said Charles Street,thirty feet,thence westerly,on a line parallel with the northerly line of said Donnell's land seventy-four and two-tenths (74 2/10) feet to the Arsenal Lot,so called, now owned by said Maine General Hospital;thence southerly by said Arsenal Lot,thirty feet to said Donnell's land;thence easterly by said Donnell's land seventy-four and two tenths (74 2/10) feet to the point of beginning.

Being the same premises conveyed to me under the name of Eunice Margaret Graham Chase by William Graham by warranty deed dated July 1,1919,recorded in Cumberland Registry of Deeds,Book 1042,page 471.

Also a certain other lot or parcel of land with the buildings thereon situated in said Portland on the westerly side of Charles Street, and bounded and described as follows,to wit:

Beginning on the westerly side line of said Charles Street at a point distant seventy-three (73) feet northerly from the northeasterly corner of land now or formerly of Wiggins;thence northerly by said Charles Street forty-seven (47) feet to a stake; and from these two points extending back westerly,at right angles with said Charles Street and keeping said width of forty-seven (47) feet,about seventy-four and two-tenths (74.2) feet to the "Arsenal Lot" so called, now owned by said Maine General Hospital; and being the same premises conveyed to Mary Rich Graham,deceased,by Charles A. Donnell,by his deed dated July 1, 1893, recorded in the Cumberland Registry of Deeds,Book 604,page 124.

My title to said premises was acquired as an heir-at-law of said Mary Rich Graham, and by warranty deed from William Graham and Paul G. Graham to me under the name of Eunice Margaret Graham,dated August 2,1912,recorded in said Registry of Deeds,Book 898,page 83.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Eunice M. Chase,and I, Harold B. Chase,husband of the said Eunice M. Chase joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises have hereunto set our hands and seals this twentieth day of April in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

John F. Dana to both

Eunice M. Chase Seal
Harold B. Chase Seal

State of Maine, CUMBERLAND, ss. April 20, 1928. Personally appeared the above named Eunice M. Chase and acknowledged the above instrument to be her free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received April 20, 1928, at 10 o'clock 50 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

Book 1296
Page 351

I, Elizabeth Naylor, of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, and located at said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital,its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon,situated in said Portland, on the northerly side of Ellsworth Street and westerly side of Charles Street,bounded and described as follows: Beginning at the corner formed by the intersection of the westerly side of Charles Street and the northerly side of Ellsworth Street, and running westerly by said Ellsworth Street to land conveyed by William R. Naylor to Samuel W. Joy by deed dated November 3,1905, and recorded in Cumberland County Registry of Deeds,Book 776,page 200;thence northerly by said Joy land to land now or formerly of Levi J. Jones;thence easterly by said Jones land to said Charles Street;thence southerly by said Charles Street to the point of beginning.

Being the same premises conveyed to William R. Naylor by John B. Brown by deed dated February 20,1872, recorded in Cumberland County Registry of Deeds,Book 393, page 105, excepting therefrom the portion thereof conveyed by William R. Naylor to Samuel W. Joy by deed aforesaid. My title to said premises having been acquired as devisee under the will of William R. Naylor, extract from which is recorded in said Registry of Deeds,Book 783,page 307.

Also hereby conveying any right,title and interest I may have in said Ellsworth Street.

Taxes for the year 1928 are to be prorated between the grantor and grantee.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital,its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee,its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee,its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Elizabeth Naylor, being unmarried,

have hereunto set my hand and seal this 3rd day of July in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

Nathan W. Thompson

Elizabeth Naylor Seal

State of Maine, CUMBERLAND, ss. July 3, 1928. Personally appeared the above named Elizabeth Naylor and acknowledged the above instrument to be her free act and deed.

Before me, Nathan W. Thompson, *Justice of the Peace.*

Received July 7, 1928, at 10 o'clock45 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

Book 1296
Page 352

I, Samuel W. Joy, of Portland, in the County of Cumberland and State of Maine, in consideration of one dollar and other valuable considerations, paid by Maine General Hospital, a corporation organized and existing under the laws of said State of Maine, and located at said Portland, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land, with the buildings thereon, situated on the northerly side of Ellsworth Street in said Portland, being numbered forty-three (43) on said Street, and bounded and described as follows: Beginning at a point thirty-two (32) feet westerly from the intersection of the northerly side line of said Ellsworth Street with the westerly side line of Charles Street; thence westerly by said Ellsworth Street forty-four (44) feet to the Arsenal lot, so called, now owned by the Maine General Hospital; thence northerly by said Arsenal or Hospital lot eighty-seven (87) feet to land now or formerly of Levi J. Jones; thence easterly thirty (30) feet to land now or formerly of William R. Naylor; thence southerly by said Naylor land eighty-seven (87) feet more or less to the first bound.

Being the same premises conveyed to me by William R. Naylor by deed dated November 3, 1905, recorded in Cumberland County Registry of Deeds, Book 776, page 200.

Also hereby conveying any right, title and interest I may have in and to said Ellsworth Street.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Samuel W. Joy, having no wife, have hereunto set my hand and seal this seventh day of July in the year of our Lord one thousand nine hundred and twenty-eight.

Signed, Sealed and Delivered in presence of

John F. Dana

Saml W. Joy Seal

State of Maine, CUMBERLAND, ss. July 7, 1928. Personally appeared the above named Samuel W. Joy and acknowledged the above instrument to be his free act and deed.

Before me, John F. Dana, *Justice of the Peace.*

Received July 7, 1928, at 10 o'clock 46 m. A. M., and recorded according to the original.

IN WITNESS WHEREOF, the said Lessor has hereunto set his hand and seal on the day and year first above written.

Signed, Sealed and Delivered in Presence of

It is further understood that no liquor, beer, or cigarette advertising shall be displayed on any structure that might be erected.

JOHN DONNELLY & SONS -------

WEST SCARBORO M.E.CHURCH -------

By A. W. Hodgman, Treas.

State of Maine. County of Cumberland,ss. March 31, 1939.

Personally appeared the above named Lessor and acknowledged the above instrument to be his free act and deed.

Before me, F. H. Tewksbury Justice of the Peace

Received March 31, 1939, at 3h 40m P. M., and recorded according to the original

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Canal Nat'l.Bk. of Port. Tr. & to Maine General Hospital Deed

KNOW ALL MEN BY THESE PRESENTS, That

WHEREAS, The Canal National Bank of Portland as Trustee having filed its Bill of Complaint against Vaughan Hall, Incorporated and Harry M. Verrill, Conservator of Casco Mercantile Trust Company dated May 20, 1938, praying for foreclosure of a certain mortgage indenture on property described in said Bill of Complaint, said mortgage indenture being dated as of the fifteenth day of September, 1925, and recorded in the office of the Registry of Deeds for Cumberland County in Book 1219 at Page 41, the Supreme Judicial Court within and for the County of Cumberland in proceedings numbered 5830 on the docket of said Court entered its decree of foreclosure and order of sale therein decreeing and ordering the sale of the property described in said mortgage and hereinafter described, and

WHEREAS, it was, among other things, ordered, adjudged and decreed by said decree of foreclosure that said sale should be made by and under the direction of Raymond J. Callahan who was thereby appointed Special Master for that purpose and who was thereby directed to make and conduct said sale and to execute a deed of conveyance of the property sold to the purchaser thereof upon an order of Court confirming such sale and upon payment or settlement of the purchase price as therein provided, and that such sale be made in the County Court House in the City of Portland, Maine, on a day and at an hour as fixed by said decree of said Supreme Judicial Court and that notice of the time, place and terms of said sale describing briefly the property to be sold and referring to said decree should be published at least once a week for three successive weeks prior to said sale in a newspaper of general circulation published in Portland, Maine, and that upon confirmation of the sale by the Court and upon payment by any purchaser of the purchase price of the property purchased by him in accordance with the decrees of said Court the Special Master should execute a deed conveying, assigning and transferring to such purchaser the property sold to him, and

WHEREAS, the Supreme Judicial Court, pursuant to said decree, duly fixed the time for said sale as February 15, 1939, at ten o'clock in the forenoon and on said date the Special Master, pursuant to the provisions of said decree dated January 17, 1939, and pursuant to order of Court dated February 15, 1939, adjourned said sale from time to time in accordance with orders and decrees of said Court until March 28, 1939, at the time and place ordered by said decree of Court dated January 17, 1939, and orders and decrees subsequent thereto and said Special Master made due advertisement of said sale in the manner described in said decree dated January 17, 1939, and posted all of said notices as required by the orders of Court made subsequent thereto and the Special Master did at the time and place and in the manner and subject to the conditions of said decree and orders of Court subsequent thereto fairly strike off and sell said property to Maine General Hospital, a corporation duly organized and existing under the laws of the State of Maine and having a usual place of business at Portland, in the County of Cumberland and State of Maine, and

WHEREAS, The Canal National Bank of Portland thereafter duly presented to the Court for confirmation the bid so received by said Special Master and the said Special Master duly made a report of said sale to said Court, and a decree of confirmation and a certain decree amending said decree of foreclosure and sale were made and entered therein on the thirty-first day of March, 1939, confirming said bid, report and sale, and making said sale subject to taxes levied against said premises or any part thereof which are or may be chargeable upon said property and directing the Special Master, upon payment of the purchase price in the manner prescribed by said decree of confirmation, to execute and deliver to said purchaser a deed or other instrument conveying, assigning and transferring to said purchaser said property so sold as aforesaid, and

WHEREAS, said Supreme Judicial Court, in accordance with said decree of confirmation, by a decree made and entered herein on the thirty-first day of March, 1939, approved the form of this deed as required by said decree of confirmation dated March 31, 1939, and

WHEREAS, said sale has been conducted and made in all respects in accordance with law and with the provisions of said decrees and order of sale;

NOW, THEREFORE, I, the said Raymond J. Callahan, in my capacity as Special Master and in consideration of these presents and of one dollar and other valuable considerations paid by Maine General Hospital, receipt whereof is hereby acknowledged, do hereby remise, release, bargain, sell and convey and quitclaim unto the said Maine General Hospital, a corporation organized and existing under the laws of the State of Maine, its successors or assigns, all the right, title and interest which said Vaughan Hall, Incorporated and/or Harry M. Verrill, Conservator of Casco Mercantile Trust Company, and all persons claiming under it or him has or have in and to the following described real estate situated in Portland, in the County of Cumberland and State of Maine, and all future rents and profits thereof arising

therefrom, subject, however, to the equity of redemption as provided in the Statutes of the State of Maine and subject also to the terms and conditions set forth in the decree of the Supreme Judicial Court dated January 17, 1939, and certain decrees dated March 31, 1939, and to any other decree which may be hereafter made which relates to the property hereby conveyed, together with the rights and privileges pertaining to said property subject to the conditions described in the decrees of the Supreme Judicial Court dated January 17, 1939, and March 31, 1939, and any unpaid taxes, but subject, however, at all times to the exceptions and provisions particularly described and set forth in the various decrees of said Supreme Judicial Court heretofore made and any that may be hereafter made during the period of redemption:

A certain lot or parcel of land with the buildings thereon situated in said Portland, and bounded and described as follows:- Beginning on the westerly side of Vaughan Street at the southeasterly corner of land now or formerly of the Portland Water District; thence southerly on Vaughan Street sixty (60) feet, more or less, to land now or formerly of John W.Deering; thence westerly by said Deering land one hundred and forty (140) feet, more or less, to land now or formerly of Portland School for Medical Instruction; thence northerly by land of said Portland School for Medical Instruction sixty (60) feet, more or less, to said land of said Portland Water District; thence easterly by said land of said Portland Water District one hundred and forty (140) feet, more or less, to the point of beginning; said lot containing eighty-four hundred (8400) square feet, more or less. Being the same premises conveyed to Vaughan Hall, Incorporated, by Ralph N. Bryant by his warranty deed dated December 19, 1913, and recorded in Cumberland County Registry of Deeds, in Book 927, Page 26.

For title to the above described premises reference is also hereby made to a certain mortgage indenture dated September 15, 1925, securing the First Mortgage Sinking Fund 5 1/2% Gold Bonds of Vaughan Hall Incorporated, said mortgage indenture being by and between said Vaughan Hall, Incorporated and The Canal National Bank of Portland, said mortgage indenture being recorded in Cumberland County Registry of Deeds in Book 1219, Page 41.

TO HAVE AND TO HOLD and possess and enjoy said property and every part and parcel thereof free from all claims, rights, interests whatsoever in or to the same by or of the said Vaughan Hall, Incorporated, its successors and assigns, or of Harry M. Verrill as Conservator of Casco Mercantile Trust Company and by or of the creditors of the Receiver appointed by the Supreme Judicial Court in the equity proceedings hereinbefore referred to, or by or of the stockholders of said Vaughan Hall, Incorporated, and by or of all persons claiming by, through or under them or any of them, including the said Receiver of said Vaughan Hall, Incorporated, and by or of all the parties to said cause hereinbefore described, but subject, however, to any and all taxes levied against said premises or any part thereof which are or may be chargeable upon said property or premises or any portion thereof prior to the

U.S.I.R. $31.50 R.J.C. 3/31/39

lien of the mortgage foreclosed in said proceedings and subject to the right of redemption of said property granted by the Statutes of the State of Maine and subject to the terms and conditions of all decrees of said Supreme Judicial Court made and entered in the cause herein referred to and to any other decree which may be hereinafter entered by said Court which relates or pertains to the property herein conveyed.

IN WITNESS WHEREOF, Raymond J. Callahan, as Special Master, has hereunto set his hand and seal this thirty-first day of March, 1939.

Signed, Sealed and Delivered in Presence of

Porter Thompson — Raymond J. Callahan Seal
Special Master

State of Maine. Cumberland,ss. March 31, 1939.

Personally appeared Raymond J. Callahan and acknowledged the foregoing instrument to be his free act and deed and his free act and deed in his said capacity.

Before me, Porter Thompson Justice of the Peace

APPROVED:

Guy H. Sturgis

Justice Supreme Judicial Court

Received March 31, 1939, at 4h -m P. M., and recorded according to the original

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Casco Mer. Tr. Co., Cons. of to Maine General Hospital Deed

WHEREAS, Harry M. Verrill of Portland, in the County of Cumberland and State of Maine, was appointed Permanent Conservator of Casco Mercantile Trust Company, a banking corporation organized and existing under the laws of the State of Maine and located at said Portland, by decree of the Supreme Judicial Court in Equity in and for the County of Cumberland and State of Maine, dated April 14, 1933, in an action in equity commenced by Sanger N. Annis against Casco Mercantile Trust Company in said Court by Bill in Equity dated March 18, 1933, and

WHEREAS, upon petition of Harry M. Verrill, Conservator as aforesaid, dated March 29, 1939, a decree issued out of said Court authorizing said Conservator to sell to Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at said Portland, all the right, title and interest of said Casco Mercantile Trust Company in and to the following described real estate, which said decree is dated March 31, 1939, and

WHEREAS, said Conservator has sold, pursuant to the terms of said decree, to said Maine General Hospital all the right, title and interest of said Casco Mercantile Trust Company in and to the real estate hereinafter described.

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS, That I, the said Harry M. Verrill, by virtue of the power and authority in me vested as aforesaid, and in my capacity as Conservator of Casco Mercantile Trust Company, and in consideration of one dollar and other valuable consideration, paid by Maine General Hospital, receipt whereof is hereby acknowledged, do hereby remise, release, bargain, sell, convey and quitclaim unto the said Maine General Hospital, its successors and assigns, all the

Know all Men by these Presents, That

Book 2127
Page 269

I, John T. Lennon of Portland in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable considerations paid by Maine Medical Center, a corporation organized and existing under the Laws of the State of Maine and located at said Portland

the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and assigns forever, certain lots or parcels of land with the buildings thereon situated in said Portland and bounded and described as follows:

First:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land now or formerly of Thomas H. Pratt, running thence westerly by said Bramhall Street fifty (50) feet to land now or formerly of Sophia M. Knight, and from these two points extending northerly towards Arsenal Street, holding to said width of fifty feet, and adjoining said Pratt premises on one side and said Knight premises on the other for a distance of sixty (60) feet to land now or formerly of Edward T. Burrowes. The said lot is the southerly portion of the premises conveyed to Albert B. Cole, Frank H. Cole and Warren W. Cole by Nettie E. Pierce by deed dated September 26, 1911 and recorded in the Registry of Deeds for said County of Cumberland in Book 882, Page 188. Said premises are numbered thirty (30) on said Bramhall Street.

Second:

A certain lot of land with the buildings thereon on the southerly side of Arsenal Street in said Portland bounded and described as follows:

Commencing at a point on the Westerly line of land of Maude E. Pratt at a point sixty (60) feet northerly from the northerly side of Bramhall Street, thence westerly on a line parallel with and sixty (60) feet from said Bramhall Street, fifty (50) feet, more or less, to land of Sophia M. Knight; thence northerly from these two points keeping a width of fifty (50) feet and bounded on the West by land of said Knight and on the East by land of said Pratt and George H. Fletcher, forty-nine (49) feet, more or less, to said Arsenal Street.

Being the same property conveyed to me by Harriet B. Foster by her warranty deed dated February 24, 1945 and recorded in the Cumberland County Registy of Deeds in Book 1771 Page 131.

Also conveying all my right, title and interest in and to Arsenal Street, recently abandoned by the City of Portland.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors and assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

U.S.I.R. $16.50 J.T.L. 5/5/53

In Witness Whereof, I the said John T. Lennon and Ann C. Lennon wife of the said John T. Lennon joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises,

have hereunto set our hand_ and seal_ this fifth day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

John J. Devine to both

John T. Lennon Seal
Ann C. Lennon Seal

State of Maine, CUMBERLAND, ss. May 5, 1953. Personally appeared the above named John T. Lennon and acknowledged the foregoing instrument to be his free act and deed.

Before me, John J. Devine, Justice of the Peace

Received May 5, 19 53, at 2 o'clock 30 m. P. M., and recorded according to the original.

Know all Men by these Presents, That

I, Donald D. McPhee of Portland in the County of Cumberland and State of Maine,

in consideration of one dollar ($1) and other valuable considerations paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in said County and State the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland and being the premises conveyed to me by Hope K. Fletcher by deed dated November 22, 1946 and recorded in Cumberland County Registry of Deeds in Book 1848, Page 160, in which deed said premises are described as follows:

Beginning at the Northeast corner of Sophia T. Jones lot, so-called, on Arsenal Street; thence Northeasterly on Arsenal Street fifty (50) feet to land of one Raymond; thence Southeasterly by line of Raymond forty-eight (48) feet, more or less, to land of one Haskell; thence Southwesterly along line of said Haskell land thirteen (13) feet and two (2) inches to a point; thence Northwesterly parallel to land of said Raymond three (3) feet to a point; thence Southwesterly along the line of said Haskell land thirty-six (36) feet, more or less, to land of said Jones; thence Northwesterly forty-six (46) feet, more or less to point of beginning.

Also conveying all my interest in and to said Arsenal Street, recently abandoned by the City of Portland.

U.S.I.R.
$14.30
D.D.McP.
5/9/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors heirs and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances: that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Donald D. McPhee and I, Lorraine J. McPhee wife of the said Donald D. McPhee joining in this deed as Grantor, and relinquishing and conveying my rights by descent and all other rights in the above described premises, have hereunto set our hand s and seal s this 9th day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana
to both

Donald D. McPhee Seal
Lorraine J. McPhee Seal

State of Maine, Cumberland, ss. May 9, 1953. Personally appeared the above named Donald D. McPhee and acknowledged the above instrument to be his free act and deed.

Before me, Edward F. Dana, Justice of the Peace

Received May 9, 1953, at 9 o'clock 37 m. A.M., and recorded according to the original. ,p

Know all Men by these Presents, That

Book 2127
Page 443

I, Hazel B. Therio of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations paid by Maine Medical Center, a corporation duly organized and existing under the Laws of the State of Maine and located at said Portland
the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated on the Westerly side of Bramhall Street in said Portland, being more particularly described in deed from Hazel E. Skillings to the Grantor, dated September 18, 1945 and recorded in Cumberland County Registry of Deeds in Book 1790, Page 500, in which deed said premises are described as follows:

A certain lot or parcel of land, with the buildings thereon situated in said City of Portland, on the Northwesterly side of Bramhall Street, bounded and described as follows: Beginning at the most easterly corner of land now or formerly of Sophia P. Jones; thence Northeasterly on said Bramhall Street fifty (50) feet to land now or formerly of one Raymond; thence Northwesterly by said Raymond land fifty-nine (59) feet; thence Southwesterly thirteen (13) feet two (2) inches, more or less, to a fence; thence Northwesterly by the line of the division fence three (3) feet two (2) inches; thence Southwesterly by said fence thirty-six (36) feet five (5) inches, more or less, to said Jones land; thence Southeasterly by said Jones land sixty-two (62) feet two (2) inches to the point begun at.

Also, all my right, title and interest in and to Arsenal Street recently abandoned by the City of Portland.

U.S.I.R.
$9.90
H.B.T.
5/16/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors and Assigns ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors and heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Hazel B. Therio, being unmarried, have hereunto set my hand and seal this 16th day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana — Hazel B. Therio — Seal

State of Maine, CUMBERLAND, ss. May 16, 1953 Personally appeared the above named Hazel B. Therio and acknowledged the above instrument to be her free act and deed.

Before me, Edward F. Dana Justice of the Peace

m Received May 16 19 53, at 10 o'clock 35 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

We, Albert N. Tardif and M. Louise Tardif, both of Portland, County of Cumberland, State of Maine

in consideration of one dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation established by law at said Portland

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated on the northerly side of Bramhall Street in said Portland which was conveyed to the grantors by Wilhelmina M. Mantine, by deed dated September 16, 1935 and recorded in Cumberland County Registry of Deeds in Book 1478, Page 294 and therein described as follows: Beginning on the northerly side of Bramhall Street at the easterly corner of land formerly of James Miller; thence northeasterly by Bramhall Street twenty-one and seven twentieths (21 7/20) feet to a stake; thence northwesterly about one hundred eleven (111) feet to a point in the southerly side of Arsenal Street; thence southwesterly by Arsenal Street twenty-two and three quarters (22 3/4) feet to said Miller's land; thence southeasterly by said Miller's land one hundred eleven and four tenths (111 4/10) feet to the point of beginning.

Also all our right title and interest in and to Arsenal Street recently abandoned by the City of Portland.

U.S.I.R. $16.50 A.N.T.Et 6/11/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and Assigns, ~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances: that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its successors and Assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Albert N. Tardif and M. Louise Tardif, the said Grantors, being Husband and Wife each joining in this deed as Grantors, and each relinquishing and conveying our respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 11th day of June in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana — Albert N. Tardif — Seal

to both — M. Louise Tardif — Seal

State of Maine, CUMBERLAND, ss. June 11, 1953 Personally appeared the above named Albert N. Tardif and M. Louise Tardif and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Dana Justice of the Peace

Received June 12 1953, at 11 o'clock 5 m. A. M., and recorded according to the original.

Know all Men by these Presents, That

We, Fred A. Patterson and Ella H. Whidden both of Derry in the County of Rockingham and State of New Hampshire, Ruby E. McKenzie of Raymond in said County and State and Alzo F. Patterson of Portland in the County of Cumberland and State of Maine

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Page 311

in consideration of One dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation organized and existing under the laws of Maine and located at said Portland,
the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its Successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon, situated in said Portland on the northerly side of Bramhall Street and bounded and described as follows:

Beginning on the northerly side of Bramhall Street at the southwesterly corner of land formerly of Frederick A. Carle; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake or point, and from these two points extending northerly adjoining said Carle land, keeping a width of twenty-five (25) feet, to Arsenal Street, being the premises conveyed to Daniel W. Patterson by Maria M. Jose by deed dated September 12, 1921 and recorded in Cumberland County Registry of Deeds in Book 1085, Page 228.

The said Daniel W. Patterson died intestate on September 3, 1952 leaving no widow and as his sole heirs-at-law, the Grantors herein.

The Grantee as part of the consideration hereof assumes and agrees to pay the taxes for the taxable year of 1953.

Also conveying all our right, title and interest in and to Arsenal Street recently abandoned by the City of Portland, Maine.

U.S.I.R.
$13.20
A.F.P.Et
5/20/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its Successors and Assigns to its and their use and behoof forever. And we do covenant with the said Grantee, its Successors and Assigns, ~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid.

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its Successors and Assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Fred A.Patterson and Chrystine I.Patterson,wife of the said Fred A.Patterson;Ella H.Whidden and Charles F.Whidden,husband of the said Ella H.Whidden;Ruby E.McKenzie and Elmer W.McKenzie,husband of the said Ruby E.McKenzie,and Alzo F.Patterson and Bessie E.Patterson,wife of the said Alzo F.Patterson joining in this deed as Grantors,and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this twentieth day of May in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

R.E. Jensen
R.E. Jensen
Carmela Chase
Carmela Chase
Arthur K. Smith
Arthur K. Smith
P. J. Campbell
P. J. Campbell

Alzo F.Patterson Seal
Bessie E. Patterson Seal
Fred A. Patterson Seal
Chrystine I. Patterson Seal
Ella H. Whidden Seal
Charles F. Whidden Seal
Ruby E. MacKenzie Seal
Elmer MacKenzie Seal

State of Maine. CUMBERLAND, ss. May 20, 1953 Personally appeared the above named Alzo F. Patterson and acknowledged the above instrument to be his free act and deed.

Before me, Raymond E. Jensen Justice of the Peace

Received June 12 1953, at 11 o'clock 5 m. A.M., and recorded according to the original.

Know all Men by these Presents, That

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We, Leola J. Noyes and William H. Noyes, Jr., both of Portland, County of Cumberland, State of Maine,

in consideration of one dollar ($1.00) and other valuable considerations paid by Maine Medical Center, a Corporation established by law in said Portland

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and Assigns forever, the following described property:

A certain lot or parcel of land with the buildings thereon situated in said Portland between Bramhall and Arsenal Streets adjoining land formerly belonging to Sophia P. Jones and conveyed to us by Maud L. Pillsbury by deed dated October 2, 1951, recorded in Cumberland County Registry of Deeds in Book 2060, Page 419, and therein bounded and described as follows: Beginning on the northerly side of Bramhall Street at the southwesterly corner of said Jones land; thence running westerly by said Bramhall Street twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land keeping a width of twenty-five (25) feet, a distance of sixty-eight feet and two incles (68' 2"), which distances are marked by stakes and which stakes are twenty-six (26) feet distant from the southerly boundary line of Arsenal Street.

U.S.I.R. $11.00 L.J.N.Et 6/12/53

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Maine Medical Center, its successors and Assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and Assigns, ~~heirs and assigns~~, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its successors and Assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, We, the said Leola J. Noyes and William H. Noyes, Jr., the said grantors, both being unmarried

have hereunto set our hand s and seals this 12th day of June in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana	Leola J. Noyes	Seal
to both	William H. Noyes, Jr.	Seal

State of Maine, CUMBERLAND, ss. June 12, 1953 Personally appeared the above named Leola J. Noyes and William H. Noyes, Jr. and acknowledged the above instrument to be their free act and deed.

Before me, Edward F. Dana Justice of the Peace

Received June 12 19 53, at 1 o'clock 44 m. P. M., and recorded according to the original.

Know all Men by these Presents, That

Maine Medical Center a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of One Dollar and other valuable considerations paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at said Portland
the receipt whereof it does hereby acknowledge, does hereby, give, grant, bargain, sell and convey unto the said Maine General Hospital, its successors and assigns forever, a certain lot or parcel of land with the buildings thereon, situated in said City of Portland, between Bramhall and Arsenal Streets, adjoining land formerly owned by John W. Yeaton, and bounded and described as follows:

Beginning in the northerly line of Bramhall Street at the southeasterly corner of said Yeaton land; thence running easterly by Bramhall Street forty (40) feet and from these two points extending northerly, adjoining said Yeaton land, and keeping said width of forty (40) feet to Arsenal Street, being the same premises described in deed of J. B. Brown to Leon M. Bowdoin in 1867 by deed recorded in Cumberland County Registry of Deeds, Book 351, Page 340.

Being the same premises conveyed to this Grantor by Frederick W. McCarthy by deed dated June 30, 1953 and recorded in said Registry of Deeds in Book 2140, Page 92.

U.S.I.R.
$33.55
M.M.C.
8/18/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine General Hospital, its successors and assigns, to its and their use and behoof forever. And the said Grantor Corporation does hereby covenant with the said Grantee, its successors and assigns,

~~heirs and assigns~~, that it is lawfully seized in fee of the premises; that they are free of all incumbrances:

that it has ~~have~~ good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors ~~heirs~~, shall and will warrant and defend the same to the said Grantee, its successors and assigns

~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Maine Medical Center has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Phillips M. Payson, its President, thereunto duly authorized,

~~hand and seal~~ this 18th day of August ~~have hereunto set~~ in the ~~year of our Lord~~ one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

Edward F. Dana

MAINE MEDICAL CENTER
CORPORATE SEAL
By Phillips M. Payson
President.

State of Maine, County of CUMBERLAND, ss. August 18, 1953.

Then Personally appeared the above named Phillips M. Payson, President of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Edward F. Dana, Justice of the Peace.

Received August 19, 1953, at 1 o'clock 40 m.P. M., and recorded according to the original.

Know all Men by these Presents, That

Book 2147
Page 110

I, Henry H. Grant of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable consideration paid by Maine Medical Center, a corporation organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Maine Medical Center, its Successors and assigns forever, a certain lot or parcel of land with the buildings thereon situated between Bramhall and Arsenal Streets in said Portland, adjoining land now or formerly belonging to Sophia P. Jones, and more particularly bounded and described as follows:

Beginning on the northerly side line of said Bramhall Street, at the southwesterly corner of said Jones' land; thence westerly by said Bramhall Street, twenty-five (25) feet to a stake and from these two points extending northerly adjoining said Jones land, keeping the width of twenty-five (25) feet, to Arsenal Street.

Excepting and reserving however, a certain lot or parcel of land with the buildings thereon out of the aforesaid property, a conveyance by Westprom Realty Company to Maud L. and Janice M. Pillsbury by deed dated January 23, 1946 and recorded in Cumberland County Registry of Deeds in Book 1803, Page 444, to which reference may be had.

Meaning and intending to convey a parcel of land at the rear of 26 Bramhall Street, which parcel of land is approximately 26'x25' and contains a garage thereon.

Being the same premises conveyed to me by Westprom Realty Company by their warranty deed dated April 11, 1951 and recorded in said Registry of Deeds in Book 2040, Page 192.

U.S.I.R.
$3.30
H.H.G.
9/4/53

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its Successors and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its Successors and assigns, ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its Successors and assigns ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Henry H. Grant and I, Gladys H. Grant, wife of the said Henry H. Grant joining in this deed as Grantor, and relinquishing and conveying my right by descent and all other rights in the above described premises, have hereunto set our hands and seals this 4th day of September in the year of our Lord one thousand nine hundred and fifty-three.

Signed, Sealed and Delivered in presence of

H. Edwin Gee

Henry H. Grant Seal
Gladys H. Grant Seal

State of Maine, CUMBERLAND, ss. September 4, 1953. Personally appeared the above named Henry H. Grant and acknowledged the above instrument to be his free act and deed.

Before me, H. Edwin Gee, Notary Public, Notarial Seal, My Commission Expires June 29, 1956

Received September 9, 1953, at 9 o'clock 50 m. A. M., and recorded according to the original. p/

Know all Men by these Presents, That

I, James S. Bell of Portland, County of Cumberland and State of Maine, Executor under the Will of Ethel B. Bell, deceased, late of Portland.

having on the 24th day of November A. D. 19 53, obtained License from the Honorable Nathaniel M. Haskell Judge of Probate, within and for the County of Cumberland and State of Maine, to sell and convey at private sale the Real Estate hereinafter described of the said Ethel B. Bell for the sum of

Eleven thousand seven hundred fifty ($11750.00) dollars

the same being an advantageous offer therefor, and having agreeably to the order and decree of said Court, given due notice upon the petition for license to make such sale, and having given the bond required by law, by virtue of the power and authority with which I am as aforesaid vested, and in consideration of the aforesaid sum of Eleven thousand seven hundred fifty ($11750.00) dollars, to me paid by Maine Medical Center, a corporation duly organized and existing by law with an office and place of business at Portland, said County and State. the receipt whereof I do hereby acknowledge, have given, granted, and sold, and by these Presents do Give, Grant, Sell and Convey to the said Maine Medical Center, its Successors ~~Heirs~~ and Assigns forever, the following described Real Estate, viz.:

A certain lot or parcel of land with the buildings thereon, situated on Arsenal and Brackett Streets in said Portland, bounded and described as follows:

Beginning at the southwesterly side of said Brackett Street at the northwesterly corner of a lot of land conveyed by Mary J. Raymond to George E. Raymond by deed dated November 3, 1897, and recorded in the Cumberland County Registry of Deeds in Book 657, Page 411; thence southwesterly by said last named lot forty seven (47) feet; thence northwesterly and at right angles with the last described course to said Arsenal Street; thence northeasterly by said Arsenal Street to said Brackett Street; thence southeasterly by said Brackett Street to the point of beginning.

Excepting and reserving from the southeasterly portion of said above described premises so much thereof, as was described and conveyed in a certain deed from Ella C. Gardner to Gemma A. Applebee et al., said deed being dated November 27, 1935 and recorded in the Cumberland County Registry of Deeds, Book 1485, Page 206, and subject also to such easements and rights as were therein granted to said Gemma A. Applebee et al; by said deed above referred to.

Being the same premises conveyed to Kathryn Ireland by deed of Mary Dyer dated August twenty eighth, A. D. 1950 recorded in said Registry of Deeds for the County of Cumberland in Book 2014, Page 62.

Being the same premises conveyed to Sarah Friedman by deed of Kathryn Ireland which deed is recorded in the Cumberland County Registry of Deeds in Book 2051, Page 193.

Being the same premises conveyed to Ethel B. Bell by Sarah Friedman which deed is recorded in said Registry of Deeds.

U.S.I.R. $13.20 E.B.B. Est. 11/25/53

To Have and to Hold the same, with all the privileges and appurtenances to the same belonging, in manner as aforesaid, to the said Maine Medical Center, its Successors ~~Heirs~~ and Assigns forever.

And I the said James S. Bell in my said capacity do Covenant to and with the said Maine Medical Center, its Successors ~~Heirs~~ and Assigns, that I have in all things observed the rules and directions of law relative to the selling of said Estate, and have good right and lawful authority to sell and convey the same in manner aforesaid.

In Witness Whereof, I hereunto set my hand and seal in my said capacity, this 25th day of November in the year of our Lord one thousand nine hundred and fifty three

Signed, Sealed and Delivered in presence of

Morris Greenberg

Estate of Ethel B Bell
James S. Bell
Executor

Seal

State of Maine, Cumberland, ss. November 25, 1953. Personally appeared the above named James S. Bell and acknowledged the ~~above~~ foregoing instrument to be his free act and deed, in said capacity.

Before me, Morris Greenberg Justice of the Peace

Received November 25 19 53, at 4 o'clock 56m., P. M., and recorded according to the original.

e/

(102)

Know All Men by these Presents,

That MAINE GENERAL HOSPITAL ~~Company~~

a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations (being less than $100)

paid by MAINE MEDICAL CENTER; a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

Maine General Hospital

to

Maine Medical Center

War

the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center

its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land being a portion of Arsenal Street discontinued by the City of Portland and a small portion of land of the Grantor adjoining said discontinued land in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point in the center line of discontinued Arsenal Street at its easterly extremity; thence northwesterly by said easterly extremity of discontinued Arsenal Street thirty (30) feet to land of the Grantor; thence southwesterly by land of the Grantor, being the northerly sideline of the former location of Arsenal Street and at right angles to the last described course about thirty (30) feet to the easterly face of the new Maine Medical Center building; thence northwesterly at about right angles to the last described course and by the easterly face of said new building about five (5) feet to a corner of said building; thence southwesterly by the northerly face of said new building and by a line between said new building and the old building, said old building being known as the pavilion and again by the northerly face of said new building about forty-five (45) feet to a corner of said new building; thence southeasterly by the face of said new building at about right angles to the last described course about five (5) feet to the former location of the northerly sideline of said Arsenal Street; thence southwesterly by other land of the Grantor being the northerly sideline of the former location of Arsenal Street and at about right angles to the last described course and ten (10) feet to a point; thence southeasterly at right angles to the last described course thirty (30) feet to the center line of the former location of said Arsenal Street; thence northeasterly by said center line and passing through said aforementioned new building about eighty-five (85) feet to the point of beginning.

22 **To have and to hold** the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine Medical Center, its successors ~~heirs~~ and assigns, to its and their use and behoof forever.

And the said Grantor Corporation does hereby COVENANT with the said Grantee, its successors ~~heirs~~ and assigns, that it is lawfully seized in fee of the premises, that they are free of all incumbrances;

that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors, shall and will WARRANT AND DEFEND the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, the said Maine General Hospital ~~Company~~ has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Phillips M. Payson, its Treasurer, thereunto duly authorized, this 9th day of July in the year one thousand nine hundred and fifty-six.

Signed, Sealed and Delivered in presence of

Edward T. Dana

MAINE GENERAL HOSPITAL

~~Company~~

By Phillips M. Payson

Treasurer.

State of Maine.

County of Cumberland ss. July 9, 19 56

Then personally appeared the above named

Phillips M. Payson, Treasurer of said Grantor 23
Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me,

Edward F. Haun Justice of the Peace.

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE JUL 10 1956
Received at 4 H 5 M P M, and recorded in
BOOK 2301 PAGE 21 Robert N. Carter Register

Know All Men by These Presents.

That M. S. Hancock, Inc.

M S Hancock Inc to Gordon --- War

a Corporation organized and existing under the laws of the State of Maine and located at Casco in the County of Cumberland and State of Maine in consideration of one dollar and other valuable consideration

paid by Benjamin H. Gordon of New Britain in the County of Hartford and State of Connecticut the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey unto the said Benjamin H. Gordon, his

heirs and assigns forever, ~~a certain lot or parcel of land~~

Three certain lots or parcels of land situate in said Casco and on the southerly shore of Coffee Pond, so-known, the lots herein conveyed being Lot #13, Lot #14 and Lot #15 and delineated on a certain plan entitled "Coffee Pond Pines, Part II" as recorded in the Cumberland County Registry of Deeds, Plan Book 44, Page 40, together with a right of user in common with others who may have been or who may hereafter be granted a similar right in and to the road or right of way leading to said lots from Route #11, so-known, said road being delineated on said plan.

It shall be a condition of this conveyance and the Grantee, for himself and his heirs, administrators, executors or assigns, agrees that no dwelling shall be erected or constructed on any of said lots unless the same shall equal or exceed the sum of $1500.00 to build exclusive, however, of any necessary outbuildings or garages.

(24)

Know all Men by these Presents,

161

That the CITY OF PORTLAND, a body politic and corporate, located in the County of Cumberland and State of Maine,

Portland City of

to

Maine General Hospital

Q C

~~a corporation organized and existing under the laws of the State of~~ ~~and located at~~ ~~in the County of~~ ~~and State of~~

in consideration of One ($1.00) Dollar and other valuable considerations, the total of which is less than One hundred ($100.00) Dollars

paid by Maine General Hospital, a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine,

the receipt whereof it does hereby acknowledge, does hereby **remise, release, bargain, sell and convey,** and forever **quit-claim** unto the said

Maine General Hospital, its successors

~~heirs~~ and assigns forever,

A certain lot or parcel of land situated in said Portland and bounded and described as follows:

Beginning at the point of intersection of the Northwesterly side line of Ellsworth Street extended in a Southwesterly direction and the Southwesterly side line of Charles Street; thence Southwesterly along a continuation of the Northwesterly side line of Ellsworth Street extended, a distance of thirty-eight (38) feet, more or less, to a point; thence in a Southeasterly direction parallel to and fifty (50) feet measured perpendicularly Southwesterly of the Northeasterly side line of Charles Street Extension, so-called, a distance of one hundred fifty-five (155) feet, more or less, to the Northerly terminus of Brackett Street as established and renamed by the City Council of the City of Portland; thence Northeasterly along the line terminating said Brackett Street a distance of thirty-eight (38) feet, more or less, to the point of intersection formed by the above-mentioned line and the Southwesterly side line of Charles Street Extension, so-called; thence Northerly along the Southwesterly side line of Charles Street Extension, so-called, a distance of one hundred fifty-five (155) feet, more or less, to the point of beginning.

Being the same premises conveyed to the Grantor by warranty deed of the Grantee dated April 9, 1954, recorded in Cumberland County Registry of Deeds in Book 2173, Page 412.

162

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said

Maine General Hospital, its successors

~~Heirs~~ and Assigns forever.

And the said Grantor Corporation does **covenant** with the said

Maine General Hospital, its successors

~~Heirs~~ and Assigns, that it will **Warrant** and **Forever Defend** the said premises to it the said Grantee , its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said CITY OF PORTLAND has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Edwin T. Simmons, Acting City Treasurer ~~xxxxx~~ thereunto duly authorized, this Fifteenth day of August in the year one thousand nine hundred and fifty-six.

Signed, Sealed and Delivered in presence of

M. Jane King

CITY OF PORTLAND

By Edwin T. Simmons
Acting City Treasurer

(CORPORATE SEAL)

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE AUG 21 1956
Received at 1 H — M and recorded in
BOOK 2308 PAGE 161
Register

State of Maine, Cumberland ss. August 15, 1956.

Personally appeared the above named Edwin T. Simmons, Acting City Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me

Justice of the Peace

Know all Men by these Presents, That

223

We, Albert E. Doak and Amelia Doak, both of Portland, County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations paid by MAINE GENERAL HOSPITAL, a corporation organized and existing under the laws of the State of Maine, and having its principal place of business at said Portland,

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said MAINE GENERAL HOSPITAL, its successors and assigns, forever,

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Charles Street in said Portland, bounded and described as follows: Beginning at a fence post standing on the westerly side line of Charles Street and distant northerly seventy-three and eighty-four hundredths (73.84) feet from the northwesterly corner of Ellsworth and Charles Streets; thence northerly by said Charles Street forty (40) feet to land now or formerly of Frank Abbott; thence westerly by said Abbott's land seventy-four and fifty-six hundredths (74.56) feet to land of the said grantee; thence by land of said grantee southerly forty (40) feet to land now or formerly of W. R. Naylor; thence easterly by said Naylor's land seventy-four and forty-two hundredths (74.42) feet to the point of beginning.

Being the same premises conveyed to these grantors by Henry T. Orlando by deed dated May 29, 1951, and recorded in Cumberland County Registry of Deeds in Book 2044, Page 288.

The grantee corporation herein assumes and agrees to pay the 1957 real estate taxes as part consideration for this transfer.

Doak & to Maine General Hospital -- War

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MAINE GENERAL HOSPITAL, its successors

and assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs and assigns shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we, the said Albert E. Doak and Amelia Doak, husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this third day of May in the year of our Lord one thousand nine hundred and fifty-seven.

Signed, Sealed and Delivered in presence of

Edward B. Berry
to both

Albert E Doak
Amelia Doak

State of Maine, Cumberland ss. May 3, 1957.

Personally appeared the above named Albert E. Doak

and acknowledged the foregoing instrument to be his free act and deed.

Before me, Edward B. Berry
NOTARY PUBLIC.

$6.05

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAY 3 1957 at 2 o'clock 35 m. P. M., and recorded in BOOK 2349 PAGE 229 Attest: Martha H. S. Daley Register's Clerk

Book 2619
Page 499

Know All Men by These Presents,

That We, Henry H. Grant and Gladys H. Grant, both of Portland in the County of Cumberland and State of Maine,

Grant & to Maine Medical Center -- War

in consideration of one ($1.00) dollar and other valuable considerations

paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine and located at said Portland,

the receipt whereof we **do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said** Maine Medical Center, its successors

heirs and assigns forever, a certain lot or parcel of land with the buildings thereon, situated in Portland in the County of Cumberland and State of Maine, on the northwesterly side of Bramhall Street, bounded and described as follows:

Commencing at the southwesterly corner of land, now or formerly, of James Miller and Charlotte Johnson on Bramhall Street; thence northwesterly by land of said James Miller and Charlotte Johnson, sixty (60) feet to land formerly of William J. Knowlton; thence southwesterly along said Knowlton land, parallel with said street, fifty-five (55) feet to a corner of land formerly of William J. Knowlton; thence parallel with first mentioned line sixty (60) feet, more or less, to said street; thence northeasterly by said street fifty-five (55) feet to the place of beginning.

Being the same premises conveyed to us by Russell Fanning by deed recorded in Cumberland County Registry of Deeds in Book 1833, Page 415, and are conveyed subject to the conditions contained in said deed.

The Grantee herein, as part of the consideration hereof, assumes and agrees to pay taxes for the taxable year 1961.

500

500

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said

Maine Medical Center, its successors

heirs and assigns, to its and their use and behoof forever.

And we do covenant with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises, that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will Warrant and Defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We the said Henry H. Grant

and Gladys H. Grant, being husband and

wife

joining in this deed as Grantors, and relinquishing and conveying all right by descent and all other rights in the above described premises, have hereunto set our hands and seals this thirty-first day of July in the year of our Lord one thousand nine hundred and sixty-one.

Signed, Sealed and Delivered
in presence of

Josephine G. Wall — Henry H. Grant
R. E. Jensen — Gladys H. Grant

State of Maine. Cumberland, ss. July 31, 1961.

Personally appeared the above named Henry H. Grant

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Raymond E. Jensen
Justice of the Peace
Notary Public

AUG 4 1961
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 28 M A M, and recorded in
BOOK 2619 PAGE 499 Lowell P. Hyson Register

Book 2685
Page 369

Know All Men by These Presents,

That Sewall M. Hobson, 2nd, of Portland, County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration

paid by Maine Medical Center, a corporation duly organized and existing under the laws of the State of Maine with its principal office in said Portland

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors and assigns forever, a certain lot or parcel of land with the buildings thereon, situated on the northwesterly side of Bramhall Street in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the intersection of the northwesterly side line of Bramhall Street with the easterly side line of Western Promenade; thence northeasterly by Bramhall Street One Hundred Four and one-tenth (104.1) feet to the southerly corner of land conveyed by John W. Yeaton to William J. Knowlton, by deed dated April 4, 1885, and recorded in Cumberland County Registry of Deeds, in Book 517, Page 386; thence northwesterly at right angles with Bramhall Street and by said Knowlton land Sixty (60) feet to the southeasterly side line of land conveyed by John W. Yeaton to William J. Knowlton by deed dated June 6, 1882, and recorded in said Registry of Deeds, in Book 488, Page 204; thence southwesterly by said Knowlton land Forty-one and seven tenths (41.7) feet to the easterly side line of Western Promenade at a point Seventy-seven and five tenths (77.5) feet southerly thereon from the southeasterly side line of Arsenal Street; thence southerly by Western Promenade Eighty-six and seventy-eight hundredths (86.78) feet to the point of beginning.

For Grantors title reference is made to the will of Annie H. Dana, and abstract of which is recorded in said Registry of Deeds, in Book 2423, Page 273, and to a certain deed from Saint Germain Foundation et als. dated February 1, 1960, and recorded in said Registry of Deeds in Book 2526, Page 80.

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors

~~heirs~~ and assigns, to it and their use and behoof forever.

And I do covenant with the said Grantee, its ~~heirs~~ successors and assigns, that I am lawfully seized in fee of the premises, that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and any heirs shall and will Warrant and Defend the same to the said Grantee, its ~~heirs~~ successors and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof. We the said Sewall M. Hobson, 2nd

and Anne S. Hobson

wife of the said Sewall M. Hobson, 2nd

joining in this deed as Grantor, and relinquishing and conveying her right by descent and all other rights in the above described premises, have hereunto set our hands and seals this Tenth day of July in the year of our Lord one thousand nine hundred and sixty-two.

Signed, Sealed and Delivered
in presence of

Gerald S Cope
to both

Sewall M. Hobson, 2nd
Anne S. Hobson

State of Maine. Cumberland ss. July 10th 1962.

Personally appeared the above named Sewall M. Hobson, 2nd

and acknowledged the foregoing instrument to be his free act and deed.

Before me, Gerald S Cope
Justice of the Peace
~~Notary Public~~

JUL 10 1962
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H 51 M A. M, and recorded in
BOOK 2685 PAGE 369 Sewall M. Hobson Register

Book 2901
Page 326

326 (106)

Know all Men by these Presents,

That I, VINCENT C. NEWTON of Portland in the County of Cumberland and State of Maine

Newton

to

Maine General Hospital

-

War

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE GENERAL HOSPITAL, a corporation organized and existing under the laws of Maine and located at Portland in the County of Cumberland and State of Maine,

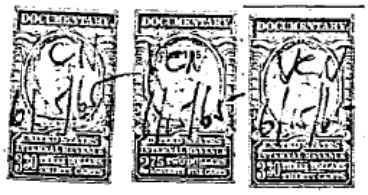
the receipt whereof I do hereby acknowledge, do hereby

give, grant, bargain, sell and convey, unto the said Maine General Hospital,

its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land with the buildings thereon situated on the westerly side of Charles Street in said Portland, bounded and described as follows:

Beginning on the westerly side line of said Charles Street at the northeasterly corner of land formerly of John M. Jones, now of Maine General Hospital; thence running northerly by said street thirty-eight (38) feet to land formerly occupied by one Graham, now owned by Maine General Hospital; and from these two points extending back westerly at right angles from said street keeping the width of thirty-eight (38) feet and bounded southerly by said Jones land and northerly by said Graham land about seventy-four and two tenths (74.2) feet to the Arsenal Lot, so-called, now of Maine General Hospital; being the same premises conveyed to me by Charles H. Abbott et al by deed dated February 10, 1944, recorded in Cumberland County Registry of Deeds in Book 1737, Page 278.



327

To Have and to Hold the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine General Hospital, its successors ~~heirs~~ and assigns, to its and their use and behoof forever.

And I do COVENANT with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises that they are free of all encumbrances:

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall its successors and will WARRANT and DEFEND the same to the said Grantee, ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I the said Vincent C. Newton, being unmarried

~~and~~

~~wife~~ ~~of the said~~

~~joining in this deed as Grantor, and releasing and conveying~~ ~~right by descent and all other right in the above described~~ ~~premises~~ have hereunto set my hand and seal this 15th day of June in the year of our Lord one thousand nine hundred and sixty-five.

Signed, Sealed and Delivered in presence of

Edward J. McGoldrick — Vincent C. Newton (L.S.)

State of Maine, Cumberland } ss. June 15, 1965.

Personally appeared the above named Vincent C. Newton and acknowledged the above instrument to be his free act and deed.

Before me, Edward J. McGoldrick
Notary Public ~~Justice of the Peace~~.

EDWARD J. McGOLDRICK NOTARY PUBLIC MAINE
MY COMMISSION EXPIRES OCTOBER 8, 1971

STATE OF MAINE
CUMBERLAND, ss. REGISTRY OF DEEDS
Received at 1 H. 36 M. P. M. on JUN 15 1965 and recorded in
Book 2901 Page 326 Attest
Edward J. McGoldrick Register

(154)
EXECUTOR'S AND TRUSTEE'S DEED.
[WHEN THE WILL AUTHORIZES A SALE.]

927

Know all Men by these Presents,

That I, HELEN M. GRIFFIN

of Portland in the county of Cumberland

sole acting executor of the last will and testament

of Mary Davis late of Portland

deceased, testate, by virtue of the authority to me given by

the said Mary Davis in her last will and

testament, in my capacity of executor as afore-

said, and in consideration of One Dollar ($1.00) and other

valuable considerations

to me paid by MAINE MEDICAL CENTER, a corporation organized under the laws of Maine and situated in Portland

the receipt whereof is hereby ac-

knowledged, do hereby sell and convey unto the said Maine Medical Center, its successors and assigns, the following described real estate, which was

the property of the said Mary Davis.

A certain lot or parcel of land with the buildings thereon situated in Portland on the northerly side of Brackett Street, bounded and described as follows:

Beginning at the intersection of the northerly side of Brackett Street with the westerly side of Russell Street; thence running northeasterly by Russell Street thirty-seven (37) feet, more or less, to land formerly owned by Hobart W. Richardson; thence running northwesterly by said Richardson land seventy-four (74) feet, more or less, to land formerly owned or occupied by W. S. Dunn; thence southwesterly by the line of said Dunn's land forty-one (41) feet, more or less, to a lane; thence southeasterly by said lane forty-one (41) feet, more or less, to Brackett Street; thence easterly by Brackett Street thirty-seven (37) feet, more or less, to the point of beginning.

Being the same premises conveyed to Mary Davis by Harry E. Davis by deed dated March 18, 1915, recorded in Cumberland County Registry of Deeds in Book 945, Page 109.

Reference is made to Will of said Mary Davis, abstract of which is recorded in said Registry of Deeds in Book 3025, Page 28.

Davis Est

to

Maine Medical Center

Exec

928

To have and to hold the above-granted premises unto the said Maine Medical Center, its successors ~~and~~ and assigns forever. And I the said Helen M. Griffin, in my said capacity, do hereby covenant to and with the said Maine Medical Center, its successors ~~and~~ and assigns, that I am the lawful executor of the last will and testament of the said Mary Davis ; that I have power under said will to sell as aforesaid; and that in making this conveyance, I have in all respects, acted in pursuance of the authority granted in and by the said last will and testament.

In Witness Whereof, I the said Helen M. Griffin in my said capacity of executor as aforesaid have hereunto set my hand and seal . this 31st day of March in the year of our Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered in presence of

Helen M. Griffin

March 31 1966.

State of Maine, Cumberland } ss.

Then personally appeared the above named Helen M. Griffin and acknowledged the above instrument to be her free act and deed in her said capacity.

Before me,

Justice of the Peace.

MAR 31 1966
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 9 H 55 M, and recorded in
BOOK 2957 PAGE 927 Register

2081

722

Know all Men by these Presents,

J B Brown & Sons to Maine Medical Center

Q C

That J. B. BROWN & SONS, a corporation organized and existing under the laws of the State of Maine, and located at Portland in the County of Cumberland and State of Maine in consideration of one dollar and other valuable considerations, being less than $100.00 paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine, and located at said Portland, the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said MAINE MEDICAL CENTER, its successors and assigns forever,

All its right, title and interest in a strip of land, in the City of Portland, County of Cumberland and State of Maine, said strip being that portion of Charles Street lying between Brackett Street and Ellsworth Street bounded as follows: Beginning at a point on the southeasterly line of Ellsworth Street distant southwesterly One Hundred Sixty-three and seven tenths (163.7) feet from a point in said street line Fifty-seven (57) feet at right angles from a stone monument on three feet offset at the northwest corner of Ellsworth and Wescott Streets; thence running southeasterly making an included angle with the northwesterly direction of Ellsworth Street of One Hundred and One degrees and Twenty minutes (101° 20') a distance of One Hundred and Sixteen (116) feet, more or less, to the northerly line of Brackett Street near Arsenal Street. Said strip is Thirteen (13) feet wide and lies on the southerly side of the above described line.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said MAINE MEDICAL CENTER, its successors ~~heirs~~ and assigns forever.

In Witness Whereof, the said J. B. BROWN & SONS has caused this instrument to be sealed with its corporate seal and signed in its corporate name by , its thereunto duly authorized, this 4th day of May in the year of our Lord one thousand nine hundred and sixty-six.

Signed, Sealed and Delivered in presence of

Ruth M. Dunn
to KAC & PGC

J. B. BROWN & SONS

By Lyman A. Cousens Jr. Treas.
Philip G. Clifford Director
(Corporate Seal)

May 4 1966

State of Maine, Cumberland ss. 19 66.

Personally appeared the above named Lyman A. Cousens Jr. & Philip G. Clifford of said Grantor Corporation, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Nellie H. Foster NOTARY PUBLIC. ~~JUSTICE OF THE PEACE.~~

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAY 4 1966 at 3 o'clock 17 m. P. M., and recorded in BOOK 2955 PAGE 722 Attest: Samuel R. Thompson Register.

Book 2988
Page 139

Know all Men by these Presents, That

We, FRANK S. NEUTS and DELLA J. NEUTS, both of Portland, in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration s paid by JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, both of said Portland

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said

JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, as joint tenants and not as tenants in common, their heirs and assigns forever.

A certain lot or parcel of land, with the buildings thereon, situated on Charles Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning on the westerly side of Charles Street at the northerly corner of land formerly owned by C. B. Saunders; thence westerly by said Saunders northerly line seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence northerly by line of said Hospital land thirty-six (36) feet to a point; thence easterly on a line parallel with Saunders northerly line seventy-five (75) feet, more or less, to the westerly side line of Charles Street; thence southerly by said Charles Street thirty-six (36) feet to the point begun at.

Being the same premises conveyed to us by Maine General Hospital by deed dated January 30, 1962 and recorded in Cumberland County Registry of Deeds in Book 2657, Page 19.

This conveyance is made subject, however, to the common passageway established by agreement between Maine General Hospital and Clarence D. Read, et al, dated October 29, 1954 and recorded in said Registry of Deeds in Book 2203, Page 413.

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, as joint tenants and not as tenants in common, their

heirs and assigns, to them and their use and behoof forever. And we do covenant with the said Grantees, their heirs and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances, except as aforesaid, that we ha ve good right to sell and convey the same to the said Grantees to hold as aforesaid; and that we and our heirs and assigns shall and will warrant and defend the same to the said Grantees, their except as aforesaid. heirs and assigns forever, against the lawful claims and demands of all persons,

In Witness Whereof, we, the said FRANK S. NEUTS and DELLA J. NEUTS, being husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our/ respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this second day of March in the year of our Lord one thousand nine hundred and sixty-seven.

Signed, Sealed and Delivered in presence of

Frank S. Neuts

Della J. Neuts

State of Maine, Cumberland, ss. March 2, 1967.

Personally appeared the above named Frank S. Neuts and Della J. Neuts

and acknowledged the foregoing instrument to be their free act and deed.

Before me, Notary Public. ~~Justice of the Peace.~~

STATE OF MAINE, CUMBERLAND COUNTY, SS. REGISTRY OF DEEDS

Received MAR 3 1967 at 11 o'clock 8 m. A M., and recorded in BOOK 2988 PAGE 139 Attest: Register.

2238

KNOW ALL MEN BY THESE PRESENTS

THAT OLD COLONY TRUST COMPANY a Corporation located in Boston, County of Suffolk and Commonwealth of Massachusetts, sole surviving Trustee under a Trust Agreement created by ALICE A. BURKITT late of Portland and dated March 30, 1961 by virtue of the authority to it given by said Trust Agreement in its capacity of Trustee as aforesaid, and in consideration of One Dollar ($1.00) and other valuable considerations to it paid by MAINE MEDICAL CENTER of Portland, Maine, the receipt whereof is hereby acknowledged, does hereby sell and convey unto the said Maine Medical Center its successors and assigns forever, the following described real estate, which was the property of Alice A. Burkitt late of Portland, situated in said Portland, Maine and bounded as follows:

a certain lot or parcel of land with the buildings thereon, situated in said Portland, bounded and described as follows: Beginning at a point on the easterly side of Western Promenade, which point is eighty-five (85) feet from the intersection of the northeasterly side line of said Promenade with the northwesterly side line of Bramhall Street; thence northerly by the line of said Promenade seventy-seven and five tenths (77.5) feet, more or less, to Arsenal Street; thence northeasterly by said Arsenal Street seventy-four and one tenths (74.1) feet, more or less, to land now or formerly of William J. Miller et al; thence southeasterly at right angles to Arsenal Street by said Miller land fifty-five and five tenths (55.5) feet, more or less, to land formerly of Hiram Knowlton; thence southwesterly parallel with said Arsenal Street one hundred and twenty-seven (127) feet, more or less, to the Western Promenade and point of beginning, containing fifty-six hundred (5600) square feet more or less.

Also another parcel of land adjoining the above described lot, and bounded and described as follows: Commencing at a point on the northwesterly side of Bramhall Street, which point is the northeasterly corner of land of Frederick C. Hussey et al, and ninety-eight and two tenths (98.2) feet, more or less, from the intersection of said northwesterly side line of Bramhall Street with the easterly side line of the Western Promenade; thence northeasterly on said Bramhall Street thirty-three and five tenths (33.5) feet to a point and land formerly of Hiram Knowlton, and from these two points extending northwesterly keeping a width of thirty-three and five

tenths (33.5) feet a distance of sixty (60) feet to the first parcel herein conveyed, containing two thousand and ten (2010) square feet.

Meaning and intending to convey and hereby conveying the real estate acquired by Alice A. Burkitt by Warranty Deed of Good Will Home Association dated December 11, 1930 recorded in the Cumberland County Registry of Deeds Book 1361, page 373; said real estate having been devised to the Grantor as Trustee by the Will of Alice A. Burkitt duly probated in the Cumberland County Probate Court.

TO HAVE AND TO HOLD the above-granted premises unto the said Maine Medical Center its successors and assigns forever. And the said Old Colony Trust Company in its said capacity does hereby covenant to and with the said Maine Medical Center its successors and assigns that it is the sole surviving Trustee under said Trust Agreement; that it has power under said Trust Agreement to sell as aforesaid; and that in making this conveyance it has in all respects acted in pursuance of the authority granted in and by said Trust Agreement.

IN WITNESS WHEREOF, the said Old Colony Trust Company in its said capacity as Trustee as aforesaid has caused this instrument to be signed in its corporate name and sealed with its corporate seal by S. Vincent its ~~Trust Officer~~ Vice President thereunto duly authorized this 4th day of February 1969.

Witness:

James E. Manahan Jr

OLD COLONY TRUST COMPANY

By S. Vincent

Its ~~Trust Officer~~ Vice President

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK, SS.

February 4, 1969.

Then personally appeared the above-named S. Vincent who made oath that the foregoing instrument was his free act and deed and the free act and deed of the Grantor corporation in its said capacity as Trustee as aforesaid.

Before me,

Mary F. Archoska

Notary Public

Mary F. Archoska
NOTARY PUBLIC
My commission expires May 28, 1971

CERTIFICATE OF TRUSTEE

I, JAMES R. KINGSBURY of Newton Massachusetts, Trust Officer of Old Colony Trust Company of Boston, Massachusetts, hereby certify that Old Colony Trust Company became a Co-Trustee of a certain Revocable Inter Vivos Trust created by ALICE A. BURKITT with said Old Colony Trust Company and NORMAN A. BURKITT as Co-Trustees under a Trust Agreement dated March 30, 1961;

That Norman A. Burkitt is deceased and the Old Colony Trust Company is now acting as sole surviving Trustee;

That said Trust is no longer revocable inasmuch as the Settlor who reserved the power of revocation has since died;

That among the powers given to the Trustees is the following:

> "The Trustees, in addition to and not in limitation of all common law and statutory authority, shall have power, as to any real or personal property in the trust fund or any part thereof, to mortgage, to lease with or without option to purchase and although for a term extending beyond the termination of the trust, to sell in whole or in part at public or at private sale without approval of any court and without liability upon any person dealing with the Trustees to see to the application of any money or other property delivered to them; . . ."

Dated at Boston, Massachusetts, this 4TH day of February 1969.

James R. Kingsbury

COMMONWEALTH OF MASSACHUSETTS
SUFFOLK, SS.

February 4, 1969.

Personally appeared the above named James R. Kingsbury and made oath to the truth of the foregoing certificate by him subscribed.

Before me,

Mary F. Archoska
Notary Public

Mary F. Archoska
NOTARY PUBLIC
My commission expires May 28, 1971

FEB 17 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H 35 A.M., and recorded in
BOOK 3075 PAGE 669 Seward R. Kingsbury Register

No. 116

Know All Men by these Presents.

That I, CLARA G. READ, of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations

paid by MAINE MEDICAL CENTER, a Maine corporation having a place of business in said Portland, in said County and State,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center,

its Successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land, with the buildings thereon, situated on the southwesterly side of Charles Street in said Portland, bounded and described as follows:

Beginning on said southwesterly side of Charles Street at a point thirty (30) feet northwesterly by said Street from the northeasterly corner of land formerly of Charles A. Donnell; thence northwesterly by said Street thirty (30) feet; thence southwesterly parallel with the line of said Donnell land seventy-four and two-tenths (74.2) feet to land formerly known as the Arsenal property; thence southeasterly by said Arsenal lot thirty (30) feet; thence northeasterly parallel with said Donnell land seventy-four and two-tenths (74.2) feet to the point of beginning.

Being the same premises conveyed to this Grantor and Clarence D. Read, as joint tenants, by Grace R. Loomis by deed dated September 1, 1948 and recorded in Cumberland County Registry of Deeds in Book 1926, Page 336. The said Clarence D. Read having deceased and his estate is of record in the Registry of Probate for Cumberland County, Maine.

The Grantor herein shall have the right to occupy the premises hereby conveyed until September 15, 1969.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
JUL 23'69
Bureau of Taxation
$13.75

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Maine Medical Center, its Successors

~~Heirs~~ and Assigns, to them and their use and behoof forever.

And I do **covenant** with the said Grantee, its Successors ~~Heirs~~ and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its Successors

~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Clara G. Read, being a widow,

~~and~~ ~~wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying~~

~~rights by descent and all other rights in the above~~

~~described premises,~~ have hereunto set my hand and seal this [illegible] day of July in the year of our Lord one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered in presence of

John W. Sturgis

Clara G. Read

State of Maine,
CUMBERLAND } ss.

July 22, 1969.

Personally appeared the above named

CLARA G. READ

and acknowledged the above instrument to be her free act and deed.

Before me,

John W. Sturgis
Justice of the Peace

JUL 23 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 58 M.M., and recorded in
BOOK 3095 PAGE 34 Seward R. Thurston Register

211

No. 106

Know All Men by these Presents.

That We, WILLIAM C. GOKEY and SUZANNE E. GOKEY, both of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of Maine and located at Portland, County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center,

its successors ~~Heirs~~ and Assigns forever,

the following described property:

A certain lot or parcel of land with the buildings thereon situated on the southeasterly side of Ellsworth Street in said Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the northeasterly corner of a lot of land on Bramhall's Hill which John B. Brown sold to one Tuttle; thence northeasterly on said Ellsworth Street forty (40) feet; thence southeasterly about seventy-four (74) feet to land formerly of Davis; thence southwesterly by said Davis's land to land formerly of said Tuttle forty (40) feet; thence northwesterly to said Ellsworth Street, the bounds begun at, seventy-four (74) feet.

Being the same premises conveyed to William C. Gokey and Suzanne E. Gokey by Thelma A. Barter, by deed dated June 19, 1968, recorded in Cumberland County Registry of Deeds in Book 3045, Page 187.

This conveyance is made subject to taxes for the year 1969 which the Grantee assumes and agrees to pay.

020136 STATE OF MAINE REAL ESTATE TRANSFER TAX REVENUE 18.15

To have and to hold the aforegranted and bargained premises, 245
with all privileges and appurtenances thereof to the said
Maine Medical Center, its successors

~~Heirs~~ and Assigns, to its and their use and behoof
forever.

And we do covenant with the said Grantee, its successors ~~Heirs~~
and Assigns, that we are lawfully seized in fee of the premises;
that they are free of all incumbrances;
that we have good right to sell and convey the same to the said
Grantee to hold as aforesaid; and that we and our Heirs, shall
and will Warrant and Defend the same to the said Grantee,
its successors
~~Heirs~~ and Assigns forever, against the lawful claims and demands
of all persons.

In Witness Whereof, we the said William C. Gokey
and Suzanne E. Gokey, being husband and wife

~~and wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying~~
~~rights by descent and all other rights in the above~~
~~described premises~~, have hereunto set our hands and seals this
11th day of August in the year of our Lord
one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered
in presence of

Edward F. Pana

William C. Gokey
Suzanne E. Gokey

State of Maine,
Cumberland } ss.

August 11, 1969

Personally appeared the above named
William C. Gokey
and acknowledged the above instrument to be his free act and
deed.

Before me, Edward F. Pana
Justice of the Peace

AUG 11 1969
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 2 H 24 M P M, and recorded in
BOOK 3097 PAGE 244 Seward R. Hayes Register

(106)

396

Know all Men by these Presents,

That JOHN P. CONSTANTINE and CHARLENE M. CONSTANTINE, both of Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of Maine, and located at Portland, County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Maine Medical Center, its successors ~~heirs~~ and assigns forever,

a certain lot or parcel of land, with the buildings thereon, situated on Charles Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning on the westerly side of Charles Street at the northerly corner of land formerly owned by C. B. Saunders; thence westerly by said Saunders northerly line seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence northerly by line of said Hospital land thirty-six (36) feet to a point; thence easterly on a line parallel with Saunders northerly line seventy-five (75) feet, more or less, to the westerly side line of Charles Street; thence southerly by said Charles Street thirty-six (36) feet to the point begun at.

Being the same premises conveyed to us by Frank S. Neuts, by deed dated March 2, 1967, recorded in Cumberland County Registry of Deeds in Book 2988, Page 139.

This conveyance is made subject, however, to the common passageway established by agreement between Maine General Hospital and Clarence D. Read et al, dated October 29, 1954, recorded in said Registry of Deeds in Book 2203, Page 413.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
Bureau of Taxation
$ 14.85

To have and to hold the aforegranted and bargained premises with all the privileges and appurtenances thereof to the said Maine Medical Center, its successors and assigns, to its and their use and behoof forever.

And we do COVENANT with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises that they are free of all encumbrances except as aforesaid; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will WARRANT and DEFEND the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

In Witness Whereof, we the said John P. Constantine and Charlene M. Constantine, being husband and wife,

and

wife

have hereunto set our hands and seals this 7th day of November in the year of our Lord one thousand nine hundred and sixty-nine.

Signed, Sealed and Delivered in presence of

Edward T. Long

Edward T. Long

John P. Constantine

Charlene M. Constantine

State of Maine, Cumberland } ss. 19 69.

Personally appeared the above named John P. Constantine and acknowledged the above instrument to be his free act and deed.

Before me, Edward T. Long

Justice of the Peace.

NOV 7 1969

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Received at 11 H 18 M. and recorded in BOOK 3108 PAGE 396

Edward T. Long Register ~~Notary Public~~

Book 3183
Page 576

No. 106

14804

Know All Men by these Presents,

That I, AGNES E. TWEEDIE, formerly AGNES E. BROWN, of Portland, County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable consideration

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and having its principal place of business at Portland, County of Cumberland and State of Maine

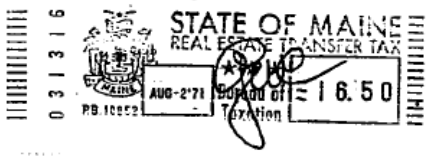
the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said MAINE MEDICAL CENTER,

its successors ~~Heirs~~ and Assigns forever,

the following described property: A certain lot or parcel of land, with the buildings thereon, situated in the City of Portland, County of Cumberland and State of Maine, on the corner of Brackett and Russell Streets and bounded as follows: Southwesterly by said Brackett Street; northwesterly by said Russell Street; northeasterly by land formerly of J. K. Emery and southeasterly by land now or formerly of Annie F. Chapman; containing about twenty-one hundred and fifty-one (2151) square feet.

Being the same premises conveyed to the Grantor herein and her late husband, Kenneth C. Brown, by deed dated January 22, 1962 and recorded in the Cumberland County Registry of Deeds, Book 2655, Page 344.

This conveyance is made subject to taxes for 1971 which the Grantee assumes and agrees to pay.



To have and to hold the aforegranted and bargained premises. with all privileges and appurtenances thereof to the said

MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns, to its and their use and behoof forever.

And I do **covenant** with the said Grantee, its ~~Heirs~~ successors and Assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its successors

~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons, except as aforesaid

In Witness Whereof, I the said

AGNES E. TWEEDIE, being a widow

~~and~~ ~~wife of the said~~

~~joining in this deed as Grantor, and relinquishing and conveying rights by descent and all other rights in the above described premises,~~ have hereunto set my hand and seal this day of in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

[signature] — Agnes E. Tweedie

State of Maine, Cumberland } ss.

July 30 1971

Personally appeared the above named AGNES E. TWEEDIE

and acknowledged the above instrument to be her free act and deed.

Before me, [signature]

~~Justice of the Peace~~

Notary Public

My commission expires Oct. 2, 1972

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE AUG 2, 1971
Received at 2 H 41 M P M, and recorded in
BOOK 3183 PAGE 576 [signature] Register

16674

Know all Men by these Presents, That

I, MARGUERITE M. BROOKS of Portland, County of Cumberland and State of Maine

in consideration of one dollar and other valuable consideration

paid by MAINE MEDICAL CENTER, a corporation organized under the laws of the State of Maine with a place of business at Portland, County of Cumberland and State of Maine,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said MAINE MEDICAL CENTER, its successors and assigns forever.

A certain lot or parcel of land with the buildings thereon, situated on the southeasterly side of Ellsworth Street, in the City of Portland, County of Cumberland and State of Maine, and at present numbered forty-four (44) on said street; said lot of land being bounded and described as follows:

Beginning at the northeasterly corner of Ellsworth Street and a lane running from said Ellsworth Street to the junction of Brackett and Arsenal Streets; thence northeasterly by said Ellsworth Street, twenty-six (26) feet, more or less, to land now or formerly of Neal P. Thompson; thence southeasterly by said Thompson land, seventy-four (74) feet, more or less, to land now or formerly owned by John Russell; thence southwesterly by said Russell land, forty (40) feet, more or less, to said lane; thence northwesterly by said lane, seventy-five (75) feet, more or less, to the point begun at.

Being the same premises conveyed to me by Walter E. Mangum et al by deed dated October 15, 1957 and recorded in Cumberland County Registry of Deeds in Book 2379, Page 181.

This conveyance is made subject to taxes for 1971 which the Grantee assumes and agrees to pay.

STATE OF MAINE
REAL ESTATE TRANSFER TAX
AUG 23 '71
Bureau of Taxation
30.80
P.B. 10852

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MAINE MEDICAL CENTER, its successors

~~heirs~~ and assigns, to their use and behoof forever. And I do covenant with the said Grantee, its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances except as aforesaid, that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs and assigns shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

In Witness Whereof, I, the said MARGUERITE M. BROOKS, being single,

~~joining in this deed as Grantor, and relinquishing and conveying rights by descent and all other rights in the above described premises,~~ have hereunto set my hand and seal this 23rd day of August in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

Charles F. Oestreicher

Marguerite M. Brooks

State of Maine, Cumberland ss. August 23, 1971.

Personally appeared the above named MARGUERITE M. BROOKS

and acknowledged the foregoing instrument to be her free act and deed.

Before me, Charles F. Oestreicher ~~NOTARY PUBLIC~~ JUSTICE OF THE PEACE.

STATE OF MAINE, CUMBERLAND COUNTY, SS. *REGISTRY OF DEEDS*

Received AUG 23 1971 *at* 1 *o'clock* 40 *m.* P *M., and recorded in BOOK* 3187 *PAGE* 234 *Attest:* [signature] *Register.*

710

17489

Know all Men by these Presents, That

PORTLAND WATER DISTRICT, a quasi-municipal corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of one dollar and other valuable considerations

paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and located at said Portland in said County and State

the receipt whereof it does hereby acknowledge, do es hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said MAINE MEDICAL CENTER, its successors and assigns forever,

A certain lot or parcel of land situated in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at the intersection of the westerly side line of Vaughan Street with the southwesterly side line of Brackett Street; thence northwesterly by Brackett Street, two hundred forty-two and seventy-two hundredths (242.72) feet, more or less, to Bramhall Street; thence southwesterly by Bramhall Street, eighty-one and five hundredths (81.05) feet, more or less, to Chadwick Street; thence southerly by Chadwick Street, three hundred fifty-seven and forty-five hundredths (357.45) feet, more or less, to land of Chadwick Realty Corp.; thence by land of said Chadwick Realty Corp. and land of Maine General Hospital, two hundred eighty-eight and sixty-five hundredths (288.65) feet, more or less, to Vaughan Street; thence northerly by Vaughan Street, three hundred fifty-three and sixty-two hundredths (353.62) feet, more or less, to Brackett Street and the point of beginning. Containing 2.52 acres, more or less, and being known as the Bramhall Reservoir Lot.

A portion of the above-described premises, known as the J. & W. Warren Lot, was conveyed to the Portland Water Company by the following warranty deeds all dated May 1, 1869: deed of George Warren et al of a 1/3rd interest, recorded in Cumberland County Registry of Deeds, Book 368, Page 421; deed of John G. Warren of a 1/3rd interest, recorded in said Registry of Deeds, Book 368, Page 424; deed of Caroline Chadbourne et al of a 1/9th interest, recorded in said Registry of Deeds, Book 368, Page 423; and deed of Benjamin F. Chadbourne et al of a 2/9ths interest, recorded in said Registry of Deeds, Book 368, Page 425; and the remaining portion of said premises, known as the Payson Lot, was conveyed to said Portland Water Company by Henry M. Payson by warranty deed dated July 17, 1885, and recorded in said Registry of Deeds, Book 531, Page 32; all of said premises having been conveyed to said Portland Water District by Portland Water Company by quit-claim deed dated August 10, 1908, and recorded in said Registry of Deeds, Book 827, Page 147.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to the said

MAINE MEDICAL CENTER, its successors

~~heirs~~ and assigns forever. And it do es covenant with the said Grantee , its successors ~~heirs~~ and assigns, that it will warrant and forever defend the premises to the said Grantee , its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said PORTLAND WATER DISTRICT has caused this instrument to be sealed with its corporate seal and signed in its corporate name by William D. Monie , its Treasurer , thereunto duly authorized,

~~Assisting in this deed as Grantor and relinquishing and conveying rights by descent and all other rights in the above described premises have hereunto set hand and seal~~ this first day of September in the year of our Lord one thousand nine hundred and seventy-one.

Signed, Sealed and Delivered in presence of

Robert B. Williamson Jr.

PORTLAND WATER DISTRICT

By William D. Monie
Its Treasurer

State of Maine, Cumberland ss. September 1, 1971.

Personally appeared the above named William D. Monie, Treasurer of said Grantor Corporation, as aforesaid

and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said corporation.

Before me, Robert B. Williamson Jr. ~~Notary Public.~~ Justice of the Peace.

STATE OF MAINE, CUMBERLAND COUNTY, SS. *REGISTRY OF DEEDS*

Received SEP 1 1971 *at* 12 *o'clock* 06 *m.* P *M., and recorded in BOOK* 3188 *PAGE* 710 *Attest:* Margaret L. Weber Deputy *Register.*

17050

209

Know All Men by These Presents,

That the CITY OF PORTLAND, a body politic and corporate,

~~[illegible]~~ located at Portland

in the County of Cumberland and State of Maine

in consideration of Thirteen Thousand Five Hundred ($13,500.00) Dollars

paid by the MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine, whose address is 22 Bramhall Street, Portland, Maine

the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey and Forever Quit-Claim unto the said

Maine Medical Center, its successors

~~heirs~~ and assigns forever,

a certain lot or parcel of land in the City of Portland, County of Cumberland and State of Maine, being bounded and described as follows:

Beginning at a point marking the intersection of the westerly terminus of the northerly side line of Bramhall Street and the Northerly terminus of the easterly side line of Western Promenade; thence on a course of South 61° 00' 30" West along a prolongation of the northerly side line of said Bramhall Street, a distance of eighty-six and eight hundredths (86.08) feet to a point; thence North 50° 49' 20" West, a distance of one hundred fifty-one and thirty-nine hundredths (151.39) feet to a point which point is on the southeasterly side line of Arsenal Street as it was formerly laid out; thence North 62° 24' 00" East fifty (50) feet to a point; thence North 27° 36' 00" West, a distance of forty (40) feet to a point on the northwesterly side line of Arsenal Street, as it was formerly laid out; thence North 62° 24' 00" East, a distance of two hundred seventy-two (272) feet, more or less, to a point which point is two hundred forty-eight (248) feet from the starting point hereof when measured on a course of North 16° 58' 00" East from said starting point; thence South 16° 58' 00" West, a distance of two hundred forty-eight (248) feet to said starting point.

Being a portion of the premises conveyed to the Grantor by deed of Sarah Little dated July 11, 1856, recorded in Cumberland County Registry of Deeds in Book 274, Page 6.

By acceptance of this deed, the Grantee covenants and agrees for itself, its successors and assigns:

(1) That the Grantee shall secure Planning Board review and approval of the site plan for its proposed development prior to beginning construction of any building and landscaping of the land herein conveyed.

(2) That the Grantee shall submit to the Planning Board for review and approval a grading plan within three months from the date hereof; that it will initiate actual grading work within six months from the date hereof; and that it will complete such grading work within three months from the date of completion of the proposed building.

(3) That the Grantee shall provide and forever maintain access for fire equipment satisfactory to the Fire Chief of the City of Portland to the proposed building and the remainder of the Medical Center Building Complex.

210

(4) That in the event of failure of the Grantee to complete or substantially complete the construction of the proposed building, landscaping, and grading in accordance with the approved site plan within three (3) years from the date hereof, the Grantee shall be required at the election of the Grantor, to reconvey to the Grantor all or such portion of the premises herein conveyed as the Grantor shall require for an amount which bears the same per square foot price as was paid for the premises herein conveyed.

(5) That if within a period of eight (8) years from the date hereof, the Grantee shall decide to sell any portion of the premises herein conveyed without selling all of its premises, it shall notify the Grantor in writing by registered mail directed to the City Manager of the City of Portland of its desire to sell such portion and thereupon the Grantor shall have the exclusive option for a period of sixty (60) days from the receipt of such notice to buy such portion for an amount which bears the same per square foot price as was paid for the premises herein conveyed.

(6) That the Grantee shall simultaneously with delivery of this deed to it, deliver to the Grantor at no cost to it a deed covering a parcel of land located at the intersection of the easterly side line of Gilman Street and the northwesterly side line of Arsenal Street for the purpose of providing a turn-around area serving Gilman Street.

(7) That the Grantee shall construct or cause to be constructed at no cost to the Grantor said turn-around area in accordance with specifications to be approved by the Director of Public Works of the City of Portland.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said Maine Medical Center its successors and Assigns forever.

And the said Grantor Corporation does covenant with the said Maine Medical Center, its successors and Assigns, that it will Warrant and Forever Defend the premises to it the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

In Witness Whereof, the said CITY OF PORTLAND has caused this instrument to be sealed with its corporate seal and signed in its corporate name by JOHN G. DePALMA, its Director of Finance thereunto duly authorized, this 4th day of August in the year one thousand nine hundred and seventy-two.

Signed, Sealed and Delivered in presence of

Patricia E. Meady

CITY OF PORTLAND

By John G. DePalma
Director of Finance

(CORPORATE SEAL)

State of Maine. CUMBERLAND ss. August 4 1972.

Personally appeared the above named JOHN G. DePALMA, Director of Finance of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me,

Patricia E. Meady
Justice of the Peace
Notary Public

AUG 4 1972
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 3 H 05 M P.M. and recorded in
BOOK 3278 PAGE 209
Register

23119

115

KNOW ALL MEN BY THESE PRESENTS that STATE OF MAINE, a body corporate and politic existing by law, in consideration of One Dollar ($1.00) and other valuable considerations paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine with its principal place of business in the City of Portland, County of Cumberland and State of Maine, the receipt whereof it does hereby acknowledge, does hereby RELEASE, GRANT and TRANSFER unto the said MAINE MEDICAL CENTER, its successors and assigns, all and any rights and interests in the former site of the State Arsenal situated on Bramhalls Hill, so-called, in the City of Portland, County of Cumberland and State of Maine, being all and the same premises described by Chapter 180 of the Resolves of the State of Maine, 1870, and Chapter 107 of the Resolves of the State of Maine, 1951, including any right of entry, reversion or other interest of the State of Maine in said premises reserved in the State of Maine by either of said Resolves and State of Maine does hereby waive as to said Maine Medical Center its successors and assigns any such rights which may now exist or which may in the future exist in State of Maine by virtue of said Resolves.

TO HAVE AND TO HOLD the aforegranted premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors and assigns, and State of Maine does hereby covenant with said Maine Medical Center, its successors and assigns that State of Maine lawfully holds rights in said premises by virtue of said Resolves; that said rights are not encumbered; that it has good right to grant the same to Maine Medical Center as aforesaid; and that State of Maine, its successors and assigns, shall and will warrant and defend the same to Maine Medical Center, its successors and assigns forever against the lawful claims and demands of all persons; provided, nevertheless, that any and all liability of State of Maine for any damage or loss to Maine Medical Center, its successors and assigns, by virtue of any breach of the foregoing covenants and warranties shall be and hereby is limited forever to the total amount of One Dollar ($1.00).

IN WITNESS WHEREOF, Kenneth M. Curtis, Governor of the State of Maine, and Edmund C. Darey, Chairman of the Executive Council of the State of Maine, acting for and with the advice and consent of the said Executive Council given this date, have caused this instrument to be executed and sealed on behalf of the State of Maine this 6th day of September, 1972.

Witness:

Peter M. Dawbarn

Thea L. Stewart

STATE OF MAINE

By Kenneth M. Curtis
Its Governor

By Edmund C. Darey
Its Chairman - Executive Council

STATE OF MAINE
KENNEBEC, ss.

September 6, 1972

Personally appeared the above-named Kenneth M. Curtis, Governor of the State of Maine, and Edmund C. Darey, Chairman of the Executive Council of the State of Maine and acknowledged the foregoing to be their free act and deed in said capacity and the free act and deed of said State of Maine.

Before me,

Approved as to form:

Leon V. Walkley
Assistant Attorney General

Peter M. Dawbarn
~~Notary Public~~
Justice of the Peace

STATE OF MAINE

CUMBERLAND, ss. REGISTRY OF DEEDS

Received at 11 H. 16 M. A M on OCT 12 1972 and recorded in Book 3310 Page 115 Attest Loretta Murphy Register

116

23120

KNOW ALL MEN BY THESE PRESENTS, that CITY OF PORTLAND, a body corporate and politic existing by law, situated at Portland, County of Cumberland and State of Maine, in consideration of One Dollar ($1.00) and other valuable considerations paid by MAINE MEDICAL CENTER, a corporation organized and existing under the laws of the State of Maine with its principal place of business in the City of Portland, County of Cumberland and State of Maine, the receipt whereof it does hereby acknowledge, does hereby RELEASE, GRANT and TRANSFER unto the said MAINE MEDICAL CENTER, its successors and assigns, all its rights and interests in the land situated on Bramhall's Hill, so-called, in the City of Portland, County of Cumberland and State of Maine which land was conveyed by City of Portland to Maine General Hospital by deed dated June 4, 1870, which deed is duly recorded in the Cumberland County Registry of Deeds, Book 381, Pages 260, 261 and 262, to which deed reference is made for a particular description of said land, including any right of entry, possibility of reverter, reversionary or other interest of the City of Portland in said land reserved to said City in said deed and City of Portland does hereby waive as to said Maine Medical Center, its successors and assigns, said right of entry and any such other rights which may now exist or which may in the future exist in the City of Portland by virtue of said deed.

TO HAVE AND TO HOLD the aforegranted premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors and assigns, and City of Portland does hereby covenant with said Maine Medical Center, its successors and assigns that City of Portland lawfully holds rights in said land by virtue of said deed of June 4, 1870; that said rights are not encumbered; that it has good right to grant the same to Maine Medical Center as aforesaid; that City of Portland, its successors and assigns, shall and will warrant and defend the same to Maine Medical Center, its successors and assigns forever against the lawful claims and demands of all persons; provided, nevertheless, that any and all liability of City of Portland for any damage or loss to Maine Medical Center, its successors and assigns, by virtue of any breach of the foregoing covenants and warranties shall be and hereby is limited forever to the total amount of One Dollar ($1.00).

IN WITNESS WHEREOF, City of Portland has caused this deed to be sealed and executed by John G. DePalma, its Director of Finance, hereunto duly authorized, this 14th day of September, 1972.

Witness:

CITY OF PORTLAND

By _____
Its Director of Finance

STATE OF MAINE
CUMBERLAND, ss.

September 14, 1972

Personally appeared the above-named John G. DePalma, Director of Finance of said City of Portland and acknowledged the foregoing to be his free act and deed in said capacity and the free act and deed of said City of Portland.

Before me,

_____
~~Justice of the Peace~~ Notary Public

OCT 12 1972
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 11 H/7 M/4M, and recorded in
BOOK 3310 PAGE 116 _____ Register

Book 3995
Page 53

53

No. 106
6367

Know All Men by these Presents,

That We, LEROY E. APPLEBEE and ROBERTA M. APPLEBEE, both of Portland, in the County of Cumberland and State of Maine,

in consideration of One Dollar ($1) and other valuable considerations,

paid by MAINE MEDICAL CENTER, a Maine corporation with a place of business in Portland, in the County of Cumberland and State of Maine,

the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns forever,

~~the following described property~~

See attached Exhibit A.

54

To have and to hold the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said MAINE MEDICAL CENTER, its successors

~~Heirs~~ and Assigns, to it and their use and behoof forever.

And we do **covenant** with the said Grantee, its/ ~~Heirs~~ Successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances;

that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will **Warrant and Defend** the same to the said Grantee, its successors ~~Heirs~~ and Assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, We, the said LEROY E. APPLEBEE

and ROBERTA M. APPLEBEE, ~~wife of husband~~ husband and wife,

joining in this deed as Grantors, and relinquishing and conveying our/ mutual rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 7th day of April in the year of our Lord one thousand nine hundred and seventy-seven.

Signed, Sealed and Delivered in presence of

LEROY E. APPLEBEE

ROBERTA M. APPLEBEE

55

State of Maine,
Cumberland, } ss. April 7 1977

Personally appeared the above named LEORY E. APPLEBEE and ROBERTA M. APPLEBEE and acknowledged the above instrument to be their free act and deed.

Before me,

Justice of the Peace

EXHIBIT A

A certain lot or parcel of land with the buildings thereon, situated on Bramhall Street in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a stone monument on the westerly corner of Brackett and Bramhall Streets; thence North 57° 20' West, 70.7 feet by the westerly sideline of Brackett Street; thence South 61° 07' West, 42.3 feet by the northerly sideline of a garage on the lot under description; thence South 27° 57' East, 62-1/2' feet to a point on the northerly sideline of Bramhall Street; thence North 61° 51' East, 77.5 feet by the northerly sideline of Bramhall Street to the stone monument aforesaid and point of beginning, together with the right to have the eaves of said garage which project over land of Ella C. Gardner remain as now constructed as long as said garage is maintained in its present position.

Being the same premises conveyed to Leroy E. Applebee and Roberta M. Applebee by Edna M. Sharp by deed dated September 27, 1972, and recorded in Cumberland County Registry of Deeds in Book 3303, Page 200.

APR 7 1977
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE
Received at 10 H 22 M A M, and recorded in
BOOK 3995 PAGE 53. Margaret L Fisher Register

319

WARRANTY DEED

15732

Know all Men by these Presents,

That JAMES H. SULLIVAN, Jr. of 26 Charles Street, Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations

paid by MAINE MEDICAL CENTER, a Maine corporation with a place of business in Portland, in the County of Cumberland and State of Maine whose mailing address is 22 Bramhall Street, Portland, Maine

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maine Medical Center, its successors

heirs and assigns forever,

A certain lot or parcel of land, with the buildings thereon, situated on the southwesterly side of Charles Street and the southeasterly side of Congress Street, in Portland, Maine, bounded and described as follows: Beginning at a point on the southwesterly side of said Charles Street at the northerly corner of land conveyed by Edward E. Proctor to Lulu M. Stickney by warranty deed dated May 16, 1890 and recorded in the Cumberland County Registry of Deeds in Book 567, Page 348; thence running southwesterly by said Stickney land a distance of seventy-five (75) feet, more or less, to land of the Maine General Hospital; thence running northwesterly by said Hospital land to the southeasterly side of Congress Street; thence running northeasterly by the southeasterly side of Congress Street seventy-five (75) feet, more or less, to land conveyed by Henry A. Sargent to Lucinda B. Proctor by warranty deed dated August 14, 1896, and recorded in said Registry of Deeds in Book 639, Page 284; thence running southeasterly by said Proctor land and by the southwesterly side line of said Charles Street to said Stickney land and the point of beginning.

Being the same premises conveyed to James H. Sullivan, Jr. by deed dated August 23, 1976 and recorded in said Registry of Deeds in Book 3936, Page 282.

320

To have and to hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maine Medical Center, its successors ~~heirs~~ and assigns, to it and ~~his~~ its use and behoof forever.

And I do covenant with the said Grantee, its/ successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises, that they are free of all encumbrances

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will **warrant and defend** the same to the said Grantee, its/ successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, I, the said James H. Sullivan, Jr. being unmarried ~~and~~ ~~husband/wife of the said~~ ~~joining herein and~~ relinquishing and conveying all rights by descent and all other rights in the above described premises, have hereunto set my hand and seal this 25th day of the month of May, A.D. 19 83.

Signed, Sealed and Delivered in presence of

James H. Sullivan, Jr.

State of Maine, County of Cumberland ss. 25 May, 19 83.

Then personally appeared the above named James H. Sullivan, Jr.

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Justice of the Peace~~ Notary Public ~~Attorney at Law~~

My Commission expires Sept. 20, 1986

MAY 26 1983

REGISTRY OF DEEDS CUMBERLAND COUNTY, MAINE
Received at 12:01 P.M., and recorded in
BOOK 6179 PAGE 319 James J. Walsh Register

0243397 BK8309PG0005

Book 8309
Page 5

QUITCLAIM DEED
With Covenant

Know all Men by these Presents,

That we, JOHN J. HAMMETT and ELIZABETH B. HAMMETT, both of Portland, County of Cumberland, Maine

in consideration of One Dollar ($1.00) and other valuable consideration

paid by MMC REALTY CORP., a Maine corporation with a place of business at 22 Bramhall Street, in the County of Cumberland, Maine

whose mailing address is 22 Bramhall Street, Portland, Maine 04102

the receipt whereof we do hereby acknowledge, do hereby remise, release, bargain, sell and convey, and forever quitclaim unto the said MMC Realty Corp., its

successors~~xxx~~ and assigns forever,

A certain lot or parcel of land, with the buildings thereon, situated on the northwesterly corner of Bramhall and Brackett Streets, in said Portland, and bounded and described as follows:

Beginning at the northwesterly corner of Brackett and Bramhall Streets; thence westerly on Brackett Street seventy-five (75) feet ten (10) inches, more or less, to land conveyed by William H. Chapman to Charles E. Graham by deed of April 29, 1920 and recorded in the Cumberland County Registry of Deeds in Book 1050, Page 213; thence northerly by land now or formerly of said Graham sixty-one (61) feet six (6) inches, more or less, to land conveyed by Alden J. Blethen to James K. Emery by deed dated April 30, 1880 and recorded in said Registry of Deeds in Book 467, Page 152; thence easterly by land now or formerly of said Emery sixty-six (66) feet six (6) inches to Bramhall Street; thence southerly by said Bramhall Street thirty (30) feet three (3) inches, more or less, to the point of beginning.

Being the same premises conveyed to the Grantors herein by Sumner J. Goffin by deed dated February 4, 1950 and recorded in said Registry of Deeds in Book 1985, Page 483.

MAINE REAL ESTATE TRANSFER TAX PAID

BK0309PG0006

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said MMC Realty Corp., its successors

~~heirs~~ and assigns forever.

And we do covenant with the said Grantee, its/ successors ~~heirs~~ and assigns, that we shall and will warrant and defend the premises to the said Grantee, its/ successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons claiming by, through, or under us.

In Witness Whereof, we, the said John J. Hammott and Elizabeth B. Hammott

~~and~~

~~husband/wife of the said~~

~~having in the Court and inquiring and enjoying all the hereditaments and the above described premises~~ have hereunto set our hands and seals this 31st day of the month of May, A.D. 19 88.

Signed, Sealed and Delivered in presence of

Lee D. Urban

Lee D. Urban

John J. Hammott

John J. Hammott

John J. Hammott

Elizabeth B. Hammott, By John J. Hammott as her Attorney in Fact pursuant to Power of Attorney dated August 16, 1984 and recorded herewith in the Cumberland County Registry of Deeds

State of Maine, County of Cumberland **ss.** May 31, 1988.

Then personally appeared the above named John J. Hammott

and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Lee D. Urban

Notary Public
Attorney at Law

Printed Name Lee D. Urban

RECEIVED
RECORDED REGISTRY OF DEEDS
1988 JUN -1 AM 8:31
CUMBERLAND COUNTY
James J. Walsh

BK8855PG0081

MAINE REAL ESTATE TAX PAID

036413 WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, that GILMAN STREET LAND COMPANY, a Maine corporation, and GILMAN STREET ASSOCIATES, a Maine limited partnership, for consideration paid, grant to MMC REALTY CORP., a Maine Corporation with a principal place of business in Portland, County of Cumberland, State of Maine, whose mailing address is 22 Bramhall Street, Portland, Maine 04103, with WARRANTY COVENANTS a certain lot or parcel of land, with the improvements thereon, located at 52 Gilman Street, in the City of Portland, County of Cumberland, State of Maine, all as more particularly described in Schedule A attached hereto and incorporated herein.

IN WITNESS WHEREOF, the said GILMAN STREET LAND COMPANY has caused this instrument to be sealed with its corporate seal and signed in its corporate names by William H. Webster, its President, hereunto duly authorized, this 4th day of August, 1989, and the said GILMAN STREET ASSOCIATES has caused this instrument to be signed and sealed by William H. Webster, President of its General Partner MORSE, PAYSON & NOYES PROPERTIES, hereunto duly authorized, this 4th day of August, 1989.

WITNESS:

Robert B. Patterson, Jr.

GILMAN STREET LAND COMPANY

By: _____
William H. Webster
Its President

GILMAN STREET ASSOCIATES

By: MORSE, PAYSON & NOYES PROPERTIES,
Its General Partner

Robert B. Patterson, Jr.

By: _____
William H. Webster
Its President

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

August 4, 1989

Then personally appeared before me the above named William H. Webster, President of Gilman Street Land Company, and President of Morse, Payson & Noyes Properties, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporations and partnership.

Before me,

Robert B. Patterson Jr.
~~Notary Public~~/Attorney at-Law

Robert B. Patterson, Jr.
Printed Name

~~My Commission Expires~~ _____

SCHEDULE A TO WARRANTY DEED

PARCEL ONE

A certain lot or parcel of land with the buildings thereon known as 52 Gilman Street, in Portland, County of Cumberland and State of Maine bounded and described as follows:

Beginning at a point on said street distant one hundred six and fifty-five one hundredths (106.55) feet northerly from the intersection of the westerly side of Gilman Street with the northerly side of A Street, and running thence northerly on said Gilman Street, thirty-seven and one half (37-1/2) feet to a point; thence westerly with an included angle of 91° 11' seventy and forty-two one hundredths (70.42) feet to a point; thence southerly and parallel to said Gilman Street, thirty-seven and one half (37-1/2) feet to land formerly of S. H. Jose, now of Gilman Street Land Company; thence easterly with an included angle of 91° 11' seventy and forty-two one hundredths (70.42) feet to the point of beginning.

PARCEL TWO

A certain lot or parcel of land with the buildings thereon, situated in said Portland, bounded and described as follows:

Beginning at a point in the Westerly side line of Gilman Street distant sixty-six (66) feet and one (1) inch South from the Southerly side line of Congress Street; thence running South by the side line of Gilman Street twenty-four (24) feet and eight (8) inches, more or less, to the Northerly line of land formerly of Winfield L. Smith, now of Gilman Street Land Company; thence by said line formerly of Smith and through the center of the partition wall between the house on said former Smith lot and the house on the lot herein described and by said line extended seventy and forty-two hundredths (70.42) feet and to land formerly of the City of Portland; thence North by said City of Portland land twenty-three (23) feet and eight (8) inches, more or less, to land conveyed by William B. Jordan to Willis B. Moulton et als, by deed dated May 14, 1897, and recorded in Cumberland County Registry of Deeds, Book 648, Page 450; thence in an easterly direction by said Moulton land seventy (70) feet and eight (8) inches to said Gilman Street and the point of beginning.

PARCEL THREE

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Gilman Street in said Portland and bounded as follows:

Beginning at a point on said westerly side of Gilman Street sixty-nine and five hundredths (69.05) feet northerly

from the northwesterly corner of Gilman and A Streets, and running thence northerly on Gilman Street thirty-seven and one-half (37-1/2) feet; thence westerly with an included angle of ninety-one degrees eleven minutes (91° 11') seventy and forty-two hundredths (70.42) feet to a stake; thence southerly with an included angle of eighty degrees forty-nine minutes (80° 49') thirty-seven and one half (37-1/2) feet; thence easterly with an included angle of ninety-one degrees eleven minutes (91° 11') seventy and forty-two hundredths (70.42) feet to the starting point. Being the southerly half of the lot conveyed to Samuel H. Jose by Charles F. Jose by deed dated December 6, 1886, and recorded in Cumberland County Registry of Deeds in Book 530, Page 255, to which reference is made. The premises herein conveyed are designated as No. 50 on said Gilman Street.

PARCEL FOUR

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Gilman Street in Portland, County of Cumberland and State of Maine, the house being the southerly house in a block of two houses built on this and the adjoining lot, bounded and described as follows:

Beginning on the westerly sideline of Gilman Street ninety and seventy-eight hundredths (90.78) feet from the southerly line of Congress Street; thence southerly on line of Gilman Street fifty (50) feet to land formerly of Charles F. Jose, now of Gilman Street Land Company; thence westerly by said land formerly of Jose, seventy and forty-two hundredths (70.42) feet to land formerly of City of Portland; thence northerly by said City of Portland land fifty (50) feet; thence easterly seventy and forty-two hundredths (70.42) feet passing through the center of the division wall between said two houses to the point of beginning; containing 2520 square feet.

Meaning and intending to convey and hereby conveying the same premises which were conveyed to Gilman Street Land Company by John A. Godsoe, John E. Knowles, John T. Libby, Marvin C. Adams, Thomas A. Martin, Jr., and Vincent N. Oliviero, Trustees, by Trustees Deed dated December 28, 1984 and recorded in the Cumberland County Registry of Deeds in Book 6653, Page 290.

Subject to partition wall rights and obligations as set forth in deed from Virginia R. Buckley to Helen M. Sawyer dated May 4, 1948 and recorded in Cumberland County Registry of Deeds in Book 1912, Page 424 and in deed from Judith P. Johnson to Edgar J. Murphy and Louise M. Murphy dated August 31, 1948 and recorded in Cumberland County Registry of Deeds in Book 1926, Page 311.

RECEIVED
RECORDED REGISTRY OF DEEDS
1989 AUG -4 PM 4:02
CUMBERLAND COUNTY

056000

MAINE REAL ESTATE TAX PAID

KNOW ALL MEN BY THESE PRESENTS, That CASCO AERIE, NO. 565, FRATERNAL ORDER OF EAGLES, a/k/a CASCO AERIE FRATERNAL ORDER OF EAGLES #565, a/k/a FRATERNAL ORDER OF EAGLES CASCO AERIE NO. 565, a Maine corporation with a mailing address of 265 Valley Street, Portland, Maine 04112, and having a place of business at Portland, in the County of Cumberland and State of Maine, in consideration of $1.00 and other valuable consideration paid by MMC REALTY CORP., a Maine corporation, whose mailing address is 22 Bramhall Street, Portland, Maine 04102, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey unto the said MMC REALTY CORP., its successors and assigns forever, certain lots or parcels of land in the City of Portland, County of Cumberland, State of Maine, with any buildings thereon, bounded and described as follows:

261-269 Valley Street

A certain lot or parcel of land with the buildings thereon, situated in Portland and described as follows:

Beginning at a point on the North side of A Street, Portland, Maine, said point being the intersection of said North side line of A Street with the East side line of B Street, the name of which was changed to Valley Street in 1939; thence Northerly and making an included angle of Eighty-two (82) degrees Fifty-nine (59) minutes with the East direction of said North side line of A Street a distance of Two hundred eighty-five (285) feet, more or less, to a point in the South side line of Congress Street, said point being thirty-five (35) feet East along said South side line of Congress Street from its intersection with the East side line of Valley Street as now laid out and accepted; thence East along said South line of Congress Street and making an included angle of Ninety-four (94) degrees 49', a distance of forty-five (45) feet, more or less, to a point in the division line between the lot of land of the Grantor under description and land now or formerly of one Charles F. Jones; thence South along the said division line between land of the Grantor and land now or formerly of Charles F. Jones and land now or formerly of Charles C. Plummer, Ellsworth W. Stuart, Charles F. Jose, Maris M. and Charles F. Jose, Trustees, and Charles F. Jose a distance of 281.17 feet, more or less, to a point in the North side line of A Street; thence West and making an included angle of 89 degrees 57' and along the North side line of A Street a distance of Eighty (80) feet more or less to the point of beginning, containing 17,570 square feet, more or less.

Excepting therefrom a portion bounded and described as follows, to wit:

Beginning at a point on the East side line of said Valley Street One Hundred Fifty (150) feet South from the intersection of said East side line of Valley Street with the South side line of Congress Street, thence North by said East line of Valley Street One Hundred Fifty (150) feet to the South side line of Congress Street; thence East along said South side line of Congress Street making an included angle of 94 degrees 49', a distance of Forty-five (45) feet more or less, to a point in the division line between the lot of land under description and land now or formerly of one Charles F. Jones; thence South along the said division line between the land under description and the land of said Charles F. Jones and others One Hundred Fifty (150) feet, to a point; thence West 63.48 feet, to the point of beginning.

42 - 46 Gilman Street

A certain lot or parcel of land with the buildings thereon situated on the northwesterly corner of Gilman and A Streets in the City of Portland, County of Cumberland, State of Maine, and bounded and described as follows:

Beginning at the intersection of the westerly side of said Gilman Street with the northerly side of said A Street, and running thence northerly on said Gilman Street, sixty-nine and five one-hundredths (69.05) feet to land formerly of S.H. Jose; thence westerly by said S. H. Jose land, seventy and forty-two one-hundredths (70.42) feet to a stake; thence southerly and parallel with said Gilman Street seventy and forty-seven one-hundredths (70.47) feet to A Street; thence easterly by said A Street, seventy and forty-one one-hundredths (70.41) feet to the place of beginning.

268 - 270 Valley Street

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Valley Street, formerly called B Street, in said Portland, bounded and described as follows:

Beginning at a point on said westerly side line of Valley Street at a point distance one hundred thirty six (136) feet northerly from the intersection of the westerly side of Valley Street and the northerly side of A Street; thence running southerly by said westerly side of Valley Street seventy-one (71) feet to a point; thence running westerly sixty (60) feet to land now or formerly of George W. Billings and Catherine A. Reed, at a point which is distant sixty-five (65) feet northerly from the northerly side line of A Street; thence running northerly by said Billings and Reed land sixty-four and seventy-six hundredths (64.76) feet to land formerly of William G. Davis and continuing northerly by said Davis land six and forty-three hundredths (6.43) feet; thence easterly approximately fifty-seven (57) feet to the point of beginning.

Being the same premises conveyed to the within grantors by the following deeds: Deed from Mid-Central Fish Company of Maine dated January 15, 1963 and recorded in Cumberland County Registry of Deeds in Book 2727, Page 347; Deed from Sebastiano Pennisi, et al dated June 25, 1963 and recorded in Cumberland County Registry of Deeds in Book 2759, Page 254; and Deed from Eugene S. Martin dated March 28, 1980 and recorded in Cumberland County Registry of Deeds in Book 4582, Page 291.

Subject to the following:

1. Taking of Valley Street as referenced in the deed from the City of Portland to the Unity Company dated October 20, 1937 and recorded in Cumberland County Registry of Deeds in Book 1527, Page 318 (261-269 Valley Street).

To have and to hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said MMC REALTY CORP., its successors and assigns, to them and their use and behoof forever.

AND the said Grantor Corporation does hereby covenant with the said Grantee, its sucessors and assigns, that it is lawfully seized in fee of the premises, that they are free of all encumbrances except as aforesaid, that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it and its successors, shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, the said CASCO AERIE, NO. 565, FRATERNAL ORDER OF EAGLES has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Robert James, Richard Brichetto, Hilbert Welch, Reginald Conohan and Fred Darling,

its Trustees thereunto duly authorized, this 21ST day of November, A.D. 1990.

CASCO AERIE, NO. 565,
FRATERNAL ORDER OF EAGLES

Witness

By: Robert S. James
Robert James
Its Trustee

Witness

By: Richard Brichetto
Richard Brichetto
Its Trustee

Witness

By: Hilbert Welch
Hilbert Welch
Its Trustee

Witness

By: Reginald Conohan
Reginald Conohan
Its Trustee

Witness

By: Fred Darling
Fred Darling
Its Trustee

STATE OF MAINE
COUNTY OF CUMBERLAND

November 21, 1990

Then personally appeared the above named Robert James, Richard Brichetto, ~~Hilbert Welch,~~ Reginald Conohan and ~~Fred Darling,~~ Trustees of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be their free act and deed in their said capacity, and the free act and deed of said Corporation.

Before me,

Attorney at Law
Notary Public
SHERRIE LYNN FONTAINE
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES NOVEMBER 19, 1996

Printed Name

SEAL

RECEIVED
REGISTRY OF DEEDS
90 NOV 21 PM 3:54
CUMBERLAND COUNTY

Instr 47527 Bk 9722 Pg 45

47527

DEED OF SALE BY PERSONAL REPRESENTATIVE
(Testate)
Maine Statutory Short Form

Book 9722
Page 45

Know all Men by these Presents,

That Thomas F. Kane, Jr.

of Scarborough, County of Cumberland, State of Maine,

duly appointed and acting personal representative of the estate of Edna Faye Kane,

deceased (testate), as shown by the probate records of the County of Cumberland, Maine,

(and having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale) ~~(and not having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale, such notice not being required under the terms of the decedent's will)~~, by the power conferred by the Probate Code, and every other power, for consideration paid, grants to Maine Medical Center* of Portland,

*a nonprofit corporation organized and existing under the laws of the State of Maine

County of Cumberland, State of Maine,

whose mailing address is 22 Bramhall Street, Portland, ME 04102,

the real property in Portland, County of Cumberland,

State of Maine, described as follows:

A certain lot or parcel of land with the buildings thereon, situated in said Portland on the southeasterly side of Ellsworth Street, bounded and described as follows: -viz;-Beginning on the said southeasterly side of Ellsworth Street at land now or formerly of S.F. Haggett; thence southeasterly by said Haggett's land seventy-five (75) feet, more or less, to land now or formerly of J.T. Walton; thence southwesterly by said Walton's land and land now or formerly of N. Waterhouse eighty (80) feet, more or less, to land now or formerly of N.P. Thompson; thence northwesterly by said Thompson's land seventy-five (75) feet, more or less, to said Ellsworth Street; thence northeasterly by said Ellsworth Street to point begun at. Containing five thousand eight hundred forty (5,840) square feet, more or less. Said lot is numbered 34-36 and 38 as shown upon valuation plan of the City of Portland.

Being the same premises conveyed to Edna F. Kane by May Porter by her Warranty Deed, dated April 3, 1940 and recorded in Cumberland County Registry of Deeds in Book 1603, Page 134.

MAINE REAL ESTATE TAX PAID

Instr 47527 Bk 9722 Pg 46

Witness my hand and seal this 20th day of September, 19 91.

Signed, Sealed and Delivered in presence of

Samuel J. Shatz

Personal Representative of the Estate of Edna Faye Kane

Thomas F. Kane, Jr.

Samuel J. Shatz

Thomas F. Kane, Jr.

State of Maine, County of Cumberland **ss.** September 20, 19 91

Then personally appeared the above named Thomas F. Kane, Jr.

in his said capacity and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Samuel J. Shatz

Samuel J. Shatz
Justice of the Peace
~~Notary Public~~
Attorney at Law

Recorded
Cumberland County
Registry of Deeds
09/20/91 03:59:12PM
Robert P. Titcomb
Register

54881

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL BY THESE PRESENTS, that I, **William H. Leschey, Jr.**, whose mailing address is 930 Congress Street, Portland, ME 04102, for consideration paid, GRANT to **MMC Realty Corp.**, a Maine corporation with an established place of business at and mailing address of 22 Bramhall Street, Portland, Maine 04102, with WARRANTY covenants, the land in Portland, County of Cumberland, State of Maine, which is more particularly described as follows:

A certain lot or parcel of land, with any buildings or improvements that may be thereon, situated on the southerly side of Congress Street, bounded and described as follows: BEGINNING on the southerly sideline of Congress Street at its intersection with the westerly sideline of Gilman Street; thence southerly by the westerly sideline of Gilman Street, sixty-six feet, one inch (66' 1") to the northeasterly corner of land now or formerly of Helen M. Sawyer; thence westerly by said Sawyer land seventy feet, eight inches (70' 8") to the easterly sideline of land now or formerly of Schwartz Bros. Inc.; thence northerly by said Schwartz Bros. Inc. land, sixty-two feet, one inch (62' 1") to the southerly sideline of Congress Street; thence easterly by the southerly sideline of Congress Street, seventy feet, eight inches (70' 8") to the point of beginning.

Being the same premises conveyed to the Grantor herein by deed of Edythe D. Field, dated May 11, 1987, and recorded in the Cumberland County Registry of Deeds in Book 7784, Page 182.

MAINE REAL ESTATE TAX PAID

WITNESS my hand and seal this 1st day of SEPTEMBER, 1994.

SIGNED, SEALED AND DELIVERED
in the presence of:

William H. Leschey, Jr.

STATE OF MAINE
COUNTY OF CUMBERLAND, ss SEPTEMBER 1, 1994

Then personally appeared the above-named William H. Leschey, Jr. and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~/Attorney at Law
Printed Name: CHRISTOPHER J.W. COGGESHALL

RECEIVED
RECORDED REGISTRY OF DEEDS
94 SEP -1 PM 3:05
CUMBERLAND COUNTY
John B O'Brien

BEL/4078/AAO/DE

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION C STATE / FEDERAL APPROVALS

THE MAINE DEPARTMENT OF HEALTH AND HUMAN SERVICES HAS GRANTED A CERTIFICATE OF NEED APPROVAL TO MAINE MEDICAL CENTER , A COPY OF THAT APPROVAL LETTER IS ATTACHED. THE PROJECT WILL ALSO REQUIRE A MAINE STATE FIRE MARSHALL PERMIT, WHICH WILL OCCUR AFTER SITE PLAN REVIEW. FEDERAL APPROVALS ARE LIMITED TO THE FAA PERMIT FOTR THE HELIPORT, WHICH IS INCLUDED WITH WRITTEN SUBMISSION S-5 .

Department of Health and Human Services
Commissioner's Office
221 State Street
11 State House Station
Augusta, Maine 04333-0011
Tel.: (207) 287-3707; Fax: (207) 287-3005
TTY Users: Dial 711 (Maine Relay)

Paul R. LePage, Governor Ricker Hamilton, Acting Commissioner

September 26, 2017

Mr. Alexander M. Green
Director of Planning
Maine Medical Center
22 Bramhall Street
Portland, ME 04102

RE: MMC Capital Expenditures - Private Rooms and Universal Procedure Rooms

Dear Mr. Green:

This letter will serve as notification that, on this date, I have decided to **grant with conditions** a Certificate of Need (CON) that authorizes Maine Medical Center to construct universal single patient rooms and universal procedure rooms as well as other associated capital expenditures outlined in your CON application.

My approval is conditioned on the following:

- If the holder of this certificate determines it will complete the C4 floor at any time before 3 years are completed after the project is operational, the holder will inform the CONU in writing of its decision to complete construction / outfitting the C4 floor as described in the application, at least 30 days before this portion of the project commences.

- The applicant is to report improvements in quality and outcome measures for services affected by the project on an annual basis, within 90 days of its fiscal year-end, beginning with the time period when the Certificate of Need was approved until a full three years have elapsed since the date of project completion.

- The applicant is to report operating room utilization and private room utilization for facilities affected by the project on an annual basis within 90 days of its fiscal year-end beginning with the time period when the Certificate of Need was approved until a full three years have elapsed since the date of project completion.

In order for this CON to remain valid, the project must be "commenced" within two years from the date of the original approval, noted above. You must complete implementation reports on your activities as specified for this type of Project (CON Procedures Manual, Chapter 11, Sec. 3). Limited extensions may be available, if requested in a timely manner and for good cause, as explained in the Manual, Chapter 9, Sec. 3. Failure to commence the project within this 24-month period will result in expiration of the CON, unless extended, as cited above.

I am granting this CON because I have determined that the project meets the criteria set forth in the CON Act Sec. 335 (1) and the Departments regulations. The specific details of the project for which I have granted this CON are contained in the record.

Please be aware that in accordance with Section 346 of the Maine Certificate of Need Act this Certificate, as modified herein, is valid only for the stated scope, premises and facility named in the above referenced application and is not transferable or assignable.

Furthermore, it should be clearly understood that our analysis and findings regarding the need for the proposed project, as well as its financial and economic feasibility, are predicated on the application record as described in the Manual, Chapter 8, Subsection 5. Consequently, the proposal must be implemented consistent with the approval stated in this letter, as informed and clarified by the Department's analysis and findings as summarized in the following Department staff reports:

FINAL REVIEW: Briefing memo to Ricker Hamilton, Acting Commissioner, DHHS, dated September 18, 2017.

No significant changes to the project, no variations from the projected operating costs, no modifications of the terms of financing the project, and no increase in the capital expenditures to be made are permitted without the prior written approval of the Department. Any such variances may result in either the disallowance of related expenses, financial penalties or the immediate revocation of the Certificate of Need.

Please work closely with my staff in Health Care Oversight to assure this project is implemented in accordance with the provisions of this Certificate and applicable rules and regulations.

The Certificate of Need statute requires that a holder of a CON make a written report at the end of each six-month period following its issuance. Details regarding this and related requirements will be made the subject of a separate letter from Health Care Oversight.

My staff will work with you as necessary.

Sincerely,

Ricker Hamilton
Acting Commissioner

RH/klv

cc: Sarah Taylor, Director, DLC
Larry Carbonneau, Manager Health Care Oversight, DLC
Herb Downs, Director, Audit
Colin Lindley, Rate Setting
File

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION D Compliance with Applicable Zoning Requirements

The proposed East Tower Expansion and Visitor Garage Expansion comply with the applicable zoning requirements.
The projects are in alignment with short-term projects as approved within the approved Maine Medical Center IDP and IOZ Regulatory Framework, including maximum building heights as required by Map 4.1 in the Regulatory Framework.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION E EASEMENTS

AS DEPICTED ON PLAN 2 , EXISTING CONDITIONS PLAN, A SUMMARY OF EASEMENTS IS STATED BELOW :

A. UNDERGROUND ANCHOR SYSTEM EASEMENT RESERVED BY MMC IN CONVEYANCE TO CRESCENT HEIGHTS LLC IN DEED BOOK 26288 PAGE 49.
B. UTILITY/DRAINAGE EASEMENT FOR A DRAIN/SEWER PIPE FROM THE PROPERTY NOW OF CRESCENT HEIGHTS, LLC. FORMERLY AS DESCRIBED IN DEED BOOK 1938 PAGE 248 AND 1946 PAGE 370.
C. UTILITY EASEMENT: TO NET&T NEAR THE NORTHERLY CORNER OF THE PARKING GARAGE ON CONGRESS ST. PER DEED BOOK 8573 PAGE 121.
D. CERTIFICATE OF VARIANCE APPROVAL GRANTING RELIEF FROM SECTION 14-137(7) MAXIMUM STRUCTURE HEIGHT OF 45 FEET, DATED JUNE 25, 1996, AND RECORDED IN DEED BOOK 12629 PAGE 295.
E. SITE LOCATION OF DEVELOPMENT DEPARTMENT ORDER BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR MAINE MEDICAL CENTER, PER DEED BOOK 13919 PAGE 114.
F. UTILITY EASEMENT: MMC TO NET&T 6' X 8' NEAR GILMAN AND CONGRESS PER DEED BOOK 13027 PAGE 207.
G. AMENDMENT TO CITY CODE SEC. 14-49 (ZONING MAP AMENDMENT) RE: CONDITIONAL REZONING FOR PROPERTY IN VICINITY OF WESTERN PROMENADE/MAINE MEDICAL CENTER. DATED MAY 24, 2005 AND RECORDED IN DEED BOOK 22671 PAGE 60.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION

EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS

WRITTEN SUBMISSION G EVIDENCE OF FINANCIAL & TECHINICAL CAPACITY

Maine Medical Center will fund the project from three different sources: equity, philanthropy, and debt. The exact proportions of funding sources are yet to be determined. MMC's financial capacity to establish and operate the project

The health care landscape has been in a state of change, particularly since the signing of the Affordable Care Act (ACA). Given the recent changes in the executive and legislative branches of the federal government and continued references to "repealing" the ACA, it is nearly impossible to anticipate the scope of future changes. Maine Medical Center's strategic financial plan assumes continued market basket increases at or near 3% annually. Additionally, the strategic financial plan assumes the following:

- Little or no increase in Medicare or Medicaid payments
- Stable payer mix
- No expansion to the Medicaid program
- Achievement of operational efficiencies based on analyses of national benchmark data
- Stable utilization of hospital services
- Continuation of provider-based billing at existing locations
- Stable levels of bad debt and charity care

Minor changes in the law or regulatory environment impacting these assumptions will likely not jeopardize the overall strategic financial plan. Substantive changes, however, will need to be monitored closely to ensure support of the project.

MMC is fully licensed and accredited, and has been providing services of this scale and scope for years.

Through multiple building projects throughout the history of the organization, MMC has demonstrated its ability to develop new and renovated facilities that meet all licensure and accreditation requirements.

The proposed project's program, and design, developed by a team of health care architects and engineers, and hospital physicians and staff, are in conformance with Guidelines for Design and Construction of Health Care Facilities, 2006 Edition, Facilities Guidelines Institute, (American Institute of Architects, Washington, DC, 2006) as required by the State of Maine Department of Health and Human Services' Division of Licensing and Regulatory Services. In addition, the guidelines for Design and Construction of Health Care Facilities, 2014 Edition, Facilities Guidelines Institute, (American Institute of Architects, Washington, DC, 2014) were also used in the proposed project's design.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION H BOUNDARY SURVEY

BOUNDARY SURVEY PLANS ARE SUBMITTED AS PLAN SUBMISSIONS, PLAN NOS. 2A THROUGH 2H. THESE PLANS DEPICT THE DISCONTINUANCE OF A FORMER CITY STREET (CHARLES STREET) , AS WELL AS LAND TRANSFERS BETWEEN THE CITY AND MAINE MEDICAL CENTER.

STREET VACATION AND LAND TRANSFER PLANS ARE SUBMITTED AS PLAN SUBMISSIONS. PLAN NOS. 2I AND 2 J. ALTHOUGH THE CITY REVIEWED AND APPROVED THESE PLANS WHEN THE EAST TOWER WAS ORIGINALLY PERMITTED, THE ACTUAL TRANSFER DID NOT OCCUR. MAINE MEDICAL CENTER PROPOSES TO BRING THIS MATTER TO THE CITY'S ATTENTION AND PROCEED WITH THE ACTUAL TRANSFER CONCURRENT WITH THE CURRENT SITE PLAN REVIEW.

MAINE MEDICAL CENTER

Construction Projects at the East Tower, Visitor Garage, Central Utility Plant

Construction Management Plan

December 15, 2017

[Updated for 1/23/18 Planning Board Meeting]

Prepared for: Portland Department of Planning & Urban Development Department

Project Proponent: Colliers International

Construction Manager: Turner Construction

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CONSTRUCTION MANAGEMENT PLAN

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MAINE MEDICAL CENTER

Construction Projects at the East Tower, Visitor Garage, Central Utility Plant

Construction Management

Plan 12.15.17

Purpose Statement

The purpose of this document is to provide the details of the first phase of construction for MMC's Master Facility phase IIB. This document outlines Turner Construction's plan for controlling impacts from noise, ground movement, truck traffic, and other construction related factors to the surrounding neighborhoods and buildings.

Maintaining normal campus operations and Public Safety are high priorities during the construction phase. This plan will be presented to the appropriate City and Neighborhood representatives. The City of Portland Planning Board will approve the final plan. It has been the goal of these programs to define the construction plan before construction begins. Turner's experience on projects with similar logistic constraints has proven that pre-planning and constant communication are necessary for a smooth efficiently run, incident free project.

It is Turner Construction's full intent to follow the guidelines set by the contract documents.

Turner Construction and its subcontractors shall schedule and conduct operations in a manner that will control the disturbance to the public in areas adjacent to the work and to occupants of buildings in the vicinity.

1.0 CONSTRUCTION MANAGEMENT PLAN

This Construction Management Plan (CMP), submitted to the Portland Department of Planning & Urban Development for approval by the City of Portland Planning Board prior to the start of construction, includes specific mitigation measures and staging plans to minimize impacts to surrounding residences and businesses. The Construction Manager and its trade contractors will be bound by the CMP.

Turner Construction Contacts:

Project Superintendent: Scott Griffin
Email: SGriffin@tcco.com / Cell - 203-943-0950

Project Manager: Adam Parys
Email: AParys@tcco.com / Cell – 617-201-0710

Project Engineer : Rick Martineau
Email: RMartineau@tcco.com / Cell – 617-438-1263

Project Director: Gregg Scholler
Email: GScholler@tcco.com / Cell – 203-219-4022

2.0 CONSTRUCTION SCHEDULE & WORK HOURS

Construction work hours will be in accordance with Section 17-18 and Section 25-129.

2.1 Work Hours

- The construction period for the project is expected to be approximately 20 months in duration.
- It is anticipated that the project is estimated to start on or about Spring 2018 and last through Fall 2019.
- Work hours will be 7AM to 7 PM Monday thru Friday.
- Workers will gather at their workplace from 6 AM to 7AM.
- Saturday work will be required on a periodic basis with hours from 7 AM to 6 PM.

2.2 Construction Timeline

2.2.1 Spring 2018 to Fall 2019

East Tower – Crescent Street

A new 60,000 SF addition is being added to the top of the East Tower. The addition consists of two new floors, level 6 and 7. On the roof is a helipad system capable of landing two helicopters. The exterior wall at Level 5 is being replaced in conjunction with

a new exterior wall for Level 6 and 7. This project is expected to start in March 2018 and complete by October 2019. (20 Months)

Visitor Garage- Congress Street

Three new floors of parking are being added to the Visitor Garage. These floors will be Level 8, 9 and 10. The added floors are precast and are being added to a garage which has been designed for this expansion. The added parking capacity is 220 cars. This project is expected to start in May 2018 and complete in November 2018. (6 Months)

Central Utility Plant – Gilman Street

The Central Utility Plant is increasing cooling capacity by adding one 2,400 ton chiller and two cooling towers. This project is expected to start in November 2018 and complete in March 2019. (5 months)

2.3 Construction Updates Reporting

The following shall be reported to Maine Medical as a part of the CMP.

- Monthly "look ahead" schedules and narrative for upcoming construction activities.
- Schedule of over-size deliveries to the site that will impact roadways
- Schedule of deliveries that will be outside the City of Portland's allowable work hours.
- Proposed schedule for utility connection or work in public roadways or sidewalks as a part of Turner work.
- Proposed off-hours or Saturday work.
- Construction activities that may impact the neighborhood in an adverse way, including noise, dust, on-street parking or work outside construction limits or times. Also, proposed options to mitigate these impacts.
- An estimate of the number of vehicles that will require off-site parking.

2.4 Construction Logistics

The proposed Logistics Plans included in the CMP are designed to isolate the construction while providing safe access for pedestrians, hospital operations, and automobiles during normal day-to-day activities and emergencies. Interaction with the public will occur mainly along Congress Street and Gilman Street. The logistics plan define the timeline of construction activities and the location of cranes, gates, access for each Phase.
Each site will be secured by an 8-foot high fence with privacy screening in accordance with the Logistics Plan.

Logistics plans on the construction sequencing for East Tower Overbuild are Slides 2 to 9.

Logistics plans on the construction sequencing for Visitor Garage Overbuild are Slides 10 to 21.

Logistics plans on the construction sequencing for Central Utility Plant cooling upgrade Slides 22 to 24.

2.5 Perimeter Protection / Public Safety

- Turner Construction will work to ensure the sidewalk protection minimizes impact to pedestrian and vehicular flow.
- The specific configuration of sidewalk protection and pedestrian access around the site will vary depending on the phase of the work being performed.
- In general, secured fencing will be used to isolate construction areas from pedestrian traffic.
- Flagmen or Police Details will be provided at all active gates when there are deliveries.
- Construction procedures will be designed to meet all OSHA safety standards for specific site construction activities.
- Subcontractors will implement and manage their own Health and Safety Program for the project.
- All Subcontractors are required to wear appropriate personal protective equipment.
- Snow removal and ice treatment will be provided on the surrounding area within the construction fence.
- Sidewalks will be cleaned of trash and debris as needed.
- If existing street lights need to be removed for the duration of the project,
- Turner Construction will provide sufficient temporary site lighting to ensure the safety of all pedestrians accessing the sidewalks around the site, including lighting at all covered pedestrian walkways, until permanent street lights are installed Light levels will be tested prior to temporary removal of site lighting.

2.6 Worker Parking & Traffic Impacts

- Turner Construction and its subcontractors shall encourage the use of public transportation by their workers.
- Jobsite personnel will be required to park at an offsite parking area and will be shuttled to the construction site.
    - Jobsite personnel will be required to park at MMC's Scarborough Campus
    - Subcontractors who violate this requirement will be fined $500 per offense
    - The following language will be included in the contracts with all subcontractors
        - *"Parking: There shall be absolutely no parking on the project site, in the Hospital Parking Garages and / or Hospital Surface Parking lots, and on street parking adjacent to the Hospital. This is including but not limited to employee vehicles, company vehicles, delivery trucks, trucks containing equipment such as welders, etc. Turner to provide remote parking location, and transportation to and from the jobsite. Any workers found in violation of this policy will be subject to permanent removal from the project and the subcontractor shall be assessed a $500*

fine per incident."

- Worker parking shall not be allowed on site except for company vehicles required to perform the work.
- Turner will qualify subcontractors' with a legitimate reason to park onsite and manage that parking within the construction fence and not impact parking in the surrounding area.
- No personal vehicles will be allowed to park at the project construction site or in the adjacent residential streets.

The number of workers required during the construction will vary by Construction Phase.

Construction Phase - March 2018 to September 2019

- Spring 2018- Fall 2018 – average workers – 40 to 50
- Fall 2018 – Spring 2019 – average workers – 70 - 90
- Spring 2019- Fall 2019 - average workers – 100

2.7 Truck Routes and Volumes – Refer to Site Logistics Plans

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- Truck traffic will vary throughout the construction period, depending on the activity.
- An offsite marshalling area will be utilized for large deliveries such as precast and structural steel.
- All trucks will be brought to the construction areas at MMC by experienced dedicated drivers from the marshalling lot.
- Radio and cell phones will be utilized to coordinate all trucking.
- Trucks routes must be submitted and approved by the City of Portland and the Owner before the start of construction.
- Truck idling will be held to a minimum on-site, to minimize the impact to adjacent properties..
- Turner Construction and its subcontractors shall ensure that haul routes, debris and soil removal, and staging areas are conducted in a manner that minimizes the impacts to the abutting communities,
- Wheel wash stations will be installed and maintained by Turner and its subcontractors as needed and maintained at construction site exit areas.
- Street sweeping / vacuuming of all impacted City streets and sidewalks shall be performed by Turner Construction and its subcontractors on an as-needed basis.
- Streets, sidewalks, bicycle ways or other means of travel may not be obstructed or closed without permission from the Owner and other authorities having jurisdiction. The Owner shall be notified one week in advance of any such obstructions or closures.

Construction - East Tower Overbuild – (Refer to Logistics Slides 2 thru 9)

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- All truck traffic will be directed to enter the site utilizing Ellsworth Street to Wescott Street. **(Refer to Logistics slide 9)**
- Turner will install way finding signage at strategic locations identifying no travel zones for construction vehicles
- All subcontractors and vendors will be provided with pamphlets indicating the appropriate truck routes to access the site.
- Trucks will be brought within the fence line.
- During crane erection a portion of Ellsworth Street and Wescott will be closed. **(Refer to logistics slide 8)**

Construction Visitor Garage Overbuild – (Refer to Logistics Slides 10-22)

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- All truck traffic will be directed to enter the site utilizing Congress Street.
- During an eight week period when precast erection is occuring, Congress Street will need to be closed at the location of the Visitor Garage. Detailed logistics plans are included to identify the street closure requirements**.(refer to logistics slides 16-21)**
- This street closing will be coordinated with the City of Portland.
- All subcontractors and vendors will be provided with instructions prior to their project start indicating the appropriate truck routes to access the site.

Construction - Central Utility Plant – (Refer to Logistics Slides 22-24)

All street opening and occupancy in the public right of way will be in accordance with Chapter 25 of the City of Portland Land Use Code

- All truck traffic will be directed to the Central Utility Plant utilizing a truck path from Congress Street to Gilman Street, and an exiting path from A Street. **(refer to logistics slides 23-24)**
- During a two week period when the chillers and cooling towers are installed, trucks and a crane will be set up on Gilman Street. This is expected to occur in Fall/Winter 2018.Police detail will be fulltime during this period. Gilman Street will remain open.
- Lane closing will be coordinated with the City of Portland.
- All subcontractors and vendors will be provided with instructions prior to their project start indicating the appropriate truck routes to access the site.

3.0 Air Quality & Noise

3.1 Dust Control

To reduce emission of dust and minimize impacts on the local environment, the construction contractor will adhere to a number of strictly enforced mitigation measures. These include:

- Wetting agents will be used regularly to control and suppress dust that may come from the construction materials.
- All trucks used for transportation of construction debris will be fully covered with tarps intended to keep material in the truck.
- Construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and to ensure that any emissions of dust are negligible.
- Street and sidewalks will be cleaned to minimize dust accumulations as needed.
- Stock piles of soils will be covered with tarps and/or poly when they are not being utilized for current site activities.

3.2 Noise

- The project will require the use of equipment that can be heard from off-site locations. This project will strive to mitigate construction noise impacts, to the extent possible.
- Increased community sound levels are an unavoidable consequence of construction activities.
- Construction will occur during the daytime hours as defined by the City of Portland Code of Ordinances (7:00 a.m. to 6:00 p.m. Monday through Friday).
- In some instances, a second shift, off hour, holiday and weekends may be required.
- When these events arise, all required permits will be obtained and notification will be posted in accordance with section 2.3
- Work shall be performed so as to prevent nuisance noise conditions that are preventable (e.g., unmaintained equipment, brake squeal, etc.).
- Turner Construction and all subcontractors shall use all reasonable efforts to implement noise reduction methods listed below to minimize construction noise emission levels. Noise reduction methods shall include, but not be limited to:

  Use of:
  - Tie to local power grid to reduce the use of on-site generators.
  - Noise-deadening / isolating surrounds around exceptionally noisy work equipment or operations
  - The maintenance of the access roadways to minimize the “bouncing” of construction vehicles within the construction site.
  - Enforcing the site logistics plan, so as to maximize to every extent possible the forward movement of construction vehicles. This will, in turn, minimize the sound of back-up alarms.

Attaching:

- Intake / exhaust mufflers, shields or shrouds
- Noise-deadening material to equipment and fencing

Maintaining:

- Equipment mufflers and lubrication
- Pre-cast decking and plates to avoid rattling
- Smooth surfaces on construction sites and public ways to prevent unnecessary noise from surface irregularities.

Minimizing

- Noise from the use of backup alarms, using measures that meet OSHA regulations. The construction logistics has been designed such that the backing-up of equipment and trucks is limited.
- Use of self-adjusting ambient-sensitive backup alarms.
- Manually adjustable alarms on low setting
- Scheduling of activities so that alarm noise is minimized

3.3 Air Monitoring

- Turner Construction and its subcontractor's shall employ dust, odor, and gas control measures to minimize the creation of airborne dusts, odors, and gases during the entire construction process. At a minimum, standard dust control techniques shall be employed where heavy equipment will be traveling, standing, or loading, such as watering down the site or utilizing dust control measures. All measures shall be taken in accordance with Turner's approved Health & Safety plan.
- Turner Construction and its subcontractors shall perform dustless street sweeping / vacuuming for all construction activities including demolition, excavation, slurry / soil mixing operations on an as needed basis.
- An air monitoring plan shall be developed by the Owner based on site contaminants of concern, particulate quantities / densities, and risk-based evaluations. The plan will be developed for off-site impacts. Turner Construction and its subcontractors will be responsible for on-site health and safety issues.
- The Owner will engage a qualified consultant to monitor for dust along the perimeter of the construction site. Results of this monitoring that indicate exceedances of air quality criteria will be immediately brought to the attention of Turner Construction. Turner and its subcontractors shall immediately address the site condition, including terminating construction activities to remedy the site conditions to the satisfaction of the Owner.
- Ductwork snorkels will be installed as required on building air intakes surrounding the job-site to minimize the amount of dust and construction vehicle gases being taken in through the air handling systems. The maintenance of the filters is by the individual building managers.

4.0 Communication Strategies

4.1 Contacts, Distribution Lists

- Turner Construction shall develop a project contact list (e-mail addresses, office and cell phone numbers), to be posted by MMC on the project web site and supplied to Maine Medical Center (MMC) for 24/7 contacts.
- Turner Construction will request similar contact lists from the neighborhood associations. (e-mail addresses, and phone numbers) of key contacts for the specific project.
- Turner Construction will set-up a project bulletin board for each Phase. These boards will be used as communication tools to the surrounding community. There will be a project website thru MMC, developed that also will communicate construction related activities to the community.
- Any last minute changes to the project schedule that may impact the neighborhood or Maine Medical Center (MMC) community will be communicated per section 2.3.
- Turner Construction will participate in the neighborhood council meetings as needed to discuss progress and issues.
- Turner shall maintain a log of all construction-related concerns, via the MMC website.
- MMC shall communicate final resolution of all complaints and concerns to the neighborhood, Maine Medical Center (MMC) community, and when appropriate, to the City of Portland.
- MMC has created an email distribution list in order to maintain open communications throughout the process and provide regular project updates. Any interested can sign up for the email on MMC's website - https://mainehealth.org/maine-medical-center/newsroom/modernization.
- MMC and Turner construction continue to explore additional methods of communication with neighboring residences and businesses.

5.0 Vibration Monitoring – Not Applicable

Maine Medical Center
MaineHealth

Construction Management Plan

[Logistics Plans and Studies]
East Towers and Visitors Garage

Turner

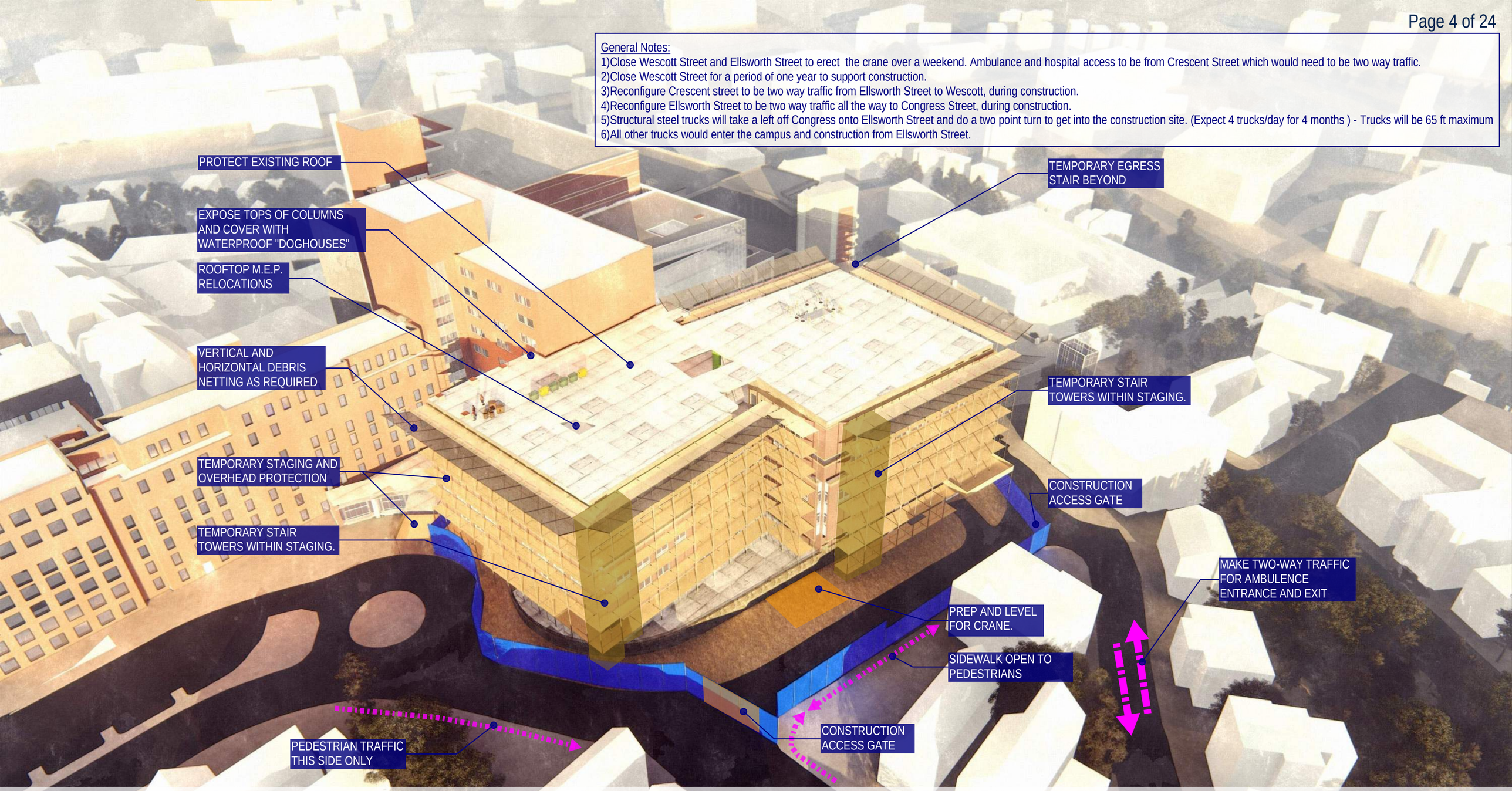
[East Towers] Logistics Plans and Studies

Turner

Maine Medical Center
Additions and Renovations [Logistics Plans] EAST TOWERS - EXISTING

Turner

General Notes:
1)Close Wescott Street and Ellsworth Street to erect the crane over a weekend. Ambulance and hospital access to be from Crescent Street which would need to be two way traffic.
2)Close Wescott Street for a period of one year to support construction.
3)Reconfigure Crescent street to be two way traffic from Ellsworth Street to Wescott, during construction.
4)Reconfigure Ellsworth Street to be two way traffic all the way to Congress Street, during construction.
5)Structural steel trucks will take a left off Congress onto Ellsworth Street and do a two point turn to get into the construction site. (Expect 4 trucks/day for 4 months) - Trucks will be 65 ft maximum
6)All other trucks would enter the campus and construction from Ellsworth Street.



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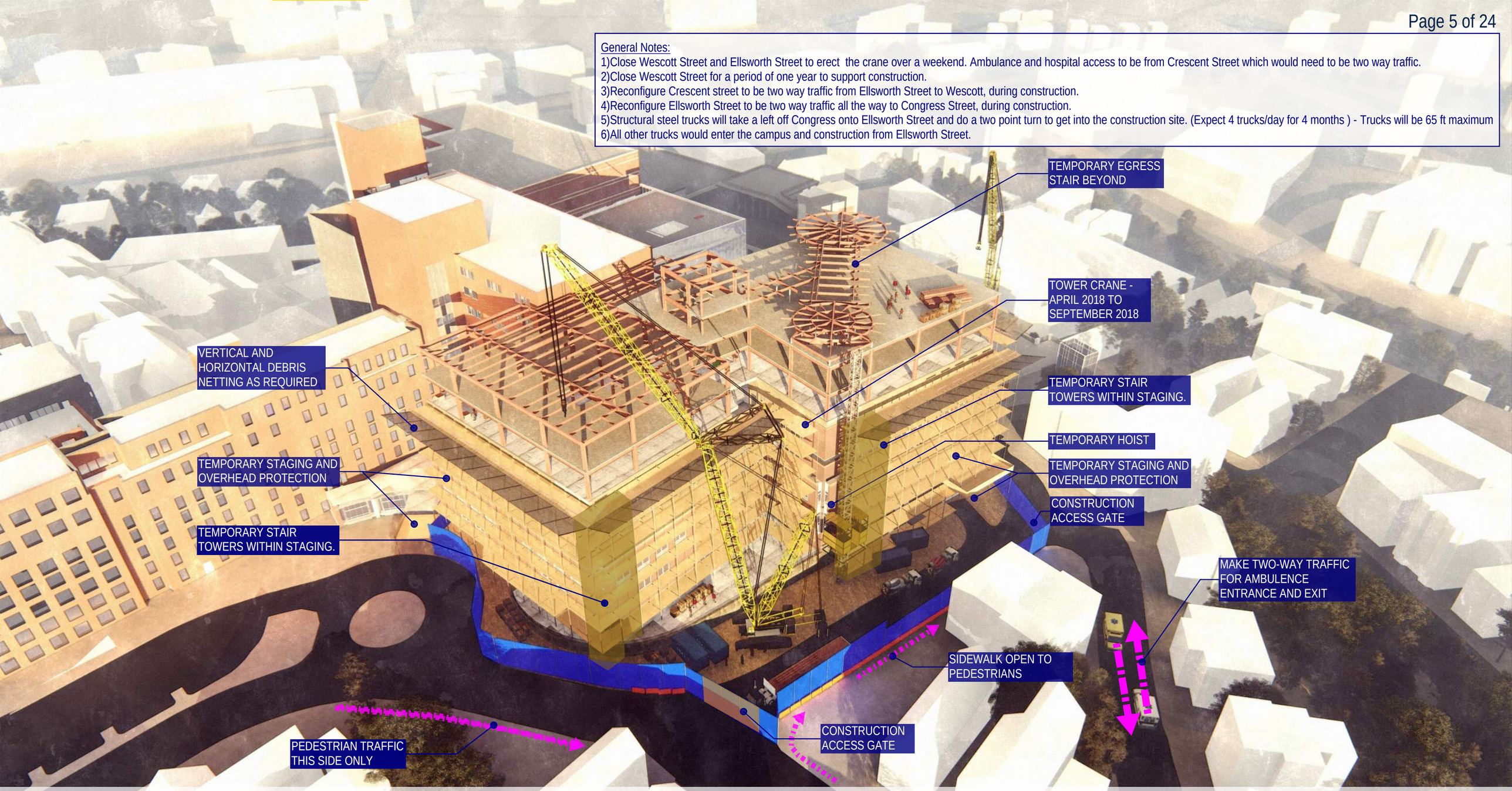

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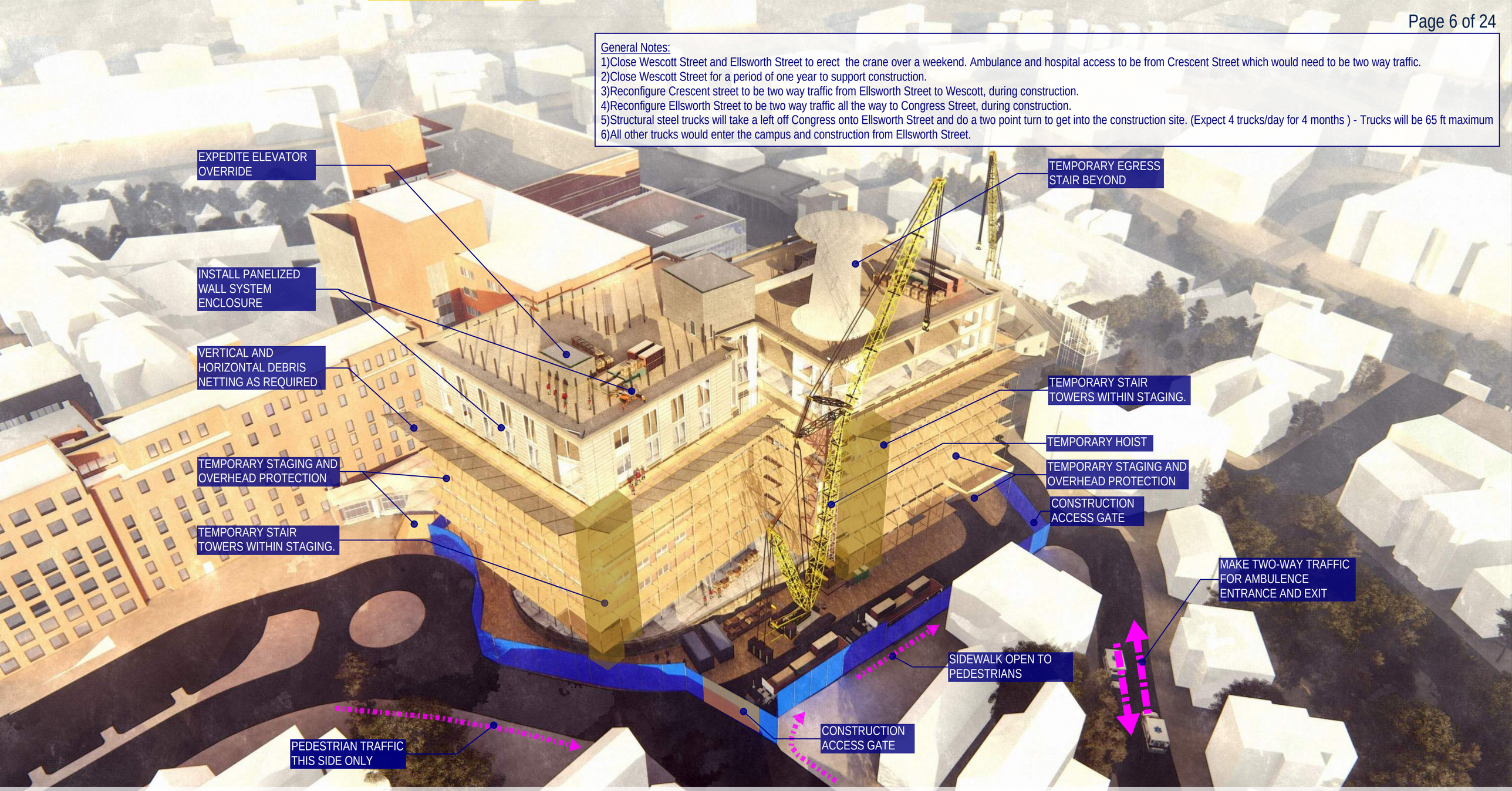

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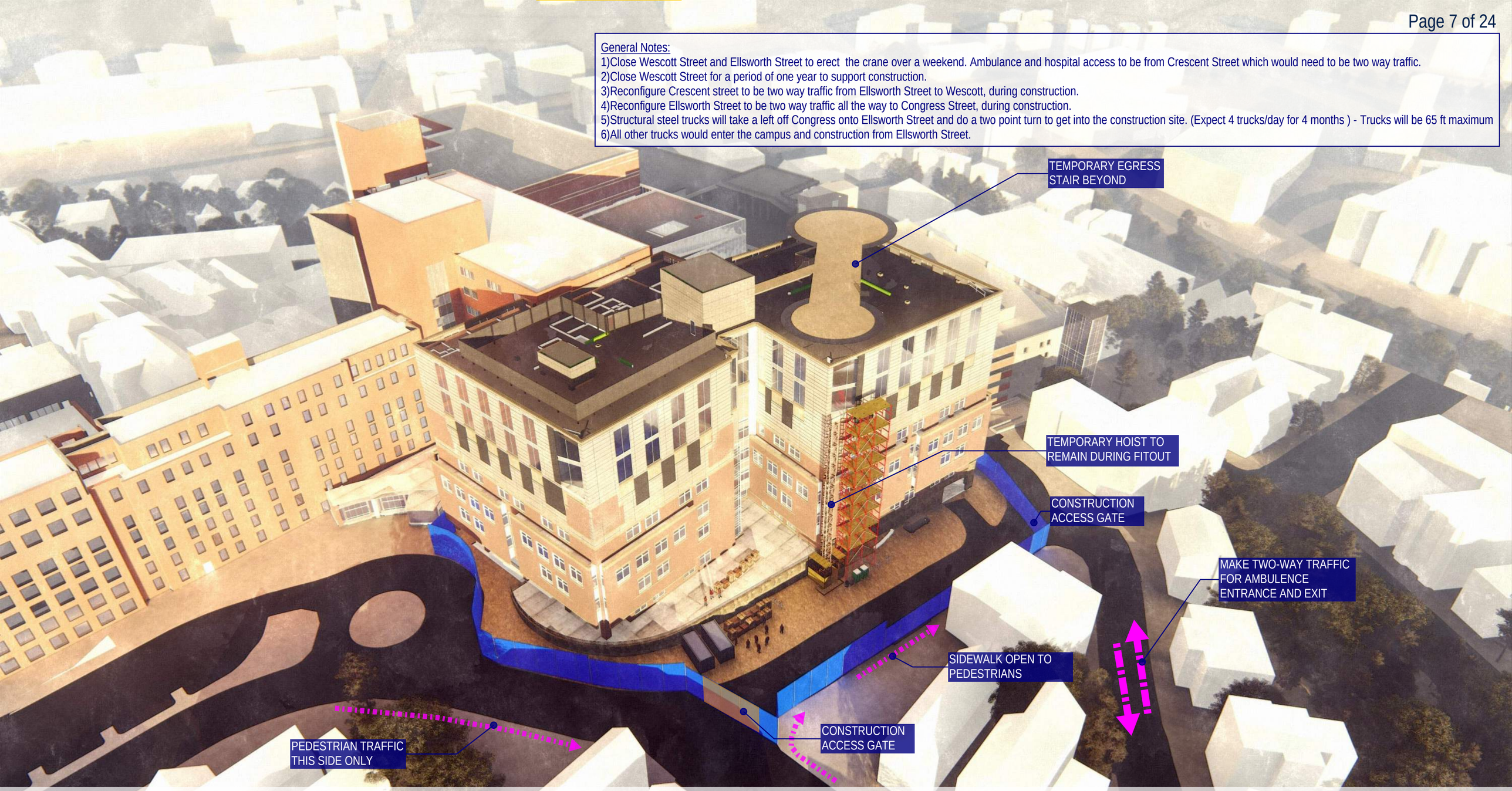
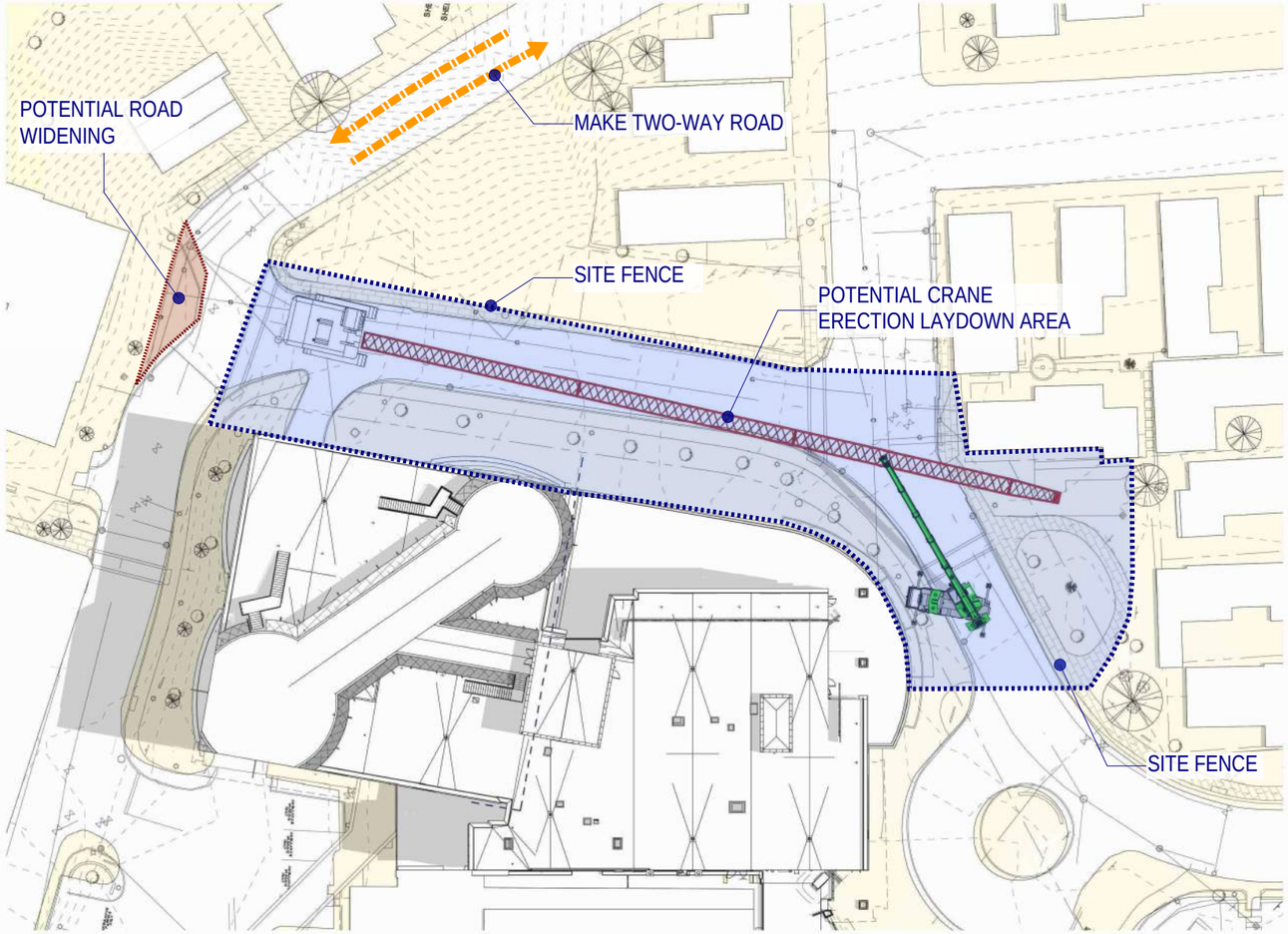
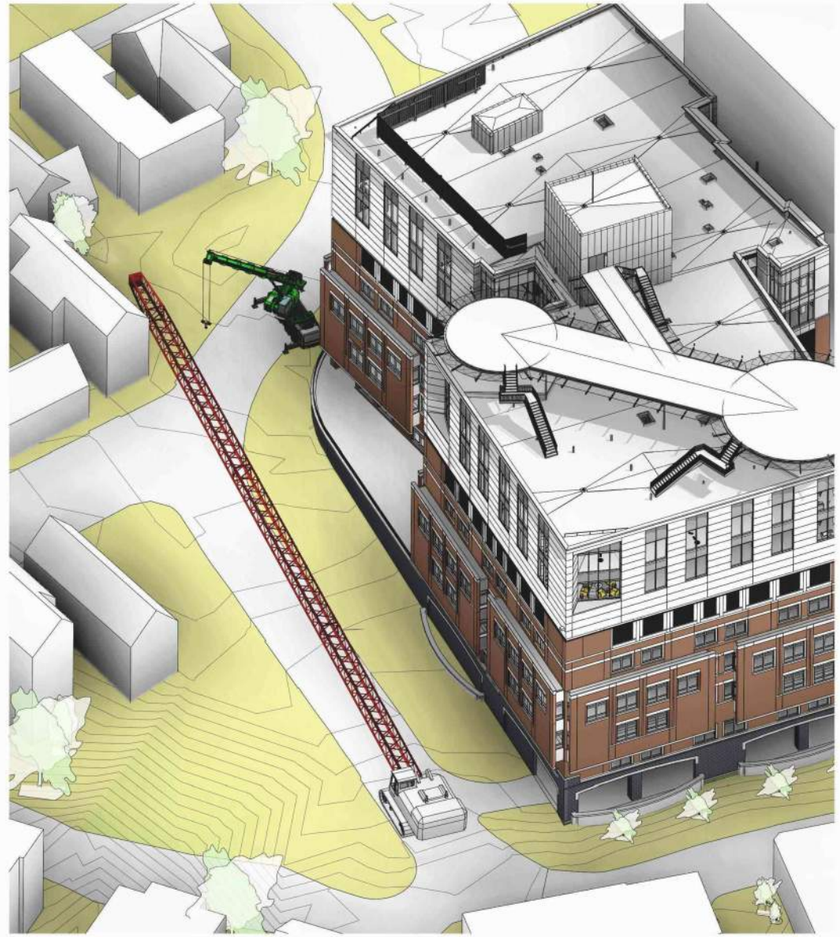




1 EAST TOWERS - CRANE LOGISTICS
3/64" = 1'-0"



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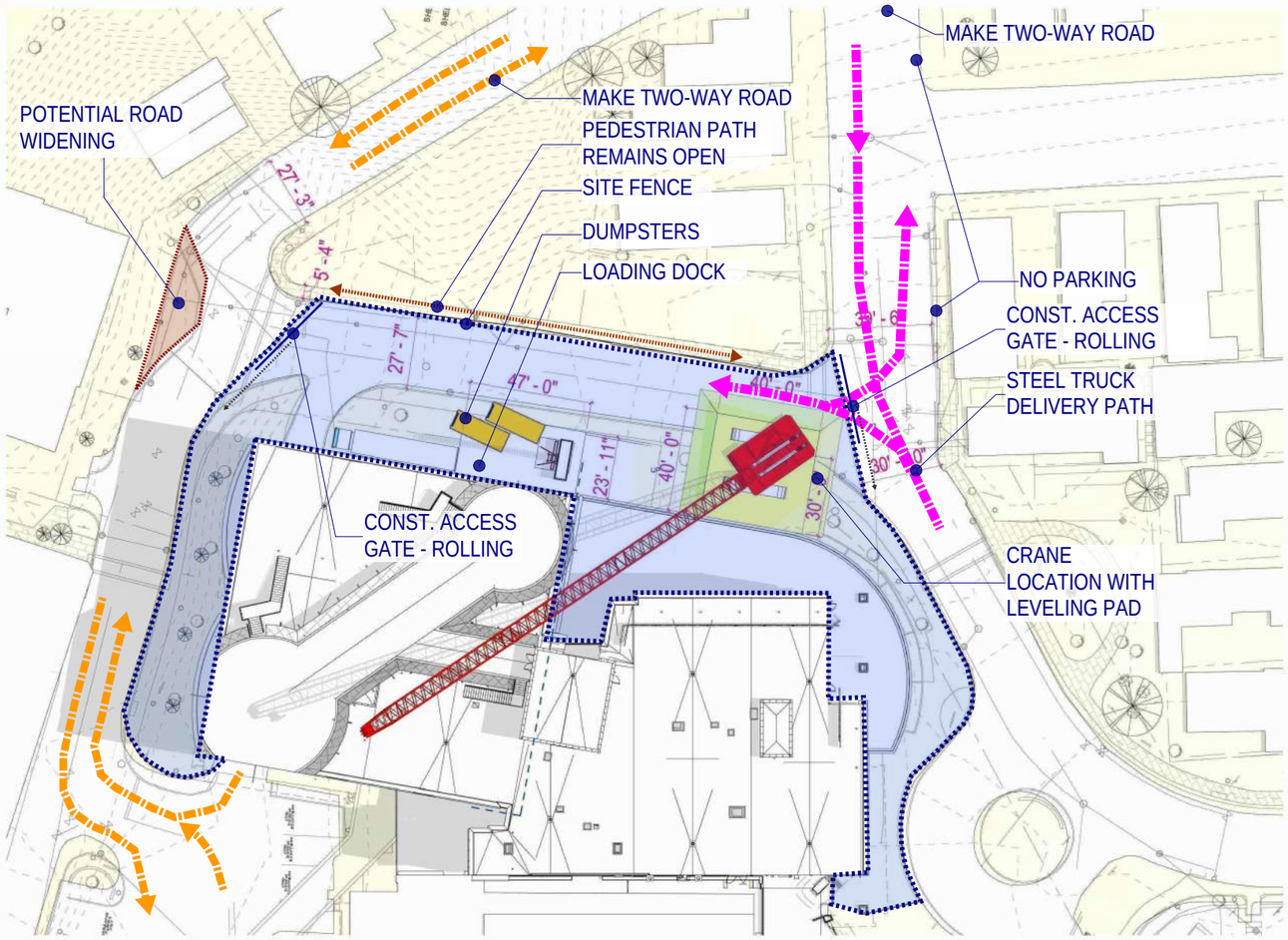

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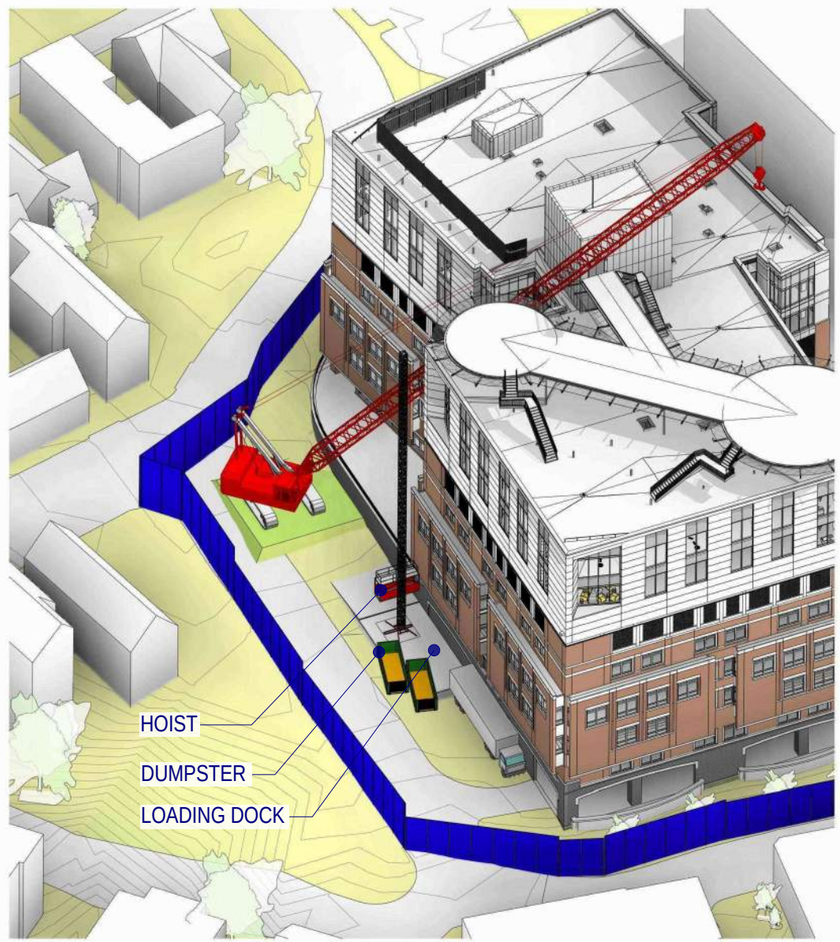

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[Visitors Garage] Logistics Plans and Studies

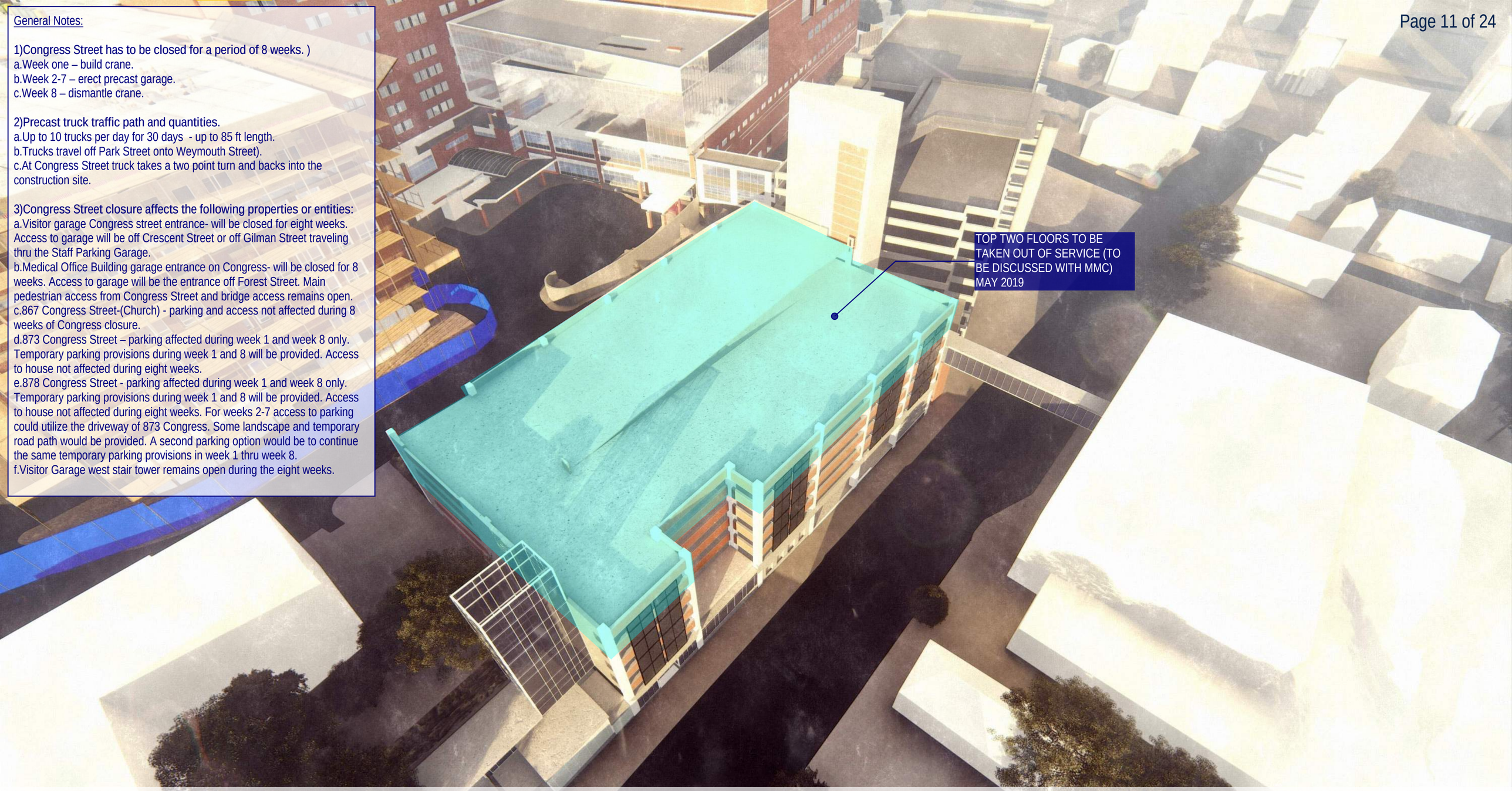
Turner

General Notes:

1)Congress Street has to be closed for a period of 8 weeks.)
a.Week one – build crane.
b.Week 2-7 – erect precast garage.
c.Week 8 – dismantle crane.

2)Precast truck traffic path and quantities.
a.Up to 10 trucks per day for 30 days - up to 85 ft length.
b.Trucks travel off Park Street onto Weymouth Street).
c.At Congress Street truck takes a two point turn and backs into the construction site.

3)Congress Street closure affects the following properties or entities:
a.Visitor garage Congress street entrance- will be closed for eight weeks. Access to garage will be off Crescent Street or off Gilman Street traveling thru the Staff Parking Garage.
b.Medical Office Building garage entrance on Congress- will be closed for 8 weeks. Access to garage will be the entrance off Forest Street. Main pedestrian access from Congress Street and bridge access remains open.
c.867 Congress Street-(Church) - parking and access not affected during 8 weeks of Congress closure.
d.873 Congress Street – parking affected during week 1 and week 8 only. Temporary parking provisions during week 1 and 8 will be provided. Access to house not affected during eight weeks.
e.878 Congress Street - parking affected during week 1 and week 8 only. Temporary parking provisions during week 1 and 8 will be provided. Access to house not affected during eight weeks. For weeks 2-7 access to parking could utilize the driveway of 873 Congress. Some landscape and temporary road path would be provided. A second parking option would be to continue the same temporary parking provisions in week 1 thru week 8.
f.Visitor Garage west stair tower remains open during the eight weeks.



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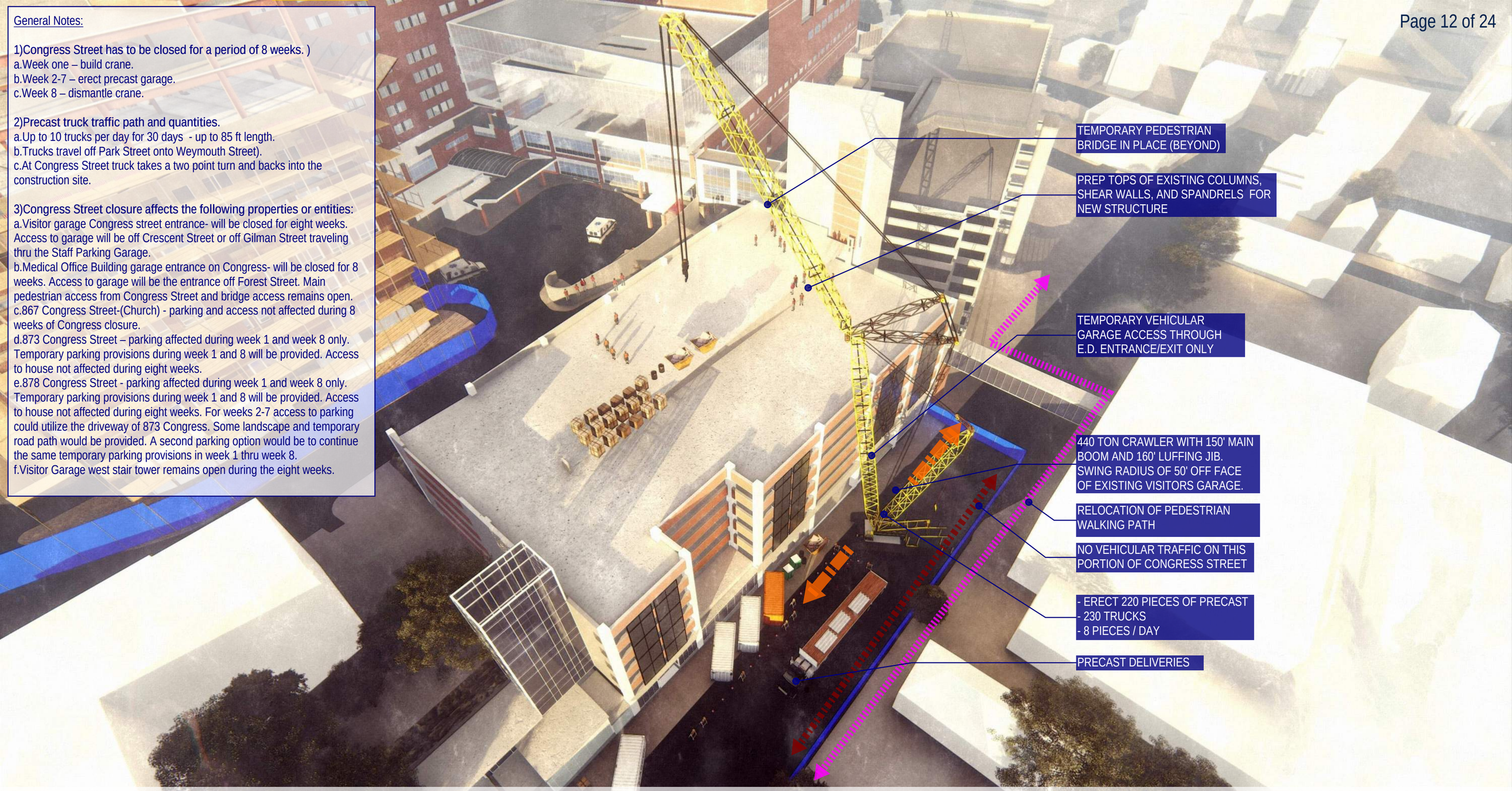

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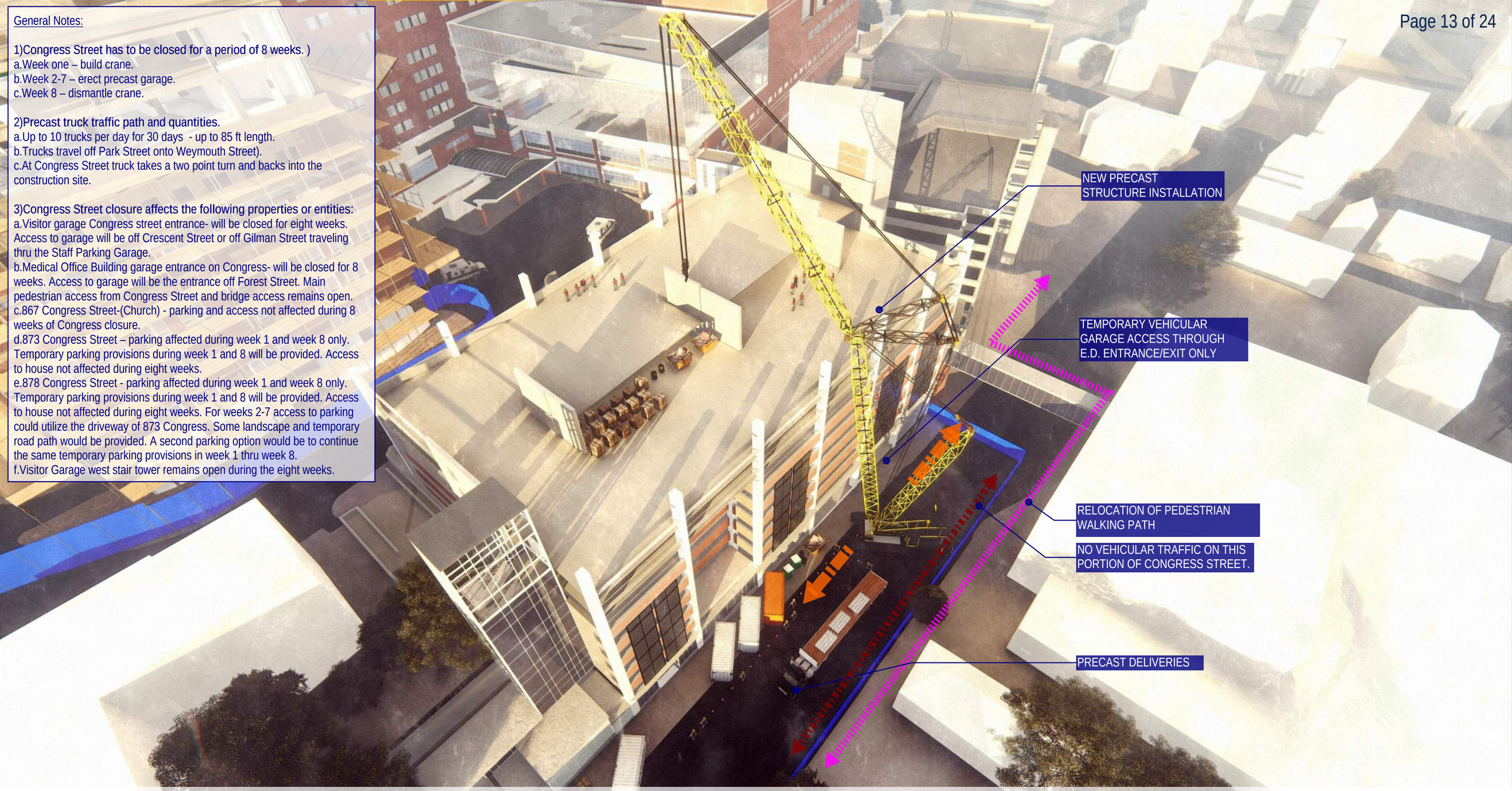

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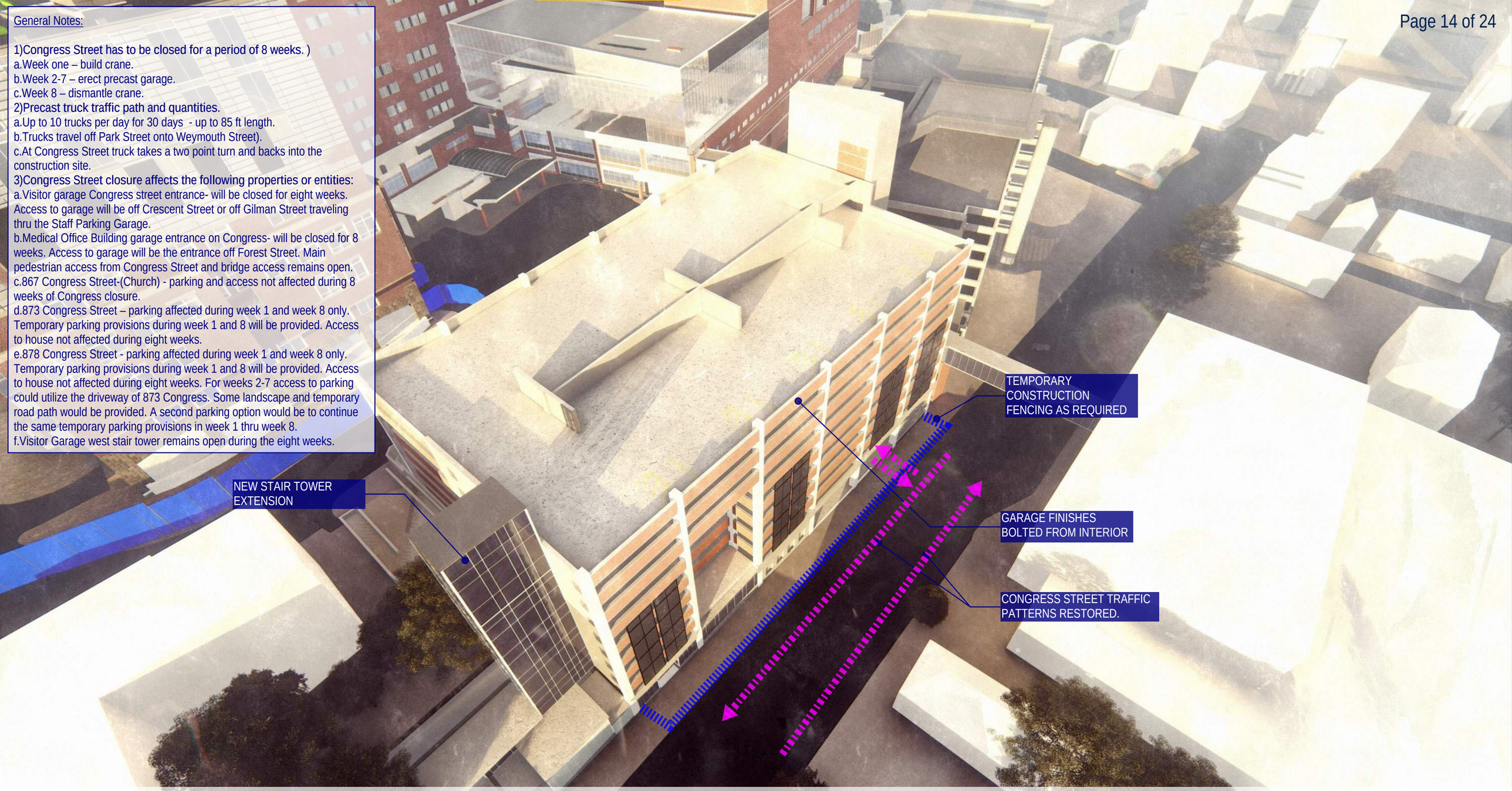
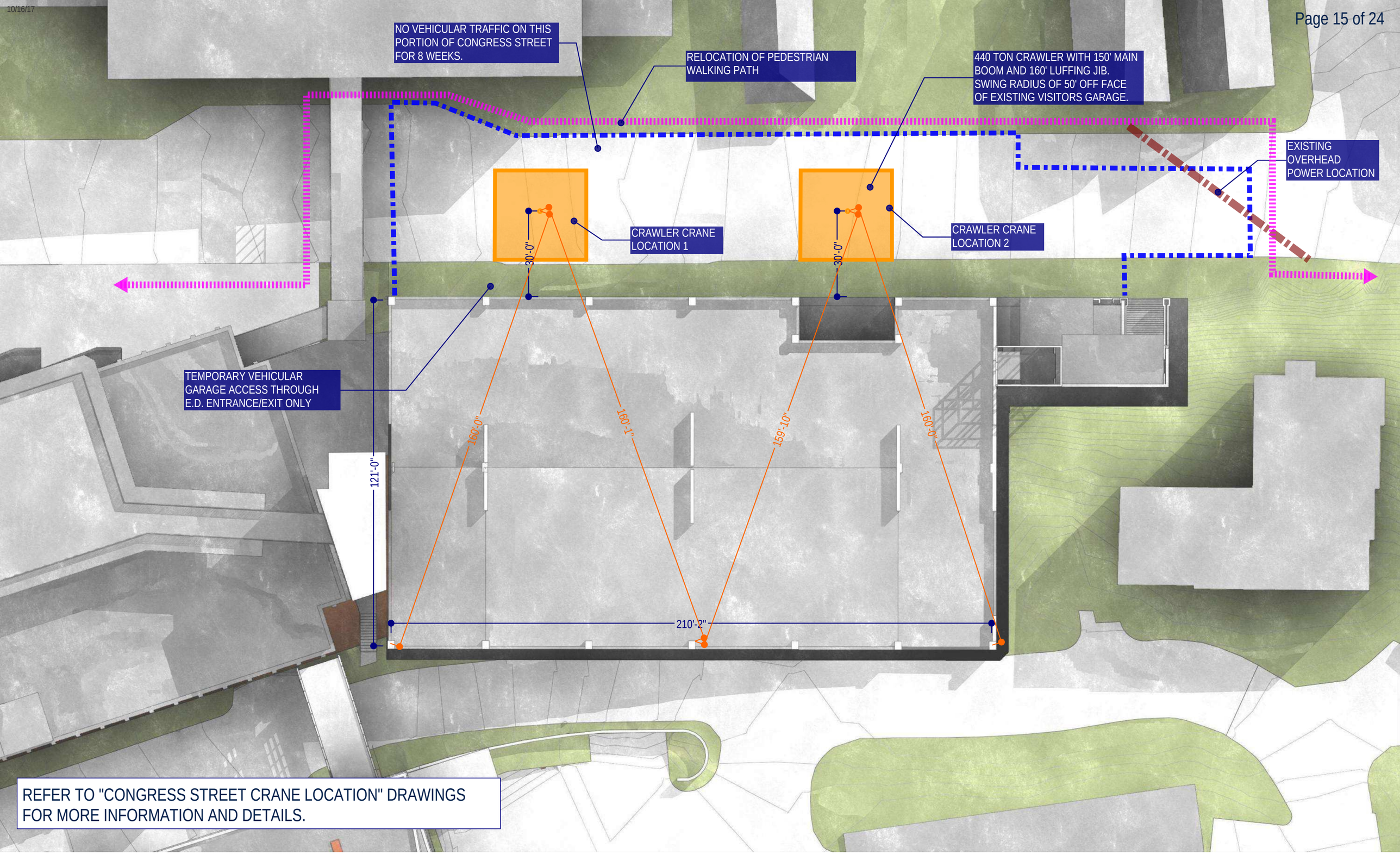
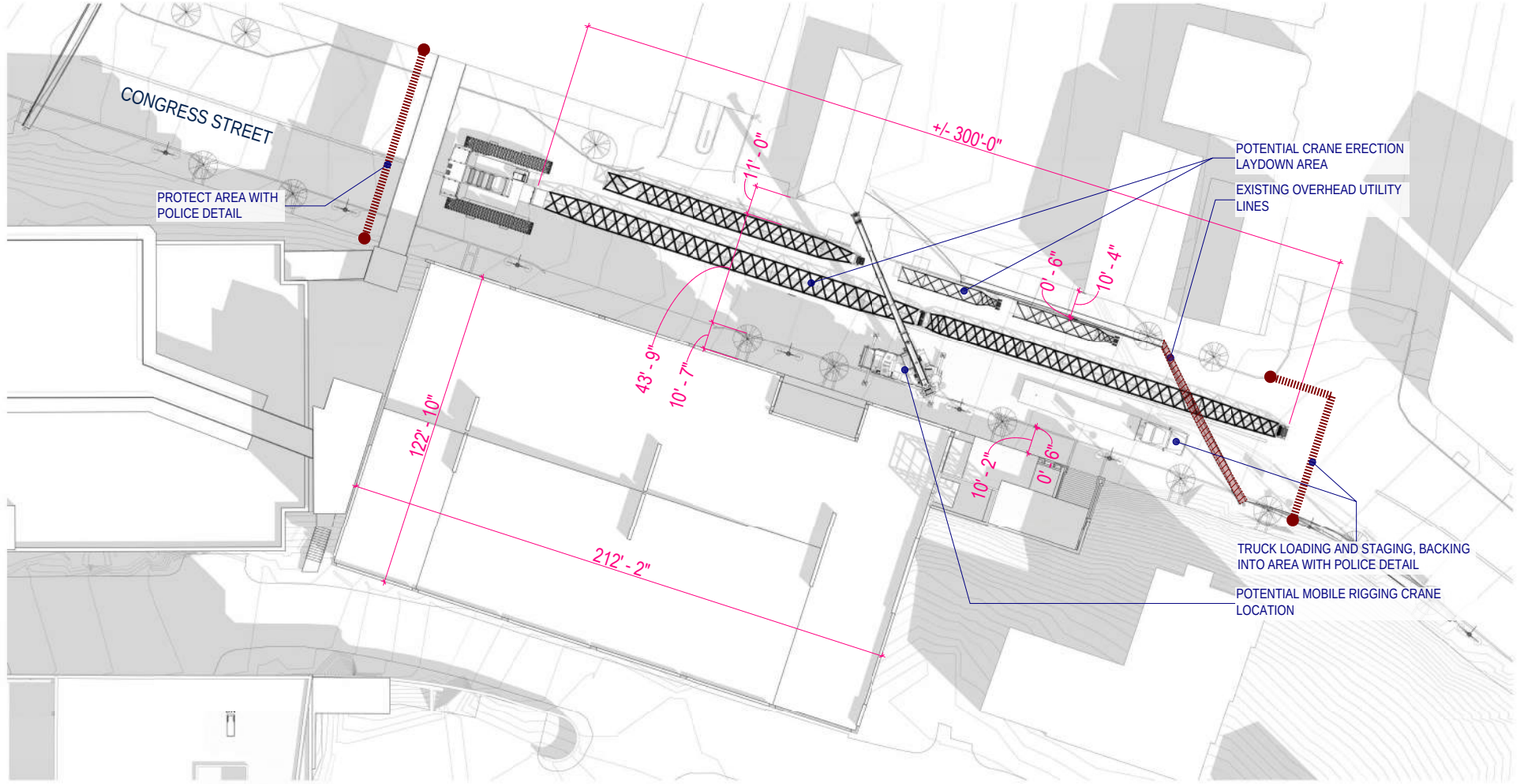




REFER TO "CONGRESS STREET CRANE LOCATION" DRAWINGS FOR MORE INFORMATION AND DETAILS.



1 CONGRESS STREET - CRANE PICK PLAN
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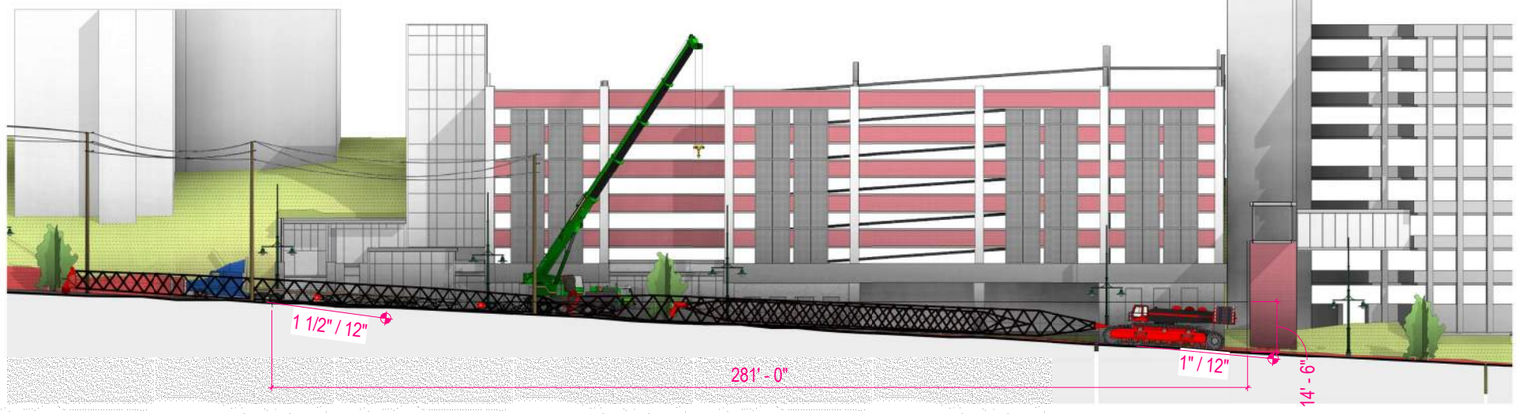
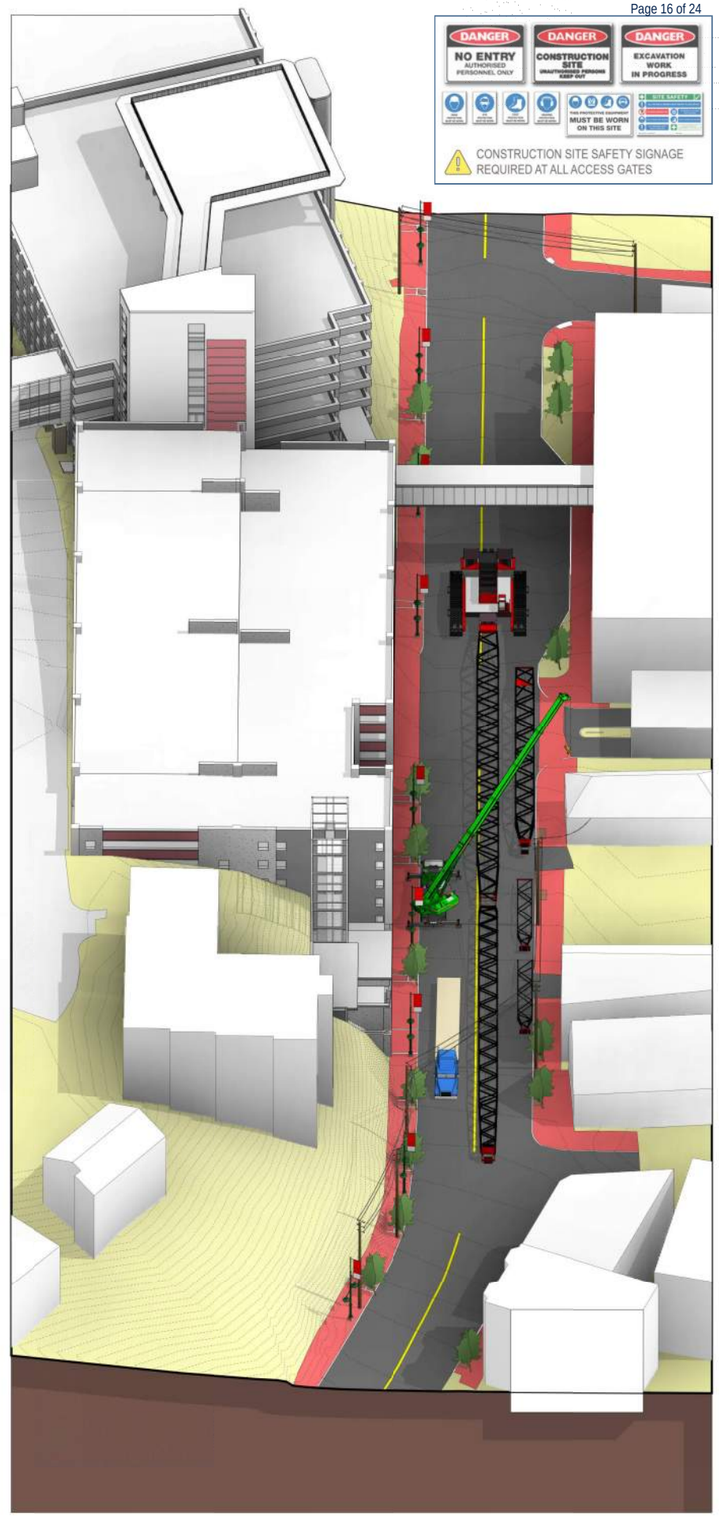


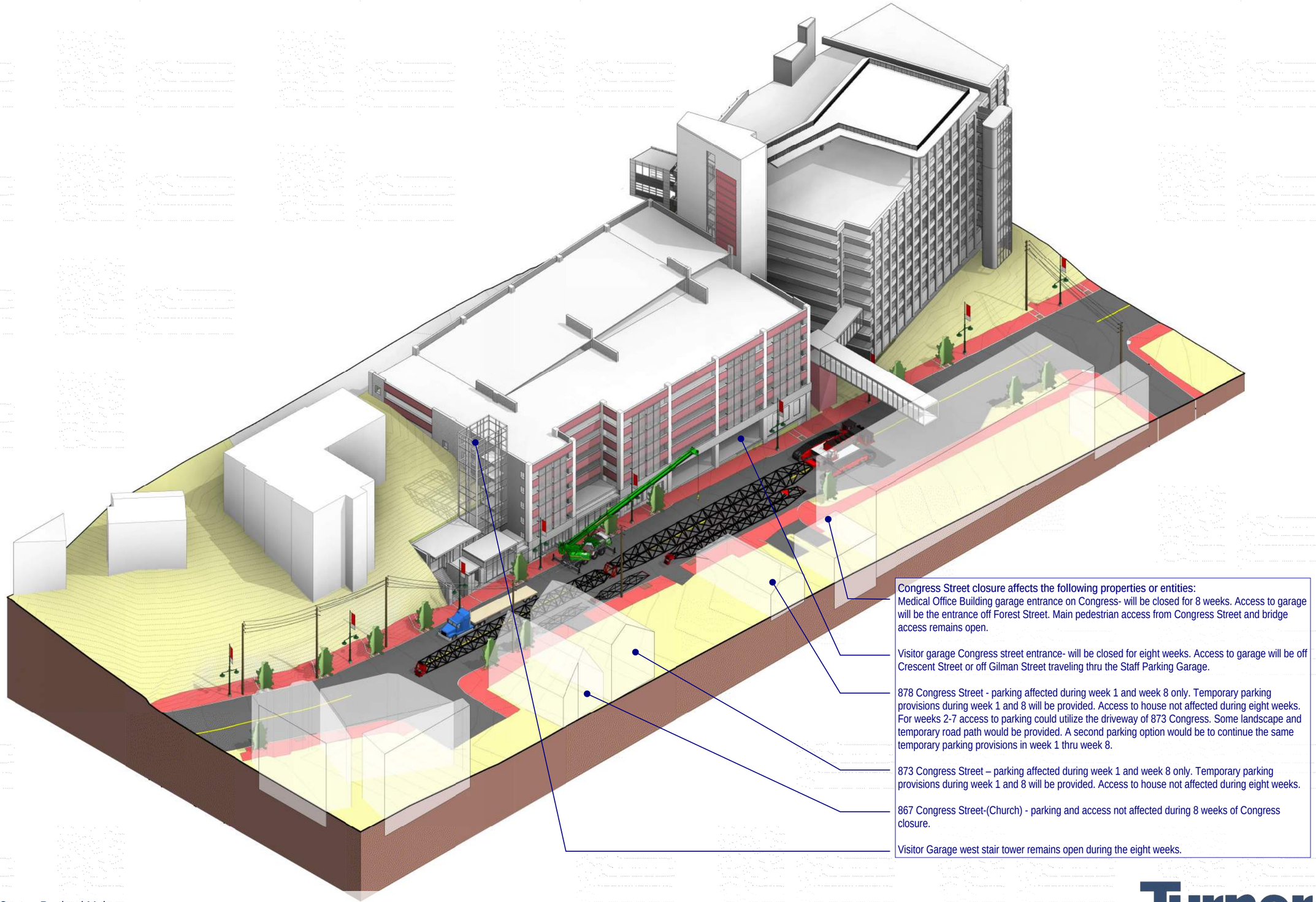
2 CONGRESS STREET - SITE SECTION
1/16" = 1'-0"



3 CONGRESS STREET - AXON VIEW

Maine Medical Center, Portland Maine
Additions and Renovations [Congress Street Crane Enabling]

Turner



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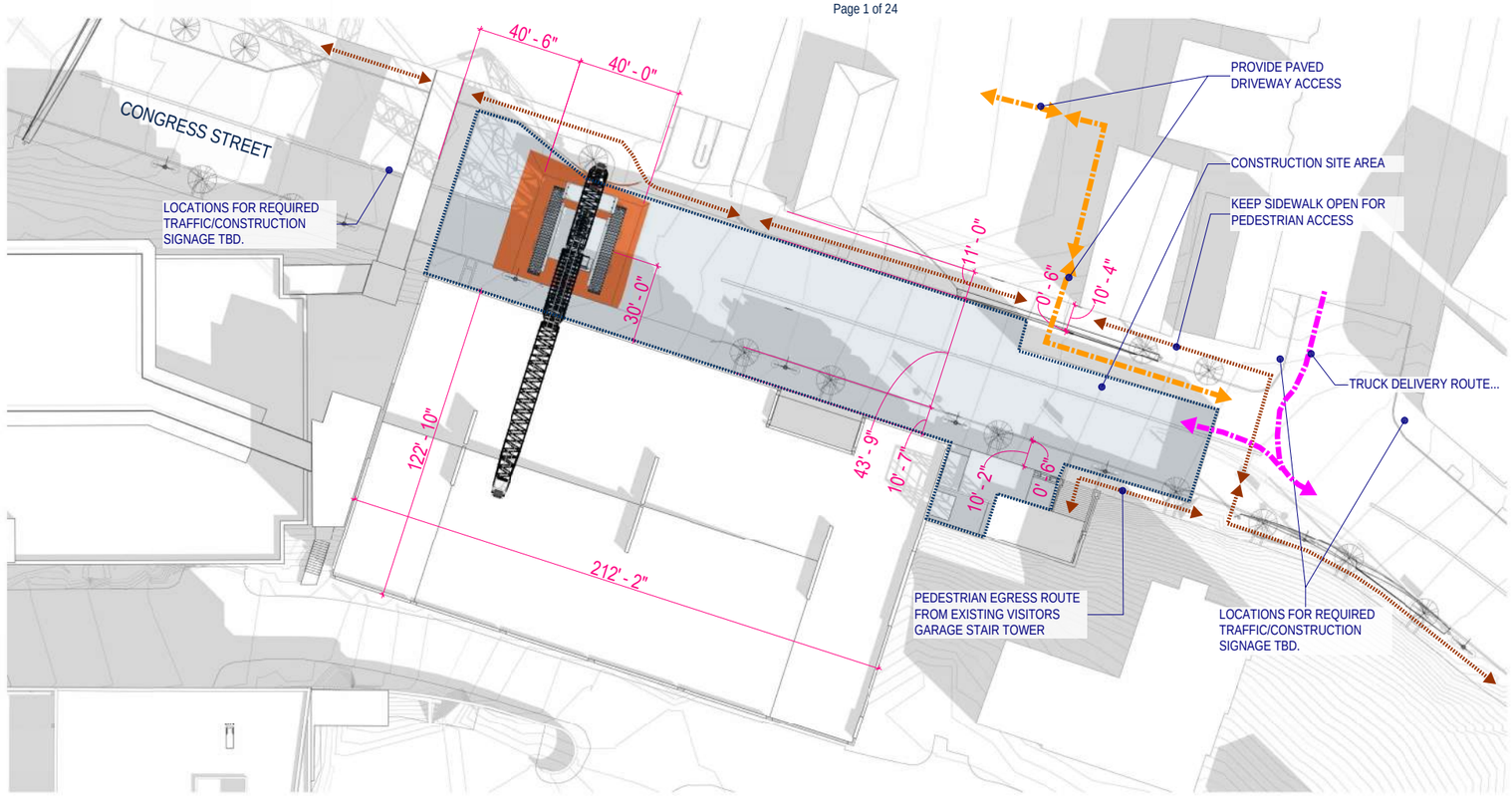

1 CONGRESS STREET - CRANE PICK PLAN
3/64" = 1'-0"

General Notes:

1)Congress Street has to be closed for a period of 8 weeks.)
a.Week one – build crane.
b.Week 2-7 – erect precast garage.
c.Week 8 – dismantle crane.
2)Precast truck traffic path and quantities.
a.Up to 10 trucks per day for 30 days - up to 85 ft length.
b.Trucks travel off Park Street onto Weymouth Street).
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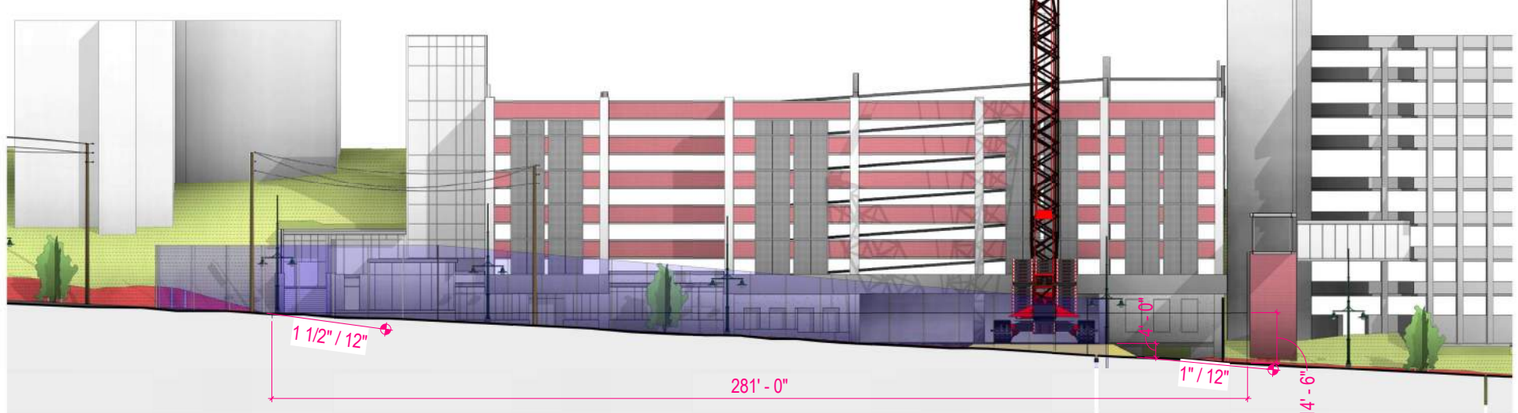

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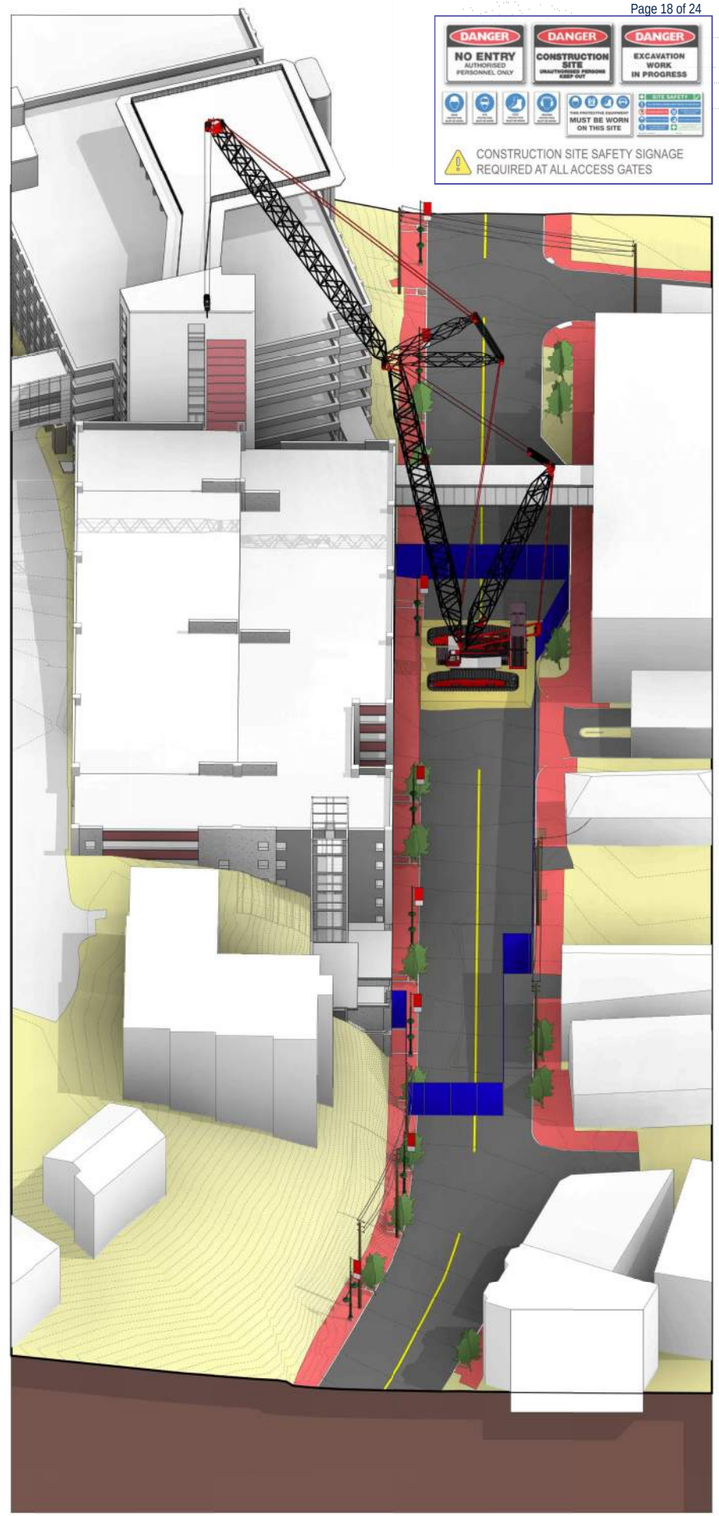
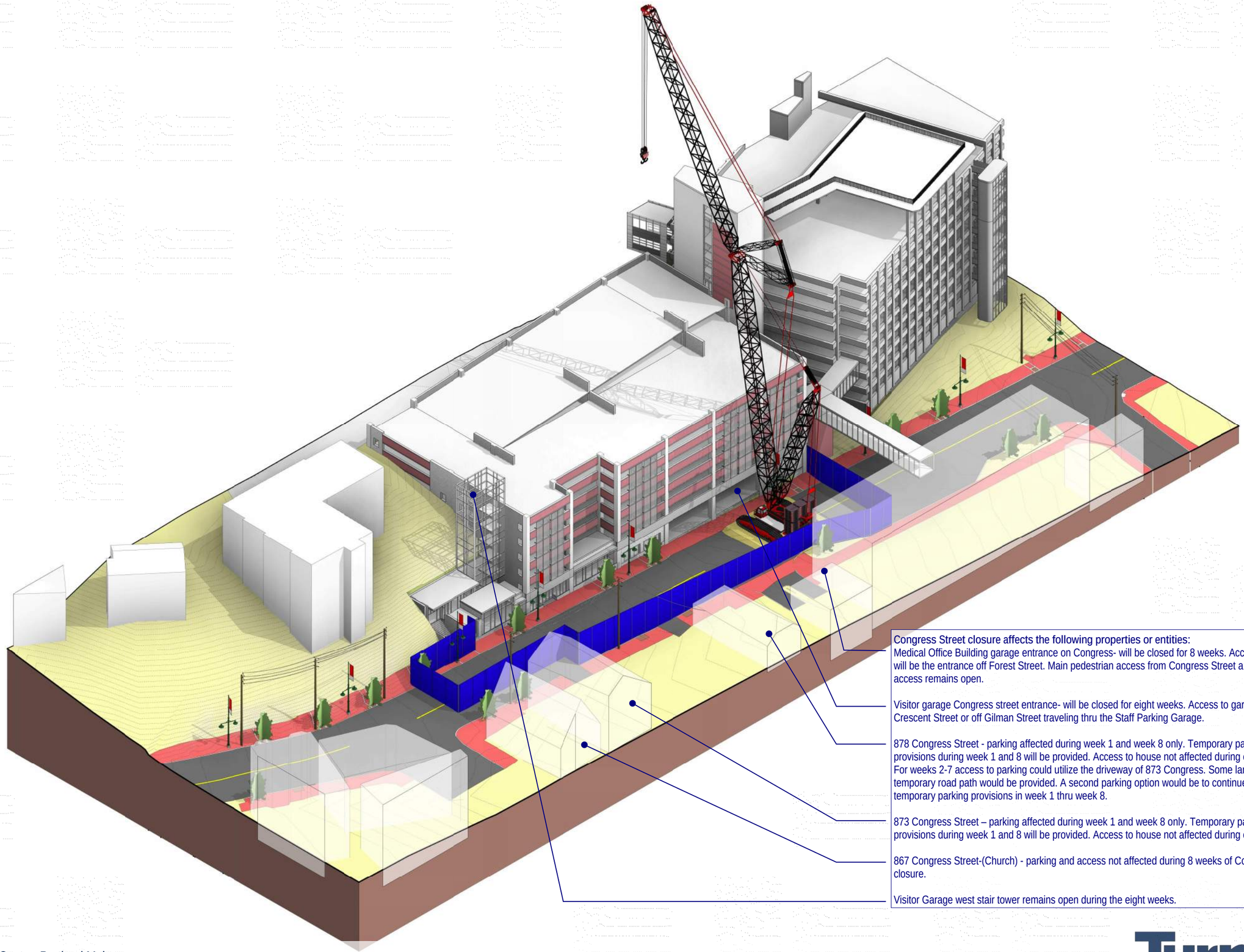


3 CONGRESS STREET - AXON VIEW



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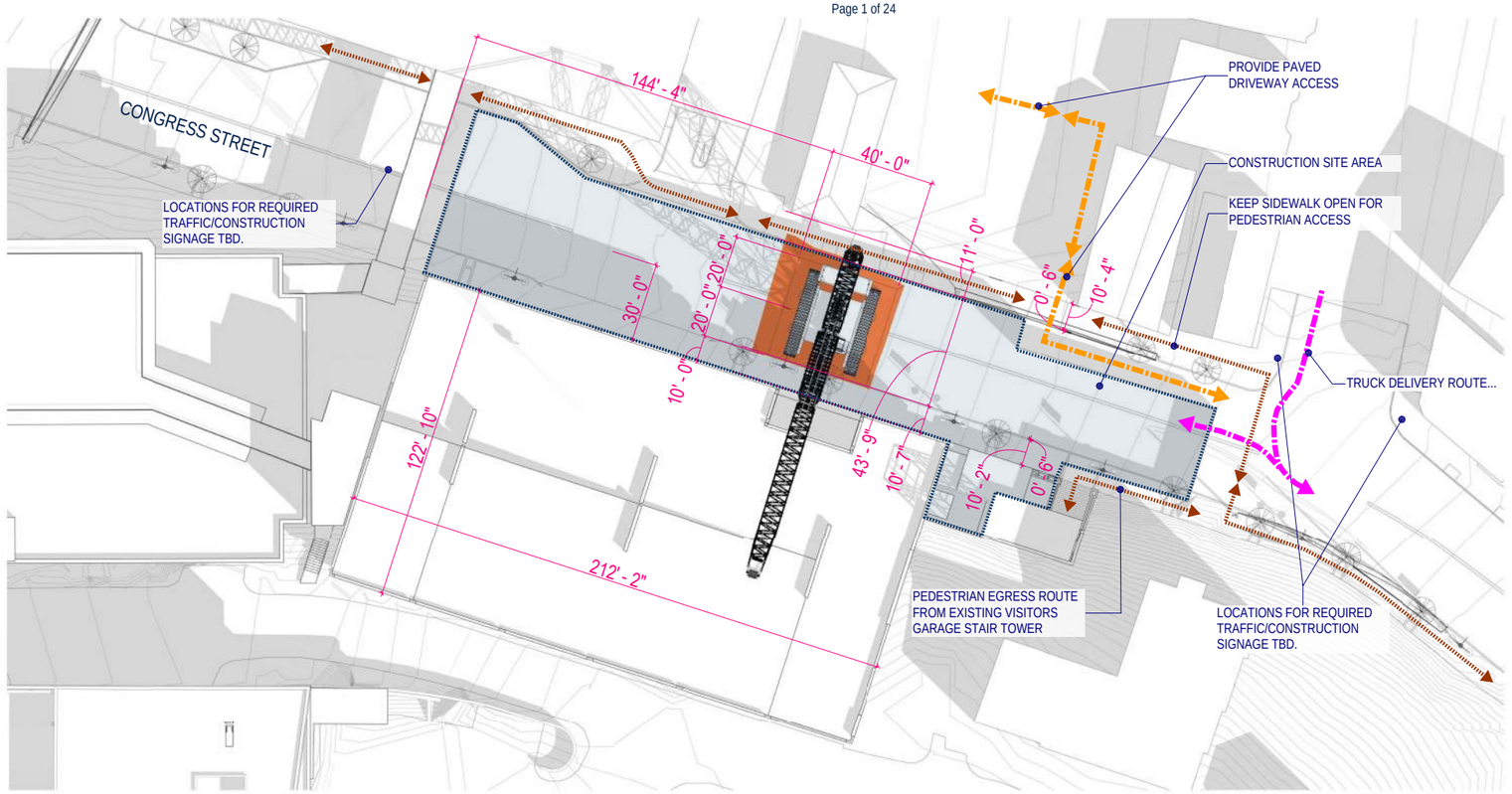
Turner



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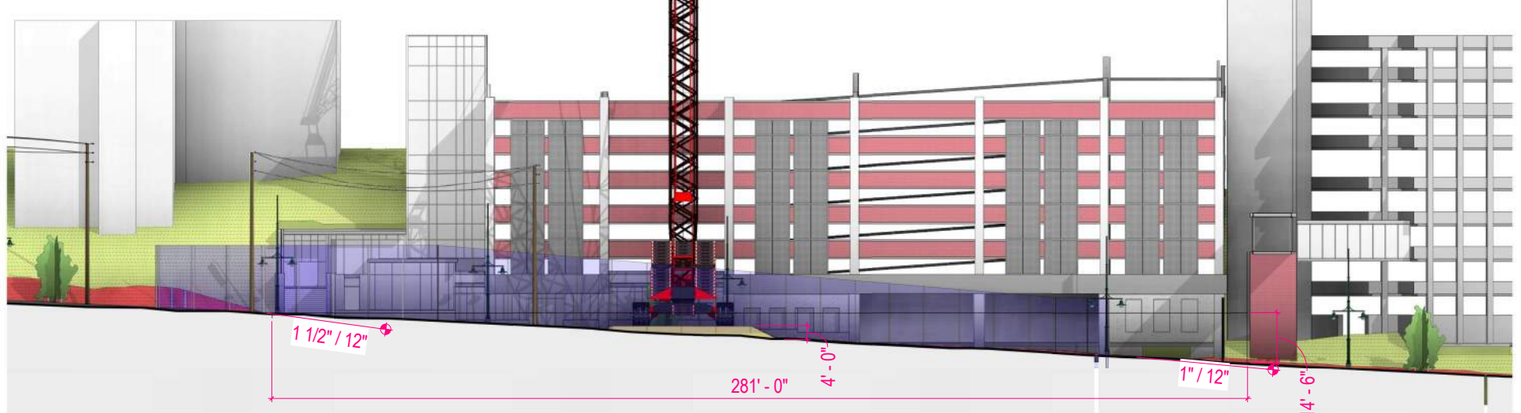

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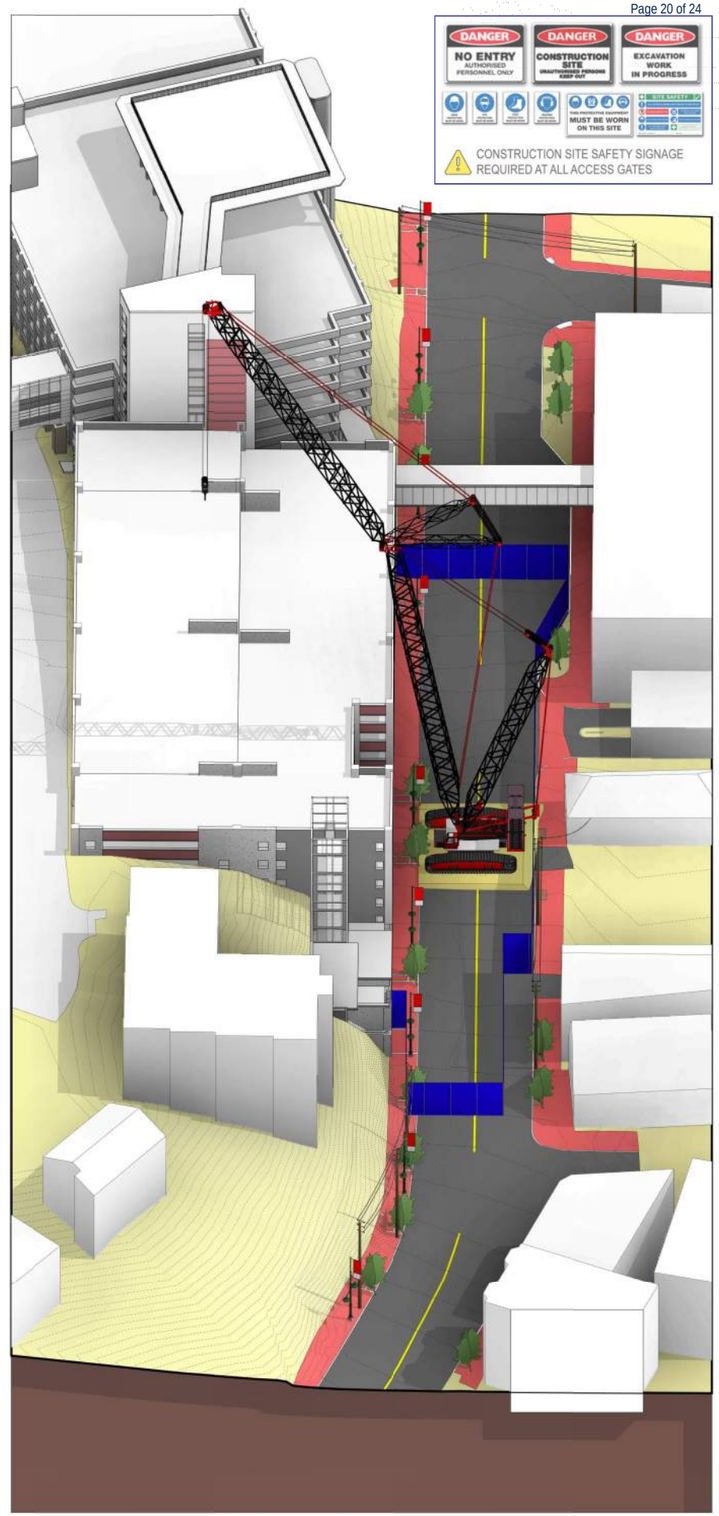
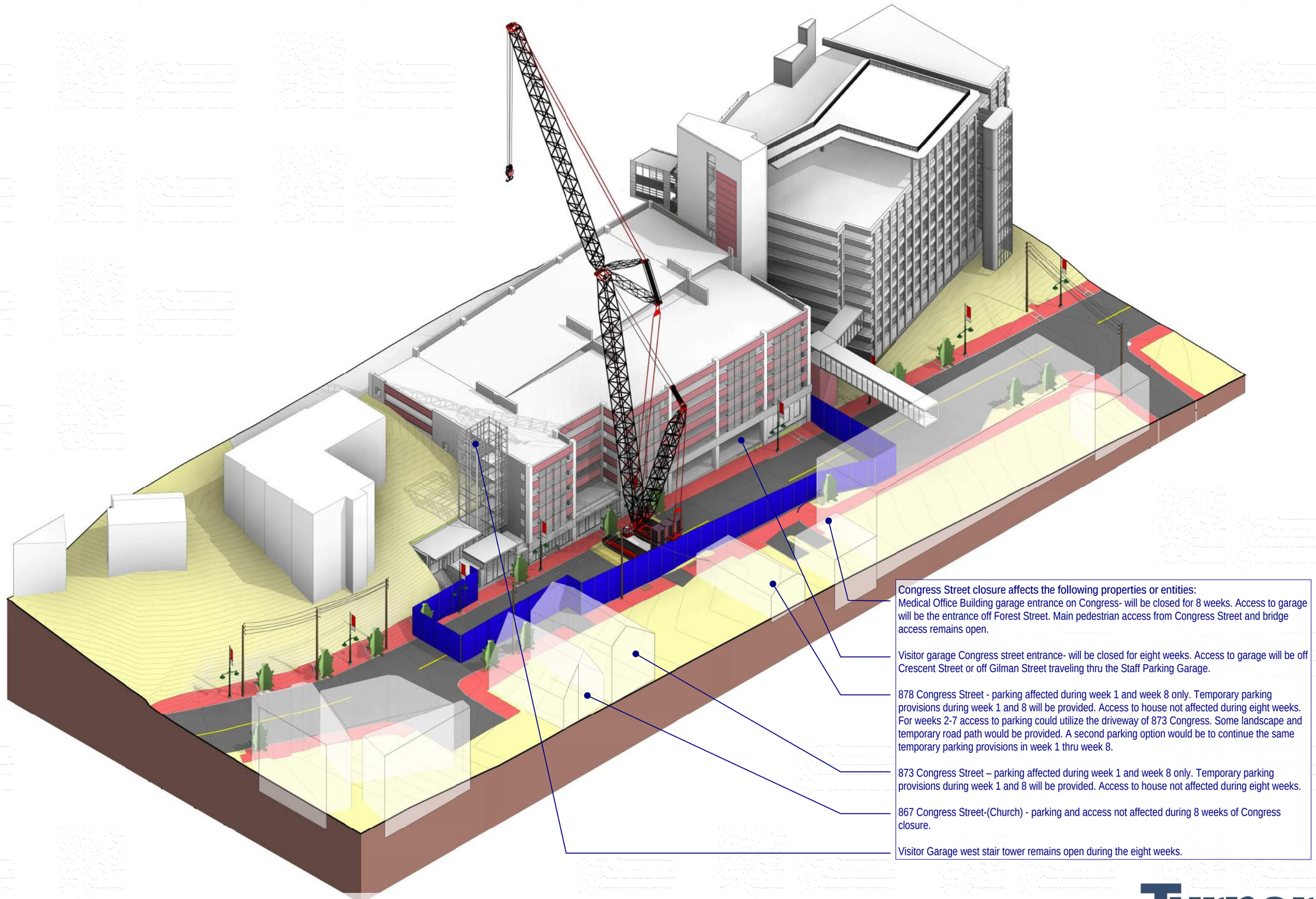


3 CONGRESS STREET - AXON VIEW

Maine Medical Center, Portland Maine
Additions and Renovations [Congress Street Crane Location 2]

Turner



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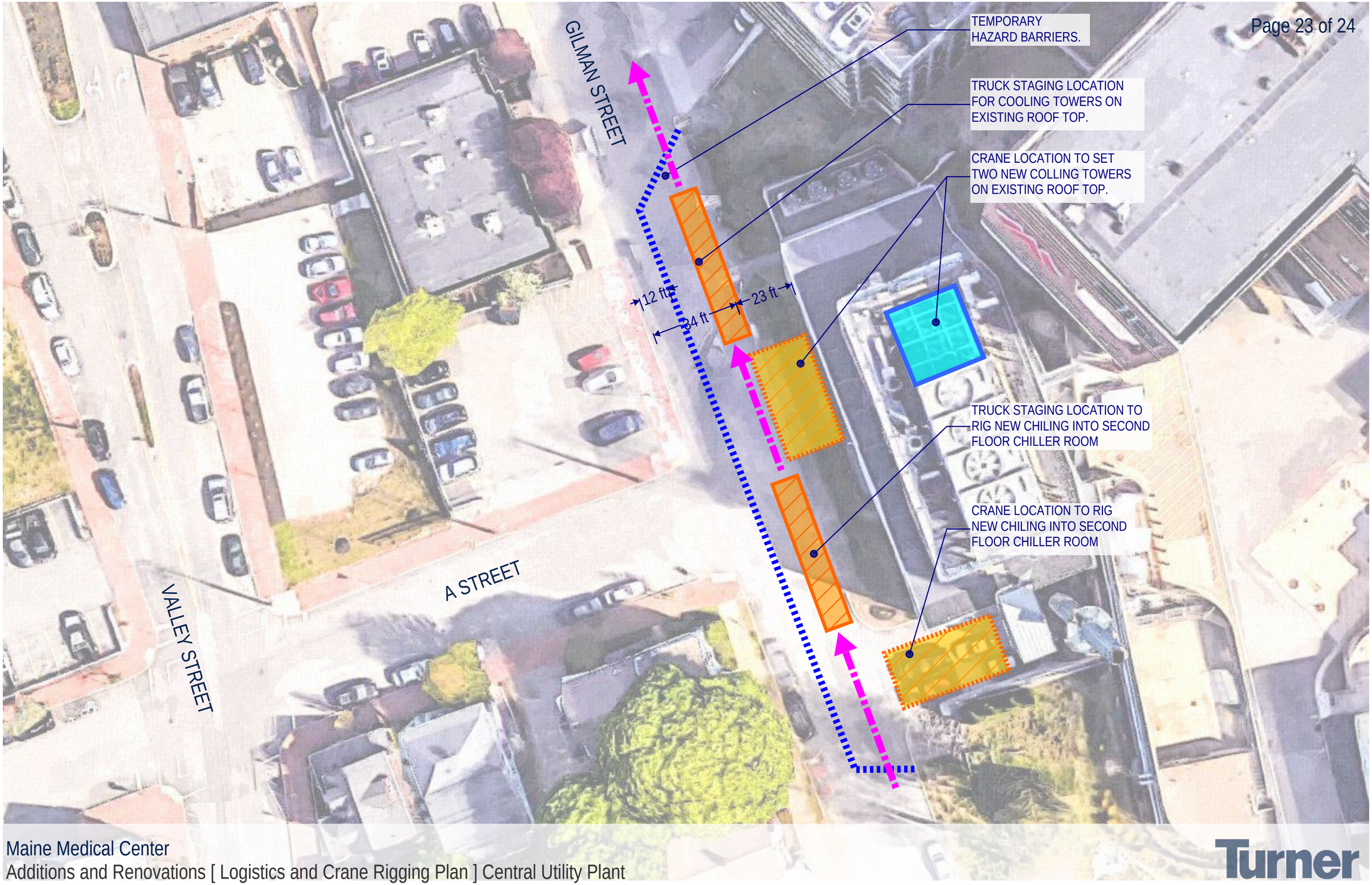
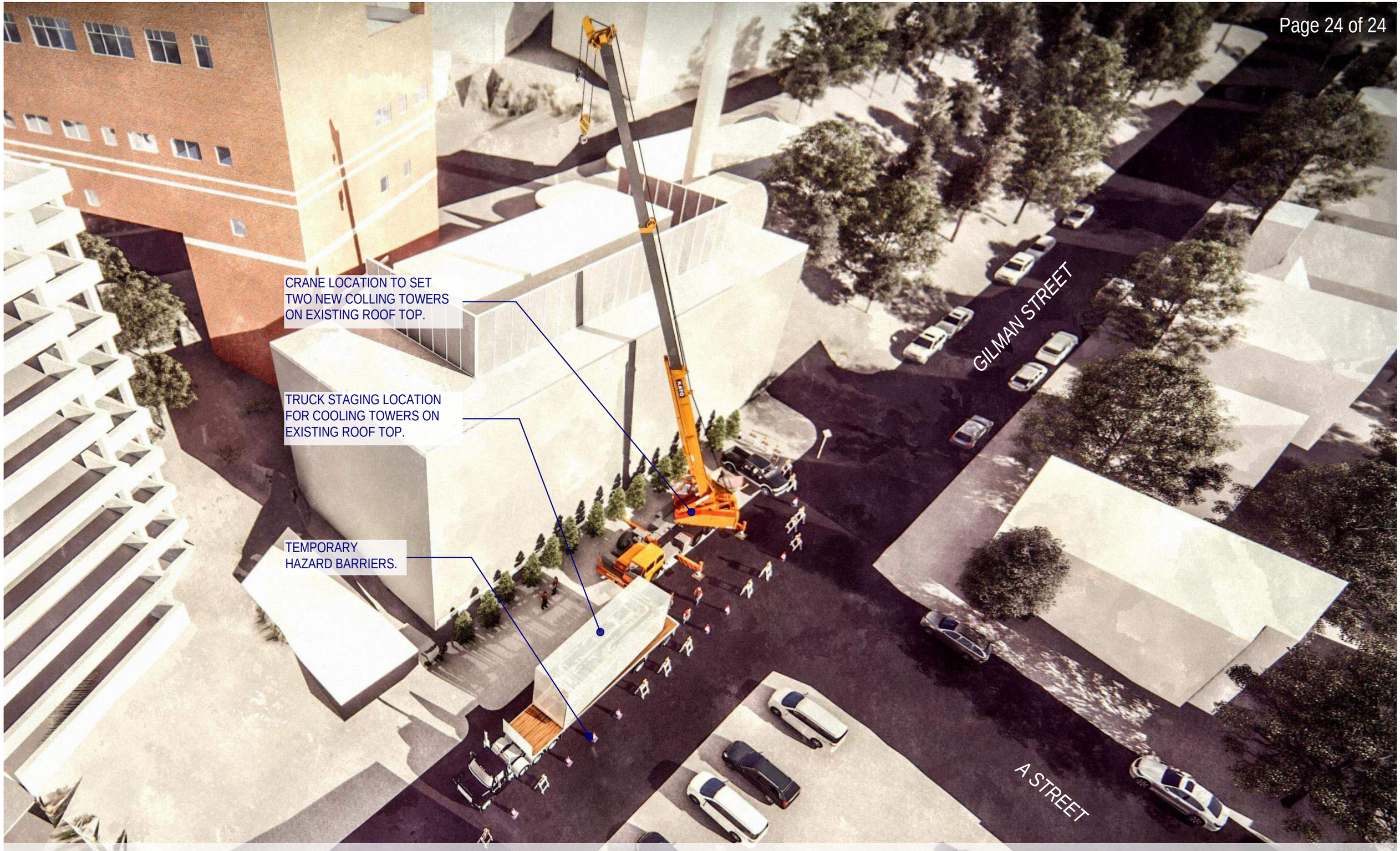
[Central Utility Plant] Logistics Plans and Studies

Turner


GILMAN STREET
A STREET
VALLEY STREET
TEMPORARY HAZARD BARRIERS.
TRUCK STAGING LOCATION FOR COOLING TOWERS ON EXISTING ROOF TOP.
CRANE LOCATION TO SET TWO NEW COLLING TOWERS ON EXISTING ROOF TOP.
12 ft
34 ft
23 ft
TRUCK STAGING LOCATION TO RIG NEW CHILING INTO SECOND FLOOR CHILLER ROOM
CRANE LOCATION TO RIG NEW CHILING INTO SECOND FLOOR CHILLER ROOM



Maine Medical Center

Additions and Renovations [Logistics and Crane Rigging Plan - Typical Both Locations] Central Utility Plant

Turner

MMC East Tower, Visitor Garage, CUP Work Estimated Schedule
Friday, January 05, 2018

ID	Task Name	Duration	Start	Finish
184	CONSTRUCTION EAST TOWER	83.3 wks	Fri 3/9/18	Mon 10/14/19
185	EAST TOWER OVERBUILD	83.3 wks	Fri 3/9/18	Mon 10/14/19
186	Enabling Work	11 wks	Fri 3/9/18	Fri 5/25/18
194	CONSTRUCTION	81.3 wks	Fri 3/23/18	Mon 10/14/19
195	Site Logistics Prep Work	68.3 wks	Fri 3/23/18	Mon 7/15/19
196	Remove Landscaping - Pave	5 wks	Fri 3/23/18	Fri 4/27/18
197	Site Fence	1 wk	Fri 4/6/18	Fri 4/13/18
198	Set up traffic barriers	1 wk	Fri 3/30/18	Fri 4/6/18
199	Install TMP Measures	1 wk	Fri 3/30/18	Fri 4/6/18
200	Wescott Street Closed	0 wks	Fri 4/6/18	Fri 4/6/18
201	Crescent Two way	0 wks	Fri 4/6/18	Fri 4/6/18
202	Wescott Street Opened	0 wks	Mon 7/15/19	Mon 7/15/19
203	Crescent Back to One Way	0 wks	Mon 7/15/19	Mon 7/15/19
204	Crane & Hoist	61.3 wks	Fri 4/6/18	Mon 6/10/19
205	Set up Mobile Crane	3 days	Thu 5/31/18	Mon 6/4/18
206	Setup Scaffold Stair Access	2 wks	Fri 4/6/18	Fri 4/20/18
207	HOIST	40 wks	Tue 9/4/18	Mon 6/10/19
208	Setup Hoist & Run	3 wks	Tue 9/4/18	Mon 9/24/18
209	Run Hoist	36 wks	Tue 9/25/18	Mon 6/3/19
210	Service Car Ready	0 wks	Mon 4/8/19	Mon 4/8/19
211	Remove Hoist	1 wk	Tue 6/4/19	Mon 6/10/19
212	Structural Steel/Concrete/SOFP	20 wks	Mon 6/4/18	Mon 10/22/18
220	Helipdad Steel Structure	36 wks	Tue 9/4/18	Mon 5/13/19
224	Exterior Wall	51 wks	Tue 7/3/18	Mon 6/24/19
283	MEP ROUGHING/CRITICAL WALLS	20 wks	Tue 10/23/18	Mon 3/11/19
303	MECHANICAL ROOFTOP	35 wks	Tue 7/3/18	Mon 3/4/19
311	EXTENSION of ELEVATORS	42 wks	Mon 10/8/18	Mon 7/29/19
328	Interior Fitout	37.4 wks	Fri 11/2/18	Mon 7/22/19
450	Helipad Structure	8 wks	Tue 5/14/19	Mon 7/8/19
454	Commissioning & Life Safety	22 wks	Tue 3/12/19	Mon 8/12/19
484	Cleaning	5 wks	Tue 7/16/19	Mon 8/19/19
487	TCO FINAL Inspections	1 wk	Tue 8/13/19	Mon 8/19/19
488	MMC OCCUPIES EAST TOWER	0 wks	Mon 8/19/19	Mon 8/19/19
489	MMC OPERATIONAL	8 wks	Tue 8/20/19	Mon 10/14/19
490	VISITOR GARAGE	53.4 wks	Fri 9/29/17	Tue 10/9/18
491	PRECONSTRUCTION	36.5 wks	Fri 9/29/17	Tue 6/12/18
492	VG Construction Documents	17 wks	Fri 9/29/17	Fri 1/26/18
496	Visitor Parking Structure-Procurement	32.5 wks	Fri 10/27/17	Tue 6/12/18
506	Visitor Garage GMP	5 wks	Fri 3/9/18	Fri 4/13/18
510	CONSTRUCTION-VISITOR PARKING GARAGE	25.3 wks	Fri 4/13/18	Tue 10/9/18
511	Project Start	0 wks	Fri 4/13/18	Fri 4/13/18
512	Logistics Setup	5.9 wks	Fri 4/13/18	Fri 5/25/18
513	Mobilize	0 wks	Fri 4/13/18	Fri 4/13/18
514	Site Logistics-fencing	1 wk	Fri 5/18/18	Fri 5/25/18
515	Establish Traffic Patterns	1 wk	Fri 5/18/18	Fri 5/25/18
516	Prep for precast connections	4 wks	Mon 4/16/18	Fri 5/11/18
517	Garage Precast Ready-210 pieces	0 wks	Fri 5/18/18	Fri 5/18/18
518	Precast Erection	17.2 wks	Fri 5/18/18	Mon 9/17/18
519	Cranes	8 wks	Fri 5/18/18	Fri 7/13/18
520	CONGRESS STREET	8 wks	Fri 5/18/18	Fri 7/13/18
521	CONGRESS STREET CLOSED	0 wks	Fri 5/18/18	Fri 5/18/18
522	Crane 1 - Congress Street -	4 days	Fri 5/25/18	Thu 5/31/18
523	Remove Congress Crane	4 days	Mon 7/9/18	Fri 7/13/18
524	Precast Erection-FROM CONGRESS	5.4 wks	Thu 5/31/18	Mon 7/9/18
525	Congress Street Precast -Level Elev 154'	5 days	Thu 5/31/18	Thu 6/7/18
526	ED Precast Level Elev 154	5 days	Thu 6/7/18	Thu 6/14/18
527	Congress Street Precast -Level Elev 164'	5 days	Thu 6/14/18	Thu 6/21/18
528	ED Precast Level Elev 164	4 days	Thu 6/21/18	Wed 6/27/18
529	Congress Street Precast -Level Elev 164'	4 days	Wed 6/27/18	Tue 7/3/18
530	ED Precast Level Elev 174	4 days	Tue 7/3/18	Mon 7/9/18
531	PRECAST DETAILING	10 wks	Mon 7/9/18	Mon 9/17/18
534	East Stair Tower	9 wks	Tue 7/3/18	Tue 9/4/18
538	TEMP BRIDGE	6 wks	Tue 7/17/18	Tue 8/28/18
541	EXTERIOR CLADDING	8 wks	Tue 7/17/18	Tue 9/11/18
542	PLUMBING	10 wks	Tue 7/17/18	Tue 9/25/18
543	ELECTRICAL	10 wks	Tue 7/17/18	Tue 9/25/18
544	FIRE ALARM	4 wks	Tue 8/28/18	Tue 9/25/18
545	MISC METALS	8 wks	Tue 7/17/18	Tue 9/11/18
546	MEP Equipment Rooms	6 wks	Tue 8/21/18	Tue 10/2/18
547	SIGNAGE	1 wk	Tue 9/25/18	Tue 10/2/18
548	TCO Garage	3 days	Tue 10/2/18	Fri 10/5/18
549	OPEN GARAGE	0 days	Tue 10/9/18	Tue 10/9/18
550				
551	CENTRAL UTILITY PLANT - CUP	66 wks	Fri 12/22/17	Fri 3/29/19
552	CUP Construction Documents	5 wks	Fri 12/22/17	Fri 1/26/18
555	CUP-Procurement	61 wks	Mon 1/29/18	Fri 3/29/19
556	Cooling Tower Award	36 wks	Mon 1/29/18	Fri 10/5/18
563	Chiller Award	37 wks	Mon 1/29/18	Fri 10/12/18
570	COOLING SEASON OVER	0 wks	Fri 11/9/18	Fri 11/9/18
571	Mechanical piping	12 wks	Mon 11/12/18	Fri 2/1/19
572	Electrical	12 wks	Mon 11/12/18	Fri 2/1/19
573	INSTALL EQUIPMENT	2 wks	Mon 1/7/19	Fri 1/18/19
574	Gilman Street Lane Closure	2 wks	Mon 1/7/19	Fri 1/18/19
575	MEP Hookups	5 wks	Mon 1/21/19	Fri 2/22/19
576	MEP startup	5 wks	Mon 2/18/19	Fri 3/22/19
577	MEP CX	3 wks	Mon 3/11/19	Fri 3/29/19

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

Traffic / Trip Generation Assessment
Maine Medical Center East Tower and Visitor Garage Expansions

Date: December 11, 2017
Subject: Traffic / Trip Generation Assessment
Maine Medical Center Expansion – Phase I
To: Maine Medical Center
From: Randy Dunton, Gorrill Palmer (JN 2866.01)

Gorrill Palmer (GP) has prepared this Traffic Assessment Memorandum to address traffic impacts and trip generation associated with construction of MMC's East Tower addition and Visitor Garage expansion. This Traffic Assessment is based on discussions at a pre-application meeting with the City Staff and traffic peer reviewer (Mr. Errico) on November 15, 2017 at City Hall. Details of the project and associated traffic impacts, if any, are described as follows:

East Tower Addition / Helipad

This effort includes the addition of two floors (approximately 60,000 sf) to the existing East Tower as well as relocating the helipad to the roof. The purpose of this expansion is to decompress existing patient bed density and allow for more private single patient rooms. The hospital is currently licensed for 637 beds; of which approximately 51% are semi private. As described in the IDP, on average 60 inpatient beds in semi-private rooms are unavailable each day because for some reason a patient can't share a room. It should be noted, that this decompression does not significantly increase patient volume.

Conclusion: The expansion of the East Tower will not increase trip generation to / from the hospital.

Patient / Visitor Garage Addition

This effort includes the addition of three new floors to the existing Patient / Visitor Parking Garage, an increase of approximately 225 spaces to the existing 480 space garage. This increase in parking spaces will not generate additional traffic to the adjacent roadway network and may actually reduce vehicle miles traveled on the adjacent roadway system by reducing the number of vehicles driving around looking for parking spaces.

Conclusion: The expansion to the Patient / Visitor Parking Garage will not increase trip generation to / from the immediate area and may reduce the traffic on the surrounding roadway network / neighborhoods by reducing drivers looking for parking spaces.

Future Phases

This assessment only details the traffic impacts of the projects described above. Future phases include; new six story Congress Street building and relocation of the employee parking garage to St. John Street. These future Phases will require a MaineDOT Traffic Movement Permit (TMP) and full Traffic Impact Study (TIS). Maine Medical Center has already been discussing these future phases with the City and will continue to work closely with the City through the traffic studies.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER AND VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION M CONSISTENCY WITH CITY MASTER PLANS

THE PROJECT DESIGN IS GOVERNED BY THE CONDITIONS SET FORTH IN THE INSTITUTIONAL DEVELOPMENT PLAN (IDP). THE IDP, PAGE 24 , ARTICULATES COMPLIANCE WITH WITH THE CITY COMPREHENSIVE PLAN .

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION N UTILITIES

AS REQUIRED BY THE PORTLAND WATER DISTRICT, THE MMC MECHANICAL ENGINEER HAS POPULATED THE EXCEL SPREADSHEET PROVIDED BY BTHE WATER DISTRICT (SEE ATTACHMENT). AS STATED IN WRITTEN SUBMISSION S-1, THE EAST TOWER EXPANSION IS A DECOMPRESSION OF FACILITIES AND WILL NOT INCREASE THE NUMBER OF HOSPITAL BEDS. THERE WILL BE A SLIGHT INCREASE IN STAFF, HOWEVER , AND THE INCREASED WATER USE IS CALCULATED AS FOLLOWS :

(6) ADDITIONAL STAFF TOILETS @ (325) GPD = 1950 GPD
(2) ADDITIONAL STAFF SINKS @ (50) GPD = 100 GPD
TOTAL INCREASED WATER USE = 2050 GPD

THE VERTICAL EXPANSION WILL TIE INTO EXISTING WATER, SANITARY SEWER AND ELECTRICAL INFRASTRUCTURE, WHICH HAVE THYE CAPACITY TO SERVE THE EXPANSION.

Peak Flow Based on Fixture Count

Customer	Maine Medical Center
Street Address	22 Bramhall Street
City	Portland

Fixture		Fixture Value 60 psi		No. of Fixtures		Fixture Value
Bathtub		8	x	0	=	0
Bedpan Washers		10	x	2	=	20
Bidet		2	x	0	=	0
Dental Unit		2	x	0	=	0
Drinking Fountain - Public		2	x	0	=	0
Kitchen Sink		2.2	x	0	=	0
Lavatory		1.5	x	64	=	96
Showerhead (Shower Only)		2.5	x	64	=	160
Service Sink		4	x	2	=	8
Toilet	-Flush Valve	35	x	70	=	2450
	-Tank Type	4	x	0	=	0
Urinal	-Pedestal Flush Valve	35	x	0	=	0
	-Wall Flush Valve	16	x	0	=	0
Wash Sink (Each Set of Faucets)		4	x	8	=	32
Dishwasher		2	x	0	=	0
Washing Machine		6	x	0	=	0
Hose (50 ft. Wash Down)	-1/2 in.	5	x	0	=	0
	-5/8 in.	9	x	0	=	0
	-3/4 in.	12	x	0	=	0
Combined Fixture Value Total						2766

Customer Peak Demand From Fig. 4-2 or 4-3	400
Pressure Factor From Table 4-1	1.17

No. of Irrigation Sections (Areas of 100 sq. ft.)			0
Irrigation Factor	(1.16-Spray Systems, 0.40-Rotary Systems)		
Hose Bibs for Irrigation:			
	Size	Fixture Value	No. of Fixtures
	1/2"		
	5/8"		
	3/4"		

Total Fixed Demand (Peak Flow) 468 gpm

Table 4-1 Pressure Adjustment Factors

Working Pressure at Meter Discharge (psi)	Pressure Adjustment Factor
35	0.74
40	0.80
50	0.90
60	1.00
70	1.09
80	1.17
90	1.25
100	1.34

Adapted from AWWA Manual M22 table 4-1

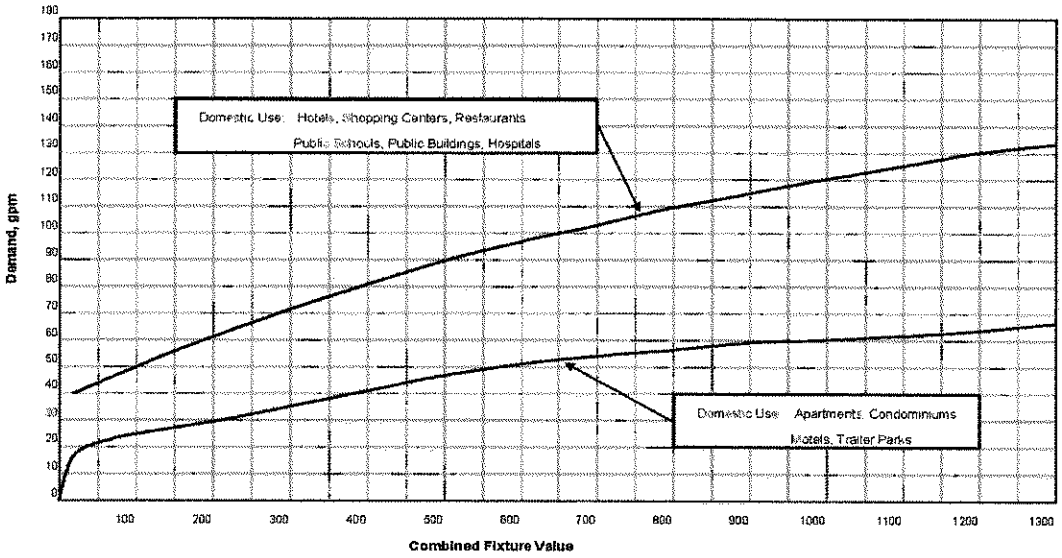


Figure 4-2 Water flow demand per fixture value - low range

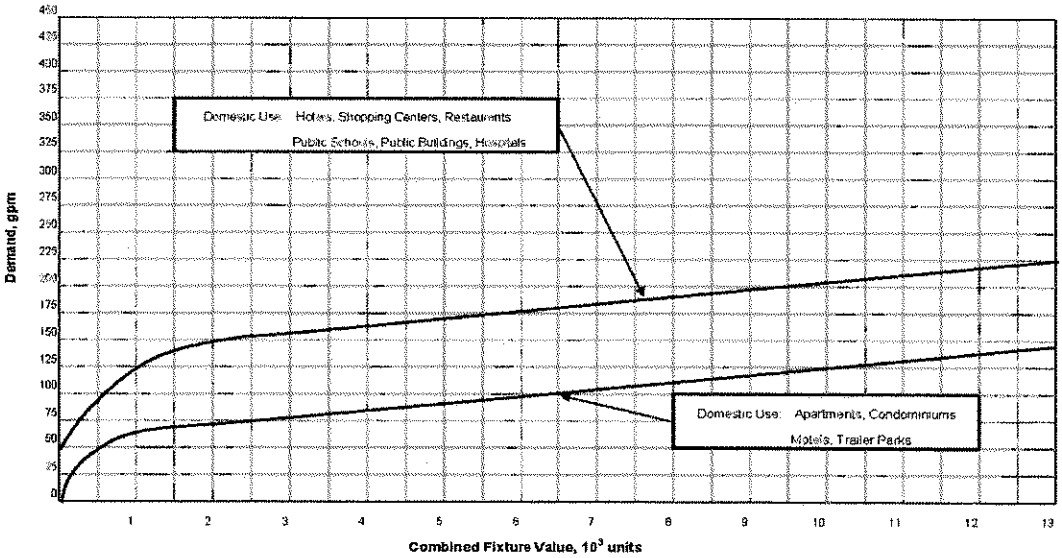


Figure 4-3 Water flow demand per fixture value - High range

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION O SOLID WASTE

AS STATED IN WRITTEN SUBMISSION S – 1 , THE EAST TOWER EXPANSION IS A DECOMPRESSION OF FACILITIES AND WILL NOT INCREASE THE NUMBER OF HOSPITAL BEDS. THERE WILL BE A SLIGHT INCREASE IN STAFF, HOWEVER, THE QUANTITY OF SOLID WASTE WILL NOT INCREASE SUBSTANTIALLY. MMC HAS A SOLID WASTE HANDLING CONTRACT WITH TROIANO WASTE MANAGEMENT, AND ALL DISPOSALS COMPLY WITH APPLICABLE REGULATIONS.

Maine Medical Center
MaineHealth

PERKINS+WILL

MMC East Tower Expansion – City Design Comments

To:	City of Portland Planning Department
From:	Jeffrey Keilman, Perkins+Will; Al Green, MMC
Date:	January 19, 2018
Subject:	**MMC East Tower Expansion – Phase 1 Design Narrative**
Attachments	
	Slides shared with City Staff on January 16, 2018

Campus Vision

The campus transformation of Maine Medical Center draws its inspiration from its site, history, programmatic needs and most importantly the desire to create a sense of place. Specifically, the hospital will reflect its location within Portland and the state of Maine. The goal is to preserve the historic character of the existing campus yet provide the opportunity for new design identities to develop that represent the modern delivery of healthcare and the future of Maine Medical Center.

Many key design drivers and interventions envisioned for Maine Medical Center's campus transformation balance the clinical needs of the hospital with the campus' place within the city of Portland. Included is a primary effort to improve the built environment of MMC's campus relationship with the city. This goal is balanced with the clinical needs of the patients served by MMC. Healthcare design has to start with the internal program and layout to ensure a successful and functional design. From there, the exterior design can begin to take shape and be informed by the internal concepts.

The ultimate success of the project will be to provide a positive patient and visitor experience. The creation of healing environments is an essential element to the design of the submitted projects. This is through the incorporation of nature, natural light, and the blending of interior and exterior. Access to views and light are proven to improve positive patient outcomes. Proper location and use of glass and transparency provides connections to the exterior to improve patient experience but also to further reinforce wayfinding.

The current projects submitted within this Site Plan application were developed as a continuation of existing conditions. The façade of the East Tower expansion will relate to the existing conditions and massing of the East Tower by utilizing metal panel and glass.

The internal planning strategies, critical for a clinically driven building, aimed to blend the exterior with the interior through strategic planning that enabled the interiors to be opened up to and expressed on the exterior through the large corner windows.

The East Tower Expansion is conceived as the next phase in the campus replacement and modernization that will continue to blend and blur the new and existing campus architecture. The

addition will continue to link the vision started with the Bean 2 surgical expansion and will culminate with the Congress St. addition.

Context

The East Tower and Visitor Garage expansions are extensions of existing conditions, and as such derive many of the material choices from the existing adjacent construction.

Through the design process, the team explored the impact of the structures from various viewpoints understanding the additions scale within the urban context. Multiple angles and views were analyzed by the design team in conjunction with Maine Medical Center, including long-views, which influenced the decisions of various fenestration patterns and scale. This is particularly important for the East Tower addition which is visible from many points in the city. The design responds to both the long views with the use of scale of fenestration, but also manages to respond to local context through the attention to details, and sensitivity to materials and palate from the campus and neighborhood.

Building Design

The current Site Plan submission outlines (2) projects that are expansions and extensions of existing conditions. Within this context the design process still aimed to express the internal program constraints and create a dialogue between the interior and exterior.

Design is always subjective but the process to reach the current solution was reviewed and vetted by many parties, including critical voices form Maine Medical Center but also internally to Perkins+Will with multiple peer design reviews. The Perkins+Will internal review includes international designers as well as those from across the United States. The proposed design was universally selected as the best option to meet with the campus vision and existing context.

The design team believes the response for the East Tower expansion is in line with the key elements of design outlined through the design guidelines established in MMC's Institutional Development Plan, including the attention to proportion, rhythm, and use of materials. Design iterations were studied and reviewed by multiple stakeholders, including Maine Medical Center. The proposed design was the first solution where all parties agreed that the strategy successfully unifies the existing structure with the new addition while meeting the stringent interior requirements for advanced patient care in a healthcare setting.

By maximizing and utilizing the opportunities provided by the massing and proportions, the design is unified with the existing structure, but also creates urban scale gestures recognizing the prominence within the city. In particular, the scale of multistory fenestration and use of rhythm provided by the interior program.

One key design approach was to limit the current idiosyncrasies that are on the existing East Tower building that are not represented by any of the adjacent structures on the Maine Medical campus. In particular, the pavilions, Richards, and Bean are buildings that have a minimalist approach to massing and detailing on their exterior facades. In essence, the proposed design is more compatible with the existing campus and future goals outlined within the previously approved IDP. This was achieved by

simplifying the palate of materials and utilizing the existing materials on the structure. Introduction of new materials or further reinforcing the banding would have the opposite effect of creating a larger impact of the massing within the city and the campus.

The Visitor Garage expansion will match the current rhythm and proportions of the existing garage. The street façade of the Visitor Garage is an existing condition however opportunities for activation are being considered currently.

Building Materials

The selected materials for each addition are derived from the existing materials on the building and are as follows:

- East Tower – White Aluminum Composite Panels and Glass Curtain Wall
- Visitor Garage – Precast Concrete Panels with imbedded brick

Design Constraints

As with any building addition or expansion, existing conditions and real world constraints are critical in determining the final design solution. In particular, constructability for both the East Tower and Visitor Garage were important design drivers. Capacity within the existing structure, feasibility of installation of façade systems, and schedule were considered in selecting the final design solution.

hcc: Project File
Chuck Siconolfi – P+W
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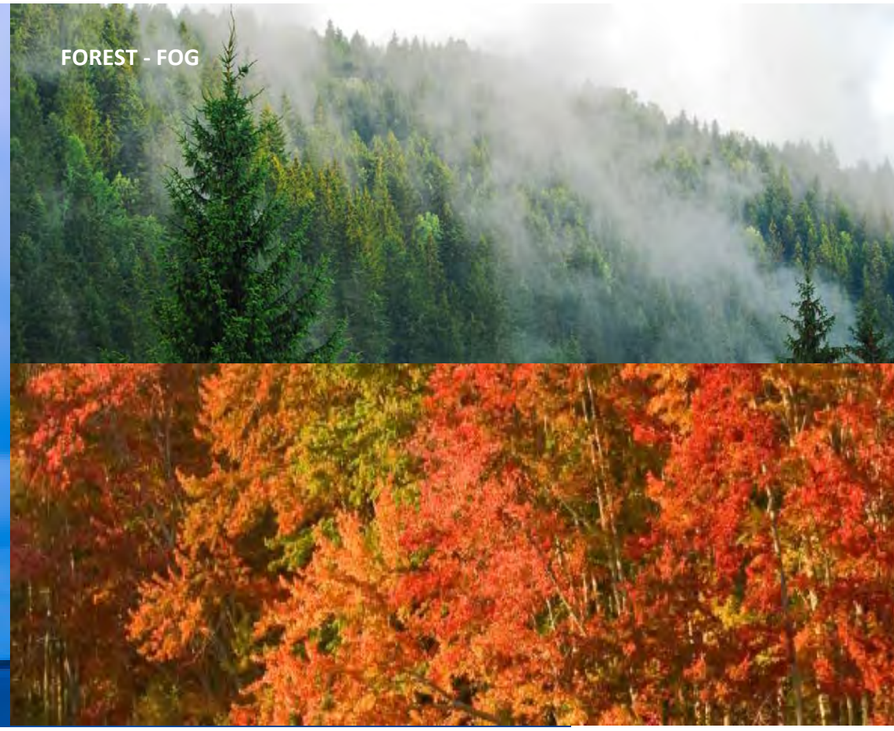
Adam Troidl - Colliers
Mark Harris - MMC
Walter Pochebit – MMC
Al Green – MMC
Dennis Morelli - MMC

MMC SITE PLAN SUBMISSION

EAST TOWER & VISITOR GARAGE

CONCEPT DIAGRAMS



SOLID HEAVY

SOLID / LIGHT

ETHEREAL

INTEGRATION OF INSIDE AND OUTSIDE

Blurring the lines between the inside and the outside to bring the garden into the hospital.

CIRCULATION

MATERIALS INSPIRED BY MAINE

50 YEAR PALETTE

Use of natural materials take clues from nature to create a timeless environment.

50 PALETTE

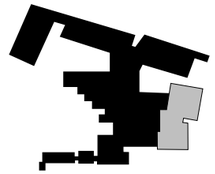
Sky

Sea

Land

COLOR OPTIONS

FLOOR PLAN



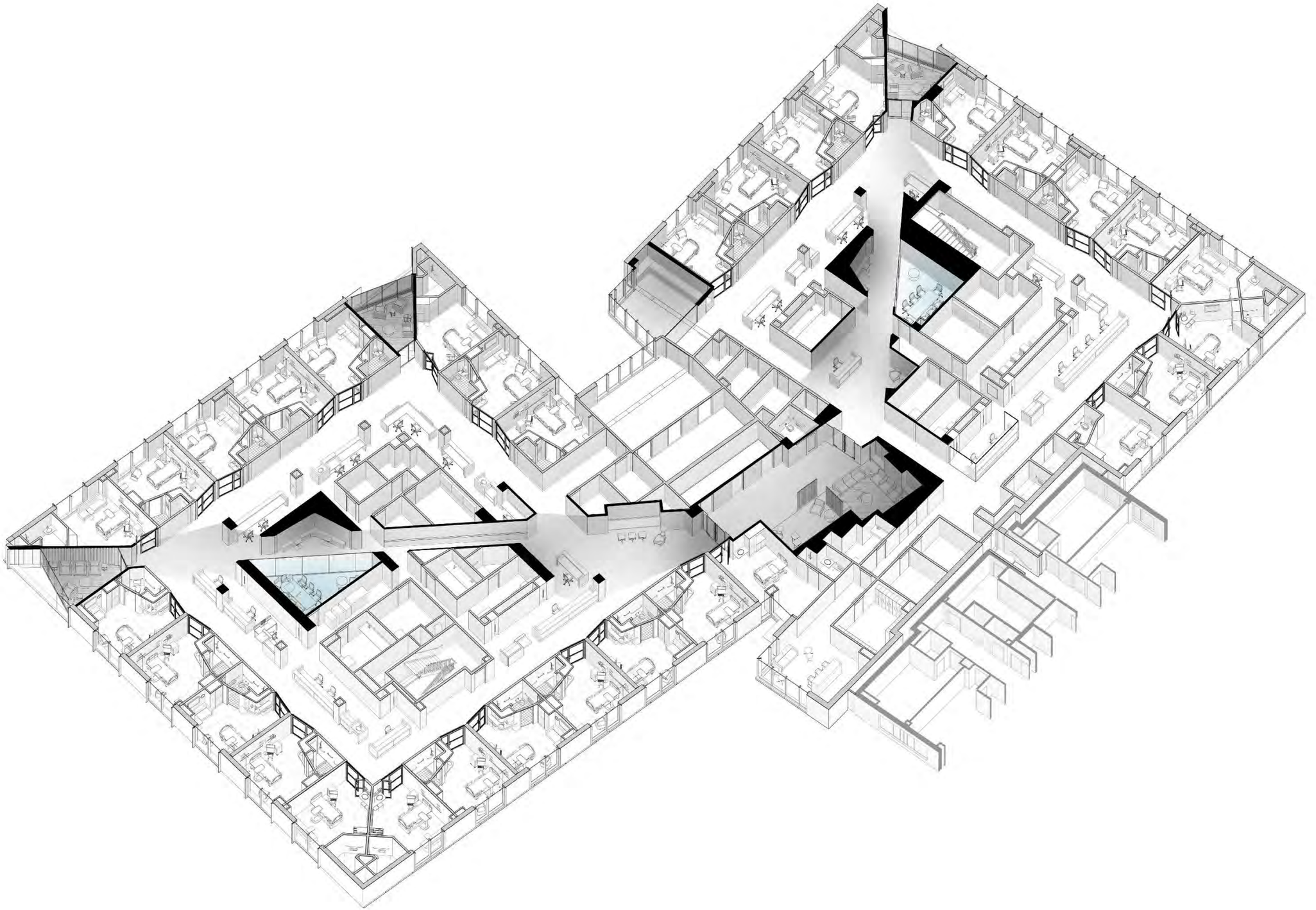
Views to White Mountains

Views to Casco Bay

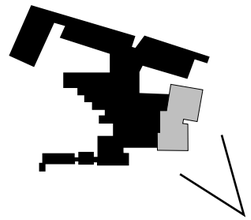
Views to Portland Water Front

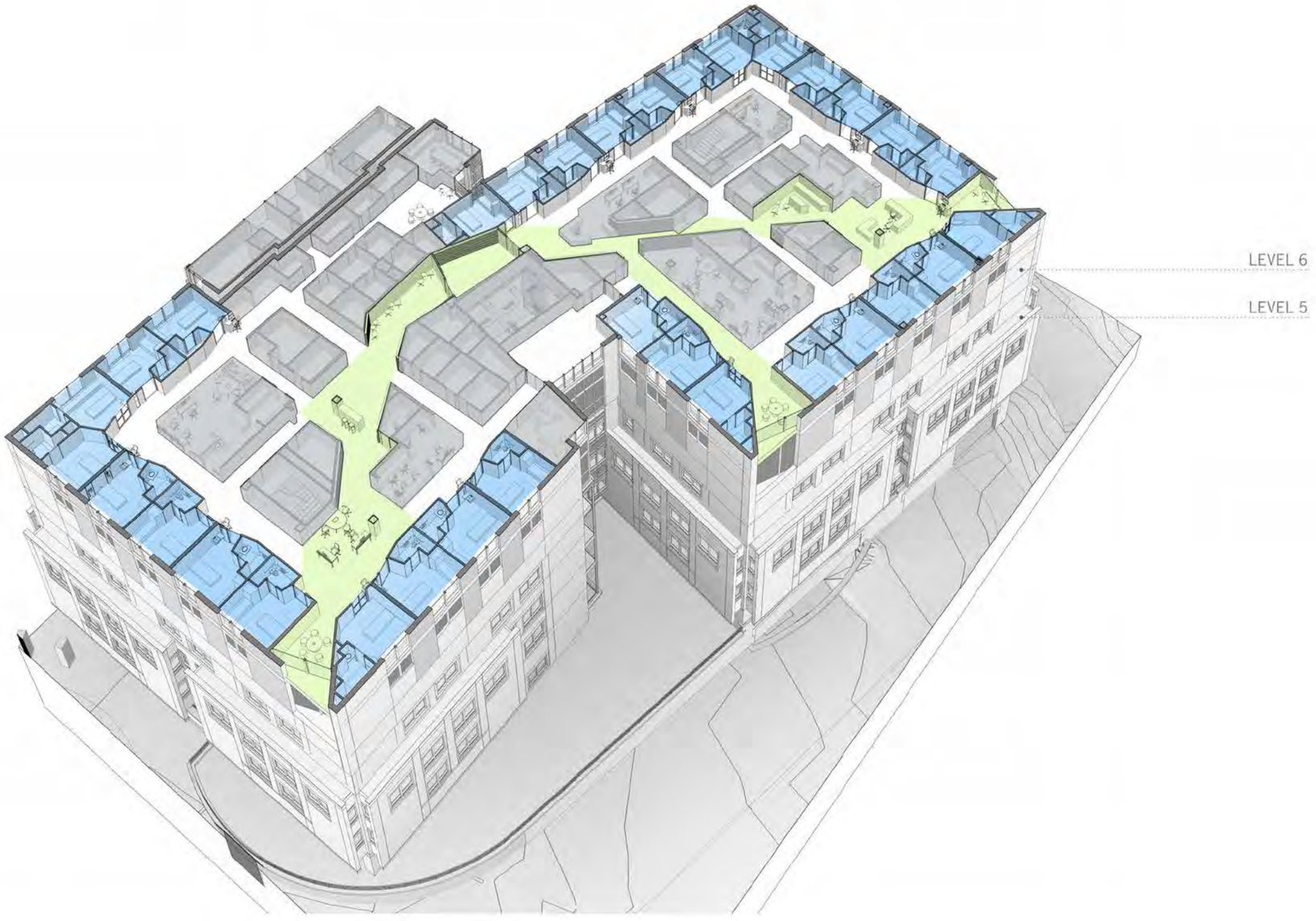
0 10 20 50

AXONOMETRIC

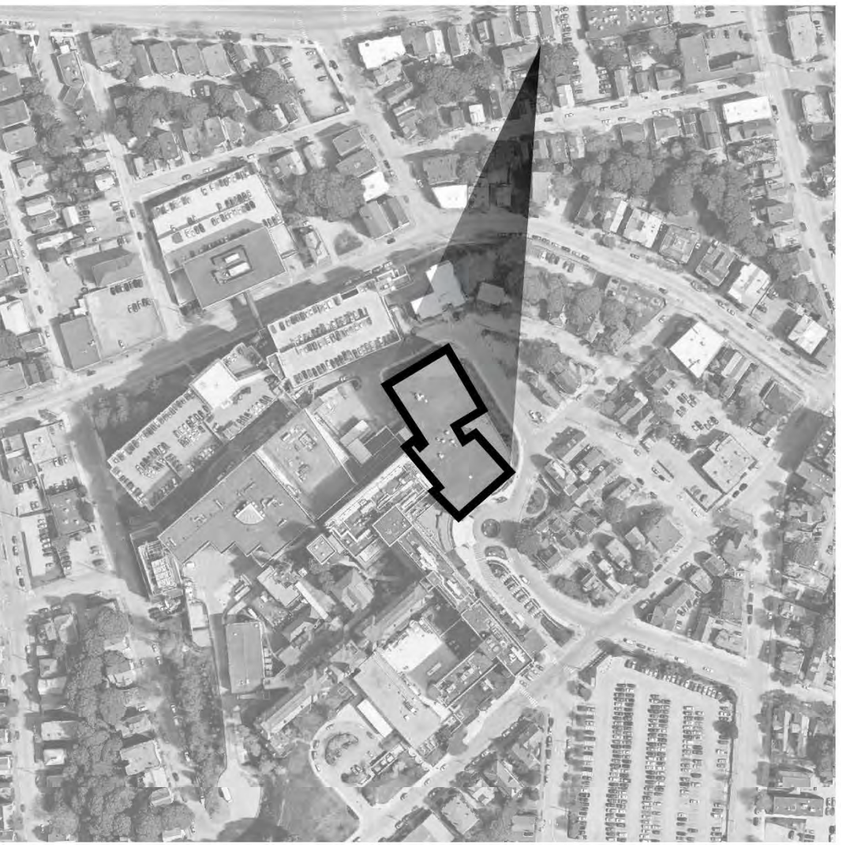


AXONOMETRIC



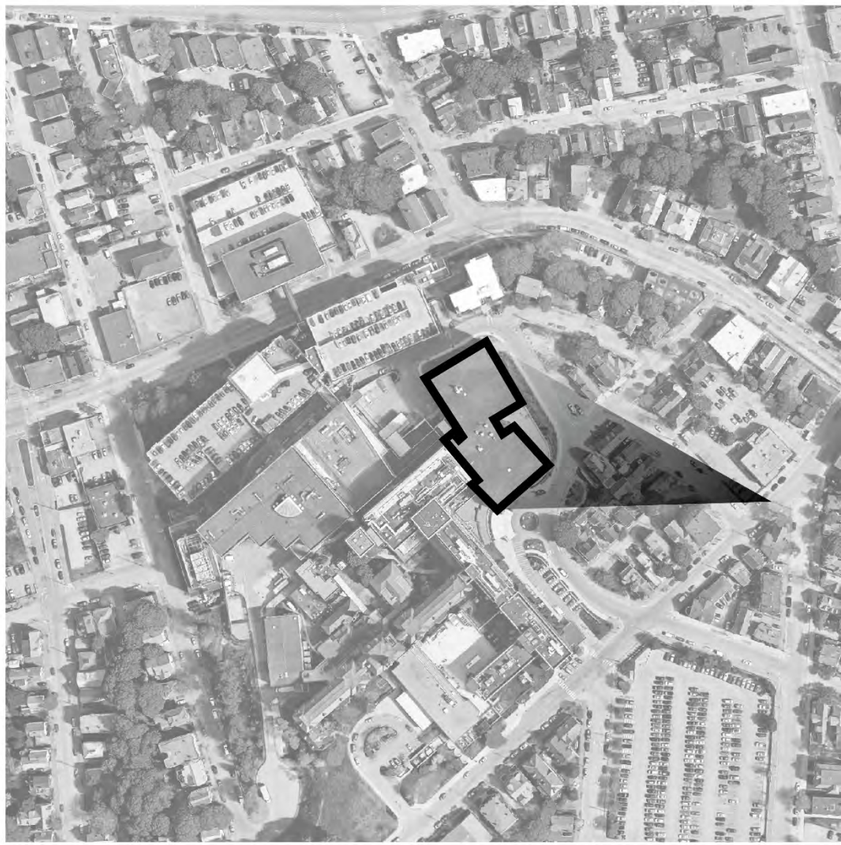


CAMPUS AERIAL



AERIAL VIEW

VIEW FROM BRAMHALL ST



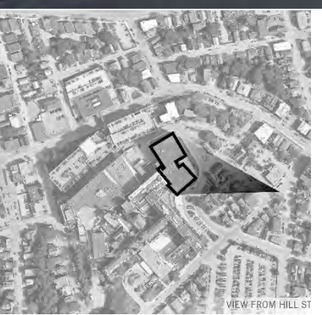
VIEW FROM HILL ST

AERIAL VIEW
South West

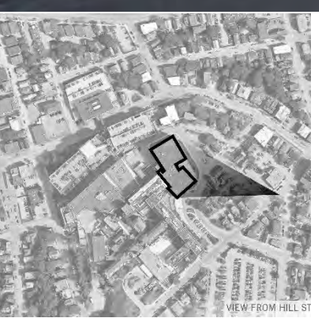
South West

Bramhall and Chadwick Street

Bramhall and Chadwick Street

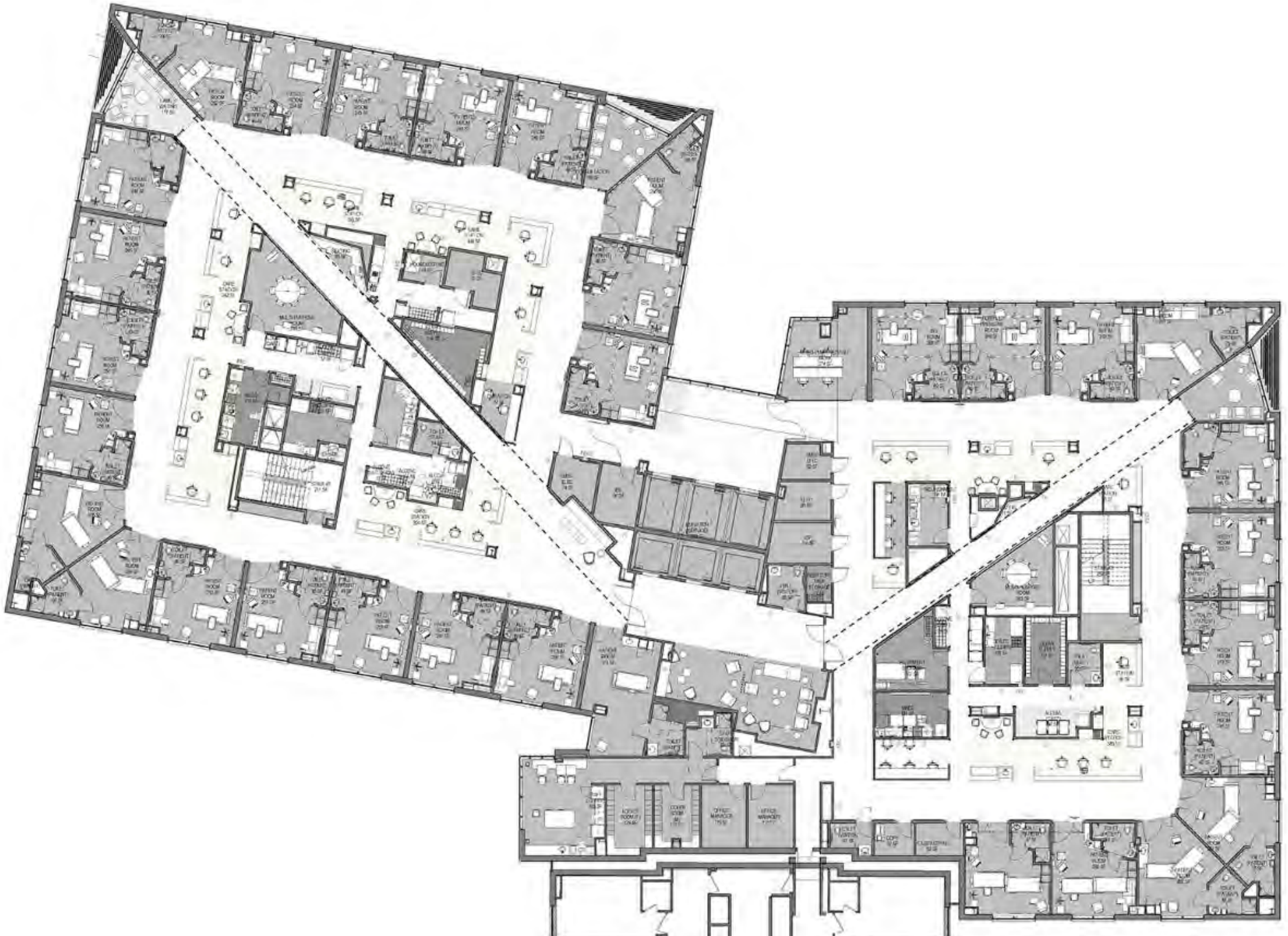


Bramhall and Hill Street



Bramhall and Hill Street

TYPICAL FLOOR PLAN



EAST ELEVATION

NORTH ELEVATION

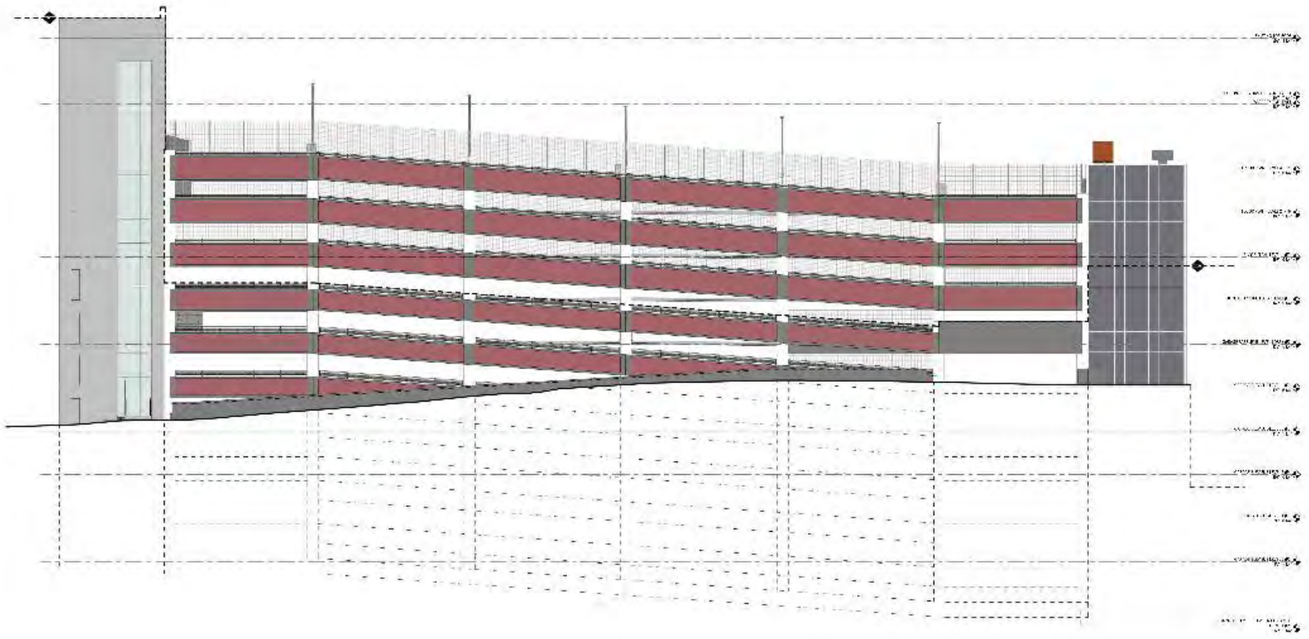
SOUTH ELEVATION

WEST ELEVATION

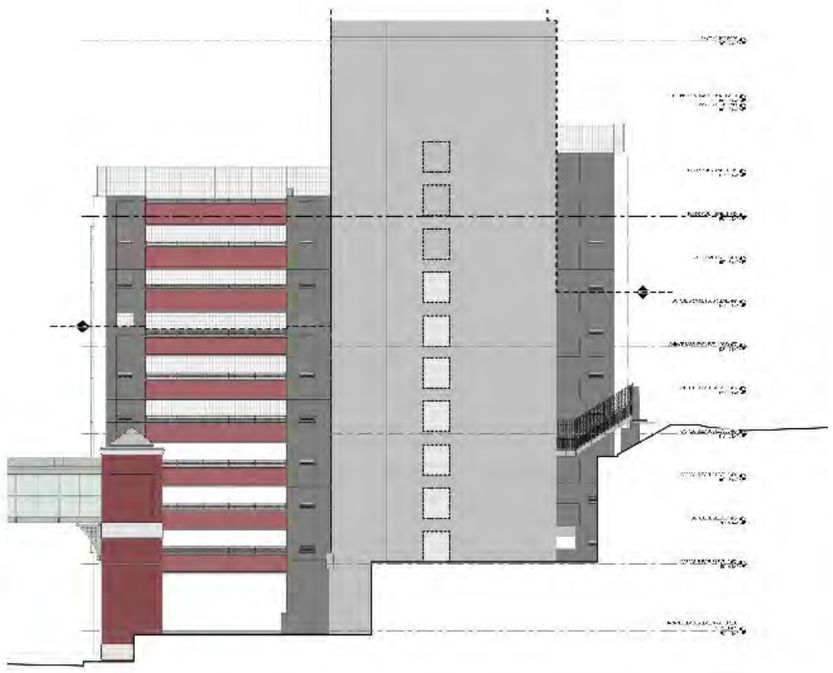
Visitor Garage Expansion

EXISTING

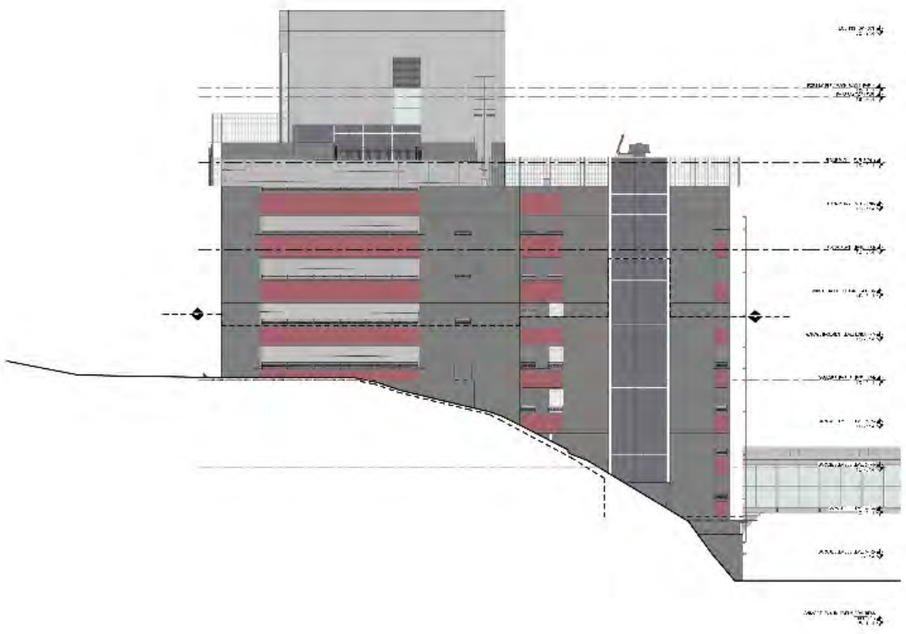
SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION

APPENDIX

US-1
Hide imagery

GROVER C
EDITH C. RICHARDS
MEMORIAL
MAIN

WESCOTT ST
ELLSWORTH ST
STOP
NO PARKING ANY TIME
Maine Medical Center
EMERGENCY
Trauma Center
Parking Garage
Main Entrance
South Entrance
South Lot

Medical Center
Maine

CMAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION Q Design Review / Consistency with Design Standards per Zoning Ordinance Section 14-526

The proposed East Tower Expansion and Visitor Garage Expansion comply with the design guidelines as outlined in the approved Maine Medical Center IDP and IOZ Regulatory Framework as well as Zoning Ordinance Section 14-526.

As building expansion to existing structures, the impacts are minimal to the exiting public realm and ground plane. This includes the critical areas outlined by Zoning Ordinance such as massing, wind, mechanical systems, shadows, ad snow and ice loading since the building footprints are not modified. View corridors are preserved since the building expansions increase height of existing structures and are not adjacent to existing structures except those owned by Maine Medical Center. The projects are also not considered part of historic properties and are not located within or adjacent to a historic district.

All of these considerations were documented within the Maine Medical Center IDP and IOZ Regulatory Framework which set the basis for review of the proposed East Tower and Visitor Garage expansions.

The East Tower and Visitor Garage expansions are extensions of existing conditions. These meet the design guidelines in MMC ' s IDP.

- These designs contribute to the campus vision and organizational goals.
- The overall composition and experience of the campus was considered in the design process.
- Building entrances and the public right of way are not impacted by this project.
- The expansions are extensions of existing conditions and are therefore compatible with existing and planned character of the neighborhood.
- Façade materials will be high quality and contribute to an attractive public realm.
- The design process considered the long views. The rooftop helipad will not be screened for safety reasons.
- This project does not impact the ground floor of any existing building.

MAINE MEDICAL CENTER LEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION R HVAC VERIFICATION

THE APPLICANT'S CONSTRUCTION MANAGER HAS NOT YET SELECTED THE HVAC EQUIPMENT FOR THE EAST TOWER. MMC REQUESTS A CONDITION OF APPROVAL STATING THAT , PRIOR TO OBTAINING A BUILDING PERMIT, THE APPLICANT SHALL SUBMIT EVIDENCE THAT THE EQUIPMENT MEETS APPLICABLE STATE AND FEDERAL EMISSION REQUIREMENTS.

MAINE MEDICAL CENTER KEVEL III SITE PLAN APPLICATION
EAST TOWER / VISITOR GARAGE VERTICAL EXPANSIONS
WRITTEN SUBMISSION S – 2 BICYCLE PARKING

PER THE INSTITUTIONAL DEVELOPMENT PLAN (IDP) THERE ARE 2,362 VEHICLE PARKING SPACES ON THE BRAMHALL CAMPUS AND 905 CONGRESS STREET . WITH THE ADDITION OF 225 SPACES IN THE VISITOR GARAGE EXPANSION, THE NEW TOTAL SPACE COUNT IS 2587 SPACES.

REQUIRED BICYCLE PARKING :
20 BIKE SPACES FOR THE 1ST 100 VEHICLE SPACES = 20 SPACES
2587 TOTAL VEHICLE SPACES – 100 = 2,487 / 1 BIKE PER 20 VEHICLES = 124 BIKES
TOTAL REQUIRED BIKE SPACES = 20 + 124 = 144 SPACES

THE LOCATIONS OF BIKE RACKS IS DEPICTED ON PAGE 58 OF THE IDP.
PER THE IDP PAGE 72 , THERE ARE 193 BIKE SPACES ON CAMPUS.

Maine Medical Center
East Tower Expansion
Existing Building Code Report
December 8, 2017

Prepared By:

AKF Group
99 Bedford Street
2nd Floor
Boston, MA 02111
Phone: 617-737-1111
FAX: 617-737-4311

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INTRODUCTION

Perkins + Will has retained AKF Group LLC to prepare this existing building narrative code report for the vertical addition to East Tower on the Maine Medical Center Campus located in Portland, ME. The proposed addition will add two additional stories of patient beds as well as a penthouse and helipad on the roof.

QUICK FACTS

- Aggregate Building Area: Approximately 240,000 SF
- Project Area (Level 6 & 7): Approximately 60,000 SF
- Height: 8 stories
- Sprinkler Status: Fully sprinklered
- Standpipe System: Existing standpipe to be extended to addition
- Occupancy: Use Groups B, I-2 (Condition 2), S-1 (accessory), & S-2 (accessory)
- Construction Type: Type IA required

1. APPLICABLE CODES & STANDARDS

The State of Maine requires municipalities with more than 4,000 residents to adopt and enforce the Maine Uniform Building and Energy Code (MUBEC). The next edition of the MUBEC is expected to become effective in 2017 or early 2018. These codes are outlined below and serve as the basis for this report.

- International Building Code (IBC), 2015 Edition with ME Amendments
- International Existing Building Code (IEBC), 2015 Edition with ME Amendments
- International Energy Conservation Code (IECC), 2009 Edition with ME Amendments
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62., Standard for Ventilation and Indoor Air Quality, 2013 edition

In addition to the codes identified above, the State Fire Marshal's Office promulgates the Rules of the State Fire Marshal, which adopt numerous NFPA codes and standards, including the following:

- NFPA 1, Uniform Fire Code, 2006 Edition with ME Amendments
- NFPA 13, Standard for Installation of Sprinkler Systems, 2016 Edition

The Plumbers' Examining Board promulgates the Maine Plumbing Code, which includes the following:

- International Association of Plumbing and Mechanical Officials (IAPMO), 2015 Uniform Plumbing Code (UPC), with ME amendments

The Electricians' Examining Board adopts and amends the following electrical code:

- NFPA 70, National Electrical Code, 2017 Edition

The following federal regulation also applies to the project (as referenced by the Maine Human Rights Commission – 5 M.R.S. §4594-G):

- Americans with Disabilities Act (ADA), 2010 Standards for Accessible Design

The Joint Commission also requires compliance with the following:

- NFPA 101, Life Safety Code, 2012 Edition
- NFPA 99, Health Care Facilities Code, 2012 Edition

The following design standards will also be used for the project:

- Facilities Guidelines Institute (FGI), Guidelines for Design and Construction of Hospitals and Outpatient Facilities, 2014 Edition

- ASHRAE Standard 170, Ventilation of Healthcare Facilities, 2013 edition

2. PROPOSED SCOPE OF WORK & USE

The proposed project will add two stories (Level 6 and 7) to the existing East Tower clinical building on the Maine Medical Center campus in Portland, ME. A penthouse and helipad structure will also be constructed on the new roof of the building. The use groups proposed in the addition are as follows:

Use Group B/business:	Office areas, staff lockers, conference/meeting space less than 750 SF and 50 people
Use Group I-2 (Condition 2)/healthcare:	Inpatient hospital care
Use Group S-1/ordinary hazard storage:	Linen storage (accessory)
Use Group S-2/ low hazard storage:	Storage/utility spaces (accessory)

As indicated in the list above, the Group S-1 and S-2 spaces qualify as accessory to the main Group B and I-2 occupancies because the spaces are less than 10% of the floor area (approximately 7% of the floor area).

3. ADDITION

Since the project includes an addition to the existing building, the project is subject to compliance with Chapter 11 of the IEBC, and Section 43.8 of NFPA 101 which are summarized as follows.

3.1 General Requirements

The addition must comply with the code for new construction while the existing building is permitted to remain without change, except as required by the provisions of IEBC Chapter 11 and NFPA 101 Section 43.8.1.1 for additions. An addition to an existing building cannot create or extend any nonconformity in the existing building with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of MEP systems (IEBC 1101.2 and NFPA 101 Section 43.8.1.2). Any repair or alteration work taking place within the existing building must meet the applicable IEBC and NFPA 101 requirements for such alterations (IEBC 1101.3 and NFPA 101 Section 43.8.1.3).

3.2 Separation

NFPA 101 Section 43.8.1.1 requires the existing portions of the building to comply with requirements contained in NFPA 101 applicable to existing buildings. However, where the existing structure does not conform to the requirements of NFPA 101 Chapter 19 (i.e. existing healthcare occupancies), a 2-hour fire-resistance rated separation is required between the existing building and the addition (NFPA 101 Section 19.1.1.4.1). As indicated in Section 6 below, 2-hour rated floor assemblies

are required for the building. Therefore, the floor assembly will serve as this separation. As such, an evaluation of compliance with Chapter 19 has not been completed for the existing floors.

3.3 Height and Area

An addition cannot increase the height or area of an existing building beyond that permitted by the applicable provisions of IBC Chapter 5 (IEBC 1102.1 & 1102.2 and NFPA 101 Section 43.8.2). Refer to the height and area analysis in Section 5 of this report which describes compliance with height and area requirements.

3.4 Structural

While additions are required to comply with the code requirements for new construction, the Structural Engineer of Record mustperform an investigation and evaluation of the impact of the proposed addition on the existing building with respect to the following elements identified in the IEBC (1103).

- Additional gravity loads,
- Lateral-force-resisting system,
- Snow drift loads, and
- Flood hazard areas.

3.5 Accessibility

Additions to existing buildings are subject to the applicable new construction requirements of the American's with Disabilities Act Standards (ADA) and Chapter 11 of the IBC. Where the addition affects the accessibility to, or contains a primary function area, additional alterations may be required along the path of travel to the primary function area (IEBC 1105.1 and ADA 202.2).

Although the current ME building code does not adopt Chapter 11 of the IBC, the latest proposed state amendments to the 2015 IBC do adopt Chapter 11. Since the 2015 IBC, as amended by ME, will likely be applicable to the East Tower project, this report includes references to IBC Chapter 11 requirements. Refer to Section 11 of this report for further details. Note that the requirements of IBC Chapter 11 are similar to that of the ADA Standards, which apply regardless which edition of MUBEC is applicable.

3.6 Energy Conservation

Additions to existing buildings must comply with new construction provisions of the International Energy Conservation Code (IECC), without requiring the unaltered portions to comply (IEBC 1106.1).

4. HIGH-RISE BUILDING FEATURES

The proposed addition increases the height of the building such that it is considered a high-rise building (i.e. there is an occupied floor located more than 75 feet above the lowest level of fire department vehicle access)(IBC 202 and NFPA 101 Section 3.3.32.7). High-rise buildings must comply with IBC 403 and NFPA 101 Section 11.8. The applicable provisions for high-rise buildings are summarized below.

4.1 Structural

Since the building is considered Risk Category IV per IBC Table 1604.5, the structural integrity requirements of IBC 403.2.3 apply. Section 403.2.3 requires interior exit stairway and elevator hoistway wall assemblies to comply with impact classifications of ASTM C 1629/ C 1629M. Spray fire-resistant materials (SFRM) must have a minimum bond strength of 430 psf (IBC Table 403.2.4).

4.2 Fire Protection Systems

The following fire protection systems are required within the building as noted. Refer to Section 9 of this report for further details regarding fire protection systems.

Automatic Sprinkler System
An automatic sprinkler system is required throughout the building per IBC Sections 403.3 & 903.2.6 and NFPA 101 Sections 11.8.3.1 & 18.3.5.1. A secondary onsite water supply is required if the building is located in seismic design category C, D, E, or F (IBC 403.3).

Standpipe System
Class I standpipes must be provided (IBC 905.3 & 403.4.3 and NFPA 101 Section 11.8.4.1).

Fire Alarm System
A manual fire alarm system with an emergency voice/alarm communication system must be provided in accordance with IBC 907.2.13 (IBC 403.4.2 & 403.4.4 and NFPA 101 Section 11.8.4.1).

Smoke Detection System
An automatic smoke detection system must be provided in accordance with IBC 907.2.13.1 (IBC 403.4.1). See Section 9.2 of this report for additional requirements for smoke detection systems.

Emergency Responder Radio Coverage
Emergency responder radio coverage or a two-way telephone communication system must be provided (IBC 403.4.5, NFPA 1 Section 13.7.2.27.2.2, and NFPA 101 Section 11.8.4.2).

Fire Command Center

A fire command center (FCC) complying with IBC 911 must be provided in a location approved by the fire department (IBC 403.4.6 & NFPA 101 Section 11.8.6). The FCC must comply with the following requirements and contain the following features. The proposed FCC must be coordinated with the local fire official.

1. Location, layout, and features must be approved by the fire chief
2. Must be separated by 1-hr rated construction
3. Must be 200 sf with minimum dimension of 10 ft
4. Unrelated storage is prohibited in the FCC
5. Emergency voice/alarm communication system control unit
6. Fire department communications system
7. Fire detection and alarm system annunciator
8. Annunciator unit visually indicating the location of the elevators and whether they are operational
9. System indicators and controls for air distribution systems
10. Fire fighter's control panel for smoke control systems
11. Controls for unlocking interior exit stairway doors simultaneously
12. Sprinkler valve and waterflow detector display panels
13. Emergency and standby power status indicators
14. Telephone for fire department use with controlled access to the public telephone system
15. Fire pump status indicators
16. Schematic building plans
17. Building Information Card

Smoke Removal

A means of smoke removal in post-fire salvage operations must be provided in accordance with IBC 403.4.7. The means of smoke removal may be provided by natural or mechanical ventilation. Post-fire smoke purge can be achieved through natural or mechanical ventilation. Natural ventilation must consist of operable windows /panels distributed at maximum 50-foot intervals and with a total area of at

least 40 SF per 50 linear feet of perimeter. Mechanical ventilation must provide one air change every 15 minutes with return and exhaust air moved directly to the outside.

4.3 Standby and Emergency Power

Standby power must be provided for the following (IBC 403.4.8.3 and NFPA 101 Section 11.8.5.2.4):

1. Power and lighting for the FCC
2. Ventilation and automatic fire detection equipment for smokeproof enclosures
3. Elevators, including elevators provided for accessible means of egress and fire service access, where applicable
4. Mechanical equipment for smoke control systems
5. Electric fire pump
6. Jockey pump
7. Air compressor serving dry-pipe and pre-action systems

Emergency power must be provided for the following (IBC 403.4.8.4):

1. Exit signs and means of egress illumination
2. Elevator car lighting
3. Automatic fire detection systems
4. Fire alarm systems
5. Electrically powered fire pumps

Standby and emergency power must comply with IBC 2702 and 3003. In addition, standby power for elevators serving as accessible means of egress must comply with IBC 1009.4. Generator sets and fuel line piping located inside the building must be protected in accordance with IBC 403.4.8.1 and 403.4.8.2.

4.4 Means of Egress

Means of egress in high-rise buildings must comply with the additional provisions of IBC 403.5. These provisions include the following.

Remoteness

Required interior exit stairways in the high-rise portions of the building must be separated by a distance of at least 30 feet or at least one quarter of the length of the maximum overall diagonal of the building or area served (whichever is less). This separation distance is measured in a straight line between the closest points of the stairway enclosures. Where three or more interior exit stairways exist, at least two must be separated in accordance with IBC 403.5.1.

Stairway Communication System

Stairway doors other than the discharge doors are permitted to be locked from the stairway side if they can be unlocked simultaneously from the FCC (IBC 403.5.3). If stairway doors are locked, a stairway communication system must be provided on at

least every fifth floor. The communication system must connect to an approved constantly attended station (IBC 403.5.3.1).

Stairway Re-Entry

Since the stairs serve more than four stories, re-entry to other floors from inside the stairwells must be provided in accordance with NFPA 101 Sections 7.2.1.5.8 & 7.2.1.5.8.1 and the ME amendment to IBC 716.5.9.1.2 (NFPA 101 Section 18.2.2.2.9). All stair doors must release upon activation of the fire alarm system, unless selected re-entry is provided in accordance with NFPA 101 Section 7.2.1.5.8.1.

Smokeproof Enclosures

Every required exit stairway serving high-rise portions of the building must comply with the smokeproof enclosure requirements of IBC 909.20 and 1023.11 (IBC 403.5.4). The most common method for providing smokeproof enclosures in sprinklered buildings is through stair pressurization complying with IBC 909.20.5. A ventilated vestibule is not required using this method, provided that the pressure difference between the stair shaft and the balance of the building is a minimum of 0.10 inch of water and a maximum of 0.35 inch of water. The pressure difference must be measured with the stairway doors closed and under maximum anticipated conditions of stack effect and wind effect (IBC 909.20.5).

Luminous Egress Path Markings

Luminous egress path markings must be provided throughout the exit stairs in the building in accordance with IBC 1058.

4.5 Elevators

The following sections provide information regarding the elevator requirements.

Fire Service Access Elevators

A minimum of two fire service access elevators are required in buildings with an occupied floor greater than 120 feet above the lowest level of fire department vehicle access where at least two elevators are provided (IBC 403.6.1). Based on the plans provided to AKF on December 1, 2017 the highest occupied floor (i.e. Level 7) is 112 feet 4 inches above the lowest level of fire department vehicle access. Therefore, fire service access elevators are not required.

Other Elevator Lobbies

Enclosed elevator lobbies are required for all other elevators that serve high-rise levels within the building (IBC 3006.2(5)). These lobbies are required to consist of smoke partitions complying with IBC 710. Doors penetrating the enclosed elevator lobby must comply with IBC 710.5.2.2, 710.5.2.3, and 716.5.9. Ducts and air transfer openings must comply with IBC 717.5.4.1.

5. HEIGHT & AREA

The lowest level of the building (i.e. the Basement) is considered a story above grade plane because the Ground Level is more than 12 feet above ground level (IBC 202). Therefore, the building is 8 stories above grade.

High-rise buildings are permitted a reduction in the required fire-resistance ratings for building elements where sprinkler control valves are provided with supervisory initiating devices and water-flow initiating devices on each floor. Since the building is less than 420 feet in height, the fire-resistance ratings required for Type IB construction may be used while granting unlimited height and area allowances per Type IA construction (IBC 403.2.1). NFPA 101 Table 18.1.6.1 permits 8-story healthcare buildings of Type IB (222) construction.

6. TYPE OF CONSTRUCTION

The following table summarizes the required ratings for modified Type IA construction (i.e. Type IB) in accordance with IBC Table 601 and NFPA 1 Table A.12.2.1. These ratings also meet the requirements of Type IB (222) per NFPA 101.

IBC Table 601 & NFPA 101 Table A.12.2.1 Fire-Resistance Rating Requirements for Building Elements (Hours)

Element	Modified Type IA (i.e. Type IB) Rating (hours)
Primary structural frame (see Section 202) Columns Other	 3 [A] 2 [A]
Bearing walls Exterior Interior	 2[A] 2[A]
Nonbearing walls and partitions Exterior	See Table 602 discussion below.
Nonbearing walls and partitions Interior	0
Floor construction and secondary members (see Section 202)	2[A]
Roof construction and secondary members (see Section 202)	1

[A] Not less than the rating of the assemblies supported, i.e. shaft enclosures, etc.

The non-bearing exterior wall requirements for East Tower are based on the fire separation distance (FSD) of each wall. The FSD is measured perpendicularly from the face of each exterior wall to the closest interior lot line, the centerline of a street, alley, or public way, or an imaginary lot line between two buildings on the same lot. Where the FSD is greater than or equal to 30 feet, the non-bearing exterior walls do not require a fire-resistance rating.

Where Table 601 or 602 requires an exterior wall to be fire-resistance rated and the FSD is less than or equal to 10 feet, the wall must be rated for exposure to fire from both sides

(IBC 705.5). The exterior walls are required to maintain their structural stability for the duration of the time indicated by the fire-resistance rating.

IBC Table 602 Fire-Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance Type IA Construction

Fire Separation Distance = X (feet)	Group B, I-2, & S
X < 5	1
5 ≤ X < 10	1
10 ≤ X 20	1
X ≥ 20	0

Note: Unrated nonbearing exterior walls are permitted where the building is permitted to have unlimited unprotected openings (IBC Table 602, footnote (g)). See Section 7.1 for details.

Based on satellite images of the building and the site plan provided in the Visitor Garage Revit model (sent on August 7, 2017) East Tower is provided with a FSD of at least 20 feet around the entire exterior perimeter of the building. Therefore, nonbearing exterior walls are not required to be rated. It is our understanding that the East Tower, Richards, and Bean buildings are constructed as one building. Therefore, exterior wall protection is not required where the exterior walls of East Tower face either the Bean or Richards building.

7. FIRE AND SMOKE PROTECTED FEATURES

7.1 Exterior Walls & Opening Protectives

Openings in the exterior walls must comply with IBC 406.5.2 based on the FSD of each wall. The opening limitations are summarized below for Type IA construction.

IBC Table 705.8 Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Distance (feet)	Degree of Opening Protection	Allowable Area
X < 5	Unprotected, Sprinklered	Not Permitted
5 ≤ X < 10	Unprotected, Sprinklered	10%
10 ≤ X < 15	Unprotected, Sprinklered	45%
15 ≤ X < 20	Unprotected, Sprinklered	75%
X ≥ 20	Unprotected, Sprinklered	No Limit

Based on satellite images of the building and the site plan provided in the Visitor Garage Revit model (sent on August 7, 2017) East Tower is provided with a FSD of at least 20 feet around the entire exterior perimeter of the building. Therefore, unlimited unprotected openings are permitted in the building's exterior walls. It is our understanding that the East Tower, Richards, and Bean buildings are constructed as

one building. Thus, exterior wall protection is not required where the exterior walls of East Tower face either the Bean or Richards building.

7.2 Shaft Enclosures

Vertical openings must be enclosed with shaft construction unless an alternative provision in IBC 712 and NFPA 101 Section 8.6 is met. Shafts connecting four stories or more must be enclosed with at least 2-hour fire-resistance rated construction. Shafts connecting three stories or less must be enclosed with 1-hour rated construction (IBC 713.4 and NFPA 101 Section 8.6.5).

7.3 Corridors

In Group I-2 occupancies, corridors must be continuous to exits and separated from other areas with walls that comply with the requirements for smoke partitions (IBC 407.2 & 407.3 and NFPA 101 Section 18.3.6.1). Doors within corridor walls are not required to be fire-resistance rated; however they must be self-latching, be provided with positive latching hardware, and must provide an effective barrier to limit smoke spread (IBC 407.3.1 and NFPA 101 Sections 18.3.6.2.2, 18.3.6.3.1, & 18.3.6.3.5). Note that there are some spaces that are permitted to be open to corridors as outlined below.

Waiting Areas

Waiting areas that are open to corridors must comply with the following requirements (IBC 407.2.1 and NFPA 101 Section 18.3.6.1(2)).

1. Must be constructed as required for corridors;
2. Does not contain sleeping rooms, treatment rooms, incidental uses, or hazardous uses;
3. The space is protected by an automatic fire detection system complying with IBC 907;
4. The corridor into which the space opens is protected by an automatic fire detection system that complies with IBC 907 or the smoke compartment is protected by quick-response sprinklers;
5. The space does not obstruct access to required exits;
6. The aggregate waiting area open to the corridor in each smoke compartment is no more than 600 SF.

Care Providers' Stations

Corridors may be open to spaces for care providers, supervisory staff, doctors' and nurses' charting, communications, and related clerical areas so long as such spaces are constructed as required for corridors (IBC 407.2.2).

7.4 Smoke Compartments

Level 6 and 7 must be divided into at least two smoke compartments, each with a maximum area of 22,500 SF (NFPA 101 Section 18.3.7.1). The smoke compartments must be separated by 1-hour rated smoke barriers with 20-minute opening protections

complying with IBC 709 and NFPA 101 Section 8.5 (IBC 407.5 and NFPA 101 Section 18.3.7.3).

Smoke dampers must be provided at each duct penetration of the smoke barrier unless one of the following conditions apply: (780 CMR 717.5.5 & NFPA 101 Section 18.3.7.3(2))

1. The openings in the ducts are limited to a single smoke compartment and the ducts are constructed of steel.
2. The HVAC system is fully ducted in accordance with the IMC Section 603; and the building is fully sprinklered and the sprinkler system is equipped with quick-response sprinklers in accordance with Section 903.3.2.

Travel Distance

The travel distance from the most remote point in each smoke compartment to the smoke barrier door must be a maximum of 200 feet (IBC 407.5 and NFPA 101 Section 18.3.7.1(4)).

Refuge Area

Each smoke compartment must contain a refuge area sized to accommodate the inpatient care occupants from adjacent smoke compartments. The refuge areas must be sized using a factor of 30 SF per patient. Refuge areas may consist of corridors, sleeping areas, treatment rooms, lounges, dining areas, and other low-hazard areas (IBC 407.5.1 and NFPA 101 Section 18.3.7.5.1). See the associated Life Safety Plans for illustrations of the refuge areas for each compartment.

Independent Egress

Means of egress from each smoke compartment must be arranged such that once occupants egress from a smoke compartment they are not required to return through the smoke compartment to evacuate the building (IBC 407.5.2 and NFPA 101 Section 18.2.4.4).

Horizontal Assemblies

Where horizontal assemblies support smoke barriers that are part of smoke compartments, such horizontal assemblies must be designed to resist the passage of smoke (IBC 407.5.3).

7.5 Incidental Uses

IBC Table 509 and NFPA 101 Table 8.5 prescribe requirements for the protection of several incidental uses in Group I-2/healthcare occupancies. The requirements of these tables are provided below.

Incidental Uses

Room or Area	Separation and/or Protection	Code Section
Boiler and fuel-fired heater rooms	1 hour	NFPA 101 Table 18.3.2.1
Laboratories not classified as Group H	1-hour and provide automatic sprinkler system	IBC Table 509
Laundry rooms over 100 SF	1 hour	IBC Table 509 & Section 509.4.2
Physical plant maintenance shops	1 hour	IBC Table 509 & NFPA 101 Table 18.3.2.1
Waste and linen collection rooms with containers that have an aggregate volume of 64 gallons or more	1 hour	NFPA 101 Table 18.3.2.1
Storage rooms greater than 100 SF	1 hour	IBC Table 509
Storage rooms less than 100 SF but greater than 50 SF and storing combustible material	Smoke partition	NFPA 101 Table 18.3.2.1 & Section 8.7.1.2

8. INTERIOR FINISH

The interior finishes of the walls, ceilings, and floors of the building are governed by IBC Chapter 8 and NFPA 101 Chapter 10. These chapters outline the testing requirements for the different surfaces. The required tests and finish classifications are summarized in the tables below.

Finish Characteristics

Element	Test Method	Criteria
Wall & Ceiling Finishes	ASTM E84 or UL 723	Class A = FSI 0-25; SDI 0-450
		Class B = FSI 26-75; SDI 0-450
		Class C = FSI 76-200; SDI 0-450
Floor Finish	NFPA 253	Class I = 0.45 W/cm^2 or greater
		Class II = 0.22 W/cm^2 up to 0.45 W/cm2
	DOC FF-1	Pass

Notes: FSI = flame spread index, SDI = smoke-developed index

Interior Wall and Ceiling Finish Requirements by Occupancy (Sprinklered Building)

Use Group	Walls & Ceilings			Floors	
	Exit enclosures and exit passageways	Corridors	Rooms and enclosed spaces	Exits and corridors	Other spaces
B	B	C	C	DOC FF-1	DOC FF-1
I-2	B	B	B[A]	Class II	Class II
S-1 & S-2	C	C	C	DOC FF-1	DOC FF-1

[A] Class C interior finish materials are permitted in rooms with a capacity of four persons or less.

The tables above show the required interior finish classes throughout the building based on the most restrictive requirements of IBC Table 803.11 and NFPA 101 Table A.10.2.2. All floors throughout the building must pass the DOC FF-1 "pill test".

9. FIRE PROTECTION SYSTEMS

In addition to the systems discussed in Section 4 of this report, the following fire protection requirements also apply.

9.1 Automatic Sprinkler System

Since the smoke compartments contain patient sleeping rooms, listed quick-response or listed residential sprinklers must be used (NFPA 101 Section 18.3.5.6).

9.2 Fire Alarm and Detection System

In addition to the manual fire alarm system, an automatic smoke detection system must be provided in the corridors.

9.3 Standpipe System

A standpipe system is required since the building contains an occupied floor more than 30 feet above the lowest level of fire department vehicle access. A Class I standpipe is required since the building is a high-rise building. The existing standpipe system that will be extended to the addition and a Class I hose connection will be provided (i.e. 2 ½" hose connection).

9.4 Emergency Forces Notification

The fire alarm system must transmit an alarm automatically to the municipal fire department (NFPA 101 Section 9.6.4 & 18.3.4.3.2.1).

9.5 Portable Fire Extinguishers

Portable fire extinguishers must be provided in accordance with NFPA 10 (IBC 906 and NFPA 101 Section 18.3.5.12).

9.6 Electrical Systems

The essential electrical system for electrical components, equipment, and systems must be designed and constructed in accordance with IBC Chapter 27 and NFPA 99 (IBC 407.10 and NFPA 101 Section 18.5.1.2).

10. MEANS OF EGRESS

The applicable means of egress requirements for the addition are described below.

10.1 Egress Summary

The occupant loads of the addition were calculated based on the area of the space in accordance with IBC Table 1004.1.2 and NFPA 101 Table 7.3.1.2. The exit capacity from each floor is calculated in accordance with IBC 1005.1 and NFPA 101 Table 7.3.3.1. See sheets G01-60 through G01-90 for details.

10.2 Exit Access Travel Distance

The East Tower exits are required to be arranged such that the maximum exit access travel distance does not exceed the limitations in the table below (NFPA 101 Table A.7.6).

Occupancy	With Sprinkler System (feet)
B	300
I-2	200
S	400

The maximum travel distance allowed from a Group I-2 sleeping room to an exit access door in that room is 50 feet (IBC 407.4.2 and NFPA 101 Section 18.2.6.2.3). The proposed design complies with the above requirements.

10.3 Corridor Width

Corridors must provide the following minimum clear widths (IBC 1020.2 and NFPA 101 Section 18.2.3.4 & 38.2.3.2):

- 96 inches where serving bed movement areas;
- 44 inches in other areas where the occupant load is 50 or more; and
- 36 inches in other areas where the occupant load is less than 50 people.

The exit access must be arranged such that there are no dead ends more than 20 feet in Group I-2 corridors and no more than 50 feet in corridors serving other occupancies (IBC 1020.4 and NFPA 101 Table A.7.6).

10.4 Number of Exits and Continuity

Two means of egress must be provided from individual spaces where the occupant load and/or common path of travel distance exceeds the limitations of IBC Table 1006.2.1 and NFPA 101 Section 38.2.5.3.1 & 42.2.5. The proposed design complies with the below requirements.

Spaces with One Means of Egress

Use Group	Maximum Occupant Load	Maximum Common Path of Travel Distance (ft)
B	49	100
I-2	10	75
S	29	100

In addition, habitable spaces must have an exit access door leading directly to a corridor unless an exit door is provided directly to the exterior at ground level (IBC 407.4.1 and NFPA 101 Section 18.2.5.6.1).

All spaces within each story must have access to the minimum number of independent exits from the story as required by IBC Table 1006.3.1 and NFPA 101 Section 7.4.1.2 below.

Minimum Number of Exits Per Story

Occupant Load (persons per story)	Minimum Number of Exits (per story)
1-500	2
501-1,000	3
More than 1,000	4

Where more than one means of egress is required, the exits must be separated by ⅓ of the overall diagonal distance of the space served (IBC 1007.1.1 and NFPA 101 Section 7.5.1.3.2). This separation distance is measured between the doors to Stair 1 and 2. See Section 4.4 of this report for the required separation between the closest points of the stairway enclosures.

10.5 Doors

Cross-corridor door openings in corridors required to be at least 96 inches wide must have a clear width as follows (NFPA 101 Section 18.2.3.4(6)):

- 6 feet, 11 inches for pairs of doors; and
- 41 ½ inches for a single door.

The above provisions also apply to any doors in the means of egress from the patient rooms (NFPA 101 Section 18.2.3.6). However, exit stair enclosure doors are only required to provide a minimum clear width of 32 inches (NFPA 101 Section 18.2.3.7). Doors not serving healthcare occupants must have a minimum clear width

of 32 inches (IBC 1010.1.1 and NFPA 101 Section 7.2.1.2.3.2). All doors serving an occupant load of 50 or more people must swing in the direction of egress travel (IBC 1010.1.2 and NFPA 101 Section 7.2.1.4.2).

10.6 Locking Devices

Unless complying with IBC 1010.1.9.6 and NFPA 101 Section 18.2.2.2.5, locking devices that restrict access to a care recipient's room from the corridor and that are operable only by staff from the corridor side must not restrict the means of egress from the care recipient's room (IBC 407.4.1.1 and NFPA 101 Section 18.1.3.2(1)).

11. ACCESSIBILITY

Accessibility requirements for medical facilities are provided in both the IBC and the American's with Disabilities Act Standards (ADA). All of the patient sleeping rooms must comply with ADA 805 and the requirements for Accessible units in ICC/ANSI A117.1 (ADA 223.2.2 and IBC 1107.5.4).

12. MECHANICAL

The addition must be provided with mechanical ventilation in accordance with ASHRAE 62.1, 2013 edition.

13. ENERGY CONSERVATION

Additions to existing buildings must comply with the requirements of the IECC that are applicable to new construction; however the existing, unaltered portions of the building are not required to comply with such requirements (IECC 101.4.3).

14. PLUMBING FIXTURES

The UPC requires a minimum number of plumbing fixtures based on the use of the building. Additions must comply with the requirements for new construction, without requiring the existing system to comply with such requirements. The addition cannot cause the existing system to become unsafe, insanitary or overloaded (UPC 102.4). UPC Table 422.1 requires plumbing fixtures in I-2 occupancies in accordance with the following table.

Group I-2 Use	Toilets		Lavatories (Each Sex)		Drinking Water Station, With Drain	Service Sink
	Female	Male	Female	Male		
Individual patient rooms	1 per room		1 per room		1 per 50	1 per floor
Patient Wards	1 per 8 patients		1 per 10 patients			
Waiting Rooms	1 per room		1 per room		1 per room	-
Employee Use	1: 1-15 3: 16-35 4: 36-55 Over 55, add 1 fixture for each add. 40 persons	1: 1-15 2: 16-35 3: 36-55 Over 55, add 1 fixture for each add. 40 persons	1 per 40	1 per 40	-	-

Drinking fountains are required as indicated in the table above. Water stations are permitted to be substituted for drinking fountains where food is consumed indoors. Water stations are considered to be any hard-piped fixture providing drinking water. Bottle filling stations are permitted to be substituted for up to 50% of the required drinking fountains (UPC 415.2). The UPC recommends that a drinking fountain also be provided with a bottle filling station. The table below summarizes the number of fixtures provided on Level 6 and 7 of East Tower.

Floor Level	Occupant Type	Toilets		Lavatories (Each Sex)		Max. Occupant Load Supported		
		Female	Male	Female	Male	Female	Male	Total
6	Staff	2	1	2	1	15	15	30
	Patient	1 per room		1 per room		32 patient rooms		
	Public	1	1	1	1	1 waiting room		
Floor Level	Occupant Type	Toilets		Lavatories (Each Sex)		Max. Occupant Load Supported		
		Female	Male	Female	Male	Female	Male	Total
7	Staff	2	2	2	2	15	35	30
	Patient	1 per room		1 per room		32 patient rooms		
	Public	1	1	1	1	1 waiting room		

15. HELIPAD REQUIREMENTS

The following sections summarize requirements for rooftop helipads that are applicable to the East Tower project. Note that the 2015 IBC and 2012 NFPA 101 adopt the 2011 edition of NFPA 418: Standard for Heliports. However, the Maine Fire Code adopts the 2006 NFPA 1 and 2009 NFPA 101, which adopt the 2001 and 2006 editions of NFPA 418, respectively. For the most part, the requirements of the 2011 edition are most restrictive and therefore this edition is referenced in the sections below. However, differences in the editions are noted where applicable.

15.1 Landing Area Size

The landing area for small helicopters (i.e. less than 3,500 lbs) must be a minimum of 20 feet in length and width. The landing area must be surrounded on all sides by a clear area having a minimum average width of 15 feet at roof level. The clear area must not be less than 5 feet wide at any point (IBC 412.8.1).

15.2 Landing Area Design & Construction

Helipads must be designed to withstand the loads specified in IBC 1607.6. The contiguous building roof covering located within 50 feet of the landing pad edge must have a Class A rating (NFPA 418 Section 5.4.2). The landing area must be noncombustible and nonporous and must be provided with spill confinement and drainage for flammable liquids (IBC 412.8.2). The landing pad drainage must be provided by the following (NFPA 418 Section 5.3):

1. Sloped surface between 0.5% and 2%; or
2. Passive fire protection grid surface designed and listed for fuel catchment and containment.

The drainage system must drain flammable liquids away from the primary egress path and alternate egress points serving the landing area, including exits, stairways, and structures housing exits and stairways, as well as passenger holding area(s), fire protection activation systems, hatches, and other openings not designed for drainage (IBC 412.8.2 and NFPA Section 5.3.2).

The landing area supports must also be noncombustible and the main structural support members that could be exposed to a fuel spill must have a minimum 2-hour fire resistance rating, unless the landing pad is nonporous, fuel-tight, and the drainage system prevents fuel from flowing to support members (NFPA 418 Section 5.2 & A.5.2).

The allowance provided in Section A.5.2 to use drainage in lieu of 2-hour rated structural members is not provided in the 2001 edition of NFPA 418; however it is provided in the 2006 and 2011 editions.

15.3 Fire Protection Systems

The following fire protection systems are required for the helipad:

1. Class I or III standpipe system must be extended to the roof level (IBC 905.3.6)

2. Foam fire-extinguishing system with either fixed discharge outlets or hose line(s) for use by trained personnel complying with NFPA 418 Section 5.7 and 5.8. The fixed discharge outlet system activation must be by manual pull stations at each egress point from the rooftop landing pad. An additional manual pull station must be located at an approved location inside the building from which the rooftop landing pad can be viewed (NFPA 418

Section 5.8.2). Note that video is an acceptable means of viewing per A.5.8.2.

a. H-1 heliports are permitted to be protected by two portable foam extinguishers each with a 20-A: 160-B rating in lieu of the foam fire-extinguishing system.

3. A means of communication must be provided from the roof area to notify the fire department of emergencies (NFPA 418 Section 5.9).

4. Manual pull stations connected to the fire alarm system must be provided from each designated means of egress from the roof (NFPA 418 Section 5.9).

The Maine Fire Code (Section 21.3.6.8) and the 2001 edition of NFPA 418 (Section 3.7) require a Class II standpipe connection to be provided. It is our understanding that the existing standpipe system will be extended to the roof and a foam extinguishing system will be provided for protection of the helipad. We recommend reviewing the proposed design with the fire official for further direction and approval.

Two access points for fire-fighting/rescue personnel must be provided to the heliport. The access points must be located at least 90 degrees from each other as measured from the center of the landing pad (NFPA 418 Section 4.4.1). Based on the plans provided to AKF on December 1, 2017, the helipad complies with this requirement (access points are approximately 92 degrees apart).

At least one portable fire extinguisher must be provided for each takeoff and landing area, parking area, and fuel storage area. The type of fire extinguisher is based on the size of the helicopter per NFPA 418 Table 9.2 below.

Table 9.2 Minimum Required Ratings of Portable Fire Extinguishers for Heliport Categories

Heliport Category	Helicopter Overall Length (including tail boom and rotors)	Minimum Rating
H-1	Less than 50 feet	4A:80B
H-2	50 feet up to but not including 80 feet	10A:120B
H-3	80 feet up to but not including 120 feet	30A:240B

Based on the memo provided by HeliExperts International LLC, dated June 16, 2017, the heliport is considered an H-2 category. Therefore the minimum fire extinguisher rating is 10A:120B. A fire extinguisher will be located inside the elevator vestibule such that the extinguisher is no further than 50 feet from the edge of the heliport final approach and takeoff (FATO) area.

15.4 Means of Egress

At least two means of egress that lead to a public way must be provided from the landing pad (NFPA 418 Section 4.8 & 5.5; and IBC 412.8.3). The egress points from the landing pad must be located at least 90 degrees from each other as measured from the center of the pad, and must be separated by a minimum of 30 feet. No two egress points may be located on the same side of the landing pad. Means of egress from the landing pad must not obstruct flight operations (NFPA 418 Section 5.5). The means of egress path on the roof level must be illuminated when the helipad/roof is occupied (IBC 1008.1).

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Visitor Garage Expansion
Existing Building Code Report
September 28, 2017

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INTRODUCTION

Perkins + Will has retained AKF Group LLC to prepare this existing building narrative code report for the vertical addition to the Visitor Garage on the Maine Medical Center Campus located in Portland, ME. The proposed addition will add three tiers to the existing garage to create a total ten-tier structure. The roof of the structure will also include parking. The existing garage is consistent with Type IIA construction.

QUICK FACTS

- Approximately 266,000 SF
- 10 tiers
- Not sprinklered
- Existing dry-type standpipe system
- Use Group S-2

1. APPLICABLE CODES & STANDARDS

The State of Maine requires municipalities with more than 4,000 residents to adopt and enforce the Maine Uniform Building and Energy Code (MUBEC). The next edition of the MUBEC is expected to become effective in 2017. Therefore, the following codes are likely applicable to the Maine Medical Center (MMC) Visitor Garage project.

- International Building Code (IBC), 2015 Edition with ME Amendments
- International Existing Building Code (IEBC), 2015 Edition with ME Amendments
- International Energy Conservation Code (IECC), 2009 Edition with ME Amendments
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62., Standard for Ventilation and Indoor Air Quality, 2013 edition

In addition to those codes identified above, the State Fire Marshal's Office promulgates the Rules of the State Fire Marshal, which adopt numerous NFPA codes and standards, including the following:

- NFPA 1, Uniform Fire Code, 2006 Edition with ME Amendments
- NFPA 13, Standard for Installation of Sprinkler Systems, 2016 Edition
- NFPA 101, Life Safety Code, 2009 Edition with ME Amendments

The following federal regulation also applies to the project:

- Americans with Disabilities Act (ADA), 2010 Standards for Accessible Design

2. PROPOSED SCOPE OF WORK & USE

The proposed project will add three tiers of parking to the existing Visitor Garage creating a ten-tier parking structure, with parking also provided on the roof of the garage. The existing garage is consistent with Type IIA construction (i.e. noncombustible, 1-hour rated). The existing and proposed use group within the garage is Group S-2.

3. ADDITION

The project includes an addition to the existing building and is therefore subject to compliance with Chapter 11 of the IEBC, and Section 43.8 of NFPA 101 which are summarized as follows.

3.1 IEBC Requirements

The addition must comply with the code for new construction while the existing building is permitted to remain without change, except as required by the provisions of IEBC Chapter 10 for additions (IEBC 1101.1). An addition to an existing building

cannot create or extend any nonconformity in the existing building with regard to accessibility, structural strength, fire safety, means of egress, or the capacity of MEP systems (IEBC 1101.2). Any repair or alteration work taking place within the existing building to which the addition is being made must meet the applicable IEBC requirements for repairs, Level 1, 2, or 3 alterations, and/or change of occupancy as appropriate in Chapters 5, 6, 7, 8, and 9, respectively (IEBC 1101.3).

Height and Area

An addition cannot increase the height or area of an existing building beyond that permitted by the applicable provisions of Chapter 5 in the code for new construction (IEBC 1102.1 and 1102.2). However, the infilling of floor openings and nonoccupiable appendages such as elevator and exit stair shafts are permitted even if it results in a building area that exceeds that permitted by the applicable provisions of Chapter 5 in the code for new construction (IEBC 1102.2 exception).

Structural

While additions are required to comply with the code requirements for new construction, the Structural Engineer of Record will need to perform an investigation and evaluation of the impact of the proposed addition on the existing building with respect to the following elements identified in the IEBC (1103).

- Additional gravity loads,
- Lateral-force-resisting system,
- Snow drift loads, and
- Flood hazard areas.

Accessibility

Additions to existing buildings are subject to the applicable new construction requirements of the ADA Standards. Where the addition affects the accessibility to, or contains a primary function area, the requirements of ADA Standards 202.4 are applicable.

Energy Conservation

Additions to existing buildings must comply with new construction provisions of the International Energy Conservation Code (IECC) (IEBC 1106.1).

3.2 NFPA 101 Requirements

Additions must comply with NFPA 101 requirements applicable to new construction. The existing portions of the building must comply with the requirements of NFPA 101 applicable to existing buildings (NFPA 101 Section 43.8.1.1). An addition cannot create or extend a nonconformity with regard to fire safety or means of egress in the existing portion of the building (NFPA 101 Section 43.8.1.2). Repair, renovation, alteration, or reconstruction work within the existing building must comply with NFPA 101 Sections 43.3, 43.4, 43.5, and 43.6, as applicable (NFPA 101 Section 43.8.1.3).

Building Height

The addition must not increase the height of the existing building beyond that permitted for new construction (NFPA 101 Section 43.8.2).

Fire Protection

Where there is no approved separation between the existing building and the addition, and the combined areas are required to be protected by an automatic sprinkler system per the provisions for new construction, such system must be provided (NFPA 101 Section 43.8.3). Sprinklers are not required in open parking garages and therefore this section does not apply.

4. HIGH-RISE BUILDING FEATURES

The proposed parking garage is considered a high-rise building since there is an occupied floor located more than 75 feet above the lowest level of fire department vehicle access (IBC 202 and NFPA 101 Section 3.3.32.7). High-rise buildings must comply with IBC 403 and NFPA 101 Section 11.8; however, Exception 2 to IBC 403.1 and NFPA Section 42.8.4 exempt open parking garages from the high-rise requirements of IBC 406.5 and NFPA 101 Section 3.3.254.6. This exempts the building from requirements such as automatic sprinkler system, smokeproof enclosures, smoke detection, voice/alarm communication system, fire command center, standby and emergency power, fire service access elevator, etc. Open parking garage requirements are identified in the next section.

5. OPEN PARKING GARAGE REQUIREMENTS

The following sections outline the requirements for open parking garages in the IBC and NFPA 101.

5.1 Exterior Openings

The area of the exterior wall openings on each tier must be at least 20% of the total perimeter wall area for that tier. The aggregate length of the openings must be at least 40% of the perimeter of the tier, unless the openings are uniformly distributed over two opposing sides of the building (IBC 406.5.2). Where openings are provided below grade, a horizontal clear space must be provided adjacent to the below-grade openings. The width of this clear space must be at least 1.5 times the depth of the space (i.e. grade to the bottom of the lowest required opening) (IBC 406.5.2.1).

In addition, NFPA 101 Section 3.3.254.6 requires open parking structures to have an exterior wall opening area of at least 1.4 SF for each linear foot of exterior perimeter. The openings must be distributed over at least 40% of the building perimeter or uniformly over two opposing sides of the building.

There is an existing retaining wall adjacent to the south and east sides of the building. The retaining wall is approximately 1 foot from the exterior wall of the existing parking garage. This wall therefore obstructs some exterior openings on the south and east sides of the existing garage. As a result, Sub-Level 6 and Sub-Level 5 do not meet the 20% openness requirement of IBC 406.5.2. However, all levels of the garage meet

the openness requirements of NFPA 101 Section 3.3.254.6 (i.e. 1.4 SF/LF and 40% distribution).

The existing garage openings are an existing nonconforming condition per IBC provisions, but the openings comply with the openness criteria of NFPA 101. The proposed addition does not extend the nonconformity since the openings in the existing portion of the garage and the location of the existing retaining wall will not be altered as part of the proposed renovations. Therefore, the existing garage will continue to be treated as an open parking garage since it was originally approved and constructed as such. The three new tiers of the garage will comply with the openness criteria of both the IBC and NFPA 101. Therefore the work is in compliance with IEBC 1101.2 and NFPA 101 Section 43.8.1.2. See sheet G02-01 for further details.

5.2 Construction Type

Open parking garages must be constructed of Type I, II, or IV construction (IBC 406.5.1). It is our understanding that the existing garage is consistent with Type IIA construction and that the addition will be Type IIA construction as well.

5.3 Vertical Clearance

The clear height of each floor level must be at least 7 feet (IBC 406.4.1). However, a vertical clearance of at least 8 feet, 2 inches must be provided for where van access is required per ADA 208.2.4 (ADA 502.5).

It is our understanding that there are structural requirements that require a 10'-6" floor to floor height throughout the garage. However, when the original garage was constructed, this requirement only called for 10'-0" floor to floor. Since the stair and elevator core was constructed for future growth, the design team plans to seek a variance to provide 10'-0" floor to floor on the new tiers to align with the floor levels in the stair and elevator core.

5.4 Vehicle Barrier System

A vehicle barrier system of at least 2 feet, 9 inches in height is required at the end of drive lanes and parking spaces where the vertical distance to the ground or surface directly below exceeds 1 foot (780 CMR 406.4.3).

5.5 Prohibited Uses

The following uses or activities are not permitted in an open parking garage (IBC 406.5.11):

a. Vehicle repair work
b. Parking of buses, trucks, and similar vehicles
c. Partial of complete closing of required openings in exterior walls by tarpaulins or any other means
d. Dispensing of fuel

6. HEIGHT & AREA

Open parking garages are permitted to comply with the height and area provisions of IBC 406.5.4 where the garage is used exclusively for the parking or storage of private motor vehicles, with no other uses in the building (IBC 406.5.4.1). Per IBC Table 406.5.4, Type IIA open parking structures must comply with the following requirements.

Height & Area Summary
Open Parking Structure in Type IIA Construction

Element	Proposed	Allowed	Status
Maximum Area Per Tier (SF)	26,633	50,000	✓
Aggregate Area (SF)	266,015	500,0000	✓
Height (in tiers)	10	10	✓

As can be seen in the table above, the building and proposed addition comply with the height and area limits for open parking garages in Type IIA construction. See Appendix A for further details.

There is an existing unfinished space on Sub-Level 6 of the garage. Clarification on the intended use of this space and the existing separation is needed. A fire-rated separation is needed if the use of the space is unrelated to the parking garage (i.e. retail). Note that in order to use the height and area provisions of IBC 406.5.4, the garage can only be used for the parking and storage of private motor vehicles.

7. TYPE OF CONSTRUCTION

The following table summarizes the required ratings for Type IIA (Type 111) construction in accordance with IBC Table 601 and NFPA 1 Table A.12.2.1.

IBC Table 601 & NFPA 101 Table A.12.2.1 Fire-Resistance Rating Requirements for Building Elements (Hours)

Element	Type IIA (Type 111) Rating (hours)
Primary structural frame (see Section 202)	1[A]
Bearing walls Exterior Interior	 1[A] 1[A]
Nonbearing walls and partitions Exterior	See Table 602 discussion in Section 8.1.
Nonbearing walls and partitions Interior	0
Floor construction and secondary members (see Section 202)	1[A]
Roof construction and secondary members (see Section 202)	1

[A] Not less than the rating of the assemblies supported, i.e. shaft enclosures, etc.

8. FIRE AND SMOKE PROTECTED FEATURES

8.1 Exterior Walls & Opening Protectives

The non-bearing exterior wall requirements for the garage are based on the fire separation distance (FSD) of each wall. The FSD is measured perpendicularly from the face of each exterior wall to the closest interior lot line, the centerline of a street, alley, or public way, or an imaginary lot line between two buildings on the same lot. Where the FSD is greater than or equal to 10 feet, the non-bearing exterior walls do not require a fire-resistance rating.

Where Table 601 or 602 requires an exterior wall to be fire-resistance rated and the FSD is less than or equal to 10 feet, the wall must be rated for exposure to fire from both sides (IBC 705.5). The exterior walls are required to maintain their structural stability for the duration of the time indicated by the fire-resistance rating.

IBC Table 602 Fire-Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance
Type IIA Construction – Open Parking

Fire Separation Distance = X (feet)	Group S-2
X < 5	1
5 ≤ X < 10	1
10 ≤ X	0

While the garage is required to meet the openness criteria of IBC 406.5.2, the code also requires evaluation of the FSD of each exterior wall in relation to allowed openings. Note that the open area in each wall is unlimited when the FSD is 10 feet or greater. The opening limitations are summarized below for an open parking garage in Type IIA construction.

IBC Table 705.8 Maximum Area of Exterior Wall Openings Based on Fire Separation Distance and Degree of Opening Protection

Fire Separation Distance (feet)	Degree of Opening Protection	Allowable Area
X < 5	Unprotected, Nonsprinklered	Not Permitted
5 ≤ X < 10	Unprotected, Nonsprinklered	10%
10 ≤ X	Unprotected, Nonsprinklered	No Limit[A]

[A] The area of openings in an open parking structure with a FSD of 10 feet or greater is not limited.

Based on AKF's measurement of the site plan, the garage is provided with at least 10 feet of FSD around the entire perimeter. Therefore, unrated nonbearing exterior walls and unlimited unprotected openings are permitted. Note that an imaginary lot line must be placed between the new Congress Street building and the Visitor Garage.

Based on the existing garage openings on the west exterior wall, the imaginary lot line must be placed at least 10 feet from the exterior walls of the garage. This will affect the required rating for the exterior wall of the adjacent Congress Street Building.

8.2 Shaft Enclosures

Vertical openings in open parking garages are not required to be enclosed, including stairways used for egress purposes (IBC 406.5.9 & 1019.3(6) and NFPA 101 Section 42.8.2.2.3.2 & 42.8.3.1.2).

8.3 Fire Wall

It is our understanding that a fire wall will be provided between the west stair tower and the Congress Street development. Direct access will be provided through this fire wall from the Visitor Garage to the Congress Street building.

The fire wall must comply with the requirements of IBC 706 and must have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for 3 hours. This fire resistance rating is based on the hospital use (i.e. Group I-2) in the Congress Street building (IBC Table 706.4).

Openings
Individual openings in the fire wall cannot exceed 156 SF and the aggregate width of openings cannot exceed 25% of the length of the wall at each floor level (IBC 706.8). Per IBC Table 716.5, fire walls having a required assembly rating of 3 hours also require 3-hour fire doors. Doors must be latching and self- or automatic-closing (IBC 716.5.9).

Horizontal Continuity
Fire walls must be continuous from exterior wall to exterior wall and must extend at least 18 inches beyond the exterior surface of exterior walls (IBC 706.5). However, there are exceptions permitting the fire wall to terminate at the interior surface of the exterior sheathing or siding. Where the fire wall intersects exterior walls and form an angle less than 180 degrees, the exterior walls must have a 1-hour fire-resistance rating with ¾-hour opening protectives for a horizontal distance of 4 feet, or must be rated based on an imaginary lot line drawn between buildings (IBC 706.5.1).

Fire walls must extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees, and similar projections that are within 4 feet of the fire wall (IBC 706.5.2). Note however there are some exceptions to this requirement where the exterior wall behind the projecting element is rated. The applicability of the exceptions depends on whether the projection contains concealed spaces.

Vertical Continuity
Fire walls must have vertical continuity such that they extend from the foundation to a termination point at least 30 inches above both adjacent roofs (IBC 706.6). However, there are exceptions to this section, including exceptions for stepped buildings and where both buildings are provided with at least Class B roof coverings.

9. INTERIOR FINISH

The interior finishes of the walls, ceilings, and floors of the building are governed by IBC Chapter 8 and NFPA 101 Chapter 10. These chapters outline the testing requirements for the different surfaces. The required tests and finish classifications are summarized in the tables below.

Finish Characteristics

Element	Test Method	Criteria
Wall & Ceiling Finishes	ASTM E84 or UL 723	Class A = FSI 0-25; SDI 0-450
		Class B = FSI 26-75; SDI 0-450
		Class C = FSI 76-200; SDI 0-450
Floor Finish	NFPA 253	Class I = 0.45 W/cm^2 or greater
		Class II = 0.22 W/cm^2 up to 0.45 W/cm2
	DOC FF-1	Pass

Notes:
FSI = flame spread index
SDI = smoke-developed index

Interior Wall and Ceiling Finish Requirements by Occupancy (Nonsprinklered Building)

Use Group	Walls & Ceilings			Floors	
	Exit enclosures and exit passageways	Corridors	Rooms and enclosed spaces	Exits and corridors	Other spaces
S-2	B	B	C	Class II & DOC FF-1[A]	DOC FF-1

[A] Requirements for corridors are applicable to spaces open to corridors.

The tables above show the required interior finish classes throughout the building based on the most restrictive requirements of IBC Table 803.11 and NFPA 101 Table A.10.2.2. All floors throughout the building must pass the DOC FF-1 "pill test".

10. FIRE PROTECTION SYSTEMS

10.1 Automatic Sprinkler System

An automatic sprinkler system is not required in open parking garages (IBC 903.2 and NFPA 101 Section 42.8.3.5).

10.2 Manual Fire Alarm System

Open parking garages are not required to be equipped with a manual fire alarm system (IBC 907.2 and NFPA 101 Section 42.8.3.4.1.3); however, the existing manual fire alarm system will be maintained and extended to the addition.

10.3 Standpipe System

A standpipe system is required in the parking garage since there is a floor level more than 30 feet above the lowest level of fire department vehicle access (IBC 905.3.1). Class I manual dry standpipes are permitted in open parking garages that are subject to freezing temperatures. The hose connections must be located as required for Class II standpipes per IBC 905.5 (IBC 905.3.1(3)). The existing garage is provided with a dry-type standpipe system. This system will be extended to the addition.

11. MEANS OF EGRESS

The applicable means of egress requirements for new construction are described below.

11.1 Egress Summary

The occupant loads throughout the building are calculated in accordance with IBC Table 1004.1.2 and NFPA 101 Table 7.3.1.2. The capacities of the exits are calculated in accordance with IBC 1005.1 and NFPA 101 Table 7.3.3.1. See sheet G01-01 and G01-02 for detailed egress calculations.

11.2 Exit Access Travel Distance

The exits in the new portions of the parking garage are required to be arranged such that the maximum exit access travel distance is 300 feet. Exit access travel distance is permitted to be measured to an exit door of an enclosed stair or to the closest riser of an unenclosed stairway (IBC 1017.3 and NFPA 101 Table 42.8.2.6.1, Note (2)). Based on AKF's measurement of the proposed floor plans, the exit access travel distance in the garage is within the limit described above.

Note that the exit access travel distance on Sub-Level 6 was measured to the vehicle exit. Although there is not a designated pedestrian path, the existing vehicle exit is marked by exit signage and appears to be serving as a means of egress from Sub-Level 6. This an existing condition that is not being altered by the proposed addition. Therefore, the condition is permitted to remain. We recommend adding a striped pedestrian path should future alterations to the garage facilitate such work.

11.3 Dead Ends

Where more than one exit or exit access doorway is required, the exit access much be arranged such that there are no dead ends in corridors more than 50 feet (IBC 1020.4(2) and NFPA 101 Section 42.8.2.5.2).

11.4 Number of Exits and Continuity

Two means of egress must be provided from individual spaces where the occupant load and/or common path of travel distance exceeds the limitations of IBC Table 1006.2.1 and NFPA 101 Section 42.8.2.5.1.

Spaces with One Means of Egress

Use Group	Maximum Occupant Load	Maximum Common Path of Travel Distance (ft)
S-2	29	50

All spaces within each story must have access to the minimum number of independent exits from the story as required by IBC Table 1006.3.1 and NFPA 101 Section 7.4.1.2 below.

As discussed in Section 11.2 above, the existing vehicle exits are serving as part of the means of egress from Sub-Level 6. Since this existing condition is not being altered by the proposed addition, it is permitted to remain. We recommend adding a striped pedestrian path should future alterations to the garage facilitate such work. Occupants on Sub-Level 6 also have access to the garage stairs on Sub-Level 5.

IBC Table 1021.1 Minimum Number of Exits Per Story

Occupant Load (persons per story)	Minimum Number of Exits (per story)
1-500	2
501-1,000	3
More than 1,000	4

Where more than one means of egress is required, the exits must be separated by ½ of the overall diagonal distance of the space served (IBC 1007.1.1 and NFPA 101 Section 7.5.1.3.2).

11.5 Doors

A minimum clear width of 32 inches is required for doors in accordance with IBC 1010.1.1 and NFPA 101 Section 7.2.1.2.3.2. All doors serving an occupant load of 50 or more people must swing in the direction of egress travel (IBC 1010.1.2 and NFPA 101 Section 7.2.1.4.2).

12. ACCESSIBILITY

The accessibility requirements applicable to new construction apply to the addition (IEBC 1105.1). This includes the following requirements.

12.1 Accessible Route

At least one accessible route must be provided throughout the building and must connect each accessible story (ADA 206.2).

12.2 Accessible Entrances

At least 60% of public entrances must be accessible. Where direct access from parking structures to buildings or facility entrances are provided, such access must be accessible (ADA 206.4.1). In addition, where direct access is provided for

pedestrians from a parking structure to a building entrance, each direct access to the building must be accessible (ADA 206.4.2).

12.3 Parking

Accessible parking spaces must be provided in accordance with the following table (ADA 208.2).

Table 208.2 – Accessible Parking Spaces

Total Parking Spaces Provided	Minimum Number of Accessible Spaces
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	2% of total
1,001 and over	20 plus 1 for each 100 over 1,000

In addition to the accessible spaces required above, van accessible spaces must be provided at a rate of one for every six accessible spaces, but no less than one (ADA 208.2.4). Accessible parking spaces must be provided on the shortest accessible route to an accessible building entrance, or accessible pedestrian entrance to the parking facility. Where buildings have multiple accessible entrances with adjacent parking, the accessible spaces must be dispersed and located near the accessible entrances; however van accessible spaces are permitted to be grouped on one level (ADA 208.3).

Based on the plans provided to AKF on August 7, 2017, the garage appears to be provided with approximately 713 spaces. Therefore at least 15 accessible spaces, 3 of which are van accessible, must be provided. Based on the proposed plans, approximately 20 accessible spaces are being provided. Although none of the spaces are labeled as being van-accessible, it appears as though at least 3 van accessible spaces are provided based on the width of the parking spaces.

13. STRUCTURAL

This review does not include an analysis of structural requirements. Alterations to existing structural elements and the introduction of new structural loads must be reviewed with the structural engineer.

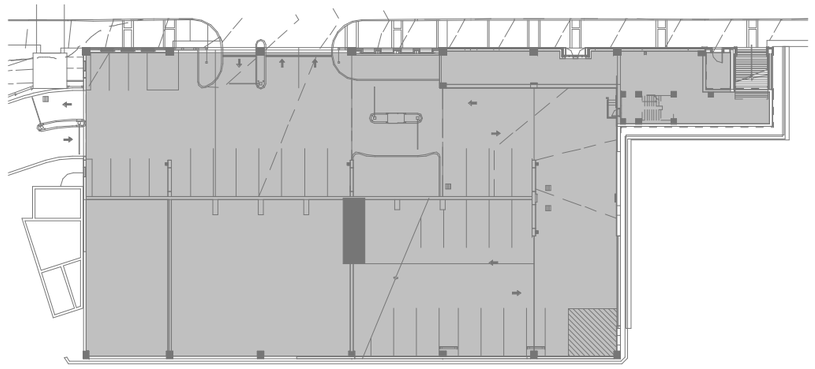
14. MECHANICAL

Open parking garages are not required to be provided with mechanical ventilation (IBC 406.5.10).

15. ENERGY CONSERVATION

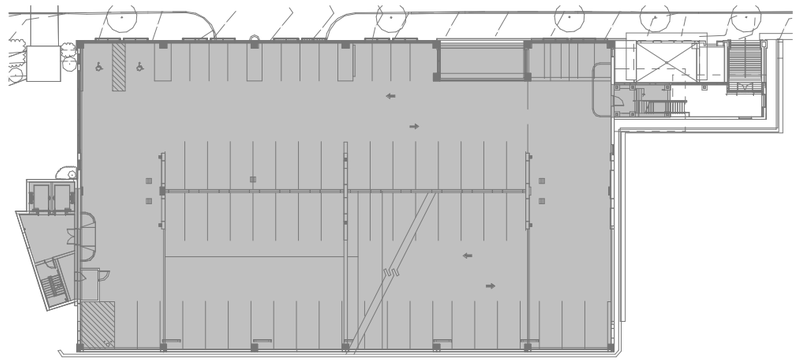
Additions to existing buildings must comply with the requirements of the IECC that are applicable to new construction; however the existing, unaltered portions of the building are not required to comply with such requirements. Additions must comply with IECC C402, C403, and C404 or ASHRAE 90.1 – 2013 (IECC C502.1).

APPENDIX A – HEIGHT AND AREA ANALYSIS



1 SUB-LEVEL 6 = 26,633 SF

SCALE: 1" = 60'-0"



2 SUB-LEVEL 5 = 26,598 SF

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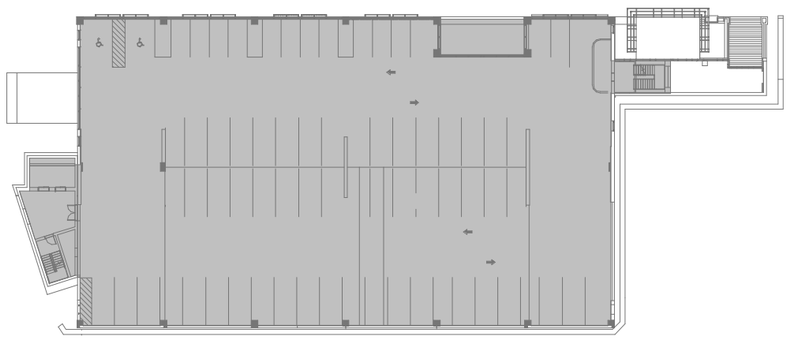

3 SUB-LEVEL 4 = 26,598 SF

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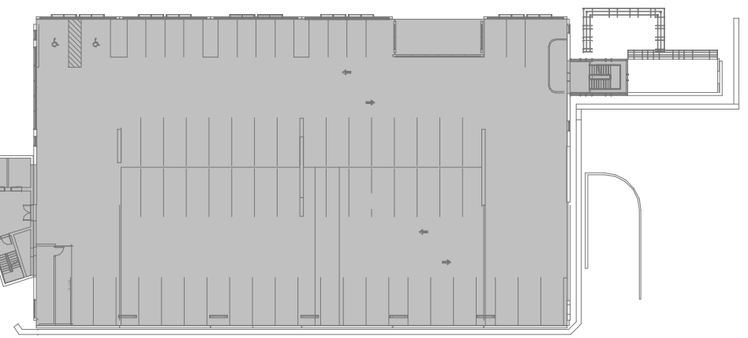

4 SUB-LEVEL 3 = 26,598 SF

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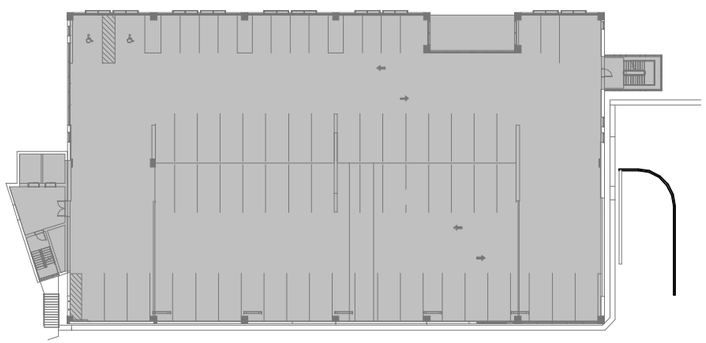


5 SUB-LEVEL 2 = 26,598 SF

SCALE: 1" = 60'-0"

HEIGHT & AREA SUMMARY

OPEN PARKING STRUCTURE IN TYPE IIA CONSTRUCTION

ELEMENT	PROPOSED	ALLOWED	STATUS
MAXIMUM AREA PER TIER (SF)	26,633	50,000	✓
AGGREGATE AREA (SF)	266,015	500,000	✓
HEIGHT (IN TIERS)	10	10	✓

AKF

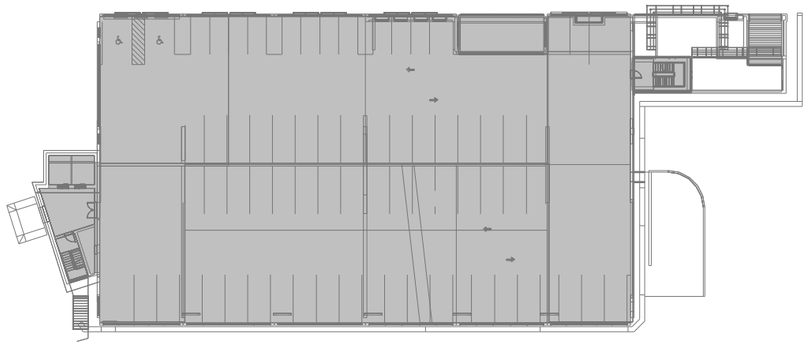
PROJECT: MMC - VISITOR GARAGE EXPANSION

TITLE: HEIGHT & AREA ANALYSIS - S6 THROUGH S2

PROJECT No.: B150311-000 DATE: 09/28/2017 CHKD BY: CMA

SKETCH No.: HA.001

SCALE: 1" = 60'-0"



6 SUB-LEVEL 1 = 26,598 SF

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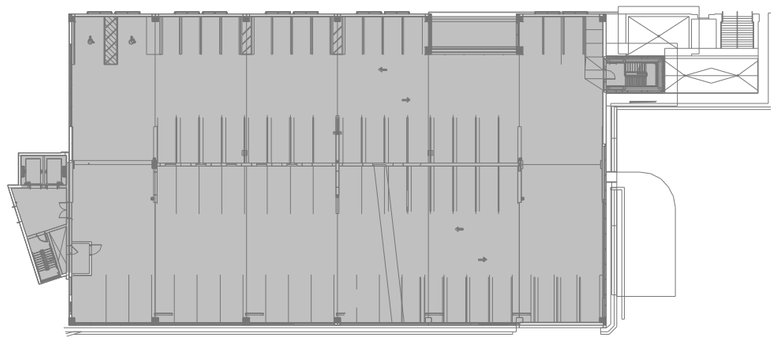

7 BASEMENT = 26,598 SF

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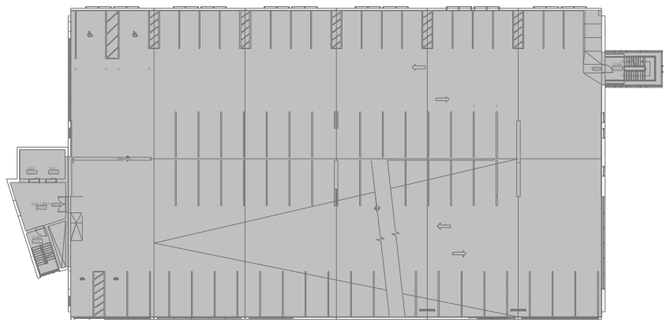

8 GROUND = 26,598 SF

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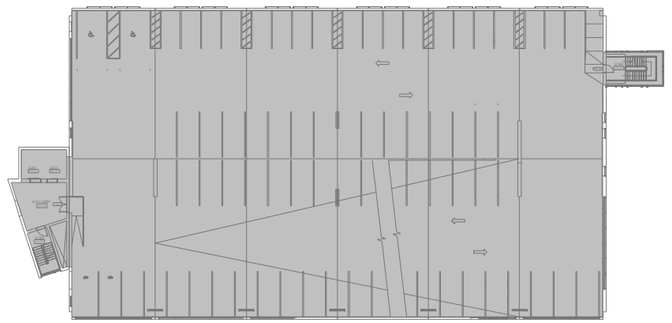
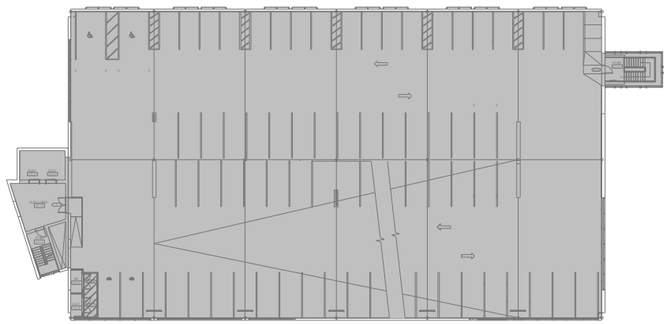


9 LEVEL 1 = 26,598 SF

SCALE: 1" = 60'-0"



10 LEVEL 2 = 26,598 SF

SCALE: 1" = 60'-0"

HEIGHT & AREA SUMMARY

OPEN PARKING STRUCTURE IN TYPE IIA CONSTRUCTION

ELEMENT	PROPOSED	ALLOWED	STATUS
MAXIMUM AREA PER TIER (SF)	26,633	50,000	✓
AGGREGATE AREA (SF)	266,015	500,000	✓
HEIGHT (IN TIERS)	10	10	✓

AKF

PROJECT: MMC - VISITOR GARAGE EXPANSION

TITLE: HEIGHT & AREA ANALYSIS - S1 THROUGH LEVEL 2

PROJECT No.: B150311-000 DATE: 09/28/2017 CHKD BY: CMA

SKETCH No.: HA.002

SCALE: 1" = 60'-0"

AKF

1655 North Fort Myer Drive
Suite 200
Arlington, VA 22209
T: 703.351.7686

99 Bedford Street
2nd Floor
Boston, MA 02111
T: 617.737.1111

Higuera No. 35 P.B.
Coyoacan
Mexico, D.F. 04000
T: 52.555.659.4573

Quinto Retorno Circuito Osa
Mentor No.8
1Ery 2Do Piso, Reserva Territorial
Cholula, Puebla CP 72810
T: 52.22.210.3378

100 South 5th Street
Suite 2060
Minneapolis, MN 55402
T: 612.354.2442

One Liberty Plaza
165 Broadway, 22nd Floor
New York, NY 10006
T: 212.354.5656

1500 Walnut Street
Suite 1400
Philadelphia, PA 19102
T: 215.735.7290

2768 Superior Drive NW
Suite 200
Rochester, MN 55904
T: 507.208.4488

700 Alexander Park
Suite 204
Princeton, NJ 08540
T: 609.750.9590

750 East Main Street
Suite 501
Stamford, CT 06902
T: 203.323.4333

www.akfgroup.com

U.S. Department of Transportation
Federal Aviation Administration

OMB CONTROL NUMBER: 2120-0036
EXPIRATION DATE: 4/30/2017

NOTICE FOR CONSTRUCTION, ALTERATION AND DEACTIVATION OF AIRPORTS

A. Airport Owner ☑ Check if this is also the Property Owner

1. Name and Address ☑ Check if this is the Airport's Physical Address

Maine Medical Center
22 Bramhall Street
Portland, ME 04102

2. Phone: (732) 870-8883
3. Email: info@heliexp.com

B. Airport Manager (Complete if different than the Airport Owner)

1. Name and Address ☐ Check if this is the Airport's Physical Address

HeliExperts
489 Broadway
Long Branch, NJ 07740

2. Phone: (732) 870-8883
3. Email: info@heliexp.com

C. Purpose of Notification (Answer all questions that apply)

1. Construct or Establish an: ☐ Airport ☐ Ultralight Flightpark ☐ Balloonport ☑ Heliport ☐ Seaplane Base ☐ Other
2. Construct, Alter or Realign a: ☐ Runway ☑ Helipad(s) ☐ Other ☐ Taxiway (Public Use Airports only)
3. Change Status From/To: ☐ VFR to IFR ☐ IFR to VFR ☐ Private Use to Public Use ☐ Public Use to Other
4. Change Traffic Pattern: ☐ Direction _____ ☐ Altitude _____ ☐ Other (Describe Below)
5. Deactivate: ☐ Airport ☐ RWY _____ ☐ TWY _____
6. Description:
Establishment of a new Hospital, Private, PPR rooftop heliport at the Maine Medical Center in Portland, Maine

D. Name, Location, Use and Type of Landing Area

1. Name of Landing Area: Maine Medical Center
2. Loc ID (for existing):
3. Associated City and State: Portland, ME
4. Distance from City: 0 (nm)
5. County (Physical Location): Cumberland
6. Direction from City: W
7. Latitude: 43° 39' 14.3800"
8. Longitude: 70° 16' 32.6300"
9. Elevation: 240
10. Current Use: ☑ Private ☐ Public ☐ Private Use of Public Lands
11. Ownership: ☑ Private ☐ Public ☐ Military (Branch) _____
12. Airport Type: ☐ Airport ☑ Heliport ☐ Ultralight Flightpark ☐ Seaplane Base ☐ Balloonport ☐ Other

E. Landing Area Data (List any Proposed, New or Unregistered Runways, Helipads etc.)

1. Airport, Seaplane Base or Ultralight Flightpark (use second page if needed)			2. Heliport, Balloonport or other Landing Area (use second page if needed)		
RWY ID	/	/	Helipad ID	H1	H2
Lat. & Long.	Show on attachment(s)	Show on attachment(s)	Lat. & Long.	Show on attachment(s)	Show on attachment(s)
Surface Type			Surface Type	Concrete	Concrete
Length (feet)			TLOF Dimensions	54' Diameter	40' Diameter
Width (feet)			FATO Dimensions	97.2' Diameter	68.1' Diameter
Lighting (if any)			Lighting (if any)	Perimeter	Perimeter
Right Traffic (Y/N)	/	/	Ingress/Egress (Degrees)	085/265, 253/073, 251/071	085/265, 253/073, 251/071
Elevation (AMSL)	Show on attachment(s)	Show on attachment(s)	Elevation (AMSL)	Show on attachment(s)	Show on attachment(s)
VFR or IFR	/	/	Elevated Height (AGL)	120	120

F. Operational Data (Indicate if the number provided is Actual or Estimated)

	1. Number of Based Aircraft		2. Average Number of Monthly Landings	
	Present or Estimated	Estimated in 5 Years	Present or Estimated	Estimated in 5 Years
Single Engine	0	0	0	0
Multi Engine	0	0	0	0
Jet	0	0	0	0
Helicopter	0	0	450	750
Glider	0	0	0	0
Military	0	0	0	0
Ultralight	0	0	0	0

3. What is the Most Demanding Aircraft that operates or will operate at the Airport? (Provide approach speed, rotor diameter, etc. if known)
Design Helicopter: Coast Guard MH-60 J-Hawk // Rotor Diameter = 53.8' // Overall Length = 64.8' // Max Gross Weight = 22,000 lbs.

4. Are IFR Procedures for the Airport Anticipated? ☑ **Yes** ☐ **No** **if Yes, Within** 2 **Years**

G. CERTIFICATION: I hereby certify that all of the above statements made by me are true and complete to the best of my knowledge.

1. Name, title of person filing this notice (type or print)
Raymond A. Syms
Authorized Agent

2. Signature (in ink):

3. Date: 08/29/2017
4. Phone: (732) 870-8883
5. Email: info@heliexp.com

Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Proposed Site and Aviation Sectional Airspace Overlay

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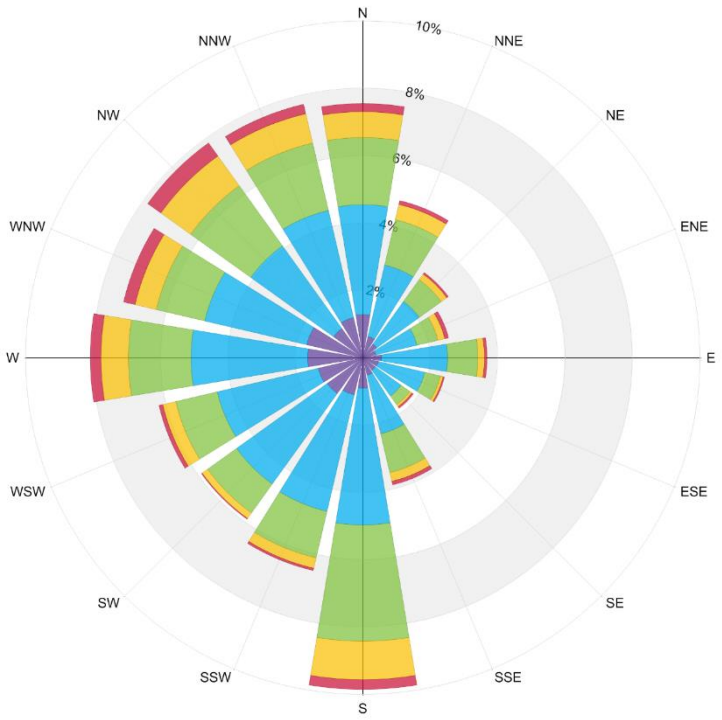
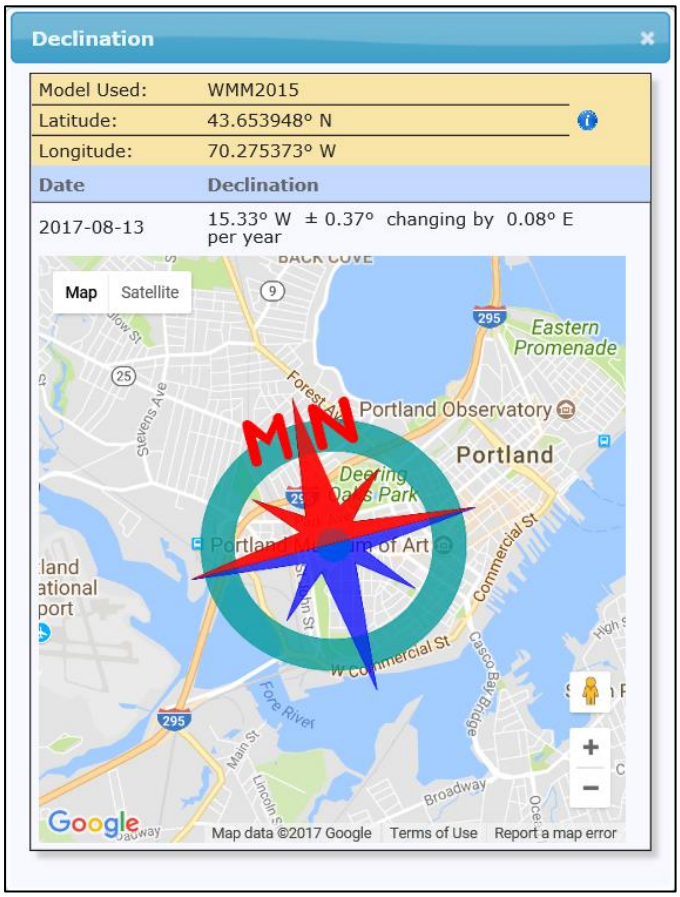
Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

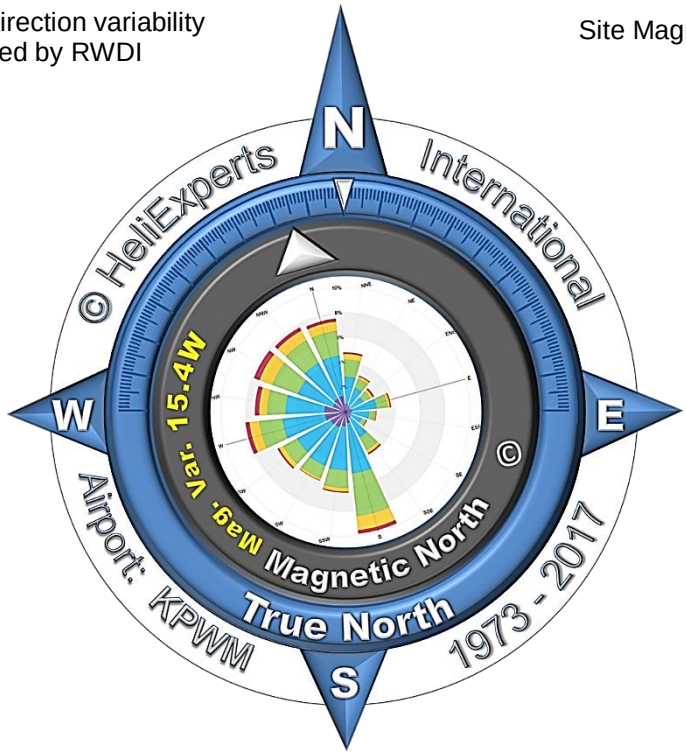
Local Winds and Magnetic Declination



Local wind speed and direction variability
For KPWM Provided by RWDI



Site Magnetic Declination



HeliExperts site specific Wind & Compass
Rose for both Magnetic and True North

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Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Airports and Heliports within 10NM

There are 4-Heliports, 7-Airports and 1 Ultraflight Flightpark (Public, Private and Military) on record and listed in the FAA 5010 Airport Master Record database located within a 10-nautical mile radius of the proposed Maine Medical Center heliport site located at:

Address: Maine Medical Center
22 Bramhall Street
Portland, ME 04102

Coordinates: Latitude: N – 43° 39' 14.38"
Longitude: W – 070° 16' 32.63"

ID	CITY	AIRPORT NAME	WHERE
PWM	Portland	Portland International Jetport Airport	1.5 nm W
ME26	Westbrook	Super Cub Field Airport	3.9 nm W
ME66	Scarborough	Scottow Bog Ultralight Flightpark	4.3 nm SW
67ME	Westbrook	Sta-Kel Heliport	5.2 nm NW
64ME	Falmouth	Dave Libby Heliport	5.4 nm NNW
07ME	Westbrook	Westbrook Heliport	5.8 nm NNW
78ME	Falmouth	Eric's Field Airport	6.0 nm N
21ME	Gorham	Moody Field Airport	6.5 nm WNW
80ME	Scarborough	Bayley's Field Airport	7.7 nm SSW
ME21	Chebeague Island	Chebeague Island Heliport	7.9 nm NE
ME91	Gorham	Webster Field Airport	9.6 nm W
15ME	North Yarmouth	Eagle Field Airport	9.9 nm NNE

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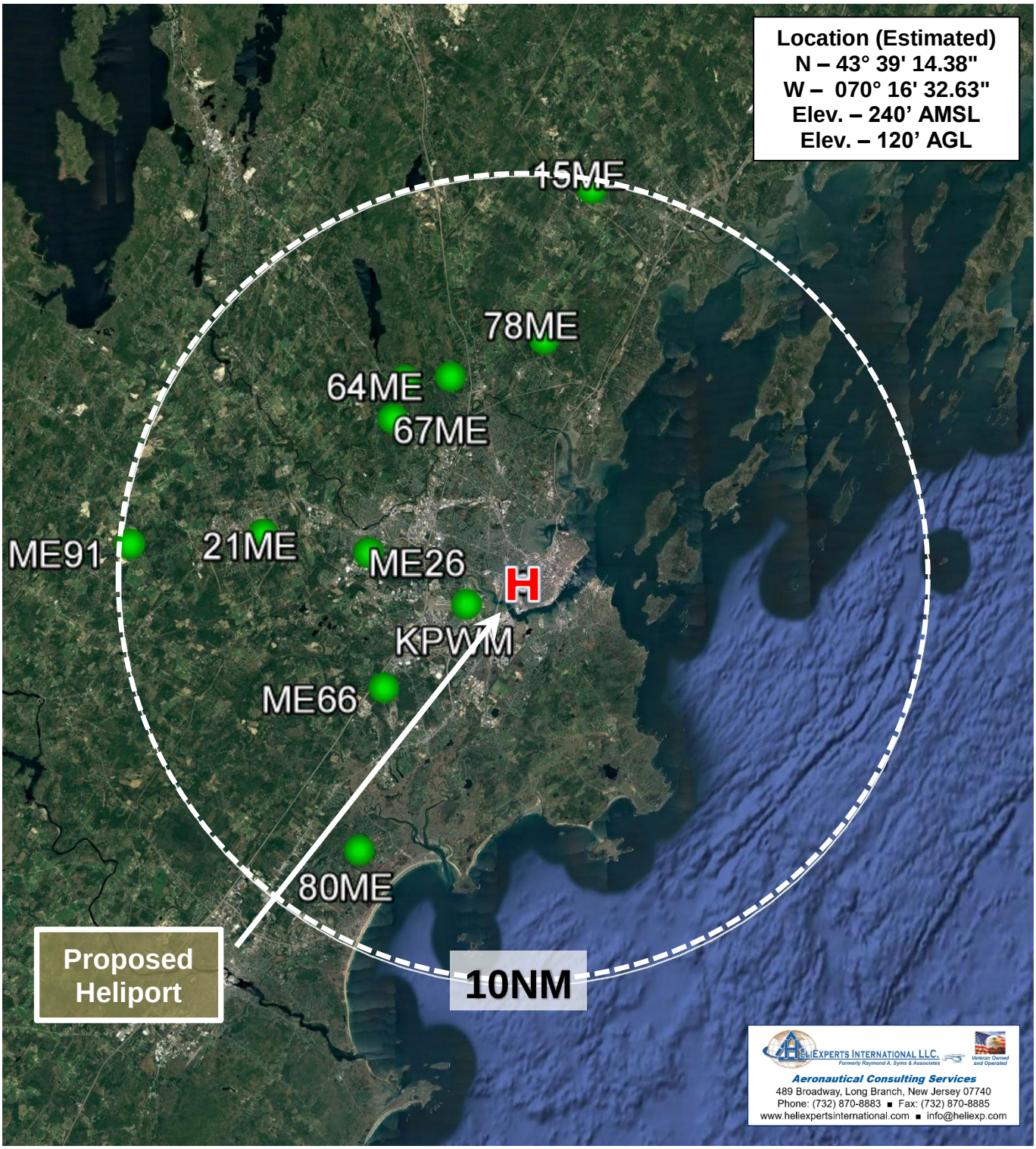
Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Plotted Airports & Heliports within 10NM



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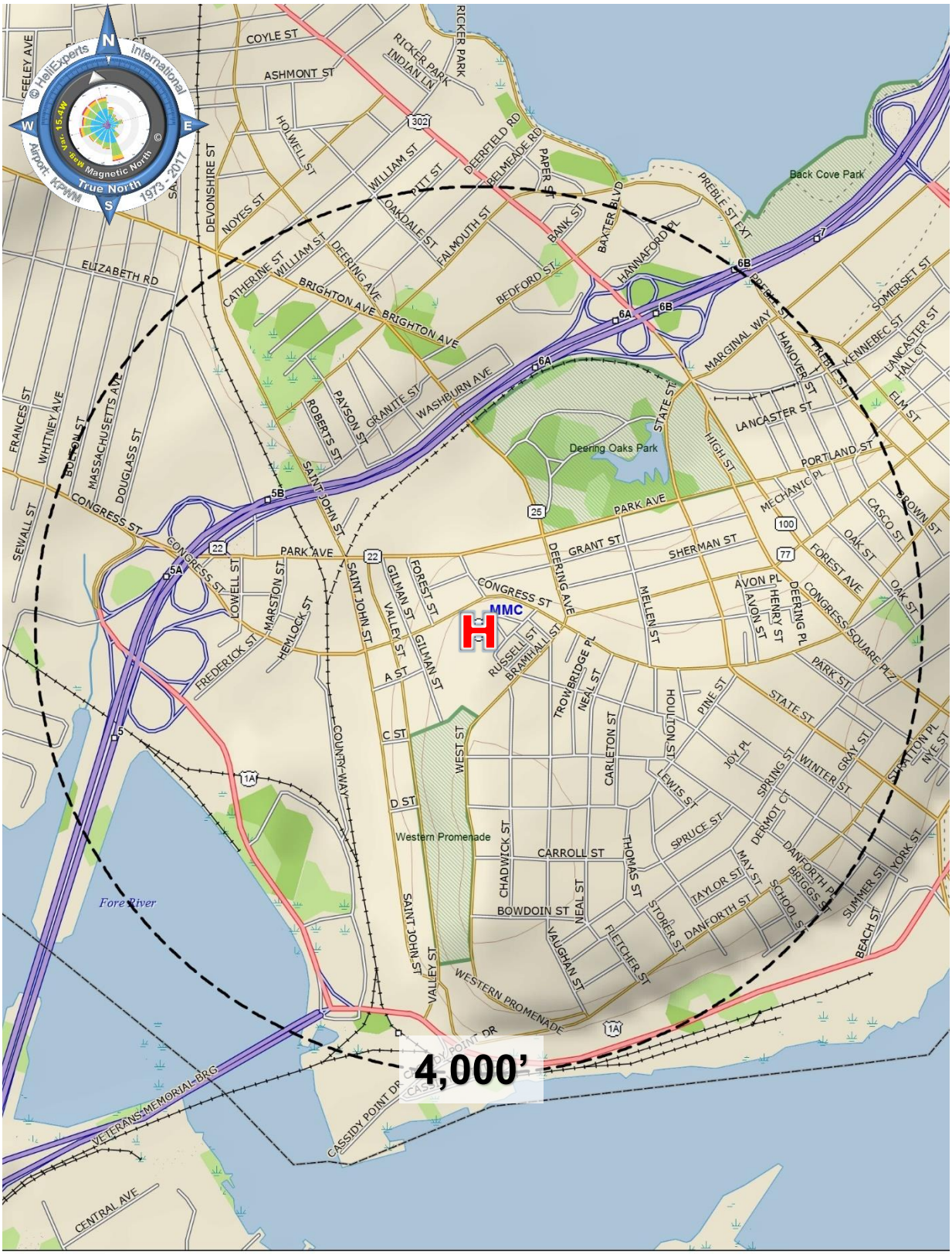
Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Site Location Topographical Airspace Considerations



Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Proposed Approach/Departure Paths (Satellite Overlay)

Proposed Approach/Departure Paths:

A. Straight Approach
   085° / 265° Magnetic // 070° / 250° True

B. Curved Approach, alternate to A *for noise abatement purposes*
   a. 253° / 073° Magnetic // 238° / 058° True

C. Curved Approach
   a. 251° / 071° Magnetic // 235° / 055° True

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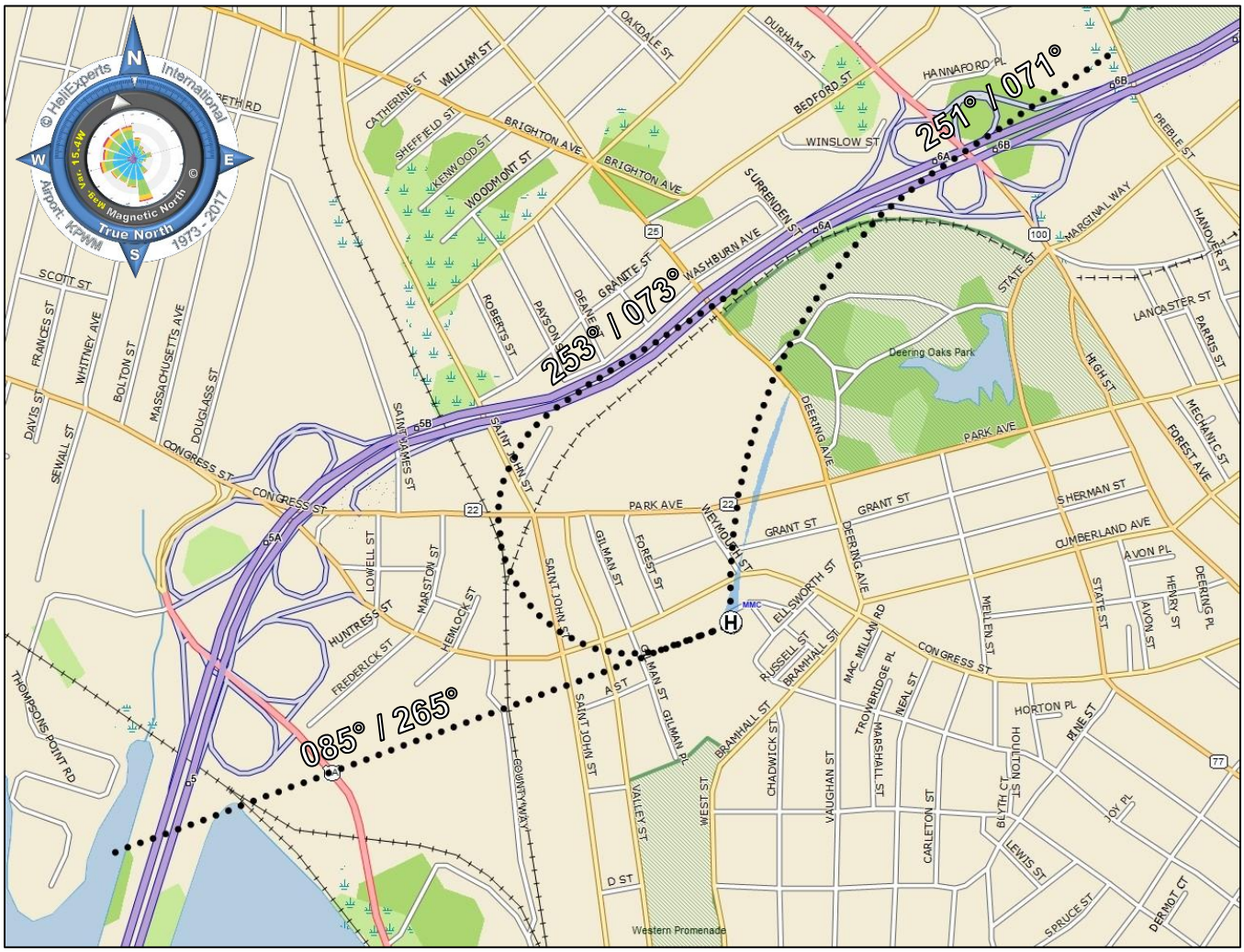
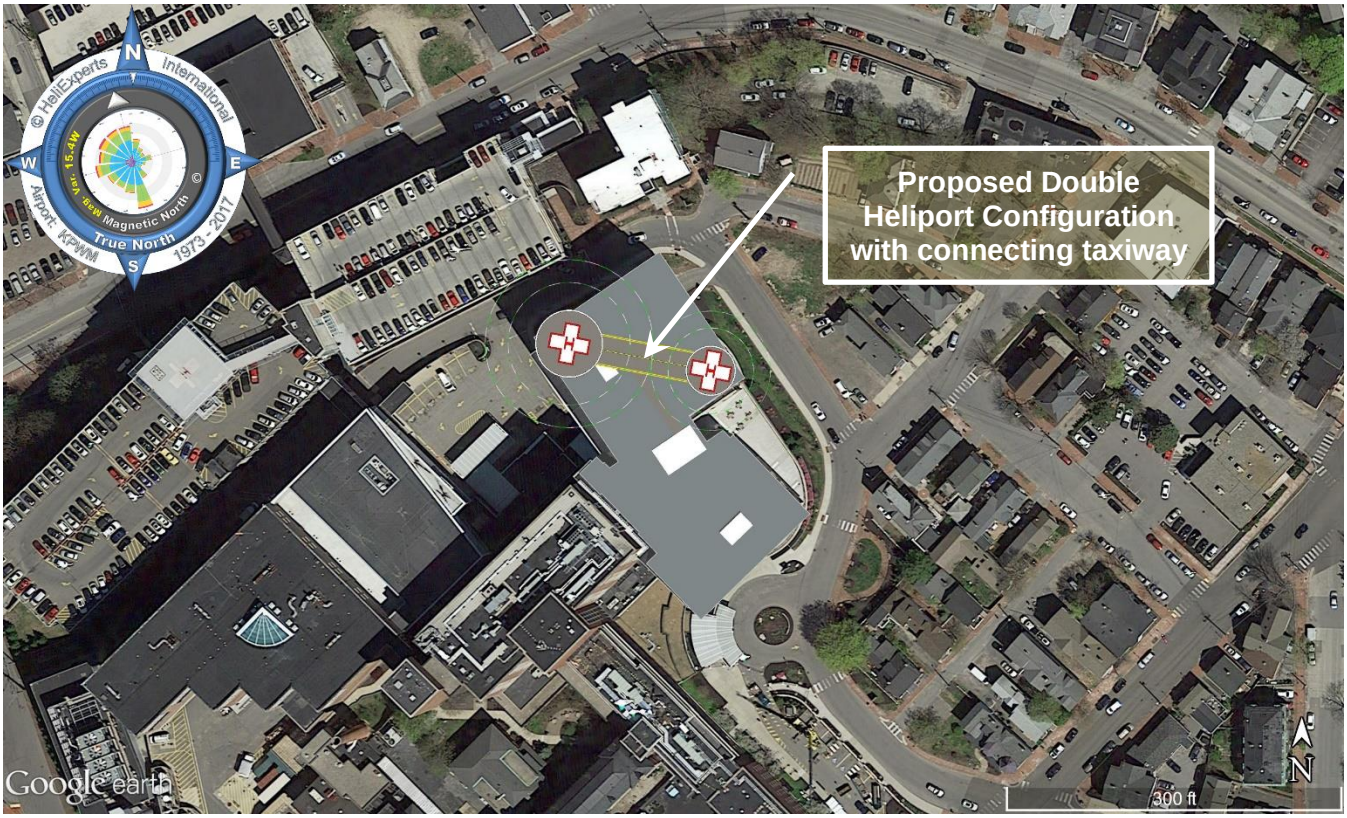
Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

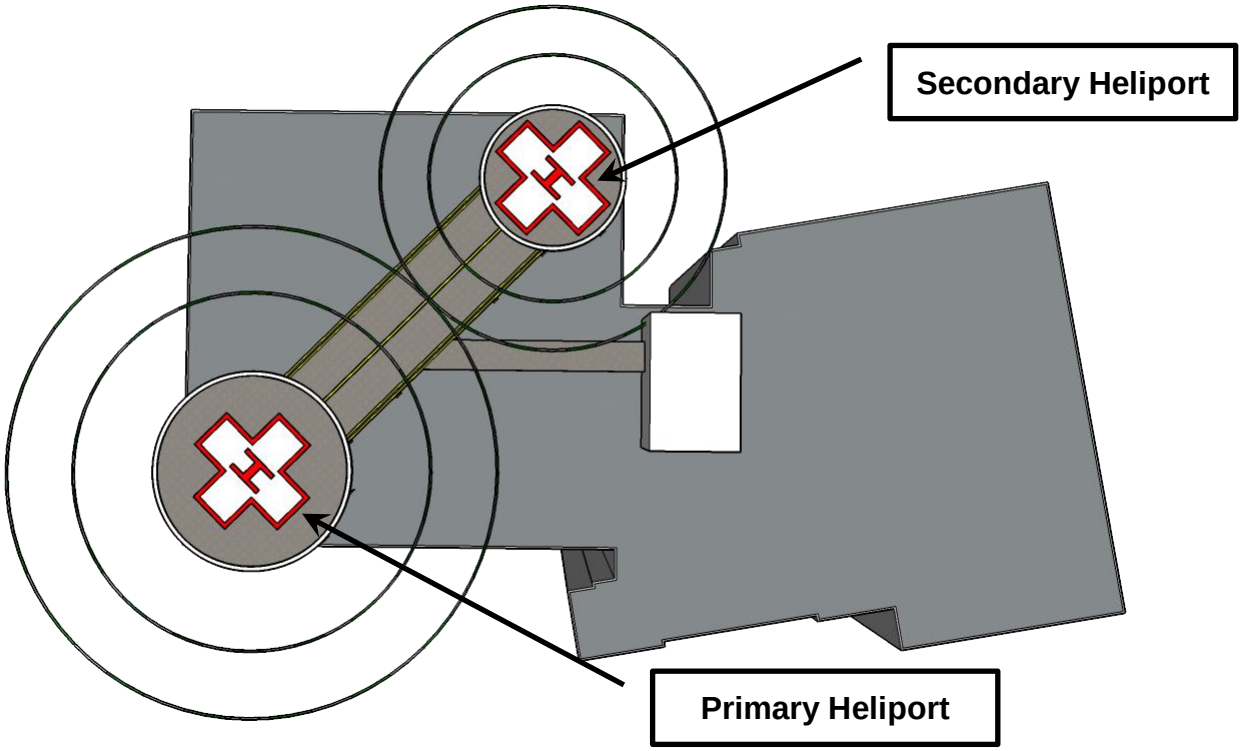
Proposed Approach/Departure Paths (Topographical Overlay)



Proposed Heliport Site Location and Layout



Double Heliport Configuration



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PRIMARY HELIPORT DIMENSIONS

Based on the largest helicopter that will service this location being the Coast Guard MH-60/HH-60 Jayhawk helicopter. The primary heliport will also be the designated landing area for the S-76 as well.

- MH-60 Rotor Diameter: 53.8 feet
- MH-60 Overall Length: 64.8 feet
- MH-60 Maximum Gross Weight: 22,000 lbs.
- MH-60Undercarriage: Length = 29' / Width = 9.7 feet

Minimum Touchdown and Liftoff (TLOF) Dimensions

The minimum TLOF dimension (length, width, or diameter) is equal to the rotor diameter (RD) of the design helicopter but not less than 40 feet (12 m).

- 1 X Rotor Diameter = **53.8 feet** (rounded up to 54')

Minimum Final Approach Departure Area (FATO) Dimensions

Design the FATO so its minimum width, length, or diameter is 1½ times the overall length (D) of the design helicopter.

- 1.5 X Overall Length (64.8) = **97.2 feet**

Minimum Safety Area Width Dimensions

Minimum VFR safety area width based on standard hospital heliport markings is 1/3 Rotor Diameter but not less than 10 feet

- 1/3 RD (53.8) = 18'
- Overall safety area = 18' X 2 + FATO(97.2) = **133.2 feet**

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SECONDARY HELIPORT DIMENSIONS

The secondary heliport is based on the smaller helicopters servicing this location which includes the; AW-109, EC-135 and the EC-145.

*Special note for a hospital heliport the smallest allowable Touchdown and Liftoff Ares is 40 feet.

The following is a composite helicopter representation for the secondary heliport made up of the largest dimensions and weights of the above three aircraft.

- AW-109 & EC-145 Rotor Diameter: 36.1 feet
- AW-109 Overall Length: 42.8 feet
- EC-145 Maximum Gross Weight: 7,904 lbs
- Undercarriage: Length (AW-109): 12.3 / Width (EC-145): 7.9

Minimum Touchdown and Liftoff (TLOF) Dimensions

The minimum TLOF dimension (length, width, or diameter) is equal to the rotor diameter (RD) of the design helicopter but not less than 40 feet (12 m).

- 1 X Rotor Diameter = 36.1 feet / *minimum = **40 feet**

Minimum Final Approach Departure Area (FATO) Dimensions

Design the FATO so its minimum width, length, or diameter is 1½ times the overall length (D) of the design helicopter.

**Special Note: minimum separation between the perimeters of the FATO and TLOF are equal to: ¾ OL – ½ RD*

- 1.5 X Overall Length (42.8) = 64.2 feet
- Minimum Perimeter between TLOF & FATO: ¾ (42.8) – ½ (36.1) = 14.05
  - 14.05 X 2 + TLOF (40) = **68.1 feet**

Minimum Safety Area Width Dimensions

Minimum VFR safety area width based on standard hospital heliport markings is 1/3 Rotor Diameter but not less than 10 feet

- 1/3 RD (40) = 13.3’
- Overall safety area = 13.3’ X 2 + FATO(68.1) = **94.7 feet**

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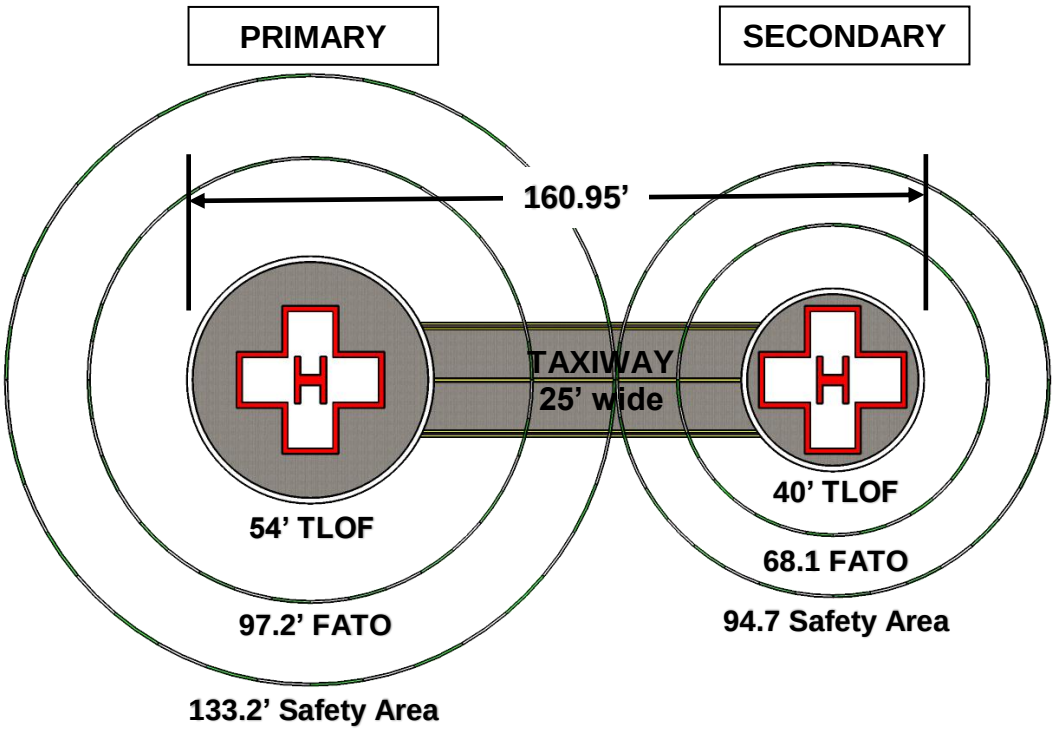
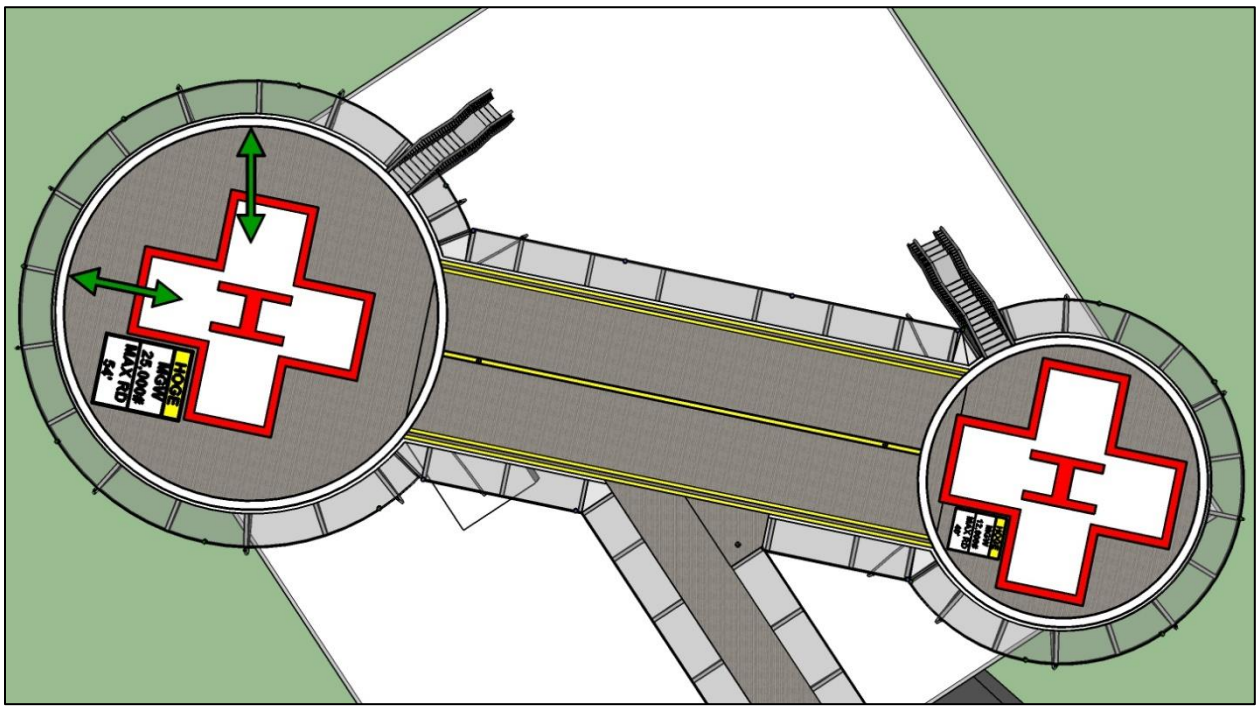
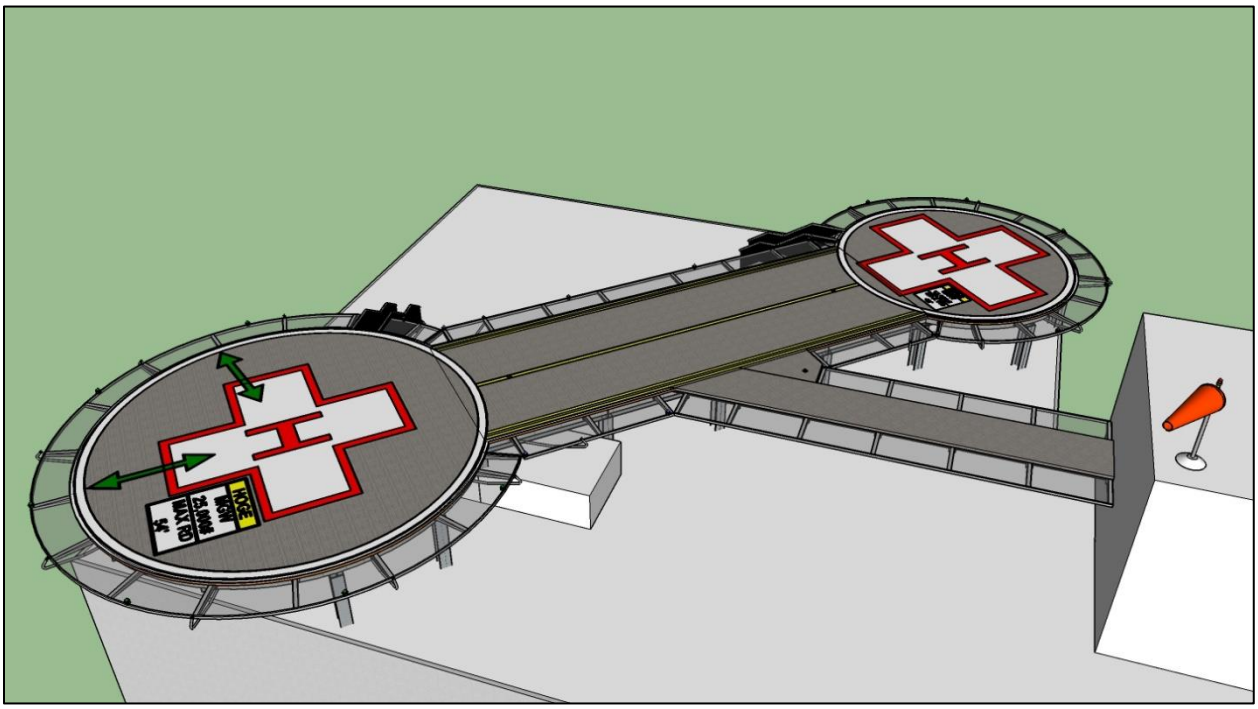
PROPOSED LAYOUT:



CONCEPTUAL EAST WING OVERLAY:





WINDSOCK PLACEMENT

Primary windsock to be located on top of elevator tower. Secondary windsock placement yet to be determined.

ADB WC 807
LED Internally Lit
Wind Cone

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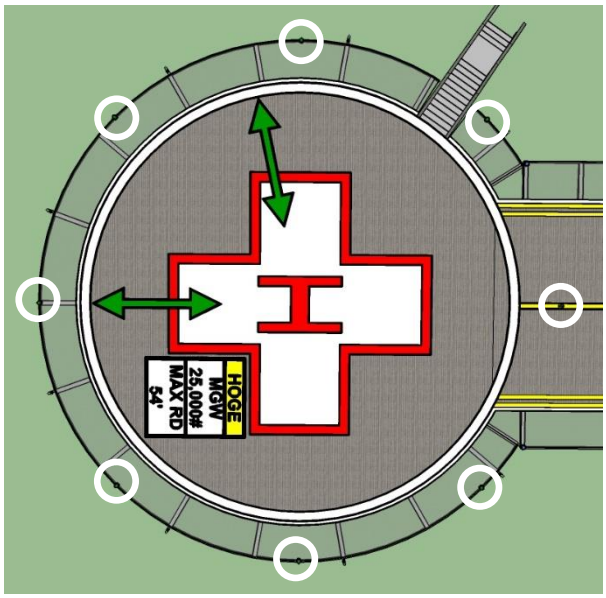
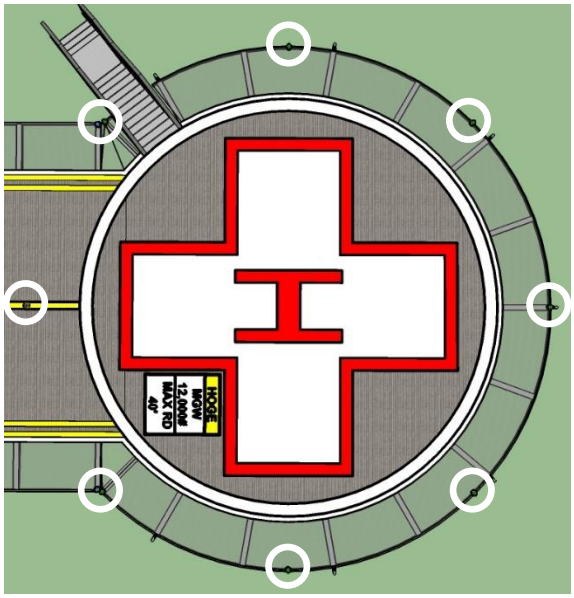
Heliport Lighting Arrangement

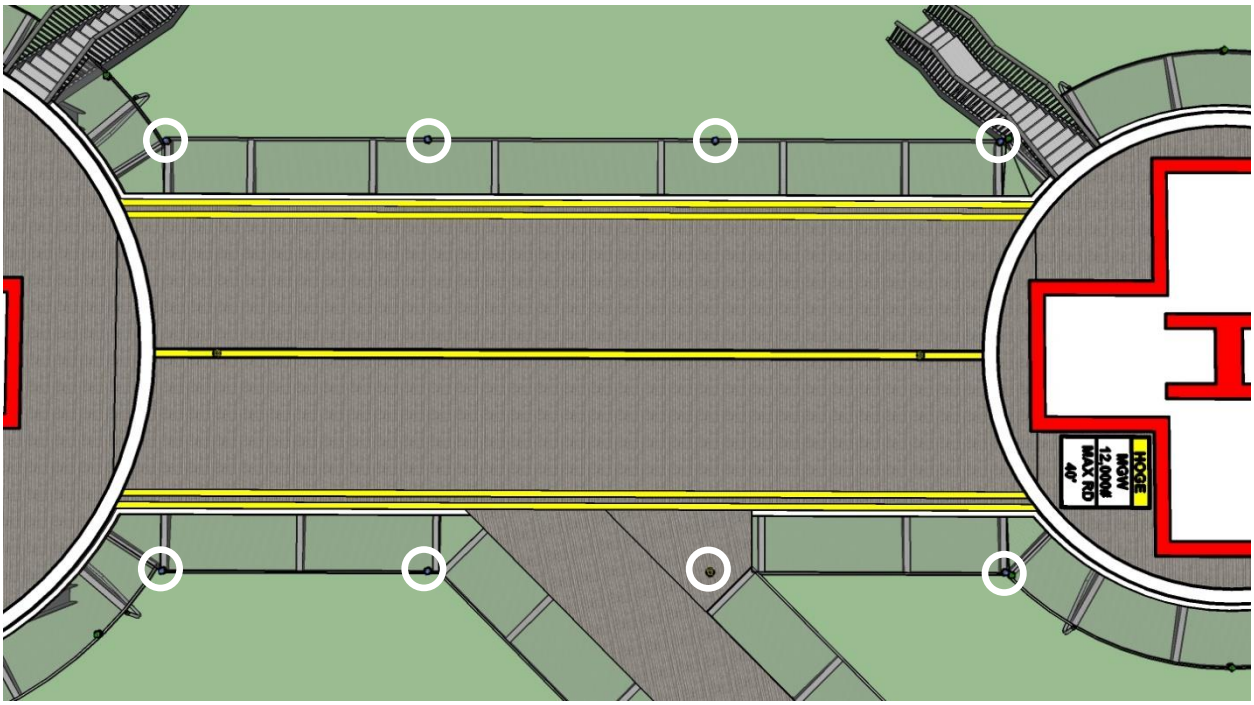


Primary TLOF Perimeter Lighting Layout



Secondary TLOF Perimeter Lighting Layout

Taxiway Lighting



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Maine Medical Center, Portland, ME / FAA 7480 Heliport Packet

Heliport Lighting

ADB LED Elevated Heliport Perimeter Light EHP-L

Installed on perimeter safety net

ADB LED In-pavement Utility & Heliport Perimeter Light IUL-L

Used in concrete taxiway 1 each

Taxiway Lighting

L-861T Elevated Taxiway Edge LED (ETES) Light

Installed on perimeter safety net

Obstruction Lighting

ADB LED LED Steady Burning Obstruction Light L-810(L)

Installed on all applicable obstructions

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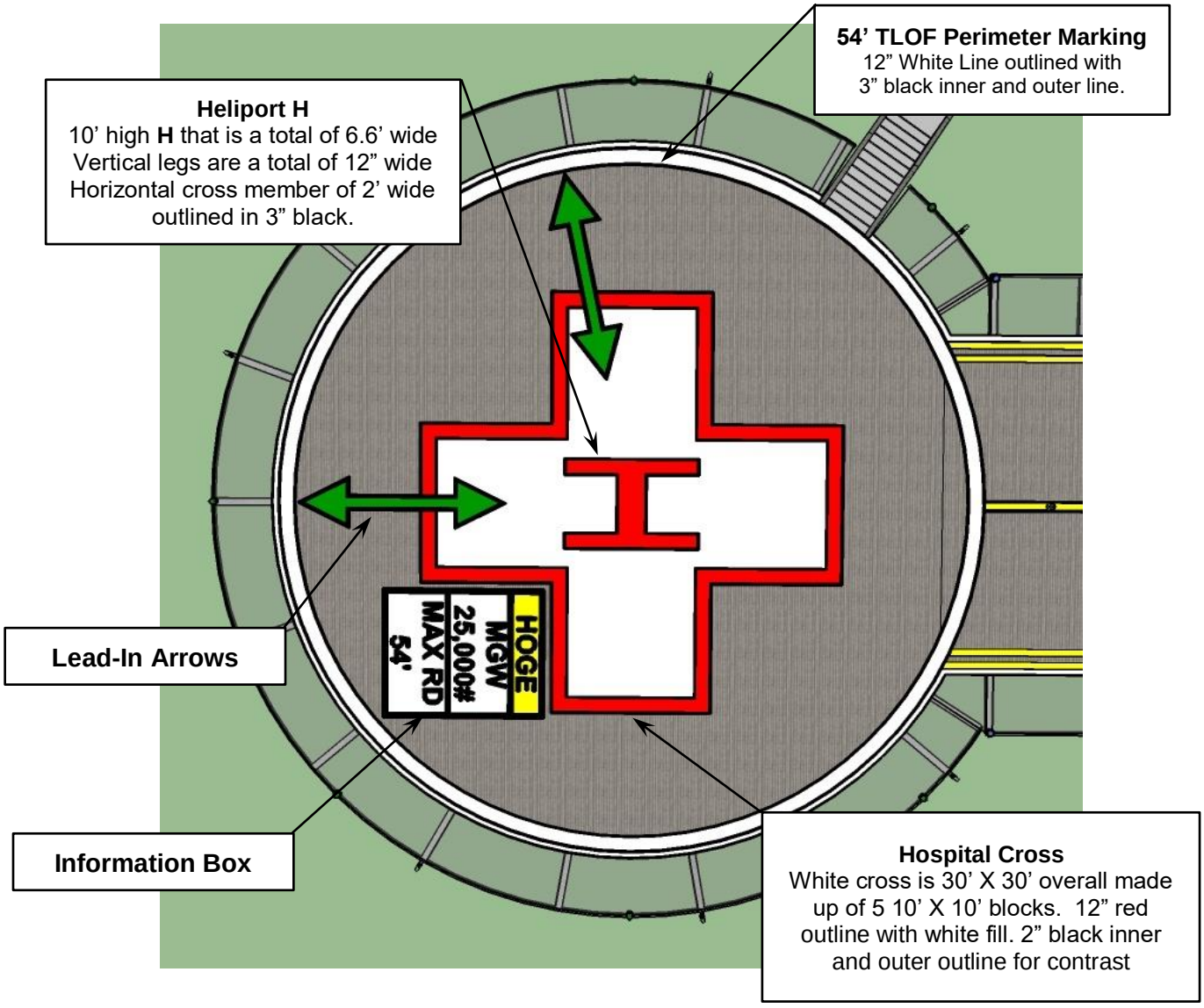
Primary Heliport Markings



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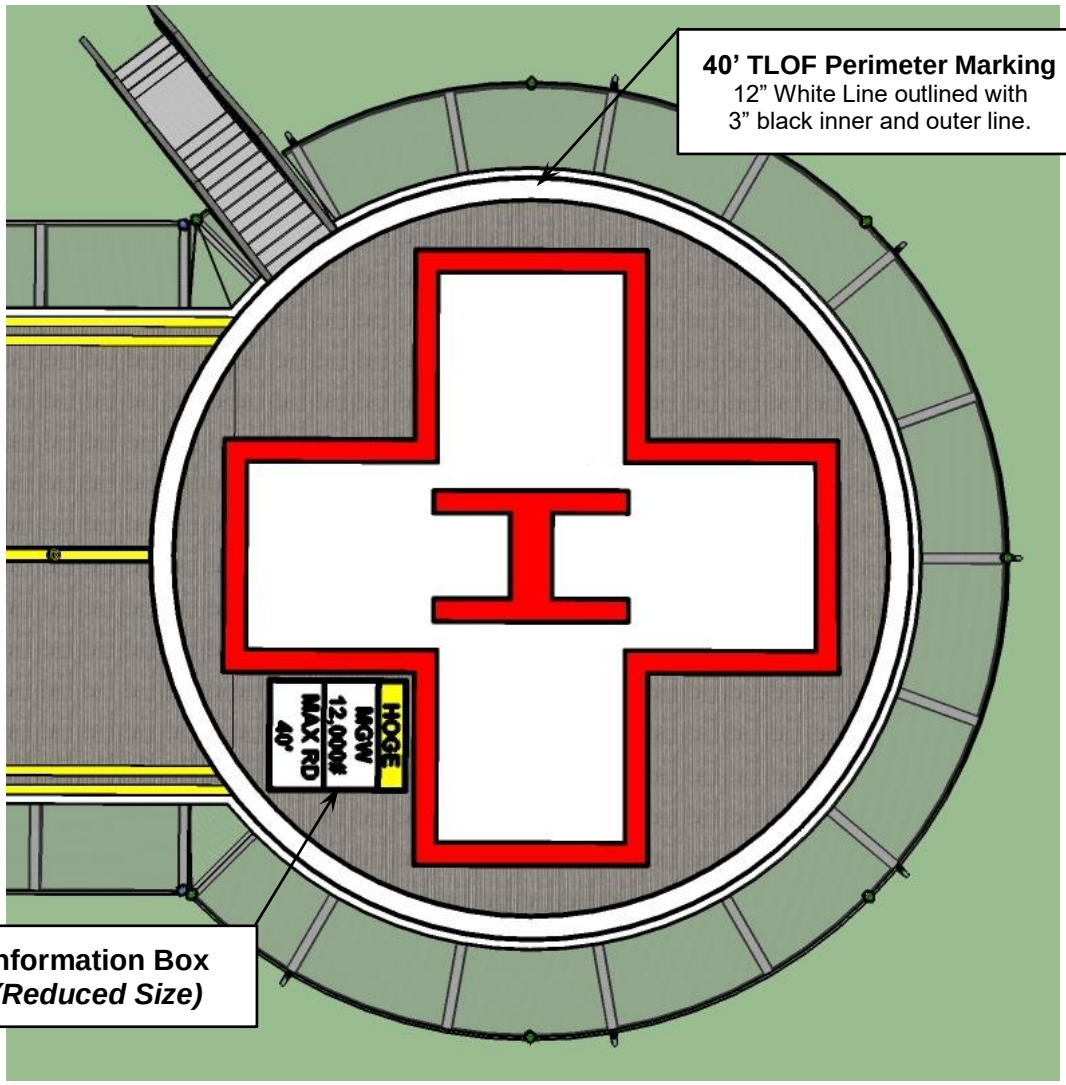
Secondary Heliport Markings



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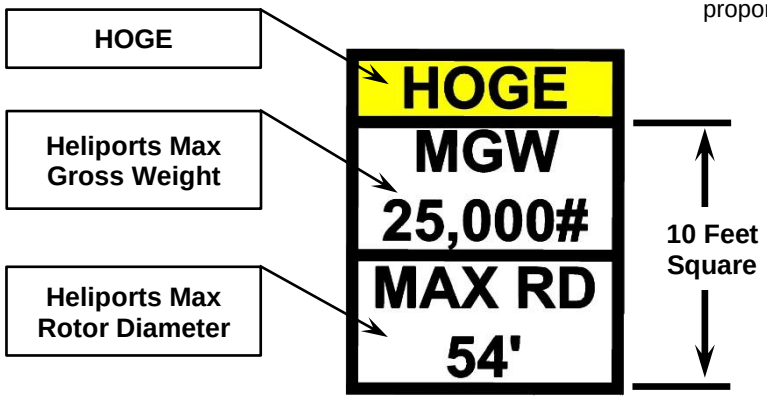
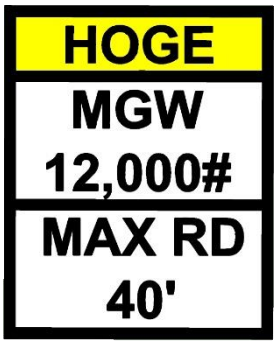
HELIPORT INFORMATION BOX

Heliport Information Box
18” High Letters and Numbers
5” Vertical Stroke with rest in proportion to size



PRIMARY TLOF

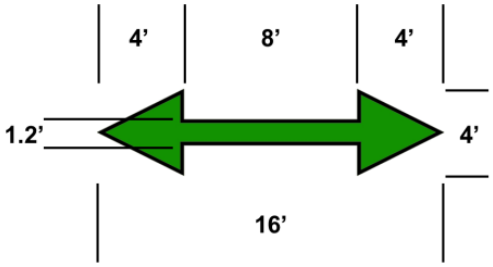


SECONDARY TLOF
Reduced Size

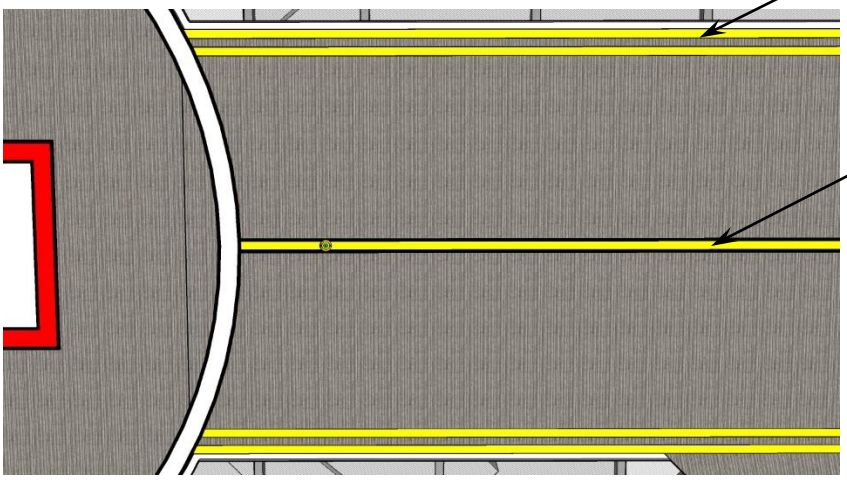
HOGE: Hover Out of Ground Effect Power Required

LEAD-IN ARROWS

Green Lead-In Arrows
Outlined in 2” black



TAXIWAY MARKINGS



Edge Markings
Two Continuous 6” Yellow Lines spaced 6” apart

Center Line Marking
6” Wide Yellow Center Line with 2” Black Outline

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RUSSELL ACOUSTICS, LLC
Consulting Engineers in Sound and Vibration

1525-A BEAVER DAM ROAD
POINT PLEASANT, NJ 08742
973.283.0001
973.464.9724 (CELL)

6 August 2017

Mr. Dennis Morelli, AIA
Manager of Facilities Development
Maine Medical Center
22 Bramhall Street, Portland, ME 04102

Re: Heliport Relocation Project
Sound Exposure Study Methodology

Dear Mr. Morelli:

Russell Acoustics LLC was retained to participate in a study of your new proposed rooftop heliport configuration. Maine Medical Center (MMC) has operated a heliport at this site for several years, on the roof of the parking garage, but increased need for emergency services necessitates a second pad. Further, the need to take down the parking garage means a new location is needed for the heliport.

Over a three day period – 1-3 May, 2017 – sound measurements were made around the hospital and into the nearby neighborhoods to assess both existing ambient sounds (without any helicopter activity) and sounds from a helicopter flying in and out of the proposed routes. Figure 1 shows where the instruments were located during the study; these locations were chosen to be close to where sound measurements were made several years ago as part of the original use application for the heliport.

As the new rooftop pads necessitate some changes in the flight routes into and out of the new heliport the new routes have been defined by Heliports International, LLC; these are shown and named on Figure 2. Figure 3 shows the tracks that were actually flown during our testing, based on on-board GPS data from the helicopter.

Instruments & Measurements

The instruments used for the long-term sound measurements are Larson-Davis Model 703 and 705P digital time-history sound level meters equipped with instrumentation microphones and windscreens. They meet ANSI requirements for Type 2 sound level meters. They measure and store the overall A-weighted sound pressure level ("dBA"), at programmed intervals, for programmed measurement times. Each instrument has an internal clock. These were all set and synchronized using a common digital clock, which was set using time from a GPS receiver.

Each instrument was calibrated prior to the test, and the calibration checked after the tests, with a Bruel & Kjaer Type 4230 sound level calibrator. The calibrator's own calibration is done annually and is traceable to the National Institute of Standards and Technology (NIST), following good acoustical

practice. Sound levels in this report are expressed in terms of decibels relative to the ANSI-preferred reference pressure of 20 uPa. The instrument detectors were set for "slow" response. They stored various sound level metrics at 5-second intervals.

The A-weighted sound pressure level ("dBA") is a measurement method that is modeled after the frequency response of the human ear. Measurements of sound using this frequency weighting correlate very well with how "loud" sounds are. It is probably the single most commonly used method for measuring sound on a world-wide basis. Within the U.S. five major Federal agencies - FAA, DOT, DOL (OSHA), HUD and DOD - use it. The study done several years ago used dBA measurements.

Weather over the three days of the study varied considerably in visibility and cloud ceiling, so we were often uncertain as to when (even if) the helicopter could even fly. The temperature typically was in the 40 to 60 degrees Fahrenheit range, but it wasn't until Wednesday (3 May) afternoon the dew point dropped and visibility improved to where the flights could be made.

The first round of testing was done assuming the helicopter would not be flying and so the goal was to get ambient sound measurements. The nine environmental sound monitors were set up at the locations shown on Figure 1. They operated from noon on Monday, 1 May for 24 hours until noon on Tuesday, 2 May; there were no helicopter flights during this time. The data were then read out and the instruments reprogrammed to run from 2 PM on 2 May until 3 PM on Wednesday, May 3, for 25 hours of data. The hope was the weather would clear enough in this time to get in the flights, the only condition being I wanted them all done within one whole hour so we would have the other 24 (out of 25 overall test hours) for ambient sound data if that detail was later needed. In fact the weather did clear Tuesday afternoon and the flight tests were all done in the 5 to 6 PM hour.

The specific helicopter used for the testing was an Agusta A109E, ID N102H, from LifeFlight of Maine.

Data Files

There are a lot of different way to process and display the resulting data. The direct measurements, on both days, were made at 5-second intervals to be consistent and compatible with what you had done in the study several years ago for the original application. But we can process the data to make longer intervals to use for various presentations. For example, in a previous presentation the 1-minute average levels were plotted. We typically show long-term ambient sound levels in 1-hour increments over several days.

Not knowing at this time what format you'll want for your future work, I've provided you with spreadsheets containing different time intervals for the data, all starting with the 5-second direct readings. If you need them for other intervals (longer than 5 seconds) I can generate them for you.

In an overall spreadsheet you'll see multiple tabs, each for a particular instrument and its data in a time increment. The naming convention of the tabs tells you what's what.

Each tab starts with "MM" for "Maine Medical," followed by an "A" or "H" for ambient or helicopter. Next is a three digit number for the instrument serial number; you can map the instrument to its measurement location during the study with the table below, where the "CP" numbers are shown on the map in Figure 1, which also correspond to the locations used in your previous study.

A two-character (letter and number) indicates the time interval of the data. H, M or S correspond to hours, minutes or seconds. The number that follows shows how many of those units are covered by each row in the "Time History" section of the spreadsheet tab. "H1" indicates 1-hour intervals. "S5" indicates 5-second readings. "M1" has 1-minute increments.

Finally, the tab label ends with an "A" or "H" to indicate whether the measurements were made on the first day, only for "A"mbient readings, or on the second day, when the "H"elicopter was flown during one of the hours.

Thus, the tab "MMA469H1" shows measurements made at CP-6, on the second day of testing when the helicopter was present, and the time history in the spreadsheet is in 1-hour increments

Test Location	**Instrument #**
CP-1	464
CP-2	471
CP-3	904
CP-4	460
CP-5	911
CP-6	469
CP-7	910
CP-8	907
CP-9	461

Graphs

There are also many ways to present/graph the data. The temptation might be to plot all the 5-second levels for 24 hours. This can be done but there are 17,280 5-second intervals in 24 hours; you will probably end up with a mess. Generally, if you want to examine detailed sound levels (e.g., when the helicopter flew in and out) using the 5-second values will work.

When discussing the ambient sound (what some mistakenly call "background," but we'll go along with the term for now) it really isn't the sound level on a moment-by-moment basis that determines a person's attitude or assessment of their environment. Rather, it is the ongoing, around-the-clock, long term sound levels that correlate best with attitudes about whether one lives in a "quiet" or "noisy" neighborhood or something in between. My neighbor mows his lawn once a week for about 20 minutes, and I can clearly hear the sound. Yet I live on a quite dead-end street and that's how I'd characterize it.

Both the FAA and HUD (U.S. Housing and Urban Development) use a dBA-based metric of sound, the "day-night sound level", abbreviated DNL or Ldn. This is a long-term (as in an annual average) measure; what happens on a given day or even for some minute or so during a day has little effect on the annual average sound level. (Conversely, this is why we don't put much faith in "ambient noise studies" that measure the sound at a location for 10 minutes or so and declare that to be the ambient level.)

One sample graph (Figure 4) shows both overall sound level information for the 24-houe study and an hourly breakdown of the sound. The "overall" statistics cover, in this case, all 24 hours of the study. The "Leq" is the average sound level (technically, the energy average, as a decibel is a logarithmic function); Leq weights the average somewhat higher than a straight arithmetic average. The L10 and L90 are the sound levels exceed, respectively, 10% and 90% of the time and are

common metrics use with sound measurements. From these we can also say that for 80% of the time the sound levels were between the L10 and L90 levels. For the measurements shown on Figure 4 this means the sound was between 50.5 and 70 dBA at this location for 80% of the 24 hours.

Each hour also shows its Leq average with the green line and the L10 and L90 levels with the range of the blue bar. In addition the red vertical lines show, for each hour, the minimum and maximum sound levels, which are called Lmin and Lmax.

I've not done it but with a little processing of the second day of measurements, one could take out the one hour when the helicopter was flying and the second 24 hours of measurements could be combined into graphs of the ambient sounds over 48 hours. (This is why I wanted all the helicopter testing done within a single hour.) Other than this one test hour there were no helicopter operations at the hospital during any of our sound testing. Alternatively, the test hour could be included so a comparison can be made between when the helicopter was in use and the other 48 hours when it wasn't.

If you want to drill down to look at specific things I suggest trying to balance the specifics of those things (e.g., the actual helicopter flights) with other times when there weren't flight times. You often find other events having nothing to do with the helicopter that were at similar sound levels.

Figure 5 is a graph showing CP-3 covering eight hours of 5-second data, including the hour when the helicopter was flying. This graph has "only" 5,760 data points. Notice that at about 19:40 – two hours after the helicopter was around - there was something that made a burst of sound that was actually a bit louder than the helicopter. You want to look at not just the sound when the helicopter was present but also at other times. People are frequently surprised at the sounds actually present in what they will insist is a "quiet" area. They are familiar with these other sounds and tend to "tune out" sounds from sources like local vehicle traffic, lawn care or snow removal equipment, swimming pool pumps, appliances, etc. The measurement instruments don't ignore any sounds.

There are times when you really want to drill into the individual measurements, as seen on Figure 6. This graph covers part of the eight hours shown on Figure 5, concentrating on a 20 minute period when the helicopter was actually flying into and out of the proposed new heliport area. We can see details of the individual events that we really can't make out in the 8-hour version of the same kind of data on Figure 5.

This also lets us see the "duration" of each event, as defined for aircraft by the FAA. Duration is the time from when the increasing sound level gets to within 10 dBA of the maximum level to when the sound drops down to 10 dBA below the maximum. The duration depends on what the helicopter is doing (flying by or near a pad where it is slowing down or starting to move away) and, from our experience, how familiar the pilot is (i.e., how comfortable [s]he is) with the setting (the test site was new; yet to be built). It is typically around 20 to 30 seconds and is of significance because about 90% of the total sound energy from the takeoff or landing (out of all the sound made for the entire length of the takeoff or landing) occurs during this duration. (The measurements were made at 5-second intervals to be compatible with the previous sound study, so the measured duration will be in 5-second steps.)

So if the hospital has, say, three helicopter operations per day – three approaches and three departures – each with a duration of 30 seconds, that means that 90% of all the sound from all the helicopter operations occurs in a total of 180 seconds over the day of 86,400 seconds.

Finally, we provided you with Excel spreadsheets with data from both days of testing, ambient only and with the test helicopter in operation, for various time intervals. If you need other time intervals prepared, or want other graphs prepared we will be glad to assist you.

Yours truly,

Norman R. Dotti, PE, PP, INCE
Principal

NRD/me

enclosures

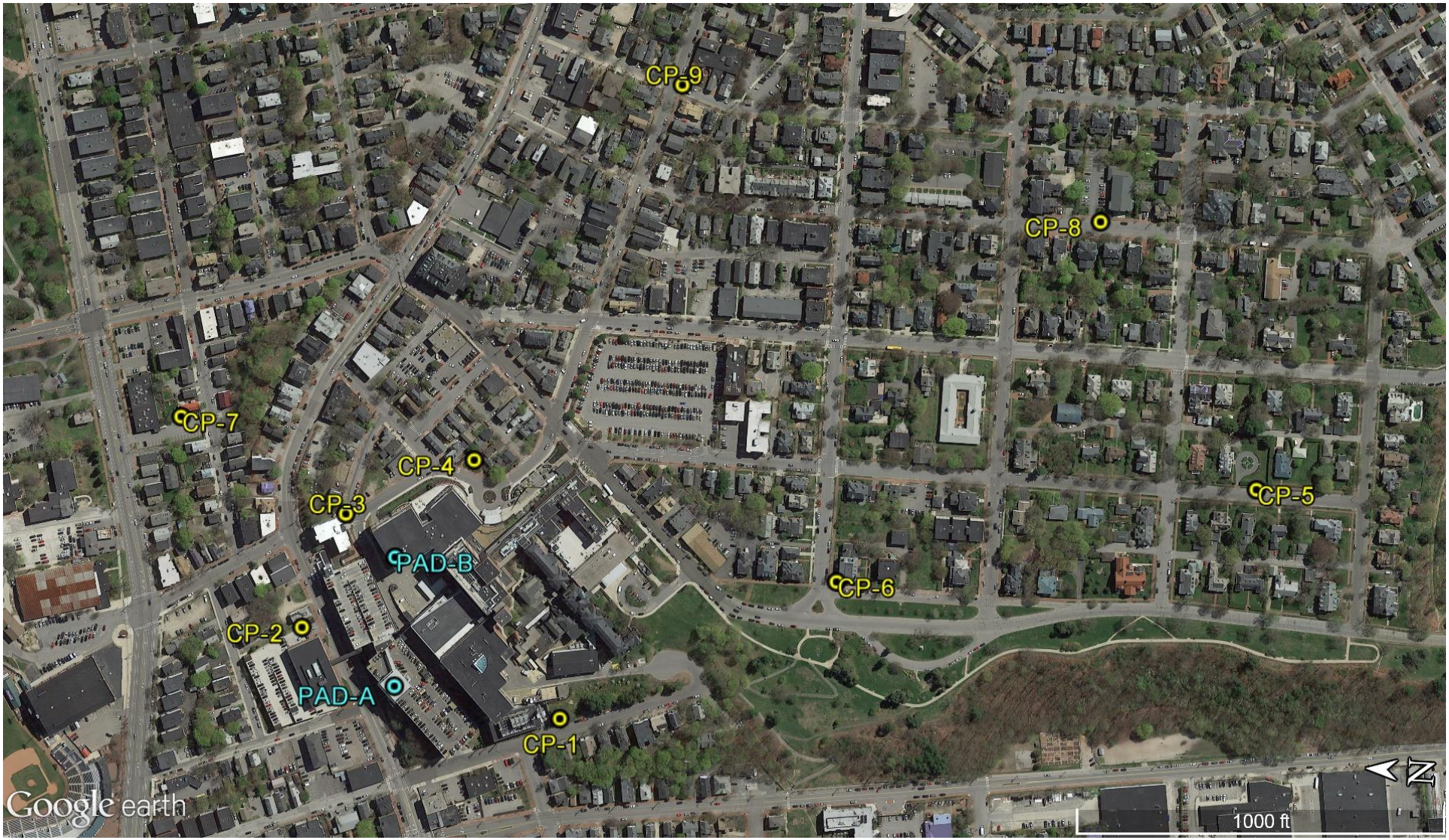

Figure 1 – Sound Measurement Locations

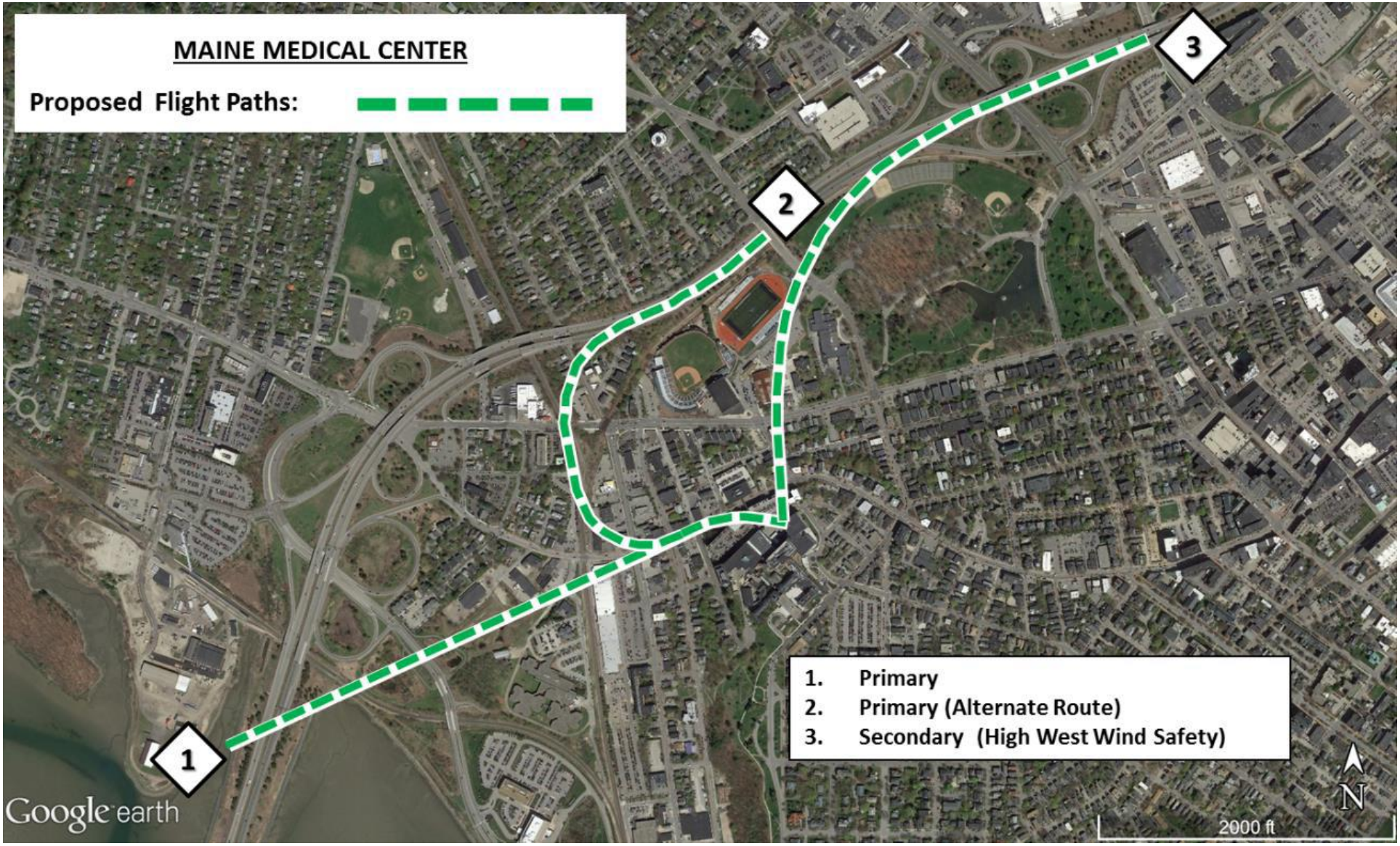

Figure 2 – Planned Flight Tracks

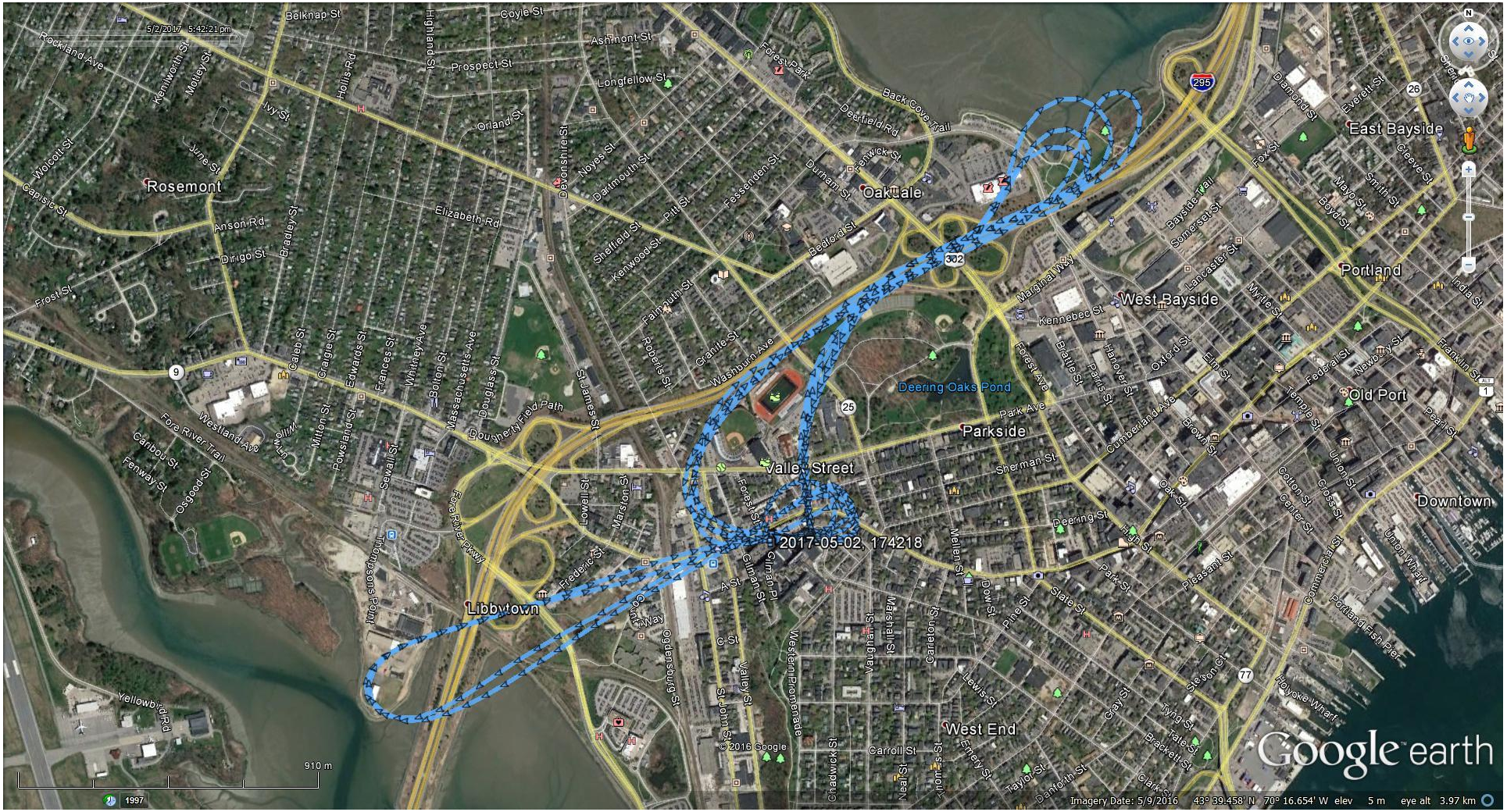

Figure 3 – Flown Tracks (from on-board GPS)

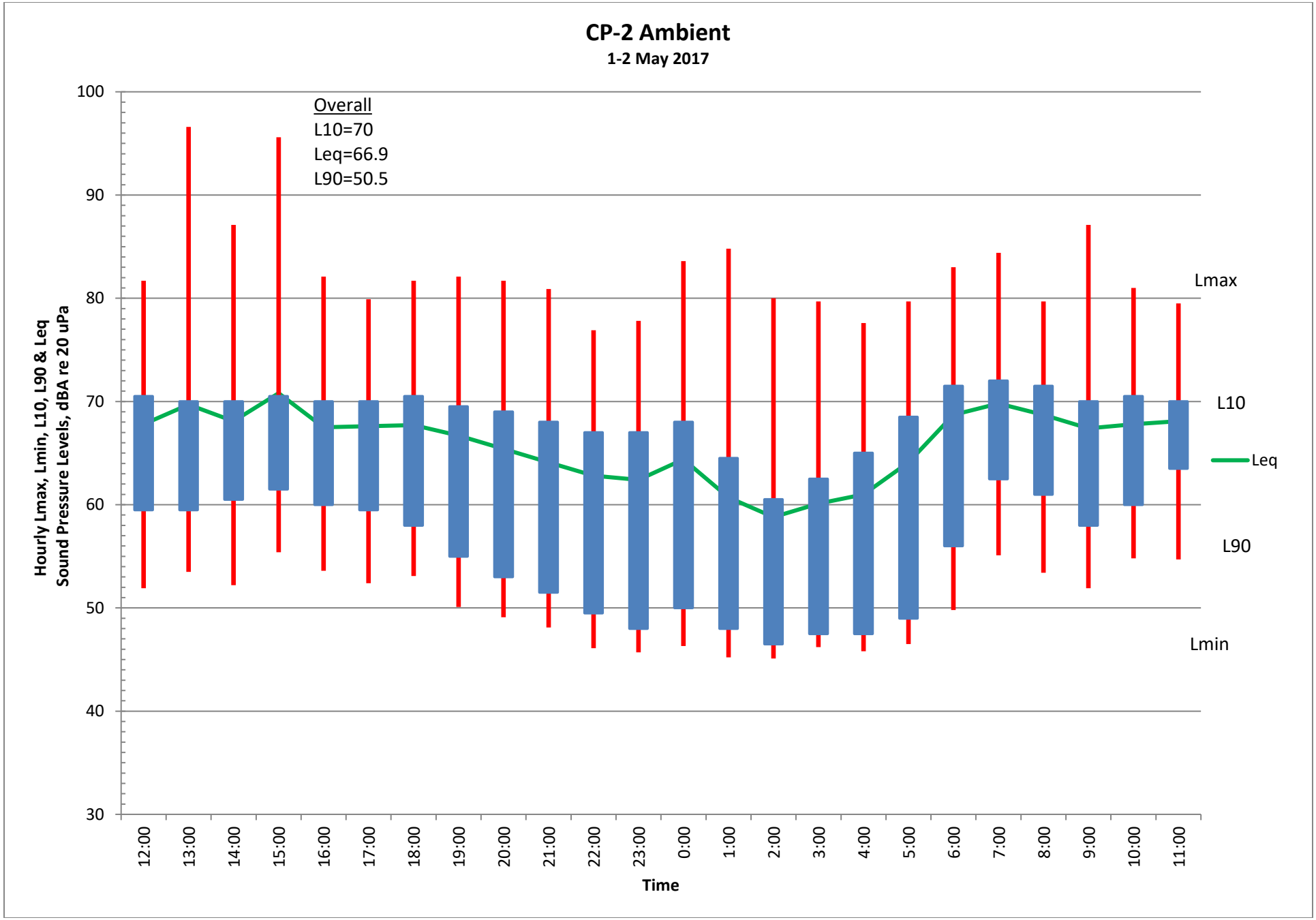

Figure 4 – Sample 24-Hour Ambient Graph

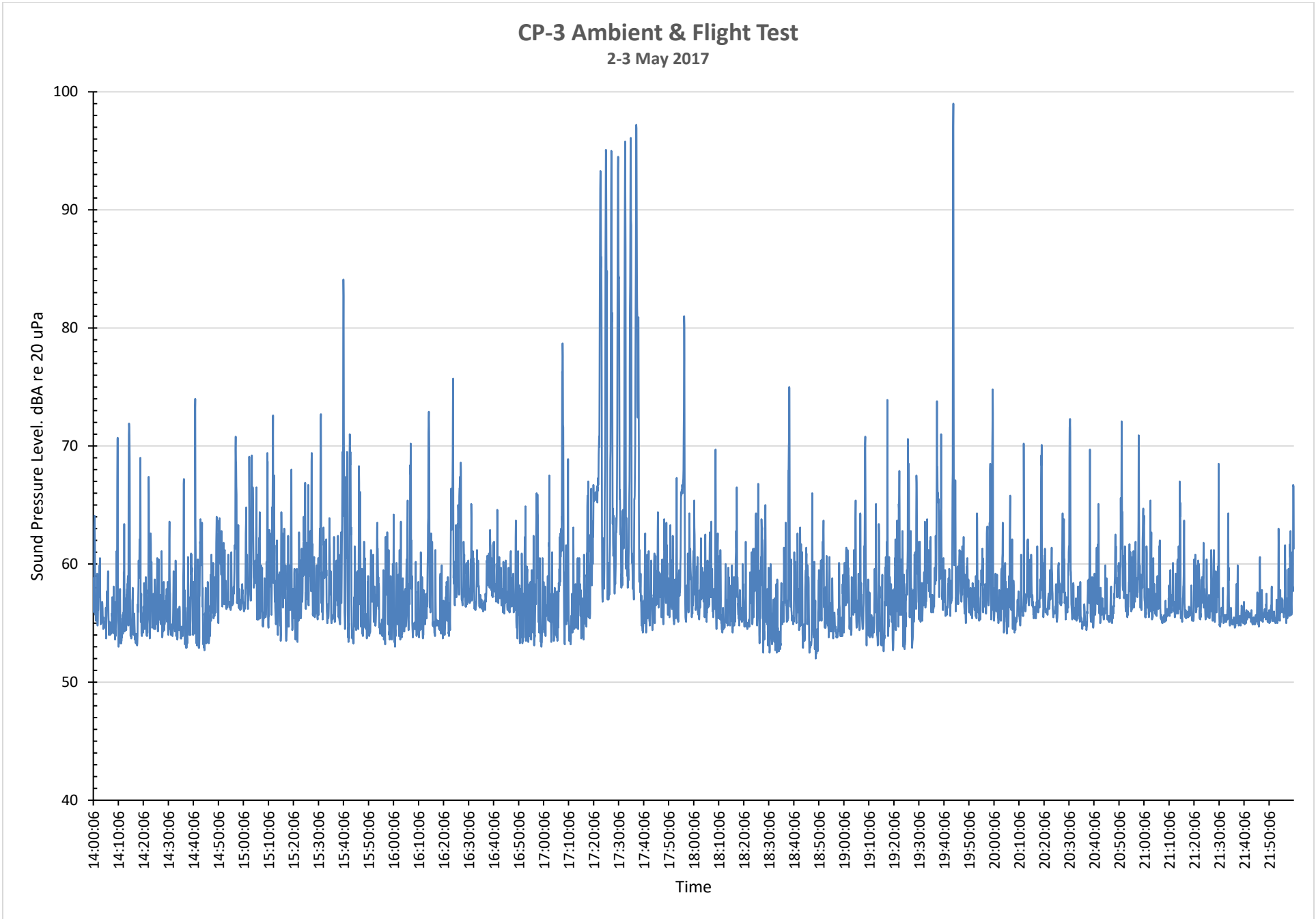

Figure 5 – Sample 8-hour Graph of 5-Second Measurements

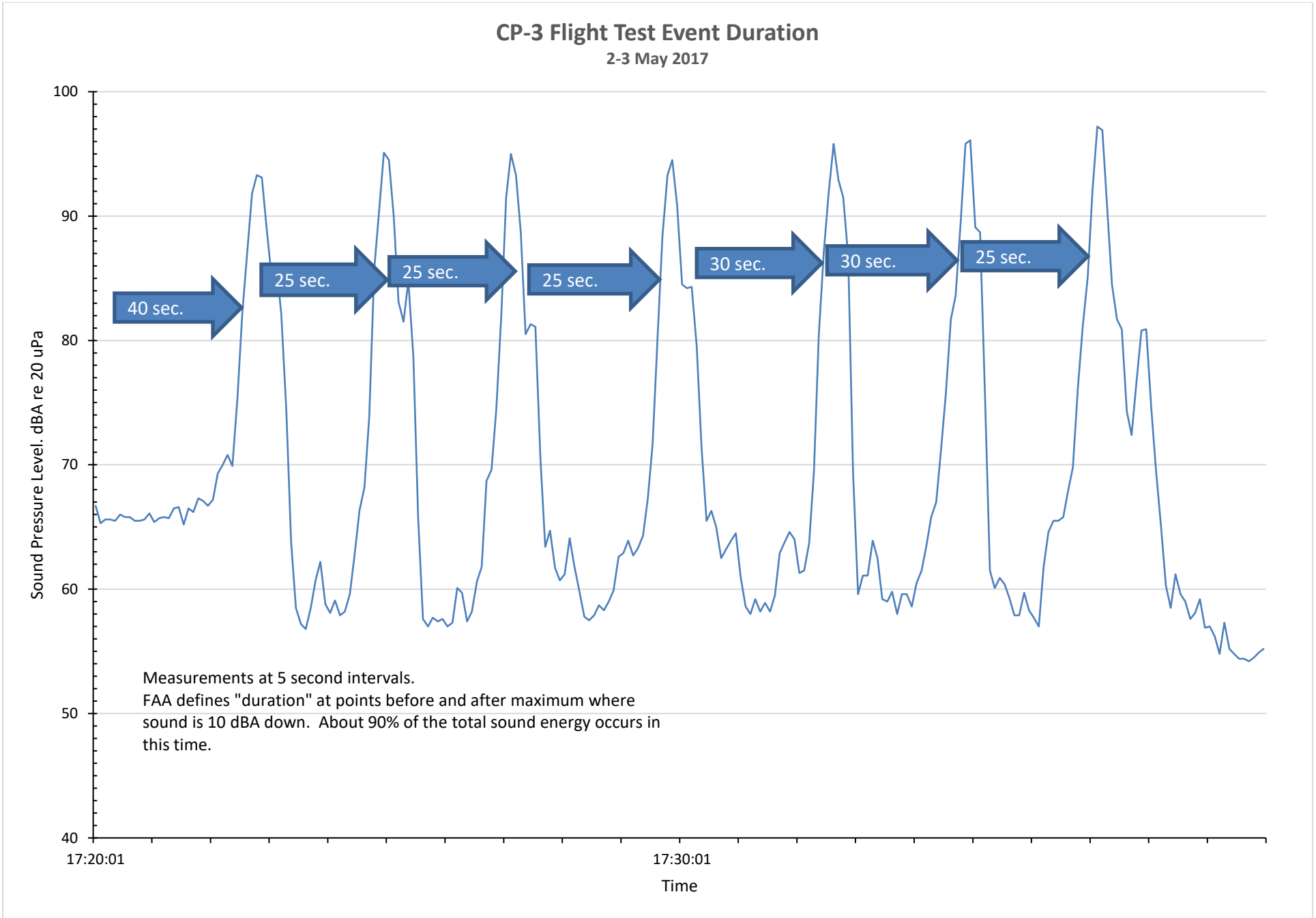

Figure 6 – Individual Helicopter Events with Durations

Maine Medical Center
MaineHealth
centered around you

Get on Board!

Maine Medical Center

Transportation Demand Management Program

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Introduction

Purpose

The purpose of Maine Medical Center's Transportation Demand Management program, Get on Board, is to reduce the amount of single-occupancy vehicles by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees.

Maine Medical Center

Maine Medical Center is a complete health care resource for the people of greater Portland, the entire state of Maine, and northern New England.

Incorporated in 1868, Maine Medical Center is the state's largest medical center, licensed for 637 beds and employing more than 6,000 people – with approximately 2,000 of those employees residing in the City of Portland. Maine Medical Center's unique role as both a community hospital and a referral center requires an unparalleled depth and breadth of services, including the state's only medical school, through a partnership with Tufts University School of Medicine, and a world-class biomedical research center, the Maine Medical Center Research Institute.

Our care model includes the state's largest multispecialty medical group, Maine Medical Partners. Maine Medical Partners provides a wide range of primary, specialty, and subspecialty care delivered through a network of more than 40 locations throughout greater Portland and the southern Maine region.

Maine Medical Center is the flagship hospital of MaineHealth, a 12-member health system touching central, southern, and western Maine and eastern New Hampshire. The collaboration of MaineHealth's members allows greater availability to community health improvement programs, access to clinical trials and research, and shared electronic medical records.

The strength of the health system, anchored by Maine Medical Center, enables its members to invest in shared programs and services that improve the quality of care while reducing costs whenever possible. As a nonprofit institution, Maine Medical Center has provided more than $200 million annually in community benefits, delivering care to those who need it, regardless of their ability to pay.

MISSION, VISION AND VALUES

Maine Medical Center is dedicated to maintaining and improving the health of the communities it serves by:

- Caring for its community
- Educating tomorrow's caregivers
- Researching new ways to provide care

It proudly carries its unique responsibility as Maine's leader in patient care, education and research. MMC is dedicated to the traditions and ideals of not-for-profit healthcare. It provides care to all who seek it.

MMC's efforts to execute its Mission are aimed at achieving a simple, yet powerful Vision: "Working together so (Maine's) communities are the healthiest in America."

MMC is guided by a set of Values, helping to meet and exceed the expectations of those it is privileged to serve. MMC's Values:

- Patient-Centered
- Integrity
- Ownership
- Excellence
- Respect
- Innovation

MMC Facility Planning

Maine Medical Center recently announced a project that will expand and modernize much of its patient care facilities. Over the next five years Maine Medical Center plans to spend $512 million on the construction, renovation and expansion of inpatient and outpatient facilities and services. The majority of this investment will occur at MMC's main Bramhall campus.

Every aspect of this project is designed around the needs of patients. The project will optimize current bed capacity at the state's largest hospital and calls for increasing the number of single rooms available to patients as well as well replacing surgical and treatment areas with ones that conform to 21st century standards. About $50 million of the total project cost will be invested in other outpatient facilities through the hospital's multi-specialty practice organization - Maine Medical Partners.

The project also involves the replacement of the largest parking garage on the campus, a 1,200-space structure used by employees that sits along Congress Street. The need to replace that garage creates an opportunity to reorient the hospital's main entrance to Congress Street, one of the city's main thoroughfares. The hospital's current main entrance faces Bramhall Street in the city's largely residential West End.

The project is organized into three separate site plan descriptions:

- Site Plan #1:
    - Two floor addition to the East Tower housing 64 private universal rooms.
    - Relocation of the helipad which is currently on the employee garage to the East Tower. This move will align emergency services in the East Tower. Patients arriving via the helipad will have a direct vertical connection via elevator to MMC's Emergency Department and trauma services.
    - Three floor addition to the visitor garage on Congress St.
- Site Plan #2:
    - New employee parking garage on St John St that will include over 2,000 parking spaces. The location of the new garage is roughly a quarter mile from the main campus and MMC will encourage employee to walk during nice weather.
- Site Plan #3:

- Removal of the employee parking garage on Congress St.
- Construction of a new hospital tower with 64 private universal rooms, 19 procedure rooms, and space for an additional 32 private universal rooms. This building will also include a new hospital entrance and drop-off area with direct connection to the visitor garage.

The project is expected to be completed in the fall of 2022.

Commitment to TDM

MMC has a long-standing history of promoting health outside of and within its organization. The medical center developed a Transportation Demand Management (TDM) program in 2008, becoming one of the first in Maine to publish such a plan.

In 2008, MMC became one of the first in Maine to develop an independent TDM program.

Known as "Get on Board!," the program supports alternative commuting options such as carpool, mass transit, bicycling, and walking. MMC also engages in an extensive campaign to educate employees about the benefits of alternative modes of transportation and the Get on Board! program. Total enrollment in Get on Board continues to increase year after year.

Over the years, MMC has added elements to strengthen the program's offerings. In 2015, for example, MMC installed additional bicycle parking in its South Parking Lot to enhance cycling access to the main areas of the campus.

The following Plan documents MMC's current TDM efforts, planned program enhancements, as well as new TDM programs. The Plan is intended to serve as a living document. Monitoring reports will be submitted annually to the City's Planning Department.

While MMC encourages sustainable commuting practices across its organization, this TDM Plan applies to MMC's main campus in the west end of Portland, ME, where the majority of MMC's staff is located. Presently, the main campus employs approximately 4,400 individuals.

Context

Land Use

CURRENT

MMC's Bramhall campus is located at a high point in the west end of the Portland peninsula that is renowned for the Western Promenade—an 18-acre park and national historic landmark designed by the Olmsted Brothers, among others. The campus abuts the Western Promenade in a dense urban setting that serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics.

The campus, which serves the entire state of Maine as well as eastern New Hampshire, is located within less than a mile's distance of I-295, which links Portland to destinations across New England. To the north, the campus fronts on Congress St —Portland's main thoroughfare that extends along the spine of the peninsula to Portland's downtown and beyond. The MMC campus is located at the western gateway into the City.

FUTURE

The area surrounding MMC is identified in the City's Comprehensive Plan as an area with transformational potential. MMC's TDM plan aligns with this future vision. As part of the project, MMC will add a new entrance to Congress Street and envisions providing active ground floor uses in new buildings. This change will heighten the level of pedestrian activity on Congress Street, and serve to promote the corridor.

Parking

CURRENT

MMC offers its patients, visitors, physicians, and employees several options for parking. MMC currently controls approximately 2,877 total off-street parking spaces either via ownership or through leases with others that specifically serve the Bramhall Campus. Of the 2,877 spaces, 850 spaces are available for public use by patients and visitors, and 2,027 parking spaces are subscribed to staff and physicians.

TABLE 1 Existing Parking Spaces

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Employee Garage	0	1,274	1,274	Owned
850 patient / visitor	Patient / Visitor Garage	480	0	480	Owned
1,538 employee spaces	South Lot	370	0	370	Owned
	887 Congress (Forest St Garage)*	0	178	178	Owned
	7 Bramhall St	0	26	26	*Leased*
	905 Congress St (Sportsman Lot)	0	60	60	*Leased*
OFF-CAMPUS	222 St John St (First Atlantic Lot)	0	283	283	*Leased*
489 employee spaces	181 High St (Gateway Garage)	0	100	100	*Leased*
	993 Congress St (Classic Lot)	0	97	97	Owned
	321 Brackett St	0	9	9	*Leased*
	TOTAL PARKING SPACES	850 Patient / Visitor	2,027 Employee	2,877 Total	

* The Forest St Garage has an additional 222 spaces that are dedicated to medical office staff and patients.

MMC has continued to witness demands on the existing parking supply intensify due to increased patient volumes and higher acuity patients with longer lengths of stay. Under current conditions, MMC's staff parking system typically operates at capacity during the weekday daytime hours. When off-site, remote staff parking facilities reach capacity, staff is directed to park on-campus in the Congress Visitor Garage. Some staff members independently choose to park nearby utilizing neighborhood on-street parking, although this is discouraged by MMC.

On behalf of MMC, VHB conducted on-site parking usage observations in January and March 2017. VHB collected parking count data during peak hours, which included late afternoon, evening, and overnight occupancy and turnover. The counts indicate that the parking system typically operates at or above capacity during weekday daytime. MMC's 850 patient/visitor parking spaces equate to 1.33 parking spaces per bed. This ratio is low compared to other New England and national peers. MMC's 2,027 staff

parking spaces equate to 3.18 parking spaces per bed. This ratio is also low when compared to other peer institutions.

FUTURE

Looking towards the future, MMC will undertake a project to modernize its Bramhall campus. The project is detailed above and is anticipated to increase patient/visitor and employee parking demand. This demand will be offset by TDM methods described later in this document, along with expansions in its campus parking capacity.

Data Collection

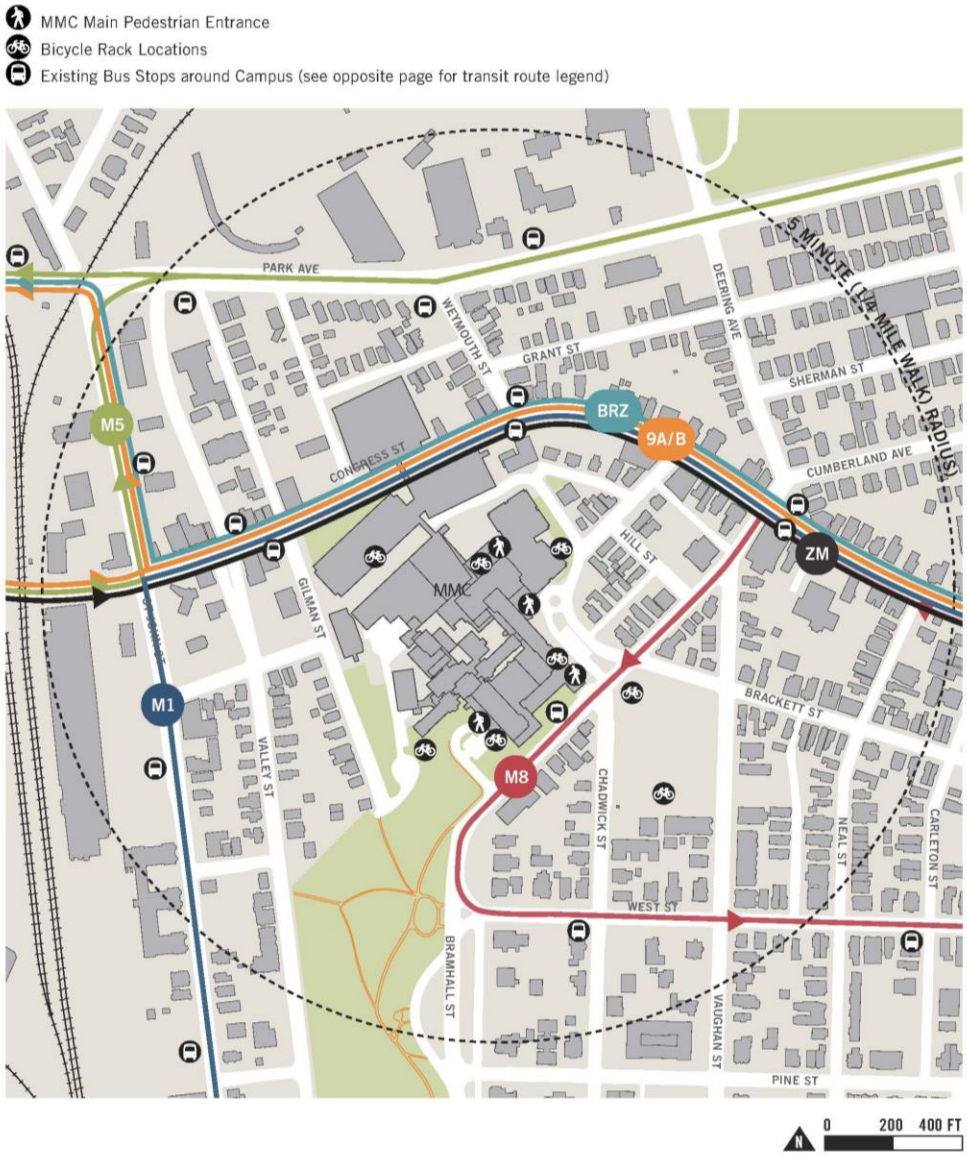
Currently, MMC has a limited transportation mode data collection system. MMC recognizes the need for an improved system. MMC employs a large amount of individuals. Tracking their commute behaviors will require a system that relies on automatic data collection wherever possible. MMC is exploring options to improve data collection such as a card reading system similar to EZ-PASS.

Transit

MMC's main campus is located in a section of the City that is served by the Greater Portland Transit system (METRO), which has multiple routes that stop within walking distance of the Medical Center. The campus is also served by the ZOOM turnpike Express route operated by ShuttleBus-ZOOM.

The METRO routes accessible from the Bramhall Campus have varying service spans with buses generally arriving every 30 to 60 minutes. They provide connections to the nearby Portland Transportation Center (PTC) and the Downtown Hub, which are served by additional METRO and regional bus lines. The PTC also serves as the local connection to Amtrak's Downeaster service that runs along the coast between Boston and Brunswick. The closest bus shelter to the hospital is along Bramhall Street, between the Dana Health Education Center and the South Entrance. This stop is served by METRO Route #8, which provides connections to other parts of the peninsula.

FIGURE 1 Map of Existing Transit Routes and Stops



Bicycle and Pedestrian Infrastructure

MMC understands that all campus users walk at some point to arrive at their MMC destination. To enhance pedestrian accessibility, MMC maintains its network of campus pathways and public sidewalks adjacent to campus. Similar to other medical centers of its size, MMC provides elevated, covered, and temperature-controlled walkways between its parking garages and key campus circulation corridors.

The bike facility network surrounding MMC's campus is fragmented and lacks bicycle infrastructure as illustrated in figure 6 below. In addition, the hilly nature of the Western Promenade impacts bicycling and walking in this area.

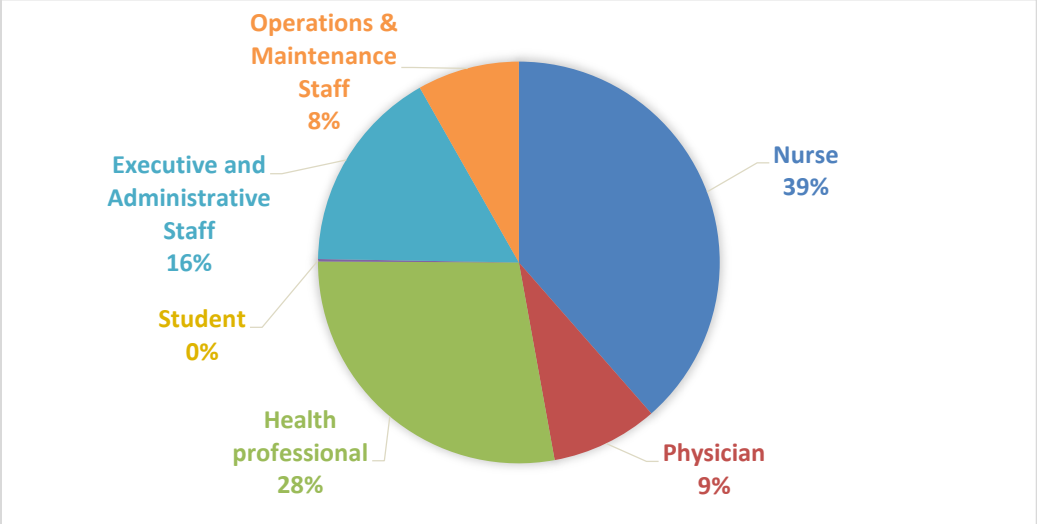
Current Travel Behavior

As part of its efforts to monitor and enhance the Get on Board program, MMC recently conducted a survey of its employees to understand how they commute, any barriers to using alternative transportation, and their interest in other TDM initiatives. The Medical Center also analyzed employee residence data using geospatial analysis tools to better understand employee commuting patterns. The findings from the survey and analysis are summarized below.

Commuting Survey

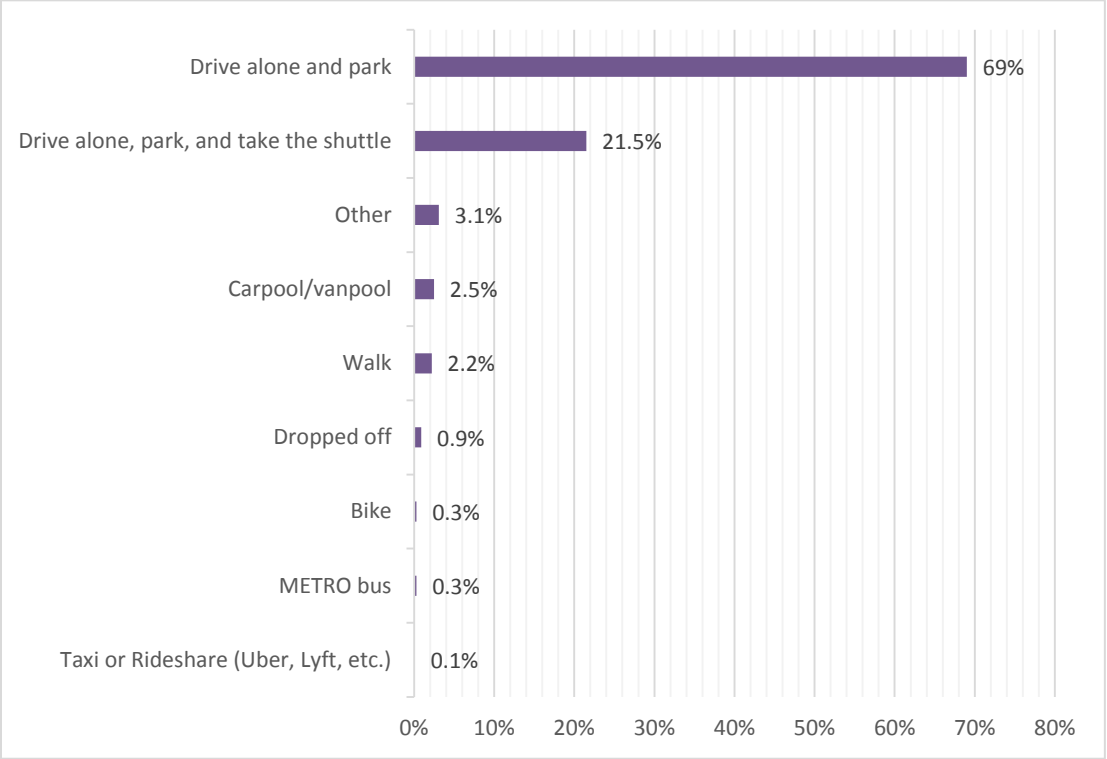
Approximately 1,600 MMC employees participated in the voluntary survey, administered in February 2017 – nearly a 40% response rate. Approximately 81% of the respondents work at the Bramhall campus. The respondents included a diverse spectrum of employees including operations and maintenance staff, students, executive and administrative staff, health professionals, nurses, and physicians. Figure 2 illustrates the various roles held by the survey participants.

FIGURE 2 Survey Respondents by Hospital Affiliation



The survey found that the majority of employees drive to campus. Among alternative modes, carpooling was the most used mode of travel, followed closely by walking. Figure 3 illustrates the commuting modes of MMC employees.

FIGURE 3 Employee Travel Mode To and From MMC



The survey also revealed that among Get on Board enrollees who participate in the program, carpooling benefits were the most used benefits, followed by biking benefits and transit benefits.

As the Get on Board program evolves, MMC intends to administer a commuting survey every 2 years to track travel trends and to gauge the effectiveness of specific initiatives. The information collected will enable MMC to develop informed, data-based enhancements to Get on Board, providing a greater prospect for program success.

Geospatial Analysis

MMC analyzed the residence locations of its employees to understand the commuting patterns of its employees. The analysis showed that approximately 27% of employees live within a 3-mile radius and approximately 73% of employees live beyond a three mile radius of MMC (See, Figures 4 and 5). Three miles is generally considered a reasonable biking distance by industry standards.

FIGURE 4 MMC Bramhall Campus Employees, Distance to Work by Type of Employee

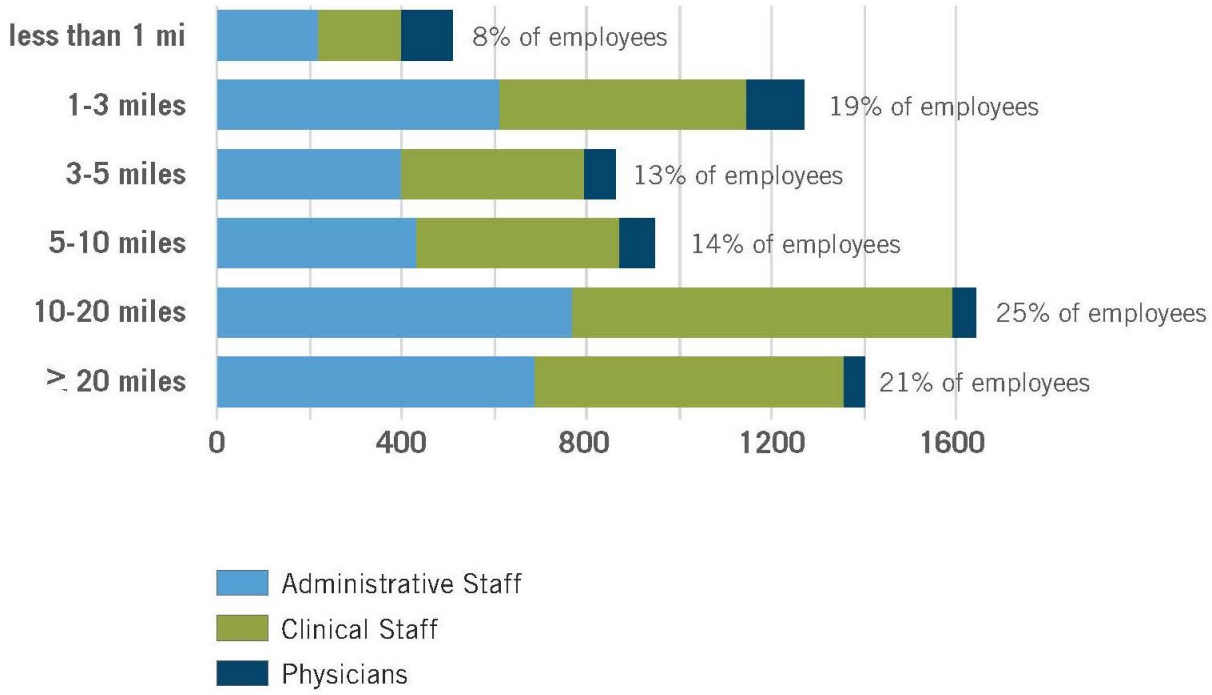
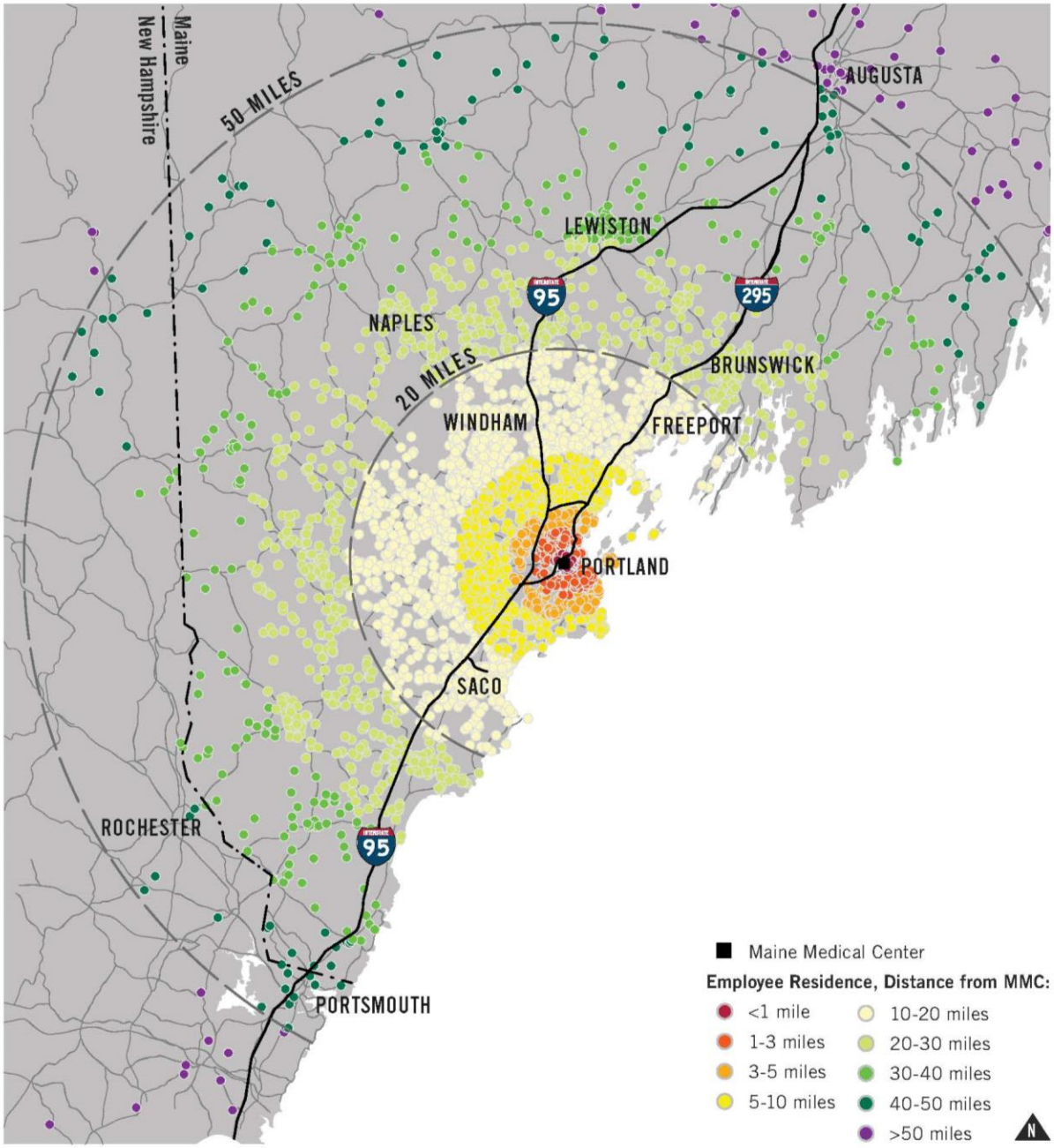


FIGURE 5 Map of MMC Bramhall Campus Employee Residences Illustrating Distance to Work and Travelsheds



Program Goals

As described above, VHB collected parking count data in January and March 2017 on MMC's behalf. The observed data reveals that peak parking demand at the Bramhall campus among patients, visitors, physicians, and staff total roughly 3,122. This number is 4.4% below the expected parking demand (3,264) for a suburban hospital of MMC's size, according to Institute of Transportation Engineers (ITE) parking demand projections. The difference equates to 142 parking spaces. It is also important to note that based on a review of peer institutions, MMC would need to increase its patient/visitor allocation by 344 spaces, or 40%, to achieve a similar beds-to-spaces ratio as its peers.

Peak parking demand at the Bramhall campus is 4.4% below the expected parking demand for a suburban hospital of MMC's size.

The Get on Board program aims to reduce single-occupancy vehicles on MMC's Bramhall campus through effective TDM measures. These measures include a parking "cash out" program, discounted transit fares, premium parking for carpoolers, and bicycle parking and facilities, among others. Additional details about the program elements are described in the next section. MMC believes the program has had a positive impact on employee travel behavior and has contributed to reduced parking demand over the years.

Based on a review of federal census data, employee travel origin and destination information, existing employee travel mode split, and transportation survey results, MMC believes it can further reduce the portion of employees driving alone to work, thus reducing trip making and resultant parking demands. An initial estimate is that an additional 65 individuals who currently drive to MMC could be shifted into alternative modes of accessing the campus over 5 years. This represents an additional 2% reduction from the ITE parking demand projections.

In consultation with the City, MMC has established the following short-term, mid-term, and long-term trip reduction goals.

	Short-Term (0-2 years)	Mid-Term (2-5 years)	Long-Term (5+ years)
Trip Reduction Target	2%	4%	5%

MMC hopes these targets will be achieved through the strategies outlined below. It will endeavor to reduce the number beyond the target identified above through further enhancements or program expansions in the coming years. MMC will continue to monitor parking demand and needs at the Bramhall campus, and re-evaluate its program goals after the initial five year period as needed.

Parking and TDM Strategies

Current Get on Board Program Elements

Get on Board is advanced through a range of monetary incentives and the provision of facilities to support alternative modes. The individual program elements are described below.

Biking

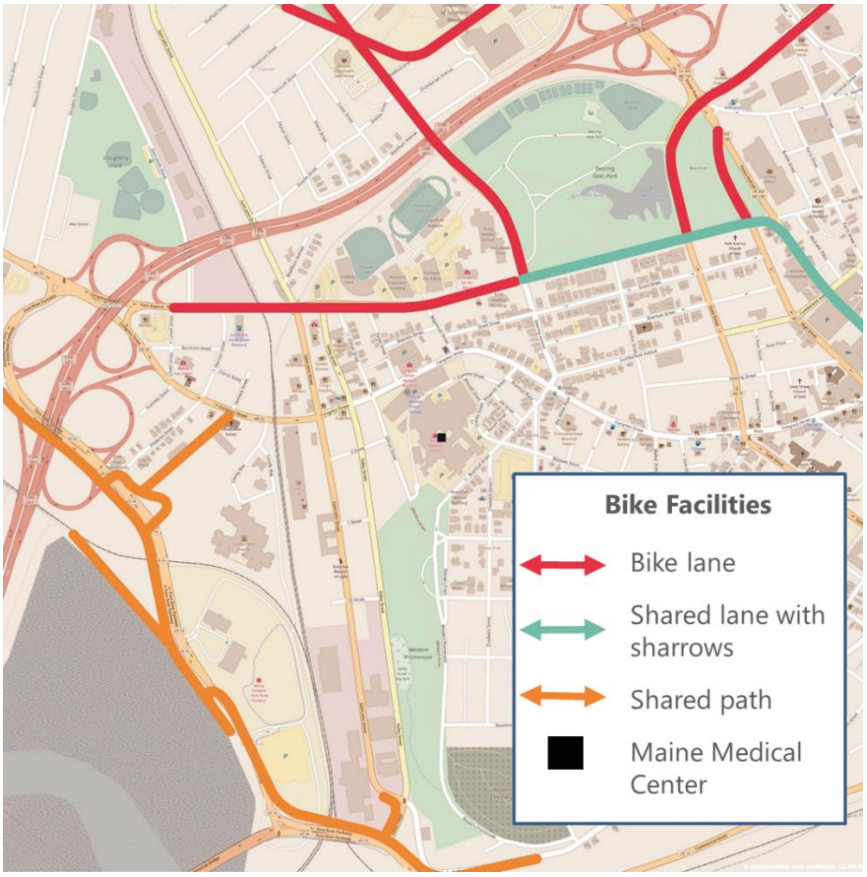
The MMC campus is located in close proximity to existing and planned routes in the City of Portland's growing bicycle network as shown in Figure 6. MMC offers a variety of bike facilities to make bicycle

commuters feel welcome and safe. In 2008, MMC installed five strategically-located bike racks and ten bike lockers on its main campus. Three new bicycle racks were added in the vicinity of the Bramhall entrance and in the South Lot in 2016, bringing total storage capacity to 193 bicycles across campus. Bicycle commuters also have access to additional on-site facilities such as showers and lockers.

Beyond on-campus facilities, MMC is an advocate of the City of Portland's Bikeway Network Plan, which will provide bicycle infrastructure on streets adjacent to campus to connect bicyclists with existing and shared use paths.

The City of Portland's latest Comprehensive Plan proposes transforming the streets surrounding MMC into "neighborhood byways." This kind of facility would be shared between vehicles, bicyclists, and pedestrians, but the roadway would be enhanced with pavement markings, street signs, and even streetscaping to elevate the safety and comfort of bicyclists and pedestrians. This type of improvement would serve to encourage greater walking and biking for those employees who live within a reasonable distance of the hospital. MMC also supports ongoing collaboration with the City of Portland, local and regional transit agencies, and neighborhood and advocacy organizations to ensure the improvement of pedestrian, bicycle, and transit infrastructure and networks serving the campus.

FIGURE 6 Bicycle Network Surrounding MMC



Mass Transit

Under Get on Board, employees can purchase discounted bus tickets and Shuttle-Bus Zoom tickets conveniently on campus. This is a clear demonstration of MMC's commitment to making the TDM Plan

work for its employees and for the City of Portland. Table 2 lists the Greater Portland METRO Bus and Shuttle-Bus Zoom discounts provided through "Get on Board!"

TABLE 2 MMC Transit Discounts

	Regular Price	MMC Sale Price
METRO	$13.50	$8.00
S. Portland	$13.50	$8.00
Zoom 10 Ride	$39.00	$29.60
Zoom Monthly	$100.00	$84.50
Zoom Quarterly	$260.00	$197.50

The *Portland Peninsula Transit Study* [1]established several strategies for improving the utilization of transit in Portland. These strategies involved expanding the transit service to development areas, creating more direct connections, and increasing service frequency to compete with drive-along commute times. The *Portland Transportation Hub Link Feasibility Study*[2] also proposed a route alignment along Congress Street that would increase transit frequency near the hospital. These improvements, if implemented, would highly benefit MMC's campus population in light of the distance that most employees reside from MMC and the fluctuating nature of employees' schedules.

Carpool

Carpooling is the most popular component of the Get on Board program. Over half of program participants at the main campus take advantage of this benefit. Currently, employees participating in a carpool are given access to preferred parking in an area of the Employee Garage that connects directly to the Main Lobby on the ground floor of the hospital.

Parking Cash Out

Presently, MMC operates a "parking cash out" program that offers employees monetary payments in lieu of a parking space. Program participants submit a form each week that certifies their use of alternative transportation during the week to commute to work. Upon receipt of a certification, MMC issues the employee a payment equal to the cost of parking at MMC's employee garage ($3.00/week).

MMC Shuttles

MMC operates employee shuttle services between the Bramhall campus and off-site parking locations Mondays-Fridays, 6:00 am to 11:00 pm. The shuttles include:

- MMC and off-site parking lots at 222 St. John Street and 993 Congress Street (Monday – Friday, 6:00 AM to 11:00 PM)
- MMC Bramhall campus and the 110 Free Street Office Building (Monday-Friday, 6:00 AM to 4:00 PM, every 20 minutes)

[1] Portland Transit Committee. *Portland Peninsula Transit Study* (2009), Retrieved from: https://www.portlandmaine.gov/DocumentCenter/Home/View/3383 .
[2] Portland Area Comprehensive Transportation System (PACTS). *Portland "Hub Link" Feasibility Study* (2015), Retrieved from: http://www.portlandmaine.gov/DocumentCenter/View/14793 .

- MMC Bramhall and Brighton Medical Center (335 Brighton Avenue) (Monday-Friday, 6:00 AM to 4:00 PM)

MMC also provides shuttle service for contractors from the parking lot at 993 Congress Street to the hospital. The shuttles provide a predictable alternative to employees commuting between the three sites and serve to reduce vehicular traffic in and around MMC.

Scooters and Motorcycles

The campus provides a designated parking space for scooters and motorcycles on the first floor of the employee parking garage.

UCar

MMC currently dedicates a space in its Congress Street parking garage for a carshare vehicle, as part of the city-wide carshare program called U Car Share. The program allows members to borrow a car by the hour, providing employees who bike, walk, or ride transit to work with additional mobility for off-site meetings.

TDM and GoMAINE website

The current employee GOB portal is linked to the GoMAINE Commuter Connections website, which is an alternative commuting program operated by MaineDOT. GoMAINE provides commuters with additional commuting resources and benefits that supplement those provided by MMC. These benefits include a carpool ride-matching program and a rewards program for participants.

Pay for Parking

MMC will charge its employees no less than $3 per paycheck to utilize MMC parking. MMC employees are paid bi-weekly. MMC will evaluate employee parking fees in the mid-term. In evaluating future price, MMC will consider the prevailing market price for parking in the surrounding area at the time of implementation, as well as best practices in setting affordable parking prices.

Skiing

In the winter months, some employees chose to leverage their wintertime hobbies to get to work.

Enhanced Get on Board Program Elements

Program enhancements are anticipated to occur within 1-3 years.

Walking

As part of the modernization of Bramhall, MMC will orient entrances to public streets and provide active ground floor uses where possible to encourage pedestrian activity.

Biking

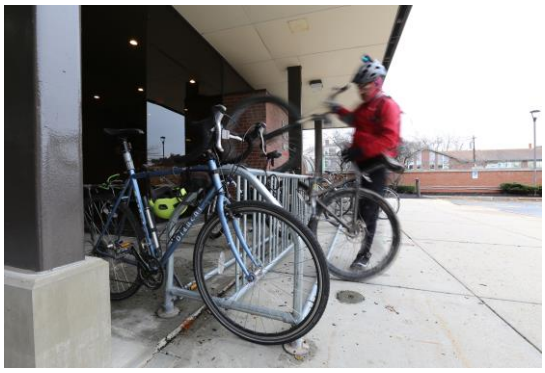
MMC will continue to offer bike storage, bike repair tools, and on-site shower and locker facilities to commuters who choose to bicycle to work.

MMC will also continue its parking cash out program to incentivize current bicyclists. To support "interested but cautious" bicyclists, MMC will seek out local bicycling support organizations to host educational safety seminars and/or adult bicycling skills classes at least once per year on the Bramhall Campus. MMC will also promote rewards programs, such as GO MAINE and Bicycle Benefits, to further motivate increased bicycle commuting.

MMC understands that Portland Bikeshare, a non-profit organization with a goal to establish a bikeshare system in the City of Portland, plans to launch a bikeshare pilot in 2018. MMC will support this effort in the future.

MMC also recognizes the importance of safe and accessible infrastructure to active transportation. The presence of infrastructure can provide the sense of security that cautious bicyclists seek to spur a change in travel behavior. Additionally, as active modes become more widespread throughout the City of Portland, the visibility of walkers and bicyclists in the community can encourage greater participation

among MMC employees. MMC supports the City of Portland in its work to improve public rights-of-way and promote active transportation modes.



Carpooling/Vanpooling

Given the success of its carpooling program, MMC will continue to provide carpoolers with premium parking in the new employee parking garage. Similar to bicyclists, pedestrians, and transit riders, carpoolers will also continue to be eligible for parking "cash out" benefits. To facilitate the formation of carpools and vanpools, MMC will promote GOMAINE's carpool matching program to facilitate carpool matching.

MMC Shuttle

Once the new employee parking garage is constructed, MMC will redesign its shuttle route system to serve employees parking at the new site. The new parking garage will consolidate previously dispersed parking options for MMC employees. MMC anticipates the new route will reduce traffic congestion into and around the campus area.

UCar

Working with UHaul and the City's Parking Department, MMC will continue to monitor the use of the UCar vehicle presently located in its Congress Street parking garage. In the event an additional car is warranted, MMC will work with its partners in finding a suitable location on the main campus for the storage and use of the additional UCar.

Enhanced Transit Subsidies

To further incentivize transit use, MMC will fully cover the cost of METRO bus tickets for employees who elect to use METRO as their primary mode of transit to the campus. If METRO ticket costs change, MMC will address program participation rates and work with METRO to find the best solution to support employees who wish to ride METRO. The type and amount of subsidy will depend upon ongoing discussions with METRO to enhance partnerships (see below).

New Program Elements

In addition to enhancements to the initiatives described above, MMC intends to initiate complementary elements to ensure the program's continued success. MMC is currently exploring the following options. The strategies are prioritized based on their implementation timeframe.

Short-Term (1-3 years)

The following actions MMC will pursue immediately (some are already underway) with the intention that all programs are fully operational within the 3-year time horizon.

Get on Board! Coordinator

MMC intends to hire a designated resource who will be responsible for reducing single-occupancy vehicles on the Bramhall campus through the implementation, facilitation, and continuing sustainability of Get on Board. The coordinator will track the progress of the TDM program, oversee operations, and identify future opportunities to reduce single-occupancy vehicles on MMC's Bramhall campus. The Coordinator will also be responsible for monitoring the progress of programs, data collection, and TDM program updates as required.

Way 2 GO MAINE

In October 2017, MMC participated in GOMAINE's Way 2 GO MAINE program for the first time. Way 2 GO MAINE is a 3-week business to business commuter challenge where employees log commute trips and earn prizes. In the first year participating, MMC ranked 2nd for large companies participating with 1,094 trips logged.

MMC plans to participate in the Way 2 GO MAINE B2B challenge in the future.

Improving Data Collection Capabilities

MMC will improve its data collection capabilities as described below.

Guaranteed Ride Home (GRH) Program

MMC will implement a Guaranteed Ride Home program to ensure that employees who regularly commute using alternative modes will have transportation in emergency situations.

Long-Term Actions (5+ years)

MMC recognizes that the following program elements require partnership with outside partners and agencies and, as such, will take longer to achieve. MMC has already laid the groundwork for all of these elements and will continue to pursue them in the coming years.

Regional Connections Partnership

Through its TDM Coordinator, MMC will seek to form partnerships with other major employers in the city, including the City itself, to foster a wholistic approach to travel management. The partnerships would enable the exchange of TDM-related information and experiences between institutions, and it would foster a community that is focused on promoting alternative transportation in the City of Portland. Such collaborations would afford the opportunity to think regionally and help guide both employer provided or sponsored benefits as well as critical external resources such as METRO transit, sidewalks, and bicycle infrastructure.

Supporting Mass Transit Commutes

MMC intends to explore a partnership with the METRO to identify strategies for increasing MMC ridership, such as service updates and/or pricing agreements. The formation of a partnership could be mutually beneficial, by providing METRO with feedback for increasing ridership while maximizing the usefulness of the transit system for MMC employees. As MMC formalizes its ties to other local institutions through a regional partnership, its collaboration with METRO could also extend to other employers.

Education and Marketing Strategies

MMC has a number of approaches to raise awareness about the benefits of alternative transportation and opportunities for participating in the Get on Board program. These strategies are integrated into various aspects of the organization's engagement with employees to reinforce the importance of TDM.

Sharing TDM Program Information

Information about the Get on Board program is available to all MMC employees via the MMC intranet. MMC's intranet is a place where employees routinely go for information. The Get on Board page provides information about all of MMC's TDM programs as well as links to the GOMAINE.org webpage.

MMC intends to develop and deliver information about the Get on Board program using communications best practices that are refined throughout the program's lifespan. Communications methods that are effective will be further refined while elements that are less effective will be reevaluated. Some examples of communication methods include:

- Introducing the program to new employees at orientation: MMC has shared information about the Get on Board program with new employees during orientation but will evaluate whether this is an effective way to educate new employees about the program. There are many factors to consider when providing information to new employees. The biggest factor to consider is the large amount of information shared during orientation.
- Social Media: MMC will use social media is an effective tool to communicate with employees about the Get on Board program.
- Get on Board Kiosks: To supplement information available on the Get on Board intranet site, MMC will designate locations to communicate information to employees in real time. One location under consideration is near shuttle stops.

Get on Board Fair/Seminars

MMC will explore offering educational sessions about the importance of TDM and specific TDM methods such as walking, biking, or riding the bus. Educational sessions will rely on the expertise of local organizations specializing in alternative modes of transportation.

Get on Board Blitz

October is National Rideshare month and the same month of GOMAINE's Way 2 GOMAINE business to business challenge. In the future, MMC will explore ways to increase marketing of the Get on Board program during the month of October, potentially leveraging social media and internal communications vehicles, such as electronic newsletters.

Comprehensive Data and Goal Monitoring

MMC understands from its prior experience with TDM initiatives that achieving change is an iterative process that involves tracking the effectiveness of its programming and making mid-term adjustments if necessary to improve program effectiveness. MMC will collect and analyze data on a regular basis to monitor progress towards its TDM targets. The data would be collected through a range of instruments and will be used to make annual comparisons and to identify trends, and areas for growth. MMC will submit monitoring reports that include a summary of the data monitoring results, comparisons of the data to trip reduction targets, and adjustments to programs as needed.

Parking Utilization Data

MMC is exploring options to improve data collection in the new employee parking garage. The most likely option utilizes Easy-Pass technology to automatically collect information about the vehicles parking in the garage.

In addition, MMC plans to install a parking guidance system in the new employee garage, as well as a controlled-access parking system in the visitor parking garages. Together, these systems will allow MMC to monitor occupancy in each garage and to collect data regarding who uses the parking facilities and the temporal fluctuations in parking demand across various periods of time.

MMC will utilize this parking usage data to assess its parking arrangement on a semi-annual basis.

MMC has received feedback on numerous occasions about inappropriate use of its parking garages. MMC hopes to reduce the misuse of its garages in the future by implementing these monitoring and controlling systems.

Employee Survey

MMC conducted an employee travel survey in 2017 to understand employee commuter preferences, and it intends to administer the survey bi-annually going forward. The survey is administered electronically using a survey platform and will produce data that MMC (or a third party) can use to identify changes and progress from one period to the next. The survey will seek information about the following topics to gauge the effectiveness of initiatives:

- TDM program participation rates
- Individual program effectiveness
- Barriers to TDM use
- Changes in commuting preferences
- Marketing effectiveness

Conclusion

The purpose of Maine Medical Center's Transportation Demand Management program, Get on Board, is to reduce the amount of single-occupancy vehicles by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees. The program has an aggressive short-, mid-, and long-term goals. Success of this program partially relies on a cultural shift away from personal vehicles. Maine Medical Center is committed to implementing the programs outlined in this report and supporting the transition away from single occupancy vehicles.

Memorandum

Maine Medical Center Campus-Wide Parking Study

Overview

Maine Medical Center (MMC) retained VHB to conduct a campus-wide parking study that includes an analysis of demand and supply for patient, visitor, and employee parking on MMC's Bramhall Campus. This parking study incorporates the targeted impact of MMC's Get on Board Transportation Demand Management program.

This study quantifies the existing and future parking conditions, with a focus on peak period demand requirements, to help quantify and formulate sound parking strategies to adequately support MMC's patients, visitors, staff, and physicians into the future. The study took into consideration the assessment of two distinct user groups on-campus: patients/visitors and employees (all staff including physicians, nurses, administration, etc.). It also looked at all MMC-controlled parking, including both the on-campus parking as well as off-site, remote staff parking.

Existing Parking Supply

Table 1 provides a summary of existing MMC parking spaces. Currently, there are 850 patient/visitor parking spaces. All patient/visitor parking spaces are located on-campus. There are 2,027 employee parking spaces.

Table 1: Existing MMC Bramhall Campus Parking Supply Summary

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Employee Garage	0	1,274	1,274	*Owned*
850 patient/visitor spaces	Patient/Visitor Garage	480	0	480	*Owned*
1,538 employee spaces	South Lot	370	0	370	*Owned*
	887 Congress (Forest St Garage)	0	178	178	*Owned*
	7 Bramhall St	0	26	26	*Leased*
	905 Congress St (Sportsman Lot)	0	60	60	*Leased*
OFF-CAMPUS	222 St John St (First Atlantic Lot)	0	283	283	*Leased*
489 employee spaces	181 High St (Gateway Garage)	0	100	100	*Leased*
	993 Congress St (Classic Lot)	0	97	97	*Owned*
	321 Brackett St	0	9	9	*Leased*
	Total Parking Spaces	**850**	**2,027**	**2,877**	

Existing Parking Demand

Existing MMC parking demand information was collected and quantified via various sources. A description of each of the data sources is outline below:

- Detailed weekday occupancy parking counts were conducted to understand utilization at key points in time to assess peak occupancy, overnight occupancy, and intervals of weekday garage entries and exits. These counts were conducted on multiple days in March and April 2017;
- Intermittent spot checks of parking utilization and access/egress were conducted from January through March 2017 by MMC and its consulting team; and

- MMC Parking and Security staff and the City of Portland Parking Director provided supplemental input regarding their observations and experiences related to the utilization of parking.
- A hospital peer review of parking facilities.

These counts, observations and input were compiled and used to help quantify the existing parking demand for a typical day on the campus. As shown in **Table 2**, MMC typically operates its employee parking at or above capacity during the weekday daytime. Patient/visitor parking generally operates at or near capacity during typical weekdays as well.

Table 2: 2017 MMC Bramhall Campus Parking Spaces/Demand Summary

	Patient / Visitor	Employee	Total at Facility
Parking Spaces	**850**	**2,027**	**2,877**
Parking Demand	**860**	**2,400**	**3,260**

MMC has approximately 2.3 employees, students, and contractors for every one employee parking space near the Bramhall Campus. Under current conditions, MMC would require about 370 additional parking spaces to alleviate today's employee parking shortfall. MMC manages this shortfall utilizing multiple strategies to address the demand for parking, such as TDM programs and moving employees to off-campus locations and securing additional remote parking with shuttle service. These strategies, however, have no satisfactory long-term solutions. The decentralized parking solution creates management challenges and is an employee dissatisfier. MMC continues to hear from employees that parking at the Bramhall Campus is unreliable. There have also been observations of MMC employees utilizing adjacent streets for parking throughout the day.

According to a hospital peer review, MMC's 850 patient/visitor parking spaces equate to 1.33 parking spaces per bed. This ratio is low compared to other New England and national peers. MMC's 2,027 staff parking spaces equate to 3.18 parking spaces per bed. This ratio is also low when compared to other peer institutions.

Future MMC Parking Actions

MMC has proposed multiple capital projects and programs in connection with the Master Facility Plan outlined in MMC's IDP. Near-term (completed by 2021) projects to expand parking supply include:

1. Patient / Visitor Garage Addition: Expand the existing 480-space Patient/Visitor Garage by three levels to accommodate an additional 225 spaces; and
2. New St John St Garage: Construct a new 2,450 space parking garage on the nearby St. John Street and demolish the existing 1,274-space Employee Garage.

The resultant 2021 parking supply upon completion of these near-term projects is summarized in **Table 3**.

Table 3: Expected 2021 MMC Bramhall Campus Parking Supply Summary

		Patient / Visitor	Employee	Total at Facility	Ownership
ON-CAMPUS	Patient/Visitor Garage	705	0	705	*Owned*
1,075 patient/visitor spaces	South Lot	370	0	370	*Owned*
264 employee spaces	887 Congress (Forest St Garage)	0	178	178	*Owned*
	7 Bramhall St	0	26	26	*Leased*
OFF-CAMPUS	New Employee Garage	0	2,450	2,450	*Owned*
2,459 employee spaces	321 Brackett St	0	9	9	*Leased*
	Total Parking Spaces	**1,075**	**2,654**	**3,729**	

Per September 22, 2017 Institutional Development Plan

As shown in **Table 3**, the patient parking supply by 2021 will increase by 225 spaces and the employee parking supply will increase by 696 spaces with these two parking projects completed. With the new Employee Parking Garage located off-campus, the amount of employees who park remotely will increase from about 25 percent to 90 percent.

MMC anticipates consolidating the Gateway Garage and Classic Lot parking spaces into the new employee garage following the opening of the new parking garage.

These efforts are intended to enable MMC to continue with their primary Master Plan goals, which include the expansion of important clinical programs and the de-coupling of semi-private patient rooms to fully private rooms. The proposed new hospital building will be located on the site of the former Employee Garage. As defined in the MMC IDP, the hospital anticipates that the overall patient load will grow by approximately eight percent over the next ten years (or about 0.75 percent per year). Similarly, employment at MMC is expected to grow by approximately 7 percent over the next ten years (or about 0.70 percent per year). The growth rates were applied to the 2017 MMC parking demands to reflect overall anticipated institutional parking growth. **Tables 4 and 5** summarize how the new construction will affect the occupancies over time.

Table 4: Future MMC Bramhall Campus Employee Parking Supply/Demand Summary

	2020	2022	2026
Parking Spaces	**2,654**	**2,723**	**2,723**
Effective Parking Capacity	**2,521**	**2,521**	**2,521**
Parking Demand	**2,465**	**2,500**	**2,570**

For employee parking garages, the effective parking capacity is 95% of striped parking spaces, shown in **Table 4**. This is due to the user group familiarity of the parking garage layout, circulation and general trends of the garage availability due to their daily use of the facility and the low space turnover. Effective capacity for the employee parking spaces is not 100% because of anticipated user compliance with lined spaces (i.e. parking in a way that limits the use of the adjacent parking space).

Table 5: Future MMC Bramhall Campus Patient/Visitor Parking Supply/Demand Summary

	2020	2022	2026
Parking Spaces	**1,075**	**1,075**	**1,075**
Effective Parking Capacity	**970**	**970**	**970**
Parking Demand	**892**	**905**	**933**

For patient/visitor garages, the effective parking capacity is 90% of striped parking spaces, shown in **Table 5**. Patients and visitors are often unfamiliar with the garage layout and operations. Planning to accommodate this targeted utilization will ensure arriving patients and visitors have convenient and available parking.

To help alleviate existing and future parking demands, and to support use of other alternative, sustainable modes of transportation, MMC continues to pursue and bolster its Transportation Demand Management (TDM). The purpose of the TDM Plan, called the Get on Board Program, is to reduce the amount of single-occupancy vehicles by enabling and promoting alternative modes of transportation to and from MMC's Bramhall Campus for MMC employees.

In the 2017 Get On Board plan, MMC established the following short-term, mid-term, and long-term single-occupancy vehicle reduction goals shown in **Table 6** below:

Table 6: 2017 TDM Trip Reduction Goals

	Short-Term (0-2 years)	Mid-Term (2-5 years)	Long-Term (5+ years)
Trip Reduction Target	2%	4%	5%

MMC will continue to monitor parking demand and needs at the Bramhall campus and re-evaluate its program goals. The estimated impacts of the Get on Board program's reduction goals are summarized in **Table 7**.

Table 7: Employee Parking Demand Reduction Due to TDM Efforts Summary

	2020	2022	2026
Parking Demand	**2,465**	**2,500**	**2,570**
Estimated TDM Reduction	**-60**	**-100**	**-120**
TDM Influenced Demand	**2,405**	**2,400**	**2,420**

If Get on Board targets are met, parking demand will reduce by approximately 60 in the short term (2020), 90 in the mid-term (2022) and 120 forecasting out to longer-term (2026). Such reductions strive to follow with less single-occupancy vehicles travelling to and from the Bramhall campus as intended by the Get on Board plan and programs.

Table 8: Employee Parking Demand Reduction Due to TDM Efforts Compared to Effective Employee Parking Capacity

	2020	2022	2026
Effective Employee Parking Capacity	**2,521**	**2,521**	**2,521**
TDM Influenced Demand	**2,405**	**2,399**	**2,420**
Estimated Parking Surplus	**116**	**122**	**101**

Table 8 compares the TDM influenced parking demand to the effective parking capacity for employee parking spaces. The amount of parking surplus fluctuates between 2020 and 2026 because of the time it will take for MMC to enhance the existing TDM program.

This analysis projects parking demand for 2026. The lifespan of the parking garage is expected to exceed 30 years. The estimated parking surplus in **Table 8** is roughly 7% of the total employee parking spaces shown in **Table 4** and is within a reasonable margin of error.

Conclusion

This study quantifies the existing and future parking conditions, with a focus on peak period demand requirements, to help quantify and formulate sound parking strategies to adequately support MMC's patients, visitors, staff, and physicians into the future. VHB determined that existing estimated parking demand at the Bramhall campus exceeds existing supply. The demand for complex healthcare in Maine is growing. As a result, MMC is growing to meet that demand. MMC's forecasts an increase in patient activity at the Bramhall campus by 2026. Using this forecast, VHB estimated a parking demand that will be accommodated only through investments in parking facilities and MMC's Get on Board program.

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Evaluation of East Tower Detour
Maine Medical Center (MMC) – Bramhall Campus
Portland, Maine

1/18/2018

Proposed Detours:

There are three detours associated with the proposed upgrade and expansion of the Maine Medical Center (MMC); East Tower, Patient / Visitor Garage, and Utility Plant. Because each of the three detours has their own challenges, subtleties, and time frames, the three detours are being evaluated separately, keeping in mind any overlapping impacts that one may have on the other two. This memo focuses on the East Tower detour as shown on the attached figures.

Description of Detour:

To accommodate construction activities, workers, and to provide safety for the general public, Wescott Street will be closed between Crescent Street and Ellsworth Street, a length of approximately 220 feet. Wescott Street provides two-way traffic, is a town way that experiences approximately 350-400 vehicles on an average day (according to MaineDOT map viewer), and presumably accommodates almost entirely hospital related traffic. Wescott Street provides access to the Emergency / Ambulance area as well as one of two accesses to the visitor / patient parking garage. The other access to the garage is off Congress Street.

The proposed detour will direct current users of Wescott Street to use nearby Crescent Street. Crescent Street is currently a one-way street traveling away from the hospital and is a town way that experiences approximately 250-300 vehicles on an average day (according to MaineDOT map viewer). There do not appear to be any businesses along this section of street. In order to accommodate the detour, this one-way street is proposed to be converted to two-way traffic. The street is approximately 25 feet in width so two-way traffic should be able to be accommodated; however, on-street parking will need to be restricted (see "Parking" below).

There is a potential "pinch point" in two-way traffic flow where Wescott Street intersects Crescent Street in the form of a bumpout that projects into the intersection. This is not initially planned to be removed, but will be monitored closely and if identified as a restriction, will be removed. The bumpout appears to be located within the right of way.

Emergency Vehicles:

During the Wescott Street closure, two-way traffic will still be available between Ellsworth Street and the Emergency Department Ambulatory access via use of Crescent Street. MMC and Turner construction are exploring ways to maintain existing access to the Emergency Department via a temporary drive near Wescott Street and Crescent Street or relocation of the construction fence at Wescott Street and Crescent Street. The Emergency Department has a secondary access near the Emergency Department access door that can also be used and is not effected by the closure. There will be select times when the access at the Wescott Street and Crescent Street corner may be closed for brief times.

In addition to using Crescent Street to access the Emergency Room Ambulatory entrance, ambulances can also use an access from Gilman Street. The access is available the majority of the time; however, it can occasionally be blocked by larger delivery vehicles. Ambulance drivers notify the hospital on their way in to the hospital, and will be notified which access may be more appropriate at that time.

Parking:

The only parking impacts anticipated as a result of the East Tower detour are along the southerly side of Crescent Street. Crescent Street currently does not allow parking on the northerly side of the street, and is restricted to 1 hour parking between 9 AM and 5 PM on the southerly side of the street. As identified above, in order to accommodate two-way traffic on Crescent Street, parking will need to be restricted. Portland does not stripe individual parking spaces, but based on the distance between driveways and field reviews, to restrict parking would remove approximately 7-8 parking spaces. There are 3 residential buildings directly along Crescent Street, with additional residential buildings on each of the corners of the Crescent Street / Ellsworth Street intersection. Of the three residential buildings directly on Crescent Street, they appear to accommodate approximately 12 units. Of these 12 units, there appears to be approximately 9 off street parking spaces available for use, leaving a need for approximately 3 on-street parking spaces. The need for two of the parking spaces are for the building nearest the MMC visitor / patient parking garage.

It was difficult to identify exactly how many units were associated with the two buildings on the corners of the Crescent Street / Ellsworth Street intersection. Of the two buildings, the one located on the southwest corner has two off-street parking spaces off Crescent and three on-street parking spaces directly in front of the building on Ellsworth Street. The building on the northwest corner of the intersection has two off-street parking spaces and two on-street parking spaces directly in front of the building on Ellsworth.

To supplement available driveways and help address loss of parking along Crescent Street, MMC is planning to meet with the residents to discuss the potential loss of parking, and will offer parking in the nearby visitor parking garage as an option.

It should be noted, that additional parking restrictions may be identified on other streets when delivery routes are reviewed in the field to ensure proper turning of larger delivery vehicles can be accommodated.

Parking for workers will be provided off-site at satellite parking areas, such as the MMC Scarborough Campus and shuttled to the work site. Any non-essential vehicles not critical to the work site will be restricted from the site. Any parking by workers in the immediate area reported to MMC or Turner Construction will be taken seriously and addressed by Turner Construction.

Capacity:

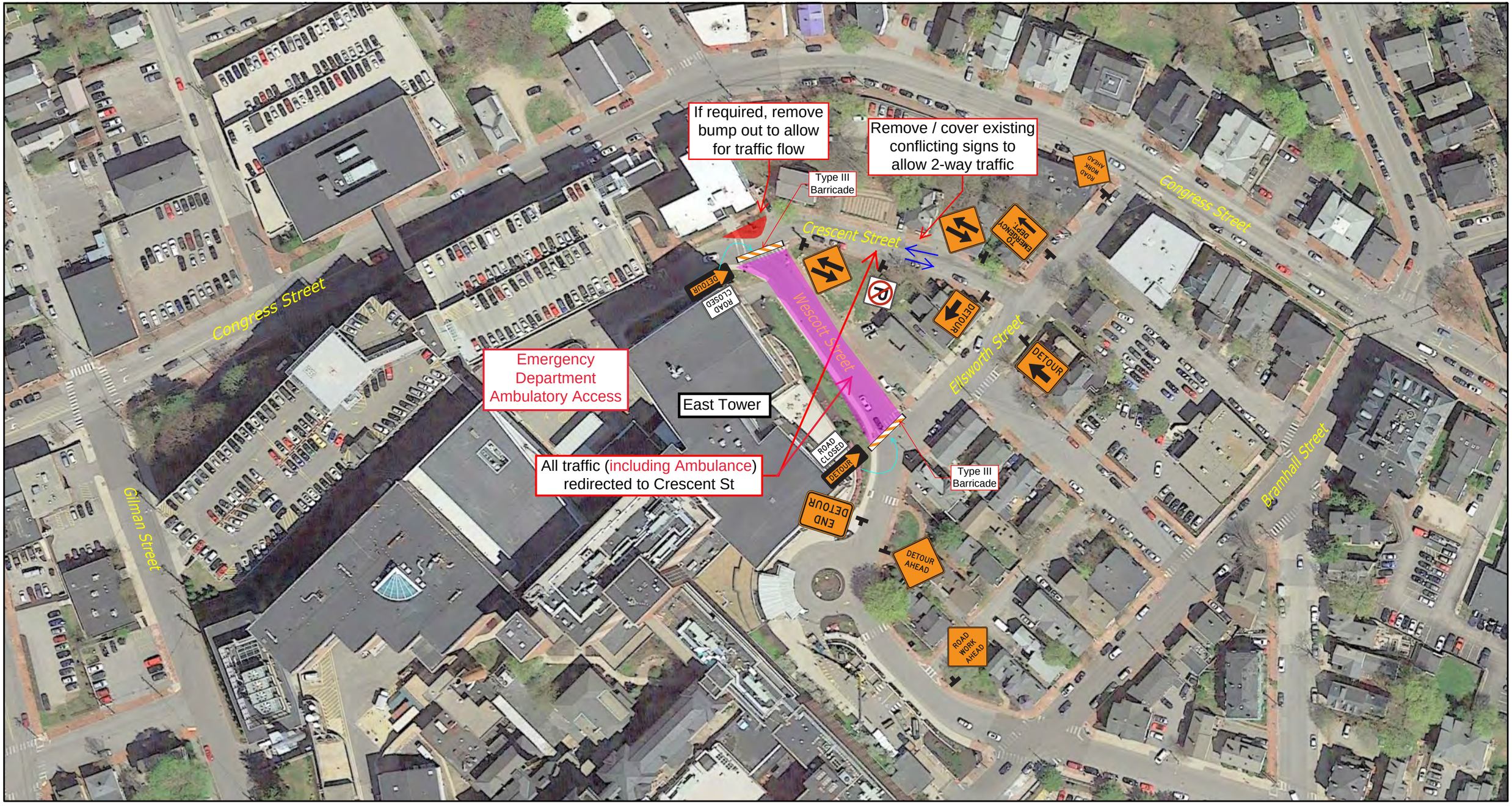
Given the neighborhood location, existing low traffic volumes, calm nature of the immediately surrounding area, and small area of impact of the detour, no capacity challenges are anticipated as a result of the East Tower detour.

Construction related Deliveries and Delivery Routes:

Turner Construction will be the responsible party for the actual construction and will be providing number, type (size), and routes for deliveries under separate cover. It should be noted that Ellsworth Street between Congress Street and Crescent Street (approximately 160 feet) which is currently one-way away from Congress Street, is proposed to be used for larger vehicle deliveries, both entering and exiting the site. Exiting the site will require the use of trained flaggers at the Crescent Street and Congress Street intersections. Given the short distance of this section of Ellsworth Street, line of site between the two intersections can be maintained.

East Tower Traffic Control Plan

Figure No. 1



Maine Medical Center Expansion
PORTLAND, MAINE

Design: ET
Draft:
Checked: RED
Scale: NONE
Date: JAN 2018
File Name: 2866-01-TRAFF.dwg

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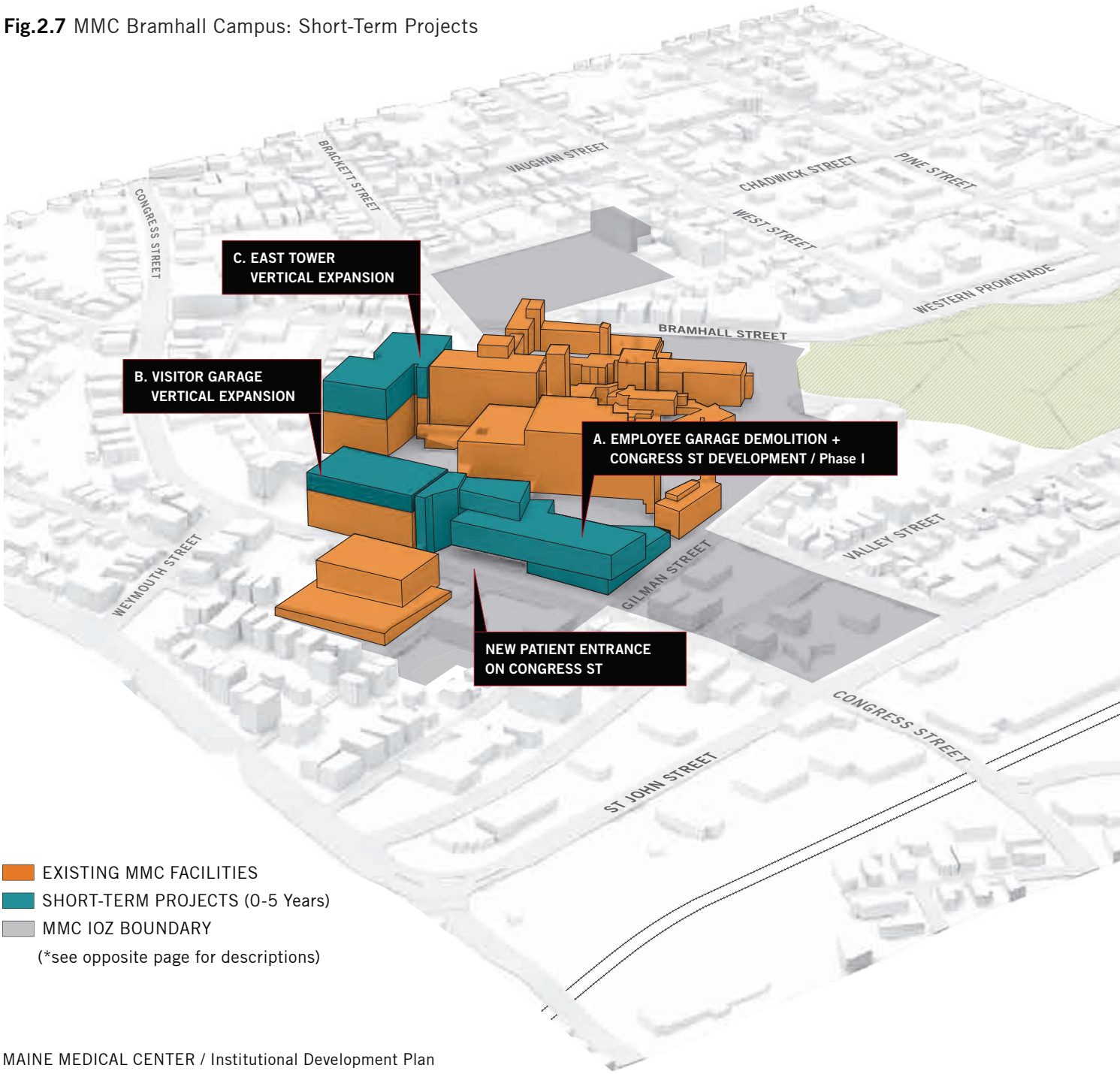
SHORT-TERM PROJECTS (0-5 YEARS)

A series of short-term projects are in the planning stages to meet MMC's current needs and to improve the efficiency of care delivery. These do not represent the only projects that could be proposed within this timeframe: due to the various factors impacting healthcare planning and their short time horizons (0-3 years), there may be other projects proposed within this timeframe.

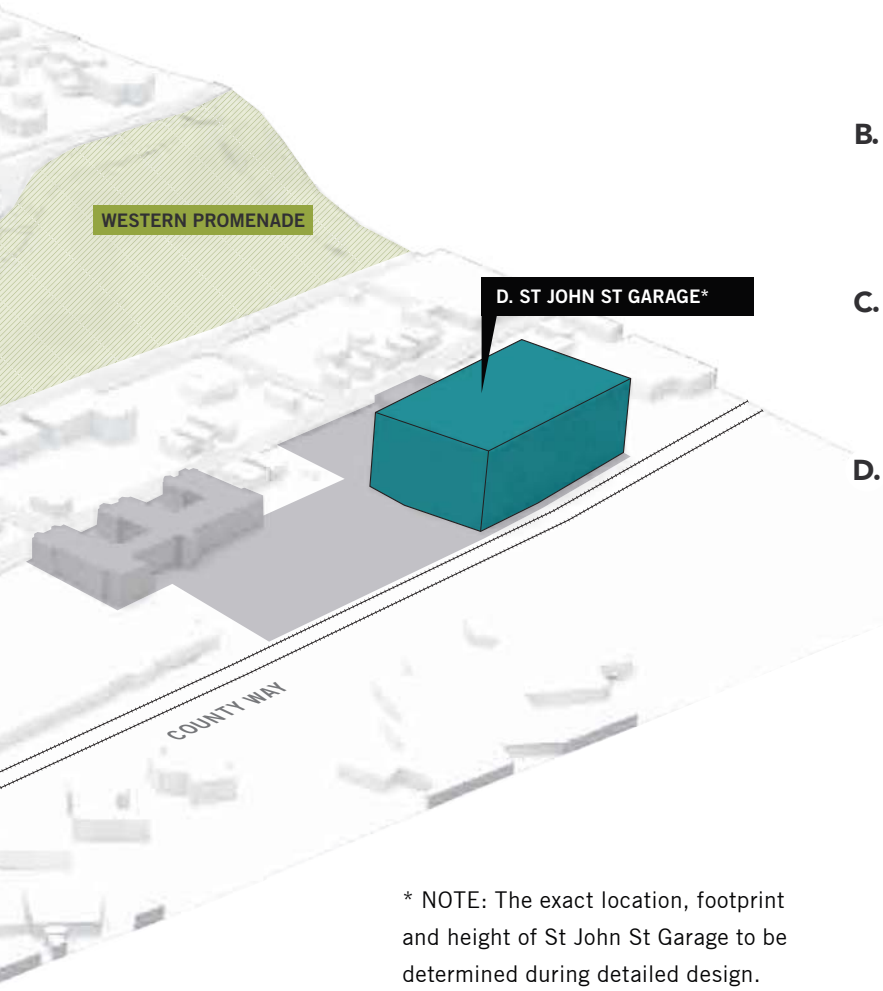
Fig.2.7 MMC Bramhall Campus: Short-Term Projects



Demolitions

A. Employee Garage Demolition

The 2015 building assessment does not recommend continued investment in this structure (see **Fig.2.5 on page 39**).



* NOTE: The exact location, footprint and height of St John St Garage to be determined during detailed design.

Additions / New Construction

A. Congress St Development, Phase I (285,000 GSF)

New six-story building along Congress St on former site of the Employee Garage, plus two-story connector to the LL Bean Building. Building program includes: a new patient entrance, universal, private inpatient beds and new procedure rooms. The new entrance changes the campus's orientation to Congress St.

B. Visitor Garage Vertical Expansion

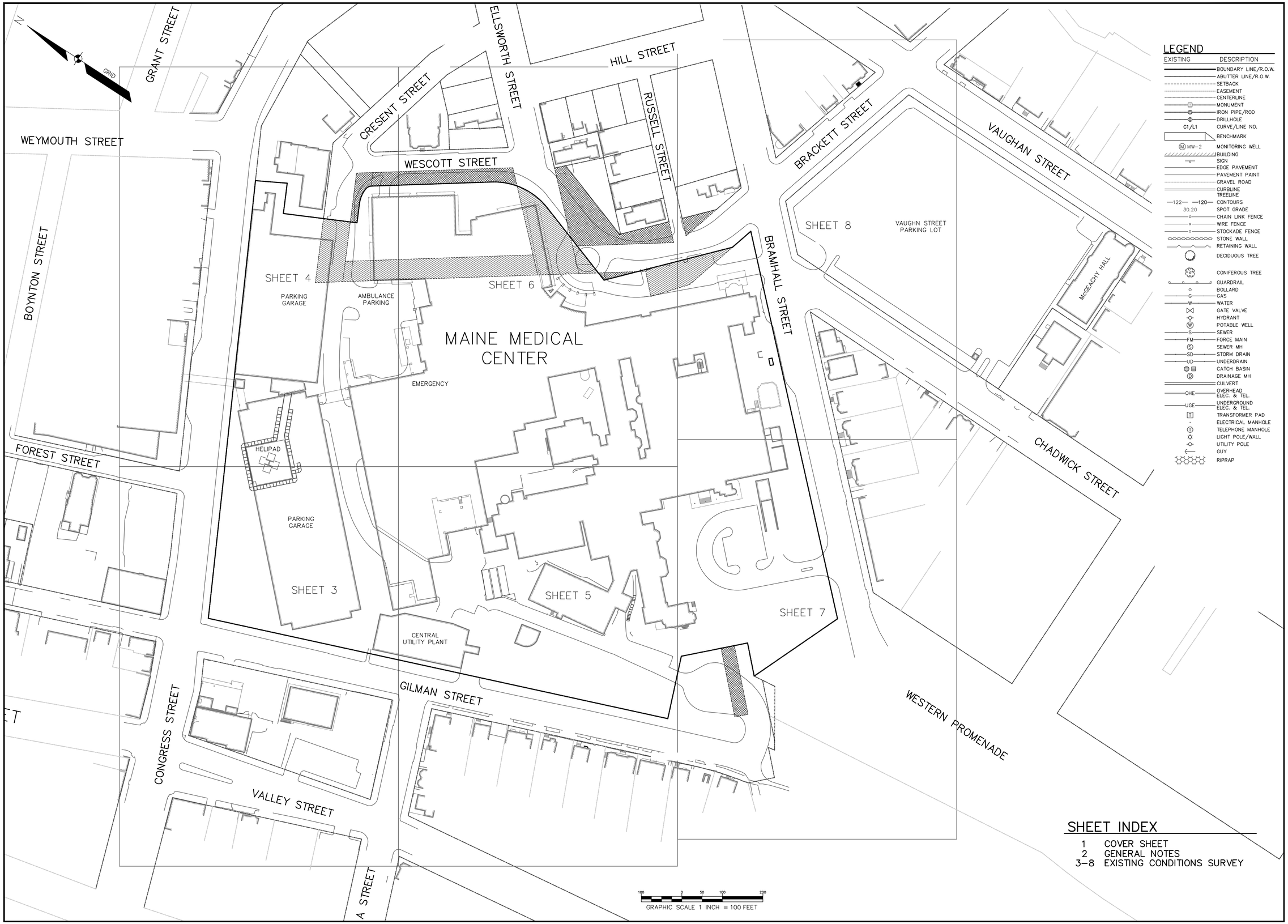
Addition of three floors at top to accommodate 225 new parking spaces.

C. East Tower Vertical Expansion (60,000 GSF)

Addition of two floors at top to accommodate 64 inpatient beds and relocated heliport.

D. St John St Garage

New 10-story, free-standing garage at 222 St John St to accommodate roughly 2,200 new parking spaces. The garage replaces spaces lost in the Employee Garage, in addition to consolidating parking from multiple surface lots owned or leased by MMC. (See **Chapter 3. Transportation Plan** for details).



LEGEND

EXISTING	DESCRIPTION
	BOUNDARY LINE/R.O.W.
	ABUTTER LINE/R.O.W.
	SETBACK
	EASEMENT
	CENTERLINE
	MONUMENT
	IRON PIPE/ROD
	DRILLHOLE
C1/L1	CURVE/LINE NO.
	BENCHMARK
Ⓜ MW-2	MONITORING WELL
	BUILDING
	SIGN
	EDGE PAVEMENT
	PAVEMENT PAINT
	GRAVEL ROAD
	CURBLINE
	TREELINE
122 120	CONTOURS
30.20	SPOT GRADE
	CHAIN LINK FENCE
	WIRE FENCE
	STOCKADE FENCE
	STONE WALL
	RETAINING WALL
	DECIDUOUS TREE
	CONIFEROUS TREE
	GUARDRAIL
	BOLLARD
G	GAS
W	WATER
	GATE VALVE
	HYDRANT
W	POTABLE WELL
S	SEWER
FM	FORCE MAIN
S	SEWER MH
SD	STORM DRAIN
UD	UNDERDRAIN
	CATCH BASIN
D	DRAINAGE MH
	CULVERT
OHE	OVERHEAD ELEC. & TEL.
UGE	UNDERGROUND ELEC. & TEL.
T	TRANSFORMER PAD
E	ELECTRICAL MANHOLE
T	TELEPHONE MANHOLE
	LIGHT POLE/WALL
	UTILITY POLE
	GUY
	RIPRAP

SHEET INDEX

1 COVER SHEET
2 GENERAL NOTES
3–8 EXISTING CONDITIONS SURVEY

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV:	BY:	DATE:	STATUS:
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW

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250 Goddard Rd. - Suite B
Lewiston, ME 04240
Tel: 207-783-9958

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET.AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=60'

SHEET 1 OF 8

01046-EC-2017.dwg, TAB: EC01

GENERAL NOTES

1. THE RECORD OWNERS OF THE SURVEYED PROPERTIES ARE AS FOLLOWS:
   MAINE MEDICAL CENTER AND MMC REALTY CORPORATION AS DESCRIBED IN DEED BOOK/PAGES:

11613/153	1250/470	1282/323	1285/450	1289/192	1290/192	1296/351
1296/352	13504/86	14026/287	1575/227	16145/275	18032/68	19986/204
2127/269	2127/320	2127/443	2133/310	2133/311	2133/317	2143/330
2147/110	2149/190	22762/45	2301/21	2308/161	2349/229	2619/499
2685/369	2901/326	2951/927	2955/722	2988/139	3075/669	3095/34
3097/244	3108/396	3183/576	3187/234	3188/710	3278/209	3310/115
3310/116	377/296	377/297	378/6	381/260	382/450	384/37
388/92	3995/53	408/457	6177/319	8309/5	8855/81	9392/344
9722/45						

   * ALL RECORDED INFORMATION LISTED HEREON IS WITHIN THE CUMBERLAND COUNTY REGISTRY OF DEEDS (CCRD).

2. THE PROPERTIES ARE SHOWN ON THE CITY OF PORTLAND TAX MAPS AS FOLLOWS:
   MAP 53 BLOCK D, LOT 7,
   MAP 53 BLOCK E, LOT 13
   MAP 54 BLOCK H, LOT 1,
   MAP 64 BLOCK C, LOT 1,

3. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON ON GROUND SURVEY PERFORMED BY SEBAGO TECHNICS IN SUMMER AND FALL OF 2009 WITH RESEARCH UPDATES THROUGH FALL OF 2017.

4. THE BEARINGS SHOWN HEREON ARE BASED UPON THE MAINE STATE PLANE COORDINATE GRID, WEST ZONE 1802 ON NAD83 IN US FEET.

5. UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON FIELD LOCATION OF VISIBLE SURFACE FEATURES, INVERT INSPECTIONS, UTILITY MARKINGS BY DIGSMART OF MAINE, AND PLANS REFERENCED HEREON. THE INFORMATION SHOWN HEREON MAY NOT INCLUDE ALL UTILITIES. PRIOR TO ANY CONTRUCTION DIGSAFE AND APPROPRIATE UTILITY PROVIDERS MUST BE CONTACTED.

6. THE RIGHT OF WAY LINES ON THE STREETS ABUTTING THE LOCUS PROPERTIES SHOWN HEREON WERE ESTABLISHED UTILIZING CITY PUBLIC WORKS RECORDS AND FOUND MONUMENTATION AT THE CORNERS AND ANGLE POINTS OF THE STREETS.

EASEMENT, ENCUMBRANCE, AND AGREEMENT REFERENCES:

A. UNDERGROUND ANCHOR SYSTEM EASEMENT RESERVED BY MMC IN CONVEYANCE TO CRESCENT HEIGHTS LLC IN DEED BOOK 26288 PAGE 49.
B. UTILITY/DRAINAGE EASEMENT FOR A DRAIN/SEWER PIPE FROM THE PROPERTY NOW OF CRESCENT HEIGHTS, LLC. FORMERLY AS DESCRIBED IN DEED BOOK 1938 PAGE 248 AND 1946 PAGE 370.
C. UTILITY EASEMENT: TO NET&T NEAR THE NORTHERLY CORNER OF THE PARKING GARAGE ON CONGRESS ST. PER DEED BOOK 8573 PAGE 121.
D. CERTIFICATE OF VARIANCE APPROVAL GRANTING RELIEF FROM SECTION 14–137(7) MAXIMUM STRUCTURE HEIGHT OF 45 FEET, DATED JUNE 25, 1996, AND RECORDED IN DEED BOOK 12629 PAGE 295.
E. SITE LOCATION OF DEVELOPMENT DEPARTMENT ORDER BY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION FOR MAINE MEDICAL CENTER, PER DEED BOOK 13919 PAGE 114.
F. UTILITY EASEMENT: MMC TO NET&T 6' X 8' NEAR GILMAN AND CONGRESS PER DEED BOOK 13027 PAGE 207.
G. AMENDMENT TO CITY CODE SEC. 14–49 (ZONING MAP AMENDMENT) RE: CONDITIONAL REZONING FOR PROPERTY IN VICINITY OF WESTERN PROMENADE/MAINE MEDICAL CENTER. DATED MAY 24, 2005 AND RECORDED IN DEED BOOK 22671 PAGE 60.

PLAN REFERENCES

1. STATE OF MAINE DEPARTMENT OF TRANSPORTATION PLAN SHOWING VALLEY, CONGRESS, AND ST. JOHN STREETS, CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS FILE NO. 726 / 16.
2. STANDARD BOUNDARY SURVEY FOR MAINE MEDICAL CENTER BY STEVENS, MORTON, ROSE, & THOMPSON, INC. DATED OCTOBER 06, 1990 RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 188, PAGE16.
3. CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS LAND SWAP WITH MAINE MEDICAL CENTER (GILMAN ST. & ARSENAL ST.) DATED JANUARY 23, 1974. DPW FILE NO. 547 / 20.
4. PLAN OF LAND OF J.M. WOOD ESQ. ELLSWORTH AND O STREETS DPW FILE NO. 361 / 3.
5. PLAN OF LAND SURVEYED FOR MOODY F. WALKER SEPTEMBER 23, 1863 BY HOWE & OSGOOD C.E. CCRD PLAN BOOK 21, PAGE 36.
6. SITE PLAN OF NEUROSCIENCE INSTITUTE CONGRESS AND GILMAN ST. PORTLAND MAINE BY GREGORY K. JOHNSON AIA DATED JULY 31, 1987 ON FILE WITH THE DPW.
7. PLAN OF PROPOSED WIDENING CONGRESS STREET AUGUST 1885, DPW FILE NO. 360 / 2.
8. CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS, B ST. WIDENING DATED NOV.4, 1937 DPW FILE NO. 569 / 9.
9. PLAN OF CITY LANDS BETWEEN GILMAN STREET AND MAINE CENTRAL RAILROAD SOUTH OF CONGRESS STREET, DPW FILE NO. 18 / 4.
10. PLAN OF CITY LAND BETWEEN CONGRESS AND "A" STS DATED 1883 DPW FILE NO. 379 / 10.
11. CITY OF PORTLAND PLAN OF "B" VALLEY ST DATED FEB. 1926 DPW FILE. NO.179.
12. CITY OF PORTLAND, DEPARTMENT OF PUBLIC WORKS ARSENAL STREET DISCONTINUANCE DATED APRIL 15, 1953 DPW FILE NO. 410 / 96.
13. MMC PARKING FACILITY PROPOSED GRADING PLAN DATED 29 MAY 1971 BY TAC, DPW FILE NO. 680 / 4.
14. CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS WESTERN PROMENADE SLOPE, CITY BOUNDARY BETWEEN GILMAN AND "B" ST. DATED JAN. 4,1933 DPW FILE NO. 462 / 32 AND 462 / 32–A.
15. PLAN OF LAND WEST OF THE BRACKETT LINE CHADWICK AND VAUGHN STREETS, DATED 12 JUNE 1833 RECORDED IN CCRD PLAN BOOK 1, PAGE 1, DPW FILE NO. 462 / 4.
16. PLAN OF CITY LANDS BETWEEN GILMAN AND "B" STREETS DATED MAY 1883, DPW FILE NO. 69 / 4R, CCRD PLAN BOOK 4, PAGE 43.
17. WESTERN PROMENADE DATED JAN. 1926 CITY OF PORTLAND DPW SHEET NO. 7 FILE NO. 142.
18. CITY OF PORTLAND WORK SHEET CONGRESS, ARSENAL, AND BRACKETT STREETS DPW FILE NO. 363 / 11.
19. CITY OF PORTLAND, PLAN SHOWING PROPOSED GILMAN STREET, CONGRESS AND ASH STREETS, DPW FILE NO. 365 / 6.
20. CITY OF PORTLAND PLAN SHOWING GILMAN STREET, CONGRESS ST. AND WESTERN PROMENADE, DPW FILE NO. 365 / 7.
21. PLAN OF CITY LAND BETWEEN GILMAN & "B" STREETS DATED MAY 1883, CCRD PLAN BOOK 4, PAGE 43, DPW FILE NO. 379 / 25.
22. PORTLAND WATER DISTRICT, MAP NO. 7 SHOWING MAINE MEDICAL CENTER AREA.
23. CITY OF P D PLAN SHOWING CONGRESS STREET SHEET NO. 3 DPW FILE NO. 150.ORTLAN
24. CITY OF PORTLAND PLAN SHOWING GILMAN STREET DATED FEB 1926 DPW FILE NO. 178.
25. CITY OF PORTLAND PROPERTY PLAN BOOK NO. 274 SHOWNG PROPOSED TAKING FROM MAINE MEDICAL CENTER ON CHARLES STREET DATED NOVEMBER 29, 1973.
26. CITY OF PORTLAND PLAN OF BRAMHALL ST., VAUGHAN ST., AND BRACKETT ST. DATED OCT. 1925 DPW FILE NO. 90.
27. STANDARD BOUNDARY SURVEY AT 25–27 ELLSWORTH STREET MADE FOR MAINE MEDICAL CENTER BY OWEN HASKELL, INC. DATED OCT. 14, 2002 ON FILE WITH SEBAGO TECHNICS,INC.
28. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, CHARLES ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 7.
29. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, WESCOTT ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 6.
30. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, HILL ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 5.
31. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, HILL ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 5.
32. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, ELLSWORTH ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 2.
33. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, CRESCENT ST. AS BUILT PLAN DATED 1973 DPW FILE NO. 495 / 3.
34. STREET VACATION / ACCEPTANCE AND LAND TRANSFER PLAN OF MAINE MEDICAL CENTER BY SEBAGO TECHNICS, INC AS REVISED THROUGH JULY 5, 2005 DPW FILE NO. 992 / 3.
35. STANDARD BOUNDARY SURVEY ON CONGRESS AND ELLSWORTH STREETS, PORTLAND MAINE BY DESLAURIERS & ASSOCIATES DATED AUGUST 30, 1999.
36. STANDARD BOUNDARY SURVEY AT 26–28 ELLSWORTH STREET MADE FOR MAINE MEDICAL CENTER BY OWEN HASKELL, INC. DATED OCT. 14, 2002 ON FILE WITH SEBAGO TECHNICS, INC.
37. EXISTING CONDITIONS & STANDARD BOUNDARY SURVEY MAINE MEDICAL CENTER DATED MAY 1, 1996 BY TITCOMB ASSOCIATES.
38. PLAN OF CRESCENT STREET DATED OCT. 1886 BY PORTLAND CITY ENGINEER DPW FILE NO.10 / 02.
39. CITY OF PORTLAND PLAN OF BRAMHALL ST., ELLSWORTH ST., AND CHARLES ST. DATED OCT. 1926 DPW FILE NO. 158..
40. PLAN OF STREETS ON BRAMHALL'S HILL SEPTEMBER 1858 BY A.P. MARSHALL CITY ENGINEER DPW FILE NO. 359 / 22.
41. PLAN OF LAND OR LOTS WEST OF THE BRACKETT ESTATE DATED 1835, DPW FILE NO.134 / 2.
42. PLAN NO. 5 SHOWING STREETS ON BRAMHALL'S HILL SURVEYED MAY 1862 BY C.R. GOODELL C.E. DPW FILE NO. / 15.
43. CITY OF PORTLAND PLAN SHOWING ARSENAL STREET DATED OCT 1925, DPW FILE NO. 95.
44. PLAN OF LAND OR LOTS WEST OF THE BRACKETT ESTATE DATED 1835, DPW FILE NO.396 / 17..
45. PLAN OF CHANGE IN LINE OF CONGRESS STREET, DPW FILE NO. 360 / 25.
46. PLAN OF CHANGE IN LINE OF CONGRESS STREET, DATED OCTOBER 1854, DPW FILE NO. 360 / 27.
47. PLAN OF J.B. BROWN'S LAND WEST OF BRAMHALL'S HILL MADE BY WM. S. EDWARDS C.E. DATED 1871ON FILE IN THE DPW OFFICE.
48. CITY OF PORTLAND MAINE DEPARTMENT OF PUBLIC WORKS, ARSENAL ST. DISCONTINUANCE PLAN DATED 12/2/41 ON FILE IN DPW OFFICE.
49. THIS PLAN OF A TOWN ON BRAMHALL'S HILL PORTLAND MAINE AT THE REQUEST OF WLLIAL VAUGHAN, THE PROPRIETOR COMPLETED IN 1813 BY PELEG WADSWORTH, SURVEYOR, DPW FILE NO. 404 / 130, CCRD PLAN BOOK 37, PAGE 12.
50. T.F. CHAPPELL C.E. PLAN OF ASH STREET, ARSENAL ST., CONGRESS ST.
51. PARKING AREA ON BRAMHALL RESERVOIR SITE CHADWICK, BRAMHALL AND VAUGHAN STS. DATED 1964 DPW FILE NO. 698 / 14.
52. MAINE MEDICAL CENTER PKG C– SITE UTILITIES EXISTING CONDITIONS PLAN DATED THROUGH 05/25/05 BY THE RICHIE ORGANIZATION.
53. MAINE MEDICAL CENTER, PORTLAND MAINE BEAN BUILDING SITE UTILITIES AT ER. BY SHEPLEY, BULFINCH, RICHARDSON, & ABBOTT, DATED THROUGH 3/28/97.
54. BOUNDARY SURVEY OF SPORTSMANS LOT FOR MAINE MEDICAL CENTER, BY SEBAGO TECHNICS, INC., DATED THROUGH 10/23/09.
55. EXISTING CONDITIONS PLAN OF EAGLES CLUB BLOCK FOR MAINE MEDICAL CENTER, BY SEBAGO TECHNICS, INC., DATED THROUGH 11/3/09.

STATE OF MAINE · MATTHEW W. EK · 2117 · PROFESSIONAL LAND SURVEYOR

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PROJECT NO.	FIELD BOOK	DESIGN	CHKD.	DRAWN
01046	791B	WTC	CDM	MWE

EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST. CONGRESS ST. BRAMHALL ST. ET AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	NA

SHEET 2 OF 8

01046-EC-2017.dwg, TAB: EC02

CONGRESS STREET
(FKA MAINE STREET)
76 FEET WIDE

CONGRESS STREET
(FKA MAINE STREET)
66 FEET WIDE

VALLEY STREET
(FORMERLY B STREET)

GILMAN STREET
60 FEET WIDE

A STREET

N/F
GLI REALTY CO.
7815/332

N/F
TPA ASSOCIATES
9335/26

N/F
TPA ASSOCIATES
9335/26

N/F
RBT.K JORDAN TRUSTEE
22902/156

EAST END CORP.
23397/308
1+ STORY BUILDING

EAST END HOLDINGS, LLC
PARCEL 1 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 2 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 3 OF
20289/341

EAST END HOLDINGS, LLC
PARCEL 4 OF
20289/341

2+ STORY RESTAURANT/HOUSE

FACE OF BUILDING ALONG CONGRESS STREET ENCROACHES INTO CONGRESS STREET RIGHT OF WAY UP TO APPROXIMATELY 0.26 FEET.

8" x 8" GRANITE MONUMENT IN HANDHOLE

8" x 8" GRANITE MONUMENT WITH BRASS PLUG #PLS2239

8" x 8" GRANITE MONUMENT WITH BRASS PLUG IN HANDHOLE

8" x 8" GRANITE MONUMENT WITH BRASS PLUG (HELD AS 3 FOOT OFFSET)

REMAINS OF CONC. WALL

BENCHMARK
BRASS PLUG IN 8" x 8" GRAN. MON.
ELEV=52.17'

BENCHMARK
TOP CENTER OF 6" X 6" GRAN. MON.
ELEV=41.78'

BENCHMARK
EASTERLY EDGE OF SEWER MANHOLE
RIMELEV=1063.57'

SEE NOTE 8
1" IRON PIPE FLUSH

SEE NOTE 7

1/2" DRILL HOLE

5/8" REBAR 1" HIGH

5/8" REBAR FLUSH W/ WORN ALUMN. CAP

6" x 6" GRANITE MONUMENT FLUSH

S63°11'56"W 181.65'

66.00'

76.00'

MAINE MEDICAL CENTER

COMMUNICATION BOX ON CONC. PAD

GRANITE BENCH/RETAINING WALL

COLUMNS (TYPICAL) SECOND FLOOR THIRD FLOOR

WOOD GUARDRAIL

CONC. PAD

ELEVATOR

TRANSFORMER PAD

METAL BULKHEAD

A/C UNIT

OVERHANG

REMAINS OF OLD CONCRETE CENTER BLOCK WALL

CONC. ENTRANCE/EXIT TO PARKING GARAGE

PARKING GARAGE

HELIPAD

STAIRWAY

CRUSHED STONE

CONC. RETAINING WALL

MAINE MEDICAL CENTER

CENTRAL UTILITY PLANT

BOLLARD (TYPICAL)

GRAVEL AREA

GRAVEL DRIVE

GRAVEL PARKING

PAVED PARKING

MISC. LANDSCAPE

SHEET 3

SHEET 4

SHEET 5

SHEET 6

GRID

GRAPHIC SCALE 1 INCH = 20 FEET

NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

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PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

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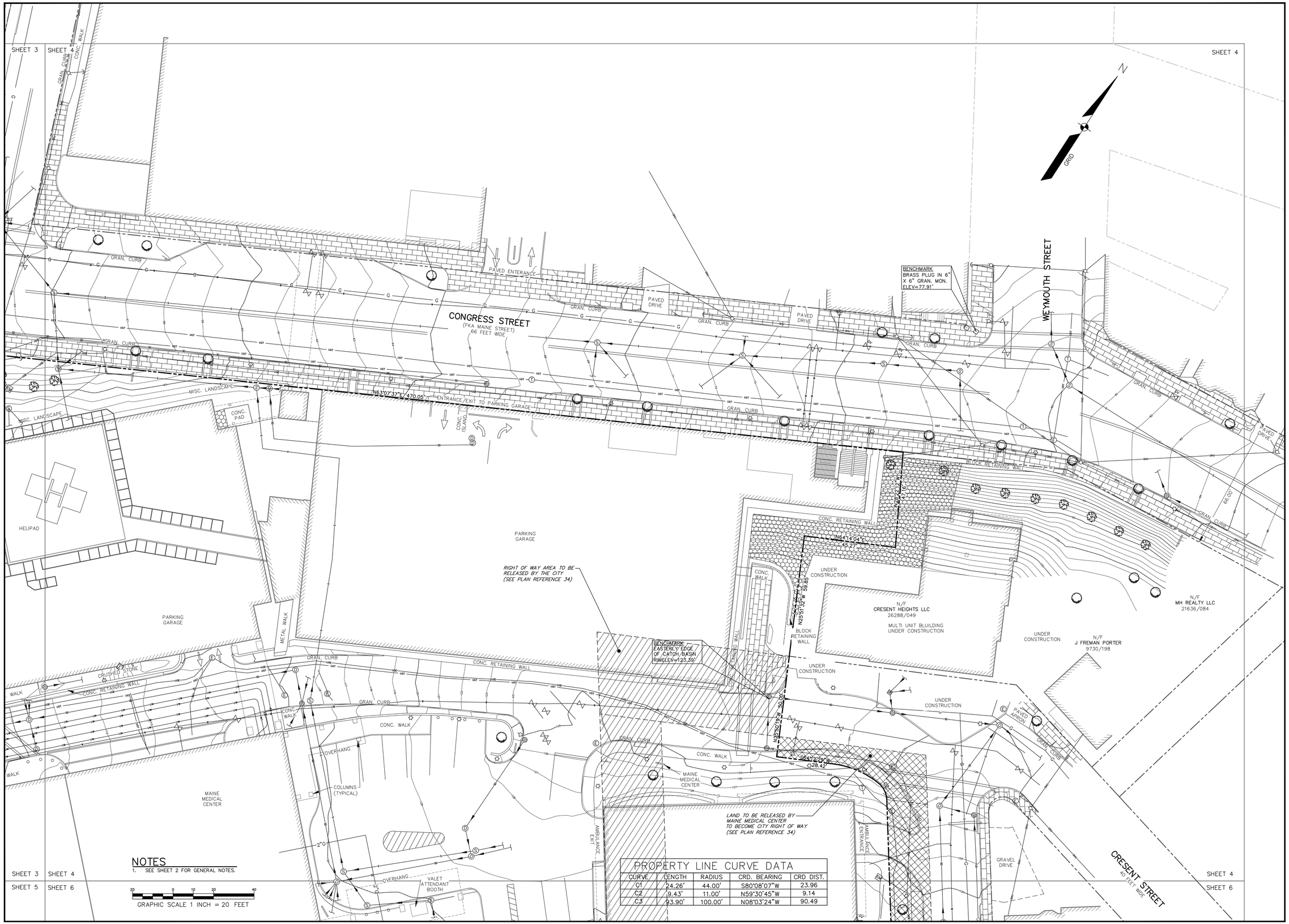
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 3 OF 8

01046-EC-2017.dwg, TAB:ECO3



PROPERTY LINE CURVE DATA

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD DIST.
C1	24.26'	44.00'	S80°08'07"W	23.96
C2	9.43'	11.00'	N59°30'45"W	9.14
C3	93.90'	100.00'	N08°03'24"W	90.49

STATE OF MAINE
MATTHEW W. EK
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DATE	SCALE
10/23/09	1"=20'

SHEET 4 OF 8

01046-EC-2017.dwg, TAB:EC04

SHEET 3 | SHEET 4
SHEET 5 | SHEET 6

A STREET
GILMAN STREET
60 FEET WIDE

BENCHMARK
TOP CENTER OF 6" X 6" GRAN. MON.
ELEV=66.99'

BENCHMARK
SOUTHERLY EDGE OF CATCH BASIN.
RIM ELEV=108.15'

BENCHMARK
TOP CENTER OF 6" X 6" GRAN. MON.
ELEV=105.02'

N20°41'01"W 696.16'

S69°14'08"W 94.58'

CENTRAL UTILITY PLANT
MAINE MEDICAL CENTER

GRID

GRAPHIC SCALE 1 INCH = 20 FEET

NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

SHEET 5 | SHEET 7
SHEET 5 | SHEET 6

REV.	BY:	DATE:	STATUS:
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW

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STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 1A
South Portland, ME 04106
Tel. 207-200-2100
250 Goddard Rd. - Suite B
Lewiston, ME 04240
Tel. 207-783-9566

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 5 OF 8

01046-EC-2017.dwg, TAB:EC05

SHEET 3 | SHEET 4
SHEET 5 | SHEET 6

PROPERTY LINE CURVE DATA

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD DIST.
C1	24.26'	44.00'	S80°08'07"W	23.96
C2	9.43'	11.00'	N59°30'45"W	9.14
C3	93.90'	100.00'	N08°03'24"W	90.49

OVERHANG
VALET ATTENDANT BOOTH
COLUMN (TYPICAL)
EMERGENCY ENTRANCE
CONC. WALK
MAIN ENTRANCE
RIGHT OF WAY AREA TO BE RELEASED BY THE CITY (SEE PLAN REFERENCE 34)
LAND TO BE RELEASED BY MAINE MEDICAL CENTER TO BECOME CITY RIGHT OF WAY (SEE PLAN REFERENCE 34)
S45°53'31"E 178.42'
GRAVEL DRIVE
CRESENT STREET
40 FEET WIDE
GRAN. CURB
WESCOTT STREET
50 FEET WIDE
GRID
GRAVEL PARKING LOT
BLOCK RETAINING WALL
PATIO AREA
MISC. LANDSCAPE
CONC. WALK
ELLSWORTH STREET
60 FEET WIDE
MAINE MEDICAL CENTER
BENCHMARK
NORTHERLY EDGE OF CATCH BASIN
RIMELEV=142.70'
TIMBER BORDER
PICNIC TABLE ON CONC. PAD WITH PATIO BLOCK BORDER (TYPICAL)
FIRE ESCAPE
BROKEN PAVEMENT
CONC. PAD
STAIRWAY
BLOCK PATIO WITH ROOF
CONC. FOUNDATION WALL AND FOOTING
BRICK DRAINAGE CHANNEL
BENCHMARK
EASTERLY EDGE OF CATCH BASIN
RIMELEV=145.89'
BENCHMARK
EASTERLY EDGE OF CATCH BASIN
RIMELEV=136.98'
S18°00'42"W 136.31'
1.45'
N47°21'29"W
LAND TO BE RELEASED BY MAINE MEDICAL CENTER TO BECOME CITY RIGHT OF WAY (SEE PLAN REFERENCE 34)
N/F JEFFERY L. FREILAND 14253/320
N/F PAULA WILHOITE 18004/025
N/F MICHAEL J. FREILAND 14591/320
N/F JUNE C. SOULE 3988/248
HILL STREET
60 FEET WIDE
RUSSELL STREET
20 FEET WIDE
METAL GRATE
N/F BEH REDEVELOPMENT LLC

SHEET 5 | SHEET 6 | SHEET 6
SHEET 7 | SHEET 7 | SHEET 8
SHEET 6 | SHEET 8

NOTES
1. SEE SHEET 2 FOR GENERAL NOTES.

GRAPHIC SCALE 1 INCH = 20 FEET (20 0 10 20 40)

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV:	BY:	DATE:	STATUS:
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW

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Lewiston, ME 04240
Tel: 207-783-9556

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

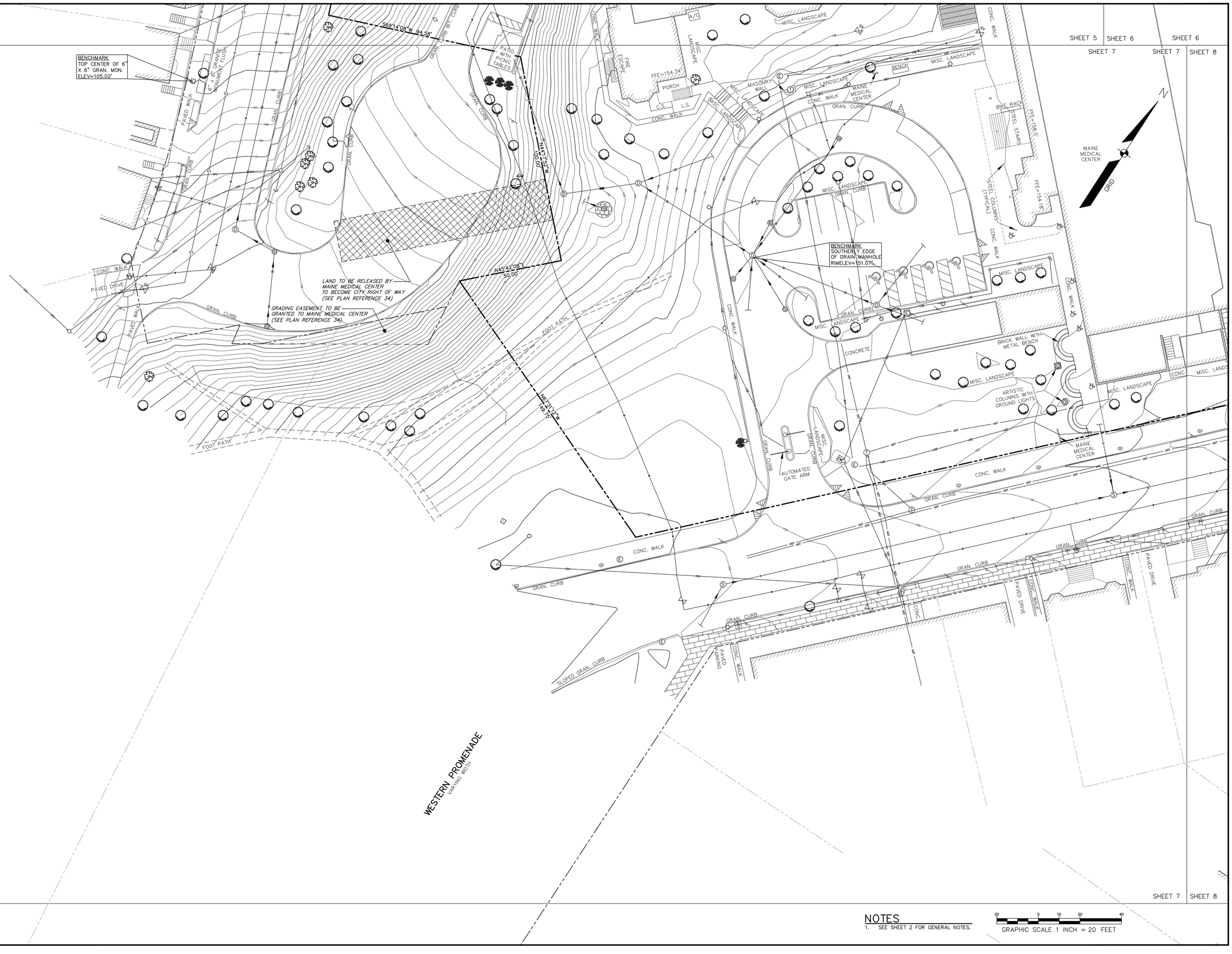
EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET.AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 6 OF 8

01046-EC-2017.dwg, TAB:EC06



NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

GRAPHIC SCALE 1 INCH = 20 FEET

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV:	BY:	DATE:	STATUS:
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW

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Lewiston, ME 04240
Tel. 207-783-5656

PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

EXISTING CONDITIONS SURVEY

OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET.AL
PORTLAND, MAINE

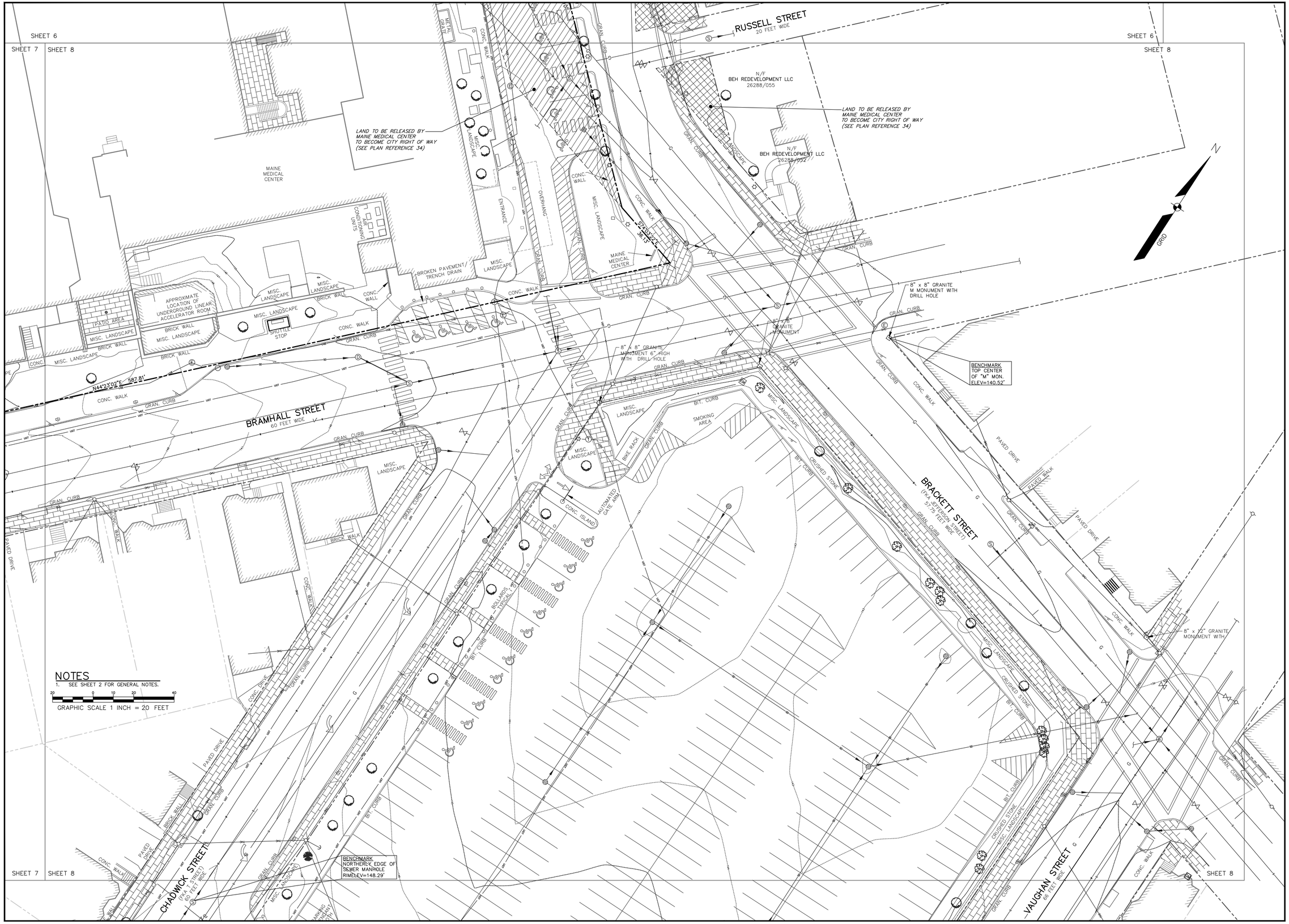
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 7 OF 8

01046-EC-2017.dwg, TAB:EC07



NOTES

1. SEE SHEET 2 FOR GENERAL NOTES.

GRAPHIC SCALE 1 INCH = 20 FEET

STATE OF MAINE
MATTHEW W. EK
2117
PROFESSIONAL LAND SURVEYOR

REV:	BY:	DATE:	STATUS:
B	MWE	12/14/17	SUBMITTED FOR CITY REVIEW
A	MWE	12/23/09	SUBMITTED FOR CLIENT REVIEW

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PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791B	WTC	CDM	MWE

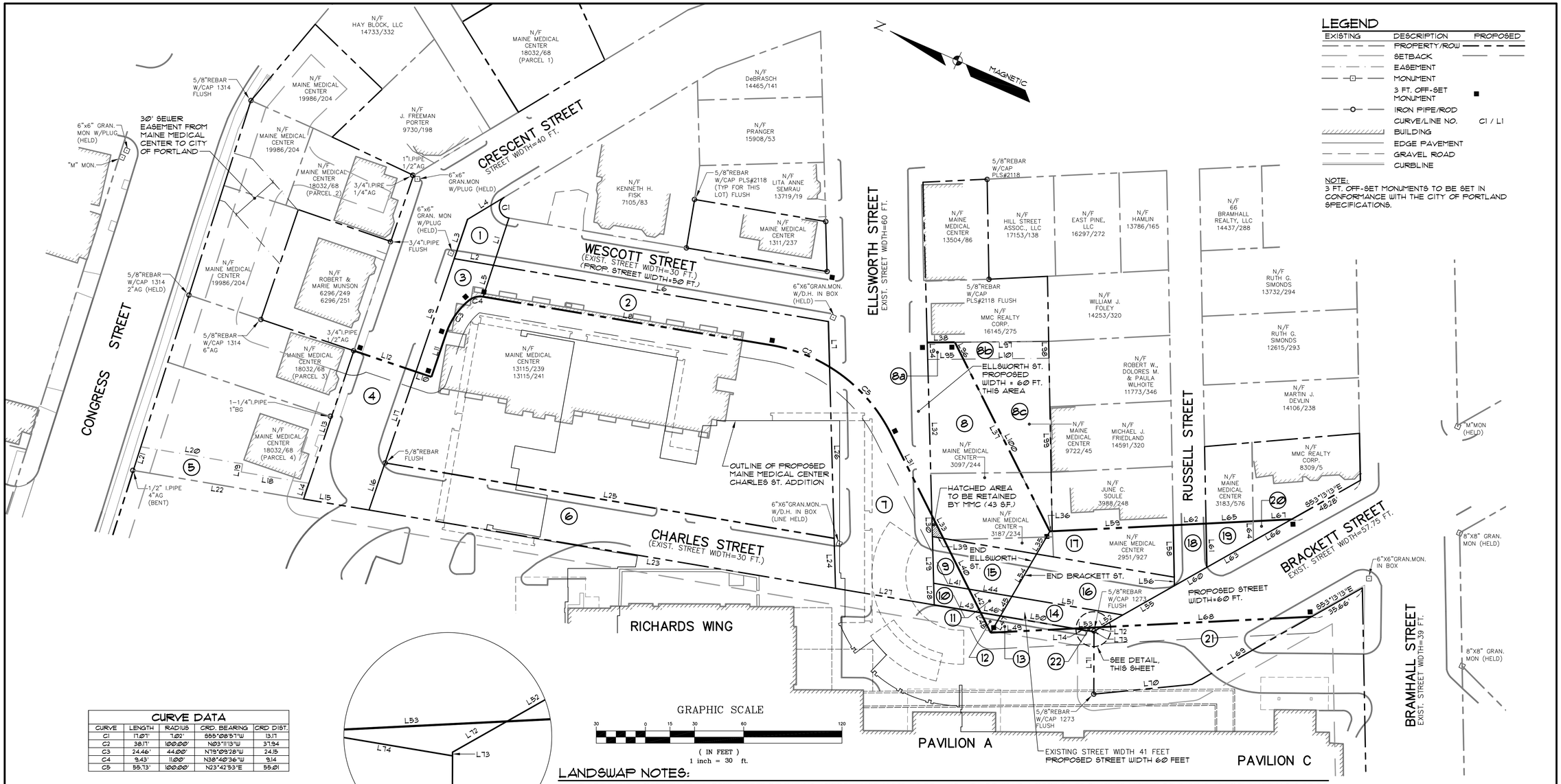
EXISTING CONDITIONS SURVEY
OF:
MAINE MEDICAL CENTER CAMPUS
GILMAN ST, CONGRESS ST, BRAMHALL ST, ET.AL
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL ST
PORTLAND, MAINE 04101

RECORD OWNER:
SEE NOTE 1, SHEET 2

DATE	SCALE
10/23/09	1"=20'

SHEET 8 OF 8

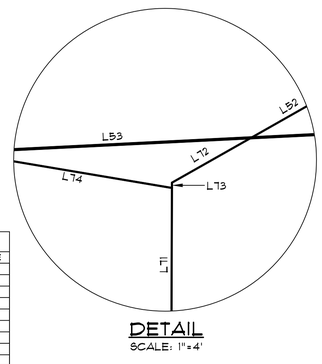
01046-EC-2017.dwg, TAB: EC08



LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY/ROW	
	SETBACK	
	EASEMENT	
	MONUMENT	
	3 FT. OFF-SET MONUMENT	
	IRON PIPE/ROD	
	CURVE/LINE NO.	C1 / L1
	BUILDING	
	EDGE PAVEMENT	
	GRAVEL ROAD	
	CURBLINE	

NOTE:
3 FT. OFF-SET MONUMENTS TO BE SET IN CONFORMANCE WITH THE CITY OF PORTLAND SPECIFICATIONS.



DETAIL
SCALE: 1"=4'

CURVE DATA

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD DIST.
C1	17.07'	7.00'	S55°08'57"W	13.17
C2	38.11'	100.00'	N03°11'13"W	37.94
C3	24.46'	44.00'	N73°29'28"W	24.15
C4	9.43'	11.00'	N38°40'36"W	9.14
C5	55.13'	100.00'	N23°42'53"E	55.01

LINE DATA

LINE	DIRECTION	DISTANCE
L1	N84°30'13"E	30.34'
L2	S14°01'22"E	24.30'
L3	S85°02'38"W	25.33'
L4	N54°46'28"W	26.56'
L5	S84°30'13"W	20.23'
L6	N14°01'22"W	207.31'
L7	N64°41'55"E	27.71'
L8	S14°01'22"E	178.42'
L9	S85°02'38"W	72.90'
L10	S25°00'10"E	10.00'
L11	N85°02'38"E	28.22'
L12	N25°00'10"W	40.00'
L13	S85°02'38"W	85.50'
L14	N85°02'38"E	10.13'
L15	S14°08'05"E	40.52'
L16	N85°02'38"E	30.39'
L17	N85°02'38"E	58.81'
L18	N14°08'05"W	41.88'
L19	N75°59'55"E	5.00'
L20	N14°08'05"W	63.00'
L21	S83°57'36"W	15.15'
L22	S14°08'05"E	105.39'
L23	S14°08'05"E	288.76'
L24	N64°41'55"E	30.51'
L25	N14°08'05"W	278.04'
L26	S64°41'55"W	104.73'
L27	S14°08'05"E	61.14'
L28	N64°41'55"E	13.25'
L29	N64°41'55"E	283.33
L30	N64°41'55"E	12.50'
L31	N39°40'51"E	56.18'
L32	S64°41'55"W	105.65'
L33	S39°40'51"W	15.71'
L34	N14°08'05"W	57.76'
L35	S83°13'14"E	16.03'
L36	N26°31'20"W	1.45'
L37	N39°40'51"E	129.25'
L38	N24°12'40"W	16.87'
L39	N14°08'05"W	6.79'
L40	N39°40'51"E	34.69'
L41	S14°08'05"E	21.80'
L42	N39°40'51"E	16.11'
L43	S14°08'05"E	28.77'
L44	N14°08'05"W	26.63'
L45	S83°25'14"E	13.30'
L46	N14°08'05"W	12.20'
L47	S83°25'14"E	11.76'
L48	S39°40'51"W	13.63'
L49	S26°31'20"E	51.26'
L50	N14°08'05"W	45.91'
L51	N14°08'05"W	68.62'
L52	S53°13'13"E	15.01'
L53	S26°31'20"E	16.30'
L54	S83°25'14"E	29.94'
L55	S53°13'13"E	36.25'
L56	N65°15'43"E	5.23'
L57	N14°08'05"W	85.21'
L58	N65°15'43"E	31.73'
L59	N26°31'20"W	74.60'
L60	S53°13'13"E	22.15'
L61	N65°15'43"E	26.73'
L62	N26°31'20"W	20.01'
L63	S53°13'13"E	32.76'
L64	N65°29'08"E	12.23'
L65	N26°31'20"W	28.80'
L66	S53°13'13"E	26.76'
L67	N26°31'20"W	23.49'
L68	N26°31'20"W	128.54'
L69	S53°13'13"E	83.82'
L70	S29°20'43"E	60.31'
L71	S66°31'42"W	38.16'
L72	N53°13'13"W	5.00'
L73	S66°31'42"W	0.29'
L74	S14°08'05"E	12.02'

EASEMENT LINE DATA

LINE	DIRECTION	DISTANCE
L36	N26°31'20"W	1.45'
L37	N39°40'51"E	129.25'
L38	N24°12'40"W	16.87'
L84	N64°41'55"E	10.36'
L85	N24°12'40"W	21.77'
L86	N39°40'51"E	11.54'
L87	S24°12'40"E	57.35'
L88	S65°45'11"W	10.36'
L89	S65°15'43"W	105.65'
L100	N39°40'51"E	111.71'
L101	N24°12'40"W	59.28'
L102	S14°11'19"W	20.27'
L103	S78°04'16"W	80.18'

LANDSWAP NOTES:

1. DISCONTINUE A PORTION OF WESCOTT STREET CONTAINING APPROXIMATELY 785 SF. TO BE ACCEPTED AS A PORTION OF CRESCENT STREET.

2. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 4293 SF. TO BE ACCEPTED AS A PORTION OF WESCOTT STREET.

3. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 1182 SF. TO BE ACCEPTED AS A PORTION OF CRESCENT STREET.

4. DISCONTINUE A PORTION OF CRESCENT STREET CONTAINING APPROXIMATELY 3697 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

5. DISCONTINUE AN EXISTING SEWER RIGHT-OF-WAY (CCRD 1149/348 PROCTOR TO CITY 10-04-23) CONTAINING APPROXIMATELY 1372 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

6. DISCONTINUE A PORTION OF CHARLES STREET CONTAINING APPROXIMATELY 8502 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

7. DISCONTINUE A PORTION OF ELLSWORTH STREET CONTAINING APPROXIMATELY 6267 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

8. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 5673 SF. TO BE ACCEPTED AS A PORTION OF ELLSWORTH STREET.

8a. A PARCEL OF LAND ALONG ELLSWORTH STREET OWNED BY THE CITY CONTAINING APPROXIMATELY 200 SF. TO BE DESIGNATED AS AN ACCESS EASEMENT TO MMC REALTY CORP.

8b. A PARCEL OF LAND OWNED BY MAINE MEDICAL CENTER CONTAINING 568 SF. TO BE DESIGNATED AS AN ACCESS EASEMENT TO MMC REALTY CORP.

8c. A PARCEL OF LAND OWNED BY MAINE MEDICAL CENTER CONTAINING 2,840 SF. TO BE DESIGNATED AS AN EASEMENT TO ALLOW CONSTRUCTION OF POCKET PARK.

9. A PORTION OF LAND BEING USED AS CHARLES STREET CONTAINING APPROXIMATELY 400 SF. TO BE CONVEYED FROM THE CITY OF PORTLAND (OBTAINED IN A DEED RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 3488, PAGE 191) TO MAINE MEDICAL CENTER.

10. DISCONTINUE A PORTION OF CHARLES STREET CONTAINING APPROXIMATELY 329 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

11. DISCONTINUE A PORTION OF CHARLES STREET CONTAINING APPROXIMATELY 252 SF. TO BE ACCEPTED AS A PORTION OF ELLSWORTH STREET.

12. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 671 SF. TO BE ACCEPTED AS A PORTION OF ELLSWORTH STREET.

13. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 252 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

14. DISCONTINUE A PORTION OF CHARLES STREET CONTAINING APPROXIMATELY 800 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

15. A PORTION OF LAND (OBTAINED IN A DEED RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 3488, PAGE 191) BEING USED AS CHARLES STREET CONTAINING APPROXIMATELY 1181 SF. TO BE ACCEPTED AS A PORTION OF ELLSWORTH STREET.

16. A PORTION OF LAND (OBTAINED IN A DEED RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 3488, PAGE 191) BEING USED AS CHARLES STREET CONTAINING APPROXIMATELY 2231 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

17. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 1835 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

18. DISCONTINUE A PORTION OF RUSSELL STREET CONTAINING APPROXIMATELY 631 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

19. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 551 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

20. MAINE MEDICAL CENTER REALTY CORPORATION TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 141 SF. TO BE ACCEPTED AS A PORTION OF BRACKETT STREET.

21. DISCONTINUE A PORTION OF BRACKETT STREET CONTAINING APPROXIMATELY 3719 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

22. DISCONTINUE A PORTION OF CHARLES STREET CONTAINING APPROXIMATELY 20 SF. TO BE CONVEYED TO MAINE MEDICAL CENTER.

APPROVAL- CITY OF PORTLAND CITY COUNCIL

_____ DATE

_____ CHAIRPERSON

STATE OF MAINE

_____ COUNTY SS REGISTRY OF DEEDS

RECEIVED _____, 20____

AT ___h _____m _____M. AND RECORDED IN PLAN BOOK _____ PAGE _____

ATTEST _____ REGISTRAR

REV:	BY:	DATE:	STATUS:
G	WTC	7-15-05	ADD EASEMENT AREAS 8a, 8b AND 8c
F	WTC	5-27-05	FINAL SITE PLAN SUBMITTAL
E	MWE	12-10-04	REVISE PER CITY OF PORTLAND SURVEY REVIEW
D	MWE	11-24-04	REVISE PER CITY OF PORTLAND SURVEY REVIEW
C	MWE	7-12-04	REVISE PARCEL CONVEYANCES
B	DRL	4-15-04	REVISE RIGHT-OF-WAY PER CITY REVIEW
A	WTC	3-16-04	REVISE RIGHT-OF-WAY WIDTH PER CITY REQUEST

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Sebago Technics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, Maine 04092-1339
Tel (207) 856-0277

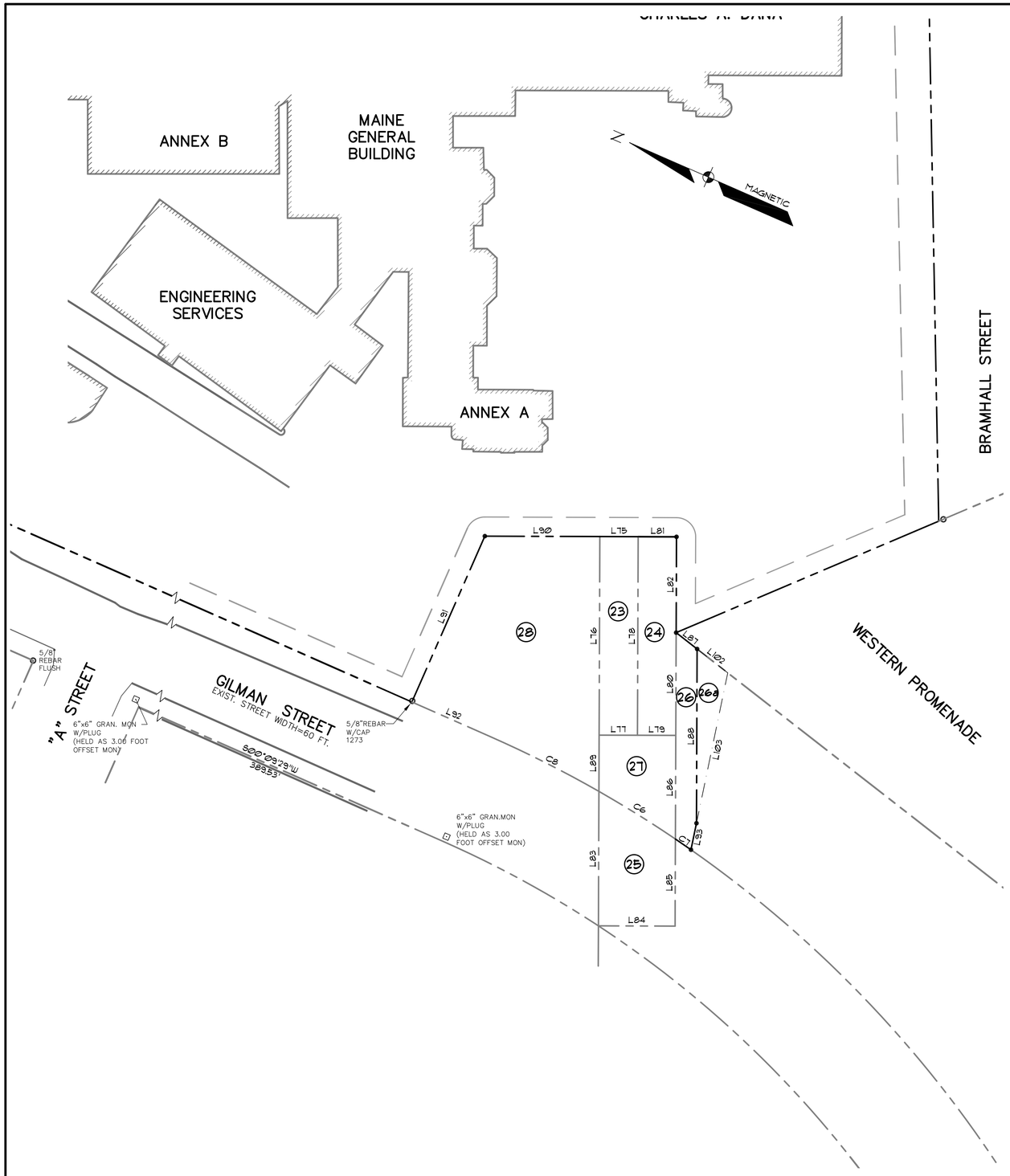
PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791	WTC	MWE	MAL

STREET VACATION/ACCEPTANCE AND LAND TRANSFER PLAN
OF
MAINE MEDICAL CENTER
BRAMHALL STREET
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL STREET
PORTLAND, MAINE 04104

DATE	SCALE
11-19-03	1"=30'

SHEET 1 OF 2

01046SVLT



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

LINE DATA

LINE	DIRECTION	DISTANCE
L75	N23°27'43"W	20.00'
L76	S66°32'17"W	103.65'
L77	S23°27'43"E	20.00'
L78	N66°32'17"E	103.65'
L79	S23°27'43"E	20.00'
L80	N66°32'17"E	53.65'
L81	N23°27'43"W	20.00'
L82	N66°32'17"E	50.00'
L83	S66°32'17"W	70.19'
L84	S23°27'43"E	40.00'
L85	N66°32'17"E	45.47'
L86	S66°32'17"W	54.03'
L87	S14°17'19"W	13.87'
L88	N66°32'17"E	90.97'
L89	S66°32'17"W	29.37'
L90	N23°27'43"W	60.00'
L91	N89°55'43"W	94.58'
L92	S00°09'29"W	44.94'
L93	S78°04'10"W	14.13'

CURVE DATA

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD DIST.
C6	47.03'	614.56'	N08°15'07"E	47.02
C7	9.86'	614.56'	N10°54'15"E	9.86
C8	63.30'	614.56'	N03°06'31"E	63.27

EASEMENT LINE DATA

LINE	DIRECTION	DISTANCE
L88	N66°32'17"E	90.97'
L102	S14°17'19"W	20.21'
L103	S78°04'10"W	80.18'

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY/ROW	
	SETBACK	
	EASEMENT	
	MONUMENT	
	3 FT. OFF-SET MONUMENT	
	IRON PIPE/ROD	
	CURVE/LINE NO.	C1 / L1
	BUILDING	
	EDGE PAVEMENT	
	GRAVEL ROAD	
	CURBLINE	

NOTE:
3 FT. OFF-SET MONUMENTS TO BE SET IN CONFORMANCE WITH THE CITY OF PORTLAND SPECIFICATIONS.

LANDSWAP NOTES:

23. MAINE MEDICAL CENTER TO CONVEY A PARCEL OF LAND CONTAINING APPROXIMATELY 2073 S.F. TO BE ACCEPTED AS A PORTION OF A TURN AROUND. BY VIRTUE OF DISCONTINUANCE THIS STRIP REVERTED TO MMC OWNERSHIP.

24. A PARCEL OF LAND OWNED BY THE CITY CONTAINING APPROXIMATELY 2073 S.F. TO BE ACCEPTED AS A PORTION OF A TURN AROUND. BY VIRTUE OF DISCONTINUANCE THIS STRIP REVERTED TO CITY OWNERSHIP.

25. DISCONTINUE A PORTION OF ARSENAL STREET CONTAINING APPROXIMATELY 2327 S.F. TO BE ACCEPTED AS A PORTION OF GILMAN STREET.

26. A PARCEL OF PARK LAND OWNED BY THE CITY (DEED BOOK 274 PAGE 6) CONTAINING APPROXIMATELY 1,152 S.F. TO BE ACCEPTED AS A PORTION OF GILMAN STREET FOR A TURN AROUND AREA.

26a. A PARCEL OF PARK LAND OWNED BY THE CITY TO BE DESIGNATED AS A GRADING EASEMENT TO MAINE MEDICAL, CONTAINING APPROXIMATELY 729 S.F.

27. DISCONTINUE A PORTION OF ARSENAL STREET CONTAINING APPROXIMATELY 1655 S.F. TO BE ACCEPTED AS A PORTION OF A TURN AROUND.

28. A PARCEL OF LAND OWNED BY THE CITY CONTAINING APPROXIMATELY 8936 S.F. TO BE ACCEPTED AS A PORTION OF A TURN AROUND.

29. TOTAL AREA OF LAND TO BE TRANSFERRED FROM MAINE MEDICAL CENTER TO THE CITY OF PORTLAND = 16,728 S.F.

30. TOTAL AREA OF LAND TO BE TRANSFERRED FROM THE CITY OF PORTLAND TO MAINE MEDICAL CENTER = 22,205 S.F.

APPROVAL- CITY OF PORTLAND CITY COUNCIL

_____ DATE

_____ CHAIRPERSON

STATE OF MAINE

_____ COUNTY SS REGISTRY OF DEEDS
RECEIVED _____, 20____
AT ____h _____m _____M. AND RECORDED IN
PLAN BOOK _____ PAGE _____

ATTEST _____ REGISTRAR

REV:	BY:	DATE:	STATUS:
G	WTC	7-15-05	REVISE LAND SWAP AREA 26, ADD EASEMENT AREA 26a
F	WTC	5-27-05	FINAL SITE PLAN SUBMITTAL
E	MWE	12-10-04	REVISE PER CITY OF PORTLAND SURVEY REVIEW
D	MWE	11-24-04	REVISE PER CITY OF PORTLAND SURVEY REVIEW
C	MWE	7-12-04	REVISE PARCEL CONVEYANCES
B	DRL	4-15-04	REVISE RIGHT-OF-WAY PER CITY REVIEW
A	WTC	3-16-04	REVISE RIGHT-OF-WAY WIDTH PER CITY REQUEST

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

Sebago Technics
Engineering Expertise You Can Build On
One Chabot Street
Westbrook, Maine 04092-1339
Tel (207) 856-0277

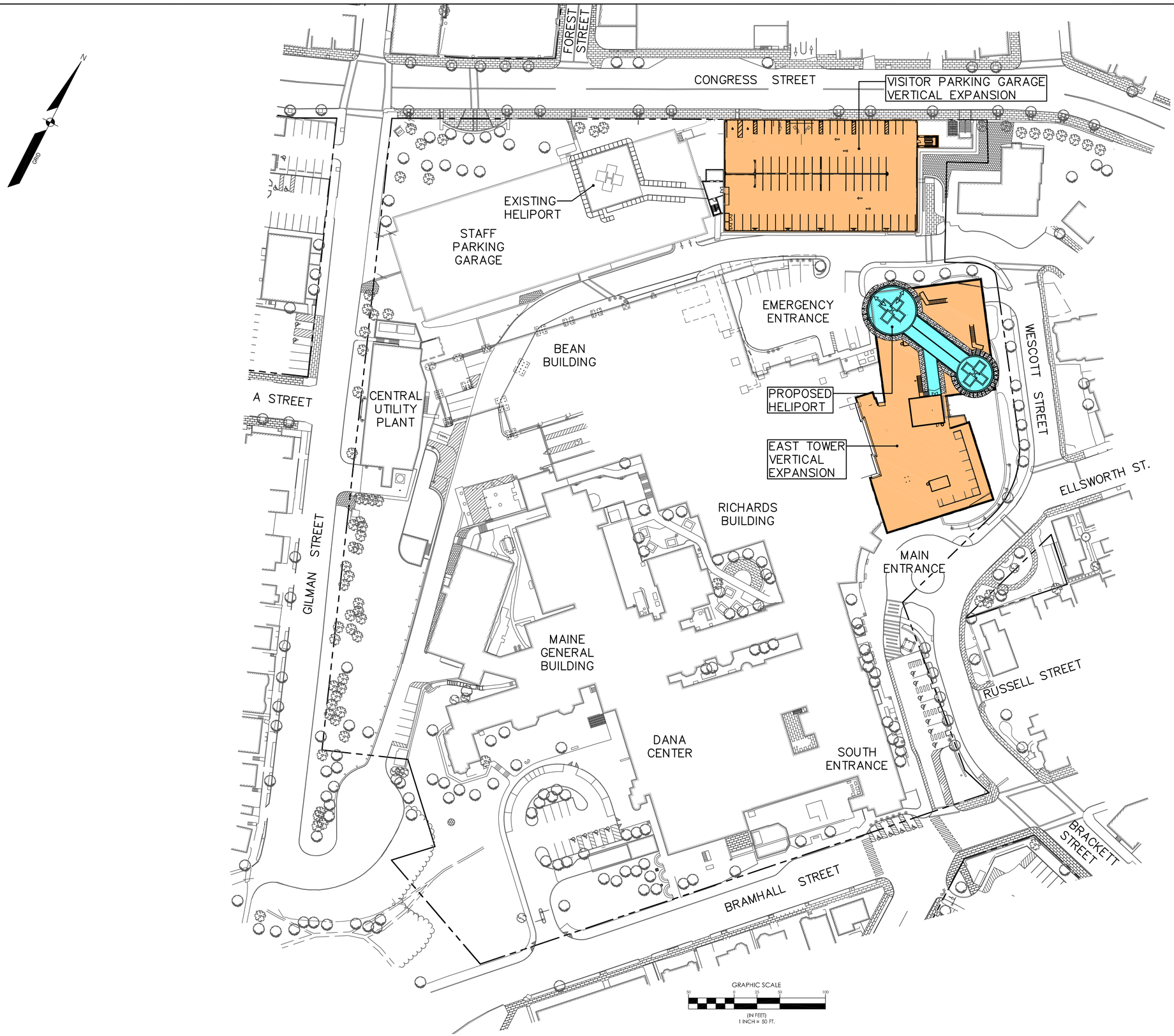
PROJECT NO.	FIELD BOOK	DESIGN	CHKD	DRAWN
01046	791	WTC	MWE	MAL

STREET VACATION/ACCEPTANCE AND LAND TRANSFER PLAN
OF
MAINE MEDICAL CENTER
BRAMHALL STREET
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL STREET
PORTLAND, MAINE 04104

DATE	SCALE
7-12-04	1"=30'

SHEET 2 OF 2

01046SVLT



DESIGNED	CHECKED
WTC	WTC

REV.	BY:	DATE:	STATUS:
A	WTC	12-15-17	CITY SUBMITTAL NO. 1

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SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 1A
South Portland, ME 04106
Tel: 207-200-2100

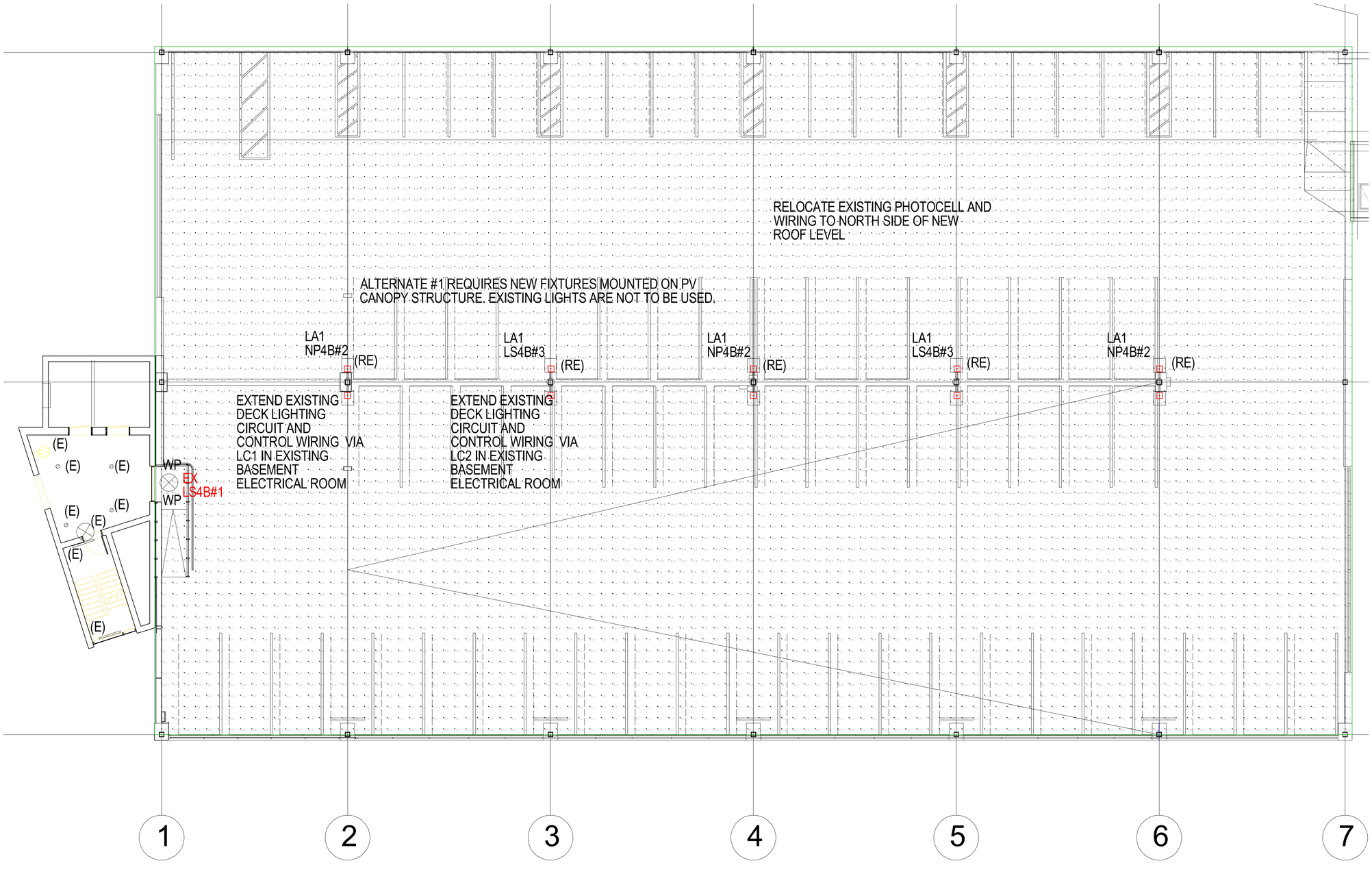
SITE PLAN
OF:
MAINE MEDICAL CENTER - EAST TOWER AND VISITOR GARAGE
22 BRAMHALL STREET
PORTLAND, MAINE
FOR:
MAINE MEDICAL CENTER
22 BRAMHALL STREET
PORTLAND, MAINE 04102

PROJECT NO.	SCALE
15466	1"=50'

SHEET 1 OF 1

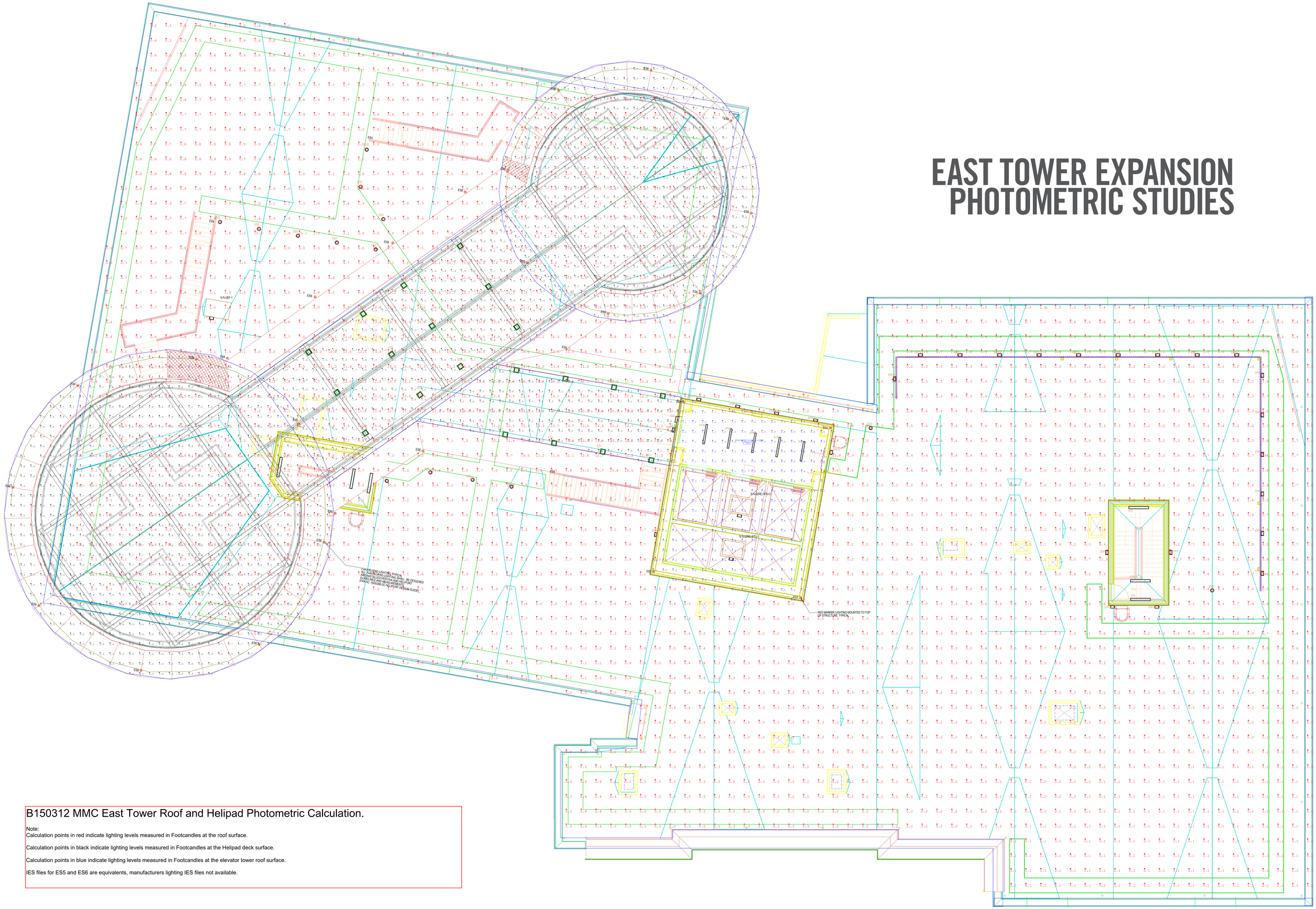
154688.dwg, TAB:SKETCH

VISITOR GARAGE EXPANSION
PHOTOMETRIC STUDIES



PERKINS+WILL

EAST TOWER EXPANSION
PHOTOMETRIC STUDIES



B150312 MMC East Tower Roof and Helipad Photometric Calculation.

Note:
Calculation points in red indicate lighting levels measured in Footcandles at the roof surface.

Calculation points in black indicate lighting levels measured in Footcandles at the Helipad deck surface.

Calculation points in blue indicate lighting levels measured in Footcandles at the elevator tower roof surface.

IES files for ES5 and ES6 are equivalents, manufacturers lighting IES files not available.

PERKINS+WILL

Maine Medical Center
MaineHealth

centered around you

Updated Signage Plan

Site Plan Application #1

East Tower Expansion, Visitor Garage Expansion, Central Utility Plant Upgrade

January 5, 2018

Attached is the updated signage plan for Maine Medical Center's Bramhall Campus. This plan reflects existing conditions. No changes are planned as part of MMC's Site Plan #1 for the East Tower Expansion, Visitor Garage Expansion, and Central Utility Plan upgrade.

Maine Medical Center

PORTLAND CAMPUS

Environmental Graphics & Wayfinding

Exterior Sign System

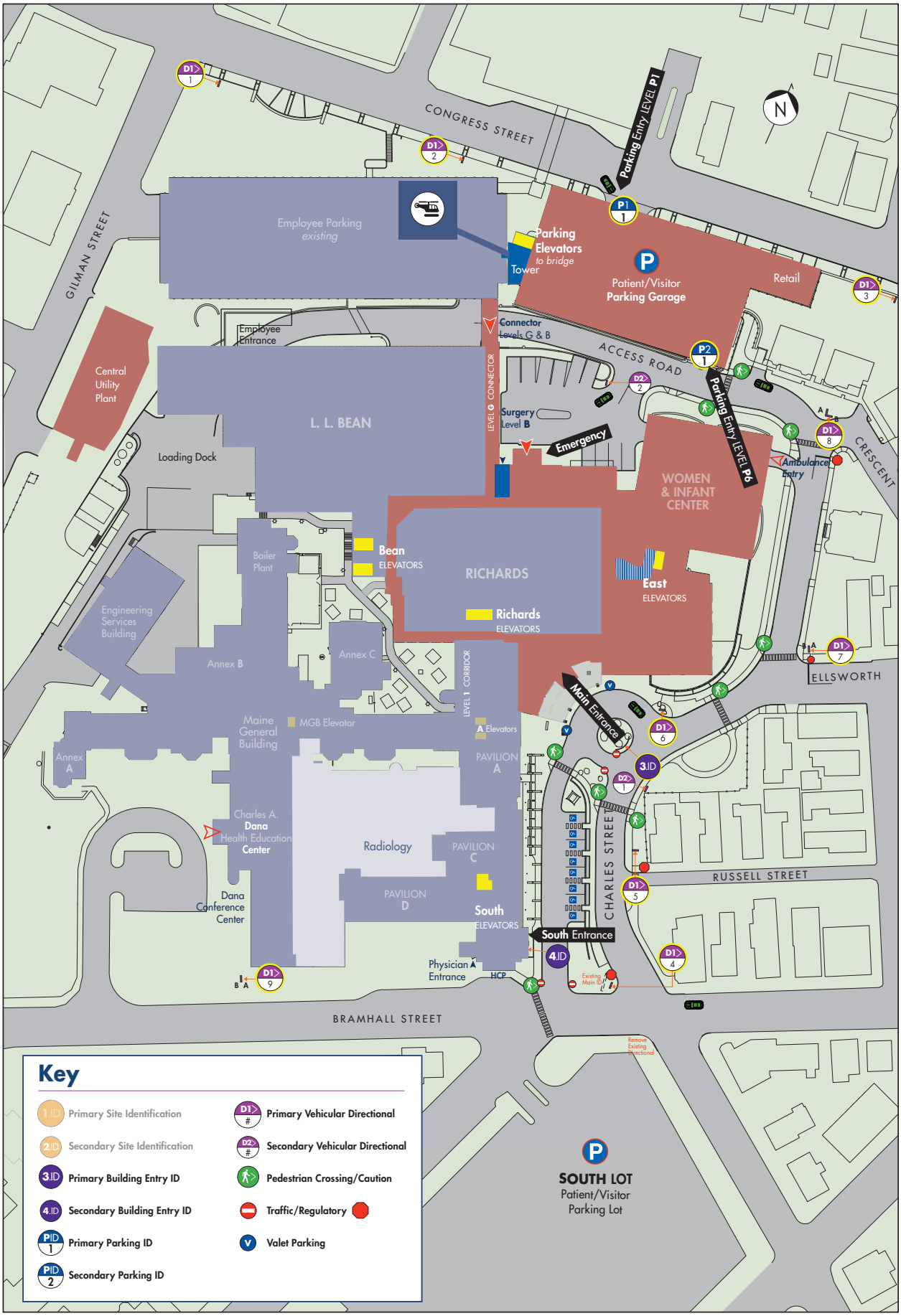
City of Portland Submittal

05 January 2018

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

ARCHITECTURE/INTERIOR DESIGN
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

SITE/LANDSCAPE
Sebago Technics
1 Chabot Street
Westbrook ME 04092
✆ 207.856.0277



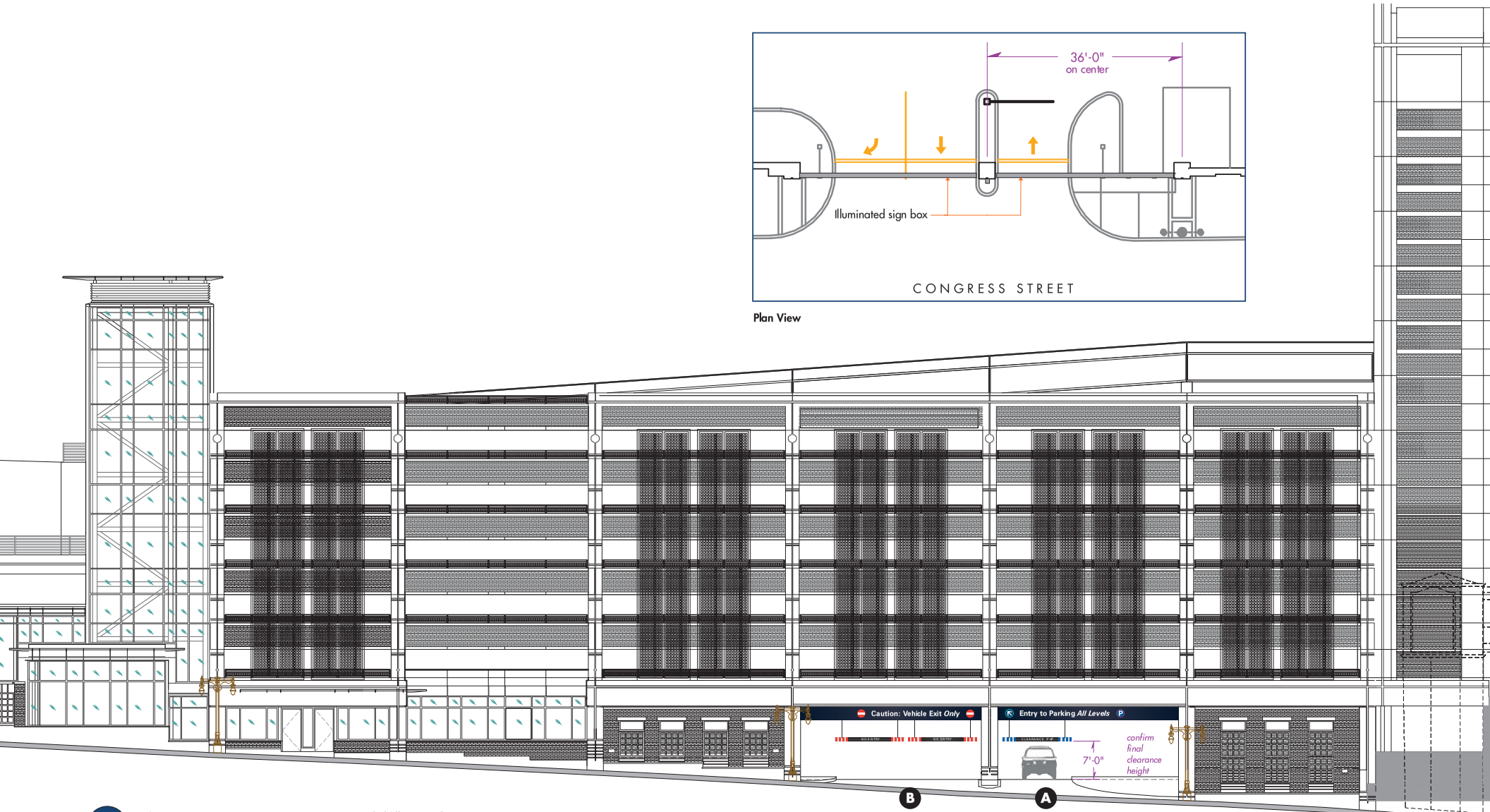
Maine Medical Center
PORTLAND CAMPUS
2008

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

DRAWING TITLE
Exterior Sign Location Plan
Campus Wayfinding
Scale: as shown
22 April 2008

DRAWING N°
SLP. 1

Plan View



P1
A
Parking Garage Entry ID 1 Congress Street *suspended/illuminated*
Scale: 1/16" = 1'-0"

Maine Medical Center
MaineHealth
SIGN STANDARDS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

DRAWING TITLE
Parking Garage Entry ID *Congress Street*
Sign boxes/internally illuminated
Scale: as shown
29 October 2009

DRAWING N°
P1.1

Marquee Sign *projecting/double sided*
Grid armature fabricated from 4" square aluminum extrusion with horizontal 3" sq. steel structural supports; MPC paint color: "Satin Aluminum" to match new exterior signs; "PARK" letterforms are 1/4" clear "push-thru" graphics in colors shown captured by 5" deep satin aluminum disks; Disks internally illuminated by LED and mounted flush to grid structure. Price static sign box or changeable LED message boards as options.

1 **Parking Garage Entry ID** *view eastward up Congress Street*
Scale: relative to image

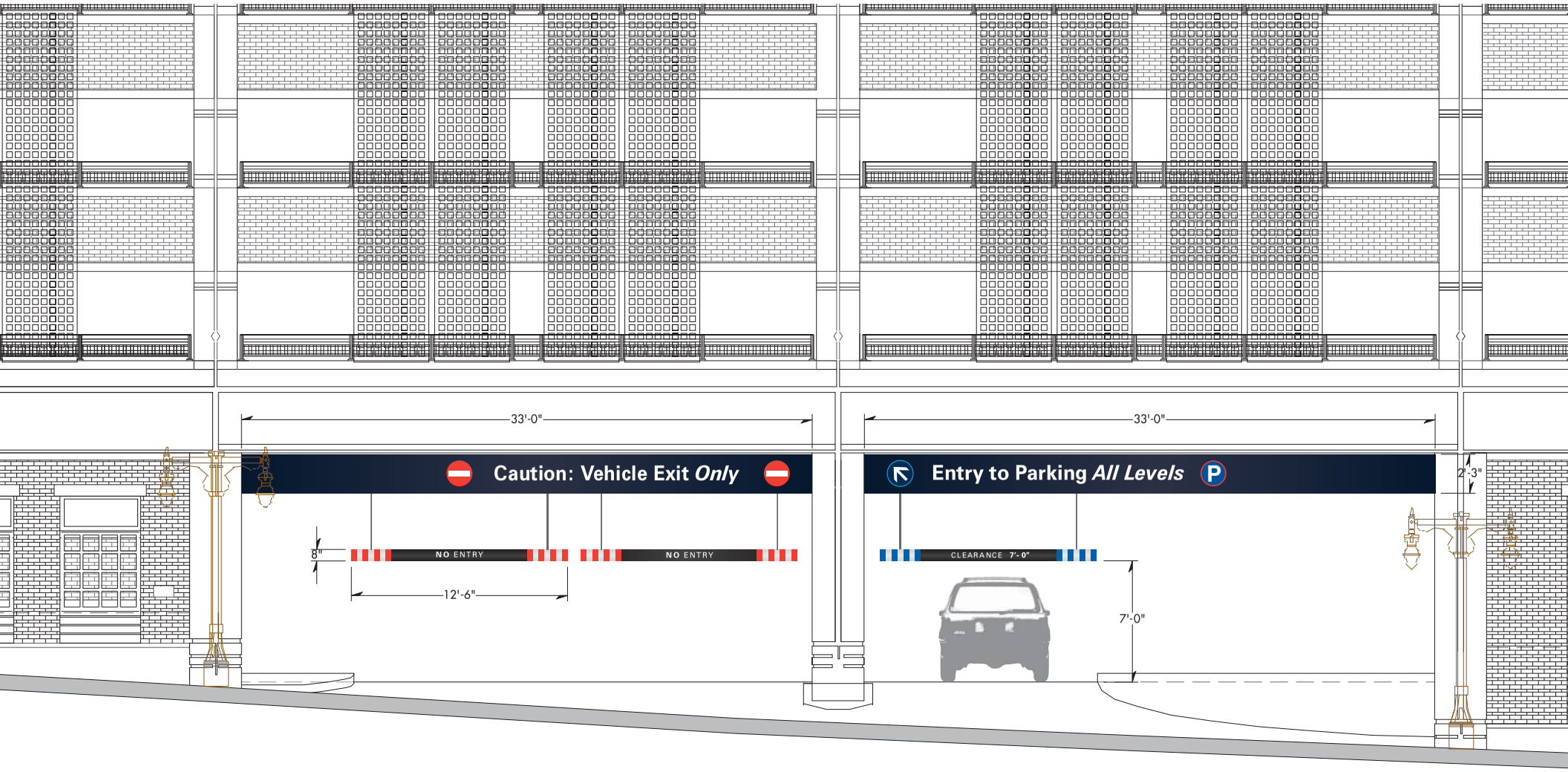
P1 B **Parking Garage Entry ID** *view across Congress Street*
Scale: relative to image

Maine Medical Center
MaineHealth
SIGN STANDARDS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

DRAWING TITLE
Parking Garage Marquee *Congress Street*
Disks/signs on grid armature: LED illuminated
Scale: as shown
16 October 2008

DRAWING N°
P1.2



P1 C **Parking Garage Entry ID 1** Congress Street *dimensions/detail*
Scale: 3/16" = 1'-0"

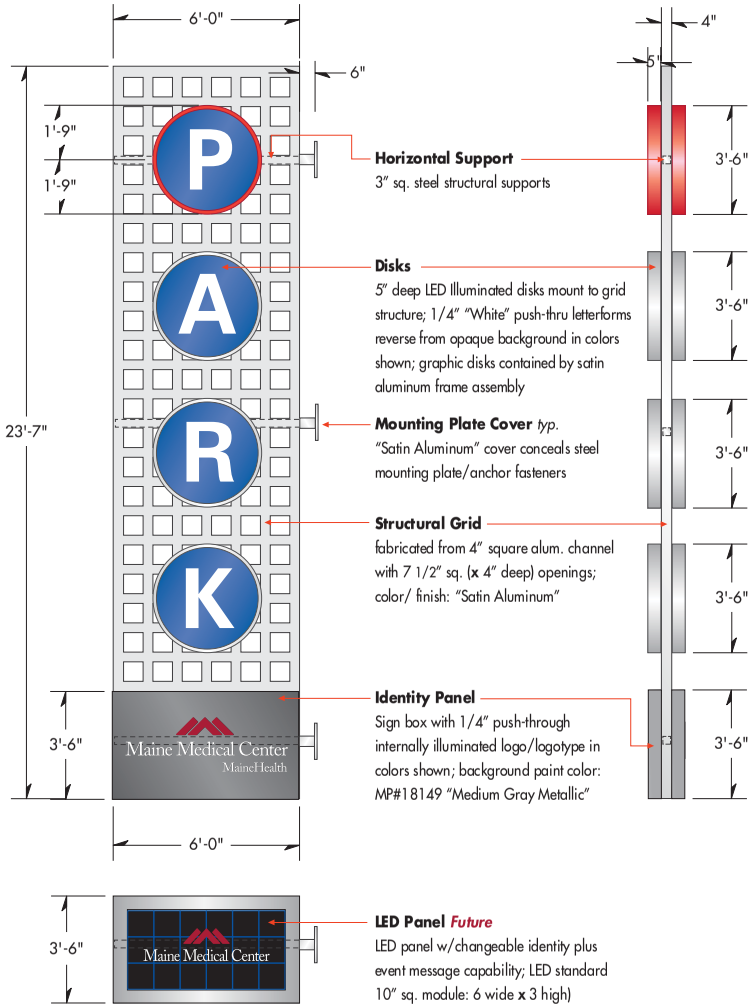
Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

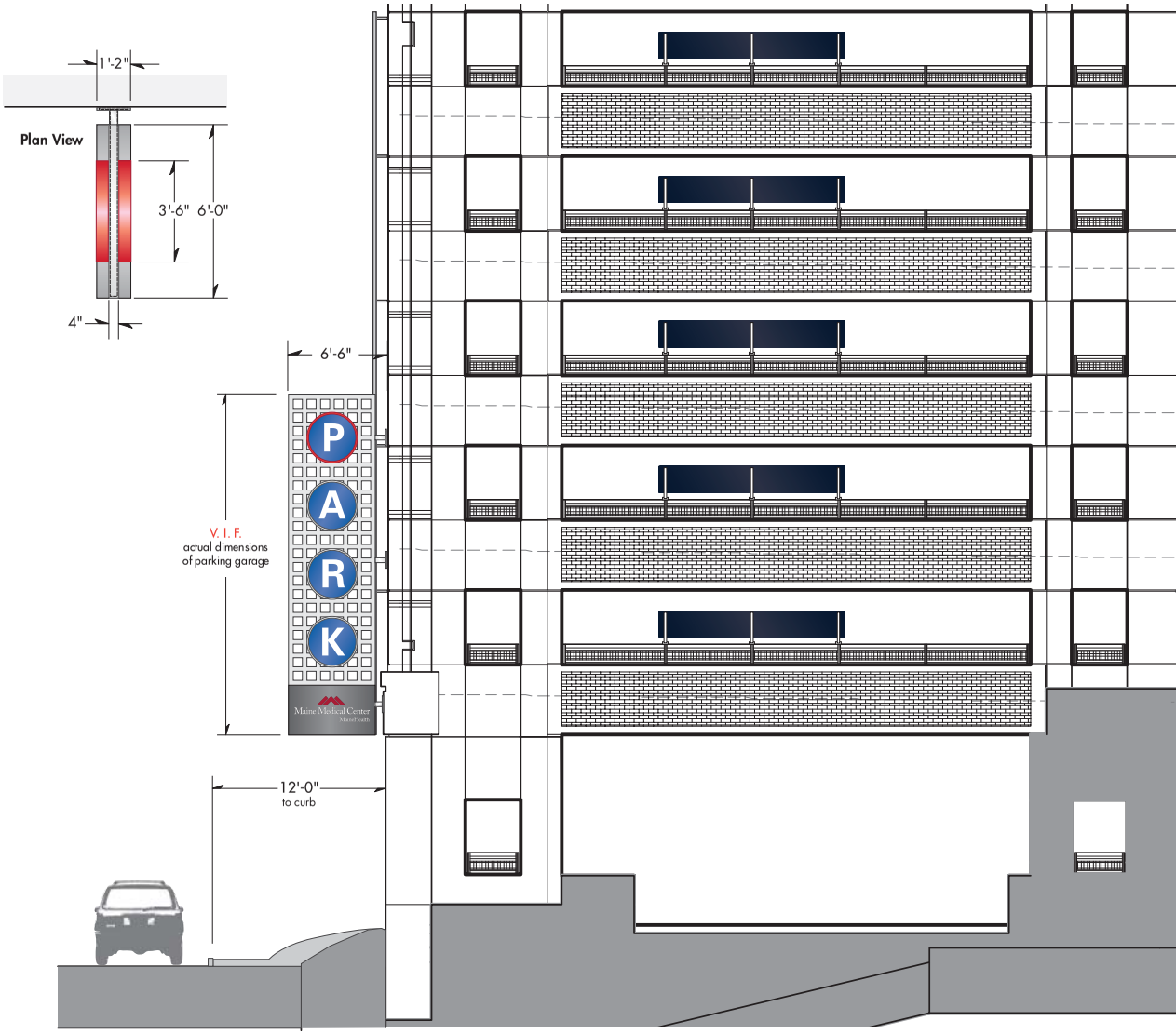
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Parking Garage Entry ID *Congress Street*
Sign box/clearance bar dimensions
Scale: as shown
22 April 2008

DRAWING N°
P1.3



A **Projecting Parking Entry ID** Side/Front Elevation *Revised* **End View**
Scale: 1/4" = 1'-0"



PID 1A **Projecting Parking Entry ID** view up Congress Street *illuminated/dimensional*
Scale: 1/8" = 1'-0"

Maine Medical Center
MaineHealth
SIGN STANDARDS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

DRAWING TITLE
Parking Entry ID *Final*
Projecting marquee: dimensional/illuminated
Scale: as shown
24 March 2009

DRAWING N°
PID.1

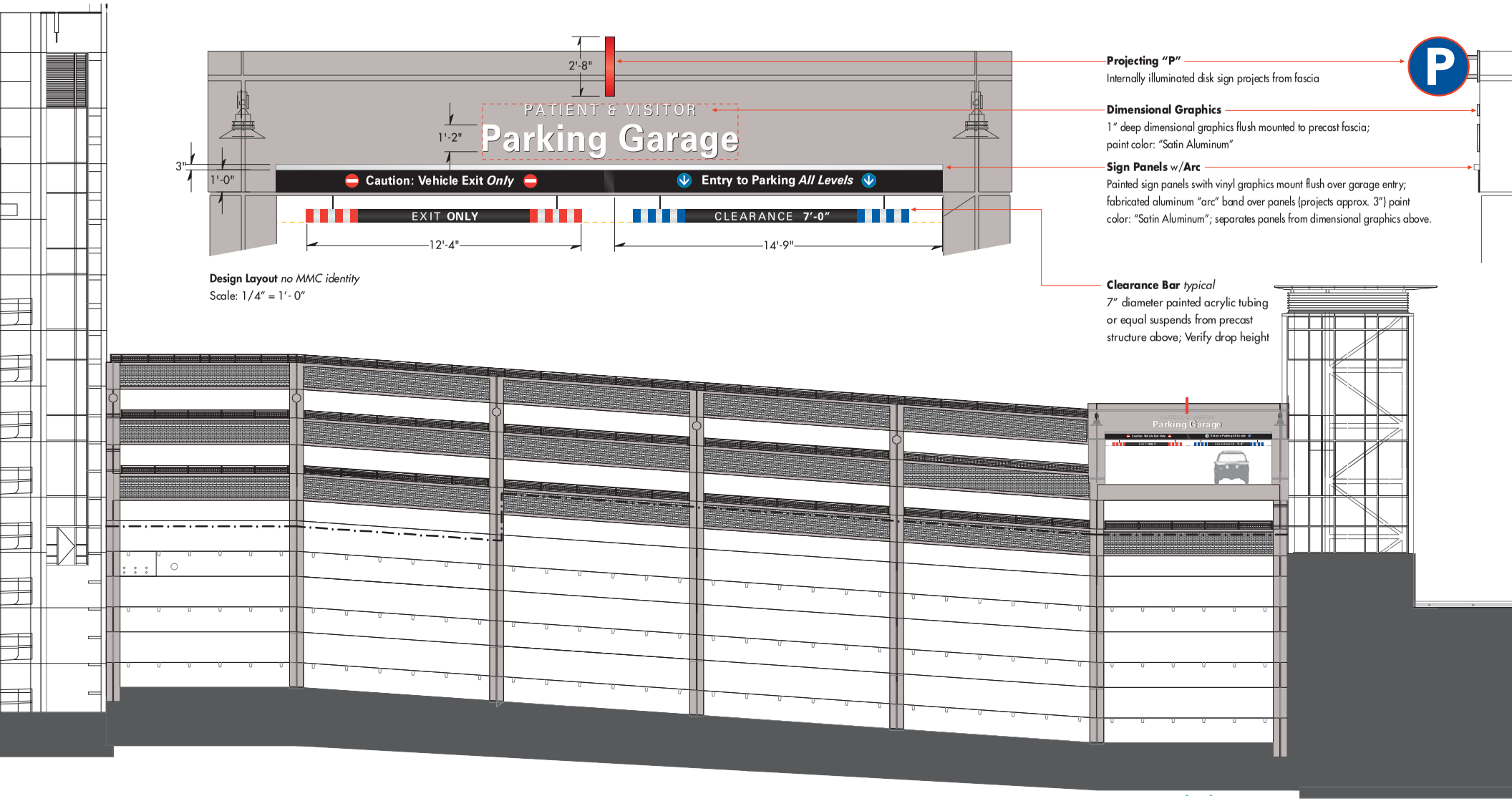
Design Layout *no MMC identity*
Scale: 1/4" = 1'- 0"

Projecting "P"
Internally illuminated disk sign projects from fascia

Dimensional Graphics
1" deep dimensional graphics flush mounted to precast fascia; paint color: "Satin Aluminum"

Sign Panels w/**Arc**
Painted sign panels swith vinyl graphics mount flush over garage entry; fabricated aluminum "arc" band over panels (projects approx. 3") paint color: "Satin Aluminum"; separates panels from dimensional graphics above.

Clearance Bar *typical*
7" diameter painted acrylic tubing or equal suspends from precast structure above; Verify drop height



P2
1
Parking Garage Secondary Entry ID South Elevation *dimensional graphics w/illuminated disk*
Scale: 1/16" = 1'-0"

Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Secondary Parking ID/Entry *at Level P6*
Fascia mounted w/illuminated disk
Scale: as shown
22 April 2008

DRAWING N°
P2.1

Projecting Sign
Parking symbol disk projects from concrete column; internally-illuminated/double-sided

Dimensional Graphics
Non-illuminated dimensional graphics/panels flush mounted to concrete fascia.

Sign Panel
Sign panels with vinyl graphics mount flush over parking garage entry; 3" arc band above panels; color: "Satin Aluminum"

Clearance Bar *typical*
Painted plastic tube with vinyl graphics suspended from ceiling; graphic layout shown on dwg. #P2.1; clearance height TBD

Level ID
Painted sign panel with vinyl graphics

P2
1
Secondary Parking Garage Entry ID on internal Access Road *projecting/dimensional*
Scale: relative to image

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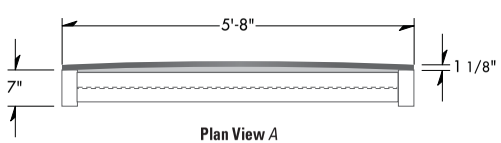
ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

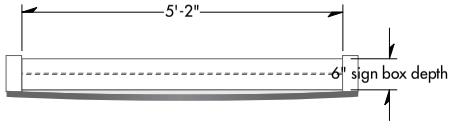
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Secondary Parking Entry ID *at Level P6*
Sign graphics mounted to fascia
Scale: as shown
31 March 2008

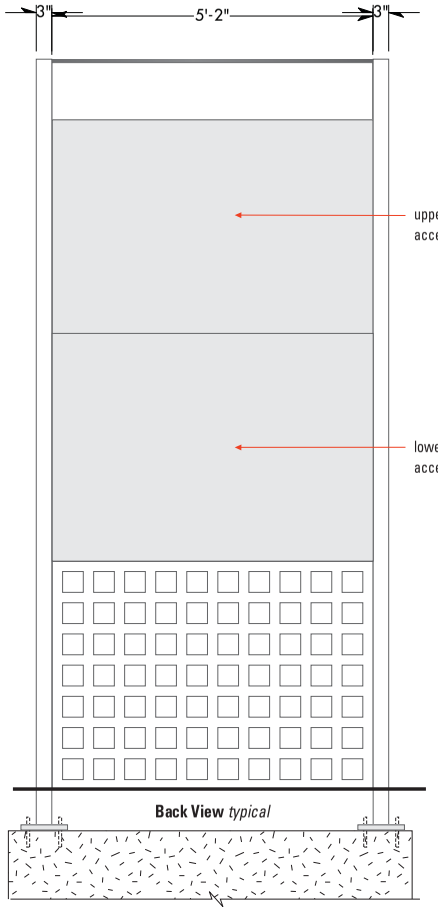
DRAWING N°
P2.2



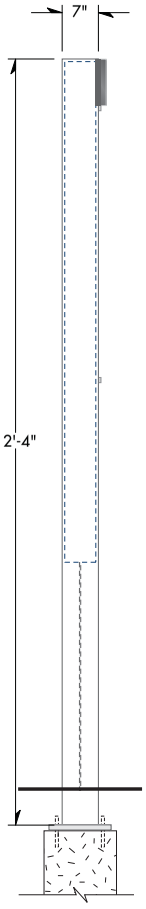
Plan View *A*



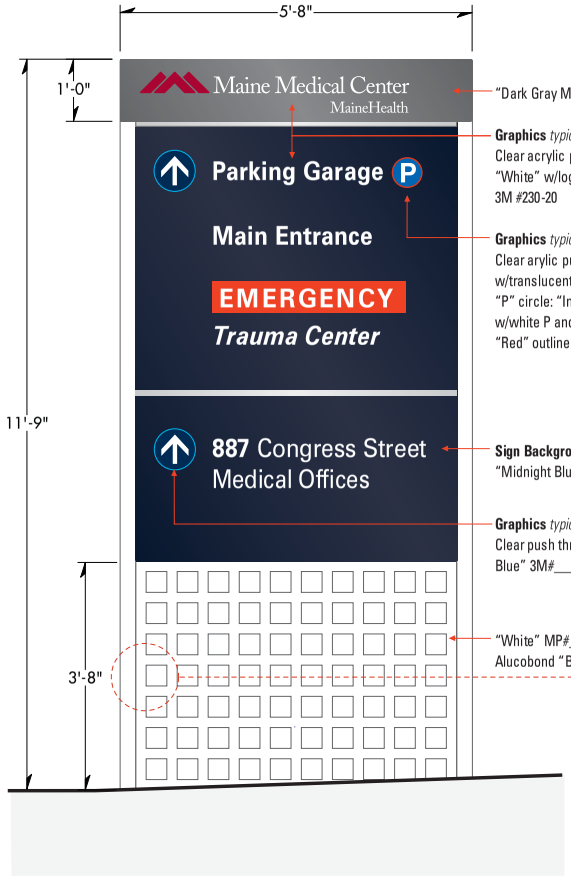
Plan View B



Back View *typical*



Side View



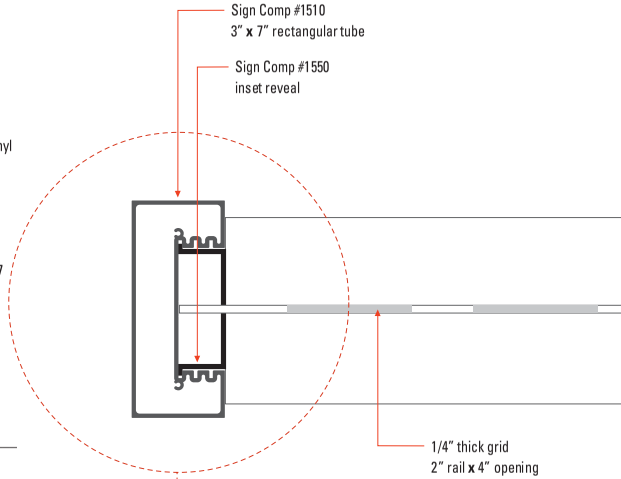
Graphics *typical*
Clear acrylic push-thru graphics
"White" w/logo "Red" translucent vinyl
3M #230-20

Graphics *typical*
Clear arylic push-thru circle w/
w/translucent vinyl graphics;
"P" circle: "Intense Blue" 3M #220-47
w/white P and translucent
"Red" outline 3M #230-33

Sign Background
"Midnight Blue Metallic" MP#_____

Graphics *typical*
Clear push through circle w/ "Bright
Blue" 3M#_____ outline

"White" MP#_____ color to match
Alucobond "Birch" #B2000-D



D1 / B **Sign Post/Grid** *Detail*
Scale: 3" = 1'- 0"

D1 / 1 **Primary Directional Sign 1**
Scale: 1/2" = 1'-0"

Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

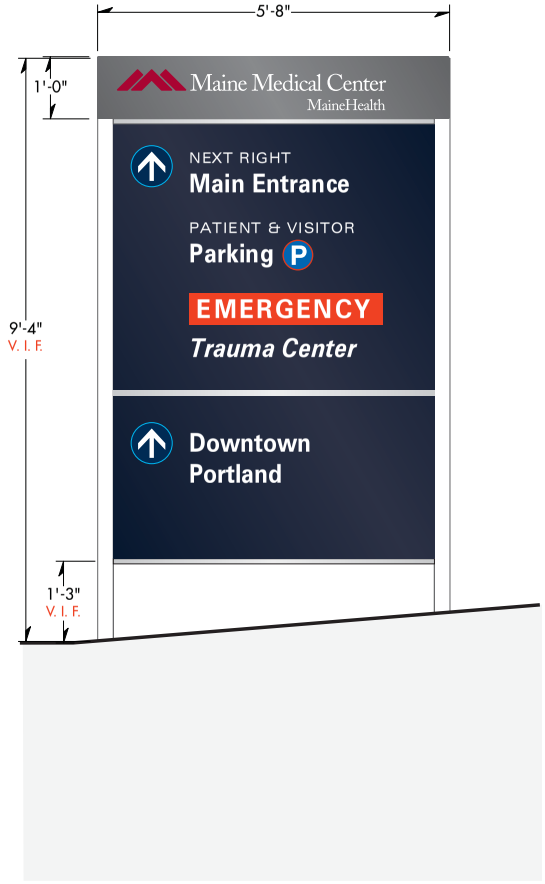
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Primary Directional 1
Freestanding/illuminated
Scale: as shown
22 April 2008

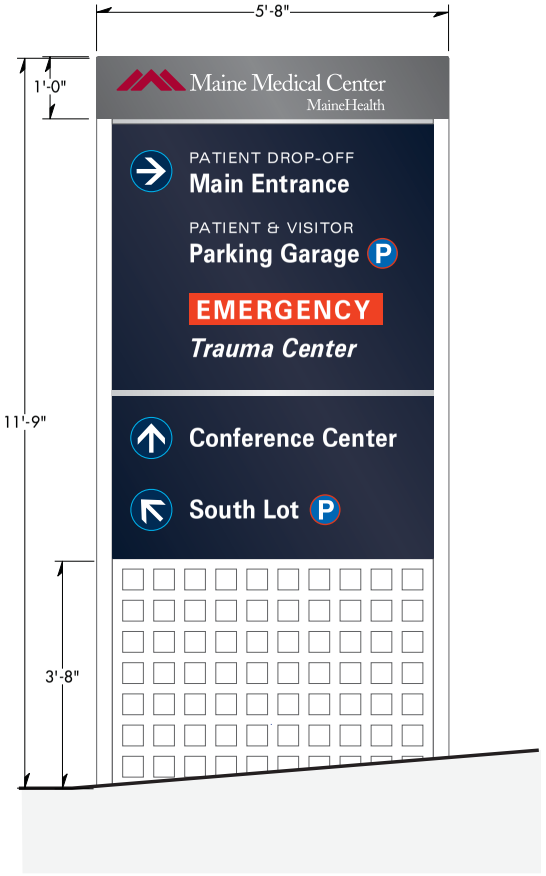
DRAWING N°
D1.1

Top View *typical*

D1 2 **Primary Directional Sign** *D1-2*
Scale: 1/2" = 1'-0"



D1 3 **Primary Directional Sign** *D1-3*
Scale: 1/2" = 1'-0"



D1 4 **Primary Directional Sign** *D1-4*
Scale: 1/2" = 1'-0"

Maine Medical Center
PORTLAND CAMPUS

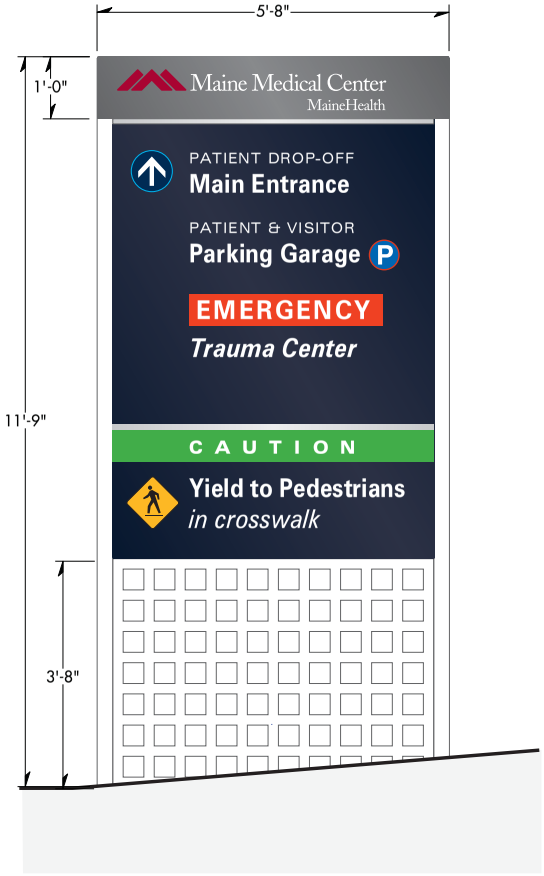
ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

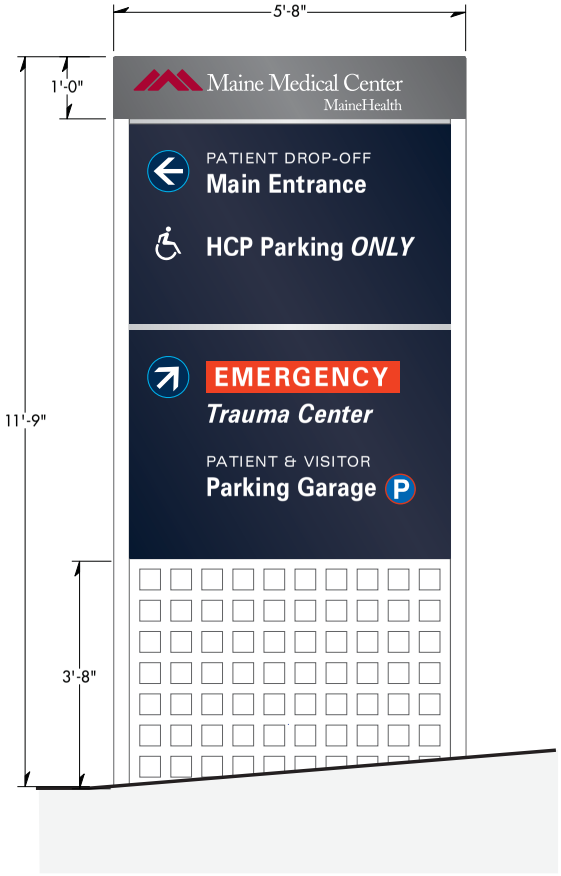
DRAWING TITLE
Primary Directional Sign + *Trauma Center*
Freestanding/illuminated
Scale: as shown
22 April 2008

DRAWING N°
D1.2-4

Top View *typical*



D1 5 **Primary Directional Sign** *D1-5*
Scale: 1/2" = 1'-0"



D1 6 **Primary Directional Sign** *D1-6*
Scale: 1/2" = 1'-0"

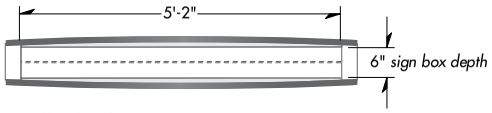
Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

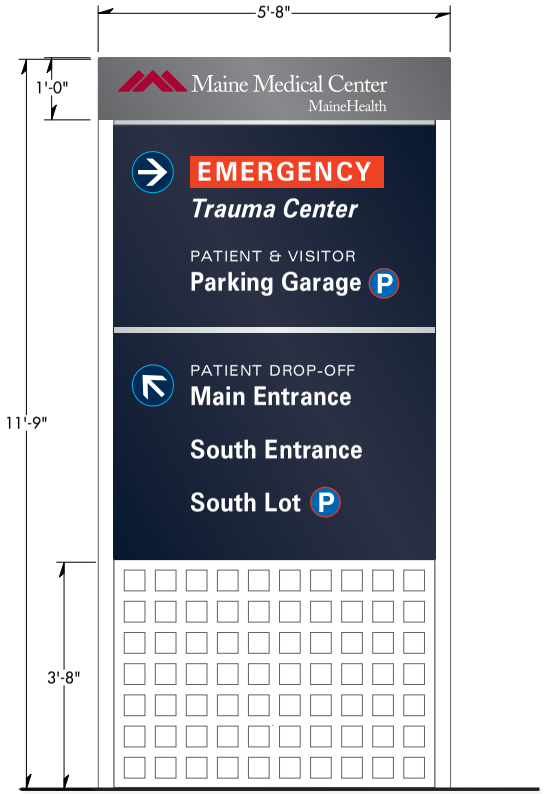
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Primary Directional Sign
Freestanding/illuminated
Scale: as shown
22 April 2008

DRAWING N°
D1.5-6

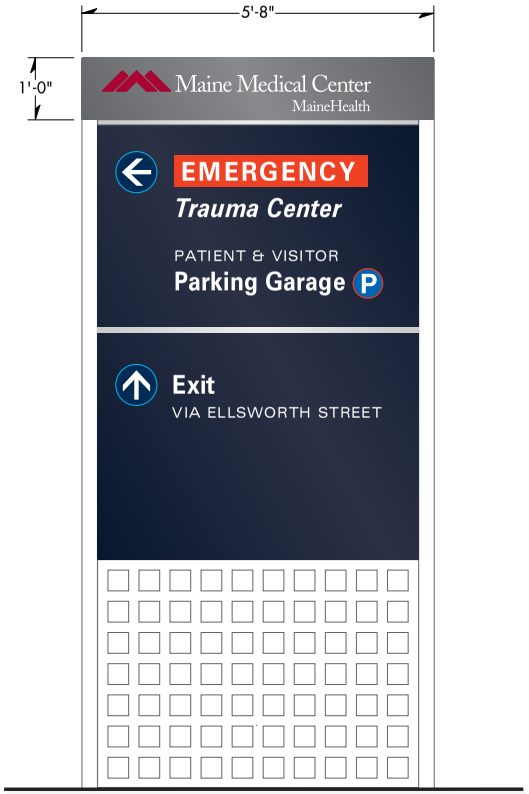


Top View *D1.7 double-sided*



Side A

D1 7 **Primary Directional Sign** Double-sided *D1-7 side A*
Scale: 1/2" = 1'-0"



Side B

Primary Directional Sign Double-sided *D1-7 side B*
Scale: 1/2" = 1'-0"

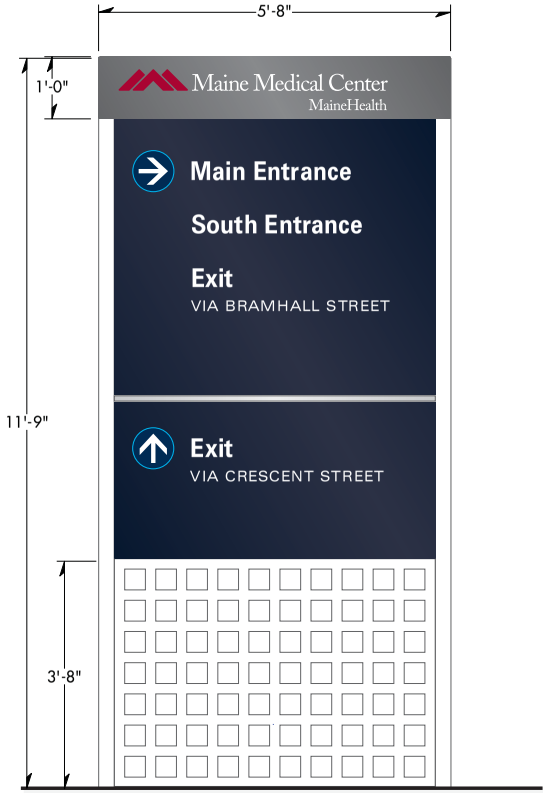
Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

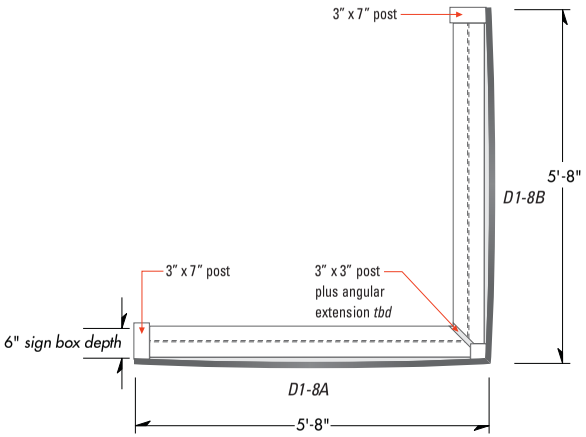
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Primary Directional Sign 7 *double-sided*
Freestanding/illuminated
Scale: as shown
22 April 2008

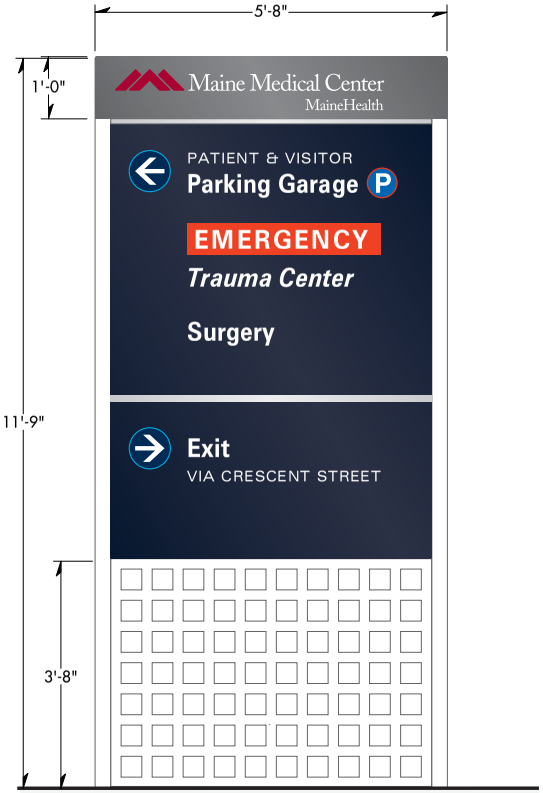
DRAWING N°
D1.7



Side A



Top View *sign location #8*



Side B

D1 8A **Primary Directional Sign** *D1-8A*
Scale: 1/2" = 1'- 0"

D1 8B **Primary Directional Sign** *D1-8B*
Scale: 1/2" = 1'-0"

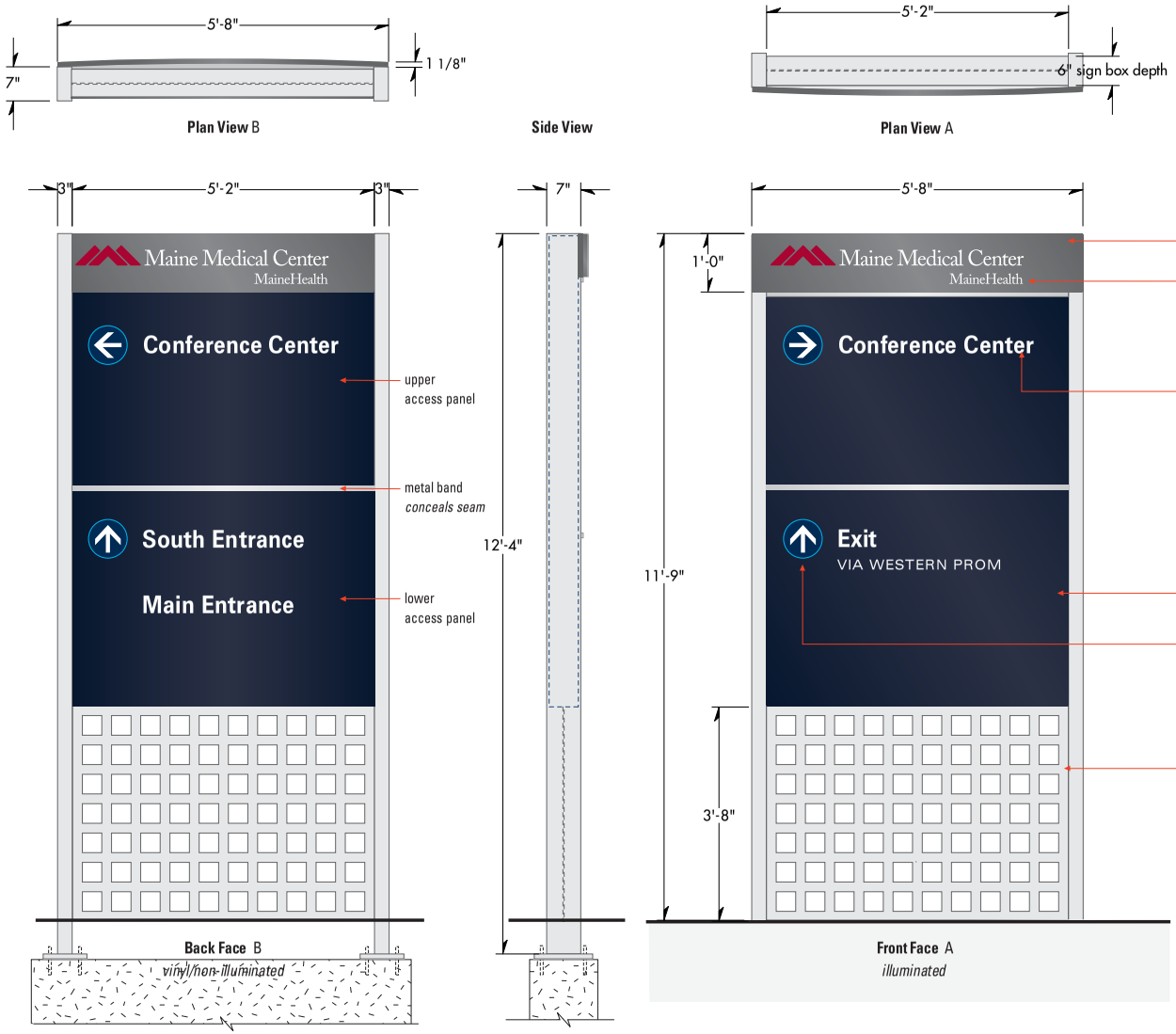
Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Primary Directional Sign *"L" angle sign*
Freestanding/illuminated
Scale: as shown
22 April 2008

DRAWING N°
D1.8



D1 / 9 **Primary Directional Sign** *Revised*
Scale: 1/2" = 1'-0"

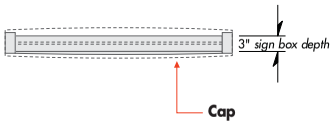
Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

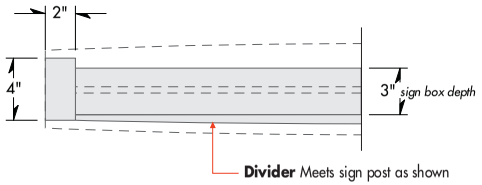
ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Primary Directional Sign 9
Freestanding/illuminated
Scale: as shown
22 April 2008

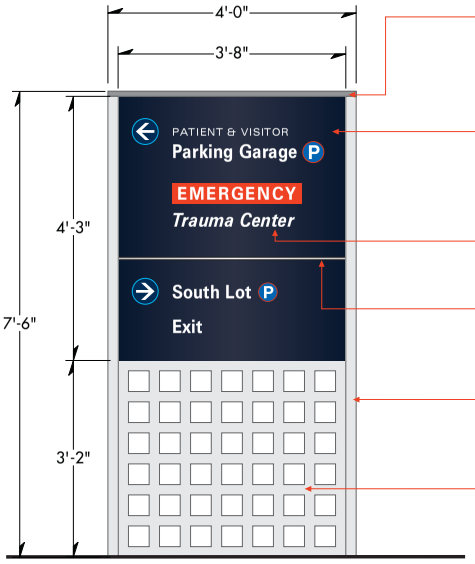
DRAWING N°
D1.9



Top View *typical*



Detail 1 1/2" = 1'-0"



Cap
"Medium Gray Metallic" cap with two curved and two flat edges; mounts at top of sign assembly; cap shown by dashed line above

Sign Cabinet
Painted "Midnight Blue Metallic" sign box with applied graphics; non-illuminated *(give price option for illumination)*

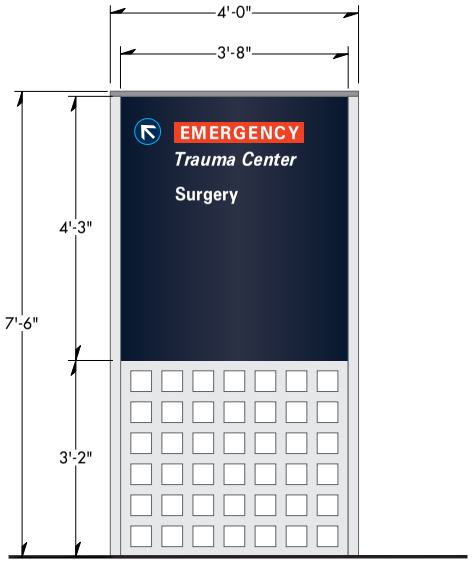
Graphics
Vinyl graphics in colors as shown

Divider
1" "Satin Aluminum" curved divider; placement is determined by sign message

Post
2" HT x 4" D "Satin Aluminum" posts; all conduit/electrical to be concealed within posts

Grid
1/4" panel with grid pattern as shown; 2" bands between 4" open squares; paint "Satin Aluminum"

D2 1 **Secondary Directional Sign**
Scale: 1/2" = 1'-0"



D2 2 **Secondary Directional Sign**
Scale: 1/2" = 1'-0"

Maine Medical Center
PORTLAND CAMPUS

ENVIRONMENTAL GRAPHICS
Gamble Design LLC
154 Maplewood Avenue
Portsmouth NH 03801
✆ 603.427.1300

ARCHITECTURE
TRO|Jung Brannen
22 Boston Wharf Road
Boston MA 02210
✆ 617.502.3400

DRAWING TITLE
Secondary Directional Sign
Freestanding
Scale: as shown
4 April 2008

DRAWING N°
D2.1-2

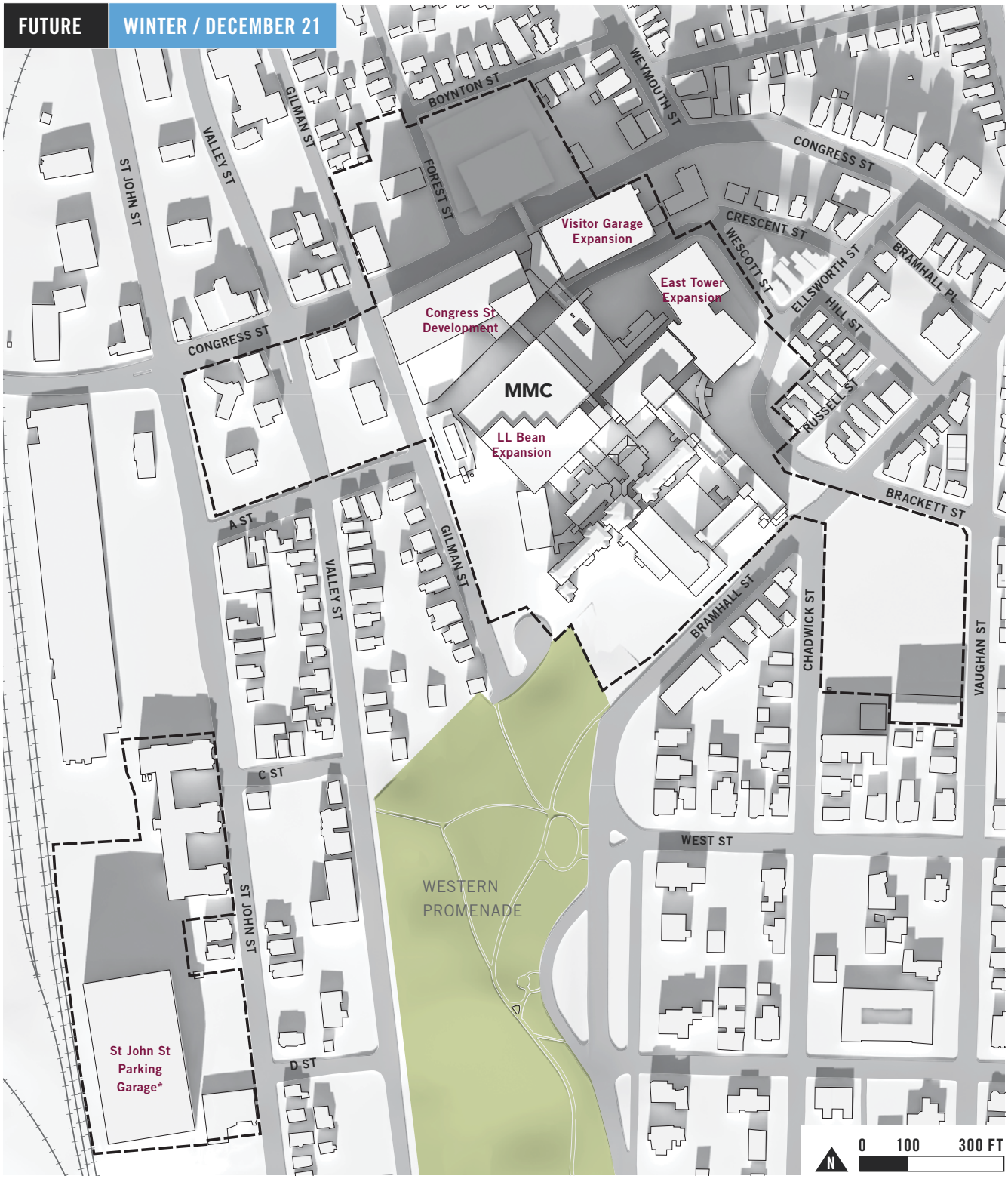
Fig.5.17 Computer-generated shadow study / Existing conditions on June 21, noon

Fig.5.18 Computer-generated shadow study / Proposed long-term projects on June 21, noon

* NOTE: Exact garage location and footprint to be determined during detailed design.

Fig.5.19 Computer-generated shadow study / Existing conditions on December 21, noon

Fig.5.20 Computer-generated shadow study / Proposed long-term projects on December 21, noon



* NOTE: Exact garage location and footprint to be determined during detailed design.

EAST TOWER EXPANSION
LEVEL 6 FLOOR PLAN

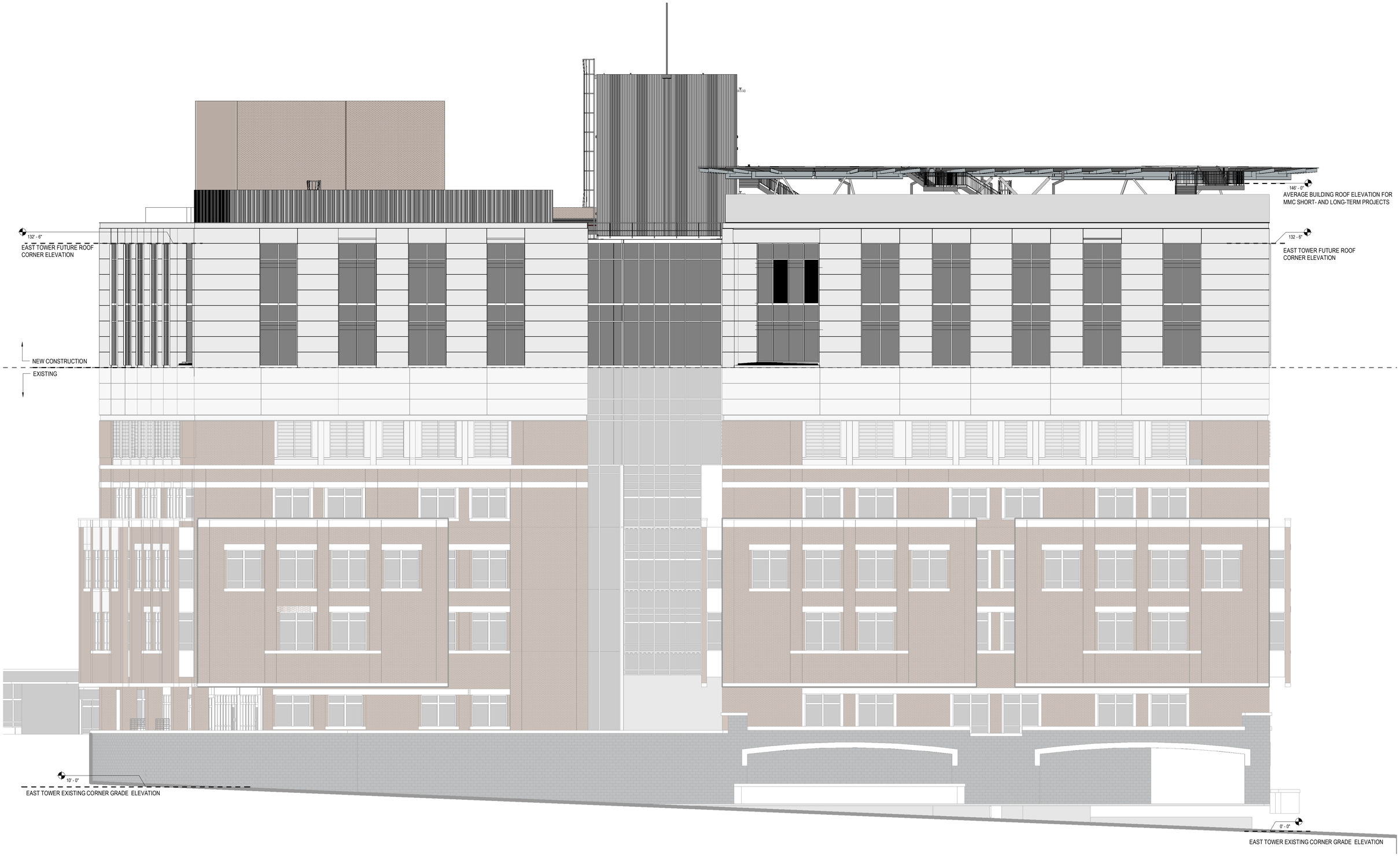
SCALE 1/8" = 1'-0"

PATIENT ROOM 252 SF
PATIENT ROOM 254 SF
PATIENT ROOM 243 SF
PATIENT ROOM 248 SF
PATIENT ROOM 245 SF
PATIENT ROOM 242 SF
PATIENT ROOM 245 SF
PATIENT ROOM 258 SF
PATIENT ROOM 251 SF
PATIENT ROOM 258 SF
PATIENT ROOM 265 SF
PATIENT ROOM 264 SF
PATIENT ROOM 253 SF
PATIENT ROOM 251 SF
PATIENT ROOM 258 SF
PATIENT ROOM 247 SF
PATIENT ROOM 258 SF
PATIENT ROOM 314 SF
PATIENT ROOM 268 SF
PATIENT ROOM 249 SF
PATIENT ROOM 251 SF
PATIENT ROOM 246 SF
PATIENT ROOM 253 SF
PATIENT ROOM 243 SF
PATIENT ROOM 245 SF
PATIENT ROOM 260 SF
PATIENT ROOM 262 SF
PATIENT ROOM 261 SF
TOILET (PATIENT) 74 SF
TOILET (PATIENT) 49 SF
TOILET (PATIENT) 49 SF
TOILET (PATIENT) 49

EAST TOWER EXPANSION
LEVEL 7 FLOOR PLAN

SCALE 1/8" = 1'-0"

PERKINS+WILL



1/8" = 1'-0"

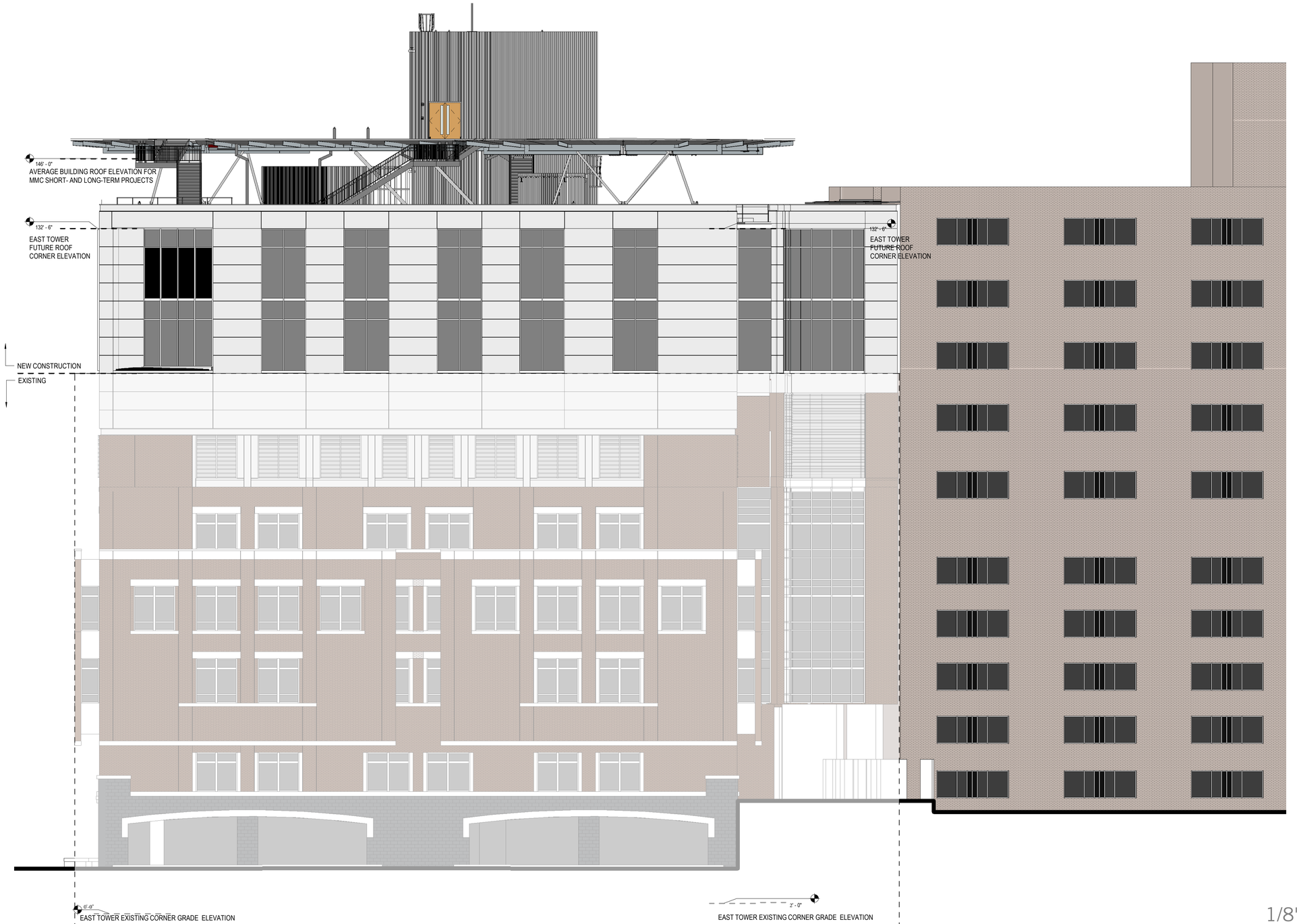
Maine Medical Center
MaineHealth

East Tower 6 & 7 Addition

EAST ELEVATION

PERKINS+WILL

12/28/2017 11:14:55
AM



1/8" = 1'-0"

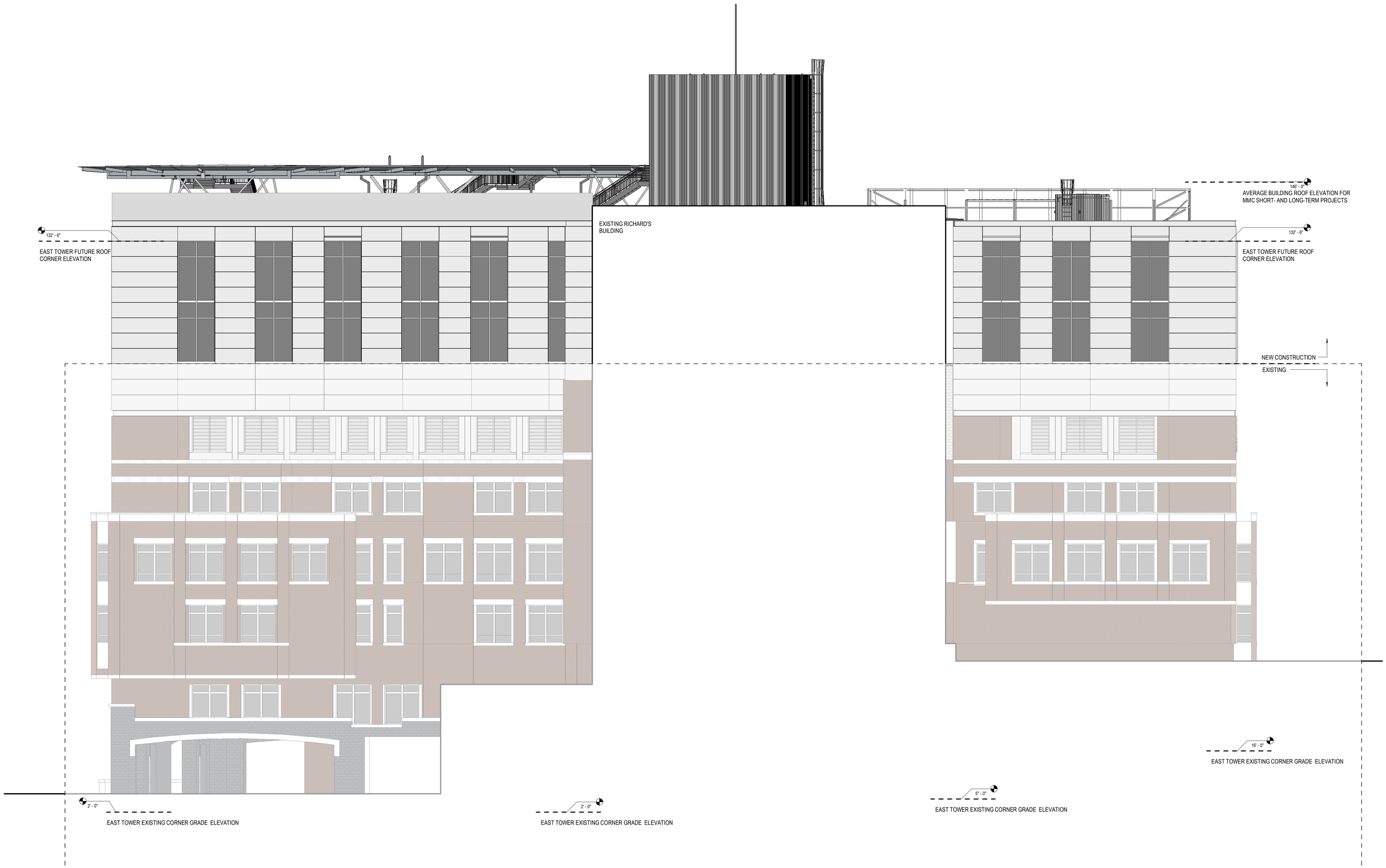
Maine Medical Center
MaineHealth

East Tower 6 & 7 Addition

NORTH ELEVATION

PERKINS+WILL

12/28/2017 11:16:37
AM



1/8" = 1'-0"

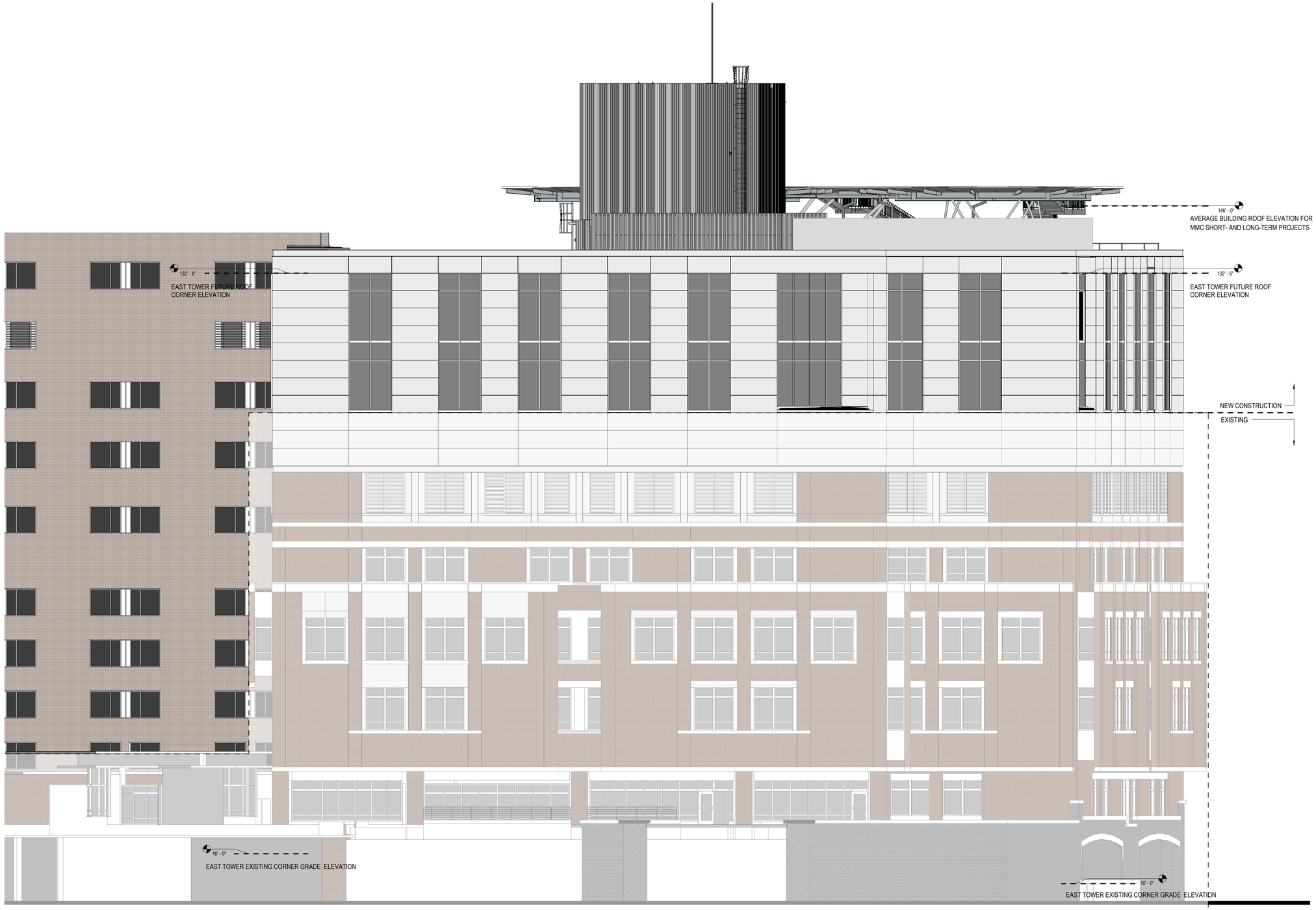
Maine Medical Center
MaineHealth

East Tower 6 & 7 Addition

WEST ELEVATION

PERKINS+WILL

12/28/2017 11:15:25 AM



1/8" = 1'-0"

Maine Medical Center
MaineHealth

East Tower 6 & 7 Addition

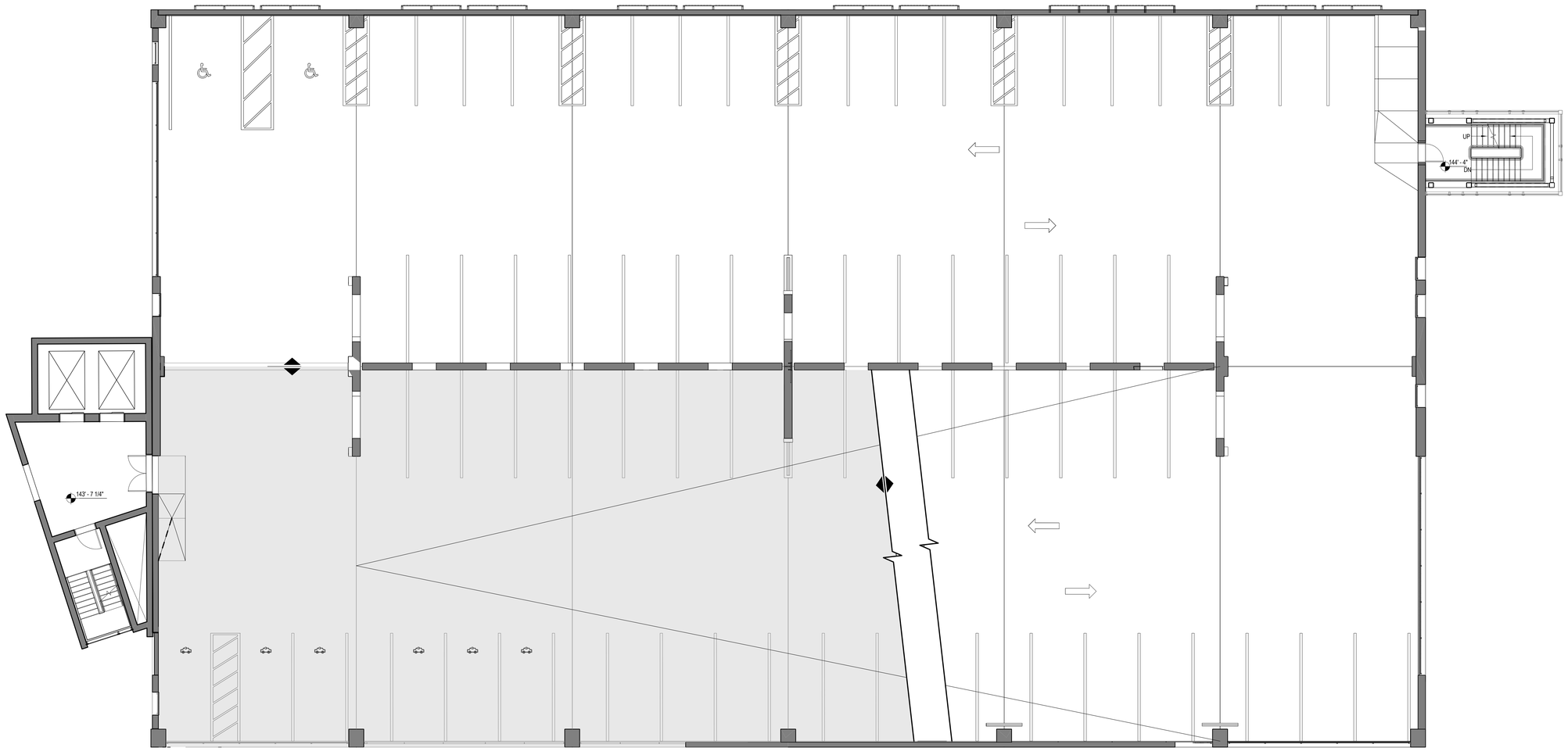
SOUTH ELEVATION

PERKINS+WILL

12/28/2017 11:15:58 AM

VISITOR GARAGE EXPANSION
LEVEL P8 FLOOR PLAN

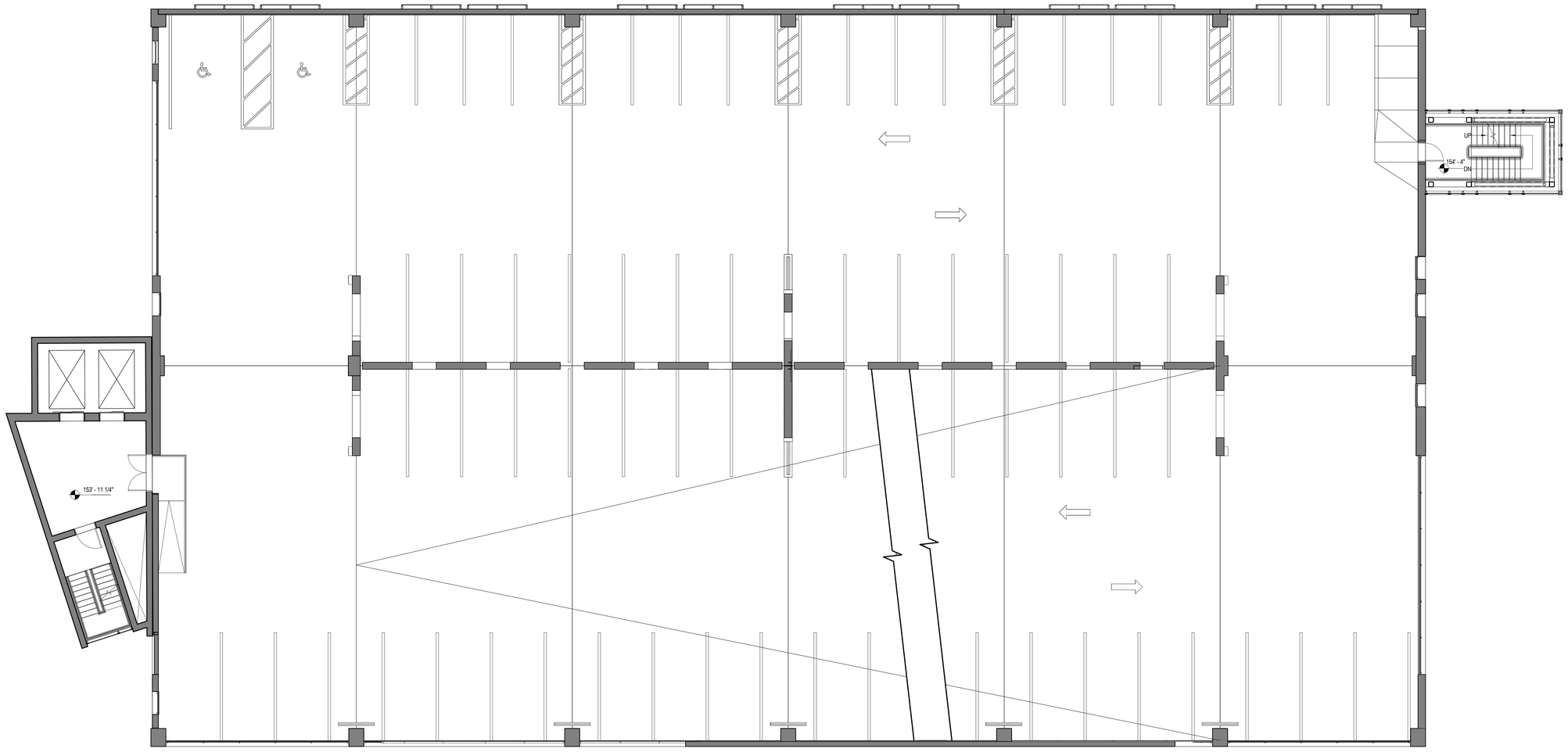
SCALE 1/8" = 1'-0"



PERKINS+WILL

VISITOR GARAGE EXPANSION
LEVEL P8 FLOOR PLAN

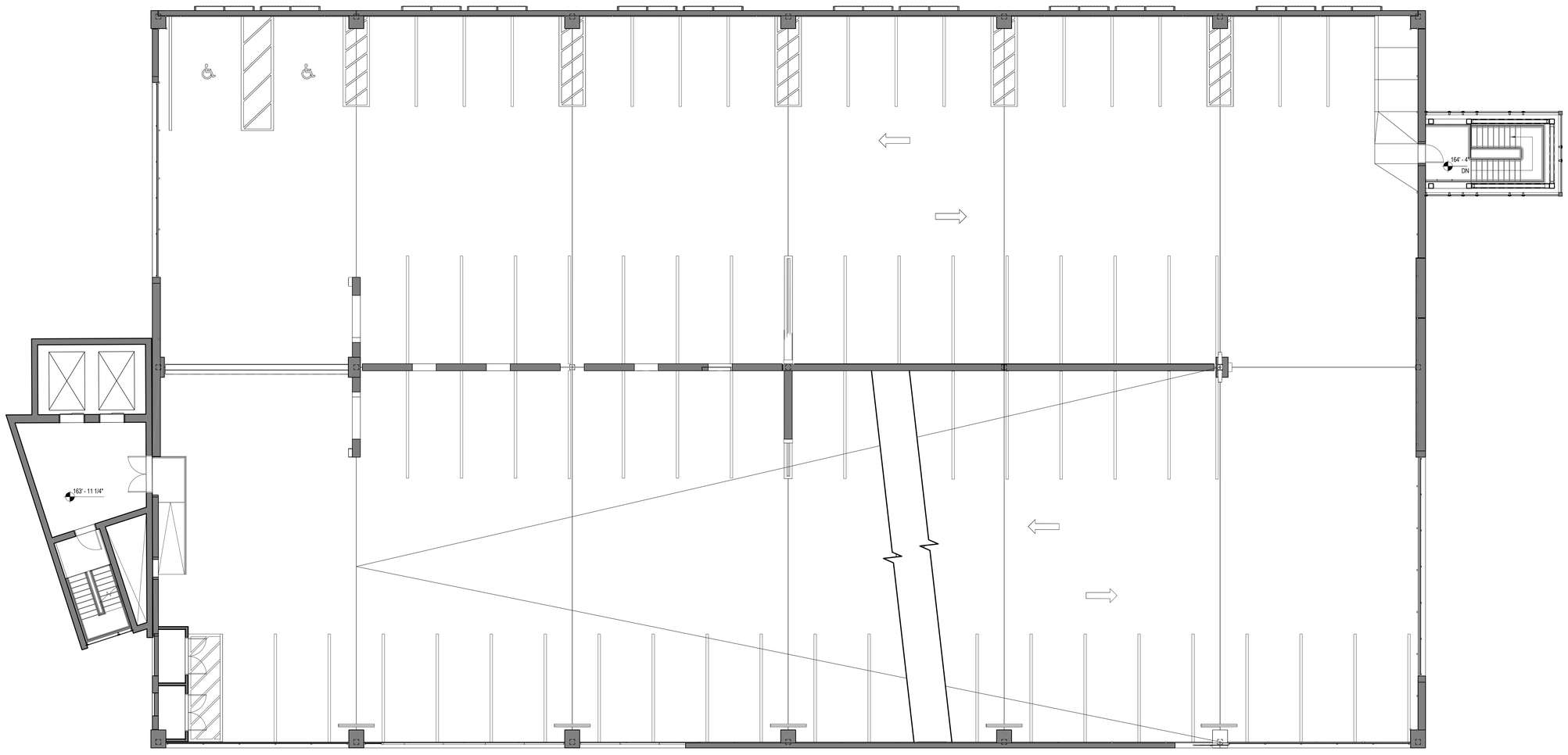
SCALE 1/8" = 1'-0"



PERKINS+WILL

VISITOR GARAGE EXPANSION
LEVEL P10 FLOOR PLAN

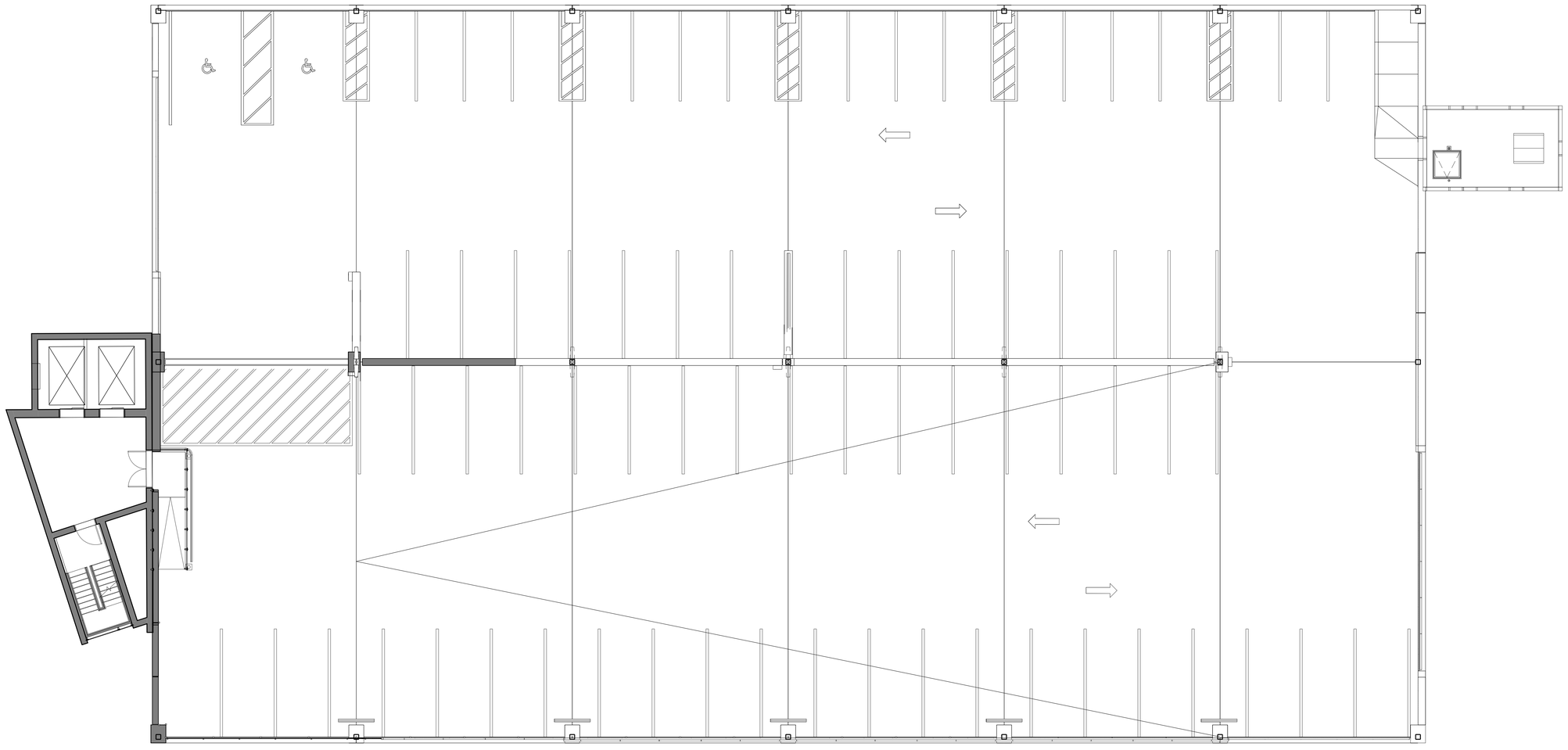
SCALE 1/8" = 1'-0"



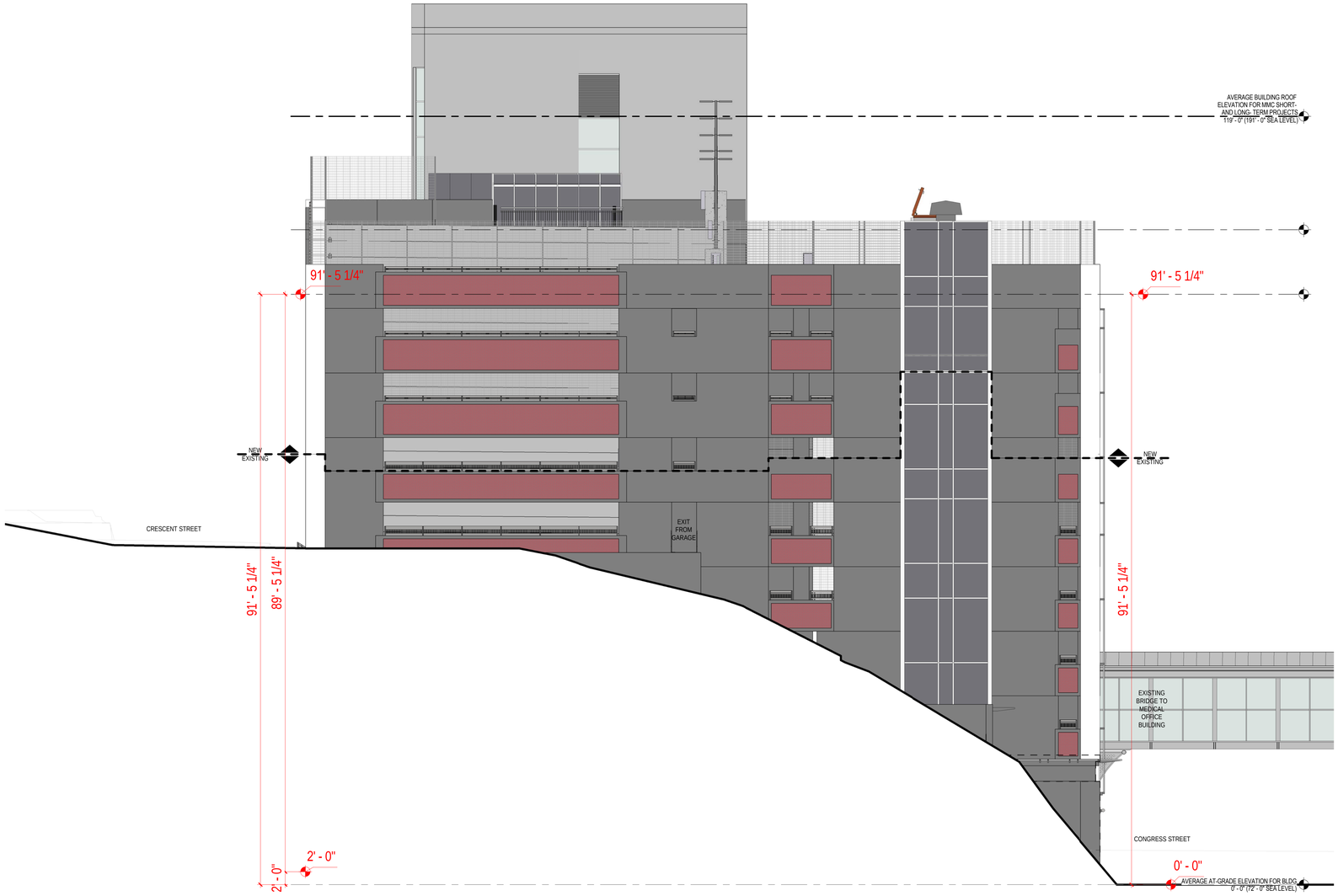
PERKINS+WILL

VISITOR GARAGE EXPANSION
LEVEL P11 FLOOR PLAN

SCALE 1/8” = 1’-0”



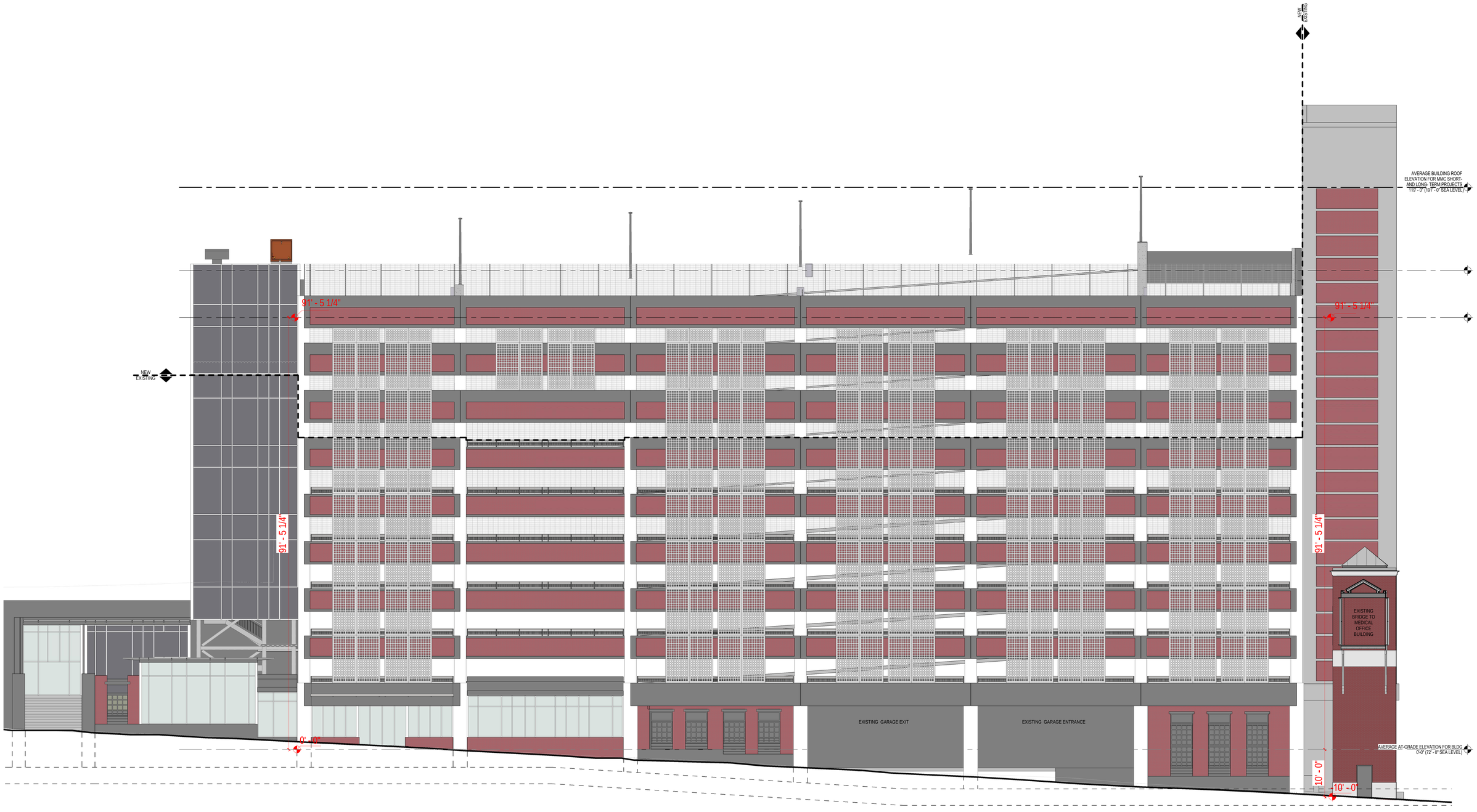
PERKINS+WILL



Visitor Garage Expansion

EAST ELEVATION

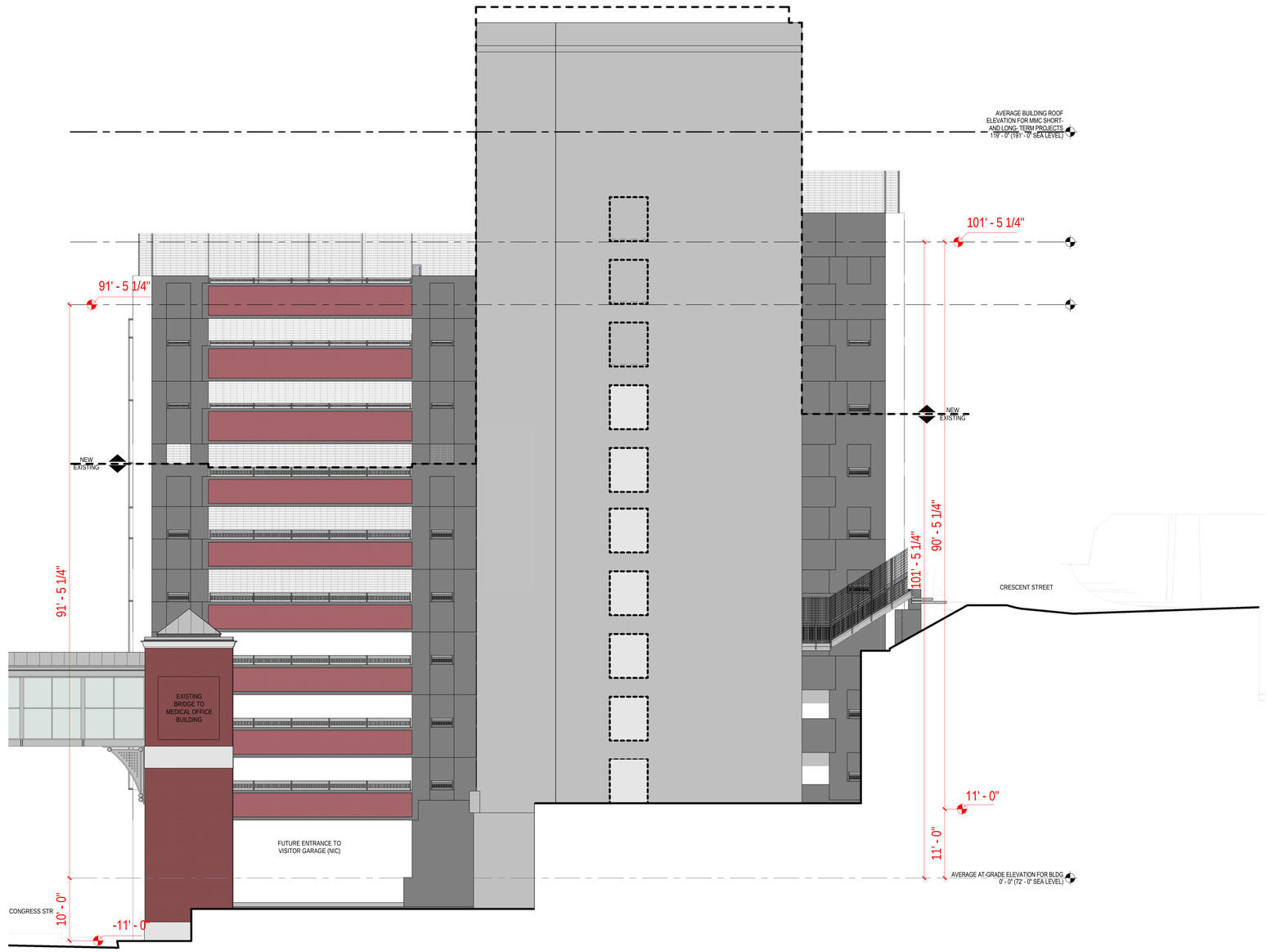
PERKINS+WILL
DOCUMENT SET



Visitor Garage Expansion

NORTH ELEVATION

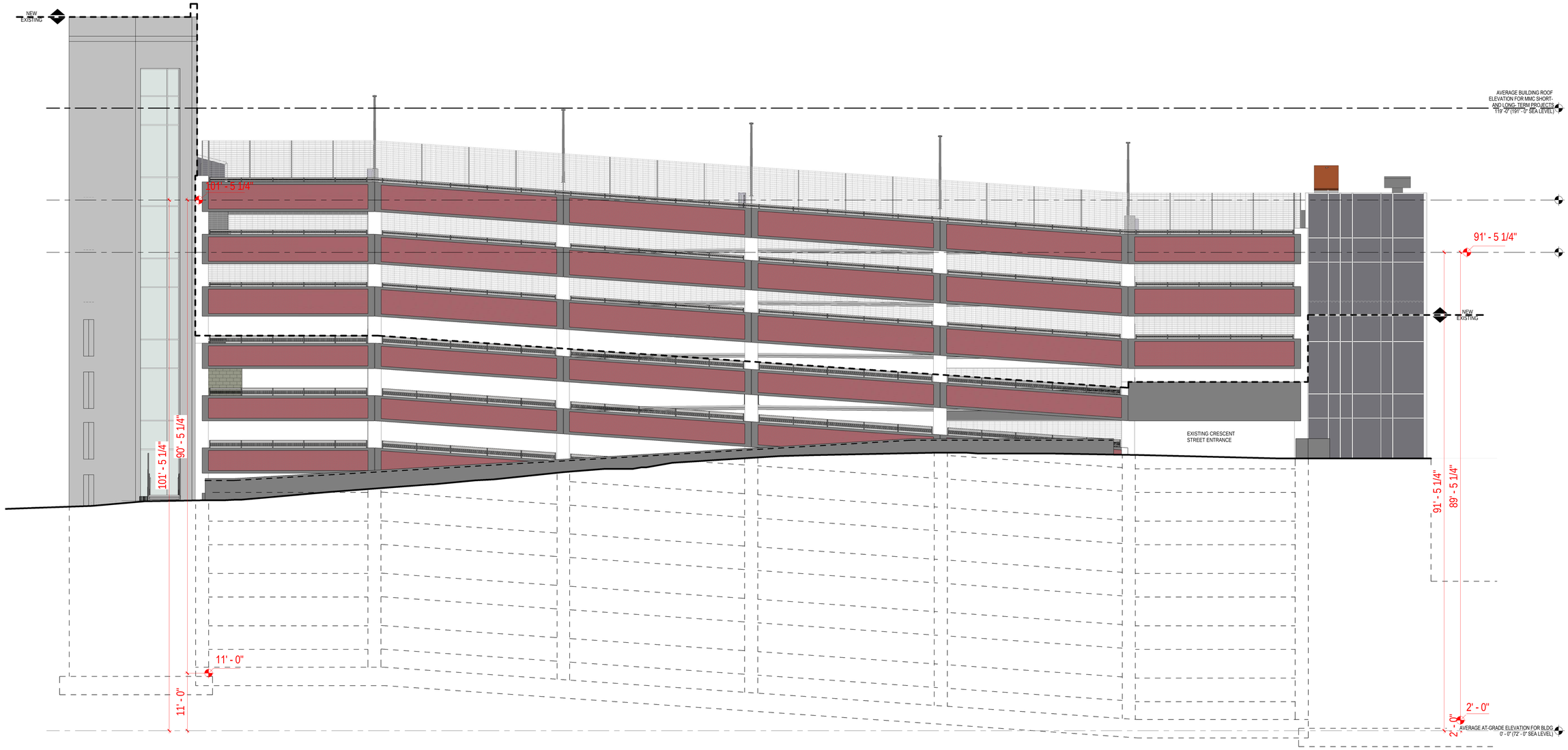
PERKINS+WILL
DOCUMENT SET



Visitor Garage Expansion

WEST ELEVATION

PERKINS+WILL
DOCUMENT SET



Visitor Garage Expansion

SOUTH ELEVATION

PERKINS+WILL
DOCUMENT SET

Maine Medical Center
MaineHealth

PERKINS+WILL

MMC East Tower Expansion – City Design Comments

To:	City of Portland Planning Department
From:	Jeffrey Keilman, Perkins+Will; Al Green, MMC
Date:	January 19, 2018
Subject:	**MMC East Tower Expansion – Phase 1 Design Narrative**
Attachments	
	Slides shared with City Staff on January 16, 2018

Campus Vision

The campus transformation of Maine Medical Center draws its inspiration from its site, history, programmatic needs and most importantly the desire to create a sense of place. Specifically, the hospital will reflect its location within Portland and the state of Maine. The goal is to preserve the historic character of the existing campus yet provide the opportunity for new design identities to develop that represent the modern delivery of healthcare and the future of Maine Medical Center.

Many key design drivers and interventions envisioned for Maine Medical Center's campus transformation balance the clinical needs of the hospital with the campus' place within the city of Portland. Included is a primary effort to improve the built environment of MMC's campus relationship with the city. This goal is balanced with the clinical needs of the patients served by MMC. Healthcare design has to start with the internal program and layout to ensure a successful and functional design. From there, the exterior design can begin to take shape and be informed by the internal concepts.

The ultimate success of the project will be to provide a positive patient and visitor experience. The creation of healing environments is an essential element to the design of the submitted projects. This is through the incorporation of nature, natural light, and the blending of interior and exterior. Access to views and light are proven to improve positive patient outcomes. Proper location and use of glass and transparency provides connections to the exterior to improve patient experience but also to further reinforce wayfinding.

The current projects submitted within this Site Plan application were developed as a continuation of existing conditions. The façade of the East Tower expansion will relate to the existing conditions and massing of the East Tower by utilizing metal panel and glass.

The internal planning strategies, critical for a clinically driven building, aimed to blend the exterior with the interior through strategic planning that enabled the interiors to be opened up to and expressed on the exterior through the large corner windows.

The East Tower Expansion is conceived as the next phase in the campus replacement and modernization that will continue to blend and blur the new and existing campus architecture. The

addition will continue to link the vision started with the Bean 2 surgical expansion and will culminate with the Congress St. addition.

Context

The East Tower and Visitor Garage expansions are extensions of existing conditions, and as such derive many of the material choices from the existing adjacent construction.

Through the design process, the team explored the impact of the structures from various viewpoints understanding the additions scale within the urban context. Multiple angles and views were analyzed by the design team in conjunction with Maine Medical Center, including long-views, which influenced the decisions of various fenestration patterns and scale. This is particularly important for the East Tower addition which is visible from many points in the city. The design responds to both the long views with the use of scale of fenestration, but also manages to respond to local context through the attention to details, and sensitivity to materials and palate from the campus and neighborhood.

Building Design

The current Site Plan submission outlines (2) projects that are expansions and extensions of existing conditions. Within this context the design process still aimed to express the internal program constraints and create a dialogue between the interior and exterior.

Design is always subjective but the process to reach the current solution was reviewed and vetted by many parties, including critical voices form Maine Medical Center but also internally to Perkins+Will with multiple peer design reviews. The Perkins+Will internal review includes international designers as well as those from across the United States. The proposed design was universally selected as the best option to meet with the campus vision and existing context.

The design team believes the response for the East Tower expansion is in line with the key elements of design outlined through the design guidelines established in MMC's Institutional Development Plan, including the attention to proportion, rhythm, and use of materials. Design iterations were studied and reviewed by multiple stakeholders, including Maine Medical Center. The proposed design was the first solution where all parties agreed that the strategy successfully unifies the existing structure with the new addition while meeting the stringent interior requirements for advanced patient care in a healthcare setting.

By maximizing and utilizing the opportunities provided by the massing and proportions, the design is unified with the existing structure, but also creates urban scale gestures recognizing the prominence within the city. In particular, the scale of multistory fenestration and use of rhythm provided by the interior program.

One key design approach was to limit the current idiosyncrasies that are on the existing East Tower building that are not represented by any of the adjacent structures on the Maine Medical campus. In particular, the pavilions, Richards, and Bean are buildings that have a minimalist approach to massing and detailing on their exterior facades. In essence, the proposed design is more compatible with the existing campus and future goals outlined within the previously approved IDP. This was achieved by

simplifying the palate of materials and utilizing the existing materials on the structure. Introduction of new materials or further reinforcing the banding would have the opposite effect of creating a larger impact of the massing within the city and the campus.

The Visitor Garage expansion will match the current rhythm and proportions of the existing garage. The street façade of the Visitor Garage is an existing condition however opportunities for activation are being considered currently.

Building Materials

The selected materials for each addition are derived from the existing materials on the building and are as follows:

- East Tower – White Aluminum Composite Panels and Glass Curtain Wall
- Visitor Garage – Precast Concrete Panels with imbedded brick

Design Constraints

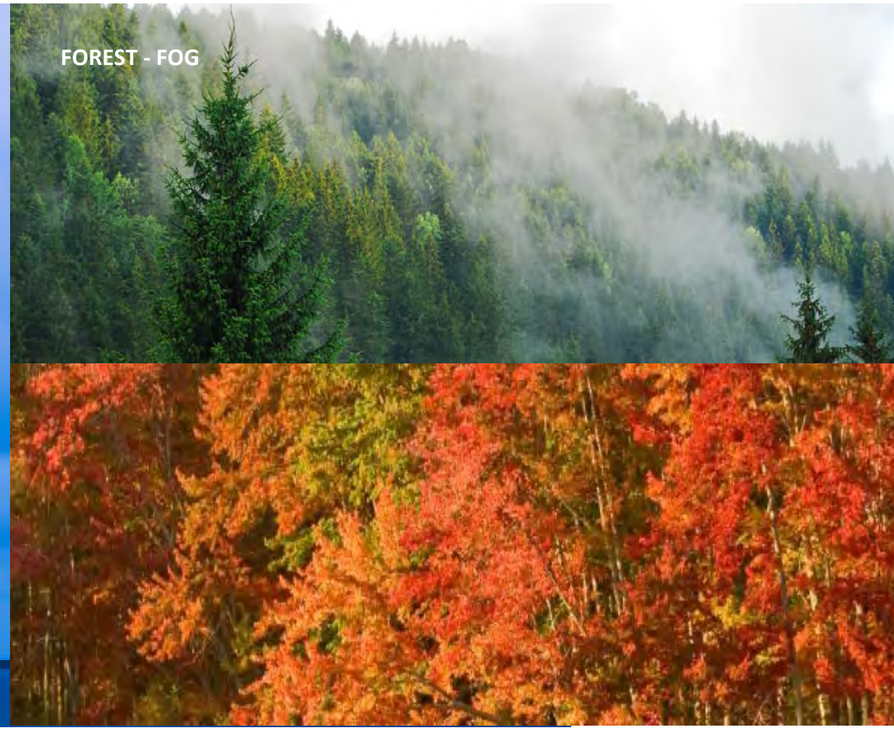
As with any building addition or expansion, existing conditions and real world constraints are critical in determining the final design solution. In particular, constructability for both the East Tower and Visitor Garage were important design drivers. Capacity within the existing structure, feasibility of installation of façade systems, and schedule were considered in selecting the final design solution.

hcc: Project File
Chuck Siconolfi – P+W
Romeo Moreira – P+W
Rashid Ashraf – P+W
Adam Troidl - Colliers
Mark Harris - MMC
Walter Pochebit – MMC
Al Green – MMC
Dennis Morelli - MMC

MMC SITE PLAN SUBMISSION

EAST TOWER & VISITOR GARAGE

CONCEPT DIAGRAMS



SOLID HEAVY

SOLID / LIGHT

ETHEREAL

INTEGRATION OF INSIDE AND OUTSIDE

Blurring the lines between the inside and the outside to bring the garden into the hospital.

CIRCULATION

MATERIALS INSPIRED BY MAINE

50 YEAR PALETTE

Use of natural materials take clues from nature to create a timeless environment.

50 PALETTE

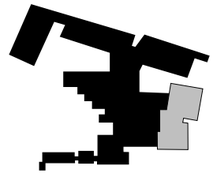
Sky

Sea

Land

COLOR OPTIONS

FLOOR PLAN



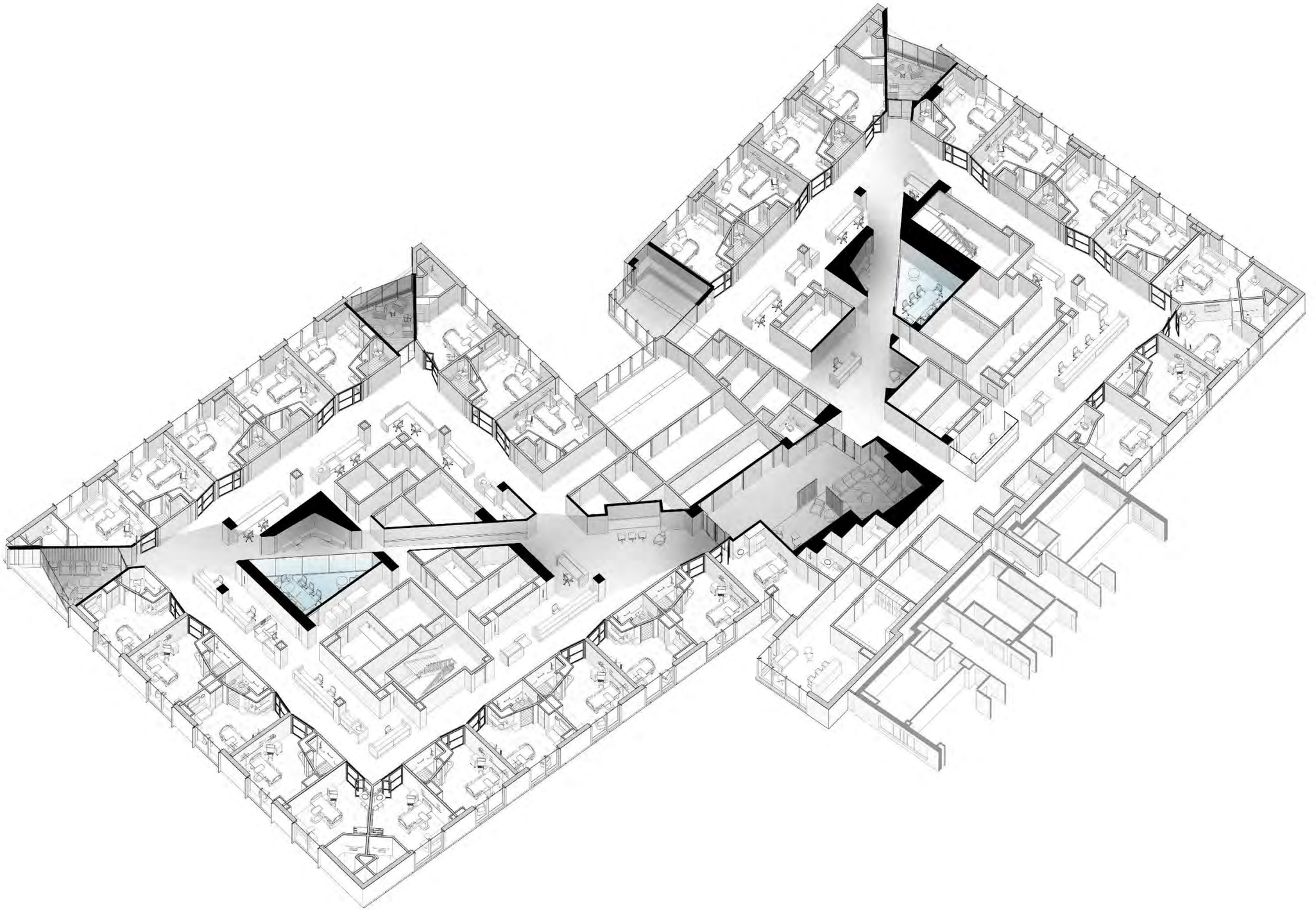
Views to White Mountains

Views to Casco Bay

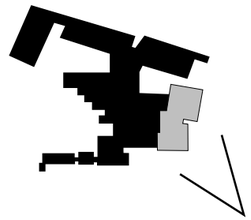
Views to Portland Water Front

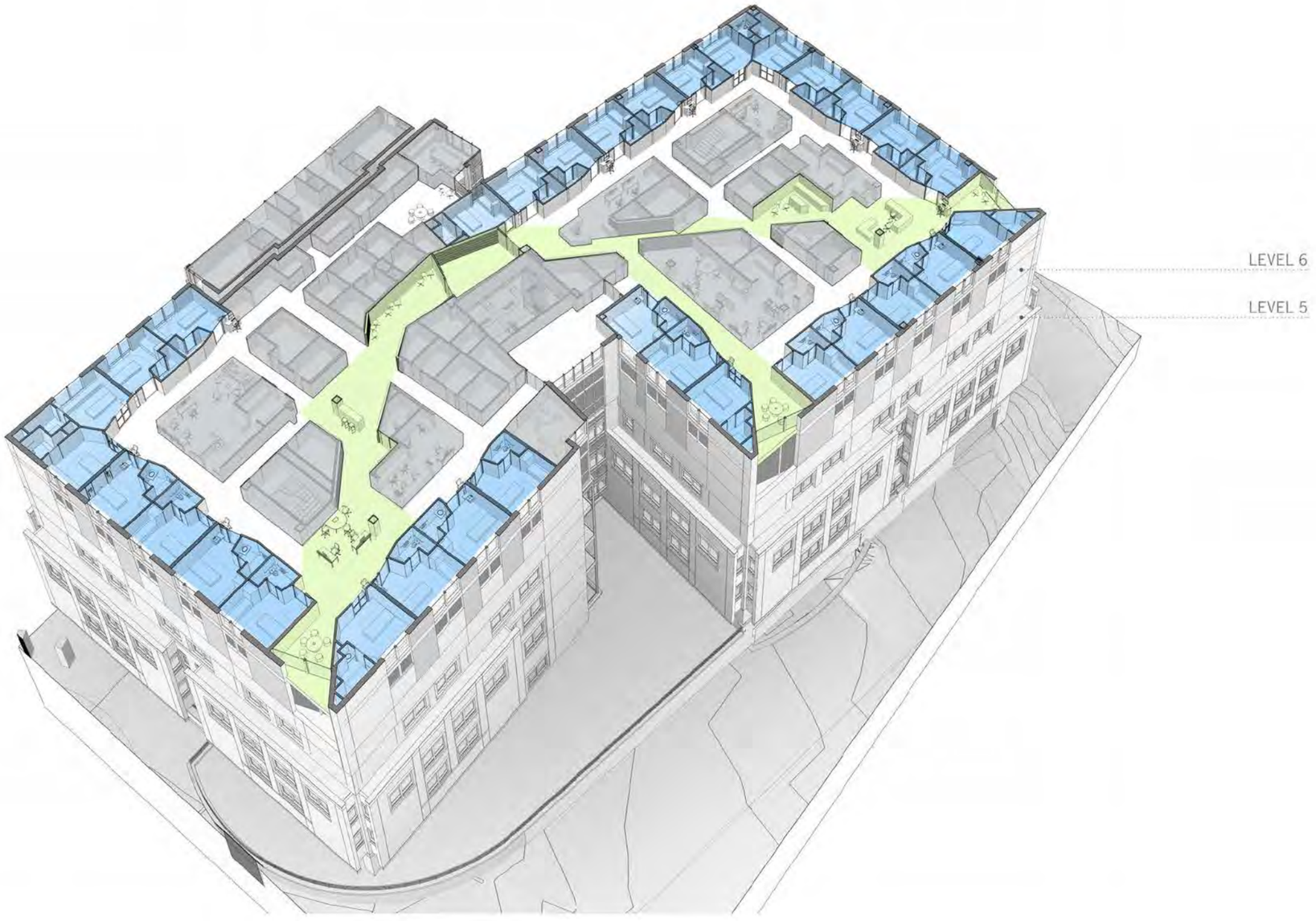
0 10 20 50

AXONOMETRIC

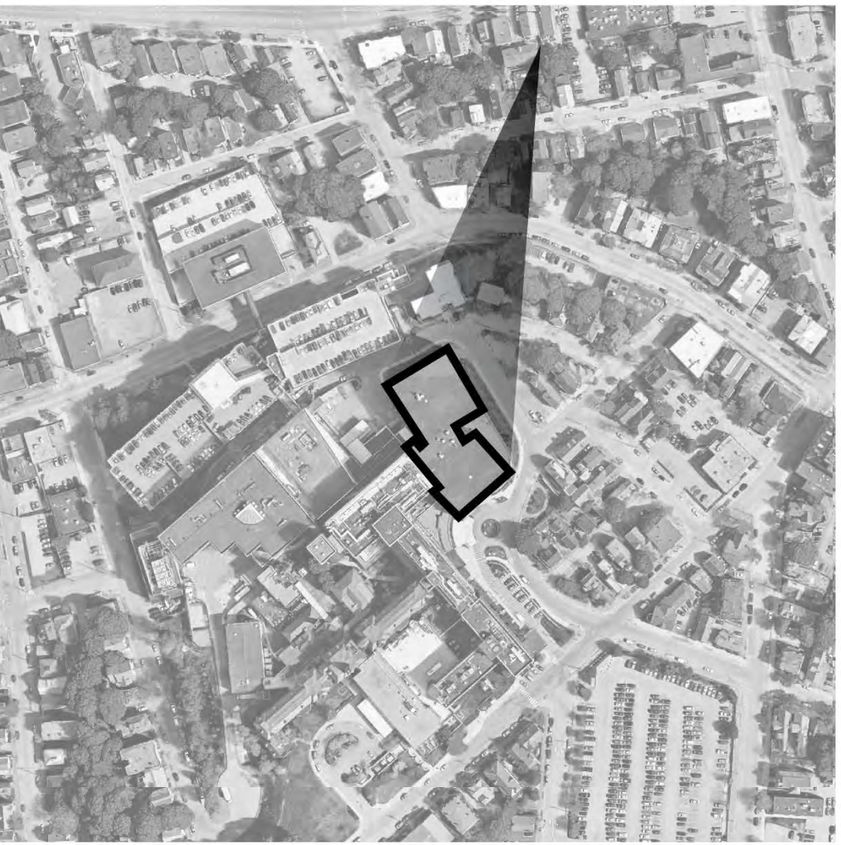


AXONOMETRIC



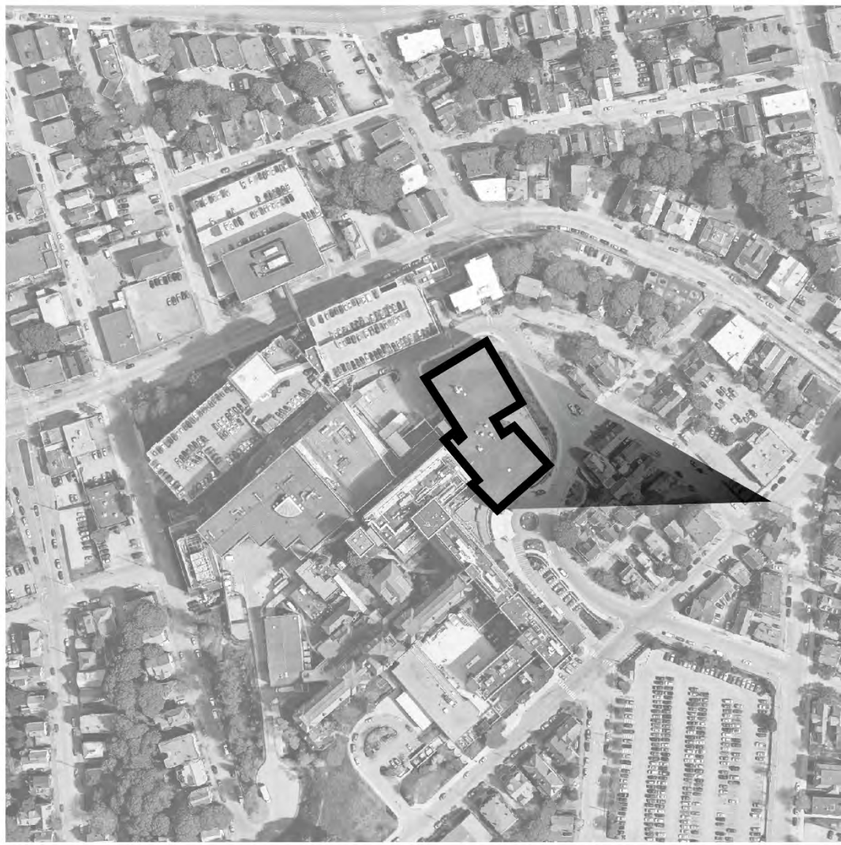


CAMPUS AERIAL



AERIAL VIEW

VIEW FROM BRAMHALL ST



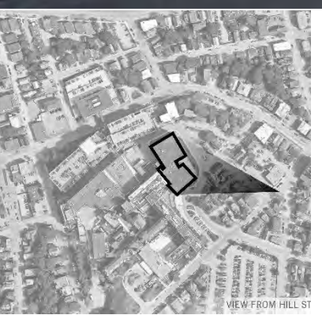
VIEW FROM HILL ST

AERIAL VIEW
South West

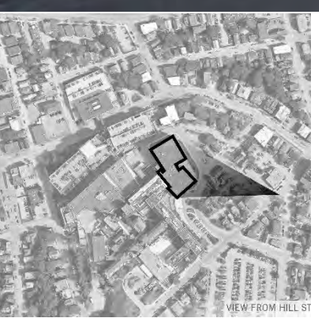
South West

Bramhall and Chadwick Street

Bramhall and Chadwick Street

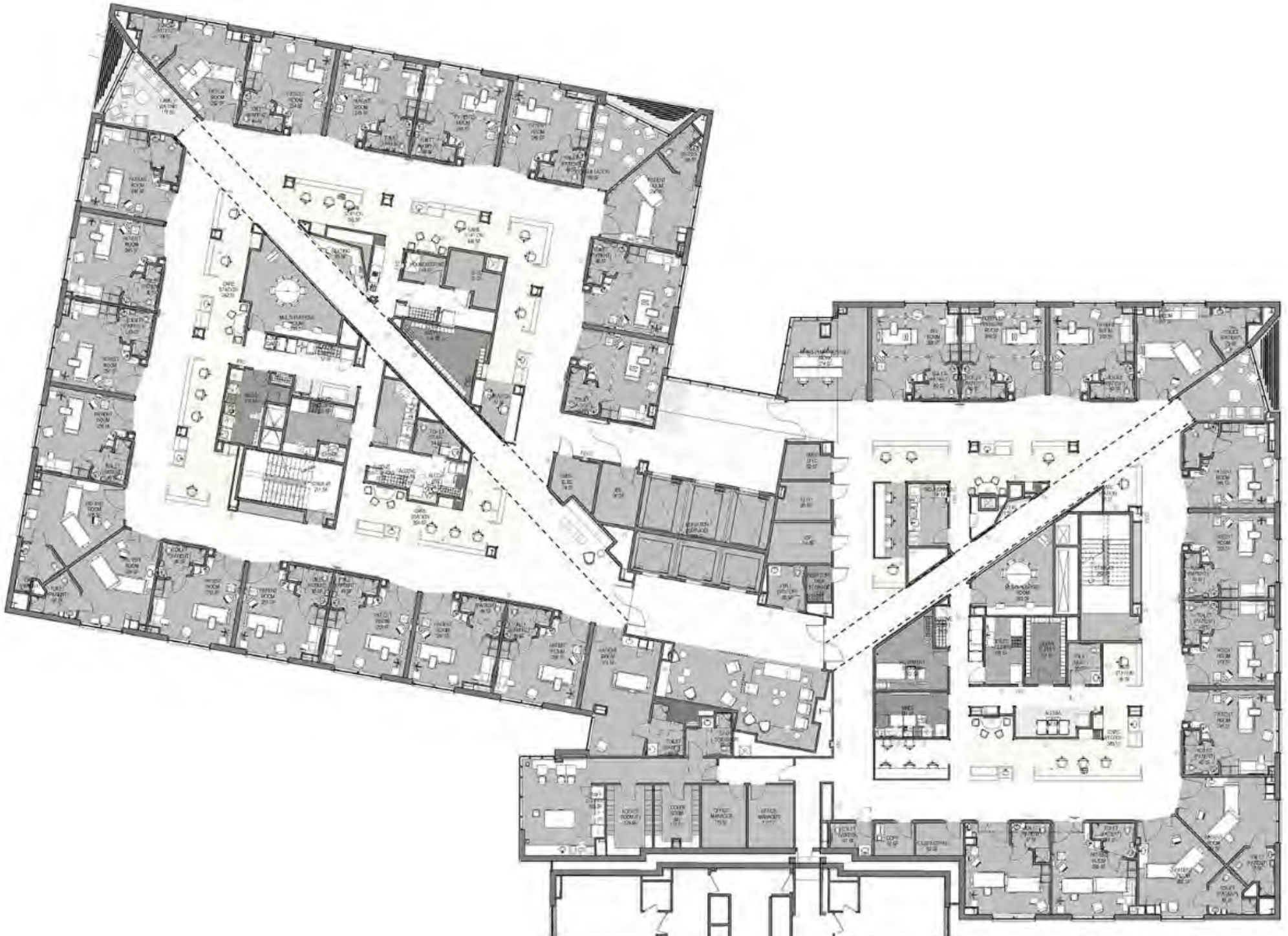


Bramhall and Hill Street



Bramhall and Hill Street

TYPICAL FLOOR PLAN



EAST ELEVATION

NORTH ELEVATION

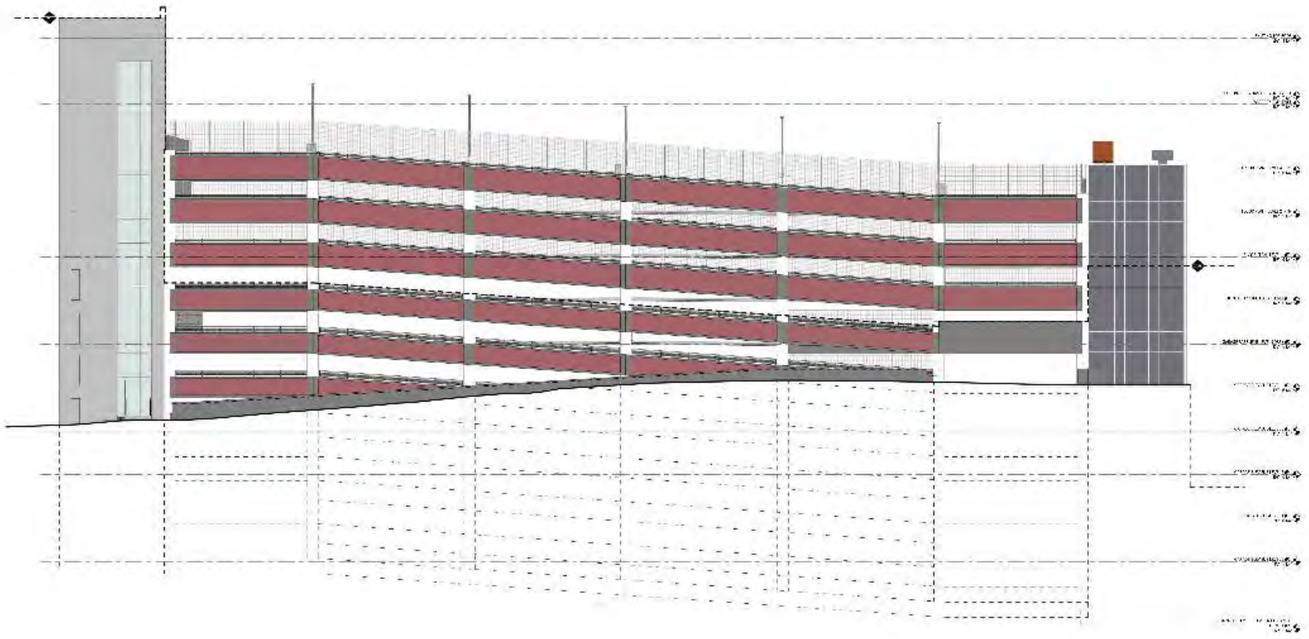
SOUTH ELEVATION

WEST ELEVATION

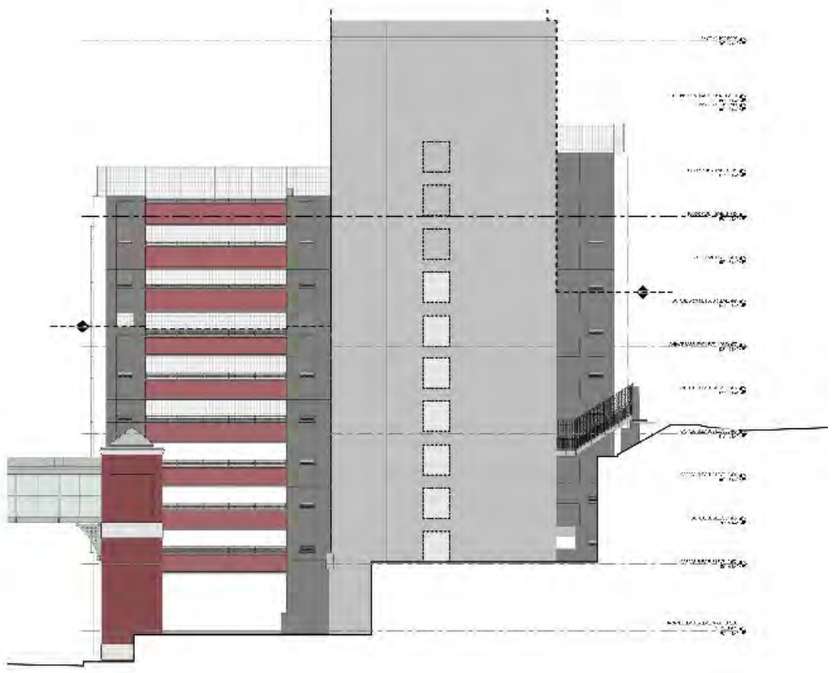
Visitor Garage Expansion

EXISTING

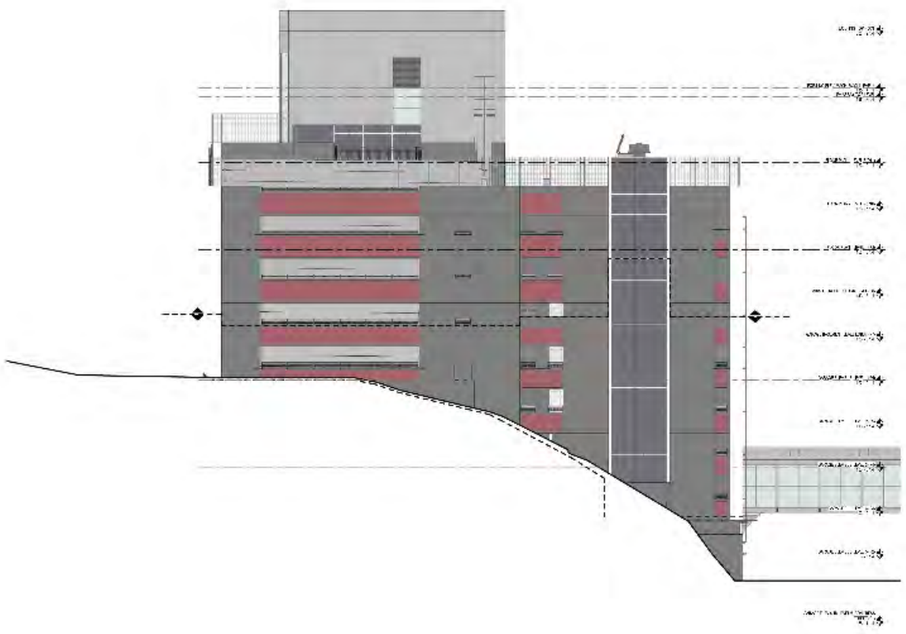
SOUTH ELEVATION



WEST ELEVATION



EAST ELEVATION



NORTH ELEVATION

APPENDIX

US-1
Hide imagery

GROVER C
EDITH C. RICHARDS
MEMORIAL
MAIN

WESCOTT ST
ELLSWORTH ST
STOP
NO PARKING ANY TIME
Maine Medical Center
EMERGENCY
Trauma Center
Parking Garage
Main Entrance
South Entrance
South Lot

Medical Center
Maine

PLANNING BOARD REPORT
PORTLAND, MAINE

Canal Landing New Yard – Phase III Reapproval
400 West Commercial Street
Level III Site Plan; Conditional Use; Site Location of Development
Project # 2017-293
Canal Landing, LLC, Applicant

Submitted to Portland Planning Board: Public Hearing Date: January 23, 2018	Prepared by: Matthew Grooms Date: January 19, 2018

I. INTRODUCTION

Canal Landing, LLC is requesting that the Planning Board reapprove their proposal to expand their boat maintenance and repair facility at 400 West Commercial Street. The Board unanimously approved the Level III Site Plan, Conditional Use, Site Location of Development, and Traffic Movement Permit application on January 12, 2016. The approval for all applications save the traffic movement permit lapsed after a period of one year, and no extension request was filed. The applicant's proposal remains largely unchanged, and involves the construction of two new buildings (C and D), which are connected, and expansion of their existing boat yard storage area. The proposed development is described as phase III, as two prior approvals were granted by the Planning Board for developments at this site relating to boat maintenance, storage and repair.

Figure 1: Project Site

This development is subject to site plan, conditional use (marine products, wholesaling and retailing), site location of development law, and shoreland review.

The applicant held a Neighborhood Meeting on January 16, 2018 at the offices of Portland Yacht Services at 400 West Commercial Street which was attended by thirteen neighbors; notes are included in Attachment S. This Hearing was noticed to 75 neighbors and interested parties, and the public notice appeared in the *Portland Press-Herald* on January 15th and 16th, 2018. The Planning Division has not received any public comments as of the completion of this Report.

Applicant: Canal Landing, LLC, Phin Sprague
Consultants: Stephen Bushey, P.E., Stantec Consulting Services INC.

Required reviews and requested waivers

Applicant's Proposal	Applicable Standards
Site work of approximately 12 acres including development of an off-street parking area, preparation of boat storage areas and construction of two new buildings totaling 31,000 SF for marine retail and office uses.	14-523 Site plan Required Approval and Applicability Level III Site Plan and 14-526 Site Plan Standards
Waivers	**Applicable Standards**
The applicant requests a waiver from providing curbing along their West Commercial Street frontage citing critera 3 (street rehabilitated without curbing within the last 60 months) and criteria 5 (runoff from the development site or within the street does not require curbing for stormwater management.) Staff Recommendation: Staff supports this waiver request and asks that the applicant provide an appropriate alternative form of separation to prevent vehicles from accessing the site away from established driveways.	Site Plan Standard, Section 14-526(a)(2)c.i. which requires that developments provide curbing along a property's street frontage.
The applicant is requesting a sidewalk waiver along their West Commercial Street frontage based upon criteria 2 (no sidewalk within 1,000 feet along southerly side of Commercial Street) and criteria 3 (alternative walking route along northerly side of Commercial Street). Staff Recommendation: Staff recommends approval of this waiver request and instead is asking for a $25,000 contribution to connect this site with the future West Commercial Street trail.	Site Plan Standard, Section 14-526(a)(2)c.1, which requires that developments provide a sidewalk built to city standards along all portions of their street frontage.
The applicant is requesting to increase their driveway width to 40 feet, so as to accommodate large trucks and boat trailers for the main driveway. Staff Recommendation: Staff recommends approval of this request given the regular usage of this site by larger vehicles.	Section 1.7 of the Technical Manual which allows a maximum driveway width for industrial uses of 30 feet for a two-way driveway.
The applicant is requesting a waiver of the Maine DEP Chapter 500 Flooding Standard, as a result of the capacity of receiving body, the Fore River. Staff Recommendation: Staff agrees with the applicant and is supportive of this waiver request.	Section V of the Technical Manual, Appendix D.4(a), which requires that all Level III site plans with more than 1,000 square feet of impervious surface meet Maine DEP Chapter 500 flooding standards.
The applicant is requesting a waiver from interior parking lot landscaping requirements due to the unknown needs for maneuvering	Section IV,(4.5.5) of the Technical Manual which provides standards for the landscaping of off-street parking lots.

large vehicles and marine vessels across the site. Staff Recommendation: Staff supports this waiver request, and is asking that the applicant provide street trees in accordance with city standards as a distance of one tree for every 30 to 45 feet of frontage, and provide visual screening of the parking area.	

II. PROJECT DATA

SUBJECT	*DATA*
Existing Zoning	Waterfront Port Development Zone (WPDZ)
Existing Use	Undeveloped/Boat Storage
Proposed Use	Marine Retail/Storage/Repair
Parcel Size	17.77 acres
Existing building footprint	0 SF
Proposed building footprint	24,000 SF
Existing floor area	0 SF
Proposed floor area	31,000 SF
Impervious Surface Area --Existing --Proposed --Net Change	 0 sq ft 72,309 SF 72,309 SF
Total Disturbed Area	12.7 acres
Parking Spaces -Existing -Proposed -Net change	 0 56 +56

III. BACKGROUND AND EXISTING CONDITIONS

The development site is located north of the Fore River, south of West Commercial Street, west of the International Marine Terminal and east of Cassidy Point. Directly across West Commercial Street is primarily vacant land, with the Star Match commercial building being located further east. Further to the north lies the West End Neighborhood, with Danforth Street and Salem Street overlooking this site.

Figure 2: View of the existing site from West Commercial Street

This site has 2,160 linear feet of frontage along West Commercial Street. Historically, this area was utilized as a rail yard, though the majority of these rail lines have since been removed. MDOT installed the existing line, which bisects the site running east-west, in 2014 to serve the recently developed International Marine Terminal. The development area is relatively flat with the highest points along the property's West

Commercial Street frontage at approximately 16' feet to 18' feet in elevation, sloping down to the Fore River. The site's lowest area, located along the bank of the Fore River, is between 9' and 10' feet in elevation. The flood hazard elevation in this area is 10' feet. The high annual tide line for the Fore River is 7.4' feet and the mean low water line is approximately -4' feet.

This property is located within the Waterfront Port Development Zone (WPDZ). This area of Portland's waterfront is intended for marine industrial uses and is an integral component of the city's working waterfront. At present, the site is undeveloped and sporadically used for boat and material storage. 'New Yard', which represents the portion of the western waterfront being utilized for boat storage and repair, has been under development since 2012, as identified in the timeline below.

December 8, 2012 – Planning Board approves a boat yard and service yard on a 22-acre site just west of the Casco Bridge (currently occupied by the IMT). The approved site plan included a 42,000 SF boat repair building and regrading of approximately 7 acres of the site for boat storage and circulation. Additional site improvements included two boat ramps, a travel lift basin, floating docks, stormwater improvements, utility work, lighting and site landscaping.

August 27, 2013 – The applicant requested and received Planning Board approval for an amendment to the previous site plan allowing a phased development.

October 22, 2013 – The Planning Board approved a revised site plan, which shifted the two buildings shown in Phase I to the far westerly end of the site. This change avoided buildings being located on land that would later be acquired for IMT expansion. The first building was labeled as Phase 1b "proposed tension fabric building" with a footprint of 19,200 SF.

July 8, 2014 – The Planning Board approved an expansion of the IMT facility. The IMT site plan included approximately 17 acres previously controlled by New Yard. New Yard's remaining land, totaling 5 acre, contained their newly constructed 19,200 SF tension fabric building.

August 12, 2014 – The Planning Board approved a 27,600 SF addition to the existing building, intended for boat maintenance and repair.

Figure 3: View of the two buildings approved by the Planning Board in 2014 on the Canal Landing Site

January 12, 2016 – The Planning Board approved a new proposal by New Yard for construction of two new buildings intended for use as marine retail space and administrative offices. Additional site improvements included site regrading, installation of a pervious gravel surface across approximately 12 acres of newly acquired property for boat display and storage, and construction of a 2,400 SF shell building at the southwestern corner of the site, to be used by Wayneflete Academy for storage of small personal watercraft. Conditions of approval included the installation of street trees, contributions of $65,000 and $25,000 for construction of a dedicated left turn lane and improvements to West Commercial Street as identified in the West Commercial Street Master Plan respectively.

September 6, 2017 – The City Council approved a text amendment to the WPDZ which permits taller structures across the zone while delineating more stringent dimensional standards for building lengh and lot coverage. The

amendment also established basic design standards, a view corridor provision, and strengthened conditional use standards to promote marine activity.

The approval granted on January 12, 2016 lapsed one year later, and no extension was filed for. As a result, the application before the Planning Board now is considered a new application, with the exception of the traffic movement permit, which is valid for a period of five years. In preliminary meetings with the applicant prior to submittal of this application, it was communicated that a resubmitted application should address all conditions of approval associated with the previous approval (*Attachment 1*). This application is also subject to the revised zoning standards of the WPDZ.

IV. PROPOSED DEVELOPMENT

The applicant's proposal remains largely unchanged from their 2016 application, with the exception of a few minor amendments addressing new performance standards found within the WPDZ. The proposal is centered around the construction of two new buildings, a 19,800 SF individual metal building (Building C) along West Commercial Street for marine retail and boat maintenance operations (a conditional use under the WPDZ) and an attached 12,000 SF structure to be used as offices by Portland Yacht Services (Building D). To serve these uses, parking for fifty-six vehicles is being provided in two separate parking areas, located on both the east and west sides of the proposed buildings. Three new driveways are proposed, with the primary driveway being located just west of the proposed buildings with direct access to the customer parking area. A secondary access is proposed east of the proposed buildings proximate to the IMT property line. These two driveways have a separation distance of 750 feet and both have been designed to align with recently installed rail grade crossings. A third driveway is proposed at the far westerly end of the site, which would serve a fenced in area intended to provide storage for marine products, and IMT equipment. These driveways will be constructed of reinforced bituminous pavement to support the anticipated weight loads of boats being transported.

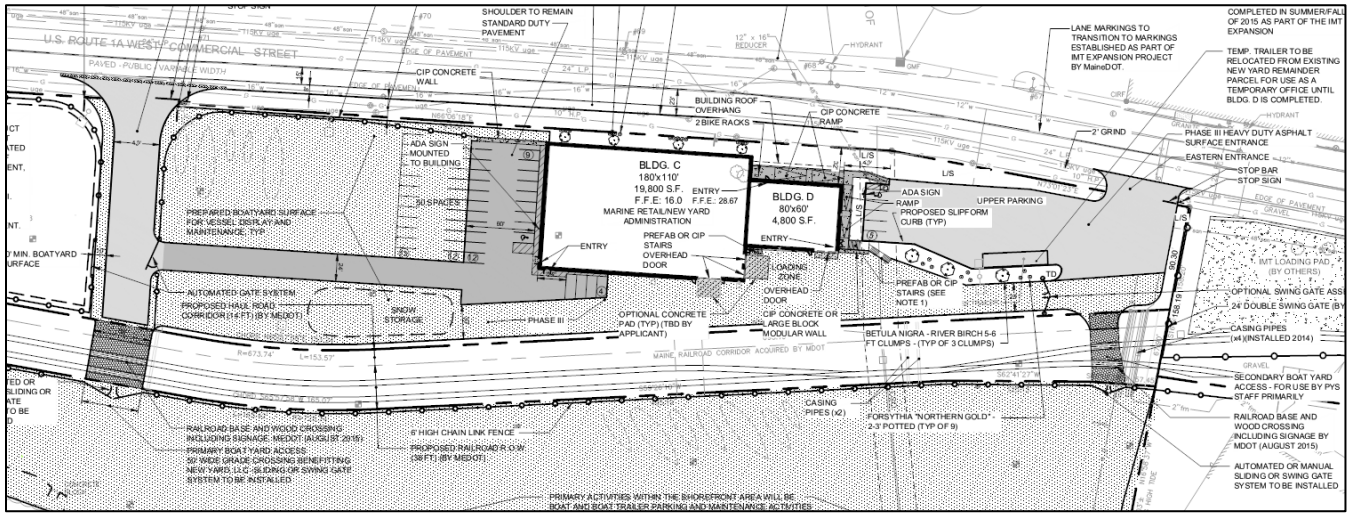


Figure 4: Proposed site plan, encompassing Bldgs C and D. Driveways are located to access rail crossing points and areas in light greay are 'prepared surfaces' for boat storage

As a boat storage facility, a substantial proportion of the site will be cleared, stabilized, regraded and prepared with a porous gravel surface ideal for site circulation and marine storage. The porous material proposed also qualifies as a "manmade pervious surface" to provide water quality treatment as described in Chapter 7.7 of the Maine DEP Volume III BMP's Technical Design Manual, which meets the minimum treatment standards as required by the General Standards. A waiver of the stormwater quantity management standards has been requested and is recommended by staff given the capacity of the receiving body, the Fore River.

Other site improvements include the installation of utilities for building use and future phase activities, planting of landscaped areas in and around the proposed parking areas and along building edges, installation of site lighting,

construction of 2,400 SF storage building along the waterfront for storage of Wayneflete racing shells, and the installation of a 6' foot black vinyl coated chain link security fence around boat storage areas and along West Commercial Street.

V. NEIGHBORHOOD MEETING AND PUBLIC COMMENT

A neighborhood meeting for this project was held on January 16, 2018 at Portland Yacht Services, located at 400 West Commercial Street. This meeting was attended by thirteen members of the public. Attendees asked various questions regarding building location and appearance, building height, materials to be used in the project and anticipated noise generation that would result.

As of the drafting of this report, no public comments have been received by the Planning Division in regards to this development proposal.

VI. STAFF REVIEW

A. ZONING

The zoning review contains the following sections; Waterfront Port Development Zone Review, Shoreland Zone Review and the Conditional Use Review.

Waterfront Port Development Zone Review

The project is located in the Waterfront Port Development Zone. The proposed boat repair and boat storage uses are permitted uses within this zone. The proposed use, 'marine retail and wholesale sales, including yacht brokerage', is a conditional use and is subject to the conditional use standards listed under Section 14-320 and 14-474 of the land use code.

The WPDZ includes a provision for protecting access to the water for water dependent uses under Section 14-318.5, "No Adverse Impact on Marine Uses". The standards for that section are listed below.

Sec. 14-318.5

(a) *The proposed non-water dependent use will displace an existing water-dependent use;*

(b) *The proposed use will reduce existing commercial vessel berthing space;*

(c) *The proposed nonwatery-dependent use, structure or activities, including but not limited to access, circulation, parking, dumpsters, exterior storage or loading facilities, and other structures, will unreasonably interfere with the activities and operation of existing water-dependent uses or significantly impede access to vessel berthing or other uses to the water by water-dependent uses; or*

(d) *The siting of a proposed nonwatery-dependent use will substantially reduce or inhibit existing public access to marine or tidal waters.*

The uses 'boat storage' and 'marine retail', while not necessarily dependent upon water access, are both benefitted by access to the water through both the launching and landing of vessels. Similarly, these uses are an integral component of a more comprehensive operation, in which vessel repair occurs. These uses together coalesce to create a ship-yard, which gains its competitiveness in the market through direct access to the water.

Dimensional Standards Review

Structures proposed within 100 feet of West Commercial Street are permitted 50% lot coverage, a building height of 50 feet or less and are limited to building lengths of 300 feet or less as measured parallel to West Commercial

Street. The proposed development falls well within these limitations, with a lot coverage of 9.6%, proposed building height of 43 feet and building length of 260 feet.

Performance Standards Review

In compliance with Section 14-320.3. Performance Standards, the applicant has submitted an impact mitigation narrative summarizing how the project intends to meet the applicable performance standards.

(*a*) *Outdoor Storage of Materials:* Proposed storage of vessels will be entirely contained within designated areas requiring security access. The surface material, which is a porous manmade surface permitted by Maine DEP for stormwater quality control, serves to treat runoff contaminants.
Staff Finding: This applicant's proposal complies with this standard.

(*b*) *Noise:* It is not anticipated that noise levels will exceed 55 decibels between 7:00 p.m. and 7:00 a.m.
Staff Finding: This applicant's proposal complies with this standard

(*c*) *Vibration: It is not anticipated that this phase of the development will result in significant vibration impacts.*
Staff Finding: *This applicant's proposal complies with this standard*

(*d*) *Federal and State Environmental Regulations:* Proposed boat repair and maintenance activities will be performed in accordance with State and Federal regulations, so actions such as sand blasting and related boat work are managed and controlled to minimize emissions.
Staff Finding: This applicant's proposal complies with this standard

(*e*) *Discharges into Harbor Areas:* Proposed discharge into the Fore River will occur either through the existing City drainage system (CSO), or through new drainage outfalls falling under Permit By Rule authorization from Maine DEP.
Staff Finding: This applicant's proposal complies with this standard

(*f*) *Storage of Vehicles:* This development does not involve the storage of vehicles, and boats are exempt from this requirement, as boat storage is a permitted use.
Staff Finding: This applicant's proposal complies with this standard

(*g*) *Landfill of Docking and Berthing Areas:* Proposed development does not involve landfill of docking or berthing areas.
Staff Finding: This applicant's proposal complies with this standard

(*h*) *Off-Street Parking:* The proposed uses under Division 20, Off-Street Parking Standards, require a minimum of 56 off-street parking spaces. The site plan identifies 55 off-street spaces.
Staff Finding: Staff has requested that one additional parking space be provided to meet off-street parking requirements for this site. This has been drafted as a condition of approval. Once met, this standard will have been complied with.

(*i*) *Off-Street Loading:* The proposed building will feature multiple overhead doors and ample maneuvering space for loading and unloading activities.
Staff Finding: This applicant's proposal complies with this standard

(*j*) *Shoreland and Flood Plain Management Regulations:* Proposed activities are located outside of the shore land zone, and the proposal is fully compliant with shoreland zone requirements.
Staff Finding: This applicant's proposal complies with this standard

(*k*) *Lighting:* The applicant has indicated that all proposed site lighting will be shielded and of low intensity. Building lights are to be cutoff style and to be installed on the water side only. No lighting cut sheets were provided as part of this application.
Staff Finding: As a condition of approval, staff is requesting that a lighting cut sheet be provided demonstrating compliance with the city's standards for site lighting.

(*l*) *Signs:* The applicant has indicated that they will apply for building and free standing signage in accordance with Division 22 of the City Code.
Staff Finding: Subject to compliance with Division 22, the applicant's proposal complies with this standard

(*m*) *Storage of Pollutants and Oily Wastes:* The anticipated activity of this development does not involve the storage of pollutants or oily waste. Any waste that is collected is either recycled or disposed of in accordance with Maine DEP regulations and protocols.
Staff Finding: The applicant's proposal complies with this standard

(*n*) *Compatibility of non-marine uses with marine uses:* All proposed uses are identified as marine uses.
Staff Finding: The applicant's proposal complies with this standard

Figure 5: View of the proposed buildings looking west along West Commercial Street

Figure 6: View of the proposed buildings looking east along West Commercial Street

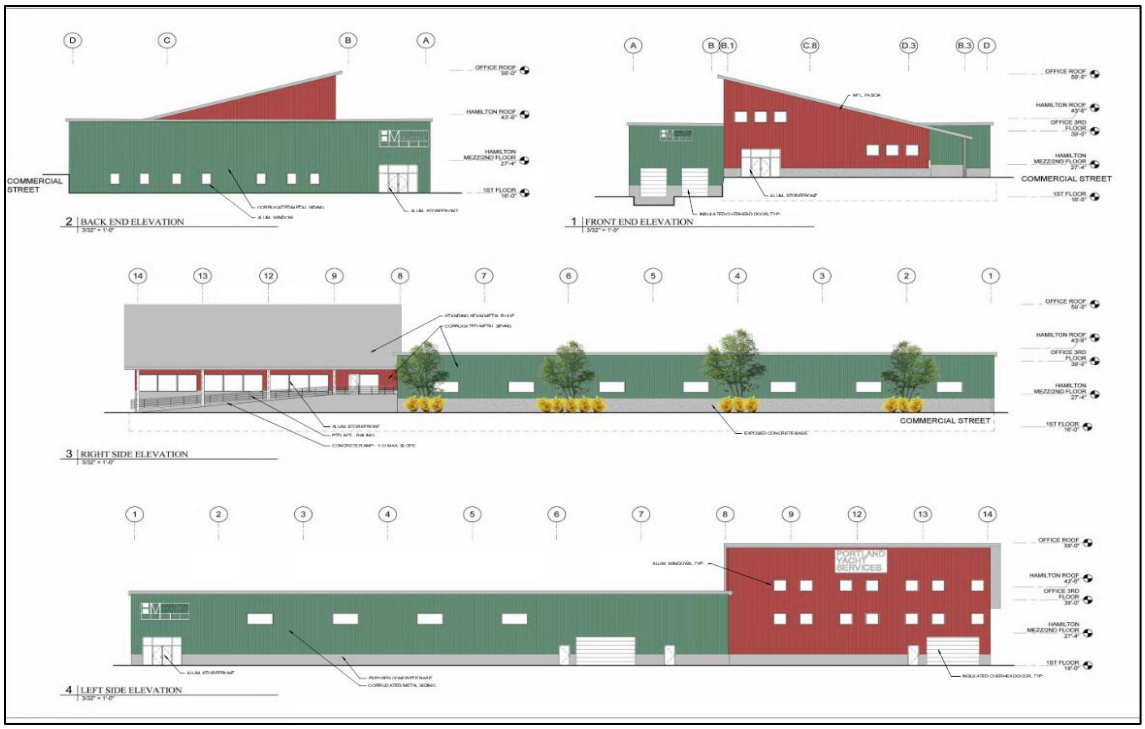


Figure 7: Proposed building elevations

(o) *Design and Visual Character: The applicant's proposal was reviewed by the City's Urban Designer, Caitlin Cameron, for conformance with the design and visual character elements of the WPDZ performance standards. Below are final comments regarding design of the site:*

1. *Long Views/Building Design: Change in roof form provides some visual interest to meet the standard. Rooftop mechanicals are placed in the middle of the building to reduce visibility from the street, however, long views of the equipment have not been addressed. Screening or parapet should be incorporated into the design for these rooftop units.*
2. *Massing: Massing and roof forms organized to emphasize uses, indicate one, street facing façade.*
3. *Facades – equal treatment: All facades, include equal treatment of materials and openings. The roof form is somewhat varied and the material choice of standing seam will provide some texture – however, the screening of rooftop mechanical equipment has not been addressed.*
4. *Facades – variation and articulation: Project provides visual interest with varied roof line, change in material texture, windows, cornice line.*
5. *Scale and Articulation: Project meets articulation requirement with canopy and fenestration. Previous versions included awnings over street-facing windows which provided more articulation and scale to the otherwise flat façade of Building C – these elements have subsequently been removed from the proposal though the standard is still met.*

Staff Finding: A condition of approval is recommended which requires that screening of rooftop mechanical equipment be provided. Once met, the applicant's proposal will meet this standard.

Shoreland Zone Review

The Planning Board shall approve a site plan located within the shoreland zone if it finds that the following standards, in addition to the standards set forth in 14-526, are met.

(a) *The proposal will maintain safe and healthy conditions;*
Staff Finding: There are no known safety or health conditions associated with this project

(*b*) *The proposal will not result in water pollution, erosion, or sedimentation to surface waters*
Staff Finding: See Stormwater Management Section of this report.

(*c*) *This proposal will adequately provide for disposal of all wastewater*
Staff Finding: This phase will have a direct connection to a city sewer in Commercial Street.

(*d*) *The proposal will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;*
Staff Finding: The proposed improvements are on land. The property is a former industrial site in a previously disturbed site with no known bird or wildlife habitat. Comments from the Maine Department of Inland Fisheries and Wildlife indicate that there are no locations of Endangered, Threatened or Special Concern species within the project area.

(*e*) *The proposal will conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;*
Staff Finding: The site is a former industrial site that is being redeveloped for a boat repair facility. Due to the nature of the facility, active public access to the shore is not proposed. The treatment of groundcover within the shoreland zone will be stable to avoid erosion and sedimentation concerns.

(*f*) *The proposal will protect archaeological and historic resources*
Staff Finding: See Site Plan Section, Historic Resources.

(*g*) *The proposal will not adversely affect existing commercial fishing or maritime activities;*
Staff Finding: No commercial fishing operations exist at this site. The proposed development supports the existing water-dependent activities occurring at the New Yard site.

(*h*) *The proposal will avoid problems associated with floodplain development and use;*
Staff Finding: The proposed Commercial Street building is proposed at a first floor elevation of 16' feet which is well above the flood hazard elevation of 10' feet for this area of the Fore River.

(*i*) *The proposal is in conformance with the standards set forth this section.*
Staff Finding: The proposal is in conformance with the standards set forth this section.

Conditional Use Review for 'Marine Retail and Wholesale Sales, including Yacht Brokerage' in the WPDZ
The use, 'marine retail and wholesale sales, including yacht brokerage', is identified as a conditional use under Section 14-319 'Permitted Uses'. It should be noted that both additional uses, 'shipbuilding and facilities for construction, maintenance and repair of vessels' and 'boat storage facilities', are identified as conditional uses in the event that the proposed structure exceeds the maximum allowable by-right dimensional standards for the WPDZ, which would then trigger a conditional use review in order to achieve the conditional use dimensional standards which exceed the base standard. Given that no portion of the proposed facility exceeds those base standards related to building height and building length, they are for the purposes of this review, identified as a permitted use. The conditional use standards for the WPDZ are listed below:

Section 14-320. Conditional Uses

(a) *Conditional uses shall be permitted in the Waterfront Port Development Zone, provided that, notwithstanding section 14-471* (c)*, section 14-474*(a)*, or any other provision of this Code, the Planning Board shall be substituted for the Board of Appeals as the Reviewing Authority.*

In addition to the provisions of section 14-474(c)(2) such uses will:

- *Not impede or preclude existing or potential water-dependent development on other lots;*
- *Allow for adequate access to the water;*
- *Be compatible with water dependent and marine uses;*
- *Operationally support one or more water dependent use(s), or be located in a building or structure that is physically adaptable or relocatable to make way for future development of water-dependent uses; and*
- *Meet any additional performance and dimensional standards set forth below.*

The development's buildings are designed to be short-term 20-year buildings that serve the marine retail component of this operation. These buildings, as designed and described in the applicant's application, are fully compliant with the WPDZ dimensional and performance standards. All portions of this site, including the proposed buildings are easily adaptable and or relocatable given their relatively temporary nature, and do not occupy space directly adjacent to the water. The development proposal as presented does not preclude future water-dependent uses in this location and further supports existing and proposed water-dependent uses at this location. Under this scheme of development, customers would be able to purchase, store and repair their vessel in one location, furthering the applicant's desire to create a comprehensive shipyard along Portland's waterfront. The staff finds that this application meets the WPDZ conditional use standards.

Section 14-474. Conditional Use

The Board shall, after review of required materials, authorize issuance of a conditional use permit, upon a showing that the proposed use, at the size and intensity contemplated at the proposed location, will not have substantially greater negative impacts than would normally occur from surrounding uses or other allowable uses in the same zoning district. The Board shall find that this standard is satisfied if it finds that:

(a) *The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone; and*

Staff Review: This project is similar to other uses in this zone in terms of parking and traffic levels, including the abutting IMT facility. As such, staff finds that the proposal is in conformance with this standard.

(b) *The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewerage disposal, emissions to the air, odor, lighting or litter; and*

Staff Review: The proposed uses are not expected to produce any such impacts as stated above, thus, staff finds that the proposal conforms with this standard.

(c) *The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash, or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.*

Staff Review: The proposed development will not differ from any other uses in this zone in regards to site design, and thus, meets this standard. This is subject to the recommended condition of approval for the planting of street trees.

The Staff recommends that the Planning Board find the proposed use in conformance with the Conditional Use Standards.

B. SITE PLAN STANDARDS

Transportation Standards - Impact on the Surrounding Street Network and Circulation
In reviewing the applicant's proposal against site plan standards regarding impacts to the surrounding street network and site circulation, the city's consulting traffic engineer, Tom Errico, found that the access and circulation provided met city standards. The following comments relate to draft conditions of approval for this project. (*Attachment 3*)

- *I find the parking access and circulation layout to be acceptable. The applicant should provide treatment along West Commercial Street that ensures vehicle movements will be restricted to the formal paved driveways.*
- *My review and approval of the westernmost driveway is based on low traffic volumes. If the use and traffic volumes intensify as part of future development plans, the design and provision of this driveway shall be reviewed. Accordingly, I support a waiver from City standards as it relates to provision of three driveways.*

Final review comments remain unchanged from the applicant's 2016 final submittal, noting that conditions of the Traffic Movement Permit are still outstanding.

- *I have reviewed the traffic analysis conducted as an outcome of the Traffic Movement Permit Scoping Meeting. My comments regarding the traffic study are noted as follows:*

    - The applicant shall provide a safe pedestrian crossing on West Commercial Street for access to a proposed shared-use path on the land side of the street (a sidewalk along the applicant's frontage is being waived). Given heavy traffic volumes and speeds, this crosswalk will require special design treatments. Possible treatments include a Rectangle Rapid Flashing Beacon Warning system and a median refuge island. It is my recommendation that a contribution be provided for installation of the crosswalk given that the shared-use path is not constructed and coordination with possible future development at the JB Brown site. Accordingly, the applicant shall contribute $25,000 towards implementation of a safe crosswalk facility that is ADA compliant.

    - The applicant has conducted a traffic analysis at the project driveways. The analysis indicates failing or long delays are projected for movements exiting the site. Long delays from STOP controlled driveways or streets is not unusual on high traffic arterials, such as West Commercial Street. The level of traffic expected from the project will be significantly below threshold warrants for a traffic signal, so STOP sign controlled driveways are acceptable. I do have concerns regarding left-turn entry movements from West Commercial Street, particularly during the morning peak period where heavy inbound traffic volumes limit gaps for turning. Further, the recommendations from the West Commercial Street Multi-Modal Corridor Study is to provide a three-lane roadway, where the center lane would function as a turn lane at major driveways, such as Canal Landing. Additionally, I reviewed MaineDOT methodologies for left-turn lane warrants for a roadway like West Commercial Street. It is my professional opinion the warrant is met considering all left-turn movements entering the site. Accordingly, the applicant shall provide a left-turn lane on West Commercial Street. Given that the City and State will likely be constructing the West Commercial Street shared-use path and the JB Brown site may be developed in the near future, the applicant shall contribute $65,000 towards the

construction of a three lane roadway section that will include provision for a left-turn lane into Canal Landing.

Transportation Standards - Loading and Servicing
The two-way driveway provided both east and west of the proposed buildings provide adequate access for loading and servicing activities on the site. There are multiple overhead doors located at the southeast corner of Building C, easily accessible via the easterly-most driveway.

Transportation Standards - Sidewalks
The project site has 2,160 linear feet of frontage along West Commercial Street, and given the fact that no sidewalk exists along the south side of West Commercial Street between the intersection of West Commercial and High Street (near Becky's Diner) and Cassidy Point, the applicant is requesting a waiver from the sidewalk requirement along their entire frontage. In support of this request, it should be noted that sidewalk waivers have been granted for various IMT expansion projects, immediately east of the proposed development site.

Planning efforts along West Commercial Street have envisioned a sidewalk/trail along the northerly side of West Commercial Street, and a truck queuing lane along the south side of West Commercial Street. As a result, the staff is recommending a $25,000 contribution from the applicant, that would be put towards the development of a cross-walk to tie into the proposed sidewalk/trail, providing safe pedestrian access to the site. (*Attachment 3*)

Transportation Standards – Public Transit Access
Not Applicable

Transportation Standards – Parking
The applicant has provided a breakdown of building use and floor area in the submission to determine the zoning parking requirement for this portion of the development. Staff has reviewed this information and further calculated the zoning parking requirement.

Buildings C and D contain 19,800 SF of marine retail space, which has a base requirement of 99 spaces (1 space per 200 SF) while office support space has a requirement of 12 spaces (1 space per 1,000 SF) for a total of 111 spaces. Properties located within the WPDZ qualify for a 50% reduction as stipulated under Division 20, which brings the overall parking requirement down to 56 parking spaces. (*Attachment 2*)

The applicant's proposal shows 55 standard sized parking spaces, including 2 handicap spaces, located within two separate lots, one to the east of Buildings C and D with 5 parking spaces, and one to the west with 50 parking spaces, intended to serve the retail space. Staff has requested that one additional parking space be provided, which has been added as a condition of approval.

Transportation Standards – Bicycle Parking
Two bicycle racks are proposed along the northerly side of Building D, which meets the city's standards for bicycle parking.

Transportation Standards – Snow Storage
The applicant has identified locations on their site plan for snow storage.

Transportation Standards – TDM
Not Applicable

Environmental Quality Standards – Preservation of Significant Natural Features
The site is located on fill land which was developed for and used as a rail yard. Its natural features were disturbed many years ago and today the existing site has sparse vegetation. The original submittal included a letter from the

Maine Department of Inland Fisheries and Wildlife, dated June 10, 2015, which states that there are no locations of Endangered, Threatened or Special Concern species within the project area. The letter further states that while the project area does contain Tidal Waterfowl and Wading Bird habitat, it is not anticipated that this development would result in significant impacts.

Environmental Quality Standards – Landscape and Landscape Preservation
The applicant does not intend to save any existing vegetation in this phase of the development. The applicant states, "the site's existing tree population is limited and the City's Shoreland Zoning vegetation management provisions do not require tree protection in the Waterfront Development Zone".

Environmental Quality Standards – Site Landscaping
A review of the site plan indicates minimal site landscaping along the edges of proposed parking areas and immediately adjacent to the two proposed buildings. The applicant has requested a waiver of the parking lot landscaping requirements based upon the proposed boatyard use and the need for flexibility with respect to boat parking and heavy vehicle maneuvering. The narrative states, "the applicant would like to work with City Staff on the placement of street trees along Commercial Street".

Providing street trees in proximity to Commercial Street is a reasonable approach in addressing the operational needs of this use and the site's highly visible gateway location. Staff is supportive of the parking lot landscaping waiver but as a condition of the site plan approval we are recommending that the applicant submit an appropriate landscaping plan with a focus on street trees near the Commercial Street frontage to enhance the site's role in a gateway location.

The provided plans also indicate a 6-foot-high black vinyl chain link fence to be installed along much of the applicant's Commercial Street frontage. The staff is recommending that the applicant provide additional screening of vehicles in the two proposed parking areas.

Environmental Quality Standards – Water Quality, Stormwater Management and Erosion Control
A description of the proposed stormwater scheme is provided below:

The majority of the site will rely on the placement of "Boatyard Surface" which is consistent with the surface treatment approved during the original project permitting and installed within the existing 5-acre initial development area for Portland Yacht Services. According to Maine DEP BMPs, this is known as a "manmade Pervious Surface" approach to stormwater quality treatment. The pervious surface consists of a permeable surface material and subbase materials that allow penetration of runoff into the underlying soils. The system must be designed to store and infiltrate the water quality volume (1.0" of impervious area and 0.4" of pervious area) with the remainder (larger storm events) discharged through an "overflow" system. The effectiveness of the system depends heavily on long-term inspection and maintenance.

A minimum of 3" thick crushed stone surface across the entire 'prepared surface' area designed on the site plan is proposed. This layer of stone will act as a reservoir for the 1" storm event. The material may be placed over geotextile fabric and infiltration into the existing underlying gravel will meet the requirements of this BMP. Runoff from larger storm events may flow to a number of proposed catch basin inlets that will convey flow via a pipe to the existing CSO lines that traverse the site or otherwise result as sheet flow across the waterfront parcel towards the shoreline, where any runoff would ultimately reach the river's edge. Internal drains within the building and storage tanks/collection systems beneath the concrete washdown aprons (at the future travel lift basin and boat ramps) will minimize the potential for petroleum, etc. to enter the stone areas.

Reviewing Engineer, Lauren Swett, P.E., Woodard and Curran, has reviewed the final plan and her comments are listed below (*Attachment 4*). Outstanding comments listed below have been drafted as conditions of approval.

- *The project is being reviewed under the City's Delegated Review Authority for the Site Location of Development Act; as such, the project must show conformance with MaineDEP Chapter 500 Basic, General, and Flooding Standards. Also, in accordance with Section 5 of the City of Portland Technical Manual, a Final Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:*
    - *Basic Standards: Plans, notes, and details and a full Erosion and Sediment Control report have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in general accordance with Appendix A, B, & C of MaineDEP Chapter 500.*
    - *General Standards: The Applicant is utilizing a porous crushed stone yard surface to infiltrate stormwater falling on the boat yard area and to manage run-on from the small adjacent paved surfaces; an underdrained drip edge filter to manage runoff from the Building D roof and adjacent sidewalk; and Fabco Model 10080 -1 Stormbasin Cartridge Filters (or equal) to manage runoff from the Building C roof to meet the quality requirements associated with the General Standards.*
    - *Flooding Standards: The project discharges directly to the Fore River, and a waiver may be granted for the Flooding Standard.*

- *As a condition of the original approval for the project, the Applicant was required to address comments provided previously by David Senus and David Margolis-Pineo. The Applicant has provided a detailed response to all comments, and we note the following items remain:*
    - *The Applicant has noted that rights were obtained from MaineDOT to install pipe within the ROW. A copy of the Supplemental Agreement should be provided to the City for the record.*
    - *The Applicant has provided draft easements for the CSO pipe. These easements should be finalized prior to issuance of a building permit.*
    - *The Applicant has noted that they will file Permit By Rule applications for any new stormdrain outfalls. Copies of these PBR applications should be provided to the City prior to issuance of a building permit.*
    - *The Applicant has noted that they are working with PWD to obtain final approval of the water service design. The final ability to serve should be provided to the City prior to issuance of a building permit.*

Public Infrastructure and Community Safety Standards – Consistency with City Master Plans
The proposed development is highly supportive of the City's recently approved Comprehensive Plan, which provides a number goals and strategies to create a vibrant and diversified working waterfront. Two goals in particular identified in the Comprehensive Plan stand out as being highly compatible with this proposed development.

- Prioritize and promote Portland's unique mix of water-dependent, marine-related and compatible non-marine uses.
- Ensure the future of the marine economy through support for emerging marine industries and mitigation of market trends that could compromise the balance between marine industries and competing development.

The proposed marine retail and storage facility will further diversify the operations occurring at Canal Landing, which is poised to become the first true shipyard in the City of Portland. By adding a retail component, and expanding opportunities for storage, one can effectively purchase a vessel, launch directly from this location, service that vessel and then store the vessel when not in use. By possessing each of these capabilities, the operations at Canal Landing will become more competitive with other regional operations, and supports an industry which while once common in the city, has in recent years been virtually non-existent. The proposed expansion also

demonstrates how marine-related businesses can coincide with water-dependent uses and be supportive of those activities.

As part of this development, the City has also secured a financial contribution of $25,000 as part of the Traffic Movement Permit, which will be put towards realizing the West Commercial Street Master Plan, which calls for a pedestrian sidewalk/trail along the north side of West Commercial Street. This contribution would specifically be used to construct a crosswalk connecting this site to that trail.

Public Infrastructure and Community Safety Standards – Public Safety and Fire Prevention
The proposed development has been reviewed by Fire Chief, Robert Thompson, who offers the following comments in regards to Public and Fire Safety (*Attachment 2*).

- *The street side of the building(s) must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.*
- *A new public hydrant must be installed on Commercial Street within 75 feet west of the 'oversized boat entrance'.*

Public Infrastructure and Community Safety Standards – Availability and Adequacy of Public Utilities
Submission of Utility Capacity letters has been drafted as a condition of approval.

Site Design Standards – Massing Ventilation and Wind Impact
It is not anticipated that the proposed development will result in adverse impacts related to ventilation or wind as a result of proposed massing.

Site Design Standards – Shadows
Not Applicable

Site Design Standards – Snow and Ice Loading
Not Applicable

Site Design Standards – View Corridors
Recent text amendments to the WPDZ require view corridors measuring a minimum of 90 feet in width to remain unbuilt to preserve a clear line of sight between West Commercial Street and the water. No formalized view corridor has been provided, although the intent of the view corridor provision is met given the substantial area left undeveloped.

Site Design Standards – Historic Resources
The site contains historic and archaeological resources. The 19th century seawall is currently being restored in conjunction with the proposed marine improvements. A 19th century glass works and the Cumberland Oxford Canal straddle both the New Yard and IMT properties.

While IMT's recent project excavation activities were more extensive than New Yard's, both entities contacted and informed the MSHPC of their respective development plans. Staff is aware of documentation conducted by archaeologists prior to construction of the last New Yard building.

Comments from the MHPC on this new phase is summarized below:

- *Based on discussion with Phin Sprague, former plans called for the covering of the former glassworks site. Surface excavation for utilities or another structure should be monitored by a professional archaeologist to document glassworks remains that may be negatively impacted. No archaeological monitoring or work is necessary west of the former glassworks property and sewer outfall.*

The site plan indicates limited excavation within the sewer outfall area. Staff recommends that the same condition of approval required in the 2016 site plan approved be incorporated into this approval.

Site Design Standards – Site Lighting
The applicant has submitted a lighting and photometric plan which shows 8 building mounted fixtures and sixteen pole mounted fixtures. Lighting cut sheets with associated details have been requested and made a condition of approval.

Site Design Standards – Noise and Vibration
The proposed develop is not anticipated to result in adverse conditions related to noise and or vibration.

Site Design Standards – Signage and Wayfinding
Not Applicable.

Site Design Standards – Zoning Related Design Standards
Please see discussion above

Financial and Technical Capacity
The applicant has provided a description of their technical capacity to complete the proposed project. Similarly, a letter from Norway Savings Bank was supplied demonstrating the applicant's financial capacity to complete the project, which is estimated to cost between $300,000 and $500,000 for site work, and $1 million to $3 million for construction of the buildings.

Right, Title & Interest
The applicant supplied a Release Deed and Settlement Agreement demonstrating ownership of the property and property encumbrances.

VIII STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed commercial development at 400 West Commercial Street, Canal Landing Phase III.

IX MOTIONS FOR THE BOARD TO CONSIDER

VII. PROPOSED MOTIONS

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on January 23, 2018 for application #2017-293 (Canal Landing Phase III) relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing:

1. The Planning Board [finds/does not find], based upon the consulting traffic engineer's review (Attachment 2), that extraordinary conditions exist or undue hardship may result from strict compliance with the Site Plan Standard Section 14-526(a)(2)c.i. to [waive/not waive] the granite curbing requirement along the property's street frontage as supported by the Traffic Engineering reviewer; and
2. The Planning Board [finds/does not find], based upon the consulting traffic engineer's review (Attachment 2), that extraordinary conditions exist or undue hardship may result from strict

compliance with the Site Plan Standard Section 14-526(a)(2)c.i. to [waive/not waive] the sidewalk requirement along the property's street frontage as supported by the Traffic Engineering reviewer; and

3. The Planning Board [finds/does not find], based upon the consulting traffic engineer's review (Attachment 2), that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual Standard (Section 1.7) to [waive/not waive] increase the requirement that a two-way driveway width for industrial use be 30 feet, to allow 40 feet as supported by the Traffic Engineering reviewer; and
4. The Planning Board [finds/does not find], based upon the consulting traffic engineer's review (Attachment 3), that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual Standard (Section V.E) to [waive/not waive] the Flooding Standard of Maine DEP Chapter 500 as supported by the Peer Engineering reviewer; and
5. The Planning Board [finds/does not find], based upon the consulting traffic engineer's review (Attachment 4), that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual Standard (Section IV, 4.5.5) to [waive/not waive] the requirement that the applicant provide parking lot landscaping as supported by the City Arborist.

B. CONDITIONAL USE

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on January 23, 2018 for application 2017-293 relevant to the Conditional Use as authorized by Division 18.5, Section 14-320, Conditional Uses and Division 28, Section 14-474, Conditional Uses; and the testimony presented at the Planning Board Hearing, the Planning Board finds the proposed conditional use for 'marine retail and wholesale sales, including yacht brokerage' [does or does not] meet the standards of Section 14-474.

C. SITE PLAN AND SITE LOCATION OF DEVELOPMENT

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on January 23, 2018 for application 2017-293 relevant to the Portland's site plan standards and the Site Location of Development Act regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan is/is not in conformance with the site plan standards of the land use code, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. That the applicant shall submit updated letters from Central Maine Power (electricity) and City of Portland (sanitary waste) regarding their ability to serve the project; and
2. The applicant shall provide a revised site plan which shows the parking area surfaced in bituminous pavement and increased to accommodate 56 vehicles as required by zoning; and
3. The applicant shall provide a revised landscaping plan for Planning staff and City Arborist review and approval demonstrating compliance with the city's street tree requirements, at a rate of one tree per 30-45 feet of linear frontage along West Commercial Street; and
4. Rooftop mechanical equipment shall be screened from public view and the long views of the building shall be considered. The applicant shall provide revised elevations and roof plans for review and approval by Planning Staff.
5. The review and approval of the western most driveway is based upon low traffic volumes. If the use and traffic volumes intensify as part of the future development plans, the design and provision of this driveway shall be reviewed and approved by the City Traffic Engineer; and

6. The applicant shall provide a copy of the Supplemental Agreement between the applicant and MaineDOT to install pipe within the public right-of-way.
7. The draft easement documentation for the CSO pipe shall be finalized prior to issuance of any building permits; and
8. A copy of the Permit By Rule application for new stormdrain outfalls will be required prior to issuance of any building permits; and
9. The street side of the proposed buildings shall be addressed, consistent with 911, tax assessor, Inspections Division and future mailing addresses; and
10. A new public hydrant must be installed on Commercial Street within 75 feet, west of the 'oversized boat entrance.'

D. SHORELAND REGULATIONS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on January 23, 2018 for application 2017-293 relevant to the Shoreland Regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan **is/is not** in conformance with the shoreland regulations standards of the land use code.

ATTACHMENTS:

Attachments to Memorandum

1. Approval Letter from January 2016
2. Planning and Fire Review Comments
3. Traffic Engineering Review comments
4. Design Review comments
5. Peer Engineering Review comments

Applicant's Submittal

A. Cover Letter
B. Response to Staff Comments
C. Site Plan Application
D. Development Description
E. Right, Title and Interest and Technical/Financial Capacity
F. Zoning Compliance
G. Traffic and Construction Management Plan
H. O&M Manual
I. Stormwater Management Plan
J. Fire Safety

Plans

P1. Cover Sheet
P2. General Notes and Legend (2 sheets)
P3. Boundary Survey
P4. Boundary and Topographic Survey 1 of 2
P5. Boundary and Topographic Survey 2 of 2
P6. Existing Conditions Plan
P.7 Site Layout Plan
P.8 Amended Overall Project Plan
P.9 Temporary Access Plan

P.10 Grading and Drainage Plan
P.11 Building Grading and Drainage Plan
P.12 Utility Plan I
P.13 Utility Plan II
P. 14 Erosion and Sediment Control Plan
P. 15 Erosion and Sediment Control Details
P.16 Lighting Plan
P.17 Site Details I
P.18 Site Details II
P.19 Water System Details
P.20 Utility Details
P.21 Storm Drain System Details
P.22 Fire Protection Plan
P.23 Roof Plan
P.24 Building Elevations
P.25 Building Perspective I
P. 26 Building Perspective II

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Bill Hall
Carol Morrissette
Jack Soley
Dave Eaton

January 26, 2016

Canal Landing, LLC
Attn: Phin Sprague
400 West Commercial Street
Potrland, ME 04101

Stephen Bushey
Stantec
778 Main Street, Suite 8
South Portland, ME. 04106

Project Name:	Canal Landing New Yard	Project ID:	#2115-101
Address:	400 West Commercial St.	CBL:	59-A-3-4; 60-F-1-2-3-4; 71-F-2-4-5-6
Applicant:	Canal Landing, LLC		
Planner:	Richard Knowland		

Dear Mr. Sprague:

On January 12, 2016, the Planning Board considered Canal Landing New Yard – Phase III for an expansion of a boat maintenance and repair facility including the construction of Buildings C and D with a total floor area of about 31,250 square feet. The Planning Board reviewed the proposal for conformance with the standards of Conditional Use Review, Shoreland Zoning Regulations, Traffic Movement Permit, Site Plan Ordinance, including Site Development of Location Act. The Planning Board voted to approve the application with the waiver(s) and condition(s) as presented below.

CONDITIONAL USE

The Planning Board voted 5 to 0 (Boepple absent) that the proposed plans are in conformance with Conditional Use Standards of the Waterfront Port Development Zone for marine products, wholesaling and retailing, which includes the proposed boat storage and sales, and section 14-474 of the of the Land Use Code.

WAIVERS

The Planning Board voted 5 to 0 (Boepple absent) to waive the following Technical Standards.

1. The Planning Board finds that two or more criteria for sidewalk waiver, specifically criteria 2 and 3, as provided under Sec. 14-506(b), are met and therefore waives the requirement for sidewalks along the southerly sideline of Commercial Street.

2. The Planning Board finds that two or more criteria for granite curbing waiver, specifically criteria 3 and 5, as provided under Sec. 14-506(b), are met and therefore waives the requirement for granite

curbing along the southerly sideline of Commercial Street.

3. The Planning Board finds that due to circulation needs for trucks transporting large boats, the Planning Board waives the Technical Standard for Driveway Design: Maximum driveway width, Section 1.7.1.4. to allow a maximum width of 40 feet for the middle driveway.

4. The Planning Board finds that due to the capacity of the receiving water (Fore River) for stormwater, the Planning Board waives the Technical Standard for flooding as provided under Section 5.III.4.E(2).

5. The Planning Board finds based on known conditions on the site and controlled materials to be installed during construction, the Planning Board waives the Technical Standard for Soil Infiltration Testing, Sec V, Appendix D.4.(a).

6. The Planning Board finds that due to the need for flexibility in boat storage and boat yard operations, the Planning Board waives the Technical Standard for Landscape and Landscape Preservation: Sec. 4.iv.4.5.5. – Interior Site Landscaping.

7. The Planning Board finds that due to the extended street frontage of the New Yard property and limited usage of the most easterly driveway, the Planning Board waives the Technical Standard for 1.7.1.8 Number of Driveways to allow a third driveway on the site.

TRAFFIC MOVEMENT PERMIT

Based upon the City of Portland's Delegated Review Authority, the Planning Board voted 5 to 0 (Boepple absent) to approve the Traffic Movement Permit application for Canal Landing New Yard – Phase III subject to the following conditions of approval to be met prior to the issuance of a building permit:

1. That the applicant contribute $65,000 towards the construction of a three lane roadway section that will include provision for a left-turn lane into Canal Landing (New Yard) as provided for in Tom Errico's Review Memo (Traffic Review Consultant) dated January 8, 2016.

2. That the applicant shall contribute $25,000 towards the implementation of a safe crosswalk facility that is ADA compliant for access to a proposed shared-use path on the land side of the street as provided for in Tom Errico's Review Memo (Traffic Review Consultant) dated January 8, 2016.

SITE PLAN REVIEW

The Planning Board voted 5 to 0 **(**Boepple absent) that the plan is in conformance with the Site Plan standards of the Land Use Code including the Site Location of Development Act, subject to the following condition(s) of approval to be met prior to the issuance of a building permit:

1. That the applicant shall submit an updated letter from Central Maine Power regarding their ability to serve the project.

2. That the applicant shall submit a revised site plan addressing the review comments (dated 12-

22-2015) of David Senus, Development Review Consultant, for review and approval.

3. That the applicant shall submit a landscaping plan for Planning Board review and approval with a focus on providing street trees, fencing and plantings on or near the project street frontage.

4. That the applicant shall provide a treatment along Commercial Street that ensures vehicle movements will be restricted to the formal paved driveways. The parking and boat storage areas along Commercial Street shall have a fence, guardrail or other physical barrier to contain vehicles storage within designated areas as reviewed and approved by Planning Staff.

5. The review and approval of the western most driveway is based on low traffic volumes. If the use and traffic volumes intensify as part of future development plans, the design and provision of this driveway shall be reviewed and approved by the City Traffic Engineer. The applicant shall provide usage information to the City Traffic Engineer annually for up to 5 years from the date of the certificate of occupancy.

6. That a revised site plan shall be submitted for the site substantiating the total number of available parking and bicycle spaces on the site for Planning and Staff review and approval.

7. That the applicant address the review comments of David Margolis-Pineo (Deputy City Engineer) dated January 8, 2016.

8. That the applicant shall submit a revised site plan for review and approval by the Fire Department, which will show emergency access routes to be kept clear of stored and trailered vessels, vehicle parking and snow storage.

9. Applicant shall submit an internal signage plan for Planning Staff review and approval.

Shoreland Regulations
The Planning Board voted 5 to 0 (Boepple absent) that the plan is in conformance with the Shoreland Standards of the Land Use Code. Note that the applicant is not preserving trees within the Shoreland Zone which is permitted in the Waterfront Port Development Zone.

The approval is based on the submitted plans and the findings related to site plan and other review standards as contained in Planning Report for application #2015-101 which is attached.

STANDARD CONDITIONS OF APPROVAL
Please note the following standard conditions of approval and requirements for all approved site plans:

1. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.

2. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.

3. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend approvals must be received before the one (1) year expiration date.

4. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements, inspection fee payment of 2.0% of the guarantee amount and seven (7) final sets of plans must be submitted to and approved by the Planning Division and Public Services Department prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.

5. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.

6. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting. (If applicable)

7. **Department of Public Services Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)

8. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*,dwg), release AutoCAD 2005 or greater.

The Development Review Coordinator must be notified five (5) working days prior to the date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Richard Knowland at (207) 874-8725

Sincerely,

Elizabeth Boepple, Chair
Portland Planning Board

Attachments:
1. Tom Errico (Traffic Review Consultant) Review Comments, dated Jan 8, 2016
2. David Senus (Development Review Consultant) Review Comments, dated Dec 22, 2015
3. David Margoils-Pineo (Deputy City Engineer) Review Comments, dated Jan 8, 2016
4. Planning Board Report
5. City Code: Chapter 32
6. Sample Stormwater Maintenance Agreement [if applicable]
7. Performance Guarantee Packet

Electronic Distribution:

cc: Jeff Levine, AICP, Director of Planning and Urban Development
Stuart G. O'Brien, City Planning Director
Barbara Barhydt, Development Review Services Manager
Richard Knowland,/Senior Planner
Philip DiPierro, Development Review Coordinator, Planning
Ann Machado, Zoning Administrator, Inspections Division
Tammy Munson, Inspections Division Director
Jonathan Rioux, Inspections Division Deputy Director
Jeanie Bourke, Plan Reviewer/CEO, Inspections Division
Brad Saucier, Administration, Inspections Division
Katherine Earley, Engineering Services Manager, Public Services
Bill Clark, Project Engineer, Public Services
David Margolis-Pineo, Deputy City Engineer, Public Services
Doug Roncarati, Stormwater Coordinator, Public Services
Greg Vining, Associate Engineer, Public Services
Michelle Sweeney, Associate Engineer
John Low, Associate Engineer, Public Services
Rhonda Zazzara, Field Inspection Coordinator, Public Services
Mike Farmer, Project Engineer, Public Services
Jane Ward, Administration, Public Services
Jeff Tarling, City Arborist, Public Services
Jeremiah Bartlett, Public Services
Keith Gautreau, Fire Department
Jennifer Thompson, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
David Senus, P.E., Woodard and Curran
Rick Blackburn, Assessor's Department
Approval Letter File

Planning and Urban Development Department
Planning Division

January 11, 2018

Phineas Sprague
Canal Landing, LLC
400 West Commercial Street
Portland, ME 04102

Stephen Bushey, P.E.
Stantec Consulting Services, INC
482 Payne Road
Scarborough, ME 04074

RE: Staff Review Comments for Canal Landing Phase III – Marine Retail/Boat Storage and Office Use – 400 West Commercial Street (2017-293) – Planning Board Review

Project Name:	Canal Landing Phase III	Project ID:	(2017-293)
Project Address:	400 West Commercial Street		
Applicant:	Phin Sprague		
Planner:	Matthew Grooms		

Dear Mr. Sprague and Mr. Bushey,

Thank you for submitting a final Level III Site Plan, Conditional Use, Site Location of Development and Shoreland Zone application for a new commercial project intended for marine retail, storage and office usage at 400 West Commercial Street in the Waterfront Port Development Zone. This project is being reviewed as a preliminary plan subject to the following applicable Land Use Code provisions:

- Site Plan Ordinance, Article V
- Division 18.5 Waterfront Port Development Zone
- Division 20. Off-Street Parking Standards
- Neighborhood Meeting Regulations, Section 14-32

Final Plan for Planning Board Review: Staff Review Comments

I. Site Design Standards

1. This project is required to provide the equivalent of one street tree for every 30-45 feet of frontage along West Commercial Street.
2. Can the applicant provide additional information regarding the proposed internal sidewalk running along the north side of the building? The sidewalk does not appear to provide access to any building entrances and does not wrap around the building.
3. A lighting cut sheet with details for proposed lights and fixtures shall be provided.

4. Please note, exterior mechanical equipment, including rooftop equipment shall be screened in conformance with the city's site plan ordinance and relevant performance standards of the Waterfront Port Development Zone.
5. A total of 56 parking spaces is required by Division, 20, Off-Street Parking Standards for the proposed uses.
6. According to the site plan ordinance, parking lots, except for temporary parking lots be used for less than one year, shall be constructed of a permanent and durable material. Please show the parking area in either bituminous pavement or pervious pavement.

Additional Submittals Required:

Please upload the digital plans and documents to address staff comments. Upon receipt of the revised material, the City of Portland will review the additional plans and information for conformance with applicable ordinances. Please be aware that an application expires within 120 days of the date upon which this written request for additional information was made and only *one set of revised plans* may be submitted for review.

If you have any questions, feel free to contact me at (207) 874-8725 or by email at mgrooms@portlandmaine.gov.

Sincerely,
Matthew Grooms
Planner

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

Canal Landing New Yard - Phase III Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Thu, Jan 18, 2018 at 11:42 AM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

This is what I plan on providing for comments. I will call shortly.

Matt –The following final traffic comments were provided at the time of the 2016 Approval and I find them to be appropriate at this time.

- I find the parking access and circulation layout to be acceptable. The applicant should provide treatment along West Commercial Street that ensures vehicle movements will be restricted to the formal paved driveways.
- I support a waiver for driveway width given large vehicle deliveries expected for the site.
- My review and approval of the westernmost driveway is based on low traffic volumes. If the use and traffic volumes intensify as part of future development plans, the design and provision of this driveway shall be reviewed. Accordingly, I support a waiver from City standards as it relates to provision of three driveways.
- I have reviewed the traffic analysis conducted as an outcome of the Traffic Movement Permit Scoping Meeting. My comments regarding the traffic study are noted as follows:
    - The applicant shall provide a safe pedestrian crossing on West Commercial Street for access to a proposed shared-use path on the land side of the street (a sidewalk along the applicant's frontage is being waived). Given heavy traffic volumes and speeds, this crosswalk will require special design treatments. Possible treatments include a Rectangle Rapid Flashing Beacon Warning system and a median refuge island. It is my recommendation that a contribution be provided for installation of the crosswalk given that the shared-use path is not constructed and coordination with possible future development at the JB Brown site. Accordingly, the applicant shall contribute $25,000 towards implementation of a safe crosswalk facility that is ADA compliant.
    - The applicant has conducted a traffic analysis at the project driveways. The analysis indicates failing or long delays are projected for movements exiting the site. Long delays from STOP controlled driveways or streets is not unusual on high traffic arterials, such as West Commercial Street. The level of traffic expected from the project will be significantly below threshold warrants for a traffic signal, so STOP sign controlled driveways are acceptable. I do have concerns regarding left-turn entry movements from West Commercial Street, particularly during the morning peak period where heavy inbound traffic volumes limit gaps for turning. Further, the recommendations from the West Commercial Street Multi-Modal Corridor Study is to provide a three lane roadway, where the center lane would function as a turn lane at major driveways, such as Canal Landing. Additionally, I reviewed MaineDOT methodologies for left-turn lane warrants for a roadway like West Commercial Street. It is my professional opinion the warrant is met considering all left-turn movements entering the site. Accordingly, the applicant shall provide a left-turn lane on West Commercial Street. Given that the City and State will likely be constructing the West Commercial Street shared-use path and the JB Brown site may be developed in the near future, the applicant shall contribute $65,000 towards the construction of a three lane roadway section that will include provision for a left-turn lane into Canal Landing.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
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+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
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Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

COMMITMENT & INTEGRITY
DRIVE RESULTS

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MEMORANDUM

TO: Matt Grooms, Project Planner
FROM: Lauren Swett, P.E.
DATE: January 18, 2018
RE: Canal Landing, Final Level III Site Plan Application & Response to Comments

---

Woodard & Curran has reviewed the Final Application and Response to Comments submittals for the Level III Site Plan for Phase III of Canal Landing (New Yard) located at 400 West Commercial Street in Portland, Maine. The project involves the construction of approximately 30,250 SF of new building space and restoration/stabilization of boat yard areas across approximately eight acres of the former rail yard.

Documents Reviewed by Woodard & Curran

- Response to Comments and Attachments, dated January 17, 2018, prepared by Stantec on behalf of Canal Landing, LLC.
- Site Layout Plan, REV dated January 17, 2018, prepared by Stantec on behalf of Canal Landing, LLC.

Comments

1) The project is being reviewed under the City's Delegated Review Authority for the Site Location of Development Act; as such, the project must show conformance with MaineDEP Chapter 500 Basic, General, and Flooding Standards. Also, in accordance with Section 5 of the City of Portland Technical Manual, a Final Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standards: Plans, notes, and details and a full Erosion and Sediment Control report have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in general accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standards: The Applicant is utilizing a porous crushed stone yard surface to infiltrate stormwater falling on the boat yard area and to manage run-on from the small adjacent paved surfaces; an underdrained drip edge filter to manage runoff from the Building D roof and adjacent sidewalk; and Fabco Model 10080 -1 Stormbasin Cartridge Filters (or equal) to manage runoff from the Building C roof to meet the quality requirements associated with the General Standards.
   c) Flooding Standards: The project discharges directly to the Fore River, and a waiver may be granted for the Flooding Standard.
2) As a condition of the original approval for the project, the Applicant was required to address comments provided previously by David Senus and David Margolis-Pineo. The Applicant has provided a detailed response to all comments, and we note the following items remain:
   a) The Applicant has noted that rights were obtained from MaineDOT to install pipe within the ROW. A copy of the Supplemental Agreement should be provided to the City for the record.
   b) The Applicant has provided draft easements for the CSO pipe. These easements should be finalized prior to issuance of a building permit.
   c) The Applicant has noted that they will file Permit By Rule applications for any new stormdrain outfalls. Copies of these PBR applications should be provided to the City prior to issuance of a building permit.
   d) The Applicant has noted that they are working with PWD to obtain final approval of the water service design. The final ability to serve should be provided to the City prior to issuance of a building permit.

Planning and Urban Development Department
Planning Division

Subject: WPDZ Design Review – 400 West Commercial (Canal Landing)

Written by: Caitlin Cameron, Urban Designer

Date of Review: Thursday, January 18 2018

The project at 400 West Commercial Street – Canal Landing - was reviewed according to the adopted WPD Zone performance standards by Caitlin Cameron, Urban Designer.

Design Review Comments*: (questions and unmet standards in red)*

Sec. 14-320.3 Performance Standards

(k) Lighting – Applicant has provided a photometric plan but has not addressed whether the standard is met that site lighting will not have "an unreasonable adverse impact on adjacent residential zones." Staff recommend cut sheets that give evidence that site lighting is full cutoff.

(l) Signs – Signs will come under separate permit application according to Sign Ordinance in Division 22.

(o) Design and Visual Character:

1) Long Views/Building Design: Change in roof form provides some visual interest to meet the standard. Rooftop mechanicals are placed in the middle of the building to reduce visibility from the street, however, long views of this equipment have not been addressed. Screening or parapet should be incorporated into the design for these rooftop units.

2) Massing: Massing and roof forms organized to emphasize uses, indicate one, street-facing entrance.

3) Façades – equal treatment: All facades include equal treatment of materials and openings. The roof form is somewhat varied and the material choice of standing seam will provide some texture – however, the screening of rooftop mechanicals has not been addressed.

4) Facades – variation and articulation: Project provides some visual interest with varied roof line, change in material texture, windows, cornice line.

5) Scale and Articulation: Project meets articulation requirement with canopy and fenestration. Previous versions included awnings over street-facing windows which provided more articulation and scale to the otherwise flat façade of Building C – these elements have subsequently been removed from the proposal though the standard is still met.

Stantec Consulting Services Inc.
482 Payne Road Scarborough Court, Scarborough ME 04074-8929

December 14, 2017

Mr. Matthew Grooms
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Canal Landing New Yard – Phase III
400 West Commercial Street
Final Site Plan and Conditional Use Application
Applicant: Canal Landing, LLC

Dear Matthew:

On behalf of Canal Landing, LLC, we are pleased to provide the accompanying package of submission materials related to the proposed Phase III Canal Landing New Yard development off West Commercial Street. This submission package is intended to meet the City's Final Submission Requirements as outlined in the Level III Application and Conditional Use Application procedures. This submission is also made as a request to re-permit the Phase III site plan that was previously approved by the Planning Board at their January 11, 2016 Public hearing. As you know, the Phase III building work did not commence within the 1 year permit expiration period and no formal extension request was made, thus we are seeking a simple review and permit renewal of the project to allow the applicant to now possibly move ahead with construction in 2018. We understand that the previously approved Traffic Movement Permit remains valid, thus no further permitting material is required for that approval.

The applicant has completed the initial phases of development consisting of two buildings constructed since late 2013 on their 5.03-acre remainder property positioned just to the southeast corner of the IMT Expansion project. The Portland Planning Authority previously approved these activities beginning in the fall of 2013. The applicant acquired 12.74 acres of additional land from the Portland Terminal Company (dba Maine Central Railroad) located west of the original Canal Landing site in 2015. This resubmitted application is for the next phase of development activity that is expected to extend across this additional acreage. As outlined in previously submitted Master Plans, the Canal Landing development will include multiple new buildings to be constructed along the Commercial Street frontage as well as shorefront areas. It is expected that all uses will be marine related and thus compliant with the WPDZ zoning either as permitted or conditional uses. An impact mitigation narrative is contained in Section 3 of this submission package. The **Phase III** development activity for which this application is made includes the construction of approximately 30,250 SF of new building space and restoration/stabilization of boat yard areas across approximately 8 acres of the former

rail yard. In addition, the applicant is seeking approval to prepare a 2-3 acre secured area at the west end of the property within which marine related uses for vehicle parking, temporary equipment or marine cargo storage, or related activities may occur. The Canal Landing New Yard **Phase III** activities include uses that are identified as Permitted or Conditional uses under the WPDZ Zone and therefore the appropriate supporting information is contained within this submission. These uses include the following in accordance with Code Section 14-319:

1. Marine Cargos Handling Facilities

2. Marine Retail and Wholesale Sales, Including Yacht Brokerage – Conditional Use

The following additional information is provided in accordance with Section 14-474 of the Ordinance. Specifically, the Planning Authority may issue a Conditional Use Permit if it so determines that:

a. *The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone; and*

b. *The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter; and*

c. *The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.*

In support of the project, we offer the following statements addressing each of the aforementioned criteria:

a. The proposed marine retail use will involve activities that are consistent with the surrounding area including uses within the Star Match Building as well as other retail sales uses along Commercial Street. The Phase III trip generation is expected to be less than 50 trip ends during the peak hour and the hours of operations will be during normal daytime hours of 7:00 am to 6:00 pm. The marine retail use will require limited parking based on the tenant's operations at their existing facility located at another site in the City.

b. The proposed conditional land uses will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or

litter as they involve non-intrusive activities that are common within a waterfront and/or industrial setting. The marine retail activity includes a traditional building style, similar to those existing in the vicinity.

c. The proposed conditional use will not result in substantially different changes to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage than what may be expected normally from permitted uses in the zone. In general, the Portland waterfront contains various marine related sales services as well as the storage of industrial and marine related, cargo and materials. The proposed marine retail use will involve primarily inside display and sale of marine/boat related products. These activities are considered complementary to many of the existing uses along Commercial Street and have been specifically considered as the desired uses for the WPDZ zone. The yard improvements and waterfront activities for **Phase III** will continue to support the New Yard Boat Maintenance Facility.

Further, part of the Phase III building will be ancillary to the operations of the Canal Landing Boat Maintenance Facility. The applicant intends to use some of the proposed space for their own management and office functions directly related to the operations of their boat repair and maintenance business.

Accompanying this cover letter are the following materials:

- Site Plan Application and Conditional Use Application
- Section 1: Written Description of Project
- Section 2: Evidence of Right, Title and Interest, Technical Capacity and Financial Capacity
- Section 3: Written Assessment of Proposed Project's Compliance with Applicable Zoning and Land Use Requirements
- Section 4: Traffic Information
- Section 5: Stormwater Management Information and Erosion & Sedimentation Control Report
- Section 6: Fire Safety Analysis
- Reduced Sized Plans

You will find in the accompanying materials, information including the Final Phase III Site Layout Plans. Also included in the plans is a Future Phase Concept Plan that depicts the layout of several additional buildings and site development as may occur in subsequent phases for which subsequent permit applications will be submitted to the planning

Authority. Building elevations for the Phase III buildings accompany this submission. Information pertaining to the project's utilities needs and statements regarding compliance with the City's Standards are contained within this submission.

During the January 2016 review process, we had noted the applicant requested and received After the Fact Authorization for several site improvement activities in advance of the Amended Site Improvement and Conditional Use Permit approvals at the time. Specifically, New Yard LLC completed clearing and ground stabilization of approximately 6 acres of the additional acquired site area. These preliminary activities involved some vegetation and stump removal, leveling of existing ground and placement of a thin layer (<2") of stone over the ground surface as a short-term stabilization measure. In addition, the applicant sought and was granted advanced approval to park boats, boat trailers and employee vehicles in this area. As City Staff is aware, the IMT expansion project and MaineDOT land taking effectively left New Yard with about 5 acres of development area. Once they constructed Buildings A & B, the applicant incurred the short-term disadvantage of reduced yard area for their business operations, so they desperately needed additional physical area in which to conduct their business. Their ability to use the additional land they acquired from the Railroad has been imperative to their business. The applicant appreciates the City's willingness to pre-approve the relocation of the New Yard access driveways to the two proposed locations identified as the Central and Easterly entrances on the accompanying plans. As outlined previously, the MaineDOT completed at grade crossings of the new rail tracks, thus allowing New Yard the opportunity to construct the new driveways for access into the 5-acre remainder land and the additional acquired parcels.

On behalf of New Yard, Stantec previously contacted the MaineDEP regarding the project and for a determination regarding the applicability of the City of Portland Delegated Authority to grant Site Law approval. It is our opinion that the historical site use as a rail yard leaves little need for further MaineDEP involvement on the land side of activity. The applicant will continue to pursue MaineDEP permitting for any waterfront activities including new floats, ramps, or travel lift basin in the future.

On behalf of the Canal Landing Team, we look forward to your continued assistance on the project and we look forward to the next available Public Hearing meeting with the Planning Board. In advance of the Public Hearing, the applicant will be conducting a Public Informational Meeting at the New Yard site Building B. We anticipate this meeting will be conducted the first or second week of January 2018, prior to the Public Hearing.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Stephen R. Bushey, P.E.
Associate
Phone: (207) 887-3406
Fax: (207) 883-3376
stephen.bushey@stantec.com

Attachments – As listed above

c: Phineas Sprague, Jr. – New Yard LLC
Clint Marshall

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Stantec Consulting Services Inc.
482 Payne Road Scarborough Court, Scarborough ME 04074-8929

January 17, 2018

Mr. Matthew Grooms
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Canal Landing New Yard – Phase III
400 West Commercial Street
Final Site Plan and Conditional Use Application
Applicant: Canal Landing, LLC
Response to Staff comments

Dear Matthew:

On behalf of Canal Landing, LLC, our office has reviewed the staff comments provided to us last week and we offer the following information in response: For ease of reference, we have repeated the comments below in *italics.*

Caitlin Cameron Comments

Comment 1:

Lighting – What Building lights are proposed?

Response:

The building will have six Laredo series LED fixtures by Spaulding lighting mounted on the east side of the building. At this time, there are no building mounted lights on the West Commercial Street side of the building. There is an existing overhead street light on the utility pole opposite the building on West Commercial Street. The applicant may consider some accent lighting along the street front for Building C, to highlight proposed landscaping. Any proposal for this lighting will be reviewed with City planning staff prior to installation.

Comment 2:

Signs will need to obtain a sign permit and are subject to Sign Ordinance in Division 22.

Response:

It is the applicant's intent to file separate sign permit application(s) once the definitive tenant and sign needs are determined.

Comment 3:

Design and Visual Character

1. *Are there any mechanical systems proposed on the roof? Change in Roof form provides some visual interest to meet the standard.*
2. *Massing and Roof forms organized to emphasize uses, indicate entrances.*
3. *All facades include equal treatment of materials and openings.*
4. *Indicate materials on elevations. What is the roof material? Project provides some visual interest with varied roof line, change in material texture, windows with awnings, cornice line.*
5. *Project meets articulation requirement with a canopy and fenestration.*

Response:

Archetype, PA has provided the accompanying roof plan that shows the positioning of any roof mounted equipment basically within the center of the roof, thus relying on the perimeter roof line and separation distance to provide the necessary visual screen to this equipment, at least from the street or from the site. The equipment will be observable from higher points west of the site. Archetype has also prepared the accompanying color building elevation plan that includes materials and the placement of some birch plantings along the street front. As discussed with staff last week, we propose to eliminate the sidewalk along the street side of Building C, and simply landscape the area between the building and the street ROW with grass, Forsythia, and birch plantings. This planting information has also been added to the Site plan.

Lauren Swett Comments via email January 10, 2018

Comment 1:

The stormwater report references the old stormwater standards (2010). They should be in compliance with the current standards with what they propose, but their references should be updated to the newer versions.

Response:

The accompanying report includes updated references to the current standards, for your records.

Comment 2:

The site includes a roof edge filter and downspout filters for treatment of roof areas. The stormwater report does not include these. With the prior approval, we had a few remaining comments on the general standard that needed to be addressed as conditions of approval – a treatment plan and table and an updated O&M plan.

Response:

An updated Operations and Maintenance Manual accompanies this letter.

Comment 3:

There were a number of other comments from Dave Senus and David Margolis-Pineo remaining as conditions of approval previously

Response:

The latest plan set and submission materials have been updated to include the following changes to address the peer review comments from David Senus:

1. The Post Construction Stormwater O&M Manual has been updated to include inspection and maintenance of the Fabco Model 10080-1 Stormbasin Cartridge Filters. A copy of the O&M manual accompanies this letter and has been uploaded to EPlan.

2. The Phase III Grading and Drainage Plan has been updated to reference compliance with the General Standards for any future buildings or pavement.

3. A Stormwater Treatment compliance summary has been added to the Grading and Drainage plan accompanying this letter.

4. The applicant retained rights from the MaineDOT to install pipe within the ROW. This is evidenced within a Supplemental Agreement between the applicant and the Department of Transportation dated July 8, 2014, a copy of which can be provided upon request.

5. The applicant is amenable to including provisions within the proposed 30' wide easement asserting responsibility onto the applicant for removing encumbrances within the easement if necessary to allow for improvements to the CSO pipe by the City. The accompanying draft easements are offered for City staff review.

6. The snow storage zone will be located primarily to the west end of the site, in the area used by the City over the previous winter for snow dump.

7. The plans have been updated to identify the requirements for removing and resetting the CSO manhole frames and covers to proposed grade.

8. The applicant will file Permit by Rule applications for any new storm drain outfalls. These will be located within areas of existing old pile fields and stone thus no further stabilization is considered necessary. Copies of PBR forms will be provided to the City for your records when they are submitted to the DEP.

9. The plan to keep the gravel shoulder between the existing edge of pavement and the site frontage is consistent with the recommendations of the Multi-Modal corridor study. We are amenable to further discussion regarding the City's timing to complete the corridor improvements as identified in Project 6 of the Study.

The following comments were identified in a January 8, 2016 email from David Margolis-Pineo to Rick Knowland. Our response follows each comment.

1. *Proposed 30' wide sewer easement should be in place prior to issuance of permits*

   Response: The applicant will pursue the execution of easements to the City of Portland for both CSO lines that cross the properties. These will be completed prior to the submission of a building permit application.

2. *Since the 48" interceptor sewer is a combined system, backflow preventers are required on all lateral connections.*

   Response: Backflow preventers have been added to the utility plan.

3. *It is unclear how stormwater drainage off West Commercial will be handled. Would the applicant please clarify?*

   Response: Drainage off West Commercial Street sheets off the existing edge of pavement onto the property under current conditions. The proposed design includes a raised sidewalk along the street side of the building. Drainage from the street will reach the gutter created by the raised sidewalk condition and travel as gutter flow for a short distance until it is able to sheet out onto the existing yard area. At this time, the applicant is not proposing any closed drainage along the street as there is ample opportunity and capacity for any street flow to sheet onto the property and be absorbed into the yard, similar to current conditions.

4. *The applicant is proposing a gravel area between the edge of pavement and the applicant's property. Since a Majority of this area is currently grass, the City is requesting this space to remain as grass.*

   Response: The applicant has no objection to maintaining the existing gravel/grass shoulder conditions along the West Commercial Street frontage, recognizing that the City's long term goals, as outlined in the West Commercial Street Multi-Modal Corridor Study, include establishing an 11' wide truck staging/shoulder space along this frontage.

5. *Please clarify the need for the concrete sidewalk along the property line.*

   Response: The applicant is proposing a sidewalk simply to provide a walkable route in front of the building and along the street.

6. *The applicant is proposing to encroach upon the proposed sewer easement with concrete steps. An agreement should be in place stating who should remove and replace all none related sewer infrastructure if access is needed.*

   Response: The applicant is amenable to an agreement that involves their responsibility to remove non-sewer related infrastructure that may be positioned inside the sewer easement on their property, if so necessary to allow for repairs, maintenance, or improvements.

Comment 4:

I believe that the IMT has since paved their large pervious crushed stone surface area due to usability issues with the surface. I just mention that for the Applicant to consider in case they run into similar issues.

Response:

The team appreciates the comment and will be monitoring their surfaces routinely. They found the Boatyard surface to be highly favorable to meet their needs over the course of the past few years.

Comment 5:

The PWD water capacity approval letter received previously notes that the plans still need approval by PWD.

Response:

The applicant request this remain as a condition of approval as we will continue to work with PWD for the review of final water service designs to Building C/D.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Stephen R. Bushey, P.E.
Associate
Phone: (207) 887-3406
Fax: (207) 883-3376
stephen.bushey@stantec.com

Attachment

c: Phineas Sprague, Jr. – Canal Landing LLC
Clint Marshall – Manager, Canal Landing, LLC

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STORMWATER MANAGEMENT REPORT
(GENERAL STANDARDS)

CANAL LANDING NEW YARD
100 WEST COMMERCIAL STREET
PORTLAND, ME

PREPARED FOR

CANAL LANDING, LLC
100 WEST COMMERCIAL STREET
PORTLAND, MAINE 04101
(207) 774-1067

PREPARED BY

STANTEC CONSULTING LTD.
482 PAYNE ROAD
SCARBOROUGH, MAINE 04074
(207) 883-3355

January 2018

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Figures and Photographs (See Attachments to Application)

Figure 2 – USGS Location Map
Figure 3 – Tax Map
Figure 4 – Zoning Map
Figure 5 – Aerial Photograph
Figure 7 – FEMA Flood Map
Figure 8 – USDA SCS Soils Map
Figure 9 – GIS Sand and Gravel Aquifer Map
Figure 10 – Surficial Geology Map
Figure 11 – NWI Map

STORMWATER MANAGEMENT REPORT

1.0 INTRODUCTION

Canal Landing, LLC proposes to construct, own, and operate a new boat maintenance and repair yard within approximately 17 acres of land located prominently along the West Commercial Street waterfront. The project represents an ideal reuse of a former highly industrialized property that has been relatively inactive in later years. The property maintained a prominent role in the City's Waterfront District for well over a century and a half as the Maine Central Railroad operated active business interests up until at least the 1970's.

The proposed project includes multiple buildings to be constructed over multiple phases along with new shorefront uses including one or more boat ramps, docks, new or reconstructed piers and a travel lift basin. The applicant's plans include up to three buildings constructed to support the boat maintenance and repair operations. Additional future buildings are also contemplated to support marine related operations including retail/warehouse space, yacht brokerage/sales, marine product processing and the potential of large vessel berthing.

The Phase III project includes site development activities involving Buildings C and D, earthwork, grading, shorefront stabilization, building construction, utilities and overall site stabilization.

This section of the permit application presents the Stormwater Management Plan designed for the Phase III project activities. The stormwater management design presented herein will show that it meets the criterion of the City of Portland stormwater requirements and the adopted MeDEP Chapter 500 Regulations.

The site discharges to the mouth of the Fore River where it meets the ocean. Due to these tidal conditions, **the applicant is requesting a waiver of the flooding standards**.

The proposed stormwater quality treatment plan utilizes the 'Manmade Pervious Surface' approach listed in the Maine Best Management Practices (BMPs) to meet the stormwater quality standards required under the general standards as outlined in the adopted MeDEP Chapter 500 Stormwater Management Technical Manual. The manmade pervious surface (throughout much of the boatyard site) is intended to provide water quality treatment for close to 100 percent of the proposed development area. The applicant has also studied the guidelines set forth in the Brightwork BMP Manual for Maine's Boatyards and Marinas with regard to typical boatyard processes and potential sources of contamination and will conduct boatyard activities in accordance with these guidelines as they have in the past.

USGS, aerial photographs, and related maps are appended to the Site Plan Application.

The applicant has prepared this report to show the proposed Stormwater Management Plan meets the City's General Stormwater Standards.

2.0 EXISTING SITE CONDITIONS

The site consists of approximately 17.77 acres of land that is composed of three primary areas described as follows:

1. **Retained Parcel (Map 59A, Lots 3 & 4)**: Consists of the retained 5.03-acre area owned by New Yard, LLC and it represents the retained land originally permitted by the Applicant during late 2012 – 2013. Within this land area New Yard, LLC has constructed Building A and Building B amounting to approximately 48,000 SF of building space. This parcel contains a new boat ramp and boat yard area currently in use by Portland Yacht Services.
2. **Shorefront Parcel (Map 60F, Lots 3 & 4)**: This area is irregularly shaped and contains approximately 1,581 LF of waterfront. The site area is approximately 5.99 acres. This area is currently undeveloped except for the granite revetment wall that historically supported the former waterfront pier.
3. **Street Front Parcel (Map 60F, Lot 1)**: This 6.75-acre area contains approximately 2,160 LF of street front. The property is generally unoccupied although there are existing rail tracks that previously provided access to the former NGL Distribution facility within what will be IMT expansion area in the future. Towards the east end of this parcel, historic land use has included parking of vehicles, trailers and similar activities associated with businesses further east on Commercial Street. Most of this use was unauthorized by the previous landowner, Portland Terminal Co.

Existing development in the area includes the following:

- The City of Portland Marine Terminal and expansion area is located to the east of the site.
- Commercial activity including Nova Seafood and Graybar Electric operate out of buildings on the north side of Commercial Street.
- The Portland Star Match Co. building lines up opposite the site.
- The State of Maine now operates rail tracks into the propane storage yard and IMT expansion area. These tracks were completed very recently.

Owen Haskell, Inc. has completed a topographic survey of the property. The site is relatively flat with the highest points along the Commercial Street frontage, sloping to the shorefront. Site elevations along Commercial Street trend down from west to east from elevation 23' (NGVD 1929) to elevation 16' at the westerly end of the Commercial Street frontage. The site's low areas are near elevation 9'-10' while most of the waterfront top of bank is between elevation 9'-11'. The High Annual Tide Line (HAT) for the Fore River is elevation 7.4' and mean low water is approximately elevation -4.0'. Owen Haskell, Inc. has also completed bathymetric survey data collection and found water depths within 50' of the low water line to be 10' to 30'. The Federal Channel is also represented on the project's drawings and it is generally located 60' to 120' off the shorefront. No activities are proposed beyond the Federal Channel line. The manmade pervious surface approach is considered the most practical choice for meeting

the projects stormwater management needs. The experience thus far on the first phase area has been positive with respect to how the Boatyard surface functions for handling rainfall and stormwater.

Generally speaking, the site's runoff either infiltrates into the ground or drains directly to the Fore River via overland flow. There are no drainage systems on site, although there is a closed storm drainage system within Commercial Street. The Commercial Street drainage system ultimately ties into a CSO line located on the west end of the site as well as a second CSO line on the east side of the site.

Due to the site's historic industrial condition nearly all of the surface consists of sand and gravel fill, rail ballast or otherwise sparsely vegetated ground surface. The following Figure 1 shows the extent of previous rail use across the property.

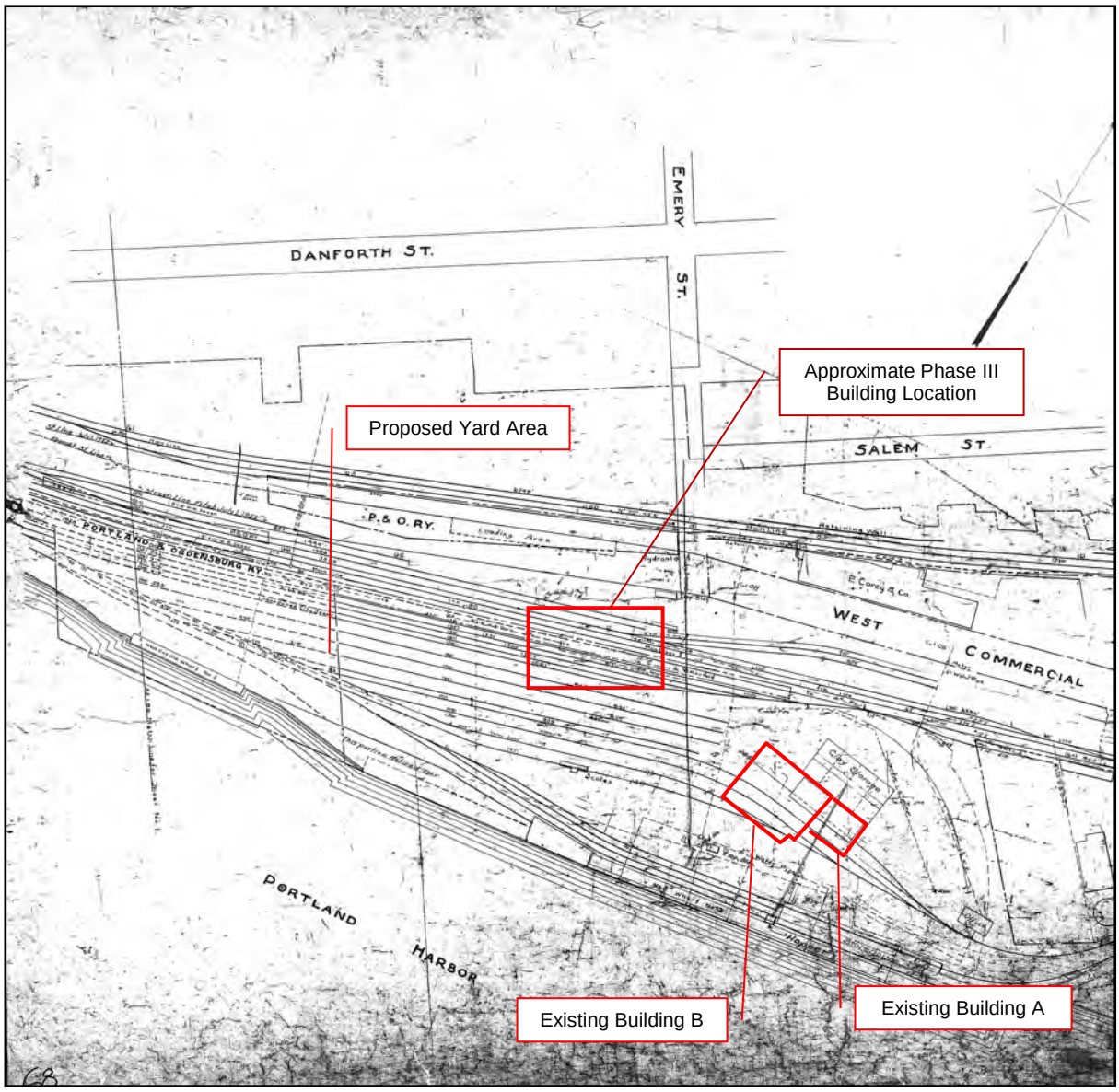

Figure 1 – Historical Rail Yard

The site's soil layers are generally characterized as follows:

- 10 to 15 feet of sand and gravel fill, there is little to no organic surface layer throughout the site.
- 5 to 10 feet of silt and sand.
- 10 to 40 feet of gray clay identified as the Presumpscot formation.
- 30 to 40 feet of dense silty marine sands.
- An undetermined thickness of dense silty sand and gravel identified as glacial till overlaying bedrock.

Observed soils conditions at the ground surface include fill material containing coal, and coal ash comingled with scarified sand and gravel. Eroded soils conditions have been observed along the shoreline in and behind the existing granite revetment wall and remnant pier areas. The project's site development activities include restoration and rehabilitation of these areas.

According to various investigation data, depth to groundwater varies from 3 to 7 feet and this likely varies with tidal conditions in the Fore River. Generally speaking, the groundwater flows from the northwest to the southeast across the site.

Figures 8, 9, and 10 appended to the report provide the USDA medium intensity soils, sand and gravel aquifers, and surficial geology for the site.

3.0 PROPOSED PROJECT

The applicant proposes to redevelop the property in a manner consistent with the WPDZ Standards. The development program includes the following components:

ONSITE

The development program includes phased development of boat maintenance facilities and future ancillary marine related uses. Phase III and future Master Plan development activities are summarized as follows:

Phase III – Will Include:

- Site clearing, stabilization and general clean-up.
- Construction of a 19,800 SF building for marine retail and a 4,800 SF ancillary office/sales/administration building. The Phase III building area will also include paved parking and related site improvements around the buildings.
- Establishment of yard areas and surfaces for heavy equipment travel lift trucks, and boat display, storage, and repair. (Repair and maintenance often takes place outside, particularly if the vessel is large and does not fit into a building. Boats that are out of the water for the winter season all need to have work done on them to prepare them for re-launching.)

- Installation of utilities for building and yard area use as well as future phase activities.
- Minor landscape preservation and tree planting.
- Shore front stabilization including revetment repairs and riprap stabilization.
- Preparation of a 2 to 3 acre secured marine cargo area on the west end of the property. This area may be used for the parking of vehicles, equipment or related cargo associated with the Downtown waterfront.

OFFSITE

Site access is proposed via Commercial Street as well as from the Fore River. Three driveways are proposed (two of which are already constructed and actively used) and are identified as the western, central, and eastern driveways on the site plans.

An Erosion Control Plan and narrative were previously submitted (October 2012) and approved by the Planning Authority. An updated Erosion Control narrative is included in this Phase III submission. The requirements in the original plan and updated document continue to apply therefore no further information regarding compliance with the Basic Stormwater Standards will be provided.

4.0 REFERENCES

- Brightwork – A Best Management Practice Manual for Maine's Boatyards and Marinas, December 2005
- Erosion and Sediment – *Maine Erosion and Sediment Control BMPs", published by the MeDEP in 2003 http://www.maine.gov/dep/blwg/docstand/escbmps/index.htm*
- City of Portland –Code of ordinances, Section 32 Rev. **11-16-15**
- City of Portland Technical Manual Portland Stormwater Management – Section 5 Adopted 7-26-16.
- Stormwater Management for Maine Volume III – BMP Technical Design Manual March 2016
- Chapter 500 DEP Rules, revision August 12, 2015.

5.0 MODELING SOFTWARE

Microsoft Excel 2007, Microsoft Corporation – used for spreadsheet computations.

6.0 PRESENTATION OF ANALYSIS

The stormwater analysis has been performed for the project to determine the requirements of the City of Portland, Section 5 and adopted MeDEP Chapter 500 Stormwater Rules and to show a plan which will generally meet the requirements with the exceptions noted herein.

7.0 ASSUMPTIONS

- That detention will not be required to reduce the peak flow rate or meet the flooding standards. **A waiver of the flooding standards is requested**.
- That the native soils/gravels will have infiltrative properties that meet the requirements of the Maine DEP BMP proposed. Note: **A waiver is being sought for infiltration testing**. Evidence from the previously developed area of 5.03 acres for Phase I/II activities supports the proposition that the soils are highly infiltrative.

8.0 STORMWATER MANAGEMENT OBJECTIVES

The goal of the Stormwater Management Plan is to design, operate, and maintain the development to avoid downstream erosion or significant water quality impairment.

This goal will be achieved by:

- Designing the project to meet the Portland Stormwater Management Standards adopted 7/19/10 and General Stormwater Standards of MeDEP (revised October 2010).
- Designing water quality measures to provide long-term removal of non-point contaminants.
- Implementing a plan to control erosion, sedimentation, or fugitive dust emissions during construction.
- Implementing operational processes to avoid toxic pollutants from boat yard activities, both organic chemicals and heavy metals, from entering ground and adjacent water bodies.
- Maintenance of the Stormwater Management System in accordance with the Stormwater O&M Manual (provided as a separate document) and MeDEP Brightwork Manual.

The plan has been designed in accordance with the City of Portland Stormwater Rules.

9.0 STORMWATER MANAGEMENT QUALITY SUMMARY

Approach

To meet the General Standards, our office reviewed the list of options of MeDEP's accepted Best Management Practice (BMP) options to provide water quality treatment including grassed underdrained filter, bio-filter, proprietary devices and infiltration trenches for the expanded New Yard site. Following this review and incorporating knowledge of the site and the goals of the client, it was realized that developing a method for providing stormwater quality treatment that utilizes the proposed crushed stone surface (desirable to applicant for boatyard use and related activities) and infiltrating the runoff into the underlying soils would be preferable both functionally and economically.

According to the MeDEP BMPs this is known as a "Manmade Pervious Surface" approach to stormwater quality treatment.

A pervious pavement consists of a permeable surface material and subbase materials that allow penetration of runoff in to the underlying soils. The system must be designed to store and infiltrate the water quality volume (1.0" of impervious area and 0.4" pervious area) with the remainder (larger storm events) discharged through an 'over-flow' device. The effectiveness of the system depends heavily on long term inspection and maintenance.

Following a review of the design criteria for a "Manmade Pervious Surface", it was determined that the selection of at least a 3" thick crushed stone surface across the entire 'prepared surface' area designated on the site plan is appropriate. This layer of stone will act as a reservoir for the 1" storm event. The material may be placed over geotextile fabric and infiltration into the existing underlying gravel will meet the requirements of this BMP. Runoff from larger storm events may flow to a closed collection system conveying flow via pipe to the existing CSO lines that traverse the site. Alternatively, flow may be distributed to portions of the site designated for future development where longer term absorption may occur. Internal drains within the buildings connected to the sewer system and storage tanks/collection systems beneath the concrete washdown aprons (at the travel lift basin and boat ramps) will minimize the potential for petroleum, etc. to enter the stone areas.

Our office has laid out a plan which utilizes the "Manmade Pervious Surface" BMP to provide water quality treatment as described in Chapter 7.7 of the MeDEP Volume III BMPs Technical Design Manual meeting the minimum treatment standards as required by the General Standards. The project drawings provide extents and details of the manmade pervious surface proposed. This pervious surface is represented by the 'prepared surface for boatyard' on the site.

The basis of design of treatment method is as follows:

Compliance with BMP Design Criteria:

Traffic Volumes:

Traffic volumes will be low across the area. Some heavy vehicles including tractor trailer trucks and Marine Travel Lift will maneuver across the crushed stone surface. However, the majority of the surface will be utilized for boat display and storage. The applicant proposes to manage the crushed stone surface by routinely raking and grading to minimize the buildup of fine particles that might impact the materials absorptive capacity. Removal and replacement of this gravel layer may be required over time.

Grading:

Grades across the crushed stone area will range from 1 - 2%, thus meeting the <5% slope recommendation.

Sediment Loading:

The crushed stone area is not expected to receive high volumes of sediments. Over time any buildup of fines that impact the stone surface absorption capacity will be removed and replaced.

Reservoir Course:

The reservoir course will consist of clean double washed 3/4" stone free of debris. The stone depth will be 3" to 6" typically.

Pretreatment Layer

A pretreatment layer will be achieved by providing an 8-12" subbase gravel layer (MDOT Type D) beneath the crushed stone.

Separation to Groundwater:

Based on the test pit data included in previous subsurface explorations, the groundwater table throughout the site is six to nine feet below existing grade.

Infiltration Testing:

The applicant is seeking a waiver from the infiltration testing requirement. The applicant has observed the existing site after heavy rain events and observed ponding for only a couple of hours. The existing site has a surface gravel/sand layer and it is expected that the proposed stone surface will not negatively impact the infiltration properties below.

Flooding Standard:

Due to the direct discharge to the Fore River, **a waiver from the flooding standard is being requested**. All overflow pipes and structures will be sized to adequately convey the 25yr storm event.

Storm events larger than the 1 inch storm will be directed via sheet flow to one of the following:

- The street side parcel north of the new tracks will be conveyed to several inlets that will connect to the CSO lines for discharge to the Fore River.
- The shorefront parcel will generally generate overland flow to the waterfront and the river.

10.0 CHAPTER 500 TREATMENT PERCENT COMPLIANCE

The proposed redevelopment project creates 0.8 acres of improved surface area (pavement and roof) and 10.2 acres of pervious boat yard surface area for a total disturbed area of about 11 acres. An additional 1.7 acres will remain as is or contain new landscaping coverage.

Of the 0.8 acres of improved surface area, the proposed stormwater management plan provides treatment for 0.69 acres or 86 percent. Of the 10.2

acres of pervious boatyard surface, nearly all of that area is considered treated thereby yielding 10.89 acres treated area out of the 11 acres of disturbance for a treatment percentage of 99 percent. The total disturbed area as part of this redevelopment is approximately 11 acres. Hence, the strategies proposed herein meets the minimum requirements stated in the General Standards.

11.0 BOATYARD ACTIVITY PLANNING

A major issue associated with boatyard and marine related use is the proximity to the shorefront. Any pollutants that are generated on the site may eventually reach the water. As such, the applicant will implement thoughtful planning and processes to avoid toxic pollutants including organic chemicals and heavy metals from spills.

Activities such as hull prep, sandblasting, painting, washing, engine repairs and maintenance will be performed in accordance with the guidelines set forth in the Brightworks manual. Storage, handling and disposal of waste material from these activities will also be carried out in accordance with the manual and utilize local waste companies who specialize in this environment. A plan will also be in place to manage spills if and when they occur. This plan will identify potential spill sources, hazardous materials stored, prevention measures (including training, security, etc.), spill emergency procedures (including health and safety measures, notification information, spill containment, etc.), emergency phone numbers, location of spill containment and control materials and a drainage plan. The applicant is a current boatyard operator and is very familiar with the guidelines and requirements set forth in the Brightwork Manual. They have successfully complied with these requirements for many years and they are confident that similar operations will be maintained at the proposed site.

12.0 EROSION CONTROL

An Erosion Control Narrative, Plan, and Details have been previously prepared for the project and are part of the project record. These materials continue to apply as they relate to the Phase III construction activities.

13.0 OPERATIONS AND MAINTENANCE

An Operations & Maintenance Manual has been previously prepared and is part of the project record. The requirements of this O&M Manual continue to apply to this Phase III project.

14.0 PERMIT REQUIREMENTS

City of Portland review and permitting of the Stormwater Management Plan is required and will be completed with the review of the Site Plan Application submitted to the City of Portland Planning Authority.

INSPECTION AND MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT AND RELATED STORMWATER FACILITIES

CANAL LANDING/NEW YARD
100 WEST COMMERCIAL STREET
PORTLAND, MAINE

PREPARED FOR

CANAL LANDING, LLC
100 WEST COMMERCIAL
PORTLAND, MAINE 04101

PREPARED BY

STANTEC CONSULTING LTD.
482 PAYNE ROAD
SCARBOROUGH, MAINE 04074
207-883-3355

JANUARY 2018

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APPENDICES

Attachment A – Sample Inspection Logs

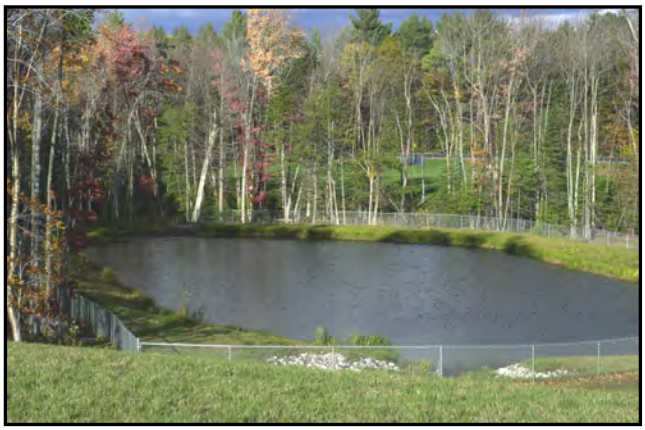
Attachment B – Permits for Project

Attachment C – Summary Checklist for Inspection and Maintenance

I. INTRODUCTION

Relatively complex stormwater management facilities are commonly installed in development projects including, commercial facilities, and many other developments. The complexity and goals of these systems vary with the nature of the receiving water, as well as the type of development. Runoff from developed areas of the project, including rooftops, paved or lawn areas, typically contain materials that can impact the receiving waters. Source control and the installation of swales and infiltrative surfaces often combined with pretreatment measures or followed by other best management practices, can significantly reduce the non-point pollution discharge from the developed area. These measures are particularly important to projects in the watersheds of sensitive water bodies, or projects with potential impacts to groundwater.

The effectiveness of water quality management provisions and other components of the stormwater management system are dependent on their design, upkeep, and maintenance to assure they meet their intended function over an extended period of years. It is critical that the stormwater management facilities are regularly inspected, and that maintenance is performed on an as-needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that collect and transport the flow to the swales and pervious/infiltrative surfaces. Thus, maintenance should be directed to the total system, not just the primary stormwater management facility.



The purpose of this document is to define, in detail, the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended when they were designed. Subsequent sections identify individual maintenance items, give a brief commentary of the function and need for the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program for operation and maintenance. A supplemental section provides guidance for construction monitoring of the facilities during their installation and more detailed checklists (Attachment D). Certain facilities, specifically the groundwater recharge and infiltration beds are not intended to be placed in service until the tributary catchment area has the permanent cover in place and any contributing turf areas have achieved a 90% catch of vegetation (i.e. established).

A. GUIDELINES OVERVIEW

A summary of the individual components of stormwater management facilities has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Planning Board Level III Site Plan Approval and Shoreland Zoning Approval
- City of Portland Building Permit(s)
- MeDEP Natural Resource Protection Act (NRPA) #L-25823-4E-A-N
- City of Portland Delegated Review of the Site Location of Development Act (SLDA)
- U.S. ACOE Water Quality Certification/Federal Channel Review – File No. NAE-2012-02469
- State of Maine Submerged Lands Lease
- Harbor Commissioner's Review – latest approval December 2017

The permit applications pending for the project include the design information for the stormwater system.

A copy of the permits and Stormwater Management Report should be appended to this manual as Attachment B. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Stantec for civil engineering for the Canal Landing New Yard Project in Portland, Maine. Stantec has prepared the design for the stormwater management facilities and may be contacted at:

Stantec Consulting Ltd.
482 Payne Road
Scarborough, Maine 04074
207-883-3355

It is recommended the preparer of the plan be contacted with any particular questions on the design intent or similar issues.

The applicable plans/design documents which apply to the project are:

1. Civil Site Plans/Permit Applications Prepared by Stantec Consulting Ltd.
2. The Erosion Control/Sedimentation Control Plan for the project.
3. The Stormwater Management Plan for the project.

A copy of these documents should be retained with the manual.

The proposed design will include deep sump catch basins, manmade pervious/infiltrative surfaces, grassed swales, overflow, collection, conveyance, and discharge systems.

The project is subject to the requirements of the City of Portland Code of Ordinances, Chapter 32, specifically the post construction stormwater management plan. The City requirements have been reiterated for ease of reference; however, the owner shall be responsible to meet the current City code.

"Any person owning, operating or otherwise having control over a BMP required by a post construction stormwater management plan shall maintain the BMP's in accordance with the approved plan and shall demonstrate compliance with that plan as follows:

(a) Inspections. The owner of operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMP's, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

(b) Maintenance and repair. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action (s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action (s) to the department of public services ("DPS") in the annual report.

(c) Annual report. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP (s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action (s) taken.

(d) Filing fee. Any persons required to file an annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) Right of entry. In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMP's."

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management area. These O&M procedures will complement scheduled sweeping of the pavement areas anticipated to occur at least twice per year. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. DRAINAGE STRUCTURES

Preface: Proposed grassed swales that wraps around the site edges will collect overflow runoff from the infiltrative Boatyard surface during major storm events, and will discharge to the existing 24" CSO line thru an existing appurtenant structure.

All structures are to be inspected by removing the covers and inspection channels. Debris should be removed whenever observed and reported to key maintenance personnel since any debris would indicate lack of proper system O&M in the collection and conveyance system. Entry may require CONFINED SPACE ENTRY procedures and appropriately trained personnel.

Inspection: The drainage structures must be inspected to assure they maintain intended hydraulic characteristics. The inspection would note any debris or sediment which may accumulate in the structure and in the outlet pipes. It is noted that it does not take much debris or silt to alter the hydraulic characteristics of the discharge. The inlet should be inspected to assure it is not blocked or restricted or there is sediment to the extent that its flow characteristics may be altered.

Maintenance: Maintenance of the drainage structure will consist primarily of removing debris which may accumulate.

Frequency: The drainage structures should be inspected semi-annually, and after a high intensity rainfall event (in excess of 3 inches in a 24-hour period).

Maintenance/Inspection Responsibility:

Inspection Personnel: The Maintenance Personnel of Canal Landing, LLC will perform the scheduled maintenance/inspection.

Dates of inspections, maintenance performed, and any observed problems should be noted in the logs/records maintained by Canal Landing, LLC.

B. STORMWATER INLETS

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include the few overflow catch basins proposed toward the north of the site and the basins within the concrete

washdown areas along the shorefront. This section is directed at maintenance of the actual inlet point. A later section addresses more substantive maintenance of the structures and conveyance facilities.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Roadway/parking lot/boat yard maintenance areas
- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets in parking lots/roadway areas. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the building.

Frequency: All inlets should be inspected on a monthly basis, and after/during significant storm events. A windshield survey is suitable for most inlets but off road inlets and pond structures require more rigorous inspection by walking the parcel.

Maintenance/Inspection Responsibility:

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/inspections of the inlets and culvert crossings.

Comments: Maintenance of inlets is critical on this project.

POORLY STABILIZED INLET ALLOWS ENTRANCE OF DEBRIS AND REDUCED CAPACITY

STABILIZED INLETS REDUCE DEBRIS ACCUMULATION AND MAINTAIN DESIGN CAPACITY

C. TRIBUTARY DRAINAGE SYSTEM

Preface: Overflow stormwater from portions of the project will be directed through a conveyance system which transports the flow to an existing 24" CSO line that crosses the site. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment (minimal amounts anticipated) is carried by the drainage system is intended to be trapped in the boatyard surface, within catch basin sumps or grassed swales. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the site.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that its carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped

systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with leaves or other debris. The inlet basins are normally equipped with sumps which will remove large sediment particles from the flow stream with hooded outlets.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

In some projects most of the stormwater is carried in open swales, channels, or ditches. These conveyance channels may be rip rapped or vegetated, depending on the gradient and expected flow velocities. These facilities must be inspected to insure debris or sedimentation does not reduce their carrying capacity. Excess vegetative growth must also be noted. The surface protection for the channels, either stone or vegetation, must be inspected to insure its integrity. Any areas subject to erosion should be noted.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sedimentation to any downstream detention pond, or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. When the filter bag in an inlet restricts capacity and is coated with silt or other deleterious materials, the bag should be removed and Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the retail center. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed. In general a sump or sediment trap should be used where it can be flushed into the detention pond, since it will reduce pond volume and hasten the time when it must be cleaned.

Frequency: The piped drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

Maintenance/Inspection Responsibility:

Maintenance Personnel: Canal Landing, LLC Maintenance Personnel.

Special Services: The owner may elect to contract with an independent agent for cleaning of replacement of sorbent booms, catch basins, sumps, and pipelines. Remedial source control measures may be performed by the owner or an outside service depending upon the nature of the particular situation.

Comments: Maintenance of inlets is critical on this project.

A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGNS OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY

D. VEGETATED SWALES

Preface*:* Vegetated swales are often used to convey stormwater. Swales can be intended to be:

1. Mowed and maintained
2. Reverted to wetlands
3. Naturalized

Inspection*:* Swales should be inspected for erosion and sedimentation.

Maintenance*:* Eroded or silted channels need to be repaired when discovered. If erosion is a problem, the swale design should be examined. Likewise, if situation is a continuing problem, the upgradient conditions should be assumed.

Frequency*:* It is recommended vegetated swales be inspected quarterly until vegetation is established and a year after installation. Thereafter, if no problems have been noticed, the frequency can be reduced to once per year.

Design Guidelines*:* The vegetated swale should consider channel cover at the time of concentration as well as several years after construction.

Design computations should state the assumed channel of vegetation and provide the basis for the Manning's or other roughness coefficient and for design.

Applicability*:* Canal Landing New Yard may have shallow swales along the yard perimeters as necessary to collect overflow from the Boatyard surface areas.

VEGETATED SWALE WITH HAY BALE CHECK DAM TO REDUCE VELOCITIES UNDER CONSTRUCTION

A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGNS OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY

E. ROOF DRIPLINE FILTER

Preface: Similar to the vegetated soil filter, roof dripline filters control stormwater quality by capturing and retaining runoff within a stone reservoir and passing it through a filter bed comprised of a specific filter media. Once through the soil media, the runoff is collected in a perforated underdrain pipe and discharged downstream. The filter structure provides for the slow release of smaller storm events, minimizing stream channel erosion and cooling the discharge.

Inspection: A roof dripline filter must be inspected to ensure it is draining within 48 hours following a one inch storm or greater.

Maintenance: Debris must be removed from the reservoir stone. If the filter is not draining within 72 hours, the filter media shall be replaced.

Frequency: During the first year, the filter should be inspected semi-annually and following all major storm events. Thereafter, the filter should be inspected at least every 6 months. Debris and sediment buildup should be removed as needed.

F. FABCO MODEL 10080-2 STORMBASIN CARTRIDGE FILTER UNIT

Preface: The roof drain filter unit is intended to provide water quality treatment for runoff from the proposed roof surface prior to discharge into the municipal drainage system in Hancock Street Extension. Primary contaminants from the roof include bird waste, metals, dust, and related pollutants.

Inspection: The roof filter unit must be inspected to ensure proper function during rain events. Primary inspection goals include removal of debris, leaves, or related solids preventing filtering and water pass thru or blocking the internal overflow.

Maintenance: If the filter is not draining within 24 hours, the filter media shall be replaced in accordance with the manufacturer's instructions. Debris must be removed from the filter unit. With all debris removed from the StormBasin the filter cartridge(s) will be exposed at the bottom. To remove the cartridge(s) reach down into the basin and firmly grasp the plastic outer rim of the cartridge body just below the foam, twist the cartridge body counter-clock-wise about ¼ turn until it stops, and lift the cartridge straight up to remove. Insert the new StormBasin cartridge down through the hole in the base of the unit. The colored ring on the cartridge should be facing upwards. Push the cartridge all the way through the hole until it rests on the bottom. Slowly turn the cartridge in a clock-wise direction until the tabs align with the slots and the cartridge body drops about ¼' further down. Once the tabs fall through the slots, continue turning firmly in a clock-wise direction until the tabs contact the STOPS. The cartridge is now installed.

Frequency: During the first year, the unit should be inspected quarterly and following all major storm events. Thereafter, the unit should be inspected at least every 6 months. Debris and sediment buildup should be removed as needed in accordance with manufacturer's recommendations. The filter cartridges shall be replaced on an annual basis. Cartridges can be sourced from Fabco Industries, Inc., phone 631-393-6024, 66 Central Avenue Farmingdale, NH 11735.

G. BOAT YARD SURFACE

To protect the infiltrative/pervious surface, it is recommended the prepared boatyard surface be re-graded at mid winter and spring (or as needed).

Maintenance: The maintenance crew may from time to time need to remove the stone surface and remove accumulated sediment in specific areas.

H. LITTER

Litter should be removed as a matter of course by workers and a part of the grounds maintenance contract.

I. SUMMARY CHECKLIST

The above described inspection and maintenance items have been summarized on a checklist attached hereto as Attachment C.

IV. PROGRAM ADMINISTRATION

A. GENERAL

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities.

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. RECORD KEEPING

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of

such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Attachment B.

C. CONTRACT SERVICES

In some instances or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

ATTACHMENT A

Sample Inspection Logs

CANAL LANDING NEW YARD
PORTLAND, ME

INFILTRATIVE/PERVIOUS
BOATYARD SURFACE
ANNUAL INSPECTION & MAINTENANCE LOG

FACILITY:		**YEAR:**	
LOCATION:		**CONTRACTOR:**	
FUNCTION:		**INSPECTOR:**	
DATE OF INSPECTION:			
ITEM IDENTIFICATION	**DESCRIPTION OF CONDITIONS**	**MAINTENANCE ACCOMPLISHED**	**DATE OF MAINTENANCE**
GENERAL COMMENTS:			

ATTACHMENT B

Permits for Project

(To be Added at a Subsequent Time)

ATTACHMENT C

Summary Checklist
Inspection and Maintenance

Stormwater Management System
Maintenance Program
Summary Checklist

Item	Commentary	Frequency				
		Monthly	Quarterly	Semi-Annual	Annual	Long Term
Drainage Structures	Inspect outlet control to assure it maintains its hydraulic characteristics. Inspect inlets for blockage.		X			
Stormwater Inlets in Series	Stormwater inlets allow flow entry from a surface swale to a piped system. Entry may or may not be equipped with a bar rack. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.	X			X Clearing	
Tributary Drainage	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Vegetated Swales	Swales should be inspected for erosion and sedimentation		X (until vegetation established)		X	
Infiltration Systems/Roof drip edges	Observation of the infiltration area and a determination of its performance				X	
Boat Yard Surface	Observe area for clogging and repair surface as needed including regrading/shaping of surface.	X				
Roof Drain Filters	Inspect systems to verify adequate functioning and capacity. Dispose of filters that have reached useful life in accordance with the manufacturer's recommendations. Replace filters as required.	X				
Litter	Litter should be removed daily.					

EASEMENT DEED

KNOW ALL PERSONS BY THESE PRESENTS**,** that **CANAL LANDING, LLC**, a Maine limited liability company, with a mailing address of c/o Portland Yacht Services, 10 West Commercial Street, Portland, Maine 04101 ("Grantor") in consideration of One Dollar ($1.00) and other valuable consideration paid by the **CITY OF PORTLAND**, a body politic and corporate with a mailing address of 389 Congress Street, Portland, Maine 04101, does hereby remise and release and forever quitclaim to the said City of Portland the certain easements and rights of way described below, and on, under and over the real property described in Exhibit A attached hereto, and shown on the sketch attached hereto as Exhibit B, both incorporated herein by reference.

Said easements and rights of way for the purpose of and conveying the right to perpetually maintain through, under and across said property access ways with all necessary fixtures and appurtenances for installing and maintaining through, under, and across said property conduits or pipelines with all necessary fixtures and appurtenances for conveying storm water and sewer water and to lay, relay, replace, repair, maintain, clean and remove said storm water and sewer water pipe or pipes upon or under said strips, with all necessary fixtures and appurtenances including an outfall and related riprap, walls or other improvements, together with the right at all times to make connections with said conduits or pipelines to land adjoining said sewer and drainage easement by means of pipes or other services; to trim, cut down and remove trees, bushes, and other vegetation of all kinds, to remove debris and deposits of any kind and to alter and re-grade the contours of said easements to such extent as in the sole judgment of the Grantee is necessary or appropriate for any of the above purposes; and to enter upon said easement at any and all times for any of the foregoing purposes, reserving to the Grantor and its successors and assigns the use and enjoyment of said strips and for such purposes only as will in no way interfere temporarily or otherwise with the perpetual use thereof by the Grantee, its successors and assigns for the purpose above mentioned, provided that no building or any kind of permanent structure, including, but not limited to, walls and fences, shall be erected on said strips by the Grantor, its successors or assigns; and that the Grantor, its successors and assigns shall not remove earth from said easement without the written permission of the Grantee, its successors and assigns.

IN WITNESS WHEREOF, the said CANAL LANDING, LLC has hereunto caused this instrument to be signed by Clinton S. Marshall, its Sole Manager, duly authorized, this _____ day of _____, 201_.

WITNESS:

_____

CANAL LANDING, LLC

By_____
Clinton S. Marshall
Sole Manager

STATE OF MAINE
CUMBERLAND, ss.

_____ ___, 201_

Personally appeared the above-named, Clinton S. Marshall, in his capacity as Sole Manager, and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of Canal Landing, LLC.

Before me,

_____
Notary Public/Attorney-at-Law

_____
Print Name

Exhibit A

CSO EASEMENT AREA A:

A 30 (thirty) feet wide strip of land across lands situated on the southerly side of Commercial Street in the City of Portland, Cumberland County, State of Maine as shown on a plan entitled "State of Maine Department of Transportation Right of Way Land Acquisitions D.O.T. File No. 3-595" by Owen Haskell, Inc., dated March 2014, the centerline of which is described as follows:

Beginning at a point on the southerly sideline of said Commercial Street, said point being 170.74 feet easterly of an angle point in said southerly sideline on a course of N 71° 39' 48" E, thence the following course and distance across land of the Grantor:

S 14° 09' 30" E 219 feet, more or less.

Said Grantor's property interest was acquired in a deed from Maine Central Railroad Company to Canal Landing, LLC, dated April 27, 2015 and recorded in said Registry of Deeds in Book 32239, Page 148.

CSO EASEMENT AREA B:

Also, a 30 foot wide strip of land situated on the southerly side of Commercial Street in the City of Portland, County of Cumberland and State of Maine as shown on a plan entitled "State of Maine Department of Transportation Right of Way Land Acquisition D.O.T. File No. 3-595" by Owen Haskell, Inc., dated March 2014, the centerline of which is described as follows:

Beginning at a point on the southerly sideline of said Commercial Street, said point being 12.61 feet westerly of an angle point in south southerly sideline on a course of S 66° 06' 18" W; thence the following courses and distances across land of the Grantor:

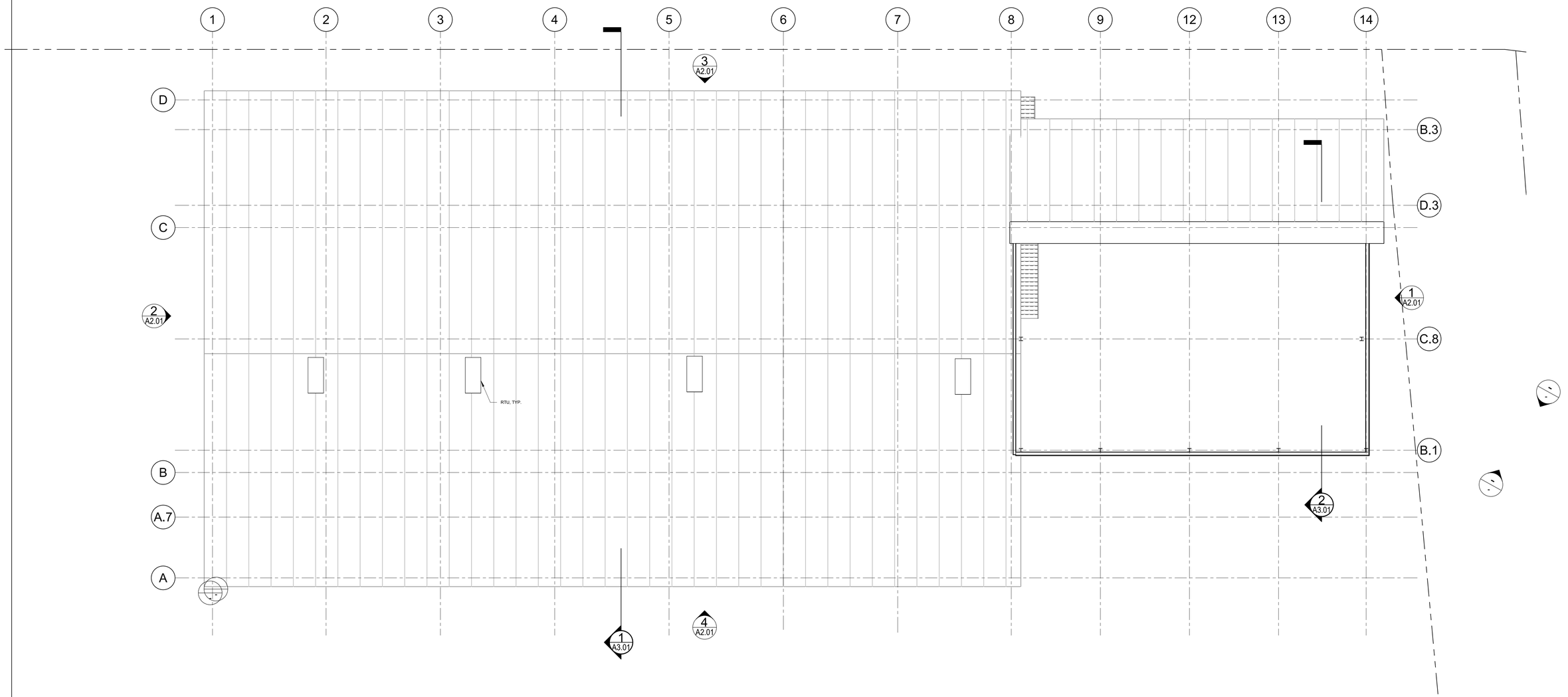
S 28° 00' 00" E 31.95 feet;
S 29° 08' 26" E 127.88 feet;
S 33° 38' 26" E 370 feet, more or less.

Said Grantor's property interest was acquired in a deed from Maine Central Railroad Company to Canal Landing, LLC, dated April 27, 2015 and recorded in said Registry of Deeds in Book 32239, Page 148.

POCO14/1174642

Exhibit B

[insert DOT plan referenced? Or Boundary Survey showing CSO A & B????
]



1 HAMILTON ROOF
3/32" = 1'-0"

Prepared For:
Owner

Consultant:

Architect:
ARCHETYPE
architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
CANAL LANDING
Portland, Maine

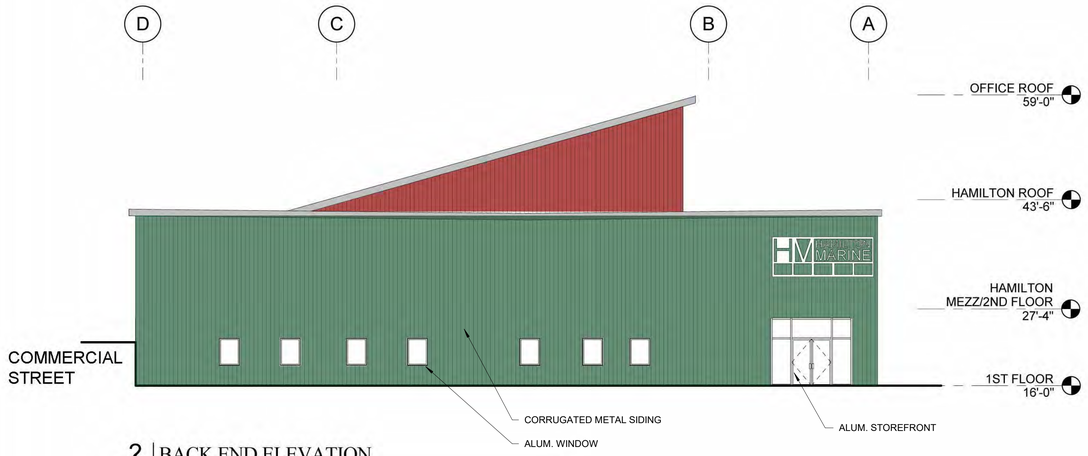
Revisions:

Scale: 3/32" = 1'-0"

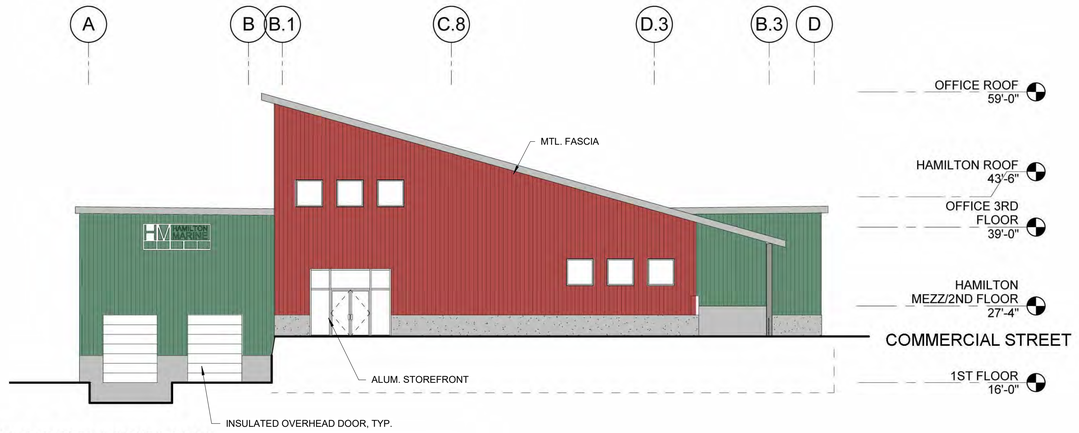
Date: 16 JAN 2018

Roof Plan

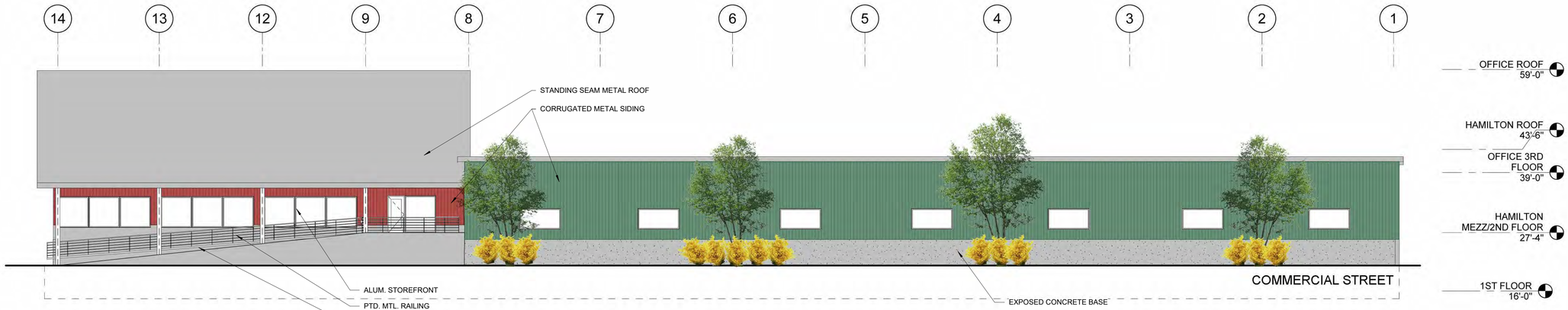
A1.02



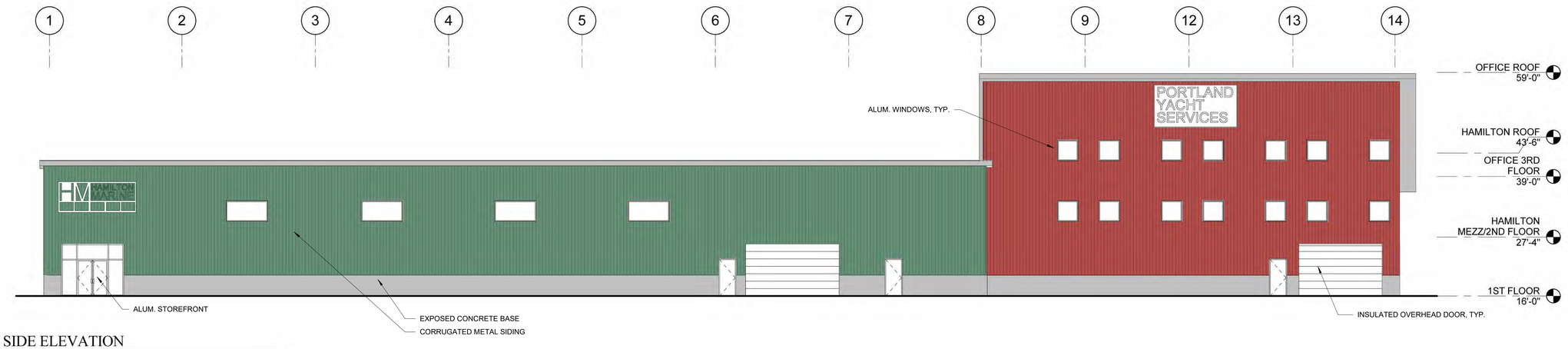
2 | BACK END ELEVATION
3/32" = 1'-0"



1 | FRONT END ELEVATION
3/32" = 1'-0"



3 | RIGHT SIDE ELEVATION
3/32" = 1'-0"



4 | LEFT SIDE ELEVATION
3/32" = 1'-0"

Prepared For: Owner

Consultant:

Architect: ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: CANAL LANDING
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: March 9, 2015

Building Elevations

A2.01

PROPOSED 30' WIDE CSO EASEMENT TO CITY OF PORTLAND

PHASE III HEAVY DUTY ASPHALT SURFACE - WESTERN ENTRANCE

PROSPECTIVE DRIVEWAY

STOP BAR

STOP SIGN

6' TALL VINYL COATED CHAIN LINK FENCE AROUND PERIMETER OF SECURED STORAGE AREA. THE APPLICANT RESERVES THE RIGHT TO INSTALL ACCESS GATES AT MULTIPLE LOCATIONS TO BE DETERMINED.

APPLICANT RESERVES THE RIGHT TO INSTALL A 6' HIGH CHAIN LINK FENCE AROUND THE PERIMETER FOR SECURITY PURPOSES.

GROUND SURFACE BETWEEN EXISTING EDGE OF PAVEMENT AND THE R.O.W. WILL REMAIN GENERALLY UNCHANGED UNTIL COORDINATION WITH THE WEST COMMERCIAL STREET CORRIDOR STUDY IS COMPLETED

BETULA NIGRA - RIVER BIRCH 5-6 FT CLUMPS - (TYP OF 4 CLUMPS IN FRONT OF BUILDING)

FORSYTHIA "NORTHERN GOLD" - 2-3' POTTED (TYP OF 14 IN FRONT OF BUILDING)

EXISTING GRAVEL SHOULDER TO REMAIN

STANDARD DUTY PAVEMENT

PHASE III HEAVY DUTY ASPHALT SURFACE - CENTRAL ENTRANCE

PROJECT SIGN

STOP SIGN

PROJECT SIGN

EXISTING EDGE OF PAVEMENT TO REMAIN, (TYP.)

PROSPECTIVE DRIVEWAY

GRANITE "M" MONUMENT FOUND

3" O/S GRANITE MONUMENT W. COMMERCIAL ST.

STREET SECTION CONDITIONS ON THIS PLAN DO NOT REFLECT IMPROVEMENTS COMPLETED IN SUMMER/FALL OF 2015 AS PART OF THE IMT EXPANSION

LANE MARKINGS TO TRANSITION TO MARKINGS ESTABLISHED AS PART OF IMT EXPANSION PROJECT BY MAINEDOT.

TEMP. TRAILER TO BE RELOCATED FROM EXISTING NEW YARD REMAINDER PARCEL FOR USE AS A TEMPORARY OFFICE UNTIL BLDG. D IS COMPLETED.

PROPOSED POLE MOUNTED LIGHT (SEE LIGHTING PLAN)

AUTOMATED GATE SYSTEM

SNOW STORAGE

MULTI USE MARINE STORAGE AREA

THE APPLICANT IS SEEKING APPROVAL TO CONDUCT MARINE RELATED ACTIVITIES, INCLUDING BUT NOT LIMITED TO THE PARKING OF SEMI-TRAILERS RELATED TO IMT ACTIVITIES, THE TEMPORARY STORAGE OF MARINE RELATED PRODUCTS, CARGO OR EQUIPMENT, THE PARKING OF VEHICLES ASSOCIATED WITH MARINE ACTIVITIES, PROJECTS OR SIMILAR USES WITHIN THE OUTLINED AREA AS PART OF PHASE III. EXISTING GROUND WILL BE STRIPPED OF VEGETATION, PROOF ROLLED AND 2'-4" OF STONE/GRAVEL PLACED AS A SURFACE TREATMENT.

CB (BY MDOT)

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

10' MIN. BOATYARD SURFACE

PREPARED BOATYARD SURFACE FOR VESSEL DISPLAY AND MAINTENANCE, TYP

ADA SIGN MOUNTED TO BUILDING

50 SPACES

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0
MARINE RETAIL/NEW YARD ADMINISTRATION

ENTRY
F.F.E: 28.67

BLDG. D
80'x60'
4,800 S.F.

BUILDING ROOF OVERHANG
2 BIKE RACKS

CIP CONCRETE RAMP

CIP CONCRETE WALL

2' GRIND

PHASE III HEAVY DUTY ASPHALT SURFACE ENTRANCE

EASTERN ENTRANCE

STOP BAR

STOP SIGN

ADA SIGN

RAMP

PROPOSED SLIPFORM CURB (TYP)

UPPER PARKING

ENTRY

PREFAB OR CIP STAIRS OVERHEAD DOOR

LOADING ZONE

OVERHEAD DOOR

PREFAB OR CIP STAIRS (SEE NOTE 1)

CIP CONCRETE OR LARGE BLOCK MODULAR WALL

BETULA NIGRA - RIVER BIRCH 5-6 FT CLUMPS - (TYP OF 3 CLUMPS)

IMT LOADING PAD (BY OTHERS)

OPTIONAL SWING GATE ASSEMBLY

24' DOUBLE SWING GATE (BY MEDOT)

CASING PIPES (x4)(INSTALLED 2014)

SECONDARY BOAT YARD ACCESS - FOR USE BY PYS STAFF PRIMARILY

RAILROAD BASE AND WOOD CROSSING INCLUDING SIGNAGE BY MDOT (AUGUST 2015)

AUTOMATED OR MANUAL SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

AUTOMATED GATE SYSTEM

PROPOSED HAUL ROAD CORRIDOR (14 FT) (BY MEDOT)

SNOW STORAGE

PHASE III

OPTIONAL CONCRETE PAD (TYP) (TBD BY APPLICANT)

CB (BY MDOT)

PHASE III

AUTOMATED OR MANUAL SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

RAILROAD BASE AND WOOD CROSSING INCLUDING SIGNAGE, MEDOT (AUGUST 2015)

PRIMARY BOAT YARD ACCESS 50' WIDE GRADE CROSSING BENEFITTING NEW YARD, LLC -SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

6' HIGH CHAIN LINK FENCE

PROPOSED RAILROAD R.O.W. (38 FT) (BY MEDOT)

CASING PIPES (x2)

FORSYTHIA "NORTHERN GOLD" - 2-3' POTTED (TYP OF 9)

PROPOSED FLOATS AND GANGWAY (PERMITTING AND CONSTRUCTION BY OTHERS)

GANGWAY SYSTEM TO BE INSTALLED FOR ACCESS TO FLOAT SYSTEM (TYP.)

PROPOSED PIER EXTENSION BY OTHERS

CANAL LANDING HAS ACQUIRED LAND EXTENDING OUT TO MEAN LOW WATER ELEV. -4.0, (TYP.)

PRIMARY ACTIVITIES WITHIN THE SHOREFRONT AREA WILL BE BOAT AND BOAT TRAILER PARKING AND MAINTENANCE ACTIVITIES

1 OR 2 COURSES OF 2'x2'x8' CONCRETE BLOCKS TO BE ADDED TO THE TOP OF THE EXISTING GRANITE REVETMENT AND GEOTEXTILE FABRIC WITH STONE SHALL BE PLACED BEHIND THE WALL

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

VESSEL PARKING SHOWN FOR ILLUSTRATION PURPOSES ONLY

PHASE III

MATCH BOATYARD SURFACE WITH EXISTING (TYP)

PROPOSED 30' WIDE CSO EASEMENT TO CITY OF PORTLAND

REMOVE ANY MATERIAL WITHIN EASEMENT WHEN NECESSARY FOR MAINTENANCE OR REPAIRS BY CITY)

105' USACOE SETBACK LINE)

50' HARBOR COMMISSION SETBACK

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

EXISTING CSO OUTFALL

SPRING HIGH TIDE ELEVATION 7.4 (NGVD 1929)

EXISTING FLOATS

BOAT RAMP #1 (CONSTRUCTED FALL 2013)

EXISTING BLDG. B 28,800 SF

EXISTING BLDG. A 19,200 SF

LAND RETAINED BY NEW YARD LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

FORE RIVER

ZONING INFORMATION

ZONE: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)

PERMITTED USES: MARINE REPAIR SERVICES / BOAT REPAIR YARD

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	NONE	17.77 AC
MINIMUM LOT FRONTAGE	NONE	NONE
MINIMUM YARD DIMENSIONS		
FRONT	NONE	0 FT
SIDE	NONE	18.1 FT
REAR	NONE	N/A
SETBACK FROM PIER LINE	5 FT	>100 FT
MAXIMUM LOT COVERAGE	100%	9.6%
MAXIMUM BUILDING HEIGHT	75 FT (CONDITIONAL)	<45 FT

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP" "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING (PHASE III)
- PREPARED PERVIOUS SURFACE FOR VESSEL DISPLAY, STORAGE AND MAINTENANCE
- HEAVY DUTY PAVEMENT
- STANDARD DUTY PAVEMENT
- OPTIONAL CONCRETE PAD (TO BE DETERMINED BY APPLICANT)

NOTES

1. THE OWNER SHALL BE RESPONSIBLE TO REMOVE PROPOSED STRUCTURES I.E. STAIRS, RAMPS, ETC. WITHIN THE PROPOSED 30' WIDE EASEMENT OVER THE CSO LINE IN THE EVENT THAT THE CITY MUST HAVE ACCESS FOR MAINTENANCE AND REPAIRS TO THE PIPE.

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
5	01.17.17	REVISED PER CITY COMMENT
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 01/17/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
PHASE III
SITE LAYOUT PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-SITE LAYOUT	
SHEET	C-2.1

V:\1953\active\195350129\Cadd\Permit Set\dwg\PHASE III PERMIT\3091.04-SITE LAYOUT.dwg pfilletaz 1/17/2018 4:16 PM

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Canal Landing LLC
Proposed Development Address:	400 West Commercial Street, Portland, ME 04101
Project Description:	Phase III development of Canal Landing, boat maintenance facility & ancillary marine related development
Chart/Block/Lot:	59-A-3, 4; 60-F-1, 2, 3, 4; 71-F-2, 4, 5, 6
Preliminary Plan	June 2015
Final Plan	August 2015 - Re-submitting December 2017

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	Phin Sprague
Business Name:	Canal Landing, LLC
Address:	400 West Commercial Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-774-1067
Home #:	
Cell #:	207-653-1414
Fax #:	207-774-7035
E-mail:	phin@portlandyacht.com

OWNER

Name:	SAME AS ABOVE
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

AGENT/REPRESENTATIVE

Name:	Stephen Bushey, P.E. - Stantec Consulting Services Inc.
Address:	482 Payne Road
City/State:	Scarborough, ME
Zip Code:	04074
Work #:	207-887-3478
Home #:	
Cell #:	207-756-9359
Fax #:	207-883-3376
E-mail:	stephen.bushey@stantec.com

BILLING (to whom invoices will be forwarded to)

Name:	c/o Portland Yacht Services
Address:	400 West Commercial Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-774-1067
Home #:	
Cell #:	
Fax #:	207-774-7035
E-mail:	

ENGINEER

Name:	Stephen Bushey, P.E. - Stantec Consulting Services Inc.
Address:	482 Payne Road
City/State:	Scarborough, ME
Zip Code:	04074
Work #:	207-887-3478
Home #:	
Cell #:	207-756-9359
Fax #:	207-883-3376
E-mail:	stephen.bushey@stantec.com

SURVEYOR

Name:	John Swan - Owen Haskell Inc.
Address:	390 US Route 1, Unit 10
City/State:	Falmouth, ME
Zip Code:	04105
Work #:	207-774-0424
Home #:	
Cell #:	
Fax #:	207-774-0511
E-mail:	jswan@owenhaskell.com

ARCHITECT

Name:	Archetype, PA
Address:	48 Union Wharf
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-772-6022
Home #:	
Cell #:	
Fax #:	
E-mail:	charette@archetypepa.com

ATTORNEY

Name:	Peter Plumb, Esq. - Murray, Plumb and Murray
Address:	75 Pearl Street, Suite 300
City/State:	Portland, ME
Zip Code:	04101
Work #:	207-773-5651
Home #:	
Cell #:	
Fax #:	207-773-8023
E-mail:	pplum@mpmlaw.com

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	Stephen Bushey
E-mail:	stephen.bushey@stantec.com
Name:	Sandi Keef
E-mail:	sandi.keef@stantec.com
Name:	Celina Daniell
E-mail:	celina.daniell@stantec.com

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☑	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☑	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☑	Traffic Movement	$1,500.00
☑	Stormwater Quality	$250.00
☐	Subdivision	$500.00 + applicable fee for lots/units below
	# of Subdivision Lots/Units [ ] x $25.00 each	$
☐	Site Location	$3,500.00 + applicable fee for lots/units below
	# of Site Location Lots/Units [ ] x $200.00 each	$
☐	Change of Use	
☐	Flood Plain	
☑	Shoreland	
☐	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($52.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

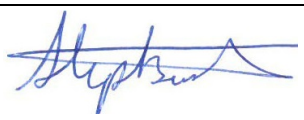
TOTAL AREA OF SITE	17.22 ac	~~sq. ft.~~
PROPOSED DISTURBED AREA OF THE SITE	12.70 +/- ac	~~sq. ft.~~
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	<40,000	sq. ft.*
Impervious Area (Total Proposed)		sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	48,000	sq. ft.**
Building Footprint (Total Proposed)	74,050	sq. ft.
Building Floor Area (Total Existing)	48,000	sq. ft.***
Building Floor Area (Total Proposed)	80,000 +/-	sq. ft.***
ZONING		
Existing	WPDZ	
Proposed, if applicable	WPDZ	
LAND USE		
Existing	Undeveloped - Rail Yard	
Proposed	Boat Maintenance/Marine Retail	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)		
# of Lots (Total Proposed)		
# of Affordable Housing Units (Total Proposed)		
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)		
# of Two-Bedroom Units (Total Proposed)		
# of Three-Bedroom Units (Total Proposed)		
PARKING SPACES		
# of Parking Spaces (Total Existing)	0	
# of Parking Spaces (Total Proposed)	Undefined >100 spaces	
# of Handicapped Spaces (Total Proposed)	4 spaces	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	TBD	
# of Bicycle Spaces (Total Proposed)	TBD	
ESTIMATED COST OF THE PROJECT	$2.5 to $6 million Phase III	

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	Stephen R. Bushey, P.E., Agent 
Date:	December 14, 2017

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
X		1	Completed Application form
X		1	Application fees
X		1	Written description of project
X		1	Evidence of right, title and interest
Pending		1	Evidence of state and/or federal approvals, if applicable
X		1	Written assessment of proposed project's compliance with applicable zoning requirements
X		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
X		1	Written requests for waivers from site plan or technical standards, if applicable.
X		1	Evidence of financial and technical capacity
		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
X		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
X		Proposed grading and contours;	
X		Existing structures with distances from property line;	
X		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
X		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
X		Preliminary infrastructure improvements;	
X		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
N/A		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
N/A		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
X		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
X		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
X		1	* Completed Application form
X		1	* Application fees
Section 1		1	* Written description of project
Section 2		1	* Evidence of right, title and interest
		1	* Evidence of state and/or federal permits
Section 3		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
Section 2		1	* Evidence of financial and technical capacity
Section 4		1	Construction Management Plan
Section 4*		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
Section 1		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
Section 5		1	Stormwater management plan and stormwater calculations
Section 3		1	Written summary of project's consistency with related city master plans
Section 1		1	Evidence of utility capacity to serve
Section 1		1	Written summary of solid waste generation and proposed management of solid waste
Section 6		1	A code summary referencing NFPA 1 and all Fire Department technical standards
Section 3		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
TBD		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

* TMP previously approved

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
Sheet C-1.2		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Final Site Plans including the following:**
Sheet C-2.2		Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);	
Sheet C-2.2		Existing and proposed structures on parcels abutting site;	
Sheet C-2.1		All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;	
Sheet C-2.1		Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;	
Detail Sheets		Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;	
Sheet C-11.1		Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;	
N/A		Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;	
Sheet C-2.1		Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;	
Sheet C-2.1		Location of all snow storage areas and/or a snow removal plan;	
Section 5		A traffic control plan as detailed in Section 1 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);	
N/A		Location and proposed alteration to any watercourse;	
N/A		A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;	
N/A		Proposed buffers and preservation measures for wetlands;	
Sheet C-1.3		Existing soil conditions and location of test pits and test borings;	
Sheet C-2.1		Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;	
Sheet C-3.1 Section 6		A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;	
Sheet C-3.1		Grading plan;	
N/A		Ground water protection measures;	
Sheet C-4.1		Existing and proposed sewer mains and connections;	

- Continued on next page -

Sheet C-11.1		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
Sheet C-4.1		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
Sheet C-4.1		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
Sheet C-2.1		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
See Arch Plans		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
N/A		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
N/A		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
TBD		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
By Bartlett		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
See Plan		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
Sheet C-2.1		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

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1. DEVELOPMENT DESCRIPTION

1.1 PROJECT OVERVIEW

Canal Landing, LLC proposes to construct an expansion to their boat maintenance and repair yard within approximately 17.77 acres of land located prominently along the West Commercial Street waterfront. This land area includes 5.03 acres of remainder land that the Applicant retained after the MaineDOT acquired nearly 18 acres of land from New Yard, LLC for the IMT Expansion project. The Applicant has completed the acquisition of 12.74 acres from Maine Central Railroad to fulfill their goals for a full-scale boat maintenance and marine related activities facility. The project represents an ideal reuse of a former highly industrialized property that over the years had fallen into non-use except for low frequency rail yard activities. The property maintained a prominent role in the City's Waterfront District for well over a century and a half as the Maine Central Railroad operated active business interests up until at least the 1970's. In more recent times, the site had been relatively inactive except for the limited ongoing rail operations. The Canal Landing Boat Maintenance facility and IMT expansion have now initiated a new resurgence in marine waterfront related activity along the Fore River.

The proposed project includes multiple buildings to be constructed over multiple phases along with expanded shorefront uses including a marine travel lift basin, second boat ramp, floats/docks, new or reconstructed piers and ancillary support features. The Applicant's future plans include at least three additional buildings to be constructed to support the boat maintenance and repair operations. The current Site Plan approval request is only for **Phase III** activities which are listed in Section 1.9.1 of this section. This activity was previously reviewed and approved by the Planning Board in January 2016.

The Phase III project includes site development activities involving earthwork, grading, shorefront stabilization, building construction, utilities, and overall site stabilization.

The following sections provide greater detail regarding the site's existing conditions and the proposed development program.

1.2 SITE OWNERSHIP

According to the ALTA/ACSM Survey completed by Owen Haskell, Inc. in April 2015, the development site contains multiple parcels as identified in the City of Portland Tax Assessor's maps. These parcels are more fully described as follows:

TABLE 1 – Land Ownership

Chart-Block-Lot	Owner	Description
59-A-3 & 4	New Yard, LLC CCRD Book 30887; Page 2	Consists of 5.03 acres. Land retained following the MaineDOT land taking.
60-F-1, 3 &4 71-F-2	Canal Landing, LLC CCRD Book 32239; Page 148	Consists of a 6.75-acre area between the IMT rail track and the street; also consists of 5.99 acres of area along the waterfront, out to mean low water.

Figures 1-12 included in Attachment A of this section depict the project location on various available resource maps. As shown, the site location is on West Commercial Street just west of the Casco Bay Bridge and between Commercial Street and the waterfront. The combined parcels have approximately 2,159.55 LF of frontage along Commercial Street. The development site is identified on the U.S.G.S Portland West 7.5 Minute Quadrangle Map.

1.3 PROJECT PURPOSE AND NEED

The proposed project is considered a unique opportunity to transform an underutilized, yet prominent property, into water dependent maritime use as significantly contemplated within the City's zoning and comprehensive plans. The project's community benefits include:

- Enhanced commercial/marine related opportunity and rehabilitation of a deteriorated, older industrial property.
- Rehabilitated waterfront including new/renovated pier(s), boat ramp(s) and shoreline stabilization.
- Various remedial activities related to recognized environmental conditions on the properties will be performed, thus addressing several long-standing environmental issues.
- Revitalization of an important waterfront property that has excellent access to deep water, various utilities, City services, and related shorefront amenities.
- Furtherance of the purposes of the Waterfront Port Development zone as articulated in the Land Use Ordinance to "*ensure the continued viability of the Port of Portland*" by limiting use to "*those uses which are dependent upon deep water and which contribute to port activity*".
- Creation of new buildings and site use consistent with waterfront activities in a gateway location along the busy West Commercial Street corridor. The proposed Phase III building includes the placement of Marine Retail and office services within the street front zone of West Commercial Street.
- Creation of secure storage area for marine related cargo and support. Several uses including, but not limited to, the IMT, Bath Iron Works, and others have expressed a need for secure (fenced) area for the placement of marine cargo, vehicle holding areas, etc. on the Portland waterfront and New Yard is seeking to fill this need.

1.4 EXISTING CONDITIONS

The site consists of approximately 17.77 acres of land that is composed of three primary areas described as follows:

1. **Retained Parcel (Map 59A, Lots 3 & 4)**: Consists of the retained 5.03-acre area owned by New Yard, LLC and it represents the retained land originally permitted by the Applicant during late 2012 – 2013. Within this land area New Yard, LLC has constructed Building A and Building B amounting to approximately 48,000 SF of building space. This parcel contains a new boat ramp and boat yard area currently in use by Portland Yacht Services.

2. **Shorefront Parcel (Map 60F, Lots 3 & 4)**: This area is irregularly shaped and contains approximately 1,581 LF of waterfront. The site area is approximately 5.99 acres. This area is currently undeveloped except for the granite revetment wall that historically supported the former waterfront pier.

3. **Street Front Parcel (Map 60F, Lot 1)**: This 6.75-acre area contains approximately 2,160 LF of street front. The property is generally unoccupied although there are existing rail tracks that previously provided access to the remaining NGL Distribution facility within what will be IMT expansion area in the future. Towards the east end of this parcel, historic land use has included parking of vehicles, trailers and similar activities associated with businesses further east on Commercial Street. Most of this use was unauthorized by the previous landowner, Portland Terminal Co.

Existing development in the area includes the following:

- The City of Portland Marine Terminal and expansion area is located to the east of the site.
- Commercial activity including Nova Seafood and Graybar Electric operate out of buildings on the north side of Commercial Street.
- The Portland Star Match Co. building lines up opposite the site.
- The State of Maine now operates rail tracks into the propane storage yard and IMT expansion area. These tracks were completed very recently.

1.5 ACCESS CONDITIONS

The applicant has installed two new driveways (east & central as shown on plans) to allow access to New Yard's business operations. The central driveway will continue to be the primary site entrance as it aligns with a 50' wide rail track crossing. The easterly driveway will provide access to New Yard's administrative space to be located at the east end of the Phase III building. The site plans identify the alignment of the easterly driveway to the far east end of the site, where the existing pavement markings in Commercial Street afford the opportunity for left turning vehicles to queue and for thru WB movements to continue unimpeded.

Future site access will consist of the following:

- A driveway is proposed at the westerly access point. This driveway will allow access to both the street side parcel and the shorefront parcel. This driveway is also contemplated to provide access to a secured area that is proposed to offer marine cargo related land area for parking of vehicles, equipment or other marine related cargo.

1.6 SITE UTILITIES

The site contains numerous active and non-active utility lines. The primary utilities are identified as follows:

- The Portland Water District maintains a 48" sanitary sewer interceptor sewer along the site's entire Commercial Street frontage. A portion of this sewer is located within the site within a utility easement. The District/City also maintain two CSO lines that discharge out to the Fore River. There are no sanitary sewer service lines serving the site to the best of our understanding. The previously completed Buildings A and B discharge to an onsite private pump station that ultimately discharges to the 48" interceptor sewer. The proposed Phase III building's sanitary sewer will also connect to the existing 48" sewer interceptor.

- The Portland Water District maintains a water main in Commercial Street that varies from 12" to 16". The Applicant has previously installed a fire line and fire line meters to supply water to allow for both fire and domestic water supply service into the site. This system will be used for the remaining future shorefront buildings. New fire and domestic water supply lines will be installed from the Commercial Street main to serve the Phase III buildings located within the streetfront parcel.

- Unitil maintains a high-pressure natural gas line along Commercial Street. The Applicant continues to investigate service connections for natural gas supply to the property. Currently, Buildings A and B are served by onsite LP fuel storage tanks.

- Power to the site is supplied by Central Maine Power. Currently, there is an overhead service crossing Commercial Street to a pole from which underground facilities extend to Buildings A and B. CMP also maintains an underground transmission cable along most of the site's Commercial Street frontage. It is the Applicant's intent to extend new overhead primary power service from Commercial Street into the site and then underground to pad-mounted transformer(s). New underground secondary service runs will extend to various locations on the property including the boat ramps and storefront area. The applicant is proposing the placement of up to five (5) 12' x 24" precast concrete power sheds throughout the site. These small portable structures offer convenience to some site utilities including power and yard water services. CMP has provided a statement regarding their ability to continue supplying power to the development site (satisfies Original Condition of approval #1).

Letters were previously sent to the following utility providers requesting ability to serve for the project:

- Portland Water District (water supply)

- City of Portland Public Services (sanitary sewer)

Copies of these letters are included as Attachment B. These letters provide anticipated consumption and anticipated flow data for the site.

Plan C-4.1 shows the proposed utilities for Phase III.

1.7 TOPOGRAPHY AND DRAINAGE

Owen Haskell, Inc. has completed a topographic survey of the property. The site is relatively flat with the highest points along the Commercial Street frontage, sloping to the waterfront. Site elevations along Commercial Street trend down from east to west from Elevation 18' (NGVD 1929) to Elevation 16'. The site's low areas are near elevation 9'-10' while most of the waterfront top of revetment is near elevation 9' or 10'. The High Annual Tide Line (HAT) for the Fore River is elevation 7.4' and mean low water is approximately Elevation -4.0'. The Federal Channel is also represented on the project drawings and it is generally located 60' to 120' off the shorefront. No activities are proposed beyond the Federal Channel line.

The site's runoff drains directly to the Fore River via overland flow. There are very few drainage measures on site except for several old catch basins, although there is a closed storm drainage system within Commercial Street. The Commercial Street drainage system ultimately ties into several existing CSO outfalls. The CSO outfalls will remain and be used as outfalls for site generated runoff. It is noted that these CSO outfalls are also used for discharge of runoff

associated with the IMT expansion and new rail corridors. The applicant intends to offer easements to the City benefitting the City of Portland for these existing systems.

Due to the site's historic industrial condition, much of the surface consists of sand and gravel fill, asphalt or otherwise sparsely vegetated ground surface. Future ground activities include improved surfaces to support boatyard activities, however it is contemplated that much of the yard area will be improved by the placement of the "Boatyard Surface" consisting of new gravel and crushed stone surfacing thereby aiding stormwater control and treatment. This "Boatyard Surface" treatment has been widely placed throughout the 5-acre remainder land and it has been found effective in handling the site's runoff conditions. This surface is compliant with the MeDEP Brightwork Manual.

1.8 SOILS CONDITIONS

- 10 to 15 feet of sand and gravel fill – there is little to no organic surface layer throughout the site which is reflective of the site's rail yard history.
- 5 to 10 feet of silt and sand.
- 10 to 40 feet of gray clay identified as the Presumpscot formation.
- 30 to 40 feet of dense silty marine sands.
- An undetermined thickness of dense silty sand and gravel identified as glacial till overlaying bedrock.

Observed soils conditions at the ground surface include fill material containing coal ash with scarified sand and gravel. S. W. Cole Engineering completed a geotechnical investigation related to the foundation design for the Phase III building. A copy of this report can be provided upon request.

According to various investigation data, depth to groundwater varies from 3 to 7 feet and this likely varies with tidal conditions in the Fore River. Generally, the groundwater flows from the northwest to the southeast across the site.

1.9 PROPOSED DEVELOPMENT

The Applicant proposes to redevelop the property in a manner consistent with the WPDZ Standards. The development program includes the following components:

1.9.1 ONSITE

The development program includes continued phased development of boat maintenance facilities and ancillary marine related uses. Phase III and future Concept Plan development activities are summarized as follows:

- **<u>Phase III – Will Include (For Which Approval Is Requested):</u>**
  - Site clearing, stabilization and general clean-up.
  - Construction of a 19,800 SF footprint individual metal building (Building C) for marine retail and boat maintenance operations. (This requires a Conditional Use Approval).

- Establishment of yard areas and surfaces for heavy equipment, and boat display, storage or repair. (Repair and maintenance often takes place outside, particularly if the vessel is large and does not fit into a building. Boats that are out of the water for the winter season all need to have work done on them to prepare them for re-launching.)
- Installation of utilities for building use as well as future phase activities.
- A 20' x 120' storage building along the waterfront is proposed for storage of racing shells. (this building will benefit the Waynflete School racing program – as of Dec 2017 the structure has not been constructed, however a pier was installed in 2016)
- Temporary facilities including one or more portable trailers and storage buildings for sailboat masts and related boat equipment.
- A 60’ x 80’ steel framed multi story structure (Building D) is proposed as an office space for Portland Yacht Services and potentially for other small retail tenants.
- A 2 to 3 acre area on the west end of the street front parcel is proposed for use as a marine cargo related stack/storage yard. The applicant is seeking to construct a basic yard area with security fence/access for use by various marine operations on the waterfront. This may include use by the IMT, BIW, Sprague or other users for short term parking, storage or related operations. This is an unfilled need for this type of area on the waterfront which New Yard is seeking to address, based on interest by various third parties to the applicant.

➢ **Future Development – May Include (Require Future Separate Approvals):**

- Rehabilitation of former pier pilings for use as part of a new dock system along the waterfront. Custom Floating docks are proposed to tie into the existing system of pilings and dolphins located along the waterfront.
- A travel lift basin to be constructed of sheet piling within the westerly shoreline. The travel lift basin will allow larger vessels to be removed from the water for repairs and maintenance.
- Construction of a second concrete boat ramp along the shorefront.
- Construction of a 36,000 SF tension fabric building for boat repair operations including painting and fiberglass work.
- Construction of up to 13,500 SF metal framed structure that will include more boat repair space, operations areas and administrative support area.
- Continued expansion of the yard area and surface for boat storage and repair.
- Construction of ancillary systems including boat wash areas with water recycling systems, peripheral stormwater systems, landscaping and overall site stabilization.
- Marine retail and warehouse space within up to 36,000 to 41,625 SF in one or two buildings located in the westerly Commercial Street frontage. This space may consist of a combination of permitted and conditional uses.
- Construction of a parking area containing 80-90 parking spaces along the Commercial Street frontage just west of the proposed entrance off Commercial Street.
- Marine related uses, including, but not limited to, seafood processing and storage within one or more structures to be located on the site’s far westerly side.

- Commercial street improvements for parallel or angled parking. These improvements are subject to compatibility with existing utilities including underground gas and electric. These improvements are also subject to coordination with the City's West Commercial Street planning.
- Large vessel berthing alongside and within the rehabilitated pier area.

It is the Applicant's intent to show these future activities on the Future Phase Concept Plan; however, current Site Plan and Conditional Use approvals are only being sought for the **Phase III activities**.

1.9.2 OFFSITE

Site access is proposed via Commercial Street as well as from the Fore River. The Phase III primary site entrance is proposed at the existing gravel drive located approximately 1,500 LF west of the Beach Street intersection.

A second driveway is also proposed approximately 650 feet west of the Beach Street intersection generally opposite the Star Match Co. building complex. Finally, the Applicant is proposing a third entrance further west off Commercial Street. This entrance would be primarily used for the secured marine stockyard in a manner to provide separation of these patrons from the operations of the boat yard, and to provide off hour security.

1.10 LAND ORDINANCE REVIEW

1.10.1 OVERVIEW

The property currently lies within the City of Portland Waterfront Port Development Zone (WPDZ). Within the WPDZ district the following uses are permitted or conditioned:

Permitted Uses

- Marine repair services and machine shops
- Tug boat, fire boat, pilot boat and similar services
- Boat repair yard
- Marine cargo handling facilities, including docking, loading, and related storage
- Warehousing and storage of goods which are awaiting shipment via cargo carriers

Conditional Uses

- Marine products, wholesaling and retailing
- Boat storage facilities excluding rack storage
- Seafood processing
- Seafood packing and packaging
- Off-street parking lots, excluding parking structures

The following dimensional requirements apply in the WPDZ District:

Dimensional Standard	Requirement
Minimum Lot Size	None
Minimum Frontage	None
Front Yard Setback	None
Side Yard Setback	None
Rear Yard Setback	None
Setback from Pier Line	5 feet for structures
Maximum Lot Coverage	50%
Maximum Building Height	55 feet

With regard to building height compliance, the proposed finished floor elevation of the Phase III buildings is 16.0 feet. While the specific building vendor has not been selected yet, it is understood that the total height of the buildings will not exceed the Code Standards. This is similar to the previously constructed Buildings A & B, each of which comply with the applicable WPDZ height requirements in place at the time of construction.

In accordance with Section 14-318.5 (no adverse impact on marine uses) the following statements support the project intentions:

- *Criteria 1 – The proposed non-water dependent use will not displace an existing water-dependent use.*

  Supporting Evidence: In fact the proposed project is a water dependent use and it is not displacing any existing water related use.

- *Criteria 2 – The proposed use will not reduce existing commercial vessel berthing spaces.*

  Supporting Evidence: In fact the project includes measures to improve and increase commercial vessel berthing space as the project activities contemplate pier rehabilitation and the installation of berthing spaces for vessels including tug boats or similar sized vessels.

- *Criteria 3 – The proposed non-water dependent use, structure or activities, including but not limited to access, circulation, parking, dumpsters, exterior storage or loading facilities, and other structures, will unreasonably interfere with the activities and operation of existing water-dependent uses or significantly impede access to vessel berthing or other access to the water by water-dependent uses.*

  Supporting Evidence: The proposed uses are water-dependent and do not interfere with any existing water dependent uses or activities on the site.

- *Criteria 4 – The siting of a proposed non-water dependent use will substantially reduce or inhibit existing public access to marine or tidal waters.*

  Supporting Evidence: The project is not non-water dependent and it will not reduce or inhibit existing public access to marine or tidal waters. It is expected that waterfront access will be improved as a result of the installation of a proposed boat ramp(s) and floating dock facilities in the future.

Performance Standard Compliance

The Applicant will comply with all items listed and described in the performance standards for the WPDZ in the development of the proposed Phase III project as well as through the day to day operational activity at the site once construction of Phase III is complete. Compliance with these standards is discussed in the Impact Mitigation narrative contained in Section 3 of this submission.

The off-street parking and loading requirements will not be applicable to New Yard's business operations until future phases of the project are developed. Generally, the project involves New Yard employee parking which will vary within the yard area to allow flexibility for boat storage.

The marine retail use will involve less than 35 parking spaces based on their current demand at an existing facility.

See Section 1.14 of the report for information on noise and vibration generated by the regular operations of the site. See Section 1.15 of this report for a discussion on proposed lighting for Phase III of the project. Section 1.17 provides an overview of solid waste for the project is discussed below.

1.11 BRIGHTWORK MANUAL OVERVIEW

In 2005, the Maine Department of Environmental Protection released "*Brightwork -- A Best Management Practices Manual for Maine's Boatyards and Marinas "*. The goal of the manual is to help site owners and operators of marinas and boatyards to reduce pollution from their facilities by providing environmental compliance benchmarks, common sense practices that enable the benchmarks to be met, a list of regulatory references that form the basis of the benchmarks, and a series of tools to enable easier benchmark progress measuring.

The manual describes in detail, the types of toxic pollutants generated by boatyard and marina sites and the resulting environmental and economic impacts.

The manual provides guidance on how to carry out typical jobs and practices associated with boatyards and marinas and the associated benchmarks, best management practices, clean up and waste disposal, customer relations, legal requirements, etc.

The practices described include:

- Hull Preparation
- Sandblasting
- Painting
- Boat Washing
- Engine Repair and Maintenance
- Stormwater Planning
- Fueling and Fuel Storage
- Waste Management

The manual provides best management practices for each practice including containment, indoor vs. outdoor recommendations, dust emissions, managing spills, storage, labeling and disposal of various waste products.

The Applicant currently complies with the Brightwork practices within their new facilities at the Canal Landing Yard. They will continue to utilize the Brightwork Manual as a reference and adhere to the requirements set forth for all activities at the proposed site.

1.12 TRAFFIC

The proposed project will not result in significant impacts to the surrounding street system. The previous approval review in January 2016 included a Traffic Movement Permit which we understand remains in force. No further traffic analysis for the Phase III application renewal has been performed at this time.

The existing boatyard consists of two buildings totaling 48,000 SF of boat storage/maintenance space. There are approximately 50 employees at the site at various times. The proposed Phase III activities include the construction of buildings C and D that will include the following uses:

- An approximately 19,800 SF marine retail store (Building C)
- Approximately 12,000 SF of office and administrative support space (Building D)

Trip Generation

The following trip generation values have been estimated using the 7th Edition of the Institute of Transportation Engineers, Inc. publication, Trip Generation. Average rates have been used to calculate the estimated trip generation in each category:

Phase 3 Land Uses – Trip Generation			
Land Use	**AM Peak**	**PM Peak**	**Sat Peak**
Existing			
48,000 SF Warehouse (LUC 150)	27	29	6
Proposed			
19,800 SF marine retail*	70	70	70
12,000 SF Office (LUC 710)	19	18	28
Total	**116**	**117**	**104**

* Based on prospective tenant's typical daily transaction count. In the interest of confidentiality any further data regarding their business transaction history can be discussed directly with City staff or peer reviewers.

Future Uses – Trip Generation			
Land Use	**AM Peak**	**PM Peak**	**Sat Peak**
Future			
51,600 SF New Yard Warehouse (LUC 150)	29	31	63
16,800 SF marine retail**	50	50	50
41,625 SF tenant warehouse (LUC 150)	24	25	51
Total	**103**	**106**	**164**

** Estimated – No specific tenants identified at this time

We note that the majority of the Phase 1-3 traffic associated with these businesses represents trips already on the Portland street network i.e. the New Yard activities are simply a relocation of historical activity from their former Fore Street site. The proposed retail represents traffic already affiliated with an existing Fore Street retail tenant (Hamilton Marine), who is contemplating relocation to the Commercial Street site.

New Yard is seeking to establish three driveways on Commercial Street as depicted on the Site Plans. In accordance with the previously submitted Supplemental Agreement, New Yard has the right to cross the rail tracks at each of the crossings that the MaineDOT is constructing for New Yard.

1.13 NATURAL FEATURES

The development site does not contain any significant natural features including wetlands, vernal pools or other protected resources except for the shorefront edge adjacent the Fore River. The site has been developed for a period greater than 150 years and there is generally no land area that has not been disturbed or otherwise developed. Stantec previously has contacted various resource agencies regarding the site's potential to contain significant wildlife habitat, historic or archaeological resources. Findings from each of the agencies has been previously provided to the City. Copies of letters received to date are contained at the end of this section.

1.14 NOISE/VIBRATION

The WPDZ has the following standards for noise and vibration:

"Noise:

1. *The level of sound, measured by a sound level meter with frequency weighting network, inherently and recurrently generated within the WPDZ between the hours of 7.00 p.m. and 7.00 a.m. from industrial facilities or operation commenced on or after July 1, 1988, shall not exceed 55 dB on the A scale at or within the boundaries of any residential zone, except for sound from construction activities, sound from traffic on public streets, sound from temporary activities such as festivals, and sound created as a result of, or relating to, an emergency, including sound from emergency warning devices.*
2. *In measuring sound levels under this section, sounds with a continuous duration of less than 60 seconds shall be measured by the maximum reading on a sound level meter set to the weighted scale and the fast meter response (L maxfast). Sounds with a continuous duration of 60 seconds or more shall be measured on the basis of the energy average sound level over a period of 60 seconds (LEQ_1).*
3. *In addition to the sound level standards otherwise established, facilities or operations established or built in the waterfront port development zone on or after July 1, 1988, shall employ best practicable sound abatement techniques to prevent tonal sounds and impulse sounds or, if such tonal and impulse sounds cannot be prevented, to minimize the impact of such sounds in residential zones. Tonal sound is defined as a sound wave usually perceived as a hum or which because its instantaneous sound pressure varies essentially as a simple sinusoidal function of time. Impulse sounds are defined as sound events characterized by brief excursions of sound pressure, each with a duration of less than one second."*

"Vibration:

Vibration inherently and recurrently generated shall be imperceptible without instruments at lot boundaries. This shall not apply to vibration resulting from activities aboard a vessel or from railroad vehicle activities, or from activities on a pile supported pier."

It is the Applicant's intention to comply with the noise and vibration standards above. Night time activity will be minimal. Typical sources of noise from routine boat yard jobs and practices include hull preparation, sandblasting, painting, boat washing, engine repairs and maintenance and transportation of vessels throughout the site. All these practices will be performed in accordance with the MeDEP Brightwork Manual. Temporary noise sources during construction will include pile driving, pavement grind, dump trucks delivering gravel/fill to the site.

The site is well separated from noise sensitive sites with no direct abutting impacts to abutting residential neighborhoods. The nearest residential building is approximately 800' away from the edge of the proposed buildings and is located along the Beach Street ramp connection to the Casco Bay Bridge.

The site is surrounded by commercial/industrial uses including the International Marine Terminal to the east, Commercial activity including Nova Seafood and Graybar Electric operate out of buildings on the north side of Commercial Street. Other adjacent noise generating sources including the Casco Bay Bridge and the flight path of the Portland International Jetport.

1.15 LIGHTING

The primary purpose for site lighting for Canal Landing is for security in the vicinity of the buildings and to provide lighting at key operational access points to the Fore River. Nighttime operations for the boatyard are atypical, particularly at this early phase of development. Security at the site will be supplemented by infrared cameras mounted on the buildings. With future development, and potentially increased nighttime activities, additional pole and wall-mounted full cutoff fixtures with LED lamps will be proposed.

It is important to note that light sources from abutting properties cast direct and indirect illumination onto the currently undeveloped property. The adjacent light sources include cobra head sodium lights on utility poles along Commercial Street.

Based upon the existing ambient light levels and the proposed lighting, the Applicant is comfortable that adequate lighting will be present at the property for the proposed uses. Comments from the residential neighbors during the previous review periods indicate that additional lighting to raise the overall level of light at the property is not desired.

The Applicant is requesting that the Planning Staff support a waiver by the Planning Board of the lighting standards of Section XV 4.A. Uniformity and 4.B. Illumination Levels, based upon the following:

1. Existing ambient light levels at the property are between 0 and 0.3 foot-candles at the interior and 0.8 to 1.5 fc at the edges of the lot;
2. Proposed lighting will raise the light levels needed for safe access and egress in and out of the property onto Commercial Street to reasonable average levels of 1.25; and
3. Proposed lighting will provide for security, safety, and nighttime use of the new buildings and work yards;

4. Illumination of the property to the levels required by the City Ordinance will impact the residences located uphill from the proposed project.

1.16 SOLID WASTE

The proposed boatyard use will generate two types of solid waste: regular waste and hazardous waste.

Regular non-hazardous waste will be stored on site in a dumpster(s) and collected by a local solid waste company who the Applicant will form an annual contract.

Hazardous waste will be stored in accordance with the requirements of the Brightwork Boatyard Manual and collected, transported and disposed of by ENPRO Services, Inc. or another similar company. We have previously provided a letter from ENPRO identifying the most common drummed wastes generated by the Applicant's former facility on Fore Street in Portland, how they are tracked, where they are transported to and how they are disposed of. No further information related to solid waste will be provided unless requested by City Staff.

1.17 STORMWATER MANAGEMENT

The development will rely on the placement of boatyard surface materials consisting of crushed stone aggregate and subbase gravels similar to what has been placed on the 5.03 acre remainder parcel. A series of catch basins will be installed to tie into the drainage system installed as part of the IMT rail construction. These systems tie into the existing CSO outfalls that discharge into the river. Additional information relating to the developments overall stormwater strategies is contained in Section 6. The Applicant will be requesting a waiver from the City's Flooding Standards due to the site's proximity to Tidal Conditions in the Fore River. We propose the placement of the "Boatyard Surface" as the primary means of water quality treatment for the site.

1.18 EROSION AND SEDIMENT CONTROL

A temporary Erosion and Sediment Control Plan is included as part of the plan documents.

1.19 FLOODING

The project site has been depicted graphically on a portion of the FEMA Flood Insurance Rate Map and is attached as Figure 7 and provided at the end of this section. The Phase III buildings will be constructed with a finish floor elevation of 16.0 feet, which is 6 feet higher than the 100-year flood elevation of 10.0 feet.

1.20 BLASTING

Based on previous soil investigation at the site, blasting is not anticipated for construction of the project. If blasting or rock removal is required, the contractor will be required to prepare a Blasting Plan and preblast survey prior to any rock removal.

1.21 AIR EMISSIONS/ODORS/VAPORS

Air emissions expected to occur as a result of, or within the project area, are as follows:

- Temporary emissions associated with construction vehicles and construction of project.

- Temporary emissions associated with vehicular travel of employees, delivery vehicles, travel lift, etc.
- Emissions associated with the heating systems for the brokerage building and tension fabric building.
- Emissions related to boat repair activity.

Odors will be generated during the construction phase of the development and during day to day operation of the proposed boatyard facility.

Short term odors or odors generated during construction include the following:

- Organic odors from earth moving during construction.
- Petroleum odors from construction equipment and vehicles used during construction for the project.
- These odors will emanate from the site and may be detectable in the immediate vicinity of the development but will dissipate through the air into the atmosphere in negligible amounts.

Long term odors or odors generated during day to day operation of the facility such as that proposed include:

- Petroleum odors from vehicles/travel lift.
- Solid Waste odors.
- Odors from boatyard activities such as painting, etc.

These odors are not likely to be offensive, as they are of low intensity and the site is not in a densely developed area. Therefore, no provisions for odor control are planned. However appropriate ventilation procedures will be utilized on site for health and safety of staff during certain boat repair activities.

Large Scale water vapor emissions are not anticipated as part of this project.

1.22 SUNLIGHT

The proposed buildings at the site will not cast significant shadows onto neighboring properties, or block access to direct sunlight for structures utilizing solar energy. The Site Layout Plan and Grading and Drainage Plan show the proposed site improvements and their relationships to property lines. The grading plan shows the relative elevations of the buildings with respect to elevations along the property lines.

1.23 APPROVAL REQUIREMENTS

The following permits are anticipated now or in the future:

- City of Portland Planning Board Level III Amended Site Plan Approval, Conditional Use Approval and Shoreland Zoning Approval
- City of Portland Building Permit(s)
- MeDEP Natural Resource Protection Act (NRPA) – Amended
- City of Portland Delegated Review of the Site Location of Development Act (SLDA)

- U.S. ACOE Water Quality Certification/Federal Channel Review (previously obtained for remainder land)
- State of Maine Submerged Lands Lease (previously obtained for existing float system)
- Harbor Commissioner's Review (previously obtained for the remainder land)

1.24 ATTACHMENTS

Attachment A – Figures 1-12

Attachment B – Ability to Serve Letters to/from Portland Water District and the City of Portland Public Services

ATTACHMENT A

Figures 1 – 12

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LOCATION MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: DELORME STREET ATLAS USA 5.0

FST 100 YEARS

FAY, SPOFFORD & THORNDIKE
ENGINEERS · PLANNERS · SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN:	DED
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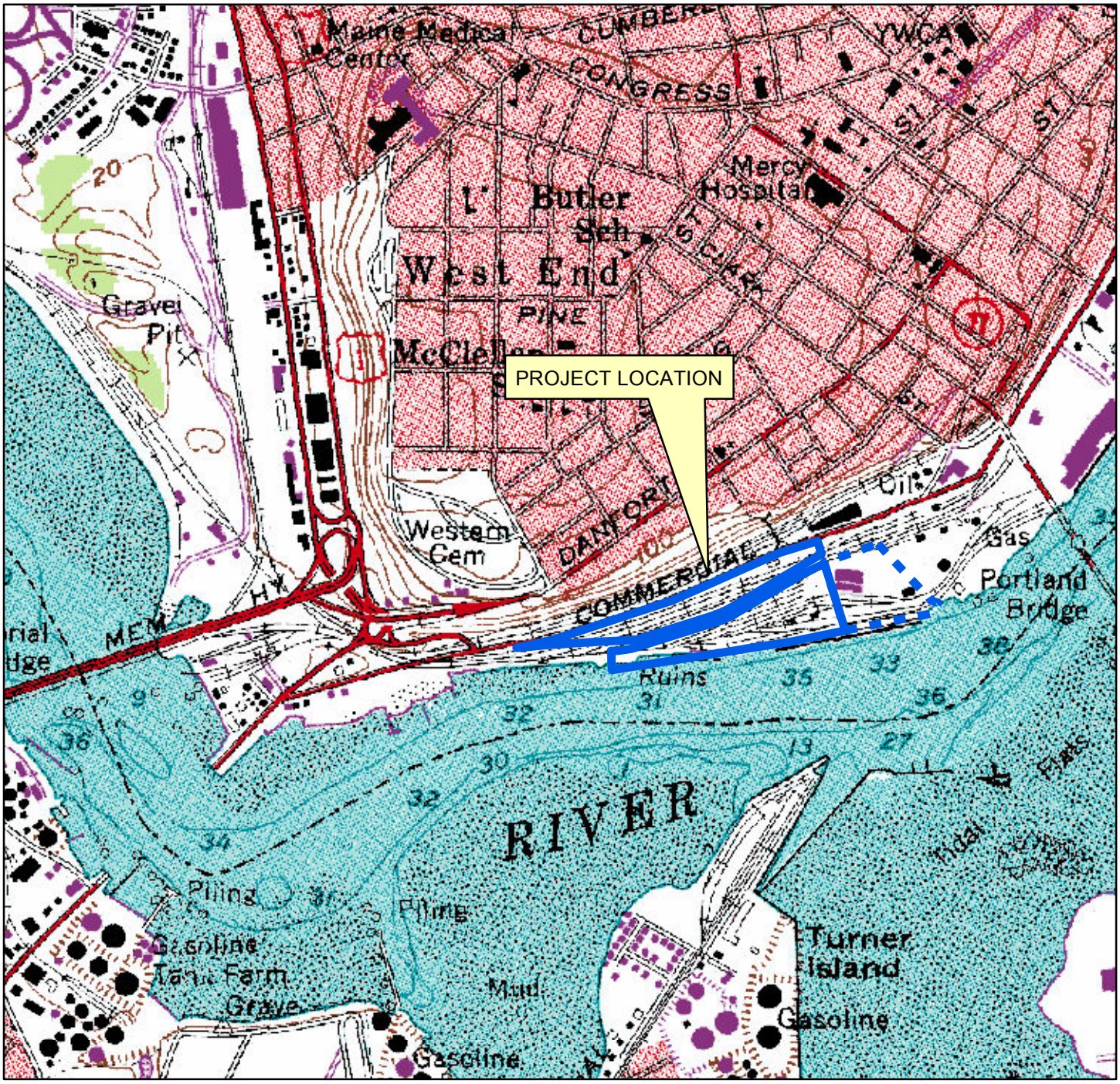
DATE:	FEB 2015
FILENAME:	3091.04 LOCMAP
SCALE:	1" = 1000'

FIGURE
1



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USGS LOCATION MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

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778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

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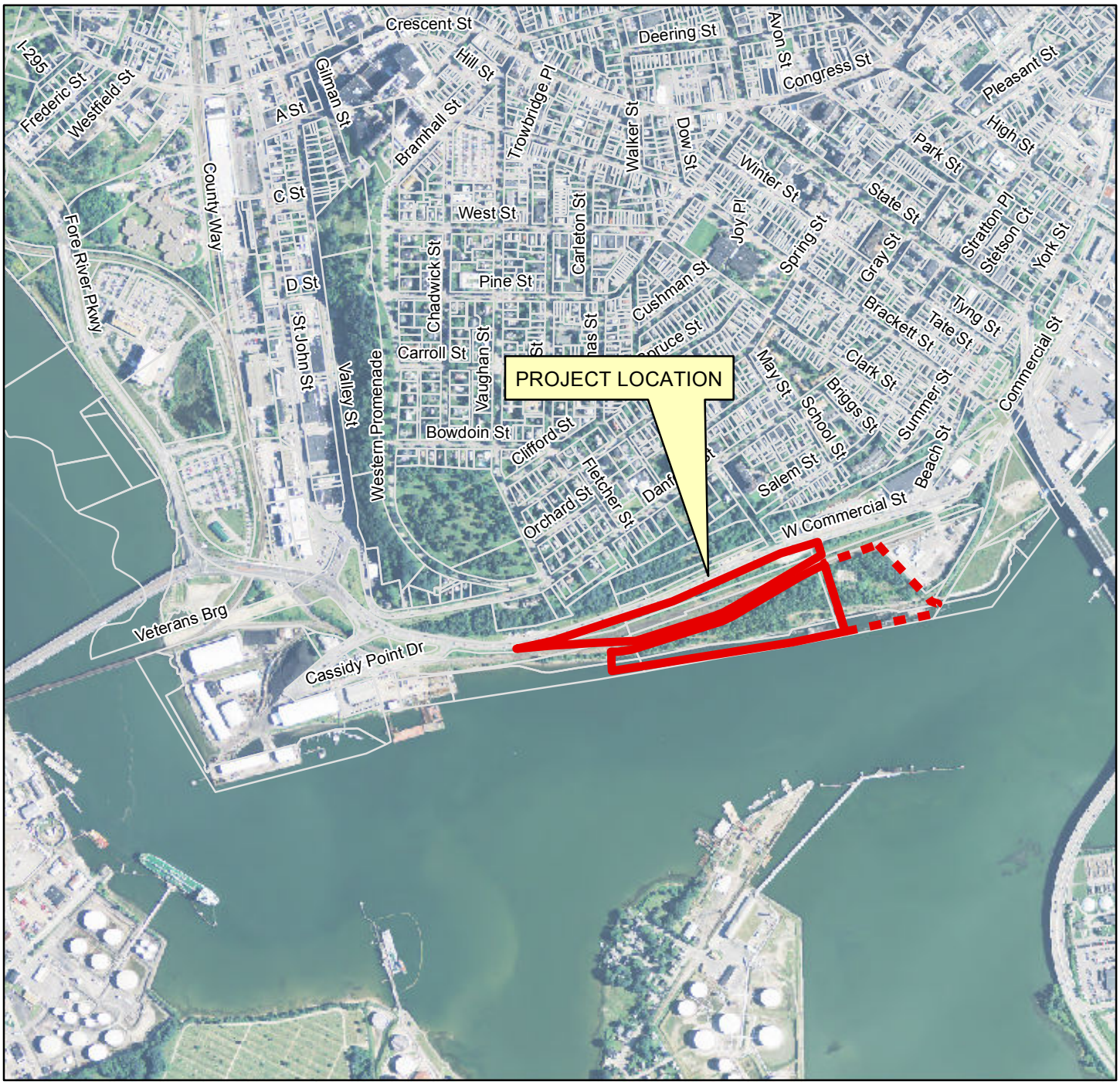
FIGURE

2



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TAX MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

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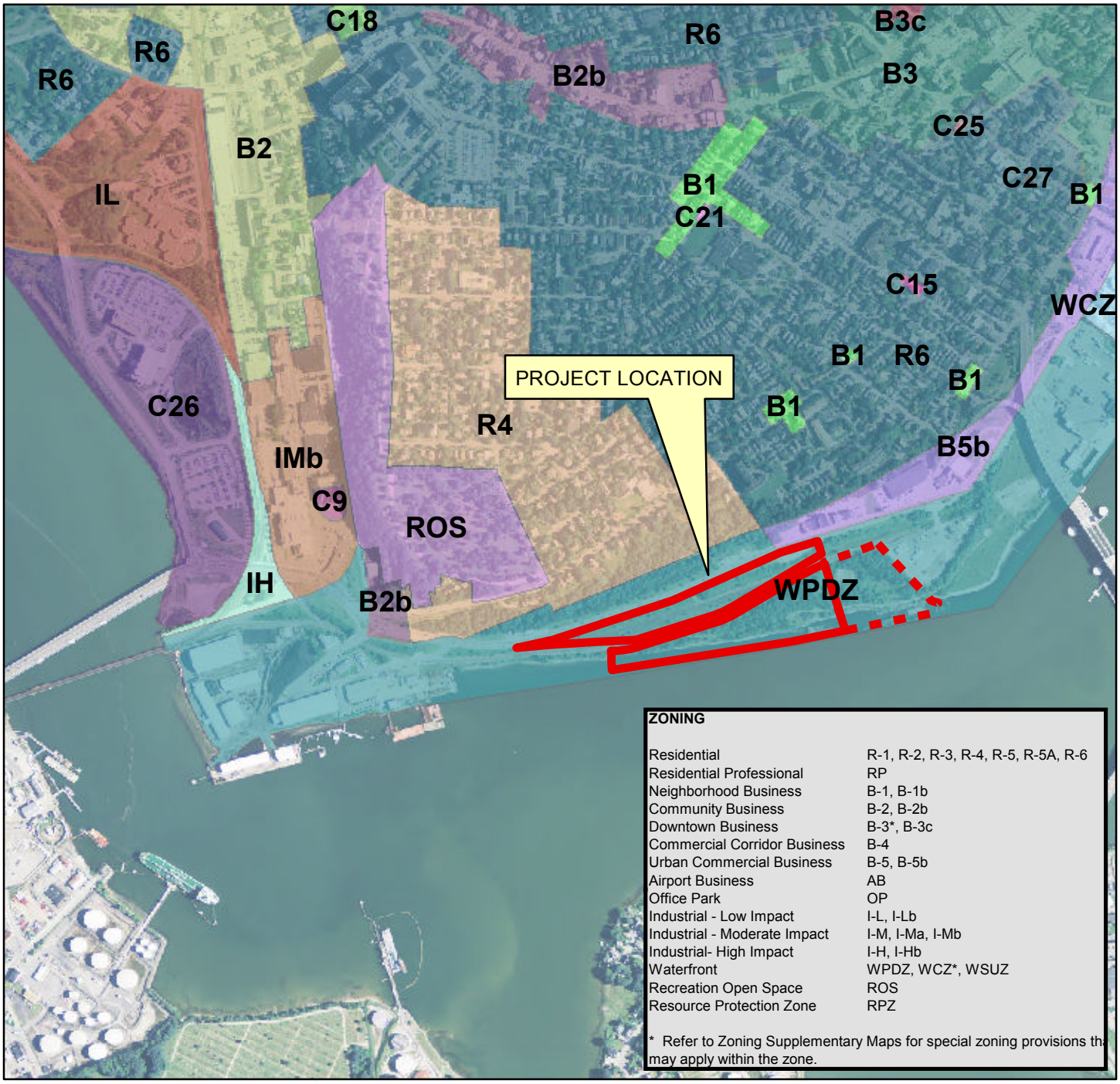
FIGURE

3



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ZONING MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS
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FIGURE
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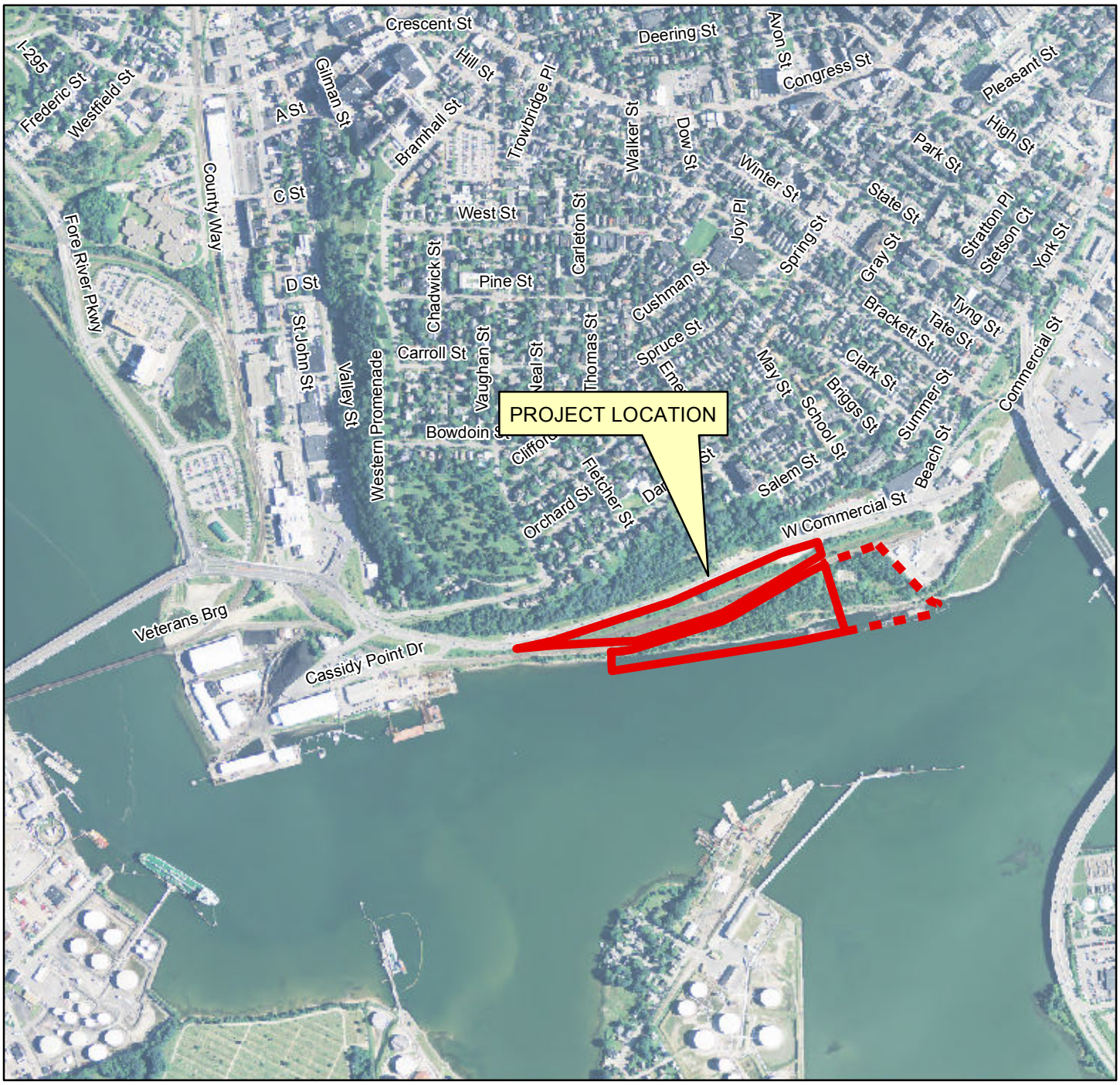

AERIAL PHOTOGRAPH
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

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FIGURE

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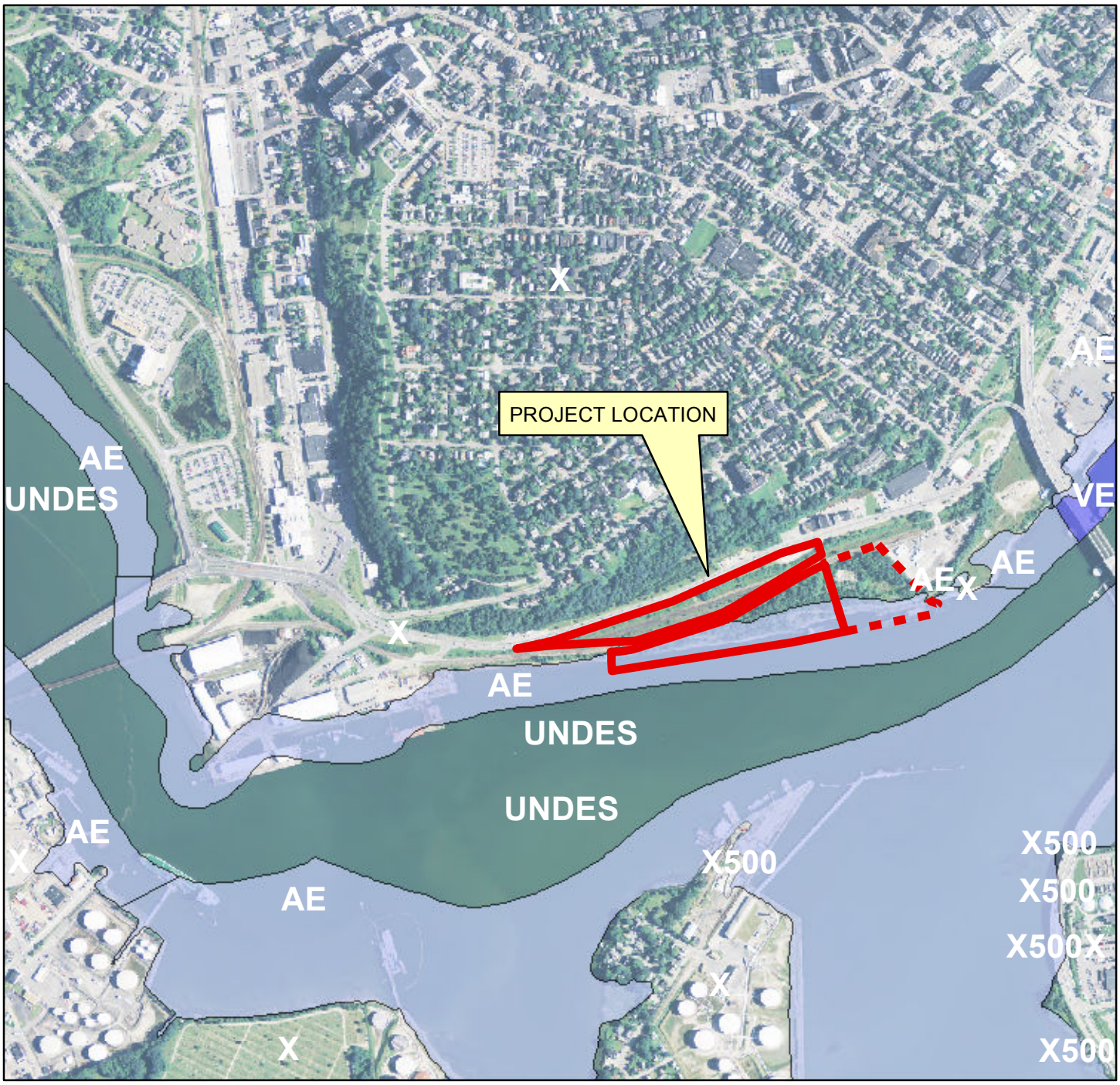

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FLOOD MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

FAY, SPOFFORD & THORNDIKE
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FIGURE

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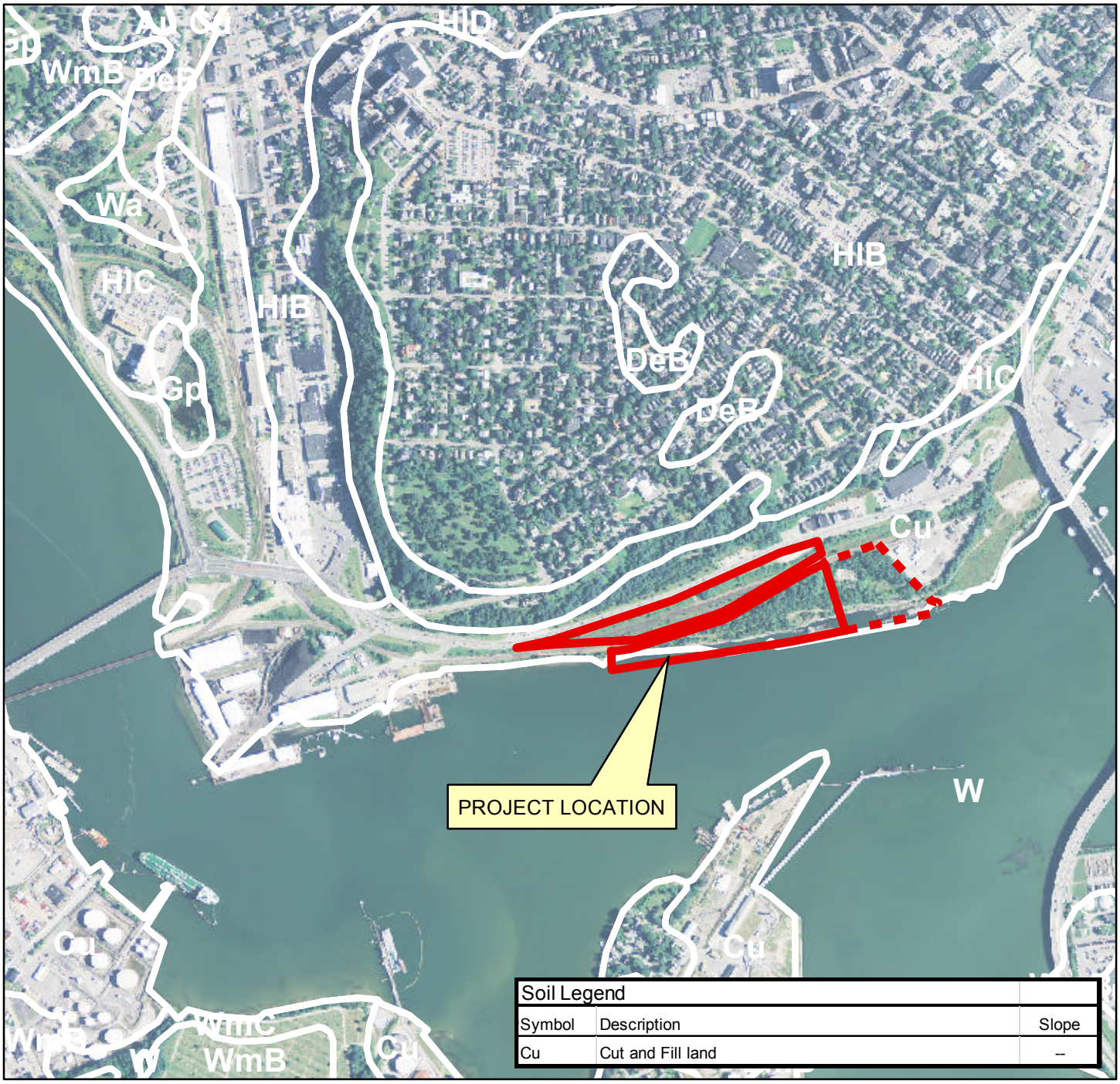

Soil Legend		
Symbol	Description	Slope
Cu	Cut and Fill land	--

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SOILS MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

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FIGURE

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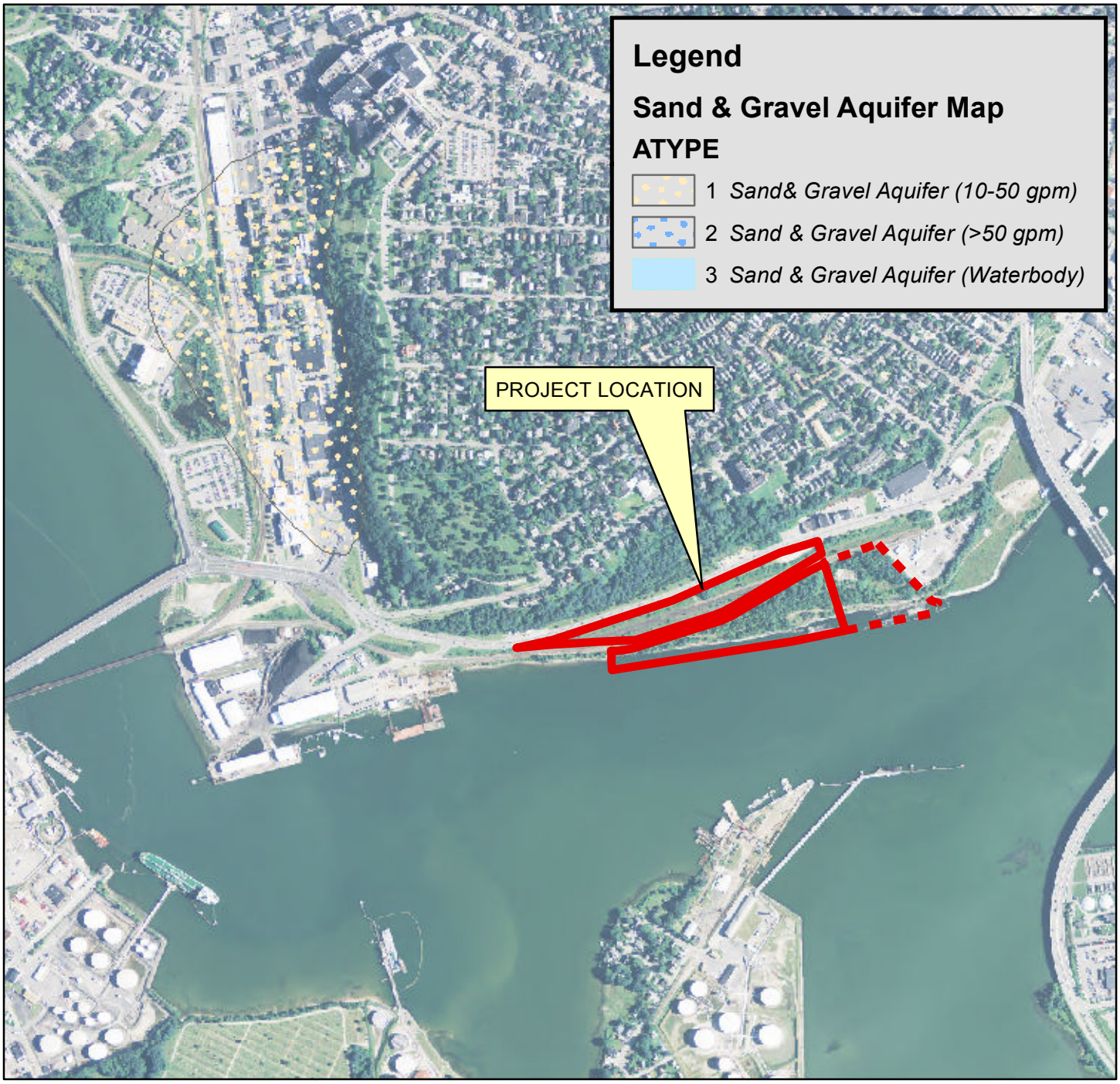

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SAND GRAVEL AQUIFER MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS
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DATE:	MAY 2015
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SCALE:	1 inch = 1,000 feet

FIGURE
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SURFICIAL GEOLOGY MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

FAY, SPOFFORD & THORNDIKE
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778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

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FIGURE
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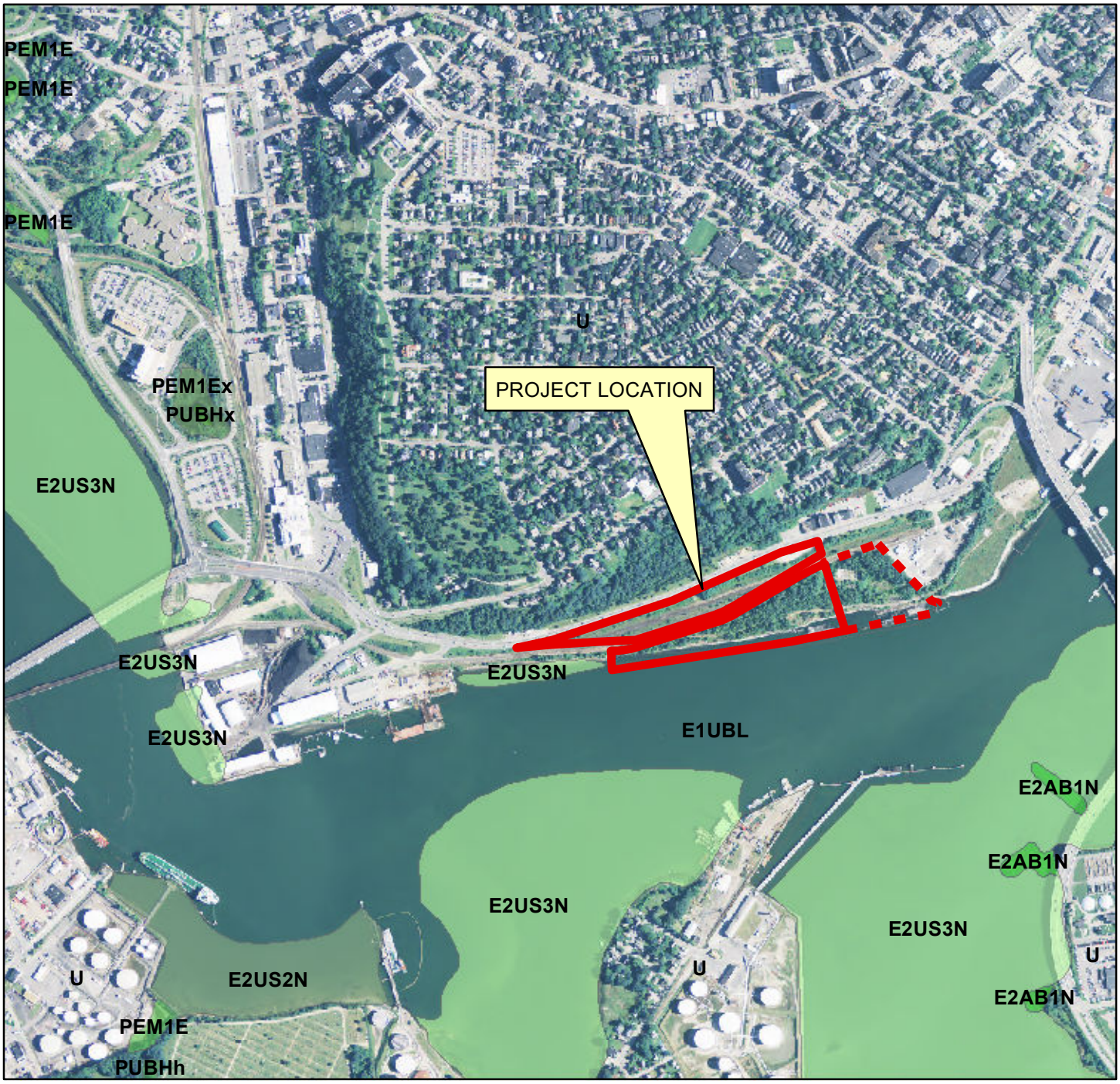

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NWI MAP
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: MAINE OFFICE OF GIS

FST 100 YEARS

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FIGURE
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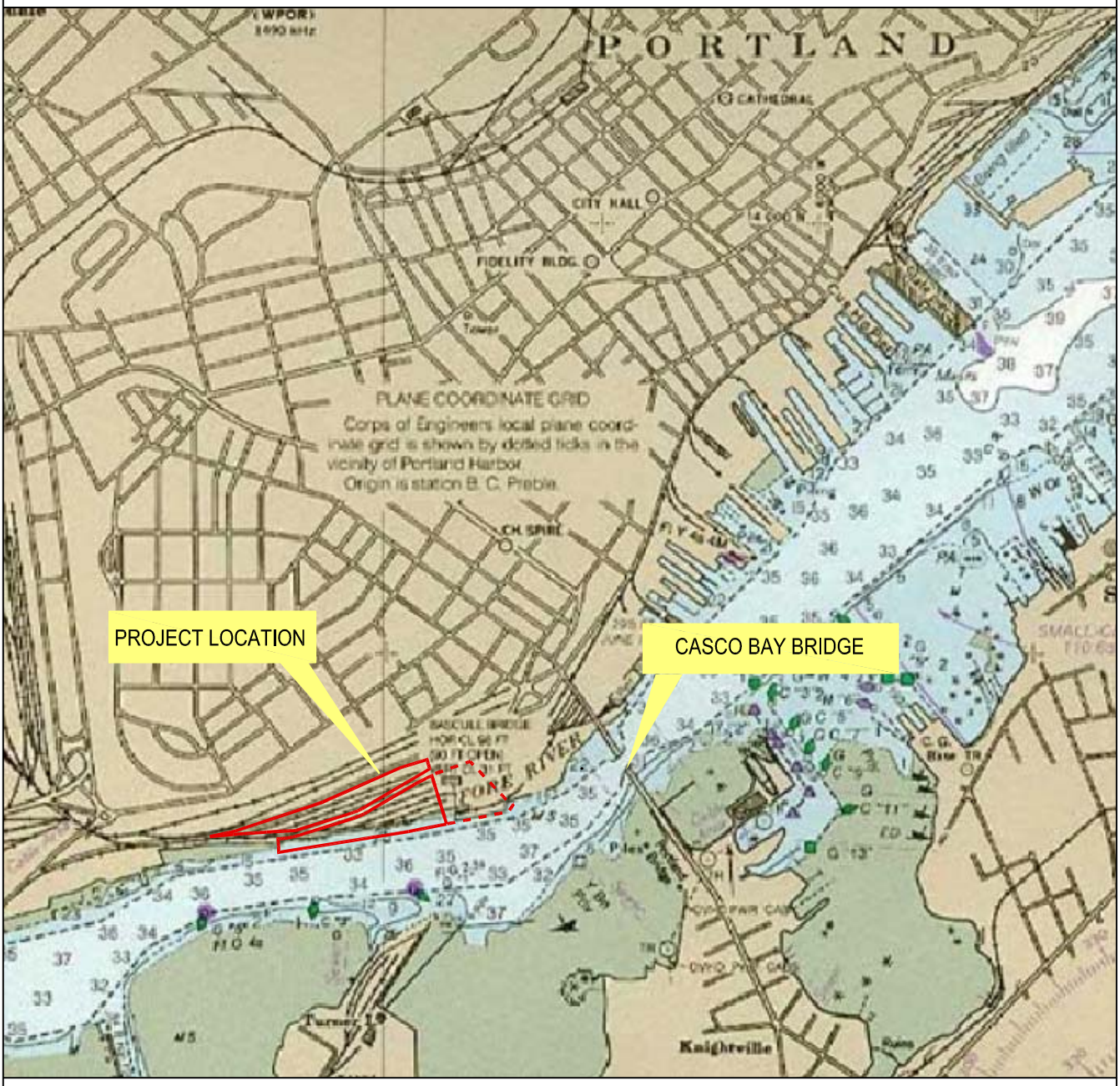

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PORT OF PORTLAND - HARBOR CHART
CANAL LANDING - NEW YARD EXPANSION
PORTLAND, MAINE

SOURCE: PORT OF PORTLAND HARBOR CHART

FST 100 YEARS

FAY, SPOFFORD & THORNDIKE
ENGINEERS · PLANNERS · SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

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DATE:	FEB 2015
FILENAME:	3091.04 HARBOR
SCALE:	1" = 1000'

FIGURE
12

ATTACHMENT B

Ability to Serve Letters to/from Portland Water District and The City of Portland Public Services

May 21, 2015

MEANS Group
Portland Water District
225 Douglass Street
P.O. Box 3553
Portland, Maine 04104-3553

Subject: Canal Landing New Yard – Phase III
400 West Commercial Street
Ability to Serve Project with Water Supply & Wastewater Collection/Treatment

Dear Coordinator:

On behalf of Canal Landing, LLC we would like to verify the Portland Water District's ability to provide domestic and fire supply water and wastewater capacity for their project at 400 West Commercial Street in Portland. The project site is located on all or a portion of Map 59, Block A Lots 3 & 4; Map 60, Block F, Lots 1, 2, 3 & 4; Map 71, Block F, Lots 2, 4, 5 & 6.

The project will consist of two buildings with size and use summarized as follows:

Building	Use	Size (SF)
C	Marine Retail	19,250
D	Marine Office	11,000 to 12,000
Total		30,250 to 31,250

FST has developed a projected flow based on the existing Portland Yacht Services water and wastewater consumption records at the former Fore Street Complex, for the period August 2011 to August 2012. These flows are summarized as follows:

Description	Per PWD Records	Conversion to GPD
Average Monthly Water Consumption	121 HCF	3,106 gpd
Average Monthly Wastewater Flow	105 HCF	2,618 gpd

Water demand for domestic consumption is expected to be similar to wastewater demands or as observed at the PYS center on Fore Street, water consumption will be slightly more than wastewater flow. We do not anticipate the use of irrigation at this time. The fire demand is unknown at this time.

We are in the process of completing the Site Plan Application for a submission to the City of Portland Planning Staff and would appreciate your response to the Planning Department.

778 Main Street, Suite 8
South Portland, ME 04106
T: 800.835.8666
F: 207.879.0896
www.fstinc.com

FAY, SPOFFORD & THORNDIKE
Offices in: Massachusetts, New Hampshire, Maine, Connecticut and New York

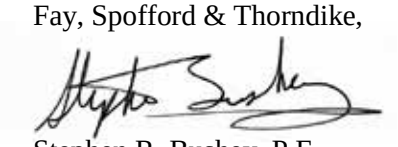
Specifically, our office is interested in a letter from you indicating the following:

- The ability of the Portland Water District's pump stations and Treatment Facilities to serve the project.
- Any other factors which may affect the water and sewer service to this site.
- The ability of the collection system to accept this flow.
- Any connection service or impact fees.
- The ability of the Portland Water District to provide domestic and fire water supply to the development.

If you have any questions regarding this letter, please contact our office.

Sincerely,

Fay, Spofford & Thorndike,



Stephen R. Bushey, P.E.
Associate

SRB/cmd

c: Phin Sprague, Portland Yacht Services

Attachment

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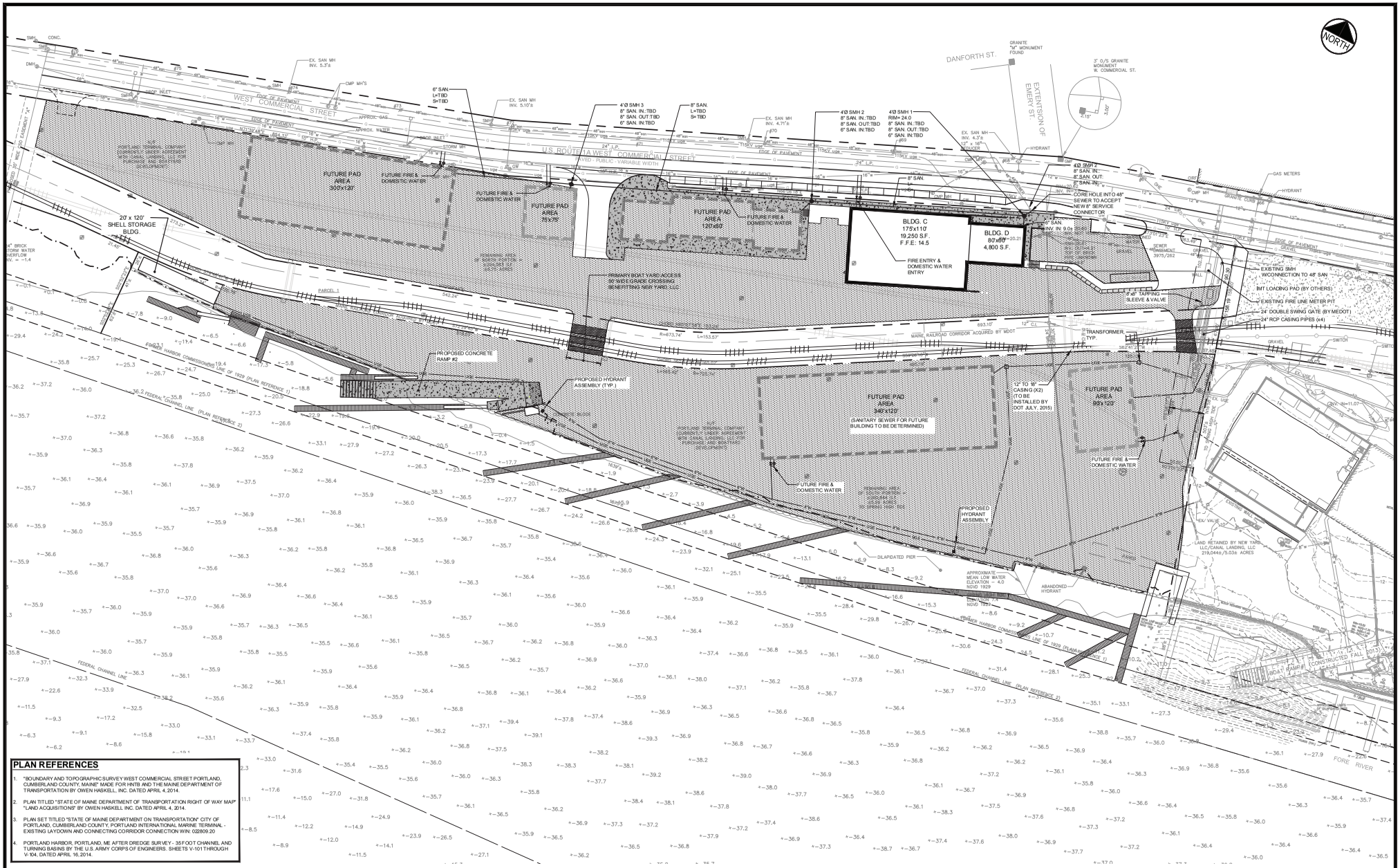

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING (PHASE III)
- PREPARED PERVIOUS SURFACE FOR VESSEL STORAGE AND MAINTENANCE
- PROPOSED BUILDING - FUTURE

NOTE

1. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE TEMPORARY ACCESS AND EGRESS FOR THE PROJECT WILL BE VIA THE EXISTING DRIVEWAY NEAR THE CASCO BAY BRIDGE DURING THE IMT CONSTRUCTION. NEW YARD, LLC / CANAL LANDING, LLC SHALL COORDINATE WITH THE MEDOT'S CONTRACTOR FOR ALL TEMPORARY ACCESS PROVISIONS INCLUDING THE PREPARATION OF A CONSTRUCTION MANAGEMENT PLAN.
2. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE APPLICANT SHALL RESERVE ONE OR MORE AREAS FOR BICYCLE PARKING UP TO FIVE (5) BICYCLES. THE APPLICANT RESERVES THE RIGHT TO MOVE THESE BICYCLE PARKING AREAS FROM TIME TO TIME DEPENDING ON BOAT YARD ACTIVITIES. A MOVEABLE BIKE RACK SHALL BE PROVIDED AT THESE LOCATIONS TO ALLOW FOR BIKE SECURITY.

REV	DATE	DESCRIPTION
1	05.22.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN B. BUSHEY — No. 7429 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. #7429

PROJECT: CANAL LANDING AMENDED SITE PLAN PHASE III

SHEET TITLE: PHASE III UTILITY PLAN

CLIENT: CANAL LANDING LLC
100 WEST COMMERCIAL STREET
PORTLAND, ME 04101

FST — FAY, SPOFFORD & THORNDIKE
ENGINEERS • PLANNERS • SCIENTISTS
778 MAIN ST, SUITE 8, SOUTH PORTLAND, ME 04106

DRAWN:	PBF
DESIGNED:	SRB
CHECKED:	SRB
FILE NAME:	3091.04-UTILITY
DATE:	APRIL 2015
SCALE:	1" = 50'
JOB NO.	3091.04
SHEET	C-4.1

(IN FEET)
1 inch = 50 ft.

R:\3091.04-Canal Landing-Phase 2\Cad\Permit Set\dwg\3091.04-UTILITY.dwg, dave, 6/3/2015 10:40 AM

Portland Water District

From Sebago Lake To Casco Bay

July 23, 2015

FST
778 Main Street Suite 8
South Portland, ME 04106

Attn: Stephen Bushey
Re: Canal Landing Phase III – 40 West Commercial Street
Ability to Serve with PWD Water

Dear Mr. Bushey:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on May 21, 2015. Based on the information provided, we can confirm that the District will be able to serve the proposed project as further described in this letter.

Conditions of Service

The following conditions of service apply:

- An 8-inch diameter combined fire and domestic water service was installed in 2014 to serve 40 West Commercial Street (Map 59, Block A, Lot 3). The service to this lot was allowed to be installed across the neighboring parcels (Map 60, Block F, Lots 1, 2, &3). This was allowed as an exception because, the lot seeking service does not have frontage on Commercial Street and this location had been retained as access to the site and as a utility corridor. This service may be used to serve only those buildings within the parcel that it was intended to serve. Per PWD Terms and Conditions Section 21: "No customer shall supply water to another…". If any of the abutting properties were merged with this parcel, then this existing service may be used to serve any new buildings provided that the service piping remains entirely on one parcel. This service has a single 8-inch diameter UL fire listed meter within a meter pit near the site entrance. This shall be the only meter associated with this service.

- New services may be installed from the water main in Commercial Street along the properties frontage (Map 60, Block F, Lot 1) to Building C and Building D.

- Water District approval of water infrastructure plans will be required for the project prior to construction. As your project progresses, we advise that you submit any preliminary design plans to MEANS for review of the water main and water service line configuration. We will work with you to ensure that the design meets our current standards.

Existing Site Service

According to District records, the project site does currently have existing water service. An 8-inch diameter ductile iron water service line, located as shown on the attached water service card, provides

225 Douglass Street P.O. Box 3553 Portland, Maine 04104-3553
Phone: 207.774.5961 Fax: 207.761.8307 Web: www.pwd.org

water service to this site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is a 12-inch diameter cast iron water main on the north side of Commercial Street and a public fire hydrant located across the street from the site.

The current data from the nearest hydrant with flow test information is as follows:

Hydrant Location:	Commercial Street 400' east of Beach Street
Hydrant Number:	POD-HYD00069
Last Tested:	9/13/2011
Static Pressure:	106 psi
Residual Pressure:	100
Flow:	1,209 GPM

Public Fire Protection

You have not indicated whether this project will include the installation of new public hydrants to be accepted into the District water system. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have not indicated whether this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Should private fire protection be required, please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact the MEANS Division to request a hydrant flow test and we will work with you to get more complete data.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Glissen Havu, E.I.
Design Engineer

Stantec Consulting Services Inc.
482 Payne Road Scarborough Court, Scarborough ME 04074-8929

December 7, 2017

Mr Brad Roland, PE
City of Portland Public Works
55 Portland Street
Portland, Maine 04104-3553

Subject: Canal Landing New Yard – Phase III
400 West Commercial Street
Applicant: Canal Landing, LLC
Wastewater Capacity Application

Dear Mr. Roland:

Our office is working as a consultant to Canal Landing, LLC on the site planning and permitting associated with the proposed Phase III of the Canal Landing New Yard Development. The project site is located on all or a portion of Map 59, Block A Lots 3 & 4; Map 60, Block F, Lots 1, 2, 3 & 4; Map 71, Block F, Lots 2, 4, 5 & 6.

The project will consist of two buildings with size and use summarized as follows:

Building	Use	Size (SF)
C	Marine Retail	19,250
D	Marine Office	11,000 to 12,000
Total		30,250 to 31,250

Stantec has developed a projected flow based on the existing Portland Yacht Services water and wastewater consumption records at the former Fore Street Complex, for the period August 2011 to August 2012. These flows are summarized as follows:

Description	Per PWD Records	Conversion to GPD
Average Monthly Water Consumption	121 HCF	3,106 gpd
Average Monthly Wastewater Flow	105 HCF	2,618 gpd

Water demand for domestic consumption is expected to be similar to wastewater demands or as observed at the former PYS center on Fore Street, water consumption will be slightly more than wastewater flow. We do not anticipate the use of irrigation at this time. The fire demand is unknown at this time.

Based on this modest amount of domestic flow, we trust that the City's wastewater collection and treatment system has adequate capacity to serve this project. We are in the process of completing the Amended Site Plan Application for Canal Landing Phase

III for a submission to the City Planning Staff and would appreciate your response to the Planning Department.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Stephen R. Bushey, P.E.
Associate
Phone: (207) 887-3406
Fax: (207) 883-3376
stephen.bushey@stantec.com

Enclosure

c: Phineas Sprague, Jr. – New Yard LLC
Clint Marshall

V:\1953\active\195350129\Admin\Permitting\2017.12 updated level III site plan\ltr_portland_roland_20171207.docx

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Bradley Roland, P.E.
Water Resources Division

Date: December 7, 2017

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 400 West Commercial Street — 59-A-3, 4

Chart Block Lot Number: 60-F-1, 2, 3, 4; 71-F-2, 4, 5, 6

Proposed Use: Boat Maintenance/Marine

Previous Use: Rail Yard

Existing Sanitary Flows: 0 GPD

Existing Process Flows: 0 GPD

Description and location of City sewer that is to receive the proposed building sewer lateral.

Site Category		
	Commercial *(see part 4 below)*	X
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	
	Other *(specify)*	

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Matthew Grooms — Phone: 207-874-8725

Owner/Developer Name: Canal Landing LLC

Owner/Developer Address: 400 West Commercial Street

Phone: 207-774-1067 — Fax: — E-mail: phin@portlandyacht.com

Engineering Consultant Name: Stephen Bushey, P.E.

Engineering Consultant Address: Stantec, 482 Payne Rd, Scarborough, ME 04074

Phone: 207-887-3478 — Fax: 207-883-3376 — E-mail: stephen.bushey@stantec.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 2,600 to 3,000 GPD

Peaking Factor/ Peak Times: Not Applicable

Specify the source of design guidelines: *(i.e.* __ *"Handbook of Subsurface Wastewater Disposal in Maine,"* __ *"Plumbers and Pipe Fitters Calculation Manual,"* X *Portland Water District Records, Other (specify)* _____

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: Not Applicable

Size of External Grease Interceptor: _____

Retention Time: _____

Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: Not Applicable GPD

Do you currently hold Federal or State discharge permits? Yes ____ No ____

Is the process wastewater termed categorical under CFR 40? Yes ____ No ____

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

2. RIGHT, TITLE AND INTEREST/TECHNICAL CAPACITY/FINANCIAL CAPACITY

2.1 RIGHT, TITLE AND INTEREST

The Applicant has completed the acquisition of the property with Portland Terminal Company as evidenced by the Release Deed contained in Attachment A to this section.

2.2 TECHNICAL CAPACITY

The Applicant has assembled a highly-qualified team of professionals to plan, permit, and develop construction documents for the project. The Team is working under the direction of Mr. Phineas Sprague, Jr. as Project Developer.

The Team services will be provided by the following companies and their respective team leaders.

2.3 CONSULTANT TEAM

Civil Engineer	Stephen R. Bushey, P.E. Stantec Consulting Services Inc. 482 Payne Road Scarborough, Maine 04074 (207) 887-3478 – Work (207) 756-9359 – Cell Stephen.Bushey@Stantec.com
Surveyor	John Swan, P.L.S. Owen Haskell, Inc. 390 US Route 1, Unit 10 Falmouth, ME 04105 (207) 774-0424 – Work (207) 774-0511 – Fax jswan@owenhaskell.com
Attorney	Peter Plumb, Esq. Murray Plumb & Murray 75 Pearl Street Portland, ME 04104 (207) 773-5651 – Work (207) 773-8023 – Fax pplumb@mpmlaw.com
Geotechnical	Tim Boyce, P.E. S. W. Cole Engineering 286 Portland Road Gray, ME 04039 (207) 657-2866 – Work (207) 657-2840 – Fax TBoyce@SWCole.com

Landscaping	Steve Mohr Mohr & Seredin Landscape Architects, Inc. 18 Pleasant Street Portland, ME 04101 (207) 871-0003 – Work (207) 871-1419 – Fax info@mohrseredin.com
Environmental	Rip Patten, P.E. Credere Associates, LLC 776 Main Street Westbrook, ME 04092 (207) 828-1272 – Work (207) 887-1051 – Fax rpatten@crederellc.com
Structural Engineering	Roger Gagnon Gagnon Engineering 10 Solomon Drive Gorham, ME 04038 (207) 839-8085 – Work roger@gagnonengineering.com

2.4 EXPERIENCE OF PROJECT TEAM

The team of consultants retained by developer has expertise and experience in the design of similar commercial projects. Resumes of key personnel for development team can be provided upon request.

The Applicant also has significant experience in the development and management of large commercial projects having managed Portland Yacht Services at 58 Fore Street for many years.

2.5 FINANCIAL CAPACITY

The Applicant has the means at its disposal for financing the proposed Canal Landing project. A letter from Norway Savings Bank was supplied previously indicating their support of the project. They remain actively involved and supportive of the Phase III and future phase activities. An updated letter from Norway Savings can be supplied upon request.

2.6 CONSTRUCTION COST ESTIMATE

A breakdown of the preliminary project cost for Phase 1 includes the following:

- Phase III Site work $300,000 to $500,000
- Structures $1 million - $3 million

These values are considered preliminary and approximate and are subject to change as building design and project layout is refined.

2.7 ATTACHMENTS

Attachment A – Release Deed and Settlement Agreement

ATTACHMENT A

Release Deed and Settlement Agreement

RELEASE DEED

MAINE CENTRAL RAILROAD COMPANY, a corporation duly organized and existing under the laws of the State of Maine, with offices at 1700 Iron Horse Park, North Billerica, Middlesex County, Massachusetts 01862 (the "Grantor") in consideration of [redacted] Dollars paid to it by **CANAL LANDING, LLC,** with a mailing address of 400 West Commercial Street, Portland, Maine 04101 (the "Grantee") hereby grants to the Grantee all the Grantor's right, title and interest, without any warranties or covenants of title whatsoever, in a certain parcel of land, and the buildings, bridges, structures, crossings, fixtures and improvements thereon, if any, situated in Portland, County of Cumberland, State of Maine (the "Premises") described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND
MADE A PART HEREOF BY THIS REFERENCE.

This conveyance is subject to the following reservations, conditions, covenants and agreements:

1. This conveyance is made without granting any right of way, either by necessity or otherwise, over any remaining land or location of the Grantor.

2. ~~The Grantor hereby reserves a permanent, exclusive right of way and easement in, on, over, under, across and through the Premises for the purpose of accessing, constructing, installing, operating, maintaining, modifying, repairing, replacing, relocating and removing a telecommunications system or other system for transmission of intelligence or information by any means, whether now existing or hereafter devised, including such poles, pipes, wires, fibers, fiber optic cables, repeater stations, attachments, appurtenances, structures or other equipment and property of any description necessary or useful for the same (the "Telecommunications Easement"). The Grantor further reserves the right to freely lease, license, mortgage, assign, pledge and otherwise alienate the Telecommunications Easement. The Grantee hereby covenants with the Grantor to recognize the Telecommunications Easement and, without the payment of any further consideration, to execute, acknowledge and deliver such instruments suitable for recording with the registry of deeds as the Grantor may reasonably require to acknowledge title to the Telecommunications Easement in the Grantor. The Grantor covenants to reasonably repair and restore the surface of the easement area after any work.~~

MAINE REAL ESTATE TAX PAID

3. The Grantor excepts from this conveyance any and all railroad tracks, railroad track materials (including, but not limited to, ties, connections, switches and ballast) and/or related equipment of any description located in whole or in part within the Premises.

4. ~~The Grantor excepts from this conveyance any and all advertising signs and/or billboards located upon the Premises which are not owned by the Grantor. Furthermore, this conveyance is subject to the right of the owners of said signs and/or billboards to go upon the Premises and remove them within ninety (90) days from the date of delivery of this deed.~~

5. By the acceptance of this deed and as part consideration therefor, the Grantee hereby assumes any and all agreements, covenants, obligations and liabilities of the Grantor in respect to any underground facilities, drainage culverts, walls, crossings and/or other structures of any nature and description located in whole or in part within the Premises.

6. By the acceptance of this deed and as part consideration therefore, the Grantee agrees to indemnify, defend and hold harmless the Grantor (including its officers, employees, agents, directors, shareholders and affiliates) from and against any and all loss, liability, damage, cost and expense (including reasonable attorneys' fees) occasioned by or associated with any claims, suits and/or enforcement actions (including any administrative or judicial proceedings and any remedial, removal or response actions) ever asserted, threatened, instituted or requested by any person and/or governmental agency on account of: (a) any release of oil or hazardous materials or substances of any description on, upon or into the Premises in contravention of any ordinance, law or statute (including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. Section 9601, et seq., as amended); and (b) any and all damage to real or personal property, natural resources and/or harm or injury to persons alleged to have resulted from such release of oil or hazardous materials or substances.

7. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to build and forever maintain fences (together with any necessary gates), suitable to the Principal Engineering Officer of the Grantor, along the boundaries of the Premises which are common to remaining land or location of the Grantor (the "Fences"), if Fences are ever required in the sole and reasonable opinion of said Principal Engineering Officer.~~

8. This conveyance is subject to the following restriction for the benefit of other land or location of the Grantor, to wit: that from the date of delivery of this deed, the Grantor shall not be liable to the Grantee or any lessee or user of the Premises (or any part thereof) for any damage to any buildings or property upon them caused by fire, whether communicated directly or indirectly by or from locomotive engines of any description upon the railroad operated by the Grantor, or otherwise.

9. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to make no use of the Premises which, in the sole and reasonable opinion of the Principal Engineering Officer of the Grantor, adversely affects, increases or decreases drainage to, from, upon or in any remaining land or location of the Grantor. The Grantee agrees to indemnify and save the Grantor harmless from and against any and all loss, cost, damage or expense including, but not limited to, the cost of defending all claims and/or suits for property damage, personal injury or death arising out of or in any way attributable to any breach of the foregoing covenant.~~

10. ~~The Grantor excepts from this conveyance any and all overhead, surface or underground signal and communication line facilities of the Grantor located within the limits of the Premises and this conveyance is subject to the Grantor's use of any such facilities in their present locations and entry upon the Premises from time to time to maintain, repair, replace, renew, relay or remove such facilities.~~

11. Whenever used in this deed, the term "Grantor" shall not only refer to the **MAINE CENTRAL RAILROAD COMPANY**, but also its successors, assigns and affiliates and the term "Grantee" shall not only refer to the above-named Grantee, but also the Grantee's successors, assigns and grantees, as the case may be.

12. The several exceptions, reservations, conditions, covenants and agreements contained this deed shall be deemed to run with the land and be binding upon the Grantee forever. In addition to the acceptance and recording of this deed, the Grantee hereby signifies assent to the said several exceptions, reservations, conditions, covenants and agreements, by joining in its execution.

WITNESS WHEREOF, the said **MAINE CENTRAL RAILROAD COMPANY** has caused this release deed to be executed in its name and its corporate seal to be hereto affixed by David A. Fink, its President, thereunto duly authorized this 27th day of April, 2015.

GRANTOR:
MAINE CENTRAL RAILROAD COMPANY

Witness

By: David G. Fink
David A. Fink, President

Witness

GRANTEE:
CANAL LANDING, LLC

SEAL

By: Phineas Sprague Jr
Phineas Sprague, Jr., Manager

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss. April 27, 2015

On this 27th day of April, 2015, before me, the undersigned notary public, personally appeared the above-named David A. Fink, the President of the **MAINE CENTRAL RAILROAD COMPANY** as aforesaid, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public: [signature]
My Commission Expires: FEB 24 2017

PAMELA J. HITCHCOCK
MY COMMISSION EXPIRES
FEB 24 2017
COMMONWEALTH OF MASSACHUSETTS
NOTARY PUBLIC

STATE OF MAINE

Cumberland, ss. May 1, 2015

On this 1st day of May, 2015, before me, the undersigned ~~notary public,~~ attorney at law personally appeared the above-named Phineas Sprague, Jr., Manager of Canal Landing, LLC, as aforesaid, proved to me through satisfactory evidence of identification, which was personal recognition, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

[signature]
Attorney-at-law
~~Notary Public~~: Drew H. Anderson
My Commission Expires: N/A

EXHIBIT "A"

MAINE CENTRAL RAILROAD COMPANY
TO
CANAL LANDING, LLC
RAILROAD LAND
IN
PORTLAND, MAINE

A certain lot or parcel of land situated on the southerly side of West Commercial Street in the City of Portland, County of Cumberland and State of Maine as shown on a plan entitled "Land on West Commercial Street, Portland, Maine, Maine Central Railroad Company to Canal Landing, LLC, dated April 30, 2015 to be recorded in the Cumberland County Registry of Deeds in Plan Book 215, Page 157 (the "Plan"), bounded and described as follows:

Beginning at a point on the southerly sideline of West Commercial Street at the northwesterly corner of land now or formerly of New Yard, LLC recorded in the Cumberland County Registry of Deeds in Book 30887, Page 247;

Thence, S 16°58'37" E along the westerly line of land of said New Yard, LLC 90.30 feet to the northerly line of land now or formerly of the State of Maine Department of Transportation recorded in said Registry of Deeds in Book 31408, Page 301;

Thence, the following courses and distances along the northerly line of land of said State of Maine:

S 59°26'10" W 693.10 feet;

Thence, along a curve to the right with a radius of 673.74' feet, having an arc length of 153.57 feet, having a chord bearing of S 65°57'58" W and chord length of 153.24 feet;

S 72°29'45" W 542.24 feet;

S 87°07'38" W 273.21 feet;

S 86°01'33" W 312.82 feet;

S 84°41'57" W 219.48 feet to the southerly sideline of said West Commercial Street;

Thence the following courses and distances along the southerly sideline of West Commercial Street:

N 77°41'31" E 248.67 feet;

N 71°39'48" E 854.33 feet;

N 66°06'18" E 793.06 feet;

N 73°01'23" E 263.49 feet to the point of beginning. Containing 294,083 S.F. or 6.75 acres, more or less.

Also another certain lot or parcel of land situated on the southerly side but not adjacent to West Commercial Street in the City of Portland, County of Cumberland and State of Maine as shown on the Plan, bounded and described as follows:

Commencing at a point on the southerly sideline of West Commercial Street at the northwesterly corner of land now or formerly of New Yard, LLC recorded in said Registry of Deeds in Book 30887, Page 247;

Thence, S 16°58'37" E along the westerly line of land of said New Yard, LLC 158.20 feet to the point of beginning at the southerly line of land now or formerly of the State of Maine Department of Transportation recorded in said Registry of Deeds in Book 31408, Page 301;

Thence, S 16°58'37" E continuing along the westerly line of New Yard, LLC 503 feet, more or less, to the spring high tide line of the Fore River;

Thence, westerly along the spring high tide line of the Fore River 1659 feet, more or less, to land of the State of Maine;

Thence, the following courses and distances along the southerly line of land of said State of Maine:

N 02°52'22" W 26 feet, more or less;

N 87°07'38" E 21.45 feet;

Thence, along a curve to the left with a radius of 725.78 feet, having an arc length of 185.34 feet, having a chord bearing of N 79°48'41" E and chord length of 184.84 feet;

N 72°29'45" E 519.07 feet;

Thence, along a curve to the left with a radius of 725.74 feet, having an arc length of 165.42 feet, having a chord bearing of N 65°57'58" E and chord length of 165.07 feet;

N 59°26'10" E 495.19 feet;

N 62°41'27" E 125.13 feet;

N 66°19'39" E 57.45 feet to the point of beginning. Containing 260,844 S.F. or 5.99 acres, more or less.

Together with all right, title and interest that this grantor may have in the intertidal and submerged lands abutting the above described parcel.

The property is subject to a Deed of Easement from Maine Central Railroad Company to Canal Landing, LLC, dated August 7, 2014 and recorded in said Registry of Deeds in Book 31723, Page 95.

MAINE CENTRAL RAILROAD COMPANY was f/k/a Maine Central Road Company, Portland and Ogdensburg Railroad Company and Boston and Maine Railroad.

Meaning and intending to convey and hereby conveying a portion of the premises conveyed to Maine Central Railroad Company, a/k/a Maine Central Road Company by deed of Portland Terminal Company, dated December 30, 1985 and recorded in said Registry of Deeds in Book 7026, Page 187.

Received
Recorded Register of Deeds
May 01,2015 11:27:57A
Cumberland County
Nancy A. Lane

3. COMPLIANCE WITH APPLICABLE ZONING AND LAND USE REQUIREMENTS

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-526.

3.1 OVERVIEW

This project conforms with all the applicable design standards of Section 14-526 as demonstrated in the following narrative.

(a) Transportation Standards

1. Impact on Surrounding Street Systems:

   The development will fit in with the existing street system, as it will use improved access locations off Commercial Street. Based on the limited intensity of use, the project is expected to have an insignificant impact on traffic in the neighborhood.

2. Access and Circulation:

   a. Site Access and Circulation.

      (i) The development provides access via Commercial Street. Ample turning movement is provided at each street entrance. Internal circulation has been reviewed and designed to accommodate the typical use of semi-trailers and boat trailers.

      (ii) Access and egress have been designed to avoid conflict with existing turning movements and traffic flows.

      (iii) The site does not feature drive up services as mentioned in this requirement.

      (iv) Site access has been designed so as not to impede potential future connection to adjacent streets.

   b. Loading and Servicing.

      (i) The site layout has been configured to accommodate the typical movements of large boat delivery vehicles and access to the boat ramps.

   c. Sidewalks.

      (i) The Applicant is requesting a waiver to provide a sidewalk along the full property frontage. Currently, the Site Plans contemplate a future curb and sidewalk in front of the proposed Phase III Buildings between the primary entrance at the middle of the site and the secondary entrance at the east end of the site.

      In accordance with Sec 14-506 of the City Code, the Applicant is requesting a waiver of provisions pertaining to the construction of curb and sidewalk based on the following conditions which exist for the boatyard site.

Of the six waiver criteria pertaining to sidewalks, the following two exist:

1. There is no sidewalk in existence or expected within 1,000 feet and the construction of sidewalks does not contribute to the development of a pedestrian oriented infrastructure. This is further evidenced by the findings and recommendations of the West Commercial Street Multi-Modal Corridor Study which places emphasis on the future Shared Use Path and pedestrian facilities for placement on the north side of West Commercial Street.

2. A safe alternative walking route is reasonably and safely available, for example, by way of a sidewalk on the other side of the street that is lightly traveled.

With respect to the five criteria pertaining to curbing, the following exist:

1. The cost to construct the curbing, including any applicable street opening fees and repairs, is expected to be in excess of 5% of the overall Phase III project costs.

2. Runoff from the development site or within the street does not require curbing for stormwater management.

3. Public Transit Access:

   a. The development contains no residential uses therefore Public Transit Access is not applicable.

   b. A new Transit stop is not proposed.

   c. A new Transit stop is not proposed.

   d. Waiver: The Applicant requests a waiver of the transit facility requirement.

4. Parking:

   a. Location and Required Number of Vehicle Parking Spaces:

      (i) The Applicant is providing parking for their employees within the boat parking area around the site. The Applicant is seeking flexibility to move vehicular parking around the site to meet variable vessel parking demand therefore no specific vehicular spaces are identified on the site plans. Paved parking for the Marine Retail is provided adjacent to the building.

      (ii) The Applicant has not prepared a TDM strategy, as it is not applicable to the intended uses.

      (iii) The Applicant proposes the amount of parking which is appropriate for the anticipated uses of this site.

      (iv) Parking spaces and aisles have been designed to meet the dimensional requirements of the Technical Manual.

(v) Vehicle and vessel parking areas have been designed to withstand site conditions.

b. Location and Required Number of Bicycle Parking Spaces:

(i) The Applicant is requesting a waiver of the bicycle parking requirements based on the site use.

c. Motorcycles and Scooter Parking:

(i) The Applicant is requesting a waiver of the motorcycle/scooter parking requirements based on the site use.

d. Snow Storage:

(i) Snow storage management will employ two strategies:

1. On-site snow storage around the perimeter of the site.

2. Snow removal and off-site storage. Generally speaking, the nature of the proposed site use precludes the need for significant snow removal.

5. Transportation Demand Management (TDM):

a. A TDM plan is not required for the project.

(b) Environmental Quality Standards

1. Preservation of Significant Natural Features:

a. The existing site retains no prominent significant natural features therefore no issue related to the preservation of these features applies.

b. The Applicant is not requesting a waiver from this standard.

2. Landscaping and Landscape Preservation:

a. Landscape Preservation.

(i) The site's existing tree population is limited and the City's Shoreland Zoning vegetation management provisions do not require tree protection in the Waterfront Development Zone.

(ii) Not applicable.

(iii) Not applicable.

(iv) The Applicant will request a waiver from this standard.

b. Site Landscaping.

(i) Landscaped Buffers:

(a) There are no service or loading areas observable from nearby sidewalks or residential properties.

(b) The development is not subject to zoning setbacks or buffering requirements.

(c) Not applicable.

(d) Not applicable.

(ii) Parking Lot Landscaping:

a) thru d) The applicant is requesting a waiver of the landscape requirements based on the proposed boatyard use and the need for flexibility with respect to boat parking and heavy vehicle maneuvering.

(iii) Street Trees:

(a) The applicant would like to work with City Staff on the placement of street trees along Commercial Street.

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

(i) The site's runoff conditions are primarily self-contained and runoff sheets to the Fore River; therefore, issues related to offsite or downstream flooding are not applicable.

(ii) All stormwater runoff is proposed to discharge to the Fore River. The project will not adversely impact adjacent lots or the City street system.

(iii) All stormwater runoff is proposed to discharge to the Fore River. The project will not adversely impact adjacent lots or the City street system.

(iv) All stormwater runoff is proposed to discharge to the Fore River. The project will not adversely impact adjacent lots or the City street system.

b. The Stormwater Management Plan will meet the requirements and goals stated in Section 5 of the Technical Manual.

c. The project is not located in a watershed of an urban impaired stream as listed by the MeDEP.

d. Not applicable.

e. The project is serviced by both a public wastewater and public water supply systems. The project will not pose a risk of groundwater contamination.

f. The project will be connected to the public sanitary sewer system which is adequately sized for the project flows.

(c) Public Infrastructure and Community Safety Standards.

1. Consistency with City Master Plans:

    a. The project has been designed to be consistent with the City's Zoning Ordinance and off-site infrastructure plans.

    b. The Applicant will coordinate with utility representatives for the continuation of easements related to utility infrastructure crossing the site.

2. Public Safety and Fire Prevention:

    a. The site has been designed to promote a safe and inviting customer access. The MaineDOT has previously constructed the two rail crossings as shown on the plans.

    b. No changes to emergency access conditions within the surrounding streets is proposed.

    c. Fire hydrants are located within the adjacent street system. Additional fire hydrants are proposed within the site.

3. Availability and Adequate Capacity of Public Utilities:

    a. The Applicant will secure letters from all applicable utilities stating their ability to serve the site. The project will require new utility service infrastructure to serve the new buildings.

    b. All on site electrical lines will be underground.

    c. All new utility infrastructures will meet the provisions of the Technical Manual.

    d. The project will require a new service connection to the sewer system that crosses the site.

    e. The sanitary sewer collection system will be designed to meet all applicable sections of the Technical Manual.

    f. Not applicable.

(d) Site Design Standards.

1. Massing, Ventilation and Wind Impact:

    a. The bulk, location and height of the proposed building will have been designed to not result in adverse impacts to abutting properties.

    b. The bulk location and height of the proposed building is consistent with the WPDZ requirements and there are no nearby developed lots that may be negatively impacted. The IMT expansion area is an industrial waterfront use. There is currently no development on the opposite side of Commercial Street. Land to the west includes more waterfront industrial land uses and buildings.

    c. HVAC venting, if necessary, will be directed through rooftop units and will not impact any adjacent public spaces.

2. Shadows:

    a. The development is located in the WPDZ Zone and this standard is not applicable.

3. Snow and Ice Loading:

    a. The proposed buildings will be designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways.

4. View Corridors:

    a. The project site is located outside the Downtown Vision View Corridor Protection Plan.

5. Historic Resources:

    a. The development is not located in a historic district, historic landscape district or City designated landmark.

    b. The development is not located adjacent to or within 100 ft. of a designated landmark, historic district, or historic landscape district.

    c. There are no known archaeological resources on the site except for the location of the former Cumberland and Oxford Canal and the former Portland Glassworks. There are no known aspects of the Canal visible at the site. The Applicant has been cooperating with officials from MHPO as they conducted an archaeological investigation of the Glass Works site. Their findings can be provided under separate cover, if necessary.

6. Exterior Lighting:

    a. Site Lighting

        (i) Exterior lighting will be designed to meet the requirements of Section 12 of the Technical Manual.

    b. Architectural and Specialty Lighting

        (i) Not applicable to the project.
        (ii) Not applicable to the project.

    c. Street Lighting

        (i) There are existing street lights along Commercial Street. No changes are currently contemplated to the existing street light conditions.

7. Noise and Vibration:

   The project noise levels will be designed to meet the permitted levels as outlined in the WPDZ Zone. All HVAC and mechanical equipment is proposed to be mounted on the roof, or otherwise ground mounted and concealed from nearby properties.

8. Signage and Wayfinding:

   a. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

      (i) The project is not located in a historic district or subject to Article IX.

      (ii) Proposed commercial signage is still being designed and subject to a condition of approval.

      (iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

9. Zoning Related Design Standards:

   a. The project is within the WPDZ and zoning related design standards are not applicable.

Sec. 14-320.3. Performance Standards

In accordance with Section 14-320.3, the following impact mitigation narrative is offered to address compliance with the following standards:

(a) Outdoor Storage of Materials: The proposed Phase III activity includes the construction of a retail/wholesale warehouse and office space associated with the Boat Repair and Maintenance operations. The facility does not involve large scale outdoor storage of materials although vessels, trailers and related goods associated with the boat repair and maintenance operations may be stored outside. In no case will these materials exceed a height of 45 feet, except for boat Mast which may be taller than 45 feet. The yard area will ultimately be stabilized with the boat yard surface material which helps contain and manage stormwater runoff.

(b) Noise:

1. The proposed Phase III facilities at Canal Landing involve retail/wholesale sales and trade within a new building. Typical working hours will be 8:00 am to 5:00 pm. The operations of the boat maintenance yard follow similar working hours, thus the noise generated by the development are considered minor in nature and will not exceed the fifty-five (55) decibels level during the hours from 7:00 pm to 7:00 am.

2. The applicant requests a waiver of any further noise measurements for the site, based on their operating history and absence of any complaints about noise generated from the Canal Landing site. Based on the prevalence of nearby land uses, including the IMT, Sprague Energy, Portland Jetport, rail operations and general commercial development, it is believed that the Canal Landing operations are an insignificant generator of noise in the region.

3. The proposed Phase III activity will employ HVAC equipment that will not exceed the City's noise standards at the property line.

(c) Vibration: The proposed Phase III activities will not result in significant vibration as the activity is primarily associated with the development of a retail/wholesale store and marine related office space**.**

(d) Federal and State Environmental Regulations: The Canal Landing site operations and Phase III development do not involve significant sources of air emissions. The boat repair and maintenance activities are performed in accordance with State and Federal regulations so actions such as sand blasting and related boat work are managed and controlled to minimize emissions.

(e) Discharges into Harbor Areas: The Canal Landing site is served by public wastewater collection so there are no onsite wastewater disposal systems. The yard will ultimately contain one or more sources of collection for wastewater from vessels and this wastewater will ultimately be discharged to the municipal collection system. The site will require stormwater collection and ultimately discharge to the Fore River, either through the existing City drainage systems (CSO) or new drainage outfalls that will fall under Permit By Rule authorization from the MeDEP. The applicant does not foresee activities requiring a Waste Discharge License from the MeDEP.

(f) Storage of Vehicles: The Canal Landing development does not involve the storage of automobiles. Any storage is typically related to vessels due for repairs and maintenance. Some Vessels do remain on the site for greater than 60 days simply due to the amount of work required on them.

(g) Landfill of Docking and Berthing Areas: The proposed development does not involve landfill of docking or berthing areas. The phase III development involves only activity along the West Commercial Street frontage. Future shorefront activities will involve the travel lift basin construction, float installation and new boat ramp. The overall goal of the shorefront improvements contemplated by the applicant includes assisting the Harbor Commission on the removal of remnant piers and piles, and installation of new floats and revetment wall repairs.

(h) Off-street Parking: The approximately 17 acre site area contains ample parking for boat yard as well as Phase III development activity. The retail store will have paved parking for at least 30 vehicles and graveled overflow parking available to accommodate at least an additional 30 spaces. Based on the proposed tenant's existing operations at their existing store in Portland, this parking capacity is more than adequate, thus the applicant is requesting a waiver of Section 14-332 (h) which indicates a parking requirement of 1 parking space for each two hundred (200) SF of space not used for bulk storage**.**

(i) Off-street Loading: The proposed Phase III building will contain multiple overhead doors for loading/unloading.

(j) Shoreland and Flood Plain Management Regulations: The proposed Phase III activities are located beyond the shore land zone. There are no clearing restrictions on the site and activity will be compliant with any Shoreland and Flood Plain regulations. The Phase III building floor elevation will be at elevation 16.0' which is 6 feet above the Fore River Flood elevation.

(k) Lighting: All onsite lighting will be shielded and of low intensity. Building mounted lights on the Phase III buildings will be cutoff style and be installed for safety and security and will be placed on the water side of the building. The north side of the buildings facing West Commercial Street will rely on the existing street lighting along the street.

(l) Signs: The proposed tenant will apply for building and free standing signage in accordance with Division 22 of the City code.

(m) Storage of Pollutants and Oily Wastes: The Phase III activity does not involve the storage of pollutants or oily waste. They will store packaged products for sale and distribution, but no bulk storage. Canal Landing does collect oily waste and either recycles or disposes of this material. They generally burn collected oil waste in their two waste oil heaters. All other waste items are collected and disposed of by a qualified third party following DEP regulations and protocols. Manifests of shipped waste products can be provided upon request.

(n) Compatibility of non-marine uses with marine uses: The proposed Phase III tenants are all uses that are considered marine related therefore, this design standard is not applicable.

(o) Design and Visual Character shall:

1. The proposed Phase III building has been designed to be consistent with the previously constructed structures within the Canal Landing site and to also work with nearby buildings and uses. The building has been positioned to align along the street front, thus anchoring its presence to the street, as well as shielding parking and related boat yard activity from the street. The roof line includes a combination of flat and pitched roof to provide some break up and provide visual interest. Similarly Building D includes three stories which lends some vertical dimension to the otherwise two story level plain of Building C.

2. The building massing has been organized for Building D as the taller end of the combined C & D massing. This will provide a visual queue to the primary West Commercial Street entry into Building D. Building C is primarily accessed from the parking area to the west side of the building and at a level lower than the street.

3. The building elevations prepared by Archetype PA attempt to show consistency between the two proposed building spaces. The buildings will be connected thus the roof lines and facades are intended to be in harmony in character and materials.

4. The accompanying building elevations again attempt to address this standard by the use of windows, colors and varying roof lines.

5. The Building D façade facing West Commercial Street contains a ramp and overhead canopy roof over the building entrance, thus providing articulation within close proximity to the Street front.

4. TRAFFIC INFORMATION/CONSTRUCTION MANAGEMENT PLAN

4.1 OVERVIEW

Stantec previously prepared a Traffic Movement Permit Application which was reviewed and approved. No further traffic information is provided as part of this current permit renewal submission.

A Construction Management Plan has been created for this project and is attached.

4.2 ATTACHMENTS

Attachment A – Construction Management Plan

ATTACHMENT A

Construction Management Plan

Construction Management Plan

Canal Landing New Yard – Phase III
Canal Landing, LLC

This document and its subsequent attachments comprise The Construction Management Plan being submitted to the City of Portland for the Canal Landing development at 100 West Commercial Street. The Construction Management Plan contains information pertaining to the overall planning and coordination of Phase III of the project.

Phase III involves the construction of Buildings C and D to be located along the West Commercial Street frontage. The buildings will be used by a marine retail and wholesale tenant and administrative offices for the Canal Landing, LLC Boat Repair and Maintenance operations (dba Portland Yacht Services). Site improvements include parking, utilities, and yard work for the benefit of the tenants as well as the owner's Boat Repair operations.

A. Construction Management Principles

The impact of this project on the public will be minimized via the following construction management principles:

- The construction zone for the buildings will be fully secured with hard barriers/fencing preventing any access into the site by the public. Barriers are not expected to extend into the Public R.O.W.
- All construction activities will occur within the construction barriers/fencing to ensure the public is never exposed to any risks caused by the activities.
- There will be an onsite staging and unloading area for all deliveries which will prevent any impacts caused by offsite staging of trucks.
- All deliveries will be coordinated and scheduled to ensure that there is no offsite queuing required in West Commercial Street. The Owner plans to schedule as many deliveries as possible in the early morning to limit impact on the surrounding area.
- All construction activities will occur within normal daytime working hours to minimize sound impacts to the surrounding area.

B. Development Review of Construction Management Plan

The Owner will use a site-specific safety program for all team members who work on the construction site. The public will not be put at risk at any point throughout this project, as all work will be completed within the fenced off jobsite. At no point of the project will the public have access to this job site. Minimizing impacts to areas surrounding the building/construction site will be a primary consideration in the process.

The Planning Authority and the Department of Public Works have the right to seek revisions to an approved Construction Management Plan or require a condition of approval that states an applicant shall coordinate a project's construction schedule with the timing of nearby construction activity, in order to avoid cumulative impacts on a neighborhood. Such a condition may involve a delay in commencement of construction, if necessary.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

All fees, permits, and guarantees will be paid/issued prior to construction commencing.

This project will require public street openings for utility tie-ins. All required permits will be requested and granted by the Department of Public Works prior to any street openings occurring. Street openings will need to occur on West Commercial Street. MUTCD plans will be submitted to and approved by the City of Portland for any traffic disruptions caused by street openings.

D. Construction Administration and Communication

The contact person for all construction activities for the project will be:

Phineas Sprague
207-653-1414
phin@portlandyacht.com

Temporary signage will be posted onsite with additional contact information for the contractor.

E. Construction Schedule

The preliminary construction schedule for the project starts in April 2018 and runs through December 2018.

All construction activities will be completed during daytime hours, there will be no need for night work. All deliveries for this project will also occur during normal daytime hours.

F. Security & Public Safety

See the Site Plans for fencing and barriers to be used to isolate the construction site from the public. All gates into the project will have Knox locking devices to allow for emergency access.

The fire safety program onsite will consist of the following:

- Fire extinguishers placed throughout the construction site for the duration of the project.
- The new fire alarm system installation will be ongoing throughout the project duration.
- All team members will be briefed on the emergency evacuation plan for the project site prior to starting work.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: This project will require street openings on West Commercial Street. These openings are required to tie the building into the electrical, water, sewer, and storm water systems. Prior to any of this work starting, permits will be submitted for and approved by the Street Opening Clerk at the Department of Public Works.

2. Sewer: This building will need to connect to the public sewer system. All required permits will be submitted for and approved by the Sewer Connection Clerk at the Department of Public Works.

3. Traffic Control Plans: There will be periods of time throughout the project where construction activity may impact the existing public street system. Prior to any interruptions, a MUTCD plan will be created and submitted to the City for approval. The MUTCD will ensure that traffic and safe passage for the public is maintained in a satisfactory manner.

H. Site Management and Controls

The following actions will be taken by the Owner as regular site management and control activities:

- Construction site signage will be provided, installed, and maintained by the Owner throughout the duration of the project.
- Access to the site will be controlled.
- Trash and debris will be removed from site via a construction dumpster which will be changed out as needed on a regular basis.
- Street cleaning will not be required on a regular basis, but if it is deemed necessary the Owner will coordinate the cleaning of any excess dirt that has resulted from construction activities.
- Onsite snow removal will be the Owner's responsibility.

I. Erosion Control and Preservation of Trees

Erosion control measures will be installed onsite prior to any work commencing. A complete erosion control plan will be put together and reviewed with the City at the preconstruction meeting. Some of the measures that will be taken are utilization of silt sacks and fences to protect to surrounding area from any silt run off from the site. The control measures will be maintained daily and inspected weekly or after any major rain event. The inspections will be documented for review by the City of Portland, Maine Department of Environmental Protection, or the U.S. Environmental Protection Agency.

All stored materials onsite will be located away from any trees or vegetation.

J. Construction Staging Area

All trucks will be unloaded within the construction site's footprint to avoid impacts on public traffic. An offsite marshalling area will not be required for this project. All materials will be stored onsite and in a manner to avoid impacts to ongoing Boat Yard operations and emergency vehicle access to the property.

K. Parking During Construction

Construction parking will be provided onsite. No parking of construction vehicles will be allowed in the West Commercial Street R.O.W.

L. Special Measures as Necessary

There will be no special measures necessary for this project.

Please do not hesitate to contact me with any comments, questions, or concerns regarding the Canal Landing Phase III project and subsequent Construction Management Plan.

INSPECTION AND MAINTENANCE MANUAL FOR STORMWATER MANAGEMENT AND RELATED STORMWATER FACILITIES

CANAL LANDING/NEW YARD
100 WEST COMMERCIAL STREET
PORTLAND, MAINE

PREPARED FOR

CANAL LANDING, LLC
100 WEST COMMERCIAL
PORTLAND, MAINE 04101

PREPARED BY

STANTEC CONSULTING LTD.
482 PAYNE ROAD
SCARBOROUGH, MAINE 04074
207-883-3355

JANUARY 2018

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APPENDICES

Attachment A – Sample Inspection Logs

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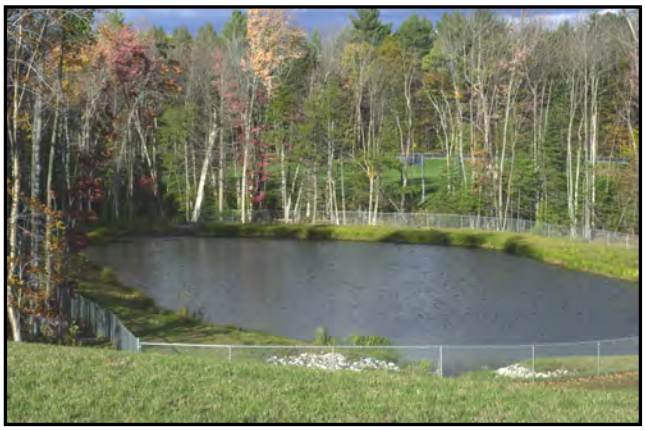
Attachment C – Summary Checklist for Inspection and Maintenance

I. INTRODUCTION

Relatively complex stormwater management facilities are commonly installed in development projects including, commercial facilities, and many other developments. The complexity and goals of these systems vary with the nature of the receiving water, as well as the type of development. Runoff from developed areas of the project, including rooftops, paved or lawn areas, typically contain materials that can impact the receiving waters. Source control and the installation of swales and infiltrative surfaces often combined with pretreatment measures or followed by other best management practices, can significantly reduce the non-point pollution discharge from the developed area. These measures are particularly important to projects in the watersheds of sensitive water bodies, or projects with potential impacts to groundwater.

The effectiveness of water quality management provisions and other components of the stormwater management system are dependent on their design, upkeep, and maintenance to assure they meet their intended function over an extended period of years. It is critical that the stormwater management facilities are regularly inspected, and that maintenance is performed on an as-needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that collect and transport the flow to the swales and pervious/infiltrative surfaces. Thus, maintenance should be directed to the total system, not just the primary stormwater management facility.



The purpose of this document is to define, in detail, the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended when they were designed. Subsequent sections identify individual maintenance items, give a brief commentary of the function and need for the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program for operation and maintenance. A supplemental section provides guidance for construction monitoring of the facilities during their installation and more detailed checklists (Attachment D). Certain facilities, specifically the groundwater recharge and infiltration beds are not intended to be placed in service until the tributary catchment area has the permanent cover in place and any contributing turf areas have achieved a 90% catch of vegetation (i.e. established).

A. GUIDELINES OVERVIEW

A summary of the individual components of stormwater management facilities has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Planning Board Level III Site Plan Approval and Shoreland Zoning Approval
- City of Portland Building Permit(s)
- MeDEP Natural Resource Protection Act (NRPA) #L-25823-4E-A-N
- City of Portland Delegated Review of the Site Location of Development Act (SLDA)
- U.S. ACOE Water Quality Certification/Federal Channel Review – File No. NAE-2012-02469
- State of Maine Submerged Lands Lease
- Harbor Commissioner's Review – latest approval December 2017

The permit applications pending for the project include the design information for the stormwater system.

A copy of the permits and Stormwater Management Report should be appended to this manual as Attachment B. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Stantec for civil engineering for the Canal Landing New Yard Project in Portland, Maine. Stantec has prepared the design for the stormwater management facilities and may be contacted at:

Stantec Consulting Ltd.
482 Payne Road
Scarborough, Maine 04074
207-883-3355

It is recommended the preparer of the plan be contacted with any particular questions on the design intent or similar issues.

The applicable plans/design documents which apply to the project are:

1. Civil Site Plans/Permit Applications Prepared by Stantec Consulting Ltd.
2. The Erosion Control/Sedimentation Control Plan for the project.
3. The Stormwater Management Plan for the project.

A copy of these documents should be retained with the manual.

The proposed design will include deep sump catch basins, manmade pervious/infiltrative surfaces, grassed swales, overflow, collection, conveyance, and discharge systems.

The project is subject to the requirements of the City of Portland Code of Ordinances, Chapter 32, specifically the post construction stormwater management plan. The City requirements have been reiterated for ease of reference; however, the owner shall be responsible to meet the current City code.

"Any person owning, operating or otherwise having control over a BMP required by a post construction stormwater management plan shall maintain the BMP's in accordance with the approved plan and shall demonstrate compliance with that plan as follows:

(a) Inspections. The owner of operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMP's, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

(b) Maintenance and repair. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action (s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action (s) to the department of public services ("DPS") in the annual report.

(c) Annual report. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP (s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action (s) taken.

(d) Filing fee. Any persons required to file an annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) Right of entry. In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMP's."

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management area. These O&M procedures will complement scheduled sweeping of the pavement areas anticipated to occur at least twice per year. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. DRAINAGE STRUCTURES

Preface: Proposed grassed swales that wraps around the site edges will collect overflow runoff from the infiltrative Boatyard surface during major storm events, and will discharge to the existing 24" CSO line thru an existing appurtenant structure.

All structures are to be inspected by removing the covers and inspection channels. Debris should be removed whenever observed and reported to key maintenance personnel since any debris would indicate lack of proper system O&M in the collection and conveyance system. Entry may require CONFINED SPACE ENTRY procedures and appropriately trained personnel.

Inspection: The drainage structures must be inspected to assure they maintain intended hydraulic characteristics. The inspection would note any debris or sediment which may accumulate in the structure and in the outlet pipes. It is noted that it does not take much debris or silt to alter the hydraulic characteristics of the discharge. The inlet should be inspected to assure it is not blocked or restricted or there is sediment to the extent that its flow characteristics may be altered.

Maintenance: Maintenance of the drainage structure will consist primarily of removing debris which may accumulate.

Frequency: The drainage structures should be inspected semi-annually, and after a high intensity rainfall event (in excess of 3 inches in a 24-hour period).

Maintenance/Inspection Responsibility:

Inspection Personnel: The Maintenance Personnel of Canal Landing, LLC will perform the scheduled maintenance/inspection.

Dates of inspections, maintenance performed, and any observed problems should be noted in the logs/records maintained by Canal Landing, LLC.

B. STORMWATER INLETS

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include the few overflow catch basins proposed toward the north of the site and the basins within the concrete

washdown areas along the shorefront. This section is directed at maintenance of the actual inlet point. A later section addresses more substantive maintenance of the structures and conveyance facilities.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Roadway/parking lot/boat yard maintenance areas
- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets in parking lots/roadway areas. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the building.

Frequency: All inlets should be inspected on a monthly basis, and after/during significant storm events. A windshield survey is suitable for most inlets but off road inlets and pond structures require more rigorous inspection by walking the parcel.

Maintenance/Inspection Responsibility:

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/inspections of the inlets and culvert crossings.

Comments: Maintenance of inlets is critical on this project.

POORLY STABILIZED INLET ALLOWS ENTRANCE OF DEBRIS AND REDUCED CAPACITY

STABILIZED INLETS REDUCE DEBRIS ACCUMULATION AND MAINTAIN DESIGN CAPACITY

C. TRIBUTARY DRAINAGE SYSTEM

Preface: Overflow stormwater from portions of the project will be directed through a conveyance system which transports the flow to an existing 24" CSO line that crosses the site. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment (minimal amounts anticipated) is carried by the drainage system is intended to be trapped in the boatyard surface, within catch basin sumps or grassed swales. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the site.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that its carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped

systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with leaves or other debris. The inlet basins are normally equipped with sumps which will remove large sediment particles from the flow stream with hooded outlets.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

In some projects most of the stormwater is carried in open swales, channels, or ditches. These conveyance channels may be rip rapped or vegetated, depending on the gradient and expected flow velocities. These facilities must be inspected to insure debris or sedimentation does not reduce their carrying capacity. Excess vegetative growth must also be noted. The surface protection for the channels, either stone or vegetation, must be inspected to insure its integrity. Any areas subject to erosion should be noted.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sedimentation to any downstream detention pond, or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. When the filter bag in an inlet restricts capacity and is coated with silt or other deleterious materials, the bag should be removed and Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the retail center. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed. In general a sump or sediment trap should be used where it can be flushed into the detention pond, since it will reduce pond volume and hasten the time when it must be cleaned.

Frequency: The piped drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

Maintenance/Inspection Responsibility:

Maintenance Personnel: Canal Landing, LLC Maintenance Personnel.

Special Services: The owner may elect to contract with an independent agent for cleaning of replacement of sorbent booms, catch basins, sumps, and pipelines. Remedial source control measures may be performed by the owner or an outside service depending upon the nature of the particular situation.

Comments: Maintenance of inlets is critical on this project.

A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGNS OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY

D. VEGETATED SWALES

Preface*:* Vegetated swales are often used to convey stormwater. Swales can be intended to be:

1. Mowed and maintained
2. Reverted to wetlands
3. Naturalized

Inspection*:* Swales should be inspected for erosion and sedimentation.

Maintenance*:* Eroded or silted channels need to be repaired when discovered. If erosion is a problem, the swale design should be examined. Likewise, if situation is a continuing problem, the upgradient conditions should be assumed.

Frequency*:* It is recommended vegetated swales be inspected quarterly until vegetation is established and a year after installation. Thereafter, if no problems have been noticed, the frequency can be reduced to once per year.

Design Guidelines*:* The vegetated swale should consider channel cover at the time of concentration as well as several years after construction.

Design computations should state the assumed channel of vegetation and provide the basis for the Manning's or other roughness coefficient and for design.

Applicability*:* Canal Landing New Yard may have shallow swales along the yard perimeters as necessary to collect overflow from the Boatyard surface areas.

VEGETATED SWALE WITH HAY BALE CHECK DAM TO REDUCE VELOCITIES UNDER CONSTRUCTION

A WELL STABILIZED VEGETATED SWALE SHOWS LITTLE SIGNS OF EROSIVE VELOCITIES OR FLOWS. THIS SWALE ALSO FUNCTIONS AS A POND SPILLWAY

E. ROOF DRIPLINE FILTER

Preface: Similar to the vegetated soil filter, roof dripline filters control stormwater quality by capturing and retaining runoff within a stone reservoir and passing it through a filter bed comprised of a specific filter media. Once through the soil media, the runoff is collected in a perforated underdrain pipe and discharged downstream. The filter structure provides for the slow release of smaller storm events, minimizing stream channel erosion and cooling the discharge.

Inspection: A roof dripline filter must be inspected to ensure it is draining within 48 hours following a one inch storm or greater.

Maintenance: Debris must be removed from the reservoir stone. If the filter is not draining within 72 hours, the filter media shall be replaced.

Frequency: During the first year, the filter should be inspected semi-annually and following all major storm events. Thereafter, the filter should be inspected at least every 6 months. Debris and sediment buildup should be removed as needed.

F. FABCO MODEL 10080-2 STORMBASIN CARTRIDGE FILTER UNIT

Preface: The roof drain filter unit is intended to provide water quality treatment for runoff from the proposed roof surface prior to discharge into the municipal drainage system in Hancock Street Extension. Primary contaminants from the roof include bird waste, metals, dust, and related pollutants.

Inspection: The roof filter unit must be inspected to ensure proper function during rain events. Primary inspection goals include removal of debris, leaves, or related solids preventing filtering and water pass thru or blocking the internal overflow.

Maintenance: If the filter is not draining within 24 hours, the filter media shall be replaced in accordance with the manufacturer's instructions. Debris must be removed from the filter unit. With all debris removed from the StormBasin the filter cartridge(s) will be exposed at the bottom. To remove the cartridge(s) reach down into the basin and firmly grasp the plastic outer rim of the cartridge body just below the foam, twist the cartridge body counter-clock-wise about ¼ turn until it stops, and lift the cartridge straight up to remove. Insert the new StormBasin cartridge down through the hole in the base of the unit. The colored ring on the cartridge should be facing upwards. Push the cartridge all the way through the hole until it rests on the bottom. Slowly turn the cartridge in a clock-wise direction until the tabs align with the slots and the cartridge body drops about ¼' further down. Once the tabs fall through the slots, continue turning firmly in a clock-wise direction until the tabs contact the STOPS. The cartridge is now installed.

Frequency: During the first year, the unit should be inspected quarterly and following all major storm events. Thereafter, the unit should be inspected at least every 6 months. Debris and sediment buildup should be removed as needed in accordance with manufacturer's recommendations. The filter cartridges shall be replaced on an annual basis. Cartridges can be sourced from Fabco Industries, Inc., phone 631-393-6024, 66 Central Avenue Farmingdale, NH 11735.

G. BOAT YARD SURFACE

To protect the infiltrative/pervious surface, it is recommended the prepared boatyard surface be re-graded at mid winter and spring (or as needed).

Maintenance: The maintenance crew may from time to time need to remove the stone surface and remove accumulated sediment in specific areas.

H. LITTER

Litter should be removed as a matter of course by workers and a part of the grounds maintenance contract.

I. SUMMARY CHECKLIST

The above described inspection and maintenance items have been summarized on a checklist attached hereto as Attachment C.

IV. PROGRAM ADMINISTRATION

A. GENERAL

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities.

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs, or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. RECORD KEEPING

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of

such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Attachment B.

C. CONTRACT SERVICES

In some instances or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

ATTACHMENT A

Sample Inspection Logs

CANAL LANDING NEW YARD
PORTLAND, ME

INFILTRATIVE/PERVIOUS
BOATYARD SURFACE
ANNUAL INSPECTION & MAINTENANCE LOG

FACILITY:		**YEAR:**	
LOCATION:		**CONTRACTOR:**	
FUNCTION:		**INSPECTOR:**	
DATE OF INSPECTION:			
ITEM IDENTIFICATION	**DESCRIPTION OF CONDITIONS**	**MAINTENANCE ACCOMPLISHED**	**DATE OF MAINTENANCE**
GENERAL COMMENTS:			

ATTACHMENT B

Permits for Project

(To be Added at a Subsequent Time)

ATTACHMENT C

Summary Checklist
Inspection and Maintenance

Stormwater Management System
Maintenance Program
Summary Checklist

Item	Commentary	Frequency				
		Monthly	Quarterly	Semi-Annual	Annual	Long Term
Drainage Structures	Inspect outlet control to assure it maintains its hydraulic characteristics. Inspect inlets for blockage.		X			
Stormwater Inlets in Series	Stormwater inlets allow flow entry from a surface swale to a piped system. Entry may or may not be equipped with a bar rack. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.	X			X Clearing	
Tributary Drainage	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Vegetated Swales	Swales should be inspected for erosion and sedimentation		X (until vegetation established)		X	
Infiltration Systems/Roof drip edges	Observation of the infiltration area and a determination of its performance				X	
Boat Yard Surface	Observe area for clogging and repair surface as needed including regrading/shaping of surface.	X				
Roof Drain Filters	Inspect systems to verify adequate functioning and capacity. Dispose of filters that have reached useful life in accordance with the manufacturer's recommendations. Replace filters as required.	X				
Litter	Litter should be removed daily.					

5. STORMWATER MANAGEMENT REPORT AND EROSION & SEDIMENTATION CONTROL REPORT

5.1 OVERVIEW

Stantec has prepared a Stormwater Management Report and Erosion & Sedimentation Control Report for submission with this application.

5.2 ATTACHMENTS

Attachment A – Stormwater Management Report
Attachment B – Erosion & Sedimentation Control Report

ATTACHMENT A

STORMWATER MANAGEMENT REPORT

STORMWATER MANAGEMENT REPORT
(GENERAL STANDARDS)

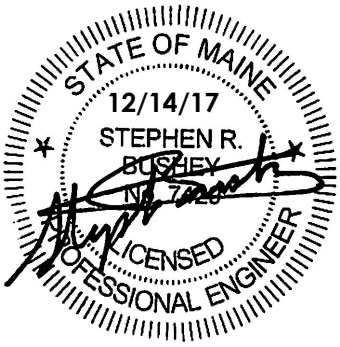
CANAL LANDING NEW YARD
100 WEST COMMERCIAL STREET
PORTLAND, ME

PREPARED FOR

NEW YARD, LLC
100 WEST COMMERCIAL STREET
PORTLAND, MAINE 04101
(207) 774-1067

PREPARED BY

STANTEC CONSULTING LTD.
482 PAYNE ROAD
SCARBOROUGH, MAINE 04074
(207) 883-3355



DECEMBER 2017

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Figures and Photographs (See Attachments to Application)

Figure 2 – USGS Location Map
Figure 3 – Tax Map
Figure 4 – Zoning Map
Figure 5 – Aerial Photograph
Figure 7 – FEMA Flood Map
Figure 8 – USDA SCS Soils Map
Figure 9 – GIS Sand and Gravel Aquifer Map
Figure 10 – Surficial Geology Map
Figure 11 – NWI Map

STORMWATER MANAGEMENT REPORT

1.0 INTRODUCTION

Canal Landing, LLC proposes to construct, own, and operate a new boat maintenance and repair yard within approximately 17 acres of land located prominently along the West Commercial Street waterfront. The project represents an ideal reuse of a former highly industrialized property that has been relatively inactive in later years. The property maintained a prominent role in the City's Waterfront District for well over a century and a half as the Maine Central Railroad operated active business interests up until at least the 1970's.

The proposed project includes multiple buildings to be constructed over multiple phases along with new shorefront uses including one or more boat ramps, docks, new or reconstructed piers and a travel lift basin. The applicant's plans include up to three buildings constructed to support the boat maintenance and repair operations. Additional future buildings are also contemplated to support marine related operations including retail/warehouse space, yacht brokerage/sales, marine product processing and the potential of large vessel berthing.

The Phase III project includes site development activities involving Buildings C and D, earthwork, grading, shorefront stabilization, building construction, utilities and overall site stabilization.

This section of the permit application presents the Stormwater Management Plan designed for the Phase III project activities. The stormwater management design presented herein will show that it meets the criterion of the City of Portland stormwater requirements and the adopted MeDEP Chapter 500 Regulations.

The site discharges to the mouth of the Fore River where it meets the ocean. Due to these tidal conditions, **the applicant is requesting a waiver of the flooding standards**.

The proposed stormwater quality treatment plan utilizes the 'Manmade Pervious Surface' approach listed in the Maine Best Management Practices (BMPs) to meet the stormwater quality standards required under the general standards as outlined in the adopted MeDEP Chapter 500 Stormwater Management Technical Manual. The manmade pervious surface (throughout much of the boatyard site) is intended to provide water quality treatment for close to 100 percent of the proposed development area. The applicant has also studied the guidelines set forth in the Brightwork BMP Manual for Maine's Boatyards and Marinas with regard to typical boatyard processes and potential sources of contamination and will conduct boatyard activities in accordance with these guidelines as they have in the past.

USGS, aerial photographs, and related maps are appended to the Site Plan Application.

The applicant has prepared this report to show the proposed Stormwater Management Plan meets the City's General Stormwater Standards.

2.0 EXISTING SITE CONDITIONS

The site consists of approximately 17.77 acres of land that is composed of three primary areas described as follows:

1. **Retained Parcel (Map 59A, Lots 3 & 4)**: Consists of the retained 5.03-acre area owned by New Yard, LLC and it represents the retained land originally permitted by the Applicant during late 2012 – 2013. Within this land area New Yard, LLC has constructed Building A and Building B amounting to approximately 48,000 SF of building space. This parcel contains a new boat ramp and boat yard area currently in use by Portland Yacht Services.
2. **Shorefront Parcel (Map 60F, Lots 3 & 4)**: This area is irregularly shaped and contains approximately 1,581 LF of waterfront. The site area is approximately 5.99 acres. This area is currently undeveloped except for the granite revetment wall that historically supported the former waterfront pier.
3. **Street Front Parcel (Map 60F, Lot 1)**: This 6.75-acre area contains approximately 2,160 LF of street front. The property is generally unoccupied although there are existing rail tracks that previously provided access to the former NGL Distribution facility within what will be IMT expansion area in the future. Towards the east end of this parcel, historic land use has included parking of vehicles, trailers and similar activities associated with businesses further east on Commercial Street. Most of this use was unauthorized by the previous landowner, Portland Terminal Co.

Existing development in the area includes the following:

- The City of Portland Marine Terminal and expansion area is located to the east of the site.
- Commercial activity including Nova Seafood and Graybar Electric operate out of buildings on the north side of Commercial Street.
- The Portland Star Match Co. building lines up opposite the site.
- The State of Maine now operates rail tracks into the propane storage yard and IMT expansion area. These tracks were completed very recently.

Owen Haskell, Inc. has completed a topographic survey of the property. The site is relatively flat with the highest points along the Commercial Street frontage, sloping to the shorefront. Site elevations along Commercial Street trend down from west to east from elevation 23' (NGVD 1929) to elevation 16' at the westerly end of the Commercial Street frontage. The site's low areas are near elevation 9'-10' while most of the waterfront top of bank is between elevation 9'-11'. The High Annual Tide Line (HAT) for the Fore River is elevation 7.4' and mean low water is approximately elevation -4.0'. Owen Haskell, Inc. has also completed bathymetric survey data collection and found water depths within 50' of the low water line to be 10' to 30'. The Federal Channel is also represented on the project's drawings and it is generally located 60' to 120' off the shorefront. No activities are proposed beyond the Federal Channel line. The manmade pervious surface approach is considered the most practical choice for meeting

the projects stormwater management needs. The experience thus far on the first phase area has been positive with respect to how the Boatyard surface functions for handling rainfall and stormwater.

Generally speaking, the site's runoff either infiltrates into the ground or drains directly to the Fore River via overland flow. There are no drainage systems on site, although there is a closed storm drainage system within Commercial Street. The Commercial Street drainage system ultimately ties into a CSO line located on the west end of the site as well as a second CSO line on the east side of the site.

Due to the site's historic industrial condition nearly all of the surface consists of sand and gravel fill, rail ballast or otherwise sparsely vegetated ground surface. The following Figure 1 shows the extent of previous rail use across the property.

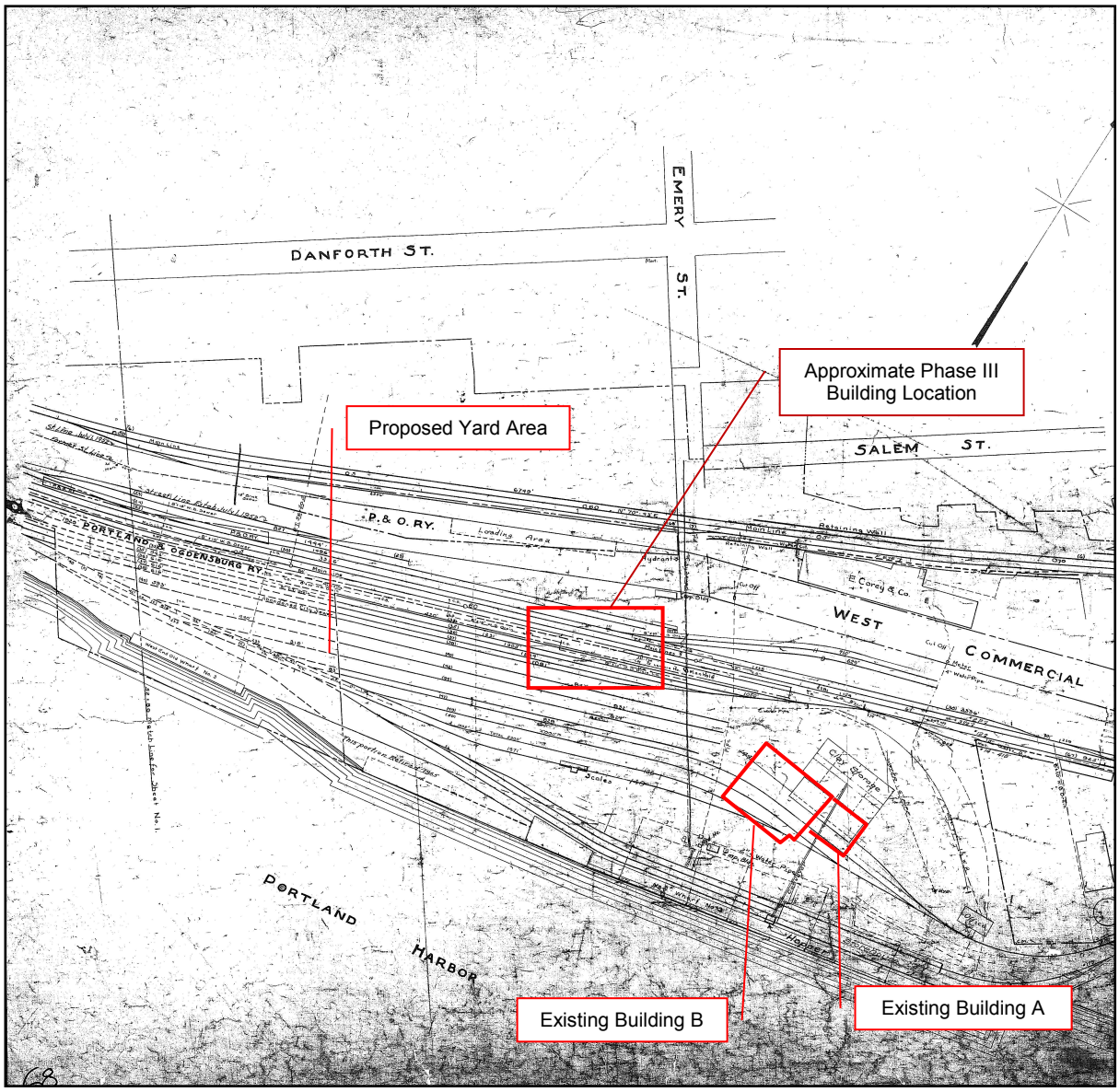

Figure 1 – Historical Rail Yard

The site's soil layers are generally characterized as follows:

- 10 to 15 feet of sand and gravel fill, there is little to no organic surface layer throughout the site.
- 5 to 10 feet of silt and sand.
- 10 to 40 feet of gray clay identified as the Presumpscot formation.
- 30 to 40 feet of dense silty marine sands.
- An undetermined thickness of dense silty sand and gravel identified as glacial till overlaying bedrock.

Observed soils conditions at the ground surface include fill material containing coal, and coal ash comingled with scarified sand and gravel. Eroded soils conditions have been observed along the shoreline in and behind the existing granite revetment wall and remnant pier areas. The project's site development activities include restoration and rehabilitation of these areas.

According to various investigation data, depth to groundwater varies from 3 to 7 feet and this likely varies with tidal conditions in the Fore River. Generally speaking, the groundwater flows from the northwest to the southeast across the site.

Figures 8, 9, and 10 appended to the report provide the USDA medium intensity soils, sand and gravel aquifers, and surficial geology for the site.

3.0 PROPOSED PROJECT

The applicant proposes to redevelop the property in a manner consistent with the WPDZ Standards. The development program includes the following components:

ONSITE

The development program includes phased development of boat maintenance facilities and future ancillary marine related uses. Phase III and future Master Plan development activities are summarized as follows:

Phase III – Will Include:

- Site clearing, stabilization and general clean-up.
- Construction of a 19,800 SF building for marine retail and a 4,800 SF ancillary office/sales/administration building. The Phase III building area will also include paved parking and related site improvements around the buildings.
- Establishment of yard areas and surfaces for heavy equipment travel lift trucks, and boat display, storage, and repair. (Repair and maintenance often takes place outside, particularly if the vessel is large and does not fit into a building. Boats that are out of the water for the winter season all need to have work done on them to prepare them for re-launching.)

- Installation of utilities for building and yard area use as well as future phase activities.
- Minor landscape preservation and tree planting.
- Shore front stabilization including revetment repairs and riprap stabilization.
- Preparation of a 2 to 3 acre secured marine cargo area on the west end of the property. This area may be used for the parking of vehicles, equipment or related cargo associated with the Downtown waterfront.

OFFSITE

Site access is proposed via Commercial Street as well as from the Fore River. Three driveways are proposed (two of which are already constructed and actively used) and are identified as the western, central, and eastern driveways on the site plans.

An Erosion Control Plan and narrative were previously submitted (October 2012) and approved by the Planning Authority. An updated Erosion Control narrative is included in this Phase III submission. The requirements in the original plan and updated document continue to apply therefore no further information regarding compliance with the Basic Stormwater Standards will be provided.

4.0 REFERENCES

- Brightwork – A Best Management Practice Manual for Maine's Boatyards and Marinas, December 2005
- Erosion and Sediment – *Maine Erosion and Sediment Control BMPs", published by the MeDEP in 2003 http://www.maine.gov/dep/blwg/docstand/escbmps/index.htm*
- City of Portland –Code of ordinances, Section 32 Rev. 9-17-09
- Portland Stormwater Management –Section 5 Adopted 7-19-10.
- Stormwater Management for Maine Volume III – BMP Technical Design Manual
- Chapter 500 DEP Rules, revision October 2010.

5.0 MODELING SOFTWARE

Microsoft Excel 2007, Microsoft Corporation – used for spreadsheet computations.

6.0 PRESENTATION OF ANALYSIS

The stormwater analysis has been performed for the project to determine the requirements of the City of Portland, Section 5 and adopted MeDEP Chapter 500 Stormwater Rules and to show a plan which will generally meet the requirements with the exceptions noted herein.

7.0 ASSUMPTIONS

- That detention will not be required to reduce the peak flow rate or meet the flooding standards. **A waiver of the flooding standards is requested**.
- That the native soils/gravels will have infiltrative properties that meet the requirements of the Maine DEP BMP proposed. Note: **A waiver is being sought for infiltration testing**. Evidence from the previously developed area of 5.03 acres for Phase I/II activities supports the proposition that the soils are highly infiltrative.

8.0 STORMWATER MANAGEMENT OBJECTIVES

The goal of the Stormwater Management Plan is to design, operate, and maintain the development to avoid downstream erosion or significant water quality impairment.

This goal will be achieved by:

- Designing the project to meet the Portland Stormwater Management Standards adopted 7/19/10 and General Stormwater Standards of MeDEP (revised October 2010).
- Designing water quality measures to provide long-term removal of non-point contaminants.
- Implementing a plan to control erosion, sedimentation, or fugitive dust emissions during construction.
- Implementing operational processes to avoid toxic pollutants from boat yard activities, both organic chemicals and heavy metals, from entering ground and adjacent water bodies.
- Maintenance of the Stormwater Management System in accordance with the Stormwater O&M Manual (provided as a separate document) and MeDEP Brightwork Manual.

The plan has been designed in accordance with the City of Portland Stormwater Rules.

9.0 STORMWATER MANAGEMENT QUALITY SUMMARY

Approach

To meet the General Standards, our office reviewed the list of options of MeDEP's accepted Best Management Practice (BMP) options to provide water quality treatment including grassed underdrained filter, bio-filter, proprietary devices and infiltration trenches for the expanded New Yard site. Following this review and incorporating knowledge of the site and the goals of the client, it was realized that developing a method for providing stormwater quality treatment that utilizes the proposed crushed stone surface (desirable to applicant for boatyard use and related activities) and infiltrating the runoff into the underlying soils would be preferable both functionally and economically. According to the MeDEP BMPs this is known as a "Manmade Pervious Surface" approach to stormwater quality treatment.

A pervious pavement consists of a permeable surface material and subbase materials that allow penetration of runoff in to the underlying soils. The system must be designed to store and infiltrate the water quality volume (1.0" of impervious area and 0.4" pervious area) with the remainder (larger storm events) discharged through an 'over-flow' device. The effectiveness of the system depends heavily on long term inspection and maintenance.

Following a review of the design criteria for a "Manmade Pervious Surface", it was determined that the selection of at least a 3" thick crushed stone surface across the entire 'prepared surface' area designated on the site plan is appropriate. This layer of stone will act as a reservoir for the 1" storm event. The material may be placed over geotextile fabric and infiltration into the existing underlying gravel will meet the requirements of this BMP. Runoff from larger storm events may flow to a closed collection system conveying flow via pipe to the existing CSO lines that traverse the site. Alternatively, flow may be distributed to portions of the site designated for future development where longer term absorption may occur. Internal drains within the buildings connected to the sewer system and storage tanks/collection systems beneath the concrete washdown aprons (at the travel lift basin and boat ramps) will minimize the potential for petroleum, etc. to enter the stone areas.

Our office has laid out a plan which utilizes the "Manmade Pervious Surface" BMP to provide water quality treatment as described in Chapter 7.7 of the MeDEP Volume III BMPs Technical Design Manual meeting the minimum treatment standards as required by the General Standards. The project drawings provide extents and details of the manmade pervious surface proposed. This pervious surface is represented by the 'prepared surface for boatyard' on the site.

The basis of design of treatment method is as follows:

Compliance with BMP Design Criteria:

Traffic Volumes:

Traffic volumes will be low across the area. Some heavy vehicles including tractor trailer trucks and Marine Travel Lift will maneuver across the crushed stone surface. However, the majority of the surface will be utilized for boat display and storage. The applicant proposes to manage the crushed stone surface by routinely raking and grading to minimize the buildup of fine particles that might impact the materials absorptive capacity. Removal and replacement of this gravel layer may be required over time.

Grading:

Grades across the crushed stone area will range from 1 - 2%, thus meeting the <5% slope recommendation.

Sediment Loading:

The crushed stone area is not expected to receive high volumes of sediments. Over time any buildup of fines that impact the stone surface absorption capacity will be removed and replaced.

Reservoir Course:

The reservoir course will consist of clean double washed 3/4" stone free of debris. The stone depth will be 3" to 6" typically.

Pretreatment Layer

A pretreatment layer will be achieved by providing an 8-12" subbase gravel layer (MDOT Type D) beneath the crushed stone.

Separation to Groundwater:

Based on the test pit data included in previous subsurface explorations, the groundwater table throughout the site is six to nine feet below existing grade.

Infiltration Testing:

The applicant is seeking a waiver from the infiltration testing requirement. The applicant has observed the existing site after heavy rain events and observed ponding for only a couple of hours. The existing site has a surface gravel/sand layer and it is expected that the proposed stone surface will not negatively impact the infiltration properties below.

Flooding Standard:

Due to the direct discharge to the Fore River, **a waiver from the flooding standard is being requested**. All overflow pipes and structures will be sized to adequately convey the 25yr storm event.

Storm events larger than the 1 inch storm will be directed via sheet flow to one of the following:

- The street side parcel north of the new tracks will be conveyed to several inlets that will connect to the CSO lines for discharge to the Fore River.
- The shorefront parcel will generally generate overland flow to the waterfront and the river.

10.0 CHAPTER 500 TREATMENT PERCENT COMPLIANCE

The proposed redevelopment project creates 0.8 acres of improved surface area (pavement and roof) and 10.2 acres of pervious boat yard surface area for a total disturbed area of about 11 acres. An additional 1.7 acres will remain as is or contain new landscaping coverage.

Of the 0.8 acres of improved surface area, the proposed stormwater management plan provides treatment for 0.69 acres or 86 percent. Of the 10.2

acres of pervious boatyard surface, nearly all of that area is considered treated thereby yielding 10.89 acres treated area out of the 11 acres of disturbance for a treatment percentage of 99 percent. The total disturbed area as part of this redevelopment is approximately 11 acres. Hence, the strategies proposed herein meets the minimum requirements stated in the General Standards.

11.0 BOATYARD ACTIVITY PLANNING

A major issue associated with boatyard and marine related use is the proximity to the shorefront. Any pollutants that are generated on the site may eventually reach the water. As such, the applicant will implement thoughtful planning and processes to avoid toxic pollutants including organic chemicals and heavy metals from spills.

Activities such as hull prep, sandblasting, painting, washing, engine repairs and maintenance will be performed in accordance with the guidelines set forth in the Brightworks manual. Storage, handling and disposal of waste material from these activities will also be carried out in accordance with the manual and utilize local waste companies who specialize in this environment. A plan will also be in place to manage spills if and when they occur. This plan will identify potential spill sources, hazardous materials stored, prevention measures (including training, security, etc.), spill emergency procedures (including health and safety measures, notification information, spill containment, etc.), emergency phone numbers, location of spill containment and control materials and a drainage plan. The applicant is a current boatyard operator and is very familiar with the guidelines and requirements set forth in the Brightwork Manual. They have successfully complied with these requirements for many years and they are confident that similar operations will be maintained at the proposed site.

12.0 EROSION CONTROL

An Erosion Control Narrative, Plan, and Details have been previously prepared for the project and are part of the project record. These materials continue to apply as they relate to the Phase III construction activities.

13.0 OPERATIONS AND MAINTENANCE

An Operations & Maintenance Manual has been previously prepared and is part of the project record. The requirements of this O&M Manual continue to apply to this Phase III project.

14.0 PERMIT REQUIREMENTS

City of Portland review and permitting of the Stormwater Management Plan is required and will be completed with the review of the Site Plan Application submitted to the City of Portland Planning Authority.

ATTACHMENT B

EROSION & SEDIMENTATION CONTROL REPORT

EROSION AND SEDIMENTATION CONTROL REPORT

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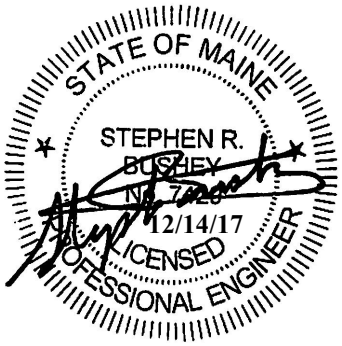

DECEMBER 2017

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Appendix A – Seeding Plan
Appendix B – Sample Erosion Control Compliance Certification and Inspection Forms

A. INTRODUCTION

Canal Landing, LLC proposes to construct, own, and operate a new boat maintenance and repair yard within approximately 17 acres of land located prominently along the West Commercial Street waterfront. The project represents an ideal reuse of a former highly industrialized property that over the years has been relatively inactive. The property maintained a prominent role in the City's Waterfront District for well over a century and a half as the Maine Central Railroad operated active business interests up until at least the 1970's.

The proposed project includes multiple buildings to be constructed over multiple phases along with new shorefront uses including one or more boat ramps, docks, new or reconstructed piers and a travel lift basin. The applicant's plans include up to three buildings constructed to support the boat maintenance and repair operations. Additional future buildings are also contemplated to support marine related operations including retail/warehouse space, yacht brokerage/sales, marine product processing and the potential of large vessel berthing. The applicant is currently seeking Phase III approval for the construction of a single building, related yard improvements, boat ramps, and surface stabilization.

The project includes site development activities involving earthwork, grading, shorefront stabilization, pier rehabilitation, boat ramps, building construction, utilities and overall site stabilization. This work will be completed cooperatively with the landowners, and in accordance with site remedial activities.

This section of the permit application presents the Erosion Sediment Control Plan designed for the project. The erosion control plans will be contained in the contract documents for implementation by the Contractor who is awarded the bid for the project. Similarly, the applicant's own work force will also comply with these requirements. The construction of the project will be phased. This project is coordinated with the MeDEP erosion control requirements. The fugitive dust emissions will be controlled, the requirements of this erosion control plan, and all permit requirements will be fulfilled. Winter construction will be required. Specific erosion controls stipulated by the plan and this report are minimum requirements.

B. EXISTING CONDITIONS

The site consists of approximately 17.77 acres of land that is composed of three primary areas described as follows:

1. **Retained Parcel (Map 59A, Lots 3 & 4)**: Consists of the retained 5.03-acre area owned by New Yard, LLC and it represents the retained land originally permitted by the Applicant during late 2012 – 2013. Within this land area New Yard, LLC has constructed Building A and Building B amounting to approximately 48,000 SF of building space. This parcel contains a new boat ramp and boat yard area currently in use by Portland Yacht Services.
2. **Shorefront Parcel (Map 60F, Lots 3 & 4)**: This area is irregularly shaped and contains approximately 1,581 LF of waterfront. The site area is approximately 5.99 acres. This area is currently undeveloped except for the granite revetment wall that historically supported the former waterfront pier.
3. **Street Front Parcel (Map 60F, Lot 1)**: This 6.75-acre area contains approximately 2,160 LF of street front. The property is generally unoccupied although there are existing rail tracks that previously provided access to the former NGL Distribution facility within what will be IMT expansion area in the future. Towards the east end of this parcel, historic land use has included parking of vehicles, trailers and similar activities associated with businesses further east on Commercial Street. Most of this use was unauthorized by the previous landowner, Portland Terminal Co.

Existing development in the area includes the following:

- The City of Portland Marine Terminal and expansion area is located to the east of the site.
- Commercial activity including Nova Seafood and Graybar Electric operate out of buildings on the north side of Commercial Street.
- The Portland Star Match Co. building lines up opposite the site.
- The State of Maine now operates rail tracks into the propane storage yard and IMT expansion area. These tracks were completed very recently.

Owen Haskell, Inc. has completed a topographic survey of the property. The site is relatively flat with the highest points along the Commercial Street frontage, sloping to the middle of the site. Site elevations along Commercial Street trend down from west to east from elevation 18' (NGVD 1929) to elevation 15'. The site's low areas are near elevation 9'-10' while most of the waterfront top of bank is near elevation 12'. The High Annual Tide Line (HAT) for the Fore River is elevation 7.4' and mean low water is approximately elevation -4.0'. Owen Haskell, Inc. has also completed bathymetric survey data collection and found water depths within 50' of the low water line to be 10' to 30'. The Federal Channel is also represented on the project's preliminary drawings and it is generally located 60' to 120' off the shorefront. No activities are proposed beyond the Federal Channel line.

Generally speaking, the site's runoff infiltrates into the ground or drains directly to the Fore River via overland flow. There are no drainage systems on site, although there is a closed storm drainage system within Commercial Street. The Commercial Street drainage system ultimately ties into either of the two existing CSO lines that discharge to the river.

Due to the site's historic industrial condition much of the surface consists of sand and gravel fill, asphalt or otherwise sparsely vegetated ground surface.

The site's soil layers are generally characterized as follows:

- 10 to 15 feet of sand and gravel fill – there is little to no organic surface layer throughout the site.
- 5 to 10 feet of silt and sand.
- 10 to 40 feet of gray clay identified as the Presumpscot formation.
- 30 to 40 feet of dense silty marine sands.
- An undetermined thickness of dense silty sand and gravel identified as glacial till overlaying bedrock.

Observed soils conditions at the ground surface include fill material containing coal, coal ash, and comingled with scarified sand and gravel. Minor eroded soils conditions have been observed along the shoreline in and behind the existing granite revetment wall and remnant pier areas. The project's site development activities include restoration, rehabilitation, and stabilization of these areas.

According to various investigation data, depth to groundwater varies from 3 to 7 feet and this likely varies with tidal conditions in the Fore River. Generally speaking, the groundwater flows from the northwest to the southeast across the site.

C. PROPOSED PROJECT

The applicant proposes to redevelop the property in a manner consistent with the WPDZ Standards as well as any applicable VRAP requirements. The development program includes the following components:

ONSITE

The development program includes continued phased development of boat maintenance facilities and ancillary marine related uses. Phase III and future Concept Plan development activities are summarized as follows:

Phase III – Will Include (For Which Approval Renewal Is Requested):

- Site clearing, stabilization, and general clean-up.
- Construction of a 19,800 SF footprint individual metal building for marine retail and boat maintenance operations (building C). (This requires a Conditional Use Approval).
- Establishment of yard areas and surfaces for heavy equipment, and boat display, storage or repair. (Repair and maintenance often takes place outside, particularly if the vessel is large and does not fit into a building. Boats that are out of the water for the winter season all need to have work done on them to prepare them for re-launching.)
- Installation of utilities for building use as well as future phase activities.
- A 20' x 120' storage building along the waterfront is proposed for storage of racing shells.
- Temporary facilities including one or more portable trailers and storage buildings for sailboat masts and related boat equipment.
- A 60’ x 80’ steel framed multi story structure is proposed as an office space for Portland Yacht Services (Building D).
- A 2 to 3 acre area on the west end of the street front parcel is proposed for use as a marine cargo related stack/storage yard. The applicant is seeking to construct a basic yard area with security fence/access for use by various marine operations on the waterfront. This may include use by the IMT, BIW, Sprague or other users for short term parking, storage or related operations. This is an unfilled need for this type of area on the waterfront which New Yard is seeking to address, based on interest by various third parties to the applicant.
- The site’s existing topography reduces the need for substantial earthwork and the primary emphasis is on the placement of new aggregate and stone surfacing, thus minimizing the potential for significant erosion or sediment transport.

D. OVERVIEW OF SOIL EROSION AND SEDIMENTATION CONCERNS

The primary emphasis of the Erosion and Sedimentation Control Plan to be implemented for this project is as follows:

- **Temporary Measures:** Planning the project to have erosion resistant measures in place by implementing measures intended to prevent erosion from occurring.
- **Phasing Sequencing:** The plan includes measures to intercept and convey runoff to temporary sediment sumps as the construction of the project occurs. The use of small temporary

collection sumps with a clean sand or crushed stone filter above an underdrained discharge is recommended to supplement the principal sumps to help reduce turbidity.

- **Crushed stone surfacing:** The applicant has placed heavy emphasis on the placement of crushed stone over the majority of the site to create a stable surface that aids with water absorption and minimizes erosion potential.
- **Use of Type 1 Settling:** Installing sediment sumps and swales early in the construction sequence to provide secondary relief for erosion control measures within the site until late in the project when the sedimentation areas need to be removed for final restoration.
- **Restabilization:** Stabilization of areas denuded to underlying parent material must occur within stipulated time frame to minimize the period of soil exposure and stabilization of drainage paths to avoid rill and gully erosion.
- **Interim Entrapment:** The use of on-site measures to capture sediment (hay bales/silt fence/erosion control mix barriers, etc.) before it is conveyed to sediment sumps or collection inlets.
- **Long Term Site Protection:** The implementation of long-term measures for erosion/sediment and pollutant treatment through the construction of permanent water quality measures including the principal measures of aggregate and crushed stone surfacing over the majority of the site
- **Shore side protection:** Involves the placement of floating booms/turbidity curtains along the waterfront during work on the revetments, travel lift basin, and float installations.
- **Special Winter Construction Measures:** These will be required for work between September 15 and April 15.

E. DESCRIPTION AND LOCATION OF LIMITS OF ALL PROPOSED EARTH MOVEMENTS

The construction of the project will disturb about 7 acres of land. The limit of disturbance is generally coincident with the limit of grading. Most of the disturbance however involves fill placement rather than earthmoving, this reducing the potential for erosion.

The earth moving will include trenching for underground utilities, earthwork to reshape the site and construct trenches along the easterly edge, earthwork to prepare and shape the prepared boatyard surface, and excavation attendant with the building foundations and excavation and borrow for the project improvements.

F. CRITICAL AREAS

Critical resource areas include the Fore River and associated shoreline stabilization. No special species habitats have been identified. It is noted that stormwater system consisting of infiltration through the proposed prepared boatyard stone surface shall not be activated until the tributary areas have been stabilized.

G. EROSION/SEDIMENTATION CONTROL DEVICES

As part of the site development, the Contractor will be obligated to implement the following erosion and sediment control devices. These devices shall be installed as indicated on the plans or as described within this report. For further reference on these devices, see the *Maine Department of Environmental Protection Erosion and Sediment Control BMPS Manual (March, 2003)*.

1. Siltation barrier shall be installed down slope of any disturbed areas to trap runoff borne sediments until the site is revegetated. The silt barrier shall be installed per the detail provided in the plan set and inspected immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the barrier line. If such erosion is observed, the Contractor shall take proactive action to identify the cause of the erosion and take action to avoid its reoccurrence. Typically, this requires that stabilization measures be undertaken. Proper placement of stakes and keying the bottom of the silt barrier fabric into the ground is critical to the barrier's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the barrier, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not directed to the silt barrier.

2. Silt barrier is shown by three types, depending upon the timing and intent, as follows:

SCHEDULE OF SILT BARRIER REQUIREMENTS		
Silt Barrier	**Type/Purpose**	**Time of Installation**
Condition 1	To trap sediment along the grading edge where the new contours nearly parallel existing contours.	At initial site preparation, prior to other work.
Condition 2	To trap sediment from the work area; install in short sections parallel to existing contour; typically occurs where proposed and existing contours form a "V" shape.	At initial site preparation, prior to other work. On occasion, this needs to be deferred until the area for the silt barrier installation can be reached.
Condition 3	To trap sediment along the base of proposed contours, typically in cut areas.	During construction after new grade is shaped. Time between work in area and shaping new grade to allow silt barrier to be installed shall be minimized.

Conditions 2 and 3 silt barrier may be used between project phases. In the event of frozen ground where silt barrier cannot be installed, a wood waste (erosion control mix) berm may be used as a substitute.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulching should be occurring several times per week when the site construction activity is high and at sufficient intervals to reduce the period of exposure of bare soils to the time limits set forth in this plan. Mulch placed on slopes of less than 10 percent shall be anchored by applying water; mulch placed on slopes steeper than 10 percent shall be covered with fabric netting as immediately after mulching as practicable and anchored with staples in accordance with the manufacturer's recommendations. Proposed drainage channels, which are to be revegetated, shall receive Curlex blankets by American Green selected for the slope, velocity, and whether the measure is temporary or intended to be in place for a sustained period. Mulch application rates are provided in Appendix A of this section. Hay mulch shall be available on site at all times in order to provide immediate temporary stabilization when necessary. Temporary sediment sumps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved. The sediment sumps need to include a sand filter above an underdrain.

4. A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent local roads and streets. Routine pavement sweeping will be necessary during construction and as part of regular operations.

5. Stone sediment traps or a premanufactured SiltSack™ and a sediment bag will be installed at catch basin inlets to prevent silt from entering the storm drain system. Installation details are provided in the plan set on the erosion control detail sheets.

6. Dirtbags™ will be required to be on site and available for construction dewatering related to trenching or foundation construction. Dirtbags™ will need to be installed above filter sand and crushed stone in accordance with the details shown on the plan set will need to be installed.

7. Loam and seed is intended to serve as the secondary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap or manmade pervious surface. Application rates are provided in Appendix A of this section for temporary and permanent seeding. It is anticipated there will be a limited area of grass establishment beyond what currently exists based on the project's needs for boat storage and the placement of the boatyard surface over the majority of the site.

8. Stone check dams will be installed in areas noted on the plan or as warranted, based upon observations during construction of the site.

9. Silt logs are an option for stone check dams and may be substituted provided the devices are well anchored.

H. TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES

The following are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone-stabilized construction entrances shall be placed at any construction access points from adjacent streets or the existing parking lot. The locations of the construction entrances shown on the drawings should be considered illustrative and will need to be adjusted as appropriate and located at any area where there is the potential for tracking of mud and debris onto existing roads or streets. Stone stabilized construction entrances will require the stone to be removed and replaced, as it becomes covered or filled with mud and material tracked by vehicles exiting the site. The applicant has maintained crushed stone surfaces over much of the site over the past few years and found it to be a successful approach to surface management, erosion and runoff control.

2. Silt barrier shall be installed along the downgradient side of the proposed improvement areas. The silt barrier will remain in place and properly maintained until the site is acceptably re-vegetated. Silt barrier needs to be checked to insure the bottom is properly keyed in and inspected after significant rains. Wood chips or Erosion Control Mix is often used on the construction side of the silt barrier to provide an extra margin of safety and security for the silt barrier. This practice is encouraged, provided the chips are removed when the barrier is removed.

3. Dirtbags™ shall be used in accordance with the details in the plan set. The purpose of the Dirtbags™ is to receive any water pumped from excavations during construction. A Dirtbag™ shall be installed and prepared for operation prior to any trenching on site. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone and filter sand under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.

4. Temporary stockpiles of common excavation will be protected as follows:

   a) Temporary stockpiles shall not be located at least 50 feet upgradient of the perimeter silt barrier.

   b) Inactive stockpiles shall be stabilized within 5 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch. If necessary, mesh shall be installed to prevent wind from removing the mulch.

5. All denuded areas except gravel areas shall receive mulch, erosion control mesh fabric, or other approved temporary erosion sediment measure within 7 days of initial disturbance of soil or before a predicted rain event of >1/2" unless permanent measures are installed.

6. All soils disturbed between September 15 and April 15 will be covered with mulch within 5 days of disturbance, prior to any predicted storm event of the equivalent of ½" of rainfall in a 24-hour period, or prior to any work shutdown lasting more than 35 hours (including weekends and holidays). The mulch rate shall be double the normal rate.

   For work that is conducted between September 15 and April 15 of any calendar year, all denuded areas will be covered with hay mulch, applied at twice the normal application rate, and (in areas over 10% grade) anchored with a fabric netting. The time period for applying mulch shall be limited to 5 days for all areas, or immediately in advance of a predicted rainfall event.

7. Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations.

8. Silt fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be properly anchored a minimum of 6" per the plan detail and backfilled. Any silt fence identified by the owner or reviewing agencies as not being properly installed during construction shall be immediately repaired in accordance with the installation details.

9. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or a premanufactured SiltSack™. Stone sediment barrier installation details are provided in the plan set. The barriers or SiltSacks™ shall be inspected after each rainfall and repairs made as necessary, including the removal of sediment. Sediment shall be removed and the barrier or SiltSack™ restored to its original dimensions when the sediment has accumulated to one-half the design depth of the barrier. Sediment shall be removed from SiltSacks™ as necessary. Inlet protection shall be removed when the tributary drainage area has been stabilized.

10. All slopes steeper than 4:1 shall receive erosion control mesh.

11. Areas of visible erosion and the temporary sediment sumps shall be stabilized with crushed stone. The size of the stone shall be determined by the contractor's designated representative in consultation with the Owner.

12. Any flow from the site that is concentrated must be directed to a sump with sand filter and underdrained discharge.

13. Concentrated runoff shall be diverted away from slopes of over 10 percent unless the slope is armored with stone.

14. Underground utilities must be installed in compliance with the following standards and other requirements of this erosion control plan:

- No more than 500 linear feet of trench may be opened at one time;
- Excavated materials shall be placed on the uphill side of trenches;
- Dewatering of the trench shall be pumped through a Dirtbag™ and appropriate sediment control facilities to avoid a turbid discharge; and
- Stabilization shall occur as soon as practicable.

15. Rice straw wattles shall be used to control localized erosion.
16. Maintenance of the erosion control, sedimentation facilities, and control of fugitive dust must occur until the site is stabilized with permanent erosion control measures.

I. STANDARDS FOR STABILIZING SITES FOR THE WINTER

The construction of the project may require winter construction. The project is anticipated to require about 6 months to construct. For permitted winter construction, the erosion control measures are substantially more stringent due to the cold temperatures and lack of weather conditions which aid in drying the subgrade soils through evaporation.

If construction activities involving earth disturbance continue past September 15 or begin before April 15, the following must be incorporated with the erosion control plan and implementation:

1. Enlarged access points must be stabilized to provide for snow stockpiling.
2. Limits of disturbance shall be reduced to the extent practicable.
3. A snow management plan including adequate storage and control of snowmelt, requiring cleared snow to be stored downgradient of all areas of disturbance shall be prepared by the contractor and submitted to the Owner for review and approval.
4. Snow shall not be stored in sediment basins or to preclude drainage structures from operating as intended.
5. A minimum 25-foot buffer maintained from perimeter controls such as silt fence shall be maintained on the "work area side" to allow for snow clearing and maintenance.
6. Drainage systems intended to operate during the winter shall be catalogued, shown on a plan, and inspected after each snow removal period to make sure the drainage structures are open and free of snow and ice dams.
7. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
   - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
   - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
8. Standard for the timely stabilization of ditches and channels: The Contractor shall construct and stabilize all stone-lined ditches and channels on the site by September 15. The contractor shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the Contractor fails to stabilize a ditch or channel to be grass-lined by September 1, then the Contractor shall take one of the following actions to stabilize the ditch for late fall and winter.
   i. Install a sod lining in the ditch. The contractor shall line the ditch with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the

soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

ii. Install a stone lining in the ditch. The contractor shall line the ditch with stone riprap by September 15. The contractor shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the Contractor shall regrade the ditch prior to placing the stone lining so as to prevent the stone lining from reducing the ditch's cross-sectional area.

9. Standard for the timely stabilization of disturbed slopes: The Contractor shall construct and stabilize stone-covered slopes by September 15. The Contractor shall seed and mulch all slopes to be vegetated by September 1. The Department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the Contractor fails to stabilize any slope to be vegetated by September 1, then the Contractor shall take one of the following actions to stabilize the slope for late fall and winter.

   i. Stabilize the soil with temporary vegetation and erosion control mesh. By September 15, the Contractor shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The contractor shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed slope by September 15, then the Contractor shall cover the slope with a layer of wood waste compost as described in item iii of this standard or with stone rip rap as described in item iv of this standard.

   ii. Stabilize the slope with sod. The Contractor shall stabilize the disturbed slope with properly installed sod by September 15. Proper installation includes the Contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The Contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V) or having groundwater seeps on the slope face.

   iii. Stabilize the slope with wood waste compost. The Contractor shall place a six-inch layer of wood waste compost on the slope by September 15. Prior to placing the wood waste compost, the Contractor shall remove any snow accumulation on the disturbed slope. The contractor shall not use wood waste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

   iv. Stabilize the slope with stone rip rap. The Contractor shall place a layer of stone riprap on the slope by September 15. The Contractor shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

10. Standard for the timely stabilization of disturbed soil: By September 1, the Contractor shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the Contractor fails to stabilize these soils by this date, then the Contractor shall take one of the following actions to stabilize the soil for late fall and winter.

    i. Stabilize the soil with temporary vegetation. By September 15, the Contractor shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1,000 square feet, and anchor the mulch with plastic netting. The Contractor shall monitor the growth of the rye

over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before September 15, then the Contractor shall mulch the area for over-winter protection as described in item iii of this standard.

ii. Stabilize the soil with sod. The Contractor shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the Contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

iii. Stabilize the soil with mulch. By September 15, the Contractor shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1,000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the Contractor shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the Contractor shall anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

iv. Stabilize all stockpiles with mulch within 24 hours.

J. SPECIAL MEASURES FOR SUMMER CONSTRUCTION

The summer period is generally optimum for construction in Maine, but it is also the period when intense short duration storms are most common, making denuded areas very susceptible to erosion, when dust control needs to be the most stringent, and when the potential to establish vegetation is often restricted by moisture deficit. During these periods, the Contractor must:

1. Implement a program to apply dust control measures on a daily basis except those days where the precipitation exceeds 0.25 inch. This program shall extend to and include adjacent streets used by construction vehicles.

2. Spray any mulches with water after anchoring to dampen the soil and encourage early growth. Spraying may be required several times. Temporary seed may be required until the late summer seeding season.

3. Mulch, cover, and moisten stockpiles of fine-grained materials, which are susceptible to erosion. In the summer months, the potential for wind erosion is of concern, as well as erosion from the intense, short-duration storms, which are more prevalent in the summer months.

4. Take additional steps needed to control fugitive dust emissions to minimize reductions in visibility and the airborne disbursement of fine-grained soils. This is particularly important along the adjacent streets.

These measures may also be required in the spring and fall during the drier periods of these seasons.

K. PERMANENT EROSION CONTROL MEASURES

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. The drainage conveyance systems have been designed to intercept and convey the 25-year storm.

2. All areas disturbed during construction, but not subject to other restoration (paving, crushed stone surface, etc.), will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. Native topsoil shall be stockpiled and temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality. The area of permanent grass coverage for the site is very limited.

3. Catch basins shall be provided with 2' sediment sumps for all outlet pipes that are 12" in diameter or greater.

4. Permanent seeding shall be conducted only in April through May and in late summer until September 15.

5. Boatyard gravel/stone surface will be applied to the majority of the site.

L. TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES

The site is quite stable and is principally a semi-vegetated gravel surface. These conditions will reduce the extent of erosion controls needed compared to projects with fine-grained soils. However, the project will be phased and the Contractor must control fugitive dust emissions, respect and not impede the neighboring land uses, and control sediment laden runoff. For all grading activities, the Contractor shall exercise extreme caution not to overexpose the site by limiting the disturbed area and shall stabilize any steep slopes within 24 hours if final slope grading and stabilization will not be completed within 7 days. Any final slopes shall have the specified erosion control measures installed within 7 days of final stabilization.

The following construction sequence shall be required, (unless otherwise authorized in writing by the Owner's project manager or authorized permit agent).

The description of the work is:

Phase III: The Contractor will need to perform the following work:

- Mark the Phase III work limits.
- Install safety fence and security signs around the perimeter of the site.
- Establish and install construction entrance with gates.
- Install silt fence or barriers along the perimeter and other designated areas requiring Condition 1 silt barrier.
- Install silt sacks and inlet protection at existing structures on Commercial Street.
- Initialize removal of items slated for demolition and removals.
- Establish Dirtbag™ area and pump system for dewatering activities as necessary.
- Construct a diversion swale to direct as much of the site to the temporary sedimentation swales as possible including the installation of culverts and rip rap where the diversion swale passes under the construction access drives.
- Commence earthwork activity to shape prepared boatyard surface.
- Construct the Phase III Building and connect associated utilities.
- Trench across site to connect utilities to shorefront elements.

- Install landscaping around the perimeter site.
- Place boatyard prepared stone surfaces.

M. CONTRACTING PROCEDURE

The onsite components of the project will be constructed by a General Contractor under contract to the applicant. The Contractor shall submit a schedule for the completion of the work, which will satisfy the following criteria:

1. The construction sequence of Section L should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to prevent the duration of areas exposed or susceptible to erosion as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt barriers and construction entrances in place before large areas of land are denuded.

2. The work shall be conducted in sections which will:

   a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the preceding 30 days.

   b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading and temporarily stabilized within 7 days of initial disturbance or before a predicted storm event of over ½" of rain.

   c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

3. Once final grade has been established, the Contractor may choose to dormant seed the disturbed areas prior to placement of mulch and placement of fabric netting anchored with staples.

   a) If dormant seeding is used for the site, all disturbed areas shall receive 6" of loam and seed at an application rate of 5#/1,000 s.f.

      All areas seeded during the winter months will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) shall be revegetated by replacing loam, seed, and mulch.

   b) If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

4. The area of denuded, non-stabilized construction shall be limited to the minimum area practicable. An area shall be considered to be denuded until the subbase gravel is installed in parking areas, or the areas of future loam and seed have been loamed, seeded, and mulched. The mulch rate shall be twice the rate specified in the seeding plan. [For example, 115#/1,000 s.f. x 2 = 230#/s.f.]

5. Within the exposed work area, temporary sedimentation sumps shall be provided in any concentrated flow area with a sand filter or chemical coagulation. Additional information is provided in prior sections of this narrative and on the Erosion Control Details of the plan set. Along the sedimentation sumps, barriers shall be provided at sufficient intervals to permit runoff to be accumulated to a minimum depth of 12" before overflowing.

6. The schedule shall be subject to the approval of the Owner.

7. The Contractor must maintain an accurate set of record drawings indicating the date when an area is first denuded, the date of temporary stabilization, and the date of final stabilization.

8. The Contractor must install any added measures which may be necessary to control erosion/sedimentation and fugitive dust emissions from the site, with adjustments made dependent upon forecasted and actual site and weather conditions.

9. The Contractor shall note that no area within 50 feet of a slope with a vertical drop of more than 3' in 50 feet shall remain denuded for a period of over 5 days before it is temporarily stabilized. Temporary stabilization shall be the installation of mulching. All other areas shall be stabilized within 7 days or before a predicted rain event. For construction between September 15 and April 15 of any calendar year, all areas shall be temporarily stabilized at the earlier time frames specified above.

   A notice and point of contact with cell phone number shall be posted at the trailer to permit access to the records during normal work hours and in case of emergency at other times. All additions and construction records shall be copied via e-mail to the following addresses:

   phin@portlandyacht.com

   The Owner reserves the right to add additional personnel to this list at the pre-construction conference or at reasonable intervals during the project.

10. The Owner will provide a copy of the Notice of Intent acceptance letter to the Contractor. This letter shall be maintained at the site.

11. The Contractor shall engage a qualified representative to monitor the work. This representative shall be approved by the Owner prior to the individual being engaged on the project. This inspection shall be a part of the Contractor's Quality Control Plan for the project by the Contractor. The representative's qualifications and duties that he shall perform are as follows:

    a. Licensed Professional Engineer or Certified Professional in Erosion Control`

    b. Covered by Workman's Compensation Insurance

    c. Experienced in this type of work, the specific erosion controls applicable to this project with a resume approved by the engineer

    d. Compensated on a unit rate basis with no incentives for reduced costs or subject to any type of compensation for passing inspections

    e. Approved by the Owner and the preparer of this plan

    The *qualified representatives* shall conduct site inspections in accordance with the following timetable:

    a. Where soil disturbance activities are on-going, the *qualified representative* shall conduct a site inspection at least once every seven (7) calendar days.

b. Where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified representative* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the City's stormwater contact person or, in areas under the jurisdiction of a *regulated traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity) in writing prior to reducing the frequency of inspections.

c. Where soil disturbance activities have been shut down with partial project completion, the *qualified representative* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed and are operational. The *owner or operator* shall notify the City's stormwater contact person in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the Contractor shall have the *qualified representative* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed, and that all post-construction stormwater management practices have been constructed in conformance this plan by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the Notice of Termination. The *owner or operator* shall then submit the completed Notice of Termination form to the City of Portland.

At a minimum, the *qualified representative* shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of discharge to natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

The *qualified representative* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather which shall be consistent with the National Weather Service Forecast Office, Portland-Gray, ME and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of discharge from the construction site and sampling to determine the turbidity in NTU's. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any *discharge* of sediment to the surface water body;

f. Identification of all erosion and sediment control practices that need repair or maintenance;

g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified representative* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified representative* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified representative* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

Within one business day of the completion of an inspection, the *qualified representative* shall notify the owner the appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame, at its sole cost.

All inspection reports shall be signed by the *qualified representative*. The inspection reports shall be maintained on site.

12. The Owner reserves the right to have quality assurance monitoring of the work. The Contractor shall, at its sole cost, cooperate with the Owner and their quality assurance monitoring of the work including maintaining an accurate schedule for performing the work. The Owner will notify the contractor if any particular elements of the work should be uncovered or available for observation by the Quality Assurance Monitor selected by the Owner. The Owner reserves the right to conduct the quality assurance monitoring during working hours at any time during the project.

N. PROVISIONS FOR MAINTENANCE OF THE EROSION/SEDIMENTATION CONTROL FEATURES

The project will be contracted to a General Contractor. The project is subject to the requirements of the local permits, and a state regulated Construction General Permit and Site Location of Development Permit (administered by the City of Portland).

This project requires the Contractor to prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection, and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. Specific responsibilities of the qualified representative(s) will include:

1. Execution of the Contractor/Subcontractor Certification contained in Appendix B by any and all parties responsible for erosion control measures on the site as required by the permit authorities.

2. Assuring and certifying the Owner's construction sequence is in conformance with the specified schedule of this section. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirements of this section shall be prepared and signed by the qualified representative(s).

3. In addition to the weekly certifications, the representative(s) shall maintain written reports recording construction activities on site which include:

    - Dates when major grading activities occur in a particular areas.
    - Dates when major construction activities cease in a particular area, either temporarily or permanently.
    - Dates when an area is stabilized.

4. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inch or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:

    - Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.
    - Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.
    - Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.
    - Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 90 percent is required prior to removal of erosion control measures.
    - All erosion controls shall be removed within 30 days of permanent stabilization except for mulch and netting not detrimental to the project. Removals shall include but not be limited to all silt fence or barrier, hay bales, inlet protection, and stone check dams.
    - Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.
    - Silt sacks should be removed and replaced at least every three months and at any time where the weekly inspection reveals that siltation has significantly retarded the rate of flow through the silt sack.

5. If inspection of the site indicates a change should be made to the erosion control plan, to either improve effectiveness or correct a site-specific deficiency, the representative shall immediately implement the corrective measure and notify the Owner of the change.

6. Arranging for an on-site meeting prior to commencing winter construction to assure that all special winter construction measures will be implemented and to review the specific requirements of this plan for winter construction.

All certifications, inspection forms, and written reports prepared by the qualified representative(s) shall be filed with the Owner, and the Permit File contained on the project site. All written certifications, inspection forms, and written reports must be filed within one (1) week of the inspection date.

The Contractor has sole responsibility for complying with the erosion/sediment control report, including control of fugitive dust, and shall be responsible for any monetary penalties resulting from failure to comply with these standards.

Once construction has been completed, long-term maintenance of the stormwater management system will be the responsibility of the applicant. Inspection and Maintenance items with a list of maintenance requirements and frequency are described in a separate document. In the event of defective workmanship or any failure by the contractor and its subcontractors to adhere to the Standards set forth in these documents, the Contractor shall be responsible to correct, at its sole cost, any latent defects together with reimbursement of Owner for any expenses borne by the Owner up to the time of said correction. This provision shall remain in effect beyond any stated or implied warranty period.

O. PRECONSTRUCTION CONFERENCE

Prior to any construction at the site, representatives of the Contractor, the Owner, the City of Portland, and the site design engineer and any personnel identified in the permit conditions shall meet to discuss the scheduling of the site construction and the designation of the responsible parties for implementing the plan. The Contractor shall be responsible for scheduling the meeting. Prior to the meeting, the Contractor will prepare a detailed schedule and a marked-up site plan indicating areas and components of the work and key dates showing date of disturbance and completion of the work. The Contractor shall conduct a meeting with employees and sub-contractors to review the erosion control plan, the construction techniques which will be employed to implement the plan, and provide a list of attendees and items discussed at the meeting to the Owner. Three copies of the schedule, the Contractor's meeting minutes, and marked-up site plan shall be provided to the Owner.

P. APPENDICES

Appendix A – Seeding Plan

Appendix B – Sample Erosion Control Compliance Certification and Inspection Forms

Q. PLAN REFERENCES

Drawings C-6.1 to C-6.4 Erosion/Sediment Control Plans and Details

APPENDIX A

Seeding Plan

PERMANENT SEEDING PLAN (SEED MIX "A")

Project: Canal Landing New Yard

Site Location: Portland, ME

X Permanent Seeding _____ Temporary Seeding

1. **Area to be Seeded:** Approximately TBD acre(s) or _____/M. Sq. Ft.

2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used (do not over compact).

3. **Apply Lime as Follows:** _____ #/acres or 138# /M Sq. Ft. or per soil test

4. **Fertilize:** _____ pounds of _____ - _____N-P-K/ac.

   20 pounds of 10-20-20 N-P-K/M Sq. Ft. or per soil test

5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.

6. **Seed with the following mixture:**

   Blue Stem
   Rye
   Switch Grass
   Aster
   Goldenrod
   Milkweed

7. **Mulching Instructions**: Apply at the rate of _____ tons per acre or 230 pounds per M. Sq. Ft.

8. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	1	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other	0	0

9. **Remarks:**

   Seeding dates April 15 to May 31 and August 1 until September 1. Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

   Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 6%.

PERMANENT SEEDING PLAN (SEED MIX "B")

Project: Canal Landing New Yard

Site Location: Portland, ME

X Permanent Seeding _____ Temporary Seeding

7. **Area to be Seeded:** Approximately TBD acre(s) or _____/M. Sq. Ft.

8. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used (do not over compact).

9. **Apply Lime as Follows:** _____ #/acres or 138# /M Sq. Ft. or per soil test

10. **Fertilize:** _____ pounds of _____ - _____N-P-K/ac.

    20 pounds of 10-20-20 N-P-K/M Sq. Ft. or per soil test

11. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.

12. **Seed with the following mixture:**

    35% Tall Fescue
    30% Creeping Red Fescue
    20% Perennial Ryegrass
    15% Annual Ryegrass

10. **Mulching Instructions**: Apply at the rate of _____ tons per acre or 230 pounds per M. Sq. Ft.

11. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	7	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other	0	0

12. **Remarks:**

Seeding dates April 15 to May 31 and August 1 until September 1. Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 6%.

TEMPORARY SEEDING PLAN (EROSION CONTROL MIX)

Project: Canal Landing New Yard

Site Location: Portland, ME

X Permanent Seeding X Temporary Seeding

1. **Area to be Seeded:** Approximately 0.5 acre(s) or _____/M. Sq. Ft.

2. **Instructions on Preparation of Soil:** Prepare a good seed bed for planting method used.

3. **Apply Lime as Follows:** _____ #/acres or 138# /M Sq. Ft. or per soil test

4. **Fertilize:** _____ pounds of _____ - _____N-P-K/ac.

   20 pounds of 10-10-10 N-P-K/M Sq. Ft. or per soil test

5. **Method of Applying Lime and Fertilizer:** Spread and work into the soil before seeding.

6. **Seed with the following mixture:**

Annual Rye-grass	50%
Timothy	25%
Winter Rye	25%

7. **Mulching Instructions**: Apply at the rate of _____ tons per acre or 230 pounds per M. Sq. Ft.

8. **Application:**

Type	Unit#	Tons, Etc.
Total Lime	138	#/1,000 s.f.
Total Fertilizer	20	#/1,000 s.f.
Total Seed	1	#/1,000 s.f.
Total Mulch	230	#/1,000 s.f.
Total Other		

9. **Remarks:**
   For areas with slopes >10% and fall and winter erosion control areas, mulch netting shall be used per manufacturer's specifications.

   R Permanent seeding should be made prior to September 1 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

   Fertilizer requirements shall be subject to actual test results of the topsoil used for the project. The Contractor shall be responsible for providing topsoil test results for pH and recommended fertilizer application rates to the Owner.

   Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an appropriate method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be

delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

Seed shall be purchased from a recognized distributor and shall test to a minimum percentage of 95% for purity and 85% for germination.

All loam shall have compost or peat admixtures to raise the organic content to 6%.

APPENDIX B

Sample Erosion Control Compliance Certification and Inspection Forms

MAINE CONSTRUCTION GENERAL PERMIT

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

PROJECT INFORMATION

Project Name: Canal Landing New Yard

Address: Portland, Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Firm Name:

Address:

Telephone:

Type of Firm:

CERTIFICATION STATEMENT

"I certify under penalty of law that I understand the terms and conditions of the Maine Construction General Permit (MCGP) permit that authorizes the stormwater discharges associated with construction activity from the project site identified as part of this certification."

_____

Signature

_____

Typed Name

_____

Title

_____

Date

MAINE CONSTRUCTION GENERAL PERMIT

INSPECTION REPORT

PROJECT INFORMATION

Project Name: Canal Landing New Yard

Address: Portland, Maine

INSPECTOR INFORMATION

Representative Name: _____

Firm: _____

Title: _____

Qualifications: _____

Weather and Soil Conditions: _____

INSPECTION SUMMARY

Date of Inspection: _____

Major Observations: _____

_____

_____

_____

1. Attach the following to the Report:

   a. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

   b. A description of the condition of all natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which received runoff from disturbed areas. This shall include identification of any discharge of sediment to the surface water body;

   c. Identification of all erosion and sediment control practices that need repair or maintenance.

   d. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

   e. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

f. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPP and technical standards;

g. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and

h. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified representative shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The qualified representative shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified representative shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

2. Within one business day of the completion of an inspection, the *qualified representative* shall notify the owner the appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

3. All inspection reports shall be signed by the *qualified representative*. The inspection reports shall be maintained on site.

THE FACILITY IS IN COMPLIANCE WITH THE PLAN WITH THE FOLLOWING EXCEPTIONS:

_____

_____

_____

_____

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

_____

_____

REQUIRED MODIFICATIONS TO (MUST BE SUBMITTED WITHIN 2 DAYS OF INSPECTION TO OWNER FOR APPROVAL):

_____

_____

_____

_____

CERTIFICATION STATEMENT:

"I certify under penalty of law that this document and all Appendices were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of find and imprisonment for knowing violations."

_____
Signature

_____
Typed Name

_____
Title

_____
Date

6. FIRE SAFETY ANALYSIS

6.1 OVERVIEW

Stantec has completed the Fire Department checklist and will continue to perform ongoing coordination with Fire Department representatives and City Planning officials. The accompanying memorandum outlines our findings with respect to compliance with the City's Public Safety Standards as set forth in the City's Technical Manual, Section 3 – Public Safety Standards.

Generally, the site provides access from Commercial Street and will allow access to two or more sides of each building. Numerous hydrants will be placed around the site. All buildings will be fully sprinkled and code compliant to current applicable standards.

Additional fire safety review and evidence of building related fire code compliance will be provided as part of the Building Permit process.

6.2 ATTACHMENTS

Attachment A – Portland Fire Department Site Review Checklist & NFPA 1 Review

ATTACHMENT A

Portland Fire Department Site Review Checklist & NFPA 1 Review

Stantec Consulting Services Inc.
482 Payne Road Scarborough Court, Scarborough ME 04074-8929

December 7, 2017

Keith Gautreau, Assistant Chief
City of Portland Fire Department
380 Congress Street
Portland, ME 04101

Subject: Canal Landing New Yard – Phase III
400 West Commercial Street
Applicant: Canal Landing, LLC
NFPA 1 Review to Access and Other Fire Department Issues

Dear Assistant Chief Gautreau:

In accordance with instructions in the City's Site Plan Review packet, please find enclosed the drawing necessary for your review of the Canal Landing site at 400 West Commercial Street project. We have listed each item in your checklist below, followed by our response:

- **Fire Department Checklist:**

1. Name, address, telephone number of applicant:

   Canal Landing, LLC
   400 West Commercial Street
   Portland, Maine 04101
   Cell: 207-653-1414
   phin@portlandyacht.com

2. Name address, telephone number of architect:

   David Lloyd
   Archetype PA
   48 Union Wharf
   Portland, ME 04101
   Phone: 207-772-6022
   Lloyd@archetypepa.com

3. Proposed uses of any structures [NFPA and IBC classification]:

   The following IBC and NFPA classifications will apply to the Phase III development:

IBC	NFPA Classification
2B	II (000)
5B	V (000)

4. Square footage of all structures [total and per story]:

BUILDING PROGRAM		
Structure	**Total (SF)**	**Per Story ±**
Marine Retail (Building C)	19,250	same
Operations	11,000-12,000	4,800± SF

5. Elevation of all structures:

   Building elevations are currently being prepared and will be provided to the Fire Department upon completion.

6. Proposed fire protection of all structures:

   All of the structures are proposed to have a sprinkler system. Fire protection is currently provided by an existing onsite hydrant and hydrants within Commercial Street in the vicinity of the site.

7. Hydrant locations:

   Multiple new hydrants are identified on the preliminary Utility Plan. The Fire Department should review and provide any additional information necessary regarding placement and locations of fire hydrants on the site. All hydrants to be installed shall comply with the Portland Water District and Portland Fire Department standards pertaining to manufacturer, style, and installation specifications.

8. Water main[s] size and location:

   The site will be served by an 8" water main that will extend off the 12" main in Commercial along the east end of the site. There is an existing fire line supply meter serving the property. Below the meter pit, the project water main size will be a minimum of 6" to serve the development site.

9. Access to all structures [min. 2 sides]:

   The accompanying site plan depicts the site's access conditions that include access to two or more sides of the buildings.

10. A Code Summary shall be included referencing NFPA 1 and all Fire Department Technical Standards.

- **NFPA 1 – Chapter 18 Fire Department Access and Water Supply**

18.2 Fire Department Access

The project access conditions for east to west include an entrance at the eastern side of the site generally in the location of an existing graveled lot opposite the Star Match Building. A primary access will be available from the existing driveway in the middle of the property. A third, secondary driveway is proposed at the west end of the site off Commercial Street. The separation between all driveways will be at least 700 feet. The driveways will be greater than 24 feet in width which satisfies NFPA 1 18.2.3.4.1.1 that requires a minimum width of 20 ft.

Per NFPA 1 Chapter 18.2.3.2.1 the interior site access conditions will extend to within 50 ft. of at least one exterior door of all structures. This is satisfied on the site plan.

Per NFPA 1 Chapter 18.2.3.2.2 all first story floors shall be located not more than 150 ft. from the Fire Department access road. This is satisfied on the site plan.

NFPA 1 18.2.3.3 pertains to the number of access roads required and states that this determination is subject to the Authority Having Jurisdiction (AHJ).

69. 3.3.4 Minimum Separation Distances

Stantec reviewed NFPA 1 pertaining to separation distances between LP gas storage containers and buildings. In conducting this review, we contacted NGL Energy to determine the storage tank sizes currently on their property. NGL has two 30,000 gal. tanks, one 45,000 gal. tank and two 60,000 gal. tanks on the property. Per Section 69.3.3.1 and Table 69.3.3.1 of NFPA 1 the required building setback from these tanks is 75 feet, hence we see no issue with the placement of the proposed Phase III and future Canal Landing buildings with respect to setbacks from aboveground LP storage tanks on the NGL site. These findings are subject to review and concurrence from the Portland Fire Department.

- **City of Portland Technical Manual Section 3 – Public Safety**

Part 3.4 Site Access Standards

3.4.1. Every dead-end roadway more than one hundred fifty (150') feet in length shall provide a turnaround at the closed end. Turnarounds shall be designed to facilitate future street connectivity and shall always be designed to the right (refer to Figure I-5).

Supporting evidence: The development site is located along Commercial Street which is accessible from either direction. A minimum of three points of access will be provided into the site.

3.4.2. Where possible, developments shall provide access for Fire Department vehicles to at least two sides of all structures. Access may be from streets, access roads, emergency access lanes, or parking areas.

Supporting evidence: As depicted on the site plans, the proposed building layout provides for a minimum two-sided access to all structures.

3.4.3. Building setbacks, where required by zoning, shall be adequate to allow for emergency vehicle access and related emergency response activities and shall be evaluated based on the following factors:

- *Building Height.*
- *Building Occupancy.*
- *Construction Type.*
- *Impediments to the Structures.*
- *Safety Features Provided.*

Supporting Evidence: The proposed development layout has contemplated emergency access conditions and provided for safe and efficient access for emergency vehicles.

3.4.4. Fire Dept. access roads shall extend to within 50' of an exterior door providing access to the interior of the structure.

Supporting Evidence: All buildings will be provided with an exterior entrance door that will be within 50' of a Fire Department access route.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Supporting Evidence: A minimum 9 ft. vertical clearance will be provided below any overhead signage or utilities entering the site. Generally speaking, all utilities will be underground.

3.4.6. Elevators shall be sized to accommodate an 80 x 24 inch stretcher.

Supporting evidence: There are no elevators proposed for the project.

3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.

Supporting Evidence: The applicant will work with the City's Public Services Division to assign street addresses and numbering to meet City standards.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

STANTEC CONSULTING SERVICES INC.

Stephen R. Bushey, P.E.
Associate
Phone: (207) 887-3406
Fax: (207) 883-3376
stephen.bushey@stantec.com

Attachments – Amended Fire Protection Plan

c: Phineas Sprague, Jr. – New Yard LLC
Clint Marshall

V:\1953\active\195350129\Admin\Correspondence Out\Ability to Serve\ltr_gautreau_fire-dept_20171207.docx

NORTH

U.S. ROUTE 1A WEST COMMERCIAL STREET

WEST COMMERCIAL STREET

DANFORTH ST.

EXTENTSON OF EMERY ST.

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0

BLDG. D
80'x60'
4,800 S.F.

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

PROPOSED HYDRANT

EXISTING HYDRANT

REMAINING AREA OF NORTH PORTION = ±294,081 S.F. ±6.75 ACRES CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

REMAINING AREA OF SOUTH PORTION = ±260,844 S.F. ±5.99 ACRES TO SPRING HIGH TIDE CANAL LANDING, LLC CCRD BOOK 32239 PAGE 148

LAND RETAINED BY NEW YARD, LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

MAINE RAILROAD CORRIDOR ACQUIRED BY MDOT

FORMER HARBOR COMMISSIONERS LINE OF 1829 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

BOAT RAMP #1 (CONSTRUCTED FALL 2013)

EXISTING WALL

DILAPIDATED PIER

ABANDONED HYDRANT

GRAVEL ROAD

PAVED

GAS METERS

GRANITE CURB

SWITCH

EX. VALVE

EX. UGE

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

EXISTING BUILDING

PROPOSED BUILDING

NOTE

1. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE TEMPORARY ACCESS AND EGRESS FOR THE PROJECT WILL BE VIA THE EXISTING DRIVEWAY NEAR THE CASCO BAY BRIDGE DURING THE IMT CONSTRUCTION. NEW YARD, LLC / CANAL LANDING, LLC SHALL COORDINATE WITH THE MEDOT'S CONTRACTOR FOR ALL TEMPORARY ACCESS PROVISIONS INCLUDING THE PREPARATION OF A CONSTRUCTION MANAGEMENT PLAN.
2. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE APPLICANT SHALL RESERVE ONE OR MORE AREAS FOR BICYCLE PARKING UP TO FIVE (5) BICYCLES. THE APPLICANT RESERVES THE RIGHT TO MOVE THESE BICYCLE PARKING AREAS FROM TIME TO TIME DEPENDING ON BOAT YARD ACTIVITIES. A MOVEABLE BIKE RACK SHALL BE PROVIDED AT THESE LOCATIONS TO ALLOW FOR BIKE SECURITY.
3. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL CANAL LANDING LLC SHALL MAINTAIN A 30 FOOT WIDE ACCESS ROUTE AS GENERALLY DEPICTED ON THIS PLAN AT ALL TIMES. THE ROUTE MAY VARY TO ALLOW FOR THE PLACEMENT OF VESSELS ON THE SITE.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
FIRE PROTECTION PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

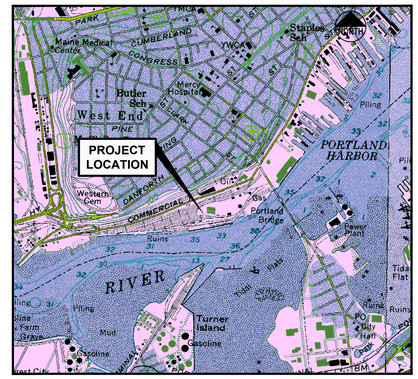
DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	1" = 50'
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-UTILITY		
SHEET	C-11.0		

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

V:\1953\active\195350129\Cadd\Permit Set\dwg\PHASE III PERMIT\3091.04-UTILITY.dwg pfilletaz 12/14/2017 2:34 PM

SITE DEVELOPMENT PLANS
FOR
CANAL LANDING
NEW YARD EXPANSION
PORTLAND, MAINE
PERMIT DOCUMENTS
OCTOBER 2017

PROJECT PARCEL SITE			
ZONING: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)			
PORTLAND TAX ASSESSOR'S MAP AND LOT NUMBERS			
MAP	BLOCK	LOTS	OWNER
59	A	1, 2, 5, 6, 7,8, 9, 10, 11	MAINE DEPARTMENT OF TRANSPORTATION
59	A	3, 4	NEW YARD LLC
60	F	1,2,3, 4	CANAL LANDING, LLC
71	F	2,4,5,6	CANAL LANDING, LLC



LOCATION MAP
N.T.S.

OWNER / APPLICANT:
CANAL LANDING, LLC
101 WEST COMMERCIAL STREET
PORTLAND, ME 04101
ATTN: PHINEAS SPRAGUE, JR

REFERENCE PLANS:
1. STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP "LAND ACQUISITIONS" BY OWEN HASKELL, INC. DATED APRIL 2014. D.O.T. FILE No. 3-595.
2. "BOUNDARY AND TOPOGRAPHIC SURVEY - WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB & THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014. D.O.T. FILE NO. 3-595.
3. "LAND ON WEST COMMERCIAL STREET, PORTLAND, MAINE MAINE CENTRAL RAILROAD, CO. TO CANAL LANDING LLC" BY OWEN HASKELL, INC. DATED APRIL 29,2015.

NOTES
1. IN ACCORDANCE WITH A SETTLEMENT AGREEMENT THE MAINE DEPARTMENT OF TRANSPORTATION ACQUIRED BY EMINENT DOMAIN TAKING APPROXIMATELY 17.9 ACRES OF LAND FORMERLY CONTROLLED BY NEW YARD, LLC AND AS DEPICTED ON SITE DEVELOPMENT PLANS ORIGINALLY APPROVED AND SUBSEQUENTLY AMENDED AND LAST APPROVED ON OCTOBER 22, 2013.
2. SEE DEVELOPMENT PLANS FOR PORTLAND INTERNATIONAL MARINE TERMINAL BY HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION FOR INFORMATION RELATED TO IMT EXPANSION AND SITE DEVELOPMENT ACTIVITY.
3. THE AMENDED DRAWINGS AS INDICATED IN THE INDEX BELOW ARE INTENDED TO SUPERCEDE THE APPROVED PLANS DATED 09.20.2013. PREVIOUSLY APPROVED SHEETS, NOT OTHERWISE CONTAINED IN THIS SUBMISSION WILL CONTINUE TO APPLY.

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C-1.0 COVER SHEET
C-1.1 GENERAL NOTES AND LEGEND
C-1.2 BOUNDARY SURVEY
C-1.2A BOUNDARY AND TOPOGRAPHIC SURVEY 1 OF 2 (MDOT PLANS)
C-1.2B BOUNDARY AND TOPOGRAPHIC SURVEY 2 OF 2 (MDOT PLANS)
C-1.3 EXISTING CONDITIONS PLAN
C-2.1 SITE LAYOUT PLAN
C-2.2 AMENDED OVERALL PROJECT PLAN
C-2.4 TEMPORARY ACCESS PLAN
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C-4.1 UTILITY PLAN
C-6.1 EROSION AND SEDIMENT CONTROL PLAN
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C-6.3 EROSION AND SEDIMENT CONTROL NARRATIVE
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C-8.3 UTILITY DETAILS
C-8.4 STORM DRAIN SYSTEM DETAILS
C-11.0 FIRE PROTECTION PLAN

UTILITIES
WATER
ATTN: ROBERT BARTELLS
PORTLAND WATER DISTRICT
225 DOUGLAS STREET
P.O. BOX 3533
PORTLAND, MAINE 04104
207.761.8310

SEWER
ATTN:BRAD ROLAND, P.E.
CITY OF PORTLAND
PUBLIC SERVICES ENGINEERING DEPT.
55 PORTLAND STREET
PORTLAND, MAINE 04102
207.874.8840

POWER
ATTN: JAMIE COUGH
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.828.2882

TELEPHONE
ATTN: SCOT DERRIG
FAIRPOINT COMMUNICATIONS
ONE DAVIS FARM ROAD
PORTLAND, MAINE 04103
207.797.1842

CABLE
ATTN: MARK PELLETIER
TIME WARNER CABLE
118 JOHNSON ROAD
PORTLAND, MAINE 04102
877.546.0962

NATURAL GAS
ATTN:SCOTT CARPENTER
UNITIL / FORMERLY NORTHERN UTILITIES
1075 FOREST AVENEUE
PORTLAND, ME 04103
207.541.2505

CALL BEFORE YOU DIG:
1.888.DIGSAFE (1.888.344.7233)
DIG SAFE MAINE

PERMITS / APPROVALS

LOCAL	GOVERNING BODY	STATUS
SITE PLAN, SHORELAND ZONING AND SUBDIVISION REVIEW CONDITIONAL USE PERMIT	CITY OF PORTLAND PLANNING AUTHORITY CITY HALL 389 CONGRESS STREET PORTLAND, MAINE 04101 207.874.8699 CONTACT: BARBARA BARHYDT	PRELIMINARY PLAN SUBMISSION 08.21.12 FINAL PLAN APPROVED 12.18.12 AMENDED SITE PLAN SUBMISSION 08.27.13 AMENDED SITE PLAN APPLICATION FOR PHASE 1B 10.22.13 AMENDED SITE PLAN APPLICATION FILED 06.27.14 (APPROVED 08.12.14) PRELIMINARY PHASE III AMENDED SITE PLAN APPLICATION FILED 06.15.15 FINAL PHASE III AMENDED SITE PLAN APPLICATION FILED 09.04.15
BUILDING AND DEMOLITION PERMITS	CITY OF PORTLAND CODE ENFORCEMENT OFFICE CITY HALL 389 CONGRESS STREET PORTLAND, MAINE 04101 207.874.8703	TO BE FILED PRIOR TO CONSTRUCTION BY CONTRACTOR
STREET OPENING PERMIT	CITY OF PORTLAND PUBLIC SERVICES DIVISION 55 PORTLAND STREET PORTLAND, MAINE 04101 207.874.8801	TO BE FILED PRIOR TO CONSTRUCTION BY CONTRACTOR
PORTLAND HARBOR COMMISSIONER REVIEW	BOARD OF HARBOR COMMISSIONER 2 PORTLAND FISH PIER (SUITE 105) MARINE TRADE CENTER PORTLAND, MAINE 04101 207.772.8121 CONTACT: JEFF C. LIICK	APPROVED 01.10.13 AMENDED APPLICATION AND HCR PENDING AS OF 08.24.15

STATE	GOVERNING BODY	STATUS
SITE LOCATION OF DEVELOPMENT	CITY OF PORTLAND PLANNING AUTHORITY DELEGATED REVIEW AUTHORITY CITY HALL, 389 CONGRESS STREET 207.874.8699 CONTACT: BARBARA BARHYDT	FILED UNDER CITY OF PORTLAND DELEGATED REVIEW
NATURAL RESOURCES PROTECTION ACT (NRPA) / MAINE CONSTRUCTION GENERAL PERMIT	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, MAINE 04103 207.822.6300 CONTACT: ALISON SIROIS	FILED NOVEMBER 2012 APPROVED PERMIT ORDER #L-25823-4E-A-N AMENDED APPLICATION MeDEP SUBMITTED 10.20.17
SUBMERGED LANDS LEASE	DEPARTMENT OF CONSERVATION BUREAU OF PARKS AND LANDS 22 STATE HOUSE STATION AUGUSTA, MAINE 04333 CONTACT: CAROL DIBELLO	FILED NOVEMBER 2012 APPROVED 03.01.13 FOR ORIGINAL PHASEI/II SHOREFRONT ACTIVITIES PHASE III APPLICATION SUBMISSION 10.20.17
TRAFFIC MOVEMENT PERMIT	CITY OF PORTLAND (DELEGATED AUTHORITY) CITY HALL 389 CONGRESS STREET PORTLAND, MAINE 04101 207.874.8703	NOT APPLICABLE

FEDERAL	GOVERNING BODY	STATUS
U.S. ARMY CORPS OF ENGINEERS SECTION 404 PERMIT	U.S. ARMY CORPS OF ENGINEERS RR2 BOX 1855 MANCHESTER, MAINE 04351 207.623.8367 CONTACT: JAY CLEMENT	FILED NOVEMBER 2012 APPROVED PERMIT ORDER #NAE-2012-02469 FOR ORIGINAL PHASEI/II SHOREFRONT ACTIVITIES PHASE III APPLICATION SUBMISSION PENDING AS OF 10.20.17

CONSULTANT LIST
CIVIL ENGINEER:
Stantec
482 PAYNE ROAD SCARBOROUGH COURT
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STEPHEN.BUSHEY@STANTEC.COM

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www.mohrseredin.com

TRAFFIC ENGINEER:
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207.657.6910
ATTN: RANDY DUNTON, P.E.
www.gorrillpalmer.com

SURVEYOR:
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FALMOUTH, ME 04105
207.774.0424
ATTN: JOHN SWAN, P.L.S.
www.owenhaskell.com

GEOTECHNICAL:
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286 PORTLAND ROAD
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ATTN: TIM BOYCE, P.E.
www.swcole.com

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207.828.1272
ATTN: RIP PATTEN
www.crederellc.com

STRUCTURAL:
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GORHAM, ME 04038
207.839.8085
ATTN: ROGER GAGNON, P.E.

ATTORNEY:
Murray, Plumb & Murray
P.O. BOX 9785
PORTLAND, ME 04104
207.773.5651
ATTN: MICHAEL TRAISTER
www.mpmlaw.com

ELECTRICAL DESIGN:
Bartlett Design
942 WASHINGTON STREET
BATH, ME 04530
207.443.5447
ATTN: LARRY BARTLETT

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

ALL PERMITS ARE ANTICIPATED TO HAVE CONDITIONS ATTENDANT WITH THEIR APPROVAL. THE CONTRACTOR SHALL REVIEW ALL PERMITS AND THE CONDITIONS ATTENDANT WITH APPROVALS PRIOR TO THE START OF THE WORK. UNLESS OTHERWISE STIPULATED BY THE CONTRACT DOCUMENTS, THE CONTRACTOR IS REQUIRED TO COMPLY AND FULFILL ALL CONDITIONS OF APPROVAL.

REV	DATE	DESCRIPTION
5	12.07.17	REVISED FOR RESUBMISSION TO HARBOR COMMISSION
4	10.26.17	REVISED FOR DEP NRPAA AMENDMENT SUBMISSION
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE STEPHEN R. BUSHEY 12/07/17 REGISTERED PROFESSIONAL ENGINEER
P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT: CANAL LANDING AMENDED SITE PLAN
SHEET TITLE: COVER SHEET
CLIENT: CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	OCTOBER 2017
DESIGNED:	SRB	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-COV		
SHEET	C-1.0		

GENERAL NOTES

1. IN ADDITION TO THESE PLANS AND NOTES, THE CONTRACTOR SHALL REFER TO THE PROJECT MANUAL OR MOST CURRENT MDOT SPECIFICATIONS FOR CONSTRUCTION SPECIFICATIONS AND BIDDING PROCEDURES.

2. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE U.S DEPARTMENT OF THE ARMY CORPS OF ENGINEERS, LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.

3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCE, PAVING, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS. ENTRANCES IN MOST LOCATIONS REQUIRE STRUCTURAL SLABS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR INFORMATION ON THE STRUCTURAL SLAB ENTRANCES.

4. ALL REQUIRED AND NECESSARY INSPECTIONS AND OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSIONS AND THE FINAL SERVICE CONNECTIONS.

5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS, AT ITS SOLE COST.

6. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE APPLICANT AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR THE CITY, AT NO ADDITIONAL COST TO THE OWNER.

7. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.

8. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE PROJECT SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SHALL APPLY AT NO EXTRA COST TO THE OWNER.

9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS THROUGHOUT THE PROJECT AND PROVIDING THE OWNER WITH A SET OF ELECTRONIC FINAL RECORD DRAWINGS WHEN THE PROJECT IS COMPLETE.

10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AND ALL ADJACENT PROPERTIES INCLUDING NGL-NE SITE AND MDOT MAINTENANCE BUILDING AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH OUT THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACT OR CHANGES TO SITE ACCESS CONDITIONS.

11. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMANCE OF WORK IN ACCORDANCE WITH ALL AREMA SAFETY STANDARDS AND SHALL COOPERATE FULLY WITH REPRESENTATIVES OF PAN AM RAILWAYS, MDOT, AND UNITIL AS MAY BE REQUIRED.

PERMITTING NOTES

1. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF A MAINE DEP NATURAL RESOURCES PROTECTION ACT PERMIT AS AMENDED FOR ACTIVITIES WITHIN 75' OF THE RIVER, WHICH WILL BE MADE A PART OF THE CONTRACT BID DOCUMENTS.

2. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF THE AMENDED SITE PLAN REVIEW PERMIT FROM THE CITY OF PORTLAND WHICH WILL BE MADE A PART OF THE CONTRACT BID DOCUMENTS. THE CONSTRUCTION WILL BE GOVERNED BY THE ZONING ORDINANCES WHICH ARE AVAILABLE FOR VIEWING AT THE OFFICE OF THE ENGINEER OR THE MUNICIPAL OFFICE.

3. THE PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF THE PORTLAND HARBOR COMMISSION APPROVAL AS AMENDED WHICH WILL BE MADE PART OF THE CONTRACT BID DOCUMENTS.

4. THE CONTRACTOR SHALL REVIEW THE ABOVE-REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.

5. THE PROJECT CONSTRUCTION IS SUBJECT TO ALL REQUIREMENTS OF THE VOLUNTARY RESPONSE ACTION PLAN AS PREPARED BY AMEC ON BEHALF OF UNITIL FOR THE NORTHERN UTILITIES PROPERTIES. CRRDERE ASSOCIATES IS RESPONSIBLE FOR ENVIRONMENTAL CONSULTATION FOR NEW YARD, LLC AND WILL BE PREPARING ENVIRONMENTAL REPORTS RELATED TO THE PAN AM PROPERTIES FOLLOWING THE PROPERTY TRANSFER AND APPROVED BY THE MAINE DEP. SEE SEPARATE DOCUMENTS PREPARED BY CREDERE ASSOCIATES WHICH ARE TO BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.

SITE LAYOUT NOTES

1. BITUMINOUS CONCRETE CURB, SLIPFORM CONCRETE CURB AND GRANITE CURB SHALL MEET THE REQUIREMENTS OF MDOT 702.001, 703.07 AND 609.04.

2. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR THE FACE OF THE BUILDING.

3. EXCEPT WHERE INDICATED OTHERWISE, THE PAVEMENT IS TO BE HEAVY DUTY PAVEMENT.

4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & STANDARDS OF THE MAINE DEPARTMENT OF TRANSPORTATION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.

GRADING & DRAINAGE NOTES:

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF N = 0.012 OR LESS.

2. AN "AS-BUILT" CERTIFICATION AND PLANS OF THE STORMWATER DRAINAGE SYSTEM IS REQUIRED PRIOR TO THE OWNER ACCEPTING ANY BUILDINGS AND PROPERTY. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT, WITH CONTRACTOR RESPONSIBLE FOR ANY ASSOCIATED COSTS.

3. A DETAILED O&M MANUAL FOR STORMWATER MANAGEMENT SYSTEMS IS (WILL BE) FILED WITH THE CITY OF PORTLAND DURING THE PERMIT REVIEW PROCESS. A SPECIFIC MANUAL HAS BEEN PREPARED FOR O&M OF THE DRAINAGE SYSTEM.

4. SEE EXISTING CONDITIONS FOR BENCHMARK INFORMATION.

5. SEE GRADING, DRAINAGE AND EROSION/SEDIMENT CONTROL FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.

6. ALL DISTURBED AREAS NOT TO BE PAVED, GRAVELED, SODDED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.

7. COMPACTION REQUIREMENTS :

LOCATION	MINIMUM COMPACTION*
SUBBASE AND BASE GRAVEL BELOW PAVED OR CONCRETE AREAS	95%
SUBGRADE FILL BELOW PAVED AREAS	90%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%
STRUCTURAL FILL WITHIN PROPOSED BUILDING AREA	95%
SELECT FILL ADJACENT BUILDING FOUNDATIONS, EXTERIOR FOUNDATIONS	95%

AND WITHIN 8 INCHES OF THE SLAB-ON-GRADE

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM-D-1557.

8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.

9. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND EXIT RAMPS ADJACENT TO THE BUILDING AND ALONG NEW CURBED AREAS.

10. PROVIDE STABILIZATION OR SEPARATION GEOTEXTILE FABRIC OVER UNSTABLE SOILS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH THE FINAL GEOTECHNICAL RECOMMENDATIONS.

11. NATIVE SOILS RANGE FROM GRANULAR TO CLAYEY AND SILTY. CARE MUST BE EXERCISED TO LIMIT DISTURBANCE OF THE BEARING SOILS. THE NATIVE CLAYEY OR SILTY SOILS SHOULD NOT BE PROOF-ROLLED. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.

LOCAL APPROVALS, WAIVERS AND VARIANCES

THE CONSTRUCTION PLANS ARE TO BE SUBMITTED TO THE CITY OF PORTLAND FOR THEIR REVIEW, APPROVAL AND RECORDS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

PENDING SITE PLAN CONDITIONS OF APPROVAL

STANDARD CONDITIONS OF APPROVAL

1. DEVELOP SITE ACCORDING TO PLAN: THE SITE SHALL BE DEVELOPED AND MAINTAINED AS DEPICTED ON THE SITE PLAN AND IN THE WRITTEN SUBMISSION OF THE APPLICANT. MODIFICATION OF ANY APPROVED SITE PLAN OR ALTERATION OF A PARCEL WHICH WAS THE SUBJECT OF SITE PLAN APPROVAL AFTER MAY 20, 1974, SHALL REQUIRE THE PRIOR APPROVAL OF A REVISED SITE PLAN BY THE PLANNING BOARD OR PLANNING AUTHORITY PURSUANT TO THE TERMS OF CHAPTER 14, LAND USE, OF THE PORTLAND CITY CODE.

2. SEPARATE BUILDING PERMITS ARE REQUIRED: THIS APPROVAL DOES NOT CONSTITUTE APPROVAL OF BUILDING PLANS, WHICH MUST BE REVIEWED AND APPROVED BY THE CITY OF PORTLAND'S INSPECTION DIVISION.

3. SITE PLAN EXPIRATION: THE SITE PLAN APPROVAL WILL BE DEEMED TO HAVE EXPIRED UNLESS WORK HAS COMMENCED WITHIN ONE (1) YEAR OF THE APPROVAL OR WITHIN A TIME PERIOD UP TO THREE (3) YEARS FROM THE APPROVAL DATE AS AGREED UPON IN WRITING BY THE CITY AND THE APPLICANT. REQUESTS TO EXTEND APPROVALS MUST BE RECEIVED BEFORE THE ONE (1) YEAR EXPIRATION DATE.

4. PERFORMANCE GUARANTEE AND INSPECTION FEES: A PERFORMANCE GUARANTEE COVERING THE SITE IMPROVEMENTS, INSPECTION FEE PAYMENT OF 2.0% OF THE GUARANTEE AMOUNT AND SEVEN (7) FINAL SETS OF PLANS MUST BE SUBMITTED TO AND APPROVED BY THE PLANNING DIVISION AND PUBLIC SERVICES DEPARTMENT PRIOR TO THE RELEASE OF A BUILDING PERMIT, STREET OPENING PERMIT OR CERTIFICATE OF OCCUPANCY FOR SITE PLANS. IF YOU NEED TO MAKE ANY MODIFICATIONS TO THE APPROVED PLANS, YOU MUST SUBMIT A REVISED SITE PLAN APPLICATION FOR STAFF REVIEW AND APPROVAL.

5. DEFECT GUARANTEE: A DEFECT GUARANTEE, CONSISTING OF 10% OF THE PERFORMANCE GUARANTEE, MUST BE POSTED BEFORE THE PERFORMANCE GUARANTEE WILL BE RELEASED.

6. PRECONSTRUCTION MEETING: PRIOR TO THE RELEASE OF A BUILDING PERMIT OR SITE CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE. THIS MEETING WILL BE HELD WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC SERVICE'S REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE DEVELOPMENT REVIEW COORDINATOR WILL CONFIRM THAT THE CONTRACTOR IS WORKING FROM THE APPROVED SITE PLAN. THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRE-CONSTRUCTION MEETING (IF APPLICABLE).

7. DEPARTMENT OF PUBLIC SERVICES PERMITS: IF WORK WILL OCCUR WITHIN THE PUBLIC RIGHT-OF-WAY SUCH AS UTILITIES, CURB, SIDEWALK AND DRIVEWAY CONSTRUCTION, A STREET OPENING PERMIT(S) IS REQUIRED FOR YOUR SITE. PLEASE CONTACT CAROL MERRITT AT 874-8300, EXT. 8828. (ONLY EXCAVATORS LICENSED BY THE CITY OF PORTLAND ARE ELIGIBLE.)

8. AS-BUILT FINAL PLANS: FINAL SETS OF AS-BUILT PLANS SHALL BE SUBMITTED DIGITALLY TO THE PLANNING DIVISION, ON A CD OR DVD, IN AUTOCAD FORMAT (*.DWG), RELEASE AUTOCAD 2005 OR GREATER.

9. STORMWATER MANAGEMENT: THAT THE DEVELOPER/ CONTRACTOR/ SUBCONTRACTOR MUST COMPLY WITH CONDITIONS OF THE CONSTRUCTION STORMWATER MANAGEMENT PLAN AND SEDIMENT & EROSION CONTROL PLAN BASED ON CITY STANDARDS AND STATE GUIDELINES; THAT THE OWNER/OPERATOR OF THE APPROVED STORMWATER MANAGEMENT SYSTEM AND ALL ASSIGNS SHALL COMPLY WITH THE CONDITIONS OF CHAPTER 32 STORMWATER INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT, WHICH SPECIFIES THE ANNUAL INSPECTIONS AND REPORTING REQUIREMENTS; AND THAT A MAINTENANCE AGREEMENT FOR THE STORMWATER DRAINAGE SYSTEM, AS ATTACHED, OR IN SUBSTANTIALLY THE SAME FORM WITH ANY CHANGES TO BE APPROVED BY CORPORATION COUNSEL, SHALL BE SUBMITTED AND SIGNED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY WITH A COPY TO THE DEPARTMENT OF PUBLIC SERVICES.

PENDING WAIVERS (SUBJECT TO AMENDED SITE PLAN REVIEW)

UTILITY NOTES

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE SITE CONTRACTOR TO WITHIN 5 FEET OF THE BUILDINGS, AT A LOCATION COORDINATED WITH THE MEP CONTRACTOR(S) AND THE BUILDING PLANS. SITE WORK WITHIN 5 FEET OF UNDERSLAB UTILITIES SHALL CONSIST OF TRENCHING AND BACKFILLING. ACTUAL UTILITY INSTALLATION SHALL BE BY THE MEP CONTRACTOR. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE GENERAL CONTRACTOR.

2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH FAIRPOINT COMMUNICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.

3. ALL SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE MAINE STATE PLUMBING CODE AND CITY OF PORTLAND PUBLIC SERVICES DIVISION. CONNECTIONS TO THE 42" SAN. SEWER AND 24" CSO LINE SHALL BE PERFORMED IN ACCORDANCE WITH CITY OF PORTLAND PUBLIC SERVICES DIVISION RECOMMENDATIONS AND REGULATIONS.

4. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, CONDUIT AND BACKFILLING ASSOCIATED WITH UNDERGROUND POWER, COMMUNICATIONS AND CABLE.

5. COORDINATE ALL OTHER UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY. ALL UTILITY WORK SHALL CONFORM TO THE STANDARDS OF THE UTILITY COMPANY AND PROJECT SPECIFICATIONS, WHICHEVER IS MORE STRINGENT, AT NO EXTRA EXPENSE TO THE OWNER.

6. THE LOCATIONS OF THE NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE SERVING UTILITY COMPANY, PROJECT ARCHITECTS AND MEP DESIGNERS.

7. UNDERGROUND ELECTRICAL, CONDUIT MATERIAL AND INSTALLATION SHALL CONFORM TO CENTRAL MAINE POWER STANDARDS AND PROJECT SPECIFICATIONS, WHICH EVER IS MORE STRINGENT. THE EXISTING 115KV TRANSMISSION LINE SHALL BE MARKED/FLAGGED AND PROTECTED DURING CONSTRUCTION. WORK ADJACENT TO THE UNE SHALL BE MONITORED BY CENTRAL MAINE POWER.

8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OR WORK TO FINISH GRADE.

9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.

10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.

11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL, AT NO EXTRA EXPENSE TO THE OWNER.

12. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.

13. THE CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION AND PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOB SITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.

14. REMOVAL AND RELOCATION OF THE EXISTING GAS RELATED FACILITIES SHALL BE COORDINATED WITH UNITIL AND THEIR ASSIGNS. CONTRACTOR TO COORDINATE WITH UNITIL'S CONTRACTOR FOR RELOCATION OF THE 8" GAS LINE AND INSTALLATION OF VAULT (SEE UTILITY PLAN FOR LOCATION).

EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES, CLEARING AND GRADING LIMITS SHALL BE STAKED BY THE CONTRACTOR BASED ON THE LIMITS OF GRADING SHOWN ON THE DRAWINGS AND ACCEPTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. AFTER THE CLEARING AND GRADING LIMITS HAVE BEEN ACCEPTED, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES, SEDIMENT BARRIERS AND THE CONSTRUCTION ENTRANCES ASSOCIATED WITH THE PROJECT.

2. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCHED AS SOON AS POSSIBLE. TEMPORARY/PERMANENT SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL PROJECT PREPARED FOR THIS PROJECT.

3. PRIOR TO PAVING OR GRAVEL PLACEMENT, THE CONTRACTOR SHALL REMOVE SILT FROM ALL STORM LINES AND APPURTANCES.

4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.

5. SILT BARIRIERS SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.

6. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCES AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT FUNCTIONS TO CAPTURE MUD FROM THE TIRES OF CONSTRUCTION VEHICLES DURING CONSTRUCTION. THE PURPOSE OF THE CONSTRUCTION ENTRANCE IS TO KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD. SWEEPING OF THE ROADWAYS SHALL BE PERFORMED BY THE CONTRACTOR ON AN AS NEEDED BASIS, BUT AT A MINIMUM ONCE A WEEK.

7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.

8. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE WHICH CAUSE THE LEAST PRACTICAL UNPROTECTED DENUDED AREAS ON THE SITE DURING CONSTRUCTION.

9. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION/SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES AS ENFORCED BY THE MEDEP OR LOCAL AGENCIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.

10. A FULL EROSION/SEDIMENTATION CONTROL PLAN ACCOMPANIES THIS DRAWING SET AND IS ALSO CONTAINED IN THE DIV 312513 SPECIFICATIONS.

11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS AS SHOWN AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.

12. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAIN STORM OF 0.25 INCHES OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE FILTER EFFICIENCY. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 OF THE STRUCTURE HEIGHT.

13. INSTALL CURLEX EROSION CONTROL MAT OR EQUAL ON ALL SLOPES STEEPER THAN 4:1. TURF REINFORCEMENT (NORTH AMERICAN GREEN OR EQUAL) SHALL BE USED ON SLOPES STEPPER THAN 3:1 IF NOT CALLED OUT FOR RIPRAP STABILIZATION.

14. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, CUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003".

ZONING INFORMATION

ZONE: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)

PERMITTED USES: MARINE REPAIR SERVICES / BOAT REPAIR YARD

CONDITIONAL USE PERMIT: MARINE RETAIL

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	NONE	17.77 AC
MINIMUM LOT FRONTAGE	NONE	<1,910 FT
MINIMUM YARD DIMENSIONS		
FRONT	NONE	FT
SIDE	NONE	FT
REAR	NONE	N/A
SETBACK FROM PIER LINE	5 FT	FT
MAXIMUM LOT COVERAGE	100%	<20 %
MAXIMUM BUILDING HEIGHT	75 FT (CONDITIONAL)	<45 (PHASE III ONLY)

EXISTING

- IRON PIPE OR ROD FND
- MONUMENT FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- COMMUNICATION MANHOLE
- DRAINAGE MANHOLE
- ELECTRIC MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- SIGN
- FENCE
- EDGE OF PAVEMENT
- CURB
- OHW — OVERHEAD WIRES
- UGE — UNDERGROUND ELECTRIC
- T — TELEPHONE
- W — WATER LINE
- G — GAS LINE
- SS — SANITARY SEWER
- SD — STORM DRAIN
- 50 — 1' CONTOUR
- MONITORING WELL
- + 10.00 — ELEVATIONS DERIVED FROM SOUNDING ON PLAN REF. 7
- × 10.00 — ELEVATIONS DERIVED FROM
- TREE
- BUILDING
- RAIL TRACKS
- RIPRAP

PROPOSED

- BARRIER FREE SYMBOL
- SIGN
- SIGN LABEL
- GUIDERAIL - METAL
- GUIDERAIL - TIMBER
- FENCE - CHAINLINK
- FENCE - WOOD
- BUILDING / BUILDING ACCESS
- RETAINING WALL
- PEDESTRIAN CROSSWALK
- BOLLARD
- VERTICAL GRANITE CURB
- SLOPED GRANITE CURB
- CATCH BASIN
- 100 — CONTOUR LABEL
- DMH — DRAIN MANHOLE
- RIPRAP INLET APRON
- RIPRAP OUTLET APRON
- 1 : 2 : 2:1 — SLOPE DESIGNATION
- SPOT GRADE
- TC 92.5 / BC 92.0 — SPOT GRADE AT CURB (TC = TOP / BC = BOTTOM)
- WATER MARK
- 10"UD — UNDERDRAIN
- 12" SD L = 188' S = 0.005 — STORM DRAIN
- TREE LINE OR LIMIT OF CLEARING
- CURB STOP
- HYDRANT
- LIGHT POLE WITH FIXTURE(S)
- JERSEY BARRIER
- SMH — SANITARY SEWER MANHOLE
- TEST PIT
- T — TRANSFORMER PAD
- UTILITY POLE
- VALVE
- 6" SAN — SANITARY SEWER
- 6"W — WATER MAIN
- 2"G — GAS MAIN
- UGE — UNDERGROUND ELECTRIC
- OHE — OVERHEAD ELECTRIC
- RAIL TRACKS
- STONE BASE AT RAILROAD CROSSING
- TIMBERS AT RAILROAD CROSSING
- CONCRETE
- BOATYARD SURFACE

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

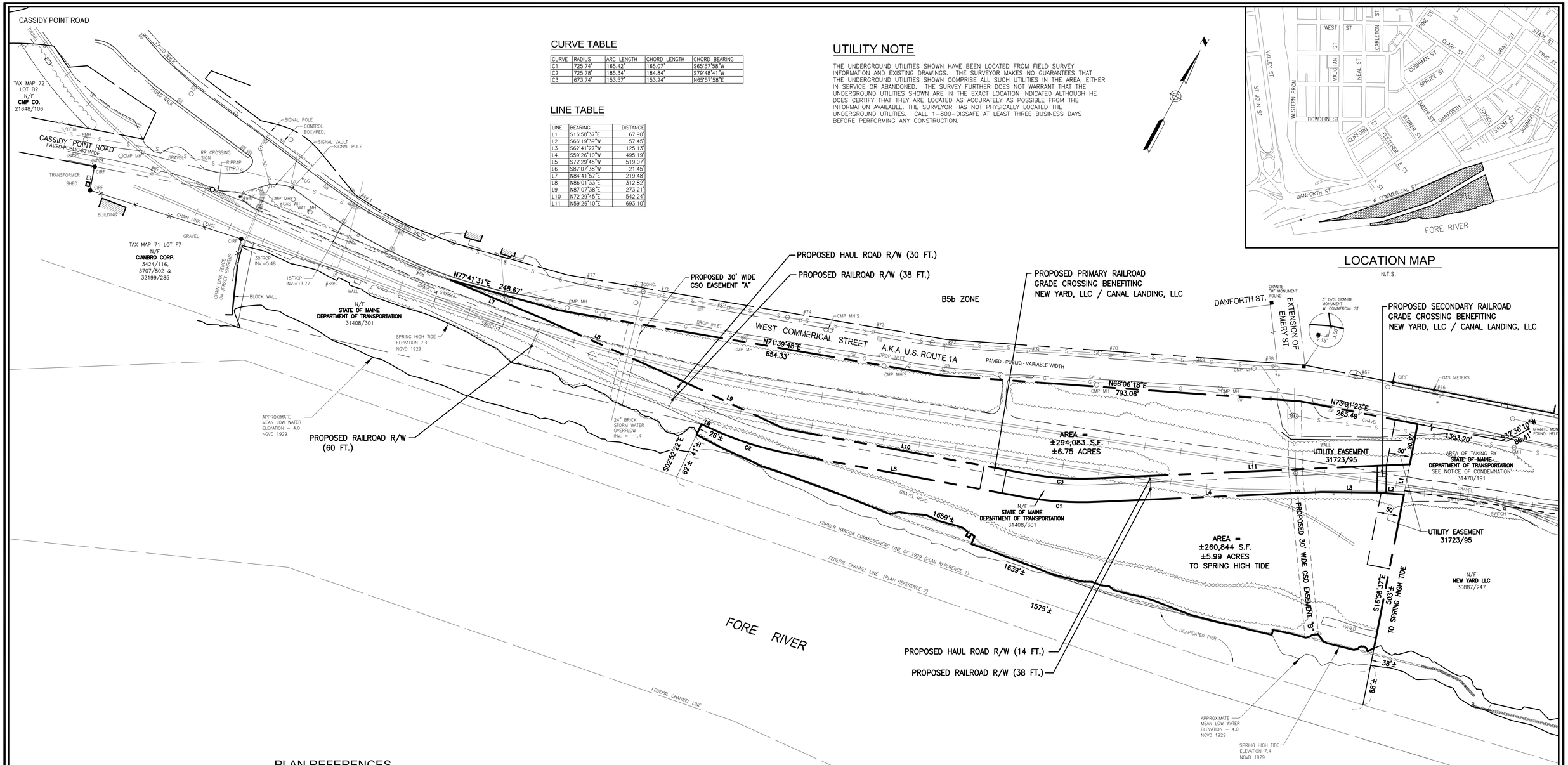
PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
GENERAL NOTES
AND LEGEND

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF
DESIGNED:	SRB
CHECKED:	SRB
FILE NAME:	3091.04-GENERAL NOTES
DATE:	DECEMBER 2017
SCALE:	N.T.S.
JOB NO.	195350129
SHEET	C-1.1



CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	725.74'	165.42'	165.07'	S65°57'58"W
C2	725.78'	185.34'	184.84'	S79°48'41"W
C3	673.74'	153.57'	153.24'	N65°57'58"E

LINE TABLE

LINE	BEARING	DISTANCE
L1	S16°58'37"E	67.90'
L2	S66°19'39"W	57.45'
L3	S62°41'27"W	125.13'
L4	S59°26'10"W	495.19'
L5	S72°29'45"W	519.07'
L6	S87°07'38"W	21.45'
L7	N84°41'57"E	219.48'
L8	N86°01'33"E	312.82'
L9	N87°07'38"E	273.21'
L10	N72°29'45"E	542.24'
L11	N59°26'10"E	693.10'

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEY FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION.

LOCATION MAP

N.T.S.

LEGEND

- IRON PIPE OR ROD FND
- MONUMENT FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- SIGN
- FENCE
- OHW — OVERHEAD WIRES
- G — GAS LINE
- S — SANITARY SEWER
- SD — STORM DRAIN
- SEAWALL
- MONITORING WELL
- GW — GAS WITNESS

GRAPHIC SCALE

0 50' 100' 200' 400'

PLAN REFERENCES

1. HARBOR LINES, PORTLAND HARBOR, MAINE U.S. ENGINEER OFFICE, BOSTON, MASS. JUNE 30, 1939.

2. PORTLAND HARBOR, PORTLAND, MAINE CONDITION SURVEY, 35 AND 45-FOOT CHANNELS, 45-FOOT ANCHORAGE, 35-FOOT TURNING BASINS, DATED SEPT. 13, 2011 U.S. ARMY CORPS OF ENGINEER NEW ENGLAND DISTRICT SHEET ID. NO. V-105.

3. COMMERCIAL STREET DRAINAGE AND TRAFFIC IMPROVEMENTS CIVIL PLAN MADE BY CITY OF PORTLAND, MAINE PUBLIC WORKS DEPARTMENT ENGINEERING SECTION DATED JUNE 2007.

4. ALTA/ACSM LAND TITLE SURVEY ON WEST COMMERCIAL STREET, PORTLAND, MAINE, MADE FOR NEW YARD LLC, 98 FORE STREET, PORTLAND, MAINE DATED JULY 2, 2013, REVISED THROUGH SEPT. 23, 2013 BY OWEN HASKELL, INC. RECORDED IN PLAN BOOK 213 PAGE 352 AND 353.

5. "ALTA/ACSM LAND TITLE SURVEY AT WEST COMMERCIAL STREET, PORTLAND, MAINE MADE FOR BINGHAM MCCUTCHEN LLP" BY OWEN HASKELL, INC. DATED DEC. 18, 2006.

6. "LAND TITLE SURVEY ON DANFORTH AND WEST COMMERCIAL STREETS, PORTLAND, MAINE MADE FOR MERRILL INDUSTRIES, INC." BY OWEN HASKELL, INC. DATED JAN. 27, 2003 REVISED THROUGH AUGUST 30, 2005.

7. "STANDARD BOUNDARY SURVEY FOR PROPOSED ELECTRIC SUBSTATION WEST COMMERCIAL STREET PORTLAND, MAINE." MADE FOR CMP. CO. BY TITCOMB ASSOCIATES. RECORDED IN PLAN BOOK 204 PAGE 571.

8. "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP LAND ACQUISITIONS DOT FILE NO 3-595" BY OWEN HASKELL, INC. DATED APRIL 2014.

9. "LAND ON WEST COMMERCIAL STREET PORTLAND, MAINE, MAINE CENTRAL RAILROAD CO. TO CANAL LANDING, LLC" BY OWEN HASKELL, INC. DATED APRIL 30, 2015. RECORDED IN PLAN BOOK 215, PAGE 157.

GENERAL NOTES

1. OWNER OF RECORD:
   CANAL LANDING, LLC
   C.C.R.D. BOOK 32239 PAGE 148

2. BEARINGS ARE BASED ON STATE PLANE COORDINATES NAD 83 MAINE WEST.

3. THE FEDERAL CHANNEL LINE TAKEN FROM PLAN REFERENCE NO. 2 USING COORDINATES IN THE DIGITAL FORMAT OF SAID PLAN.

4. THE SEWER LINE SHOWN IS BASED ON THE LOCATION OF SEWER MANHOLES AND A PLAN TITLED "PORTLAND WATER DISTRICT PORTLAND, MAINE POLLUTION ABATEMENT FACILITIES CONTRACT NO. 3 LOWER FORE RIVER INTERCEPTOR SHEETS 23-28" BY CAMP DRESSER & MCKEE INC. DATED APRIL, 1963.

5. THE SUBJECT PARCEL IS IN THE DIVISION 18.5 WATERFRONT PORT DEVELOPMENT ZONE & DIVISION 26 SECTION 14-446 SHORE LAND REGULATION ZONE PER THE CITY OF PORTLAND CODE OF ORDINANCES LAND USE CHAPTER 14.

6. THE SUBJECT PARCEL IS IN ZONE C & ZONE A2 (ELEV. 10) AS SHOWN ON THE FLOOD INSURANCE RATE MAP 230051 0016B WITH AN EFFECTIVE DATE OF JULY 17, 1986.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

JUNE 2, 2015
DATE

RANDY R. LOUBIER, PLS NO. 2407

STATE OF MAINE
RANDY R. LOUBIER
2407
PROFESSIONAL LAND SURVEYOR

BOUNDARY SURVEY

ON

WEST COMMERCIAL STREET, PORTLAND, MAINE

MADE FOR OWNER OF RECORD

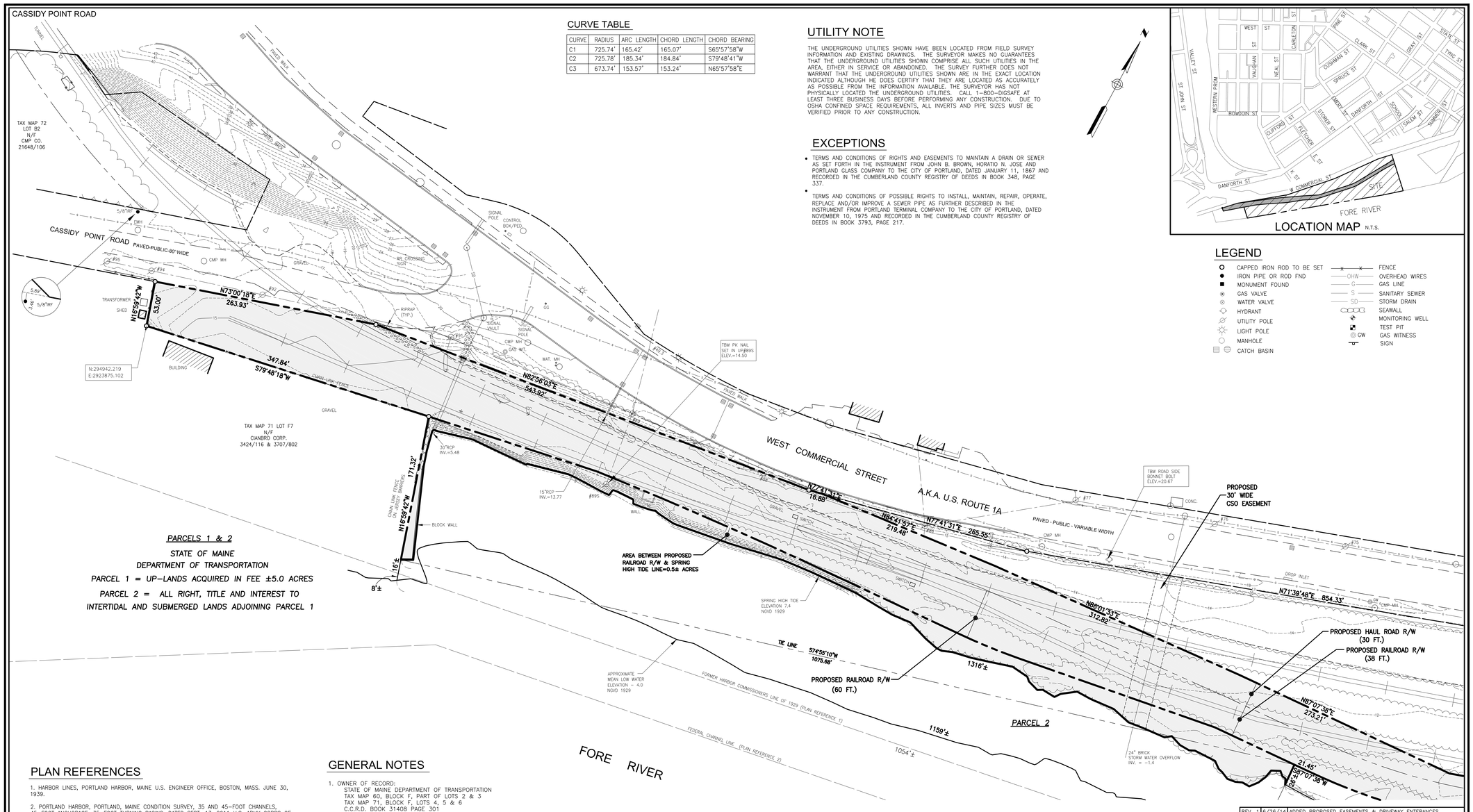
CANAL LANDING, LLC

10 WEST COMMERCAIL STREET, PORTLAND, ME 04101

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	RRL	Date	Job No.
Trace By	JLW	JUNE 2, 2015	2012-051 P
Check By	JWS	Scale	Drwg. No.
Book No.	FILE	1" = 100'	C-1.2

S:\2012\2012-051 P West Commercial New Yard LLC\12-051 Canal Landing.dwg, 6/2/2015 8:37:10 AM, CutePDF Writer



PARCELS 1 & 2

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
PARCEL 1 = UP-LANDS ACQUIRED IN FEE ±5.0 ACRES
PARCEL 2 = ALL RIGHT, TITLE AND INTEREST TO
INTERTIDAL AND SUBMERGED LANDS ADJOINING PARCEL 1

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	725.74'	165.42'	165.07'	S65°57'58"W
C2	725.78'	185.34'	184.84'	S79°48'41"W
C3	673.74'	153.57'	153.24'	N65°57'58"E

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEY FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

EXCEPTIONS

- TERMS AND CONDITIONS OF RIGHTS AND EASEMENTS TO MAINTAIN A DRAIN OR SEWER AS SET FORTH IN THE INSTRUMENT FROM JOHN B. BROWN, HORATIO N. JOSE AND PORTLAND GLASS COMPANY TO THE CITY OF PORTLAND, DATED JANUARY 11, 1867 AND RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 348, PAGE 337.
- TERMS AND CONDITIONS OF POSSIBLE RIGHTS TO INSTALL, MAINTAIN, REPAIR, OPERATE, REPLACE AND/OR IMPROVE A SEWER PIPE AS FURTHER DESCRIBED IN THE INSTRUMENT FROM PORTLAND TERMINAL COMPANY TO THE CITY OF PORTLAND, DATED NOVEMBER 10, 1975 AND RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 3793, PAGE 217.

LOCATION MAP N.T.S.

LEGEND

- CAPPED IRON ROD TO BE SET
- IRON PIPE OR ROD FND
- MONUMENT FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- FENCE
- OVERHEAD WIRES
- GAS LINE
- SANITARY SEWER
- STORM DRAIN
- SEAWALL
- MONITORING WELL
- TEST PIT
- GAS WITNESS
- SIGN

PLAN REFERENCES

1. HARBOR LINES, PORTLAND HARBOR, MAINE U.S. ENGINEER OFFICE, BOSTON, MASS. JUNE 30, 1939.
2. PORTLAND HARBOR, PORTLAND, MAINE CONDITION SURVEY, 35 AND 45-FOOT CHANNELS, 45-FOOT ANCHORAGE, 35-FOOT TURNING BASINS, DATED SEPT. 13, 2011 U.S. ARMY CORPS OF ENGINEER NEW ENGLAND DISTRICT SHEET ID. NO. V-105.
3. COMMERCIAL STREET DRAINAGE AND TRAFFIC IMPROVEMENTS CIVIL PLAN MADE BY CITY OF PORTLAND, MAINE PUBLIC WORKS DEPARTMENT ENGINEERING SECTION DATED JUNE 2007.
4. ALTA/ACSM LAND TITLE SURVEY ON WEST COMMERCIAL STREET, PORTLAND, MAINE, MADE FOR NEW YARD LLC, 98 FORE STREET, PORTLAND, MAINE DATED JULY 2, 2013, REVISED THROUGH SEPT. 23, 2013 BY OWEN HASKELL, INC. RECORDED IN PLAN BOOK 213 PAGE 352 AND 353.
5. "ALTA/ACSM LAND TITLE SURVEY AT WEST COMMERCIAL STREET, PORTLAND, MAINE MADE FOR BINGHAM MCCUTCHEN LLP" BY OWEN HASKELL, INC. DATED DEC. 18, 2006.
6. "LAND TITLE SURVEY ON DANFORTH AND WEST COMMERCIAL STREETS, PORTLAND, MAINE MADE FOR MERRILL INDUSTRIES, INC." BY OWEN HASKELL, INC. DATED JAN. 27, 2003 REVISED THROUGH AUGUST 30, 2005.
7. "STANDARD BOUNDARY SURVEY FOR PROPOSED ELECTRIC SUBSTATION WEST COMMERCIAL STREET PORTLAND, MAINE." MADE FOR CMP CO. BY TITCOMB ASSOCIATES. RECORDED IN PLAN BOOK 204 PAGE 571.

GENERAL NOTES

1. OWNER OF RECORD:
   STATE OF MAINE DEPARTMENT OF TRANSPORTATION
   TAX MAP 60, BLOCK F, PART OF LOTS 2 & 3
   TAX MAP 71, BLOCK F, LOTS 4, 5 & 6
   C.C.R.D. BOOK 31408 PAGE 301
2. BEARINGS ARE BASED ON STATE PLANE COORDINATES NAD 83 MAINE WEST.
3. THE FEDERAL CHANNEL LINE TAKEN FROM PLAN REFERENCE NO. 2 USING COORDINATES IN THE DIGITAL FORMAT OF SAID PLAN.
4. VERTICAL DATUM IS NGVD 1929 BASED UPON MAINE DEPARTMENT OF TRANSPORTATION DISK L 5 (NGS) RESET 1997 FOUND SET IN CONCRETE BRIDGE ABUTMENT THAT SUPPORTS THE BEACH STREET ON RAMP WHERE IT CONNECTS TO THE CASCO BAY BRIDGE.
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SCALE : 1" = 50'

0' 25' 50' 100'

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DATE

RANDY R. LOUBIER, PLS NO. 2407

SHEET 1 OF 2

REV.	1	6/26/14	ADDED PROPOSED EASEMENTS & DRIVEWAY ENTERANCES

STATE OF MAINE

DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP
16 STATE HOUSE STATION AUGUSTA, MAINE 04333-0016

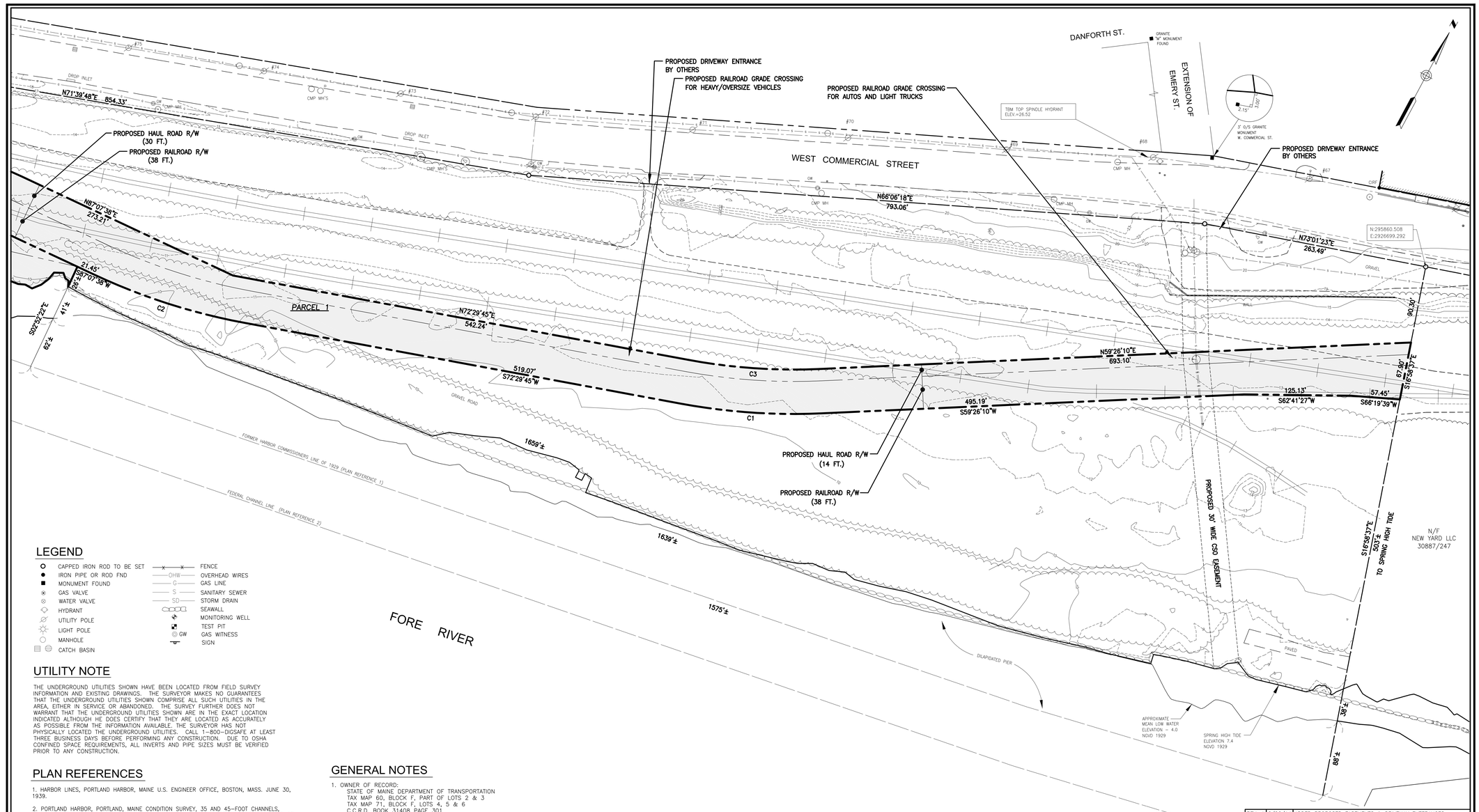
"BOUNDARY & TOPOGRAPHIC SURVEY"

WEST COMMERCIAL STREET, PORTLAND, CUMBERLAND COUNTY, MAINE

Date:	Scale	D.O.T. FILE NO. 3-595
APRIL 2014	1" = 50'	

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

C-1.2A



LEGEND

CAPPED IRON ROD TO BE SET	FENCE
IRON PIPE OR ROD FND	OVERHEAD WIRES
MONUMENT FOUND	GAS LINE
GAS VALVE	SANITARY SEWER
WATER VALVE	STORM DRAIN
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DATE

RANDY R. LOUBIER, PLS NO. 2407

SHEET 2 OF 2

REV.	6/26/14	ADDED PROPOSED EASEMENTS & DRIVEWAY ENTERANCES

STATE OF MAINE

DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP

16 STATE HOUSE STATION AUGUSTA, MAINE 04333-0016

"BOUNDARY & TOPOGRAPHIC SURVEY"

WEST COMMERCIAL STREET, PORTLAND, CUMBERLAND COUNTY, MAINE

Date:	Scale	D.O.T. FILE NO. 3-595
APRIL 2014	1" = 50'	

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424
PROFESSIONAL LAND SURVEYORS

NORTH

WEST COMMERCIAL STREET

U.S. ROUTE 1A WEST COMMERCIAL STREET

DANFORTH ST.

EXTENTSION OF EMERY ST.

B2b ZONE

WPDZ ZONE

PAVED - PUBLIC - VARIABLE WIDTH

EDGE OF PAVEMENT

GRANITE "M" MONUMENT FOUND

3' O/S GRANITE MONUMENT W. COMMERCIAL ST.

GAS METERS

IMT LOADING SLAB (UNDER CONSTRUCTION AUGUST 2015)

BUILDING B (COMPLETED WINTER 2014/2015)

EXISTING RELOCATED TRACK LOCATION (COMPLETED JULY 2015)

REMAINING AREA OF NORTH PORTION = ±294,083 S.F. ±6.75 ACRES CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

REMAINING AREA OF SOUTH PORTION = ±260,844 S.F. ±5.99 ACRES TO SPRING HIGH TIDE CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

EXISTING PINE TREES TO REMAIN

EXISTING BIRCH TREES TO REMAIN

EXISTING BIRCH CLUMP TO REMAIN

EXISTING PAVED APRON

GRAVEL DRIVEWAY

EXISTING WALL TO BE REMOVED

EXISTING GRANITE REVETMENT WALL TO BE RESTORED / REPAIRED AND NEW GRANULAR BACKFILL (MDOT 703.19 GRANULAR BORROW OR EQUIVALENT) PLACED BEHIND THE REVETMENT, TYP. SOME DREDGING OF ERODED SOIL ON WATER SIDE OF WALL MAY BE REQUIRED. THIS MATERIAL WILL BE RE-DEPOSITED FOLLOWING INSTALLATION OF A GEOTEXTILE FABRIC (MIRAFI FN300 OR EQUAL) BEHIND WALL.

EXISTING CSO OUTFALL

EXISTING DILAPIDATED PIER TO BE REMOVED

EXISTING FLOATS (INSTALLED SUMMER 2014)

EXISTING PIER/FLOATS

24" BRICK STORM WATER OVERFLOW INV. = -1.4

PROPOSED 30' WIDE ACCESS EASEMENT

UTILITY EASEMENT FROM PORTLAND TERMINAL COMPANY TO CANAL LANDING, LLC

SPRING HIGH TIDE OR HIGH ANNUAL TIDE - ELEV. 7.4' (NGVD 1929)

105' USACOE SETBACK LINE

50' HARBOR COMMISSION LINE

FEDERAL CHANNEL LINE

FORMER HARBOR COMMISSIONERS LINE OF 1929 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

APPROXIMATE MEAN LOW WATER ELEVATION = -5.26' NGVD 1929

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

ABANDONED HYDRANT

ABANDONED WATER

SIGN BASE

CONCRETE BLOCK

GRAVEL ROAD

DILAPIDATED WHARF

BOAT RAMP

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP" "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

NOTE

THE APPLICANT IS REQUESTING AFTER - THE FACT APPROVAL FOR CLEARING, GROUND STABILIZATION, INITIAL WALL REPAIRS AND SITE USE FOR PARKING AND STORAGE OF BOATS, TRAILERS, EMPLOYEE VEHICLES (NO OVERNIGHT) AND RELATED MATERIALS ANCILLARY TO NEW YARDS BUSINESS OPERATIONS IN ADVANCE OF THE AMENDED PHASE III APPROVAL IN ACCORDANCE WITH SECTION 14-532 (e)2 AND (e)3 OF THE CODE

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
5	12.07.17	REVISED FOR RESUBMISSION TO HARBOR COMMISSION
4	10.26.17	REVISED FOR DEP NRPAA AMENDMENT SUBMISSION
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/07/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
EXISTING CONDITIONS PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN: PBF	DATE: OCTOBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04 - EXISTING CONDITIONS	
SHEET	C-1.3

PROPOSED 30' WIDE CSO EASEMENT TO CITY OF PORTLAND

PHASE III HEAVY DUTY ASPHALT SURFACE - WESTERN ENTRANCE

PROSPECTIVE DRIVEWAY

STOP BAR

STOP SIGN

6' TALL VINYL COATED CHAIN LINK FENCE AROUND PERIMETER OF SECURED STORAGE AREA. THE APPLICANT RESERVES THE RIGHT TO INSTALL ACCESS GATES AT MULTIPLE LOCATIONS TO BE DETERMINED.

APPLICANT RESERVES THE RIGHT TO INSTALL A 6' HIGH CHAIN LINK FENCE AROUND THE PERIMETER FOR SECURITY PURPOSES.

GROUND SURFACE BETWEEN EXISTING EDGE OF PAVEMENT AND THE R.O.W. WILL REMAIN GENERALLY UNCHANGED UNTIL COORDINATION WITH THE WEST COMMERCIAL STREET CORRIDOR STUDY IS COMPLETED

BETULA NIGRA - RIVER BIRCH 5-6 FT CLUMPS - (TYP OF 4 CLUMPS IN FRONT OF BUILDING)

FORSYTHIA "NORTHERN GOLD" - 2-3' POTTED (TYP OF 14 IN FRONT OF BUILDING)

EXISTING GRAVEL SHOULDER TO REMAIN

STANDARD DUTY PAVEMENT

PHASE III HEAVY DUTY ASPHALT SURFACE - CENTRAL ENTRANCE

STOP BAR

PROJECT SIGN

STOP SIGN

PROJECT SIGN

EXISTING EDGE OF PAVEMENT TO REMAIN, (TYP.)

PROSPECTIVE DRIVEWAY

GRANITE "M" MONUMENT FOUND

3' O/S GRANITE MONUMENT W. COMMERCIAL ST.

DANFORTH ST.

EXTENTSION OF EMERY ST.

NORTH

LANE MARKINGS TO TRANSITION TO MARKINGS ESTABLISHED AS PART OF IMT EXPANSION PROJECT BY MAINEDOT.

STREET SECTION CONDITIONS ON THIS PLAN DO NOT REFLECT IMPROVEMENTS COMPLETED IN SUMMER/FALL OF 2015 AS PART OF THE IMT EXPANSION

TEMP. TRAILER TO BE RELOCATED FROM EXISTING NEW YARD REMAINDER PARCEL FOR USE AS A TEMPORARY OFFICE UNTIL BLDG. D IS COMPLETED.

PHASE III HEAVY DUTY ASPHALT SURFACE ENTRANCE

EASTERN ENTRANCE

STOP BAR

STOP SIGN

2' GRIND

AUTOMATED GATE SYSTEM

SNOW STORAGE

PROPOSED POLE MOUNTED LIGHT (SEE LIGHTING PLAN)

N/F CANAL LANDING, LLC C.C.R.D. BOOK 32239, PAGE 148

WEST COMMERCIAL STREET

U.S. ROUTE 1A WEST COMMERCIAL STREET

PAVED - PUBLIC - VARIABLE WIDTH

MULTI USE MARINE STORAGE AREA

THE APPLICANT IS SEEKING APPROVAL TO CONDUCT MARINE RELATED ACTIVITIES, INCLUDING BUT NOT LIMITED TO THE PARKING OF SEMI-TRAILERS RELATED TO IMT ACTIVITIES, THE TEMPORARY STORAGE OF MARINE RELATED PRODUCTS, CARGO OR EQUIPMENT, THE PARKING OF VEHICLES ASSOCIATED WITH MARINE ACTIVITIES, PROJECTS OR SIMILAR USES WITHIN THE OUTLINED AREA AS PART OF PHASE III. EXISTING GROUND WILL BE STRIPPED OF VEGETATION, PROOF ROLLED AND 2'-4" OF STONE/GRAVEL PLACED AS A SURFACE TREATMENT.

CB (BY MDOT)

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

10' MIN. BOATYARD SURFACE

PREPARED BOATYARD SURFACE FOR VESSEL DISPLAY AND MAINTENANCE, TYP

49 SPACES

CIP CONCRETE WALL

BUILDING ROOF OVERHANG

2 BIKE RACKS

CIP CONCRETE RAMP

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0
MARINE RETAIL/NEW YARD ADMINISTRATION

ENTRY
F.F.E.: 28.67

BLDG. D
80'x60'
4,800 S.F.

ENTRY

PREFAB OR CIP STAIRS

OVERHEAD DOOR

LOADING ZONE

ADA SIGN MOUNTED TO BUILDING

ADA SIGN

RAMP

PROPOSED SLIPFORM CURB (TYP)

UPPER PARKING

PREFAB OR CIP STAIRS (SEE NOTE 1)

IMT LOADING PAD (BY OTHERS)

OPTIONAL SWING GATE ASSEMBLY

24' DOUBLE SWING GATE (BY MEDOT)

CASING PIPES (x4)(INSTALLED 2014)

BETULA NIGRA - RIVER BIRCH 5-6 FT CLUMPS - (TYP OF 3 CLUMPS)

AUTOMATED GATE SYSTEM

PROPOSED HAUL ROAD CORRIDOR (14 FT) (BY MEDOT)

SNOW STORAGE

PHASE III

OPTIONAL CONCRETE PAD (TYP) (TBD BY APPLICANT)

CIP CONCRETE OR LARGE BLOCK MODULAR WALL

CB (BY MDOT)

PARCEL 1

MAINE RAILROAD CORRIDOR ACQUIRED BY MDOT

PHASE III

AUTOMATED OR MANUAL SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

RAILROAD BASE AND WOOD CROSSING INCLUDING SIGNAGE: MEDOT (AUGUST 2015)

PRIMARY BOAT YARD ACCESS 50' WIDE GRADE CROSSING BENEFITTING NEW YARD, LLC -SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

6' HIGH CHAIN LINK FENCE

PROPOSED RAILROAD R.O.W. (38 FT) (BY MEDOT)

CASING PIPES (x2)

FORSYTHIA "NORTHERN GOLD" - 2-3' POTTED (TYP OF 9)

SECONDARY BOAT YARD ACCESS - FOR USE BY PYS STAFF PRIMARILY

RAILROAD BASE AND WOOD CROSSING INCLUDING SIGNAGE BY MDOT (AUGUST 2015)

AUTOMATED OR MANUAL SLIDING OR SWING GATE SYSTEM TO BE INSTALLED

EXISTING BLDG. B 28,800 SF

EXISTING BLDG. A 19,200 SF

PROPOSED FLOATS AND GANGWAY (PERMITTING AND CONSTRUCTION BY OTHERS)

GANGWAY SYSTEM TO BE INSTALLED FOR ACCESS TO FLOAT SYSTEM (TYP.)

PROPOSED PIER EXTENSION BY OTHERS

CANAL LANDING HAS ACQUIRED LAND EXTENDING OUT TO MEAN LOW WATER ELEV. -4.0, (TYP.)

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

PRIMARY ACTIVITIES WITHIN THE SHOREFRONT AREA WILL BE BOAT AND BOAT TRAILER PARKING AND MAINTENANCE ACTIVITIES

1 OR 2 COURSES OF 2'x2'x8' CONCRETE BLOCKS TO BE ADDED TO THE TOP OF THE EXISTING GRANITE REVETMENT AND GEOTEXTILE FABRIC WITH STONE SHALL BE PLACED BEHIND THE WALL

REMAINING AREA OF BOATYARD PORTION 2,240.644 S.F. 0.05 ACRES TO BE LEASED BY NEW YARD, LLC FROM CANAL LANDING LLC (BOOK 32239, PAGE 148)

PHASE III

MATCH BOATYARD SURFACE WITH EXISTING (TYP)

PROPOSED 30' WIDE CSO EASEMENT TO CITY OF PORTLAND

REMOVE ANY MATERIAL WITHIN EASEMENT WHEN NECESSARY FOR MAINTENANCE OR REPAIRS BY CITY)

LAND RETAINED BY NEW YARD LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

DILAPIDATED PIER

ABANDONED HYDRANT

VESSEL PARKING SHOWN FOR ILLUSTRATION PURPOSES ONLY

APPROXIMATE MEAN LOW WATER ELEVATION -4.0 NGVD 1929

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

105' USACOE SETBACK LINE)

50' HARBOR COMMISSION SETBACK

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

EXISTING CSO OUTFALL

SPRING HIGH TIDE ELEVATION 7.4 (NGVD 1929)

EXISTING FLOATS

BOAT RAMP #1 (CONSTRUCTED FALL 2013)

FORMER HARBOR COMMISSIONERS LINE OF 1929 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

FORE RIVER

ZONING INFORMATION

ZONE: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)

PERMITTED USES: MARINE REPAIR SERVICES / BOAT REPAIR YARD

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	NONE	17.77 AC
MINIMUM LOT FRONTAGE	NONE	NONE
MINIMUM YARD DIMENSIONS		
FRONT	NONE	0 FT
SIDE	NONE	18.1 FT
REAR	NONE	N/A
SETBACK FROM PIER LINE	6 FT	>100 FT
MAXIMUM LOT COVERAGE	100%	9.6%
MAXIMUM BUILDING HEIGHT	75 FT (CONDITIONAL)	<45 FT

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP" "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN. 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING (PHASE III)
- PREPARED PERVIOUS SURFACE FOR VESSEL DISPLAY, STORAGE AND MAINTENANCE
- HEAVY DUTY PAVEMENT
- STANDARD DUTY PAVEMENT
- OPTIONAL CONCRETE PAD (TO BE DETERMINED BY APPLICANT)

NOTES

1. THE OWNER SHALL BE RESPONSIBLE TO REMOVE PROPOSED STRUCTURES I.E. STAIRS, RAMPS, ETC. WITHIN THE PROPOSED 30' WIDE EASEMENT OVER THE CSO LINE IN THE EVENT THAT THE CITY MUST HAVE ACCESS FOR MAINTENANCE AND REPAIRS TO THE PIPE.

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
5	01.19.18	REVISED PER CITY COMMENT
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 01/19/18 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

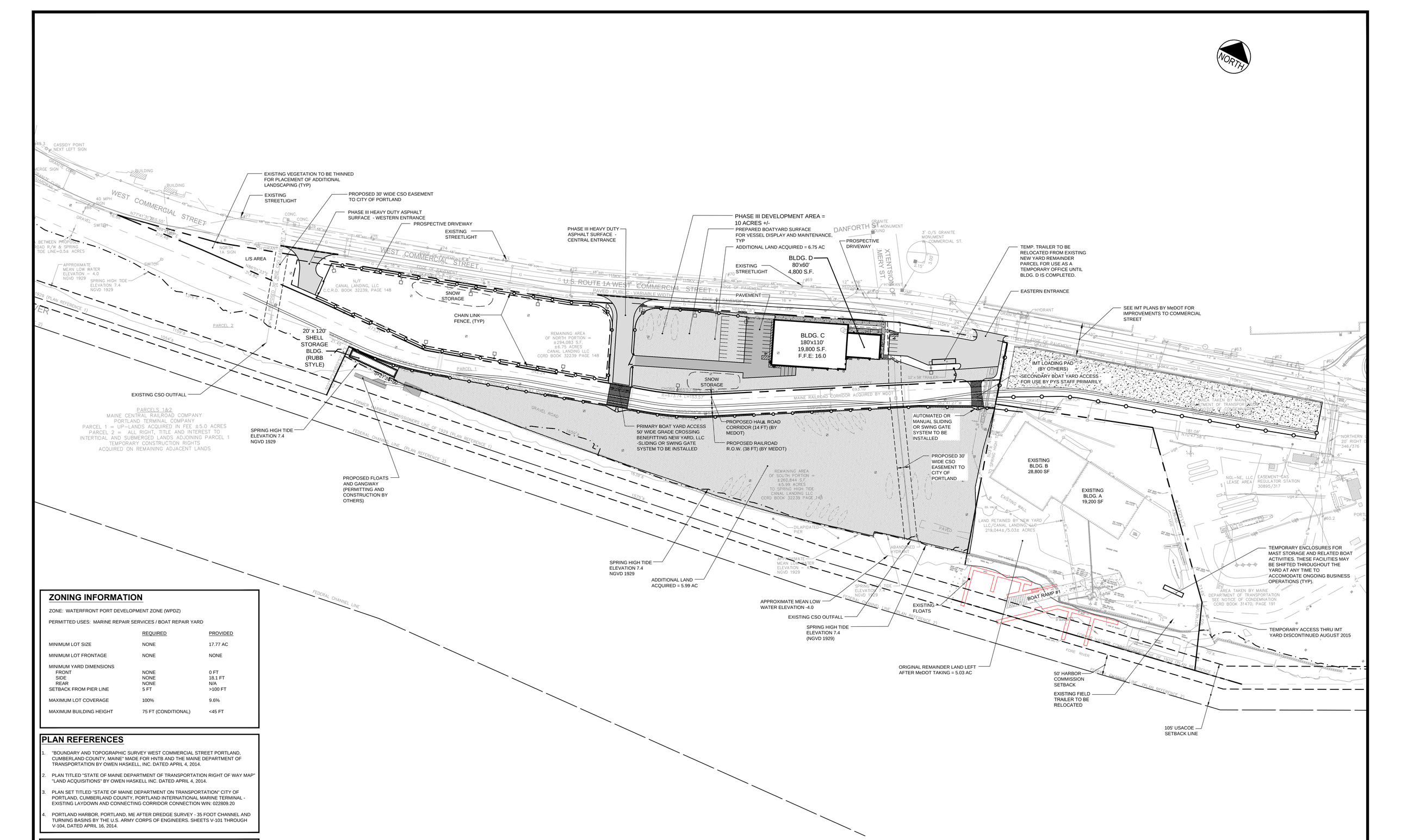
SHEET TITLE
PHASE III
SITE LAYOUT PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-SITE LAYOUT	
SHEET	C-2.1

V:\1953\active\195350129\Cadd\Permit Set\dwg\PHASE III PERMIT\3091.04-SITE LAYOUT.dwg pfilliettaz 1/19/2018 3:07 PM



ZONING INFORMATION

ZONE: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)

PERMITTED USES: MARINE REPAIR SERVICES / BOAT REPAIR YARD

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	NONE	17.77 AC
MINIMUM LOT FRONTAGE	NONE	NONE
MINIMUM YARD DIMENSIONS		
FRONT	NONE	0 FT
SIDE	NONE	18.1 FT
REAR	NONE	N/A
SETBACK FROM PIER LINE	5 FT	>100 FT
MAXIMUM LOT COVERAGE	100%	9.6%
MAXIMUM BUILDING HEIGHT	75 FT (CONDITIONAL)	<45 FT

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
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3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
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STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING (PHASE III)
- PREPARED PERVIOUS SURFACE FOR VESSEL STORAGE AND MAINTENANCE

NOTES

1. THE OWNER SHALL BE RESPONSIBLE TO REMOVE PROPOSED STRUCTURES I.E. STAIRS, RAMPS, ETC. WITHIN THE PROPOSED 30' WIDE EASEMENT OVER THE CSO LINE IN THE EVENT THAT THE CITY MUST HAVE ACCESS FOR MAINTENANCE AND REPAIRS TO THE PIPE.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
AMENDED PHASE III
OVERALL PROJECT PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 80'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-SITE LAYOUT	
SHEET	C-2.2

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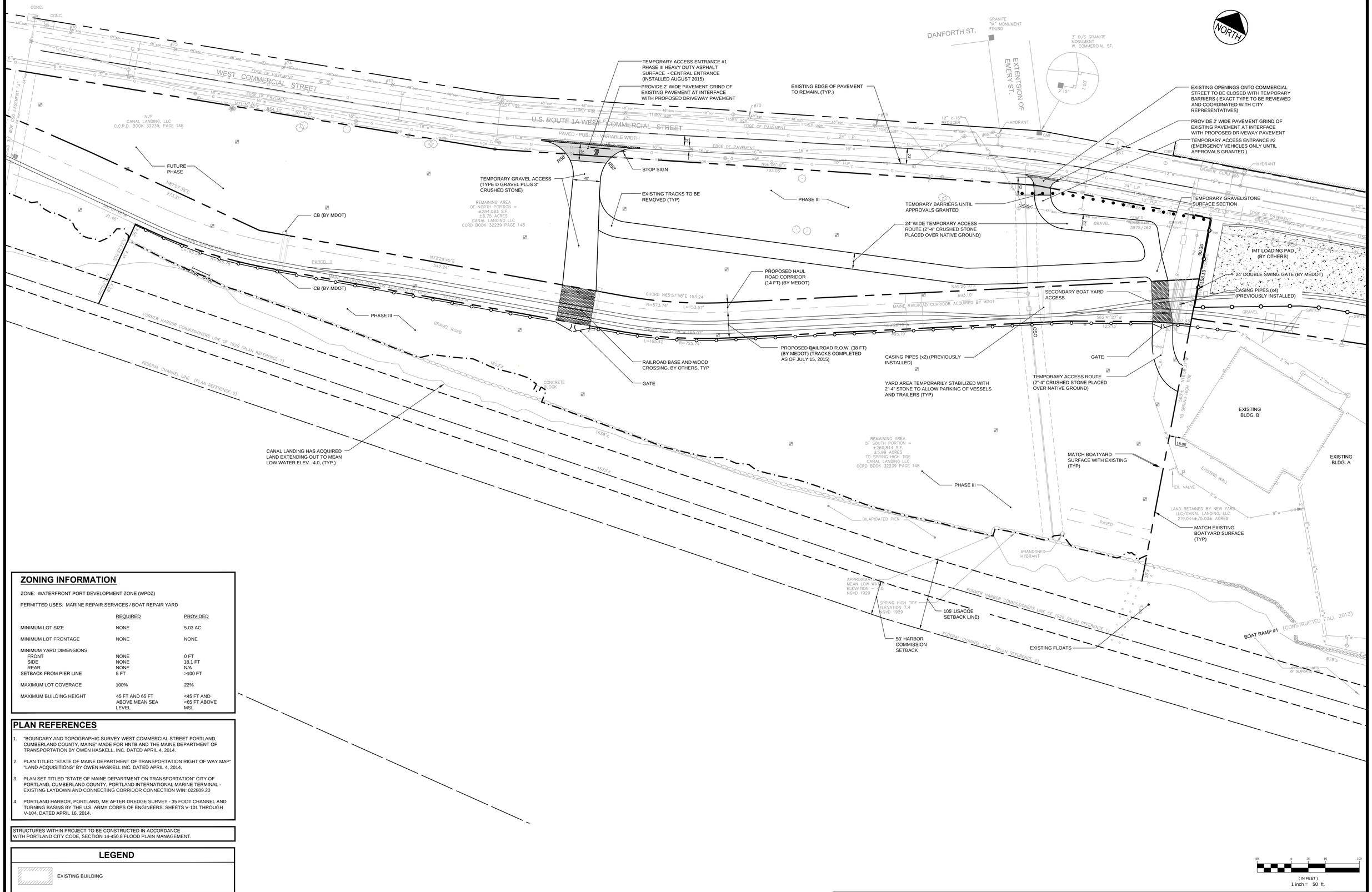

ZONING INFORMATION

ZONE: WATERFRONT PORT DEVELOPMENT ZONE (WPDZ)

PERMITTED USES: MARINE REPAIR SERVICES / BOAT REPAIR YARD

	REQUIRED	PROVIDED
MINIMUM LOT SIZE	NONE	5.03 AC
MINIMUM LOT FRONTAGE	NONE	NONE
MINIMUM YARD DIMENSIONS		
FRONT	NONE	0 FT
SIDE	NONE	18.1 FT
REAR	NONE	N/A
SETBACK FROM PIER LINE	5 FT	>100 FT
MAXIMUM LOT COVERAGE	100%	22%
MAXIMUM BUILDING HEIGHT	45 FT AND 65 FT ABOVE MEAN SEA LEVEL	<45 FT AND <65 FT ABOVE MSL

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
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STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

EXISTING BUILDING

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
PHASE III
TEMPORARY ACCESS PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-SITE LAYOUT	
SHEET	C-2.4

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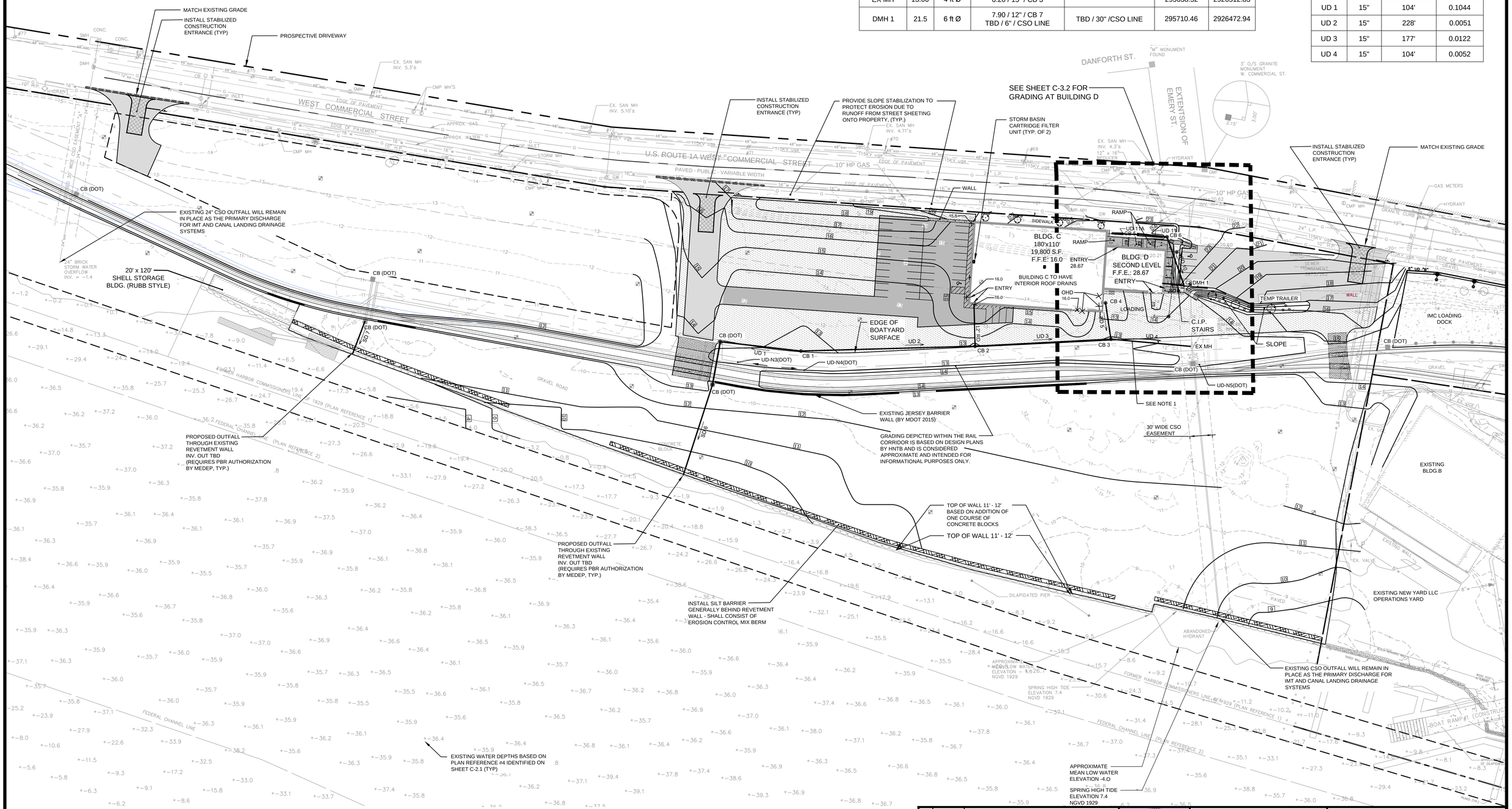
Water Quality Treatment Summary Table – Phase III Canal Landing			
Description	**Treated Area (ac)**	**Untreated Area (ac)**	**Treatment %**
Improved Impervious area (paved and roof)	1.66	0.11	86%
Boat Yard Surface area	9.27	0	100%
Landscaped area	0	1.7	0%
Total	10.93	1.81	**Total Area = 12.74 acres**
Overall Impervious area treated	10.93		99% (Exceeds 95% required)
Overall Developed area treated	10.93		86% (Exceeds 80% required)

STORM DRAIN APPURTENANCE SCHEDULE						
ID	RIM	SIZE	INV. IN / SIZE / FROM	INV. OUT / SIZE / TO	NORTHING	EASTING
CB 1	12.40	4 ft Ø		10.25 / 15" / CB 2 10.25 / 15" / MDOT CB 1	295390.70	2926055.20
CB 2	12.60	4 ft Ø	9.09 / 15" / CB 1	9.00 / 15" / CB 3	295504.46	2926257.36
CB 3	12.60	4 ft Ø	6.84 / 15" / CB 2 6.84 / 12" / CB 4	6.74 / 15" / EX MH	295597.01	2926413.05
CB 4	10.40	4 ft Ø		7.06 / 12" / CB 3	295636.34	2926384.18
CB 5	22.50	2 ft x 2 ft (BEEHIVE GRATE)		19.00 / 12" / CB 6	295737.00	2926380.11
CB 6	24.70	4 ft Ø	18.50 / 12" / CB 5	18.40 / 12" / CB 7	295752.21	2926415.80
CB 7	21.70	4 ft Ø	17.10 / 12" / CB 6 11.50 / 6" / BLD B	8.00 / 12" /DMH 1	295705.97	2926465.56
EX MH	13.66	4 ft Ø	6.20 / 15" / CB 3		295638.52	2926512.83
DMH 1	21.5	6 ft Ø	7.90 / 12" / CB 7 TBD / 6" / CSO LINE	TBD / 30" /CSO LINE	295710.46	2926472.94

STORM DRAIN PIPE SCHEDULE			
ID	SIZE	LENGTH	SLOPE
SD 5	12"	45'	0.0049
SD 6	15"	125'	0.0051
SD 7	15"	46'	0.0137
SD 8	6"	27'	0.0038
SD 9	12"	7'	0.1507
SD 10	12"	64'	0.0203
UD 11	12"	36'	0.0140
UD 11A	12"	36'	0.0100
SD 12	15"	54'	0.0118
UD 1	15"	104'	0.1044
UD 2	15"	228'	0.0051
UD 3	15"	177'	0.0122
UD 4	15"	104'	0.0052



NOTES:

1. THE OWNER HAS RIGHTS FOR CONNECTING TO THE EXISTING DRAINAGE SYSTEMS THRU THE STATE OF MAINE RAIL R.O.W., UNDER A SUPPLEMENTAL AGREEMENT DATED JULY 8, 2014.
2. ALL FUTURE SITE ACTIVITIES INCLUDING BUILDING AND YARD AREA IMPROVEMENTS SHALL COMPLY WITH THE CHAPTER 500/CITY OF PORTLAND GENERAL STANDARDS FOR STORMWATER MANAGEMENT.

GRAPHIC SCALE

50 0 20 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
5	01.19.18	REVISED PER CITY COMMENT
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 01/19/18 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING AMENDED SITE PLAN

SHEET TITLE
PHASE III GRADING AND DRAINAGE PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-CONCEPT GRADING		

SHEET C-3.1

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STORM DRAIN APPURTENANCE SCHEDULE						
ID	RIM	SIZE	INV. IN / SIZE / FROM	INV. OUT / SIZE / TO	NORTHING	EASTING
CB 1	12.40	4 ft Ø		10.25 / 15" / CB 2 10.25 / 15" / MDOT CB 1	295390.70	2926055.20
CB 2	12.60	4 ft Ø	9.09 / 15" / CB 1	9.00 / 15" / CB 3	295504.46	2926257.36
CB 3	12.60	4 ft Ø	6.84 / 15" / CB 2 6.84 / 12" / CB 4	6.74 / 15" / EX MH	295597.01	2926413.05
CB 4	10.40	4 ft Ø		7.06 / 12" / CB 3	295636.34	2926384.18
CB 5	22.50	2 ft x 2 ft (BEEHIVE GRATE)		19.00 / 12" / CB 6	295737.00	2926380.11
CB 6	24.70	4 ft Ø	18.50 / 12" / CB 5	18.40 / 12" / CB 7	295752.21	2926415.80
CB 7	21.70	4 ft Ø	17.10 / 12" / CB 6 11.50 / 6" / BLD B	8.00 / 12" /DMH 1	295705.97	2926465.56
EX MH	13.66	4 ft Ø	6.20 / 15" / CB 3		295638.52	2926512.83
DMH 1	21.5	6 ft Ø	7.90 / 12" / CB 7 TBD / 6" / CSO LINE	TBD / 30" /CSO LINE	295710.46	2926472.94

STORM DRAIN PIPE SCHEDULE			
ID	SIZE	LENGTH	SLOPE
SD 5	12"	45'	0.0049
SD 6	15"	125'	0.0051
SD 7	15"	46'	0.0137
SD 8	6"	27'	0.0038
SD 9	12"	7'	0.1507
SD 10	12"	64'	0.0203
UD 11	12"	36'	0.0140
UD 11A	12"	36'	0.0100
SD 12	15"	54'	0.0118
UD 1	15"	104'	0.1044
UD 2	15"	228'	0.0051
UD 3	15"	177'	0.0122
UD 4	15"	104'	0.0052

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

1 inch = 10 ft.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
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1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE
STEPHEN R. BUSHEY
12/14/17
LICENSED
PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
BUILDING D GRADING AND
DRAINAGE PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-CONCEPT GRADING		
SHEET	C-3.2		

NORTH

WEST COMMERCIAL STREET

U.S. ROUTE 1A WEST COMMERCIAL STREET

DANFORTH ST.

EXTENTION OF EMERY ST.

GRANITE "M" MONUMENT FOUND

3" O/S GRANITE MONUMENT W. COMMERCIAL ST.

N/F CANAL LANDING, LLC C.C.R.D. BOOK 32239, PAGE 148

REMAINING AREA OF NORTH PORTION = ±294,083 S.F. ±6.75 ACRES CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

REMAINING AREA OF SOUTH PORTION = ±260,844 S.F. ±5.99 ACRES TO SPRING HIGH TIDE CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

PAVED - PUBLIC - VARIABLE WIDTH

PARCEL 1

GRAVEL ROAD

PAVED

GRAVEL

NEW UTILITY POLE (BY OTHERS)

POLE MOUNTED LIGHT, (TYP.)

NEW UTILITY POLE (BY OTHERS)

TRANSFORMER PAD

6"x 16" TAPPING SLEEVE AND VALVE ASSEMBLY
2" CORPORATION

5Ø SMH 1
RIM=24.0±
6" INV IN=12.0 (INSIDE DROP)
8" INV IN=7.1
8" INV OUT=7.0
(INSTALL BACKFLOW PREVENTER IN STRUCTURE)

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0

6" SAN. INV.OUT: 7.0±

6" FIRE ENTRY AND 2" DOMESTIC WATER ENTRY

BLDG. D
80'x60'
4,800 S.F.
8" SAN

8" SAN

8" STUB

4Ø SMH 2
RIM=13.9
8" INV IN=7.56
8" INV OUT=7.46

WALL MOUNTED LIGHT (TYP.)

EX. HYDRANT

8" SAN

CORE HOLE INTO 48" SEWER TO ACCEPT NEW 8" SERVICE CONNECTOR, INV.: 6.2± (SEE NOTE 1)

8" SAN. L = 90' S = 0.004

EXISTING SMH W/CONNECTION TO 48" SAN

IMT LOADING PAD (BY OTHERS)

EXISTING FIRE LINE METER PIT

24' DOUBLE SWING GATE (BY MEDOT)

24" RCP CASING PIPES (x4)

EX. HYDRANT

GAS METERS

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

24" BRICK STORM WATER OVERFLOW INV. = ~1.4

PROPOSED HYDRANT ASSEMBLY (TYP.)

PRIMARY BOAT YARD ACCESS 50' WIDE GRADE CROSSING BENEFITING NEW YARD, LLC

6" x 8" REDUCER

PROPOSED HYDRANT ASSEMBLY (TYP.)

FUTURE TRANSFORMER PAD

FUTURE TRANSFORMER PAD

12' x 24' PRECAST CONCRETE POWER SHED PLACED ON STONE BEDDING (TYP OF 5)

12" TO 18" CASING (X2) (TO BE INSTALLED BY DOT JULY, 2015)

(SANITARY SEWER FOR FUTURE BUILDING(S) TO BE DETERMINED)

JUNCTION BOX

8" GATE VALVE

DILAPIDATED PIER

PROPOSED HYDRANT ASSEMBLY

ABANDONED HYDRANT

EX. HYDRANT

EXISTING WALL

LAND RETAINED BY NEW YARD, LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

BOAT RAMP (CONSTRUCTED FALL, 10)

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

APPROXIMATE MEAN LOW WATER ELEVATION = 4.0 NGVD 1929

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

MEAN LOW WATER ELEVATION = 4.0 NGVD 1929

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

FORMER HARBOR COMMISSIONERS LINE OF 1929 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

FEDERAL CHANNEL LINE

MAINE RAILROAD CORRIDOR ACQUIRED BY MDOT

FORE RIVER

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
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STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- PREPARED PERVIOUS SURFACE FOR VESSEL STORAGE AND MAINTENANCE

NOTE:

1. THE EXISTING SANITARY MANHOLE COVERS SHALL BE ADJUSTED TO FINISH GRADE. THE CONTRACTOR/OWNER SHALL COORDINATE WITH THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT FOR ALL ADJUSTMENTS INCLUDING MATERIALS, INSTALLATION, ETC. RELATED TO THE WORK.

50 0 25 50 100

(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE
STEPHEN R. BUSHEY
12/14/17
LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
UTILITY PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-UTILITY	
SHEET	C-4.1

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NORTH

WEST COMMERCIAL STREET

U.S. ROUTE 1A WEST COMMERCIAL STREET

DANFORTH ST.

EXTENTSION OF EMERY ST.

GRANITE "M" MONUMENT FOUND

3" O/S GRANITE MONUMENT W. COMMERCIAL ST.

N/F CANAL LANDING, LLC C.C.R.D. BOOK 32239, PAGE 148

PROPOSED 30' WIDE EASEMENT

NEW UTILITY POLE (BY OTHERS)

POLE MOUNTED LIGHT, (TYP.)

REMAINING AREA OF NORTH PORTION = ±294,083 S.F. ±6.75 ACRES CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

NEW UTILITY POLE (BY OTHERS)

TRANSFORMER PAD

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0

6" SAN. INV.OUT: 7.0±

BLDG. D
80'x60'
4,800 S.F.

6" FIRE ENTRY AND 2" DOMESTIC WATER ENTRY

6"x 16" TAPPING SLEEVE AND VALVE ASSEMBLY
2" CORPORATION

5Ø SMH 1
RIM=24.0±
6" INV IN=12.0 (INSIDE DROP)
8" INV IN=7.1
8" INV OUT=7.0
(INSTALL BACKFLOW PREVENTER IN STRUCTURE)

8" SAN

CORE HOLE INTO 48" SEWER TO ACCEPT NEW 8" SERVICE CONNECTOR, INV.: 6.2± (SEE NOTE 1)

EX. HYDRANT

8" SAN.
L = 90'
S = 0.004

8" SAN

8" STUB

4'Ø SMH 2
RIM=13.9
8" INV IN=7.56
8" INV OUT=7.46

WALL MOUNTED LIGHT (TYP.)

EXISTING SMH W/CONNECTION TO 48" SAN

IMT LOADING PAD (BY OTHERS)

EXISTING FIRE LINE METER PIT

24' DOUBLE SWING GATE (BY MEDOT)

24" RCP CASING PIPES (x4)

FUTURE TRANSFORMER PAD

FUTURE TRANSFORMER PAD

12' x 24' PRECAST CONCRETE POWER SHED PLACED ON STONE BEDDING (TYP OF 5)

12' TO 18" CASING (X2) (TO BE INSTALLED BY DOT JULY, 2015)

(SANITARY SEWER FOR FUTURE BUILDING(S) TO BE DETERMINED)

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

24" BRICK STORM WATER OVERFLOW INV. = -1.4

PROPOSED HYDRANT ASSEMBLY (TYP.)

PRIMARY BOAT YARD ACCESS 50' WIDE GRADE CROSSING BENEFITING NEW YARD, LLC

PARCEL 1

GRAVEL ROAD

6" x 8" REDUCER

PROPOSED HYDRANT ASSEMBLY (TYP.)

CONCRETE PAD

JUNCTION BOX

8" GATE VALVE

PROPOSED HYDRANT ASSEMBLY

REMAINING AREA OF SOUTH PORTION = ±260,844 S.F. ±5.99 ACRES TO SPRING HIGH TIDE CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

DILAPIDATED PIER

ABANDONED HYDRANT

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

APPROXIMATE MEAN LOW WATER ELEVATION = -4.0 NGVD 1929

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

FORMER HARBOR COMMISSIONERS LINE OF 1929 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

FEDERAL CHANNEL LINE

MAINE RAILROAD CORRIDOR ACQUIRED BY MDOT

EXISTING WALL

LAND RETAINED BY NEW YARD, LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

BOAT RAMP #1 (CONSTRUCTED FALL '17)

FORE RIVER

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP" "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- PREPARED PERVIOUS SURFACE FOR VESSEL STORAGE AND MAINTENANCE

NOTE:

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(IN FEET)
1 inch = 50 ft.

REV	DATE	DESCRIPTION
5	01.19.18	REVISED PER CITY COMMENT
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R BUSHEY — 01/19/18 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
PHASE III UTILITY PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
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DRAWN: PBF	DATE: DECEMBER 2017
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FILE NAME: 3091.04-UTILITY	
SHEET	C-4.1

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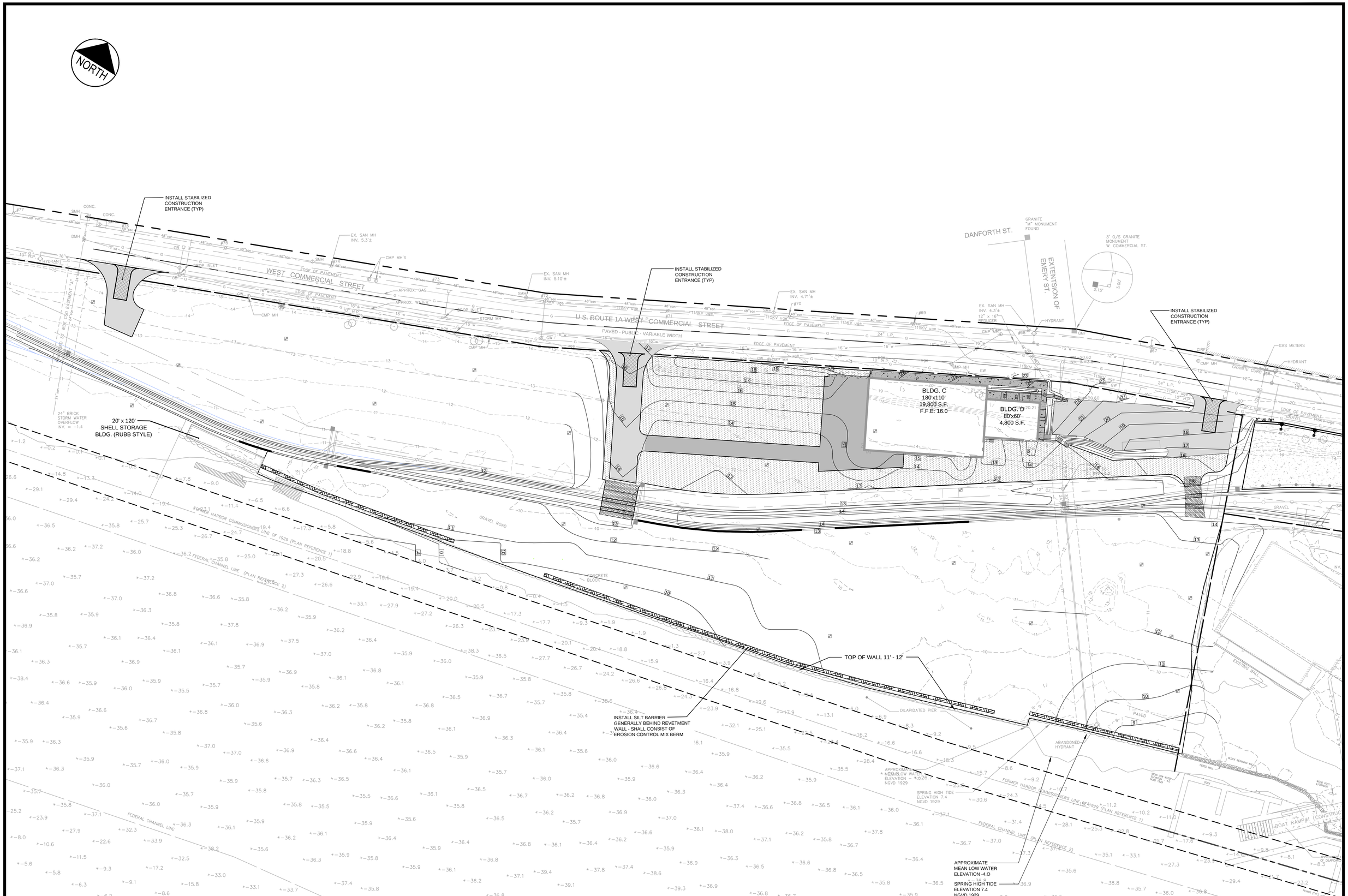

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REVISIONS

STATE OF MAINE
STEPHEN R. BUSHEY
12/14/17
LICENSED
PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
PHASE III EROSION AND SEDIMENT CONTROL PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-CONCEPT GRADING		
SHEET	C-6.1		

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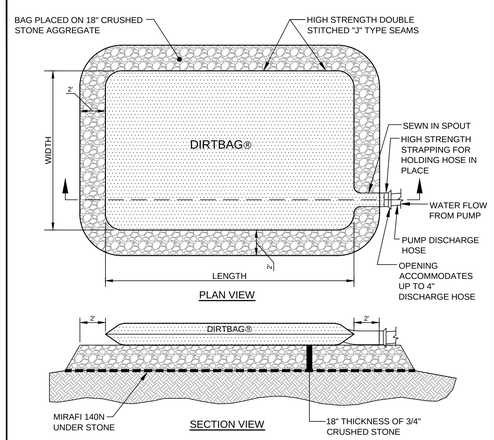


NOTE:
LOCATION OF DIRTBAGS TO BE SELECTED BY THE CONTRACTOR BUT SHALL NOT BE SITED IN THE CRITICAL AREAS.

SPECIFICATIONS AND REQUIREMENTS FOR DEWATERING

THIS PROJECT WILL REQUIRE THE DISCHARGE OF CONSTRUCTION DEWATERING AND TURBID LADEN RUNOFF FROM THE SITE TO BE DIRECTED AND DISCHARGED THROUGH A DIRTBAG. THIS DESCRIPTION ALSO CONTAINS APPENDED MATERIALS DESCRIBING THE **DIRTBAGS** REFERRED TO IN THIS NARRATIVE.

OVERVIEW:

THE PROJECT WILL USE SHALLOW SWALES AS SEDIMENTATION BASINS DURING CONSTRUCTION. HOWEVER, IT IS RECOGNIZED THAT STORM WEATHER CONDITIONS ARE NOT ALWAYS PREDICTABLE; THERE MAY BE EXCEPTIONAL PERIODS WHEN CONSTRUCTION ACTIVITY RESULTS IN HIGHLY TURBID WATER WHICH IS NOT CONSIDERED DESIRABLE TO DISCHARGE TO THE SWALES, OR LIMITED ACTIVITY IS REQUIRED THAT MAY NOT BE EASILY ACCOMMODATED BY THE SWALES. TRADITIONALLY, MEDEP PERMITS HAVE HAD A STANDARD CONDITION WHICH STATES:

"THE APPLICANT SHALL TAKE ALL NECESSARY ACTIONS TO ENSURE THAT ITS ACTIVITIES OR THOSE OF ITS AGENTS DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS ON THE SITE DURING THE CONSTRUCTION AND OPERATION OF THE PROJECT COVERED BY THIS APPROVAL."

THESE SPECIFICATIONS HAVE BEEN DEVELOPED FOR THE PURPOSE OF ADDRESSING CONSTRUCTION-DEWATERING ACTIVITIES WITH THE CONTINGENCY THAT UNPREDICTABLE WEATHER CAN CREATE. THE SPECIFICATION IS INTENDED TO "SHARE THE RISK" BETWEEN THE CONTRACTOR AND OWNER. IT IS ANTICIPATED THAT THIS METHOD WILL ALLOW THE BASE BID FOR THE PROJECT TO HAVE A REDUCED BUILT-IN CONTINGENCY COST FOR CERTAIN WEATHER-RELATED FACTORS.

THIS SPECIFICATION IS NOT INTENDED TO DIMINISH THE RECOGNIZED AND POTENTIAL AID OF THE PROPOSED SEDIMENT SWALES TO ACT AS THE PRIMARY DEVICE TO CAPTURE AND RETAIN SUSPENDED SEDIMENT. THIS BENEFIT IS A PRINCIPAL REASON WHY THE CONSTRUCTION OF THE SWALES EARLY IN THE PROJECT IS SO IMPORTANT.

ACCEPTABLE METHODS OF DISCHARGING CONSTRUCTION SITE RUNOFF:

DEWATERING OF THE CONSTRUCTION SITE SHALL BE ACCOMPLISHED USING ONE OF THE FOLLOWING MEASURES:

THE DIRECTION OF THE RUNOFF TO SEDIMENTATION SWALES BY SHEET FLOW.

THE PUMPING OF DIRTBAGS WITH A DISCHARGE TO THE SWALES OR MUNICIPAL DRAINAGE SYSTEM.

THE PUMPING OF CONSTRUCTION SITE WATER AND COLLECTED RUNOFF TO A **DIRTBAG** (PATENTED PRODUCT BY ACF ENVIRONMENTAL PRODUCTS) WITH RELEASE THROUGH A VEGETATED BUFFER AT LEAST 50 FEET UPGRADIENT OF SHOREFRONT.

REQUIREMENTS FOR DIRTBAGS:

THE SITE CONTRACTOR SHALL INCLUDE THE PRICE OF INSTALLING, OPERATING, AND REMOVAL AND DISPOSAL OF FOUR **DIRTBAG 55'S** AS PART OF THE BASE BID. A UNIT PRICE SHALL BE PROVIDED FOR ADDITIONAL **DIRTBAGS.**

AT ALL TIMES THERE MUST BE AN UNUSED DIRTBAG AVAILABLE FOR EMERGENCY USE.

AT ALL TIMES (AFTER INITIAL SITE PREPARATION), THE CONTRACTOR SHALL HAVE ONE **DIRTBAG** ACTIVE OR READY FOR USE. THE **DIRTBAGS** SHALL BE FIELD LOCATED BY THE CONTRACTOR BUT ARE NOT TO BE INSTALLED IN ANY "**CRITICAL**" AREA. (THE SITE CRITICAL AREAS ARE SHOWN ON THE EROSION-SEDIMENT CONTROL PLAN.) THE **DIRTBAG** SHALL BE INSTALLED ON A PREPARED SUBGRADE. THIS SUBGRADE SHALL CONSIST OF THE INSTALLATION OF A LAYER OF MIRAFI 600X, AND 18 INCHES OF ¾ INCH CRUSHED STONE. THE PLAN DIMENSION OF THE CRUSHED STONE PAD SHALL EXCEED THE PLAN AREA OF THE **DIRTBAG** BY AT LEAST TWO FEET IN ALL DIRECTIONS. THE **DIRTBAG** SHALL NOT BE INSTALLED ON AN UNDERLYING SLOPE OF GREATER THAN 15 PERCENT.

CONSTRUCTION DEWATERING OPERATIONS:

ALL CONSTRUCTION-DEWATERING OPERATIONS ARE THE RESPONSIBILITY OF THE SITE CONTRACTOR. IT SHALL BE THE SITE CONTRACTOR WHO IS RESPONSIBLE FOR SELECTING THE SITE FOR THE **DIRTBAG.** THE SELECTION OF THE USE OF THE **DIRTBAG** OR THE SEDIMENTATION BASIN FOR DIRECTING DEWATERING, EXCEPT THAT THE OWNER MAY DIRECT THE SITE CONTRACTOR TO ALTER THE SELECTED OPERATION IF TURBID DISCHARGE TO THE WATER FRONT IS OBSERVED.

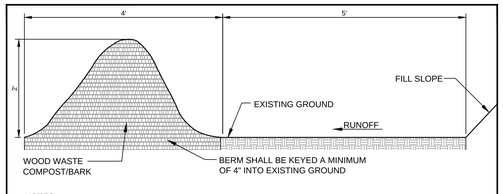
WINTER OPERATIONS:

IN THE EVENT THAT WINTER OPERATIONS ARE REQUIRED, THE CONTRACTOR SHALL "POLY"; ENCLOSE, AND PROVIDE TEMPORARY HEAT TO PREVENT THE **DIRTBAG** FROM SUBSTANTIAL FREEZING.

RECORD KEEPING

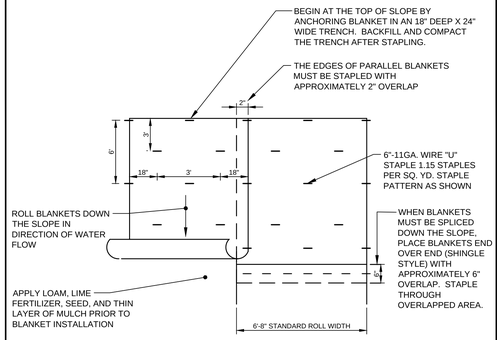
THE WEEKLY EROSION-SEDIMENT CONTROL REPORTS PREPARED IN ACCORDANCE WITH THE MAINE CONSTRUCTION GENERAL PERMIT SHALL MAINTAIN A LOG OF THE LOCATION, USE, AND REMOVAL OF **DIRTBAGS.** IN THE EVENT THAT THE STONE UNDER THE **DIRTBAG** BECOMES HIGHLY CONTAMINATED WITH FINES, THE NEXT **DIRTBAG** SHALL BE INSTALLED IN A DIFFERENT LOCATION.

(A) DIRTBAG® DETAIL AND SPECIFICATIONS
N.T.S.

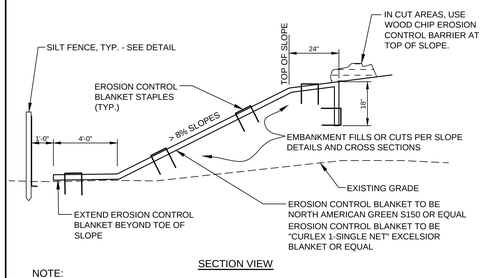


NOTES:
1. THE WOOD WASTE COMPOST/BARK MIX SHALL CONFORM TO THE FOLLOWING STANDARDS:
   A. MOISTURE CONTENT - 30-60%
   B. pH - 5.0-8.0
   C. SCREEN SIZE - 100% LESS THAN 3", MAX. 70% LESS THAN 1"
   D. NO LESS THAN 40% ORGANIC MATERIAL (DRY WEIGHT) BY LOSS OF IGNITION
   F. NO STONES LARGER THAN 2" IN DIAMETER
2. THE COMPOST BERM SHALL BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR.
3. THE WOOD WASTE COMPOST/BARK FILTER BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS COMPLETED OR 70% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED BY SPREADING SUCH THAT THE NATIVE EARTH CAN BE SEEN BELOW.

(B) WOOD WASTE COMPOST / BARK FILTER BERM
N.T.S.



PLAN VIEW

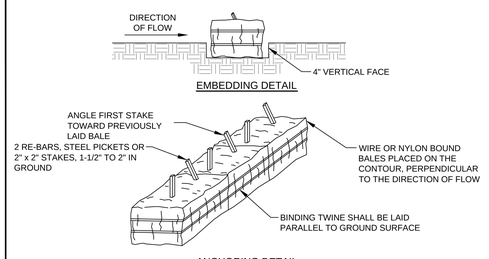


SECTION VIEW

NOTE:
EROSION CONTROL BLANKET STAPLE SIZE AND DISTRIBUTION PER MANUFACTURER'S SPECIFICATIONS.

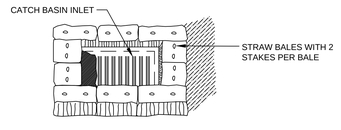
NOTES:
1. IF GRASS CATCH IS NOT 75% BY SEPTEMBER 1, ADD #4 REBARS @ 3'-0" ROWS @ 3' CENTERS. REMOVE OR DRIVE REBARS 3" BELOW GRADE IN SPRING FOLLOWING TURF ESTABLISHMENT.
2. MULCH RATE TO BE 1/2 THE RATE OTHERWISE SPECIFIED.

(D) EROSION CONTROL BLANKET SLOPE STABILIZATION DETAIL
N.T.S.



EMBEDDING DETAIL

ANCHORING DETAIL



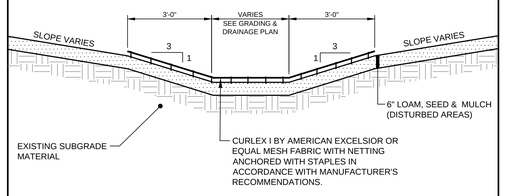
AT CATCH BASIN INLET

CONSTRUCTION SPECIFICATIONS

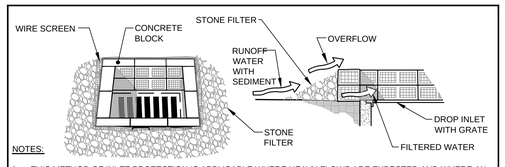
1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE WAS ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION WILL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MAKE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

(D) STRAW OR HAY BALE BARRIER
N.T.S.

NOTES:
1. ALL MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE MDOT STANDARD SPECIFICATIONS.
2. SEE PLANS FOR LOCATION(S).



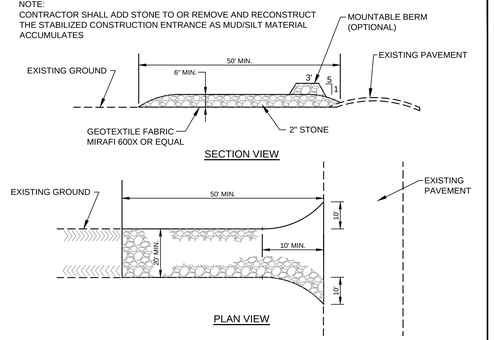
(E) VEGETATED DRAINAGE SWALE DETAIL
N.T.S.



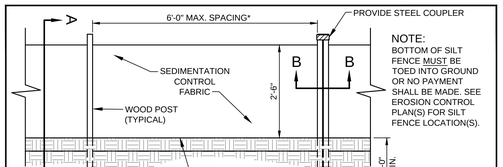
NOTES:
1. THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.
2. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4", 8" AND 12" WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH, AND NO GREATER THAN 24" HIGH.
3. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH ½" OPENINGS SHALL BE USED.
4. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN IN DETAIL. THE STONE FILTER SHALL BE 3/4" CRUSHED STONE.
5. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.
6. ALL INLETS ALSO REQUIRE SILT SACKS AS SHOWN ON THE DETAIL SHEET.

(F) CATCH BASIN STONE SEDIMENT BARRIER DETAIL
N.T.S.

NOTE:
CONTRACTOR SHALL ADD STONE TO OR REMOVE AND RECONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

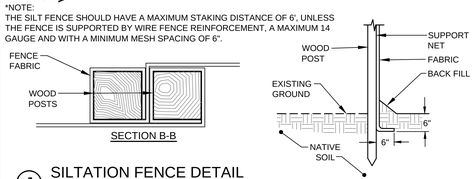


(I) STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



NOTE:
BOTTOM OF SILT FENCE MUST BE TOED INTO GROUND OR NO PAYMENT SHALL BE MADE. SEE EROSION CONTROL PLAN(S) FOR SILT FENCE LOCATION(S).

*NOTE:
THE SILT FENCE SHOULD HAVE A MAXIMUM STAKING DISTANCE OF 6', UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT, A MAXIMUM 14 GAUGE AND WITH A MINIMUM MESH SPACING OF 6".

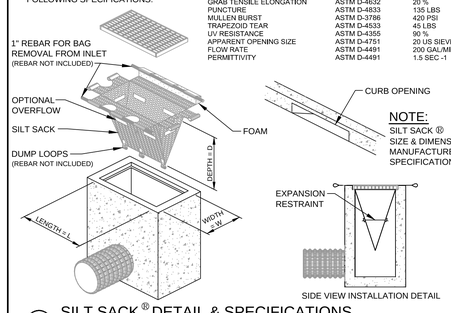


(J) SILTATION FENCE DETAIL
N.T.S.

NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

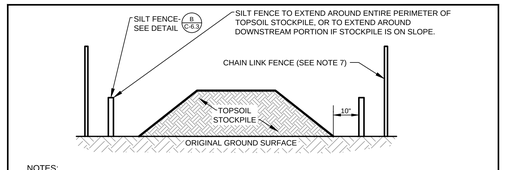
HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



NOTE:
SILT SACK ® SIZE & DIMENSIONS PER MANUFACTURER'S SPECIFICATIONS.

(G) SILT SACK® DETAIL & SPECIFICATIONS
N.T.S.



NOTES:
1. AN ON-SITE DRAINAGE SWALE SHALL BE LOCATED BETWEEN THE TOPSOIL STOCKPILE AND OFF-SITE PROPERTY.
2. REFERENCE IS MADE TO THE SILT FENCE DETAIL (SEE DETAIL 'B') FOR MATERIALS AND INSTALLATION METHODS.
3. IF THE STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, IT SHALL BE STABILIZED WITH STRAW BLANKET OR SEEDED TO MINIMIZE EROSION.
4. INSPECTION OF SILT FENCES SHALL BE AT LEAST ONCE PER WEEK AND AFTER RAIN EVENTS IN EXCESS OF HALF INCH (½") PER DAY OR EQUAL SNOW MELT. REPAIR OR REPLACEMENT OF SILT FENCE SHALL BE MADE PROMPTLY AS REQUIRED.
5. SEDIMENT TRAPPED BY THE SILT FENCES SHALL BE REMOVED AND PROPERLY DISPOSED OF WHENEVER SEDIMENT ACCUMULATION DEPTH AT THE SILT FENCE IS APPROXIMATELY EQUAL TO 12 (12) INCHES (ONE HALF OF SILT FENCE HEIGHT).
6. SILT FENCES SHALL BE MAINTAINED IN PLACE UNTIL TOPSOIL STOCKPILE HAS BEEN ELIMINATED AND SHALL BE REMOVED ONLY WHEN DIRECTED BY VILLAGE ENGINEERING.
7. TO COMPLY WITH THE VILLAGE'S SAFETY REQUIREMENTS ERECTION OF STABLE AND SECURE SIX (6) FEET HIGH CHAIN LINK FENCE AROUND THE PERIMETER OF THE STOCKPILED MATERIAL IS REQUIRED. COORDINATE WITH THE ENGINEER.

(H) TEMPORARY TOPSOIL STOCKPILE DETAIL
N.T.S.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

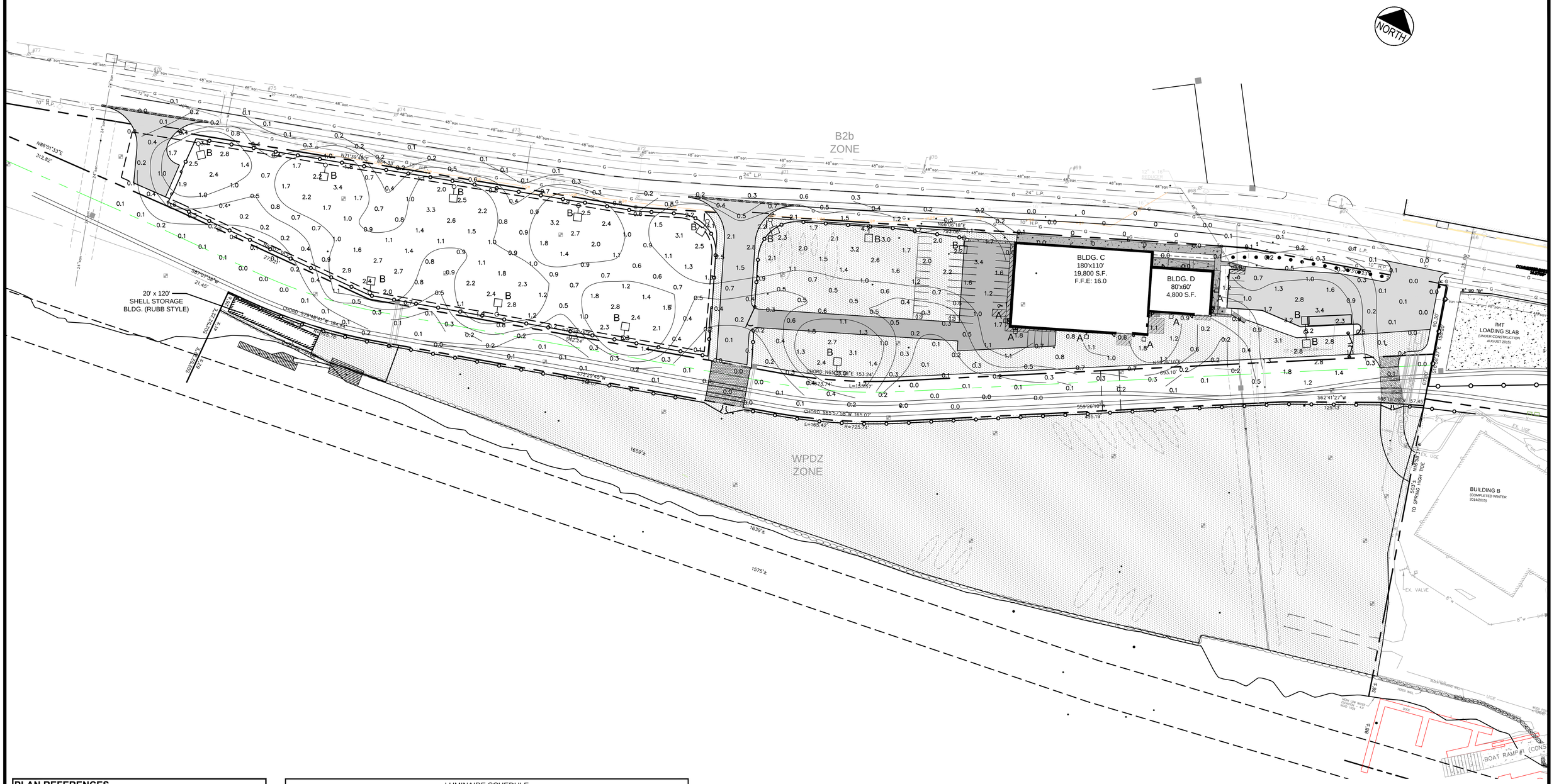
PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
EROSION AND SEDIMENT CONTROL DETAILS

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS SHOWN
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091-DET-EROS		
SHEET	C-6.2		



PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP" "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

- EXISTING BUILDING
- PROPOSED BUILDING
- PREPARED PERVIOUS SURFACE FOR VESSEL DISPLAY, STORAGE AND MAINTENANCE
- HEAVY DUTY PAVEMENT
- STANDARD DUTY PAVEMENT
- OPTIONAL CONCRETE PAD (TO BE DETERMINED BY APPLICANT)

LUMINAIRE SCHEDULE				
LABEL	QTY.	DESCRIPTION	MFG. #	MOUNTING HEIGHT
A	6	LAREDO SERIES WALL MOUNTED LMC - 30LEDs, SPAULDING LIGHTING	LMC-30LU-4K-4	20'
B	14	CIMARRON POLE MOUNTED LED LIGHT, SPAULDING LIGHTING	CL1-A-90L-1-5K-4-105	30'

NOTES:

1. PHOTOMETRIC DATA GENERATED USING DESIGN MASTER SOFTWARE
2. GRID SPACING = 30' X 30'
3. LIGHT LOSS FACTOR - LED: 0.90
4. ELECTRICAL ENGINEER TO VERIFY VOLTAGE PRIOR TO ORDERING

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P.E. STEPHEN BUSHEY
LIC. # 7429

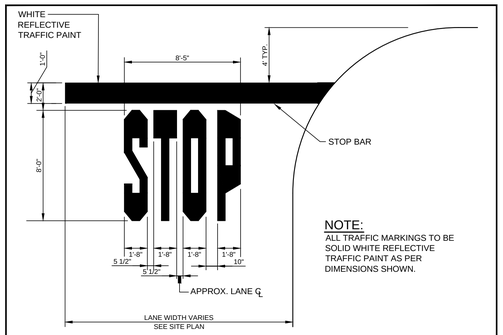
PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
LIGHTING PLAN

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

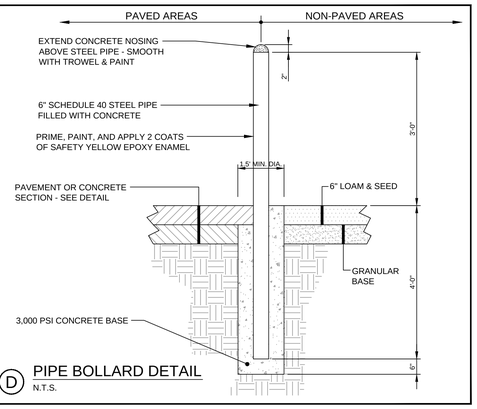
STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN: PBF	DATE: DECEMBER 2017
DESIGNED: SRB	SCALE: 1" = 50'
CHECKED: SRB	JOB NO. 195350129
FILE NAME: 3091.04-SITE LAYOUT	
SHEET	C-7.0

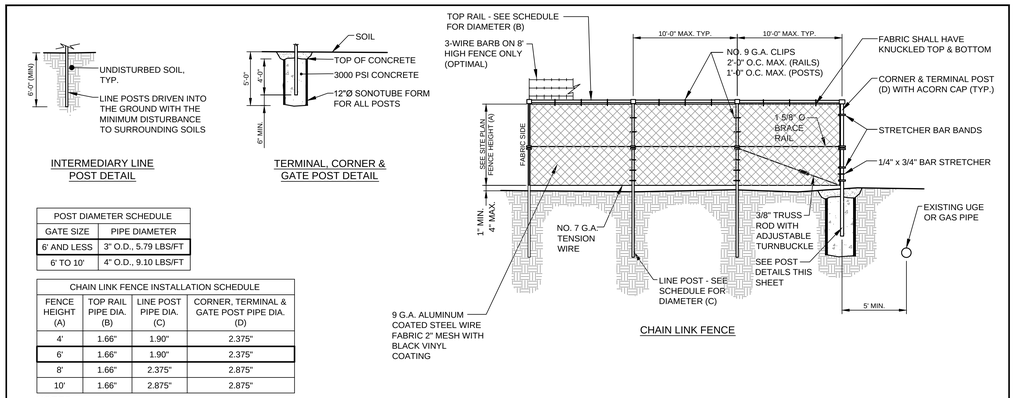


NOTE:
ALL TRAFFIC MARKINGS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS SHOWN.

A TYPICAL PAVEMENT MARKINGS
N.T.S.



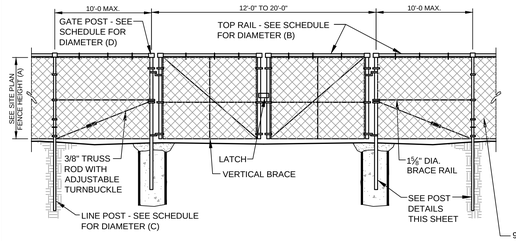
D PIPE BOLLARD DETAIL
N.T.S.

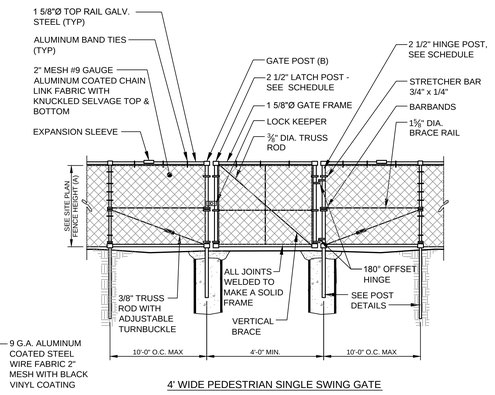


POST DIAMETER SCHEDULE	
GATE SIZE	PIPE DIAMETER
6' AND LESS	3" O.D., 5.79 LBS/FT
6' TO 10'	4" O.D., 9.10 LBS/FT

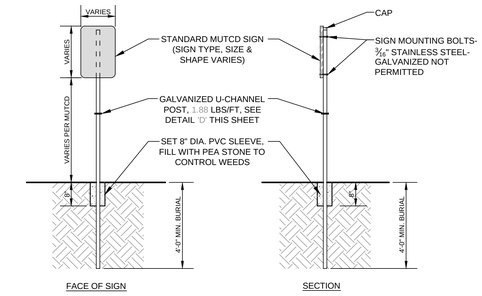
CHAIN LINK FENCE INSTALLATION SCHEDULE			
FENCE HEIGHT (A)	TOP RAIL PIPE DIA. (B)	LINE POST PIPE DIA. (C)	CORNER, TERMINAL & GATE POST PIPE DIA. (D)
4'	1.66"	1.90"	2.375"
6'	1.66"	1.90"	2.375"
8'	1.66"	2.375"	2.875"
10'	1.66"	2.875"	2.875"

NOTES:
1. DIMENSIONS FOR PIPE DIAMETERS ARE NOMINAL OUTSIDE DIAMETERS.
2. REFER TO PLANS FOR LOCATION & HEIGHT OF FENCES TO BE INSTALLED.
3. REFER TO PLANS FOR GATE WIDTH AT EACH INSTALLATION.
4. ALL FENCE FABRIC, POSTS AND HARDWARE SHALL BE GALVANIZED.
5. THE CONTRACTOR IS CAUTIONED THAT THE SITE CONTAINS UNDERGROUND POWER AND GAS FACILITIES AND THAT ALL POST LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE SERVING UTILITY COMPANIES PRIOR TO INSTALLATION. ALL COORDINATION EFFORTS SHALL BE AT NO EXTRA EXPENSE TO THE OWNER.

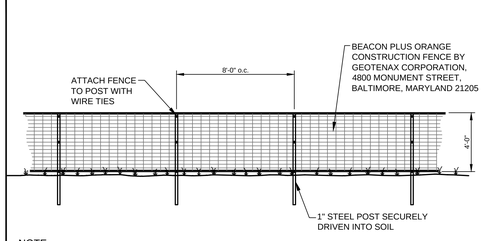




G CHAIN LINK FENCE AND GATES
N.T.S.

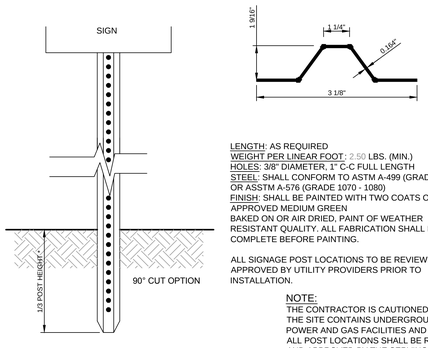


B TRAFFIC SIGN
N.T.S.



NOTE:
THE CONTRACTOR IS CAUTIONED THAT THE SITE CONTAINS UNDERGROUND POWER AND GAS FACILITIES AND THAT ALL POST LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE SERVING UTILITY COMPANIES PRIOR TO INSTALLATION. ALL COORDINATION EFFORTS SHALL BE AT NO EXTRA EXPENSE TO THE OWNER.

E ORANGE CONSTRUCTION FENCE
N.T.S.

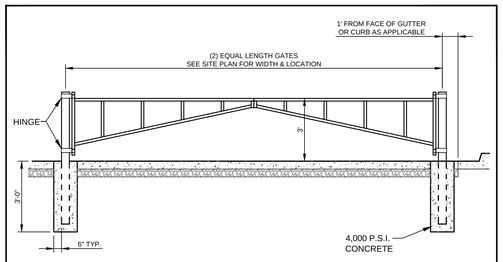


LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS. (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

ALL SIGNAGE POST LOCATIONS TO BE REVIEWED AND APPROVED BY UTILITY PROVIDERS PRIOR TO INSTALLATION.

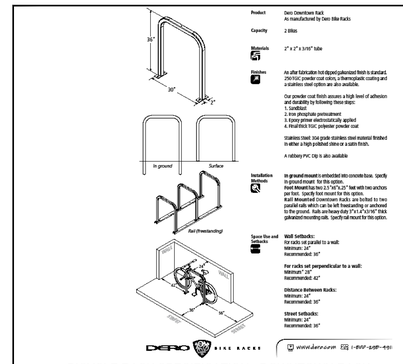
NOTE:
THE CONTRACTOR IS CAUTIONED THAT THE SITE CONTAINS UNDERGROUND POWER AND GAS FACILITIES AND THAT ALL POST LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE SERVING UTILITY COMPANIES PRIOR TO INSTALLATION. ALL COORDINATION EFFORTS SHALL BE AT NO EXTRA EXPENSE TO THE OWNER.

C U-CHANNEL METAL SIGN POST
N.T.S.



NOTE:
1. THIS DETAIL IS FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH OWNER AND MANUFACTURER FOR DESIGN OF GATES.
2. ASSEMBLY TO BE PAINTED OSHA YELLOW.
3. PROVIDE PADLOCK BY KNOX COMPANY IF REQUIRED BY FIRE DEPARTMENT.

F BREAK AWAY GATE
N.T.S.



H BICYCLE RACK SPECIFICATION - DOWNTOWN RACK
N.T.S.

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REVISIONS

STATE OF MAINE STEPHEN R. BUSHEY 12/14/17 LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
SITE DETAILS
1 OF 2

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS SHOWN
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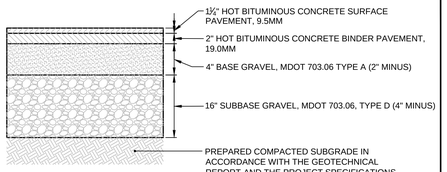
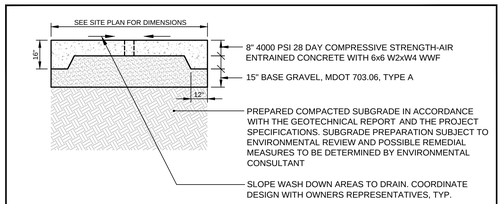


NOTES:

1. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL RECOMMENDATIONS.

A HEAVY DUTY BITUMINOUS CONCRETE PAVEMENT SECTION

N.T.S.



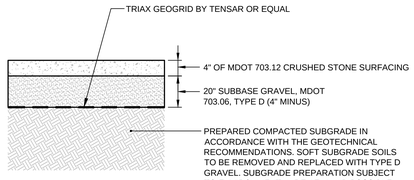
NOTE:

ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT. (PENDING)

*DUMPSTER PAD AREAS AND WHERE RCCP (REINFORCED CONCRETE PAVEMENT) IS NOTED ON SITE PLAN.

B PORTLAND CEMENT CONCRETE SECTION FOR WASHDOWN AREAS

N.T.S.

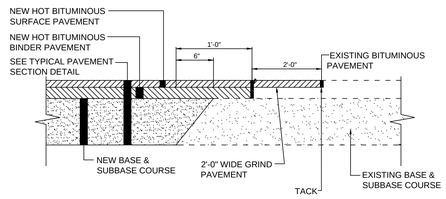


NOTES:

ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL RECOMMENDATIONS.

C BOAT YARD SURFACE SECTION

N.T.S.

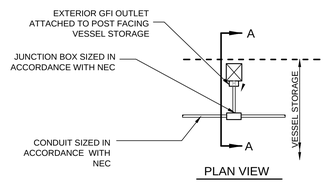


NOTES:

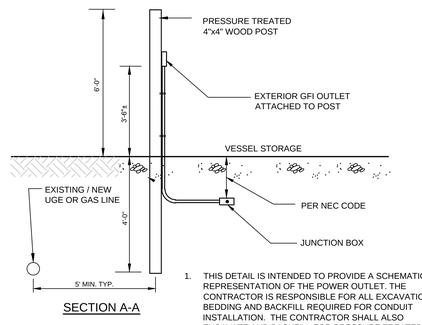
1. USE THIS DETAIL FOR THE RADIUS FILLET AT THE DRIVEWAY ENTRANCE TO THE PUBLIC STREETS OR TO MATCH PARKING LOT/DRIVE PAVEMENTS WHERE WIDENING OF EXISTING PAVEMENT AREA IS REQUIRED.
2. WHERE SURFACE PAVEMENT HAS NOT BEEN INSTALLED THE 2'-0" WIDE GRIND IS NOT REQUIRED.

D PAVEMENT SAWCUT SECTION

N.T.S.



PLAN VIEW



SECTION A-A

1. THIS DETAIL IS INTENDED TO PROVIDE A SCHEMATIC REPRESENTATION OF THE POWER OUTLET. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXCAVATION BEDDING AND BACKFILL REQUIRED FOR CONDUIT INSTALLATION. THE CONTRACTOR SHALL ALSO EXCAVATE AND BACKFILL FOR PRESSURE TREATED POST FOR THE POWER OUTLET. ADDITIONAL PANEL BOARD SHUT OFFS AND SUB PANELS MAY BE PROVIDED BY THE OWNER AS NECESSARY.
2. THE CONTRACTOR IS EXPECTED TO COORDINATE AND WORK COOPERATIVELY WITH THE OWNER AND OWNER'S ELECTRICIAN FOR THE PLACEMENT AND INSTALLATION OF ALL ONSITE ELECTRICAL COMPONENTS.

E POWER OUTLET DETAIL

N.T.S.

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REVISIONS

STATE OF MAINE
STEPHEN R. BUSHEY
12/14/17
LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
SITE DETAILS
2 OF 2

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

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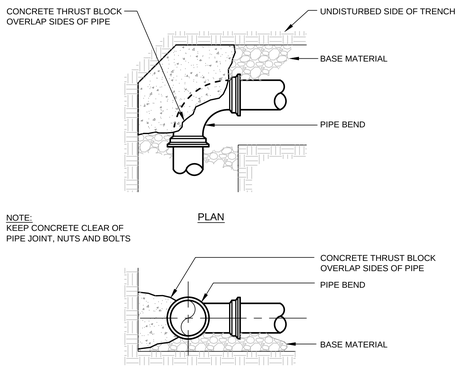


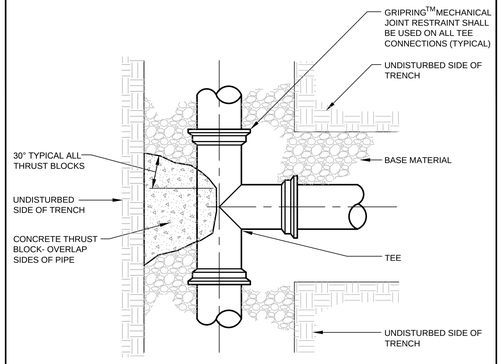
THRUST/RETAINER GLAND SCHEDULE		
¼ BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK WITH GRIPRING™ MECHANICAL JOINT RESTRAINT
⅛ BEND	(45°)	THRUST BLOCK W/ GRIPRING™
1/16 BEND	(22 ½°)	THRUST BLOCK W/ GRIPRING™
1/32 BEND	(11 ¼°)	THRUST BLOCK W/ GRIPRING™

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

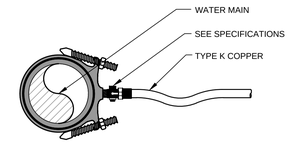
NOTES:

1. THE PORTLAND WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
2. REFER TO SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
3. ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
4. SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

A TYPICAL THRUST BLOCK PLACEMENT ON BENDS DETAIL
N.T.S.



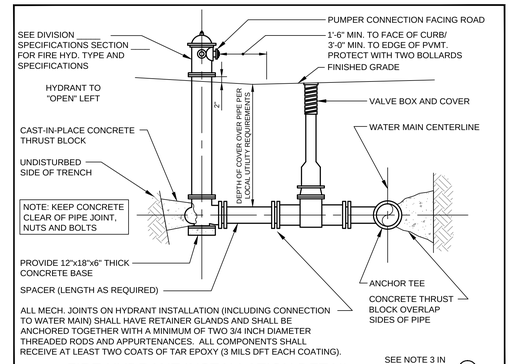
C TYPICAL THRUST BLOCK PLACEMENT ON TEES DETAIL
N.T.S.



NOTE:
SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR 'GOOSENECK' IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND 'GIVE' TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSION AND/OR CONTRACTION.

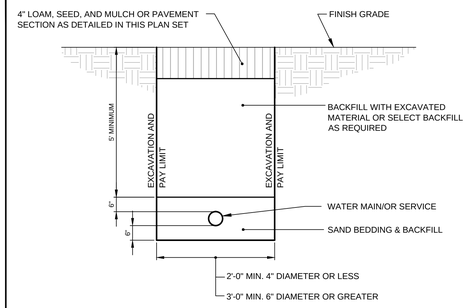
SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (D)

E WATER SERVICE DETAIL
N.T.S.



SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (B)

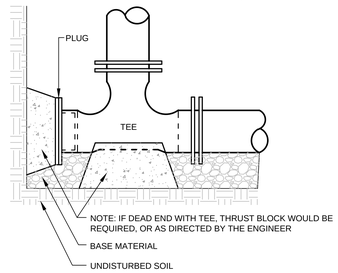
H FIRE HYDRANT INSTALLATION DETAIL
N.T.S.



SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (D)

F WATER SERVICE TRENCH SECTION
N.T.S.

NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS



USE GRIPRINGS™ AT ALL RESTRAINED JOINTS

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (D)

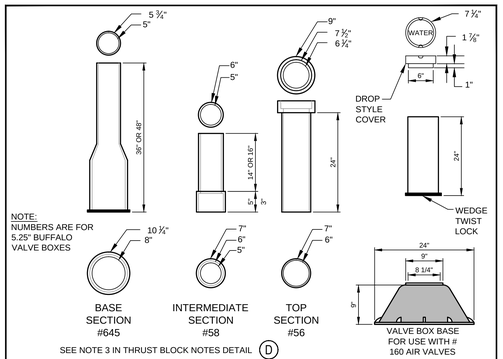
B STANDARD TEE BLOCKING DETAIL
N.T.S.

1. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
2. ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD.
3. ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THEPORTLAND WATER DISTRICT SPECIFICATIONS.
4. ALL RESTRAINED JOINTS MUST HAVE GRIPRING ™.

BEARING SURFACE REQUIRED IN SQUARE FEET

PIPE SIZE	1/32 BEND	1/16 BEND	⅛ BEND	¼ BEND	TEES/CAPS
6" / 8"	5.0	5.0	5.0	6.5	5.0
12"	11.5	11.5	11.5	20.0	22.0

D THRUST BLOCK NOTES
N.T.S.



SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL (D)

G TYPICAL VALVE BOXES DETAIL
N.T.S.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

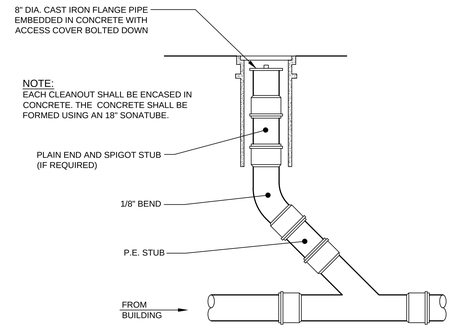
PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
WATER SYSTEM DETAILS

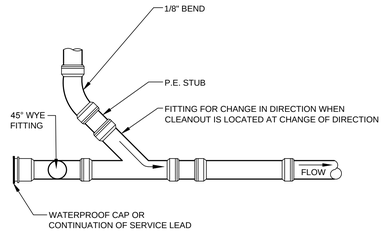
CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

DRAWN:	PBF	DATE:	DECEMBER 2017	
DESIGNED:	SRB	SCALE:	AS SHOWN	
CHECKED:	SRB	JOB NO.	195350129	
FILE NAME:	3091.04-DET			
SHEET	C-8.2			

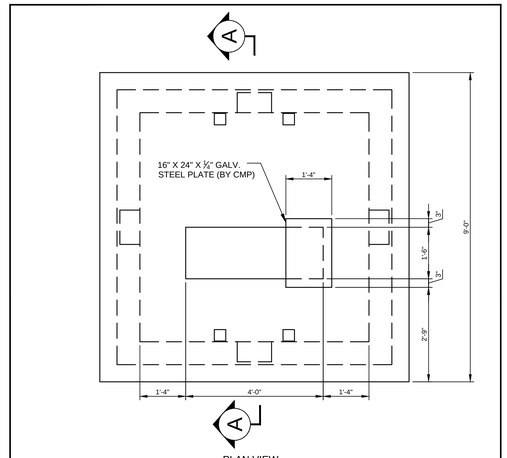


A PVC CLEANOUT DETAIL
N.T.S.

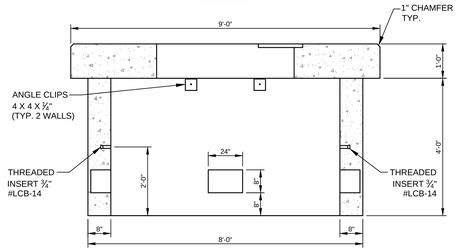


ELEVATION VIEW

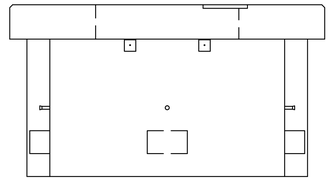
D CLEANOUT DETAIL BELOW WYE FITTING OF CLEANOUT
N.T.S.



PLAN VIEW



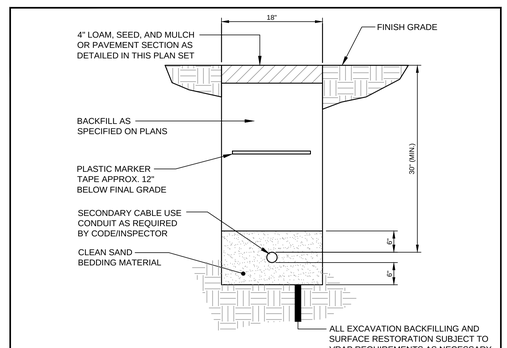
SECTION VIEW



END VIEW

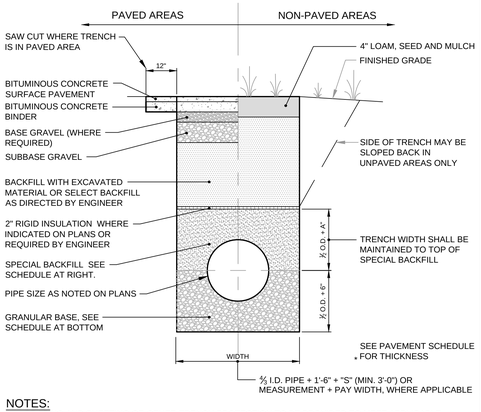
NOTES:
1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT.
2. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS.
3. ONE 8" x 24" KNOCKOUT PROVIDED EACH WALL.
4. FOR 750 - 5000 KVA THREE PHASE TRANSFORMER.
5. FINISH GRADE SHALL BE GRADED TO ALLOW SURFACE WATER TO FLOW AWAY FROM THE PAD.

G 9'-0" TRANSFORMER PAD
N.T.S.



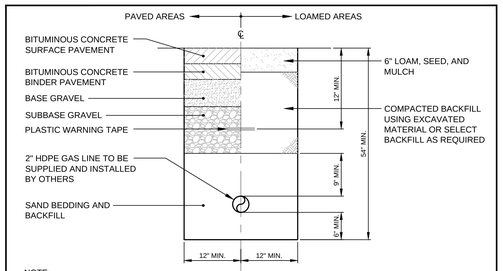
H SECONDARY ELECTRICAL TRENCH DETAIL
N.T.S.

TRENCH SECTION BACKFILL SCHEDULE				
TYPE OF PIPE	GRANULAR BASE MATERIAL	SPECIAL BACKFILL	SPECIAL BACKFILL COVER "A" (IN)	SELECT BACKFILL
CONCRETE	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	12"	GRANULAR AASHTO M145-49 A-3 OR BETTER
PVC	3/4" CRUSHED STONE	GRANULAR AASHTO M145-49 A-3 OR BETTER	6"	GRANULAR AASHTO M145-49 A-3 OR BETTER
DUCTILE IRON	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	6"	GRANULAR AASHTO M145-49 A-3 OR BETTER
UNDER-DRAINS	3/4" CRUSHED STONE	3/4" CRUSHED STONE	6"	GRANULAR AASHTO M145-49 A-3 OR BETTER



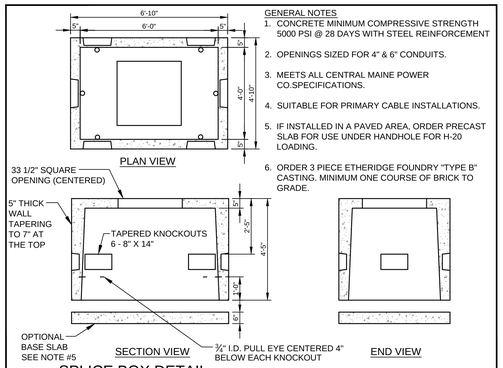
NOTES:
1. BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. WHERE APPLICABLE, SERVICES TO BE SIMILAR EXCEPT MINIMUM PAY WIDTH IS 2 1/2 FT.

B TYPICAL UTILITY PIPE TRENCH SECTION DETAIL
N.T.S.



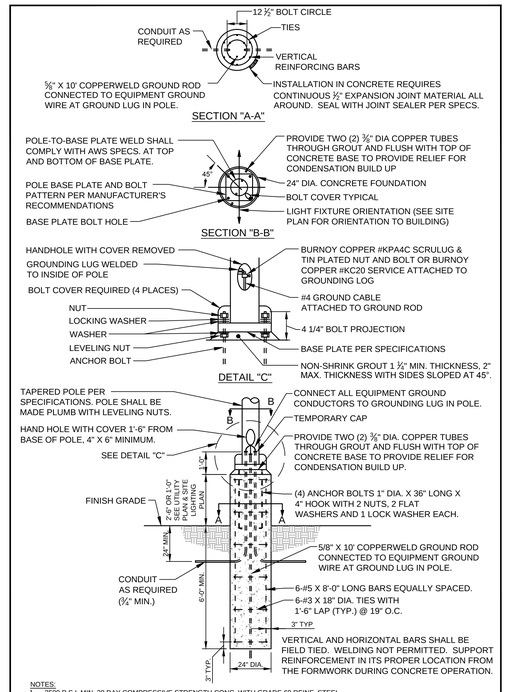
NOTE:
THE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION AND BACKFILL OF UNDERGROUND GAS LINE TRENCH. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION WITH GAS SUPPLIER FOR THE INSTALLATION OF THE GAS LINE. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIAL REVIEW AND CONSTRUCTION COSTS FOR GAS LINE INSTALLATION; UPON FINAL DETERMINATION OF COSTS BY THE UTILITY COMPANY, CONTRACTOR SHALL BILL OWNER FOR ACTUAL COST. TRENCH REQUIREMENTS ARE SUBJECT TO VRAP AS DETERMINED BY UNITIL REPRESENTATIVE. CONTRACTOR SHALL COORDINATE WITH UNITIL/ENVIRONMENTAL CONSULTANTS FOR PLACEMENT OF SEPARATION LAYERS INCLUDING GEOTEXTILE FABRICS AND CLEAN BACKFILL.

E UNDERGROUND GAS LINE TRENCH DETAIL
N.T.S.



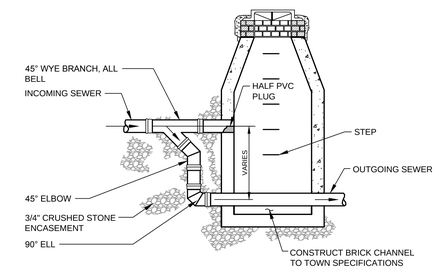
GENERAL NOTES
1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 5000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT
2. OPENINGS SIZED FOR 4" & 6" CONDUITS.
3. MEETS ALL CENTRAL MAINE POWER CO.SPECIFICATIONS.
4. SUITABLE FOR PRIMARY CABLE INSTALLATIONS.
5. IF INSTALLED IN A PAVED AREA, ORDER PRECAST SLAB FOR USE UNDER HANDHOLE FOR H-20 LOADING.
6. ORDER 3 PIECE ETHERIDGE FOUNDRY "TYPE B" CASTING. MINIMUM ONE COURSE OF BRICK TO GRADE.

F SPLICE BOX DETAIL
N.T.S.



NOTES:
1. 3500 P.S.I. MIN. 28 DAY COMPRESSIVE STRENGTH CONC. WITH GRADE 60 REINF. STEEL.
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF,
7. UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
8. DETAIL FOR MAX. 39' POLE WITH MAX. FIXTURE EPA 4.6 S.F. ACTUAL POLES MAY ALLOW SMALLER FOUNDATION.
9. CONFIRM ANCHOR BOLT PLACEMENT AND PATTERN WITH LIGHT POLE MANUFACTURER BEFORE PREPARING FOUNDATION.
10. EXCAVATION WILL LIKELY BE BELOW WATER TABLE - DO NOT LEAVE EXCAVATION OPEN FOR EXTENDED PERIODS.
11. SHOP DRAWINGS TO CONFIRM SIZING AND NUMBER ARE REQUIRED PRIOR TO ORDERING FOUNDATIONS.

I TYPICAL PARKING LOT LIGHTING POLE FOUNDATION
N.T.S.



C TYPICAL EXTERNAL DROP MANHOLE DETAIL
N.T.S.

REV.	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

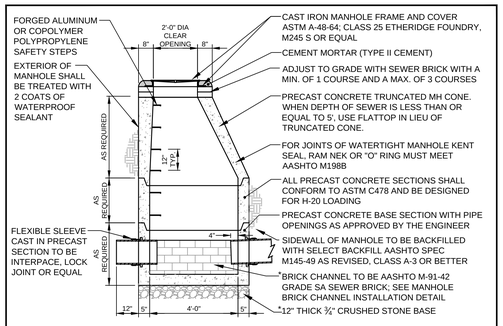
PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
UTILITY DETAILS

CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM
Stantec

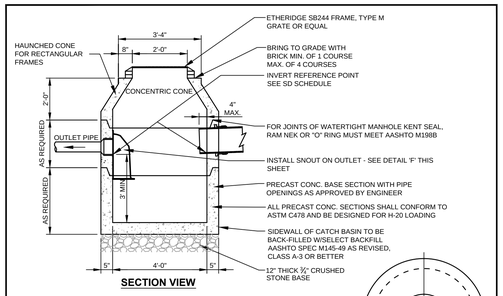
DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS SHOWN
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-DET		
SHEET	C-8.3		



A 4'-0" DIA. PRECAST SEWER & STORM DRAIN MANHOLE DETAIL

N.T.S.

*NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



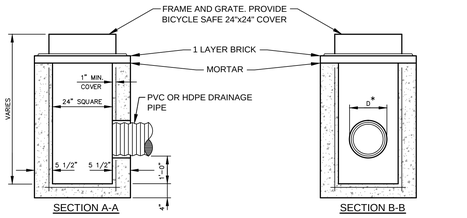
SECTION VIEW

PLAN VIEW

NOTE:
WHERE DEPTH OF COVER IS NOT SUFFICIENT TO USE CONCENTIC OR TRUNCATED CONE, A FLAT TOP MAY BE USED. SHOP DRAWINGS REQUIRED FOR ALL STRUCTURES PRIOR TO CASTING.

B 4'-0" PRECAST CATCH BASIN

N.T.S.



NOTES:
1. ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK FRAME AND GRATE TO BE PRECAST AS SINGLE PORTLAND CEMENT CONCRETE UNIT.
2. ACCEPTABLE FOR MINOR INLETS WHERE TRIBUTARY AREA IS LESS THAN 10,000 S.F.

*DIAMETER OF HOLE (D) TO BE 3" LARGER THAN THE INSIDE DIAMETER OF FLEXIBLE PIPE OR THE OUTSIDE DIAMETER OF RIGID PIPE.

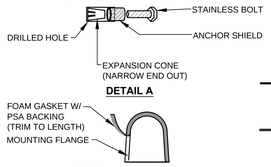
C 2'-0" SQUARE CATCH BASIN TYPE "D"

N.T.S.

NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY BEST MANAGEMENT PRODUCTS, INC. TOLL FREE: (800) 504-8008 OR (888) 354-7585 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL.
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, & AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE IN ACCORDANCE WITH THE FOLLOWING TABLE:

STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12 F or R
12.0"-17.9" O.D.	18 F or R
18.0"-23.9" O.D.	24 F or R
24.0"-29.9" O.D.	30 F or R
30.0"-47.9" O.D.	48 F
48.0"-95.9" O.D.	96 F

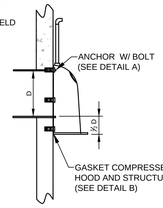
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8' STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT, WHICH INCLUDES:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS



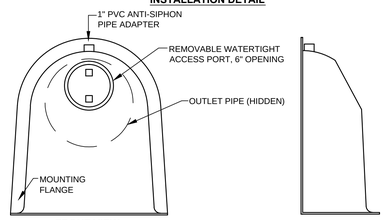
DETAIL A

INSTALLATION NOTE:
POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT. MINUMUM DISTANCE FOR PIPES < 12" I.D. IS 6".

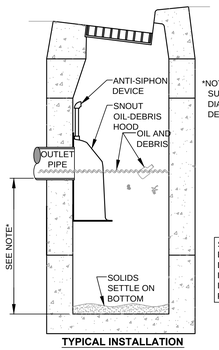
DETAIL B



INSTALLATION DETAIL



CONFIGURATION DETAIL



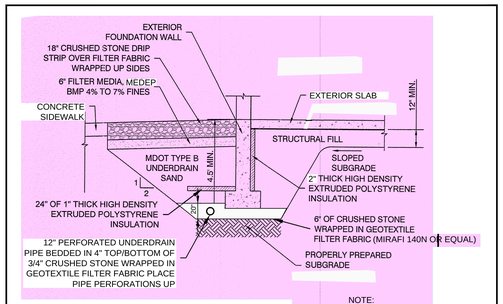
*NOTE:
SUMP DEPTH OF 36" MIN. FOR < OR = 12" DIAM. OUTLET. FOR OUTLETS >OR= 15", DEPTH = 2.5-3X DIAM.

SNOUTS INSTALLED ON STORM DRAIN PIPES GREATER THAN 18" DIAMETER ARE REQUIRED TO BE INSTALLED PRIOR TO INSTALLATION OF CATCH BASIN FLAT TOP.

TYPICAL INSTALLATION

E SNOUT OIL-WATER-DEBRIS SEPARATOR DETAIL

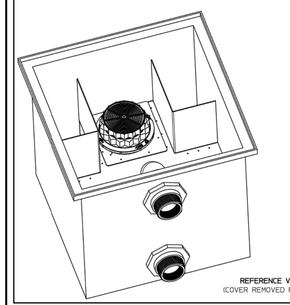
N.T.S.



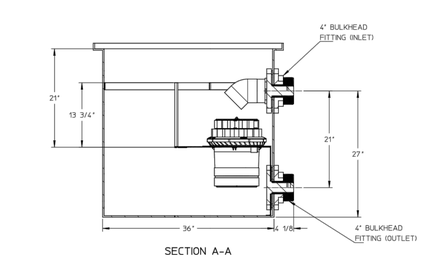
NOTE:
UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THE GEOTECHNICAL REPORT.

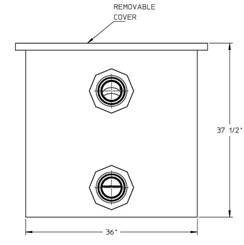
G ROOF DRIP EDGE DETAIL

N.T.S.



REFERENCE VIEW
(COVER REMOVED FOR CLARITY)





NO	QTY	PART NUMBER	DESCRIPTION	REMARKS
			BILL OF MATERIALS	

APPROVALS	DATE
DWN PG	6/30/14
CHKR	
ENGR JP	6/30/14
APVD	

MATERIAL: SEE NOTES

MODEL LINK: 10080-2

FABCO INDUSTRIES, INC.
66 CENTRAL AVENUE
FARMINGDALE, NY 11735
WWW.FABCO-INDUSTRIES.COM

TITLE: DOWNSPOUT FILTER, 3C

SIZE	CAGE CODE	DWG NO	REV
D	1P8A4	10080-2-000	A

SCALE: 1/8 WT: SHEET 1 OF 1

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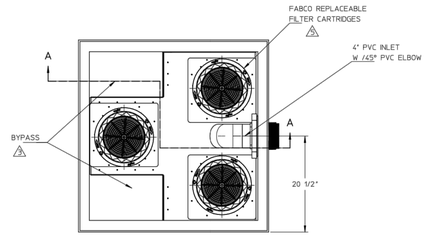
NOTES:

1. WEIGHT (APPROX):
   A) EMPTY W/CARTRIDGES: 50-LB (MAX)
   B) FULL OF WATER: 1800-LB (MAX)
2. MATERIAL:
   A) FILTER HOUSING AND COVER: HDPE, WHITE
   B) CARTRIDGE PLATE: 5052-H32 ALUMINUM ALLOY
   C) SUPPORT HARDWARE: CRES 300 SERIES OR EQUAL
3. PERFORMANCE CHARACTERISTICS (TYP):
   A) DEBRIS CAPACITY: 110 CU-FT
   B) FILTERED FLOW RATE: SEE TABLE 1
   C) BYPASS FLOW RATE: 3100 GPM (6.9 CFS)
4. TYPICAL INSTALLATION: CUT DOWNSPOUT PIPE AND CONNECT THE 4" INLET AND OUTLET PIPES AS REQUIRED TO REDIRECT RAIN FLOW THROUGH THE FILTER BOX.
5. USE ONLY WITH FABCO REPLACEABLE MEDIA CARTRIDGES.
6. ALL TANK DIMENSIONS ARE REFERENCE AND VARY BY THE STANDARD ROTATIONAL MOLDING TOLERANCE OF ± 3%



COVER REMOVED FOR CLARITY

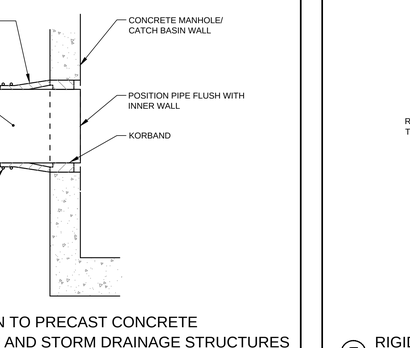
TABLE 1 3 3
ADDITIONAL CARTRIDGE DESIGNS

ORDER NUMBER	DESCRIPTION	COLOR CODE	FLOW RATE (TYP)
9718-1	STANDARD	RED	115 GPM (.26 CFS)
9718-2	BACTERIA	YELLOW	115 GPM (.26 CFS)
9718-3	HYDROCARBONS	BLUE	115 GPM (.26 CFS)
9718-4	HEAVY METALS	GREY	60 GPM (.13 CFS)
9718-5	STANDARD (SHORT)	MINT	115 GPM (.26 CFS)
9718-6	NUTRIENTS	GREEN	100 GPM (.22 CFS)
9718-7	HIGH FLOW	RED (MARKED)	260 GPM (.58 CFS)

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	FIRST RELEASE	6/30/14	

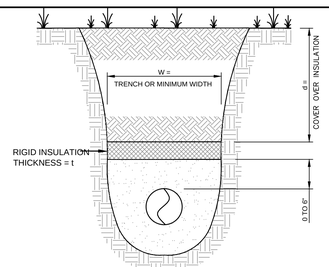
H FABCO DOWNSPOUT FILTER DETAIL

N.T.S.



PIPE CONNECTION TO PRECAST CONCRETE SANITARY SEWER AND STORM DRAINAGE STRUCTURES

N.T.S.



COVER OVER PIPELINE CROWN (d)			MINIMUM WIDTH OF INSULATION	MINIMUM THICKNESS OF INSULATION
SEWER	WATER	STORM DRAIN		
<5'	<6'	<4'	PIPE OD + 4'	1"
<4'	<5'	<3'	PIPE OD + 6'	2"
<3'	<4'	<2.5'	PIPE OD + 8'	3"

F RIGID INSULATION DETAIL

N.T.S.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE * STEPHEN R. BUSHEY * 12/14/17 LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT: CANAL LANDING AMENDED SITE PLAN

SHEET TITLE: STORM DRAIN SYSTEM DETAILS

CLIENT: CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	AS SHOWN
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-DET		
SHEET	C-8.4		

NORTH

U.S. ROUTE 1A WEST COMMERCIAL STREET

WEST COMMERCIAL STREET

DANFORTH ST.

EXTENTSON OF EMERY ST.

BLDG. C
180'x110'
19,800 S.F.
F.F.E: 16.0

BLDG. D
80'x60'
4,800 S.F.

20' x 120' SHELL STORAGE BLDG. (RUBB STYLE)

PROPOSED HYDRANT

EXISTING HYDRANT

REMAINING AREA OF NORTH PORTION = ±294,081 S.F. ±6.75 ACRES CANAL LANDING LLC CCRD BOOK 32239 PAGE 148

REMAINING AREA OF SOUTH PORTION = ±260,844 S.F. ±5.99 ACRES TO SPRING HIGH TIDE CANAL LANDING, LLC CCRD BOOK 32239 PAGE 148

LAND RETAINED BY NEW YARD, LLC/CANAL LANDING, LLC 219,044±/5.03± ACRES

MAINE RAILROAD CORRIDOR ACQUIRED BY MDOT

FORMER HARBOR COMMISSIONERS LINE OF 1829 (PLAN REFERENCE 1)

FEDERAL CHANNEL LINE (PLAN REFERENCE 2)

APPROXIMATE MEAN LOW WATER ELEVATION -4.0

SPRING HIGH TIDE ELEVATION 7.4 NGVD 1929

BOAT RAMP #1 (CONSTRUCTED FALL 2013)

EXISTING WALL

DILAPIDATED PIER

ABANDONED HYDRANT

GRAVEL ROAD

PAVED

GAS METERS

GRANITE CURB

SWITCH

EX. VALVE

EX. UGE

PLAN REFERENCES

1. "BOUNDARY AND TOPOGRAPHIC SURVEY WEST COMMERCIAL STREET PORTLAND, CUMBERLAND COUNTY, MAINE" MADE FOR HNTB AND THE MAINE DEPARTMENT OF TRANSPORTATION BY OWEN HASKELL, INC. DATED APRIL 4, 2014.
2. PLAN TITLED "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP "LAND ACQUISITIONS" BY OWEN HASKELL INC. DATED APRIL 4, 2014.
3. PLAN SET TITLED "STATE OF MAINE DEPARTMENT ON TRANSPORTATION" CITY OF PORTLAND, CUMBERLAND COUNTY, PORTLAND INTERNATIONAL MARINE TERMINAL - EXISTING LAYDOWN AND CONNECTING CORRIDOR CONNECTION WIN: 022809.20
4. PORTLAND HARBOR, PORTLAND, ME AFTER DREDGE SURVEY - 35 FOOT CHANNEL AND TURNING BASINS BY THE U.S. ARMY CORPS OF ENGINEERS. SHEETS V-101 THROUGH V-104, DATED APRIL 16, 2014.

STRUCTURES WITHIN PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH PORTLAND CITY CODE, SECTION 14-450.8 FLOOD PLAIN MANAGEMENT.

LEGEND

EXISTING BUILDING

PROPOSED BUILDING

NOTE

1. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE TEMPORARY ACCESS AND EGRESS FOR THE PROJECT WILL BE VIA THE EXISTING DRIVEWAY NEAR THE CASCO BAY BRIDGE DURING THE IMT CONSTRUCTION. NEW YARD, LLC / CANAL LANDING, LLC SHALL COORDINATE WITH THE MEDOT'S CONTRACTOR FOR ALL TEMPORARY ACCESS PROVISIONS INCLUDING THE PREPARATION OF A CONSTRUCTION MANAGEMENT PLAN.
2. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL THE APPLICANT SHALL RESERVE ONE OR MORE AREAS FOR BICYCLE PARKING UP TO FIVE (5) BICYCLES. THE APPLICANT RESERVES THE RIGHT TO MOVE THESE BICYCLE PARKING AREAS FROM TIME TO TIME DEPENDING ON BOAT YARD ACTIVITIES. A MOVEABLE BIKE RACK SHALL BE PROVIDED AT THESE LOCATIONS TO ALLOW FOR BIKE SECURITY.
3. PER THE AMENDED SITE PLAN CONDITIONS OF APPROVAL CANAL LANDING LLC SHALL MAINTAIN A 30 FOOT WIDE ACCESS ROUTE AS GENERALLY DEPICTED ON THIS PLAN AT ALL TIMES. THE ROUTE MAY VARY TO ALLOW FOR THE PLACEMENT OF VESSELS ON THE SITE.

REV	DATE	DESCRIPTION
4	12.14.17	PERMIT RENEWAL SUBMISSION - LEVEL III
3	11.10.15	REVISED FINAL PLAN SUBMISSION
2	09.04.15	FINAL PLAN SUBMISSION TO CITY OF PORTLAND
1	06.15.15	PRELIMINARY PHASE III AMENDED SITE PLAN TO CITY OF PORTLAND

REVISIONS

STATE OF MAINE — STEPHEN R. BUSHEY — 12/14/17 — LICENSED PROFESSIONAL ENGINEER

P.E. STEPHEN BUSHEY
LIC. # 7429

PROJECT
CANAL LANDING
AMENDED SITE PLAN

SHEET TITLE
FIRE PROTECTION PLAN

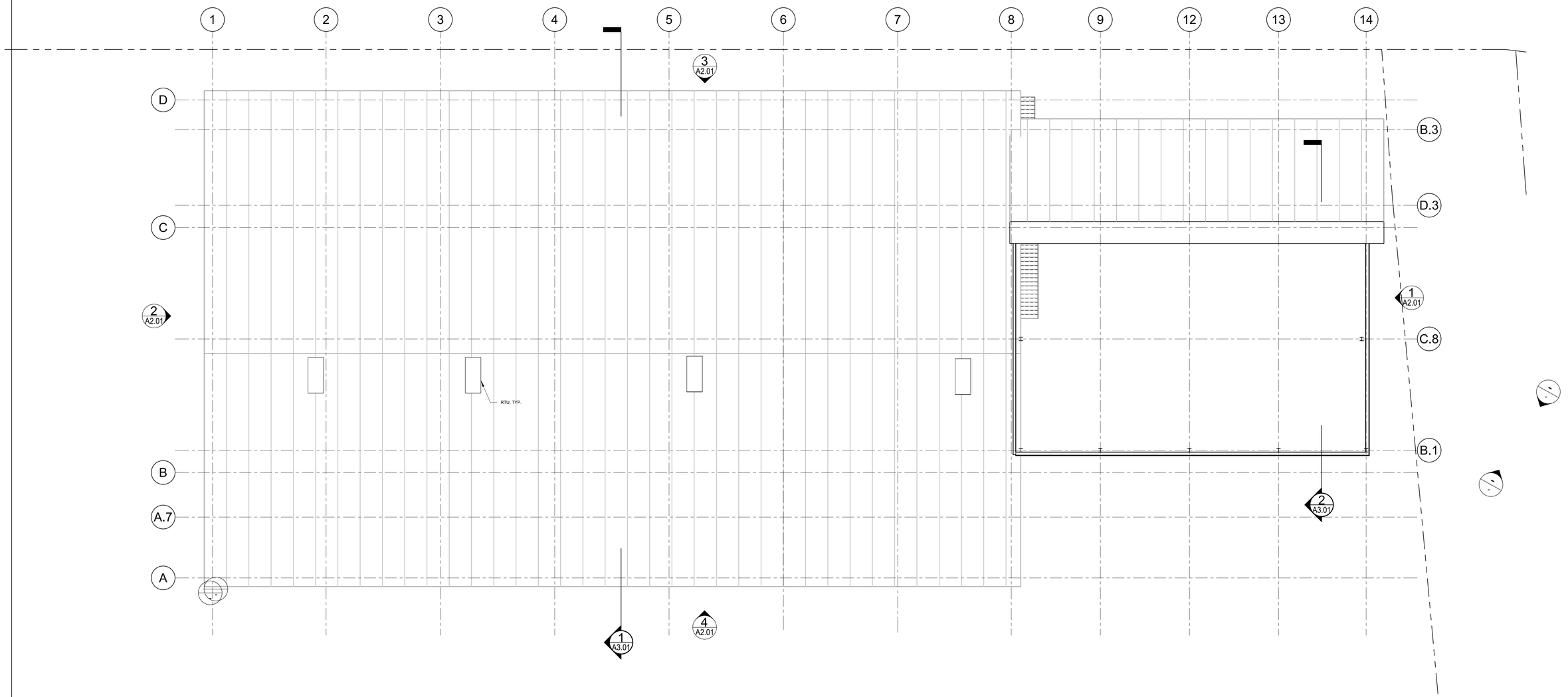
CLIENT
CANAL LANDING LLC
400 WEST COMMERCIAL STREET
PORTLAND, ME 04101

STANTEC CONSULTING SERVICES INC.
482 PAYNE ROAD
SCARBOROUGH, ME 04074
WWW.STANTEC.COM

DRAWN:	PBF	DATE:	DECEMBER 2017
DESIGNED:	SRB	SCALE:	1" = 50'
CHECKED:	SRB	JOB NO.	195350129
FILE NAME:	3091.04-UTILITY		
SHEET	C-11.0		

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

V:\1953\active\195350129\Cadd\Permit Set\dwg\PHASE III PERMIT\3091.04-UTILITY.dwg pfilletaz 12/14/2017 2:34 PM



1 HAMILTON ROOF
3/32" = 1'-0"

Prepared For:
Owner

Consultant:

Architect:
ARCHETYPE
architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
CANAL LANDING
Portland, Maine

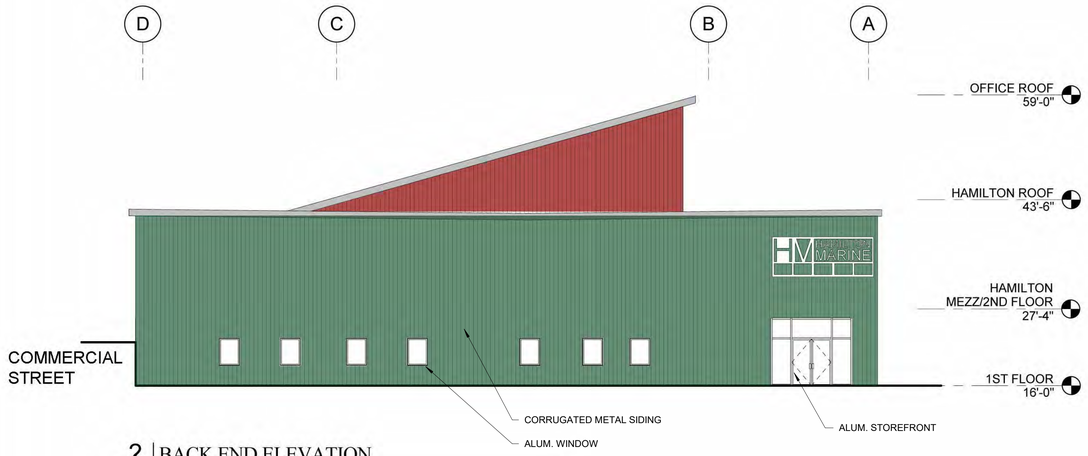
Revisions:

Scale: 3/32" = 1'-0"

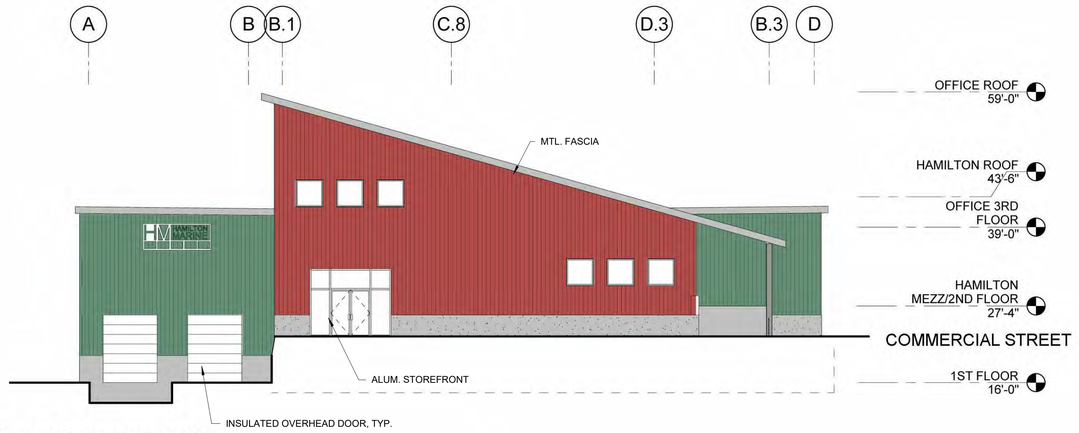
Date: 16 JAN 2018

Roof Plan

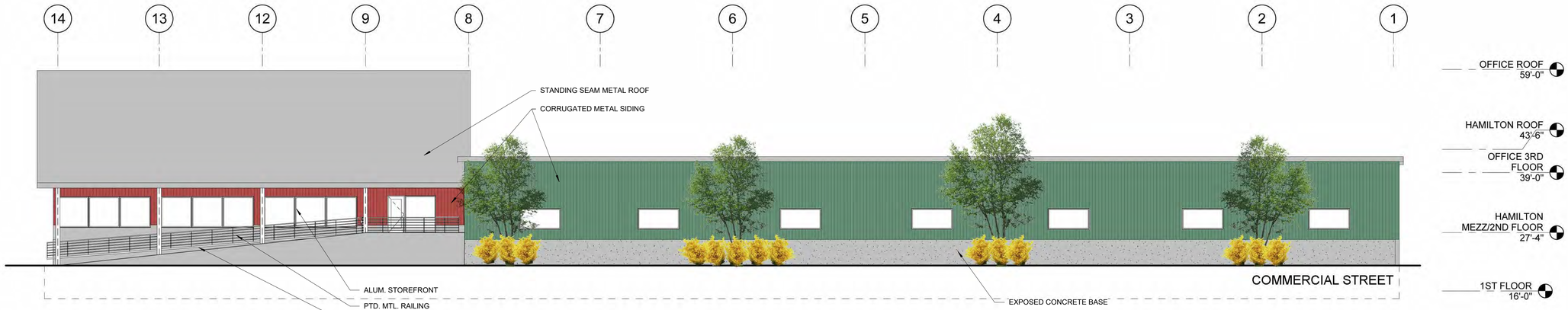
A1.02



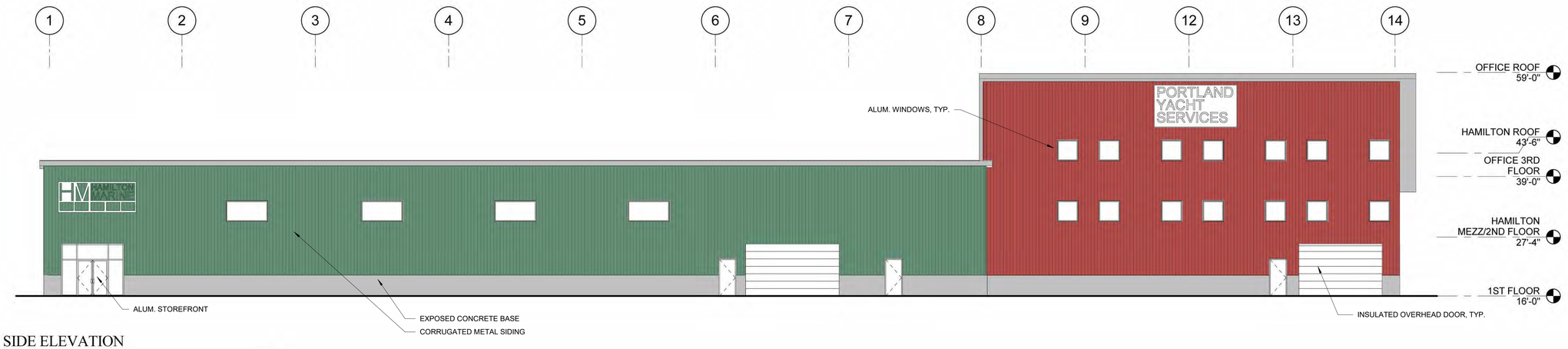
2 | BACK END ELEVATION
3/32" = 1'-0"



1 | FRONT END ELEVATION
3/32" = 1'-0"



3 | RIGHT SIDE ELEVATION
3/32" = 1'-0"



4 | LEFT SIDE ELEVATION
3/32" = 1'-0"

Prepared For: Owner

Consultant:

Architect: ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project: CANAL LANDING
Portland, Maine

Revisions:

Scale: 3/32" = 1'-0"

Date: March 9, 2015

Building Elevations

A2.01

PORTLAND
YACHT
SERVICES

TENANT
SIGNAGE

PLANNING BOARD REPORT
PORTLAND, MAINE

Lyseth/Lyman Moore Access, Circulation, Parking and Drainage Improvements
171 Auburn Street
Level III Site Plan
Project # 2017-202
City of Portland Parks, Recreation and Facilities Department, Applicant

Submitted to Portland Planning Board: Public Hearing Date: January 23, 2018	Prepared by: Jean Fraser Date: January 19, 2018

I. INTRODUCTION

The City of Portland Parks, Recreation and Facilities Department has requested final site plan approval of a Level III application for circulation, access, drainage and parking improvements on the Lyseth Lyman- Moore Campus. The campus is comprised of the Lyman Moore Middle School nearest to Auburn Street, and the Lyseth Elementary School towards the rear of the site. The project was considered at a Planning Board Workshop on December 6, 2017 and the applicant has been working with staff to revise the proposals and provide additional information to address the Planning Board comments.

The site is located primarily in the R2 zone, with a corner within the ROS zone that abuts the schools. It is constrained by having one main vehicle access via signals at Auburn Street, with a secondary vehicle access at Junior Street via other residential streets.

The project is being brought before the Planning Board as it impacts about 25 acres - with extensive site work over about 4.5 acres to improve the drainage, access and parking; the project does not include any new buildings.

The applicant held a Neighborhood Meeting on October 18, 2017 at the Lyman Moore Middle School which was attended by seven neighbors; notes are included in Attachment S. This Hearing was noticed to 189 neighbors and interested parties, and the public notice appeared in the *Portland Press-Herald* on January 16th and 17th, 2018. The Planning Division received a letter in support from the Principal of Lyseth School prior to the PB Workshop and has not received any additional comments as of the completion of this Report.

Applicant: City of Portland Parks, Recreation and Facilities Department, (David Onos)
Consultants: Wright-Pierce (Douglas Rice and Michael Guethle)

Required reviews and requested waivers

Applicant's Proposal	Applicable Standards
Site work of over 4.5 acres affecting approximately 25 acres of school grounds and athletic fields	14-523 Site plan Required Approval and Applicability Level III Site Plan and 14-526 Site Plan Standards

Waivers	Applicable Standards
The applicant requests a waiver for the 33% of the parking to consist of compact size parking spaces, which would be used by staff and thus little turnover is expected.	The Technical Manual Standard 1.14 *Parking and Parking Lot Design* requires that compact parking be a maximum of 20% of parking spaces. The Traffic Engineering Reviewer supports the waiver request (Attachment 1)

II. PROJECT DATA

SUBJECT	*DATA*
Existing Zoning	R2 (plus small area ROS)
Existing Use	School and Athletic Fields
Proposed Use	Same uses, improved facilities
Parcel Size	25.12 acres (1,146,475 sq ft)
Existing building footprint	140,000 sq ft
Impervious Surface Area **--Existing** **--Proposed** **--Net Change**	 371,935 sq ft 347,735 sq ft 2,800 sq ft
Total Disturbed Area	198,500 sq ft
Building Footprint	N/A
Parking Spaces **-Existing** **-Proposed** **-Net change** **-Handicapped Spaces**	 135 formal; 40+/- informal 185 50 10
Bicycle parking Spaces **-Existing** **-Proposed** **-Net change**	 0 (conforming) 56 56
Estimated Cost of Project	$1,540,000

III. BACKGROUND AND EXISTING CONDITIONS

The campus is located on the east side of Auburn Street just north of the Northgate Shopping Plaza, surrounded by R2 and R3 residential development. Immediately southeast of the schools are athletic fields (3 baseball fields, basketball and tennis courts) that are used by both the school and the community.

View looking east from main access drive; Junior Street to left and main entrance to the Lyman Moore Middle School is to the right.

(Lyseth elementary School in far distance straight ahead)

The main vehicle access is from Auburn Street at signals, but the site can also be accessed by vehicles via Bartley Avenue and Junior Street to the north. There are additional points where pedestrian and bicycle access to the campus is possible (see Circulation Overview Plan in P12).

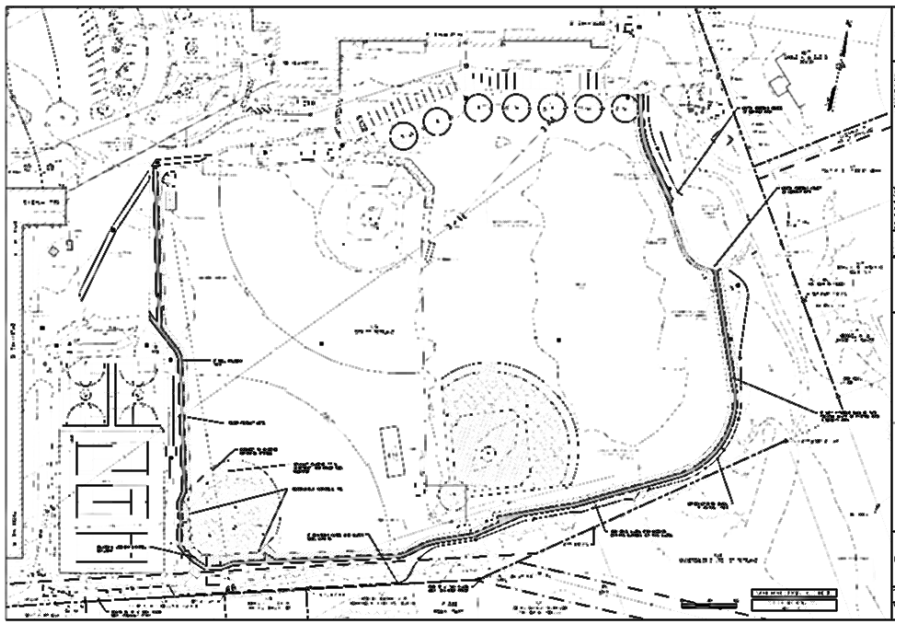
The existing conditions are described in summary in the applicant's submission "*Description of Project*" (Attachment C) and also in the 2011 *Report of the Portland District Safe Routes to School Committee* (Attachment 7). The latter study explored ways to encourage pupils to walk or bicycle to the schools and included a set of 10 key recommendations that are summarized below to provide a context for the current project:

1. *Lyman Moore & Lyseth Drop-Off Zone/Parking Lot Redesign & Designation of Remote Bus/Car Drop Locations*
2. *Relocate Bike Parking at Lyseth & Lyman Moore to encourage use and reduce risk of theft & vandalism*
3. *Install/Enhance Crosswalks:*
    a. *Across Lyseth-Moore Drive at Junior St.*
    b. *Washington Ave. Ext.*
4. *Locate Crossing Guard at Allen Ave. & Bramblewood/Virginia*
5. *Construct Missing Sidewalk Links (list includes Junior Street)*
6. *Annual Bicycle & Pedestrian Safety Education, including:*
7. *Organize Peer Walkpool and/or Bike Train groups for Lyman Moore Students – and Adult-Led Walking School Bus and/or Bike Train groups for Lyseth Students*
8. *Winter Enforcement & Maintenance of Sidewalks and Paths*
9. *Use Speed Trailers Twice a School Year and Practice Speed Enforcement on nearby streets*
10. *Offer Encouragement Campaigns and Incentives for Students and Staff to Walk, Bike, Use Transit, and Carpool to both School and After-School Events*

The two schools include a total of approximately 1000 pupils and 150 staff members with their associated staff parking areas, bus access and waiting areas, and areas where parents drop-off /pick-up children. The adjacent athletic fields are well-used, though more later in the day but parking is currently informal. These access and parking needs create a congested area that is a challenge for pedestrians.

Drainage improvements for the playing fields and a walking trail around them were proposed, and the associated site plans approved (at staff level in early 2017) after a number of discussions with neighbors to the south who were affected by the ROS/athletics activities and proposed trail. The approved site plan is included for information and context below. The work in the athletic fields and edges of the current proposal (eg staff parking area) will start this summer (see Phasing Plan P14), with the remainder the following summer. Construction has been phased to avoid the school sessions and the applicant has requested an approval for 3 years to allow for this phasing.

Improvements already approved for athletics fields, including improved drainage



IV. PLANNING BOARD WORKSHOP 12/6/17 DISCUSSIONS

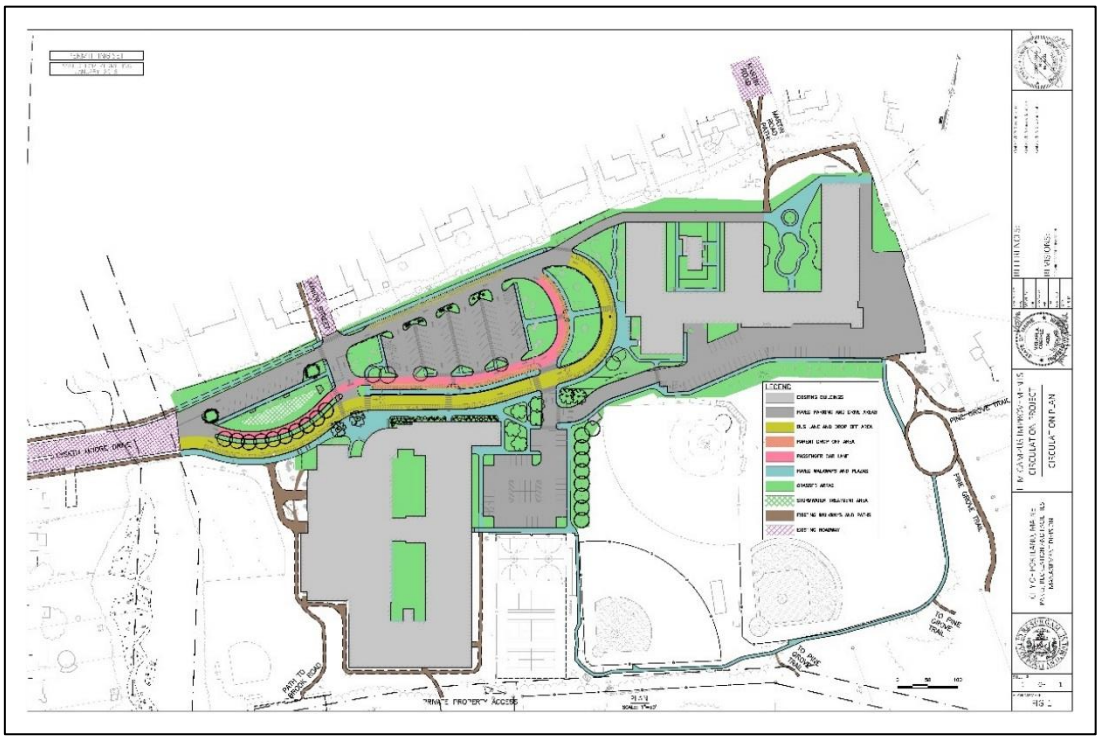
The Board acknowledged that the existing conditions needed to be improved but suggested that more could be done to improve pedestrian safety and document the need for the significant increase in parking provision. The main concerns were:

- That further information was needed to understand and substantiate the need for parking provision that was significantly higher than required by zoning;
- That to encourage bicycle use there should be more bicycle parking areas;
- That pedestrian circulation and safety needed further consideration;
- That the interface with Junior Street should be improved;
- That the plans should show connections with the surrounding area more clearly (trails; Junior Street etc)

The applicant has submitted updated plans and additional information to address the Board's comments.

V. PROPOSED DEVELOPMENT

The proposal is for the redevelopment of the current access, circulation and parking facilities in the vicinity of the Lyman Moore and Lyseth schools in order to reduce conflicts between school buses, cars and pedestrians particularly at the beginning and end of the school day. In overall terms the proposals create one loop (yellow) for school buses and one loop for passenger cars (pink), along with improved parking areas and pedestrian crossings and sidewalk areas, as shown in the Circulation Overview Plan (P12 and below). This plan was revised to add in the trail connections and show Junior Street; it also illustrates the proposed new planting and revised rear multi-way intersection.



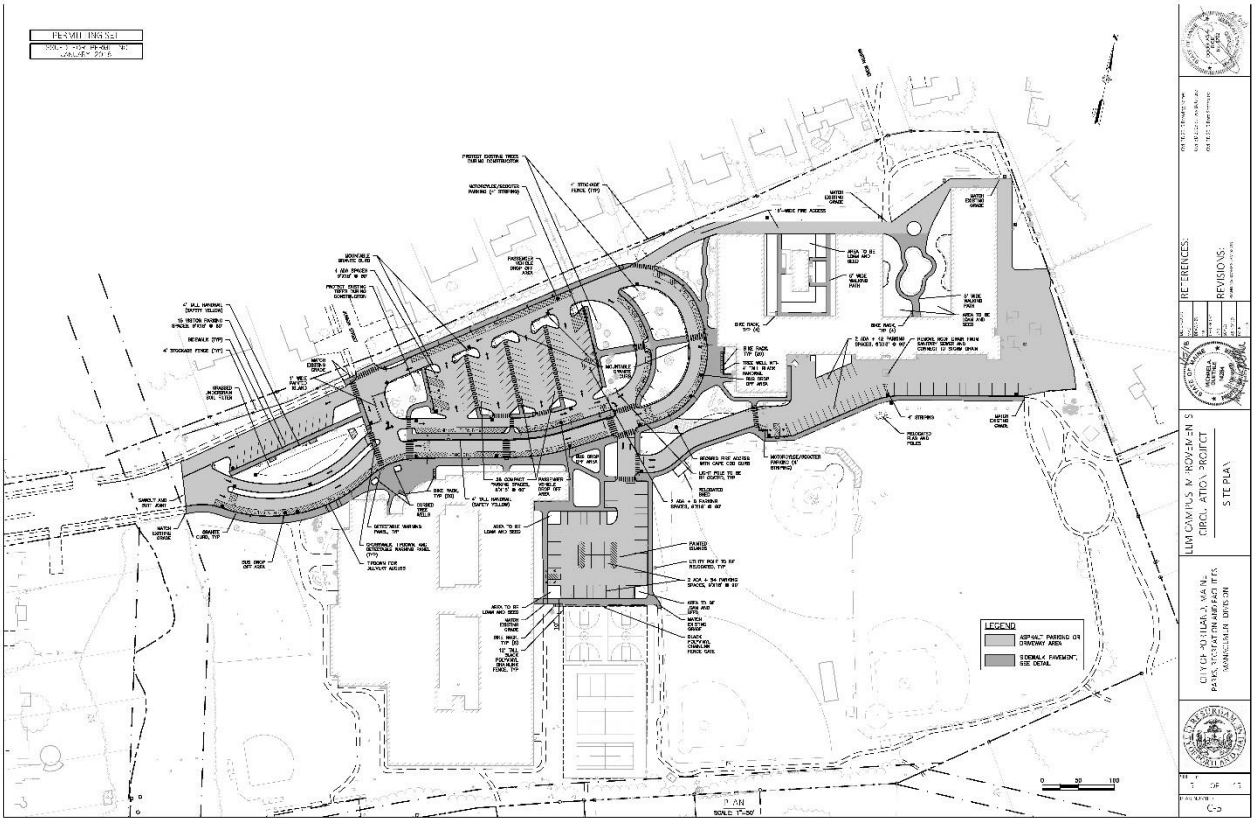
Overall Circulation Plan (see Plan P12)

As part of the project, an underdrained grassed soil filter is being introduced into the westernmost "island" and a series of catchbasins plus roofdrains will direct stormwater to this system. (see Stormwater Response letter & Report in Attachments U & K).

The project also includes landscaping and the proposal has been developed in consultation with the City Arborist (Plans P10/P11 and City Arborist comments in Attachment 5).

Since the Workshop the Site Plan has been revised to:

- Reconfigure the "multiway" intersection towards the rear of the site so that the pedestrian crossing is direct and a continuation of the sidewalks; this design incudes a fire access lane across the "island" and a dedicated turn lane from the larger parking area;
- Double the number of bicycle parking racks and to distribute them so that they are near all of the entrances to the schools; and
- Revise the area in the vicinity of Junior Street to reduce potential vehicle/pedestrian conflicts.



Site Plan (see Plan P5)

VI. STAFF REVIEW

A. ZONING

The project involves an upgrade of essential school support facilities and does not raise issues of zoning as the schools are a permitted use.

The proposals include the addition of 50 parking spaces to total 185 spaces and Division 20 re parking prescribes 1 parking space per classroom (82 spaces). This number does not take into account the actual number of school employees nor the ROS use that is accessed and supported by the same facilities. The applicant submitted additional information regarding parking demand and there is clearly more need for parking than supply at the moment. (See also further discussion below)

The zoning map is included as it provides a useful context plan, illustrating not only the limited access to the school site but also the stream protection zone (Fall Brook Urban Impaired stream) that runs along the west part of the site and impacts the drainage proposals for the project (though it is understood the proposed construction wok is not located within the stream Protection Zone).

B. SITE PLAN STANDARDS (14-526)

The applicant has provided a comprehensive final application, with additional information and revisions as requested at the Planning Board Workshop. The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations.

i. Transportation Standards

Impact on the Surrounding Street Network and Circulation

The preliminary proposals were the subject of a large number of detailed preliminary comments (most outlined in Attachment 1). The applicant met with staff and revised the proposals prior to the Planning Board Workshop, including revisions to address the Fire Department concerns about the width of the access routes to the schools. The Response Letter in Attachment P15 explains how emergency access can be achieved.

The applicant met with staff since the Planning Board Workshop and further revised the plans to address the Planning Board and staff concerns. Revisions address the two issues that were discussed at the PB Workshop:

- **Junior Street** enters the site from Bartley Avenue and is used as an alternative access route particularly for parents dropping off/picking up children. There is a history of concerns raised by neighbors along this route regarding speeding and parking. City representatives have met with them in the past and introduced a no parking zone along Junior Street in early 2017.

At the Neighborhood Meeting on the current project (see notes in Attachment S) concerns were raised over the existing impacts on Junior Street and suggestions offered for how this project could limit access at this location.

This question was discussed with the DPW Transportation Systems Engineer who has been involved in the previous discussions. Further observations were undertaken in November 2017 which did not indicate any particular problems, and the Engineer concluded:

> "*Based on the observed counts, closing Junior Street to through traffic would add significant activity to the traffic signal at Auburn Street and the school driveway, which may have an adverse impact to movement along this key arterial. As such, closure is not recommended at this time.*" (Att. 4).

At the PB workshop both the public and Board comments related to the safety of pedestrians at Junior Street. There is a consensus that Junior Street should not be closed because of the need for emergency access and egress (in addition to the traffic reasons noted above), and the revised plans attached to this report show that the pedestrian routes have been redesigned to reduce potential pedestrian/vehicle conflicts. Tom Errico, the City's consultant Traffic Engineering Reviewer, has confirmed that the plans are generally acceptable except that he recommends the following in respect of Junior Street (Attachment 1):

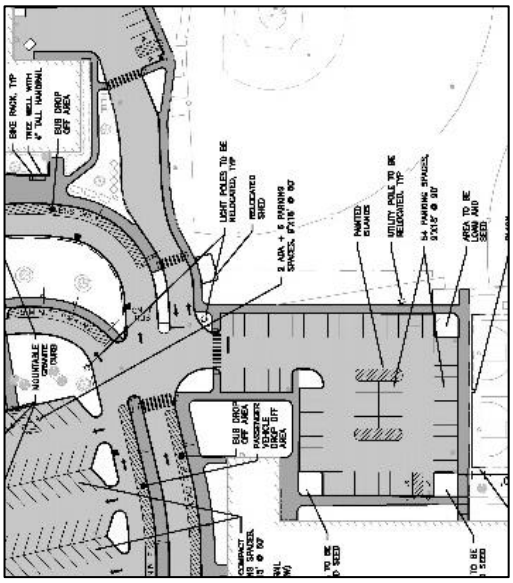
> *Final Status: I would suggest that a multi-way STOP condition be provided at the Jr. Street intersection with the school roadway system for improved pedestrian safety.*

A suggested condition of approval has been included to reflect this recommendation.

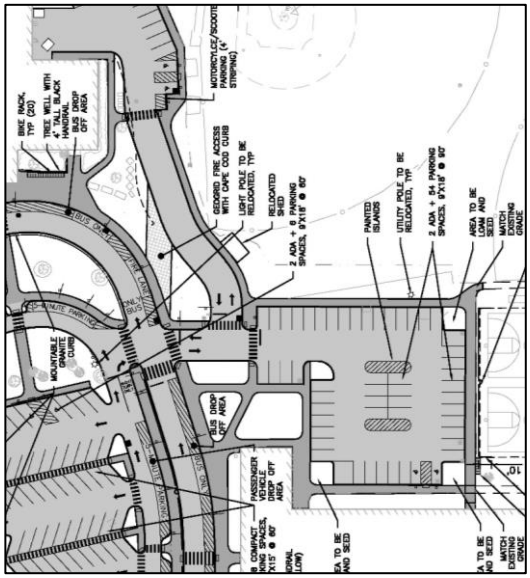
- **Multi way intersection** between the two schools and rear parking areas is a key intersection located at the back of the site where 6 vehicle driveways come together - photo at right shows the location.

The applicant has worked with staff to consider a number of options for revising the design to create a more direct path for pedestrians so that they would not cross through the middle of the intersection. The final configuration is shown in the right hand plan below:

PREVIOUS



FINAL



The final layout of this intersection is acceptable to reviewers, subject to a suggested condition of approval requested by the Fire Department to ensure that the fire access lane (angled path that will be grassed geogrid) be a minimum 16'wide, flat curbing, paved, and maintained year-round including plowing.

Since the Workshop staff suggested that the larger parking lot would benefit from dedicated pedestrian paths leading towards the schools, and the plans have introduced striped walkways between the rows of parking spaces. The DPW Senior Engineer Keith Gray recommends a condition that requires monitoring of the stiped paths to determine if they become blocked by parked cars (Attachment 6). This suggested condition also includes lighting (see below), and the Board may wish to consider whether any other aspects of the proposals merit monitoring to ensure that they operate as intended.

Parking

The proposals include a total of 185 parking spaces, which is an increase over existing of 50 and more than double the number required under zoning. At the Workshop the applicant explained that there were many visiting staff during the school day as well as parents and that the zoning standards do not reflect current parking demand. The Planning Board requested substantiation of the current levels of demand for vehicle parking and the applicant has submitted this information in Attachment R. The information includes field observations and data along with employee information and the City's Traffic Engineering Reviewer has commented (Att. 1):

The applicant has provided a parking demand/supply analysis for the site. The analysis was based upon field observations and employee and student information. Based upon the information provide and observations that I have conducted, it is my professional opinion that the parking supply is not excessive and is needed to accommodate parking generation needs for the school.

The Board also recommended more bicycle parking in order to encourage bicycle use for accessing the schools, and the Site Plan (Plan P5) now shows 56 parking spaces distributed near the school entrances, compared to the 28 spaces shown on the plans at the Workshop. An updated narrative is included in Attachment R.

Snow Storage

Plan P7 shows the snow storage areas and staff do not have any comments.

Transportation Demand Management – this is not required for these proposals. It should be noted that the 2011 *Report of the Portland District Safe Routes to School Committee* (Attachment 7), referred to above, includes proposed actions that would encourage alternative modes of travel.

ii. Environmental Quality Standards

Preservation of Significant Natural Features; Landscaping and Landscape Preservation

The proposals have been designed to minimize disturbance within the Stream Protection zone. New planting has been introduced along and in the parking areas as shown on the Landscape Plan (Plan P10) and described in Attachment P, and are based on discussions with the City Arborist, Jeff Tarling. Mr Tarling has confirmed that the proposals are acceptable (Attachment 5).

Water Quality, Storm Water Management and Erosion Control

The site abuts the Fall Brook Stream Protection Zone and Fall Brook is an Urban Impaired Stream (UIS). The preliminary Stormwater Management Report (Attachment K) requested a waiver from the Urban Impaired Stream Standard in view of the fact the proposals were improving treatment and removing the roof drains from the combined sewer. Staff confirmed that the legal requirements related to the Urban Impaired Stream Standard would not allow for a waiver from the standard and the stormwater system was revised by increasing the capacity of the underdrained soil filter so that it meets the UIS standard, and this has been reviewed in detail and confirmed to be acceptable (Attachment 2).

However, the system interfaces with an existing system that is maintained by DPW and there is a concern that the maintenance responsibilities need to be clarified. The applicant has requested that the maintenance arrangements and the associated agreement be the subject of a Condition of Approval in view of the fact it will be an agreement between the municipal entities involved and further discussions are needed to finalize this aspect of the project. Staff consider that it is acceptable for this issue to be the subject of a condition of approval (Attachment 2).

Phasing and Construction Management Plan

The submitted Phasing Plan (Plan P14) and Construction Management Plans (Attachment H and Plans P18 and P19) clarify the phasing and construction plans, which have been updated to fully address the current CMP template. The construction is planned to take place in the summers to avoid disruption to the schools and ensure safety.

iii. Public Infrastructure and Community Safety - the proposals involve site work only and the only relevant standard relates to emergency access, which has been discussed above under Circulation.

Iv. Site Design- - the proposals involve site work only, with Signage the only relevant standard. The applicant have submitted a Signage plan (Plan P8) which supports the revised access and circulation layout; staff have not raised any concerns about the proposed signage.

Staff note that the proposals relocate two existing lights (further from the site boundary) and do not introduce any new lighting. A suggested condition of approval includes monitoring of the pedestrian routes/crossings to determine if some additional lighting should be considered.

VIII STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed access, circulation, drainage and parking improvements at the Lyseth Lyman-Moore School campus at 171 Auburn Street.

IX MOTIONS FOR THE BOARD TO CONSIDER

SITE PLAN

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in Planning Board report for the public hearing on January 23, 2018 for application 2017-202 (Lyseth/Lyman Moore campus at 171 Auburn Street) relevant to the Site Plan Ordinance and other regulations and the testimony presented at the Planning Board hearing:

The Planning Board finds that the plan **is / is not** in conformance with the site plan standards of the land use code, subject to the following conditions:

i. That this site plan approval is valid for 3 years to allow for the phasing of the improvement work to take place when the schools are not in session.

ii. That the applicant shall submit revised plans and details to address the comments of the DPW Senior Engineer Keith Gray (re sidewalk connection and island design), and Traffic Engineer Reviewer Tom Errico (re making the intersection with Junior Street a 3-way stop), both dated January 18, 2018, for review and approval prior to the issuance of a building permit.

iii. That the applicant/site manager ensure that the fire lane near Lyseth School (allowing access to the south side) be a minimum of 16 feet wide, paved with a material that will support fire appliances, and be maintained year round including plowing.

iv. That the applicant/site manager monitor the internal parking lot painted sidewalks to determine if blocking is an issue and monitor the lighting levels at key pedestrian safety locations and consider further action if necessary (such as removable bollards to protect the pedestrian path; additional lighting).

v. That the developer/contractor/subcontractor shall comply with conditions of the submitted and approved stormwater management plan and sediment and erosion control plan (prepared by Wright-Pierce September 2017) and associated inspection and maintenance manual, based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. A formal stormwater maintenance agreement that clarifies future responsibilities for operation and maintenance of the proposals, in coordination with the existing stormwater systems, shall be submitted to the Planning Division prior to the issuance of a building permit.

ATTACHMENTS:

Attachments to Report

1. Traffic Engineering Review final comments
2. Peer Engineering Review comments
3. Fire Department final comments
4. City Transportation Systems Engineer comments
5. City Arborist comments
6. DPW Engineer final comments
7. *Safe Routes to School Travel Plan* 2011 (background)

Public Comments

PC1 Principal of Lyseth School

Applicant's Submittal

A. Cover Page and Table of contents
B. Site Plan Application (data sheet revised for hearing)
C. Development Description
D. Right, Title and Interest
E. Zoning Compliance
F. Easements/other burdens
G. Financial and Technical Capacity
H. Construction Management
I. Traffic
J. Significant Natural Features
K. Prelim Stormwater Management Plan
L. Consistency with City Master Plans
M. Utilities
N. Solid Waste
O. Fire Safety & Emergency Services Info
P. Conformity with Technical Standards
Q. HVAC Equipment
R. Parking provision and Site Plan Standards Compliance (revised for hearing)
S. Neighborhood Meeting Certification
T. Circulation Response letter
U. Stormwater Response letter
V. Fire Response letter
W. Landscaping Response letter

Plans (revised for hearing)

P1. Cover Sheet
P2. General Notes and Legend (2 sheets)
P3. Boundary Survey
P4. Existing Conditions and Demolition
P5. Site Plan
P6. Grading and Utility Plan
P7. Snow Storage and Dimension Plan
P8 Signage Plan
P9. Construction Details (5 sheets)
P10. Landscape Plan
P11. Landscape Details
P12. Circulation Overview
P13. Pre and Post Development Drainage

P14. Phasing Plan
P15. Fire Truck Circulation Plan
P16. Bus Circulation Plan
P17. Passenger Car Circulation Plan
P18. Phase 1 Construction Management Plan
P19. Phase 2 Construction Management Plan

Portland Maine | Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

171 Auburn Street - Final Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com> Thu, Jan 18, 2018 at 11:00 AM
To: Jean Fraser <jf@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>

Hi Jean – the following is a status update of my preliminary traffic comments based upon revised application materials and represent final traffic comments.

- The applicant shall confirm that the diagonal parking spaces meet City standards for width.

  Status: The applicant has provided supporting information and has added details to the plans. I have no further comment.

  Final Status: I have no further comment.

- The applicant is proposing a significant number of compact parking spaces. The applicant should note if the number of compact parking spaces requires a waiver from City standards and if so provide documentation in support of the waiver.

  Status: The applicant has noted that 33% of the site consists of compact size parking spaces (the maximum allowable by City standards is 20%). The applicant notes that the compact parking spaces will be used by staff and thus little turnover is expected. I support a waiver from City standards given use. I have no further comment.

  Final Status: I have no further comment.

- Bus drop-off area dimensions vary throughout the site (10 foot bus lane/10 foot travel lane; 8 foot bus lane/12 foot travel lane; 8 foot bus lane/16 foot travel lane; 8 foot bus lane/14.5 foot travel lane). An explanation shall be provided.

  Status: The plans have been revised and the bus drop off area consists of a 16-foot travel lane and an 8-foot parking lane and the parent drop-off consists of a 12-foot

travel lane and an 8-foot parking lane. I find the plan to be acceptable and I have no further comment.

Final Status: I have no further comment.

- The dimensions of the 15 visitor parking spaces do not meet City standards. An explanation shall be provided.

  Status: The applicant has provided supporting information that I find to be acceptable. It is suggested that the 20-foot travel lane be reduced to 19 feet (City standard) and the sidewalk be expanded to 7.5 feet (vehicle encroachment is expected and thus a wider sidewalk would ensure a walkable sidewalk).

  Final Status: I have no further comment.

- A crosswalk construction detail shall be provided.

  Status: A detail has been added to the plans. I have no further comment.

  Final Status: I have no further comment.

- I would suggest that curb extensions be considered at the 5-Minute parking area center crosswalk near the Lyseth School and at the 5-minute parking area leading to Lyman-Moore School. The curb extensions will prevent vehicles from blocking crosswalks.

  Status: The plans have been revised and I find them to be acceptable. I have no further comment.

  Final Status: I have no further comment.

- It is unclear if vehicle movements from Jr. Street are permitted to proceed straight through to the entry roadway system. Revisions to signage and pavement markings may be required to regulate vehicle circulation.

  Status: The plans have been revised and I find them to be acceptable. I have no further comment.

  Final Status: I would suggest that a multi-way STOP condition be provided at the Jr. Street intersection with the school roadway system for improved

pedestrian safety.

- The plan needs to incorporate a traffic control plan for the multi-way intersection of the circulatory roadway and side parking lot areas. I find the configuration to be confusing and potentially problematic.

  Status: I continue to be concerned about this location. I will review further and provide suggestions in the future.

  Final Status: I find the revised configuration to be acceptable.

- I find the sidewalk connection between the two schools (at the multi-way intersection) to be indirect and thus may lead to pedestrians walking in an uncontrolled location.

  Status: In my professional opinion, pedestrians will walk directly through the intersection, and not follow the routing to the crosswalks. I will review further and provide suggestions in the future.

  Final Status: I find the revised configuration to be acceptable.

- During field observations, vehicles tend to park in areas not necessarily designated for parking (grass areas). It is unclear if the plan implements measures to prevent vehicles from parking in undesirable locations.

  Status: The applicant notes that vertical curbing, signage and pavement markings will be provided to delineate parking/no parking areas. I find the plan to be acceptable and I have no further comment.

  Final Status: I have no further comment.

<u>Additional Comments</u>

- **The applicant has provided a parking demand/supply analysis for the site. The analysis was based upon field observations and employee and student information. Based upon the information provide and observations that I have conducted, it is my professional opinion that the parking supply is not excessive and is needed to accommodate parking generation needs for the school.**

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, P.E.
DATE: November 27, 2017
RE: Lyseth Lyman-Moore Campus Improvements Peer Review

Woodard & Curran has reviewed the Level III Site Plan Application response to comments for the proposed development project located at 171 Auburn Street in Portland, Maine. The project involves circulation, access and parking improvements for an elementary and middle school campus.

Documents Reviewed by Woodard & Curran

- Response to comments and attachments, dated November 22, 2017, prepared by Wright-Pierce on behalf of the City of Portland.
- Updated Engineering Plans, dated November 21, 2017, prepared by Wright-Pierce, on behalf of the City of Portland.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards:
   a) Basic Standard: The Applicant has provided a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
   b) General Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to include stormwater management features for stormwater quality control. The Applicant is proposing a grassed underdrained soil filter that will provide treatment in accordance with the standard.
   c) Urban Impaired Stream Standard: The project is located within the Fall Brook watershed and is subject to the Urban Impaired Stream Standard. The Applicant is providing treatment within their proposed underdrained soil filter for additional area on the site beyond the new impervious surface, and has requested mitigation credit for this area. A greater treatment credit has been provided than is required, adequately meeting the standard.
   d) Flooding Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to control the rate or quantity of stormwater runoff from the site. The project will result in an increase in the 2-year storm, and decreases in the 10- and 25-year storm. We agree that the 2-year storm increase is small and would support a waiver of this standard
2) The Applicant has noted that they are working on their options for maintenance and have requested that the formal maintenance agreement be a condition of approval. We have not issues with that.

COMMITMENT & INTEGRITY
DRIVE RESULTS

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Portland, Maine 04102
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F 207.774.6635

MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, P.E.
DATE: November 15, 2017
RE: Lyseth Lyman-Moore Campus Improvements Peer Review – Additional comments

---

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed development project located at 171 Auburn Street in Portland, Maine. The project involves circulation, access and parking improvements for an elementary and middle school campus.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Application and attachments, dated August 31, 2017, prepared by Wright-Pierce on behalf of the City of Portland.
- Engineering Plans, Sheets C1-14 and Figures 1-4, , dated September 1, 2017, prepared by Wright-Pierce, on behalf of the City of Portland.

We have reviewed the project with the City Department of Public Works, and can provide the following clarifications on the Applicant's proposed waivers.

Comments

1) The Applicant has requested a waiver of the flooding standard. With only a minor increase in the 2-year storm event, a waiver of the flooding standard can be supported.
2) The Applicant has requested a waiver of the urban impaired stream standard. Upon review by the Department of Public Works, it was established that there is no waiver option for the Urban Impaired Stream Standard. The City does not have the authority to waive this standard for a stream that is in non-attainment of the State water quality standards. There are two options for meeting the standard: (1) provide additional stormwater management per the standard; (2) pay into the Compensation Fee Utilization Plan for Fall Brook per the Maine DEP standard calculation. The City is in agreement that the removal of roof runoff from the combined sewer system will help with the overall goal of reducing CSO volumes to Back Cove. However, this action would not have a beneficial impact on Fall Brook, which is the purpose of the UIS Standard, so this work cannot be used to justify a waiver of the standard.
3) In addition, a stormwater management agreement will be required for the new stormwater treatment system. The City of Portland Department of Public Works will continue to maintain and inspect the existing gravel wetland. The Applicant will be required to inspect, maintain, and report on the underdrained soil filter in accordance with the Chapter 32 stormwater requirements. Public Works has indicated that arrangements may be made to have the same company perform inspections for the two systems, and that the options can be discussed with the School Department.

COMMITMENT & INTEGRITY
DRIVE RESULTS

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MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, P.E., and Amy LeBel, E.I.T.
DATE: October 31, 2017
RE: Lyseth Lyman-Moore Campus Improvements Peer Review

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed development project located at 171 Auburn Street in Portland, Maine. The project involves circulation, access and parking improvements for an elementary and middle school campus.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Application and attachments, dated August 31, 2017, prepared by Wright-Pierce on behalf of the City of Portland.
- Engineering Plans, Sheets C1-14 and Figures 1-4, , dated September 1, 2017, prepared by Wright-Pierce, on behalf of the City of Portland.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: The Applicant has provided a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
      - Note that the project may require a Notice of Intent to Comply with the Maine Construction General Permit.
   b) General Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to include stormwater management features for stormwater quality control. The Applicant is proposing a grassed underdrained soil filter. The following comments should be addressed:
      - The Applicant has identified a media exfiltration rate of 0.375 in/hr. As this varies from the Maine DEP standard, justification for this rate should be provided.
   c) Urban Impaired Stream Standard: The project is located within the Fall Brook watershed and is subject to the Urban Impaired Stream Standard. The Applicant has requested a waiver from the Urban Impaired Stream Standard, due to the existing gravel wetland design condition. We are reviewing this waiver request with the Department of Public Works.
   d) Flooding Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to control the rate or quantity of stormwater runoff from the site. The project will result in an increase in the 2-year storm, and decreases in the 10- and 25-year storm. We agree that the 2-year storm increase is small and we are reviewing this waiver request with the Department of Public Works. However, the following comments should be addressed:
      - The pre- and post- development project areas do not match. The Applicant should clarify the areas included.
      - The Applicant should review their time of concentration flow paths for Subcatchments S1 (pre) and S2 (post). The TC path for S1 shown on the pre-development drainage plan (pipe flow) does not match the path utilized in HydroCAD (sheet flow). S2 should be reviewed to ensure that the

non-impacted existing area of the site is evaluated in a similar manner to the pre-development model (i.e. similar amounts of sheet flow).

2) We suggest, for ease of review and coordination during construction that all of the proposed structures be numbered.
3) Snow storage has been designated in an area to the east of the building. This is very close to the property boundary and abutting neighbors. Applicant should verify that adequate buffering is provided from the neighbors, and additional definition of grading should be provided to ensure that the snow melt does not impact the neighbors.

Portland Maine | Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

Re: final comments re school campus 2017-202

1 message

Robert Thompson <rmt@portlandmaine.gov> Fri, Jan 19, 2018 at 7:52 AM
To: Jean Fraser <jf@portlandmaine.gov>

Hi Jean,

I entered them in UI. We're good with it but require it to be a minimum 16'wide, flat curbing, paved, and maintained year round including plowing.

Let me know if you have any questions. I'm headed to meetings and won't be back until noonish. My cell is 831-6372

Thanks,
Mike

On Thu, Jan 18, 2018 at 6:38 PM, Jean Fraser <jf@portlandmaine.gov> wrote:

> Mike
>
> Could you send a comment that you are OK with the final plans including the revised rear interesection with the fire lane etc- this is a hearing report that I am completing Fri AM.
>
> thanks
> Jean
>
> --
> *Jean Fraser, Planner*
> *City of Portland*
> *874 8728*

--
Robert M. Thompson
Division Fire Chief
Portland Fire Department
(207) 874-8400
rmt@portlandmaine.gov

MEMORANDUM

To: FILE

From: Jean Fraser

Subject: Application ID: 2017-202

Date: 11/30/2017

Comments Submitted by: Robert Thompson/Fire on 11/30/2017

After a meeting with the developer, adjustments were made to widen the road. The Fire Dept is comfortable with the new plan.

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

Fwd: PB Memo this week - 171 Auburn- Lyseth Moore School access and pkg improvments

1 message

Jean Fraser <jf@portlandmaine.gov> Thu, Nov 30, 2017 at 6:02 PM
To: "Fraser, Jean" <jf@portlandmaine.gov>

From: **Keith Gautreau** <kng@portlandmaine.gov>
Date: Mon, Nov 27, 2017 at 3:10 PM
Subject: Re: PB Memo this week - 171 Auburn- Lyseth Moore School access and pkg improvments
To: Jean Fraser <jf@portlandmaine.gov>
Cc: Jeremiah Bartlett <jbartlett@portlandmaine.gov>, "Errico, Thomas" <thomas.errico@tylin.com>, Keith Gray <kgray@portlandmaine.gov>, "Hyman, Bruce" <bhyman@portlandmaine.gov>, Robert Thompson <rmt@portlandmaine.gov>

Jean,

I am fine with the changes that have been made on the memo and on the plans. Unless Mike Thompson has any other concerns or issues the changes proposed are acceptable to the Fire Dept.

Thank you,
Keith

On Mon, Nov 27, 2017 at 12:41 PM, Jean Fraser <jf@portlandmaine.gov> wrote:

> Thank you Jeremiah
>
> On Mon, Nov 27, 2017 at 11:40 AM, Jeremiah Bartlett <jbartlett@portlandmaine.gov> wrote:
>
> > Public Works staff have examined speed issues and parking issues in the area of Bartley Avenue and Junior Street. The studies indicate that there are no crashes and speeds are under the legal speed of 25 miles per hour. In early 2017, the City Council approved no parking along Junior Street to avoid potential blocking of driveways.
> >
> > Additional observations were made of school activities the morning of November 3rd, 2017. No illegal parking was observed, nor speeding, nor blocking of home driveways.

Portland Maine | Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

Fwd: PB Memo this week - 171 Auburn- Lyseth Moore School access and pkg improvments

1 message

Jean Fraser <jf@portlandmaine.gov> Thu, Nov 30, 2017 at 5:57 PM
To: "Fraser, Jean" <jf@portlandmaine.gov>

From: **Jeremiah Bartlett** <jbartlett@portlandmaine.gov>
Date: Mon, Nov 27, 2017 at 11:40 AM
Subject: Re: PB Memo this week - 171 Auburn- Lyseth Moore School access and pkg improvments
To: Jean Fraser <jf@portlandmaine.gov>
Cc: "Errico, Thomas" <thomas.errico@tylin.com>, Keith Gray <kgray@portlandmaine.gov>, "Gautreau, Keith" <kng@portlandmaine.gov>, "Hyman, Bruce" <bhyman@portlandmaine.gov>

Public Works staff have examined speed issues and parking issues in the area of Bartley Avenue and Junior Street. The studies indicate that there are no crashes and speeds are under the legal speed of 25 miles per hour. In early 2017, the City Council approved no parking along Junior Street to avoid potential blocking of driveways.

Additional observations were made of school activities the morning of November 3rd, 2017. No illegal parking was observed, nor speeding, nor blocking of home driveways.

Based on the observed counts, closing Junior Street to through traffic would add significant activity to the traffic signal at Auburn Street and the school driveway, which may have an adverse impact to movement along this key arterial. As such, closure is not recommended at this time.

Jeremiah J. Bartlett, PE, PTOE
Transportation Systems Engineer
Department of Public Works
City of Portland, Maine
jbartlett@portlandmaine.gov

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

Fwd: PB Memo for Lyseth Moore improvements (171 Auburn)

1 message

Jean Fraser <jf@portlandmaine.gov> Fri, Dec 1, 2017 at 9:22 AM
To: "Fraser, Jean" <jf@portlandmaine.gov>

From: **Jeff Tarling** <jst@portlandmaine.gov>
Date: Fri, Dec 1, 2017 at 8:04 AM
Subject: Re: PB Memo for Lyseth Moore improvements (171 Auburn)
To: Jean Fraser <jf@portlandmaine.gov>

Jean -

The Lyman Moore tree and landscape plans have been updated per our recommendations. Overall the landscape plan should be a positive addition to the proposed project and both schools.

Thanks

Jeff

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Department
Forestry & Horticulture
212 Canco Road
Portland, ME. 04103
(207) 808-5446
jst@portlandmaine.gov

Portland Maine | Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

171 Auburn Street

1 message

Keith Gray <kgray@portlandmaine.gov> Thu, Jan 18, 2018 at 1:54 PM
To: Jean Fraser <jf@portlandmaine.gov>
Cc: "Errico, Thomas" <thomas.errico@tylin.com>, Jeremiah Bartlett <jbartlett@portlandmaine.gov>

Hello,

The following comments are in reference to the recently submitted Site Plan (1-15-18):

- Provide sidewalk connection along internal parking area as outlined in red within the enclosed markup
- The internal parking lot painted sidewalks are a nice addition. Although raised sidewalks are preferred, to prevent vehicles from blocking the sidewalk, we recognize that winter maintenance would be a challenge. We recommend monitoring of these sidewalks and the installation of removable bollards if blocking is an issue.
- The internal parking lot end islands are proposed to be sloped granite curb and are oddly shaped due to the angled parking. What is the purpose for the sloped granite at these locations? Additional, winter plowing would be difficult and the adjacent parking spaces to the island would likely be out of service. Would it make sense to square-off those islands (see red lines within enclosed markup) and stripe the angled parking indents?

I have enclosed the slope granite curb detail as well. Please let me know if you have any questions.

Thank you,

Keith

--
Keith D. Gray, PE
Senior Engineer

Dept. of Public Works
City of Portland Maine

207.874.8834
kgray@portlandmaine.gov

---

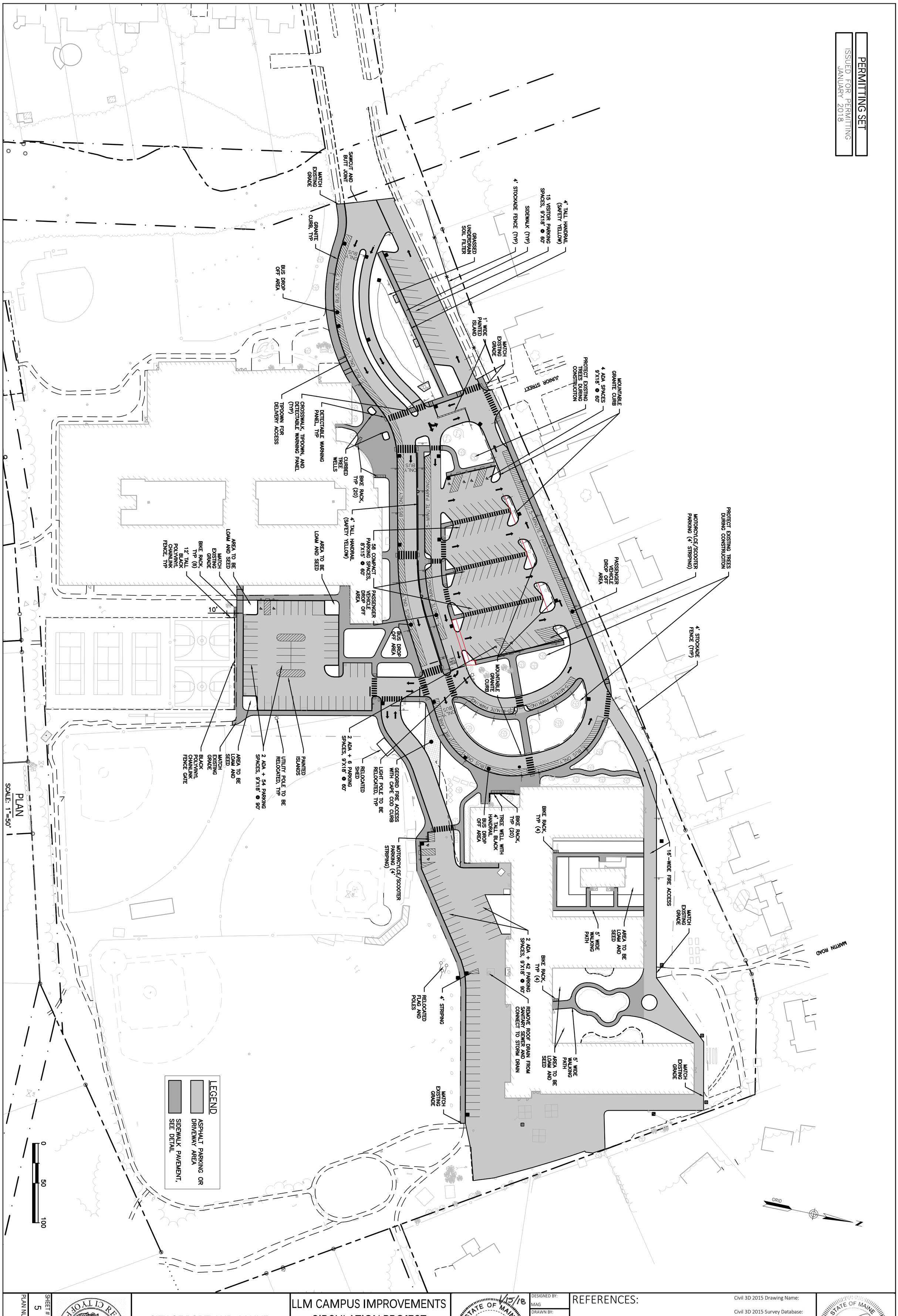
2 attachments

Sloped Granite Curb Detail.pdf
604K

C05 - Site Plan (2).pdf
654K

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



PLAN
SCALE: 1"=50'

PLAN NUMBER C-5

SHEET # 5 OF 15

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

LLM CAMPUS IMPROVEMENTS CIRCULATION PROJECT

SITE PLAN

STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED PROFESSIONAL ENGINEER
1/5/18

DESIGNED BY:	MAG
DRAWN BY:	MRL
CHECKED BY:	DAR
SCALE:	AS NOTED
DATE:	1-15-18

REFERENCES:

Civil 3D 2015 Drawing Name:

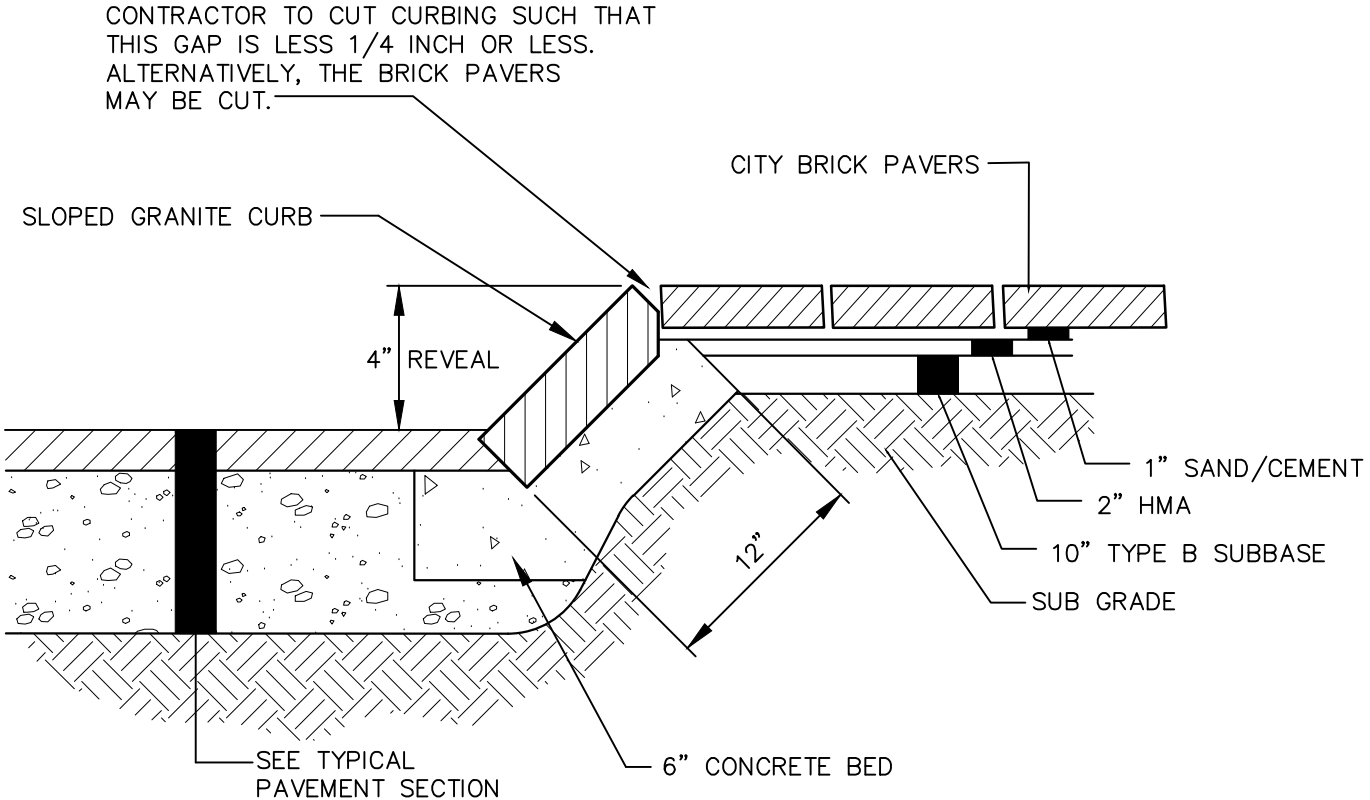
Civil 3D 2015 Survey Database:

Civil 3D 2015 Data Shortcuts:

REVISIONS:

PLANNING BOARD SUBMISSION

STATE OF MAINE
DOUGLAS A. RICE
No. 8702
LICENSED PROFESSIONAL ENGINEER
1/5/18



6 SLOPED GRANITE CURB (IN CITY R.O.W.)

SCALE:1"=1'-0"

Safe Routes to School:

School Travel Plan for
Lyman Moore Middle School and
Harrison Lyseth Elementary School Campus
Portland, Maine

A Report Outlining Recommendations from Extensive Community Input and Neighborhood Assessments

This report was completed by the Portland District Safe Routes to School Committee, composed of representatives from the Maine Safe Routes to School Program, Portland Public Schools, the City of Portland, the Bicycle Coalition of Maine, Portland Trails, the Greater Portland Council of Governments, and MaineDOT

June 2011

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Appendix I
Portland Safe Routes Committee and School Administration
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Executive Summary

The Portland Safe Routes to School Program
The purpose of the Portland Safe Routes to School Program is to improve bicycle and pedestrian safety for students, families, and staff and to encourage more walking and biking to school in Portland. These activities improve academic performance, student behavior and self-confidence. Walking and biking to school also reduce traffic congestion, childhood obesity, busing costs, and air pollution.

The Maine Department of Transportation (MaineDOT), in partnership with the Bicycle Coalition of Maine, provides Safe Routes to School technical and program support to schools and communities. This federal, state and locally funded initiative promotes safe walking and bicycling for Maine's school children. Locally, Safe Routes to School work is facilitated by the Portland District Safe Routes Committee, which includes representatives from the Maine Safe Routes to School Program, Greater Portland Council of Governments, Portland Public Schools, City of Portland, Portland Trails, and the Bicycle Coalition of Maine.

Harrison Lyseth Elementary and Lyman Moore Middle Schools were selected by the Portland District Safe Routes Committee to serve as the pilot campus for a School Travel Plan process. Using the Safe Routes 5 E's framework (Evaluation, Engineering, Enforcement, Education, and Encouragement), the School Travel Plan process evaluates:

- current pedestrian and bicycling travel activity
- physical bicycle and pedestrian infrastructure
- school and community attitudes and concerns regarding walking and biking to school.

The Lyseth-Moore School Travel Plan process relied on parent, staff, and community surveys, key informant and stakeholder meetings, extensive research, and evaluation of existing infrastructure conditions to develop recommended improvements at Lyseth and Lyman Moore. The School Travel Plan then made a prioritized list of recommendations and implementation strategies to increase safe bicycle and pedestrian access and boost the numbers of students safely walking and biking to the Lyseth-Moore campus.

Ten Priority Recommendations
The School Travel Plan process resulted in the development of a "top ten" list of recommendations for the Harrison Lyseth Elementary and Lyman Moore Middle School Travel Plan. The 'top ten' recommendations are presented within the 5 'E's framework. These recommendations are:

Engineering:
- Drop-Off/Pick-Up Area: Redesign of campus Drop-Off/ Pick-Up Zone (incorporating remote drop-off/ pick-up locations)
- Bike Parking: Relocate and add more racks to encourage use and reduce risk of theft and vandalism
- Crossings: Install/ enhance crosswalks and/or student crossing signage
- Sidewalks: Construct Missing Priority Sidewalk Links

Enforcement:
- Crossings: Locate Crossing Guard at Allen Avenue and Bramblewood Dr./Virginia St.
- Winter Access: City enforcement and maintenance of sidewalks and paths
- Speed Enforcement: Local law enforcement to use speed trailers twice a school year and practice speed enforcement

Education:
- Annual Bicycle-Pedestrian Safety Education Program

Encouragement:

- Walkpools: Organize walkpools/bike train groups (adult-led groups for younger students; peer groups for middle school students)
- Incentives: Organize encouragement campaigns and incentives for students and staff to walk and bike to school as well as to afternoon and evening events.

The fifth "E" is Evaluation. School communities are encouraged to reevaluate these recommended initiatives as needed to insure momentum and continued progress toward achieving their desired goals.

The Next Steps: Implementation

The final element of the School Travel Plan includes implementation strategies for the 'top ten' recommendations. These strategies provide schools with a basic framework, intended to be a starting point upon which each school community can build its own Safe Routes to School Team. Ultimately, it is the responsibility of each school community to continue the momentum generated by the District Safe Routes Committee – organizing school and community resources to work together to implement the recommendations and address the priority issues raised.

Safe Routes to School: The Full Report

Background on Safe Routes to School
Through the 5 E's, a variety of evaluation, education, encouragement, enforcement, and engineering strategies, the Safe Routes to School Program seeks to help local communities make walking and biking to school a safe and routine activity.

In the last 30 years there has been a sharp decline in the number of children walking and biking to school. At the same time, we have a similar increase in obesity rates and related comorbidities among children. According to the Centers for Disease Control and Prevention, fewer than 16 percent of children ages 5 to15 walk or bicycle to school, compared with 48 percent three decades ago. More parents are choosing to drive their children to school, citing factors like longer distances to school and a lack of adequate safe walking and bicycling infrastructure (which is due in part to the growth of automobile-centric neighborhoods and suburbs). As motor vehicle traffic and speed increases, parents conclude that conditions are even more unsafe for their children to walk or bicycle to school. It becomes a self-sustaining, self-perpetuating cycle – communities are citing as safety issues what they and their automobiles are partly responsible for creating.

The Maine Department of Transportation (MaineDOT) began Safe Routes to School research and programming in 2001, based on work done in California, New York and other countries. In 2005, Safe Routes to School became a federal program. MaineDOT, in partnership with the Bicycle Coalition of Maine, provides Safe Routes to School technical support and consultation to schools and communities. To date, Maine Safe Routes to School has worked with more than 200 schools to encourage walking and biking and has assisted in funding infrastructure improvements - such as sidewalks, signage, and traffic calming treatments - in more than 30 communities to make walking and bicycling safer.

The Benefits of Walking and Biking to School
Walking and biking to school has been linked to the following benefits:

- Improved academic performance and class-room behavior
- Reduction in traffic congestion and vehicle speed near schools
- Increased physical activity, improvements in health status, and reduction in obesity-related health concerns
- Reduction in busing costs for school districts
- Reduction in air pollution (and associated child respiratory effects) and fewer greenhouse gas emissions
- Improved social networks between students – also between adults and students
- Building of student independence and self-confidence
- Reclamation of community streets so that they are safer for walking and bicycling for all users

School Travel Plan

Evaluation and Community Input
Part of Maine Safe Routes to School's work involves facilitating the development of School Travel Plans in different communities – to address traffic congestion and ultimately boost the number of students who can safely walk and bike to school.

In 2010, the Maine Safe Routes to School Program - in partnership with the Portland Public Schools, the City of Portland, the Bicycle Coalition of Maine, Portland Trails and the Greater Portland Council of Governments - assembled a Portland District Safe Routes to School Committee. The initial goal of this committee was to identify elements of the physical environment, community attitudes, and safety issues impeding students'ability to walk and bike to schools in the City of Portland. Harrison Lyseth Elementary and Lyman Moore Middle Schools were chosen by the committee to be the pilot campus for a School Travel Plan process.

The recommendations in this report are a true collaboration among many interested groups, and were developed from information gathered using the following tools:

- Site Observations & Evaluation
- Infrastructure Inventory & Assessment
- Classroom Walk & Bike Tallies
- Outreach & Feedback from Local Stakeholders
- Parent & Staff Surveys
- Multiple Public Forums
- Presentation of Draft Recommendations to Stakeholders for Edits/Suggestions

Students, families, staff, community residents, business owners, and experts identified barriers to students walking and biking – as well as potential solutions to these barriers.
Subsequently, the School Travel Plan produced recommendations and strategies to improve safety, and ultimately encourage more children to walk and bike to school - including:

- Analysis of current policies that impact travel at and near the school
- Recommendations to decrease the volume of automobile traffic on and near the site
- Suggestions for bicycle and pedestrian infrastructure improvements
- Encouragement strategies for students and staff to walk and bike
- Recommendations for designated safe walk and bike routes to the schools
- Additional recommendations for work on:
  - safety education programs
  - traffic law enforcement
  - organizing walkpools and bike trains

Once this pilot program's process is assessed and made as effective and efficient as possible, the Portland Safe Routes to School Committee plans to offer technical assistance to all K-8 grade schools in Portland to conduct their own individual School Travel Plans.

School Location and Neighborhood Description

Lyman Moore Middle School and Harrison Lyseth Elementary School are located at 171 and 175 Auburn Street, in the North Deering neighborhood of Portland, Maine. The schools are situated adjacent to one another in a campus setting. Lyseth Elementary is on the north end of the parcel and Lyman Moore is along the southern end. The driveway entrance to the schools is on the eastern side of Auburn Street, a busy road that includes a mix of residential, institutional, and commercial uses. It is just north of the intersections of Auburn Street with Allen Ave. and Washington Avenue. The campus is adjacent to significant residential areas located both to the north and east of the campus. Another heavily residential area lies west across Washington Avenue. Lyseth has 489 students and 75 staff members; Lyman Moore has 552 students and 75 staff members.

Current Student Travel Characteristics

At Harrison Lyseth Elementary, 263 out of 489 (54%) students are eligible for bus transportation. This figure includes kindergarten students who live more than a half mile from school, students in grades 1-5 residing more than one mile from the school, and students residing within these 'walkout' distances (but because of dangerous intersections, lack of sidewalks or other safety concerns the school district has determined that these students should be "hazard" bused).

In June 2010, a Student Travel Tally Report (Appendix III) was conducted among the students in both schools. The survey asked students which mode of transportation they took to and from school over a three day period. At Harrison Lyseth, although 52% of students are eligible for bus transportation, the highest category each day (and overall) was parent drop off/pick up (44% AM, 38% PM). The school bus ranked a distant second (35% AM and PM), walking was third (16% AM, 22% PM), biking and carpooling were fourth (both AM/PM about 2%), and public transportation registered 0%. These results clearly indicate many students residing within the walking perimeter are traveling to and from school in a family vehicle.

At Lyman Moore, although the modes were more evenly distributed, results revealed similar trends. On average, the numbers of walkers and bus riders were fairly equivalent. However, the results show more students walk in the afternoon than in the morning. Additionally, the results for the family vehicle option show a higher percentage of drop offs in the morning than the afternoon. These results would indicate that many Lyman Moore students are dropped off by a parent in the morning but walk home in the afternoon. This pattern is important because it clearly demonstrates that Lyman Moore students are able and willing to walk, but many are still dropped off by a family vehicle before school. These vehicle trips add to the congestion and safety issues experienced on campus in the morning and afternoon drop off/pick up times and this pattern demonstrates that the volume could easily be reduced.

Recommendations:

This School Travel Plan process - after pursuing an extensive feedback process that incorporated comments from students, parents, school staff, school administrators, local business people, and representatives from neighborhood organizations –has resulted in this report, including a "top ten" list of recommendations for the Harrison Lyseth Elementaryand Lyman Moore Middle School Travel Plan. The following are the "Top Ten" Recommendations as they relate to the Five E's of the Safe Routes to School Program: evaluation, engineering, enforcement, education, and encouragement strategies.

Quick List of Top Ten Recommendations

Evaluation & Engineering:

- Redesign of Campus Drop Off/ Pick Up Zone (incorporating remote drop off/pick up locations)
- Bike Parking: Relocate and add more racks to encourage use and reduce risk of theft and vandalism.
- Install/ Enhance Crosswalks and/or student crossing signage
- Sidewalks: Construct Missing Priority Sidewalk Links

Enforcement

- Crossings: Locate Crossing Guard at Allen Avenue and Bramblewood Dr./ Virginia St..
- Winter: Enforcement of maintenance of sidewalks and paths.
- Speed Enforcement: Use speed trailers twice a school year and practice speed enforcement (local police).

Education

- Annual Bicycle-Pedestrian Safety Education Program

Encouragement

- Walkpools: Organize walkpools/ bike train groups (adult-led groups for younger students; Peer groups for middle school students).
- Incentives: Organize encouragement campaigns and incentives for students and staff to walk and bike to school as well as afternoon/evening events.

In-Depth Description of Issues and Details Pertaining to Top Ten Recommendations

Evaluation & Engineering Campus Redesign:
Both Harrison Lyseth Elementary and Lyman Moore Middle School share a single campus and are served by the same driveway connecting to Auburn Street, turnaround areas, and parking areas. A secondary point of access to the campus is located on the north side of the campus along Junior Street, circulating traffic through an adjacent residential neighborhood. Many student walkers and bikers also use Junior Street as an entry/exit to the campus to avoid the Auburn Street entry.

Elementary School parents arriving by car at the school enter from either Auburn Street or Junior Street and continue down the driveway (Lyseth Moore Drive) to the Lyseth School turnaround, drop off/pick up their child in front of the school, and then either exit directly to Auburn Street or take Junior Street to Bartley Street to Auburn Avenue. Middle School parents follow a similar traffic circulation; however, they tend to enter from Auburn Avenue and exit via Junior Street or directly back to Auburn Avenue. The flow of traffic circulating through the campus is not well coordinated. There is little striping, and what exists is faded, or covered with snow, salt and sand most of the year. The pavement is in very poor condition, creating large potholes and other driving obstructions, and will have to be resurfaced in the next few years.

There appears to be no formal "pick up/drop off" policy for either school, and the entire area is poorly served by signage, curb cuts, or road surface markings to indicate appropriate traffic flow. During high volume times, particularly morning drop off, there can be a mix of pedestrian, bicycle, vehicle, and bus activity. The unofficial "Parent Drop-Off Area" is located in the center of the bus turnarounds, forcing children to cross in front of buses and vehicle traffic. Additionally, parents cannot see their children until they have already crossed traffic. This creates a chaotic situation in which parents may exit vehicles or move vehicles to try to locate a child. This also results in a particularly dangerous situation for students who must navigate across the busy driveway to and from the school.

Recommendations:
This is perhaps the highest priority of administrators, parents, students and staff - all having expressed strong concerns about the campus layout, parent drop off, and traffic circulation challenges. Based on this extensive input, this report suggests several possible traffic circulation improvements for the "pick up/ drop off" area. However, these solutions are short-term safety improvements. Ultimately, the preferred alternative for this area is a complete infrastructure redesign. In the meantime, designating one location for parent pick-up and drop-off, and a separate location for school bus pick-up and drop-off may improve the safety of the current situation. Additionally, creating remote drop off locations adjacent to campus, potentially staffed by parent volunteers, will divert a significant amount of parent vehicle traffic from campus. Finally, removing some of the unneeded paved areas and replacing this paved surface with additional green space will reduce the chaos of the current circulation plan, keeping vehicles and buses visible and moving in a more predictable circulation. Creating additional green space at the front of the campus will also improve its general curb appeal and enhance it as a safe destination for walkers and bikers.

Bicycle Facilities:
Bicycle racks are inadequate and overcrowded or bicyclist activity far exceeds the available infrastructure to store bicycles. Existing racks are located in the courtyard of Lyseth and to the west side of Lyman Moore. Due to the severe lack of bicycle racks, students also secure bikes anywhere possible around campus. A major complaint from the older Lyseth students is that they don't like to walk through the younger students playing in the courtyard to reach the racks. Moore students also have concerns about theft and vandalism to bicycles.

There are designated bicycles lanes located in front of the campus on Auburn Street. These lanes are part of a discontinuous segment of bike lanes that end prior to reaching Allen Avenue to the south and Exit 10 on I-295 to the north. Currently there is not enough street right-of-way to add additional bike lanes near the campus.

Recommendations:
This report suggests relocating and adding more bike parking to encourage increased use and reduced risk of theft and vandalism.

Crosswalks/Sidewalks:
Beyond the campus, there are many missing sidewalk and crosswalk links, as well as locations where an additional crossing guide could increase safety. Consistently heard through this planning process was that a primary deterrent to walking is the lack of safe pedestrian facilities. Through infrastructure observations several priority missing sidewalk links were identified.

Recommendations:
To improve safety and enable more parents to allow more walking to school, priority sidewalk links that are missing should be constructed along Washington Avenue Extension, Auburn, Junior, Pineloch, Ray, and Virginia Streets. Locations where crosswalks are missing or should be enhanced, and/or student crossing signage should be added include Junior Street (at Lyseth Moore Drive), Washington Avenue Extension (various intersections), Allen Avenue (various intersections), Auburn Street, and the intersection of Washington and Allen Avenue. Additionally, feedback from stakeholders has clearly indicated a Crossing Guide should be located at Allen Avenue where it intersects with Bramblewood Dr. and Virginia St..

Enforcement
Portland Police currently run intermittent traffic enforcement patrols near the Lyseth-Moore campus, especially on heavier trafficked streets. Four crossing guides are in place at three locations: two on Auburn Street directly in front of the school (per Planning Board requirements for installation of the new traffic signal), one at Sumac and Summit, and one at Washington Ave. Extension and Regan. There were a number of requests for a crossing guide at the intersection of Allen Ave. and Bramblewood/Virginia, as well as at other locations in the neighborhood. Students, staff, and families reported through surveys and public forums great difficulty navigating sidewalks that haven't been shoveled in the winter months and deep concerns about student safety when they have to walk along neighborhood streets, sandwiched between passing vehicle traffic and large snow banks.

Recommendations:
This report recommends a Crossing Guide be located at Allen Avenue and Bramblewood/ Virginia. Also recommended is that the City of Portland do more concerted enforcement of winter sidewalk maintenance. In addition, community members suggested that the campus conduct a "doorknob" flyer and signage campaign reminding neighbors to clear sidewalks and all commuters to drive especially carefully in the area of the campus in the winter months. Local law enforcement is also encouraged to use speed trailers twice a school year on each of the main streets surrounding the campus and practice speed enforcement campaigns at least twice a year as well.

Education
Currently there is only intermittent bicycle and pedestrian safety education done by Physical Education staff at both schools, sometimes on a seasonal basis. Elementary physical education staff especially are also time-limited each week with what they can offer.

Recommendations:
This report recommends both schools adopt and support an annual Bicycle and Pedestrian Safety Education Program – using no-cost presentations and resources through the Bicycle Coalition of Maine and MaineDOT. This should include Bike-Ped Safety Education presentations at least once a year via school assemblies and/ or in-class time. This Plan also supports Lyman Moore physical education staff who are interested in starting a spring Bike Club through the Bicycle Coalition for 6th grade students (who are currently not allowed to participate in spring sports).

Encouragement
Both schools have demonstrated enthusiasm for encouragement tools to increase the number of students and staff safely walking and biking to the campus. Currently there are no formal encouragement strategies in place – although there is at least one informal parent-led walkpool – or walking school bus - at Lyseth.

Recommendations:
This report recommends the school community help organize Walkpools (a.k.a. Walking School Buses) to help students get to school. These should be adult-led groups for younger students – with adult leaders switching off to share the responsibility day-to-day. At Lyman Moore the formation of peer Walkpools (without heavy adult supervision) is suggested to increase the likelihood that students will take part and so that students can walk in a group together. This report also strongly supports any efforts by the school community to organize encouragement campaigns and incentives for students and staff to walk and bike to school - as well as to afternoon and evening events on campus.

Implementation Strategies
This report has developed implementation strategies for each of the ten recommendations listed above. These strategies offer a framework upon which the schools can refine and evolve the implementation plan. However, the ultimate success of this initiative will depend on the motivation and leadership within the school communities. Administration, staff, and especially students from both schools will have to initiate, refine, and implement these strategies. And while the District Safe Routes Committee (the authors of this report) should be available for technical assistance, each school's most valuable resource is its own community.

To achieve success in making improvements the first and most important step for every school community is to form a Safe Routes to School Team. As Lyseth and Lyman-Moore share a campus, and both school administrations worked together with the community and the Portland District Safe Routes Committee to create this travel plan, it's recommended to create one joint campus Safe Routes Team. Regardless of team structure chosen, it is essential to maintain open lines of communication between the two schools, and ensure a unified message and plan. The following strategies were created to facilitate the implementation of the top ten recommendations from the School Travel Plan process.

Recommendation #1-
Improve Campus Layout and Traffic Circulation for Walkers, Bicyclists, Buses, and Autos

Suggested First Steps:

- Educate parents and teachers of the safety issues (flyers, social media, etc.).
- Encourage use of alternate drop-off sites (e.g. parking on nearby streets and walking with students the last couple of blocks to school).
- Encourage teachers and staff to lead by example in walking, bicycling, using public transit, and carpooling.
- Encourage students to create signage promoting alternate transportation modes and drop-offs.
- Campus Safe Routes Team should identify specific circulation issues and possible short and long term solutions for each issue.
- Meet with transportation engineer, School District transportation staff, City Bike-Pedestrian Coordinator, and Campus Safe Routes Team to examine and redesign current campus vehicular and pedestrian traffic circulation.
- Work with Portland Trails to enhance trail access to campus and encourage all trails to be ADA accessible.

Other Suggestions:

- Temporary measures - use cones, paint or other methods to control speed and access.
  - Temporary measures allow experimentation and could provide valuable information before significant money is spent on design/engineering and construction.
  - NOTE: Any alteration of campus circulation should be vetted by transportation professionals, including the Portland School District Transportation Office.
- Work with neighbors, areas businesses and other constituents to create a larger network supporting campus improvements and integration with the surrounding community.
- Develop Campus Master Plan.
  - Consider limiting vehicle access to interior of campus.
  - Consider alternate/satellite parking areas (on and off-campus).
  - Circulation routes should consider current travel routes, including short-cuts and dirt paths through campus. Recognize origins and destinations.
  - Consider multi- use circulation paths (jogging track, access to fields, walking routes, etc.).
  - Take advantage of City plans and funds for pavement re-surfacing.
  - Investigate City Tree Trust and other sources of trees and plants.
  - Consider storm water management, and reduction of impervious areas.
  - Campus re-design has the opportunity to solve safety issues, but also to reflect school culture, improve aesthetics, and improve the environment.

Recommendation #2- Bicycle Parking

- Relocate and add more bicycle racks/ parking
- Lyseth: Move one rack to rear (east end) of school for older students:
- Lyman Moore: Move bike parking to both sides of Moore entryway
- Encourage the use of bike locks; Consider starting a simple lock lending/ rental library

Recommendation #3 -
Install/Enhance Crosswalks at Key Locations

- Locations identified:
  - Lyseth-Moore Drive and Junior Street
  - Washington Avenue Extension intersections
  - Allen Avenue
  - Auburn Street
  - Washington and Allen Avenue intersection
- For the existing crosswalks at the above locations, further improvements could include:
  - Student crossing signage/signals
  - Curb-extensions to shorten crossing distance and improve visibility for drivers and walkers
  - More visible "block style" or textured/colored crosswalks
  - Raised crosswalks
- Crosswalks other than those on school property need to be requested of the City Crosswalk Committee. Contact Bruce Hyman (Bicycle Pedestrian Coordinator) at 874-8801

Recommendation #4 - Construct Missing Sidewalk Links (See Appendix XX)

- Locations identified:
  - Junior Street
  - Washington Avenue Extension (Lester to Riverside)
  - Auburn Street (Sanborn to Chapman)
  - Auburn Street (Armstrong to Garsoe)
  - Pineloch Street (Summit to Roaring Brook)
  - Ray Street (Merrymeeting to end of street)
  - Virginia Street (Wyoming to Jersey Avenues)
- Sidewalk requests should be directed to the Department of Public Services – Bicycle Pedestrian Coordinator, Bruce Hyman (874-8801), or via the District City Councilor(s).

Recommendation #5 - Add Crossing Guide at Key Location

- Primary location identified is Allen Avenue at Virginia St./Bramblewood Dr.
- Portland Trails has requested and received approval for a new crosswalk on Bramblewood connecting to the paved trail to the Lyseth playground
- Crossing Guides are hired by the City Parking Division. Contact John Peverada at 874-8443.

Recommendation #6 - Winter Enforcement and Maintenance of Sidewalks and Paths

- Coordinate with local businesses, and City of Portland Department of Public Works to ensure they clear snow along as much of the area sidewalks as possible in a timely manner.

- Conduct “door knob” or posted signage campaign at the onset of heavy snowfall to remind neighbors to shovel and all commuters to drive especially carefully.
- If a local resident is unable to shovel and/or cannot afford to hire someone to shovel, mobilize local businesses, neighborhood and school volunteers, and student groups to “adopt a sidewalk/path” and commit to maintaining it throughout the winter months.

Recommendation #7 - Twice Annual Use of Speed Trailers and Speed Enforcement

- Make arrangement with local police to place speed trailers twice during the school year along busy corridors known for excessive speed where students often travel. Also request that local police conduct speed enforcement on high traffic streets twice annually.

Recommendation #8 - Bicycle/Pedestrian Safety Education

- Ideas identified:
  - Host once or twice a year assemblies or in-class (PE/Health) presentations, no cost through the Bicycle Coalition of Maine and MaineDOT
  - Organize Youth Bike Club for Lyman Moore 6th Graders; Utilize school bicycle club coordinator training opportunities through the Bicycle Coalition of Maine (http://www.bikemaine.org/training schedule): This training provides the information necessary to launch a six week School (or After School) Bike Club. It covers logistical info on how to identify and work with a school champion, get permissions, manage a group ride of kids, deal with rainy days and includes weekly rides.
  - Hold an annual Bike Rodeo Skills Fair
- All educational presentations/initiatives should include special emphasis on
  - Navigating major intersections
  - Use of neighborhood paths
  - How to enter school grounds
  - Preparation for winter walking and biking
- Other considerations and ideas:
  - Raise money to purchase bike helmets to use during the bike education events – recommend only purchase helmets with turn-rings in the back for easy adjustments. Contact Maine Safe Routes to School (Sarah Cushman, 841-7186, sarah@sarahcushman.com) for ideas for where to purchase. Also pursue local donations through the Kiwanis Club.
  - Two Lyseth/Lyman Moore “safer” walking routes have been identified and directional signage will be placed by Healthy Portland, most likely in Summer of 2011. Schools could use this opportunity to encourage students and educate drivers about students walking and biking to school.
  - Connect with Maine Safe Routes to School Program for mini-grant opportunities (Sarah Cushman, 841-7186, sarah@sarahcushman.com)
  - Connect with Healthy Portland for mini-grant opportunities (Joan Ingram, 541-6954 – jbi@portlandmaine.gov)

Recommendation #9 – Organize Walkpools & Bike Trains

- Organize adult-led walkpools (walking school buses) for Lyseth students and peer walkpools for Lyman Moore students – as well as adult-led Bike Trains for both schools. (Contact Maine Safe Routes to School Program for technical assistance – Sarah Cushman, 841-7186, sarah@sarahcushman.com)
- Reach out to local businesses and stakeholders for support for walking and/or bike clubs.
- Promote walking school bus “leaders” among the middle school. They could help lead elementary students to school.

Recommendation #10 - Encouragement Campaigns and Incentives

- Offer incentives such as a prize for the students who walk to school a certain number of times/

month (use a frequent walker/bike rider punch card system and have students turn those in when full – see examples from elsewhere: *http://www.saferoutesinfo.org/guide/case_studies/case_study.cfm?CS_ID=CS653&CHAPTER_ID=C386)*.

- Two Lyseth/Lyman Moore "safer" walking routes have been identified and directional signage will be placed by Healthy Portland, most likely in Summer of 2011. Host a "kick-off" event to launch use of the routes. School Safe Routes Team could provide small incentives such as stickers to those who walk to school that day (via any route). (Joan Ingram, 541-6954 – jbi@portlandmaine.gov)
- Offer incentives to staff members who commute actively a certain number of times per month. They can track their own progress with the Maine Green Commuting Data Entry Tool: *http://www.mainebrook.com/GreenStreets/?entry=GS*
- Connect with the Maine Safe Routes to School Program (Sarah Cushman, 841-7186, *sarah@sarahcushman.com*) and Healthy Portland (Joan Ingram – 541-6954, jbi@portlandmaine.gov) for technical assistance and mini-grant opportunities.

Evaluation

Evaluation is the final step in the process of creating a successful Safe Routes Program. This step should occur on a regular basis to insure progress towards program goals is being made and the program is sustainable. Continued assessment of implementation strategies is essential to identify if adjustments or changes are necessary, or if the issues have changed since the inception of the program. The school should assign a date within the next six months to a year to evaluate progress towards completing the above recommendations.

Safe Routes to School:

School Travel Plan for
Lyman Moore Middle School and
Harrison Lyseth Elementary School Campus
Portland, Maine

APPENDICES I THROUGH X

This report was completed by the Portland District Safe Routes to School Committee, composed of representatives from the Maine Safe Routes to School Program, Portland Public Schools, the City of Portland, the Bicycle Coalition of Maine, Portland Trails, the Greater Portland Council of Governments, and MaineDOT

June 2011

Appendix I- Portland District Safe Routes to School Committee

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Education Program Director,
Bicycle Coalition of Maine

School Administrators:

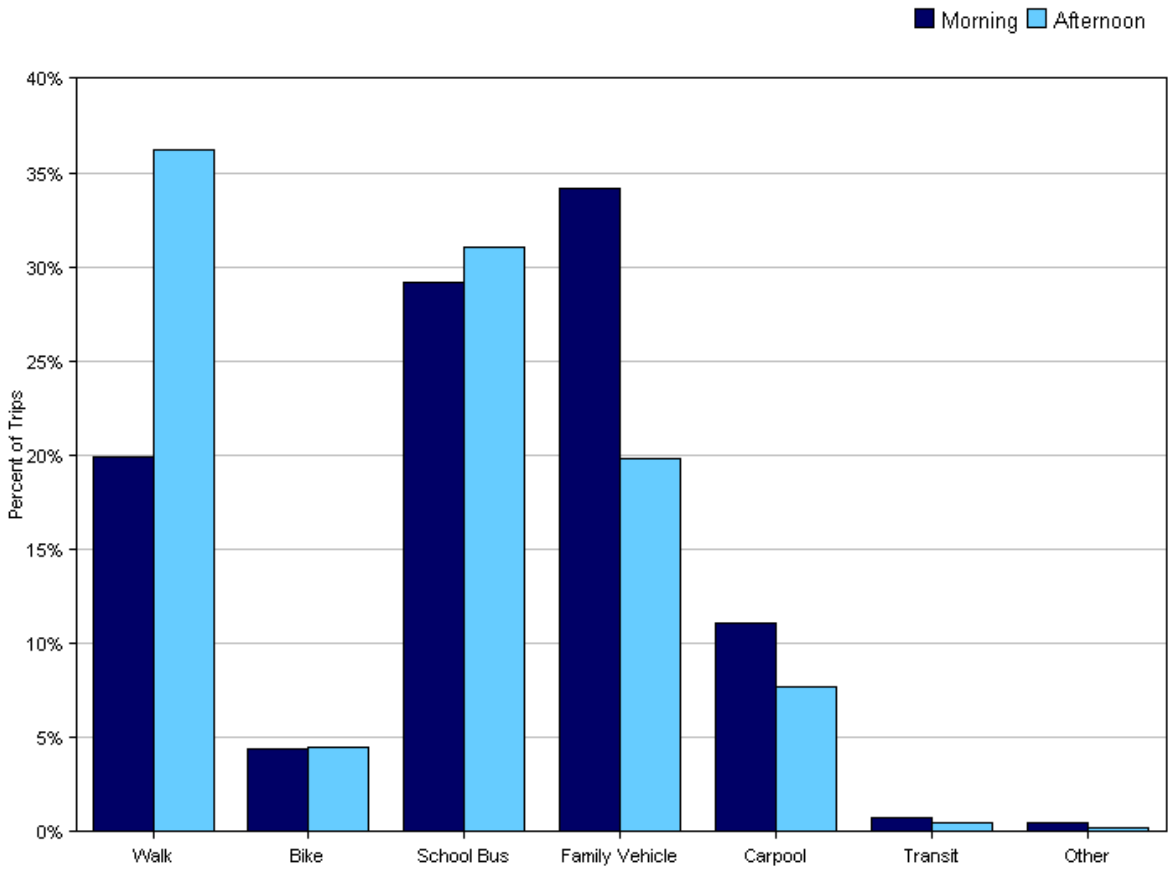
Lyman Moore Middle School
Lee Crocker, Principal

Harrison Lyseth Elementary School
Lenore Williams, Principal

Appendix II – June 2010 Lyman Moore & Harrison Lyseth Student Tally Reports

Program Name:	Portland Safe Routes to School Team	**Month and Year collected:**	June 2010
School Name:	Lyman Moore Middle	**Set ID:**	4480
Reported Enrollment:	552	**Reported Number of Classrooms:**	30
Date Report Generated:	09/29/2010	**Number of Classrooms Included in Report:**	30

Morning and Afternoon Travel Mode Comparison

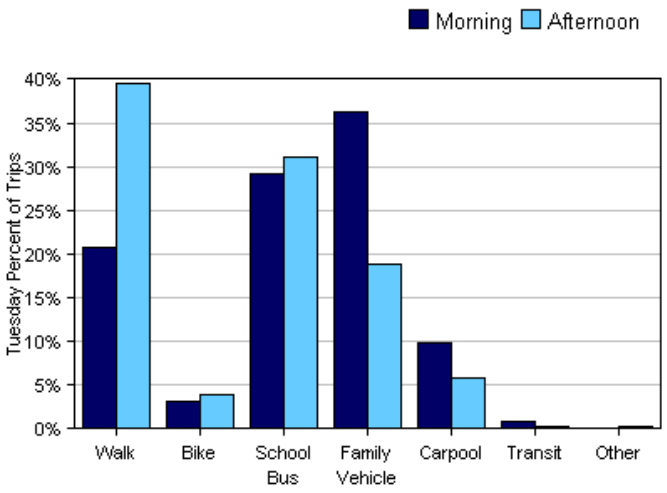


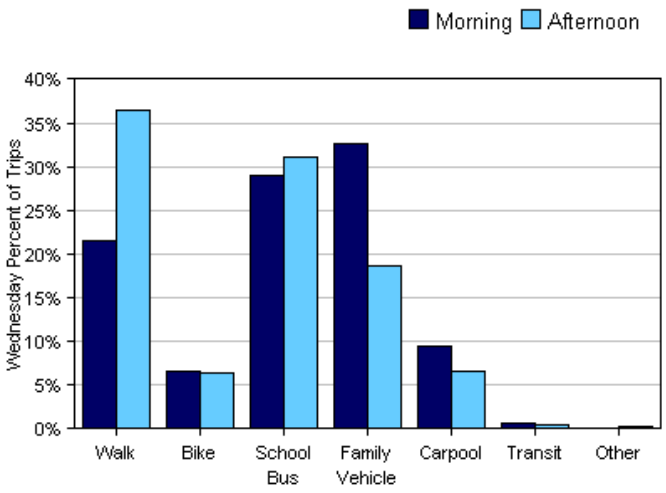
Morning and Afternoon Travel Mode Comparison

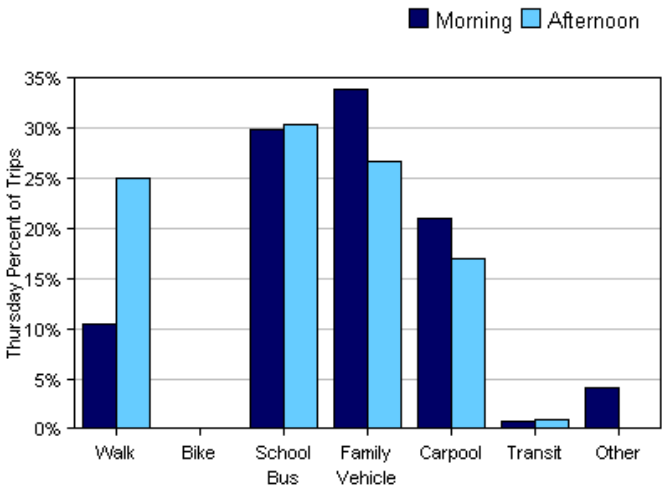
	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	971	20%	4%	29%	34%	11%	0.7%	0.5%
Afternoon	861	36%	5%	31%	20%	8%	0.5%	0.2%

Percentages may not total 100% due to rounding.

Morning and Afternoon Travel Mode Comparison by Day



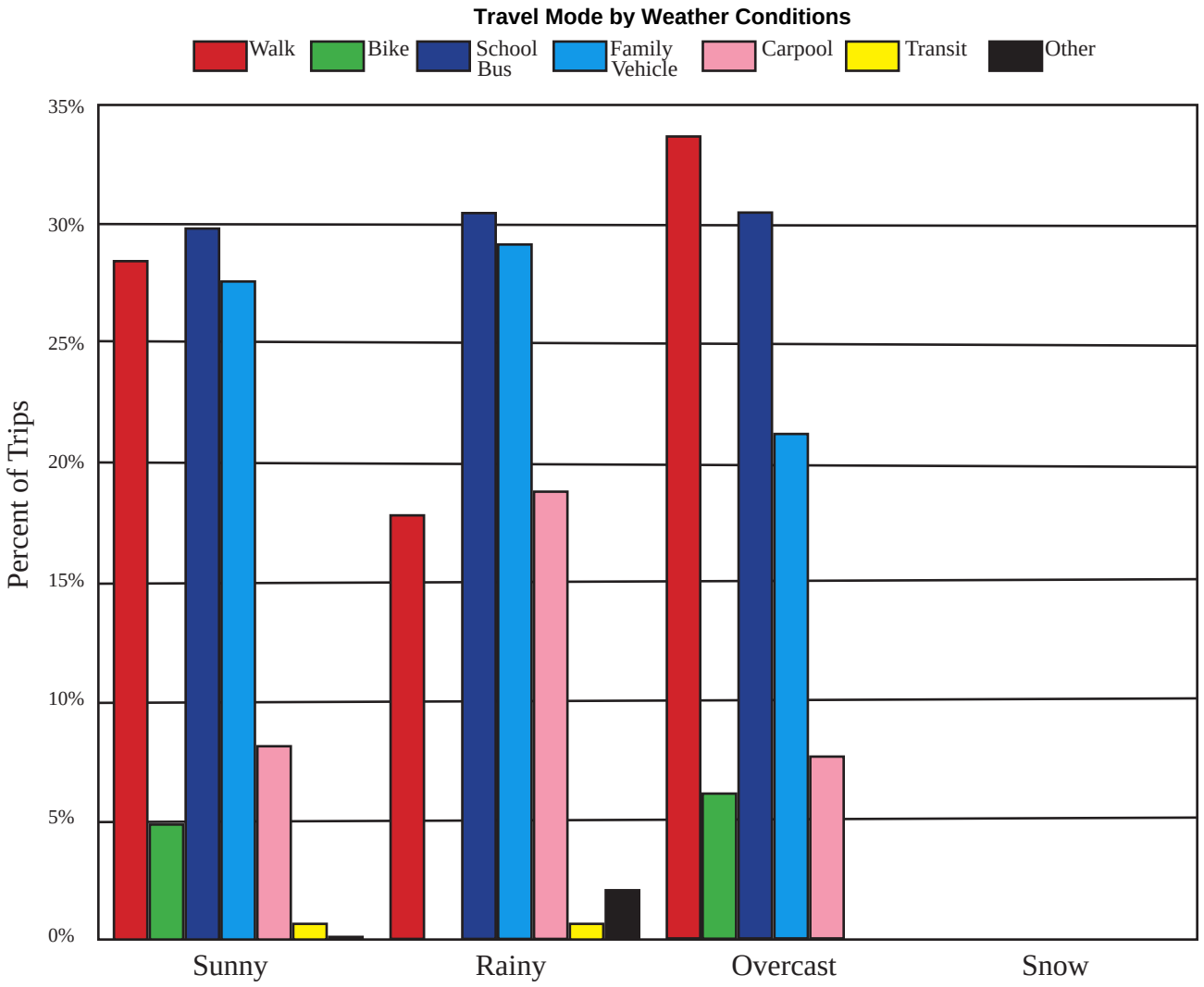




Morning and Afternoon Travel Mode Comparison by Day

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Tuesday AM	384	21%	3%	29%	36%	10%	0.8%	0%
Tuesday PM	354	40%	4%	31%	19%	6%	0.3%	0.3%
Wednesday AM	463	22%	7%	29%	33%	10%	0.6%	0%
Wednesday PM	395	36%	6%	31%	19%	7%	0.5%	0.3%
Thursday AM	124	10%	0%	30%	34%	21%	0.8%	4%
Thursday PM	112	25%	0%	30%	27%	17%	0.9%	0%

Percentages may not total 100% due to rounding.



Travel Mode by Weather Condition

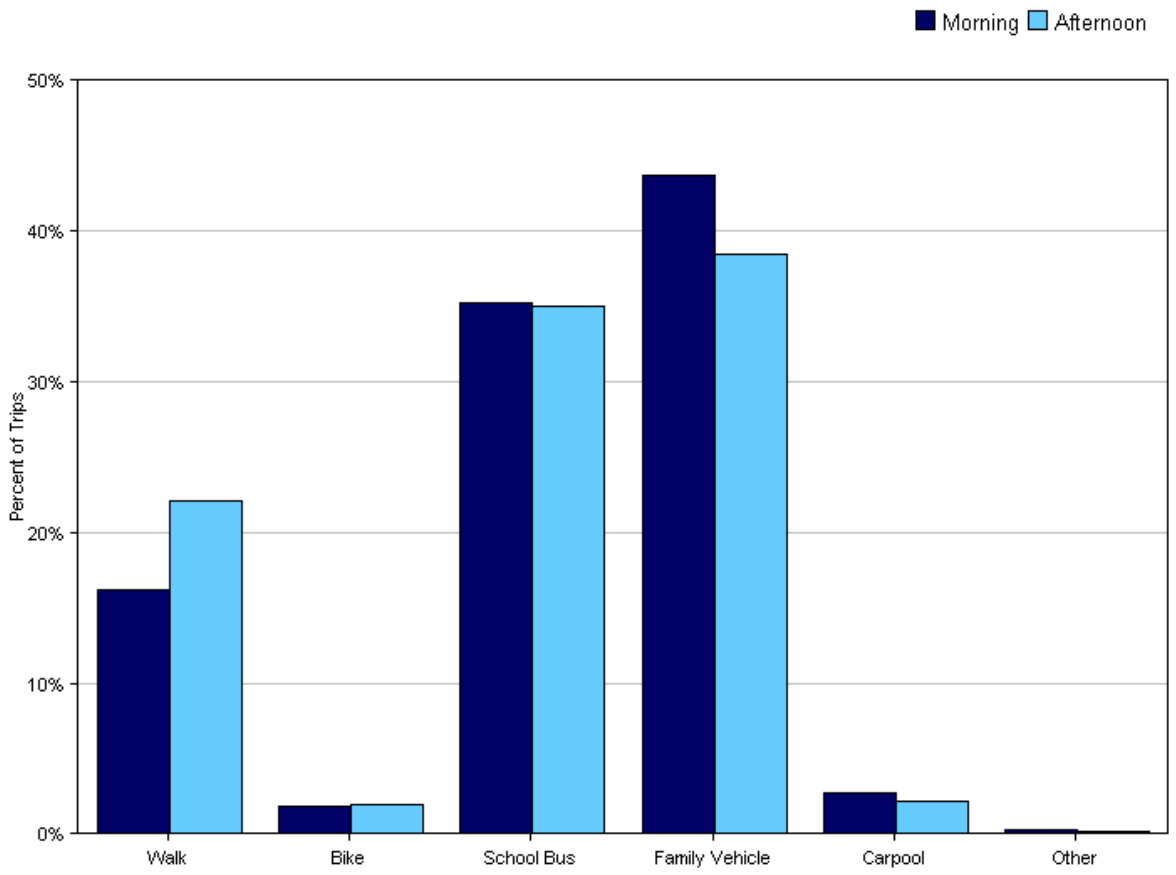
Weather Condition	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Sunny	1483	28%	5%	30%	28%	8%	0.6%	0.1%
Rainy	222	18%	0%	31%	29%	19%	0.9%	2%
Overcast	127	34%	6%	31%	21%	8%	0%	0%
Snow	0	0%	0%	0%	0%	0%	0%	0%

Percentages may not total 100% due to rounding.

Appendix II – June 2010 Lyseth Student Tally Report

Program Name:	Portland Safe Routes to School Team	**Month and Year collected:**	June 2010
School Name:	Lyseth Elementary	**Set ID:**	4479
Reported Enrollment:	500	**Reported Number of Classrooms:**	22
Date Report Generated:	09/29/2010	**Number of Classrooms Included in Report:**	22

Morning and Afternoon Travel Mode Comparison

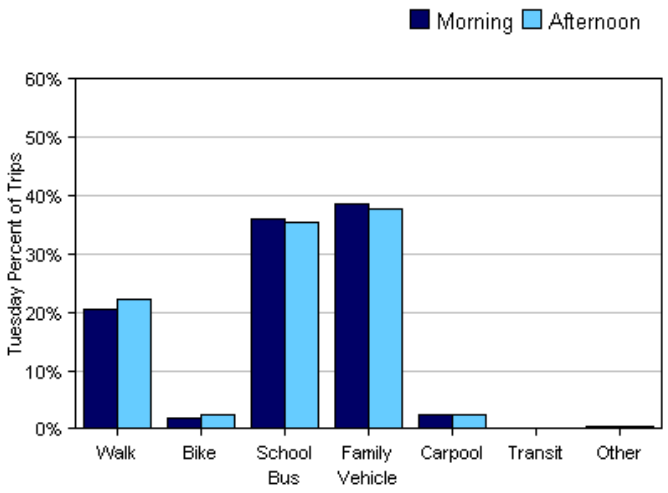


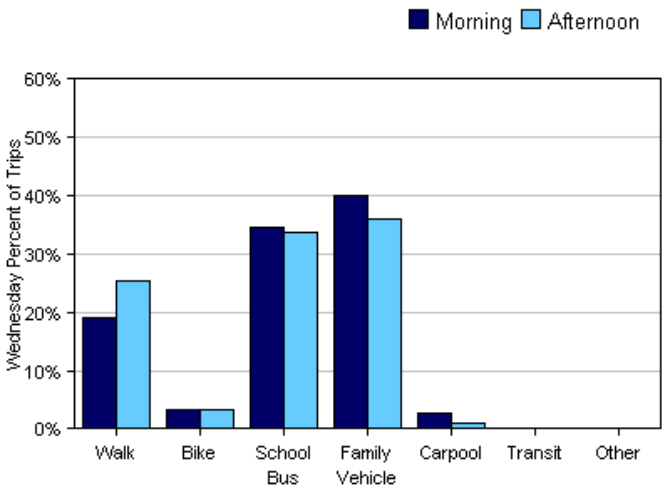
Morning and Afternoon Travel Mode Comparison

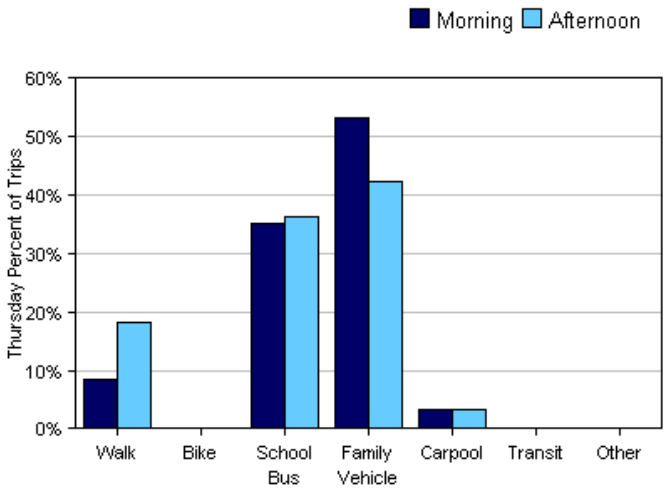
	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	1222	16%	2%	35%	44%	3%	0%	0.2%
Afternoon	998	22%	2%	35%	38%	2%	0%	0.2%

Percentages may not total 100% due to rounding.

Morning and Afternoon Travel Mode Comparison by Day



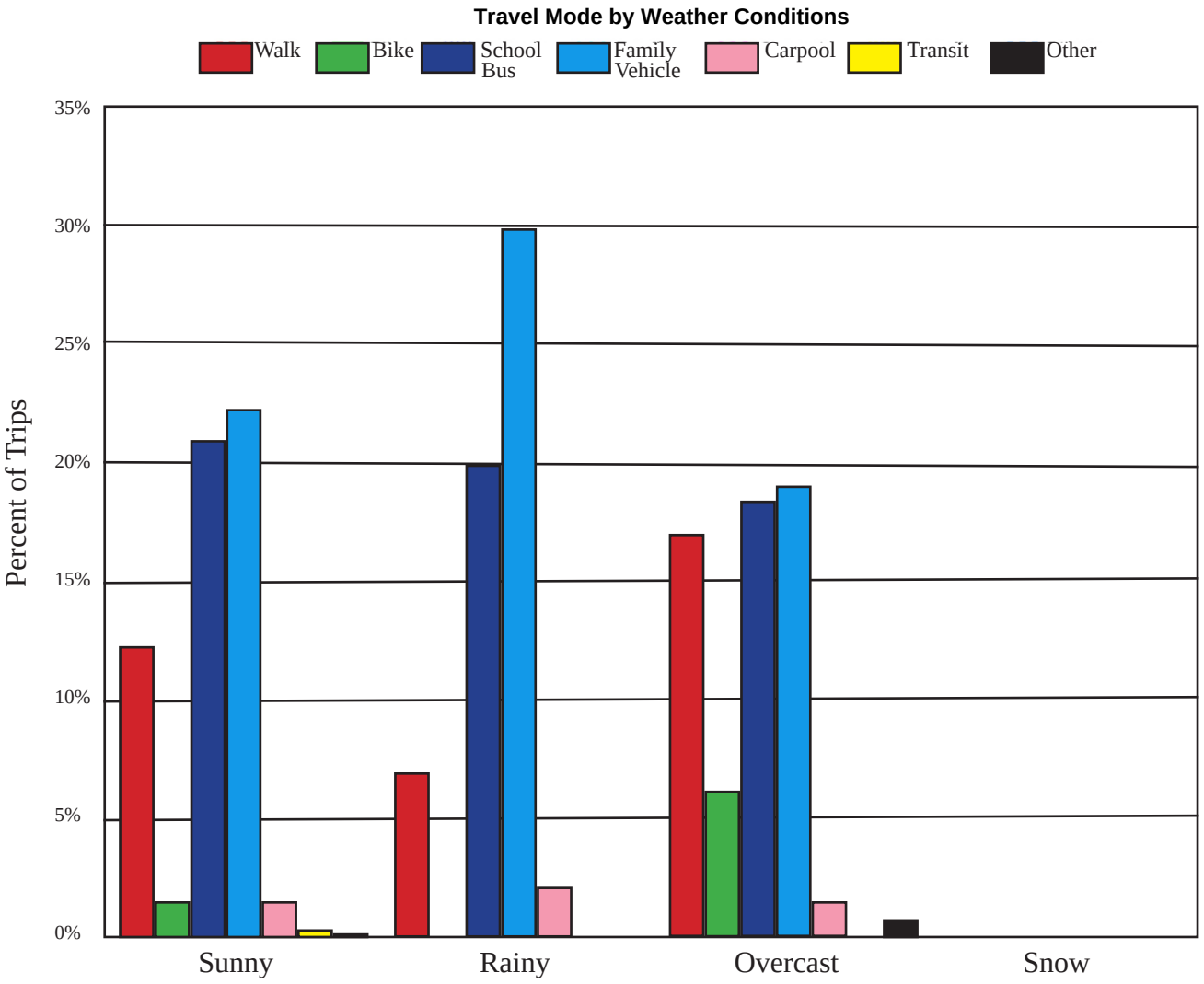




Morning and Afternoon Travel Mode Comparison by Day

	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Tuesday AM	405	20%	2%	36%	39%	2%	0%	0.5%
Tuesday PM	348	22%	2%	35%	38%	2%	0%	0.3%
Wednesday AM	438	19%	3%	35%	40%	3%	0%	0.2%
Wednesday PM	357	25%	3%	34%	36%	1%	0%	0.3%
Thursday AM	379	8%	0%	35%	53%	3%	0%	0%
Thursday PM	293	18%	0%	36%	42%	3%	0%	0%

Percentages may not total 100% due to rounding.



Travel Mode by Weather Condition

Weather Condition	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Sunny	1533	21%	3%	36%	38%	2%	0%	0.3%
Rainy	604	12%	0%	34%	51%	3%	0%	0%
Overcast	83	29%	4%	31%	33%	2%	0%	1%
Snow	0	0%	0%	0%	0%	0%	0%	0%

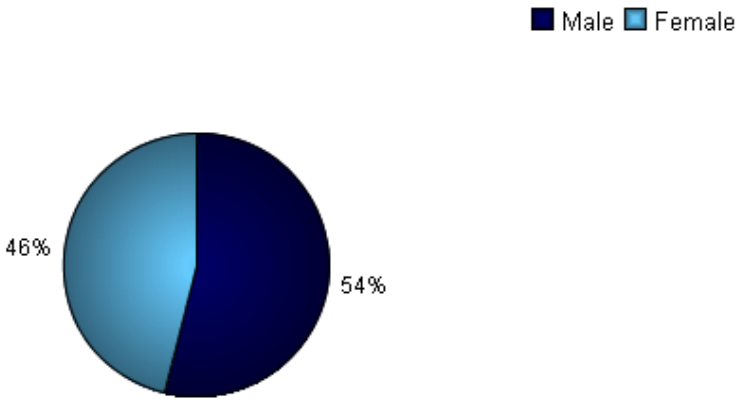
Percentages may not total 100% due to rounding.

Appendix III – Lyseth Parent Survey

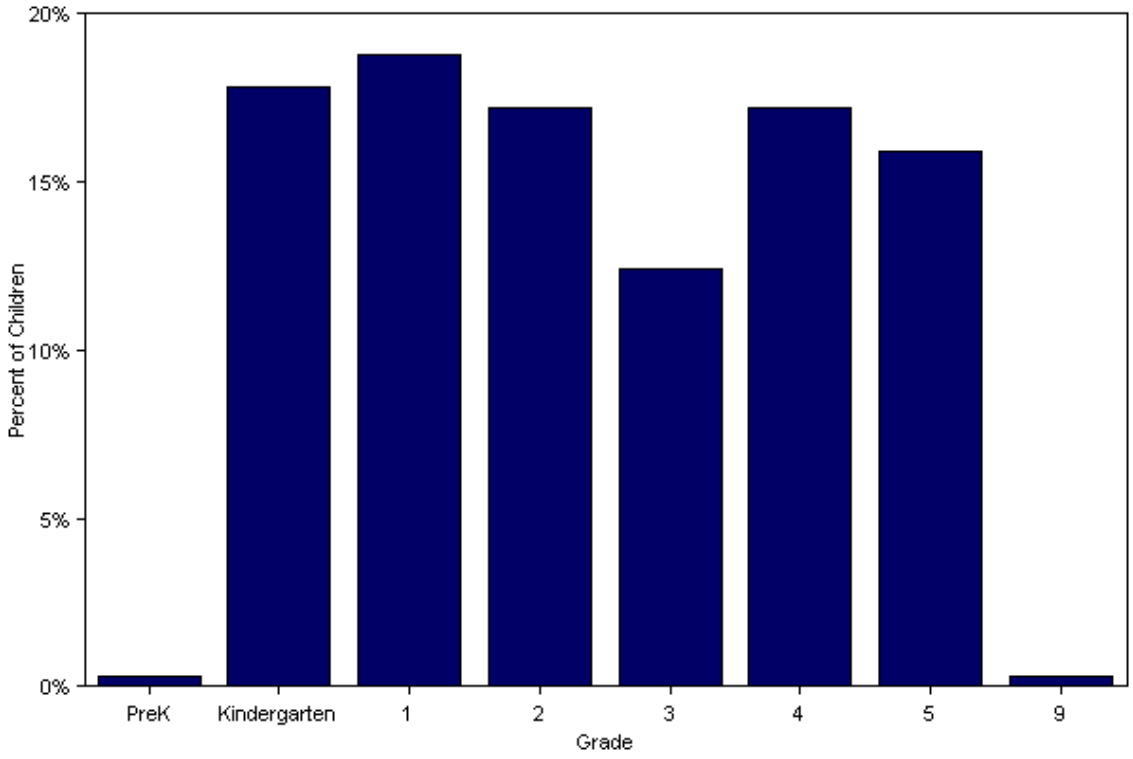
Program Name:	Portland Safe Routes to School Team	**Month and Year Collected:**	October 2010
School Name:	Lyseth Elementary	**Set ID:**	4385
School Enrollment:	500	**Date Report Generated:**	12/09/2010
Enrollment within Grades Targeted by SRTS Program:	500	**Number of Questionnaires Analyzed for Report:**	320
Number of Questionnaires Distributed:	495		

This report contains information from parents about their children's trip to and from school. The report also reflects parents' perceptions regarding whether walking and bicycling to school is appropriate for their child. The data used in this report were collected using the Survey about Walking and Biking to School for Parents form from the National Center for Safe Routes to School.

Sex of children for parents that provided information



Grade levels of children represented in survey

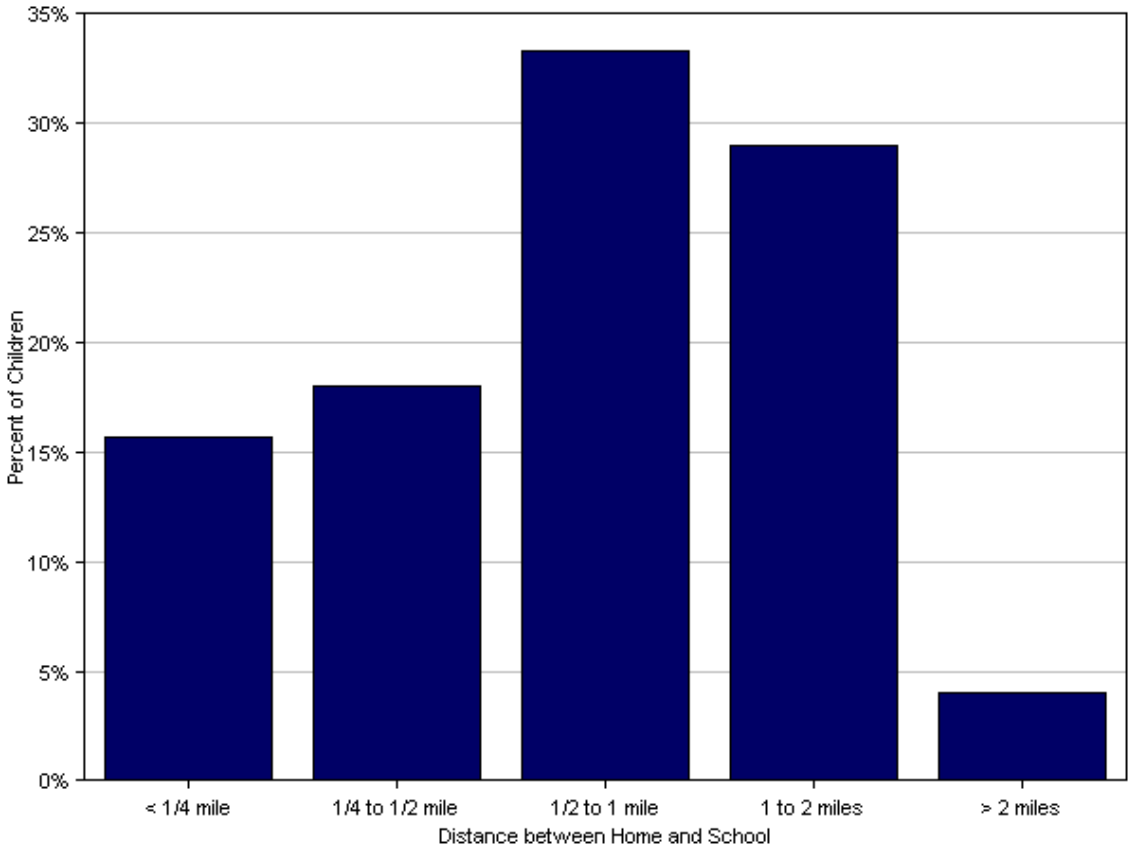


Grade levels of children represented in survey

Grade in School	Responses per grade	
	Number	Percent
Kindergarten	56	18%
1	59	19%
2	54	17%
3	39	12%
4	54	17%
5	50	16%

No response: 0
Percentages may not total 100% due to rounding.

Parent estimate of distance from child's home to school

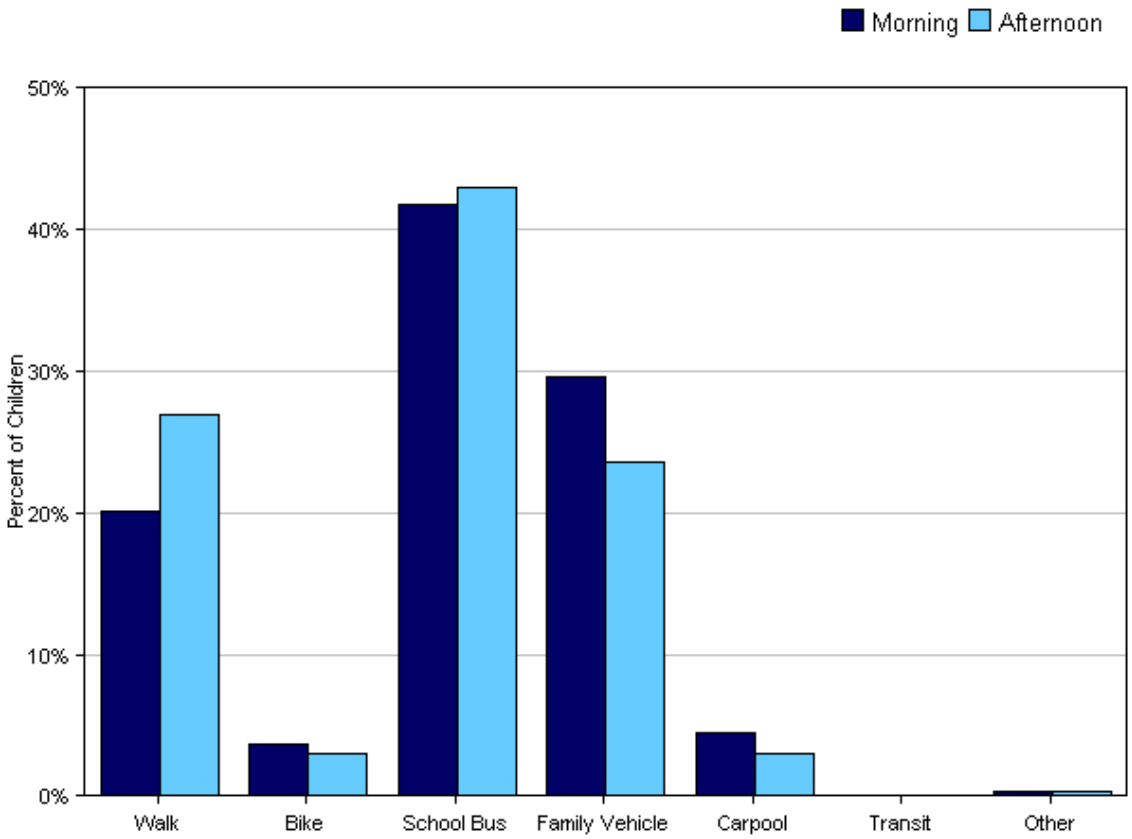


Parent estimate of distance from child's home to school

Distance between home and school	Number of children	Percent
Less than 1/4 mile	47	16%
1/4 mile up to 1/2 mile	54	18%
1/2 mile up to 1 mile	100	33%
1 mile up to 2 miles	87	29%
More than 2 miles	12	4%

Don't know or No response: 20
Percentages may not total 100% due to rounding.

Typical mode of arrival at and departure from school

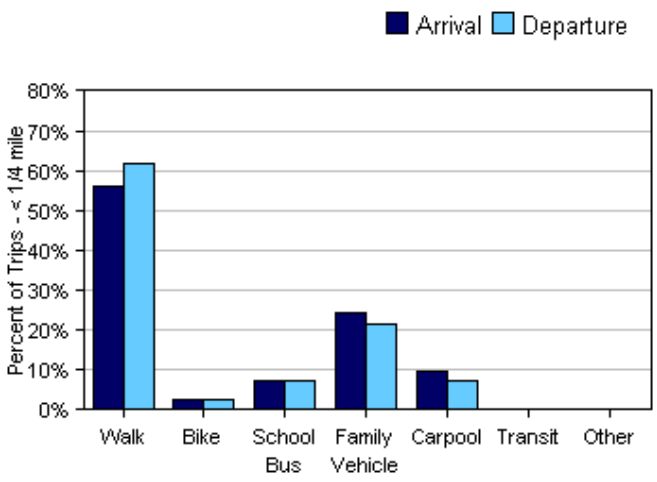


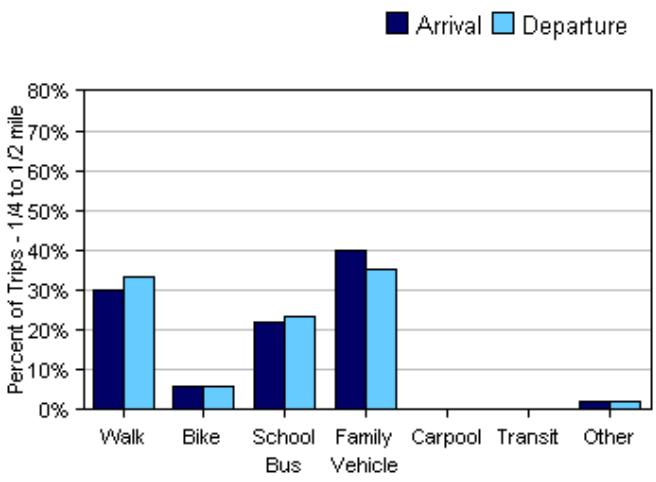
Typical mode of arrival at and departure from school

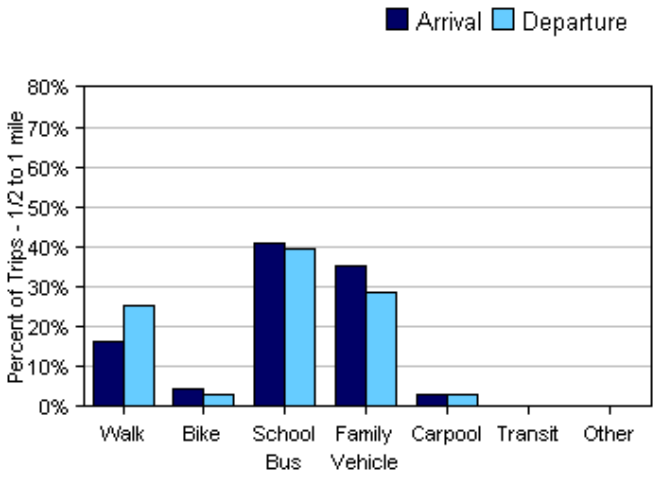
Time of Trip	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	294	20%	4%	42%	30%	4%	0%	0.3%
Afternoon	293	27%	3%	43%	24%	3%	0%	0.3%

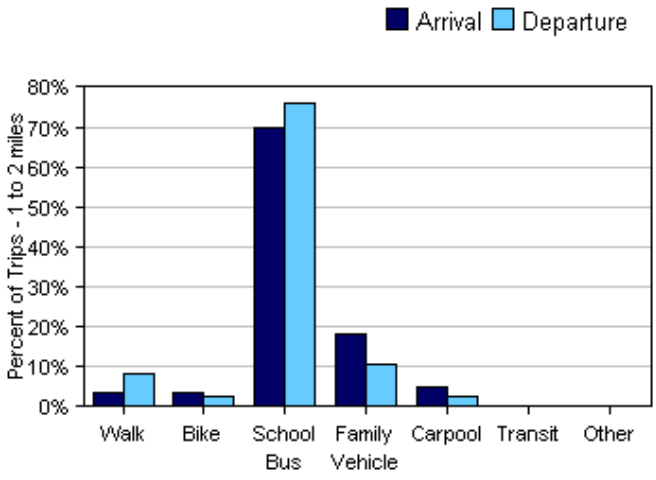
No Response Morning: 26
No Response Afternoon: 27
Percentages may not total 100% due to rounding.

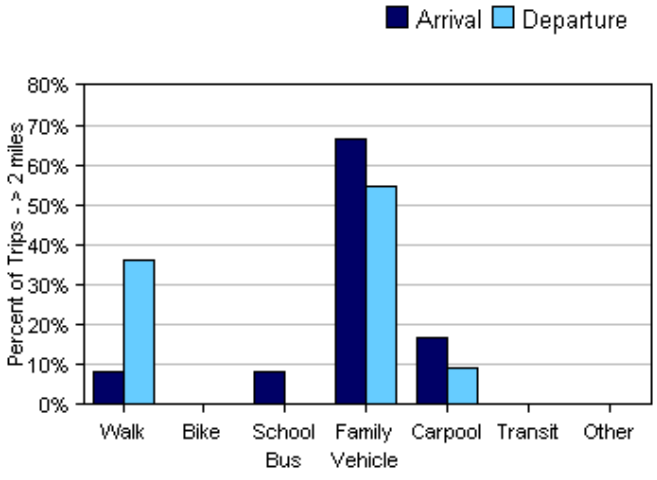
Typical mode of school arrival and departure by distance child lives from school











Typical mode of school arrival and departure by distance child lives from school

School Arrival

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	41	56%	2%	7%	24%	10%	0%	0%
1/4 mile up to 1/2 mile	50	30%	6%	22%	40%	0%	0%	2%
1/2 mile up to 1 mile	93	16%	4%	41%	35%	3%	0%	0%
1 mile up to 2 miles	83	4%	4%	70%	18%	5%	0%	0%
More than 2 miles	12	8%	0%	8%	67%	17%	0%	0%

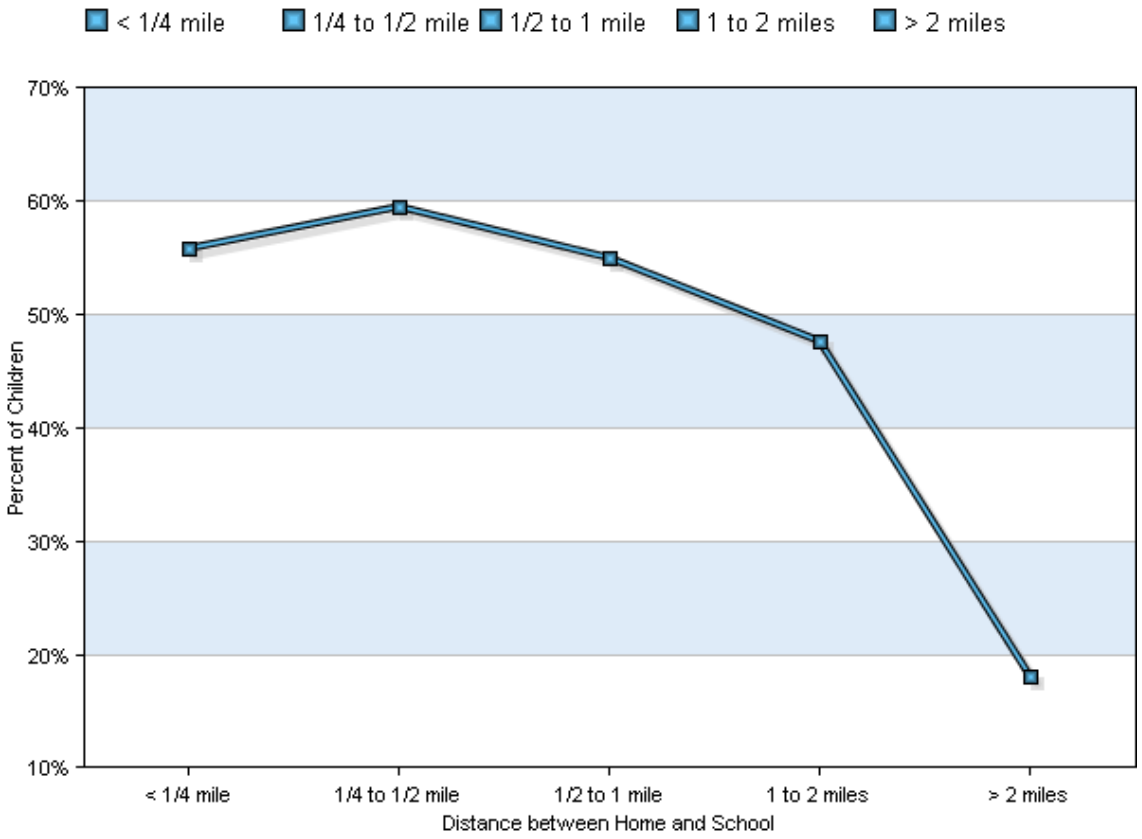
Don't know or No response: 41
Percentages may not total 100% due to rounding.

School Departure

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	42	62%	2%	7%	21%	7%	0%	0%
1/4 mile up to 1/2 mile	51	33%	6%	24%	35%	0%	0%	2%
1/2 mile up to 1 mile	91	25%	3%	40%	29%	3%	0%	0%
1 mile up to 2 miles	83	8%	2%	76%	11%	2%	0%	0%
More than 2 miles	11	36%	0%	0%	55%	9%	0%	0%

Don't know or No response: 42
Percentages may not total 100% due to rounding.

Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

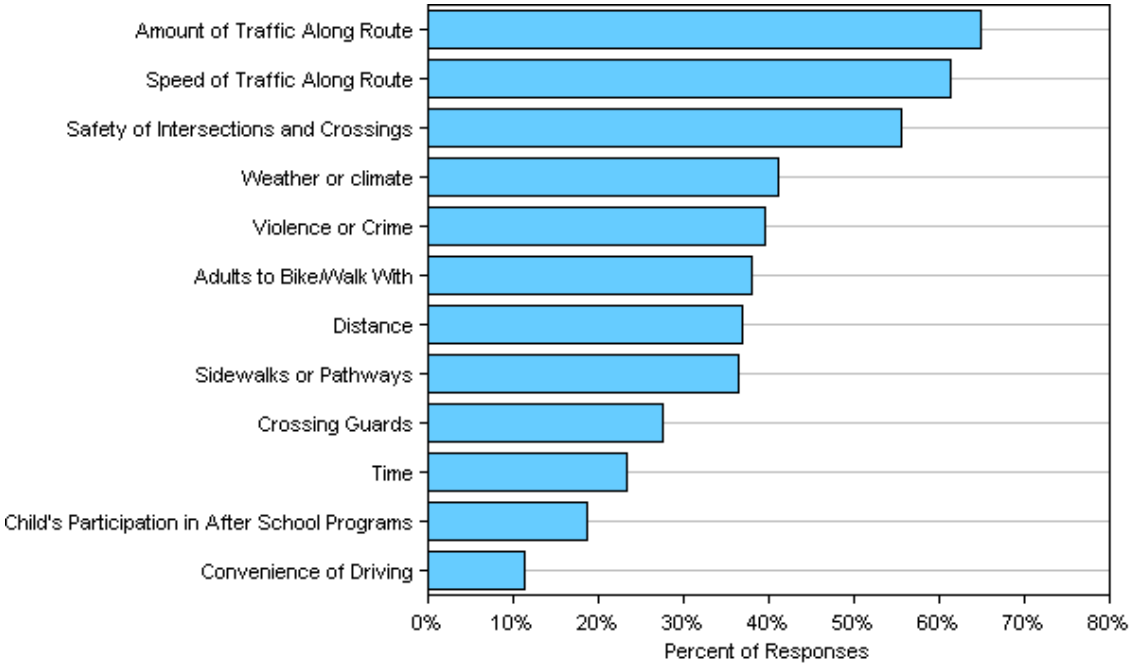


Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

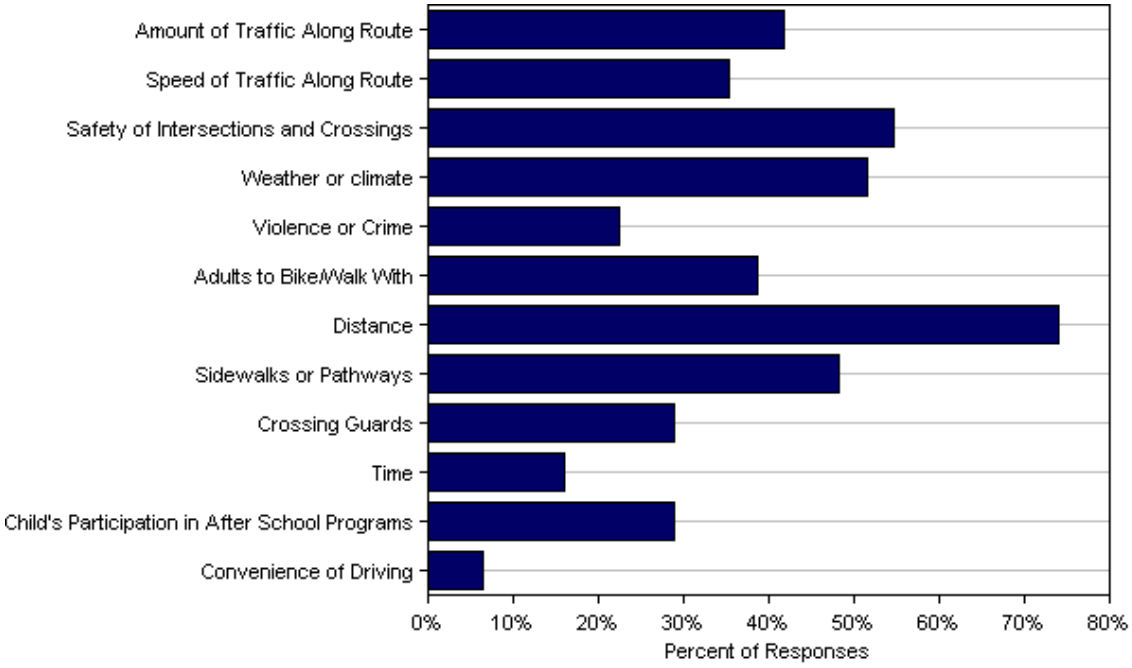
Asked Permission?	Number of Children	Less than 1/4 mile	1/4 mile up to 1/2 mile	1/2 mile up to 1 mile	1 mile up to 2 miles	More than 2 miles
Yes	151	56%	60%	55%	48%	18%
No	137	44%	40%	45%	52%	82%

Don't know or No response: 32
Percentages may not total 100% due to rounding.

Issues reported to affect the decision to not allow a child to walk or bike to/from school by parents of children who do not walk or bike to/from school



Issues reported to affect the decision to allow a child to walk or bike to/from school by parents of children who already walk or bike to/from school

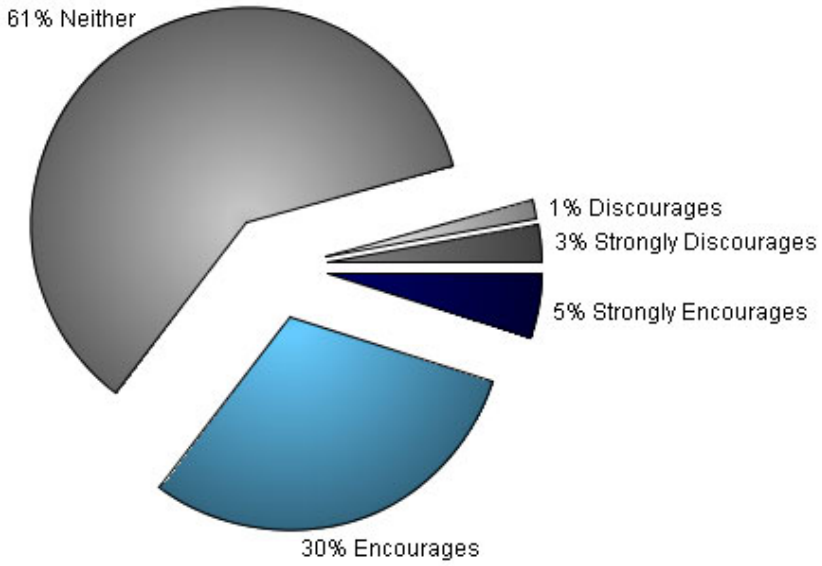


Issues reported to affect the decision to allow a child to walk or bike to/from school by parents of children who already walk or bike to/from school

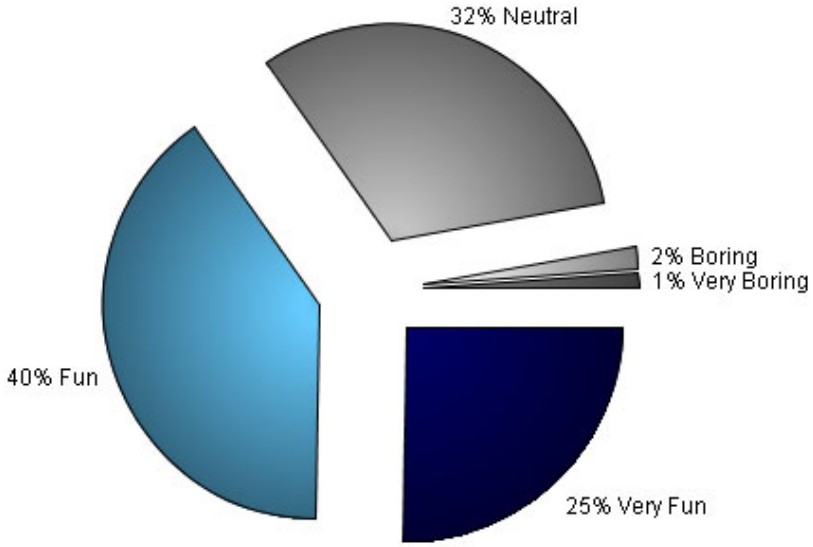
Issue	Child does not walk/bike to school	Child walks/bikes to school
Amount of Traffic Along Route	65%	42%
Speed of Traffic Along Route	61%	35%
Safety of Intersections and Crossings	56%	55%
Weather or climate	41%	52%
Violence or Crime	40%	23%
Adults to Bike/Walk With	38%	39%
Distance	37%	74%
Sidewalks or Pathways	36%	48%
Crossing Guards	28%	29%
Time	23%	16%
Child's Participation in After School Programs	19%	29%
Convenience of Driving	11%	6%
Number of Respondents per Category	**192**	**31**

No response: 97
Note:
--Factors are listed from most to least influential for the 'Child does not walk/bike to school' group.
--Each column may sum to > 100% because respondent could select more than issue
--The calculation used to determine the percentage for each issue is based on the 'Number of Respondents per Category' within the respective columns (Child does not walk/bike to school and Child walks/bikes to school.) If comparing percentages between the two columns, please pay particular attention to each column's number of respondents because the two numbers can differ dramatically.

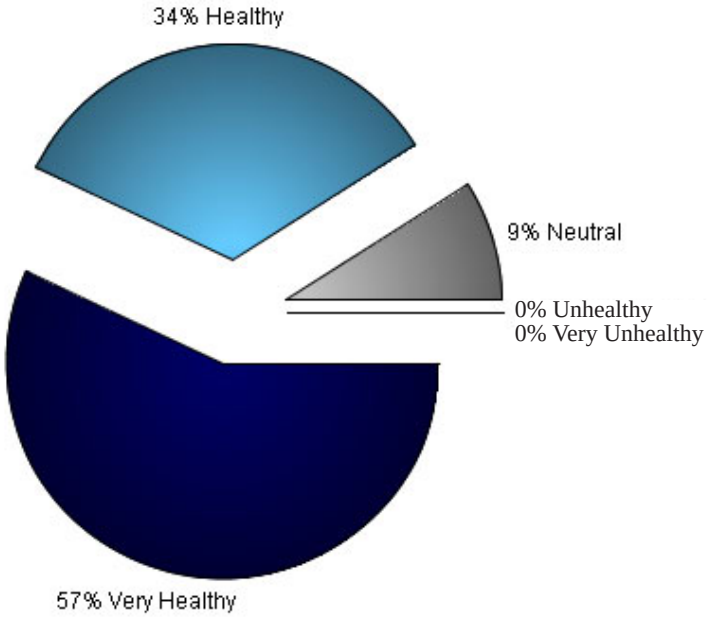
Parents' opinions about how much their child's school encourages or discourages walking and biking to/from school



Parents' opinions about how much fun walking and biking to/from school is for their child



Parents' opinions about how healthy walking and biking to/from school is for their child



Comments Section

SurveyID	Comment
492896	TOO MANY KIDS BIKE THE BUS TO SCHOOL. WE COULD SAVE OUR CITY A LOT OF MONEY & HELP OUR KIDS STAY HEALTHY BY ENCOURAGING BIKING/WALKING & DISCOURAGING RIDING THE BUS.
492613	I HAVE A 7 YR OLD AND 5 YR OLD. MY GREATEST CONCERNS ARE THAT THEY WOULD BE KIDNAPPED OR HIT BY A CAR.
492615	I THINK BIKING OR WALKING TO SCHOOL IS A GREAT IDEA AS LONG AS IT'S SAFE FOR EACH CHILD. I LIVE ON WASHINGTON AVE AND I DO NOT ALLOW MY CHILDREN TO RIDE THEIR BIKES WITHOUT AN ADULT.
492617	QUESTION #10 - PARENTS WORK - NEED BEFORE & AFTER SCHOOL CARE. (CAN'T CHANGE THIS BUT I'D LOVE TO BE ABLE TO WALK THE KIDS TO SCHOOL)
492625	MY CHILD ATTENDS BEFORE & AFTER SCHOOL CARE @ A LOCAL DAYCARE WHERE BUS PICKS HER UP. UNLESS OUR WORK HOURS CHANGED WALKING WOULD NOT BE AN OPTION - NO SUPERVISION FOR HER OR HER YOUNGER SIBLINGS.
492634	RAY STREET WAS RECENTLY IMPROVED WITH FEDERAL STIMULUS MONEY AND SIDEWALKS WERE NOT INSTALLED. I DO NOT CONSIDER WASHINGTON AVE TO BE A SAFE ROUTE OF TRAVEL FOR MINORS. THE INTERSECTION OF ALLEN AVE & WASHINGTON NEEDS CROSSING GUARDS FOR THOSE CHILDREN WHO DO WALK TO/FROM SCHOOL.
492669	IF THERE WAS A CROSSING GUARD AT THE INTERSECTION AND AS LONG AS SHE WAS IN A GROUP OR A FEW SO NOT ALONE I WALK THEM SOMETIMES
492673	QUESTION 39 - TOO MUCH TRAFFIC BY LYSETH & LYMAN MOORE - NO SIDEWALKS ON JUNION ST AND NO CROSSING GUARDSS BY BOTH SCHOOLS.
492677	I FEEL STRONGLY ABOUT WALKING/BIKING TO SCHOOL. WE HAVE NO SIDEWALKS IN SOME AREAS SO I GO WITH MY DAUGHTER. SHE IS ON A BUS AND DOES RIDE OCCASIONALLY BUT PREFERS TO WALK. IN TERMS OF RIDING I AM INTERESTED IN THE SAFETY OF THE BIKES @ SCHOOL - ARE KIDS ALLOWED TO GET ON THEM. DO WE NEED A LOCK FOR SAFETY?
492679	MY CHILD GOES WITH ME TO WORK AT LYMAN MOORE AND THEN WALKS OVER TO LYSETH.
492681	EVEN WALKING TO SCHOOL CARS GO WAY TOO FAST. I FEEL KIDS SHOULD BE BUSED TO SCHOOL. REGARDLESS OF DISTANCE.
492685	BUS TRANSPORTATION IS GREAT; EXCELLENT. HOWEVER I HAVE TO TRANSPORT CHILD TO SCHOOL IN CAR DUE TO ACTIVITIES AND TIME. CHILD HAS TO WAKE UP EARLIER FOR "BEFORE SCHOOL ACTIVITIES". WALKING WOULD MEAN GETTING UP EVEN EARLIER.
492691	THERE NEED TO BE BETTER TRAFFIC CONTROLS BETTER CLEAR SIDEWALKS SIDEWALKS ON BOTH SIDES & AT LEAST ONE SIDE OF STREET MORE ADULTS & SAFETY PATROLS - WINTER ENFORCEMENT OR CLEANING BY THE CITY OF WALKWAYS PATHS STREETS - SPEEDING CONTROL
492706	QUESTION #10 - SIDEWALKS OR PATHWAYS - ON RAY ST!
492707	IF FEEL THAT CHILDREN SHOULD BE AT LEAST IN 5TH GRADE. I DON'T SEE ANYTHING WRONG WITH LETTING THEM PICK UP HIS/HER SIBLING AS LONG AS THE SIBLING IS IN FIRST GRADE AND UP. I THINK FIRST GRADE IS TOO YOUNG TO BE WALKING WITHOUT AN ADULT.
492713	I WORK 3RD SHIFT (7PM-7AM). I DO NOT ARRIVE HOME IN TIME TO WALK THEM TO SCHOOL BUT ON MY OFF DAYS WE DO WALK TO SCHOOL.
492714	MY CHILD IS TOO YOUNG TO STAY HOME ALONE AS I WORK FULL TIME I ALSO WOULDN'T FEEL COMFORTABLE HAVING MY KIDS CROSS BUSY STREET ALONE.
492716	MAGGIE WILL BE 8 IN JANUARY & I AM PLANNING TO ALLOW HER TO WALK TO SCHOOL NEXT SPRING (OCCASIONALLY). WE ARE LUCKY TO LIVE THRU THE WOODS & FIELD FROM THE SCHOOL WHICH IS HOW SHE WOULD TRAVEL RATHER THAN WALK THE ROAD-WAY!! THANK YOUR FOR CONSIDERING MY INPUT.
492740	THOUGH WE OFTEN USE THE TRAILS TO GET TO SCHOOL WE REALLY NEED A SIDEWALK ON RAY ST ESP OVER THE DANGEROUS HILL NEAR PINE GROVE PARK. A "CHILDREN CROSSING" SIGN @ THE TRAIL ENTRANCE ON ALLEN AVE EXT & CROSSING GUARD @ VIRGINIA WOULD BE HUGE ASSETS. THANKS FOR YOUR WORK!

492756	ALL OF US WOULD WALK OR BIKE MOST DAYS IF ONLY WE HAD A SIDEWALK FOR THE STRETCH BETWEEN GARSOE & ARMSTRONG ON AUBURN STREETS - UNFORTUNATELY MR COHEN WON'T HELP ACCOMPLISH THIS ALTHOUGH WE PAY A RIDICULOUS SUM OF TAXES - THIS NEIGHBORHOOD IS UNFAIRLY TAXED W/OUT BENEFIT!
492761	STILL IN SCHOOL
492774	THANK YOU FOR PROBLEM SOLVING THIS SITUATION
492786	I'M PLEASED THAT THERE IS A CROSSING GUARD FROM SUMMIT ST TO THE ROAD THAT LEADS TO LYSETH BUT MY CHILDS STILL HAS TO CROSS MANY SIDE STREET INTERSECTIONS ALONG SUMMIT ST.
492798	WE HAVE A WALKING GROUP WITH AN ADULT FOR 5 LYSETH STUDENTS
492799	I WOULD LOVE MY CHILD TO WALK TO SCHOOL BUT DON'T FEEL COMFORTABLE HAVING HER WALK WHERE THERE ARE NO SIDEWALKS
492802	I TRIED MY BEST BUT MY ANSWERS MIGHT NOT BE ACCURATE. I LIVE IN WESTBROOK WHICH IS ABOUT 30 MINUTES DRIVING TO SCHOOL FROM MY HOUSE.
492817	WE HAVE TO DROP OUR CHILD EARLY & BEFORE SCHOOL - AT 1ST LUTHERAN. WE DON'T WANT HER ALONE AT HOME BEFORE OR AFTER SCHOOL. WE WORK FULL TIME.
492820	MAIN CONCERN - SAFETY ON PINELOCH BETWEEN SUMMIT AND ROARING BROOK. NO SIDEWALK CURVY-BLIND SPOTS FOR DRIVERS/KIDS)
492826	I HAVE AN ISSUE WITH THE SCHOOL NOT PROVIDING A BUS FOR US AND MY CHILDREN DO NOT HAVE SIDEWALKS TO WALK ON (PINELOCH) THIS IS A CURVY ROAD AND VERY DANGEROUS FOR THE CHILDREN. IF THE EXPECTATION IS TO WALK AT LEAST PROVIDE SIDEWALKS FOR THERE ENTIRE ROUTE! QUESTION #9 - I DON'T FEEL COMPLETELY COMFORTABLE BUT LET HIM
492839	CROSSING GUARDS ARE A HUGE ISSUE. ALLEN AVE IS WAY TO BUSY.
492848	MY BIGGEST CONCERN IS TRAFFIC & LACK OF ATTENTION OF DRIVERS - RECKLESS DRIVING DUE TO USING CELL PHONES WHILE DRIVING
492854	QUESTION #10 - LIVING DIRECTLY ON ALLEN AVE IS THE MAJOR LIMITATION ALLOWING WALKING/BIKING TO SCHOOL. SIDEWALKS OR PATHWAYS-NOW BEING INSTALLED ON ALLEN AVE. QUESTION #11 - WHEN SHE'S OLD ENOUGH.
492862	IT IS PRIMARILY MY CONCERN WITH ALLEN AVE. DRIVERS DRIVE TOO FAST AND HARDLY EVER STOP EVEN WITH FLASHING LIGHTS (TOTALLY USELESS AND WASTE OF MONEY IN MY MIND)
492871	THE CARS ALMOST NEVER STOP WHERE VIRGINIA/BRAMBLEWOOD CROSSES ALLEN AVENUE. THERE ARE NO SIDEWALKS ON VIRGINIA WHERE MY CHILDREN WOULD WALK. I SOMETIMES WALK THEM BUT GET FRUSTRATED W/ THE SPEED OF CARS/NO SIDEWALK.
492875	ANSWER TO NUMBER 10. AGE - MY CHILD IS FIRST GRADE - TOO YOUNG TO WALK ALONE.
492893	KINDERGARTEN IS TOO YOUNG TO BIKE/WALK ALONE AND I DON'T HAVE THE TIME TO DO IT WITH HER. SHE BIKES IN THE NEIGHBORHOOD AND PLAYS SPORTS. QUESTION #10 - AGE OF CHILD
492895	WE NEED LESS THAN 1/4 MILE & SIDEWALK ON AUBURN ST & OUR CHILDREN WOULD WALK NEARLY EVERYDAY. MR. COHEN WOULD NOT HELP AT ALL. THE LYMAN MOORE HOODLUMS FREQUENTLY HARASS LITTLE KIDS & SHOULD BE DISMISSED AFTER NOT BEFORE THE YOUNG CHILDREN!
492595	I WOULD LOVE MY CHILDREN TO WALK/BIKE TO SCHOOL BUT DON'T FEEL COMFORTABLE AS SOME OF THE WAY HAS NO SIDEWALKS.
492597	WE MOVED TO PORTLAND SO WE COULD WALK/RIDE TO SCHOOL. WE NOTICED MANY FOLKS ON VIRGINIA ST PUT SOD/LAWN OVER THEIR SIDEWALKS. THAT IS VERY SAD & SHOULD BE FIXED!
492603	MY CHILD WALKS SUPERVISED TO SCHOOL FROM FIRST LUTHERINE.
492604	ONE ADDITIONAL ADULT PRESENCE NEAR TO CURTIS MIGHT PROVIDE THE SECURITY I NEED TO ALLOW ALEX (1ST GRADE) TO WALK ALONG SUMMIT ST. SPEED BUMPS WOULD ALSO SLOW PEOPLE DOWN. SUMMIT HAS BECOME A THOROUGHFARE FOR PEOPLE WHO WISH TO AVOID WASHINGTON AVE/AUBURN ST. A POLICE PRESENCE ON SUMMIT WOULD DISCOURAGE SPEEDING AS WELL (DURING AM HOURS 8:30-9 & PM 3-3:30)
492614	QUESTION #9 - DEPENDING ON MATURITY LEVEL

492622	WE DRILL OUR CHILD DAILY TO "WATCH OUT FOR THE OTHER GUY BECAUSE THEY DON'T WATCH OUT FOR YOU". TRAFFIC IS A MAJOR CONCERN.
492631	MY SON WALKS TO & FROM SCHOOL EVERYDAY WITH US BEFORE AND AFTER SCHOOL PROGRAM AT FIRST LUTHERAN. IF HE DIDN'T I'M NOT SURE HE WOULD WALK BECAUSE OF THE EXTRA TIME IT WOULD TAKE ME TO WALK HIM THERE.
492637	ALLEN AVENUE DESPERATELY NEEDS A CROSSING GUARD. VIRGINIA ST. NEEDS SIDEWALKS.
492645	I WORK FULL TIME AND MY KIDS ARE TOO YOUNG TO STAY HOME ALONE. ALSO TOO YOUNG FOR ME TO FEEL COMFORTABLE CROSSING BUSY STREETS.
492663	I WOULD ALLOW CHILD TO WALK BUT CHILD DOES NOT WISH TO DO SO.
492675	MY CHILD IS VERY YOUNG SO I DO NOT KNOW WHEN I WILL FEEL COMFORTABLE LETTING HIM WALK (ALONE) BUT DO STRONGLY SUPPORT ADVOCATING WALKING TO NEIGHBORHOOD SCHOOLS.
492686	MY CHILD WALKS OR BIKES TO SCHOOL ROUGHLY 50% OF THE TIME
492687	SAFETY AND THE ENJOYMENT OF WALKING WITH OUR KIDS
492704	I WOULD BE MORE COMFORTABLE WITH HIM WALKING HOME THEN WALKING TO SCHOOL. THERE IS LITTLE VERIFICATION THAT HE MADE IT THERE SAFELY.
492708	DUE TO THE TIME HE HAS TO BE AT SCHOOL WE CANNOT WALK OR BIKE WITH HIM TO SCHOOL & GO BACK HOME & GET TO WORK ON TIME. MORE BIKE STORAGE!! I HAVE SUGGESTIONS & CAN BE REACHED @ 207-650-9778 IF INTERESTED.
492723	CURRENTLY ATTENDS FIRST LUTHERAN'S CHILDREN PROGRAM & WALKS TO AND FROM SCHOOL W/ GROUP OF CHILDREN & COUNSELORS
492728	I WORK FULL TIME SO POLICY NEEDS TO TAKE INTO ACCT WORKING PARENTS. PLEASE
492749	ONLY ALLOWED TO WALK IF OTHER CHILDREN ARE WALKING TOO. NEVER ALONE.
492785	QUESTION #9 - UNLESS WITH A BUDDY
492787	CARS RARELY STOP ON ALLEN AVENUE. PLUS W/ THE WIDTH OF VIRGINIA CARS SPEED & THERE ARE NO SIDEWALKS. I OFTEN WALK THEM BUT WOULD NEVER LET THEM WALK OR BIKE UNDER THESE CONDITIONS.
492794	AS WORKING PARENTS WE NEED TO BE AT WORK BY 8:00 BUT THE SCHOOL DOES NOT ALLOW STUDENTS ON PREMISE TILL 8:40. IF OUR CHILD STARTED WALKING AT 7:45/8:00 HE WOULD BE AT SCHOOL BY 8:15. THEN WHAT DOES HE DO? ALSO WE DON'T FEEL COMFORTABLE WITH NO CROSSING GUARD AT VIRGINIA/ALLEN AVE CROSSING OVER TO BRAMBLEWOOD.
492812	IF WE HAD LESS THAN 1/4 MILE OF SIDEWALK ON AUBURN ST. MY CHILDREN WOULD WALK NEARLY EVERYDAY. MR. COHEN WON'T HELP US.
492814	WE ARE A TRANSFER STUDENT WHO LIVES IN THE RIVERTON DISTRICT. IF THERE WERE ACCESS HALF WAY WE WOULD TAKE ADVANTAGE OF THIS PROGRAM. WE HAVE PARKED IN A NEIGHBORHOOD AND BIKED TO SCHOOL.
492819	QUESTION #10 - SIDEWALKS OR PATHWAYS-NO SNOW PLOW FOR SIDEWALKS
492863	NEED A CROSSING GUARD @ ALLEN AVENUE!
492905	NO ANY ADDITIONAL COMMENTS.
492907	I HAVE A FIRST GRADER AND SECOND GRADER WHO ARE TOO YOUNG TO WALK OR BIKE TO SCHOOL W/O AN ADULT. WE ARE ALSO TOO CLOSE TO SCHOOL FOR BUSING. (WHICH I DO NOT AGREE) MY CHILDREN WOULD NEED TO WALK/BIKE UP A STREET W/O SIDEWALKS TO A BUSY STREET TRAVEL DOWN THE STREET TO A CROSSING GUARD TO ANOTHER STREET AND THROUGH A PATH. DRIVING IS OFTEN EASIER EVEN THOUGH WE DO WALK AND BIKE.
492623	MY DAUGHTER LOVES THE BUS
492646	IT TAKES UNTIL ABOUT 10:30AM FOR THE SCHOOL TO CALL YOU IF YOUR CHILD IS ABSENT. THERE IS NO WAY TO KNOW IF HE/SHE GETS THERE SAFELY UNTIL THAT TIME - WAY TOO LATE IF SOMETHING WENT WRONG.

492811	WHY DO YOU NEED THE QUESTION #15?
492818	THE SECTION OF WASHINGTON AVE MY CHILD COULD HAVE TO WALK ON HAS NO SIDEWALK MAYBE IF THE CITY COULD DO SOMETHING ABOUT THAT WALKING TO SCHOOL WOULD BE AN OPTION.
492836	MY SON SOMETIMES WALKS OR BIKES WITH A FRIEND
492838	THE SAFETY OF CHILDREN IN THE SCHOOL PARKING LOT AND DROPOFF/PICKUP AREA IS ALSO A CONCERN
492850	THE TRAFFIC (INTERSECTION) IN FRONT OF OUR HOUSE MAKES IT NEARLY IMPOSSIBLE TO GET ACROSS THE STREET WE ARE AT 659 ALLEN AVE AND THE TRAFFIC IS LINED UP ON SUMMIT ST TO GET TO ALLEN WHERE MY CHILDREN MUST TRY TO CROSS TO GET TO SCHOOL. QUESTION #9 - (HE IS VERY HAPPY WITH TAKING THE BUS).
492851	I DON'T FEEL THAT MY KID IS RESPONSIBLE ENOUGH TO GET TO/FROM SCHOOL ON HIS OWN. IF WE DIDN'T HAVE THE BUS I WOULD DRIVE THEM WHICH JUST ADDS MORE TRAFFIC IN/AT OF SCHOOL. I WORK AND THE RIDE TO SCHOOL ON THE BUS ALLOWS ME TO LEAVE EARLIER. SCHOOL STARTS TOO LATE! WE NEED OUR BUSES!
492882	SCHOOL AT LYSETH STARTS TOO LATE I CAN'T WALK WITH HIM & STILL GET TO WORK. THE GENERAL THOUGHT IS THAT THEY AREN'T SAFE UNTIL GRADE 3 TO WALK ALONE I THINK MY SON SHOULD BE BUSSED.
492888	BEFORE I FEEL "SAFE" TO LEAVE FOR WORK I NEED TO KNOW MY KID IS WHERE HE NEEDS TO BE OR THAT "CUSTODY" HAS BEEN TRANSFERRED. SCHOOL STARTS TOO LATE TO MAKE WALKING AN OPTION. RIDING THE BUS GIVES ME A 1/2 HOUR MORE TIME.
492899	FEEL YOU SHOULD BE LOOKING MORE AT SAFETY AT LYSETH WITH WHERE THE BUSES DROP OFF & PARENTS DROP OFF. BUSES SHOULD DROP OFF ON SIDE OF SCHOOL - CHILDREN CROSS BETWEEN SCHOOL BUSES AT DISMISSAL & ENTERING SCHOOL IN THE A.M. I FEEL THIS IS A VERY DANGEROUS SET UP BETWEEN THESE 2 CIRCLES. THERE HAS TO BE A BETTER WAY FOR OUR KIDS.
492611	MY CHILD IS FIVE YEARS OLD AND I FEEL SHE IS TOO YOUNG TO WALK TO SCHOOL. WE HAVE TRIED TO WALK TO SCHOOL BEFORE AND I HAD TO CARRY HER MOST OF THE WAY.
492624	WE ARE CURRENTLY LIVING OUT OF DISTRICT & MOVING TO PORTLAND OCT. 8TH. ALL COMMENTS LISTED ABOVE REPRESENT WHAT OUR NEW LIVING SITUATION WILL ENTAIL WHEN WE MOVE TO PORTLAND.
492883	I ALLOW MY DAUGHTER TO WALK BECAUSE SHE DOES NOT HAVE TO CROSS A STREET AND A PATHWAY IS MAINTANED.
492717	QUESTION #15 - NEVER WENT TO SCHOOL
492748	NOT SURE WHEN SON MAY BE READY TO WALK OR BIKE TO SCHOOL - HE'S AUTISTIC & THE ROUTE FROM OUR HOUSE IS STILL WAY TOO DANGEROUS FOR HIM. ALSO TOO FAR IN BAD WEATHER.
492753	I WILL CONTINUE TO WALK WITH MY CHILD TO SCHOOL (WEATHER PERMITTED) AND I WILL EVENTUALLY LET HIM WALK OR RIDE HIS BIKE WHEN HE IS OLD ENOUGH TO DO IT BY HIMSELF.
492776	I LIVE AT THE CORNER OF A 3 WAY STOP SIGN. MANY PEOPLE INCLUDING TEACHERS FROM BOTH LYSETH & LYMAN MOORE GO OVER THE SPEED LIMIT OF 25 MPH AND DO NOT STOP AT THE STOP SIGN. THERE IS NO SIDEWALK FOR THE CHILDREN ON ONE OF THE STREETS AND WHEN PEOPLE ARE SPEEDING OR NOT STOPPING AT THE SIGN IT PUTS THE KIDS IN JEOPARDY!! I HAVE CALLED THE POLICE 5 TIMES!!
492828	I WILLNOT LET MY KIDS WALK TO/FROM SCHOOL "ALONE" UNTIL @ LEAST 5TH GRADE & EVEN THEN THEY NEED TO BE W/ ANOTHER KID - NEVER ALLOW TOTALLY 'ALONE' - ESPECIALLY NEAR OR IN PORTLAND TRAILS
492743	RE: QUESTION 12/13/14; OUR CHILD HAS MORE THAN ENOUGH PHYSICAL ACTIVITY AND A HEALTHY LEVEL OF FITNESS. WALKING/RIDING HER BIKE TO SCHOOL AT THIS AGE WITH SPEEDING ISSUES @ ROUTE LACK OF SIDEWALKS PATH IN WINTER AND QUESTIONABLE PEOPLE WHO HOVER THE AREA @ DROP OFF/PICK UP MAKE WALKING OR RIDING NOT AN OPTION.
492865	OUR DAUGHTER IS IN KINDERGARTEN SO SHE IS TAKING THE BUS RIGHT NOW BUT AS SHE GETS USE TO SCHOOL ROUTINE AND A BIT OLDER I AM SURE SHE WILL BE WALKING TO SCHOOL SO THIS SURVEY DOESN'T APPLY TO HER RIGHT NOW. QUESTION #10 - NONE APPLY THIS YEAR SHE IS IN KINDERGARTEN AND IS TOO YOUNG TO WALK ALONE

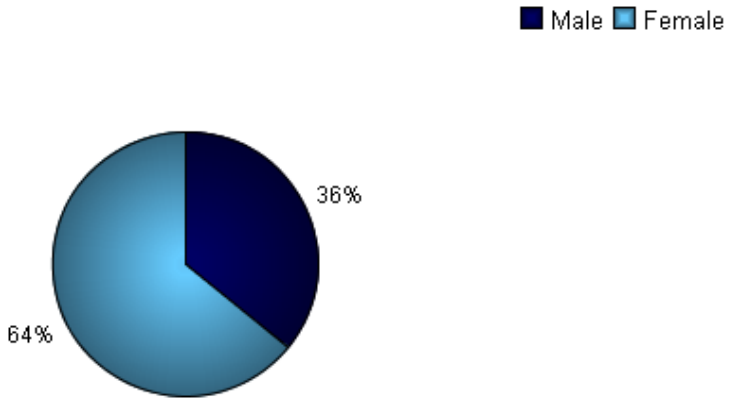
492909	SAFETY AND THE ENJOYMENT OF WORKING WITH OUR KIDS.
492855	THE ROUTE MY SON WOULD WALK WOULD HAVE LOW VISABILITY AND THIS WOULD CAUSE CONCERN'S REGARDING HIS SAFETY.

Appendix IV – Lyman Moore Parent Survey

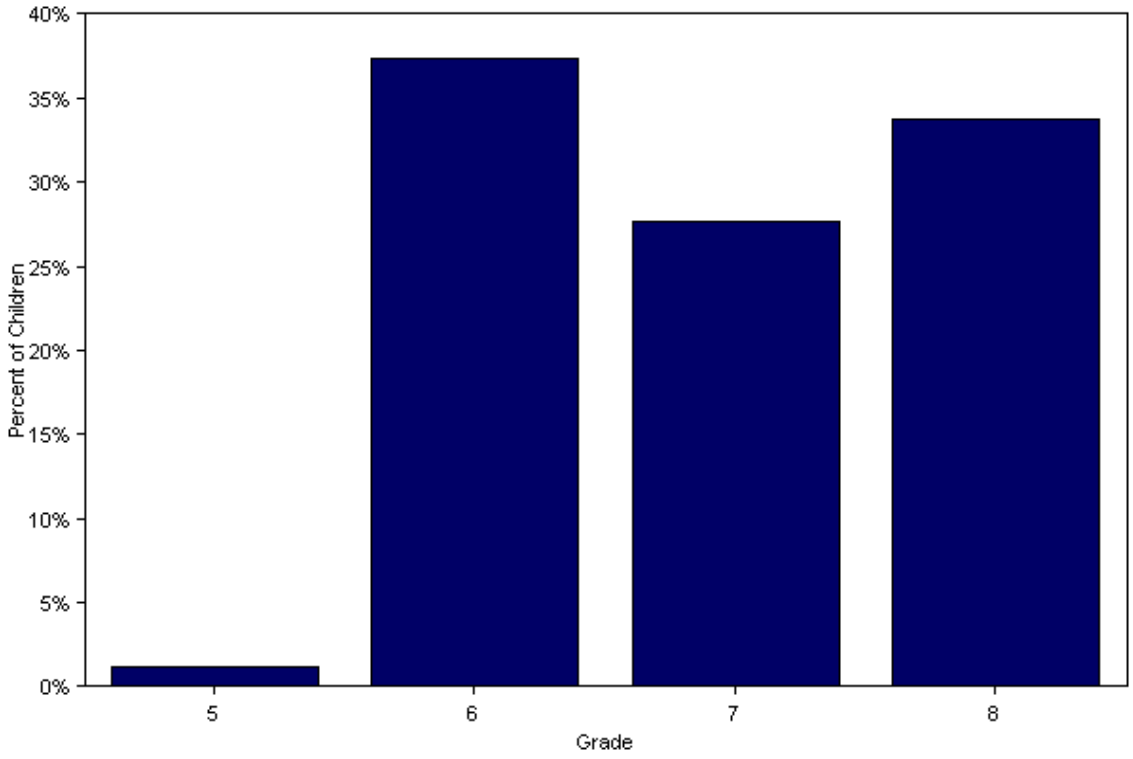
Program Name:	Portland Safe Routes to School Team	**Month and Year Collected:**	November 2010
School Name:	Lyman Moore Middle	**Set ID:**	4786
School Enrollment:	552	**Date Report Generated:**	01/14/2011
Enrollment within Grades Targeted by SRTS Program:	552	**Number of Questionnaires Analyzed for Report:**	84
Number of Questionnaires Distributed:	552		

This report contains information from parents about their children's trip to and from school. The report also reflects parents' perceptions regarding whether walking and bicycling to school is appropriate for their child. The data used in this report were collected using the Survey about Walking and Biking to School for Parents form from the National Center for Safe Routes to School.

Sex of children for parents that provided information



Grade levels of children represented in survey

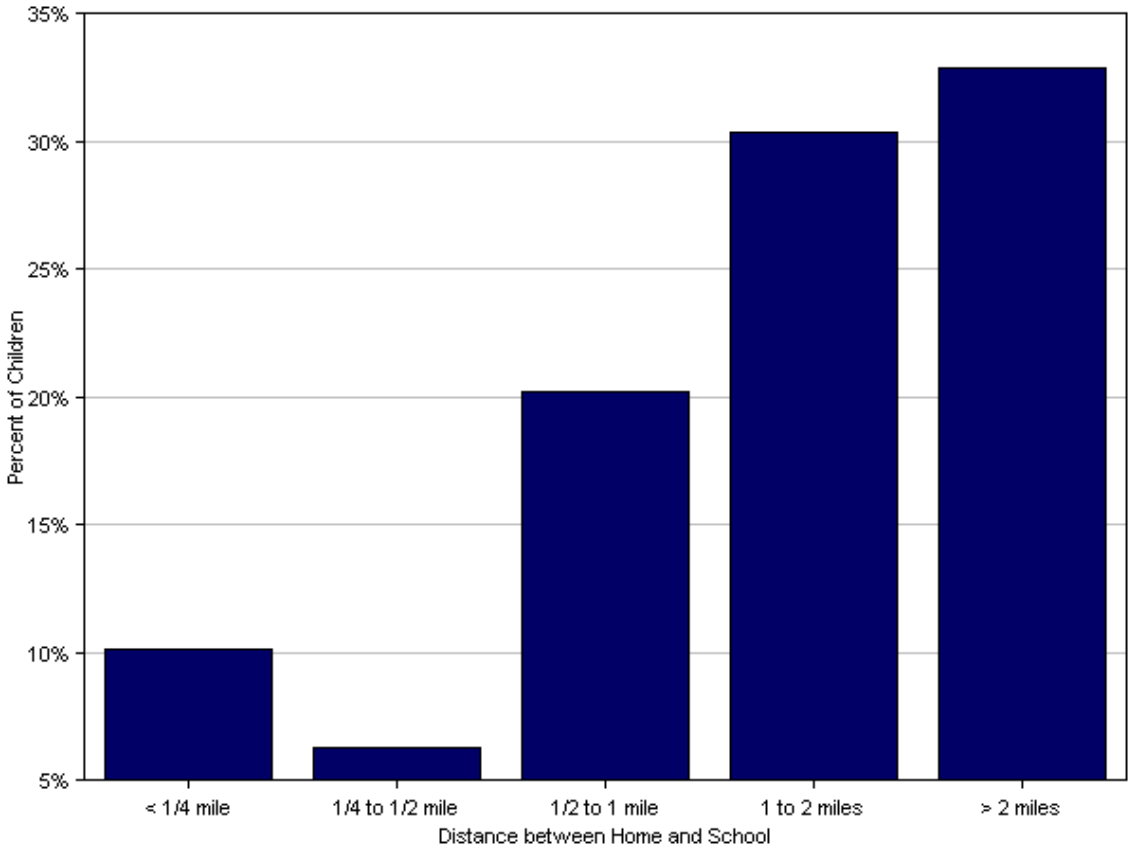


Grade levels of children represented in survey

Grade in School	Responses per grade	
	Number	Percent
5	1	1%
6	31	37%
7	23	28%
8	28	34%

No response: 0
Percentages may not total 100% due to rounding.

Parent estimate of distance from child's home to school

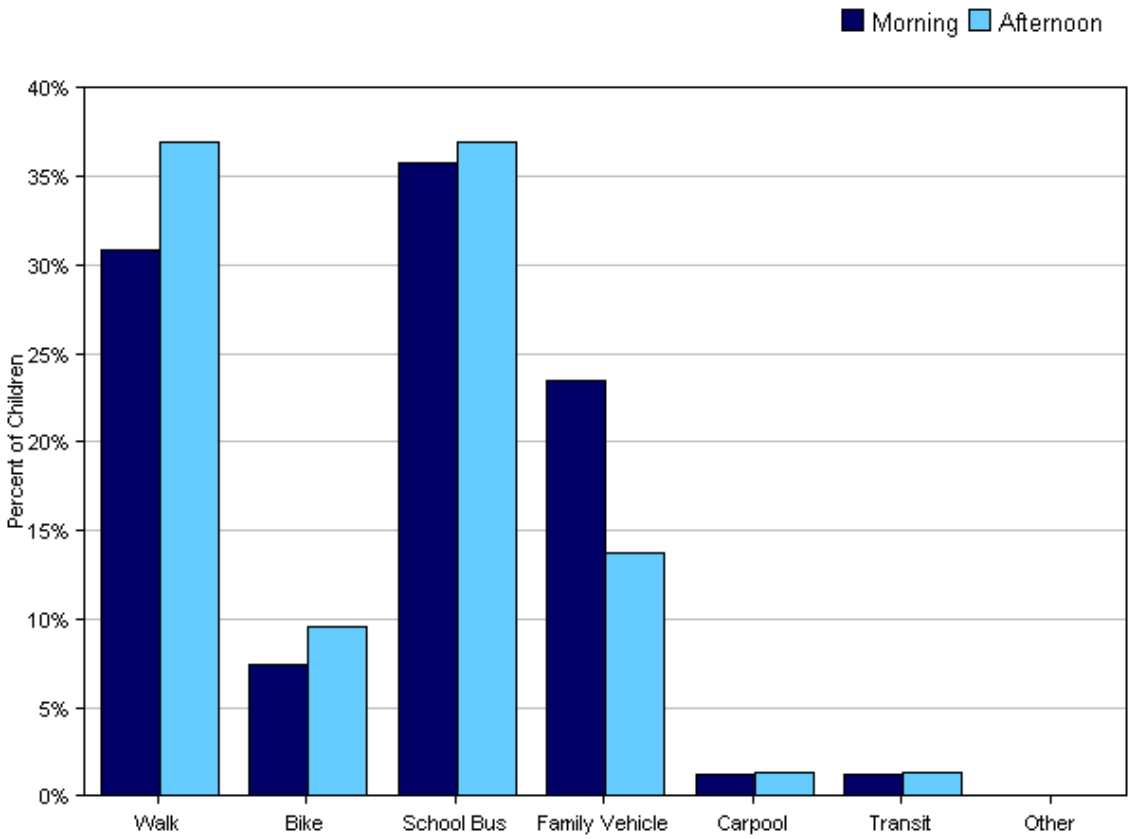


Parent estimate of distance from child's home to school

Distance between home and school	Number of children	Percent
Less than 1/4 mile	8	10%
1/4 mile up to 1/2 mile	5	6%
1/2 mile up to 1 mile	16	20%
1 mile up to 2 miles	24	30%
More than 2 miles	26	33%

Don't know or No response: 5
Percentages may not total 100% due to rounding.

Typical mode of arrival at and departure from school

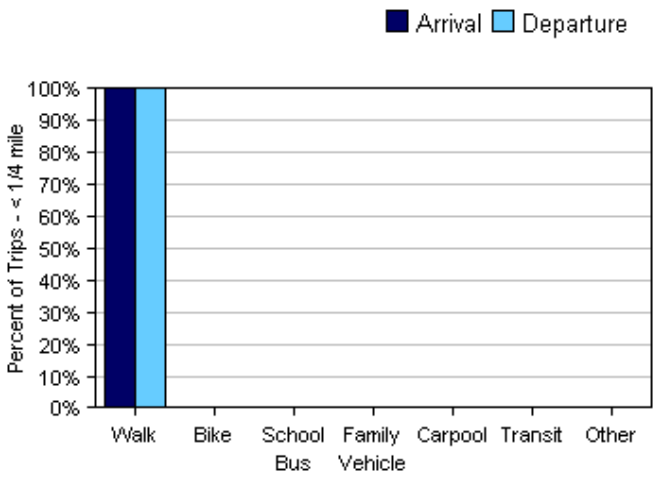


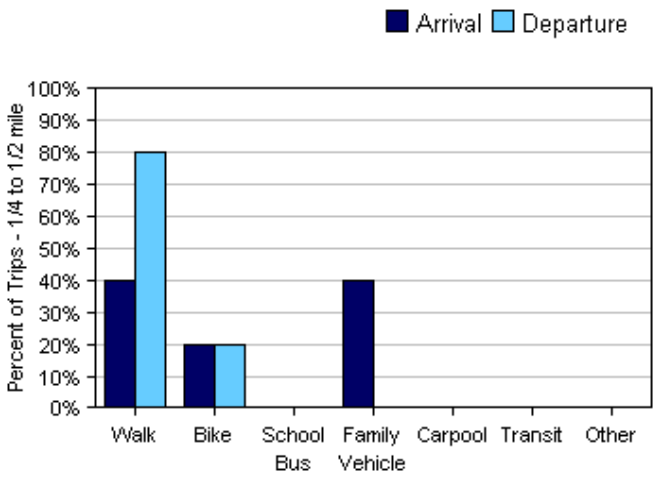
Typical mode of arrival at and departure from school

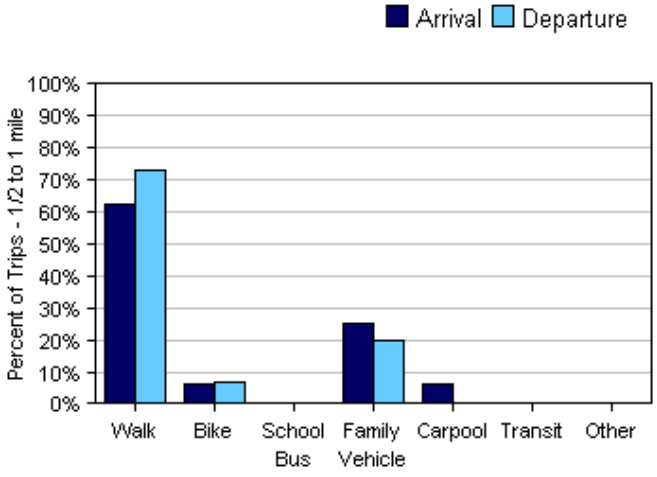
Time of Trip	Number of Trips	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Morning	81	31%	7%	36%	23%	1%	1%	0%
Afternoon	73	37%	10%	37%	14%	1%	1%	0%

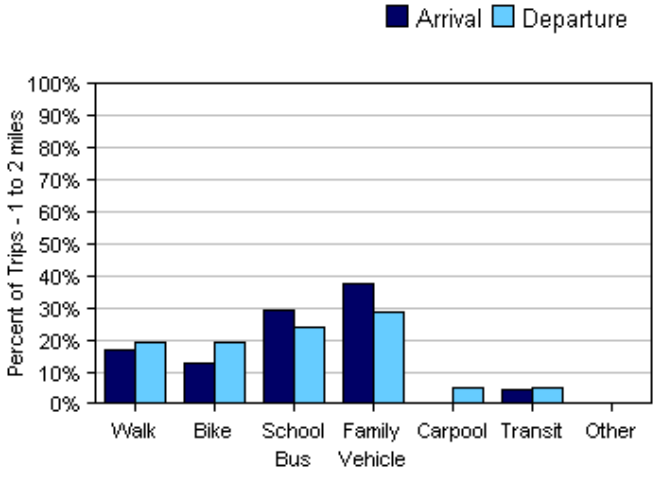
No Response Morning: 3
No Response Afternoon: 11
Percentages may not total 100% due to rounding.

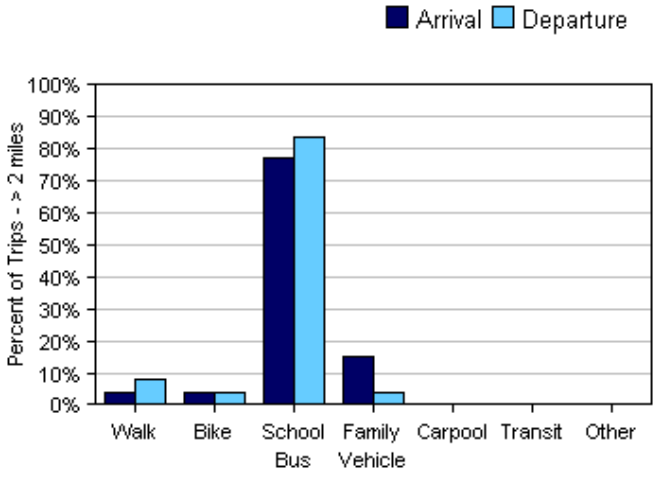
Typical mode of school arrival and departure by distance child lives from school











Typical mode of school arrival and departure by distance child lives from school

School Arrival

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	8	100%	0%	0%	0%	0%	0%	0%
1/4 mile up to 1/2 mile	5	40%	20%	0%	40%	0%	0%	0%
1/2 mile up to 1 mile	16	63%	6%	0%	25%	6%	0%	0%
1 mile up to 2 miles	24	17%	13%	29%	38%	0%	4%	0%
More than 2 miles	26	4%	4%	77%	15%	0%	0%	0%

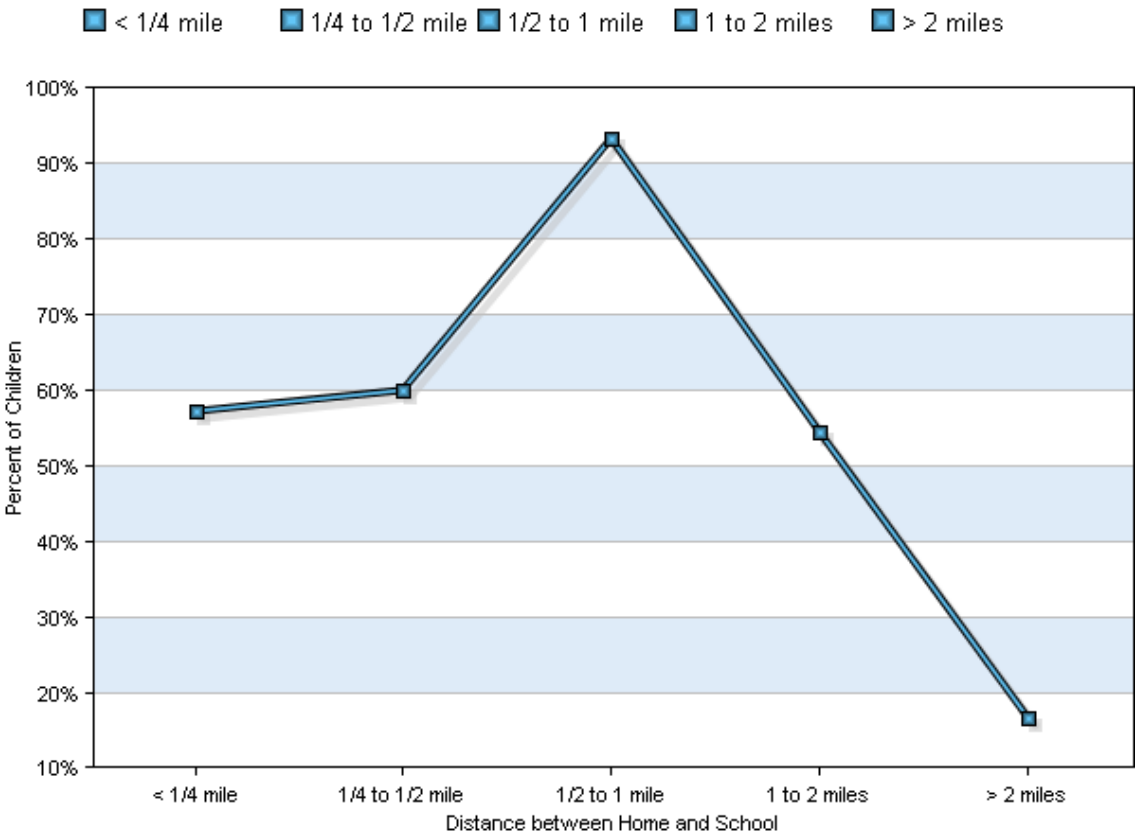
Don’t know or No response: 5
Percentages may not total 100% due to rounding.

School Departure

Distance	Number within Distance	Walk	Bike	School Bus	Family Vehicle	Carpool	Transit	Other
Less than 1/4 mile	6	100%	0%	0%	0%	0%	0%	0%
1/4 mile up to 1/2 mile	5	80%	20%	0%	0%	0%	0%	0%
1/2 mile up to 1 mile	15	73%	7%	0%	20%	0%	0%	0%
1 mile up to 2 miles	21	19%	19%	24%	29%	5%	5%	0%
More than 2 miles	25	8%	4%	84%	4%	0%	0%	0%

Don’t know or No response: 12
Percentages may not total 100% due to rounding.

Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

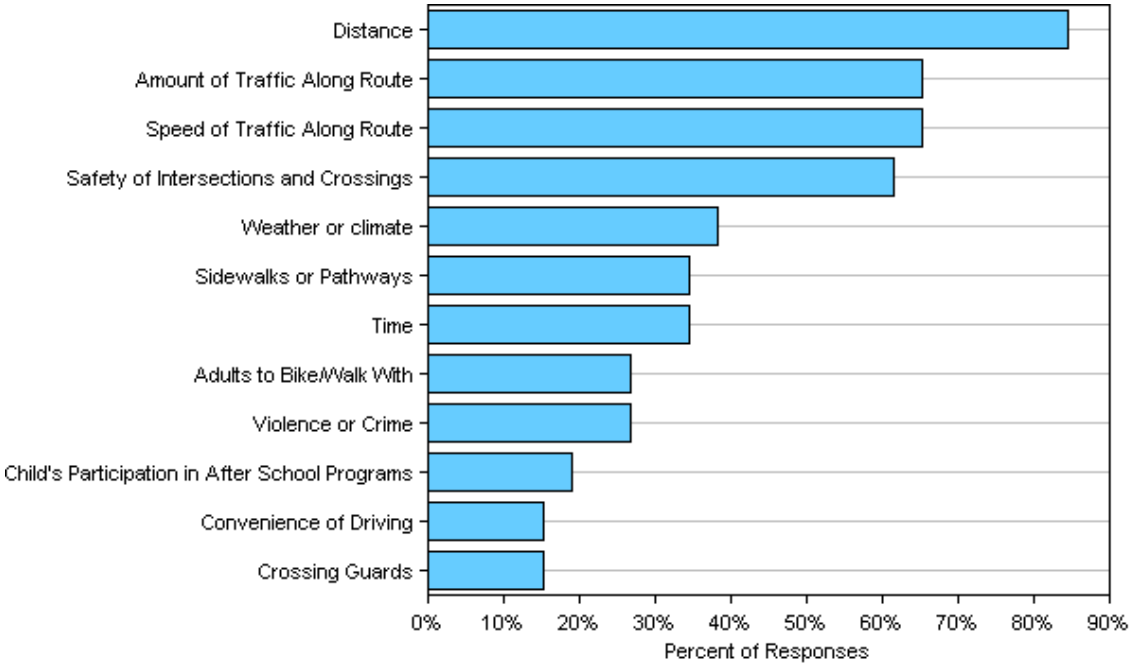


Percent of children who have asked for permission to walk or bike to/from school by distance they live from school

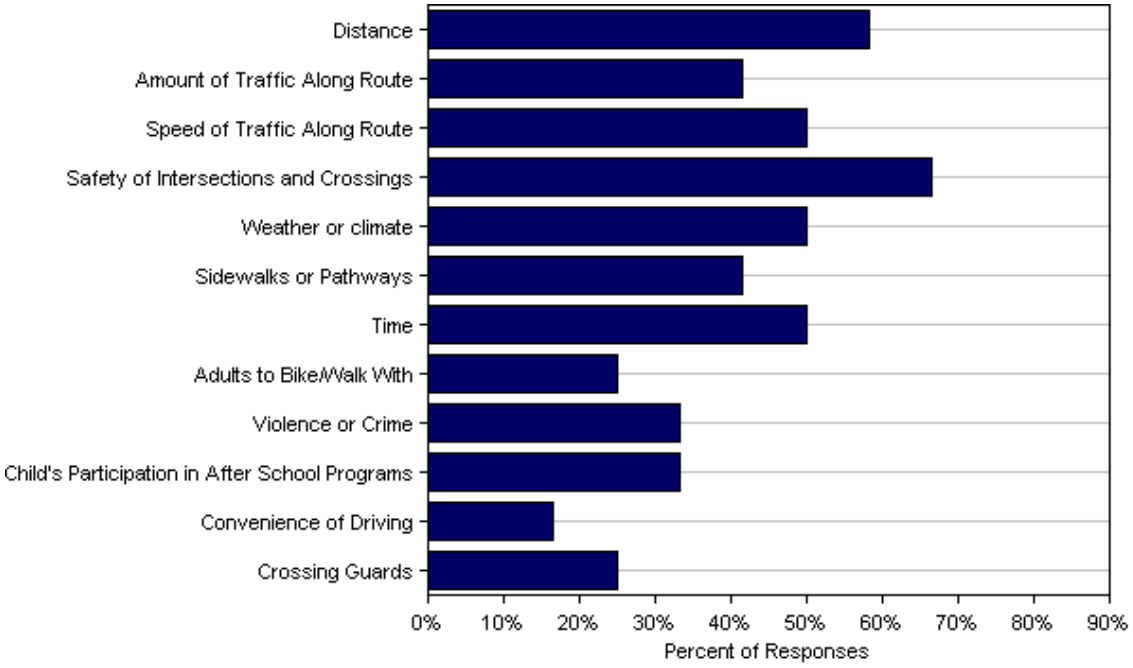
Asked Permission?	Number of Children	Less than 1/4 mile	1/4 mile up to 1/2 mile	1/2 mile up to 1 mile	1 mile up to 2 miles	More than 2 miles
Yes	37	57%	60%	93%	55%	17%
No	36	43%	40%	7%	45%	83%

Don't know or No response: 11
Percentages may not total 100% due to rounding.

Issues reported to affect the decision to not allow a child to walk or bike to/from school by parents of children who do not walk or bike to/from school



Issues reported to affect the decision to allow a child to walk or bike to/from school by parents of children who already walk or bike to/from school

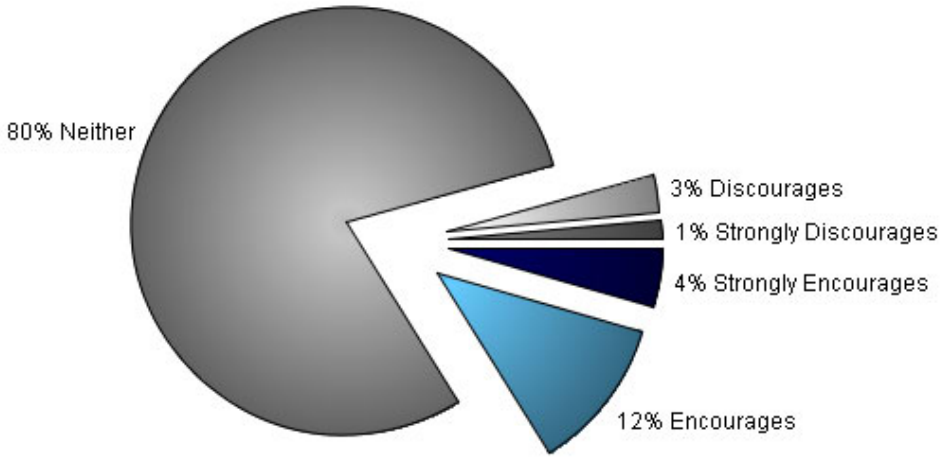


Issues reported to affect the decision to allow a child to walk or bike to/from school by parents of children who already walk or bike to/from school

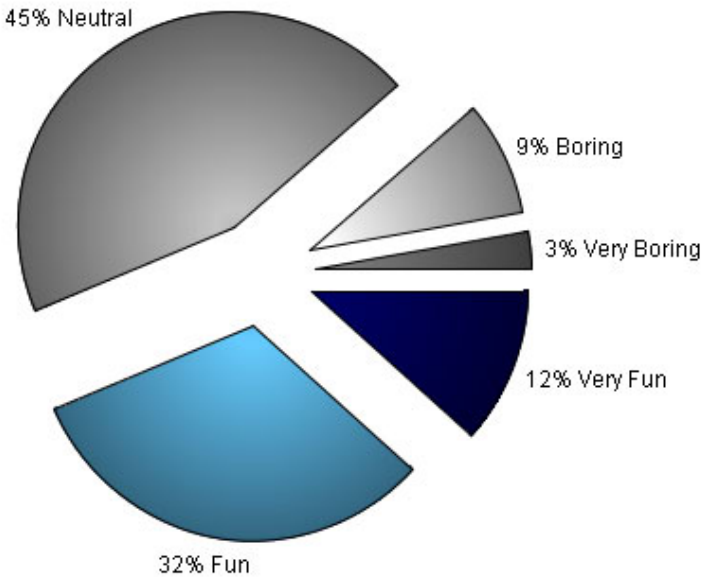
Issue	Child does not walk/bike to school	Child walks/bikes to school
Distance	85%	58%
Amount of Traffic Along Route	65%	42%
Speed of Traffic Along Route	65%	50%
Safety of Intersections and Crossings	62%	67%
Weather or climate	38%	50%
Sidewalks or Pathways	35%	42%
Time	35%	50%
Adults to Bike/Walk With	27%	25%
Violence or Crime	27%	33%
Child's Participation in After School Programs	19%	33%
Convenience of Driving	15%	17%
Crossing Guards	15%	25%
Number of Respondents per Category	**26**	**12**

No response: 46
Note:
--Factors are listed from most to least influential for the 'Child does not walk/bike to school' group.
--Each column may sum to > 100% because respondent could select more than issue
--The calculation used to determine the percentage for each issue is based on the 'Number of Respondents per Category' within the respective columns (Child does not walk/bike to school and Child walks/bikes to school.) If comparing percentages between the two columns, please pay particular attention to each column's number of respondents because the two numbers can differ dramatically.

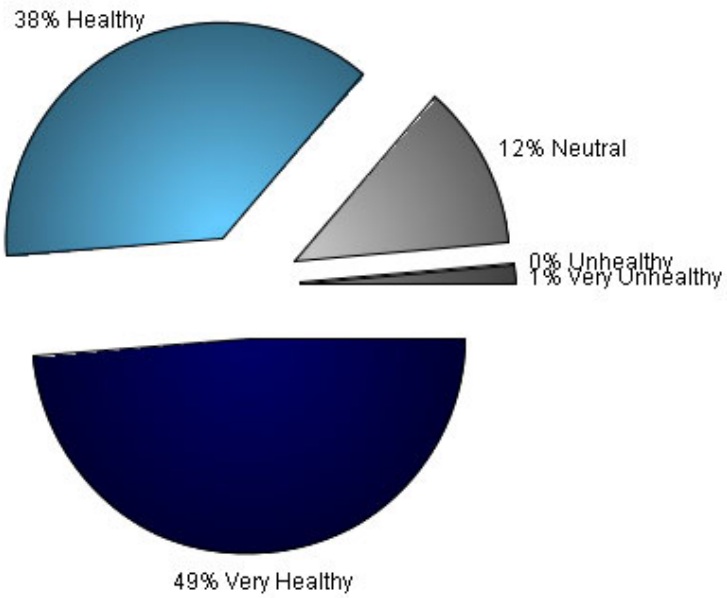
Parents' opinions about how much their child's school encourages or discourages walking and biking to/from school



Parents' opinions about how much fun walking and biking to/from school is for their child



Parents' opinions about how healthy walking and biking to/from school is for their child



Comments Section

SurveyID	Comment
512537	My children often take Metro bus if afterschool activities run long.
521364	would allow child to walk/bike with a friend, not alone.
502115	Ronald Hall - 797-6904
502165	beloiroc1@gmail.gov
524788	It depends on weather, how late we are running in a.m., wheter he has instrument, after-school activities.
504868	I am a RN.
521235	We live almost 2 miles to school, so it really isn't a safe walk/bike ride.
521259	We live across the street!
521363	The Allen ave. intersection is the reason why I don't let my younger child walk to Lyseth.
521233	How hard would it be to have a stop sign on Summit Ave to slow traffice between Pinlock & Bramblewood. We have already had one child hit by a car. How many more does it take?
525463	Ph.D. in statistics [per last question]
512555	We have a child who is bused. A child that rode bike until high school and then stopped due to no storage. One chaild that we walk to school.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from October?	How many days a month do you walk, bike, take the bus, or carpool to school from April - November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Lyseth	Portland	1-3 miles	Personal Vehicle			Bicycle	A. I have access to one or more local bus routes and I use the bus at least occasionally	A. I am able to walk a mile or so and do so at least occasionally for transportation (e.g. for errands, to see friends, to get to work).	A. I have access to a bicycle and use it at least occasionally for transportation	A. I have access to a carpool/vanpool and I use it at least occasionally	Rain, Snow, Ice, Lack of time/overscheduled	Lack of time Snow Rain
Lyseth	Portland	1-3 miles	Personal Vehicle	0	0	Walk	B. I have access and I do not use the bus	B. I am able to walk a mile or so and do not do so for transporation.	B. I have access to a bicycle and I do not use it for transportation	C. I don't have access to a carpool/vanpool	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Worry about wardrobe/appearance/grooming, Need to carry cargo, Need vehicle for children/family transportation/activities, Fear of being too limited, Want to just be by myself in my own car, Lack of motivation	carrying cargo need car for after-school activites/errands lack of time
Lyseth	Gorham	16-20 miles	Personal Vehicle	0	0	nothing	C. I don't have access to a local bus route	B	C. I don't have access to a bicycle	C	I'm not really sure how to find out about public transit near me, I'm not really sure how to find out about carpool options near me, Live too far from work to walk or bike, No access to public transit where I live and/or work, I can't get to work reliably without my own car, Fear of getting stranded	live too far from work don't know about public transportation
Lyseth	South Portland	7-15 miles	Personal Vehicle	0	0	I don't	B	B	C	C	Lack of time/overscheduled, Need to carry cargo, Live too far from work to walk or bike, Want to just be by myself in my own car	Live too far to walk/bike Lack of time Need to carry cargo
Lyseth	Portland	Up to 1 mile	Walk	Every day I need to be at school	Every day I need to be at school	Walk	B	A	A	D. I don't know	Snow, Cold	ice, snow, too cold
Lyseth	Falmouth	7-15 miles	Personal Vehicle	0	0	car	B	B	A	C	Need vehicle for site visits/work-related duties	Being limited Time constraints Too far
Lyseth	Portland	Up to 1 mile	Personal Vehicle	0	0	No other	C	B	B	B. I have access to a carpool/vanpool and I do not use it	Lack of time/overscheduled, Don't like planning ahead, Fear of being too limited	Don't want to feel limited without my own transportation to and from work. I also frequently go home for lunch

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from October?	How many days a month do you walk, bike, take the bus, or carpool to school from November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Lyseth	Falmouth	4-6 miles	Personal Vehicle			Carpool	B	B	A	A	I'm not really sure how to find out about carpool options near me, Lack of time/overscheduled, Fear of biking on roads/in traffic, Don't like planning ahead, Need to carry cargo, Live too far from work to walk or bike, Fear of being too limited	I have carpooled with a friend when our cars are being serviced. But I like getting to work earlier than she does. My bike route would be scary and I don't know how I would carry my teacher bag.
Lyseth	Portland	4-6 miles	Personal Vehicle	0	0	none of the above	B	B	C	C	Lack of time/overscheduled, Need to carry cargo, Need vehicle for children/family transportation/activities, I can't get to work reliably without my own car, Fear of getting stranded, Want to just be by myself in my own car, Lack of motivation	lack of time/overscheduled Need vehicle for family activities Need to carry cargo
Lyseth	topsham	21+ miles	Personal Vehicle	0	0	Carpool	B	B	B	B	I'm not really sure how to find out about carpool options near me, Snow, Ice, Lack of time/overscheduled, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike	need van for my children's transportation from daycare live to far from work to walk or bike lack of time/over scheduled
Lyseth	Gorham	7-15 miles	Carpool	Every day I need to be at school	Every day I need to be at school	Carpool	C	A	B	A	Stranger danger/fear of crime, Fear of walking on roads/against traffic, Need to carry cargo, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike, No access to public transit where I live and/or work, I can't get to work reliably without my own car	No public transportation in my area Need to carry cargo (school stuff) each day I live to far from school to ride my bike and be there in a reasonable amount of time considering the morning commute traffic
Lyseth	Saco	21+ miles	Personal Vehicle			Carpool	C	B	C	A	Lack of time/overscheduled, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike	I only checked 3 barriers.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

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Lyseth	Saco	16-20 miles	Personal Vehicle	Every day I need to be at school	Every day I need to be at school	Carpool	C	B	B	C	Lack of time/overscheduled, Need vehicle for site visits/work-related duties, Live too far from work to walk or bike	Lack of time Use car to go from school to school Live too far from work to walk
Lyseth	Cumberland	7-15 miles	Personal Vehicle	0	0	Carpool	C	A	B	C	I'm not really sure how to find out about carpool options near me, Lack of time/overscheduled, Worry about wardrobe/appearance/grooming, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike, No access to public transit where I live and/or work, Want to just be by myself in my own car, Not interested/It's sort of a silly notion to not use my car	Live too far--Time of biking or walking to work Need Vehicle to pick up my children after school Want to be by myself in my own car
Lyseth	westbrook	7-15 miles	Personal Vehicle	0	0	Bus	B	B	C	C	Need vehicle for site visits/work-related duties, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike	need ownw vehicle for work related issues need own vehicle for family I have to disabled sisters that I need to be avaalable for My home is to far to walk to would take to long
Lyseth	westbrook	7-15 miles	Personal Vehicle	0	0	just my car	B	C. I am not able to walk a mile or so.	C	C	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Stranger danger/fear of crime, Live too far from work to walk or bike, Fear of getting stranded, Fear of being too limited, Want to just be by myself in	Stranger Danger Fear of being too limited Live too far to walk or bike

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from October?	How many days a month do you walk, bike, take the bus, or carpool to school from April - November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Lyseth	Gray	7-15 miles	Personal Vehicle	0	0	nothing, the program made me fill it in	C	B	C	C	Lack of time/overscheduled, Need vehicle for children/family transportation/activities	I'm a runner, not a biker (falling hurts a lot less), so there's that. Although, biking is FUN! Running 10 miles is great, but forget teaching all day and running back home. Also, bikers on Rt 26/100 between Dutton Hill and Portland - really should only during daylight hours ... and then they're still slightly suicidal. Finally, I get to school by the skin of my teeth after getting my son on his schoolbus and my daughter to preschool or caregiver. Who wants to carpool with me?
Lyseth	Portland	4-6 miles	Personal Vehicle	0	0	Bicycle	B	A	A	C	Lack of time/overscheduled, Live too far from work to walk or bike	time
Lyseth	Pownal	16-20 miles	Personal Vehicle			Carpool	C	B	C	A	Live too far from work to walk or bike	Live too far
Lyseth	Hollis	16-20 miles	Personal Vehicle			Carpool	C	B	B	A	Live too far from work to walk or bike, No access to public transit where I live and/or work	distance schedule little availability to carpool

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

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Lyseth	Portland	1-3 miles	Personal Vehicle		0	Bus	A	A	C	C	Rain, Snow, Ice, Need vehicle for site visits/work-related duties	The barrier that affects me the most often is that I need my car for work. As the social worker, I am often called upon to transport students to school who missed the bus, transport students home who are sick, etc. The only other barrier would be weather such as rain or snow.
Moore	Portland	Up to 1 mile	Walk	Every day I need to be at school	Every day I need to be at school	Walk	B	A	B	B	I'm not really sure how to find out about public transit near me	I had to check something in the above box to submit this survey I think. I walk every day to school so I don't need public transportation.
Moore	Portland	1-3 miles	Personal Vehicle	0	0	None	C	C	C	C	Need vehicle for site visits/work-related duties, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike	Live too far
Moore	Portland, Maine	1-3 miles	Personal Vehicle	0	0	none of the above	B	A	C	B	Lack of time/overscheduled, Need to carry cargo, I can't get to work reliably without my own car, Fear of being too limited	*arrive early to work *leave late from work *need own vehicle for other activities
Moore	Falmouth	7-15 miles	Personal Vehicle		16-21	Bicycle	B	B	A	C	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Need to carry cargo	Cold, Dark, Snow
Moore	Portland	1-3 miles	Personal Vehicle	0	0	Carpool	B	B	B	D	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Fear of biking on roads/in traffic, Need to carry cargo	Need to carry cargo and lack of time! If I didn't have all the cargo and was able to get everything to school that I needed via bike, I still wouldn't do so because of it being unsafe!

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from April - October?	How many days a month do you walk, bike, take the bus, or carpool to school from November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Moore	Lewiston	21+ miles	Carpool	Every day I need to be at school	Every day I need to be at school	Carpool	B	C	C	A	Lack of time/overscheduled	I use carpooling everyday. The only barrier is that my carpool person and I have a conflicting schedule that day.
Moore	Portland	4-6 miles	Personal Vehicle	0	0	Carpool	B	A	A	C	I'm not really sure how to find out about carpool options near me, I have a hard time understanding the bus schedule, Lack of time/overscheduled, Fear of biking on roads/in traffic, Lack of proper gear, Worry about wardrobe/appearance/grooming, Need to carry cargo, Live too far from work to walk or bike, Fear of being too limited, Want to just be by myself in my own car	Bus schedule unreliable Lack of time
Moore	Portland	4-6 miles	Personal Vehicle	0	0	# ol # Personal Vehicle	C	C	B	D	Rain, Snow, Ice	osteoarthritis
Moore	North Yarmouth	7-15 miles	Personal Vehicle		0	Bicycle	C	A	A	C	Snow, Ice, Cold, Lack of time/overscheduled, Need to carry cargo, Need vehicle for site visits/work-related duties	Snow, ice, and need to use for work related activities, i.e. meetings
Moore	portland	1-3 miles	Bicycle	16-21	16-21	car	B	A	A	B	Snow, Ice, Lack of time/overscheduled, Need vehicle for children/family transportation/activities	What prevents me most often from taking the bike is having to pick up son for after school activities. Rarely is there snow or ice on the roads even in mid-winter. However, the shoulders where the cycle routes are located are the places where patches of ice or snow piles collect and create hazards.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from April - October?	How many days a month do you walk, bike, take the bus, or carpool to school from November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Moore	Freeport	21+ miles	Personal Vehicle	0	0	always drive	C	A	C	C	Need vehicle for site visits/work-related duties, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike, No access to public transit where I live and/or work	I have an 8 month old; I live in Freeport; don't have someone else that I could carpool with that is on the same schedule as I am (with daycare, etc.)
Moore	Waterboro	21+ miles	Personal Vehicle	0	1/5/2011	Carpool	B	B	B	B	Lack of time/overscheduled, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike, I can't get to work reliably without my own car	Distance, time and transporting children.
Moore	Portland	Up to 1 mile	Walk	Every day I need to be at school	Every day I need to be at school	Walk	B	A	B	C	Lack of time/overscheduled	None. I walk every day. I live very close to the school!
Moore	Old Orchard Beach	16-20 miles	Personal Vehicle	0	0	Carpool	B	B	B	A	Live too far from work to walk or bike, I can't get to work reliably without my own car	.
Moore	Portland	1-3 miles	Carpool	Every day I need to be at school	Every day I need to be at school	Carpool	B	B	B	A	Lack of time/overscheduled, Worry about wardrobe/appearance/grooming, Need to carry cargo, Need vehicle for children/family transportation/activities	Need to carry cargo Lack of Time Children to transport
Moore	Portland	4-6 miles	Carpool	Every day I need to be at school	Every day I need to be at school	Bus	A	A	A	A	Lack of time/overscheduled	I don't own a car, and choose to carpool, bike, and bus regularly. That said, the bus schedule is the factor that really determines whether I use it. It's not the fastest method.
Moore	South Portland	7-15 miles	Personal Vehicle	1/5/2011	0	Bus	A	A	A	C	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Fear of biking on roads/in traffic	Lack of time fear of traffic and inattentive drivers cold

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from April - October?	How many days a month do you walk, bike, take the bus, or carpool to school from November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Moore	Portland	Up to 1 mile	Personal Vehicle	1/5/2011	0	Walk	B	A	B	C	Need vehicle for children/family transportation/activities	Need vehicle for children/family transportation/activities
Moore	Cumberland	7-15 miles	Personal Vehicle	0	0	None	C	B	B	D	I'm not really sure how to find out about carpool options near me, Need vehicle for children/family transportation/activities, Live too far from work to walk or bike, I can't get to work reliably without my own car	Need vehicle for additional purpose and errands after school-
Moore	Portland	1-3 miles	Personal Vehicle	1/5/2011	0	Bicycle	B	A	A	B	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Worry about wardrobe/appearance/grooming, Need to carry cargo	time before and after school is limited because of a pet at home, weather, and no place to shower and change at school
Moore	Portland	1-3 miles	Bicycle	0	0	Walk	B	A	C	B	Lack of time/overscheduled, Need to carry cargo, Need vehicle for children/family transportation/activities	Schedule - Often do not go home from school. Have second job on other side of town Convenience - sometimes I leave during the day and having my own car is convenient. Family - 4 kids and a wife that works until 4:30. Often times I am the transporter after school for appointments, activities,
Moore	Portland	Up to 1 mile	Walk	Every day I need to be at school	Every day I need to be at school	Carpool	B	A	B	A	Rain	Rain Snow After School Plans
Moore	Portland	1-3 miles	Personal Vehicle	0	0	always drive	D. I don't know	B	C	D	Lack of time/overscheduled, Need vehicle for children/family transportation/activities	Lack of time Need to be able to pick up and transport my children who are at different schools

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

I'm a staff person at the following school:	City/Town Where You Live	How far do you live from Lyseth & Lyman Moore Schools?	How do you get to school most often?	How many days a month do you walk, bike, take the bus, or carpool to school from April - October?	How many days a month do you walk, bike, take the bus, or carpool to school from November - March?	If you sometimes use a means other than a personal vehicle to get to school - what is the 2nd most common way you get to school?	Please choose the answer that best fits your situation regarding using local bus service:	Please choose the answer that best fits your situation regarding walking:	Please choose the answer that best fits your situation regarding bicycling:	Please choose the answer that best fits your situation regarding carpooling:	Please check all of the following barriers - some or all of the time - that keep you from using alternate transportation vs. a car	From those items you checked in the above question, please enter the 3 barriers that affect you most often:
Moore	Portland	1-3 miles	Personal Vehicle	1/5/2011	0	Bicycle	B	A	A	C	Rain, Snow, Ice, Cold, Lack of time/overscheduled, Fear of biking on roads/in traffic, Need to carry cargo, Need vehicle for site visits/work-related duties, Lack of motivation	I often have quite a bit of cargo - books, papers, lunch, work I take home and it doesn't all fit on the back of my bike easily. I have to bike through Morrill's and Allen's Corner and the whole route is not set up for bikers especially Allen's corner and down Washington and Auburn Street. I do worry about my safety. Weather and I need to get up earlier to get there in time BUT I love the exercise and being outside in the AM.
Moore	Portland	Up to 1 mile	Walk	Every day I need to be at school	Every day I need to be at school	Walk	A	A	C	D	Snow, Ice, Fear of biking on roads/in traffic	If it is extremely Icy and I am afraid of falling, I will bring my car to work. Also, if it has snowed the night before and my car will need to be moved for plowing, I will bring my car to work. I do not feel safe riding a bike with traffic and it would only add stress to my morning.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
With the horrible entrance to Lyseth school - it is actually quicker for me to walk to school than it is to drive.
It is very difficult for a teacher to walk/ride a bike to school for several reasons--one if you're dressed appropriately not always conducive to walking/biking. Also, we have too much to carry home and back quite often with paperwork we need for school each day.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
I love what you are doing. I think it's really important. I love walking (I do so everyday with my dog). I wish I could walk to work, but four miles with a teacher bag is too far and too time consuming. I would consider carpooling, but I need to be at work early so I can be prepared for the day and it would add stress to my life if others caused me to be late.
I live in the Riverton area. For me to get to Lyseth I would need to take a bus intown and then transfer to a No. Deering bus. It would take a 15 minute commute to more than 1 hour. Public transportation is very limited for cross town commuting.
Would love to connect with PPSchool employees who live in Topsham and commute to Portland
I would use the public transportation system if it were available in my area. The USM bus goes to Portland numerous times a day from my town, and I would love to have the option to ride it as a paying community member. It seems like a win-win deal as the bus gets filled and they also get a little revenue to offset there costs.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
While I drive to work, we live in walking distance to Hall School and my children walk to and from school most days.
My knee issues prohibit me from riding a bike.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
I think it would be nice to organize a staff day or maybe 2 a year where staff use other transportation to school such as bus, walk, carpool, etc.
*appreciate your work for a healthier Portland.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
I carpool everyday as I drive from Lewiston to Portland.
I play basketball at school three mornings a week starting at 6:30 am. No one from my neighborhood plays. Other teachers don't arrive until 8:00 am. So, carpooling doesn't work. I like to leave after working a while - usually that is after almost all others have gone. Then, I want to get home directly so that I can spend time with my family. The bus schedule, um, sucks.
After TKR I hope to bike in reasonable weather
Would be nice to have a staff bike club for riding regularly and info sharing.
Parents have legitimate concerns about safety. The status/primacy of cyclists has risen dramatically in Portland in recent years, however it is seen as recreational use, sportive, not transportation. I believe the only way kids will regard cycling as transportation is if/when adults do. The target group for cycling to work is adults: parents and teachers first. It's a small but growing group. One way to promote cycling is to encourage local bike sellers to promote 'office travel' bikes: upright, comfortable with skirts, briefcase/laptop carriers, lights, etc. Another idea is to have one on display in school entrances (hanging out of reach) with promotional suggestions: photos of school personnel, students, parents who ride. Love that the government is providing some support for this. They need to do more, including bolstering signage along routes - kids on bikes etc. Some cycle shoulders diminish suddenly especially at treacherous intersections.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
If I lived closer to my work, and did not have children to transport every morning, I would try to bike or take alternative transportation to work.
Safety around neighborhood sidewalks is a problem. When I come down Junior street, from Bartley, the sidewalk is never shoveled and I have to walk in the street. Any students that access the school from that direction must do the same! Would love to work with you further on this as we live in the neighborhood we work in and it is an active concern for us! Thanks for your help! Kathy Farrell
I car pooled for 16 years but the the other person changed schools and at this time there is no other person to share with.
I am lucky to carpool with a LMMS teacher, and so appreciate the convenience (for me), as well as the company. It would be great for carpooling to be a more common mode of transportation.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
There are no facilities for teacher at school for changing and or cleaning up after a bike ride. There's been more emphasis on "professional dress" throughout the district. Work clothes and limited changing and no showering facilities makes biking tricky.

Staff Survey for Lyseth Elementary Lyman Moore Middle Schools - 2010-2011 School Year

Anything else you would like to add? We would love to hear your thoughts, concerns & ideas!
Auto drivers need to be educated as well as bicyclists and walkers.
I feel fortunate that I live close enough to work to walk. I'm not sure that If I lived in another town that I would be organized enough to car-pool. I did take the city bus quite often when I worked at DHS and it's an experience that everyone should share occasionally if they can. I met some of my neighbors for the first time!

Stakeholder Survey & Public Forum Feedback for Lyseth-Lyman Moore School Travel Plan

Bus/Parent Drop-Off Area at Lyseth & Lyman Moore

Team # or Stakeholder Name	*Specific Location*	*Challenges/Safety Issues*	*Possible Solutions/Additional Comments*
1	Drop-off area		Alternate drop off outside entrance on Auburn St.; Restructuring of parking lot [& entrance]; Buses [could] drop off at Bramblewood
1	[In front of L.M]	No crosswalk at Junior St. for middle school students that walk	
1	Auburn St. Entrance		2 Crossing guards on Auburn St -> possible movement of one to Virginia & Allen Ave
2	Bus/Car Drop Loops	Kids crossing; Confusing area; Whole area is wasted space;	Could make room for 2 bike lanes and increase safety
2	Junior St.	No sidewalk; Lots of kids walking; Winter is trouble;	Save the trees [if an work done?]
2	Back of Lyseth	Kids walk [across rear parking lot] – cars back up; Kids enter here [Lyseth south entrance]	Parking lots are full all day but would be good to pull cars from back [south side] of Lyseth; Organize parking better
2	Triangle wedge with sidewalk between Jr. St & front entrance of Lyman Moore	Bushes too high [on west side of triangle wedge for students to see]	
4	[Bus/Car Drop Loops in front of Moore]	Poor condition & striping	
4	[Bus/Car Drop Loops in front of Moore]	Parking at island obstructs peds x-ing	
4	Junior St.	(Staff) spillover parking)	
Off. Napijalo, Senior Lead Officer		A large number of cars and busses coming in and out.	Designate separate travel lanes for cars and busses. Better signalization (traffic/no parking signs), road signalization (mark lanes for cars, busses and bikes).
Terri Grover, A2U2, & former parent	Front steps of the school; bus lane in front of school	To meet parents, students have to go in between large buses and cross to parent drop off circle. If a bus were to pull out or jump forward, a child could be killed; also, parents cannot see their children from their cars; very crowded; Very confusing	Bring bus pickup area to a different area, on the side of the building perhaps, allowing a clear area for parents to pick up students and walking students to find the walkway without dealing with huge buses; Adults to direct children to walking paths, buses, parent pickup
Terri Grover	Playground path	No clear path to get to walkway, walking in parking lot	Adult leads children to walkway; dismiss from back door

Gretel Varney, Portland Public Services; & former parent	Lyseth parent drop off	Parents trying to get as close as possible to door; park anywhere without regard to signage, other drivers, or students	Education/awareness for parents and students; encourage students to help parents follow the rules; enforce designated bus lane; enforce regard for crosswalks (ie: don't park in a crosswalk or block access to pedestrian ways)
Lorraine Taylor, Lyseth Teacher		Children are let off in front of the school and can not gt to a playground area without walking through either an area without supervision on the right-hand side of the building or the parking lot on the left-hand side of the school. The primary students should not have to walk these two routes unsupervised before school starts and they are not allowed to access these areas by coming into the building.	
Tina Singer, Lyseth PTA & parent of students at both Lyseth & Lyman Moore	In front of both schools	Too crowded; cars going around each other	Change routing
Ed Turner, Crossing Guide, Summit & Sumac	Summit & Sumac Streets		I feel this is a real safe area, open, with nice homes around, cul de sac at the end of Sumac with path between 2 homes that leads very close to school property.
Regina Erskine, Health Teacher at Lyman Moore	Lyman Moore Entrance	Too many vehicles	Other drop-off areas that have students walk part of the way to school.
Ned Doughty, Lyseth parent; Fire Dept. Rep	Bus Drop-off area/parking lot	Congestion is terrible	Find alternate parking; Encourage parents to park and walk further; Provide additional road onto campus;
Lyseth Parent Survey (7 comments)	Bus Drop-off area/parking lot	No sidewalks on Junior St. and no crossing guards within drop-off area; Long delay before walkers are dismissed; Traffic safety concerns in parking lot and drop-off area; Students crossing between buses; Buses should drop off on side of school; [Jr. St.]: "Many people including teachers from both Lyseth & Lyman Moore go over the speed limit of 25mph and do not stop at the stop sign....I have called the police 5 times!!"	
Sidewalks/Paths in Surrounding Neighborhood			

Team # or Stakeholder Name	*Specific Location*	*Challenges/Safety Issues*	*Possible Solutions/Additional Comments*
1	Biking (& Walking) from areas close (Brookfield Apts, Auburn Terrace)	Unsure of barrier?	Pair up with older kids? Bike buddy?
1	Path from Sumac to back of Lyseth	Congestion on the path	
1	Near 123 Auburn	Sidewalks in front sections on Auburn [missing link(s)];	
1	Pinelock	No sidewalks on Pinelock between Summit and Roaring Brook	
1	Ray St.	Sidewalks [needed] on Ray St. from Merrymeeting St. towards [Allen]. Ave. (big hill - dangerous - [lack of visibility])	
2	Informal/private trails [on south side of schools] to Med Center (check permission); Shaws; Cottage Park Road (private); UU Trail from Allen Ave	Behind Shaw's is "sketchy", perceived as nobody's watching; UU Trail from Allen Ave doesn't feel safe, some kids not allowed;	[Build] Jogging track around fields - links to other trails;
2	Trail opposite main entrance on Auburn – goes to Washington Ave.;		Portland Trail @ Shalom is an important connection
2	Wash Ave. Ext.	Non-continuous sidewalks;	Want continuous sidewalks on Wash Ave. North & crossing guards would allow access to crosswalks
2	Parsons Pond	Parson's Pond is posted, so no connections for Wash Ave. Ext – must go to PT & Shalom or Sanborn;	
2	General neighborhood:	streetscape isn't friendly, should be welcoming and fun	Good access for Summit St. area;
2	Univ. Park area & Washington Ave. Ext	[no good access?];	
4	Junior St.	"Walking down Jr. St. doesn't feel safe" (Lauren, 4th grader)	Restrictions on Time of Day "Thru Traffic" on Junior St??

4	Auburn St. [b/t Lib's & Grace Lutheran]	No sidewalk; Where no sidewalk it's steep	
4	[southern Moore boundary]		Access from Shaw's!!
4	[Bramblewood compared to [PT path from Allen Ave?]]		Use Bramblewood not path from Allen Ave?
4	Bartley Ave & back of Lyseth		Drop-off spot?; Safe??
4	Bartley & Jr. St; Bartley & Fall Lane	Short cuts; Snowbanks in winter; (School buses, too)	
Terri Grover, A2U2, & former parent	Path to Bramblewood; path to Sumac; Allen Avenue; going to playground to take the Bramblewood path	Needs evening and night lighting; feels scary through the playground for evening events; very steep; no sidewalk on one side of Allen; children have no path to walk on from the school to reach the playground path; they are walking behind parked cars	Install motion lighting; better paving, shallower incline; install sidewalks on both sides of Allen; install a safe pathway for children to follow, including a marked crosswalk to a path off the parking lot; dismiss walking students from back door to the playground
Lorraine Taylor, Lyseth Teacher	There are a lot of wooded paths going to Lyseth.	Personally, I would not want my five or six year old to be on those paths without supervision.	
Tina Singer	Washington Ave.	Sidewalks are only on one side of the road	Need more crossing guards or sidewalks on both sides of Washington Ave.
David & Susan Wallace, grandparents of Lyseth Student		We live on upper Pineloch Drive. There are no sidewalks on this section of Pineloch which is sharply curved as you make the turn from Summitt. Cars often cut the corner when turning onto Pineloch while travelling down towards Pineloch Woods at a good rate of speed.	This stretch of Pineloch should enjoy the benefits of a sidewalk so kids can safely walk to school, have a safe spot to learn to ride their bikes and just to walk on in the winter when the snowbanks are piled high.
Ed Turner	Summit & Sumac Streets		New sidewalks installed recently with curb down Sumac St.
Lyseth Parent Survey (4 comments)	Ray St.	Missing sidewalk links despite recent road work. Not comfortable with students walking on Ray.	

Lyseth Parent Survey (3 comments)	Auburn St (between Armstrong Hts & Garsoe St.)	Missing sidewalk link; Neighborhood unfairly taxed without benefits; Mr. Cohen did not help; Students could walk everyday if sidewalk link existed	
Lyseth Parent Survey (4 comments)	Pineloch between Summit and Roaring Brook	Missing sidewalk link; Blind curve(s) dangerous for drivers and students walking	Construct missing sidewalk links;
Lyseth Parent Survey (1 comment)	Summit St.	Summit has become a thoroughfare for people who wish to avoid Washington Ave/Auburn St.	One additional adult presence near Curtis might provide security I need to allo [student name] (1st grade) to walk along Summit St. Speed bumps would also slow people down. A police presence on Summit would discourage speeding as well (during AM hours 8:30-9 & PM 3-3:30
Lyseth Parent Survey (1 comment)	Washington Ave. Ext.	Missing sidewalk link between Lester & Riverside	Maybe if the City could do something about that walking to school would be an option
Bicycle Treatments (poorly designed or lack thereof) (signage, bike lanes, etc.)			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
2	Campus	No defined bike route through campus; Bikes not allowed on campus;	Build bike path on North end of playing fields from Lyseth playground to edge of Lyseth/Lyman Moore parking lots and around rear Lyman Moore parking lot to rear entrance; Bike route needs to connect to Lyseth crosswalk?; Bikes/skateboards/scooters should be allowed on campus
4	Campus	No defined "bike lane" - separate??	Path for bikes [along north edge of playing fields]; Need connection from path from Bramblewood
4	Campus	Bike - Pavement is poor & build up of sand/gravel	
Off. Napijalo	Allen Avenue, Auburn Street, Washington Avenue	It is important to share roads with bicycles so we need to improve infrastructure and signs to achieve this goal.	Installing bike signs on outer Washington Avenue (none exist), painting bike lanes on Auburn (between Allen and Sanborn), painting bike lanes and signs on Allen Avenue between Summit and Washington would help with bike safety for kids that ride bikes to school from that area of the city.
Terri Grover	No bike lanes to Lyseth, and not clear to Moore	Easy for children on bikes to be hit by cars and buses, as there is no clear place for them to be; Bikes in traffic; No decent bike racks at Lyseth	Bike safety sessions; helmet education and giveaways; separate, well-marked bike paths on school grounds and surrounding neighborhoods, including through the playground to connect with paths to neighborhoods

Gretel Varney, Portland Public Services	Auburn St. - Allen to Sanborn; Washington & Allen Ave. intersection	Auburn St - Allen to Sanborn: no bike lane and no room for bike lane; Washington Ave and Allen Ave intersection: no room for bikes	
Ed Turner, Crossing Guide, Summit & Sumac	Summit & Sumac Streets		No specific bike lanes, but small amount of traffic down Sumac which is dead end. Summit Street does have bike lanes and a sidewalk.
Regina Erskine, Health Teacher at Lyman Moore	Allen Ave. & Auburn St/Washington Ave.	Lack of bike lanes; Dangerous intersection at Allen & Washington; Too many distracted drivers! I don't think I would ever feel safe biking to school. Too many drivers on the road that do not respect bicycles using the road. Also too many distracted drivers and lack of bike lanes.	More bike lanes; Education drivers on sharing the road
Road Crossings & Intersections			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	Allen Ave by Yale or near PATHS		Cross guard or light [needed near PATHS/Yale]
1	Allen Ave.		Better signage at busy crosswalks (esp. Allen Ave)
1	Virginia and Allen Ave.		Crossing guard [needed]
1	Allen Ave. & Washington Ave.	No crossing guard at Allen Ave. ext.	
1	PT Crossing at Allen Ave.		Crosswalk needed
2	Traffic light at Sanborn	People are running light	Need longer yellow
2			More crossing guards needed further out from school
4	Allen Ave & Washington Ave.		
4	Rustic & Auburn	Lots of turning traffic - a barrier	
4	Auburn & Lyseth-Moore Drive		Good signal!
4	Junior St. & Lyseth-Moore Drive		Blind spot for drivers; x-ing guard ?? needed at this location

Terri Grover	Crossing Bramblewood across Allen; crossing Allen at end of Portland Trails	Cars may not always stop for crossing light; children may not always use it, or cross in the crosswalk; no crossing light at all by the trail; no crossing guard at all on Allen	Have a crossing guard at the crossing light at Bramblewood and Allen; clearly mark path at end of trail
Gretel Varney, Portland Public Services	Intersection of Allen and Washington/Auburn	Turning traffic tends to not stop on red before making right; only looking to left for vehicular traffic and don't look to see walk signals; kids tend to assume drivers will see them and yield whether they are in or out of crosswalk or with or against walk light.	Enforcement of stop on red; education/awareness for students to take responsibility for their own safety.
Tina Singer	Washington Ave. Ext.	No guards at crosswalks higher up on Wash. Ave. Ext. I watched 7 cars speed past the crosswalk while my son was at the crosswalk waiting	More crossing guards. Would mean more supervision also, making everyone feel safer. Needs to be enforced [by police]; Speed bumps before each crosswalk; Not sure why there are 2 crossing guards at our new light and crosswalk on Auburn St.
Ed Turner	Summit & Sumac Streets		Students cross Summit Street to go down Sumac. Crossing well marked with white lines. This is where I am stationed.
Off. Napijalo	326 Auburn St.		Putting an additional crosswalk in front of 326 Auburn Street (Huntington North complex) would be a good idea because a lot of kids from North Deering Gardens and Huntington North attend Lyman Moore School. This way kids can cross Auburn Street little safer and they could walk to school on the other side of Auburn Street using the existing sidewalk.
Off. Napijalo	Washington Ave. Ext.	I saw an increase of accidents and speeding offenses on this stretch of the road. I also received numerous complaints from residents that their kids are not safe when they go to school due to this traffic issue.	I would put crosswalks and some type of signalization at Greenwood Street, Skylark Street and Regan Lane intersections with Washington Avenue North.
Regina Erskine	Allen & Washington intersection	Dangerous for walkers and bikers	
Ned Doughty, Lyseth parent; Fire Dept. Rep	All major streets	Need for more student crossing signage	

Steve Niles, parent	Allen Ave. @ VA & Bramblewood	My son has biked to school every day for the last two years (except for during icy road conditions).... biggest impediment our neighborhood faces...is Allen Ave...many families that walk or bike this route and that intersection is dangerous. The addition of a small island a few years ago was welcome but did not change the fact that there is a massive volume of traffic at a higher speed with a deegree of inattentiveness that makes for a dangerous combination. I have personally almost been killed in this intersection while walking my kids to school. Although a driver stopped to let us cross, the inattentive driver following him did not stop and plowed into the first car thereby pushing the first car into the place we would have been if I had not grabbed my son and pulled him back.	A crossing guard at the intersection of Allen and Virginia/Bramblewood would go a long way to fixing this problem.
Steven Caminiti	Allen Ave crossings	Have crossing guards for Allen Ave. at Virginia and Ray streets.	
Lyseth Parent Survey (10 comments)	Allen Ave crossings	No crossing guards on Allen Ave.; Low visibility trying to cross Allen at Summit St. to reach crossing guard further down (2 of 10 comments)	Put at least one crossing guard on Allen Ave. (perhaps at Washington and Allen or Virginia and Allen Ave.)
Lyman Moore Parent Survey (1 comment)	Allen Ave & Washington Ave. intersection	The Allen ave. intersection is the reason why I don't let my younger child walk to Lyseth.	

Traffic Speed

Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	Allen Ave	Speed	
2	Washington Ave.	Speed & Traffic	
Off. Andjelko Napijalo	Auburn St. & Washington Ave.	Speeding	We are working on installig one of our portable radars on Washington Ave to reduce the speed. More police patrols and traffic details in the school zone on Auburn St. Placing a larger sign somewhere on Auburn Street to let motorists know that this is a school zone and that they should respect the speed limit and other city and state ordinances or laws.

Terri Grover	Allen Avenue; Bramblewood Dr.	Cars often go way too fast, and do not watch for children crossing Allen; cars often speed around the corner on Bramblewood going between Summit and Allen	Frequent speed traps, crossing guard, better signage (hate the idea of speed bumps, but . . .; speed traps on Bramblewood occasionally, better signage, crosswalk painted on Bramblewood between the path and crossing the street
Tina Singer	Washington Ave. Ext.	Too fast	Enforcement; Speedbumps before each crosswalk
Lyman Moore Parent Survey (1 comment)	Summit St.	How hard would it be to have a stop sign on Summit Ave to slow traffice between Pinelock & Bramblewood. We have already had one child hit by a car. How many more does it take?	[H]ave a stop sign on Summit Ave to slow traffice between Pinelock & Bramblewood
Volume of Traffic/Busiest Streets			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	All of Allen Ave & Washington/[Auburn}		
2	Washington Ave.	Speed & Traffic	
Off. Napijalo	Auburn St.	High volume of traffic	Police presence and traffic enforcement.
Terri Grover	Allen Avenue; school driveways; Auburn St	Lots of cars traveling to/from Falmouth;	
Tina Singer	Wash. Ave, Auburn	Rush hour	Speed bumps
Ed Turner	Summit St.	heaviest mornings going to work	
Regina Erskine, Health Teacher at Lyman Moore	Allen Ave; Washington Ave; Auburn St.	Streets are very busy!	Less traffic, if parents are not dropping off students
Weather as it Impacts Physical Infrastructure (Water issues, Snow removal, Ice patches, Sun glare, etc.)			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	[Connecting trails?]		Maintain trails in the winter time
1	Bus drop-off area/parking lot	Drainage issues (flooding - spring/fall) Ice jams in winter; Asphalt surfaces dangerous - holes/rough/unsafe	
1	[Bus drop-off/parking area]	Poor "seasonal" visibility due to high snowbanks	
2	Parson's Pond	Team 2: Parson's Pond pushes snow onto sidewalks (private plowers)	General – sidewalks are well plowed

4	[General - larger radius map]	Sidewalks a mess in winter	
4	Bartley & Jr. St; Bartley & Fall Lane	Short cuts; Snowbanks in winter; (School buses, too)	
Terri Grover	Bramblewood	Only one side plowed	Sidewalk plows actually do a good job on [one side] Bramblewood; not sure about other areas; Plow both sides [of Bramblewood]
Gretel Varney	Sidewalks near/at intersection of Allen Ave and Washington/Auburn	Local businesses do not keep sidewalk clear; parking areas are frequently plowed into adjacent sidewalk	Enforcement of city ordinance for clearing sidewalks adjacent to property
Tina Singer	Portland Trail connecting Wash. Ave. & Auburn	Narrow, overgrown, hidden and not paved - as a result, not plowed in winter	Pave and plow
Tina Singer	Pathways and sidewalks [general?]	Not plowed	Need to plow; [Under enforcement section]
Tina Singer	Bike Parking	Not covered during weather	
Ed Turner	Summit & Sumac Streets	Sometime sidewalk down Sumac St had not been plowed, or piled up snow at corner	If City of Portland could plow sidewalk a little earlier in the morning
Regina Erskine		Lack of snow removal sometimes an issue	
Lyseth Parent Survey (3 comments)		Better clear sidewalks needed; Winter enforcement or cleaning by the City of walkways, paths, and streets; No snow plow for sidewalks	Need to plow sidewalks or do better enforcement [Enforcement section]
Lyman Moore Parent Survey (1 comment)		It depends on weather, how late we are running in a.m., wheter he has instrument, after-school activities.	
Access to Local After-School Sites			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
Terri Grover	Students are walked to First Lutheran		
Ed Turner	Summit & Sumac Streets	Most students in this area are going directly home. However some do go back to school for sports.	
Lyman Moore Parent Survey (1 comment)			My children often take Metro bus if afterschool activities run long.
Bicycle Parking			

Team # or Stakeholder Name	*Specific Location*	*Challenges/Safety Issues*	*Possible Solutions/Additional Comments*
1	Lyman Moore	Lacking bike racks	
1	[Not sure if referring to specific school]		More bike racks; more visible
2	Lyman Moore	Bike racks not visible; Kids concerned about theft; Bike racks full	[2 bike racks suggested to be installed on either edge of the front cement entrance way to Lyman Moore]
4	Lyman Moore		more bike parking; consolidate?
4	Lyseth Campus		Bike racks [on eastern edge of property, directly behind school building]
Off. Andjelko Napijalo	Lyman Moore & Lyseth		Istalling bike racks in front of both schools. Have some kind of locking mechanism in place or donate locks to kids who ride their bikes to school.
Terri Grover	Lyman Moore & Lyseth		Good at Moore, lousy at Lyseth
Tina Singer	Bike Parking	Not covered during weather	
Ed Turner	Bike Parking at Lyman Moore	I went by (9/15/10) to check on this. The racks seemed full.	I find this spring many boys are riding bikes; Solution - a few more racks to hold bikes.
Regina Erskine	Lyman Moore		Could use another bike rack
Ned Doughty, Lyseth parent; Fire Dept. Rep	Lyseth & Lyman Moore	Bike theft concerns	Need more space to keep bikes from getting damaged; Consider installing video camera to observe racks
Lyseth Parent Survey	Lyseth	More bike storage needed; Concerns about safety of bikes when stored; Are locks needed?	Increase the amount of bike parking; Encourage the use of locks; Provide a bike lock library
Distance			
Team # or Stakeholder Name	*Specific Location*	*Challenges/Safety Issues*	*Possible Solutions/Additional Comments*
Terri Grover		Students right in the neighborhood are being bused to Lyseth; waste of resources, lack of exercise	
Ed Turner	Pineloch and Roaring Brook Roads	Many walkers and bikers come from Pineloch and Roaring Brook roads. They can stay on the same side of street until they come to my crossing.	
Lyman Moore Parent Survey (1 comment)		We live almost 2 miles to school, so it really isn't a safe walk/bike ride.	

Violence/Crime			
Team #	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	Crime on Allen Ave	[First week walking home from school son threatened with a knife by a young person crossing near Allen Ave.]	
1		Help students feel safe	
2		Fear factor – perceived threats to kids; Not enough people "paying attention"; If we make the routes, are they safe? Need "supervision"; Cell phone use is a problem - "no cell phones" in the District; Lighting	Team 2: Paid bicycling leader?; Lighting sufficient in area?
4	Auburn St.	"Stranger Safety" (need adult I can trust to walk w/)	
Terri Grover	Playground Path	No lighting	Motion lighting
Ned Doughty, Lyseth parent; Fire Dept. Rep	General neighborhood:	Formerly was dispatcher; Knows violence and crime are rare, sometimes domestic disputes withing families, but still concerned about younger students walking alone	
Lyseth Parent Survey (4 comments)		Concerned about kidnapping, walking unsupervised	
Lyseth Parent Survey (1 comment)		[T]he Lyman Moore hoodlums frequently harass little kids and should be dismissed after not before the young children!	
Other Physical Barriers			
Team # or Stakeholder Name	***Specific Location***	***Challenges/Safety Issues***	***Possible Solutions/Additional Comments***
1	At School	Football player can't fit gear in locker; [students bringing large items for after-school have difficulty storing; [Also building locked during practices so students can't get back to gear]	Lee had ideas about where gear could be stored; Keeping building open to [students at] practices
1		For cultural issues	Contact the Minority Health program @ PHD [Public Health Dept.)
2		Perceived risk; Kids aren't educated on bike safety; Parents too nervous	
2		Proper equipment for kids	
4		Redistricting issues driving +; Reduced # that can take the bus	

Lyseth Parent Survey (14)		Parents work too early to be able to walk & bike their children to school and still get to work	Adult supervised walkpools/walking school buses that get kids there safely, and allow parents to go about their work day
Lyseth Parent Survey (35)		Too young to walk alone; Before 10 may not possess brain development to make good pedestrian safety decisions; Concerns about delay in verification if child does not make it to school.	Adult supervised walkpools/walking school buses that get kids there safely, and allow parents to go about their work day
Lyman Moore Parent Survey (1 comment)		It depends on weather, how late we are running in a.m., whether he has instrument, after-school activities.	
Lyman Moore Parent Survey (1 comment)		would allow child to walk/bike with a friend, not alone.	
Lyseth Parent Survey (1 comment)		It is discouraging how long they make walking kids wait to be dismissed. Walking kids should be allowed to leave first because parents are waiting	

Enforcement Program Feedback/Ideas

Team # or Stakeholder Name	*Specific Action*	*Challenges/Opportunities*	*Possible Solutions/Additional Comments*
2			More crossing guards needed further out from school
2			Riding crossing guard?
	Organize a School Safety Patrol		13 votes @ Public Forum; 3 Stakeholder votes
	Review Drop-Off and Dismissal Policies and Locations for What Works Best for Walkers and Bikers		10 votes @ Public Forum; 5 Stakeholder votes
	Strategize with Current Crossing Guards on Need/Concerns - Plan for Regular Communication		9 votes @ Public Forum; 3 Stakeholder votes (including one crossing guard)
	Work with Local Law Enforcement - Enforce Child Helmet Law		10 votes @ Public Forum; 5 Stakeholder votes for all Work with Local Law Enforcement

	"Ticket students for "doing good"		1 vote @ Public Forum; 1 Stakeholder vote on this specifically
	Using Portable Speed Trailers		2 votes @ Public Forum
	Progressive ticketing of motorists		1 vote @ Public Forum
Ned Doughty, Lyseth parent; Fire Dept. Rep	Set up Hotline for reporting issues		
Ned Doughty, Lyseth parent; Fire Dept. Rep	If D.A.R.E. officers still in operation, have patrol 1 mile radius; Have Bike Police officers patrol during morning & afternoon; Work on funding for both programs		
Lyseth Parent Survey (2 comments)	Need to plow sidewalks or do better enforcement	Better clear sidewalks needed; Winter enforcement or cleaning by the City of walkways, paths, and streets; No snow plow for sidewalks	

Education Program Feedback/Ideas

Team # or Stakeholder Name	***Specific Action***	***Challenges/Opportunities***	***Possible Solutions/Additional Comments***
	Bike & Ped Safety Education		16 votes @ Public Forum; 6 Stakeholder votes
	After-School Bike Club		10 votes @ Public Forum; 2 Stakeholder votes
	Bike Safety Fair/Rodeo		12 votes @ Public Forum; 2 Stakeholder votes
	Include Ped & Bike Safety Education & Practice within the PE Curriculum		11 votes @ Public Forum; 4 Stakeholder votes

	Include Alternate Transportation Education as Part of Lyseth & Lyman Moore Schools Curricula		12 votes @ Public Forum; 4 Stakeholder votes
Off. Napijalo	***Bike-Ped Safety Ed with Police Help***		Better education of kids about safety would be another way to tackle this problem. We should have police officers and other officials talk to kids about safety.
Gretel Varney	***Parent education/awareness [campaign] - following posted speed and parking signage; car pools for neighborhoods***		

Encouragement Program Feedback/Ideas

Team # or Stakeholder Name		***Challenges/Opportunities***	***Possible Solutions/Additional Comments***
1		Moore staff that live close to school good role models; 25-30% of Lyman Staff live within 1 mile of the school	Outreach to staff: Bike Commuter education program (free); Healthy Portland Worksite Wellness grants; Offer staff incentives;
1		Many students don't have access to a bike; 49% of Moore [students qualify for] free & reduced lunch	Earn-a-Bike program; Bike giveaway (Portland PD); Access to bicycles for student population
1		Walk Pool [informal, currently exists] in the neighborhood; Walking line coming from Rustic & Christy Road	
2		Proper equipment for kids	
	Organize Walk & Bike to School Days Once or Twice a Month		7 votes @ Public Forum; 4 Stakeholder votes
	Organize Walking School Buses and/or Bike Trains		8 votes @ Public Forum; 3 Stakeholder votes

	For Bused Students: Organize Daily, Weekly, or Twice Monthly Remote Drop-Offs	[Written comment @ Public Forum - do this activity in tandem with Walk & Bike to School Days] ["Who would supervise students at Remote Drop-Off?]	7 votes @ Public Forum; 1 Stakeholder vote
	Hold Multi-Week or Year-Long Contest for Walking & Biking	[Written comment @ Public Forum - "Homework pass" reward] ["Hard to monitor"]	6 votes @ Public Forum; 3 Stakeholder votes
	Encourage Walking & Biking Field Trips		12 votes @ Public Forum; 4 Stakeholder votes (including one from teacher)
	Walk & Bike, Use Transit, & Carpool to Evening Events		5 votes @ Public Forum
	Offer Incentives to Peds & Bikers Following the Rules & Walking/Riding Safely		5 votes @ Public Forum; 3 Stakeholder votes

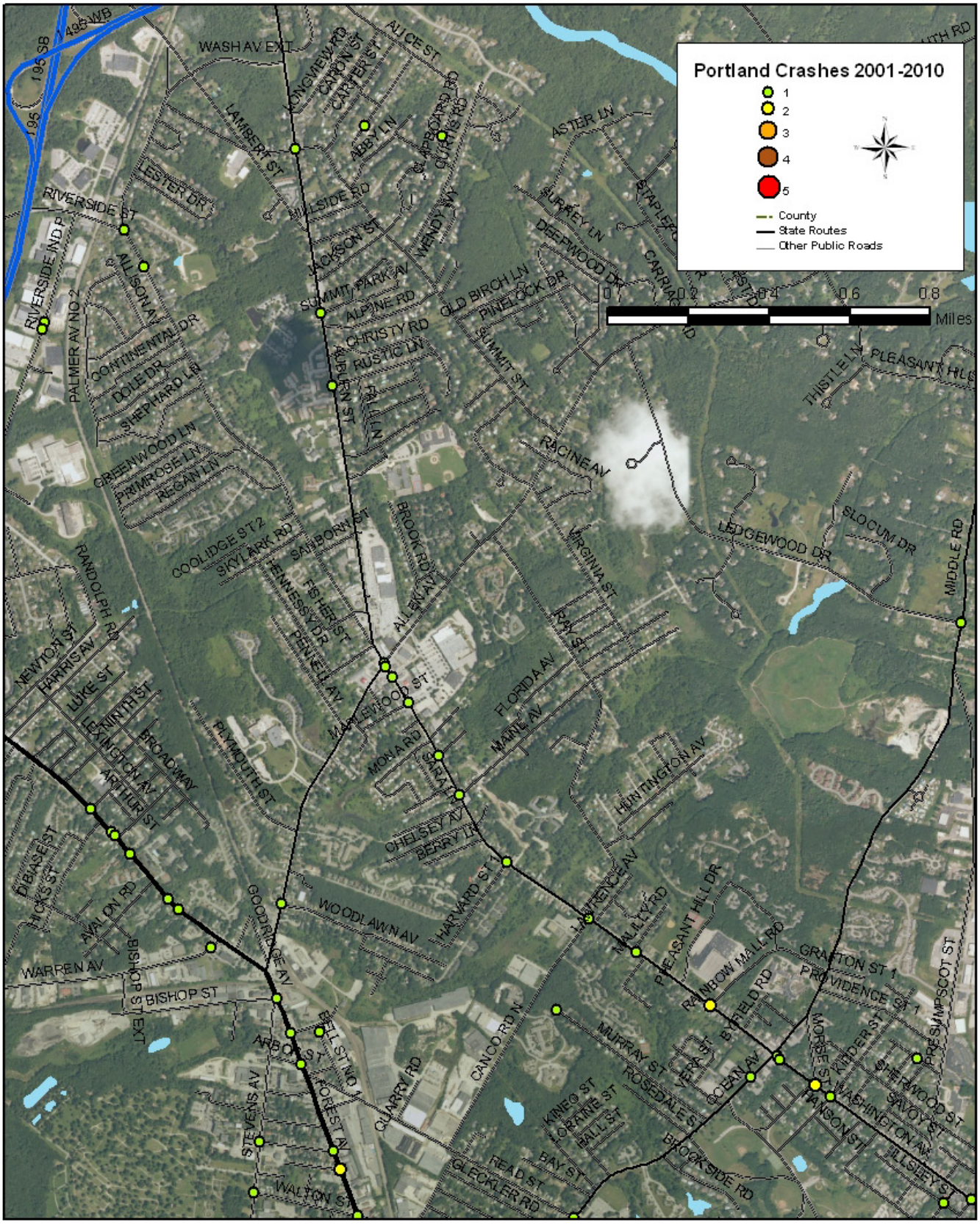
Team Final Priorities

Team #	*Priorities*		
1	Organizing Walking School Buses		
1	Find Alternate/Remote Bus Drop-Off Location		
1,2	Allen Ave. & Washington Ave (main part) - safer crossings, missing sidewalk links (Wash); Speed & traffic on Washington		
1	Alternate plans for Winter-Proofing the Walk/Bike experience		

1	"In order to sell it [to students & families], it has to be safe"		
2	No bike path on campus		
2	Bike racks aren't visible so kids concerned about vandalism		
2	Sidewalk connectivity (lack of)		
4	Junior St. Management		
4	Reconfigure Parking		
4	Drop-off Sanity (limit access)		
4	Paths[PATHS?] Connect/Bike Lanes; Connectivity		

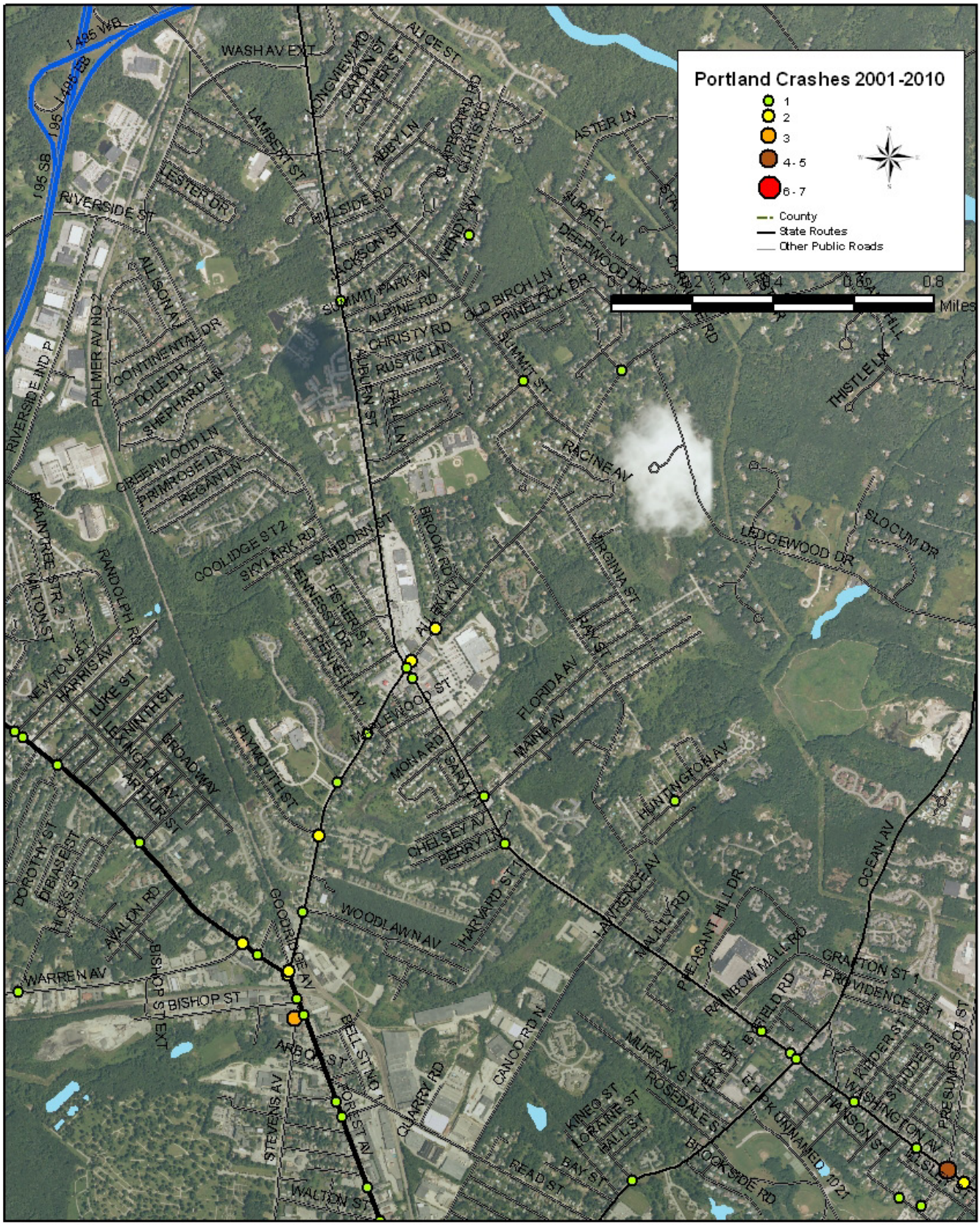
Appendix VII – Pedestrian & Bicyclist Crash Maps

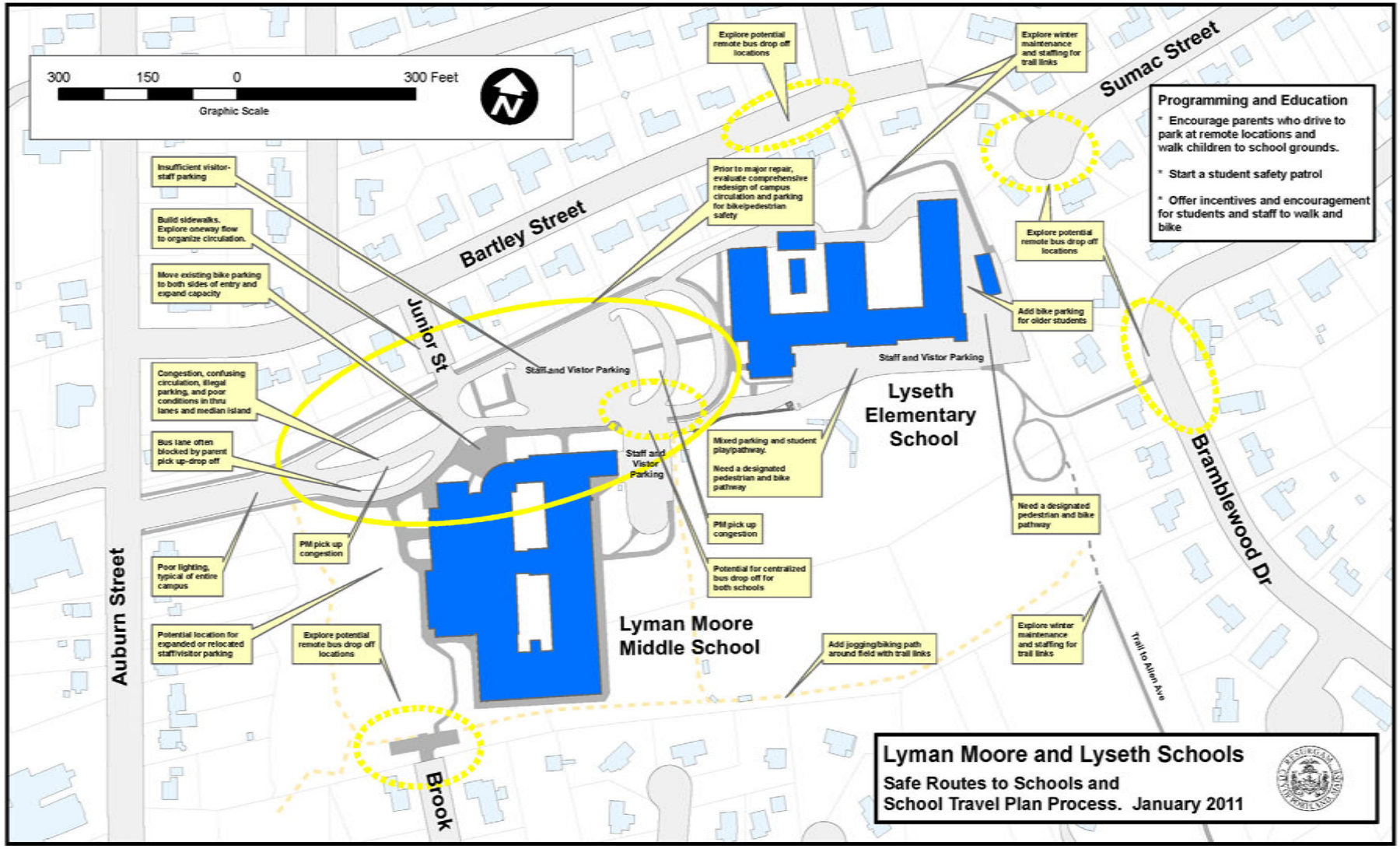
Portland Crashes Involving Bicyclists (2001-2010)



Appendix VIII - Lyseth-Moore Campus Deficiencies/Recommendations Map

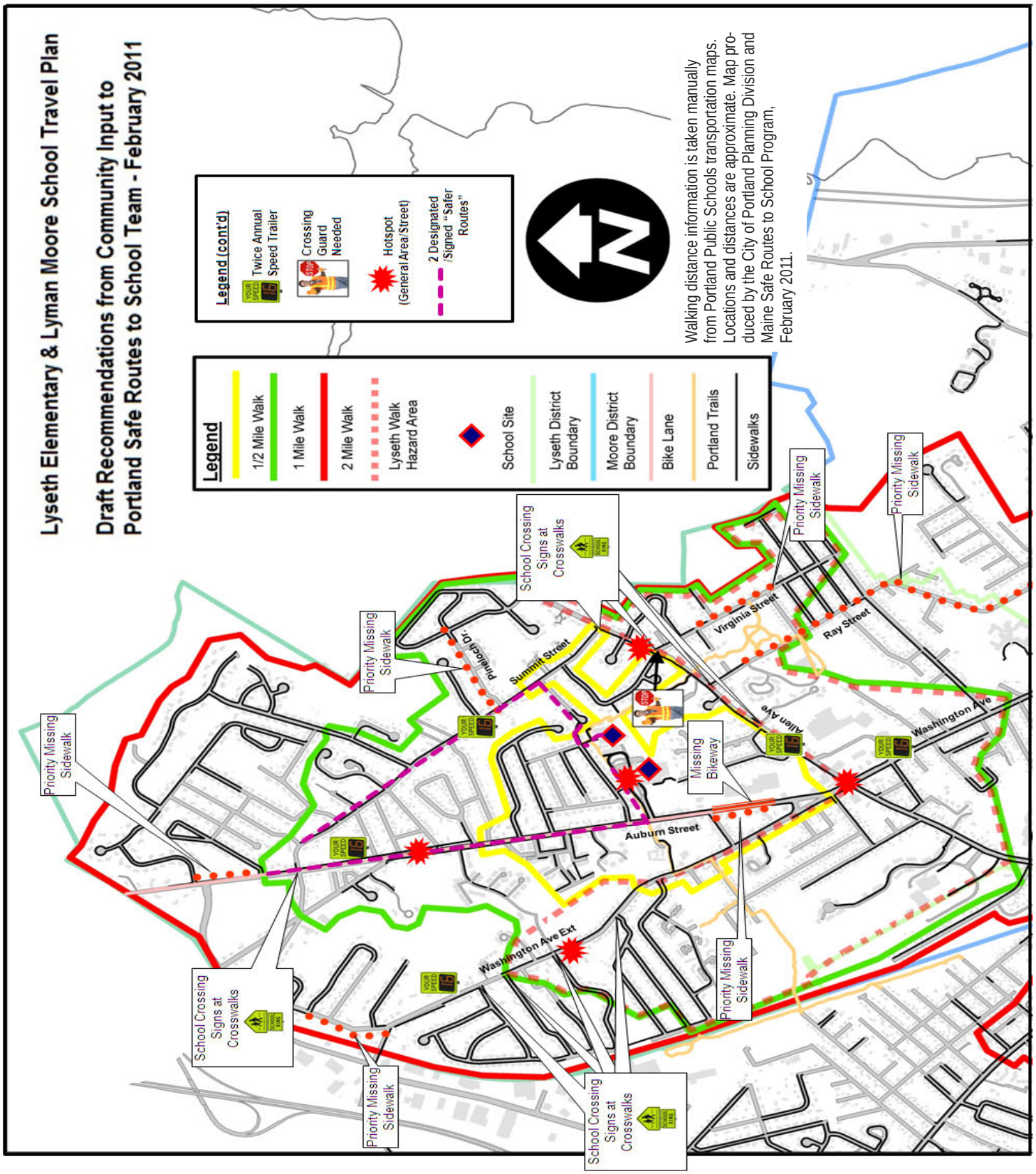
Portland Crashes Involving Pedestrians (2001-2010)





Campus Map with Areas of Issues, Concerns, and Potential Solutions

Appendix IX –
Deficiencies/Recommendations Map of Larger Community Area Surrounding Schools



Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
1a	Lyman Moore & Lyseth Drop-Off Zones	Poor infrastructure: Bike-Ped access, lighting, condition; Confusing for all users	Create alternate drop-off sites for bus/ car traffic *
1b			Reconfigure auto parking to improve bike-pedestrian safety crossing campus *
1c			Offer encouragement and incentives to staff to carpool, use transit, walk, or bike*
1d			Build/Designate bike lanes/paths across campus*
1e			Produce concept design/Redesign/re-engineer entire drop-off area; Include lighting improvements; Once re-engineered/rebuilt: organize Student Safety Patrol*
2a	Junior St./Bartley St./Fall Lane*	Staff spillover parking; Snow banks; Cars (and buses sometimes) use as shortcut; Blind spot for drivers; Missing sidewalk links for peds	Develop management plan for this route for bicycles and pedestrians and any traffic - including additional signage*
2b			Mandate removal of snow bank at crossing triangle between Junior & LM*
2c			Install/enhance crosswalk. Install additional signage for drivers (e.g. dual stop signs; ped crossing). Consider crossing guard for this location*
2d			Include as part any drop-off zone redesign. Save trees if any infrastructure work is proposed*
2e			Construct missing sidewalk links*
2f			Evaluate one way flow as part of comprehensive redesign suggested in 1.e above*

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
3a	Access Paths to Both Schools (e.g. PT: PATHS to Auburn St.; PT: Allen to Lyseth playground; informal paths at Med Center, Shaw's, UU Church)	Lack of lighting; Some paths perceived as "sketchy" and/or unsupervised - bullying/crime concerns; Paths not maintained during winter; Some paths close by but not connected	Check on permission to use alternate informal paths from south
3b			Do bike-ped safety education specifically targeting the use of paths*
3c			Offer parent or staff supervision on designated path(s) - and/or create Student Safety Patrol for this area
3d			Maintain paths during winter; Assess whether can/should pave any paths to facilitate winter maintenance.
3e			Prepare students for winter walking - advice on equipment, conduct a warm clothing drive, educate on safe walking practices, etc.*
3f			Assess and build any missing path links to connect existing trails
3g			Build jogging path around playing fields (would be used by all neighborhood members and could generate "eyes on the path") to serve as link to side paths - and as bike path across north side of fields - for students arriving on campus.
4a	Lyseth & Lyman Moore Bike Racks*	Lyseth: Older students don't like having to go through young students playing in courtyard to get to racks; Lyman Moore: Not enough bike parking; Concerns about theft/vandalism	Lyseth: Move one rack to rear (east end) of school for older students; Lyman Moore: Move bike parking to both sides of Moore entryway*
4b			Encourage the use of bike locks; Consider starting a simple bike lock lending/rental library*
4c			Add more bike parking*

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
5a	Allen Avenue	Vehicles speeding; No crossing guards; Missing crosswalk at Portland Trails crossing; Missing sidewalk links; Lack of pedestrian & students-crossing signage.	Move one of crossing guards from Lyman Moore entrance to Bramblewood/Virginia & Allen*
5b			Provide annual pedestrian and bicycle safety education*
5c			Use Speed Trailers at least twice a year & practice speed enforcement*
5d			Evaluate lack of pedestrian/students- crossing signage and install signs*
5e			Organize peer walkpool/bike train groups for Lyman Moore students - and adult-led walkpool/bike train groups for hazard-bused Lyseth students.
5f			If no room for bike lanes then paint sharrows and/or install Bikes May Use Full lane signs*
5g			Construct missing sidewalk links on southeast side of street*
6a	Allen Ave. & Washington Ave. Intersection	Allen & Washington Intersection large & unfriendly to bikes & peds; Motorists watching traffic signal and not looking for bikes/peds at Allen & Washington intersection - may not know near two schools	Provide annual pedestrian and bicycle safety education for Lyman Moore students regarding this corner *
6b			Organize peer walkpool/bike train groups for Lyman Moore students - and adult-led walkpool/bike train groups for hazard-bused Lyseth students.*
6c			Visual Safety Education 2-4 times/yr. (e.g. parents, staff, students with signs) for motorists at this intersection - encouraging them to look for bikes/peds
6d			Install students-crossing signage*
6e			Introduce crossing guard at Allen Ave. & Washington Ave. intersection (for hazard-bused Lyseth students)
6f			If no room for bike lanes then paint sharrows and/or install Bikes May Use Full lane signs
6g			Work for complete street/bike-ped friendly/traffic calming improvements at this intersection

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
7a	Washington Ave. Ext.*	Vehicles speeding; Sidewalks on east side only - and only one crossing guard available for one street crossing from west side; Missing sidewalk link	Provide annual pedestrian and bicycle safety education for students coming from this area*
7b			Install students-crossing signage at additional ped crossings; Consider additional crossing guard*
7c			Use Speed Trailers twice a year & practice speed enforcement*
7d			Organize peer walkpool/bike train groups for Lyman Moore students - and adult-led walkpool/bike train groups for Lyseth students*
7e			Construct missing sidewalk link from Lester to Riverside*
8a	Auburn St.	Vehicles speeding outside school zone; Heavy traffic; Missing sidewalk links; Need for more crosswalks; Bullying/crime concerns; Bike lane but not full length*	Provide annual pedestrian and bicycle safety education*
8b			Use Speed Trailers twice a year & practice speed enforcement*
8c			Assess & sign "Safer Route" to campus*
8d			Organize adult-led walking school bus and/or bike train groups for Lyseth students and peer walkpool and/or bike train groups for Moore students*
8e			If no room for bike lane, at least stripe shoulder from Chapman to Sanborn and/or add sharrows and Bikes May Use Full Lane signs*
8f			Assess and install additional crosswalks*
8g			Construct missing sidewalk links: (1) between Sanborn & Chapman; (2) between Garsoe & Armstrong *

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
9a	Washington Ave. (South of Allen)	Vehicles speeding; Heavy traffic; Bullying/crime concerns*	Provide annual pedestrian and bicycle safety education*
9b			Use Speed Trailers twice a year & practice speed enforcement*
9c			Organize peer walkpool and/or bike train groups for Lyman Moore students - and adult-led walking school bus and/or bike train groups for Lyseth students currently being hazard bused to school*
9d			If no room for bike lanes then paint sharrows and/or install Bikes May Use Full lane signs*
10	Summit St.	Chosen for "Safer Route" designation	Assess & sign "Safer Route" to campus*
11	Pineloch (b/n Summit and Roaring Brook); Ray Street; Virginia St.	Missing sidewalk links; Pineloch: Blind curve(s) dangerous for drivers and students walking; Ray: Recently improved road but missing sidewalk links	Construct missing sidewalk links*

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
12a	At Both Schools	Students w/large gear for after-school have difficulty storing; Building locked during practices so students can't get back to gear	School admins had ideas about where gear could be stored; Keeping building open to students at after-school activities
12b		Students need additional bike safety education and practice	Host: After-School Bike Club for 6th Graders every spring; Bike Safety Rodeo (with bike & helmet checks, practice on skills course in parking lot, etc.) at Lyseth (could be tied in with Spring Fair) and Lyman Moore. PPD & BCM can help with technical assistance*
12c		A number of students at both schools don't have access to bicycles.	Host: Bike Swap with people from schools and neighborhood donating bikes; or Earn-a-Bike incentive program. Check with PPD about acquiring unclaimed stolen bikes. All Speed Bikes may be able to help tune bikes in their off season.
12d		Lyseth & Lyman Moore staff that live close to school can be good walk & bike role models; estimated that 25-30% of Lyseth & Lyman Moore staff live within 1 mile of the school; Staff report needing to carry large amounts of gear.	Outreach to staff: Presentation by Bike Commuter education program through Go Maine and the Bicycle Coalition; Staff bike mentoring and practice; Offer staff incentives - could include gear like backpacks, rolling carts, & bike trailers to carry staff work materials; Emphasize staff from both schools can use LM shower facilities*
12e		Field trips are an opportunity to learn more about students' sense of place	Organize more walking and biking field trips
12f		Many Lyseth and Lyman Moore students could learn more about walk, bike, public transit, and carpooling options - as well as their benefits	Encourage and provide practice for students to use the METRO bus; Include alternate transportation education as part of Lyseth & Lyman Moore Schools curricula
12g		Walking and biking are fun, but sometimes students need an incentive to get started.	Hold Multi-Week or Year-Long Contest for Walking & Biking*
12h		Funding opportunities can be missed.	Develop list of funding opportunities (PACTS, MaineDOT, Healthy Portland mini-grants, etc.); Assign staff person to monitor and pursue grant opportunities

*Included on "Big Ten Recommendations" List

Lyseth Elementary & Lyman Moore Middle - School Travel Plan Input & Recommendations (Working Draft)

Item #	Specific Location	Challenges/Safety Issues	Recommendations/Possible Solutions
13a	All Locations	Younger Children: Parents have to work early; children too young to walk alone; Before age 10 may not possess brain development to make good pedestrian safety decisions; Concerns about delay in verification if child does not make it to school.	Organize adult supervised walkpools/walking school buses that get kids there safely, and allow parents to go about their work day. Consider walk & bike incentive program that also involves electronic tracking of participants (e.g. Freiker Biker program that uses electronic chips in helmets for sign-in). Also check with Portland Police Dept. about availability of bike police and D.A.R.E. officers for patrol of neighborhood streets during a.m and p.m. *
13b		Parents don't know how to connect with other families in their neighborhood for walkpools, bike trains, carpools; Staff have same difficulty	Organize online carpool/walkpool group using an tools like GoLoco.org & Go Maine; Parents can connect with other parents in their neighborhood for regular carpooling - staff could connect with other staff*
13c		Some students under 16 not using bike helmets	Work with PPD to enforce Child Helmet Law; Could include "ticketing for being caught doing good" (reward students caught wearing their helmet or riding according to state laws)
13d		Lack of winter enforcement or cleaning by the City of walkways, paths, and streets	Need to plow sidewalks or do better enforcement*
13e		Lack of connectivity between some streets & cul-de-sacs	Look for neighborhood street connections and potential paths and create these links

*Included on "Big Ten Recommendations" List

Att. A

LEVEL III SITE PLAN APPLICATION

for the

LYSETH – LYMAN MOORE
CAMPUS CIRCULATION IMPROVEMENTS

PORTLAND, MAINE

CITY OF PORTLAND
Department of Parks, Recreation, and Facilities
212 Canco Road
Portland, Maine 04103

September, 2017

WRIGHT-PIERCE
Engineering a Better Environment

TABLE OF CONTENTS

1. Cover Page, Table of Contents
2. Site Plan Application Form
3. Application Fees
4. Description of Project
5. Evidence of Right, Title and Interest
6. Compliance with Applicable Zoning Requirements
7. Summary of Existing Easements and Covenants
8. Financial and Technical Capacity
9. Construction Management Plan
10. Traffic
11. Significant Natural Features
12. Stormwater Management Plan
13. Consistency with Master Plans
14. Capacity to Serve Indications
15. Solid Waste Generation
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17. Consistency with City of Portland Design Manual
18. HVAC and Manufacturing Emissions Requirements
19. Compliance with Site Plan Requirements

Level III – Preliminary and Final Site Plans
Development Review Application
Portland, Maine

Planning and Urban Development Department
Planning Division

Portland's Planning and Urban Development Department coordinates the development review process for site plan, subdivision and other applications under the City's Land Use Code. Attached is the application form for a Level III: Preliminary or Final Site Plan. Please note that Portland has delegated review from the State of Maine for reviews under the Site Location of Development Act, Chapter 500 Stormwater Permits, and Traffic Movement Permits.

Level III: Site Plan Development includes:

- New structures with a total floor area of 10,000 sq. ft. or more except in Industrial Zones.
- New structures with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- New temporary or permanent parking area(s) or paving of existing unpaved parking areas for more than 75 vehicles.
- Building addition(s) with a total floor area of 10,000 sq. ft. or more (cumulatively within a 3 year period) except in Industrial Zones.
- Building addition(s) with a total floor area of 20,000 sq. ft. or more in Industrial Zones.
- A change in the use of a total floor area of 20,000 sq. ft. or more in any existing building (cumulatively within a 3 year period).
- Multiple family development (3 or more dwelling units) or the addition of any additional dwelling unit if subject to subdivision review.
- Any new major or minor auto business in the B-2 or B-5 Zone, or the construction of any new major or minor auto business greater than 10,000 sq. ft. of building area in any other permitted zone.
- Correctional prerelease facilities.
- Park improvements: New structures greater than 10,000 sq. ft. and/or facilities encompassing 20,000 sq. ft. or more (excludes rehabilitation or replacement of existing facilities); new nighttime outdoor lighting of sports, athletic or recreation facilities not previously illuminated.
- Land disturbance of 3 acres or more (includes stripping, grading, grubbing, filling or excavation).

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), Design Manual and Technical Manual.

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719
planning@portlandmaine.gov

Office Hours
Monday thru Friday
8:00 a.m. – 4:30 p.m.

I. Project Information (Please enter n/a on those fields that are not applicable)

Project Name:	Lyseth Lyman - Moore Campus Improvements
Proposed Development Address:	171 Auburn Street, Portland, ME 04103
Project Description:	Circulation, Access, and Parking Improvments
Chart/Block/Lot:	378/A005, 376/A003, 377/D018, 374/B012, 379/C005
Preliminary Plan	N/A
Final Plan	✓

II. Contact Information (Please enter n/a on those fields that are not applicable)

APPLICANT

Name:	David Onos
Business Name:	City of Portland
Address:	389 Congress Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	207.808.5404
Home #:	
Cell #:	
Fax #:	
E-mail:	donos@portlandmaine.gov

OWNER

Name:	City of Portland, c/o David Onos
Address:	389 Congress Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	207.808.5404
Home #:	
Cell #:	
Fax #:	
E-mail:	donos@portlandmaine.gov

AGENT/REPRESENTATIVE

Name:	Wright-Pierce, c/o Douglas Rice
Address:	99 Main Street
City/State:	Topsham, ME
Zip Code:	04086
Work #:	207-725-8721
Home #:	
Cell #:	
Fax #:	207-729-8414
E-mail:	douglas.rice@wright-pierce.com

BILLING (to whom invoices will be forwarded to)

Name:	City of Portland, c/o David Onos
Address:	389 Congress Street
City/State:	Portland, ME
Zip Code:	04101
Work #:	207.808.5404
Home #:	
Cell #:	
Fax #:	
E-mail:	donos@portlandmaine.gov

ENGINEER

Name:	Douglas Rice c/o Wright-Pierce
Address:	99 Main Street
City/State:	Topsham, ME
Zip Code:	04086
Work #:	207-725-8721
Home #:	
Cell #:	
Fax #:	207-729-8414
E-mail:	douglas.rice@wright-pierce.com

SURVEYOR

Name:	N/A
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

ARCHITECT

Name:	N/A
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

ATTORNEY

Name:	N/A
Address:	
City/State:	
Zip Code:	
Work #:	
Home #:	
Cell #:	
Fax #:	
E-mail:	

DESIGNATED PERSON(S) FOR UPLOADING INTO e-PLAN

Name:	Michael Guethle
E-mail:	michael.guethle@wright-pierce.com
Name:	Douglas Rice
E-mail:	douglas.rice@wright-pierce.com
Name:	Christopher Hinkley
E-mail:	christopher.hinkley@wright-pierce.com

III. APPLICATION FEES

LEVEL III DEVELOPMENT (check applicable review)

☐	Less than 50,000 sq. ft.	$750.00
☐	50,000 – 100,000 sq. ft.	$1,000.00
☐	100,000 – 200,000 sq. ft.	$2,000.00
☐	200,000 – 300,000 sq. ft.	$3,000.00
☐	Over 300,000 sq. ft.	$5,000.00
☐	Parking lots over 100 spaces	$1,000.00
☐	After-the-fact Review	$1,000.00 + applicable application fee above

PLAN AMENDMENTS (check applicable review)

☐	Planning Staff Review	$250.00
☐	Planning Board Review	$500.00

OTHER REVIEWS (check applicable review)

☐	Traffic Movement	$1,500.00
☐	Stormwater Quality	$250.00
☐	Subdivision	$500.00 + applicable fee for lots/units below
	# of Subdivision Lots/Units [ ] x $25.00 each	$
☐	Site Location	$3,500.00 + applicable fee for lots/units below
	# of Site Location Lots/Units [ ] x $200.00 each	$
☐	Change of Use	
☐	Flood Plain	
☐	Shoreland	
☐	Design Review	
☐	Housing Replacement	
☐	Historic Preservation	
	TOTAL APPLICATION FEE DUE:	$

IV. FEES ASSESSED AND INVOICED SEPARATELY

- Notices to abutters (receipt of application, workshop and public hearing meetings) ($.75 each)
- Legal Ad in the Newspaper (% of total ad)
- Planning Review ($52.00 hour)
- Legal Review ($75.00 hour)
- Third Party Review (all outside reviews or analysis, eg. Traffic/Peer Engineer, are the responsibility of the applicant and will be assessed and billed separately)

V. PROJECT DATA (Please enter n/a on those fields that are not applicable)

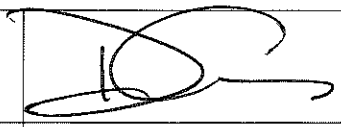
TOTAL AREA OF SITE	25.12 ac / 1,146,475	sq. ft.
PROPOSED DISTURBED AREA OF THE SITE	198,500	sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.		
IMPERVIOUS SURFACE AREA		
Impervious Area (Total Existing)	371,935	sq. ft.
Impervious Area (Total Proposed)	2,800	sq. ft.
Building Ground Floor Area and Total Floor		
Building Footprint (Total Existing)	+/- 140,000	sq. ft.
Building Footprint (Total Proposed)	N/A	sq. ft.
Building Floor Area (Total Existing)	+/- 140,000	sq. ft.
Building Floor Area (Total Proposed)	N/A	sq. ft.
ZONING		
Existing	R-2, ROS	
Proposed, if applicable	N/A	
LAND USE		
Existing	School & Athletic Fields	
Proposed	School & Athletic Fields	
RESIDENTIAL, IF APPLICABLE		
# of Residential Units (Total Existing)	N/A	
# of Residential Units (Total Proposed)	N/A	
# of Lots (Total Proposed)	N/A	
# of Affordable Housing Units (Total Proposed)	N/A	
PROPOSED BEDROOM MIX		
# of Efficiency Units (Total Proposed)	N/A	
# of One-Bedroom Units (Total Proposed)	N/A	
# of Two-Bedroom Units (Total Proposed)	N/A	
# of Three-Bedroom Units (Total Proposed)	N/A	
PARKING SPACES		
# of Parking Spaces (Total Existing)	135 formal; 40+/- informal	
# of Parking Spaces (Total Proposed)	50 (185 Total)	
# of Handicapped Spaces (Total Proposed)	10	
BICYCLE PARKING SPACES		
# of Bicycle Spaces (Total Existing)	0 Conforming Spaces	
# of Bicycle Spaces (Total Proposed)	56	
ESTIMATED COST OF THE PROJECT	$1,540,000	

VI. APPLICANT SIGNATURE

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	
Date:	AUGUST 31, 2017

Portland, Maine

David Onos, LEED AP

Director of Project Management
Department of Parks, Recreation & Facilities

donos@portlandmaine.gov
cell: (207) 809-9187
office: (207) 808-5404
portlandmaine.gov

212 Canco Road
Portland, Maine 04103

Yes. Life's good here.

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
		1	Completed Application form
		1	Application fees
		1	Written description of project
		1	Evidence of right, title and interest
		1	Evidence of state and/or federal approvals, if applicable
		1	Written assessment of proposed project's compliance with applicable zoning requirements
		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
		Proposed grading and contours;	
		Existing structures with distances from property line;	
		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
		Preliminary infrastructure improvements;	
		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST (* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Completed Application form
N/A		1	* Application fees
✓		1	* Written description of project
✓		1	* Evidence of right, title and interest
✓		1	* Evidence of state and/or federal permits
✓		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
✓		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
✓		1	* Evidence of financial and technical capacity
✓		1	Construction Management Plan
✓		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
✓		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
✓		1	Stormwater management plan and stormwater calculations
✓		1	Written summary of project's consistency with related city master plans
✓		1	Evidence of utility capacity to serve
✓		1	Written summary of solid waste generation and proposed management of solid waste
✓		1	A code summary referencing NFPA 1 and all Fire Department technical standards
✓		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
N/A		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
✓		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Final Site Plans including the following:**
✓		Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);	
✓		Existing and proposed structures on parcels abutting site;	
✓		All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;	
✓		Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;	
✓		Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;	
✓		Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;	
N/A		Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;	
✓		Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;	
✓		Location of all snow storage areas and/or a snow removal plan;	
N/A		A traffic control plan as detailed in Section 1 of the Technical Manual;	
✓		Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);	
N/A		Location and proposed alteration to any watercourse;	
✓		A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;	
✓		Proposed buffers and preservation measures for wetlands;	
✓		Existing soil conditions and location of test pits and test borings;	
✓		Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;	
✓		A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;	
✓		Grading plan;	
N/A		Ground water protection measures;	
✓		Existing and proposed sewer mains and connections;	

- Continued on next page -

✓		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
✓		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
✓		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
✓		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
✓		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
N/A		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
N/A		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
N/A		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
N/A		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
✓		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
✓		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

Section 4: Description of Project

4.0 Proposed Project

The proposed project is for the re-development of the existing circulation, and parking facilities at the Lyseth/Lyman-Moore campus. Circulation at the existing site is poor during the beginning and end of the school day, as there are substantial conflicts between cars, pedestrians, and busses circulating the site at the same time. As such, improvements are proposed to improve circulation at the existing site, allowing for one loop of a vehicle drop-off location for passenger cars, a separate loop for bus access, and associated perimeter parking improvements that are anticipated to lessen the impact of staff and faculty attempting to park while students are accessing the facility. The proposed design will also incorporate signage anticipated to provide clarification on where drop-off and parking is allowed, including striping and access for emergency vehicles. Changes in pedestrian access are also proposed to allow more well-defined travel lanes for pedestrians, including improvements to building access.

The proposed work is anticipated to be constructed in two phases, with the parking lot near the middle school, and the drainage at the northeast of the elementary school, being completed as part of the first phase. It is also understood that many of the existing conditions includes for a previously approved drainage and athletics fields improvement project, approved in June 2017. Project phasing has been noted in Figure 4 of the project plans.

Parking upgrades are necessary due to the currently undersized parking facilities at the school and athletics fields locations. It is understood that a substantial number of existing parking spaces are not sized in accordance with the City's technical manual, and that those provided within the proposed design do meet these standard or compact parking space dimensions. The number of parking spaces to be provided is driven by a combination of City codes and anecdotal understanding that the existing parking areas are currently unable to handle the existing demand for parking spaces. Additional discussion on the parking design and development is highlighted in Section 19, Compliance with Site Plan Requirements.

Landscaping is proposed within parking areas and other areas adjacent to proposed improvements. Landscaping includes trees, shrub-like plantings, and grasses. Fencing/screening is proposed adjacent to the new parking area, and trees are incorporated into several islands within the facility to promote shading and beautification of the development.

The existing drainage system will be replaced and upgraded with new underdrains, structures, and pipe. The drainage upgrades will be completed to allow for connections from the adjacent buildings, and are designed at an elevation where roof drainage from future development of the site could be implemented into the proposed system. Two roof connections to the existing sewer are proposed to be relocated to the storm drain as part of the drainage improvements.

Stormwater treatment upgrades will also be completed as a part of the proposed project. Discussion on this information is provided in the Stormwater Management Plan, Section 12 of this permit.

Section 5: Evidence of Right, Title, and Interest

5.0 Existing Deeds

Existing deeds to the parcels for this project have been attached to this section.

A discussion of easements and similar land use information can be found in Section 7 of this permit.

ATTACHMENT 5.1

DEED

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

deed,before me,

Edward M. Whitaker Notary Public Notarial Seal

My commission expires March 23, 1956

Received March 29, 1951, at 9h A.M.,and recorded according to the original

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STATE OF MAINE

BUREAU OF TAXATION

CERTIFICATE OF DISCHARGE OF INHERITANCE TAX LIEN

Estate of Elizabeth J. MacCammond

Late of Darien, Connecticut

Date of Death April 11, 1950

Testate -----

Docket No. Cumb. 7713

State of Maine To MacCammond Est. Disch.

I, the State Tax Assessor, hereby certify that the real property described below has been and hereby is discharged of any lien for any inheritance and estate tax, with any interest thereon, due because of the death of the above named decedent. This certificate is to be recorded in the Registry of Deeds as provieed by Section 17, Chapter 142, R.S. 1944, as amended.

One half interest undivided and in common in and to three certain lots or parcels of land with the camp buildings thereon, situated in Sebago, in the County of Cumberland and State of Maine, and being the same conveyed by Nellie F. Sanborn to Elizabeth J. MacCammond and Marian T. Smith as tenants in common by Warranty Deed dated July 9, 1935, recorded in Cumberland County Registry of Deeds in Book 1555, Page 344.

Date signed Mar 27 1951

Ernest H. Johnson

State Tax Assessor

State of Maine

Kennebec, SS. Augusta, Mar 27 1951

Personally appeared the above named Ernest H. Johnson and acknowledged the above instrument to be his free act and deed in his said capacity.

Albert L. Huot Notary Public Notarial Seal

Received March 29, 1951, at 10h 55m A.M.,and recorded according to the original

---

W A R R A N T Y D E E D

Willey & To Portland City of War.

KNOW ALL MEN BY THESE PRESENTS,

THAT Maurice E. Willey and Ada E. Willey, both of Portland, County of Cumberland, State of Maine, in consideration of Five Thousand Eight Hundred and Fifty Dollars ($5,850.00) paid by the City of Portland, a municipal corporation and body politic organized under the laws of the State of Maine, situated in the County of Cumberland and State of Maine, the receipt whereof we do hereby acknowledge, do

hereby give, grant, bargain, sell and convey unto the said City of Portland, its successors and assigns forever, a certain lot or parcel of land together with all buildings, structures and improvements thereon situated in the rear of other land on the easterly side of Auburn Street in said Portland, and bounded and described as follows:

BEGINNING at an iron in the northerly division line of land now or formerly of James C. Oliver and land of Maurice E. Willey and Ada E. Willey; said iron being distant easterly along the said northerly division line 246.31 feet from the easterly street line of Auburn Street; thence easterly along the said northerly division line and following a wire fence and making an included angle with the westerly direction of the last described course of 178° 44½' through the north a distance of 355.32 feet to an iron; thence easterly and following a stone wall wire fence and making an included angle through the north with the westerly direction of the last described course of 181° 18½' a distance of 109.38 feet to an iron in the said stone wall and wire fence;thence southeasterly and following the said stone wall and wire fence and making an included angle through the north with the westerly direction of the last described course of 185° 19½' a distance of 114.15 feet to an iron in said stone wall and wire fence; thence southeasterly and following the said stone wall and wire fence and making an included angle through the north with the westerly direction of the last described course of 180° 57' a distance of 466.12 feet to an iron set in the westerly line of land now or formerly of Sidney E. Dee et al; thence in a northerly direction and along said line of Dee land and following a fence and stone wall, and making an included angle through the west with the westerly direction of the last described course of 94° 22' a distance of 188.62 feet to an iron set in said line of said Dee's land; thence westerly along the southerly line of land now or formerly of Maurice E. Willey and making an included angle through the south with the southerly direction of the last described course of 78° 20' a distance of 1061.55 feet, more or less, to an iron; thence southerly and making an included angle through the southeast with the easterly direction of the last described course of 102° 26' a distance of 24.61 feet to an iron, said iron being distant 100.00 feet northerly from the first mentioned bound; thence westerly and making an included angle through the northwest with the northerly direction of the last described course of 102° 26' a distance of 12.0 feet, more or less, to the center of Fall Brook; thence southerly following the course of the center of Fall Brook a distance of 102 feet more or less, to a point in the center of said Brook and land of James C. Oliver;thence easterly

along the northerly line of land of said James C. Oliver a distance of 21.4 feet, more or less, to an iron and the point of beginning. This being a portion (the part situated to the East of the center of Fall Brook) of the premises conveyed by Fred E. Lovejoy to the grantors by deed dated August 2, 1938 and recorded in Cumberland County Registry of Deeds in Book 1556, Page 394.

ALSO a certain lot or parcel of land together with all buildings, structures and improvements thereon, situated in the rear of other land on the easterly side of Auburn Street in said Portland and bounded and described as follows:

BEGINNING at the northeasterly corner of land conveyed by Fred E. Lovejoy to Maurice E. Willey, by deed dated August 2, 1938, recorded in Cumberland County Registry of Deeds, in Book 1556, Page 394, at a point in the line of land now or formerly of Herbert N. Maxfield; thence northerly along the line of said Maxfield to an iron stake which is at a point one hundred sixty-four (164) feet northerly from the northerly line of said land conveyed to said Maurice E. Willey and said line extended easterly in the same direction measured at right angles thereto; thence southwesterly parallel to said northerly line of said land of said Willey and maintaining the distance of one hundred sixty-four feet therefrom measured at right angles thereto to an iron pipe driven in the center line of Fall Brook; thence southerly by the center line of said Fall Brook one hundred ninety (190) feet, more or less, to the northerly line of said land conveyed to said Willey; thence northeasterly by the northerly line of said land of said Willey eight (8) feet, more or less, to an angle in said line; thence northerly by said land of said Willey, twenty-four and sixty-one hundredths (24.61) feet to an iron hub driven at another angle in said line; and thence easterly, making an angle with the last named course of one hundred two degrees twenty-six minutes (102° 26') and along the northerly line of land of said Willey, one thousand sixty-one and fifty-five hundredths (1061.55) feet, more or less, to said land of said Maxfield and the point of beginning; containing four (4) acres, more or less. These premises are the same which were conveyed to the grantors by Joseph E. Willey by deed dated June 18, 1948 and recorded in Cumberland County Registry of Deeds, in Book 1918, Page 211.

ALSO a certain lot or parcel of land together with all buildings, structures and improvements thereon, situated in the rear of other land on the easterly side of Auburn Street in said Portland and bounded and described as follows:

BEGINNING at an iron pipe in the southerly side of land conveyed to Augusta J. Hazlett, et al by said Suburban Homes, Inc., by deed dated April 9, 1942, and recorded in Cumberland County Registry of Deeds, Book 1672, Page 347, which iron pipe is also driven in the center of Fall Brook and is two hundred forty-one and five-tenths (241.5)feet, more or less, from the easterly line of said Auburn Street measured

along said southerly line of said land conveyed to said Augusta J. Hazlett, et al; thence running easterly along the southerly line of said land conveyed to said Augusta J. Hazlett, et al eleven hundred twenty-five (1125) feet, more or less, to a stake in the line of land now or formerly of Herbert N. Maxfield; thence running southerly along the line of land of said Maxfield four hundred (400) feet, more or less, to the northeasterly corner of land conveyed to Joseph E. Willey by said Suburban Homes, Inc., by deed dated April 9, 1942, and recorded in said Registry of Deeds, in Book 1677, Page 313; thence running westerly by the line of said land conveyed to said Joseph E. Willey, one thousand fifty (1050) feet, more or less, to the center line of Fall Brook and the northwesterly corner of said land conveyed to said Joseph E. Willey by said Suburban Homes, Inc.; and thence running northerly by the center line of said Fall Brook, one hundred fifty (150) feet more or less, to the point of beginning; containing six and seven-tenths (6.7) acres of land, more or less. These premises are the same which were conveyed to the grantors by Suburban Homes, Inc., by deed dated December 13, 1943 and recorded in Cumberland County Registry of Deeds in Book 1737, Page 10.

U.S.I.R. $6.60 M.E.W. 3/27/51

TO HAVE AND TO HOLD the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said City of Portland, its successors and assigns, to its and their use and behoof forever.

AND we do COVENANT with the said Grantee, its successors and assigns, that we are lawfully seized in fee of the premises, that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, we the said Maurice E. Willey and Ada E. Willey, husband and wife, have hereunto set our hands and seals this twenty-seventh day of March in the year of our Lord one thousand nine hundred and fifty-one.

Signed, Sealed and Delivered
in presence of

Adelbert L. Miles — Maurice E. Willey — Seal
to both — Ada E. Willey — Seal

STATE OF MAINE CUMBERLAND, SS. March 27th, 1951.

Personally appeared the above named Maurice E. Willey and acknowledged the foregoing instrument to be his free act and deed.

Before me, Adelbert L. Miles Notary Public Notarial Seal

Received March 29, 1951, at 11h 5m A.M.,and recorded according to the original

394

Know all Men by these Presents, That

1556
394

I, Fred E. Lovejoy of New Smyrna in the County of Volusia and State of Florida, formerly of Portland in the County of Cumberland and State of Maine,

in consideration of one ($1.00) dollar and other good and valuable consideration paid by Maurice E. Willey and Ada E. Willey, both of said Portland, as joint tenants and not as tenants in common,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said Maurice E. Willey and Ada E. Willey, to them and their heirs and the survivor of them and the heirs and assigns of the survivor of them forever, a certain lot or parcel of land, situated in Portland on the easterly side of Auburn Street and more particularly bounded and described as follows:

into Willey

See Book 3960 Page 217

Commencing at an iron set in the easterly side of said Auburn Street at the northwesterly corner of land now or formerly of Mary S. Burnham; thence at an angle of one hundred two degrees twenty six minutes (102°26') to Auburn Street and in an easterly direction, along the northerly line of land of said Mary S. Burnham, seven hundred eleven and five hundredths feet (711.05') more or less to a stake; thence at a deflection to the right of six degrees, twenty-one minutes (6°21') five hundred eighty and five hundredths feet (580.05') more or less along the line of land now or formerly of Lyneous J. Smith to an iron set in the westerly line of land now or formerly of Herbert N. Maxfield; thence in a northerly direction and along said line of said Maxfield's land and following a fence and stone wall, one hundred eighty-eight and sixty-two hundredths feet (188.62') to an iron set in said line of said Maxfield's land; thence westerly and at an angle of seventy-eight degrees, twenty minutes (78°20') to said Maxfield land and along the southerly line of land of this grantor, one thousand, sixty-one and fifty-five hundredths feet (1061.55') to an iron; thence southerly and at an angle of one hundred two degrees and twenty-six minutes (102°26') to said last bound, twenty-four and sixty-one hundredths feet (24.61') to an iron, one hundred feet (100') distant from the first mentioned bound; thence westerly and parallel to and one hundred feet (100') from said first mentioned bound, two hundred thirty-three feet (233') to an iron set in the easterly side of Auburn Street; thence southerly by said Auburn Street, one hundred feet (100') to the point of beginning and containing four (4) acres.

U.S.I.R. $1.00 G.M.L. 8/9/38

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said Maurice E.Willey and Ada E.Willey as joint tenants and not as tenants in common, to them and their heirs and assigns and the survivor of them and the heirs and assigns of the survivor of them forever,

~~heirs and assigns~~, to them and their use and behoof forever. And I do covenant with the said Grantees, their heirs and assigns and the survivor of them and the heirs and assigns of the survivor of them forever,

~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances;

that I have good right to sell and convey the same to the said Grantees to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantees, their heirs and assigns and the survivor of them and the heirs and assigns of the survivor of them forever, ~~heirs and assigns forever~~; against the lawful claims and demands of all persons.

In Witness Whereof, I, the said Fred E. Lovejoy and Elizabeth E. Lovejoy, wife of the said Fred E. Lovejoy, joining in this deed as grantor and relinquishing and conveying my right by descent and all other rights in the above described premises

have hereunto set our hand s and seal s this 2nd day of August in the year of our Lord one thousand nine hundred and thirty-eight.

Signed, Sealed and Delivered in presence of

Herbert F. Fuller — Fred E. Lovejoy — Seal

Elizabeth Webb — Elizabeth E. Lovejoy — Seal

State of Florida, Volusia ss

~~State of Maine, Cumberland, ss.~~ August 2, 1938 Personally appeared the above named Fred E. Lovejoy and acknowledged the foregoing instrument to be his free act and deed. Before me Herbert F. Fuller, Notary Public, Notarial Seal Notary Public, State of Florida at Large My commission expired Feb. 24, 1940

Before me,

Received August 10, 1938, at 2 o'clock 25 m. P. M., and recorded according to the original.

125
125

2040
125

Know all Men by these Presents, That

We, Augusta J. Hazlett of Portland, County of Cumberland, State of Maine and Paul S. Hazlett of Oakfield, County of Aroostock, State of Maine, mother and son

in consideration of Six Hundred and no/100 Dollars ($600.00) paid by City of Portland, a municipal corporation and body politic organized under the laws of the State of Maine, situated in the County of Cumberland and State of Maine

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said City of Portland, its successors and assigns, forever, a certain lot or parcel of land together with all buildings, structures and improvements thereon, situated in the rear of other land on the easterly side of Auburn Street in said Portland, and bounded and described as follows:

Beginning at an iron pipe in the center of Fall Brook and the northerly line of land now or formerly of Maurice E. Willey et al, said iron being distant easterly from the easterly street line of Auburn Street, 241.5 feet, more or less; thence making a slight angle to the left and continuing northeasterly on the division line of land between Augusta J. Hazlett et al and now or formerly of Maurice E. Willey et al, a distance of 1125.0 feet, more or less, to a point in the line of land now or formerly of Sidney E. Dee, et al; thence northerly by the division line of land between said Hazlett and said Dee a distance of 165.0 feet to an iron pipe in a stone wall at the northeasterly corner of the land of said Hazlett; thence southwesterly by the division line of land of said Hazlett and land now or formerly of C. Edward Phair and making an included angle through the southwest with southerly direction of the last described course of 77° 53' a distance of 32.26 feet to an iron pipe in a stone wall; thence southwesterly and following the said stone wall and making an included angle through the south with the northeasterly direction of the last described course of 166°04½' a distance of 199.02 feet to an iron pipe in the said stone wall; thence southwesterly and following the said stone wall and wire fence and making an included angle through the south with the northeasterly direction of the last described course of 183° 05' a distance of 267.34 feet to a stake; thence southwesterly and following a wire fence and making an included angle through the south with the northeasterly direction of the last described course of 178° 03½' a distance of 299.01 feet to a 30 inch maple tree; thence southwesterly and following the said wire fence and making an included angle through the south with the northeasterly direction of the last described course of 183° 11½' a distance of 403.11 feet to an iron in the center of Fall Brook; thence southeasterly following the course of the center of said Fall Brook a distance of 180.0 feet, more or less, to an iron in the center of Fall Brook and the point of beginning.

This being a portion (the part situated to the East of the center of Fall Brook) of the premises conveyed to the grantors herein by warranty deed from Suburban Homes, Inc., dated April 9, 1942 and recorded April 21, 1942 in Cumberland County Registry of Deeds, Book 1672, Page 347.

U.S.I.R.
$1.10
A.J.H.
3/27/51

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said City of Portland, its successors and assigns, to its and their use and behoof forever. And we do covenant with the said Grantee, its successors and assigns, ~~heirs and assigns,~~ that we are lawfully seized in fee of the premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we the said Augusta J. Hazlett, a widow, Paul S. Hazlett and Mary E. Hazlett wife of the said Paul S. Hazlett joining in this deed as Grantor, and relinquishing and conveying all right by descent and all other rights in the above described premises,

our hand s and seal s this twenty-seventh day of March have hereunto set in the year of our Lord one thousand nine hundred and fifty-one.

Signed, Sealed and Delivered in presence of

Paul S. Hazlett to A.J.H.	Augusta J. Hazlett	Seal
Vera D. Moseley to P.S.H.	Paul S. Hazlett	Seal
Clair L. Allen	Mary E. Hazlett	Seal

State of Maine, CUMBERLAND, ss. March 27th 1951. Personally appeared the above named Paul S. Hazlett and acknowledged the foregoing instrument to be his free act and deed.

Before me, Vera D. Moseley Notary Public Notarial Seal

Received April 6, 1951, at 10 o'clock 31 m. A. M., and recorded according to the original.

pany, by Albert E. Libby, Trust Officer, have hereunto set our hands and seals this seventeenth day of April A. D. 1942.

Signed, Sealed and Delivered in Presence of

Audrey Osgood-to both

Richard S. Chapman Seal

CASCO BANK & TRUST COMPANY CORPORATE SEAL

into Hazlett

By Albert E. Libby

Its Trust Officer

Executors of the Will of

Annah F. Chapman

State of Maine. Cumberland,ss. April 17, 1942.

Then personally appeared the above named Richard S. Chapman and acknowledged the foregoing instrument to be his free act and deed. -------

Before me, Caspar F. Cowan Justice of the Peace

Received April 21, 1942, at 3h 20m P. M., and recorded according to the original

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Hannaford to New Eng. T. & T. Co.& Permit

For and in consideration of the sum of One dollar to me paid by the New England Telephone and Telegraph Company, a corporation duly organized under the laws of the State of New York, and the Cumberland County Power and Light Company, a corporation duly organized under the laws of the State of Maine, receipt of which is hereby acknowledged, I hereby grant unto said Companies, their respective successors and assigns, the right to place and maintain a distributing pole with the wires and/or cables thereon with the necessary guys, anchors, fixtures, and supports,for the purpose of furnishing telephone and electric company services, upon and over my premises situated on the easterly side of Ocean House Road, so-called, in the Town of Cape Elizabeth, County of Cumberland and State of Maine.

with permission to enter upon my property for all the above purposes.

WITNESS my hand and seal this 13th day of March 1942.

Witnesses:

H. Eugene Rideout

Howard C. Hannaford (Land Owner) Seal

State of Maine. Cumberland,ss. March 13, 1942

Then personally appeared the above named Howard C. Hannaford and acknowledged the foregoing instrument to be his free act and deed.

Before me, H. Eugene Rideout Notary Public, Notarial Seal

My Commission expires 1/27/44

Received April 21, 1942, at 3h 30m P. M., and recorded according to the original

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Suburban Homes, Inc. to Hazlett & War,

KNOW ALL MEN BY THESE PRESENTS, That Suburban Homes, Inc., a Corporation organized and existing under the laws of the State of Maine and located at Portland, in the County of Cumberland and State of Maine, in consideration of one dollar and other valuable consideration, paid by Augusta J. Hazlett and Paul S. Hazlett,mother and son, both of Portland, in the County of Cumberland and State of Maine, the re-

ceipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, unto the said Augusta J. Hazlett and Paul S. Hazlett, as joint tenants and not as tenants in common, and their heirs and assibns, and the survivor of them and the heirs and assigns of the survivor of them, forever,

A certain lot or parcel of land situated on the easterly side of Auburn Street, in said Portland, and bounded and described as follows, namely:

Beginning on the easterly line of said Street at the southwesterly corner of the lot of land conveyed to Alexander A. McIntyre by Fred E. Lovejoy, by deed dated September 16, 1940, recorded in Cumberland County Registry of Deeds, in Book 1619, Page 12; thence southerly by said line of said Auburn Street sixty-five (65) feet to an iron pipe; thence easterly on a line parallel to the southerly line of said land conveyed to Alexander A. McIntyre by Fred E. Lovejoy, two hundred forty-one and five-tenths (241.5) feet, more or less, to an iron pipe driven in the center of Fall Brook; thence turning a slight angle to the left and continuing northeasterly eleven hundred twenty-five (1125) feet, more or less, to a stake in the line of land now or formerly of Herbert N. Maxfield, which stake is at a point one hundred sixty-five (165) feet, measured along the line of land of said Herbert N. Maxfield, southerly from the northeasterly corner of the certain lot or parcel of land conveyed by Fred E. Lovejoy to said Suburban Homes, Inc., by deed dated May 12, 1941, and recorded in said Registry of Deeds, in Book 1639, Page 274; thence northerly along the line of said Maxfield, one hundred sixty-five (165) feet to the northeasterly corner of said land conveyed by said Fred E. Lovejoy to said Suburban Homes, Inc.; thence southwesterly along the line of land formerly of William Jackson and land of one Moody, twelve hundred forty-eight (1248) feet, more or less, to an iron pipe driven in the center of said Fall Brook and the northeasterly corner of said land conveyed by said Fred E. Lovejoy to Alexander A. McIntyre; thence southeasterly following the course of the center of said Brook and the line of said land conveyed to said McIntyre, one hundred ten (110) feet, more or less, to an iron pipe at the southeasterly corner of said land of said McIntyre; and thence westerly along the southerly line of said land of said McIntyre, two hundred (200) feet, more or less, to said Auburn Street and the point of beginning.

Being a portion of the premises conveyed to said Suburban Homes, Inc., by Fred E. Lovejoy by deed dated May 12, 1941 and recorded in said Registry of Deeds, in Book 1639, Page 274.

The portion of said premises lying between said Fall Brook and said Auburn Street is hereby conveyed subject to the following restrictions and limitations, which shall continue in full force and effect for the term of ten years from the first day of April, 1942, namely:-

1. Only one residence shall be erected or maintained on said portion of said premises, which shall cost not less than the sum of twenty-five hundred dollars in addition to the cost of the land.

2. No building or part of building shall be constructed nearer than fifteen

feet to said line of said Auburn Street.

3. No structure for commercial or industrial purposes, and no apartment or flat house, so called, shall be erected or maintained on said portion of said premises.

4. Plans for any structure to be erected or placed on said portion of said premises shall be submitted to said Suburban Homes, Inc., or its architect.

The foregoing restrictions and limitations shall run and enure to the benefit of the grantor, its successors and assigns, and the grantor, its successors or assigns, shall be under no obligation to enforce or to enjoin or restrain any violation thereof.

Said premises are hereby conveyed subject to taxes to the City of Portland for the year 1942, and said Grantees hereby assume and agree to pay said taxes as part of the consideration for this conveyance.

TO HAVE AND TO HOLD the aforegranted and bargained premises with all the privileges and appurtenances thereof, to the said Augusta J. Hazlett and Paul S. Hazlett, as joint tenants and not as tenants in common, and their heirs and assigns and the survivor of them and the heirs and assigns of the survivor of them, to their use and behoof forever. U.S.I.R. $1.10 S.H. 4/9/42

AND the said Grantor Corporation does hereby covenant with the said Grantees, their heirs and assigns, and the survivor of them, and the heirs and assigns of the survivor of them, that it is lawfully seized in fee of the premises, that they are free of all incumbrances; except as aforesaid; that it has good right to sell and convey the same to the said Grantees to hold as aforesaid; and that it and its successors, shall and will warrant and defend the same to the said Grantees, and their heirs and assigns, and the survivor of them and the heirs and assigns of the survivor of them forever, against the lawful claims and demands of all persons, except as aforesaid.

IN WITNESS WHEREOF, the said Suburban Homes, Inc. has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Fred M. Wheelock, its Treasurer, thereunto duly authorized, this ninth day of April, in the year one thousand nine hundred and forty-two.

Signed, Sealed and Delivered in Presence of

SUBURBAN HOMES, INC. CORPORATE SEAL

Clark D. Chapman

By Fred M. Wheelock

Its Treasurer

State of Maine. Cumberland,ss. April 9, 1942.

Personally appeared the above named Fred M. Wheelock, Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation.

Before me, Clark D. Chapman Justice of the Peace

Received April 21, 1942, at 3h 50m P. M., and recorded according to the original

208
208

Know all Men by these Presents, That

2040
208

I, Joseph A. Lucariello of Portland, County of Cumberland, State of Maine

in consideration of Eight Hundred Fifty and no/100 Dollars ($850.00) paid by City of Portland, a municipal corporation and body politic organized under the laws of the State of Maine, situated in the County of Cumberland and State of Maine
the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said

to City

City of Portland, its successors and assigns forever, a certain lot or parcel of land situated on the easterly side of Auburn Street, in said City of Portland, bounded and described as follows:

Beginning at the southeasterly corner of a lot of land conveyed by Cecil C. Davis, et al to Joseph A. Lucariello by deed dated March 6, 1946 and recorded in Cumberland County Registry of Deeds, Book 1808, Page 479; thence westerly along the southerly side line of said lot two hundred seven and eight tenths (207.8) feet to the easterly side line of said Auburn Street; thence northerly along the easterly side line of said Auburn Street eighty-five and eighty-three hundredths (85.83) feet to a point; thence in an easterly direction in a line parallel with the first mentioned course one hundred sixty (160) feet, more or less, to Fall Brook; thence in a southerly direction, following the course of said Fall Brook, to the point of beginning.

Being the southerly portion of the premises conveyed to the Grantor herein by Cecil C. Davis, et al by Warranty Deed dated March 6, 1946 and recorded in Cumberland County Registry of Deeds, Book 1808, page 479. ✓

U.S.I.R. $1.10 J.A.L. 4/11/51

To Have and to Hold the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said City of Portland, its successors and assigns, to its and
their use and behoof forever. And I do covenant with the said Grantee, its successors and assigns,
~~heirs and assigns,~~ that I am lawfully seized in fee of the premises; that they are free of all incumbrances;
that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said
Grantee, its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we the said Joseph A. Lucariello and Olive I. Lucariello wife of the said Joseph A. Lucariello joining in this deed as Grantor, and relinquishing and conveying all our right by descent and all other rights in the above described premises,
our hand s and seals this thirtieth day of March have hereunto set in the year of our Lord one thousand nine hundred and fifty-one.

Signed, Sealed and Delivered in presence of

F. Burley Smith — Joseph A. Lucariello — Seal

to both — Olive I. Lucariello — Seal

State of Maine. CUMBERLAND, ss. March 30th 1951. Personally appeared the above named Joseph A. Lucariello,
and acknowledged the foregoing instrument to be his free act and deed.
Before me, F. Burley Smith Notary Public Notarial Seal.

Received April 13, 1951, at 12 o'clock 1 m. P. M., and recorded according to the original.

a

Doc#: 56169 Bk:29085 Pg: 114

WARRANTY DEED

29085
114

Maine Statutory Short Form

KNOW ALL PERSONS BY THESE PRESENTS, That

e'ly side of Auburn St. n'ly of entrance to School

John C. Charette and Katye E. Thatcher Charette

of 183 Auburn Street, Portland, ME 04103

for consideration paid, grant to **Jason M. MacLeod**

of 91 Wellman Road, Augusta, ME 04330

with **warranty covenants,** as joint tenants the land in City of Portland , County of Cumberland, and State of Maine, described on the attached **EXHIBIT A.**

MAINE REAL ESTATE TAX PAID

WITNESS our/my hand(s) and seal(s) this 28th day of October, 2011.

Signed, Sealed and Delivered in presence of:

John C. Charette

Katye E. Thatcher Charette

STATE OF MAINE October 28, 2011

COUNTY OF Cumberland

Then personally appeared the above named John C. Charette and Katye E. Thatcher Charette and acknowledged the foregoing instrument to be his/her/their free act and deed.

Before me,

Notary Public

Printed Name: KELLY A. PECK

NOTARY PUBLIC, MAINE

My Commission Expires: MY COMMISSION EXPIRES APRIL 2, 2016

Exhibit A

A certain lot or parcel of land, with the buildings thereon, situated on the easterly side of Auburn Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning on said easterly side of Auburn Street, at the northwesterly corner of land conveyed by Joseph A. Lucariello to the City of Portland; thence northerly by said Auburn Street, a distance of eighty-eight and 17/100 (88.17) feet, more or less, to a stake at the northwesterly corner of land conveyed to Joseph A. Lucariello by Cecil C. Davis, et al, by deed dated March 6, 1946, recorded in the Cumberland County Registry of Deeds in Book 1808, Page 479; thence easterly at right angles with the easterly line of Auburn Street to Fall Brook; thence southeasterly by the center line of said Brook to said City land; thence westerly by said City land a distance of one hundred sixty (160) feet, more or less, to said Auburn Street at the point of beginning.

Reference is hereby made to a Warranty Deed from Jonathan R. Doyle and Kathleen M. FitzGerald to John C. Charette and Katye E. Thatcher, nka Katye E. Thatcher Charette, dated June 12, 2003, and recorded June 18, 2003, in Book 19587, Page 139 in the Cumberland County Registry of Deeds.

Received
Recorded Register of Deeds
Nov 01,2011 01:40:34P
Cumberland County
Pamela E. Lovley

92 92

Know all Men by these Presents, That

I, Joseph A. Lucariello, of Portland, in the County of Cumberland and State of Maine

2103
92

in consideration of One Dollar and other valuable considerations paid by Stanley P. Johnson and Lillian E. Johnson of said Portland

the receipt whereof I do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said

Stanley P. Johnson and Lillian E. Johnson as joint tenants and to the survivor of them, their heirs and assigns and the heirs and assigns of the survivor of them forever, the following described property:

e'ly side Auburn Street n'ly of entrance to school

A certain lot or parcel of land, with the buildings thereon, situated on the easterly side of Auburn Street, in said City of Portland, bounded and described as follows: Beginning on said easterly side of Auburn Street at the northwesterly corner of land conveyed by Joseph A. Lucariello to The City of Portland; thence northerly by said Auburn Street eighty-eight and seventeen hundredths (88.17) feet, more or less, to a stake at the northwesterly corner of land conveyed to Joseph A. Lucariello by Cecil C. Davis, et al. by deed dated March 6, 1946 and recorded in Cumberland County Registry of Deeds, Book 1808, Page 479; thence easterly at right angles with the easterly line of Auburn Street to Fall Brook; thence southeasterly by the center line of said Brook to said City land; thence westerly by said City land one hundred sixty (160) feet, more or less, to said Auburn Street at the point of beginning.

Being the northerly part of the premises conveyed to me by Cecil C. Davis, et al, as aforesaid.

The above described property is conveyed subject to the taxes for the year 1952 which the Grantees herein assume and agree to pay.

U.S.I.R.
$7.70
J.A.L.
9/22/52

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Stanley P. Johnson and Lillian E. Johnson, and the survivor of them, their heirs and assigns and the heirs and assigns of the survivor of them, to them and their use and behoof forever. And I do covenant with the said Grantees, and the survivor of them, their Heirs and Assigns, and the heirs and assigns of the survivor of them ~~heirs and assigns~~, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid,

that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantees, and the survivor of them their Heirs and Assigns and the heirs and assigns of the survivor of them ~~heirs and assigns~~ forever, against the lawful claims and demands of all persons. except as aforesaid.

In Witness Whereof, I the said Joseph A. Lucariello and Olive I. Lucariello wife of the said Joseph A. Lucariello joining in this deed as Grantor, and relinquishing and conveying her rights by descent and all other rights in the above described premises,

our hands and seals this twenty-second day of September have hereunto set in the year of our Lord one thousand nine hundred and fifty-two.

Signed, Sealed and Delivered in presence of

D. W. Philbrick — Joseph A. Lucariello — Seal

S. W. Hughes — Olive I. Lucariello — Seal

State of Maine. CUMBERLAND, ss. September 22, 1952. Personally appeared the above named Joseph A. Lucariello and acknowledged the above instrument to be his free act and deed.

Before me, Donald W. Philbrick Justice of the Peace.

Received September 22 1952, at 1 o'clock 20 m. P.M., and recorded according to the original.

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Know all Men by these Presents, That

479

1808
472

We, Cecil C. Davis and Alice R. Davis, both of Portland, in the County of Cumberland and State of Maine,

in consideration of one dollar and other valuable considerations paid by Joseph A. Lucariello, of said Portland,

the receipt whereof we do hereby acknowledge, do hereby, give, grant, bargain, sell and convey unto the said Joseph A. Lucariello, his heirs andassigns forever, the following described property:

into Lucariello

A certain lot or parcel of land with the buildings thereon, situated on the easterly side of Auburn Street in said City of Portland, bounded and described as follows: Beginning on said easterly side of Auburn Street at the northwesterly corner of land conveyed by Fred E. Lovejoy to Suburban Homes, Inc., and later of one Hazlett; thence northerly by said line of Auburn Street one hundred seventy-four (174) feet to a stake; thence easterly at right angles with said line of Auburn Street to Fall Brook; thence southeasterly by the center line of said Brook to said Hazlett land; thence westerly by said Hazlett land two hundred (200) feet, more or less, to said Auburn Street at the point of beginning.

Being the same premises conveyed to us by Alexander A. McIntyre et al by deed dated May 13, 1943 and recorded in Cumberland County Registry of Deeds, Book 1715, Page 41.

U.S.I.R. $4.40 C.C.D. 3/6/46

To Have and to Hold the aforegranted and bargained premises, with all ~~the~~ privileges and appurtenances thereof, to the said Joseph A. Lucariello his heirs and assigns, to his and their use and behoof forever. And we do covenant with the said Grantee, his heirs and assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, his heirs and assigns forever, against the lawful claims and demands of all persons.

In Witness Whereof, we, the said Cecil C. Davis and Alice R. Davis, being husband and wife, each joining in this deed as Grantor, and each relinquishing and conveying our respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this sixth day of March in the year of our Lord one thousand nine hundred and forty-six.

Signed, Sealed and Delivered in presence of

D. W. Philbrick — Alice R. Davis — Seal

to both — Cecil C. Davis — Seal

State of Maine, CUMBERLAND, ss. March 6, 1946 Personally appeared the above named Cecil C. Davis and Alice R. Davis and acknowledged the above instrument to be their free act and deed.

Before me, Donald W. Philbrick Justice of the Peace

Received March 6, 1946, at 11 o'clock 50 m. A. M., and recorded according to the original.

57 57 2041/57 City

his said capacity and the free act and deed of said Bank.

Before me, F. Burley Smith

Notary Public Notarial Seal

Received April 6, 1951, at 10h 30m A. M., and recorded according to the original

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KNOW ALL MEN BY THESE PRESENTS, That We, Sidney E. Dee and Esther M. Dee, both of Portland, in the County of Cumberland and State of Maine in consideration of One Dollar and other valuable considerations paid by CITY OF PORTLAND, a municipal corporation and body politic organized under the laws of the State of Maine and having its principal offices in said Portland the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said CITY OF PORTLAND, its Successors and Assigns forever, the following described property: Dee & to Portland City of War.

A certain lot or parcel of land, situated in said City of Portland, bounded and described as follows: Beginning at an iron in a stone wall in the division line between land of Sidney E. Dee, et al. and land now or formerly of Elizabeth B.Smith, said point being distant northwesterly along said division line seven hundred thirty-six and ninety-four hundredths (736.94) feet from its intersection with the northwesterly side line of Allen Avenue; thence northwesterly by the stone wall and by land now or formerly of Thomas R. Perham, et al. a distance of one hundred thirty-two and thirty hundredths (132.30) feet to an iron; thence northwesterly by the stone wall and wire fence and by land now or formerly of Charles E. Phair, et al and making an included angle through the West of 179° 56' with the southerly direction of the last described course a distance of six hundred thirty-three and forty-one hundredths (633.41) feet to an iron in a stone wall;thence northwesterly and making an included angle through the West of 110° 42' with the southerly direction of the last described course a distance of one hundred twenty-one and seventy-six hundredths (121.76) feet to an iron; thence southwesterly and making an included angle through the East of 90° 33' and by land now or formerly of Augusta J. Hazlett, et al. and land now or formerly of Maurice E. Willey a distance of nine hundred two and fifty-two hundredths (902.52) feet to an iron in a stone wall and to other land of Sidney E. Dee, et al.; thence northeasterly by land of Sidney E. Dee, et al. and making an included angle through the North of 64° 30' a distance of four hundred forty-two (442) feet, more or less, to the point of beginning.

Again beginning at the first mentioned point in the division line between land of Sidney E. Dee, et al. and land now or formerly of Elizabeth B. Smith; thence southeasterly by said division line a distance of seven hundred thirty-six and ninety-four hundredths (736.94) feet to its intersection with the northwesterly side line of Allen Avenue; thence southwesterly by the said northwesterly side line of Allen Avenue a distance of seventy-three and sixty-one hundredths (73.61) feet to a point; thence northwesterly on a line parallel with and seventy (70) feet distant at right angles with the said division line between land of Sidney E. Dee,et al. and

land now or formerly of Elizabeth B. Smith a distance of seven hundred fifty-four and forty-three hundredths (754.43) feet, more or less, to a point in the most southerly boundary line of the first described parcel; thence easterly by the said southerly boundary line of the first described parcel seventy and twenty hundredths (70.20) feet, more or less, to the point of beginning.

Meaning and intending hereby to convey the northerly portion, containing about five (5) acres, of the land conveyed by Mace B. Lufkin, et al. to Sidney E. Dee, et al. August 17, 1945 and recorded in Cumberland County Registry of Deeds, in Book 1789, Page 286, together with a strip of land seventy (70) feet wide extending from Allen Avenue to the first parcel mentioned.

This conveyance is made subject to taxes for 1951 which the Grantee assumes and agrees to pay.

U.S.I.R. $1.65 S.E.D. & 3-30-51

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said CITY OF PORTLAND, its Successors and Assigns, to its and their use and behoof forever.

AND we do covenant with the said Grantee, its Successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; except as aforesaid; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our heirs, shall and will warrant and defend the same to the said Grantee, its Successors and Assigns forever, against the lawful claims and demands of all persons, except as aforesaid.

IN WITNESS WHEREOF, we, the said Sidney E. Dee and Esther M. Dee, being husband and wife, joining in this deed as Grantors, and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 30th day of March in the year of our Lord one thousand nine hundred and fifty-one.

Signed, Sealed and Delivered in Presence of

Patricia E. Meally to both — Sidney E. Dee Seal

Esther M. Dee Seal

STATE OF MAINE

Cumberland, ss. Mar. 30, 1951.

Personally appeared the above named Sidney E. Dee and acknowledged the above instrument to be his free act and deed.

Before me, Patricia E. Meally

Notary Public Notarial Seal

Received April 6, 1951, at 10h 31m A. M., and recorded according to the original =

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PWD

Know all Men by these Presents, That

City of Portland a public municipal Corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine

in consideration of One Dollar ($1.00) and other valuable considerations paid by Portland Water District, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said Portland Water District, its successors and assigns forever,
The right perpetually to enter at any and all times upon a strip of land situated in said Portland being part of the land conveyed to the grantor by Sidney E. Dee, et al., by deed dated March 30, 1951 and recorded in Cumberland County Registry of Deeds in Book 2041, Page 57, to which deed reference is hereby made for a more particular description of said land, said strip being twenty-five (25) feet in width and bounded and described as follows:
Beginning at a point in the dividing line between said land conveyed to the grantor by Sidney E. Dee, et al., and other land of the said Sidney E. Dee, et al., said point being distant northerly along said dividing line eighty-three and 09/100ths (83.09) feet from the northerly sideline of Allen Avenue; thence S. 49° 15'E., eighty-two and 25/100ths (82.25) feet, more or less, to said Allen Avenue; thence easterly by said Allen Avenue, twenty-five and 08/100ths (25.08) feet, more or less, to land now or formerly of one Smith; thence northerly by said Smith's land one and 6/10ths (1.6) feet, more or less, to a point; thence N. 49° 15' W. parallel to and distant twenty-five (25) feet from said first described course one hundred twenty-four and 75/100ths (124.75) feet, more or less, to said other land of Sidney E. Dee, et al.; thence Southerly by said Dee's land forty-four and 55/100ths (44.55) feet, more or less, to the point of beginning.
The above described courses are magnetic and as the year 1950.
And to construct and perpetually maintain through and under said strip conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes through or under said strip with all necessary fixtures and appurtenances, together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strip by means of pipes or services, and to enter upon said strip at any and all times for any of the foregoing purposes; reserving to the grantor, its successors and assigns, the full use and enjoyment of said strip for such purposes as will in no way interfere with the perpetual use thereof by the grantee, its successors and assigns for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strip by the grantor, its successors and assigns, and that the grantor, its successors and assigns, shall not remove earth from said strip or place fill thereon without the written premission of the grantee.

To Have and to Hold the same, together with all the privileges and appurtenances thereunto belonging, to it the said Portland Water District, its successors and assigns, and Assigns forever.

And the said Grantor Corporation does covenant with the said Portland Water District, its successors and Assigns, that it will warrant and Forever Defend the premises to it the said Grantee, its successors and assigns, forever
~~heirs and assigns, that~~ ~~will warrant and~~ ~~defend the premises to~~ ~~the said~~

~~heirs and assigns forever~~, against the lawful claims and demands of all persons claiming by, through or under it.

In Witness Whereof, the said City of Portland has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Leon W. Kelber its Treasurer thereunto duly authorized,

~~have hereunto set hand and seal~~ this 5th day of February in the ~~year of our Lord~~ one thousand nine hundred and fifty-four.

Signed, Sealed and Delivered in presence of

CITY OF PORTLAND
CORPORATE SEAL

Barnett I. Shur

By Leon W. Kelber
City Treasurer

State of Maine, CUMBERLAND, ss. February 5th, 1954. Personally appeared the above named Leon W. Kelber, Treasurer of said Grantor Corporation as aforesaid, and acknowledged the ~~foregoing~~ instrument to be ~~his~~ free act and deed, in his said capacity, and the free act and deed of said corporation. Before me, Barnett I. Shur Justice of the Peace.

Received February 11 1954, at 11 o'clock 15 m. A. M., and recorded according to the original.

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Willey &
To
Portland
Water
Distr
War

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PWD

KNOW ALL MEN BY THESE PRESENTS, THAT We, MAURICE E. WILLEY and ADA E. WILLEY, both of Portland in the County of Cumberland and State of Maine in consideration of One Dollar ($1.00) and other valuable considerations paid by PORTLAND WATER DISTRICT, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said PORTLAND WATER DISTRICT, its successors and Assigns forever, the right perpetually to enter at any and all times upon a strip of land situated on the Easterly side of Auburn Street in said Portland, being a part of the land conveyed to the grantors by Fred E. Lovejoy by deed dated August 2, 1938, recorded in Cumberland County Registry of Deeds in Book 1556, Page 394, to which deed reference is hereby made for a more particular description of said land, said strip being twenty-five (25) feet in width and more particularly bounded and described as follows, viz.: Beginning in the Easterly side line of said Auburn Street at the Southwesterly corner of said land conveyed to the grantors by Fred E. Lovejoy; thence in an Easterly direction along the dividing line between said grantors' land and land of James C. Oliver, two hundred twenty-four and nine tenths (224.9) feet, more or less, to land conveyed by the grantors to the City of Portland by deed dated March 27, 1951, recorded in said Cumberland County Registry of Deeds in Book 2037, Page 429; thence in a Northerly direction along the dividing line between said land of the grantors and said land of the City of Portland twenty-five (25) feet to a point; thence in a Westerly direction parallel to and twenty-five (25) feet distant from said first described course, two hundred twenty-four and nine tenths (224.9) feet, more or less, to said Easterly side line of Auburn Street; thence in a Southerly direction along said Easterly side line of Auburn Street, twenty-five (25) feet to the point of beginning.

And to construct and perpetually maintain through and across said strip conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes upon or under said strip with all necessary fixtures and appurtenances together with the right at all times to made connections with said conduits or pipe lines to land adjoining said strip by means of pipes or services; to trim, cut down and remove bushes and trees and to remove grass and crops growing on said strip to such extent as in the judgment of the grantee is necessary for any of the above purposes and to enter upon said strip at any and all times for any of the foregoing purposes; reserving to the grantors, their heirs and assigns, the use and enjoyment of said strip for such purposes only as will in no way interfere with the perpetual use thereof by the grantee, its successors and assigns, for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strip by the grantors, their heirs and assigns, and that the grantors,

their heirs and assigns, shall not remove earth from said strip or place fill thereon without the written permission of the grantee.

Together with the right, insofar as the grantors have the right to convey the same, perpetually to enter at any and all times for any of the foregoing purposes upon that portion of said Auburn Street adjacent to the above-described premises.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said PORTLAND WATER DISTRICT, its successors and Assigns, to its and their use and behoof forever.

U.S.I.R. $0.55 M.E.W. 12/2/53

AND we do COVENANT with the said Grantee, its successors and Assigns, that we are lawfully seized in fee of the premises; that they are free of all incumbrances; that we have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that we and our Heirs, shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, We the said MAURICE E. WILLEY and ADA E. WILLEY, being husband and wife, each joining in this deed as grantor and each relinquishing and conveying our respective rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 2nd day of December in the year of our Lord one thousand nine hundred and fifty-three.

SIGNED, SEALED AND DELIVERED
IN PRESENCE OF

Edward J. Norris — Ada E. Willey Seal

to both — Maurice E. Willey Seal

STATE OF MAINE

Cumberland ss. December 2, 1953.

Personally appeared the above named Maurice E. Willey and acknowledged the above instrument to be his free act and deed.

Before me, Edward J. Norris Justice of the Peace Notary Public
Notarial Seal My Commission Expires June 29, 1960

a o Received December 21, 1953 at 2h. 50m. P.M. and recorded according to the original

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KNOW ALL MEN BY THESE PRESENTS THAT FEDERAL LOAN AND BUILDING ASSOCIATION a Corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine in consideration of One Dollar ($1.00) and other valuable considerations paid by PORTLAND WATER DISTRICT, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever

Fed Ln & Bldg Assn To Portland Water Distr Q C

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PWD

Florence H. Bailey Seal
Dorothy H. Hutchins Seal
Hazen A. Stuart Seal
Phillis D. Stuart Seal

State of Maine,)
Cumberland) ss. December 21, 1953.

Personally appeared the above named Clyde E. Bailey_ and acknowledged the above instrument to be his free act and deed.

Before me, Edward J. Norris Notary Public Notarial Seal My Commission Expires June 29, 1960.

Received January 25, 1954 at 3h.20m. P.M., and recorded according to the original. m

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Dee & to Portland Water District War.

KNOW ALL MEN BY THESE PRESENTS, THAT We, Sidney E. Dee and Esther M. Dee, both of Portland, in the County of Cumberland and State of Maine in consideration of One Dollar ($1.00) and other valuable considerations paid by PORTLAND WATER DISTRICT, a corporation duly organized and existing under the laws of the State of Maine and located at Portland, in the County of Cumberland and State of Maine the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said PORTLAND WATER DISTRICT, its successors and Assigns forever,

The right perpetually to enter at any and all times upon two certain strips of land situated in said Portland, being part of the land conveyed to the Grantors by Mace B. Lufkin, et al. by deed dated August 17, 1945 and recorded in Cumberland County Registry of Deeds in Book 1789, Page 286, to which deed reference is hereby made for a more particular description of said land, the first of said strips being thirty (30) feet in width and lying equally on either side of the following described center line, namely, fifteen (15) feet in width on either side of said center line and its projection at both ends:

Beginning at a point in the dividing line between land of the Grantors and land of the City of Portland, said point being twenty-two and ninety-three hundredths (22.93) feet North 52° 28' East along said dividing line from the Northwesterly corner of said land of the Grantors; thence North 89° 47' East three hundred ninety-eight and ninety-six hundredths (398.96) feet, more or less, to a stake set in the ground at a point distant ten (10) feet Southwesterly from the dividing line between said land of the Grantors and other land of said City of Portland;

And the second of said strips being fifteen (15) feet in width and lying ten (10) feet on the Northeasterly side and five (5) feet on the Southwesterly side of the following described center line and its projection at both ends:

Beginning at the above-described stake distant ten (10) feet Southwesterly from the dividing line between land of the Grantors and land of the City of Portland; thence South 33° 12' East parallel to and distant ten (10) feet from said dividing line between land of the Grantors and land of the City of Portland four hundred (400)

et, more or less, to a point: thence South 67° 20' East seventeen and eighty-five hundredths (17.85) feet, more or less, to a point in said dividing line between land of the Grantors and land of the City of Portland, said point being ninety-two and fifty-two hundredths (92.52) feet Northwesterly along said dividing line from the Northwesterly side line of Allen Avenue.

The above-described courses are true courses and are referred to the true meridian.

And to construct and perpetually maintain through and across said strips conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes upon or under said strips with all necessary fixtures and appurtenances together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strips by means of pipes or services: to trim, cut down and remove bushes and trees and to remove grass and crops growing on said strips to such extent as in the judgment of the Grantee is necessary for any of the above purposes and to enter upon said strips at any and all times for any of the foregoing purposes; reserving to the Grantors, their heirs and assigns, the use and enjoyment of said strips for such purposes only as will in no way interfere with the perpetual use thereof by the Grantee, its successors and assigns for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strips by the Grantors, their heirs and assigns, and that the Grantors, their heirs and assigns, shall not remove earth from said strips or place fill thereon without the written permission of the Grantee.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said PORTLAND WATER DISTRICT, its successors and Assigns, to its and their use and behoof forever. U.S.I.R. $1.10 S.E.D. 1-15-54

AND we do COVENANT with the said Grantee, its successors and Assigns, that we are lawfully seized in fee of the premises: that they are free of all incumbrances: that we have good right to sell and convey the same to the said Grantee to hold as aforesaid: and that we and our Heirs, shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, we, the said Sidney E. Dee and Esther M. Dee, being husband and wife, joining in this deed as Grantors. and relinquishing and conveying our rights by descent and all other rights in the above described premises, have hereunto set our hands and seals this 15th day of January in the year of our Lord one thousand nine hundred and fifty-four.

Signed, Sealed and Delivered

in presence of

Edward J. Morris — Sidney E. Dee — Seal

to both — Esther M. Dee — Seal

State of Maine, Cumberland ss. January 15, 1954

Personally appeared the above named Sidney E. Dee and Esther M. Dee and acknowl-

edged the above instrument to be their free act and deed.

Before me, Edward J. Norris Notary Public Notarial Seal. My Commission Expires June 29, 1960.

Received January 25, 1954 at 3h.20m. P.M., and recorded according to the original.

Pg. 3

PWD cont.

Cole & to Portland Water District War.

KNOW ALL MEN BY THESE PRESENTS, THAT We, Clarence S. Cole and Mildred H. Cole, both of Falmouth in the County of Cumberland and State of Maine in consideration of One Dollar ($1.00) and other valuable considerations paid by PORTLAND WATER DISTRICT, a corporation duly organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine the receipt whereof we do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said PORTLAND WATER DISTRICT, its successors and Assigns forever,

The right perpetually to enter at any and all times upon a strip of land situated in said Falmouth on the Northwesterly side of the Middle Road, so-called, being part of the land conveyed to the grantors by Morris H. Dickinson by deed dated March 26, 1953, and recorded in Cumberland County Registry of Deeds in Book 2123, Page 270, to which deed reference is hereby made for a more particular description of said land, said strip being bounded and described as follows:

Beginning on the Northwesterly side of said Middle Road at the Easterly corner of said land of the grantors and the Southerly corner of land of Belle B. Whipple; thence N. 73° 38' W. by said Whipple land, two hundred ninety-eight (298) feet, more or less, to the Southwesterly corner of said Whipple land; thence continuing on the same course N. 73° 38' W., one hundred sixty-seven and 15/100ths (167.15) feet, more or less, to a stake set in the ground: thence S. 48° 04' W., two hundred thirty-nine (239) feet, more or less, to the brook and land of Herbert F. Pillsbury; thence Southeasterly along said brook and by said Pillsbury land, thirty (30) feet, more or less, to a point; thence N. 48° 04' E. parallel to and distant thirty (30) feet from the aforesaid course of S. 48° 04' W. one hundred ninety-nine (199) feet, more or less, to a stake; thence S. 73° 38' E. parallel to and distant fifty (50) feet from the aforesaid course of N. 73° 38' W. four hundred forty-four (444) feet, more or less, to said Middle Road; thence Northeasterly by said Middle Road, fifty-two and 6/10ths (52.6) feet, more or less, to the point of beginning. Containing 29,300 square feet, more or less.

The above described courses are true courses and are referred to the true meridian.

And to construct and perpetually maintain through and across said strip conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes upon or under said strip with all necessary fixtures and appurtenances together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strip by means of pipes or services; to trim, cut down and remove bushes and trees and to remove grass and crops growing on said strip to such extent as in the judgment of the grantee is necessary for any of the above pur-

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PWD

STATE OF MAINE

ANDROSCOGGIN, SS. Lewiston, Maine

February 5, 1954

Personally appeared the above named CARL L. CURTIS, and acknowledged the foregoing instrument to be his free act and deed.

Before me, Anne E. Daunis Notary Public Notarial Seal

STATE OF MAINE

ANDROSCOGGIN, SS. Lewiston, Maine

February 5, 1954

Personally appeared the above named GEORGE A. FOGG, President of said Truck Leasing Corporation, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said Corporation.

Before me, Anne E. Daunis Notary Public Notarial Seal

Received February 8, 1954 at 4h. 55m. P.M. and recorded according to the original a

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Portland City of To Portland Water Distr

Q C

KNOW ALL MEN BY THESE PRESENTS THAT City of Portland, a public municipal corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine in consideration of One Dollar and other valuable considerations paid by Portland Water District, a corporation duly organized and existing under the laws of the State of Maine, and located at Portland, in the County of Cumberland and State of Maine the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said PORTLAND WATER DISTRICT, its successors and assigns forever, the right perpetually to enter at any and all times upon a certain strip of land situated in said Portland, being part of the land conveyed to the Grantor by Maurice E. Willey, et al., by deed dated March 27, 1951 and recorded in Cumberland County Registry of Deeds, in Book 2037, Page 429, to which deed reference is hereby made for a more particular description of said land, said strip being twenty-five (25) feet in width and bounded and described as follows:

Beginning at the southwesterly corner of said land conveyed to the Grantor by Maurice E. Willey, et al.; thence along the southerly line of said land conveyed to the Grantor by Maurice E. Willey, et al., on the following courses: North 85° 22 1/2' East twenty-one and four tenths (21.4) feet, more or less, to an iron pipe, thence North 84° 07' East three hundred fifty-five and thirty-two hundredths (355.32) feet, more or less, to an iron pipe, thence North 85° 25 1/2' East one hundred nine and thirty-eight hundredths (109.38) feet, more or less, to an iron pipe, thence South 89° 15' East one hundred fourteen and fifteen hundredths (114.15) feet, more or less, to an iron pipe, thence South 88° 18' East four hundred sixty-six and twelve hundredths (466.12)

feet, more or less, to an iron pipe and land of Sidney E. Dee, et al.; thence by said Dee's land North 70° 34' East sixty-nine and twenty-nine hundredths (69.29) feet, more or less, to a point; thence in a westerly direction, parallel to and distant twenty-five (25) feet from the aforesaid southerly line of said land conveyed by Maurice E. Willey, et al. to the Grantor, and its projection at both ends, on various courses to a stake set in the westerly line of said land conveyed to the Grantor by Maurice E. Willey, et al.; thence in a southerly direction by other land of said Willey twenty-five (25) feet, more or less, to the point of beginning.

The above-described courses are magnetic and as of the year 1950.

And to construct and perpetually maintain through and under said strip, conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes through or under said strip, with all necessary fixtures and appurtenances, together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strip by means of pipes or services, and to enter upon said strip at any and all times for any of the foregoing purposes; reserving to the Grantor, its successors and assigns, the full use and enjoyment of said strip for such purposes as will in no way interfere with the perpetual use thereof by the Grantee, its successors and assigns, for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strip by the Grantor, its successors or assigns, and that the Grantor, its successors and assigns, shall not remove earth from said strip or place fill thereon without the written permission of the Grantee.

TO HAVE AND TO HOLD the same, together with all the privileges and appurtenances thereunto belonging, to the said PORTLAND WATER DISTRICT, its successors and Assigns forever. AND the said Grantor Corporation does COVENANT with the said PORTLAND WATER DISTRICT, its successors and Assigns, that it will WARRANT and FOREVER DEFEND the premises to the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

IN WITNESS WHEREOF, the said City of Portland, has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Leon W. Kelber, its Treasurer thereunto duly authorized, this 5th day of February in the year one thousand nine hundred and fifty-four.

SIGNED, SEALED AND DELIVERED
IN PRESENCE OF

Barnett I. Shur

CITY OF PORTLAND CORPORATE SEAL
By Leon W. Kelber
City Treasurer

State of Maine,)
Cumberland) ss.

February 5th, 1954

Personally appeared the above named Leon W. Kelber Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and

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deed in his said capacity, and the free act and deed of said corporation.

Before me, Barnett I. Shur Justice of the Peace.

Received February 11, 1954 at 11h. 15m. A.M. and recorded according to the original a

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Pine State Ln & Bldg Assn

To

Peterson

Disch

KNOW ALL MEN BY THESE PRESENTS, THAT PINE STATE LOAN AND BUILDING ASSOCIATION, a corporation organized and existing according to law and having its place of business at Portland, County of Cumberland and State of Maine, mortgagee & owner of a certain mortgage given by Hilda E. Peterson of Westbrook, County of Cumberland and State of Maine, to PINE STATE LOAN AND BUILDING ASSOCIATION dated March 16, A. D. 1949, and recorded in Cumberland County Registry of Deeds, Book 1948, Page 58, does hereby acknowledge that it has received full payment and satisfaction of the same and of the debt thereby secured, and in consideration thereof it does hereby cancel and discharge said mortgage, and release unto the said Hilda E. Peterson, her heirs and assigns forever the premises therein described.

IN WITNESS WHEREOF, the said PINE STATE LOAN AND BUILDING ASSOCIATION has caused this instrument to be signed in its corporate name and sealed with its corporate seal by Edward B. Perry, its Treasurer, thereunto duly authorized this eleventh day of February in the year one thousand nine hundred and fifty-four.

SIGNED, SEALED AND DELIVERED

IN PRESENCE OF

PINE STATE LOAN AND BUILDING ASSOCIATION
CORPORATE SEAL

Martha E. Downs

By Edward B. Perry
Treasurer

State of Maine

Cumberland ss February 11, 1954.

Personally appeared the above named Edward B. Perry, Treasurer of said Corporation aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said Corporation.

Before me, Martha E. Downs Notary Public Notarial Seal

Received February 11, 1954 at 4h. 10m. P.M. and recorded according to the original a

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Bruns Sav Instn

To

Pearce & Disch

Brunswick, Maine
Date: Feb. 15, 1954

The debt secured by the within mortgage having been paid in full, this mortgage is hereby discharged, and the real estate therein described is released to the within mortgagor, he (his) heirs and assigns forever.

IN WITNESS WHEREOF, the said BRUNSWICK SAVINGS INSTITUTION has caused this instrument to be signed in its corporate name and its corporate seal to be hereto attached by F. Burton Whitman, Jr. its Assistant Treasurer, thereunto duly authorized, the day and year first above written.

IN THE PRESENCE OF: BRUNSWICK SAVINGS INSTITUTION CORPORATE SEAL
Elizabeth S. Powers By: F. Burton Whitman Jr. Ass't. Treas.

Cumberland, ss. STATE OF MAINE Dated: Feb. 15, 1954

Personally appeared the above named F. Burton Whitman, Jr. as Assistant Treasurer of said BRUNSWICK SAVINGS INSTITUTION, and acknowledged the foregoing instrument to be the free act and deed of said corporation and his free act and deed in his said capacity.

Before me, Elizabeth S. Powers Notary Public Notarial Seal

Received February 17, 1954 at 9h. A.M. and recorded according to the original

Endorsed on Mortgage Deed as recorded in Book 2082, Page 131 a

Section 6: Compliance with Applicable Zoning Requirements

6.0 Existing Zones

The proposed site exists within a R-2 Zone for the parking, building, and vehicle circulation portions of the project. The site is zoned R-OS for the existing athletic fields locations, and a portion of the proposed parking areas. A Stream Protection Overlay Zone (S-P) exists within and adjacent to the Fall Brook corridor, at the west of the site. The site abuts the R-2 Zone to the north and east, and the R3 Zone to the south and west.

Compliance within these zones is indicated below:

R-OS:

Use: Athletics fields are a permitted use in this zone.

Screening: Screening shall be adequately provided when abutting residential areas. It is understood that the parking lot near the basketball courts is within the R-OS zone. No substantial modifications to the existing site are occurring within 50’ of the property boundary for the R-OS zone modifications, and as such we do not anticipate additional screening around the existing athletics fields for the parking and circulation upgrades that are occurring closer to the schools. While not required for screening, trees are proposed along the eastern edge of this parking lot, and a fence is proposed along the basketball court.

Parking: Parking shall be required by Division 20. Whereas parking is required to adequately suit the property, a 2016 e-mail (attached) from Planning has indicated that this use would be considered approved as part of the proposed improvements, as long as parking improvements were substantial enough to incorporate the intent of the Division 20 parking requirements for athletics fields.

Maximum Lot Coverage: Max 25%. No additional buildings are proposed das part of this project.

R-2:

Use: Parks and other active and passive non-commercial recreation spaces are permitted. Municipal uses permitted; schools are conditionally permitted. Whereas the proposed uses are

an improvement upon the existing uses, it is anticipated that there would not be any zoning concerns in this location.

Maximum lot coverage: 20%. No additional buildings are to be constructed.

Screening: Screening shall be adequately provided when abutting residential areas. While informal parking does exist near the northern side of the Middle School, there is currently no screening in this location. A 4’ stockade fence has been provided as screening for other properties abutting the northern parcel line, and the proposed project includes for extending this fence along the proposed formal parking area, at a location along the existing edge of plantings.

ATTACHMENT 6.1

CONVERSATION WITH CITY PLANNING

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

Kathleen O. Sculley

From: Christina Stacey <cstacey@portlandmaine.gov>
Sent: Friday, January 08, 2016 8:15 AM
To: Jennifer Claster
Cc: Barbara Barhydt
Subject: Lyseth - Moore Parking Expansion
Attachments: 20160108075343495.pdf

Hi Jennifer,

Per our discussion on Wednesday, I was able to speak with Ann Machado (zoning administrator) about the parking expansion in the R-OS zone at the Lyseth - Moore school. I am attaching a scan of the off-street parking requirements for the R-OS zone - see item c at the top of the document. It says that parking is allowed in the R-OS zone if it is needed to serve park employees and visitors. If the parking lot expansion can comply with this provision, then Ann thinks the project will be OK under zoning without having to worry about amending the zone boundaries.

Let me know if you have any questions.

Yours,
Chris

Christina Stacey
Zoning Specialist - Inspections Division
City of Portland
389 Congress St.
Portland, ME 04101
(207) 874-8695
cstacey@portlandmaine.gov
>>> <InspectionsCopier@portlandmaine.gov> 1/8/2016 7:53 AM >>>
This E-mail was sent from "RNP1E5ADC" (Aficio MP 4000B).

Scan Date: 01.08.2016 07:53:43 (-0500)
Queries to: InspectionsCopier@portlandmaine.gov

transportation.

(c) *Recreation open space zone:* Off-street parking adequate to serve projected employee and visitor needs shall be provided. Parking needs projections provided by the applicant or the planning department should be considered in the review.

(d) *Change of use in the B-2b zone:*

1. A change of use of 10,000 sq. ft. or less of floor area of a building or a portion of a building need not provide parking for non-residential uses, provided that if the number of existing parking spaces serving the site is less than the requirements of this division, that number of parking spaces may not be reduced lower than the required amount prior to the change of use except:

   a. To the extent necessary to meet the requirements of the Americans with Disability Act; or

   b. To the extent it is a requirement or a condition of site plan review; or

   c. To the extent the change of use requires less parking than the previous use and the total number of parking spaces serving the site exceeds the parking requirements of this division for all uses on the site including the change of use.

2. A newly constructed building, a building addition or a change of the use of a building exceeding 10,000 sq. ft. of floor area, shall provide the parking required by this division.

(e) *B-3 Zone*: No off-street parking is required for changes of use.

(f) *I-R1, Island Business Zone:* Off-street parking shall be required at twenty-five (25%) percent of the required number of parking spaces for specified uses as provided in division 20 (off-street parking) of this article, except that residential uses shall meet the full parking requirement.

Section 7: Summary of Existing Easements and Covenants

7.0 Existing Easements

Existing easements are identified on the Boundary Survey Plan provided as part of this submission. The easements are attached as follows:

7.1: Portland Water District easement, southern portion of the project.

ATTACHMENT 7.1

PORTLAND WATER DISTRICT EASEMENT

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

STATE OF MAINE

ANDROSCOGGIN, SS. Lewiston, Maine

February 5, 1954

Personally appeared the above named CARL L. CURTIS, and acknowledged the foregoing instrument to be his free act and deed.

Before me, Anne E. Daunis Notary Public Notarial Seal

STATE OF MAINE

ANDROSCOGGIN, SS. Lewiston, Maine

February 5, 1954

Personally appeared the above named GEORGE A. FOGG, President of said Truck Leasing Corporation, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said Corporation.

Before me, Anne E. Daunis Notary Public Notarial Seal

Received February 8, 1954 at 4h. 55m. P.M. and recorded according to the original a

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Portland
City of
To
Portland
Water
Distr

Q C

KNOW ALL MEN BY THESE PRESENTS THAT City of Portland, a public municipal corporation organized and existing under the laws of the State of Maine and located at Portland in the County of Cumberland and State of Maine in consideration of One Dollar and other valuable considerations paid by Portland Water District, a corporation duly organized and existing under the laws of the State of Maine, and located at Portland, in the County of Cumberland and State of Maine the receipt whereof it does hereby acknowledge, does hereby remise, release, bargain, sell and convey, and forever quit-claim unto the said PORTLAND WATER DISTRICT, its successors and assigns forever, the right perpetually to enter at any and all times upon a certain strip of land situated in said Portland, being part of the land conveyed to the Grantor by Maurice E. Willey, et al., by deed dated March 27, 1951 and recorded in Cumberland County Registry of Deeds, in Book 2037, Page 429, to which deed reference is hereby made for a more particular description of said land, said strip being twenty-five (25) feet in width and bounded and described as follows:

Beginning at the southwesterly corner of said land conveyed to the Grantor by Maurice E. Willey, et al.; thence along the southerly line of said land conveyed to the Grantor by Maurice E. Willey, et al., on the following courses: North 85° 22 1/2' East twenty-one and four tenths (21.4) feet, more or less, to an iron pipe, thence North 84° 07' East three hundred fifty-five and thirty-two hundredths (355.32) feet, more or less, to an iron pipe, thence North 85° 25 1/2' East one hundred nine and thirty-eight hundredths (109.38) feet, more or less, to an iron pipe, thence South 89° 15' East one hundred fourteen and fifteen hundredths (114.15) feet, more or less, to an iron pipe, thence South 88° 18' East four hundred sixty-six and twelve hundredths (466.12)

feet, more or less, to an iron pipe and land of Sidney E. Dee, et al.; thence by said Dee's land North 70° 34' East sixty-nine and twenty-nine hundredths (69.29) feet, more or less, to a point; thence in a westerly direction, parallel to and distant twenty-five (25) feet from the aforesaid southerly line of said land conveyed by Maurice E. Willey, et al. to the Grantor, and its projection at both ends, on various courses to a stake set in the westerly line of said land conveyed to the Grantor by Maurice E. Willey, et al.; thence in a southerly direction by other land of said Willey twenty-five (25) feet, more or less, to the point of beginning.

The above-described courses are magnetic and as of the year 1950.

And to construct and perpetually maintain through and under said strip, conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes through or under said strip, with all necessary fixtures and appurtenances, together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strip by means of pipes or services, and to enter upon said strip at any and all times for any of the foregoing purposes; reserving to the Grantor, its successors and assigns, the full use and enjoyment of said strip for such purposes as will in no way interfere with the perpetual use thereof by the Grantee, its successors and assigns, for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strip by the Grantor, its successors or assigns, and that the Grantor, its successors and assigns, shall not remove earth from said strip or place fill thereon without the written permission of the Grantee.

TO HAVE AND TO HOLD the same, together with all the privileges and appurtenances thereunto belonging, to the said PORTLAND WATER DISTRICT, its successors and Assigns forever. AND the said Grantor Corporation does COVENANT with the said PORTLAND WATER DISTRICT, its successors and Assigns, that it will WARRANT and FOREVER DEFEND the premises to the said Grantee, its successors and Assigns forever, against the lawful claims and demands of all persons claiming by, through, or under it.

IN WITNESS WHEREOF, the said City of Portland, has caused this instrument to be sealed with its corporate seal and signed in its corporate name by Leon W. Kelber, its Treasurer thereunto duly authorized, this 5th day of February in the year one thousand nine hundred and fifty-four.

SIGNED, SEALED AND DELIVERED
IN PRESENCE OF

Barnett I. Shur

CITY OF PORTLAND CORPORATE SEAL
By Leon W. Kelber
City Treasurer

February 5th, 1954

State of Maine,)
Cumberland) ss.

Personally appeared the above named Leon W. Kelber Treasurer of said Grantor Corporation as aforesaid, and acknowledged the foregoing instrument to be his free act and

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deed in his said capacity, and the free act and deed of said corporation.

Before me, Barnett I. Shur Justice of the Peace.

Received February 11, 1954 at 11h. 15m. A.M. and recorded according to the original a

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Pine State Ln & Bldg Assn To Peterson Disch

KNOW ALL MEN BY THESE PRESENTS, THAT PINE STATE LOAN AND BUILDING ASSOCIATION, a corporation organized and existing according to law and having its place of business at Portland, County of Cumberland and State of Maine, mortgagee & owner of a certain mortgage given by Hilda E. Peterson of Westbrook, County of Cumberland and State of Maine, to PINE STATE LOAN AND BUILDING ASSOCIATION dated March 16, A. D. 1949, and recorded in Cumberland County Registry of Deeds, Book 1948, Page 58, does hereby acknowledge that it has received full payment and satisfaction of the same and of the debt thereby secured, and in consideration thereof it does hereby cancel and discharge said mortgage, and release unto the said Hilda E. Peterson, her heirs and assigns forever the premises therein described.

IN WITNESS WHEREOF, the said PINE STATE LOAN AND BUILDING ASSOCIATION has caused this instrument to be signed in its corporate name and sealed with its corporate seal by Edward B. Perry, its Treasurer, thereunto duly authorized this eleventh day of February in the year one thousand nine hundred and fifty-four.

SIGNED, SEALED AND DELIVERED

IN PRESENCE OF

PINE STATE LOAN AND BUILDING ASSOCIATION
CORPORATE SEAL

Martha E. Downs

By Edward B. Perry
Treasurer

State of Maine

Cumberland ss February 11, 1954.

Personally appeared the above named Edward B. Perry, Treasurer of said Corporation aforesaid, and acknowledged the foregoing instrument to be his free act and deed, in his said capacity, and the free act and deed of said Corporation.

Before me, Martha E. Downs Notary Public Notarial Seal

Received February 11, 1954 at 4h. 10m. P.M. and recorded according to the original a

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Bruns Sav Instn To Pearce & Disch

Brunswick, Maine
Date: Feb. 15, 1954

The debt secured by the within mortgage having been paid in full, this mortgage is hereby discharged, and the real estate therein described is released to the within mortgagor, he (his) heirs and assigns forever.

IN WITNESS WHEREOF, the said BRUNSWICK SAVINGS INSTITUTION has caused this instrument to be signed in its corporate name and its corporate seal to be hereto attached by F. Burton Whitman, Jr. its Assistant Treasurer, thereunto duly authorized, the day and year first above written.

IN THE PRESENCE OF: BRUNSWICK SAVINGS INSTITUTION CORPORATE SEAL
Elizabeth S. Powers By: F. Burton Whitman Jr. Ass't. Treas.

Cumberland, ss. STATE OF MAINE Dated: Feb. 15, 1954

Personally appeared the above named F. Burton Whitman, Jr. as Assistant Treasurer of said BRUNSWICK SAVINGS INSTITUTION, and acknowledged the foregoing instrument to be the free act and deed of said corporation and his free act and deed in his said capacity.

Before me, Elizabeth S. Powers Notary Public Notarial Seal

Received February 17, 1954 at 9h. A.M. and recorded according to the original

Endorsed on Mortgage Deed as recorded in Book 2082, Page 131. a

Section 8: Financial and Technical Capacity

8.0 Financial Capacity

The client has demonstrated financial capacity in a letter, attached to this document, that indicates the methods for funding the proposed project.

8.1 Technical Capacity

The client has obtained the services of Wright-Pierce to complete the permitting and design of the proposed improvements. Wright-Pierce is a Maine-based company with an office in Portland. Key staff for the project includes:

Doug Rice, P.E.: Senior project manager with over 35 years of experience in civil engineering and related fields. Mr. Rice has extensive experience in roadway and parking lot design, stormwater treatment, stormwater conveyance, traffic circulation, athletic fields design and client management.

Michael Guethle, P.E.: Project engineer with over 5 years of experience in civil and environmental engineering. Mr. Guethle has previously drafted plans for many other development projects within the City of Portland and is thoroughly familiar with the City's permitting processes and technical standards.

Chris Hinkley: Senior Civil Technician with over 10 years of experience in civil engineering and related fields. Mr. Hinkley has experience drafting plans and completing field work for the City of Portland, and is familiar with the plan standards and other design standards required by the City.

Subconsultants:

Jones Associates: Jones Associates is a firm capable of providing surveying assistance, soils analysis, wetland delineations, and other environmental field services to the project. At this time, they have been retained to assist in soil borings and wetland delineations.

Bill Bray: Bill Bray is a senior engineer with substantial experience in traffic management studies and circulation design. Mr. Bray has been retained to assist in the development of traffic studies for the project.

ATTACHMENT 8.1

FINANCIAL CAPACITY

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

8/31/17

City of Portland Planning Department:

RE: Financial Capacity – Moore / Lyseth Campus Improvements

Funding for the Moore/Lyseth project began in fiscal year 2017 with a $400,000 CIP appropriation. This initial outlay was intended to cover engineering costs, borings, surveying, cost estimating and to seed the project. The actual construction costs would then be covered by a subsequent CIP outlay – the amount to be determined following initial engineering work and estimating.

During the spring of 2017, an ad hoc committee was formed to review conditions at (4) Portland elementary schools and to provide recommendations for funding options for needed renovations. During this committee work, it was decided that the Moore/Lyseth campus work would be rolled into the "Buildings For Our Future" effort.

This coming November, there are two competing bond issues on the ballot, both of which will include the funding for this project. In the event that neither referendum bond issue passes, a FY 19 $2m CIP is expected to fund this project. Either way, the intent is to gain Planning Board approval this winter – thereby making this long overdue project "shovel ready" and available to start construction in the summer of 2018.

Thank You,

David Onos
Director of Project Management
Public Buildings Division
Department of Parks, Recreation & Facilities

ATTACHMENT 8.2

PROJECT RESUMES

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

DOUGLAS A. RICE, PE

Project Manager

PROJECT ASSIGNMENT: **Project Manager**

Education
A.S., Architecture and Building Construction, University of Maine, Augusta

Architecture and Civil Engineering - Versa CAD, Central Maine Technical College

Professional Registration
Maine

New Hampshire

Experience
37 Years

Joined Firm
1986

Professional Affiliations
Construction Specifications Institute

Professional Development
Training as per 29 CFR 1910.146

EXPERIENCE SUMMARY

Mr. Rice has over 37 years of experience in civil and environmental engineering with 29 years at Wright-Pierce. He has extensive experience in stormwater management plans, street and highway design, site design, sewer separation and other related projects.

RELEVANT PROJECT EXPERIENCE

Industrial Park Planning, Permitting and/or Design

Industrial Park Feasibility Study, Berlin, NH
Text.

Brunswick Industrial Park, Brunswick, ME
Text.

Economic Development Tract, Thomaston, ME
Text.

Van Buren Business Park, Van Buren, ME
Text.

Bowdoin Mill Environmental Permitting, Topsham, ME
Worked with Fore River Company to acquire environmental permits for redevelopment of an historical mill complex.

Site Assessment, Planning and Design

Naval Air Station Infrastructure Inventory, Brunswick, ME
Text.

Naval Air Station Annex Infrastructure inventory, Topsham, ME
Text.

Jordan Avenue Pump Station Site Design, Brunswick, ME
Site design for the Brunswick-Topsham Water District.

River Road Pump Station Site Design, Brunswick, ME
Text.

Downtown Parking Study, Bath, ME
Text.

15-Lot Open Space Subdivision, Freeport, ME
Text.

New Public Library, Topsham, ME
Text.

New Town Office/Police Station Site Work and Permitting, Sabattus, ME

Site Work and Permitting

New Town Office/Police Station, Richmond, ME
Site Work and Permitting

Poland Spring Bottling Facility, Hollis, ME
Site and roadway design, state and local permitting, stormwater management, and erosion control for $74-million bottling facility.

Thornton Oaks Retirement Community, Brunswick, ME
Site design, permitting (state, local), stormwater management, relocation of existing recreational exercise path

Biosolids Improvement Project, North Andover, MA
For the Greater Lawrence Sanitary District performed site and stormwater management design.

Subdivision Permitting, Bath, ME
Department of Environmental Protection (DEP) permitting for West Chop Point Subdivision.

Subdivision Permitting, Rangeley and Brunswick, ME
DEP permitting for Woodside Subdivision and Maplewood Homes.

Roadside Rest Area, Dyer Brook, ME
Plan preparation for roadside rest area I-95 for the Maine Department of Transportation (MDOT).

Gas Contaminated Soil Clean Up for Marina Site, Bath, ME
Text

Site Design for Thornton Oaks Retirement Community, Brunswick, ME
Environmental audit, local approvals and Army Corps of Engineers permitting.

Site design of Webber Gravel Pit, Topsham, ME
Text

Mid Coast Hospital Site Search, Brunswick/Bath, ME
Text

Parkwood Inn Site Design, Permitting and Stormwater Management, Brunswick, ME
Text

Maine Street Baptist Church, Brunswick, ME
Site design, permitting and stormwater management.

Chans Nursing Facility, Brunswick, ME
Site design, permitting and stormwater management.

Sunfield Apartments, Brunswick, ME
Site design, permitting and stormwater management.

Cinema Site, Brunswick, ME
Site design, permitting and stormwater management.

Gas Distribution, Brunswick, ME
Provided various services to a mid-sized natural gas distribution utility, including infrastructure mapping, construction coordination and monitoring, and natural gas pipeline design.

Stormwater, Flooding and Stabilization

Storm Drainage System Improvements, Richmond, ME
Text.

Various Stormwater Management Plans, Brunswick, ME
Brunswick Naval Air Station, Mere Brook drainage study, Thornton Oaks Retirement Community Woodside Subdivision, Phase II, and Maplewood Homes.

Stormwater Disposal System South Portland, ME
Consisting of 2,000 linear feet of 54-inch diameter pipe with a tidal outfall.

Stormwater Management for Composting Facility, Keene, NH
Text.

Salmon Falls Culvert Replacement, Rochester, NH
Text

Parks and Recreational Facilities

Bowdoin College Squash Court Facilities, Brunswick, ME
Text.

Memorial Park, Old Orchard Beach, ME
Text.

Sherman and Mountain Mills East Boating Facility, Wilmington, VT
Text.

Riverfront Redevelopment, Westbrook, ME
Assisted Orcutt Associates and the City of Westbrook with a multi-year program of redevelopment of the city's riverfront on the Presumpscot River. The work includes significant utility rehabilitation in addition to street reconstruction, reconfiguration of parking, installation of period lighting and other amenities.

Riverfront Redevelopment, Gardiner, ME
Assisted the city with a multi-year program of redevelopment of the city's riverfront on the Kennebec River. The work includes expansion of the existing marina facilities, utility rehabilitation, rehabilitation of sidewalks, reconfiguration of parking, installation of period lighting and other amenities.

Colby College Artificial Turf Field Evaluation, Waterville, ME
Text.

Recreation Field Design, Old Orchard Beach, ME
Preliminary design of multifunction recreation fields, exercise path, field house

with restaurant, and a concession stand with a maintenance area.

Bates College Track and Field Sports Facility Stormwater Management, Lewiston, ME
Site design, stormwater management and permitting.

Sawyer Park Boat Launch, Brunswick, ME
Assisted in the design and permitting of a tidal boat launching facility (Sawyer Park) on the New Meadows River for the Maine Department of Conservation.

Street, Sidewalks and Roadways

Street Reconstruction, Rockland, ME
Prepared final design documents for the reconstruction of 30 city streets in the South End. The project is funded through a variety of federal, and state agencies along with a local share. Participating agencies include, Rural Development, the Department of Economic and Community Development, and the Maine Department of Transportation. The project is expected to be constructed over the next two years.

Street Reconstruction, Van Buren, ME
Full reconstruction of several municipal streets.

Street Rehabilitation, Hampton, NH
Recently assisted the town with development of bidding documents associated with the rehabilitation of portions of eight streets within the community.

Roadway Reconstruction, Lebanon, NH
Full reconstruction of several roadways as part of a federally funded sewer separation project. This project is ongoing.

Road and Bridge Reconstruction, Rochester, NH
Full reconstruction of Lafayette Street, Chamberlain Street and the Salmon Falls bridge.

Reconstruction of Roadway, Sidewalks, Storm Drainage and Sewers on Free Street, Lisbon Falls, ME
Text

Commons Area Street Reconstruction including Storm Drainage System, Rochester, NH
Text.

Sunset Street area Replacement of Sewer Manholes, Water Main and Drainage System, Rochester, NH
Text.

MaineDOT Route 163, St. Agatha, ME
Designed 0.4 miles of Route 163 for the Maine Department of Transportation.

MaineDOT Route 163, Van Buren, ME
Designed 0.6 miles of Route 1for the Maine Department of Transportation.

Reconstruction of Webster Road, Lisbon, ME
Roadway reconstruction included a new storm drainage system.

Charette Hill Area Improvement Project, Fort Kent, ME
Project included roadway reconstruction, storm drainage and water mains.

Killick Pond Road Reconstruction, Hollis and Lisbon Falls, ME
Reconstruction of 2.25 miles of Killick Pond Road included intersection realignment and sight distance improvements.

Sewer Separation and Street Improvements, Portland, ME
2,000 linear foot arterial extension of Washington Avenue.

Jetport Interchange, Portland and South Portland, ME
For the Maine Turnpike Authority.

Chamberlain Street Reconstruction, Rochester, NH
New sewer, water, and storm drainage systems.

Hillside Avenue Sidewalk Reconstruction, Berlin, NH
Text.

Developed Technical Design Standards for Street Restoration, Berlin, NH
Text.

Riverside Drive Transportation Enhancement, Berlin, NH
Text.

Mason Street Bridge Deck Resurfacing, Berlin, NH
Text.

Streetscape Design, Durham, NH
Text.

Street Rehabilitation, Hampton, NH
Text.

Roadway and Sidewalks Reconstruction, Lebanon, NH
Text.

Sewall Road improvements, Wolfeboro, NH
Text.

Clark Road Improvements, Wolfeboro, NH
Text.

Street Improvements, Thomaston, ME

Text.

Free Street Reconstruction, Lisbon Falls, ME
Text.

Lee Street Reconstruction, Wiscasset, ME
Text.

Bridges

Bridge Reconstruction, Madawaska, ME
Full reconstruction of 11th Avenue bridge.

Replacement of Two Bridges for MDOT/FEMA, Pownal, ME
Text.

Wastewater

Wastewater Treatment Facility, Fort Kent, ME
Text.

Wastewater Treatment Facility, Thomaston, ME
Text.

Route 27 Sewer Extension, Boothbay, ME
Text.

Sewer System Improvements, Sewer Separation and Street Improvements Thomaston, ME
Text.

Sewer Separation and Street Improvements, Corinna, ME
Text.

Sewer System Improvements and Rehabilitation, Hampton, NH
Text.

Sewer Separation and Street Improvements, Squirrel Island, ME
Text.

Sewer Separation, Great Salt Bay, ME
Text.

Sewer Separation for Brunswick Sewer District, Brunswick, ME
Text.

Sewer Separation and Street Improvements, Bar Harbor, ME
Text.

Sewer Separation Project, Bath, ME
Special diversion structure; sanitary sewers, storm drainage, sidewalk and roadway reconstruction for Middle Street neighborhood reconstruction project, and Phase II sewer separation.

Sewer Separation and Street Improvements for Weston Avenue, Madison, ME
Text.

Composting Facility, Stormwater Management, and Site Design, Keene, NH
Text.

Municipal Solid Waste Landfill Closure and Central Office Facility for New Transfer Station, Edgartown, MA
Text.

Site Design and Stormwater Management for Sludge Composting Facility, Fairhaven, MA
Text.

Sewer System Improvements, Presque Isle, ME
Text.

Sewer System Improvements, Fort Kent, ME
Text.

Combined Sewer Overflow (CSO), Lewiston-Auburn, ME
Monitoring sampling for Clean Water Act master plan; 12 sampling locations; 4 river sampling sites.

Combined Sewer Overflow (CSO), Corinna, ME
Monitoring to prioritize separation efforts.

Design of Lagoons, Spray Irrigation System, Force Mains and Pump Stations, Rangeley, ME
Text.

MICHAEL A. GUETHLE, PE

Project Engineer

PROJECT ASSIGNMENT: **Project Engineer**

Education
B.S., Environmental Engineering and Civil Engineering, Clarkson University

Professional Registration
Maine

Experience
5 Years

Joined Firm
2015

Professional Affiliations
Maine Water Environment Association (MEWEA)

New England Water Environment Association (NEWEA)

Professional Certifications
MaineDOT Local Project Administration (LAP/LPA)

OSHA 10-Hour Safety

ACI Concrete Field Testing Technician – Grade 1

EXPERIENCE SUMMARY

Mr. Guethle is project engineer within the Civil and Infrastructure Engineering Practice Group at Wright-Pierce. His background is largely based in stormwater treatment design and maintenance, conveyance utilities, site development, dam design, and construction administration projects, ranging from small residential projects to the largest multi-modal transportation expansions in Maine. His diverse background creates a unique understanding of applicable design and construction knowledge, including experience with design tools such as AutoCAD, ArcGIS, HEC-RAS, and HydroCAD as well as construction tools such as a sub-centimeter GPS systems and contract management software. Below is a partial list of relevant projects throughout Maine and New York that he has been involved with throughout his career.

RELEVANT PROJECT EXPERIENCE

Site Development – Including Stormwater Treatment

Elm Street Sidewalk Construction, Damariscotta, ME
Designing grading, permitting, stormwater design, and parking layout for approx. 1,500 linear feet of new sidewalk within the Elm Street corridor, connecting an existing sidewalk from a residential neighborhood to the more urban downtown area.

Hagar Enterprises, Inc. Laydown Facility Expansion, Damariscotta, ME
Completing site design, stormwater treatment, and Site Law of Development Act (SLODA) permitting for the expansion of a laydown facility for Hagar Enterprises, Inc. in Damariscotta. This includes expanding a 2.6-acre facility to a 5.6-acre facility, expanding the existing stormwater treatment, evaluating stormwater treatment options, HydroCAD modeling, and coordinating with regulatory agencies as well as the contractor.

Inn Along the Way Site Development, Damariscotta, ME
Completing design and permitting for the redevelopment of an existing farm to an assisted living facility in Damariscotta. The work includes development of a MaineDEP stormwater permit, associated design of stormwater BMPs, and the design of roadways, parking facilities, and walking paths to meet permit requirements. Project also includes coordination with the contractor, client, and regulatory agencies.

Maine Wild Blueberry Expansion, Machias, ME
Development of a SLODA permit for the expansion of a blueberry processing facility to 5.7-acres of impervious area in Machias, Maine. The project includes development of the permit, associated design of stormwater BMPs, and the design of roadways and circulation to meet permit requirements while meeting unique client needs and expectations.

Lyseth Lyman-Moore School Site Design, Portland, ME
Designing improvements to traffic circulation, parking, athletic fields layout, walking paths, and stormwater treatment at a combined elementary school and middle school campus. Project includes significant coordination with client and regulatory agencies. Project incorporates use of AutoCAD programs, HydroCAD design for stormwater BMPs, and additional design concerns from being within the watershed of an urban impaired stream.

Whipple Road Sidewalk Design, Kittery, ME
Design of approximately 2,500 LF of sidewalk in a narrow right-of-way along Whipple Road. Project is a Locally Administered Project by the MaineDOT, and as such requires a significant amount of coordination between MaineDOT, the town, regulatory agencies, and project partners. Work for the project includes incorporation of utility pole relocations, development of sidewalk layout, environmental permitting and associated site drainage improvements.

Coastal Bluff Erosion Evaluation, Falmouth, ME
Design of multiple locations of eroding coastal bluff in developed residential neighborhoods in Falmouth. Project includes development of plans in AutoCAD and evaluation of multiple methods of slope stabilization to determine the preferred method of erosion mitigation.

Coastal Maine Botanical Gardens Expansion, Boothbay, ME
Designing grading, permitting, stormwater BMP design, and site layout design of the parking, roadway, landscaped, hardscaped, and building facilities for the multi-phase expansion of the Coastal Maine Botanical Gardens.

Munjoy Heights, Portland, ME*
Civil/site engineering design of a 6-building, 29-unit development on steep slopes of Munjoy Hill in the city. This includes, but is not limited to, the layout and design of sanitary sewers, storm drains, water mains, site driveway, retaining wall locations, building locations, and building drainage structures to be in accordance with the City of Portland technical standards.

89 Anderson Street Redevelopment, Portland, ME*
The project includes the civil/site engineering design of a single-building, 53-unit redevelopment of an existing underutilized lot in the East Bayside neighborhood in the city of Portland.

Knights Pond Improvements, Cumberland, ME*
Designing and permitting the layout, erosion control and potential impacts for the lowering of a dam with multiple subcontractors and interest groups. Project responsibilities included development of necessary permitting, development of plans and details in AutoCAD, and development of a project summary report.

Eagle Road Stormwater Improvements, Acton, ME*
The project included retrofit design of stormwater improvements for 1,200-LF of existing gravel roadway. Project responsibilities included assessing and obtaining information on existing conditions, creating a base plan with ArcGIS v.10 layers,

and development of plans in AutoCAD 2013 and Civil 3D 2013, as well as field visits.

Blue Heron Lane NRPA Permitting, Kennebunkport, ME*
Designed roadway and utility access to a residential development, while minimizing wetland impact and providing NRPA permitting for wetland impacts in municipal shoreland zoning locations. Project responsibilities included development of necessary permitting, development of plans and details in AutoCAD 2013, and development of a project summary report.

Wastewater Treatment Facility Upgrade, Monticello, NY*
Site layout, permitting, stormwater design, and erosion and sediment control design for the expansion of a wastewater facility.

Dam Engineering

Kotler Family/Indian Pond Dam Reconstruction, Greenwood, ME
Design and permitting for the reconstruction of a privately owned dam. Project responsibilities included development of NRPA permits, Army Corps of Engineers permits, dam design, and construction oversight and administration. Additional coordination with regulatory agencies and the client was required due to the additional need for permit extensions due to a delay in construction materials.

Kennebunk Light & Power District Dam Study, Kennebunk, ME
Compiled a cost analysis for multiple alternatives to manage 3 existing dams in accordance with regulations an upcoming re-licensing with FERC deadline. Project consisted of redevelopment of a report, coordination with the client, understanding concerns from special interest groups and abutters, and development of a 40-year cost analysis for each option.

Ladd Dam Fishway, Vassalboro, ME
Completion of a HydroCAD and HecRAS Analysis to design and model a Denil fish passage system around Ladd Dam in North Vassalboro. Responsibilities included hydraulic modeling, development of a design, and coordination with the client.

On-Site Construction Administration – Including Stormwater Treatment and Erosion and Sediment Control

Former FPL Parcel Reconstruction, Biddeford, ME
Site observation for the redevelopment of an underutilized lot owned by the city into a public park. Observation tasks included construction of gravel subgrade, granite block steps, fencing and railing, concrete, pavement, and landscaping.

International Marine Terminal, Portland, ME*
Class III chief inspector for the $8.6 million IMT rail corridor and existing laydown yard expansion. Work includes 5,000 ft. of new track, 18-acre container storage area, 2,600 CY of concrete loading slab, 1,650 ft. of Commercial Street roadway improvements and replacement of the fender system. Class III chief inspector services included the inspection, measurement, and documentation of all work

performed by the contractor and their subcontracts to document compliance with the project plans & specifications as well as Maine DOT standard details and specifications, and other appurtenant standards.

Rangeley Branch Rail Restoration, Auburn & Poland, ME*
Construction inspector for the $2.2 million restoration of 9,000 linear feet of railroad and track construction. Work includes earthwork activities, site layout, stream relocation and restoration, planting, and track construction. Class II inspector services included the inspection, measurement, and documentation of all work performed by the contractor and their subcontracts to document compliance with the project plans and specifications as well as Maine DOT standard details and specifications, and MaineDOT Rail Maintenance Standards Handbook and AREMA.

Eldredge Lumber and Hardware Intermodal Site Redevelopment, Portland, ME*
The project included construction oversight of $800,000 redevelopment of approximately 7.5 acres of existing lumberyard. Work includes significant stormwater infrastructure retrofits and intermodal improvements to facilitate the future transfer of building products from rail for statewide distribution.

Cottage Brook Subdivision, Cape Elizabeth, ME*
2,500-LF of new roadway for a development in Cape Elizabeth. Work included project oversight for civil aspects of project, including but not limited to paving, drainage infrastructure, sewer, road and retaining wall construction, as well as erosion and sediment control inspection.

Stormwater Management and Treatment

Library Park Study, Bath, ME
HydroCAD analysis and report of 2-acre parcel surrounding public monuments and artwork.

MDOT Stormwater Operation and Maintenance Plan, Statewide, ME*
Reviewed the inspection of MaineDOT's stormwater BMPs throughout the state, determining the precise location, as well as the functioning condition and maintenance needs of each BMP. The final deliverables include ArcGIS v.10-generated site specific site plans, an inspection log to record functional information for each BMP at each location, and the operation and maintenance matrix that will offer user-friendly maintenance guidance for each type of BMP.

MDOT Stormwater BMP Specification Development, Statewide, ME*
Development of new bioretention cell and underdrained trench details and specifications for the MaineDOT, as the MaineDOT does not currently have specifications for these BMPs.

Cushing Island Stormwater Improvements, Portland, ME*
The project included design of two stormwater culverts, culvert inlet and outlet protection, and an appurtenant swale based upon considerations observed from previously collected field data. Project responsibilities included development of a

HydroCAD analysis, development of plans and details in AutoCAD 2013, and development of a project summary report.

Sewer Separation and Sanitary Sewer Design

FEMA-Sewer Repair, Bethlehem, NY*
Surveyed approximately 115 sections of trunk sewer and appurtenant manhole structures in order to find sources of inflow and infiltration from hurricane damage. Permitted and designed immediate repairs that were found, and provided a report to our client indicating potential locations of future I/I from hurricane damage.

DASNY Sewer Expansion, Bethlehem, NY*
Development of permitting, plans and specification to reroute approx. 3,000 LF of sewer forcemain and approx. 10,000 LF of gravity sewer to relieve an existing pump station of anticipated future flows from a proposed development district.

CHRISTOPHER HINKLEY

Senior Civil Technician

PROJECT ASSIGNMENT: **Survey**

Education
B.S., Construction Management University of Southern Maine

A.A.S., Architectural and Civil Engineering Technology Central Maine Community College

Experience
12 Years

Joined Firm
2006

Professional Certificate
MaineDOT Local Project Administrator

EXPERIENCE SUMMARY

Mr. Hinkley is a senior civil technician/survey crew chief in the firm's Civil Practice Group. His experience includes surveying, site design, utility coordination, inspection, and construction administration.

RELEVANT PROJECT EXPERIENCE

Back Cove West CSO Storage Conduit, Portland, ME
Coordinated and performed topographic survey/manhole inspection from Baxter Boulevard Pump Station (along Baxter Boulevard) to the intersection of Forest Avenue, +/- 7000 LF.

Back Cove South CSO Storage Conduit, Portland, ME
Coordinated and performed topographic survey along Marginal Way from NEPS (Northeast Pump Station) to Forest Avenue, +/- 6300 LF. Investigated storm drainage and sewer system to obtain location and invert information. He implemented new preliminary design software (InfraWorks360) to better assist the client in visualizing the overall project. He worked side by side with the project manager/engineer on the design of the CSO storage conduit.

Bridge Streets and Riverview Road Pump Stations Upgrade, Bath, ME
Coordinated and performed topographic survey for two pump station sites.

Sea Street and Mt. Battie Pump Stations Upgrade, Camden, ME
Coordinated and performed topographic survey for two pump station sites.

Rawson Avenue Pump Station Upgrade Camden, ME
Coordinated and performed topographic survey for a pump station site.

North Street, Bath, ME
Coordinated and performed topographic survey along North Street from Lincoln Street to Middle Street, +/-2,500 LF. Investigated storm drainage and sewer system to obtain invert information.

Contracts #1-5 WTP/Water Main Improvements, Bellingham, MA
Coordinated and performed topographic for 2 water treatment plants and 33,500 linear feet of roadway for water main upgrades. Worked side-by-side with the project manager/engineer to design the new water mains.

MDC-Contract-1 Sewer Separation, Hartford, CT
Created and assisted in the design of figures to separate the storm drainage from the sewer system at each residence involved in the project.

MDC-Contract-2 Sewer Separation, Hartford, CT
Created and assisted in the design of figures to separate the storm drainage from the sewer system at each residence involved in the project.

I/I Reduction, Dover, NH
Topographic survey of streets throughout the city. Assisted in design of sewer extensions and separation from storm drainage.

Storm Drainage and Water Rehabilitation, Old Orchard Beach, ME
Ocean and Seaview Avenue sewer, storm drainage and water distribution rehabilitation. Topographic survey along both streets. Assisted in the design of new sewer, storm drainage and water rehabilitation.

Sewer Rehabilitation, Old Orchard Beach, ME
West Grand Avenue sewer rehabilitation. Topographic survey of West Grand Avenue. Assisted in the design of new sewer on West Grand and side streets.

Survey, City of South Portland, ME
Topographic survey along Broadway Street - 2000 ft. for a new siphon main.

Sewer Rehabilitation and Separation, Rockland, ME
Topographic survey of streets throughout the city for sewer rehabilitation and separation. Assisted in the design of sewer rehabilitation and separation.

2006, 2007 & 2009 Sewer Separation, Auburn, ME
Topographic survey for an abundance of streets throughout the city of Auburn for sewer separation. Also, assisted in design.

Sewer Rehabilitation and Separation, Richmond, ME
Topographic survey of streets throughout the town for Phase 1 and 2 sewer separation and rehabilitation. Assisted in design of new sewer.

Survey, Milbridge, ME
Topographic survey of various sites for new grease traps, sand filters, chlorination chambers, septic tanks & pump stations. I/I work followed with smoke testing and dye testing. Assisted in the design of these various sewer stations.

Topographic Survey, Hartland, ME
Topographic survey of the secure sludge landfill site, leachate lagoon and groundwater monitoring wells.

Topographic Survey, Newport, ME
Topographic survey of the surrounding site along with helping out in the civil design aspect.

Topographic Survey, Acton, MA
Topographic survey of a site for a proposed water load out facility.

Topographic Map, Acton, MA
Arlington Road, GPS, locating photo control targets to build a topographic map of the area.

Construction Management Plan
Lyseth – Lyman Moore Campus
Circulation and Site Access Improvements
Completed November, 2017

Construction Management Plans shall depict the overall planning, coordination, and control of a construction site, including phases as applicable, from beginning to completion. The City's goal for a construction management plan is to support a safe construction site and protect the public safety, accessibility (including preserving accessible pedestrian, bicycle, and vehicular modes of transport throughout the city), and welfare during construction. In addition, the construction management plan shall minimize construction impacts in their duration and magnitude to the surrounding area and develop an effective communication process for resolving concerns and conflicts.

The Construction Management Plan will be submitted as part of the Site Plan Review and it shall address the construction logistics for a project. The Construction Management Plan shall include the following submissions: 1) a construction management site plan, 2) a construction schedule (time frame); and 3) a written narrative addressing the categories below.

A. Construction Management Principles

The following narrative provides an overview of the construction management principles that the applicant has identified to minimize impacts from the construction, such as noise, vibrations, ground movement, truck traffic, and other construction related factors to the surrounding building and communities.

While the entire site is a public site, the Contractor will provide the City with a plan that indicates site access constraints, and signage/barriers to access at points of entry to the public prior to any construction. A general approach to Phase I and Phase II of the work has been included in the attached Construction Management Plan.

A final site access map prepared by the Contractor cannot be provided as part of this submission, as the project is to be bid publicly. Public bidding cannot occur until permits, including this Site Plan process, have been completed. The ultimate safety of the site, the ultimate scheduling of deliveries, and construction means and methods must be the responsibility of the Contractor to maintain an effective and safe corridor for the workers and site users. It is understood that the information provided in this document is provided as general information, and the Contractor will provide more specific information to the City upon award of the contract.

No utility connections or roadway work is anticipated in the Auburn Street corridor. Only sidewalks/striping modifications are anticipated at the Junior Street entrance to the proposed project, and this work is proposed within the project's parcel bounds, not within the Junior Street Right-Of-Way.

Whereas neighbors identified traffic access to Junior Street as a concern during the neighborhood meeting, this location will not be used for construction vehicle access, but will remain open for emergency access and bike/pedestrian access when repair work is not happening in the corridor. Access to sidewalk and trail corridors is identified on the proposed

Construction Management Plan, and will be maintained unless work is occurring in those locations.

Site safety will be the responsibility of the Contractor. Work is not anticipated during the school season to minimize site access conflicts with students and faculty/staff. The recreation department will coordinate events in association with the proposed construction.

B. Development Review of Construction Management Plan

The Contractor shall submit a construction management plan that provides a comprehensive logistics and safety program for the construction project, which will be reviewed and approved as part of the site plan review process. The plan minimizing impacts to areas surrounding the building/construction site will be primary considerations in the process. The following details define the intended approach to the successful management of the project construction and the construction management plan will address the general conditions contained below.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Prior to scheduling a preconstruction meeting and the issuance of any city required permits, the Contractor shall meet all of the requirements contained in Section 14-530. Development review fees and post approval requirements and 14-532. General requirements and enforcement of Portland's Land Use Code.

Other permits, as applicable, include

1. **Street Opening and Street Occupancy Permits:** Construction activity in the public right-of-way are controlled by Chapter 25 and sewer and stormwater system connections are controlled by Chapters 24 and 32 of the Land Use Code. All required permits shall be obtained through the Department of Public Works and the requests shall conform with the approved construction management plan.
2. **Blasting:** Blasting is not anticipated for the proposed work. Any blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
3. **Building Code:** No building construction or demolition is anticipated for the proposed project. For work adjacent to buildings, Contractor shall employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

The Contractor will work diligently to implement a communication strategy as outlined below. The communication strategy is intended to ensure that all construction operations are performed in accordance with all agreements, ordinances and special permits applicable to this project. The Construction Manager will work closely with adjacent abutters, businesses and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. The final construction management plan, which will be submitted to the City following award of the municipal bid process, shall provide for the following:

- Contact Person and contact information for and who is available 24 hours
- Construction Signage posted on the site with Contact Information for Contractor
- Describe any additional communication strategies:

  - Directional and Safety signage as required
  - Daily on-site safety/coordination meetings
- All construction site signage is temporary and shall be removed at project completion. Signage will be included in the final construction management plan provided by the Contractor.

E. Construction Schedule

1. A preliminary schedule is provided as part of the Construction Management Plan original submission dated September 2017, and is described below:

PHASE 1 CONSTRUCTION		
1	Estimated Construction Time	6/18/18 – 8/31/18
2	Erosion Control Measures	June 18th
3	Excavation/Milling/Clearing, Parking Lot	June 19th – July 1st
4	Drainage Improvements	July 2nd – July 25th
5	Sidewalk Construction	July 25th – August 1st
6	Paving	August 1st – August 7th
7	Loam, Seeding, Planting, Punch list	August 7th – August 31st

PHASE 2 CONSTRUCTION		
1	Estimated Construction Time	6/17/19 – 8/30/19
2	Erosion Control Measures	June 17th
3	Excavation/Milling/Clearing, Parking Lot	June 17th – July 5th
4	Drainage Improvements	July 2nd – August 2nd
5	Relocating Utility Poles	July 15th – August 2nd
6	Sidewalk Grading/Construction	July 15th – August 9th
7	Stormwater Treatment Construction	July 22nd – August 9th
8	Plantings, Fencing	August 12th – August 16th
9	Paving	August 12th – August 16th
10	Loam, Seeding, Punch list	August 18th – August 30th

2. Hours of Construction. Construction may occur during the daytime hours as defined in Section 17-18. Noise, dust and debris will be limited in accordance with City standards.
3. Extended Hours or Night Work: Work is to be completed during standard hours unless declared to be an emergency and coordinated with the appropriate City officials. Pursuant to Section 17-18, this section not apply to emergency utility work or "Situations where the public works authority or the office of building inspections determines that the construction activity is of a unique character which cannot reasonably be completed or performed during the permitted hours and which is not of a recurring nature, provided that prior to engaging in such activity the Contractor or his representatives gives notice of the time and scope of such proposed activity, the notice to be given in a manner approved by the public works authority."
4. Material Deliveries: The Contractor will compile a general schedule and designated location for delivery of materials and boxed goods as part of the final construction management plan.

F. Security & Public Safety

1. The Construction Management Plan will depict all proposed fencing or other barriers and access gates (with knox locking devices) with the intent of separating pedestrian and vehicle circulation from the construction site.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*
3. Fire Safety Program. An overall construction of demolition fire safety program shall be developed by the Contractor following award. Essential items to be emphasized include the following:
    - Good Housekeeping
    - On-site security
    - Installation of new fire protection systems as construction progresses
    - Preservation of existing systems during demolition
    - Organization and training of an on-site fire brigade
    - Development of a pre-fire plan with the local fire department
    - Rapid communication
    - Consideration of special hazards resulting rom previous occupancies
    - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Any proposed temporary security lighting shall be shown on CMP and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets: Construction activity in the public right-of-way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater: Sewer and stormwater water system connections are controlled by Chapters 24 and 32 of the City Code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

3. Traffic Control Plans: Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. Projects that will occur along arterial and or collector streets are required to submit a satisfactory 'maintenance of traffic" (MOT) plan prior to any site

plan, subdivision, or street opening permit approval. MOT plans may be required for projects that have impacts on local streets.

Maintenance of Traffic (MOT) plans shall provide for the safe passage of the public through or along the construction work zone. On a case-by-case basis, applicants may be allowed to close a street and/or detour a mode of traffic when absolutely necessary for safety. MOT plans shall employ the appropriate techniques and devices as called for the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic
- Traffic Control signs shall not be placed where they are an obstruction to bicycles or pedestrians.
- In extreme situations, flaggers may be required.
- Police detail is required at lighted intersections and may be requested by the City's transportation engineer or his designee.

All existing modes of travel in work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

The Contractor will confirm site controls following award. Construction Management Plan addresses maintaining the site in a safe condition and includes the following:

1. Regular trash and debris removal will occur as necessary; rubbish bins/dumpsters have been indicated on the proposed Plan.
2. Street cleaning and damage controls
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris (Attachment 2).

4. Noise: The construction shall comply with Portland's requirements under Section 17-18 of the City Code (Attachment 1) and Section 25-129 on Noise, dust and debris Attachment 2).
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.
6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.
    1) Snow/ice removal or commence automatically from (1" of snow and up) or Ice
    2) Remove snow as needed within the work zone, including parking spaces & not to block any driveways or site lines with the piles of snow.
    3) Clear all walks & ramps with the work zone
    4) Sand or Salt as needed
    5) Clear all basin or drainage to help snow melt
    6) This would include Monday-Friday Sat/Sunday/Holidays

I. Erosion Control and Preservation of Trees

1. Contractor shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The Contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.
2. Contractor shall provide a double-layer of erosion and sedimentation control measures around all stormwater treatment/management systems and wetland locations until up-slope locations are stabilized.
3. Contractor shall maintain all tree and landscaping preservation measures as depicted on the Landscaping Plan and Landscaping Details.
4. The storage of materials shall be provided in locations that are proposed to be developed, and shall not be placed under protected vegetation.

J. Construction Staging Area

1. The Construction Management Plan depicts location of the material staging areas, the location on onsite temporary construction trailers, the location on onsite truck delivery holding areas, the location onsite truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. An open storage areas is indicated on the plan. Final site layout of the facility shall be confirmed by the Contractor following award.
2. Delivery Truck Holding Areas On-Site: The site has adequate area to hold material delivery during construction. The Contractor will confirm the means and methods of material delivery following a completed contract.
3. Delivery Truck Holding Areas Off-Site: The site has adequate area to hold material delivery during construction. The Contractor will confirm the means and methods of material delivery following a completed contract.

K. Parking During Construction

1. Construction Parking: Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided. The parking arrangements are indicated on the construction management plan.
2. Parking: The construction management plan indicates employee parking during construction.
3. Truck Routes and Volumes: The Construction Management Plan addresses the designated truck routes. Truck volumes along these design routes shall be submitted by the Contractor when the project is completed.

L. Special Measures as Necessary

Construction work will take place over two construction seasons as work is anticipated to be limited to times when students are not using the school facilities. The project has been phased in a manner to minimize re-work. If both construction phases are bid as part of one contract, Contractor shall minimize re-work between phases.

Section 9: Construction Management Plan

9.0 Construction Management Plan

Construction of the proposed project will begin in June 2018, pending planning board approval. Work is anticipated to be completed in two seasons, as the work is largely limited to the summer, when students are not in session. Phasing is indicated on Figure 1 of the project plans.

PHASE 1 CONSTRUCTION		
1	Estimated Construction Time	6/18/18 – 8/31/18
2	Erosion Control Measures	June 18th
3	Excavation/Milling/Clearing, Parking Lot	June 19th – July 1st
4	Drainage Improvements	July 2nd – July 25th
5	Sidewalk Construction	July 25th – August 1st
6	Paving	August 1st – August 7th
7	Loam, Seeding, Planting, Punch list	August 7th – August 31st

PHASE 2 CONSTRUCTION		
1	Estimated Construction Time	6/17/19 – 8/30/19
2	Erosion Control Measures	June 17th
3	Excavation/Milling/Clearing, Parking Lot	June 17th – July 5th
4	Drainage Improvements	July 2nd – August 2nd
5	Relocating Utility Poles	July 15th – August 2nd
6	Sidewalk Grading/Construction	July 15th – August 9th
7	Stormwater Treatment Construction	July 22nd – August 9th
8	Plantings, Fencing	August 12th – August 16th
9	Paving	August 12th – August 16th
10	Loam, Seeding, Punch list	August 18th – August 30th

These dates are subject to change, as the project is to be municipally bid and no contractor has been selected at this point in time.

While the entire site is a public site, the contractor will provide the engineer with a plan that indicates site access constraints, and signage/barriers to access at points of entry to the public prior to any construction. A site access map prepared by the contractor cannot be provided as part of this submission, as the project is to be bid publicly and no contractor has been selected at this time. No utility connections or roadway work is anticipated in the Auburn Street corridor. Only sidewalks/striping modifications are anticipated at the Junior Street entrance to the proposed project, and this work is proposed within the project's parcel bounds, not within the Junior Street Right-Of-Way.

Section 10: Traffic

10.0 Traffic

From a review of the City of Portland Technical Manual, a Traffic Management Plan is required if a proposed development will result in 100 additional passenger car equivalents, or in the case of locations abutting arterials, 25 passenger car equivalents. Whereas the proposed project is intended to improve upon circulation within the existing site, and no additions to the school are proposed to add any buildings that would result in additional students or use of the facility, it is anticipated that no Traffic Management Plan would be required for the circulation and parking improvements.

Information regarding parking standards has been addressed in Section 17 of this application.

It is required by the technical manual that site circulation be feasible within the constraints of the project parcel. Circulation within the site has been reviewed within the AutoCAD program AutoTURN. Whereas there are standard driving lane dimensions of 12'-width, there were not formal school circulation guidelines proposed within the technical manual, so the ability for access to adequately be obtained in AutoTURN was the method determining the width of the bus aisles. Fire access concerns were evaluated as highlighted in the existing conditions memorandum, attached to this document. For the purposes of this project, the following items have been reviewed in AutoTURN:

- The ability for a car to fit into the most restrictive parking spaces
- The ability for a car to navigate the parent drop-off loop
- The ability for a bus to navigate the bus drop-off loop
- Fire access within the bus loop to the north face of the middle school, and fire access to the north face of the elementary school.

Traffic counts have been performed at the site, at the school entrance to Junior Street, and to Auburn Street. Auburn Street is currently managed by a traffic light, and is State Route 100, an arterial within the City. These traffic counts are attached to this section, as well as preliminary observations of the existing site circulation in the Existing Conditions Memo.

ATTACHMENT 10.1

EXISTING CONDITIONS MEMORANDUM

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Project Team	DATE:	December 22, 2015
FROM:	Jennifer Claster	PROJECT NO.:	13352A
SUBJECT:	Lyseth-Lyman Moore Master Plan - Existing Conditions Memo		

This memo summarizes Wright-Pierce's review of existing conditions, including phone conversations and site observations, prior to commencing design on master plan options for the Lyseth-Lyman Moore Campus.

Statistics from Questionnaires, Observations and David Onos' Future Projections

- Lyseth ES current student enrollment: 483
- Lyseth future student enrollment: 500 students
- Lyman Moore MS current student enrollment: 480
- Lyman Moore future student enrollment: 700
- Lyseth ES current staffing: 60+
- Lyman Moore MS current staffing: 94
- Lyseth ES current buses: 4 (75 kids)
- Lyman Moore MS current buses: 6 (215 kids)
- Lyseth ES current walk/bike: 10-20
- Lyman Moore MS current walk/bike: 260+
- Official Parking Spaces: 135 spaces in large lot and two smaller lots
- Unofficial parking spaces: 26 – 34 spaces in front loop and along Lyseth building in staff parking area

Lyman Moore MS Drop Off Observations 12-18-15 (Drizzle, then Clearing by 7:20)

1. Parents arrive as early as 7:09 a.m. Their arrival is staggered. Arrival peaks at around 7:45, when there appeared to be 6 or 7 cars waiting to drop off and stacked up around the front entrance.
2. The buses start arriving at 7:20 a.m. Their arrival is staggered. Four buses use the front loop and two buses use the east drop-off. There do not appear to be more than two buses in a drop off zone at any one time.
3. There does not currently appear to be a capacity problem for bus or parent drop off.
4. Parents seem inclined to drop children off as close to the front door as possible, resulting in congestion, since this area is not designed as a drop off zone. Much of the drop off

zone is empty while parents are picking up and dropping off. Management would largely resolve the parent-related congestion.

5. Few parents appeared to use the east drop-off, though it was underutilized much of the time. They do use the front loop when buses are not there.
6. Some parents park in the handicapped spaces and let their children off there.
7. Observation ended at 7:55 a.m. – third bell.

Lyseth ES Drop Off Observations 12-18-15 (Drizzle)

1. Parents and kids arrive as early as 8:05 a.m. They arrived on foot and by car in a slow trickle.
2. By 8:18 a.m., parents were stacked up in the parent loop, filling it completely (capacity=8 cars). Two of the cars were empty.
3. The first bus arrived at 8:22 a.m. Up to three buses were observed using the bus drop-off loop at once. There does not appear to be a bus capacity issue. Four buses total arrived during drop off.
4. By 8:23 there were 10 cars in the parent loop (double stacked), some of which had been there for 5 minutes are more. The parents were not dropping their children off and pulling through. Up to 12 cars were observed in the loop at one time.
5. Because there is no sidewalk at the parent drop off loop, children exit into the drive lane with parent assistance, and parents then walk them to the crosswalk and to the front entrance. This causes congestion and slow-down. A sidewalk and assigned crossing guard may help the situation.
6. Parent education would help reduce parents leaving their cars unattended in the drop-off loop for 5+ minutes.
7. Parents also park in the large lot and walk their children through the parent and bus drop-off loops, which also causes congestion, and adds potential for car/pedestrian conflict.
8. Observation ended at 8:40 a.m. – bell.

Lyman Moore MS Pick Up Observations 12-18-15 (Rain)

1. 5 buses were on site by 2:23 p.m. A few parents were waiting in the handicapped spaces.
2. The bell rang at 2:25 p.m. All 6 buses were now on site – 4 at the front loop and 2 at the east area.

3. Parents were parked partly on the grass on the exit drive near Junior Street and kids started loading into those cars. Some parents were also parked on the loop, near the exit drive. There is no official place for them to wait, because the buses fill both the loop and the east area at pick up.
4. At 2:28 p.m., parents started pulling in front of the main entrance and waiting for kids, blocking traffic, since this is not a designated pick up area. There was unused capacity at the east drop off.
5. By 2:30 p.m., the buses at the east area were gone and the 4 buses in the loop were still loading. As buses pulled away from the east drop off area, parents started to use that space.
6. By 2:32 p.m. all buses had left the site. Once the front loop was vacated, parents started pulling in there. Traffic backed up a little as four buses left at once.
7. Educating parents about procedures and providing staff to manage pick up might help with congestion. Would it be possible to restrict parent pick up to after 2:32?
8. Pick up was largely over by 2:36 p.m.

Lyseth ES Pick Up Observations 12-18-15 (Rain)

1. Parents were waiting in the loops as early as 2:44 p.m.
2. By 2:54 p.m., 7 cars were in the parent loop. It appeared that more parents were using the recently vacated middle school staff parking space in the large lot and side lot as staging areas for pick up.
3. By 3:00 p.m. the parent loop was full, with 8 cars. Cars would pull into the loop to see if it was full and then pull through and wait in the parking lot. Parents were standing in front of the school entrance.
4. The first bus pulled into the bus loop at 3:04 p.m.
5. By 3:07 p.m. there were 10 cars in the parent loop (double parked) and lots of people using the front cross walks.
6. At 3:08, the first group of kids appeared from a side door, with adults. It appeared they were waiting for a bus.
7. The bell rang at 3:10 p.m. The first group of kids started loading onto the first bus.
8. At 3:11, the second bus pulled into the bus loop. Kids started walking toward the cars with parents, crossing through the drop off zones.

9. By 3:14 foot traffic had increased. Bus 1 pulled away. There were 11 cars in the parent drop off loop.
10. By 3:18, there was a back up of cars at Junior Street. A parent had parked on the driveway across from Junior Street and their child met them at the crossing. The parent's attempt to walk the child across the street caused the back up.
11. Parent activity appeared to peak at around 3:19 p.m., with parents still pulling though the loop and backed up at Junior Street.
12. The cars were largely gone by 3:21 p.m.
13. The third bus, which appeared to be late, arrived to shouts of joy at 3:22 p.m. No fourth bus was observed.
14. Observation ended at 3:25 p.m.
15. Pick up appears to take place rapidly once the bell rings, with parents idling in parking lots until they can make their way to the parent loop, or walking to the building to get their kids and walking them back to their cars. The lack of a sidewalk at the parent drop off is a problem. It appears there is sufficient queuing space for the buses, but more queuing length for cars would be helpful here.

Conversation with Portland Fire Chief Keith Gautreau, 12-21-15

1. The Fire Department does not need to be able to get a vehicle around the entire perimeter of the elementary school. Providing access at the pinch point is not a concern for them, because they can drive in from the front to access the north side of the building. Access at this school is currently among the best in the system.
2. Access to the rear and sides of the middle school is more challenging.
3. The bus drop off zone can double as a fire lane, because the bus drivers can be instructed to pull away from the building in the case of an emergency.
4. The NFPA Chapter 18 is the Department's guide for fire access to buildings. Though it mentions a minimum 20 foot fire department aces road, the Chief said this can be as narrow as 18', and in some cases, 16'. He thought that, if we go with the double parallel drop-off with a fence, 18' would be sufficient for the fire lane (bus parking/pull-over + bus driving lane), from the standpoint of fire access. He thought ground ladders would be used at the schools, because the buildings do not exceed two stories in height.
5. Ultimately, the Fire Department will want to review the plan that goes forward for the school and may have more requests that are specific to this campus.

Conversation with Sarah Cushman SR2S Coordinator and Author of 2011 Study 12-21-15

1. At the time of the 2011 study, the schools opened and closed at the same time. That is no longer the case. The population of both schools was about 500 (each).
2. We reviewed the campus map with areas of issues, concerns and potential solutinos from the 2011 report.
3. Remote drop off was proposed on local streets around the schools. That is no longer seen as a viable option due to neighborhood concerns.
4. Educating parents and students about drop-off procedures could make a big difference here.
5. The schools need more bicycle parking that is more visible from the schools' entrances. The MS bike racks are not visible enough in their current location. Sarah later provided the following statistics from a January 2014 study:

Name of School:	Needs Additional or Updated Bicycle Parking (Yes or No)	Amount of Bicycle Parking Needed	Proposed Location
Lyman Moore	Yes	Parking for 8-10 bicycles	To one side or other of front entrance to the school on concrete pad (per 2014 school input and also as a recommendation in the *Lyseth-Moore School Travel Plan*)
Lyseth	Yes	Parking for 8-10 bicycles	Need to replace damaged racks in the current locations in our alcove areas on the north side of the building.

6. There should be a sidewalk along the staff parking at Lyseth.
7. A combined drop-off for buses was flagged as something to look into the 2011 report, but the location would appear to close off the two smaller staff parking areas.
8. Assigning more staff to manage drop off and pick up might help ease some of the congestion.
9. Sarah asked whether it would be possible to eliminate the parent drop off loop at Lyseth and have the parents drop off in a location that does not require the children to cross through the bus drop off area.

Conversation with Nate Smith Public Services Engineer who Worked on Stormwater 12-21-15

1. Nate sent revised impervious surface calcs from 2013 (attached) that he thinks will be accurate enough for the current master planning effort.
2. He noted that the current site reflects what is referred to as option 2 in the calcs. This option was constructed to try to gain more space for the playing field adjacent to the gravel wetland.
3. Nate sent as-builts dated June 30, 2015 of this area that have been incorporated into the base mapping for the master plan.
4. Nate thought that, conceptually, it should be possible to abandon the SD under the fields and tennis court, and construct a new line through the staff parking areas that outlets into the gravel wetland as discussed at the kick-off meeting. He had concerns about the feasibility of pumping flowable fill into the pipe under the tennis court, because it is crushed there.
5. The gravel wetland is currently treating only 90% of the Maine DEP Water Quality Volume required under Chapter 500.
6. A significant issue at the site is that 71,075 SF of roof at Lyman Moore MS (the newer building) and 41,616 SF of the roof at Lyseth ES do not drain into the gravel wetland. Instead, they flow to the sanitary sewer. Because of the CSO situation, Nate recommended looking for ways to separate the school roofs from the combined sanitary. This would be easier to accomplish at Lyseth. The newer building at Lyman Moore would require interior modifications in order to disconnect the roof drains and would be more difficult to accomplish. Based on the City's 2013 calculations, if the 41,616 SF of the roof at Lyseth ES is directed to the gravel wetland, then the gravel wetland would only be treating 80% of the Maine DEP Water Quality Volume required under Chapter 500.
7. The site is underlain by marine clay and is not a good candidate for low impact design (LID) features that utilize infiltration. To illustrate the site's poor infiltration, Nate mentioned that although the gravel wetland was designed without a liner, its pond is always under water.
8. If the gravel wetland needs to be expanded, or underground stormwater storage added, the adjacent playing field location would be the most obvious location for this. The

nearby parking/drop off loop area could be another location for underground storage – it would be designed to slowly release into the gravel wetland.

Project: Bartley to Rustic Sewer Separation
Gravel Wetland Water Quality Calculations
Date: May 6, 2013 (Revised)
Prepared by: Will Haskell, PE

As Built Gravel Wetland Storage Volume (cf)	43,312	
Reduced Gravel Wetland Storage Volume (cf)	40,875	**as const. in Fall 2012 - est. from design plans**

Existing Area Trib. To Gravel Wetland (1)	**Existing Trib. Area (sf) (2)**	**Lyman Moore Roof (Note 2) (3)**	**Lyseth School Roof (Note 3) (4)**	**Total Area = (2) + (4) (5)**
Impervious Area (sf)	316,580	71,075	41,616	387,655
Landscaped Area (sf)	571,975	-	-	571,975
Total Area	888,555	71,075	41,616	1,001,246
Maine DEP WQV - Note 4 (cf)	45,448	5,923	3,468	51,370
% Treatment - As Built Gravel Wetland	***95%***	*--*	*--*	***84%***
Actual % Treatment - Modified Gravel Wetland	***90%***	*--*	*--*	***80%***

Notes

1. At our meeting on June 18, 2012 we had discussed four alternatives, including:
   1. Do nothing;
   2. Steepen south embankment from 3:1 to 2:1 to gain 12' to 15' of playing field back.
   3. Reduce the gravel wetland storage volume to gain approximately 30' of playing field.
   4. Reduce the gravel wetland storage volume so that the southerly embankment approximately matches the old dry pond embankment and add subsurface storage and treatment under existing playing field.

The actual construction was a combination of Options 2 and 3 .

2. Lyman Moore MS has approximately 71,075 sf of roof (newer building) that is not tributary to the gravel wetland and flows to the sanitary sewer. It would be difficult to separate this without changes to the internal roof drain collection system, so this roof area is not added in to the total area calculation.

3. Lyseth School roof is approximately 51,600 sf. There is about 9,984 sf near the front of the building that is tributary to the existing storm drain system and the new gravel wetland. The remaining 41,616 sf of roof flows to the sanitary sewer system but could be separated external to the building and directed to the gravel wetland.

4. Maine DEP Water Quality Volume (WQV) is calculated based on 1" of runoff from impervious areas and 0.4" of runoff from landscaped areas. Maine DEP Chapter 500 General Standards require that runoff from no less than 95% of impervious areas and no less than 80% of developed areas be treated.

ATTACHMENT 10.2

TRAFFIC COUNTS

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 1

Groups Printed- Passenger Vehicle - Trucks - Semis - Bus - Bike

	Auburn St From North				Lyseth School From East				Auburn St From South				Croquet St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	144	7	151	0	0	2	2	11	64	1	76	0	0	0	0	229
07:15 AM	0	196	4	200	2	0	18	20	41	60	4	105	1	0	0	1	326
07:30 AM	0	197	3	200	2	0	53	55	86	88	0	174	0	0	0	0	429
07:45 AM	2	194	7	203	1	0	36	37	48	90	1	139	1	0	0	1	380
Total	2	731	21	754	5	0	109	114	186	302	6	494	2	0	0	2	1364
08:00 AM	0	142	4	146	2	0	17	19	21	104	1	126	0	0	0	0	291
08:15 AM	0	176	3	179	1	0	11	12	20	93	1	114	1	1	0	2	307
08:30 AM	0	169	6	175	1	0	12	13	17	80	0	97	1	2	0	3	288
08:45 AM	1	167	12	180	5	0	44	49	48	69	0	117	4	2	0	6	352
Total	1	654	25	680	9	0	84	93	106	346	2	454	6	5	0	11	1238

Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

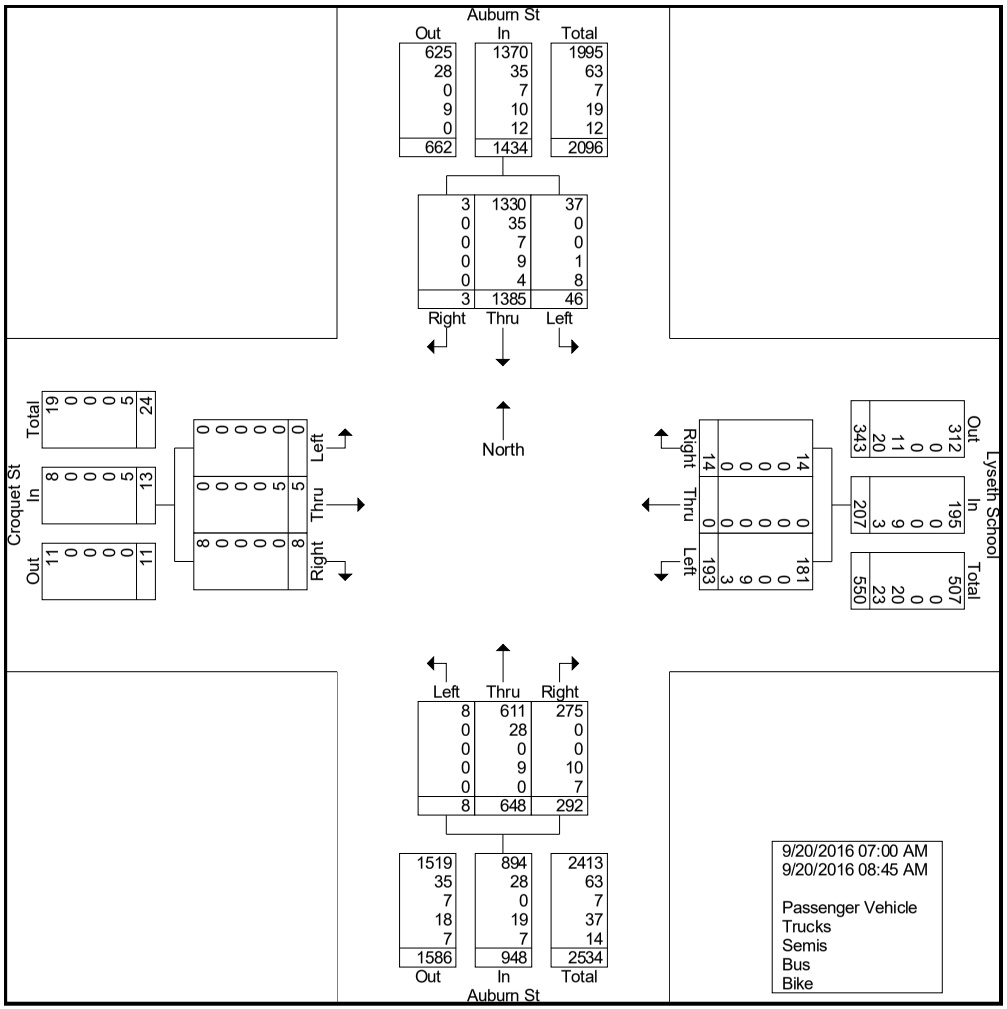
File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016

Groups Printed- Passenger Vehicle - Trucks - Semis - Bus - Bike

	Auburn St From North				Lyseth School From East				Auburn St From South				Croquet St From West				
	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Grand Total	3	1385	46	1434	14	0	193	207	292	648	8	948	8	5	0	13	2602
Apprch %	0.2	96.6	3.2		6.8	0	93.2		30.8	68.4	0.8		61.5	38.5	0		
Total %	0.1	53.2	1.8	55.1	0.5	0	7.4	8	11.2	24.9	0.3	36.4	0.3	0.2	0	0.5	
Passenger Vehicle	3	1330	37	1370	14	0	181	195	275	611	8	894	8	0	0	8	2467
% Passenger Vehicle	100	96	80.4	95.5	100	0	93.8	94.2	94.2	94.3	100	94.3	100	0	0	61.5	94.8
Trucks	0	35	0	35	0	0	0	0	0	28	0	28	0	0	0	0	63
% Trucks	0	2.5	0	2.4	0	0	0	0	0	4.3	0	3	0	0	0	0	2.4
Semis	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
% Semis	0	0.5	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0.3
Bus	0	9	1	10	0	0	9	9	10	9	0	19	0	0	0	0	38
% Bus	0	0.6	2.2	0.7	0	0	4.7	4.3	3.4	1.4	0	2	0	0	0	0	1.5
Bike	0	4	8	12	0	0	3	3	7	0	0	7	0	5	0	5	27
% Bike	0	0.3	17.4	0.8	0	0	1.6	1.4	2.4	0	0	0.7	0	100	0	38.5	1

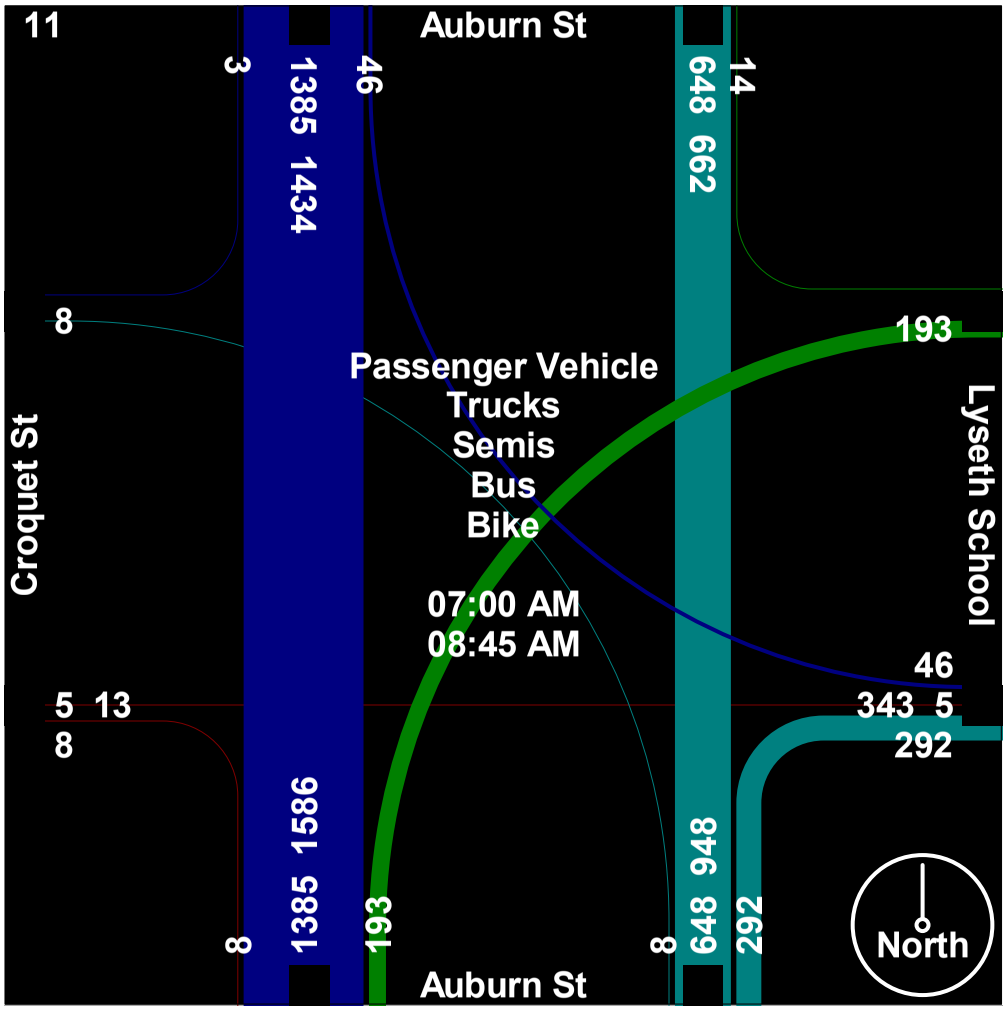
Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 3



Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 4



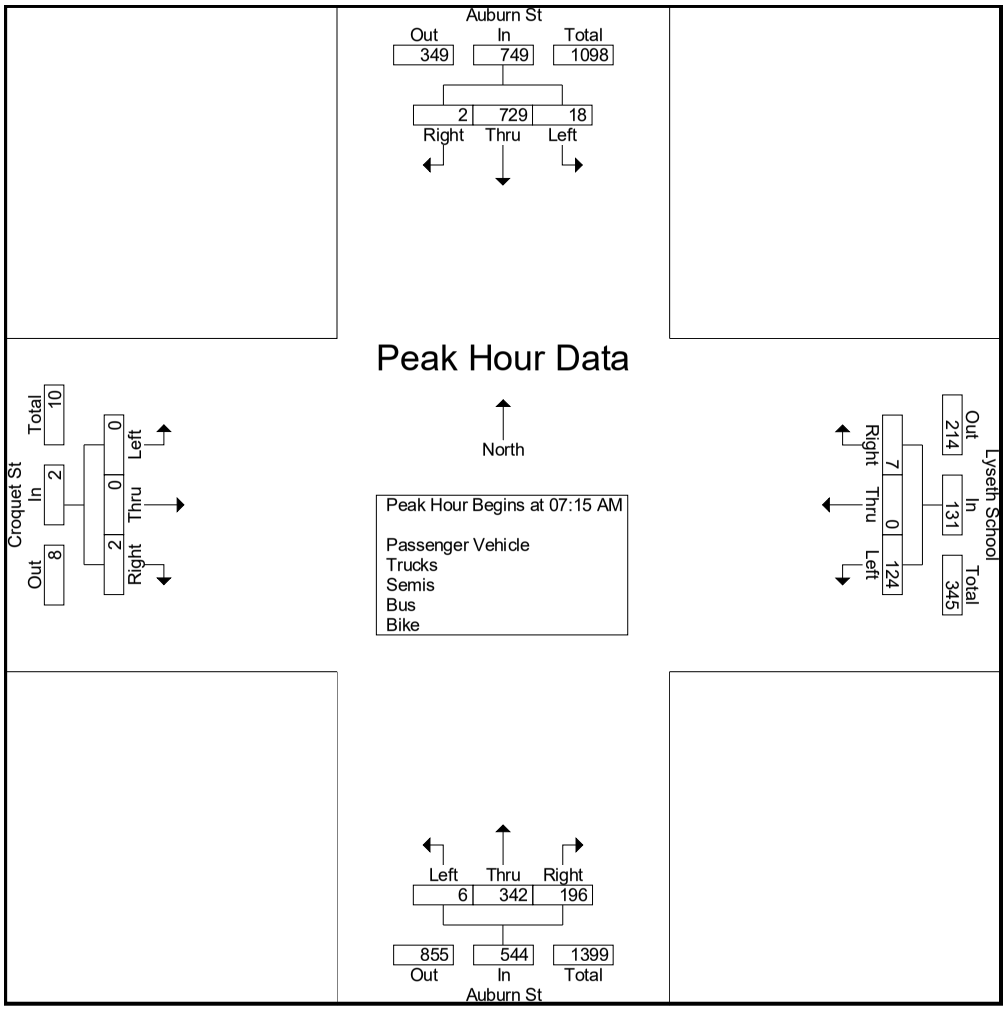
Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 5

	Auburn St From North				Lyseth School From East				Auburn St From South				Croquet St From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	196	4	200	**2**	0	18	20	41	60	**4**	105	**1**	0	0	**1**	326
07:30 AM	0	**197**	3	200	2	0	**53**	**55**	**86**	88	0	**174**	0	0	0	0	**429**
07:45 AM	**2**	194	**7**	**203**	1	0	36	37	48	90	1	139	1	0	0	1	380
08:00 AM	0	142	4	146	2	0	17	19	21	**104**	1	126	0	0	0	0	291
Total Volume	2	729	18	749	7	0	124	131	196	342	6	544	2	0	0	2	1426
% App. Total	0.3	97.3	2.4		5.3	0	94.7		36	62.9	1.1		100	0	0		
PHF	.250	.925	.643	.922	.875	.000	.585	.595	.570	.822	.375	.782	.500	.000	.000	.500	.831

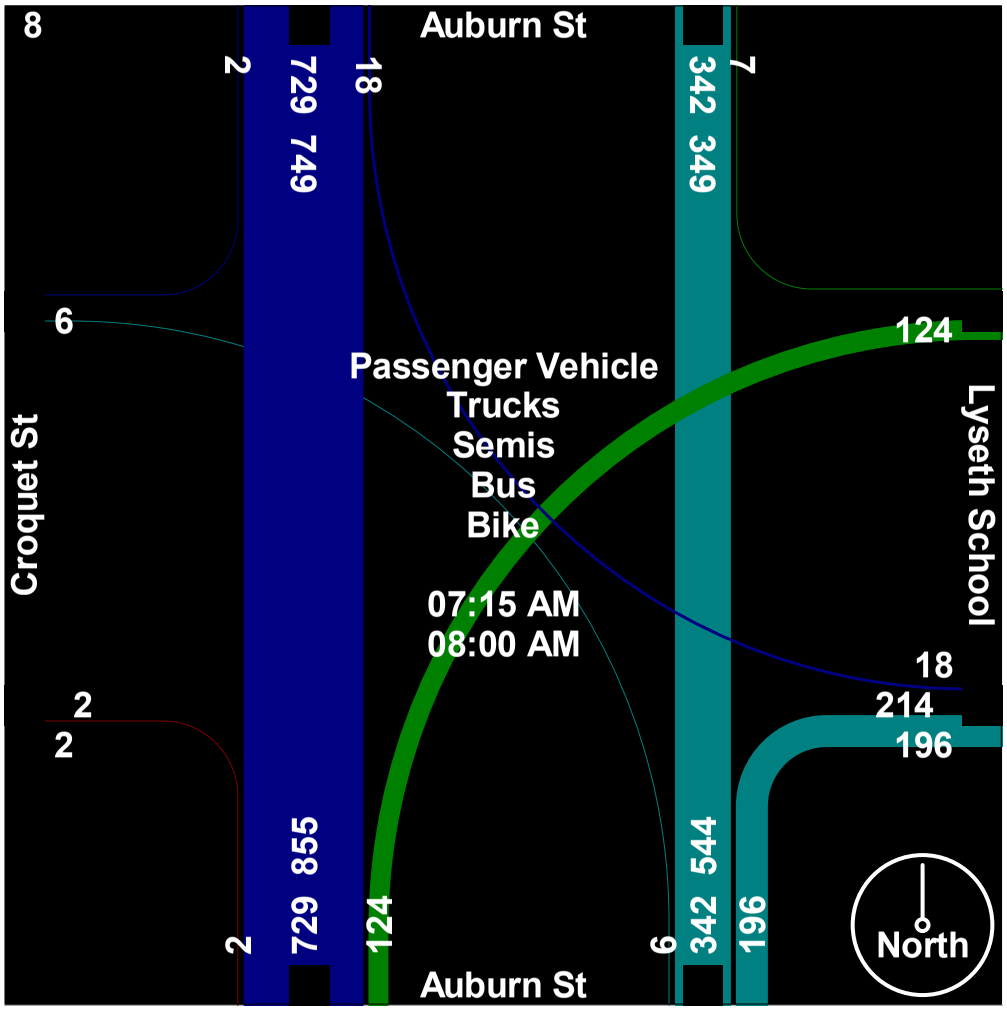
Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 6



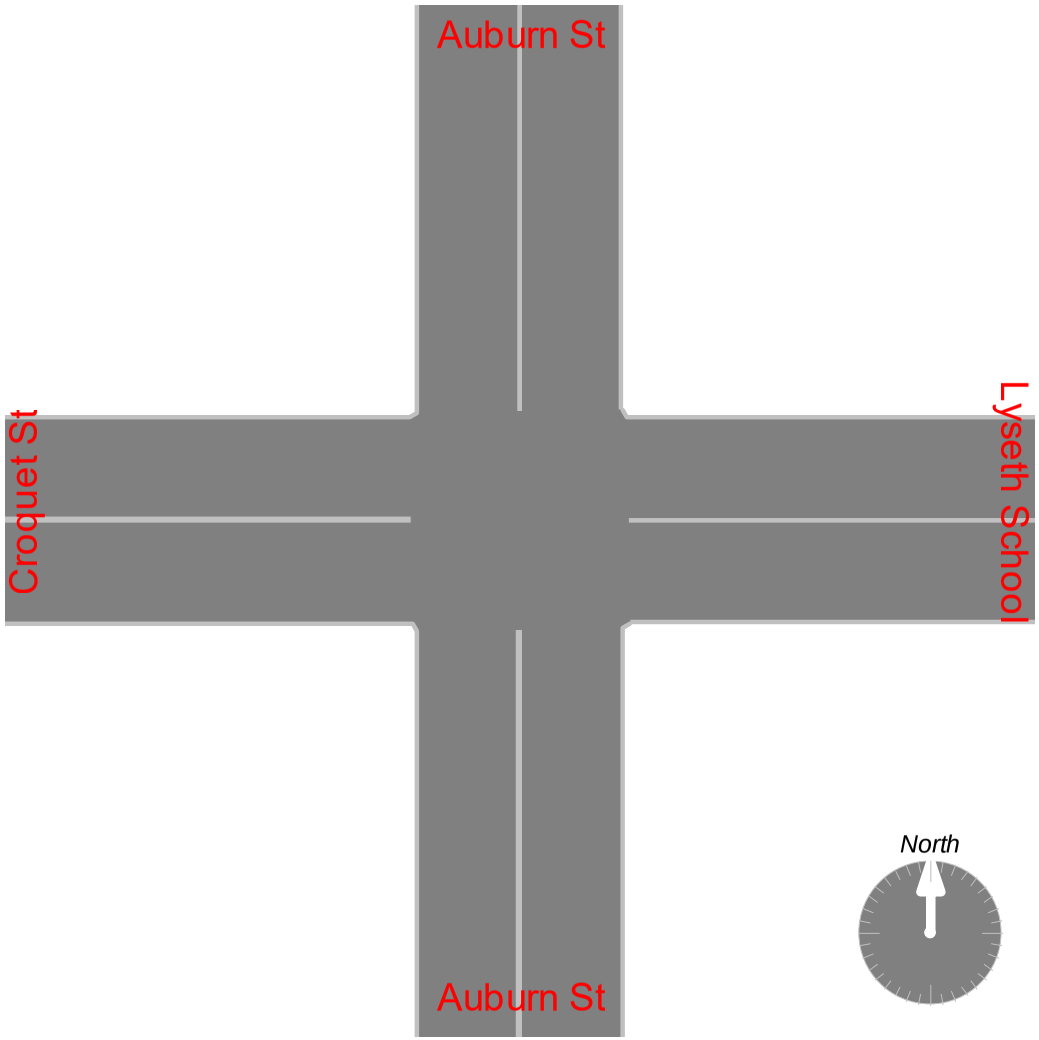
Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 7



Portland Auburn & Lyseth
Tuesday September 20, 2016
Cloudy
Count By: Dawn-Marie Fahey

File Name : Portland Lyseth & Auburn AM 092016
Site Code : 00091916
Start Date : 9/20/2016
Page No : 8



Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
Start Date : 9/20/2016
Page No : 1

Groups Printed- Passenger Vehicle - Truck - Semis - Bus - Bike

	Bartley Ave From East			Junior St From South			Bartley Ave From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
07:00 AM	1	0	1	0	1	1	3	1	4	6
07:15 AM	1	0	1	1	3	4	17	0	17	22
07:30 AM	3	4	7	0	16	16	23	1	24	47
07:45 AM	3	1	4	0	8	8	12	0	12	24
Total	8	5	13	1	28	29	55	2	57	99
08:00 AM	1	1	2	0	2	2	7	2	9	13
08:15 AM	2	1	3	0	3	3	6	0	6	12
08:30 AM	3	3	6	0	2	2	14	4	18	26
08:45 AM	2	1	3	0	17	17	19	1	20	40
Total	8	6	14	0	24	24	46	7	53	91

Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

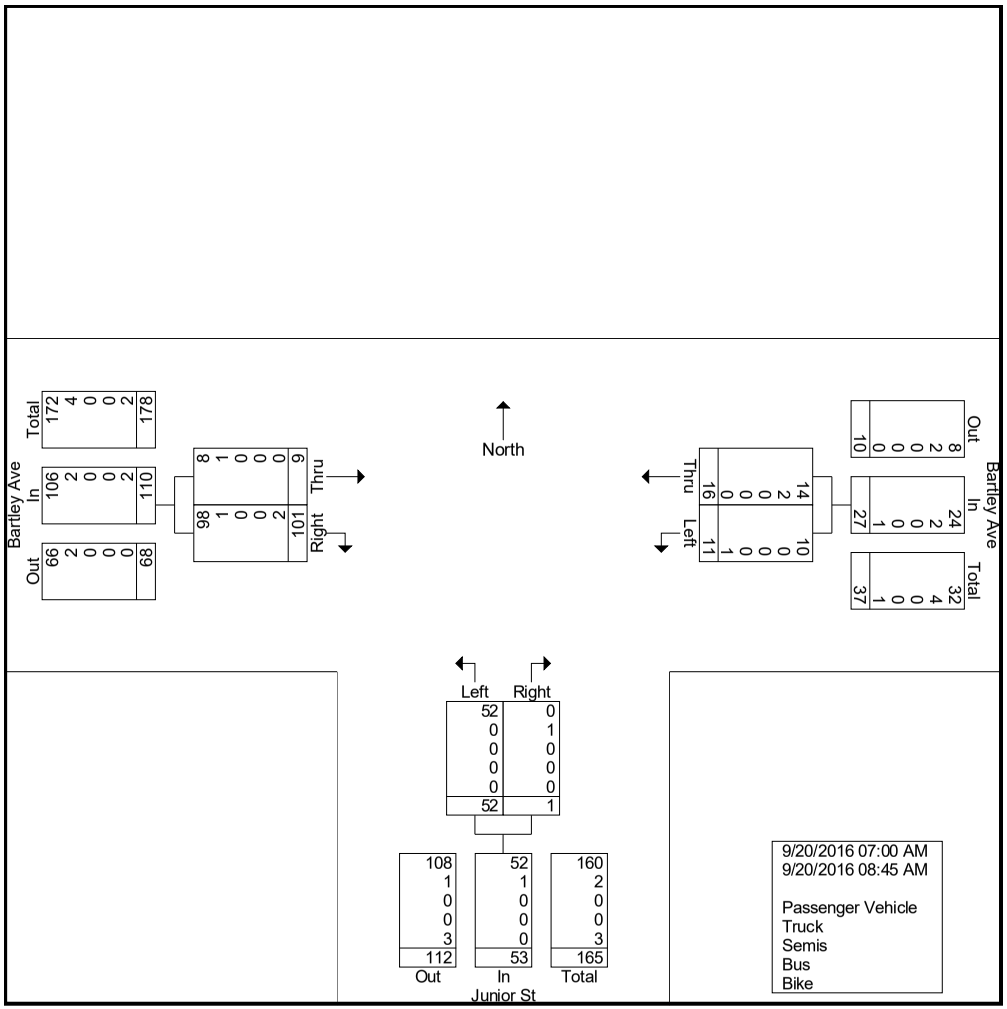
File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
Start Date : 9/20/2016

Groups Printed- Passenger Vehicle - Truck - Semis - Bus - Bike

	Bartley Ave From East			Junior St From South			Bartley Ave From West			
	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Grand Total	16	11	27	1	52	53	101	9	110	190
Apprch %	59.3	40.7		1.9	98.1		91.8	8.2		
Total %	8.4	5.8	14.2	0.5	27.4	27.9	53.2	4.7	57.9	
Passenger Vehicle	14	10	24	0	52	52	98	8	106	182
% Passenger Vehicle	87.5	90.9	88.9	0	100	98.1	97	88.9	96.4	95.8
Truck	2	0	2	1	0	1	1	1	2	5
% Truck	12.5	0	7.4	100	0	1.9	1	11.1	1.8	2.6
Semis	0	0	0	0	0	0	0	0	0	0
% Semis	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0
Bike	0	1	1	0	0	0	2	0	2	3
% Bike	0	9.1	3.7	0	0	0	2	0	1.8	1.6

Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
Start Date : 9/20/2016
Page No : 3



Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
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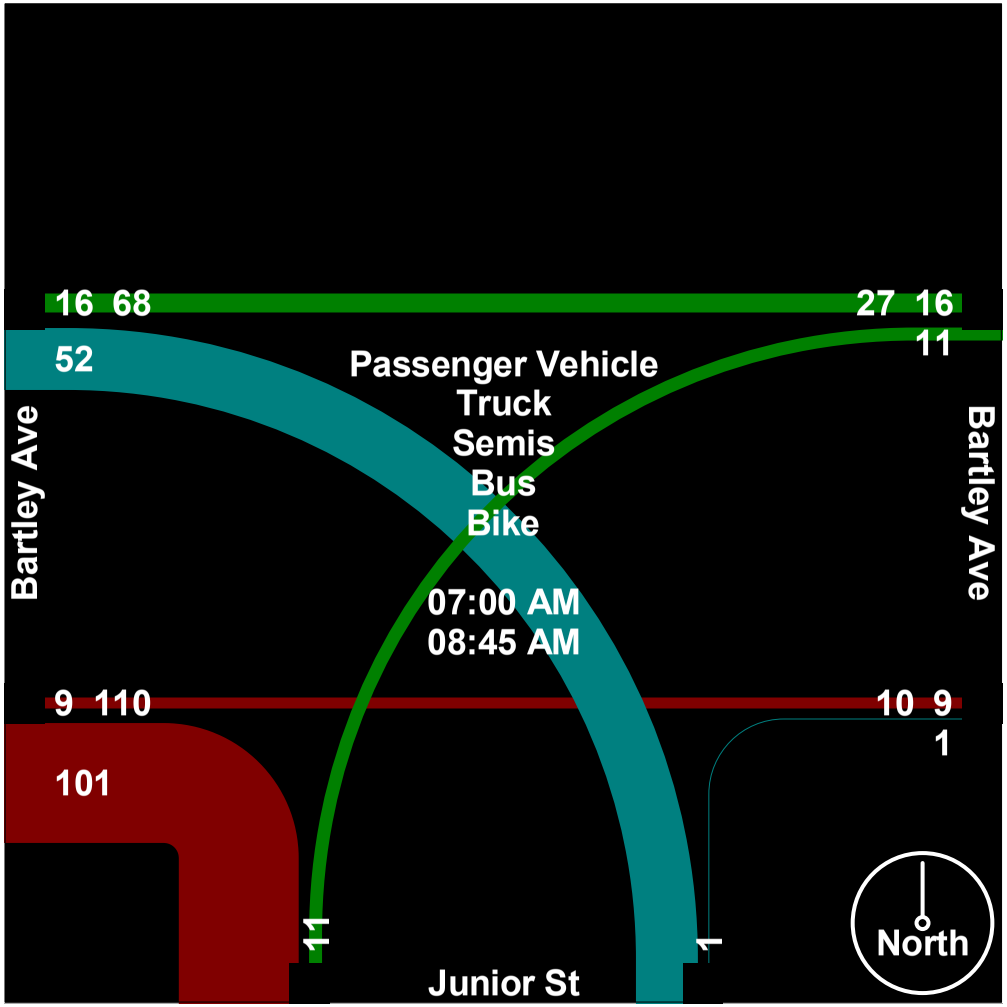


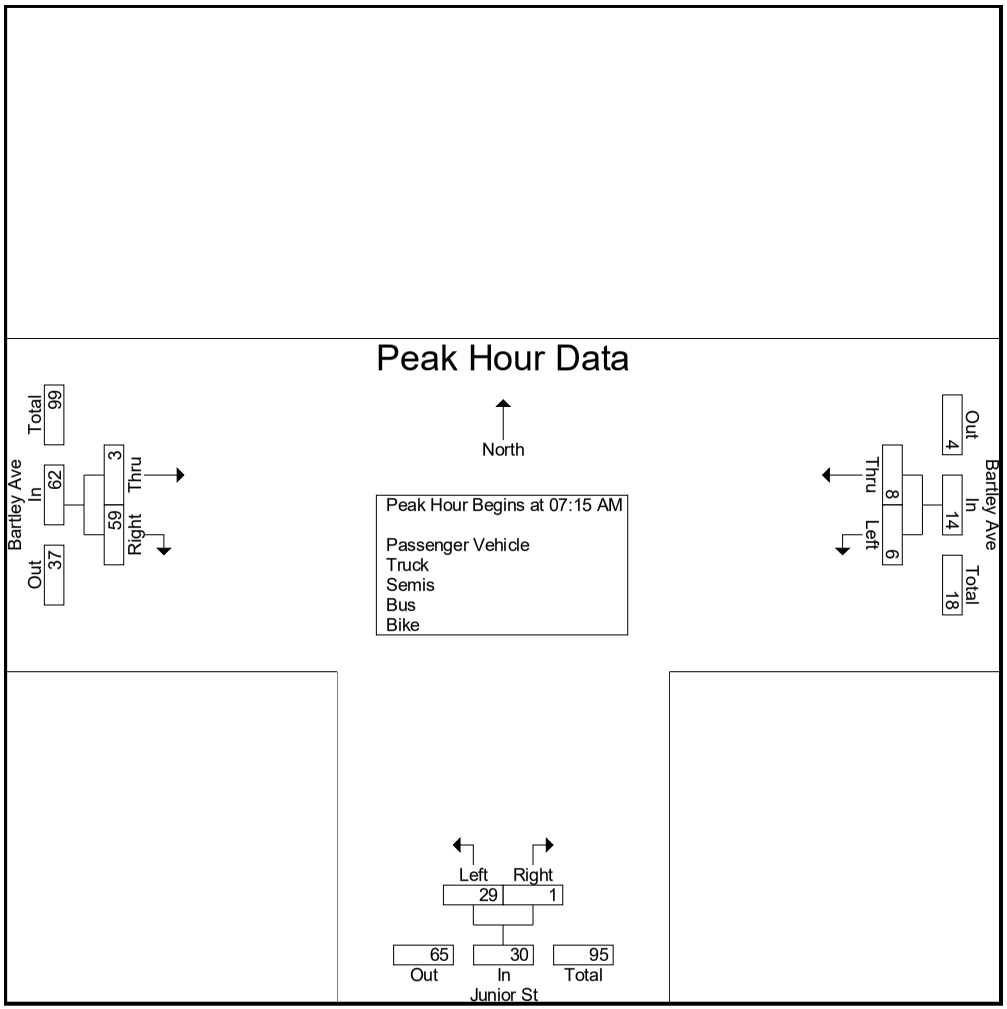
Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
Start Date : 9/20/2016
Page No : 5

	Bartley Ave From East			Junior St From South			Bartley Ave From West			
Start Time	Thru	Left	App. Total	Right	Left	App. Total	Right	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	1	0	1	**1**	3	4	17	0	17	22
07:30 AM	**3**	**4**	**7**	0	**16**	**16**	**23**	1	**24**	**47**
07:45 AM	3	1	4	0	8	8	12	0	12	24
08:00 AM	1	1	2	0	2	2	7	**2**	9	13
Total Volume	8	6	14	1	29	30	59	3	62	106
% App. Total	57.1	42.9		3.3	96.7		95.2	4.8		
PHF	.667	.375	.500	.250	.453	.469	.641	.375	.646	.564

Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
Site Code : 00092079
Start Date : 9/20/2016
Page No : 6



Portland: Junior & Bartley
Tuesday September 20, 2016
Cloudy
Count By: Patrick Frie

File Name : Portland Junior & Bartley AM 092116
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Start Date : 9/20/2016
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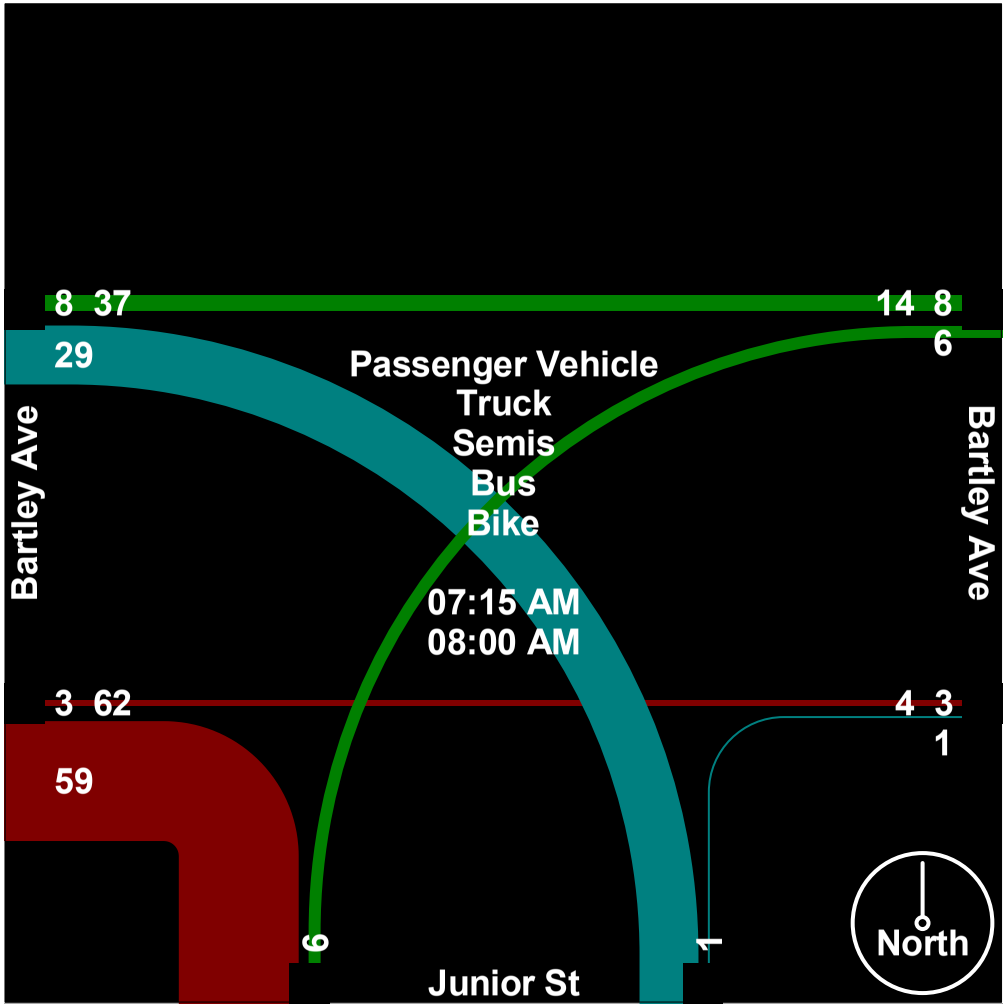

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Cloudy
Count By: Patrick Frie

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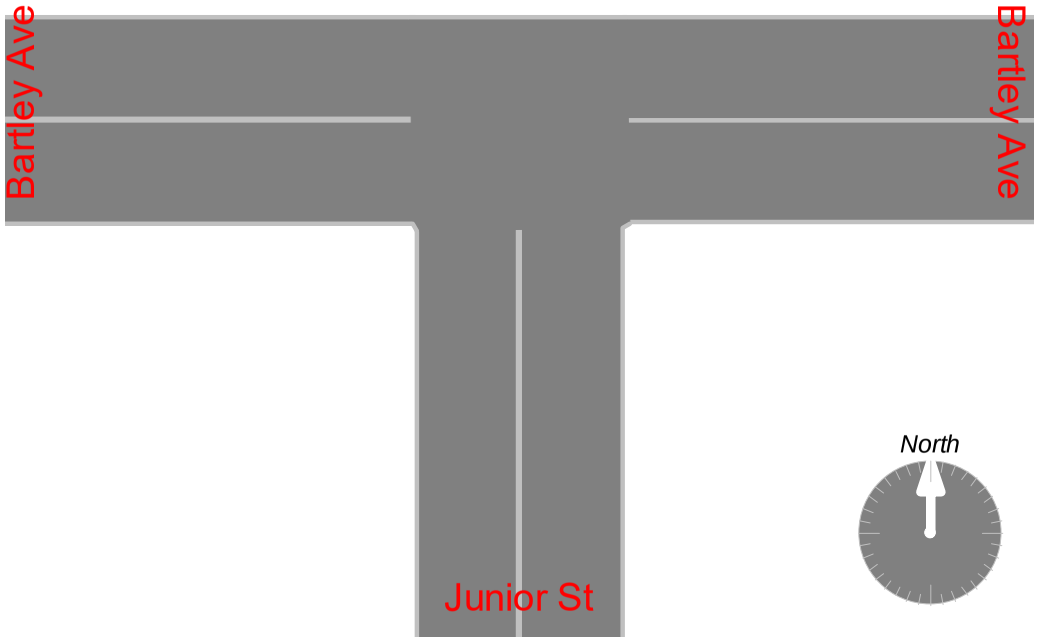

Section 11: Significant Natural Features

11.1 Coordination with Regulatory

Conversations with regulatory requiring applicability for SLODA and stormwater treatment measures have been included as attachments for this section.

11.2 Natural Features Study

A natural resources study completed by Jones Associates is also included as an attachment to this section.

11.3 Soils

Information regarding existing soils is included as an attachment to this section, and is further reported in Section 12: Stormwater Treatment

ATTACHMENT 11.1

CONVERSATIONS WITH REGULATORY AGENCIES

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

Kathleen O. Sculley

From: Peter McCormack <MCCORP@portlandschools.org>
Sent: Thursday, January 07, 2016 2:30 PM
To: Ethan Owens; Lenore Williams; Jennifer Claster
Cc: David Onos
Subject: RE: Lyseth-Lyman Moore Schools - Portland, Maine

Hi All:

The original Lyseth, according to the plaque in our entrance, was built in 1959 - 60. Your photo only shows two wings, so I suspect the 1965
alteration was the addition of the third wing.

Thanks, Peter

>>> Ethan Owens 1/7/2016 11:43 AM >>>
I can't confirm this but I was told this photo was from 1962. Maybe Lenore or Peter might know when the schools were built.

Ethan Owens
Certified Playground Safety Inspector
Athletic Facilities, Playground & Courts Manager Recreation Dept. ~ City of Portland
134 Congress St
Portland, Maine 04103 ~ USA
207-756-8275/Fax 207-756-8279
eowens@portlandmaine.gov

>>> Jennifer Claster <jennifer.claster@wright-pierce.com> 1/7/2016
10:54 AM >>>

Hi Marybeth,

I am not sure when the schools were originally built, but I have plans that document the following:

- The Lyseth building was altered in 1965.
- The Lyman-Moore building was altered in 1994.

If that is not enough information, I can dig further.

We think there will be a decrease in impervious * our preliminary calculations indicate a 8,500 SF decrease.

It looks like there will be about 5 acres of disturbance, not including the athletic field renovation. All of the proposed disturbance is most likely on ground that has been previously disturbed as part of the site*s development.

Thanks!

Jennifer

From: Richardson, Marybeth [mailto:Marybeth.Richardson@maine.gov]
Sent: Thursday, January 07, 2016 10:43 AM
To: Jennifer Claster
Cc: David Onos (onosda@portlandschools.org); Ethan Owens (eowens@portlandmaine.gov)
Subject: RE: Lyseth-Lyman Moore Schools - Portland, Maine

I searched our database using the keyword *school* in Portland and found no records of any Site Law, stormwater or NRPA permits for this school. This could be because the school pre-dated those laws and would be grandfathered. Do you know when the school was built?

Can you quantify the proposed improvements in terms of new impervious/developed areas?

Marybeth Richardson, Regional Licensing and Compliance Manager DEP Southern Maine Regional Office, Bureau of Land Resources
312 Canco Road
Portland, ME 04103
(p) 207-592-1692
Marybeth.richardson@maine.gov

From: Jennifer Claster [mailto:jennifer.claster@wright-pierce.com]
Sent: Thursday, January 07, 2016 9:45 AM
To: Richardson, Marybeth
Cc: David Onos (onosda@portlandschools.org); Ethan Owens (eowens@portlandmaine.gov)
Subject: Lyseth-Lyman Moore Schools - Portland, Maine

Dear Marybeth,

We are assisting the City of Portland*s Schools and Recreation Departments with a master plan for improvements to drainage, vehicular circulation, parking, and pedestrian circulation, as well as drainage and layout changes to the athletic fields at the Lyseth Elementary and Lyman-Moore Middle School campus at 171 Auburn Street in Portland (see orthophoto below). The chart, block and lot information are: 274 B012001. The property is approximately 25 acres. A draft preliminary master plan and existing conditions plan are attached for your reference.

The purpose of our current project is to develop a plan for phased improvements that would be constructed over three years. Once the master plan is finalized, funds would be sought for design, permitting and construction of the phased improvements. As part of this master planning process, we are identifying permits that would be needed, as well as the costs and engineering effort associated with those permits.
In a pre-application meeting with the City of Portland yesterday, it was suggested that we contact DEP to see whether there are any existing permits on file with DEP for the property, and whether any additional permits might be needed from the Department. Is that something you can help is with?

Thank you for your assistance, and I look forward to hearing from you.

Regards,

Jennifer Claster

_____
Jennifer Z. Claster, RLA | Maine Licensed Landscape Architect

75 Washington Avenue | Suite 202 | Portland, ME 04101
Office: 207.761.2991 | Direct: 207.319.1506

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*** Please Note: ***
This email and its attachments may be confidential and are intended solely for the use of the individual to whom it was addressed. Any views or opinions expressed are solely those of the author and do not necessarily represent those of the Portland Public Schools.

Michael A. Guethle

From: Richardson, Marybeth <Marybeth.Richardson@maine.gov>
Sent: Tuesday, January 12, 2016 7:29 AM
To: Jennifer Claster
Subject: RE: Lyseth-Lyman Moore Schools - Portland, Maine

I don't think this changes anything with respect to review under the Site Law. I don't believe that the proposed changes would trigger a review under the statute, so the City wouldn't technically need to apply Site Law standards or submit a notification to this agency. Only the local municipal site plan review standards would apply.

The project may or may not trigger the stormwater law, but even if it does, the project would be exempt because the City has stormwater capacity. FYI, the City was recently sent a letter detailing the recent changes to Chapter 500 and notifying it that the local stormwater ordinance will need to be updated to reflect those changes in order to retain the City's capacity designation.

Let me know if you have any other questions or if you think I've missed something.

Marybeth Richardson, Regional Licensing and Compliance Manager
DEP Southern Maine Regional Office, Bureau of Land Resources
312 Canco Road
Portland, ME 04103
(p) 207-592-1692
Marybeth.richardson@maine.gov

From: Jennifer Claster [mailto:jennifer.claster@wright-pierce.com]
Sent: Monday, January 11, 2016 2:51 PM
To: Richardson, Marybeth
Subject: RE: Lyseth-Lyman Moore Schools - Portland, Maine

Hi Marybeth,

Just closing the loop on our discussion last week. I have some new information, and I am not sure whether it changes the requirement for a SLODA permit. What I thought you said on the phone last week was that this project would not require a SLODA permit because it would not create more than 3 Acres of new disturbance in areas that had not previously been disturbed. Also, because the schools had been constructed prior to 1970 and the project was grandfathered.

I understand that Portland has "delegated authority" for the Site Location of Development Act (SLODA), which means that the site plan will be reviewed by the City, who would request permission from DEP to review it under site location. Here's the new information:

- The Lyseth building was originally built in 1959 – 60 and altered in 1965 to add a wing.
- The Lyman-Moore building appears to have been in place before 1962, and an addition was put on the building in 1994.
- There will most likely be a small **increase** in impervious, probably somewhere between 2,500 SF and 11,000 SF.
- It looks like there will be about 5.5 acres of disturbance, not including the athletic field renovation. The athletic field renovation would involve another 6.5 Acres of disturbance. The vast majority (all but maybe 8,000 SF) of

the proposed disturbance is most likely going to be on ground that has been previously disturbed as part of the site's development. We have been told, but cannot confirm, that the attached photo is from 1962.

Thanks!

Jennifer

Jennifer Z. Claster, RLA | Maine Licensed Landscape Architect

75 Washington Avenue | Suite 202 | Portland, ME 04101
Office: 207.761.2991 | **Direct**: 207.319.1506

WRIGHT-PIERCE **Water | Wastewater | Infrastructure**
Facebook .. Linkedin .. Twitter .. Blog .. Flickr

From: Jennifer Claster
Sent: Thursday, January 07, 2016 9:44 AM
To: Richardson, Marybeth (Marybeth.Richardson@maine.gov)
Cc: David Onos (onosda@portlandschools.org); Ethan Owens (eowens@portlandmaine.gov)
Subject: Lyseth-Lyman Moore Schools - Portland, Maine

Dear Marybeth,

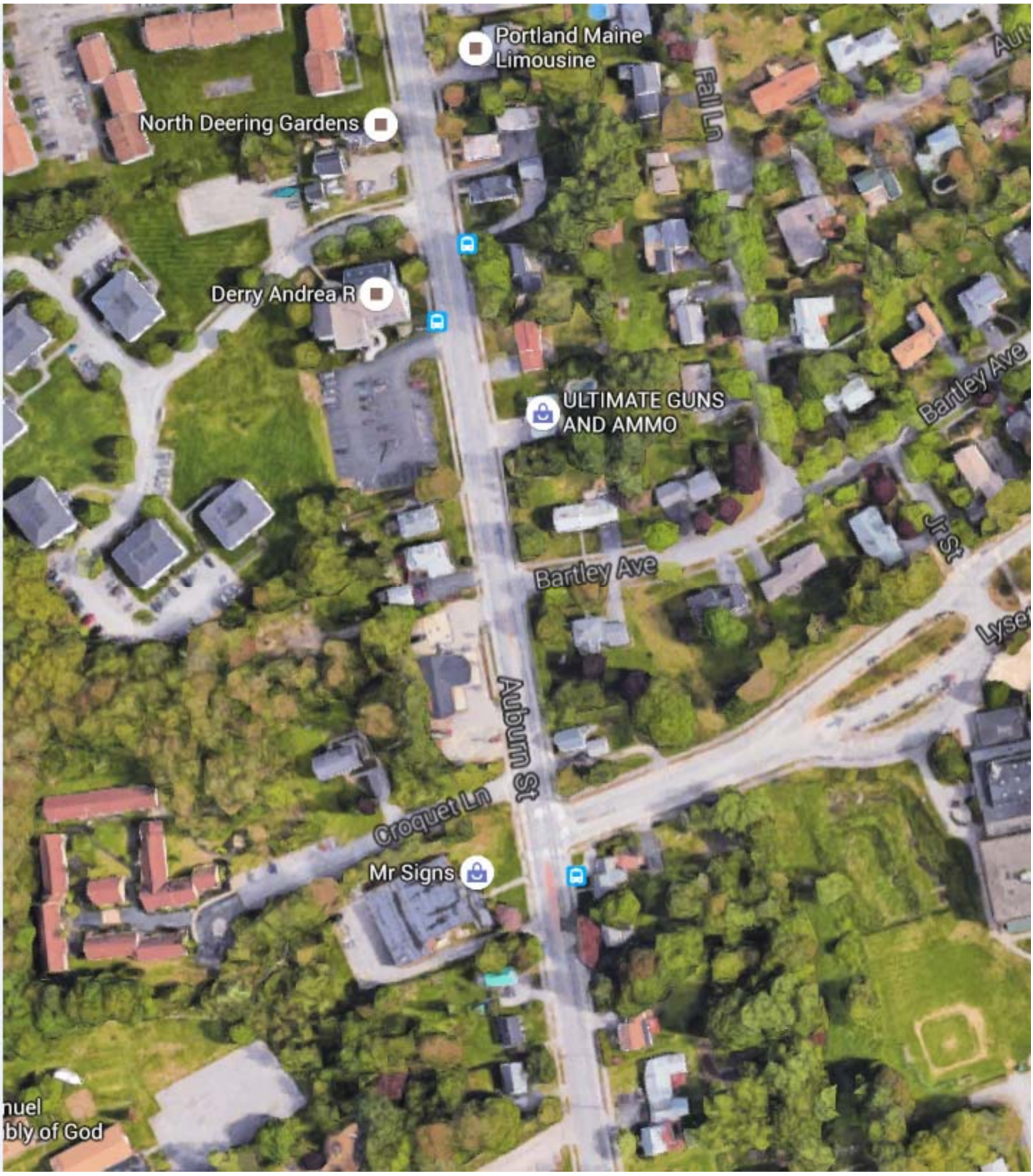
We are assisting the City of Portland's Schools and Recreation Departments with a master plan for improvements to drainage, vehicular circulation, parking, and pedestrian circulation, as well as drainage and layout changes to the athletic fields at the Lyseth Elementary and Lyman-Moore Middle School campus at 171 Auburn Street in Portland (see orthophoto below). The chart, block and lot information are: 274 B012001. The property is approximately 25 acres. A draft preliminary master plan and existing conditions plan are attached for your reference.

The purpose of our current project is to develop a plan for phased improvements that would be constructed over three years. Once the master plan is finalized, funds would be sought for design, permitting and construction of the phased improvements. As part of this master planning process, we are identifying permits that would be needed, as well as the costs and engineering effort associated with those permits. In a pre-application meeting with the City of Portland yesterday, it was suggested that we contact DEP to see whether there are any existing permits on file with DEP for the property, and whether any additional permits might be needed from the Department. Is that something you can help is with?

Thank you for your assistance, and I look forward to hearing from you.

Regards,

Jennifer Claster



Jennifer Z. Claster, RLA | Maine Licensed Landscape Architect

75 Washington Avenue | Suite 202 | Portland, ME 04101
Office: 207.761.2991 | **Direct**: 207.319.1506

ATTACHMENT 11.2

WETLANDS REPORT AND DELINEATION

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

JONES
ASSOCIATES
Foresters, Surveyors and
Environmental Consultants

WETLAND REPORT

Lyseth Elementary School

Lyman Moore Middle School

Portland, Maine

Prepared for:
Wright-Pierce
75 Washington Avenue Suite 202
Portland, ME 04101

Prepared by:
Jones Associates, Inc.
280 Poland Spring Road
Auburn, Maine 04210
(207) 241-0235

JAI#16-069PD
September 2016

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INTRODUCTION

Jones Associates, Inc. was contracted to provide wetland delineation, potential vernal pool identification, and stream bank locations for the Lyseth Elementary School and Lyman-Moore Middle School properties owned by the City of Portland and located in Portland, Maine. The focal area, according to parcel data obtained through the Maine Office of GIS consists of a 23+/- acres. All are located within the City of Portland, Cumberland County, in southern coastal Maine. The following report summarizes site conditions observed during site visits in September of 2016.

Wetland/upland boundaries were identified and delineated according to *U.S. Army Corps of Engineers (ACOE) Wetlands Delineation Manual (Environmental Laboratory 1987)* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, January 2012*. Wetlands were identified based on the presence of hydric soil (inundated or saturated soil conditions resulting from permanent or periodic inundation by ground water or surface water), hydrology (movement and distribution of water), and predominance of hydrophytic species (Hydrophytes: vegetation typically adapted for life in saturated soil conditions).

Wetland delineation consists of transecting the property, examining periodic soil samples, observing any evidence of hydrology, and assessing each stratum of vegetation for its percentage of hydrophytic species. If all three factors were evident, the study plot was considered wetland habitat. Transitions between upland and wetland were clearly marked with blue sub-zero flagging every 30-40 feet, and labeled with alphanumeric codes to identify individual systems (A1, A2, A3….).

Wetland flags were located using Trimble Global Positioning System (GPS) technology with expected average accuracy of sub-meter. This method is recognized by both state and federal agencies. This being stated, Jones Associates, Inc. recommends that the wetland boundary be surveyed using a more precise method of location if any fill or regulated activities are to be performed within 20 feet of the GPS locations.

River, Stream, and Brook delineation is based on identification of physical indicators and follows definitions from MSRA Title 38 § 480-B. Stream banks were clearly marked with orange sub-zero flagging every 30-40 feet or at abrupt flow path changes and labeled with alphanumeric codes to identify individual systems with the prefix “S”(S A1, S A2, S A3….).

GENERAL EXISTING CONDITIONS

The site contains the Lyseth Elementary School, Lyman-Moore Middle School, paved parking areas, concrete sidewalks, athletic fields, basketball courts, tennis courts, storm water management systems, and associated buildings. Private residential lots surround the majority of the observed area with vehicular access from Jr Street to the north and Washington Avenue to the west. Established dirt paths provide non-vehicular access to the observed area from several directions. The existing land use area is highly impacted by development and urbanization.

The observed area is <10% forested with pole sized to mature timber creating 80-100% canopy closure. Natural canopy openings were not observed while field investigations were

being conducted. Manmade openings within the site are developed and maintained. Wetlands found on the property primarily occur in association with the drainage area along the western edge of the existing land use area.

SOILS

According to U.S. Department of Agriculture, Natural Resources Conservation Service, the primary soils series typed on the parcel are Buxton Silt Loam (20%); Deerfield Loamy Sand (45%), Hollis Fine Sand (15%), Scantic Silt Loam (<1%), and Windsor Loamy Sand (5%) characteristics of each series are described in the soil report according to: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Official Soil Series Descriptions, https://soilseries.sc.egov.usda.gov/osdname.asp

The Buxton series consists of very deep, moderately well drained soils that formed in glaciolacustrine or glaciomarine deposits on coastal lowlands and river valleys. Slope ranges from 3 to 50 percent. Permeability is moderate or moderately slow in the surface horizon, moderately slow or slow in the upper part of the subsoil, and slow or very slow in the lower part of the subsoil and in the substratum. Mean annual temperature is about 7 degrees C, and mean annual precipitation is about 1118 mm at the type location. **GEOGRAPHIC SETTING:** Buxton soils are on coastal lowlands and river valleys. Slope ranges from 3 to 50 percent. The soils formed in medium, moderately fine, and fine textured glaciolacustrine or glaciomarine deposits. The climate is humid and cool temperate. Mean annual precipitation ranges from 860 to 1220 mm, and mean annual temperature ranges from 6 to 8 degrees C. The frost-free season ranges from 90 to 160 days. Elevation ranges from 2 to 274 meters above mean sea level. DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Moderately well drained. Surface runoff is medium or rapid depending on slope. Saturated Hydraulic Conductivity is moderately high in the surface horizon and the upper part of the subsoil, and low to moderately low in the lower part of the subsoil and in the substratum. USE AND VEGETATION: Cleared areas are used mainly for hay, forage crops, or pasture. Some areas are used for silage corn or vegetables. The remaining areas are forested. Common tree species include eastern white pine, balsam fir, paper birch, white spruce, eastern hemlock, and northern red oak.

The Deerfield series consists of very deep, moderately well drained soils formed in glaciofluvial deposits. They are nearly level to strongly sloping soils on terraces, deltas, and outwash plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is high or very high. Mean annual temperature is about 49 degrees F. and mean annual precipitation is about 47 inches. GEOGRAPHIC SETTING: Deerfield soils are level to strongly sloping soils on terraces, deltas, and outwash plains. Slope gradients are commonly 0 to 3 percent, but range to 15 percent. The soils formed in thick deposits of sand derived mainly from granite, gneiss and quartzite, but in places containing materials from schist and sandstone. The sand is poorly graded; medium sand is generally dominant and typically contains little or no gravel. Mean annual temperature ranges from 45 to 52 degrees F. and the mean annual precipitation typically ranges from 38 to 55 inches but the range includes as low as 26 inches in some places east of Adirondack Mountains in the Champlain Valley of New York. The mean growing season ranges from 120 to 200 days.

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland

soils on bedrock-controlled hills and ridges. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. Mean annual temperature is about 9 degrees C, and mean annual precipitation is about 1205 mm. GEOGRAPHIC SETTING: Hollis soils are nearly level to very steep soils on bedrock controlled hills, modified by glacial processes. Slope ranges from 0 to 60 percent. The soils formed in a thin mantle of till derived from local bedrock of schist, granite, and gneiss. Mean annual temperature ranges from 7 to 13 degrees C and mean annual precipitation ranges from 910 to 1295 mm, but the range includes as low as 660 mm in some places east of Adirondack Mountains in the Champlain Valley of New York. The growing season ranges from 115 through 185 days. DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Well drained and somewhat excessively drained. Surface runoff is negligible to very high. Saturated hydraulic conductivity is moderately high or high. USE AND VEGETATION: Mostly forested. Small areas with few rock outcrops are cleared of stones and used for cultivated crops, but most cleared areas are in hay or pasture. Scattered areas are used for community development. Common trees are northern red, white, black, and chestnut oak, hickory, eastern white pine, eastern hemlock, and gray and black birch.

The Scantic series consists of very deep, poorly drained soils formed in glaciomarine or glaciolacustrine deposits on coastal lowlands and river valleys. Slope ranges from 0 to 8 percent. Saturated hydraulic conductivity of the surface and subsurface horizons is moderately high or high and low or moderately slow in the subsoil and substratum. Mean annual temperature is about 7 degrees C, and mean annual precipitation is about 1168 mm inches at the type location. GEOGRAPHIC SETTING: Scantic soils are on coastal lowlands and river valleys. Slope ranges from 0 to 8 percent. The soils formed in medium, moderately fine and fine textured glaciomarine or glaciolacustrine deposits. The climate is humid and cool temperate. Mean annual temperature ranges from about 6 to almost 8 degrees C , and mean annual precipitation ranges from 863 to 1219 mm. The frost-free season ranges from 90 to 160 days. Elevation ranges from about 2 to 275 m above mean sea level. DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Poorly drained. Surface runoff is slow. Saturated hydraulic conductivity of the surface and subsurface horizons is moderately high or high and low or moderately slow in the subsoil and substratum. USE AND VEGETATION: Mostly idle or woodland, some areas are used for growing hay and pasture. Common tree species include red maple, elm, gray birch, white ash, balsam fir, red and white spruce, tamarack, and some eastern white pine.

The Windsor series consists of very deep, excessively drained soils formed in sandy outwash or eolian deposits. They are nearly level through very steep soils on glaciofluvial landforms. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is high or very high. Mean annual temperature is about 10 degrees C and mean annual precipitation is about 1092 mm. GEOGRAPHIC SETTING: Windsor soils are nearly level through very steep soils typically on glaciofluvial landforms but include late-Wisconsin-aged dunes. The steeper slopes are typically on terrace escarpments. Slope ranges from 0 to 60 percent. The soils formed in outwash or eolian deposits of poorly graded sands and loamy sands derived mainly from crystalline rocks. Mean annual temperature ranges from 7 to 12 degrees C, and the mean annual precipitation typically ranges from 965 to 1270 mm, but the range includes as low as 660 mm in some places east of Adirondack Mountains in the Champlain Valley of New York. The growing season ranges from 120 to 190 days. DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Excessively drained. Surface runoff is negligible to medium. Saturated

hydraulic conductivity is high or very high. USE AND VEGETATION: Most areas are forested or in low growing brushy vegetation. Some areas are used for silage corn, hay, and pasture. Small areas, mostly irrigated, are used for shade tobacco, vegetables and nursery stock. Some areas are in community development. Common trees are white, black, and northern red oak, eastern white pine, pitch pine, gray birch, poplar, red maple, and sugar maple.

WETLAND CHARACTERISTICS

The term "wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

--Corps of Engineers Wetlands Delineation Manual (U.S. Army Corps of Engineers 1987)

All wetlands were identified using the Cowardin classification system (Cowardin etal.1979). Wetlands within the Focal Area includes classification Palustrine; meaning all inland, nontidal wetlands characterized by the presence of trees, shrubs, and emergent vegetation Observed within the Focal Area are considered PFO (Palustrine forested), with micro classifications of PSS (Palustrine scrub/shrub) within a forested setting.

Forested wetlands are located in the low lying areas directly associated with Fall Brook and its watershed. At a landscape scale the portion of the Focal Area containing Fall Brook and the associated wetlands can be classified as a broad swale within an urban setting. Topography in this area can be classified as flat to sloping, typical of urban impaired streams. Microtopography within the area ranges from pit and mound, to broader concave depressions. Drainage patterns were observed throughout and are created by the movement of surface water from up gradient areas as well as from several drainage pipes outlets. Drift deposits were observed adjacent to the stream channel along with sediment deposits which was also found within the stream channel. Small scrub shrub wetlands can be found within the forested wetlands and due to their size have been lumped into the forested wetland classification.

Hydrology for the wetlands is typically supplied from the surrounding uplands and stormwater run-off. Predominantly, delineated wetlands are PFO (palustrine forested); dominated by Norway maple (*Acer platanoides)*; the scrub-shrub layer is largely made up of American red raspberry (*Rubus idaeus)*, and Smilax spp. Due to the high erodibility of the soils surface layer much of the wetlands are lacking a heavily vegetated scrub shrub layer. Herbaceous species found within the wetland are a mix of annuals and vegetative reproducing perennials. This includes sensitive fern (*Onoclea sensibilis*), cinnamon fern (*Osmundastrum cinnamomeum*), *Carex spp.* and *Scirpus spp*. The soils observed have instances of mucky modified sand, saturation, and cracked surfaces. Many of the facultative trees within the wetland boundary have grown with hydromorphic adaptations.

Fall Brook flows from north to south along the western edge of the focal area and is identified as an Urban Impaired Stream. Maine DEP Chapter 502 defines an Urban Impaired Stream as “A stream is considered impaired if it fails to meet water quality standards because of

effects of stormwater runoff from developed land. Additional stormwater treatment controls are necessary in urban watersheds of impaired streams because proposed stormwater sources in urban and urbanizing areas contribute to the further degradation of stream water quality. Impaired streams are listed in Appendix B of this rule and include all streams listed under Category 4-A or Category 5-A in the 2004 Integrated Water Quality Monitoring and Assessment Report that have urban non-point source (NPS) indicated as a potential source." During field investigations Fall Brook was not running water and appeared to not have any significant running water for a period of several months.

VERNAL POOLS

As defined by Maine's Department of Environmental Protection (MDEP): A vernal pool, also referred to as a seasonal forest pool, is a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus spp*.), as well as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition.

As of September 1, 2007, "Significant Vernal Pools" are defined by MDEP as "Significant Wildlife Habitat." As read in MDEP's Chapter 335 -- Significant Wildlife Habitat Rules, "Whether a vernal pool is a significant vernal pool is determined by the number and type of pool-breeding amphibian egg masses in a pool, or the presence of fairy shrimp, or use by threatened or endangered species as specified in Section 9(B). Significant vernal pool habitat consists of a vernal pool depression and a portion of the critical terrestrial habitat within a 250 foot radius of the spring or fall high water mark of the depression. An activity that takes place in, on, over, or adjacent to a significant vernal pool habitat must meet the standards of this chapter."

Species and abundance criteria required for Significant Vernal Pools.

Species	Abundance Criteria
Fairy shrimp	Presence in any life stage.
Blue spotted salamanders	Presence of 10 or more egg masses.
Spotted salamanders	Presence of 20 or more egg masses.
Wood frogs	Presence of 40 or more egg masses.

No areas were identified during field investigations as potential vernal pools.

RARE OR UNUSUAL FEATURES

During our investigations of the above site, Jones Associates, Inc. did not observe any rare or unusual plant or animal species within the mapped wetland area. Portions of the area described in this report had been previously altered through development, clearing, and excavation activities. Southern Maine where the site is located is in a severe drought, causing water tables lower than average.

WETLAND DELINEATION CHECKLIST

Job #:	16-069PD
Client:	Wright Pierce
Site Address:	171 Auburn Street, Portland Maine 04103

Wetland Scientist:	Garin Peck
Date of Office Review:	9/15/2016
Date(s) of Field Delineation:	9/8/2016

Wetlands of Special Significance

Yes	No	
	X	Does the on site or immediately adjacent wetland contain a mapped and numbered DWA?
	X	Does the on site or immediately adjacent wetland contain an Inland Waterfowl Wading Bird Habitat?
	X	Does the on site or immediately adjacent wetland contain a potential significant vernal pool?
	X	Does the recent aerial photos of the on site or immediately adjacent wetland show or are there any open water or emergent wetlands with areas greater than 20,000 sq. ft.?
X		Does the on site or immediately adjacent wetland contain a 100 year flood plain?
	X	Does the on site or immediately adjacent wetland contain a S1 or S2 community?
X		Does the on site or immediately adjacent wetland contain a significant wildlife habitat?
	X	Is the on site wetland within 250' of a coastal wetland?
	X	Is the on site wetland within 250' of a great pond?
X		Does the site contain peatlands?

Stormwater Qualifications

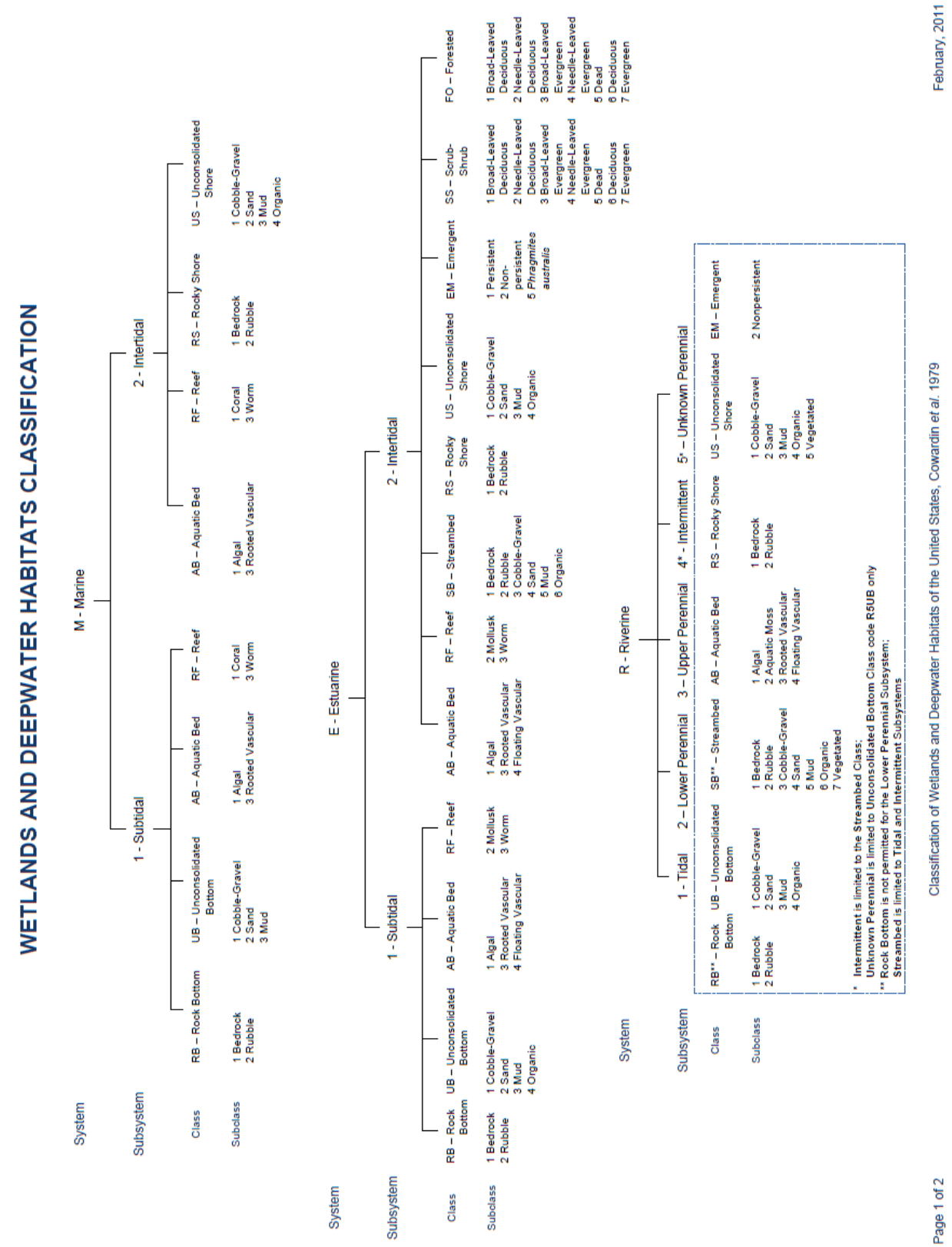
X		Is the site in the watershed of a Great Pond or Impaired stream?
	X	Is the site in a lake watershed?
	X	Is the site in a watershed most at risk?

FEMA flood zone FIRM: Panel 2300510002C

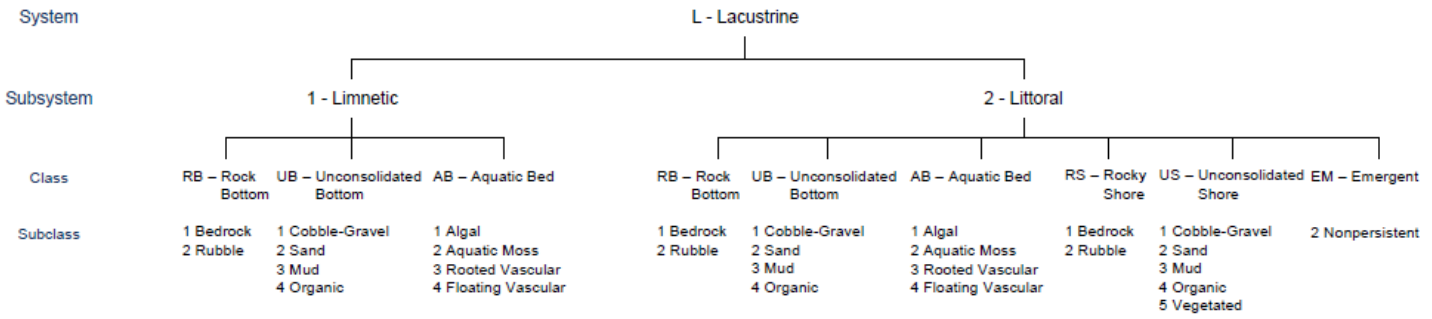
Watershed:

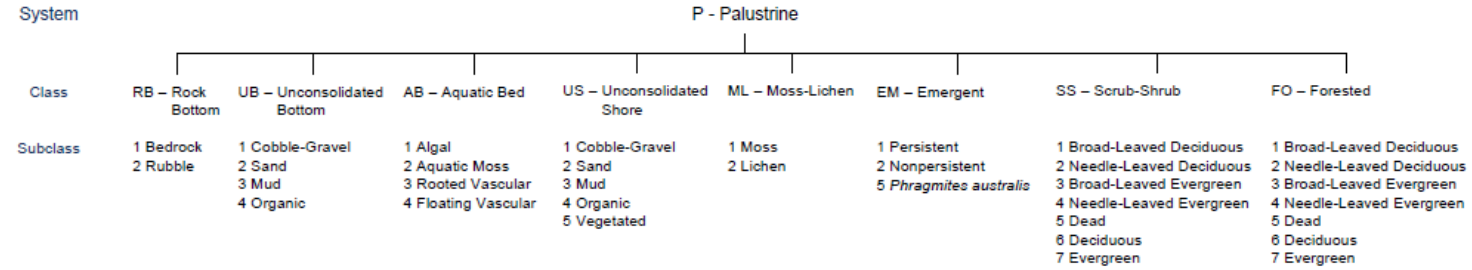
HUC 8: 01060001	Presumpscot River
HUC 10: 0106000106	Casco Bay
HUC 10: 0106000103	Presumpscot River
HUC 12: 010600010602	Casco Bay Frontal Drainages
HUC 12: 010600010306	Highland Lake-Lower Presumpscot River

US Fish and Wildlife Service, http://www.fws.gov/wetlands/Documents/Wetlands-and-Deepwater-Habitats-Classification-chart.pdf



WETLANDS AND DEEPWATER HABITATS CLASSIFICATION





MODIFIERS

In order to more adequately describe the wetland and deepwater habitats, one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

Water Regime			Special Modifiers	Water Chemistry			Soil
Nontidal	**Saltwater Tidal**	**Freshwater Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**	
A Temporarily Flooded	L Subtidal	S Temporarily Flooded-Tidal	b Beaver	1 Hyperhaline	7 Hypersaline	a Acid	g Organic
B Saturated	M Irregularly Exposed	R Seasonally Flooded-Tidal	d Partly Drained/Ditched	2 Euhaline	8 Eusaline	t Circumneutral	n Mineral
C Seasonally Flooded	N Regularly Flooded	T Semipermanently Flooded-Tidal	f Farmed	3 Mixohaline (Brackish)	9 Mixosaline	i Alkaline	
E Seasonally Flooded/ Saturated	P Irregularly Flooded	V Permanently Flooded-Tidal	h Diked/Impounded	4 Polyhaline	0 Fresh		
F Semipermanently Flooded			r Artificial	5 Mesohaline			
G Intermittently Exposed			s Spoil	6 Oligohaline			
H Permanently Flooded			x Excavated	0 Fresh			
J Intermittently Flooded							
K Artificially Flooded							

WETLAND RULES AND INFORMATION

WETLANDS OF SPECIAL SIGNIFICANCE

Maine's Department of Environmental Protection considers some wetlands to be of higher significance than others. These wetlands are referred to as Wetlands of Special Significance (WSS). In order to be considered a WSS they must have one or more of the following characteristics:

(1) Critically imperiled or imperiled community. The freshwater wetland contains a natural community that is critically imperiled (S1) or imperiled (S2) as defined by the Natural Areas Program.

(2) Significant wildlife habitat. The freshwater wetland contains significant wildlife habitat as defined by 38 M.R.S.A. § 480-B (10).

(3) Location near coastal wetland. The freshwater wetland area is located within 250 feet of a coastal wetland.

(4) Location near GPA great pond. The freshwater wetland area is located within 250 feet of the normal high water line, and within the same watershed, of any lake or pond classified as GPA under 38 M.R.S.A. § 465-A.

(5) Aquatic vegetation, emergent marsh vegetation or open water. The freshwater wetland contains, under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, unless the 20,000 or more square foot area is the result of an artificial pond or impoundment.

(6) Wetlands subject to flooding. The freshwater wetland area is inundated with floodwater during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency or other site-specific information.

(7) Peatlands. The freshwater wetland is or contains peatlands, except that the department may determine that a previously mined peatland, or portion thereof, is not a wetland of special significance.

(8) River, stream or brook. The freshwater wetland area is located within 25 feet of a river, stream or brook.

STREAM CHANNELS

According to Maine's Natural Resource Protection Act, Title 38, Article 5-A, Protection of Natural Resources, §480-B Definitions:

"River, stream or brook" means a channel between defined banks. A channel is created by the action of surface water and has two or more of the following characteristics:

(1) It is depicted as a solid or broken blue line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map or, if that is not available, a 15-minute series topographic map.

(2) It contains or is known to contain flowing water continuously for a period of at least 6 months of the year in most years.

(3) The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water.

(4) The channel contains aquatic animals such as fish, aquatic insects or mollusks in the water or, if no surface water is present, within the stream bed.

(5) The channel contains aquatic vegetation and is essentially devoid of upland vegetation.

"River, stream or brook" does not mean a ditch or other drainage way constructed, or constructed and maintained, solely for the purpose of draining storm water or a grassy swale.

VERNAL POOLS

MDEP habitat management standards for significant vernal pools: To the greatest extent practicable, the following management practices must be followed within significant vernal pool habitat.

(1) No disturbance within the vernal pool depression;

(2) Maintain a minimum of 75% of the critical terrestrial habitat as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter and woody debris.

(3) Maintain or restore forest corridors connecting wetlands and significant vernal pools;

(4) Minimize forest floor disturbance; and

(5) Maintain native understory vegetation and downed woody debris.

If more than 25% of the critical terrestrial habitat has been previously developed, restoring a portion of that area through supplemental planting or regrowth of native forest species may be considered toward meeting these standards, or towards standards for avoidance, minimization, or compensation. For purposes of Chapter 355, developed area includes disturbed areas excluding areas that are returned to a condition with the same drainage patterns and the same or improved cover type that existed prior to the disturbance;

Currently, Army Corps of Engineers (ACOE) regulate vernal pools but do not have specific characteristics that define a vernal pool, or a definition of which vernal pools require protection or buffering. They review each site on a case by case basis. ACOE's jurisdiction does not begin until the waters of the United States are impacted.

NATURAL RESOURCES PROTECTION ACT

Jones Associates, Inc. has many years of experience working with and interpreting Maine's environmental laws; however MDEP has several unwritten policies that may change without public notice, therefore, certain project specific questions may need review by MDEP staff.

The Natural Resources Protection Act (NRPA) became effective on August 4, 1988. The law is focused on "protected natural resources". A permit is required when an "activity" will be:

(1) Located in, on or over any protected natural resource, or

(2) Located adjacent to (A) a coastal wetland, great pond, river, stream or brook or significant wildlife habitat contained within a freshwater wetland, or (B) certain freshwater wetlands.

An "activity" is (A) dredging, bulldozing, removing or displacing soil, sand, vegetation or other materials; (B) draining or otherwise dewatering; (C) filling, including adding sand or other material to a sand dune; or (D) any construction, repair or alteration of any permanent structure.

The Maine Department of Environmental Protection (MDEP) does not have to be contacted for projects involving minor wetland impacts. Single, complete activities that impact less than 4,300 square feet of freshwater wetland and do NOT occur within: another type of protected natural resource; 25 feet of another protected natural resource and erosion controls are used; a municipal shoreland zone; a wetland normally containing at least 20,000 sq. ft. of open water, aquatic or emergent marsh vegetation; or a peatland are exempt under the Natural Resources Protection Act, 38 M.R.S.A. Section 480-Q(17).

NRPA - PERMIT BY RULE

A "permit by rule" or "PBR", when approved by MDEP, is an approval for an activity that requires a permit under the Natural Resources Protection Act (NRPA). Only those activities described in Chapter 305 may proceed under the PBR process. A PBR activity will not significantly affect the environment if carried out in accordance with this chapter, and generally has less of an impact on the environment than an activity requiring an individual permit. A PBR satisfies the NRPA permit requirement and Water Quality Certification requirement. The following projects may be eligible as PBR activities:

Section (2) Activity Adjacent to Protected Natural Resource

> (An activity adjacent to (any land area within 75 feet, measured horizontally, of the normal high water line), but not in: a coastal wetland, great pond, river, stream or brook or significant wildlife habitat contained within a freshwater wetland; or freshwater wetlands consisting of or containing: under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, except for artificial ponds or impoundments; or peatlands dominated by shrubs, sedges and sphagnum moss.

Section (3) Placement of permanent intake pipes and water monitoring devices (including drilled wells)

Section (4) Replacement of Structures

Section (6) Movement of Rocks or Vegetation

Section (7) Placement of outfall pipes (including ditches and drain tiles)

Section (8) Shoreline stabilization using vegetation or riprap

Section (9) Construction of crossings (utility lines, pipes and cables)

Section (10) Construction of stream crossings (bridges, culverts and fords)

Section (11) State Transportation Facilities

Section (12) Restoration of natural areas (i.e., "undoing" human alteration)

Section (13) Fisheries & wildlife habitat creation or enhancement and water quality improvement projects

Section (15) Public Boat Ramps

Section (16) Selected activities in coastal sand dunes

Section (17) Transfers and Permit Extensions

Section (18) One-time renewals of maintenance dredging permits

Section (19) Activities in/on/over significant vernal pool habitat

Section (20) Activities located in/on/over high or moderate value inland waterfowl & wading bird habitat or shorebird nesting, feeding & roosting areas

NRPA - TIER REVIEW PROCESS

NRPA's Tier Review process constitutes a joint application to both the Maine Department of Environmental Protection (MDEP) and the U.S. Army Corps of Engineers (USACOE) for a proposed alteration to a freshwater wetland that qualifies for Tier 1, 2 or 3 review. The square footage of impact is based on the alteration or impact of the whole activity in the wetland. If any part of the overall activity requires a higher tier review, then the whole activity will be reviewed under that higher tier.

The Tier Review process is required for impacts larger than 4,300 square feet, and for requesting a permit for activities in, on, or over a protected natural resource. It is also used for activities adjacent to certain protected natural resources (38 MRSA 480-C(1)). The Tier Review process is required when the activity is not eligible for a PBR.

According to 38 M.R.S.A. Section 480-X(2), an application for a permit to undertake activities altering freshwater wetlands must be reviewed in accordance with the following:

(1) A Tier 1 review process applies to any activity that involves a freshwater wetland alteration up to 15,000 square feet and does not involve the alteration of freshwater wetlands listed in 38 M.R.S.A. Section 480-X(4);

(2) A Tier 2 review process applies to any activity that involves a freshwater wetland alteration of 15,000 square feet up to one acre and does not involve the alteration of freshwater wetlands listed in 38 M.R.S.A. Section 480-X (4 or 5);

(3) A Tier 3 review process applies to any activity that does involve a freshwater wetland alteration greater than one acre, or an alteration of a freshwater wetland listed in 38 M.R.S.A. Section 480-X (4 or 5).

According to 38 M.R.S.A. Section 480-X(4), the following activities are not eligible for Tier 1 or Tier 2 review unless MDEP determines that the activity will not negatively affect the freshwater wetlands and other protected natural resources present.

(1) Activities located within 250 feet of a coastal wetland;

(2) Activities located within 250 feet of the normal high-water line, and within the same watershed, of any lake or pond classified as GPA under section 465-A;

(3) Activities occurring in freshwater wetlands, other than artificial ponds or impoundments, containing under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water;

(4) Activities occurring in freshwater wetlands that are inundated with floodwater during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency or other site-specific information;

(5) Activities occurring in freshwater wetlands containing significant wildlife habitat that has been mapped, identified or defined, as required pursuant to section 480-B(10), at the time of the filing by the applicant;

(6) Activities occurring in peatlands dominated by shrubs, sedges and sphagnum moss, except that applications proposing work in previously mined peatlands may be considered by the department for Tier 1 or Tier 2 review, as applicable;

(7) Activities occurring within 25 feet of a river, stream or brook.

According to 38 M.R.S.A. Section 480-X(5), an activity in freshwater wetlands containing a natural community that is imperiled (S2) or critically imperiled (S1), as defined by the Natural Areas Program pursuant to Title 12, Section 544 is not eligible for Tier 2 review unless the department determines that the activity will not negatively affect the freshwater wetlands and other protected natural resources present.

NRPA General Requirements for both the Tier 1 and Tier 2 review process require that the proposed freshwater wetland alteration must be avoided, if feasible, after considering cost, logistics, technology and the overall purpose of the project. However, if unavoidable, the alteration must be limited to the minimum amount necessary to complete the project. The project must utilize both temporary and permanent erosion control measures to prevent sedimentation of any protected natural resource. In addition, the alteration site must maintain an undisturbed 25 foot buffer strip between the activity and any river, stream or brook and must not violate any state water quality law, including those governing the classification of the State's waters.

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WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lyman Moore Middle School City/County: Portland/Cumberland Sampling Date: 09/08/2016

Applicant/Owner: Wright-Pierce State: ME Sampling Point: GMP1

Investigator(s): GMP Section, Township, Range:

Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 43-42-19 Long: 70-17-19 Datum:

Soil Map Unit Name: Cumberland County NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation Y , Soil Y , or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation Y , Soil N , or Hydrology Y naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**		
Hydric Soil Present?	Yes ____	No X	**within a Wetland?**	**Yes** ____	**No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:		

Remarks: (Explain alternative procedures here or in a separate report.)
2016 has been a fairly dry year, the site has undergone disturbance and has significant surrounding urbaization. foNon-Native vegetation was obserbed within the focal area and Fall Brook is classified as an urban impared stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches):	
Water Table Present?	Yes ____	No X	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches):	

Wetland Hydrology Present? **Yes** ____ **No** x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: GMP1

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer platanoides*	60	Yes	UPL
2. *Fraxinus pennsylvanica*	15	Yes	FACW
3.			
4.			
5.			
6.			
7.			
	75	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Lonicera japonica*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5	=Total Cover	
Herb Stratum (Plot size: 5')			
1. Tatarian aster	5	Yes	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	60	x 5 =	300
Column Totals:	80	(A)	350 (B)

Prevalence Index = B/A = 4.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: GMP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/3						Loamy/Clayey	
2-6	10YR 4/4						Loamy/Clayey	
6-8	7.5YR 4/3						Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Lyman Moore Middle School City/County: Portland/Cumberland Sampling Date: 09/08/2016

Applicant/Owner: Wright-Pierce State: ME Sampling Point: GMP1

Investigator(s): GMP Section, Township, Range:

Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR or MLRA): LRR R, MLRA 144B Lat: 43-42-18 Long: 70-17-19 Datum:

Soil Map Unit Name: Cumberland County NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation Y , Soil Y , or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes ____ No X

Are Vegetation Y , Soil N , or Hydrology Y naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	**Yes** Y **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
2016 has been a fairly dry year, the site has undergone disturbance and has significant surrounding urbaization. Non-Native vegetation was obserbed within the focal area and Fall Brook is classified as an urban impared stream.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: GMP1

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer platanoides*	20	Yes	UPL
2. *Fraxinus pennsylvanica*	5	No	FACW
3. *Acer rubrum*	5	No	FAC
4.			
5.			
6.			
7.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Feet)			
1. *Lonicera japonica*	2	No	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	2	=Total Cover	
Herb Stratum (Plot size: 5')			
1. *Onoclea sensibilis*	15	Yes	FACW
2. *Scirpus cyperinus*	10	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	20	x 2 =	40
FAC species	5	x 3 =	15
FACU species	2	x 4 =	8
UPL species	20	x 5 =	100
Column Totals:	57 (A)		173 (B)

Prevalence Index = B/A = 3.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

X Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: GMP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1						Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

NRCS CUSTOM SOIL RESOURCE REPORT

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

Lyman-Moore Middle School

September 15, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 11, Sep 17, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2013—Aug 11, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BuB	Buxton silt loam, 3 to 8 percent slopes	4.5	19.6%
DeB	Deerfield loamy sand, 3 to 8 percent slopes	10.3	45.3%
HrB	Hollis fine sandy loam, 3 to 8 percent slopes	3.3	14.5%
Sn	Scantic silt loam, 0 to 3 percent slopes	0.0	0.0%
WmB	Windsor loamy sand, 0 to 8 percent slopes	4.7	20.6%
Totals for Area of Interest		**22.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

BuB—Buxton silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: blgw
Elevation: 10 to 900 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Buxton and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buxton

Setting

Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits derived from siltstone and/or fine-silty marine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 16 inches: silty clay loam
H3 - 16 to 38 inches: silty clay loam
H4 - 38 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

DeB—Deerfield loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh6
Elevation: 150 to 1,200 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 10 inches: loamy sand
H2 - 10 to 24 inches: loamy sand
H3 - 24 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Hydric soil rating: No

HrB—Hollis fine sandy loam, 3 to 8 percent slopes

Map Unit Composition

Hollis and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 18 inches: fine sandy loam
R - 18 to 22 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Sn—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Scantic and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Deltas, dunes, outwash plains, outwash terraces
Landform position (three-dimensional): Riser, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loamy sand
Bw - 3 to 25 inches: loamy sand
C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

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ATTACHMENT 11.3

SOIL BORINGS

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		11’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	20”	0’-2’	5	7	7	9		3” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	7	9	9	9	5’	Brown/Grey Clayey Silt Trace Fine Sand
S-3	24”	24”	10’-12’	8	3	4	6	10’	Grey Silty Fine Sand Some Clay
S-4	9”	6”	15’-17’	27	50/3”			15’	Grey Fine-Coarse Sand Some Gravel and Silt Refusal @ 16.5’ Probable Bedrock Surface/Possible Boulder
								20’	
								25’	
								30’	

Boring #: B-1
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		14.7’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	14”	0’-2’	5	7	7	9		4” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	6	9	8	10	5’	
S-3	24”	24”	10’-12’	3	5	7	7	10’	Brown/Grey Clayey Silt Some Fine Sand
S-4	24”	24”	15’-17’	2	2	2	4	15’	Grey Silty Fine Sand
								20’	Refusal @ 19.1’ Probable Bedrock Surface/Possible Boulder
								25’	
								30’	

Boring #: B-2
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		14.1’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	21”	0’-2’	6	7	7	9		4” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	3	4	6	5	5’	Brown/Grey Clayey Silt Some Fine Sand
S-3	24”	24”	10’-12’	4	3	5	5	10’	
S-4	24”	24”	15’-17’	1	1	1	2	15’	Grey Clayey Silty Sand
S-5	24”	22”	20’-22’	9	10	11	10	20’	Grey Silty Fine Sand No Refusal @ 22’
								25’	
								30’	

Boring #: B-3
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		11.5’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	14”	0’-2’	5	6	6	7		3” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	2	6	7	8	5’	Brown/Grey Clayey Silt Trace Fine Sand
S-3	24”	24”	10’-12’	5	8	9	15	10’	Brown Fine Sand Some Gravel and Silt
								15’	Refusal @ 14.7’ Probable Bedrock Surface/Possible Boulder
								20’	
								25’	
								30’	

Boring #: B-4
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		No Free Water Observed
Size	2 1/4”	1 3/8”		Start Date: Finish Date:
Hammer Wt.		140		7/20/16 7/20/16
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	22”	0’-2’	5	7	7	9		4” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	11”	11”	5’-7’	22	50/ 5”			5’	Brown Silty Sand and Gravel
								10’	Refusal @ 6.4’ Probable Bedrock Surface/Possible Boulder
								15’	
								20’	
								25’	
								30’	

Boring #: B-5
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		5.3’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	18”	0’-2’	6	7	6	5		3” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	8”	5’-7’	19	50/ 2”			5’	Brown/Grey Silty Fine-Medium Sand
									Refusal @ 6.4’ Probable Bedrock Surface/Possible Boulder
								10’	
								15’	
								20’	
								25’	
								30’	

Boring #: B-6
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		No Free Water Observed
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	20”	0’-2’	4	6	5	6		4” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	3	7	9	11	5’	Brown/Grey Clayey Silt Trace Fine Sand
S-3	24”	24”	10’-12’	5	6	8	7	10’	
S-4	7”	5”	15’-17’	5	50/ 1”			15’	Brown Fine Sand Some Gravel and Silt Refusal @ 15.8’ Probable Bedrock Surface/Possible Boulder
								20’	
								25’	
								30’	

Boring #: B-7
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		No Free Water Observed
Size	2 1/4”	1 3/8”		Start Date: Finish Date:
Hammer Wt.		140		7/20/16 7/20/16
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	19”	12”	0’-2’	5	5	5	50/1		3” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
									Refusal @ 2.1’ Probable Bedrock Surface/Possible Boulder
								5’	
								10’	
								15’	
								20’	
								25’	
								30’	

Boring #: B-8
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		10.5’
Size	2 1/4”	1 3/8”		Start Date: Finish Date:
Hammer Wt.		140		7/20/16 7/20/16
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	11”	0’-2’	6	99	5	5		4” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	16”	5’-7’	8	10	12	14	5’	
									Brown/Grey Silty Fine-Coarse Sand
S-3	10”	6”	10’-12’	14	50/ 4”			10’	
									Refusal @ 11.2’ Probable Bedrock Surface/Possible Boulder
								15’	
								20’	
								25’	
								30’	

Boring #: B-9
Sheet: 1 of 1

Northern Test Boring, Inc. Boring Log

Client: City of Portland	Project Name: Lyseth-Lyman Moore Ballfields
Location: Portland, Maine	Driller: Michael Nadeau

	Casing	Sample	Core	Ground Water Observation
Type	HSA	SS		5.7’
Size	2 1/4”	1 3/8”		Start Date: 7/20/16 Finish Date: 7/20/16
Hammer Wt.		140		
Hammer Fall		30”		

No.	Pen	Rec	Sample Depth	Sample Blow Counts				Depth	Stratum Description
S-1	24”	21”	0’-2’	3	3	4	4		3” Brown Sandy Topsoil Brown Fine-Medium Sand Some Silt
S-2	24”	24”	5’-7’	4	8	12	8	5’	
									Brown Silty Fine-Medium Sand
								10’	
									Refusal @ 9.8’ Probable Bedrock Surface/Possible Boulder
								15’	
								20’	
								25’	
								30’	

Boring #: B-10
Sheet: 1 of 1

PROJECT TBM#1
TOP (CENTER) OF 6"x6" GRANITE MONUMENT
ELEV=104.02

PROJECT TBM#2
TOP OF "FLANGE BOLT" ABOVE MAIN SPOUT
ELEV=119.51

PROJECT TBM#3
TOP OF MAG NAIL IN UTILITY POLE #7/52
ELEV=119.76

JUNIOR STREET

BRAMBLEWOOD DRIVE

BORING 1
BORING 2
BORING 3
BORING 4
BORING 5
BORING 6
BORING 7
BORING 8
BORING 9
BORING 10

PLAN
SCALE: 1"=50'

N

CITY OF PORTLAND, MAINE
PUBLIC SERVICES DEPARTMENT
ENGINEERING DIVISION

LYSETH-LYMAN MOORE MASTER PLAN PHASE I EXISTING CONDITIONS PLAN

BORING LOCATION PLAN

SURVEY CREW:	CGH
DRAWN BY:	CGH
CHECKED BY:	RTW/BCC
SCALE:	1" = 50'
DATE:	MAR. 23, 2016

REFERENCES:

Civil 3D 2015 Drawing Name:
"Lyseth-Lyman School_2016T.dwg"
Civil 3D 2015 Survey Database:
"13352B"

PLAN NUMBER 1 OF 1

SHEET # B-1

Section 12: Stormwater Management Plan

12.0 Stormwater Management Plan

Stormwater management plan for the proposed project is attached within this section.

12.1 Coordination with Regulatory

Coordination efforts with regulatory for the proposed project is included within Section 11 of this permit.

12.2 General Standard, Flooding Standard, Urban Impaired Stream Standard

Per City of Portland statute, the General Standard, Flooding Standard, and Urban Impaired Stream Standard will apply for the proposed project. This information is incorporated within the attached Stormwater Management Plan.

ATTACHMENT 12.1

STORMWATER MANAGEMENT REPORT

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

STORMWATER MANAGEMENT PLAN

for the

LYSETH – LYMAN MOORE
CAMPUS CIRCULATION IMPROVEMENTS

PORTLAND, MAINE

CITY OF PORTLAND
Department of Parks, Recreation, and Facilities
212 Canco Road
Portland, Maine 04103

September, 2017

WRIGHT-PIERCE
Engineering a Better Environment

STORMWATER MANAGEMENT PLAN

LYSETH-LYMAN MOORE CAMPUS

CIRCULATION AND PARKING IMPROVEMENTS

PORTLAND, MAINE

INTRODUCTION

The proposed project is for the re-development of the existing parking and circulation areas and the Lyseth/Lyman-Moore campus. The proposed infrastructure improvements will be within the exiting developed areas of the site.

Work within the existing athletic fields includes the following activities:

- Reconstructing deteriorated drainage system
- Relocation of roof leaders from sewer to storm drain
- Improving site pedestrian, bus, and passenger vehicle circulation
- Parking lot improvements
- Erosion and sedimentation control
- Site landscaping
- Appurtenant Stormwater treatment facilities

The major impetus of the proposed project is redevelopment of the existing parking and circulation infrastructure, which is largely undersized and is no longer properly conveying bus and passenger vehicle traffic. As this area is expanded, pedestrian traffic will also be improved upon. Site landscaping is incorporated into this design, as is stormwater treatment measures.

It is understood that the existing roof drains from the elementary school, and one of the roof drains from the middle school, currently convey flows to the sanitary sewer. It is preferred, but not required by City code for this project, that these roof drains be incorporated into the stormwater treatment system as part of the proposed project. Through conversations between the applicant and with the Department of Public Works, a design that incorporates removal of roof drains from the elementary building has been developed and is incorporated as a major working piece of this Stormwater Management Plan and Report. Meeting minutes from the conversation between the applicant and the Department of Public Works, including the preferred path forward and an understanding of the pollutants, has been incorporated as an attachment to this report. Please note that certain values for project impervious areas or runoff rates may have slightly changed between this conversation and the proposed project, and that the meeting minutes

are incorporated to include preferred path forward, development of project goals for stormwater treatment, and for the reasoning behind use of the proposed and existing stormwater treatment measures.

EXISTING DRAINAGE CONDITIONS

The existing site includes school buildings, parking and roadway infrastructure, plantings and trees within parking islands, and a stormwater treatment gravel wetland. The site is located along a ridge, and generally slopes from higher areas in the eastern portions of the site towards the west. The majority of surface runoff flows from the eastern edge of the property, generally in an east-west direction, and eventually is conveyed through a series of damaged drainage pipes into an existing undersized gravel wetland, and then ultimately into Fall Brook. These surface flows then ultimately discharge into the Atlantic Ocean at Back Cove in Portland.

Soils mapping and characteristics were obtained from the Medium Intensity Soil Survey for Cumberland County. As indicted on the attached soils map the primary hydrological soils group covering the site is either A or D. Further analysis of the site borings, as well as anecdotal evidence of substantial ponding on-site, indicate that the site is primarily clay soils.

PROPOSED DRAINAGE CONDITIONS

The proposed conditions will not substantially modify the existing drainage patterns within the parking areas, but will incorporate the removal of 2 roof leaders from the sewer to the storm drain system. New drainage pipe will be installed as part of the proposed modifications, which will ultimately convey flows into the existing gravel wetpond and into Fall Brook. Additionally, stormwater treatment measures will be included in the western-most parking area.

REGULATORY REQUIREMENTS

City of Portland, Maine

> The proposed project will require adherence to the Stormwater Runoff policies within the City of Portland Technical Manual. According to the Section 5, "PORTLAND STORMWATER MANAGEMENT STANDARDS AND MAINE DEP CHAPTER 500 STORMWATER MANAGEMENT", "*Stormwater Management Plans for New Development: Except as provided in below, the following development proposals shall submit a stormwater management plan pursuant to the regulations of Maine DEP Chapter 500 Stormwater Management Rules,*

including General and Flooding standards: Level I: Site Alteration, which will result in the creation of more than 1,000 square-feet of new impervious area or 10,000 square-feet of new non-impervious developed area, as defined under Developed Area and listed under Definitions of Chapter 500".

Therefore, while the project itself is below the state thresholds for many of Chapter 500 and 502 regulations, the City of Portland's local regulations will require adherence to stormwater management requirements outlined within these state regulations. MDEP Rule Chapters 500 and 502 describe stormwater management requirements for new development projects. These rules describe performance standards divided into five major categories: Basic Standards, General Standards, Phosphorous Standards, Urban Impaired Stream Standards, and Flooding Standards. The following sections describe how this project will address these stormwater management performance standards.

Basic Standards: A project must meet basic standards if it disturbs an area greater than one (1) acre. The proposed project will disturb greater than one acre of land, and therefore state and local regulations require adherence to this standard. These standards include various erosion and sedimentation controls, inspection and maintenance procedures, and general housekeeping requirements. These performance standards have been addressed in two separate reports entitled "Erosion and Sedimentation Control Plan" and "Inspection, Maintenance, and Housekeeping Plan" (Attachments to this report).

General Standards: A project is subject to the general standards if it results in the creation of one (1) or more acres of impervious area or developed areas greater than five (5) acres; while this project does not exceed this threshold, local regulations require adherence to this standard. This project has been designed to meet the general standards. These standards require that a minimum of 95% of all impervious areas (75% of impervious areas for the linear portion of the project) and at least 80% of all developed areas (50% of impervious areas for the linear portion of the project) are designed to be tributary to stormwater BMPs. Standard BMPs have been defined by the MDEP and are described thoroughly in their publication Stormwater Management for Maine: Best Management Practices manual, as most recently revised. Section VI-Stormwater Management BMPs of this Stormwater Management Plan describes the BMPs to be utilized on this project and specific design information for each BMP.

Phosphorus Standards: A project is subject to the phosphorous standards when it is in the watershed of a lake most at risk as identified in Chapter 502. This project is not located in the watershed of a lake that is identified as being Most at Risk in Chapter 502 and therefore the project is not subject to the Phosphorous Standards.

Urban Impaired Stream Standards: Stormwater from this is tributary to Fall Brook, an "Urban Impaired Stream" as defined by MDEP Chapter 502 and, therefore, is subject to the urban impaired stream standards. Mitigation credits in accordance with Chapter 501 are being applied for as part of this project.

Flooding Standards: The MDEP requires that projects creating impervious areas greater than three (3) acres, or developed areas greater than twenty (20) acres, address various flooding standards; while this project does not exceed this threshold, local regulations require adherence to this standard, and the project has analyzed the post-development flows for the 2-, 10-, and 25-year interval storms and their comparison to the pre-development conditions.

WATER QUALITY TREATMENT

As previously mentioned, the proposed development will generate 2,800 SF of new impervious surfaces in the form of additional parking and roadway infrastructure, and will incorporate removal of 30,419 SF of roof drains from the sanitary sewer to the storm drain. MaineDEP Chapter 500 water quality standards requires that for each square foot of impervious surface, one inch of treatment is to be provided. From the new impervious surfaces created, 2,768 Cubic Feet of stormwater runoff will be required to be treated. It is understood that the impervious surfaces developed on-site were created in the 1960s or earlier, and therefore is not subject to site law requirements.

A Grassed Underdrained Soil Filter (GUSF) was designed to accommodate this volume as part of a traffic island feature. Curb cuts and drainage infrastructure have been designed to allow for drainage from a designed subcatchment to convey flows to the proposed location.

In order to meet adjacent grades, a top-of-basin elevation of 110.50' was chosen, with 112.00' serving as the overflow and inlet elevation. Curb cut inlets were designed to be at elevation 112.30', as to not be exceeded during the 25-year storm event, with a design media draining at

18”/48 hours, or 0.375 in/hr. Given the high water table, an impermeable liner has been incorporated as part of the proposed design.

Sediment forebays have also been designed to incorporate 10 storms per year, at 500 lbs/acre for each storm, with a sand density of 90 pcf. Given the 0.67 acres of sanded surfaces (impervious surfaces), this yields 37.2 cf of sand annually. Using a porosity of 0.4 for 6” riprap, 93 CF of riprap would be required. Rirap will be placed at 18” depth, and therefore 62 SF of riprap is required. 75 SF of riprap has been provided at the outlet locations, and therefore the project exceeds this standard.

Additional information requiring the design of the GUSF has been incorporated within the project plans, particularly noting the layers of the proposed filter.

Lyseth-Lyman Moore School Campus Upgrades					
Calculations:	**Underdrained Soil Filter**				
Underdrained Soil Filter 1					
	Subcatchment Review				
Total Impervious Surfaces		29102	sf	0.67	acres
Total Non-Impervious Developed Surfaces		10356	sf	0.24	acres
Total Drainage Area		39458	sf	0.91	acres
	Basin Design				
	Treatment	Total acres	Multiplier	Volume	
	Impervious Area	0.668	1.0	2,425	
	Developed Area	0.238	0.4	345	
	Treatment Volume Required			**2,770**	**cf**
	Treatment Volume Provided			**2,925**	**cf**
Surface Area at Filter Elevation		1950	s.f.		
Water Quaility Volume (18-inch Ponding)		2925	cf		
	Surface Area Check				
	Impervious	29102	5%	1,455	
Non-Impervious Developed Area		10356	2%	207	
Total Surface Area Required, min.				**1,662**	**sf**

Lyseth-Lyman Moore School Campus Upgrades
Stormwater Treatment Summary Table

Summary Treatment Table

Sub Catchment	Total Area	Impervious Area	Impervious Treated	% Impervious Treated	Landscaped Area	Landscaped Treated	% Landscaped Treated	Developed Area	Developed Treated	% Developed Treated	BMP
GUSF-1	39,458	29,102	29,102	100%	10,356.00	10,356.00	100%	39,458	39,458	100%	UGSF
TOTAL	**39,458**	**29,102**	**29,102**	**100%**	**10,356.00**	**10,356.00**	100%	**39,458**	**39,458**	**100%**	-
	0.91	**acres**	*See Project Plans for Subcatchments as indicated above*								
			Impervious Area + Landscaped Area = Developed Area								
			If the BMP is underdrained filter the area of the filter must be at a minimum of 5% the impervious area + 2% of the landscaped area.								

The general standards require that 95% of the new impervious surface be treated. The existing athletics fields, parking areas, buildings, and appurtenant developed areas predate the SLODA requirements for stormwater treatment, and therefore are not subject to stormwater treatment. The proposed project is generating 2,768 cubic feet of stormwater, and is treating a total volume of 2,770 cubic feet of proposed surfaces from the designed subcatchment area. The proposed treatment facility is sized to accommodate 2,925 cubic feet of surface area. Therefore, greater than 100% of new surfaces are being treated as part of the proposed project. No new non-impervious developed area is created by the proposed project, as the site was previously developed as lawn/planted areas or parking areas and predate SLODA requirements.

URBAN IMPAIRED STREAM STANDARD

The proposed project is located within the Fall Brook watershed and, as such, is subject to the Urban Impaired Stream Standard by virtue of creating 2,800 SF of new impervious surfaces, which is greater than the 1,000 SF limit of additional impervious surface within this watershed. An additional 30,419 SF of rooftop area will be relocated from the storm sewer to the Fall Brook watershed, and as such this value has also been incorporated

In order to meet the Urban Impaired Stream Standard, the proposed project must provide additional stormwater treatment in order to offset the amount of developed surfaces created. The values utilized in the tables below are from MaineDEP Chapter 501, which establishes standards for applicants paying a compensation fee or undertaking mitigation to meet the requirements of the *Stormwater Management Law*, 38 M.R.S. §420-D(11) and Department rules.

Proposed New Impervious Area				
Location	**Total Impervious (sf)**	**Total Impervious (acre)**	**Credits Per Acre**	**Credits Required**
Roof Area	30,419	0.70	0.20	***0.140***
Additional Impervious	2,800	0.06	0.50	***0.032***
			Total	***0.172***

Total Treated Amount							
System ID	Total Area draining to system		Credits Per Acre		Impervious Credits	Landscaped Credits	TOTAL CREDITS PROVIDED
	Treated Impervious (sf)	Treated Landscaped Area (sf)	Impervious Treated	Landscaped Treated			
UGSF-1	0.668	0.238	1.2	0.3	0.802	0.071	***0.873***

As noted in the tables above, the proposed Grassed Underdrained Soil Filter is located down-slope of a tributary area that contains mostly new medium-intensity parking areas, where the new areas discharging stormwater to Fall Brook are mostly made up of roof areas, which have a substantially lower pollutant load. The GUSF was designed to incorporate flows from the entire tributary area to Chapter 500 standards.

As indicated above, the treated credits account for a value of 0.873, and 0.172 credits were used to already meet the water quality standards. As such, 0.701 credits are available for the Urban Stream Standard. Whereas the proposed parking lot and proposed roof connections require only 0.172 credits, the proposed stormwater treatment measures provide more credits than required for new development.

From prior conversations with Portland Department of Public Works (meeting minutes from 12/20/16 meeting attached), it is understood that the roof drains are not required to be relocated, but removal of the roof drains is preferred if it is a possibility and does not result in substantially higher flows from the down-slope gravel wetpond. With the existing gravel wetpond not being sized in accordance with Chapter 500 for flows that are currently conveyed to it, we are not able to indicate that the pond removes all the pollutants directed towards it as a second, additional BMP to the proposed for the Urban Impaired Stream Standard requirements. However, from the calculations above, it is understood that the provided grassed underdrain soil filter has a capacity to remove a pollutant load 5x what is required, and would meet the proposed standards if a second BMP were on-site and functioning as required by Chapter 500 guidelines.

As such, the applicant is requesting a waiver for the Urban Impaired Stream Standard.

WATER QUANTITY TREATMENT

The site has been analyzed for pre-development and post-development runoff corresponding to the 2, 10 and 25 year storms. The Soil Conservation Service (SCS) TR-20 methodology was selected to determine the flow rates for this hydrologic analysis and HydroCAD (release 10.00) computer modeling software was utilized to perform the computations. This method relies heavily upon detailed watershed

characteristics and historical rainfall data to model estimated peak discharges at selected recurrence intervals. Printed results of the existing conditions HydroCAD modeling and hydrologic computations for the 2, 10 and 25-year recurrence interval are attached to the end of this report.

In recent years, many organizations in the environmental science community have noticed an upward trend in total rainfall for the northeastern United States. In response, the National Resource Conservation Service (formerly SCS) has partnered with Cornell University and the Northeast Regional Climate Center (NRCC) to prepare updated statistical rainfall information (see www.precip.net). The NRCC has published a new statistical analysis of rainfall information in the northeast. The NRCC 24-hour duration rainfall data specific to Portland for various recurrences intervals have been used in these calculations.

Site specific watershed details, including drainage area, land use cover, and time of concentration have been calculated. One pre-construction subcatchment and one post-construction subcatchments were developed with one appurtenant Study Point in order to determine where stormwater exits the property in the pre- and post-developed condition. Whereas this project has been originally developed, the model is considering the "pre-developed" condition to be that of which exists prior to the athletics fields construction. The results for runoff existing the site at these Study Points are summarized in the table below:

STUDY POINT ANALYSIS (PEAK FLOW RATES: CFS)

Study Point	***Pre 2-yr***	***Post 2-yr***	***Pre 10-yr***	***Post 10-yr***	***Pre 25-yr***	***Post 25-yr***
SP-1	6.63	**7.23**	32.41	30.54	47.92	43.45

As indicated in the above table, the discharge in the proposed condition is less than the existing developed condition for the 10-year and 25-year conditions, therefore meeting the water quantity standard. The conditions are not met for the 2-year storm, and the difference is a relatively small 0.60 CFS. From the attached HyrdroCAD report, it is understood that a substantial difference in smaller interval storms is the low time of concentration from the rooftops which are being separated from the sanitary sewer, and their associated large flows when compared to other subcatchments which have either ponding infrastructure or larger subcatchments with larger time of concentration values. As such, the applicant is requesting a waiver from the water quantity standard for the 2-year storm.

CONCLUSION

By incorporating various treatment methods and measures, surface runoff from the proposed development will receive treatment that meets the Basic and General Standards. Requests for waivers for the Flooding

Standard, and Urban Impaired Stream Standard, have been included as part of the submission with information supporting the requests for those waivers.

ATTACHMENT 12.2

STORMWATER MEETING WITH DPW MINUTES

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

CITY OF PORTLAND, MAINE
LYSETH-MOORE MASTER PLAN IMPLEMENTATION
STATUS MEETING
MINUTES
December 20, 2016 – 1:00 P.M., 212 Canco Road

Attendance

City of Portland:	Aaron Shields – Project Manager Chris Branch – Department of Public Works Nancy Gallinaro – Department of Public Works Justin Pellerin – Department of Public Works
Wright-Pierce:	Jennifer Claster, RLA – Project Manager Michael Guethle, PE – Project Engineer Doug Rice, PE – Project Manager
Absent:	Sally Deluca –Director, Department of Parks, Recreation & Facilities David Onos – Director of Building Trades Ethan Owens – Department of Parks and Recreation Nathaniel Smith – Department of Public Works

Items for Discussion

1. Project Update

- Wright-Pierce design and review of proposed project
  - A scope of work was previously defined for the athletic fields, limited to drainage reconstruction, maintenance of turf and baseball/softball infields, irrigation, and drainage.
  - Associated phasing of project:
    - Proceeding with Athletic Fields as A Separate Project
    - The work will consist of drainage reconstruction, maintenance of turf and baseball/softball infields, irrigation, and underdrains, as well as the walking path and associated stormwater treatment. It will not include the roof disconnections or renovation of the adjacent parking lots.
    - The walking path will need treatment for stormwater. Wright-Pierce to evaluate additional options for treatment.
    - Phased Site Plan for the remainder of the work.
    - Stormwater treatment methods would likely need to be constructed in first phase/summer of construction.

2. Stormwater Recommendations

- Drainage within Athletic Fields System was discussed. The existing conveyance system is in need of repair/maintenance. Drainage repair will be completed in accordance with any work within the drainage fields.

- Drainage from Roof Areas:
    - Lyman-Moore: Approximately half of the stormwater flows from the Middle School roof are currently conveyed to the gravel wetland. The northern portion of the building has roof drainage connected to the combined sewer; removing roof drains from sewer in this location would likely require reconfiguring plumbing within the building prior to outletting to a new separate storm and sanitary sewer system.
    - Lyseth School: The eastern roof drainage can be conveyed to the athletic fields drainage system due to the proximity of the proposed stormwater infrastructure. The western roof drainage can be conveyed from the combined sewer to the circulation area drainage system. Both structures will require reconstruction or partial reconstruction in order to remove stormwater flows from the sanitary sewer.
- Stormwater treatment: Proposed impervious: Currently, the proposed site improvements will only create 12,200 SF of additional impervious surfaces from currently developed surfaces. This number will likely change as we modify the site into additional design phases. Removing the Lyseth School's roof drain connections from the sanitary sewer is a feasible option, and it is currently anticipated that these flows will be re-routed to the gravel wetland. As such, the gravel wetland either needs to be expanded to accommodate these flows, a scenario described by the calculations below, or to have treatment provided on-site through other stormwater treatment methods:

Additional Impervious Flows Generated From Design			
Location	SF	Treatment Multiplier (in)	Volume (CF)
From Lyseth Roof	50,775	1	4,231.25
Addt'l Impervious	12,200	1	1,016.67
			5,247.92

- Ultimately, the City's stormwater policies only require the site to treat the additional 1,017 CF of stormwater generated by the redevelopment (through 12,200 SF of additional impervious surfaces).
- Currently, all surface drainage for the project area either is conveyed to the gravel wetland or to the sanitary sewer system. If the entire project area were to be treated by the gravel wetland, the following capacity would be necessary:

Treatment Necessary for Entire Site				
Item	Area (SF)	Area (Acres)	Treatment (in)	Volume (CF)
TOTAL IMP	422791	9.71	1	35,232.58
TOTAL DEV	426274	9.79	0.4	14,209.13
				49,441.71

- A review of current MaineDEP regulations indicated that gravel wetlands can only claim water quality treatment for up to 18" of ponding. As such, it is understood that the existing gravel wetland is undersized to current DEP standards, although it may have been designed appropriately for DEP standards developed prior to 2016. However, if improvements are made to the gravel wetland, we may be required to increase the pond to its full required size for the entire lot to be in accordance with Chapter 500 regulations.
    - Public works may complete an after-the-fact green infrastructure project that involves increasing the size of the gravel wetland, unrelated to the proposed project.
- No EPA requirements that would require separation were noted.

- Since roof runoff is much less polluted than other sources of urban runoff, it was suggested by DPW that the roof connections could simply be placed into gravel wetland, with the understanding that the gravel wetland is undersized. If the elementary school roof drains can be easily connected to the storm drain, then great; but it is not required by City code.
    - At this time, there are many additional projects on the DPW priority list that would require funding prior to this sewer separation project. This, associated with the need for the DPW to follow certain protocols with funding, would make it very cumbersome for DPW to assist in any stormwater conveyance/treatment at this time.
    - Connecting the roof drains to the existing stormwater drain may require the existing pipes to be upsized.
    - It is understood that the existing gravel wetland is undersized, but would provide some level of treatment for temperature and detention concerns within Fall Brook.
    - Outlet and emergency spillway will need to be re-evealuated for 25/50/100-year storms should additional flows be directed to the gravel wetland.
    - A brief HydroCAD model will be created by Wright-Pierce. As part of this process, Wright-Pierce will review whether or not the proposed project has different peak flows for different areas of the project, and when those flows would arrive at the gravel wetland.
- Chris Branch can review if a gravel wetland/green infrastructure grant would even be an option for this project, should that route be chosen as an option.
    - Should this option be chosen, it is understood that the existing tee-ball field may be encroached on to expand stormwater treatment facilities.
    - Due to the limited ponding allowed for water quality volume with gravel wetlands, other stormwater treatment best management practices may want to be vetted by the DPW should they proceed with this option.
    - Schools is currently paying into stormwater fee credit, but there would not be any credit for reduction to CSO flows removal at this time.
    - While there is an opportunity to make the wetland an educational option, that is not a priority for limited funds.
- Any work for roof drain connection to the storm sewer should be done as part of the facilities project phases. The athletic fields should remain a separate project in order to be treated as a maintenance project.

3. Schedule and Next Steps

- Meet with Planning to review stormwater and phasing approaches
- Utility Coordination
- Preliminary Design
- Borings

ATTACHMENT 12.3

MEDIUM-INTENSITIES SOILS REPORT

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

April 20, 2017

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,750 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 12, Sep 15, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 31, 2013—Aug 11, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Cumberland County and Part of Oxford County, Maine (ME005)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BuB	Lamoine silt loam, 3 to 8 percent slopes	0.0	0.5%
DeB	Deerfield loamy sand, 3 to 8 percent slopes	5.2	66.2%
HrB	Hollis fine sandy loam, 3 to 8 percent slopes	2.6	33.3%
Totals for Area of Interest		**7.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

BuB—Lamoine silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t0kc
Elevation: 10 to 490 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lamoine and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoine

Setting

Landform: Marine terraces, river valleys
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: silt loam
Bw - 7 to 13 inches: silt loam
Bg - 13 to 24 inches: silty clay loam
Cg - 24 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 17 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

DeB—Deerfield loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh6
Elevation: 150 to 1,200 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 10 inches: loamy sand
H2 - 10 to 24 inches: loamy sand
H3 - 24 to 65 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Hydric soil rating: No

HrB—Hollis fine sandy loam, 3 to 8 percent slopes

Map Unit Composition

Hollis and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy supraglacial meltout till derived from mica schist

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 18 inches: fine sandy loam
R - 18 to 22 inches: bedrock

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

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ATTACHMENT 12.4

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

City of Portland: Parks, Recreation and Facilities Management Department
Lyseth-Lyman Moore Parking and Circulation Improvements
Portland, Maine

Introduction

The following plan outlines the anticipated inspection, maintenance and housekeeping procedures for the erosion and sedimentation controls as well as stormwater management devices for the project site. Also, this plan outlines several housekeeping requirements that shall be followed during and after construction. These procedures should be followed in order to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment.

The procedures outlined in this inspection and maintenance plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, material storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring

maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Sediment Barriers:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

C. Temporary Storm Drain Inlet Protection:

- The inlet protection structure shall be inspected before each rain event and repaired as necessary.
- Sediment shall be removed and the storm drain sediment barrier restored to its original dimensions when the sediment has accumulated to half of the design depth of the trap.
- Barriers shall be removed upon permanent stabilization of the tributary area.
- Upon removal of the barrier, all accumulated sediments downstream of the structure shall be cleaned from the storm drain system.

D. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.

- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

G. Stormwater Best Management Practices:

- Some Stormwater Best Management Practices may require inspection during construction. Each Stormwater Best Management Practice shall be inspected in accordance with its associated detail as indicated on the site plan.
- For all Stormwater Best Management Practices, contractor shall ensure that all areas tributary to each Stormwater Best Management Practice are stabilized prior to construction.

After Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.

2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to

be performed after construction.

A. Vegetated Areas:

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Catch Basins:

- Inspect and, if required, clean-out catch basins at least once a year, preferably in early spring.
- Clean out must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins.
- If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil-absorptive pads).

C. Winter Sanding:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.
- Ensure that no winter sanding is done in Porous Pavement locations.

D. Grassed Underdrained Soil Filters

- Fertilization to establish vegetation within the soil filter should be avoided.
- Snow storage shall not occur in the soil filter.
- Check for accumulated sediments in the bottom of the soil filters. Remove sediments when they occupy 10 percent of the filter or sediment forebay bottom; if trenches fail to drain after surface sediment accumulations are removed, the filter medium must be replaced, using the same design, installation measures, and permeability testing procedures described in this application and related documents.
- Check for the dissipation of water after large storm events. The soil filter

should be completely drained 72 hours after filling from the storm event.

- Check road shoulders for grass cover and erosion. The shoulders should have a complete stand of grass cover and be free of erosion rills or washouts. Repair any washouts and re-loam and seed to re-establish grade and grass cover.

3. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system.

Housekeeping

The following general performance standards apply to the proposed project both during and after construction.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials and equipment on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

D. Debris and other materials: Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

F. Excavation de-watering: Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.

G. Authorized non-stormwater discharges: Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

(a) discharges from firefighting activity;

(b) fire hydrant flushings;

(c) vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);

(d) dust control runoff in accordance with permit conditions and appendix (c)(3);

(e) routine external building washdown, not including surface paint removal, that does not involve detergents;

(f) pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;

(g) uncontaminated air conditioning or compressor condensate;

(h) uncontaminated groundwater or spring water;

(i) foundation or footer drain-water where flows are not contaminated;

(j) uncontaminated excavation dewatering (see requirements in appendix c(5));

(k) potable water sources including waterline flushings; and

(l) landscape irrigation.

H. Unauthorized non-stormwater discharges: The department's approval under this chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with appendix c (6). Specifically, the department's approval does not authorize discharges of the following:

(a) wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;

(b) fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;

(c) soaps, solvents, or detergents used in vehicle and equipment washing; and

(d) toxic or hazardous substances from a spill or other release.

I. Staging of Operations: All stockpiling of materials and staging of construction equipment shall be completed in the outlined limit of work, or at the contractor's facilities off-site. All stockpiles shall be stabilized in the manner described in the Erosion and Sedimentation Control Plan and narrative.

J. Additional requirements. Additional requirements may be applied on a site-specific basis.

Stormwater Inspection and Maintenance Form

City of Portland, Maine
Parks, Recreation and Facilities Management Department

Lyseth-Lyman Moore School Circulation and Parking

Inspector: _____ Date: _____

Maintenance Personnel: _____

	Inspection		Maintenance	
SITE AREA	Date	Comments	Date	Corrective Action
GUSF Vegetation and Mulch				
GUSF Media				
GUSF Sediment Riprap				
GUSF Misc				
General: Overflow Structures				
General: Vegetated areas adjacent to pavement runoff				
General: Lawn Vegetation				
General: Slope Vegetation				
General: Entrance Road Sweeping				
General: Swale and drainage way erosion				
General: Catch Basins				

Sediment/Debris Disposal

Location of Sediment/Debris Accumulation	Location of Sediment/Debris Disposal	Date of Disposal

ATTACHMENT 12.5

EROSION AND SEDIMENTATION CONTROL PLAN

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017

EROSION AND SEDIMENTATION CONTROL PLAN

City of Portland: Parks, Recreation and Facilities Management Department
Lyseth-Lyman Moore Parking and Circulation Improvements
Portland, Maine

INTRODUCTION

This Erosion and Sedimentation Control Plan (E&S Plan) has been developed to provide a strategy to prevent unreasonable erosion of soil and sediment transport beyond the project site or into a protected natural resource. These strategies apply to the proposed development immediately prior to soil disturbing activities on the site and shall remain in place until the site is permanently stabilized.

The information presented in this E&S Plan is provided as an overview of the anticipated measures to be used on this site. In some instances, additional measures may be required due to unexpected conditions that arise during construction. Also, specific detail on the application of a recommended practice for an unexpected instance may not be covered in this E&S Plan. For additional detail on any of the erosion and sedimentation control measures discussed in this E&S Plan or for further recommendations of applicable practices, refer to the "Maine Erosion and Sedimentation Control BMP" manual published by the Maine Department of Environmental Protection (MDEP) dated March 2003, as revised.

1.0 PLAN IMPLEMENTATION PHASES

Generally, the implementation of this plan occurs in three distinct phases as described below:

1.1 Pre-construction Phase

Prior to the beginning of any construction, perimeter sediment barriers (i.e. silt fence, erosion control mix berm, etc…) shall be installed at, or just below, the limits of clearing or grubbing, and/or just above any adjacent property line or protected natural resource. Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection with the proposed access drive and the existing roadway to avoid tracking of mud, dust and debris from the site.

1.2 Construction Phase

Areas undergoing actual construction shall only expose that amount of mineral soil necessary for progressive and efficient site construction. Any area that has been disturbed and is not "permanently stabilized" (as described by this E&S Plan) shall be considered "open." Open areas shall be protected and stabilized with temporary erosion and sedimentation control measures as shown on the project plans and as described within this E&S Plan.

Preparation for winter stabilization applies to some disturbed areas that are open on or after September 15th of the construction season (refer to the Winter Construction Section of this E&S Plan, Paragraph B – Overwinter Stabilization Timeframe). Any areas that remain open after November 1 or new soil disturbance that occurs after November 1, but before April 15, must be protected by additional measures as described in the Winter Construction section of this E&S Plan. The recommendations outlined in the Winter Construction section of this E&S Plan shall supersede other conflicting recommendations.

1.3 Post-construction phase

Once the site has reached permanent stabilization, remove any temporary sediment control measures, such as silt fence, within 30 days. All accumulated sediment/debris in the permanent stormwater management system, ditches, swales, paved surfaces, and/or any other location that has accumulated sediment/debris during construction shall be removed and disposed of in an approved manner.

2.0 PERMANENT STABILIZATION

The strategies outlined in this E&S Plan shall be in effect until the site reaches permanent stabilization. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well established. If necessary, areas must be seeded and mulched again if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. The following list defines permanent stabilization for applicable situations.

2.1 Seeded Areas: For seeded areas, permanent stabilization means a 90% cover of vigorous perennial growth with no evidence of washing or rilling of the topsoil.

2.2 Sodded Areas: For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.

2.3 Permanent Mulch: For mulched areas, permanent mulching means total coverage of the exposed area with an approved mulch material. Erosion control mix may be used as mulch for permanent stabilization according to approved application rates and limitations.

2.4 Riprap: For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of well-graded gravel or approved geotextile to prevent soil movement from behind the riprap.

2.5 Paved Areas: For paved areas, permanent stabilization means the placement of compacted gravel subbase is completed.

2.6 Ditches, channels, and swales: For open channels, permanent stabilization means the channel is stabilized with a 90% cover of vigorous perennial growth, a well-graded riprap lining, or with another non-erosive lining such as specified. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

3.0 TEMPORARY EROSION AND SEDIMENTATION CONTROL BMPS

The placement/use of the following erosion and sedimentation control measures shall be in accordance with the "Maine Erosion and Sedimentation Control BMP" manual published by the Maine Department of Environmental Protection (MDEP) dated March 2003, as revised.

3.1 Sediment Barriers: Prior to the beginning of any construction, sediment barriers (i.e. silt fence, erosion control mix berms, etc…) shall be installed across the slope(s), on the contour, at or just below the limits of clearing or grubbing, and/or just above any adjacent property line or watercourse to protect against construction related erosion. Sediment barriers shall be maintained until all tributary open areas have been permanently stabilized. The following are recommended perimeter sediment barriers:

- **Silt fence**: Shall be installed per the detail on the plans. The effective height of the fence shall not exceed 36 inches. It is recommended that silt fence be removed by cutting the fence materials at ground level so as to avoid additional soil disturbance.
- **Staked hay bales**: Shall be installed per the detail on the plans. Bales shall be wire-bound or string-tied and these bindings must remain parallel with the ground surface during installation to prevent deterioration of the bindings. Bales shall be installed within a minimum four (4) inch deep trench line with ends of adjacent bales tightly abutting another.
- **Erosion control mix berm**: Shall be installed per the detail on the plans. The mix shall consist primarily of organic material and contain a well-graded mixture of particle sizes. The mix must meet the most recent composition specifications published by the MDEP. No trenching is required for installation of this barrier.

3.2 Surface Stabilization: All disturbed areas that will not be worked for more than 7 days shall be protected and stabilized with mulch or other non-erodable cover. Areas located within 75 feet of a wetland or waterbody must be protected and stabilized within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first. Areas that have been seeded (temporary or permanent) shall be stabilized immediately. The following are recommended practices for surface stabilization:

- **Hay or straw Mulch:** Organic mulches including hay and straw need to be air-dried, free of undesirable seeds and coarse materials. Application rate shall be 2 bales (70-90 lbs) per 1000 square feet or 1.5 to 2 tons (90-100 bales) per acre. This type of mulch must be anchored with a tackifier amendment and/or via physical means (i.e. vehicle tracking, jute netting, etc…) to avoid displacement by wind or water.
- **Erosion control mix**: Erosion Control Mix can be manufactured on or off the site. It is composed primarily of shredded bark, stump grindings, composted bark, or other acceptable products based on a similar raw source. The mix must meet the most recent composition specifications published by the MDEP. The mix shall be placed evenly and must provide 100% soil coverage. Erosion control mix shall be applied such that the thickness on slopes 3:1 or less is 2 inches plus ½ inch per 20 feet of slope up to 100 feet. The thickness on slopes between 3:1 and 2:1 is 4 inches plus ½ inch per 20 feet of slope up to 100 feet. This shall not be used on slopes greater that 2:1.
- **Erosion control blankets**: Erosion Control Blankets are used on steep slopes (greater than 3H:1V) and also areas that will receive concentrated stormwater flows. Blankets aid in controlling erosion on disturbed soils and critical areas during the establishment period of vegetation. Various forms of erosion control blankets are commercially available, each with different advantages for different applications. The type of blanket to be used for individual applications shall be as indicated on the development plan set or via the use of an approved equivalent blanket. In all applications, the blanket manufacturer's specifications and installation methods shall be referenced and adhered to.

3.3 Soil Stockpiles: All topsoil shall be stockpiled for future use on the project at a stable location on-site. Structural measures, such as sediment barriers, may be warranted for additional sediment control of the stockpile areas. Stockpiles of soil or subsoil shall be mulched with hay or straw or with erosion control mix. This must be done within 24 hours of stocking and re-established prior to any rainfall. Any soil stockpile will not be placed (even covered with hay or straw) within 75 feet from any protected natural resources.

3.4 Stabilized Construction Entrance/Exit: Prior to any clearing or grubbing, a stabilized construction entrance/exit shall be constructed wherever traffic will exit the construction site onto

a paved roadway in order to minimize the tracking of sediment and debris from the construction site onto public roadways. The entrances and adjacent roadway areas shall be periodically swept or washed to further minimize the tracking of mud, dust or debris from the construction area. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. Stabilized construction exits shall be constructed in areas as specified and detailed on the plans.

3.5 Stone Check Dams: Stone check dams are generally temporary devices, which are constructed across a swale or drainage ditch. Their purpose is to reduce the velocity of concentrated stormwater flows, thereby reducing erosion of the swale or ditch. These devices will also trap small amounts of sediment generated in the ditch itself, however, they are not an effective sediment trapping device and should not be used as such. Stone check dams are typically constructed of 2"-3" crushed stone and stand 24 inches in height.

3.6 Storm Drain Inlet Protection: Storm drains are typically operational prior to permanent stabilization of tributary areas. In these instances, hay bales, crushed stone barriers, and/or silt sacks shall be used within a catch basin or prior to a pipe entrance. This temporary protection will assist in the removal of sediment prior to entrance into a storm drainage system and the prevention of clogging and/or loss of capacity. These devices alone will not prevent all sediment from entering the stormwater system and should be used in conjunction with other devices to achieve desired sediment removal levels.

3.7 Dewatering: Water from construction dewatering will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing and sediment discharges to a protected natural resource. Discharge is permitted within the filter basin locations prior to the installation of the filter media.

3.8 Dust Control: Dust control during construction shall be achieved by the use of a watering truck to periodically sprinkle the exposed roadway areas as necessary to reduce dust during the dry months. Applying other dust control products such as calcium chloride or other manufactured products are allowed if authorized by the proper local, state and/or federal regulating agencies. However, it is the contractor's ultimate responsibility to mitigate dust and soil loss from the site.

3.9 Concrete Washout: Concrete washout(s) shall be made available on-site during times when cast-in-place concrete structures are being poured. Concrete washout shall be large enough to wash out trucks, inspection equipment, and working tools as necessary. No concrete washwater shall be directly discharged to any stormwater infrastructure or to any protected natural resources. Once dried, concrete shall be disposed in accordance with proper local, state, and/or federal regulating agencies. Concrete washout shall be constructed in accordance with Dewatering Filter Detail, or other method as approved by engineer.

4.0 VEGETATIVE MEASURES

4.1 Temporary Vegetation: If any disturbed area of soil will be left bare for more than 7 days, or if construction is to be completed in phases over an extended duration, temporary seeding and mulching shall commence immediately following initial fine grading of the site. In sensitive areas (within 75 feet of protected natural resources) temporary mulch must be applied within 48 hours or prior to any storm event on all disturbed surfaces. It shall be maintained and reseeded, as necessary, to ensure good vegetative cover for the entire duration of construction. Seed will be selected from the following table (Table 1 - Temporary Seed Mixture) according to the time of year or via an approved equivalent method.

TABLE 1
TEMPORARY SEED MIXTURE

Seed	Lbs./Acre	Lbs./1000s.f.	Recommended Seeding Date
Winter Rye	112	2.6	8/15 thru 10/1
Oats	80	1.8	4/1 thru 7/1 8/15 thru 9/15
Annual Ryegrass	40	0.9	4/1 thru 7/1
Sudangrass	40	0.9	5/15 thru 8/15
Perennial	40	0.9	8/15 thru 9/15

Note:
Some tree and shrub species may be desirable for sites primarily covered with sand and gravel. These methods shall be approved by the appropriate regulatory authority prior to use.

4.2 Permanent Vegetation: Revegetation measures shall commence immediately upon completion of final grading of areas to be loamed and seeded. Revegetation measures shall consist of the following:

4.2.1 Seedbed Preparation

- Four (4) inches of loam will be spread over disturbed areas and smoothed to a uniform surface. Loam shall be free of subsoil, clay lumps, stones and other objects over 2" in any dimension, and without weeds, roots or other objectionable material.

- Soil tests shall be taken at the time of soil stripping to determine fertilization requirements. Soil tests shall be taken promptly as to not interfere with the 7-day limit on soil exposure (48-hours adjacent to a protected natural resource). Based upon test results, soil amendments shall be incorporated into the soil prior to final seeding. In lieu of soil tests, soil amendments may be applied as shown below in Table 2:

TABLE 2
RECOMMENDED SOIL AMENDMENTS

Item	Application Rate
10-20-20 Fertilizer (N-P205-K20 or equal)	18.4lbs./1,000 s.f.
Ground Limestone (50% calcium and magnesium oxide)	138-lbs./1,000 s.f.

- Work lime and fertilizer into the soil as nearly as practical to a depth of four (4) inches with proper equipment. Roll the area to firm the seedbed except on clay, silty soils or coarse sand.

4.2.2 Application of Seed

- **Seeding**: The seed mixture shown below in Table 3 shall be utilized for permanent seeding for the majority of the project:

TABLE 3
PERMANENT SEED MIXTURE

Seed Type	Application Rate
Creeping Red Fescue	0.46 lbs/1,000 s.f. (20 lbs/acre)
Red Top	0.05 lbs/1,000 s.f. (2 lbs/acre)
Tall Fescue	0.46 lbs/1,000 s.f. (20 lbs/acre)
Total:	0.97 lbs/1,000 s.f. (42 lbs/acre)

- **Seeding**: The seed mixture shown below in Table 4 shall be utilized for permanent seeding for modifications adjacent to the athletics fields:

TABLE 4
PERMANENT SEED MIXTURE

Seed Type	Application Rate
Kentucky Bluegrass	2.5 lbs/1,000 s.f. (110 lbs/acre)

- **Hydroseeding:** Shall be conducted on prepared areas as described above. Hydroseeding shall not be done on slopes steeper than 2H:1V. Lime and fertilizer may be applied simultaneously with the seed. Recommended seeding rates must be increased by 10% when hydroseeding.

- **Surface Stabilization:** Mulching or other approved surface stabilization methods shall commence immediately after seed is applied. Refer to the surface stabilization section of this plan for more information.

4.2.3. Sodding

Following seedbed preparation, sod can be applied in lieu of seeding in areas where immediate vegetation is most beneficial such as ditches, around stormwater drop inlets and areas of aesthetic value. Sod should be laid at right angles to the direction of flow starting at the lowest elevation. Sod should be rolled or tamped down to even out the joints once laid down. Where flow is prevalent the sod must be properly anchored down. Irrigate the sod immediately after installation. In most cases, sod can be best established between April 1 and November 15 of the construction year.

5.0 WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not permanently stabilized by November 15 then the site needs to be protected with over-winter stabilization.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event. All

areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched.

Any added measures, which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions, must be installed. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

5.1 Winter Construction BMP Adjustments

1) **Sediments Barriers:** During frozen conditions, sediment barriers shall consist of erosion control mix berms as frozen soil prevents the proper installation of hay bales and silt fences.

2) **Mulching:** Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, asphalt emulsion chemical, track or weed cellulose fiber. When the ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

   - **Open Surfaces (flatter than 8%)**: Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 square feet or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow will be removed down to one-inch depth or less prior to application. After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible through the mulch.
   - **Open Slopes (8% or steeper) and Drainage Ways**: Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with netting or erosion control blankets. Mulching shall be applied at a rate of 230-lbs/1,000 square feet on all slopes steeper than 8%. Mulch netting shall be used to anchor mulch in all drainage ways with a slope steeper than 3% for slopes exposed to direct winds and for all other slopes steeper than 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways. Erosion control mix can be used to substitute erosion control blankets on slopes that do not exceed 2H:1V. In this case, the erosion control mix shall be spread out, not placed in a berm as it is installed as a sedimentation barrier.

3) **Soil Stockpiles:** Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150-lbs/1,000 square feet (3 tons per acre) or with a four-inch layer of wood waste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

4) **Natural Resources Protection:** Any areas within 100 feet from any protected natural resources, if not stabilized with a minimum of 90% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

5) **Seeding:** Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5-lbs/1000 square feet. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 90% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.2 Overwinter Stabilization Timeframe

1) **Ditches and Channels:** All stone-lined ditches and channels must be constructed and stabilized on the site by November 15. All grass-lined ditches and channels must be constructed and stabilized by September 15. If a ditch or channel is not grass-lined by September 15, then one of the following actions must be taken to stabilize the ditch for late fall and winter.

- **Install a sod lining in the ditch**: A ditch must be lined with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

- **Install a stone lining in the ditch**: A ditch must be lined with stone riprap by November 15. A registered professional engineer must be hired to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the ditch must be regraded prior to placing the stone lining to prevent the stone lining from reducing the ditch's cross-sectional area.

2) **Disturbed Slopes:** All stone-covered slopes must be constructed and stabilized by November 15. All slopes to be vegetated must be seeded by September 15. The MDEP

will consider any area having a grade greater than 15% (10H:1V) to be a slope. If a slope to be vegetated is not stabilized by September 1, then one of the following actions must be taken to stabilize the slope for late fall and winter.

- **Stabilize the soil with temporary vegetation and erosion control blankets**: By October 1 the disturbed slope must be seeded with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control blankets over the mulched slope. If the rye fails to grow at least three inches or cover at least 90% of the disturbed slope by November 1, the slope will be covered with a layer of erosion control mix or stone riprap as described in the following standards.
- **Stabilize the slope with sod**: The disturbed slope must be stabilized with properly installed sod by October 1. Proper installation includes pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. Slopes steeper than 33% (3H:1V) or having groundwater seeps on the slope face, may not use late-season sod installation for stabilization.

- **Stabilize the slope with erosion control mix**: A six-inch layer of erosion control mix must be spread over the slope by November 15. Prior to placing the erosion control mix, any snow accumulation on the disturbed slope must be removed. Slopes steeper than 50% (2H:1V) or having groundwater seeps on the slope face can not use erosion control mix to stabilize slopes.

- **Stabilize the slope with stone riprap**: A layer of stone riprap can be placed on the slope by November 15. A registered professional engineer must be hired to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3) **Other Disturbed Soils:** By September 15, all disturbed soils on areas having a slope flatter than 15% (15H:1V) must receive seed and mulch. If disturbed areas are not stabilized by this date, then one of the following actions must be taken to stabilize the soil for late fall and winter.

- **Stabilize the soil with temporary vegetation**: By October 1, seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed soil before November 1, then mulch the area for over-winter protection as described in the following "Stabilize the soil with mulch" standard.

- **Stabilize the soil with sod**: Stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- **Stabilize the soil with mulch**: By November 15, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, any snow accumulation on the disturbed area must be removed. Immediately after

applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

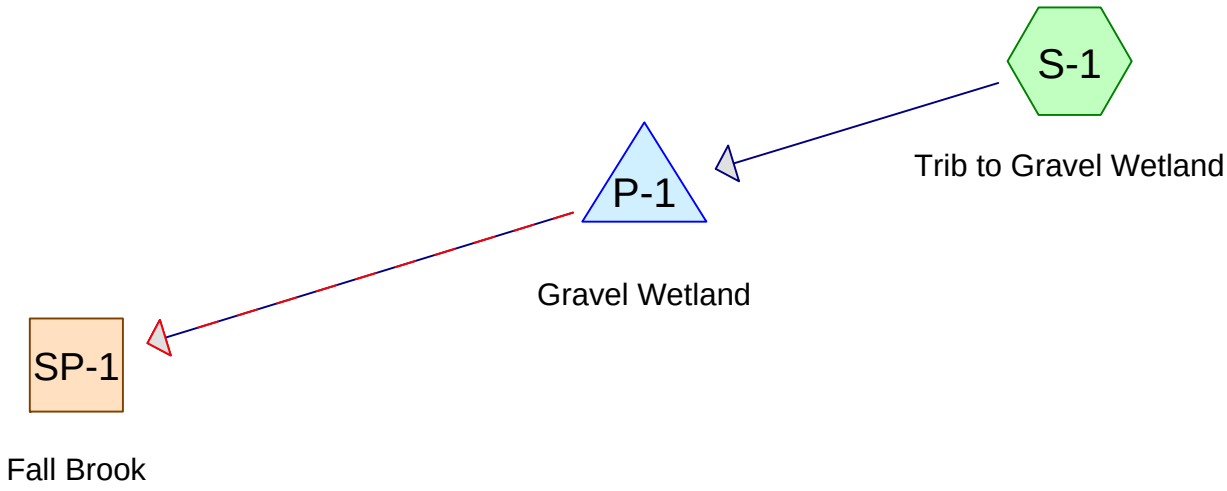
6.0 INSPECTION AND MAINTENANCE

Inspection and maintenance are required of all erosion and sedimentation control measures outlined in this plan. The Owner shall identify a qualified firm or person prior to construction to perform inspections and identify maintenance needs for the proposed project. Refer to the Inspection, Maintenance, and Housekeeping plan for this project (provided under separate cover) for an outline of the associated inspection and maintenance requirements.

ATTACHMENT 12.6

PRE-DEVELOPMENT HYDROCAD REPORT

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017



Subcat Reach Pond Link

Routing Diagram for Final Existing Gravel Wetland
Prepared by Microsoft, Printed 8/24/2017
HydroCAD® 10.00-12 s/n 01135 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
9.591	74	>75% Grass cover, Good, HSG C (S-1)
8.748	98	Paved parking & roofs (S-1)
18.339	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
9.591	HSG C	S-1
0.000	HSG D	
8.748	Other	S-1
18.339		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	9.591	0.000	0.000	9.591	>75% Grass cover, Good	S-1
0.000	0.000	0.000	0.000	8.748	8.748	Paved parking & roofs	S-1
0.000	**0.000**	**9.591**	**0.000**	**8.748**	**18.339**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	S-1	0.00	0.00	1,361.0	0.0050	0.013	18.0	0.0	0.0
2	P-1	101.67	100.00	37.0	0.0451	0.011	12.0	0.0	0.0

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-1: Trib to Gravel Wetland Runoff Area=798,844 sf 47.70% Impervious Runoff Depth=1.73"
Flow Length=1,523' Tc=23.3 min CN=85 Runoff=21.88 cfs 2.647 af

Reach SP-1: Fall Brook Avg. Flow Depth=0.44' Max Vel=2.36 fps Inflow=6.64 cfs 2.647 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=6.63 cfs 2.647 af

Pond P-1: Gravel Wetland Peak Elev=106.48' Storage=42,999 cf Inflow=21.88 cfs 2.647 af
Primary=0.00 cfs 0.000 af Secondary=6.64 cfs 2.647 af Outflow=6.64 cfs 2.647 af

Total Runoff Area = 18.339 ac Runoff Volume = 2.647 af Average Runoff Depth = 1.73"
52.30% Pervious = 9.591 ac 47.70% Impervious = 8.748 ac

Summary for Subcatchment S-1: Trib to Gravel Wetland

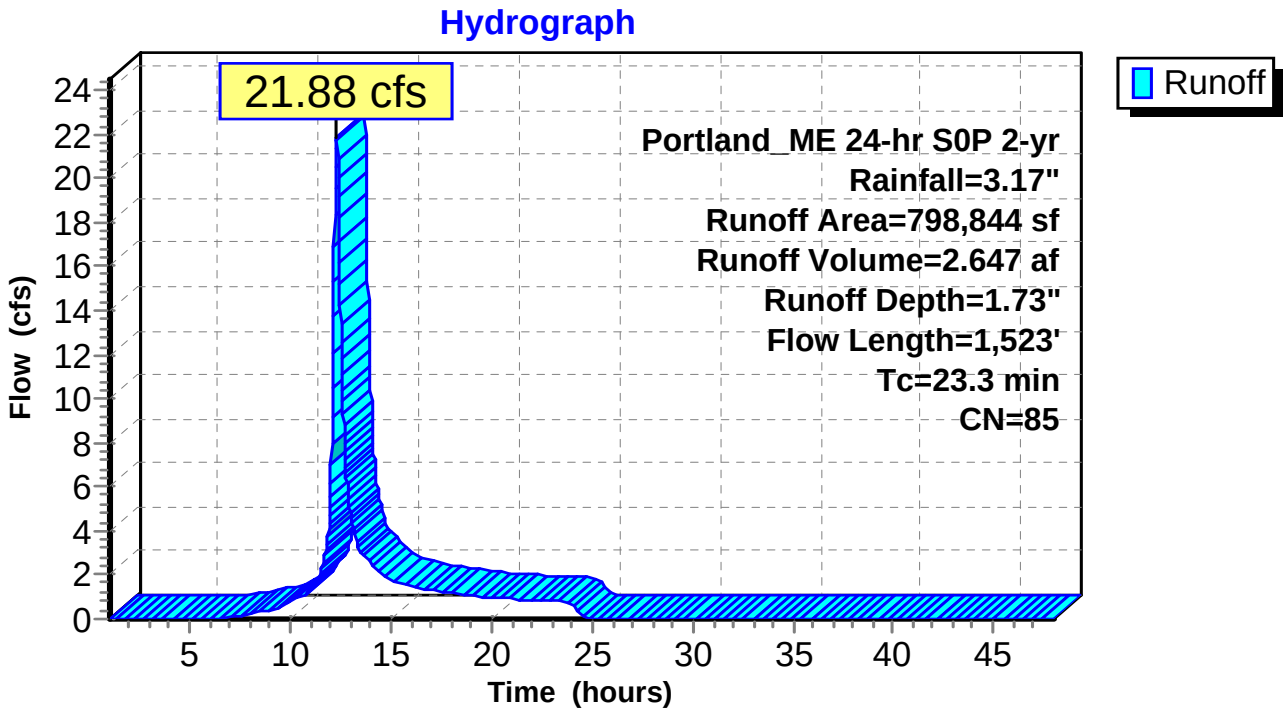
Runoff = 21.88 cfs @ 12.28 hrs, Volume= 2.647 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

Area (sf)	CN	Description
381,055	98	Paved parking & roofs
417,789	74	>75% Grass cover, Good, HSG C
798,844	85	Weighted Average
417,789		52.30% Pervious Area
381,055		47.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	162	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.4	1,361	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
23.3	1,523	Total			

Subcatchment S-1: Trib to Gravel Wetland



Summary for Reach SP-1: Fall Brook

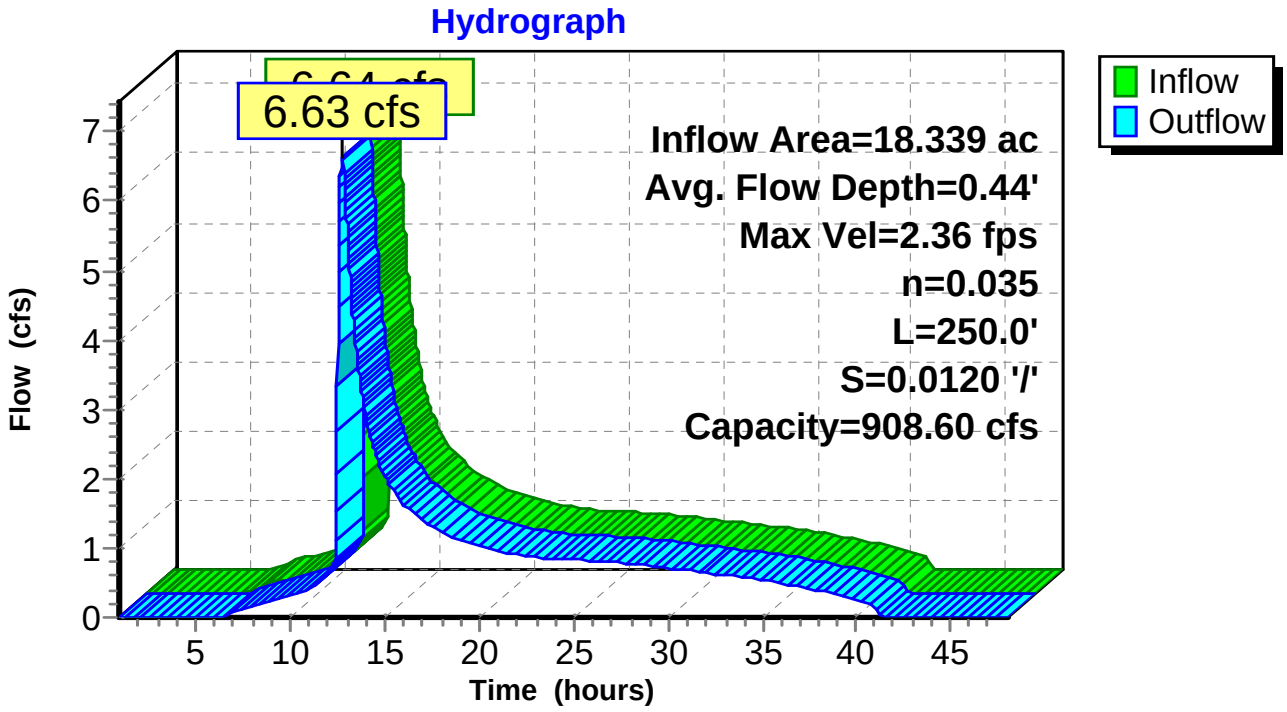
Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 1.73" for 2-yr event
Inflow = 6.64 cfs @ 12.76 hrs, Volume= 2.647 af
Outflow = 6.63 cfs @ 12.78 hrs, Volume= 2.647 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 2.36 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 3.8 min

Peak Storage= 703 cf @ 12.78 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: Fall Brook



Summary for Pond P-1: Gravel Wetland

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 1.73" for 2-yr event
Inflow = 21.88 cfs @ 12.28 hrs, Volume= 2.647 af
Outflow = 6.64 cfs @ 12.76 hrs, Volume= 2.647 af, Atten= 70%, Lag= 28.6 min
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Secondary = 6.64 cfs @ 12.76 hrs, Volume= 2.647 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 106.48' @ 12.76 hrs Surf.Area= 15,808 sf Storage= 42,999 cf

Plug-Flow detention time= 367.2 min calculated for 2.646 af (100% of inflow)
Center-of-Mass det. time= 367.5 min (1,237.1 - 869.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

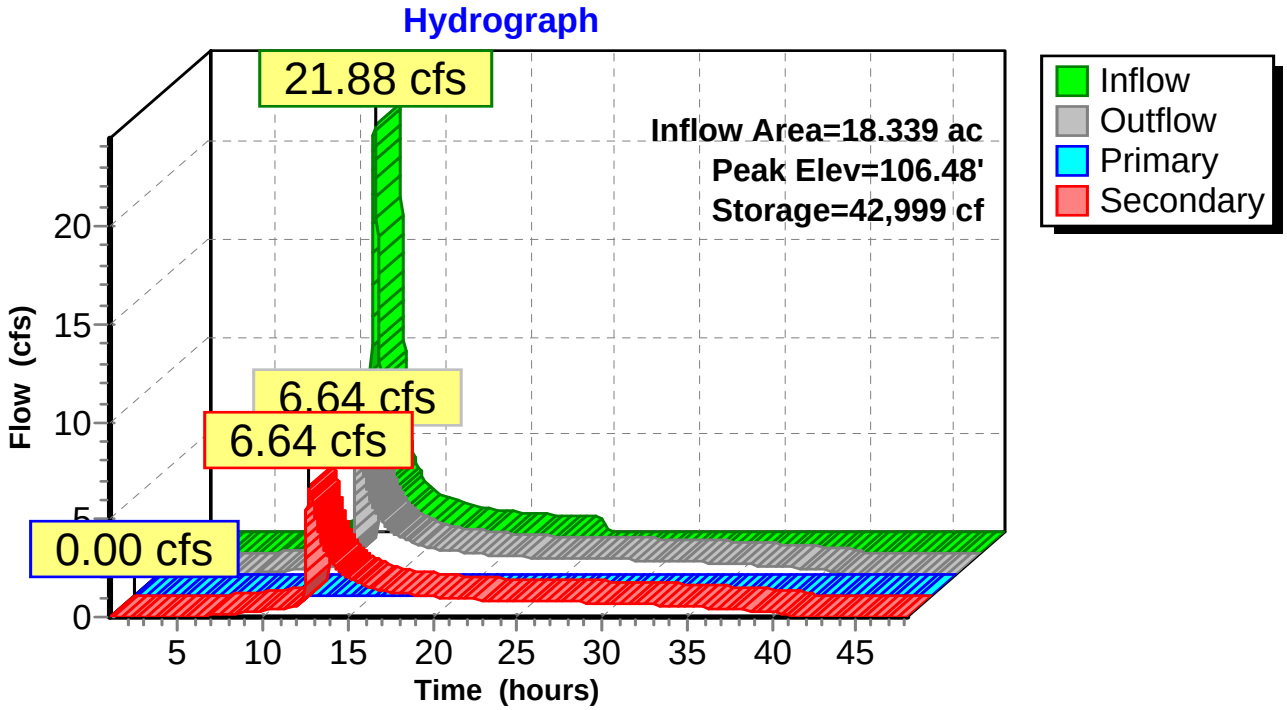
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=102.00' TW=91.00' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=6.64 cfs @ 12.76 hrs HW=106.48' TW=91.44' (Dynamic Tailwater)
- **3=Culvert** (Passes 6.64 cfs of 7.85 cfs potential flow)
  - **4=Orifice/Grate** (Orifice Controls 0.91 cfs @ 10.38 fps)
  - **5=Broad-Crested Rectangular Weir** (Weir Controls 5.73 cfs @ 1.99 fps)

Pond P-1: Gravel Wetland



Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-1: Trib to Gravel Wetland Runoff Area=798,844 sf 47.70% Impervious Runoff Depth=3.10"
Flow Length=1,523' Tc=23.3 min CN=85 Runoff=37.55 cfs 4.739 af

Reach SP-1: Fall Brook Avg. Flow Depth=1.05' Max Vel=3.79 fps Inflow=32.55 cfs 4.739 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=32.41 cfs 4.739 af

Pond P-1: Gravel Wetland Peak Elev=107.13' Storage=53,923 cf Inflow=37.55 cfs 4.739 af
Primary=24.12 cfs 0.842 af Secondary=8.43 cfs 3.897 af Outflow=32.55 cfs 4.739 af

Total Runoff Area = 18.339 ac Runoff Volume = 4.739 af Average Runoff Depth = 3.10"
52.30% Pervious = 9.591 ac 47.70% Impervious = 8.748 ac

Summary for Subcatchment S-1: Trib to Gravel Wetland

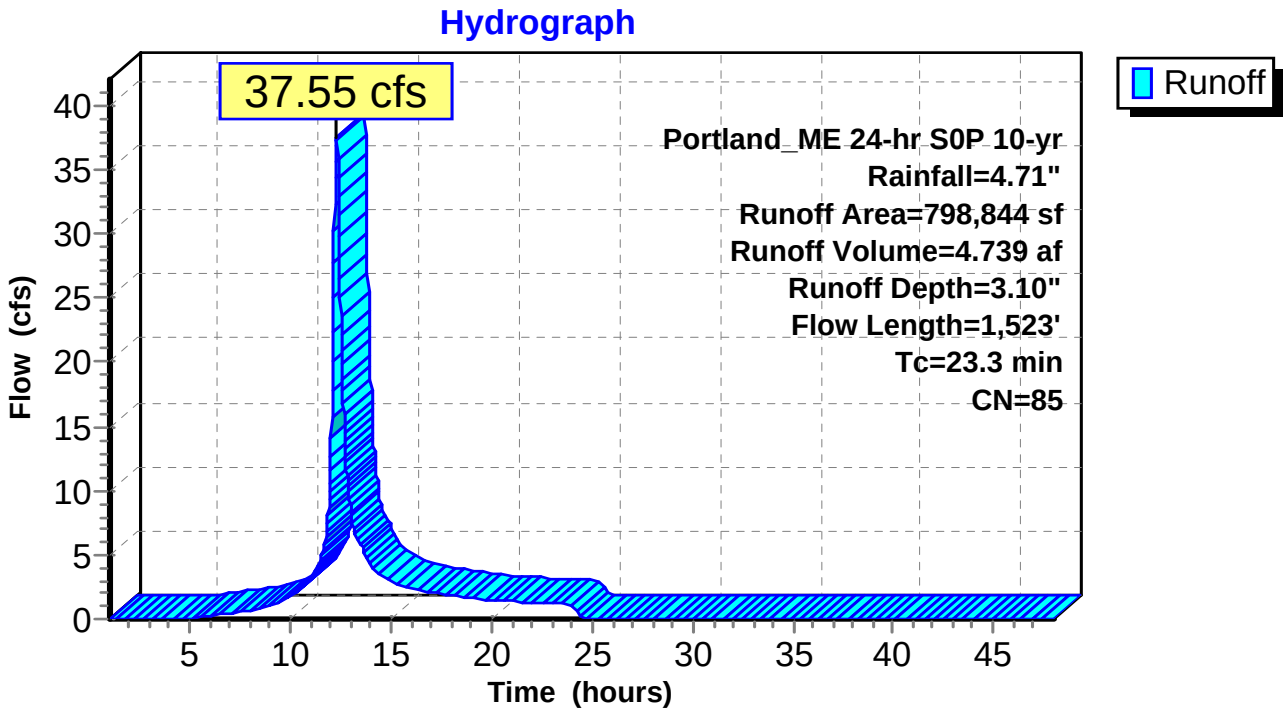
Runoff = 37.55 cfs @ 12.28 hrs, Volume= 4.739 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

Area (sf)	CN	Description
381,055	98	Paved parking & roofs
417,789	74	>75% Grass cover, Good, HSG C
798,844	85	Weighted Average
417,789		52.30% Pervious Area
381,055		47.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	162	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.4	1,361	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
23.3	1,523	Total			

Subcatchment S-1: Trib to Gravel Wetland



Summary for Reach SP-1: Fall Brook

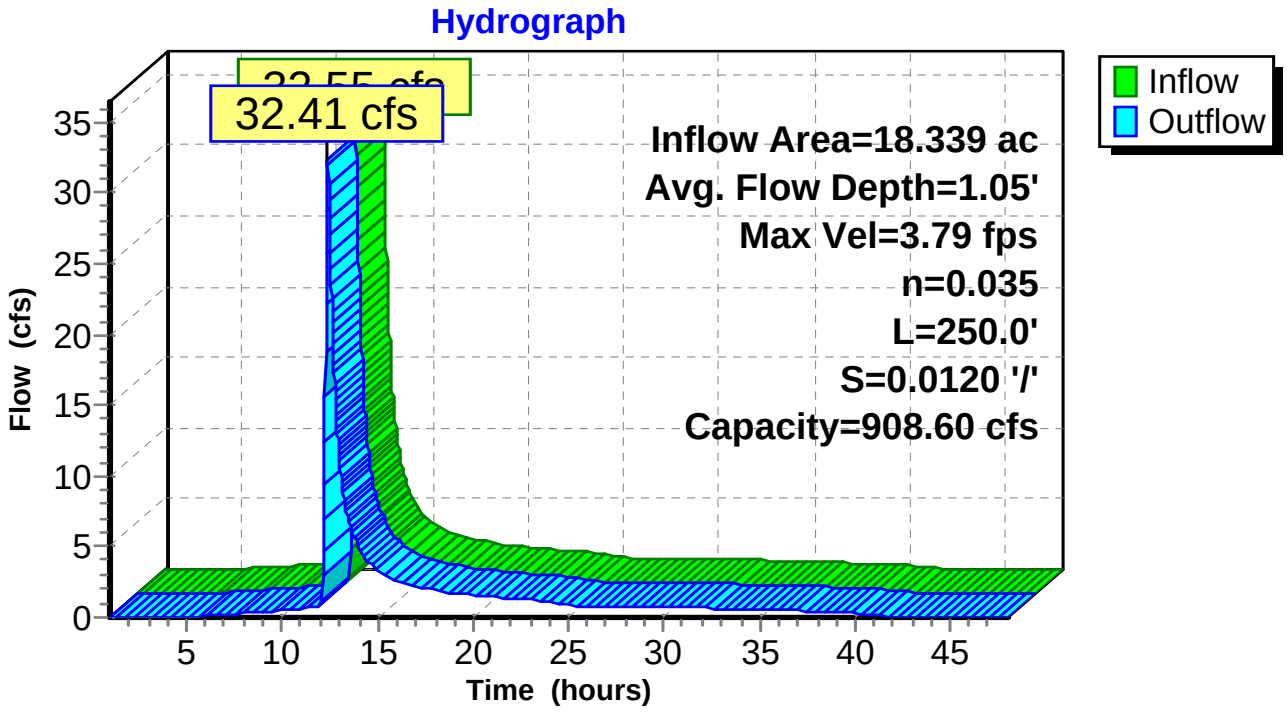
Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 3.10" for 10-yr event
Inflow = 32.55 cfs @ 12.39 hrs, Volume= 4.739 af
Outflow = 32.41 cfs @ 12.40 hrs, Volume= 4.739 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 3.79 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.21 fps, Avg. Travel Time= 3.4 min

Peak Storage= 2,139 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.05'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: Fall Brook



Summary for Pond P-1: Gravel Wetland

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 3.10" for 10-yr event
Inflow = 37.55 cfs @ 12.28 hrs, Volume= 4.739 af
Outflow = 32.55 cfs @ 12.39 hrs, Volume= 4.739 af, Atten= 13%, Lag= 6.5 min
Primary = 24.12 cfs @ 12.39 hrs, Volume= 0.842 af
Secondary = 8.43 cfs @ 12.39 hrs, Volume= 3.897 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.13' @ 12.39 hrs Surf.Area= 17,780 sf Storage= 53,923 cf

Plug-Flow detention time= 225.7 min calculated for 4.737 af (100% of inflow)
Center-of-Mass det. time= 226.0 min (1,069.4 - 843.4)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

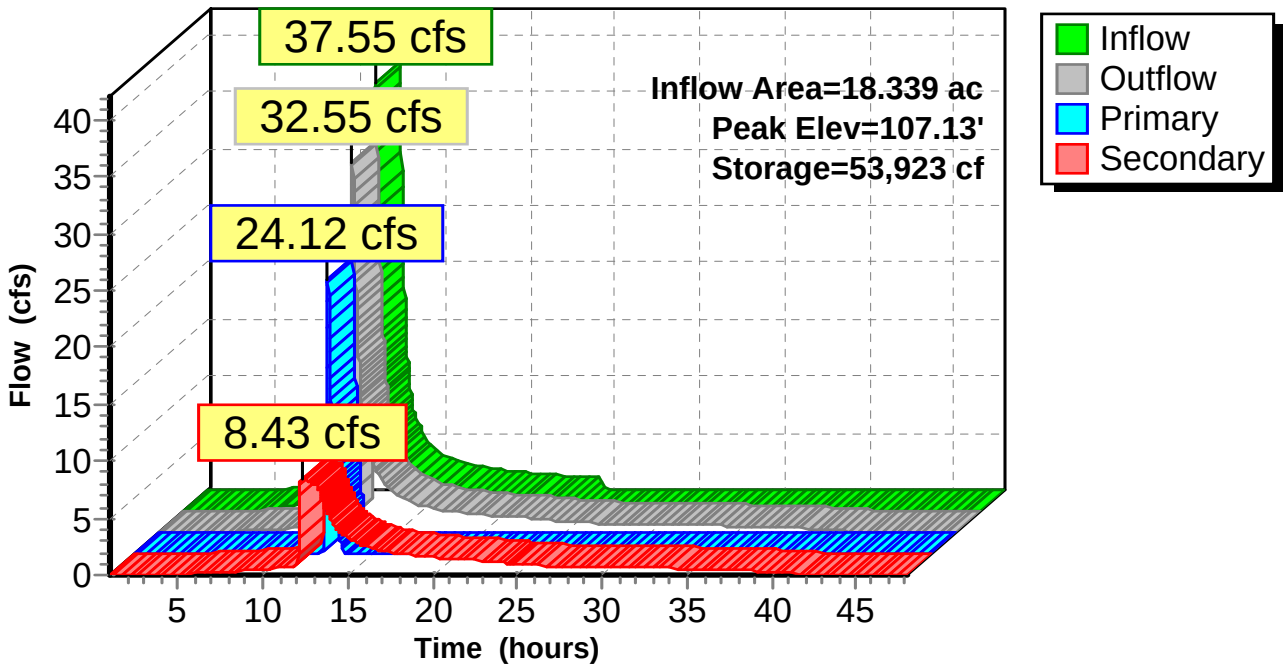
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=24.05 cfs @ 12.39 hrs HW=107.13' TW=92.05' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 20.38 cfs @ 2.15 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 3.67 cfs @ 0.86 fps)

Secondary OutFlow Max=8.42 cfs @ 12.39 hrs HW=107.13' TW=92.05' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.42 cfs @ 10.73 fps)
  - **4=Orifice/Grate** (Passes < 0.97 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 23.20 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-1: Trib to Gravel Wetland Runoff Area=798,844 sf 47.70% Impervious Runoff Depth=4.23"
Flow Length=1,523' Tc=23.3 min CN=85 Runoff=49.55 cfs 6.460 af

Reach SP-1: Fall Brook Avg. Flow Depth=1.28' Max Vel=4.22 fps Inflow=48.03 cfs 6.460 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=47.92 cfs 6.460 af

Pond P-1: Gravel Wetland Peak Elev=107.28' Storage=56,592 cf Inflow=49.55 cfs 6.460 af
Primary=39.48 cfs 1.736 af Secondary=8.55 cfs 4.724 af Outflow=48.03 cfs 6.460 af

Total Runoff Area = 18.339 ac Runoff Volume = 6.460 af Average Runoff Depth = 4.23"
52.30% Pervious = 9.591 ac 47.70% Impervious = 8.748 ac

Summary for Subcatchment S-1: Trib to Gravel Wetland

Runoff = 49.55 cfs @ 12.28 hrs, Volume= 6.460 af, Depth= 4.23"

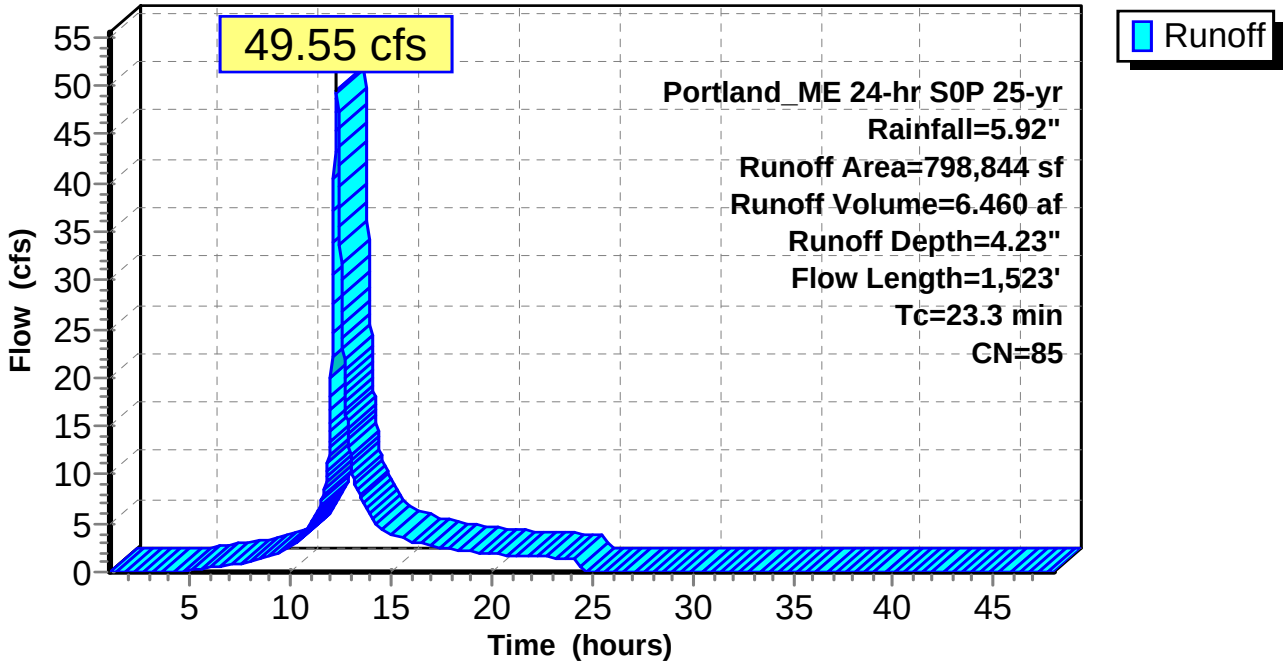
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

Area (sf)	CN	Description
381,055	98	Paved parking & roofs
417,789	74	>75% Grass cover, Good, HSG C
798,844	85	Weighted Average
417,789		52.30% Pervious Area
381,055		47.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	162	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.4	1,361	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
23.3	1,523	Total			

Subcatchment S-1: Trib to Gravel Wetland

Hydrograph



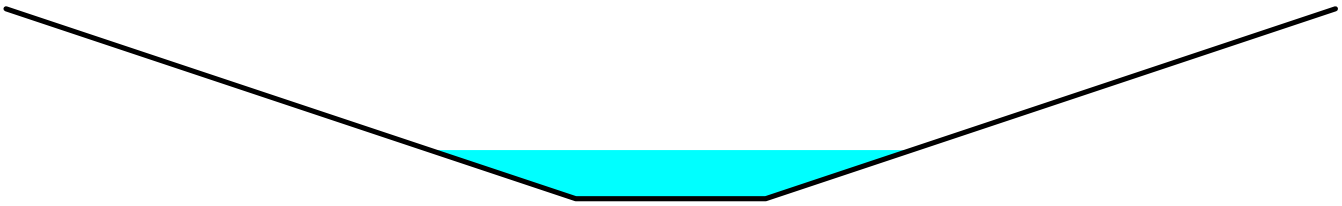
Summary for Reach SP-1: Fall Brook

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 4.23" for 25-yr event
Inflow = 48.03 cfs @ 12.33 hrs, Volume= 6.460 af
Outflow = 47.92 cfs @ 12.34 hrs, Volume= 6.460 af, Atten= 0%, Lag= 0.8 min

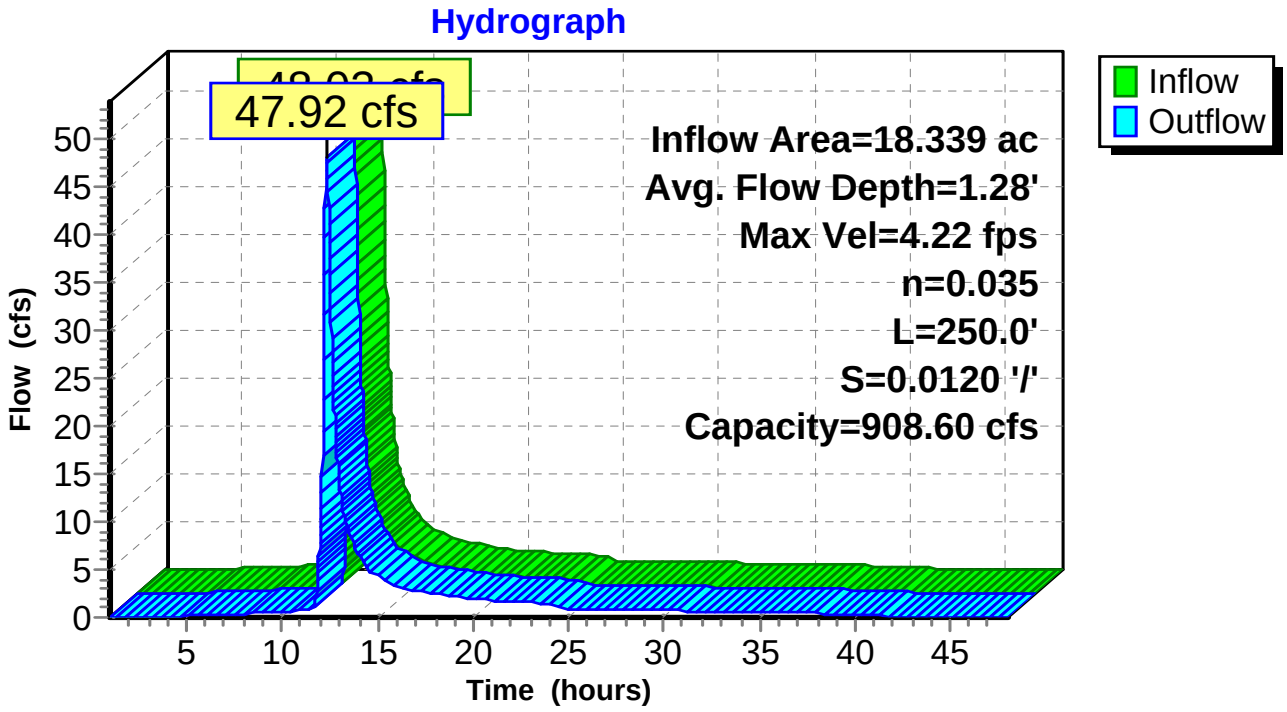
Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.22 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 3.3 min

Peak Storage= 2,836 cf @ 12.34 hrs
Average Depth at Peak Storage= 1.28'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'



Reach SP-1: Fall Brook



Summary for Pond P-1: Gravel Wetland

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 4.23" for 25-yr event
Inflow = 49.55 cfs @ 12.28 hrs, Volume= 6.460 af
Outflow = 48.03 cfs @ 12.33 hrs, Volume= 6.460 af, Atten= 3%, Lag= 3.0 min
Primary = 39.48 cfs @ 12.33 hrs, Volume= 1.736 af
Secondary = 8.55 cfs @ 12.33 hrs, Volume= 4.724 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.28' @ 12.33 hrs Surf.Area= 18,343 sf Storage= 56,592 cf

Plug-Flow detention time= 176.0 min calculated for 6.457 af (100% of inflow)
Center-of-Mass det. time= 176.4 min (1,007.0 - 830.6)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

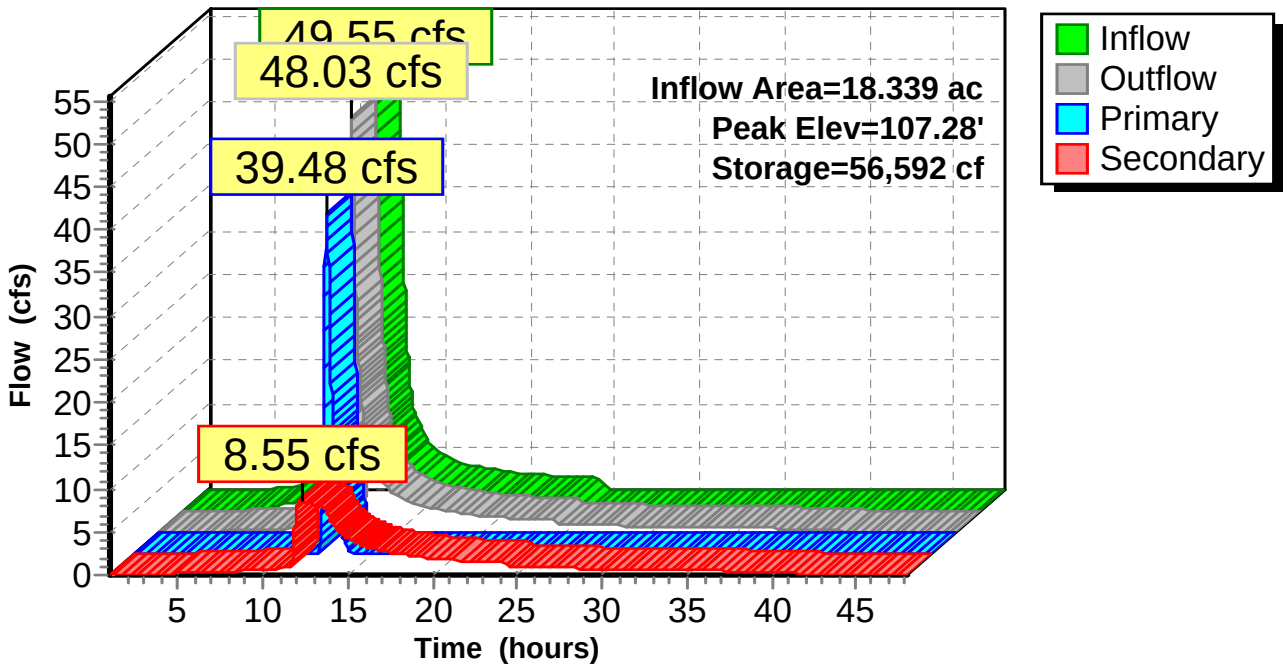
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=39.41 cfs @ 12.33 hrs HW=107.28' TW=92.28' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 27.85 cfs @ 2.38 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 11.56 cfs @ 1.29 fps)

Secondary OutFlow Max=8.55 cfs @ 12.33 hrs HW=107.28' TW=92.28' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.55 cfs @ 10.89 fps)
  - **4=Orifice/Grate** (Passes < 0.98 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 28.18 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-1: Trib to Gravel Wetland Runoff Area=798,844 sf 47.70% Impervious Runoff Depth=8.13"
Flow Length=1,523' Tc=23.3 min CN=85 Runoff=88.07 cfs 12.418 af

Reach SP-1: Fall Brook Avg. Flow Depth=1.72' Max Vel=4.96 fps Inflow=87.03 cfs 12.418 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=86.92 cfs 12.418 af

Pond P-1: Gravel Wetland Peak Elev=107.55' Storage=61,697 cf Inflow=88.07 cfs 12.418 af
Primary=78.26 cfs 5.124 af Secondary=8.77 cfs 7.295 af Outflow=87.03 cfs 12.418 af

Total Runoff Area = 18.339 ac Runoff Volume = 12.418 af Average Runoff Depth = 8.13"
52.30% Pervious = 9.591 ac 47.70% Impervious = 8.748 ac

Summary for Subcatchment S-1: Trib to Gravel Wetland

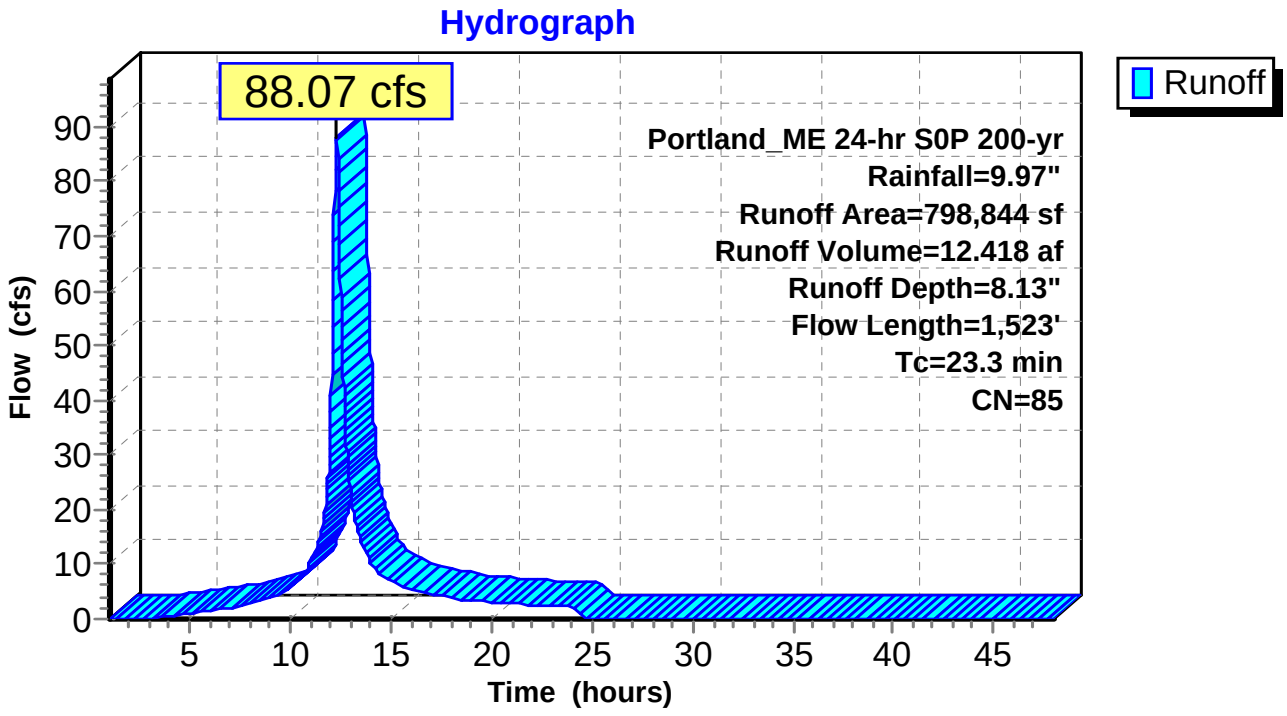
Runoff = 88.07 cfs @ 12.28 hrs, Volume= 12.418 af, Depth= 8.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

Area (sf)	CN	Description
381,055	98	Paved parking & roofs
417,789	74	>75% Grass cover, Good, HSG C
798,844	85	Weighted Average
417,789		52.30% Pervious Area
381,055		47.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	162	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.4	1,361	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
23.3	1,523	Total			

Subcatchment S-1: Trib to Gravel Wetland



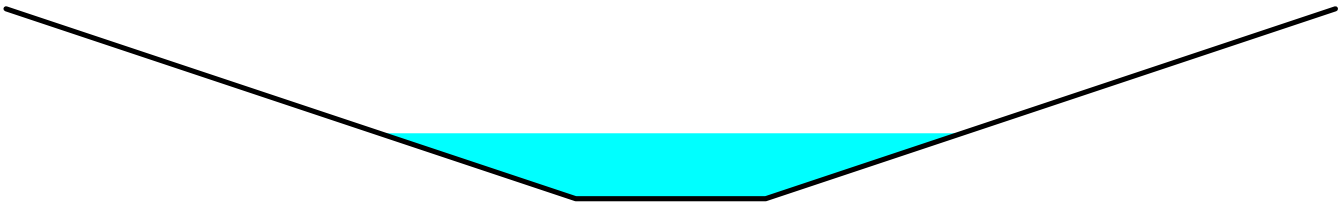
Summary for Reach SP-1: Fall Brook

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 8.13" for 200-yr event
Inflow = 87.03 cfs @ 12.31 hrs, Volume= 12.418 af
Outflow = 86.92 cfs @ 12.32 hrs, Volume= 12.418 af, Atten= 0%, Lag= 0.6 min

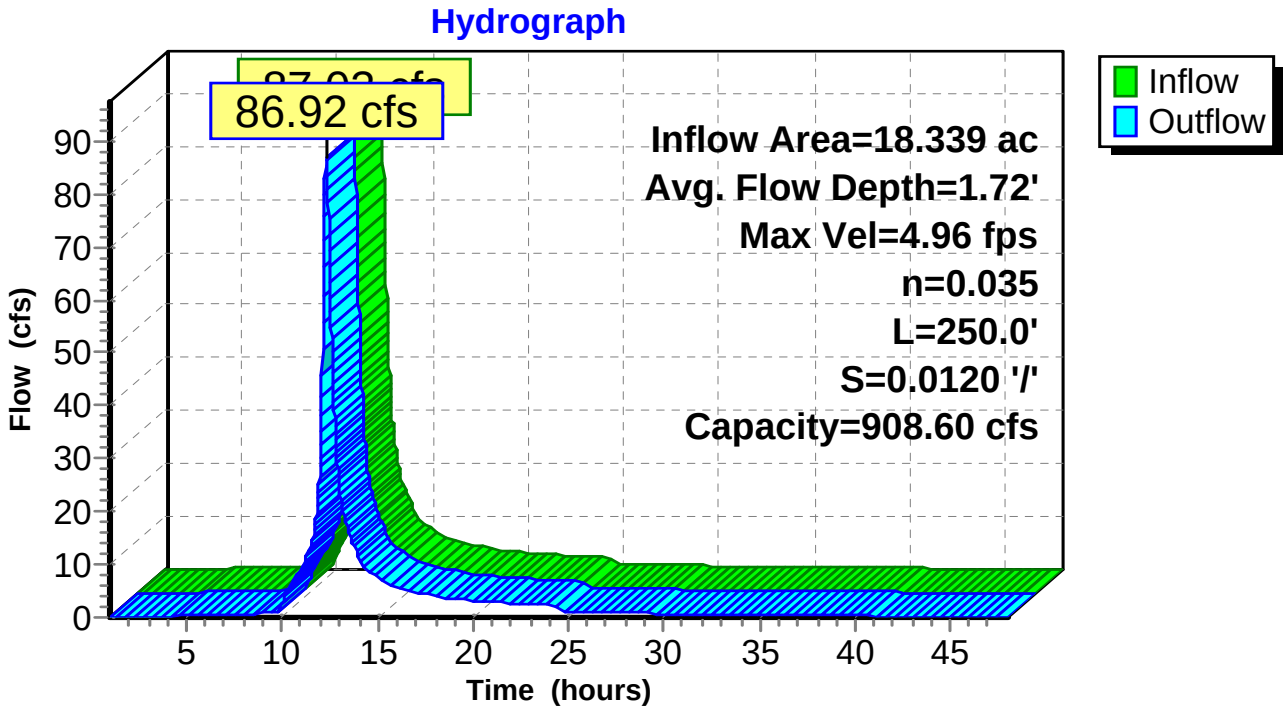
Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.96 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 2.8 min

Peak Storage= 4,379 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.72'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'



Reach SP-1: Fall Brook



Summary for Pond P-1: Gravel Wetland

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 8.13" for 200-yr event
Inflow = 88.07 cfs @ 12.28 hrs, Volume= 12.418 af
Outflow = 87.03 cfs @ 12.31 hrs, Volume= 12.418 af, Atten= 1%, Lag= 2.0 min
Primary = 78.26 cfs @ 12.31 hrs, Volume= 5.124 af
Secondary = 8.77 cfs @ 12.31 hrs, Volume= 7.295 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.55' @ 12.31 hrs Surf.Area= 19,396 sf Storage= 61,697 cf

Plug-Flow detention time= 106.4 min calculated for 12.413 af (100% of inflow)
Center-of-Mass det. time= 106.8 min (912.8 - 806.0)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

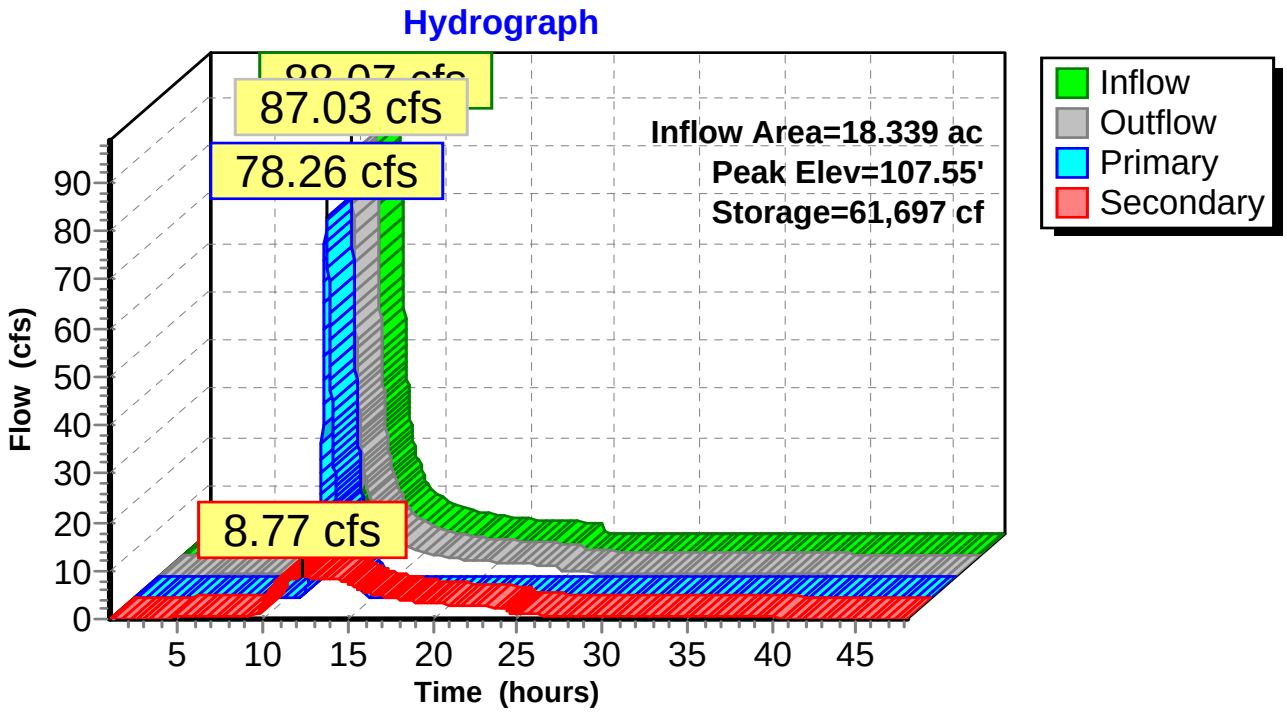
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=78.15 cfs @ 12.31 hrs HW=107.55' TW=92.72' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 43.38 cfs @ 2.75 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 34.77 cfs @ 1.97 fps)

Secondary OutFlow Max=8.77 cfs @ 12.31 hrs HW=107.55' TW=92.72' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.77 cfs @ 11.17 fps)
  - **4=Orifice/Grate** (Passes < 1.00 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 38.18 cfs potential flow)

Pond P-1: Gravel Wetland



Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-1: Trib to Gravel Runoff Area=798,844 sf 47.70% Impervious Runoff Depth=10.66"
Flow Length=1,523' Tc=23.3 min CN=85 Runoff=112.15 cfs 16.284 af

Reach SP-1: Fall Brook Avg. Flow Depth=1.94' Max Vel=5.29 fps Inflow=110.91 cfs 16.284 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=110.79 cfs 16.284 af

Pond P-1: Gravel Wetland Peak Elev=107.69' Storage=64,446 cf Inflow=112.15 cfs 16.284 af
Primary=102.03 cfs 7.652 af Secondary=8.89 cfs 8.632 af Outflow=110.91 cfs 16.284 af

Total Runoff Area = 18.339 ac Runoff Volume = 16.284 af Average Runoff Depth = 10.66"
52.30% Pervious = 9.591 ac 47.70% Impervious = 8.748 ac

Summary for Subcatchment S-1: Trib to Gravel Wetland

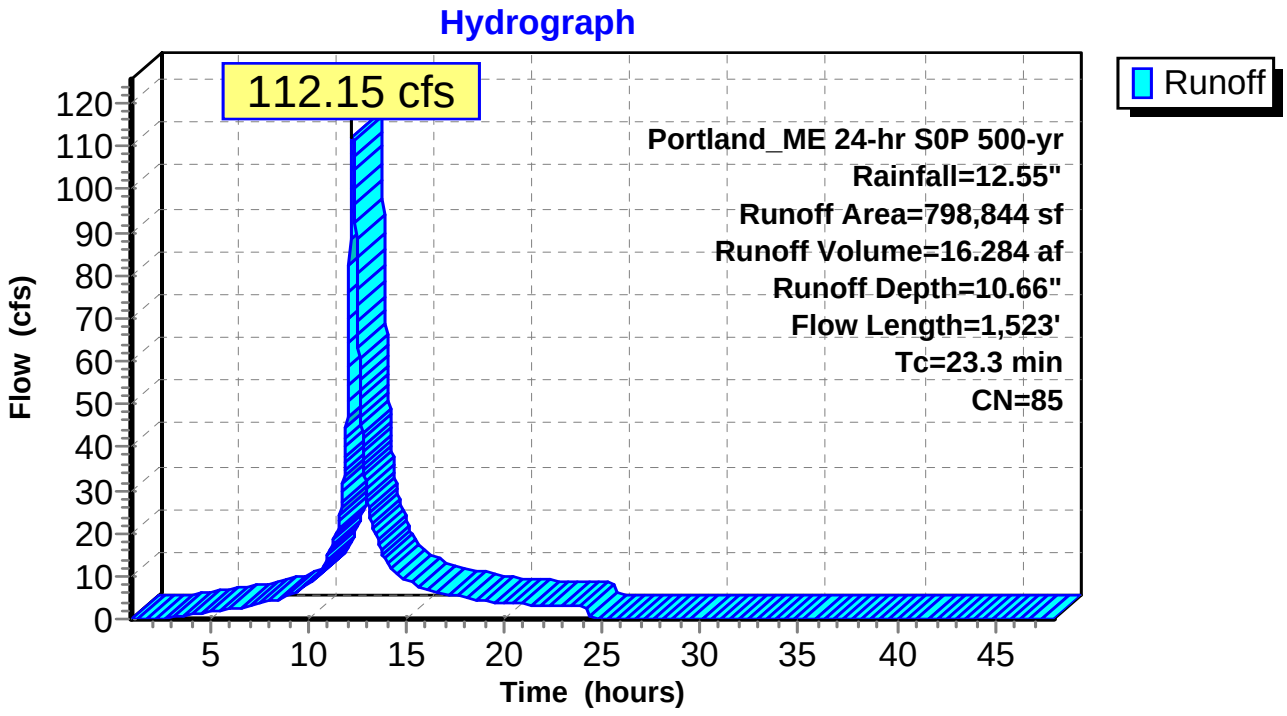
Runoff = 112.15 cfs @ 12.28 hrs, Volume= 16.284 af, Depth=10.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

Area (sf)	CN	Description
381,055	98	Paved parking & roofs
417,789	74	>75% Grass cover, Good, HSG C
798,844	85	Weighted Average
417,789		52.30% Pervious Area
381,055		47.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.9	162	0.0100	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.4	1,361	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
23.3	1,523	Total			

Subcatchment S-1: Trib to Gravel Wetland



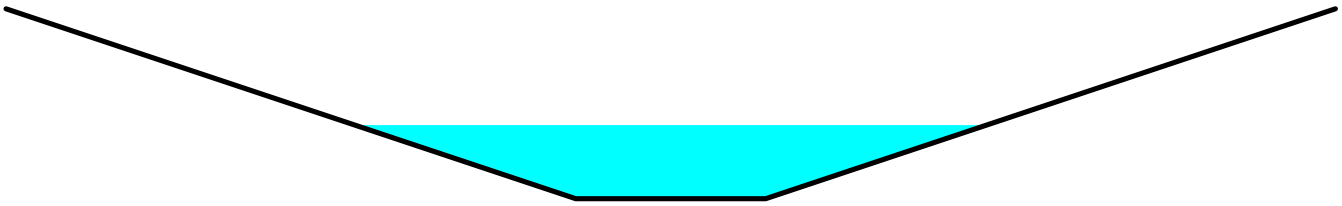
Summary for Reach SP-1: Fall Brook

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 10.66" for 500-yr event
Inflow = 110.91 cfs @ 12.31 hrs, Volume= 16.284 af
Outflow = 110.79 cfs @ 12.32 hrs, Volume= 16.284 af, Atten= 0%, Lag= 0.6 min

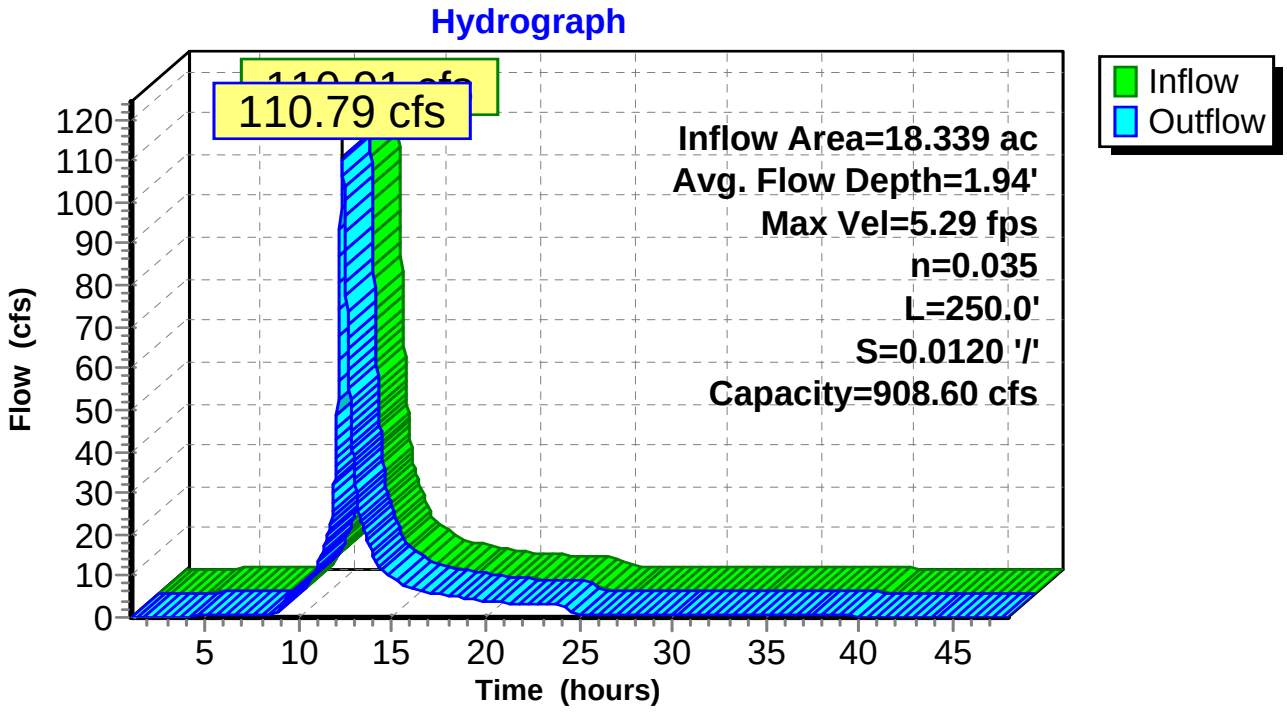
Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 5.29 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.57 fps, Avg. Travel Time= 2.7 min

Peak Storage= 5,234 cf @ 12.32 hrs
Average Depth at Peak Storage= 1.94'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'



Reach SP-1: Fall Brook



Summary for Pond P-1: Gravel Wetland

Inflow Area = 18.339 ac, 47.70% Impervious, Inflow Depth = 10.66" for 500-yr event
Inflow = 112.15 cfs @ 12.28 hrs, Volume= 16.284 af
Outflow = 110.91 cfs @ 12.31 hrs, Volume= 16.284 af, Atten= 1%, Lag= 1.9 min
Primary = 102.03 cfs @ 12.31 hrs, Volume= 7.652 af
Secondary = 8.89 cfs @ 12.31 hrs, Volume= 8.632 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.69' @ 12.31 hrs Surf.Area= 19,951 sf Storage= 64,446 cf

Plug-Flow detention time= 86.6 min calculated for 16.277 af (100% of inflow)
Center-of-Mass det. time= 87.0 min (884.0 - 797.0)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

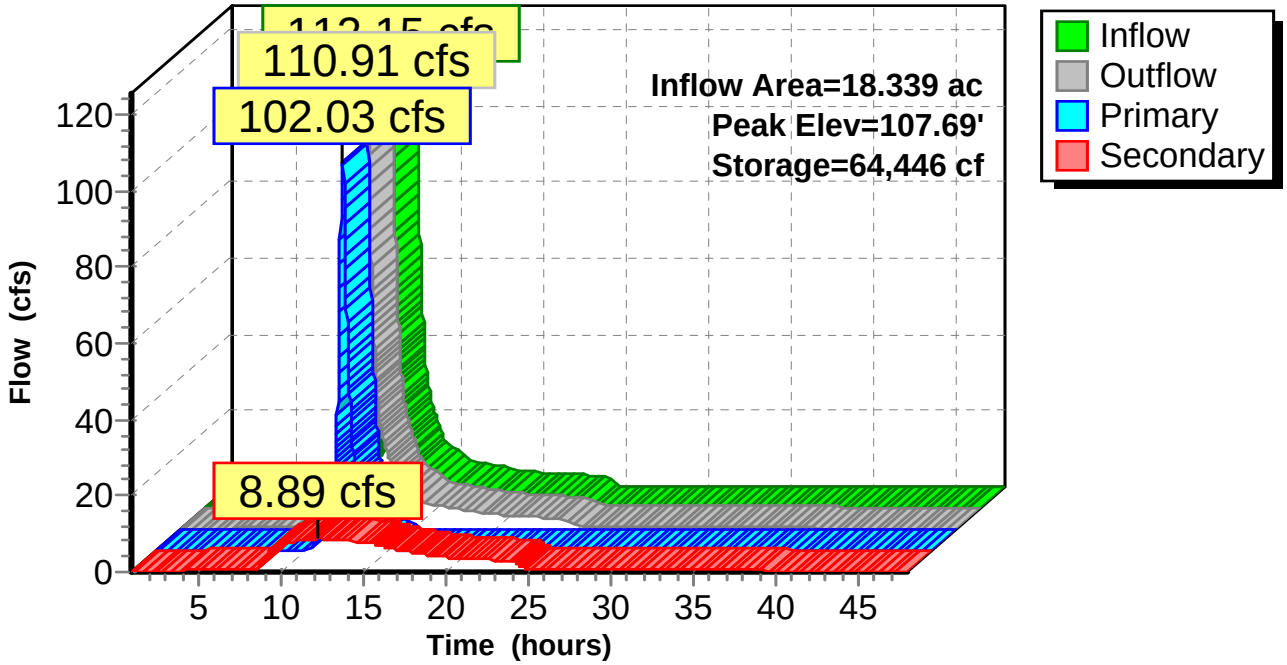
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=101.90 cfs @ 12.31 hrs HW=107.69' TW=92.93' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 52.44 cfs @ 2.94 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 49.46 cfs @ 2.24 fps)

Secondary OutFlow Max=8.89 cfs @ 12.31 hrs HW=107.69' TW=92.93' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.89 cfs @ 11.31 fps)
  - **4=Orifice/Grate** (Passes < 1.02 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 43.66 cfs potential flow)

Pond P-1: Gravel Wetland

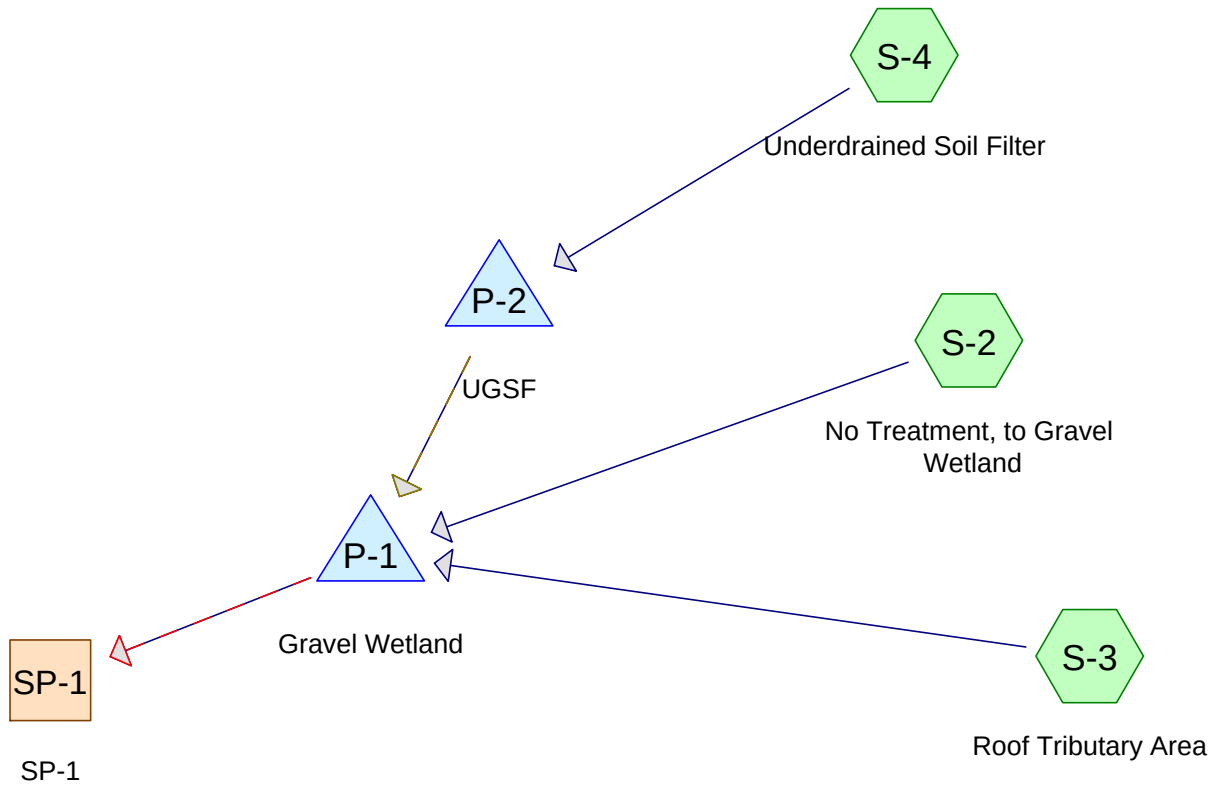
Hydrograph



ATTACHMENT 12.7

POST-DEVELOPMENT HYDROCAD REPORT

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017



Subcat Reach Pond Link

Routing Diagram for Final Proposed Gravel Wetland
Prepared by Microsoft, Printed 8/24/2017
HydroCAD® 10.00-12 s/n 01135 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.668	98	(S-4)
0.238	75	(S-4)
9.353	74	>75% Grass cover, Good, HSG C (S-2)
8.080	98	Paved parking & roofs (S-2)
0.761	98	Unconnected roofs, HSG A (S-3)
19.100	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.761	HSG A	S-3
0.000	HSG B	
9.353	HSG C	S-2
0.000	HSG D	
8.986	Other	S-2, S-4
19.100		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.906	0.906		S-4
0.000	0.000	9.353	0.000	0.000	9.353	>75% Grass cover, Good	S-2
0.000	0.000	0.000	0.000	8.080	8.080	Paved parking & roofs	S-2
0.761	0.000	0.000	0.000	0.000	0.761	Unconnected roofs	S-3
0.761	**0.000**	**9.353**	**0.000**	**8.986**	**19.100**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	S-2	0.00	0.00	1,327.0	0.0050	0.013	18.0	0.0	0.0
2	S-3	0.00	0.00	15.0	0.0100	0.013	15.0	0.0	0.0
3	S-3	0.00	0.00	500.0	0.0100	0.013	18.0	0.0	0.0
4	P-1	101.67	100.00	37.0	0.0451	0.011	12.0	0.0	0.0
5	P-2	106.00	105.50	50.0	0.0100	0.013	15.0	0.0	0.0

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=759,387 sf 46.35% Impervious Runoff Depth=1.73"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=18.27 cfs 2.516 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>2.94"
Flow Length=665' Tc=7.0 min CN=98 Runoff=2.28 cfs 0.186 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=39,458 sf 73.75% Impervious Runoff Depth=2.32"
Tc=7.0 min CN=92 Runoff=2.33 cfs 0.175 af

Reach SP-1: SP-1 Avg. Flow Depth=0.47' Max Vel=2.42 fps Inflow=7.25 cfs 2.840 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=7.23 cfs 2.839 af

Pond P-1: Gravel Wetland Peak Elev=106.51' Storage=43,462 cf Inflow=18.75 cfs 2.839 af
Primary=0.04 cfs 0.000 af Secondary=7.21 cfs 2.839 af Outflow=7.25 cfs 2.840 af

Pond P-2: UGSF Peak Elev=112.04' Storage=3,798 cf Inflow=2.33 cfs 0.175 af
Primary=0.03 cfs 0.083 af Secondary=0.22 cfs 0.054 af Tertiary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.137 af

Total Runoff Area = 19.100 ac Runoff Volume = 2.878 af Average Runoff Depth = 1.81"
50.21% Pervious = 9.591 ac 49.79% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

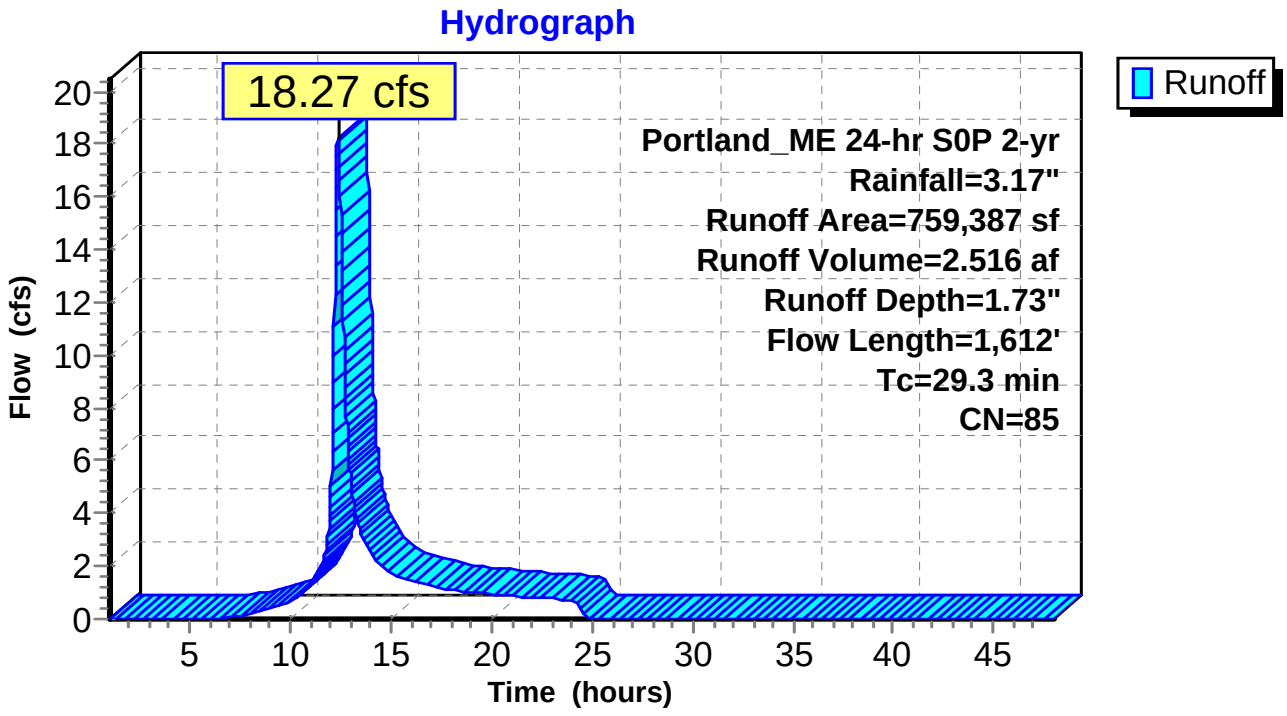
Runoff = 18.27 cfs @ 12.35 hrs, Volume= 2.516 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

Area (sf)	CN	Description
351,954	98	Paved parking & roofs
407,433	74	>75% Grass cover, Good, HSG C
759,387	85	Weighted Average
407,433		53.65% Pervious Area
351,954		46.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

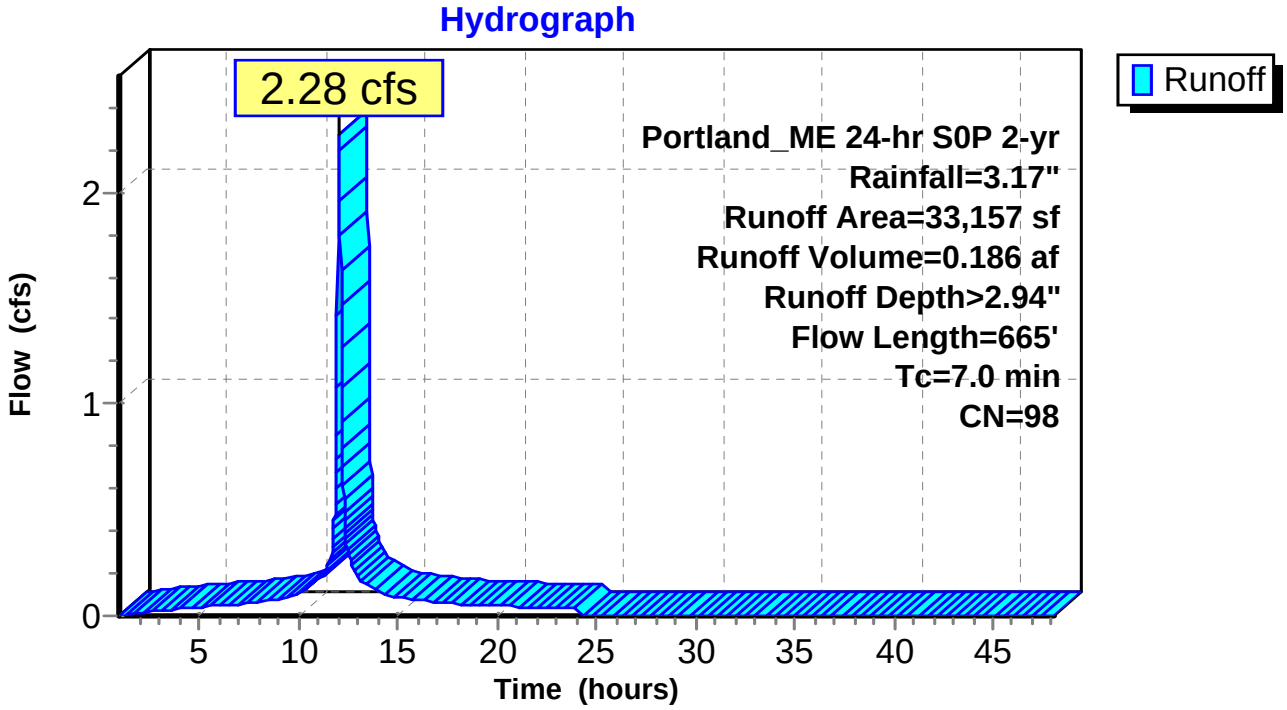
Runoff = 2.28 cfs @ 12.05 hrs, Volume= 0.186 af, Depth> 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

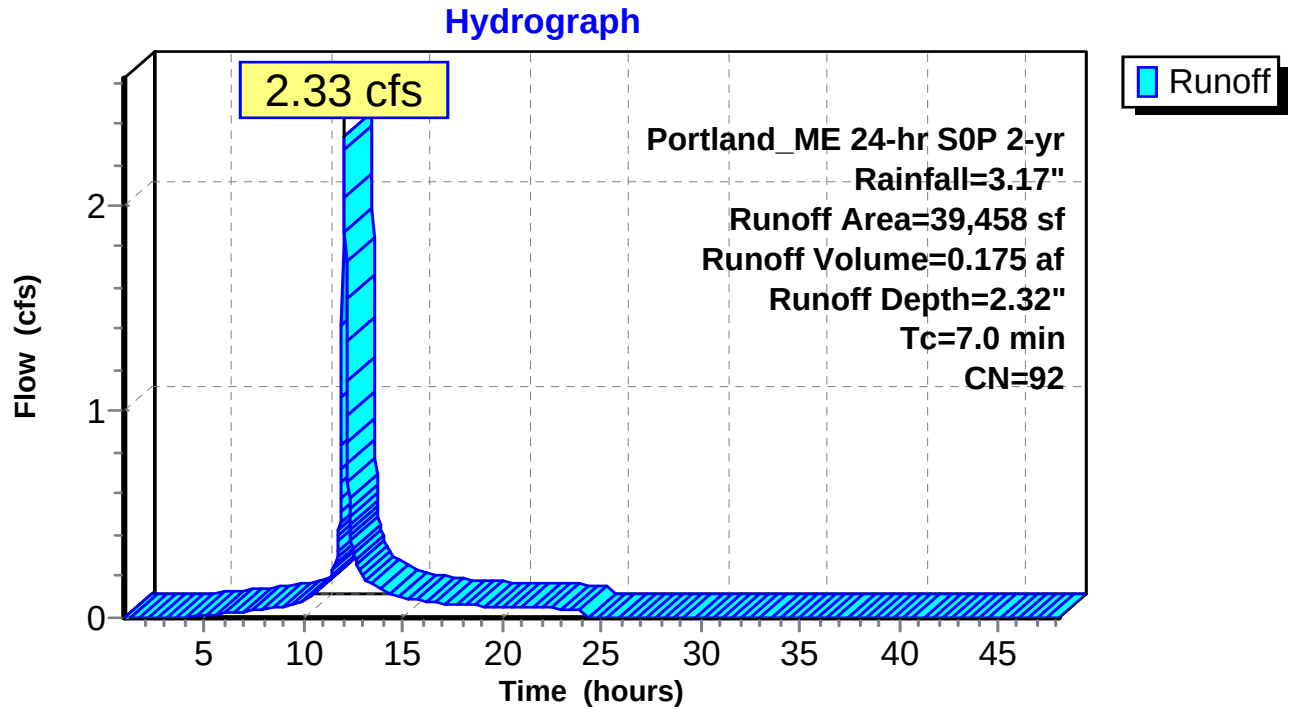
Runoff = 2.33 cfs @ 12.05 hrs, Volume= 0.175 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

	Area (sf)	CN	Description
*	29,102	98	
*	10,356	75	
	39,458	92	Weighted Average
	10,356		26.25% Pervious Area
	29,102		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

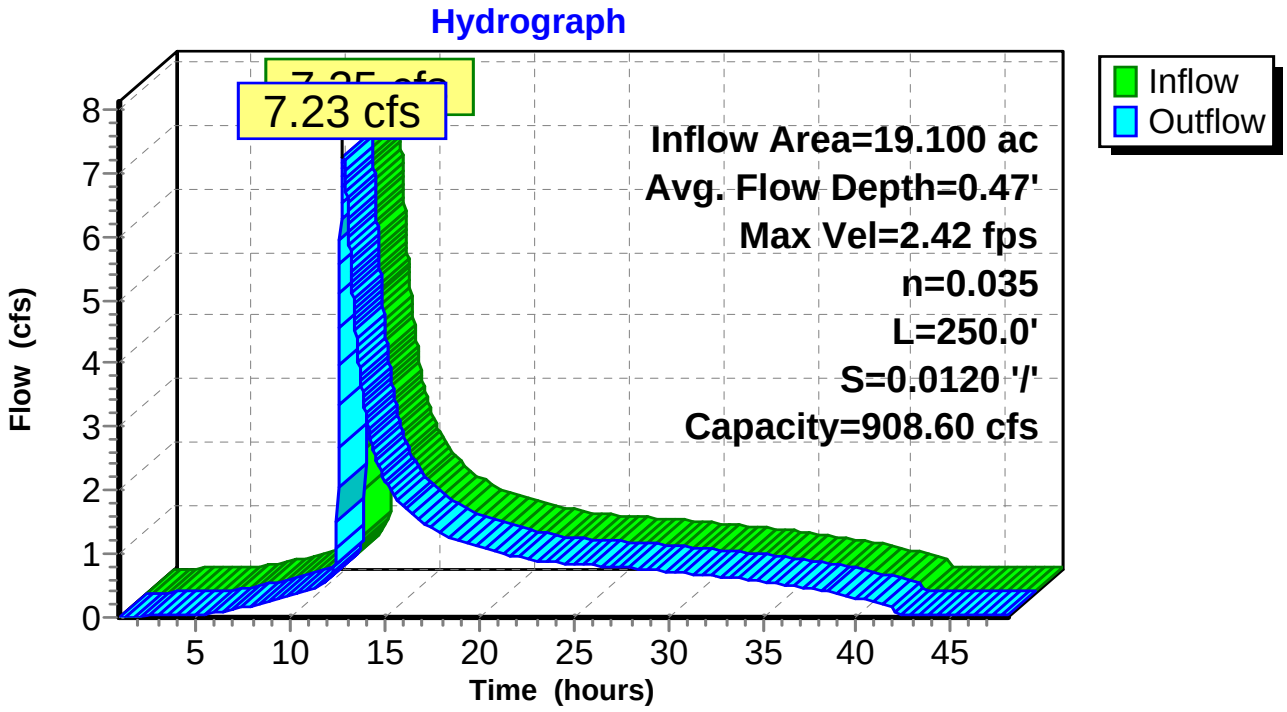
Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 1.78" for 2-yr event
Inflow = 7.25 cfs @ 12.84 hrs, Volume= 2.840 af
Outflow = 7.23 cfs @ 12.86 hrs, Volume= 2.839 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 2.42 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.00 fps, Avg. Travel Time= 4.2 min

Peak Storage= 746 cf @ 12.86 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=149)

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 1.78" for 2-yr event
Inflow = 18.75 cfs @ 12.35 hrs, Volume= 2.839 af
Outflow = 7.25 cfs @ 12.84 hrs, Volume= 2.840 af, Atten= 61%, Lag= 29.6 min
Primary = 0.04 cfs @ 12.84 hrs, Volume= 0.000 af
Secondary = 7.21 cfs @ 12.84 hrs, Volume= 2.839 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 106.51' @ 12.84 hrs Surf.Area= 15,889 sf Storage= 43,462 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 351.2 min (1,241.5 - 890.3)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

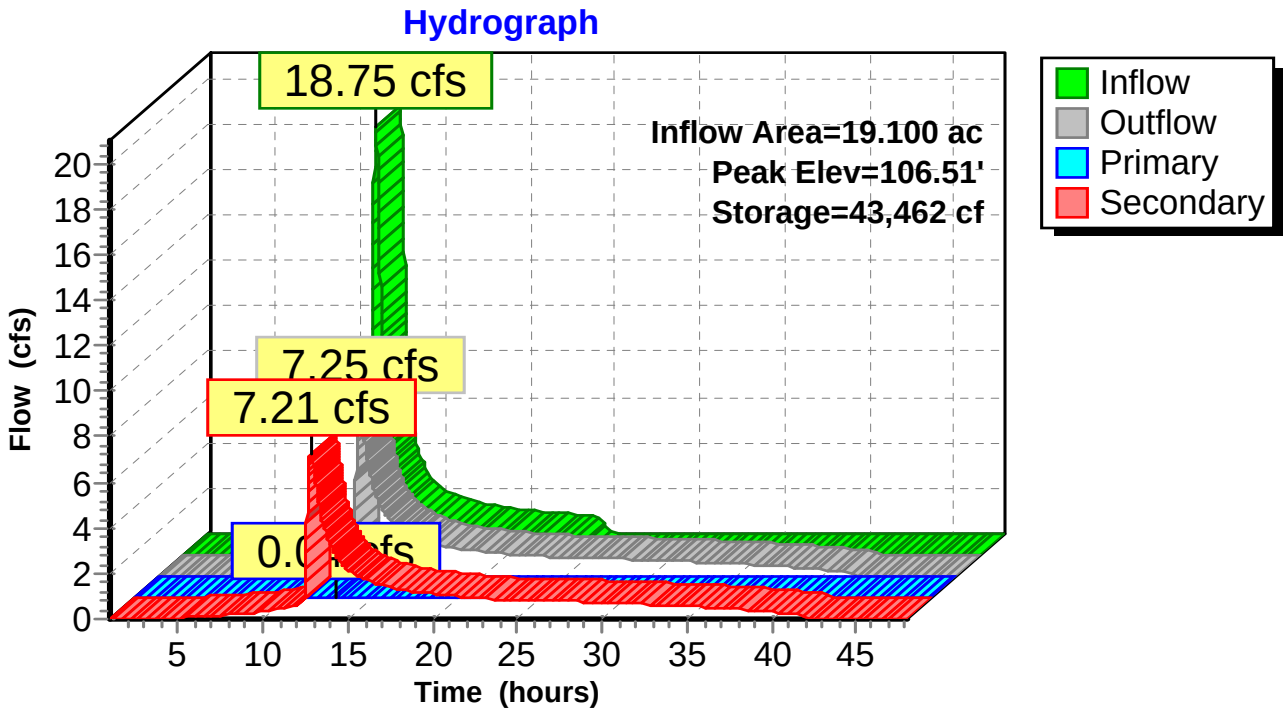
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.04 cfs @ 12.84 hrs HW=106.51' TW=91.47' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.25 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=7.21 cfs @ 12.84 hrs HW=106.51' TW=91.47' (Dynamic Tailwater)
└─**3=Culvert** (Passes 7.21 cfs of 7.88 cfs potential flow)
└─**4=Orifice/Grate** (Orifice Controls 0.91 cfs @ 10.41 fps)
└─**5=Broad-Crested Rectangular Weir** (Weir Controls 6.30 cfs @ 2.06 fps)

Pond P-1: Gravel Wetland



Summary for Pond P-2: UGSF

Inflow Area = 0.906 ac, 73.75% Impervious, Inflow Depth = 2.32" for 2-yr event
Inflow = 2.33 cfs @ 12.05 hrs, Volume= 0.175 af
Outflow = 0.25 cfs @ 12.75 hrs, Volume= 0.137 af, Atten= 89%, Lag= 41.8 min
Primary = 0.03 cfs @ 12.75 hrs, Volume= 0.083 af
Secondary = 0.22 cfs @ 12.75 hrs, Volume= 0.054 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 112.04' @ 12.75 hrs Surf.Area= 2,978 sf Storage= 3,798 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 530.0 min (1,345.4 - 815.4)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	8,850 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.50	1,950	0	0
113.50	3,950	8,850	8,850

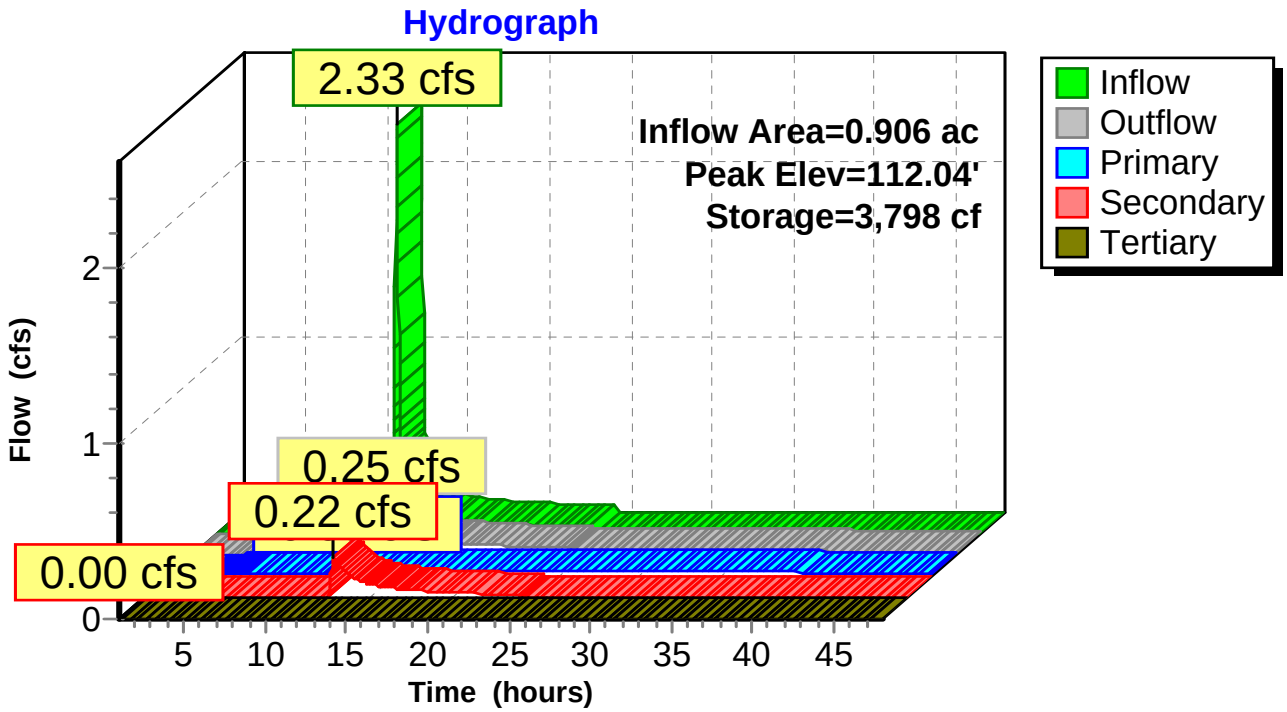
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	112.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	110.50'	**0.375 in/hr Exfiltration over Surface area**
#4	Tertiary	113.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 12.75 hrs HW=112.04' TW=106.49' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.22 cfs @ 12.75 hrs HW=112.04' TW=106.49' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.22 cfs of 10.86 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 0.22 cfs @ 0.67 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=110.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
2.33 cfs
0.25 cfs
0.22 cfs
0.00 cfs
Inflow Area=0.906 ac
Peak Elev=112.04'
Storage=3,798 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
2
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=759,387 sf 46.35% Impervious Runoff Depth=3.10"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=31.70 cfs 4.505 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=665' Tc=7.0 min CN=98 Runoff=3.20 cfs 0.284 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=39,458 sf 73.75% Impervious Runoff Depth=3.81"
Tc=7.0 min CN=92 Runoff=3.49 cfs 0.287 af

Reach SP-1: SP-1 Avg. Flow Depth=1.02' Max Vel=3.73 fps Inflow=30.62 cfs 5.038 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=30.54 cfs 5.037 af

Pond P-1: Gravel Wetland Peak Elev=107.11' Storage=53,535 cf Inflow=33.54 cfs 5.038 af
Primary=22.21 cfs 0.918 af Secondary=8.41 cfs 4.120 af Outflow=30.62 cfs 5.038 af

Pond P-2: UGSF Peak Elev=112.22' Storage=4,345 cf Inflow=3.49 cfs 0.287 af
Primary=0.03 cfs 0.086 af Secondary=2.73 cfs 0.163 af Tertiary=0.00 cfs 0.000 af Outflow=2.75 cfs 0.249 af

Total Runoff Area = 19.100 ac Runoff Volume = 5.076 af Average Runoff Depth = 3.19"
50.21% Pervious = 9.591 ac 49.79% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

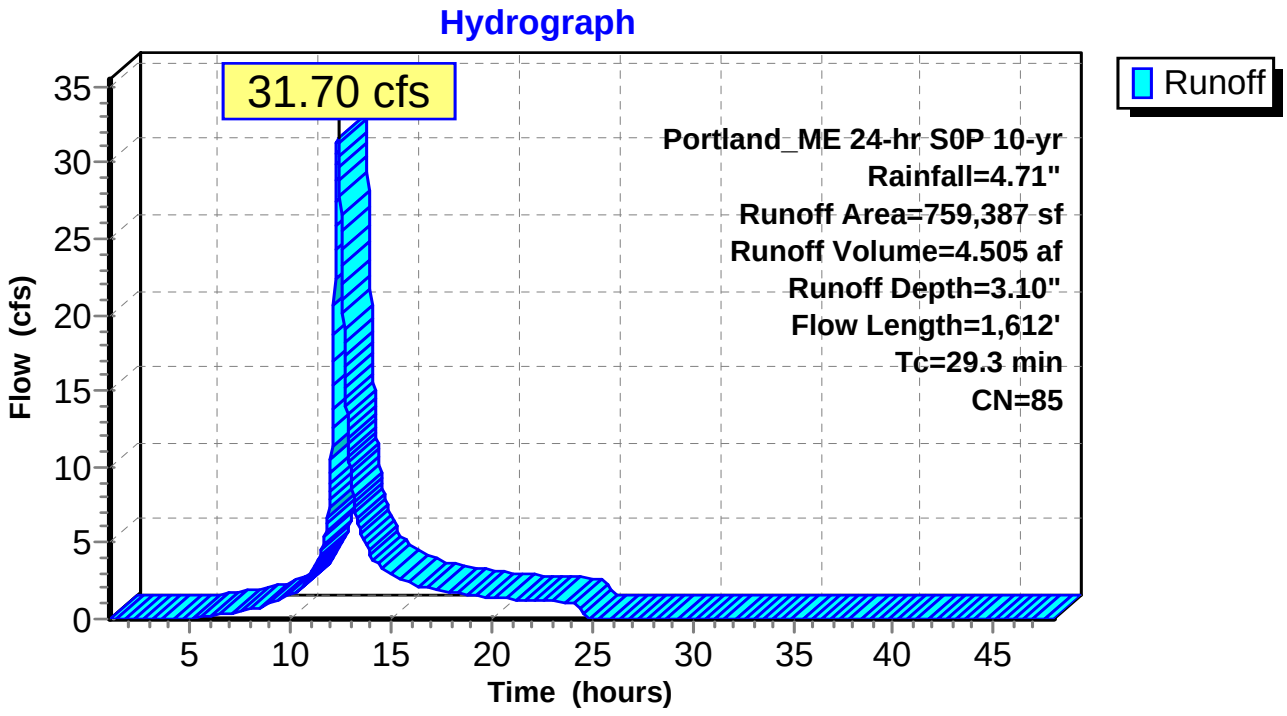
Runoff = 31.70 cfs @ 12.35 hrs, Volume= 4.505 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

Area (sf)	CN	Description
351,954	98	Paved parking & roofs
407,433	74	>75% Grass cover, Good, HSG C
759,387	85	Weighted Average
407,433		53.65% Pervious Area
351,954		46.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

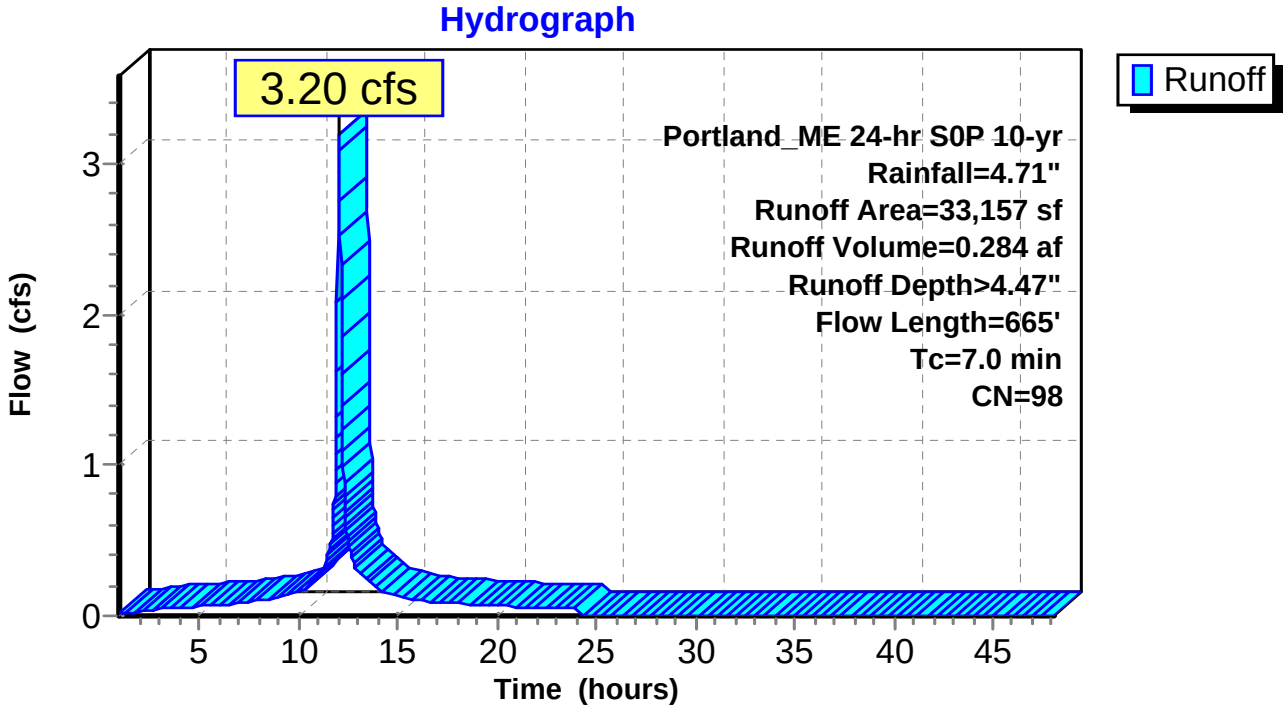
Runoff = 3.20 cfs @ 12.05 hrs, Volume= 0.284 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

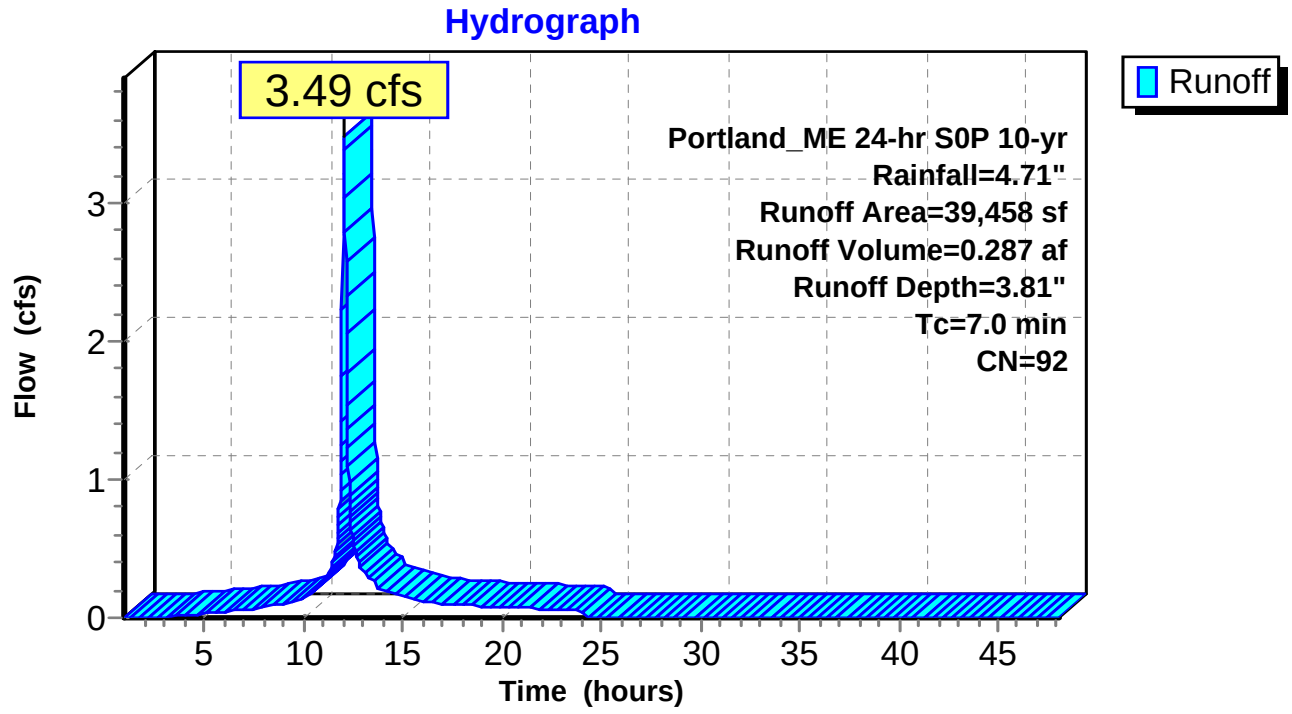
Runoff = 3.49 cfs @ 12.05 hrs, Volume= 0.287 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

	Area (sf)	CN	Description
*	29,102	98	
*	10,356	75	
	39,458	92	Weighted Average
	10,356		26.25% Pervious Area
	29,102		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

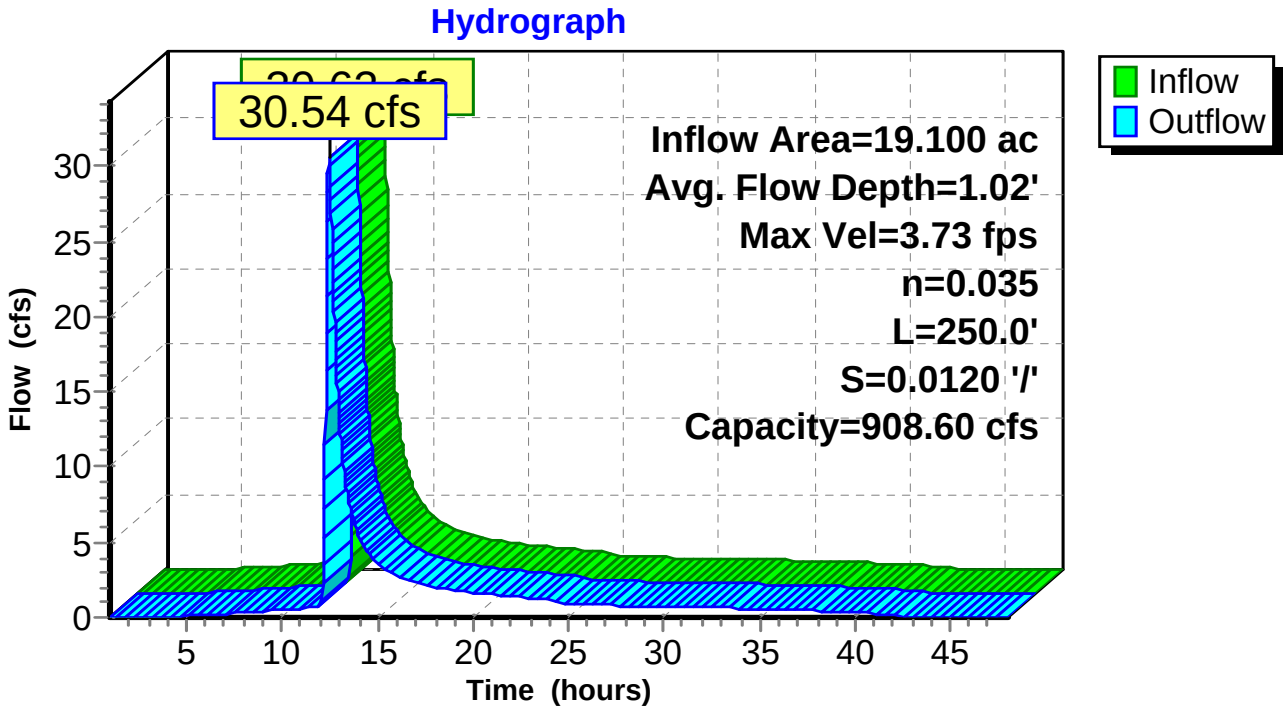
Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 30.62 cfs @ 12.45 hrs, Volume= 5.038 af
Outflow = 30.54 cfs @ 12.46 hrs, Volume= 5.037 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 3.73 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.11 fps, Avg. Travel Time= 3.8 min

Peak Storage= 2,049 cf @ 12.46 hrs
Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 3.16" for 10-yr event
Inflow = 33.54 cfs @ 12.34 hrs, Volume= 5.038 af
Outflow = 30.62 cfs @ 12.45 hrs, Volume= 5.038 af, Atten= 9%, Lag= 6.5 min
Primary = 22.21 cfs @ 12.45 hrs, Volume= 0.918 af
Secondary = 8.41 cfs @ 12.45 hrs, Volume= 4.120 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.11' @ 12.45 hrs Surf.Area= 17,698 sf Storage= 53,535 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 217.6 min (1,073.8 - 856.2)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

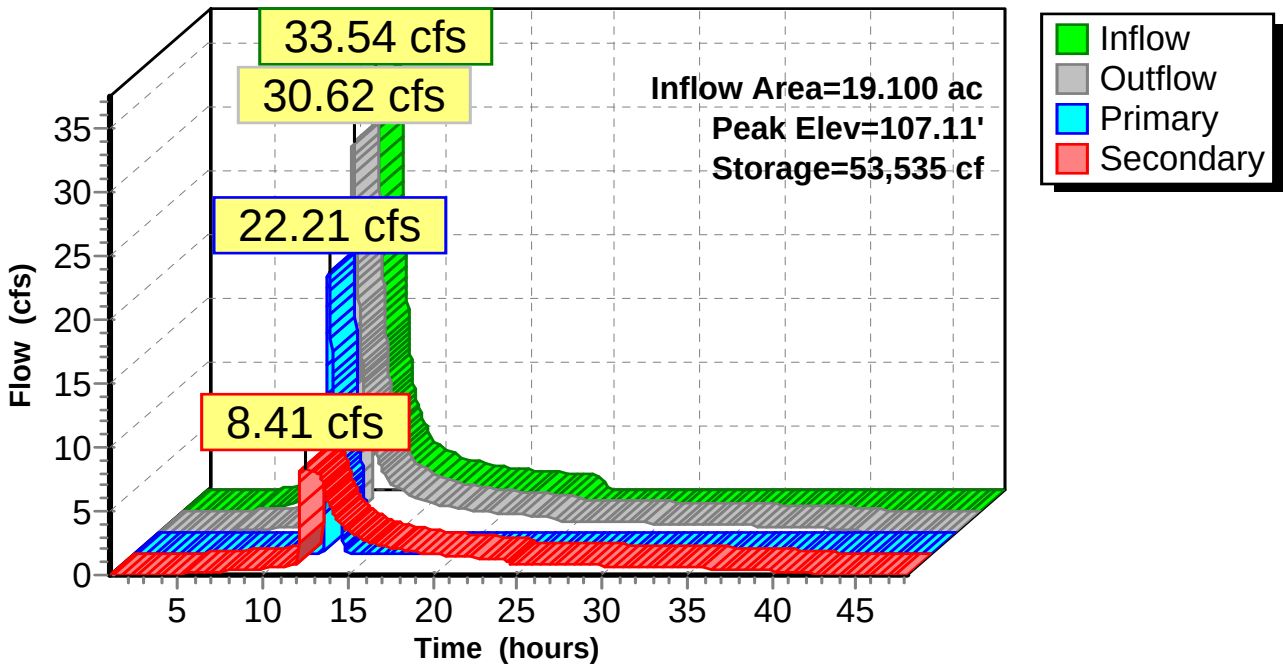
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=22.16 cfs @ 12.45 hrs HW=107.11' TW=92.02' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 19.35 cfs @ 2.11 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 2.81 cfs @ 0.79 fps)

Secondary OutFlow Max=8.41 cfs @ 12.45 hrs HW=107.11' TW=92.02' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.41 cfs @ 10.70 fps)
  - **4=Orifice/Grate** (Passes < 0.97 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 22.51 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 0.906 ac, 73.75% Impervious, Inflow Depth = 3.81" for 10-yr event
Inflow = 3.49 cfs @ 12.05 hrs, Volume= 0.287 af
Outflow = 2.75 cfs @ 12.13 hrs, Volume= 0.249 af, Atten= 21%, Lag= 4.5 min
Primary = 0.03 cfs @ 12.13 hrs, Volume= 0.086 af
Secondary = 2.73 cfs @ 12.13 hrs, Volume= 0.163 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 112.22' @ 12.13 hrs Surf.Area= 3,098 sf Storage= 4,345 cf

Plug-Flow detention time= 380.1 min calculated for 0.249 af (87% of inflow)
Center-of-Mass det. time= 311.1 min (1,106.5 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	8,850 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.50	1,950	0	0
113.50	3,950	8,850	8,850

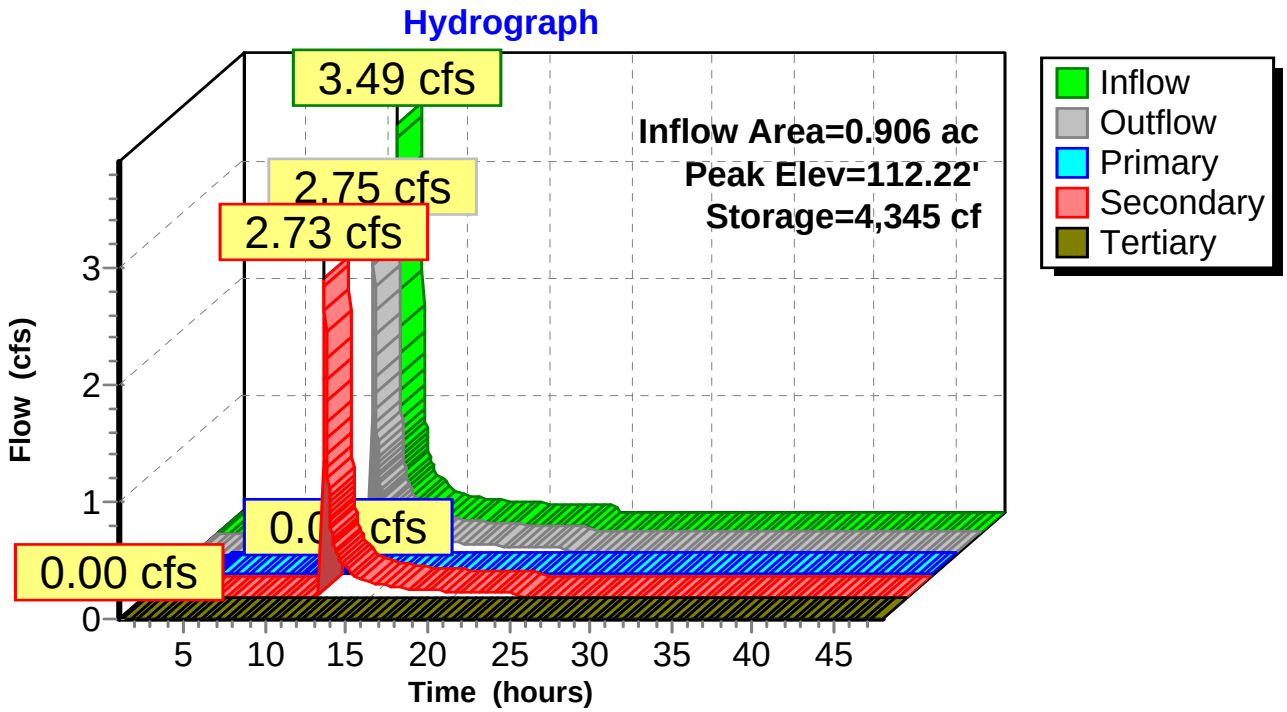
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	112.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	110.50'	**0.375 in/hr Exfiltration over Surface area**
#4	Tertiary	113.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 12.13 hrs HW=112.22' TW=106.14' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=2.72 cfs @ 12.13 hrs HW=112.22' TW=106.14' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.72 cfs of 11.04 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 2.72 cfs @ 1.54 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=110.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
3.49 cfs
2.75 cfs
2.73 cfs
0.00 cfs
Inflow Area=0.906 ac
Peak Elev=112.22'
Storage=4,345 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
2
3
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=759,387 sf 46.35% Impervious Runoff Depth=4.23"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=42.04 cfs 6.141 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>5.68"
Flow Length=665' Tc=7.0 min CN=98 Runoff=3.83 cfs 0.360 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=39,458 sf 73.75% Impervious Runoff Depth=4.99"
Tc=7.0 min CN=92 Runoff=4.30 cfs 0.377 af

Reach SP-1: SP-1 Avg. Flow Depth=1.22' Max Vel=4.11 fps Inflow=43.51 cfs 6.839 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=43.45 cfs 6.839 af

Pond P-1: Gravel Wetland Peak Elev=107.24' Storage=55,877 cf Inflow=44.43 cfs 6.839 af
Primary=34.99 cfs 1.883 af Secondary=8.52 cfs 4.956 af Outflow=43.51 cfs 6.839 af

Pond P-2: UGSF Peak Elev=112.28' Storage=4,525 cf Inflow=4.30 cfs 0.377 af
Primary=0.03 cfs 0.087 af Secondary=3.86 cfs 0.251 af Tertiary=0.00 cfs 0.000 af Outflow=3.89 cfs 0.338 af

Total Runoff Area = 19.100 ac Runoff Volume = 6.878 af Average Runoff Depth = 4.32"
50.21% Pervious = 9.591 ac 49.79% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

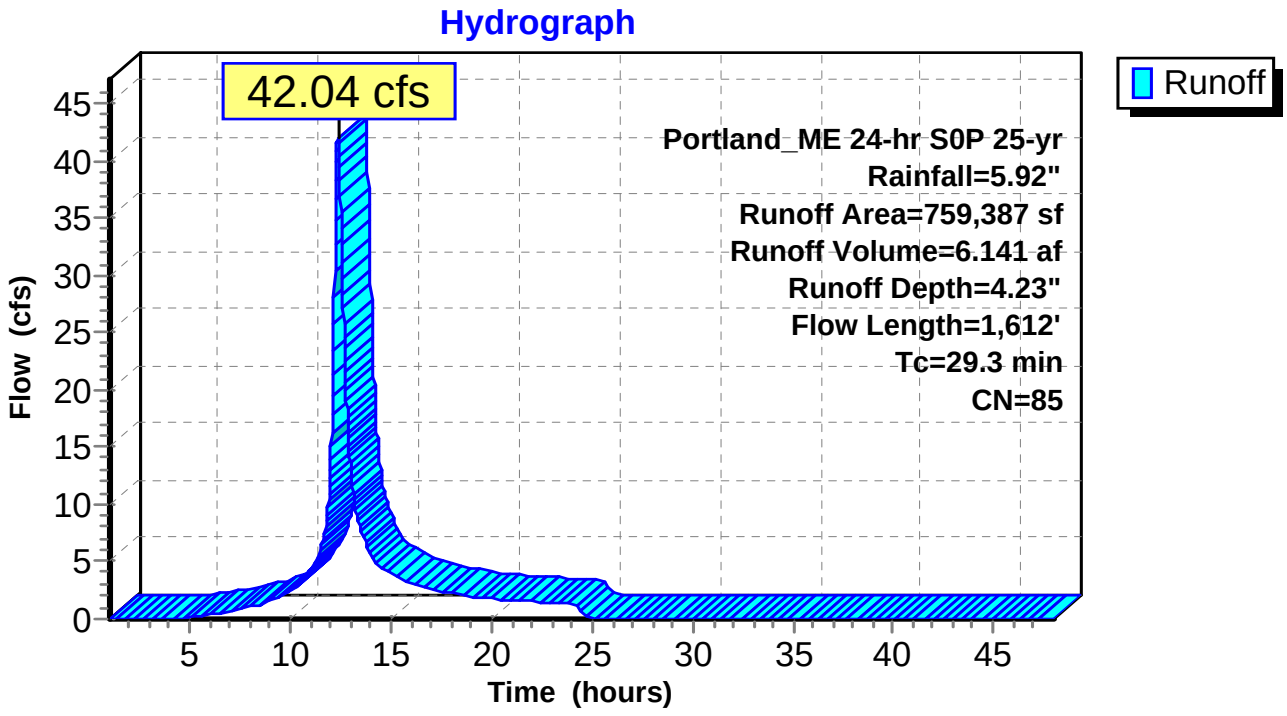
Runoff = 42.04 cfs @ 12.35 hrs, Volume= 6.141 af, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

Area (sf)	CN	Description
351,954	98	Paved parking & roofs
407,433	74	>75% Grass cover, Good, HSG C
759,387	85	Weighted Average
407,433		53.65% Pervious Area
351,954		46.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

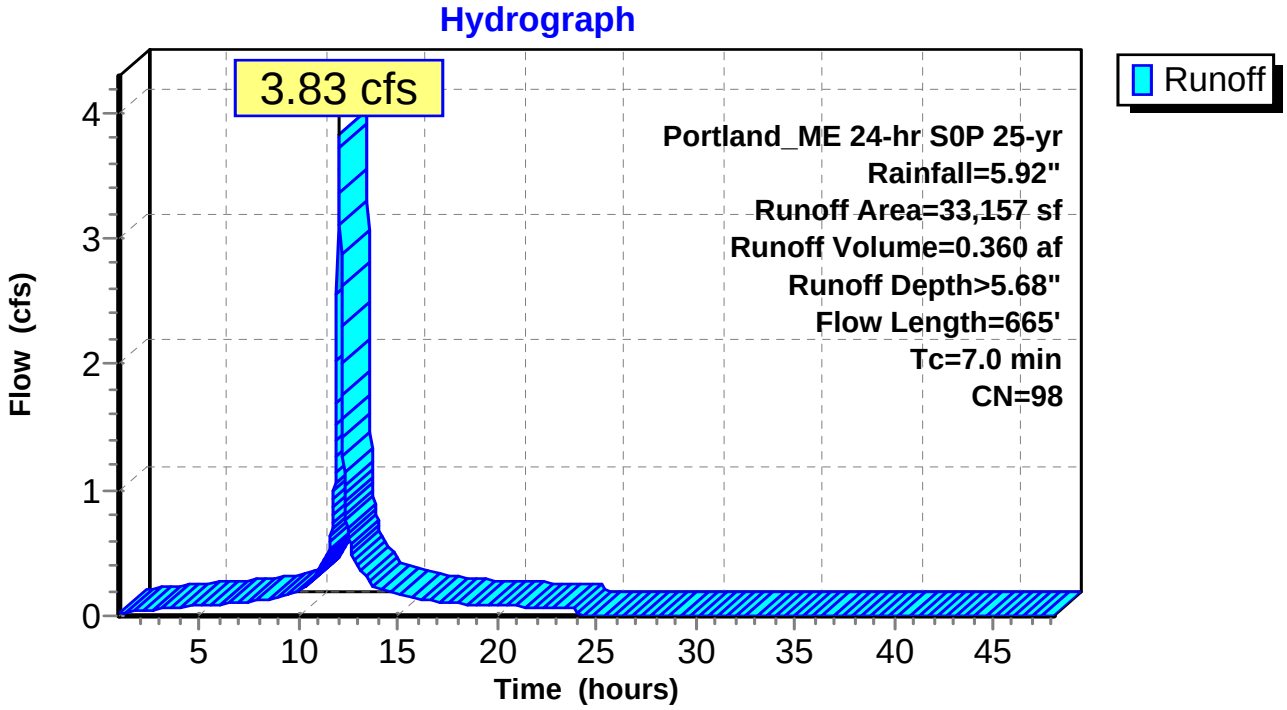
Runoff = 3.83 cfs @ 12.05 hrs, Volume= 0.360 af, Depth> 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

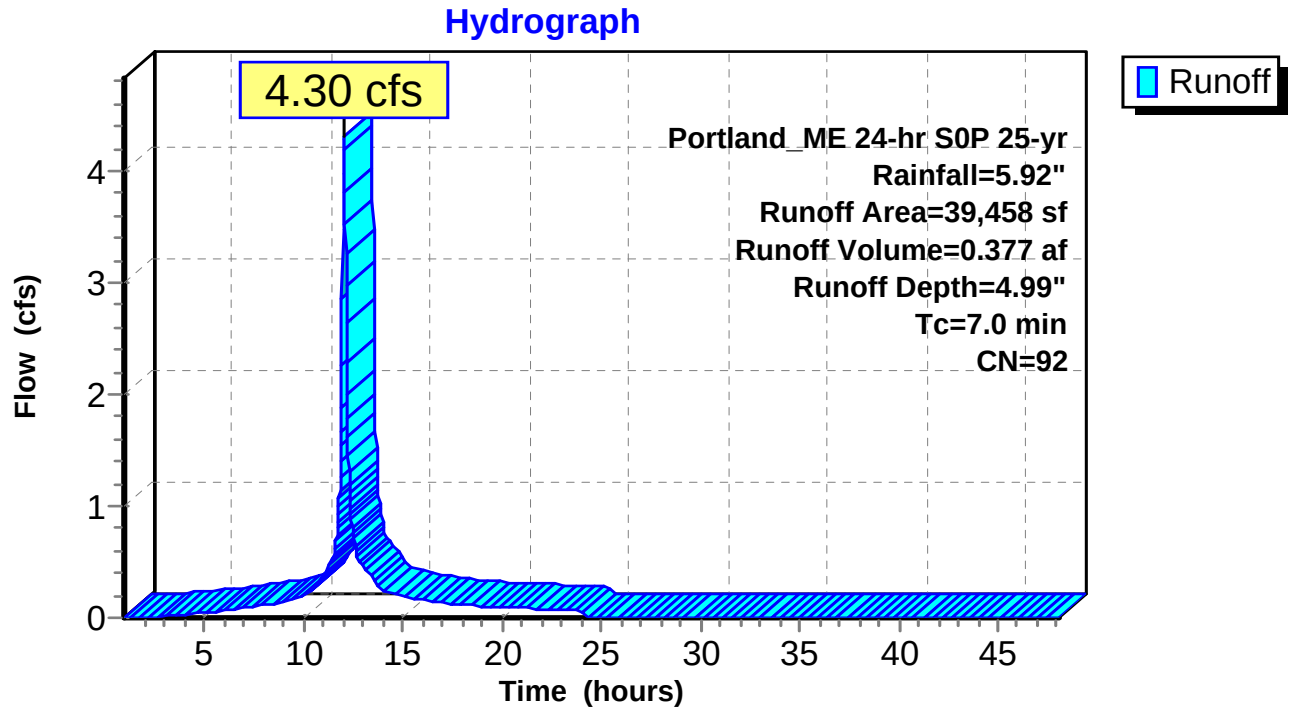
Runoff = 4.30 cfs @ 12.05 hrs, Volume= 0.377 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

	Area (sf)	CN	Description
*	29,102	98	
*	10,356	75	
	39,458	92	Weighted Average
	10,356		26.25% Pervious Area
	29,102		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

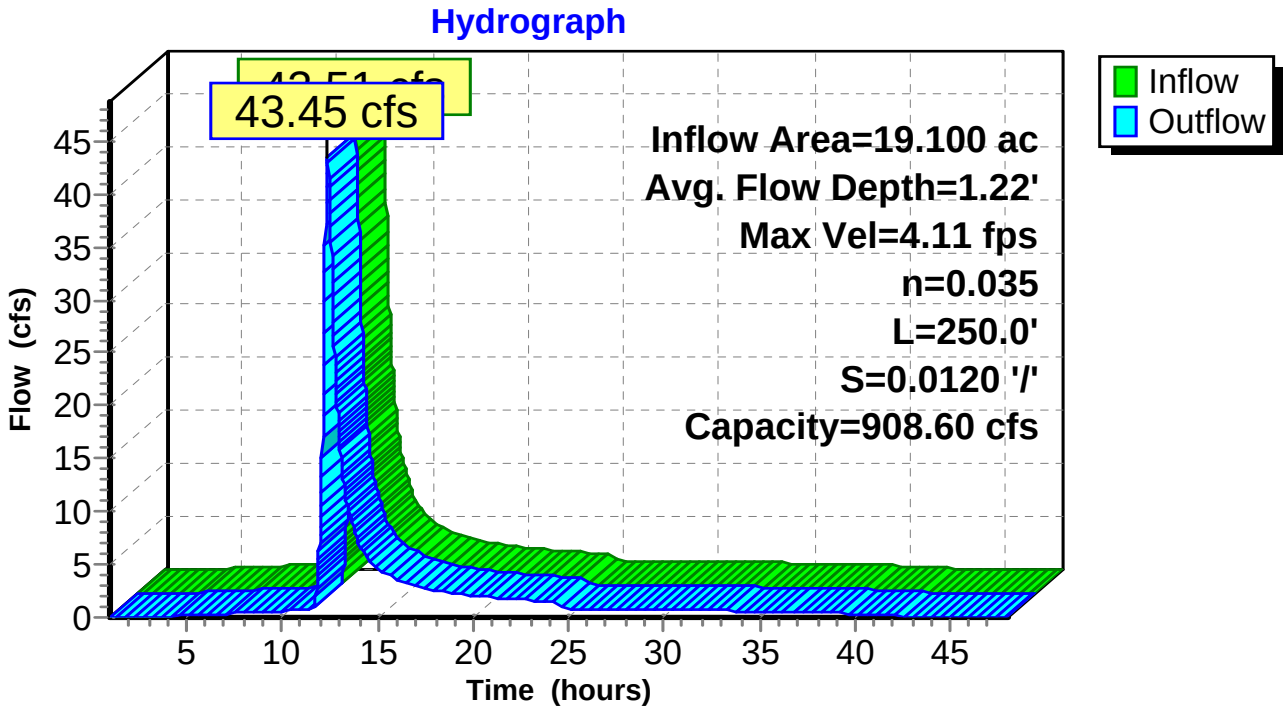
Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 4.30" for 25-yr event
Inflow = 43.51 cfs @ 12.39 hrs, Volume= 6.839 af
Outflow = 43.45 cfs @ 12.40 hrs, Volume= 6.839 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.11 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 3.5 min

Peak Storage= 2,642 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 4.30" for 25-yr event
Inflow = 44.43 cfs @ 12.34 hrs, Volume= 6.839 af
Outflow = 43.51 cfs @ 12.39 hrs, Volume= 6.839 af, Atten= 2%, Lag= 3.0 min
Primary = 34.99 cfs @ 12.39 hrs, Volume= 1.883 af
Secondary = 8.52 cfs @ 12.39 hrs, Volume= 4.956 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.24' @ 12.39 hrs Surf.Area= 18,193 sf Storage= 55,877 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 170.5 min (1,011.4 - 840.9)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

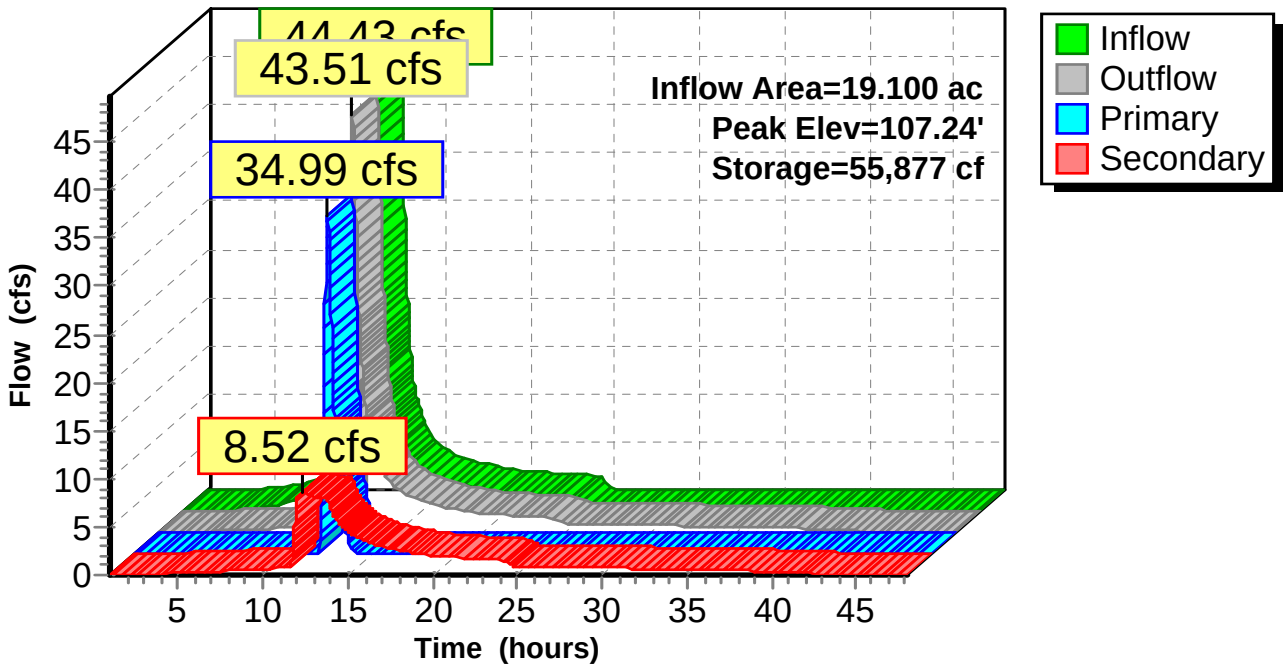
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=34.95 cfs @ 12.39 hrs HW=107.24' TW=92.22' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 25.82 cfs @ 2.32 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 9.14 cfs @ 1.18 fps)

Secondary OutFlow Max=8.52 cfs @ 12.39 hrs HW=107.24' TW=92.22' (Dynamic Tailwater)
└─**3=Culvert** (Inlet Controls 8.52 cfs @ 10.84 fps)
└─**4=Orifice/Grate** (Passes < 0.98 cfs potential flow)
└─**5=Broad-Crested Rectangular Weir** (Passes < 26.83 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 0.906 ac, 73.75% Impervious, Inflow Depth = 4.99" for 25-yr event
Inflow = 4.30 cfs @ 12.05 hrs, Volume= 0.377 af
Outflow = 3.89 cfs @ 12.10 hrs, Volume= 0.338 af, Atten= 10%, Lag= 2.6 min
Primary = 0.03 cfs @ 12.10 hrs, Volume= 0.087 af
Secondary = 3.86 cfs @ 12.10 hrs, Volume= 0.251 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 112.28' @ 12.10 hrs Surf.Area= 3,136 sf Storage= 4,525 cf

Plug-Flow detention time= 297.3 min calculated for 0.338 af (90% of inflow)
Center-of-Mass det. time= 241.7 min (1,027.2 - 785.6)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	8,850 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.50	1,950	0	0
113.50	3,950	8,850	8,850

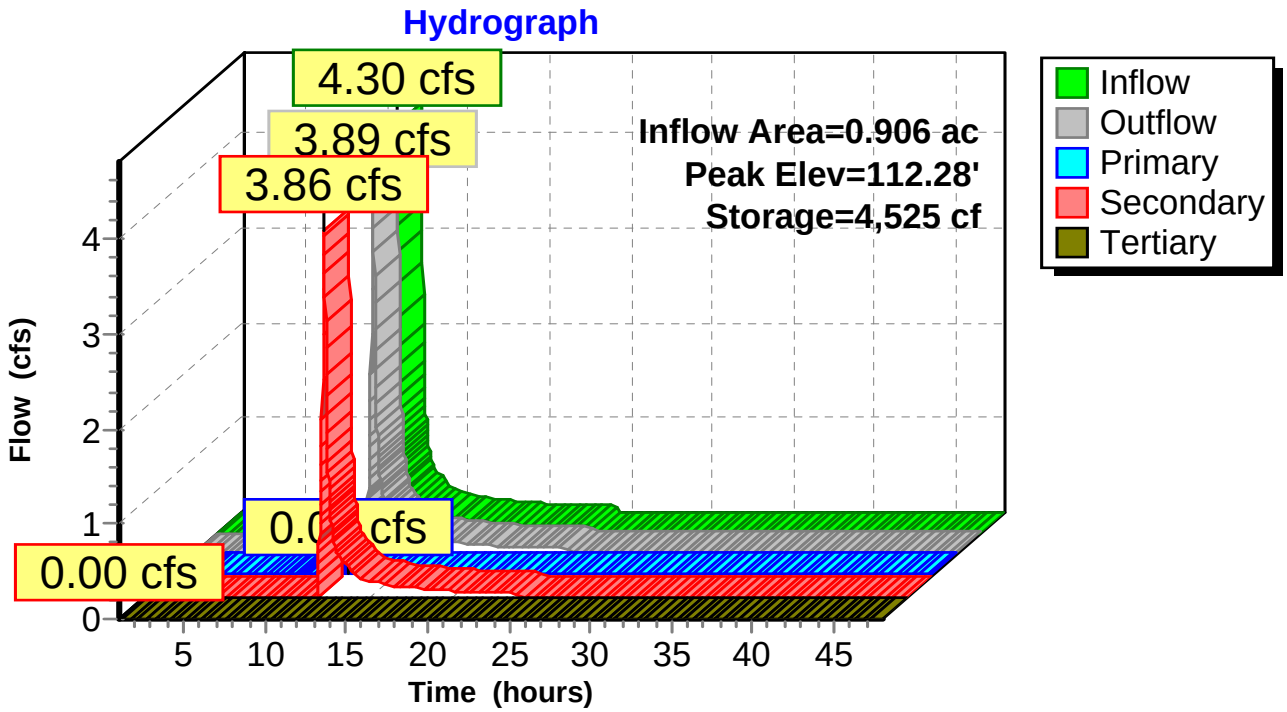
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	112.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	110.50'	**0.375 in/hr Exfiltration over Surface area**
#4	Tertiary	113.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 12.10 hrs HW=112.28' TW=106.85' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=3.85 cfs @ 12.10 hrs HW=112.28' TW=106.85' (Dynamic Tailwater)
└**1=Culvert** (Passes 3.85 cfs of 10.87 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 3.85 cfs @ 1.73 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=110.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
4.30 cfs
3.89 cfs
3.86 cfs
0.00 cfs
Inflow Area=0.906 ac
Peak Elev=112.28'
Storage=4,525 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
2
3
4
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=759,387 sf 46.35% Impervious Runoff Depth=8.13"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=75.56 cfs 11.805 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>9.71"
Flow Length=665' Tc=7.0 min CN=98 Runoff=5.93 cfs 0.616 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=39,458 sf 73.75% Impervious Runoff Depth=9.00"
Tc=7.0 min CN=92 Runoff=6.89 cfs 0.679 af

Reach SP-1: SP-1 Avg. Flow Depth=1.64' Max Vel=4.84 fps Inflow=79.08 cfs 13.061 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=79.02 cfs 13.061 af

Pond P-1: Gravel Wetland Peak Elev=107.50' Storage=60,774 cf Inflow=79.86 cfs 13.061 af
Primary=70.34 cfs 5.495 af Secondary=8.73 cfs 7.567 af Outflow=79.08 cfs 13.061 af

Pond P-2: UGSF Peak Elev=112.39' Storage=4,878 cf Inflow=6.89 cfs 0.679 af
Primary=0.03 cfs 0.090 af Secondary=6.38 cfs 0.550 af Tertiary=0.00 cfs 0.000 af Outflow=6.41 cfs 0.640 af

Total Runoff Area = 19.100 ac Runoff Volume = 13.100 af Average Runoff Depth = 8.23"
50.21% Pervious = 9.591 ac 49.79% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

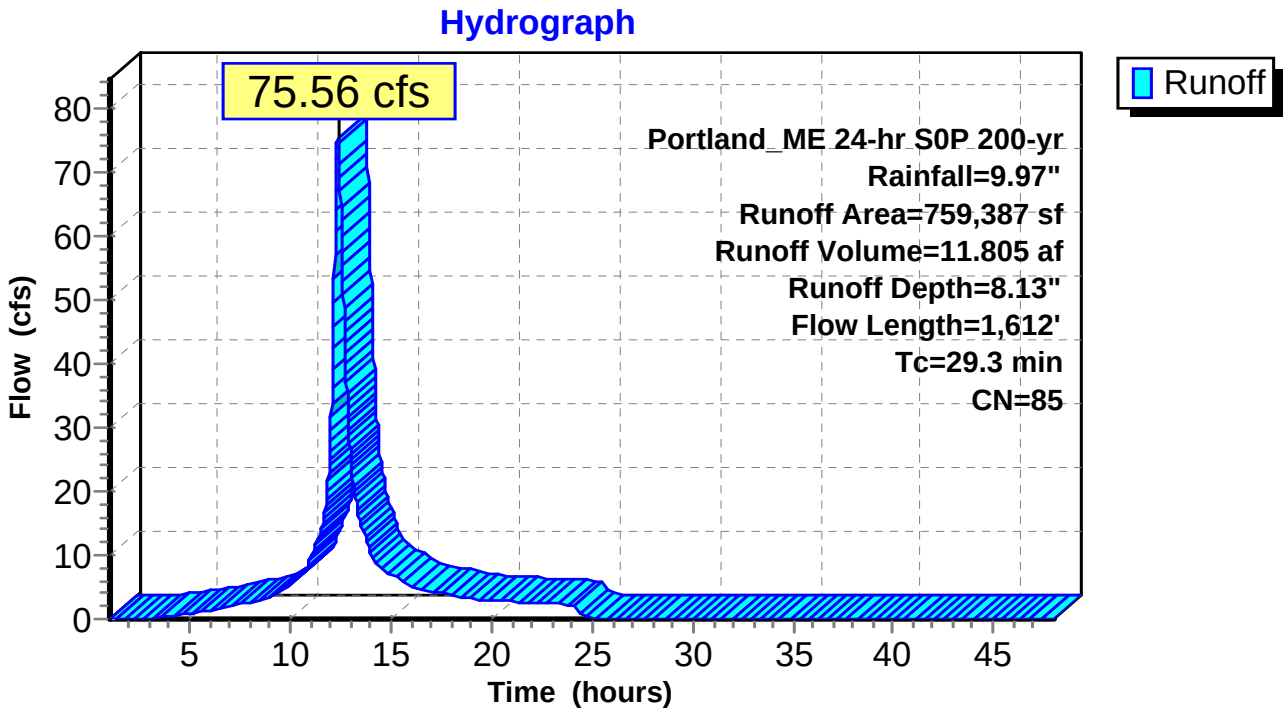
Runoff = 75.56 cfs @ 12.35 hrs, Volume= 11.805 af, Depth= 8.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

Area (sf)	CN	Description
351,954	98	Paved parking & roofs
407,433	74	>75% Grass cover, Good, HSG C
759,387	85	Weighted Average
407,433		53.65% Pervious Area
351,954		46.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

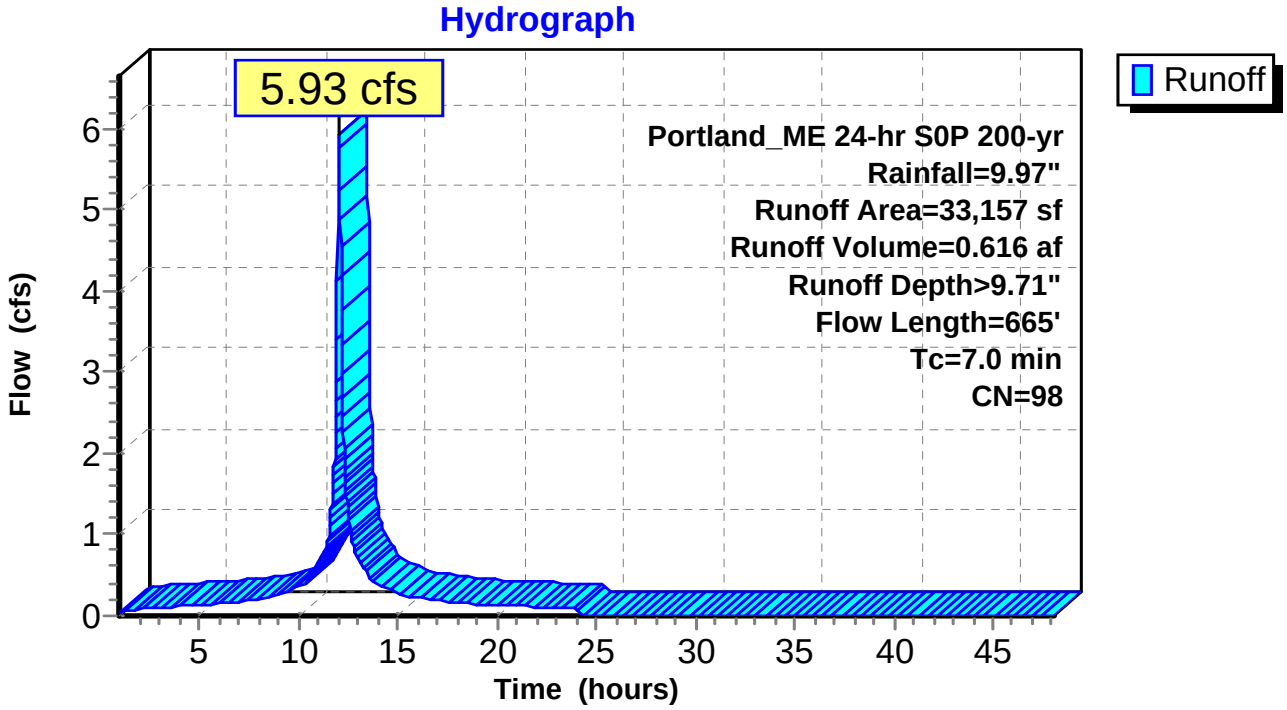
Runoff = 5.93 cfs @ 12.05 hrs, Volume= 0.616 af, Depth> 9.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

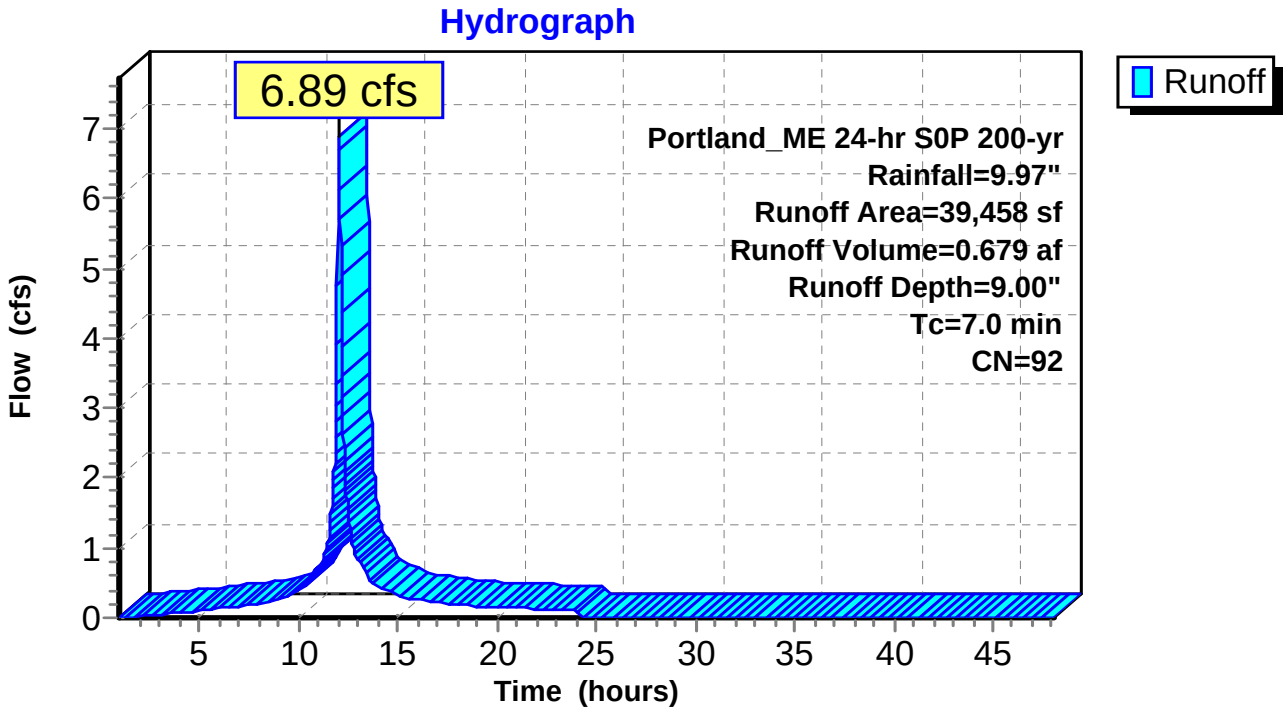
Runoff = 6.89 cfs @ 12.05 hrs, Volume= 0.679 af, Depth= 9.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

	Area (sf)	CN	Description
*	29,102	98	
*	10,356	75	
	39,458	92	Weighted Average
	10,356		26.25% Pervious Area
	29,102		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



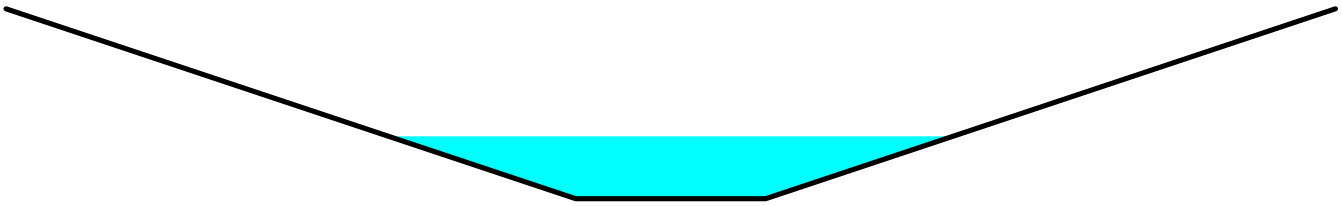
Summary for Reach SP-1: SP-1

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 8.21" for 200-yr event
Inflow = 79.08 cfs @ 12.37 hrs, Volume= 13.061 af
Outflow = 79.02 cfs @ 12.38 hrs, Volume= 13.061 af, Atten= 0%, Lag= 0.7 min

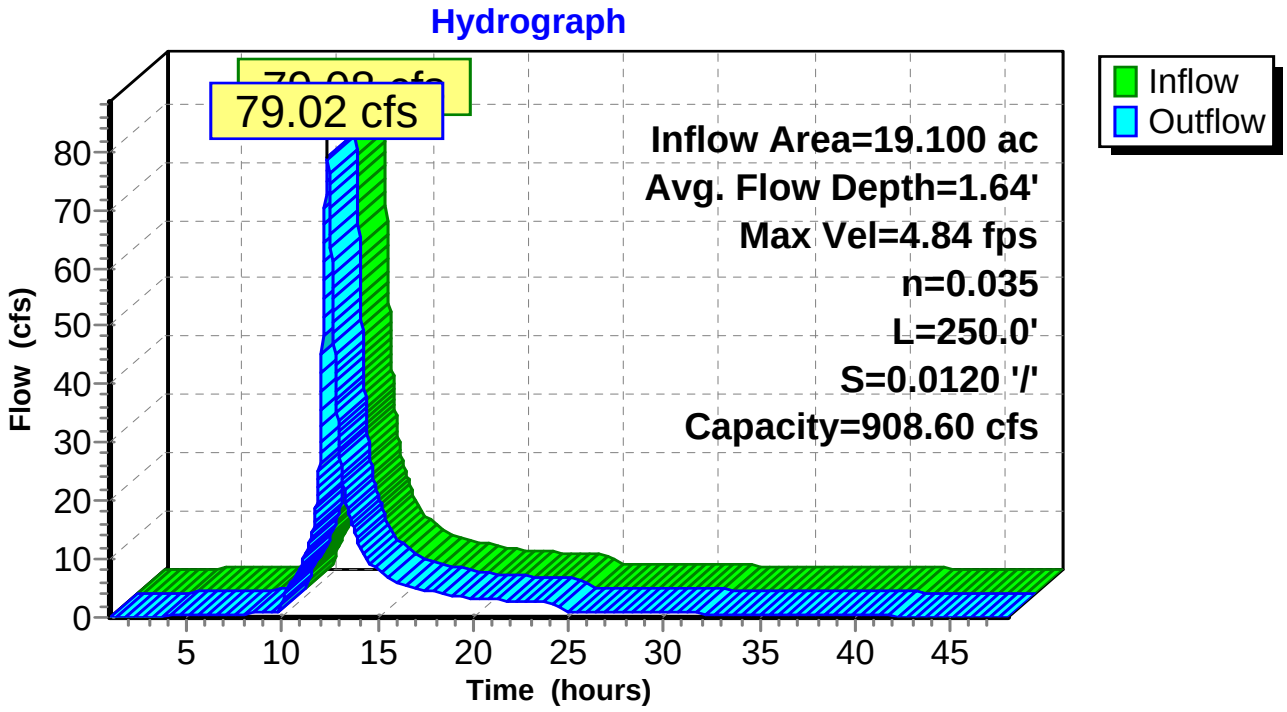
Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.84 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.36 fps, Avg. Travel Time= 3.1 min

Peak Storage= 4,084 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.64'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'



Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 8.21" for 200-yr event
Inflow = 79.86 cfs @ 12.34 hrs, Volume= 13.061 af
Outflow = 79.08 cfs @ 12.37 hrs, Volume= 13.061 af, Atten= 1%, Lag= 2.0 min
Primary = 70.34 cfs @ 12.37 hrs, Volume= 5.495 af
Secondary = 8.73 cfs @ 12.37 hrs, Volume= 7.567 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.50' @ 12.37 hrs Surf.Area= 19,207 sf Storage= 60,774 cf

Plug-Flow detention time= 103.7 min calculated for 13.061 af (100% of inflow)
Center-of-Mass det. time= 103.7 min (917.0 - 813.2)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

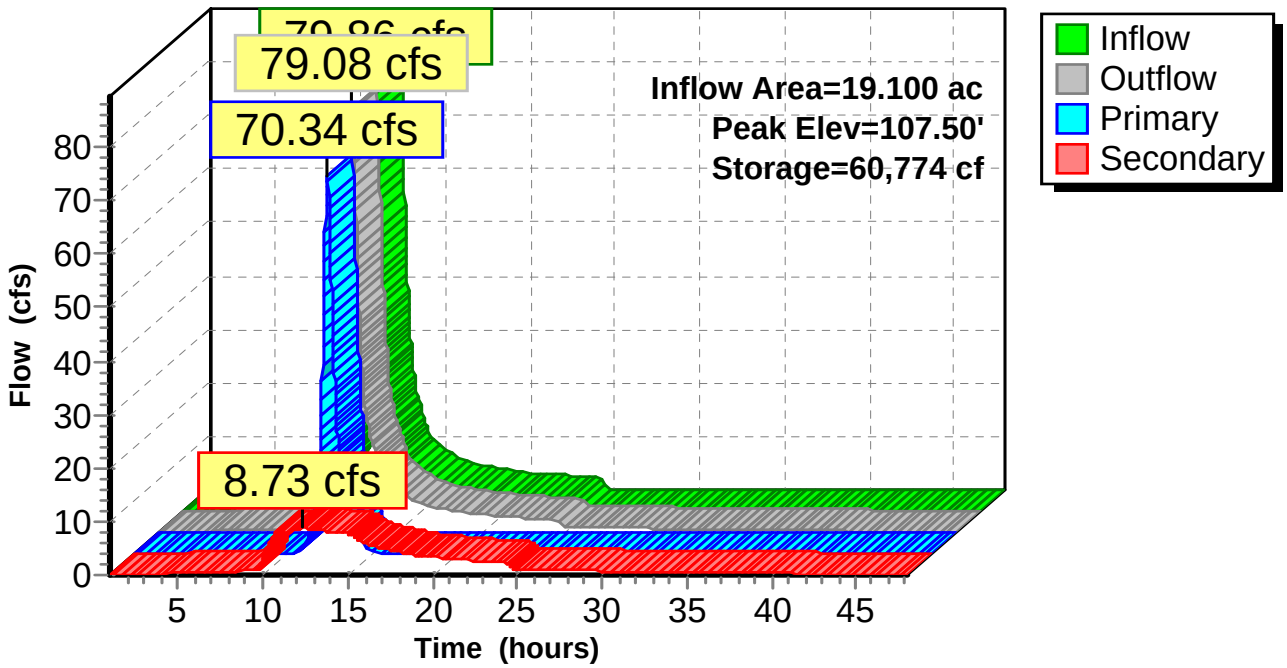
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=70.29 cfs @ 12.37 hrs HW=107.50' TW=92.64' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 40.44 cfs @ 2.69 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 29.86 cfs @ 1.85 fps)

Secondary OutFlow Max=8.73 cfs @ 12.37 hrs HW=107.50' TW=92.64' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.73 cfs @ 11.12 fps)
  - **4=Orifice/Grate** (Passes < 1.00 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 36.36 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 0.906 ac, 73.75% Impervious, Inflow Depth = 9.00" for 200-yr event
Inflow = 6.89 cfs @ 12.05 hrs, Volume= 0.679 af
Outflow = 6.41 cfs @ 12.09 hrs, Volume= 0.640 af, Atten= 7%, Lag= 2.3 min
Primary = 0.03 cfs @ 12.09 hrs, Volume= 0.090 af
Secondary = 6.38 cfs @ 12.09 hrs, Volume= 0.550 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 112.39' @ 12.09 hrs Surf.Area= 3,210 sf Storage= 4,878 cf

Plug-Flow detention time= 180.6 min calculated for 0.640 af (94% of inflow)
Center-of-Mass det. time= 146.5 min (913.9 - 767.4)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	8,850 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.50	1,950	0	0
113.50	3,950	8,850	8,850

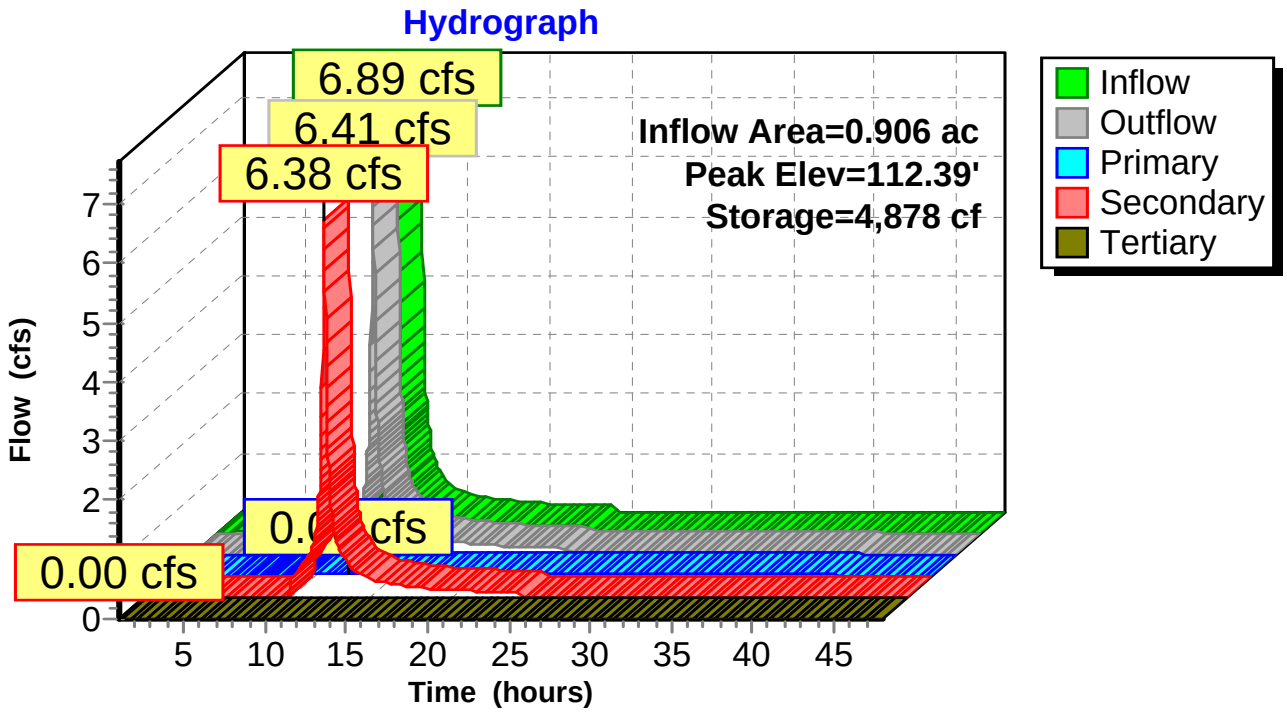
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	112.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	110.50'	**0.375 in/hr Exfiltration over Surface area**
#4	Tertiary	113.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 12.09 hrs HW=112.39' TW=107.26' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=6.35 cfs @ 12.09 hrs HW=112.39' TW=107.26' (Dynamic Tailwater)
└**1=Culvert** (Passes 6.35 cfs of 10.57 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 6.35 cfs @ 2.04 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=110.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
6.89 cfs
6.41 cfs
6.38 cfs
0.0 cfs
0.00 cfs
Inflow Area=0.906 ac
Peak Elev=112.39'
Storage=4,878 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
2
3
4
5
6
7
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=759,387 sf 46.35% Impervious Runoff Depth=10.66"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=96.59 cfs 15.480 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>12.28"
Flow Length=665' Tc=7.0 min CN=98 Runoff=7.22 cfs 0.779 af

Subcatchment S-4: Underdrained Soil Runoff Area=39,458 sf 73.75% Impervious Runoff Depth=11.56"
Tc=7.0 min CN=92 Runoff=8.46 cfs 0.873 af

Reach SP-1: SP-1 Avg. Flow Depth=1.85' Max Vel=5.17 fps Inflow=101.21 cfs 17.093 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=101.15 cfs 17.092 af

Pond P-1: Gravel Wetland Peak Elev=107.63' Storage=63,317 cf Inflow=102.12 cfs 17.093 af
Primary=92.37 cfs 8.173 af Secondary=8.84 cfs 8.919 af Outflow=101.21 cfs 17.093 af

Pond P-2: UGSF Peak Elev=112.45' Storage=5,072 cf Inflow=8.46 cfs 0.873 af
Primary=0.03 cfs 0.092 af Secondary=7.92 cfs 0.743 af Tertiary=0.00 cfs 0.000 af Outflow=7.95 cfs 0.834 af

Total Runoff Area = 19.100 ac Runoff Volume = 17.131 af Average Runoff Depth = 10.76"
50.21% Pervious = 9.591 ac 49.79% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

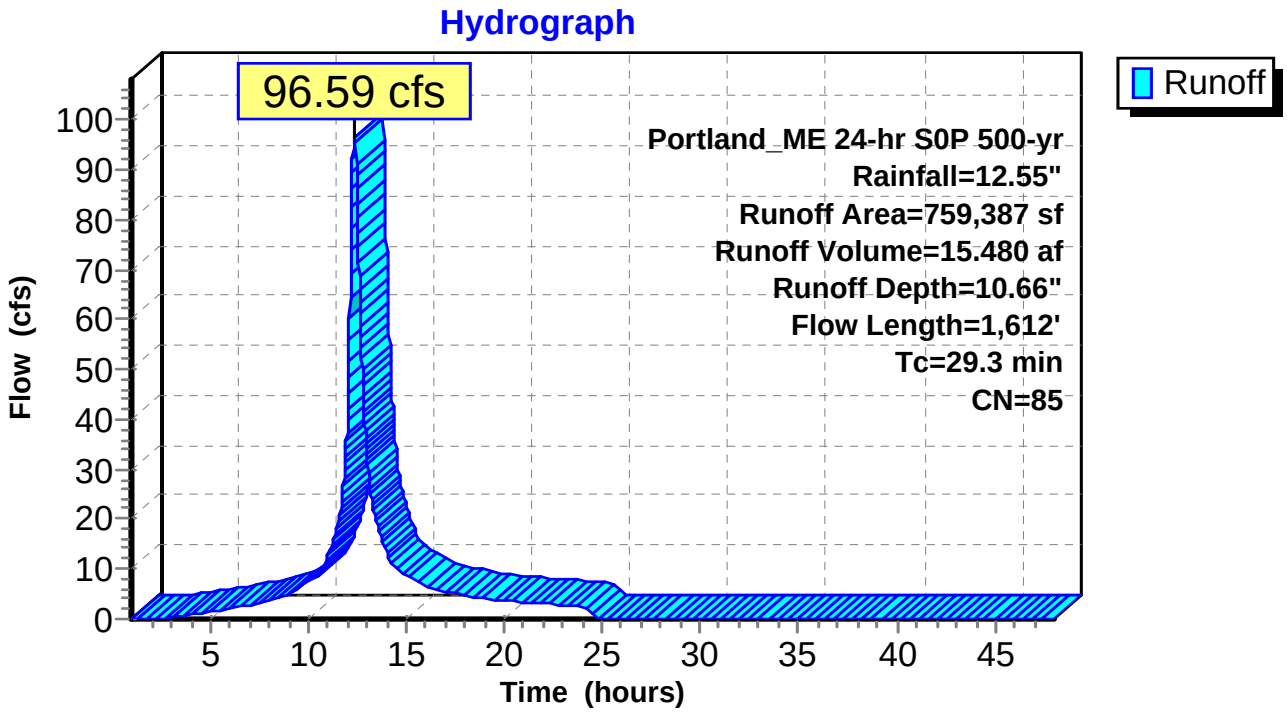
Runoff = 96.59 cfs @ 12.35 hrs, Volume= 15.480 af, Depth=10.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

Area (sf)	CN	Description
351,954	98	Paved parking & roofs
407,433	74	>75% Grass cover, Good, HSG C
759,387	85	Weighted Average
407,433		53.65% Pervious Area
351,954		46.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

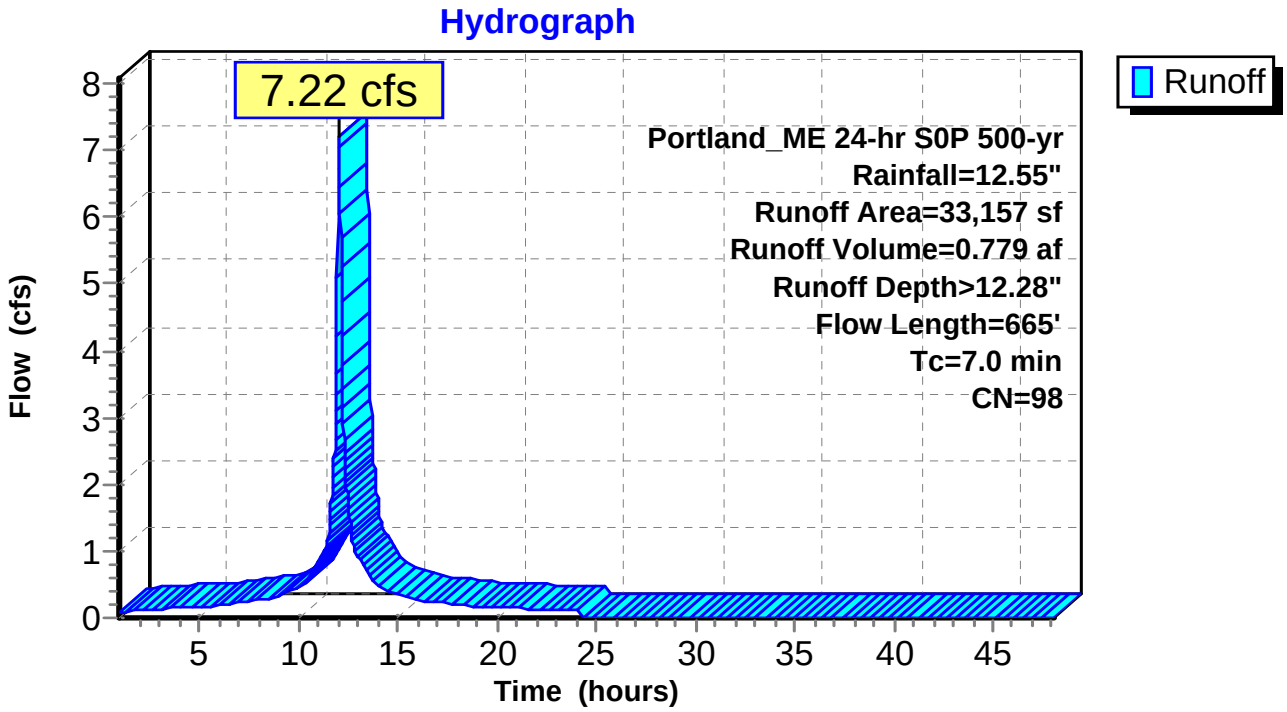
Runoff = 7.22 cfs @ 12.05 hrs, Volume= 0.779 af, Depth>12.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

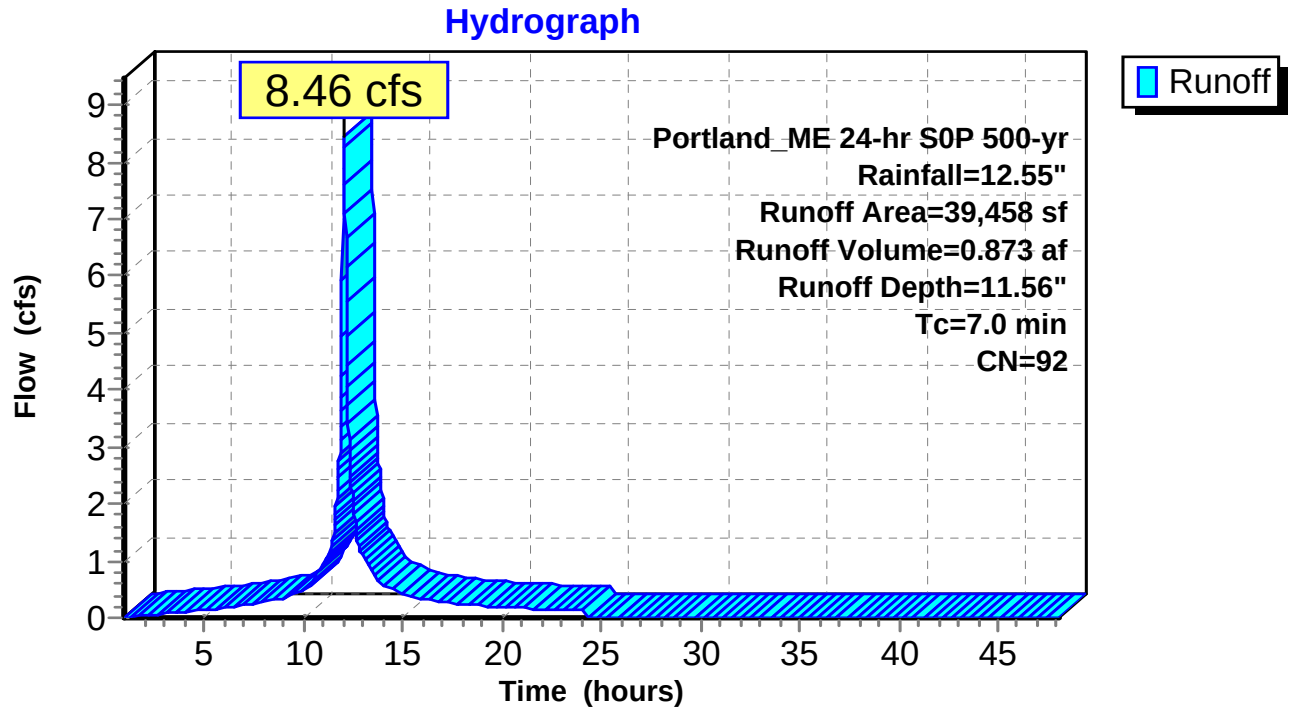
Runoff = 8.46 cfs @ 12.05 hrs, Volume= 0.873 af, Depth=11.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

	Area (sf)	CN	Description
*	29,102	98	
*	10,356	75	
	39,458	92	Weighted Average
	10,356		26.25% Pervious Area
	29,102		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

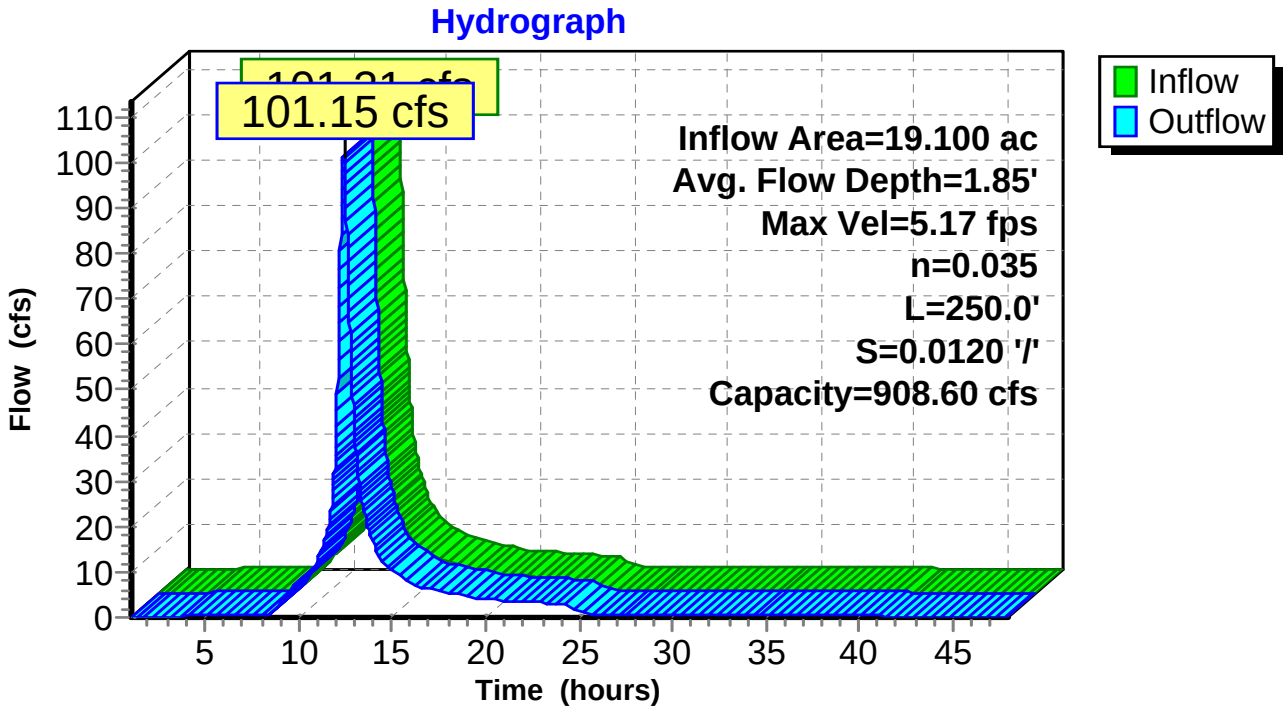
Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 10.74" for 500-yr event
Inflow = 101.21 cfs @ 12.37 hrs, Volume= 17.093 af
Outflow = 101.15 cfs @ 12.38 hrs, Volume= 17.092 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 5.17 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 2.9 min

Peak Storage= 4,895 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.85'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.100 ac, 49.79% Impervious, Inflow Depth > 10.74" for 500-yr event
Inflow = 102.12 cfs @ 12.34 hrs, Volume= 17.093 af
Outflow = 101.21 cfs @ 12.37 hrs, Volume= 17.093 af, Atten= 1%, Lag= 1.9 min
Primary = 92.37 cfs @ 12.37 hrs, Volume= 8.173 af
Secondary = 8.84 cfs @ 12.37 hrs, Volume= 8.919 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.63' @ 12.37 hrs Surf.Area= 19,724 sf Storage= 63,317 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 84.6 min (888.0 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

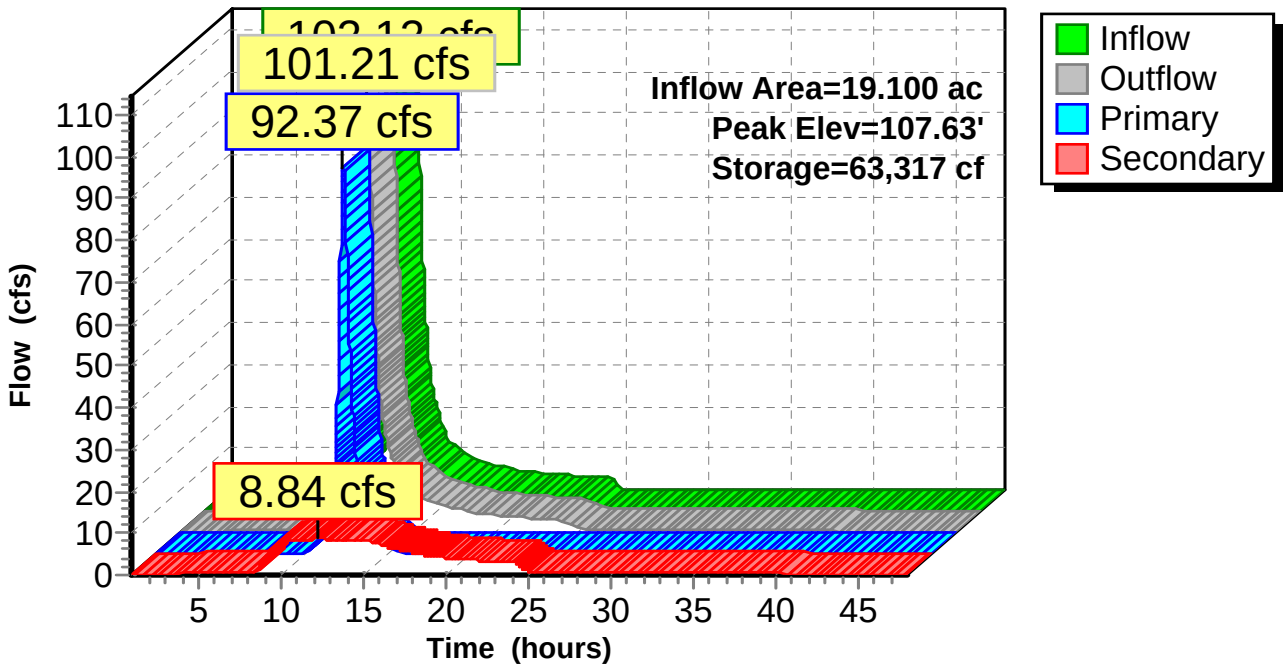
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=92.31 cfs @ 12.37 hrs HW=107.63' TW=92.85' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 48.70 cfs @ 2.86 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 43.61 cfs @ 2.15 fps)

Secondary OutFlow Max=8.84 cfs @ 12.37 hrs HW=107.63' TW=92.85' (Dynamic Tailwater)
└─**3=Culvert** (Inlet Controls 8.84 cfs @ 11.26 fps)
└─**4=Orifice/Grate** (Passes < 1.01 cfs potential flow)
└─**5=Broad-Crested Rectangular Weir** (Passes < 41.42 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 0.906 ac, 73.75% Impervious, Inflow Depth = 11.56" for 500-yr event
Inflow = 8.46 cfs @ 12.05 hrs, Volume= 0.873 af
Outflow = 7.95 cfs @ 12.09 hrs, Volume= 0.834 af, Atten= 6%, Lag= 2.2 min
Primary = 0.03 cfs @ 12.09 hrs, Volume= 0.092 af
Secondary = 7.92 cfs @ 12.09 hrs, Volume= 0.743 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 112.45' @ 12.09 hrs Surf.Area= 3,251 sf Storage= 5,072 cf

Plug-Flow detention time= 146.1 min calculated for 0.834 af (96% of inflow)
Center-of-Mass det. time= 119.2 min (880.2 - 761.0)

Volume	Invert	Avail.Storage	Storage Description
#1	110.50'	8,850 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
110.50	1,950	0	0
113.50	3,950	8,850	8,850

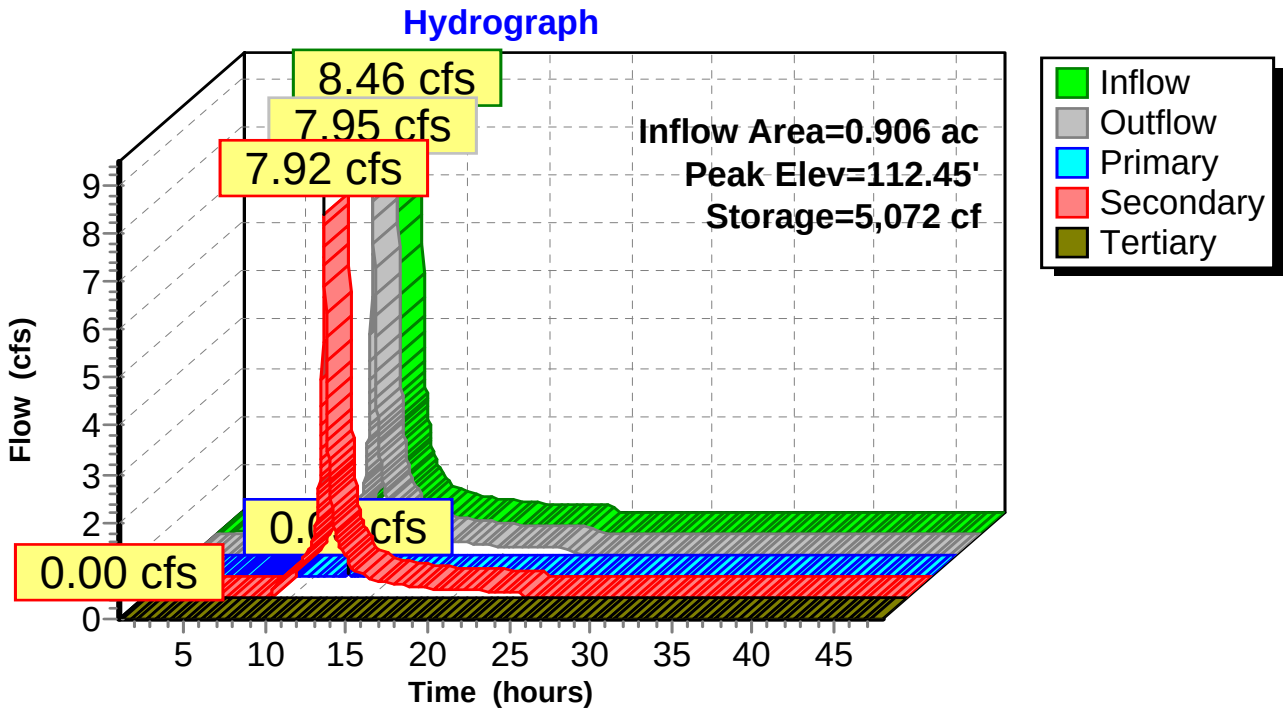
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	112.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	110.50'	**0.375 in/hr Exfiltration over Surface area**
#4	Tertiary	113.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 12.09 hrs HW=112.45' TW=107.38' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=7.88 cfs @ 12.09 hrs HW=112.45' TW=107.38' (Dynamic Tailwater)
└**1=Culvert** (Passes 7.88 cfs of 10.50 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 7.88 cfs @ 2.19 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=110.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF

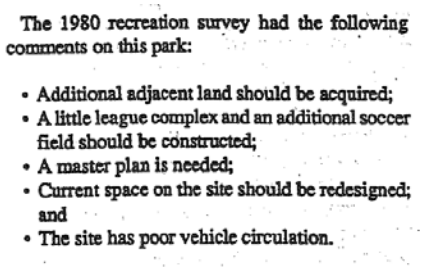

Hydrograph
8.46 cfs
7.95 cfs
7.92 cfs
0.00 cfs
Inflow Area=0.906 ac
Peak Elev=112.45'
Storage=5,072 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
2
3
4
5
6
7
8
9
5
10
15
20
25
30
35
40
45
Time (hours)

Section 13: Consistency with City Master Plans

13.0 City Master Plans Consistency

http://www.portlandmaine.gov/DocumentCenter/Home/View/14564

The Lyseth/Lyman-Moore campus is noted within the "Green Spaces, Blue Edges" master plan, dated December 2001. Within this document, the following information from a 1980 survey was identified:



The 1980 recreation survey had the following comments on this park:

- Additional adjacent land should be acquired;
- A little league complex and an additional soccer field should be constructed;
- A master plan is needed;
- Current space on the site should be redesigned; and
- The site has poor vehicle circulation.

The existing circulation is being re-constructed as part of the proposed project in order to increase the efficiency and safety of school access. Acquisition of additional land is not a portion of this proposed project. Athletics fields improvements have been permitted through a separate contract, and incorporate current needs for athletics fields and facilities.

13.1 Lyseth/Lyman-Moore Master Plan

Wright-Pierce had completed the Lyseth/Lyman-Moore master plan as part of a separate contract. The proposed plan largely incorporates the suggestions for improved parking, circulation, and athletic fields identified within that report.

The proposed project will mitigate 2 locations where roof drains enter the sanitary sewer and re-locate these flows to the storm drain. At this time, there still will remain one location of roof drainage from Lyman-Moore Middle School that will enter the sanitary sewer instead of the storm drain. This location will not be redirected to the storm drain as it would require pipe modifications within the inside of the building, and cannot be as simply rerouted as the other two locations.

Section 14: Capacity to Serve Letters

14.0 Capacity to Serve Letters

Ability/capacity to Serve letters were sent to the following utilities:

Water (Portland Water District)

Sewer (Portland DPW)

Electric (Central Maine Power)

Gas (Unitil)

Communications (Fairpoint)

Responses were obtained from Unitil indicating that the existing infrastructure was adequate. Portland Water District indicated that coordination would be necessary for a previous phase of the project, regarding construction adjacent to their water main easement on the southern portion of the property. Meetings were held with Portland DPW to discuss the proposed improvements to the stormwater infrastructure, and documentation of these discussions is indicated within Section 12 of this application.

Electric and Communications confirmations were not received. However, there are no increases to the existing service loads or uses for these utilities on-site, and therefore it is not anticipated that these responses would be required to complete the proposed projects.

Section 15: Solid Waste Generation

15.0 Solid Waste

Solid waste is currently stored in external receptacles and hauled off-site for disposal. No increase of solid waste generation is anticipated as a result of the proposed project, as the proposed project is to address capacity needs for parking and circulation at the existing facilities and not to provide for additional uses at the facilities. No changes in solid waste disposal are proposed as a result of the proposed project.

Section 16: Fire Department Technical Standards

16.0 Fire Department Technical Standards

It is understood that no expansions to the existing buildings will be made, and as such fire department standards for the existing buildings will not be addressed in this section.

For site access items, existing fire hydrant locations have been identified on the existing conditions and demolition plan. From the pre-application meeting, it was discussed that a 16'-wide fire access lane would be required around the northern and southern face for the elementary school, and the northern face of the middle school. These locations have been identified within the proposed plans as a paved area on the northern face of the elementary school, and a paved area bus loop on the northern face of the middle school. Geoblock, a porous pavement system that allows for a driveable turf surface, is provided in a 20'-wide lane from the bus loop to the south face of the middle school. This grassed, driveable surface will be provided with cape cod curbing to provide a fire access lane while not providing an obviously paved, drivable surface to passenger vehicles.

Heading east from Junior Street towards the elementary school location, a 12'-wide lane is proposed, with an 8' temporary parking area located adjacent to the lane (20'-wide total). This is included as it is noted that in the existing condition, a 16'-wide lane provides the ability to park on both sides of the roadway, even with signage indicating otherwise. As such, the applicant is requesting a waiver for this fire access location to be accepted as 12'-wide, which allows for maneuvering and access, but does not provide a wide enough area that could promote illicit parking. This access location will have sloped granite curb instead of vertical curb, and a 4'-wide clear area, to promote emergency vehicle traffic. Sloped granite curb is also placed at radial points on the inner edge of the elementary school bus lane.

Section 17: Consistency with City of Portland Design Manual

17.0 Consistency with City of Portland Design Manual

Sections of the City of Portland Design Manual have been identified within this section, including applicability and identification of any waivers. If a section has not been identified as being applicable to the proposed project, then that section has been given an N/A for the site.

17.1 Transportation Systems and Street Design Standards:

Information regarding traffic studies is indicated within Section 10 of this permit application. Minor modifications are being made to parking lot and circulation grading as part of the proposed upgrades, but no entrances to the abutting streets will not be re-graded, and as such alignment or drives/roads has not been evaluated as part of the proposed project beyond the circulation efforts identified in Section 10.

Sidewalks and driveway aprons are proposed to be asphalt with granite curing, with an alternate bid to include for slipform concrete curbing. Sidewalk width is greater than 5' in all areas, and no vertical level changes greater than 1/4" are proposed. Sidewalk slopes are designed to be at the running slope of the proposed circulation areas that they abut, with a cross-slope of 2%. Sidewalk ramps have been designed in accordance with section 1.8.4.

Aggregates for roadway surface and base pavement, as well as base gravels and pipe support gravels, have been detailed to be in accordance with section 1.10.

Parking spaces have been designed in accordance with the technical manual, including for compact parking spaces and minimum drive aisles. motorcycle and Scooter parking are proposed as part of the parking lot re-striping. Section 19 of this permit application discusses the project's ability to meet Division 20 of the City Land Use Code and Site Plan Standards.

Bicycle parking locations have been designed in accordance with section 1.15. Bicycle parking needs and the ability to meet Division 20 have been identified in Section 19 of this permit application.

Public crosswalks have been designed in accordance with section 1.20, and include for MUTCD signs, as the proposed circulation and parking developments are located within a school facility.

17.2 Sanitary Sewer and Storm Drain Design Standards

Proposed design is in accordance with the applicable sections of Division 24 of the City Code.

Storm drain trunk pipes are designed to carry stormwater flow through pipes sized as indicated in the plans. A calculation is included to show a minimum of 3cfs flow through the proposed pipes. The proposed drainage system has been designed to replace an existing broken storm drain. The proposed storm drain is designed to incorporate future re-construction of the parking lot. Pipe material shall be in accordance with technical manual. Underdrains are sized at 4" for the stormwater treatment facility; stormwater treatment design has been included in Section 12 of this manual.

Catch basins have been designed in accordance with Figure II-2. Calculations indicating the ability to pass flows of 3cfs have been attached to this section.

There are two structures where roof drains are proposed to be separated from the sanitary sewer. In both of these locations, the roof drains and sanitary sewers are combined within vault structures. As such, separation will occur through constructing an air-tight masonry wall between the two structures, as indicated in details submitted with the project plans, submitted as part of this application.

Standard aggregates have been proposed for use within the circulation facility. Sod, or loam and seed, will cover the proposed aggregates that are not to be paved or planted.

17.3 Public Safety Standards

The proposed project is designed to improve existing pedestrian, vehicle, and bus traffic, and as such the physical features of the site layout have been designed in order to better accommodate safe site access.

Locations of existing fire hydrants have been identified on the project plans. No fire hydrants are proposed to be modified or relocated.

Emergency access lanes are discussed in Section 16 of this permit application.

The proposed project is altering site access/circulation, and as these standards, as well as emergency access, are identified in Section 10 of this application. The proposed project is not a subdivision, and therefore subdivision standards are not anticipated to apply.

Blasting to remove ledge is not part of the proposed project based upon the results of the site soil borings. If ledge is encountered, it will likely remain in place unless it is very close to the proposed surface, or near to proposed pipe locations. If ledge is to be removed, it shall be done through mechanical means.

17.4 Landscaping and Landscape Preservation Standards

Significant natural features have been identified on the existing conditions plan, and were identified in the report by Jones Associates, included within Section 11. Trees greater than 10” diameter have been identified on the existing conditions plan.

Landscaping measures have been incorporated into parking areas, except in areas where snow removal would become impractical if plantings were included.

No retaining walls are proposed as part of the project. A stockade fence is proposed as a screen along the northern edge of the parcel where screening is required but not provided.

Trees are proposed along the edge of the circulation area in locations where their placement is practicable in an effort to provide the general effect of street trees throughout the site. However, where is the proposed site layout is not that of a typical street, street trees standards were not anticipated to be designed.

Shrubs consist of at least 50% native plantings, including winterberry and lilac.

Trees are proposed to be installed at the edge of the parking area, with boulders installed adjacent to the proposed trees to deter vehicles from driving on the newly renovated fields. The trees will an approved species in accordance with the technical standards, as indicated in the landscaping plan and details. Grasses will be 100% Kentucky Bluegrass for any disturbances abutting the athletics fields. Grasses will be a standard MaineDEP grass application in other locations.

17.5 Portland Stormwater Management Standards

Section 12 of this permit application includes for applicability with this section. Please see Section 12 for additional information.

17.6 Erosion and Sedimentation Control Standards for Two-Family Homes

An erosion and sedimentation control plan and report has been developed as part of the permit and contract drawings. This proposed plan and report is in accordance with Maine DEP regulations, and can be found in Section 12.

17.7 Soil Survey Standards

A high intensity soil survey is not required for the proposed project, as the project is being constructed largely on developed soils. However, please see the borings and medium-intensity soils information provided in Section 11.

17.8 Standards for Development in and Adjacent to Wetlands

The site was observed for wetlands by Jones Consultants, and their associated wetlands report has been included as an appendix to Section 11. No work that is not considered

maintenance activities shall be completed within 25-feet of the delineated boundary of Fall Brook or associated wetlands. The proposed project does not anticipate filling any wetlands.

17.9 Water Supply Standards

N/A

17.10 Municipal Street Lighting Standards:

N/A

17.11 Shadow Standards:

N/A

17.12 Site Lighting Standards:

Two utility poles with lighting, are being relocated, no more than 5' to accommodate for creating drive aisles that are in accordance with the City Standards. Light poles are being relocated farther away from any property boundaries, and as such it is not anticipated that a formal review of site lighting would be completed as part of the proposed project.

17.13 Boundary Survey Requirements

A stamped boundary survey has not been provided for the proposed project. Whereas no property lines are proposed to be adjusted, an existing conditions plan has instead been developed using existing survey information, supplemented with information obtained through field observations. However, the remainder of the requirements have been met set forth within this section for items that are required to be included.

17.14 Standards for Local Site Location of Development Review:

N/A

17.15 Solar Energy Generation:

N/A

ATTACHMENT 17.1

PIPE CAPACITY CALCULATIONS

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Lyseth-Lyman Moore School
City of Portland, Maine

CAPACITY OF PIPES FLOWING FULL
MINIMUM SLOPES USED IN DESIGN

Pipe Dia. (inches)	Pipe Dia. (feet)	Area (sq. ft.)	R (ft)	Slope (ft/ft)	Capacity with pipe flowing full (MGD) (n=0.012)	Capacity with pipe flowing full (MGD) (n=0.015)	Velocity (n=0.012) (ft/s)	Capacity with pipe flowing full (CFS) (n=0.013)	Capacity with pipe flowing full (CFS) (n=0.015)
Minimum Slopes - Sewers									
12	1	0.785	0.25	0.004	1.58	1.26	3.115	2.444093	1.955274
15	1.25	1.226563	0.3125	0.0028	2.40	1.92	3.024	3.70788	2.966304
18	1.5	1.76625	0.375	0.0022	3.45	2.76	3.028	5.344836	4.275869

Quick Flow Conversions:
1 CFS = 448.8 GPM
1 CFS = 0.646 MGD
1 MGD = 1.548 CFS
1 MGD = 694.4 GPM

Section 18: HVAC and Manufacturing Emissions Requirements

18.0 HVAC and Manufacturing Emissions Requirements

There are no applicable manufacturing emissions requirements or HVAC requirements as the project does not propose any additional changes to the site buildings.

Section 19: Compliance with Site Plan and Parking Standards

19.0 Consistency with City of Portland Design Manual

Portions of the City of Portland City Code, Chapter 14, include Site Plan Standards (14-526), and Parking (Division 20). The following information discusses these items, with the understanding that most information is either not applicable to this development, or has been included in another specific section of this permit application.

19.1 Site Plan Standards:

Transportation standards have been addressed in Section 17 of this application addressing impacts on abutting streets, site circulation, sidewalk use, and incorporation of school busses. Snow storage has been indicated as part of Sheet C-7 of the permitting plans. Information regarding any Transportation Demand Management plan is identified in Section 10 of this application.

Locations of significant natural features have been identified on the existing conditions plan. No removal of trees within zoning setbacks is proposed.

Parking lot landscaping has been provided for the proposed project. The City requires 2 trees per 5 spaces. 44 trees will remain in the parking area following demolition, and 38 new trees are proposed. 185 parking spaces are proposed, and providing 2 trees for every 5 would require a minimum of 74 trees. Whereas 82 trees will be retained or provided, the proposed project meets this standard.

The ability to have trees in islands every 40 spaces was not strictly able to be met, as new parking facilities are retrofits of existing sites that do not meet the parking lot landscape requirements, and are being designed in locations that are very difficult to plow (specifically, the parking lot adjacent to the middle school and the basketball courts, where maneuvering adjacent to fences and buildings would become a very difficult task.). However, trees are incorporated along the eastern side of this parking area, and existing trees, incorporated as part of an earlier project phase, are along the southern side of the elementary school parking facility. The applicant is requesting a waiver for this standard.

19.2 Parking Standards

Bicycle Parking, in the form of 6 different bicycle racks, has been provided at locations throughout the campus. One rack for 20 bicycles has been provided adjacent to the west entrance for the elementary school, and two 10-bicycle racks to the north entrance for the middle school. Racks for 4 bicycles have been provided at both of the alcove locations for the elementary school. Racks for 8 bicycles are proposed at the basketball and tennis courts. These improvements include for a total of 56 bicycle parking spaces throughout the campus.

The City standard is for 20 bicycles for each of the first 100 parking spaces and, then one bicycle for each additional 10 parking spaces. With 185 spaces provided, this would total 29 bicycle parking spaces. This standard is met, and exceeds the recommendations of racks for 8-10 bicycles provided in the City's 2011 SR2S study, included in Section 10 of this permit application. Bicycle parking racks are provided in concurrence with locations suggested in the SR2S study, and in volume that exceeds this suggestion.

Seven motorcycle/scooter parking spaces are provided in locations near building entrances to promote the use of motorcycles and scooters.

There are 135 existing formal parking stalls and between 35 and 40 informal parking areas that are used. A major goal of the proposed project is to provide formal parking stalls to improve the facility's pedestrian and emergency vehicle circulation. 185 parking spaces proposed, not counting for motorcycle and scooter parking, which results in an increase of 50 parking spaces. Per Section 14-332-d of requirements for parking spaces, one parking space is required per each classroom used for teaching purposes. Per conversations with the applicant, there are 32 Teaching Classrooms at Lyseth, and 50 Teaching Classrooms at Lyman Moore. Therefore, 82 parking spaces are required for school uses. For the 2017-2018 school year, there are 172 full-time employees at the campus. In 2015-2016, there were between 160-165 full-time employees at the campus.

Dozens of itinerant staff (staff who are at the site for only a portion of the day) access the campus on a regular basis, and between 10-15 may be at the site simultaneously during school hours. 15 visitor parking spaces have been provided to account for these itinerant staff, as well as other visitors to the school such as administrative staff or parents. 170 permanent parking spaces are provided

based on observations during site visits to the facility. These observations note that on a standard school day, between 150-170 vehicles are parked at the campus. This data is compiled in the below chart:

Date/Time		Ex. Parking Spaces	Empty ADA Spaces	Empty Stalls	Parked In Undesignated	Net	Sum
12/21/2017	10:20 AM	135	6	1	23	22	157
12/12/2017	12:00 Noon	135	4	7	23	16	151
12/8/2017	11:40 AM	135	3	6	36	30	165
12/18/2015	8:00 AM	135	4	5	34	29	164
5/9/2016	*N/A*	*135*	*1*	*6*	*41*	*35*	*170*
9/18/2013	*N/A*	*135*	*4*	*15*	*33*	*18*	*153*

Observations in Italics were noted from aerial imagery

Site observations from the Existing Conditions Memo (Section 10, attachment A) indicate that one parent drop-off loop is often filled by busses, and that up to 12 vehicles double-park within the drop-off loop near the elementary school, with up to 9 observed in queue. Other drop-off cars fill into open spaces in parking lots, open handicap accessible spaces, and park in the side streets off-site. Using a 22'-long parking area from the City's parallel parking dimension, the existing site has approximately 12 formal parent drop-off locations, near the entrance to each school. The proposed plan incorporates 26 drop-off spaces at 22'-long each, while also improving the bus circulation locations.

Per 14-332.1-c, off-street parking is required to be adequate to "serve projected employee and visitor needs" when placed in locations for recreational uses. For athletics events, the existing parking lot only fills on peak event days, and is anticipated to continue to meet these demands.

58 parking spaces are compact spaces, which accounts for 33% of parking spaces. Per the City standards, 20% of parking spaces are allowed to be compact spaces. These spaces are to be used by school staff, who would be more used to parking in similar spaces on a regular occurrence than those parking in a standard high-turnover parking lot. These spaces also exceed the sizes of existing parking spaces and aisles, which are currently not striped to City standard. Crosswalks have been placed within the parking islands to improve pedestrian access through the compact parking spaces. Recognizing these items, the applicant is requesting a waiver to exceed the percentage of allowable compact parking spaces.

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WASTEWATER
STORMWATER
INFRASTRUCTURE

October 26, 2017
Project Number 13352C

RE: Neighborhood Certification

I, Michael Guethle, hereby certify that a neighborhood meeting was held on October 18, 2017 at the Lyman Moore Middle School at 6:30 PM to 8:00PM.

I also certify that on October 6, 2017, invitations were mailed to the following:

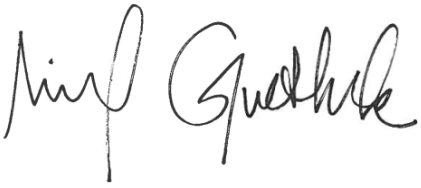
1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner (Jean Fraser) to be forwarded to those on the interested citizen list who receive e-mail notices.

Please note that items 1 and 2 of the above list was provided to our office by the Planning Division.

Signed,



Michael Guethle, P.E.

Project Engineer, Wright-Pierce

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

October 5, 2017
Project Number 13352C

Dear Neighbor:

Please join us for a neighborhood meeting to discuss the Portland Parks, Facilities and Recreation Department's plans for improvements to site circulation, pedestrian access, parking, drainage, and site landscaping for the Lyseth-Lyman Moore Campus, located at 171 Auburn Street in Portland, Maine.

Please note that while the funding for these site improvements is currently included in the City's school improvement referendum items, we will only be discussing the technical aspects of site improvements at the upcoming meeting.

Meeting Location: Lyman Moore Middle School Cafeteria, 171 Auburn Street, Portland Maine.

Meeting Date: Wednesday, October 18, 2017

Meeting Time: 6:30 PM – 7:30 PM

The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions, please contact our office at 207-319-1512.

Sincerely,

Michael Guethle, P.E.
Project Engineer, Wright-Pierce

Note:
Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

75 Washington Avenue, Suite 202
Portland, ME 04101
Phone: 207.761.2991 | Fax: 207.761.2978

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City of Portland, ME
October 18, 2017 - Public Meeting
SIGN-IN-SHEET

Name *(please print)*	Signature	Address
DOUGLAS RICE		Bowdoin 11 MILL ISLAND SUITE 140 TOPSHAM. ME 04086
VICTORIA + Tim St Hilaire	Victoria St Hilaire	43 Bartley Ave Portland ME 04103
Keith Farnsworth		11 Shingle Way Portland, ME 04103
Debbie Smith		33 BARTLEY Ave PTLD, ME 04103
Dan Winship		24 Fall Ln Portland ME 04103
Jane Reynolds	Jane Reynolds	70 Bartley Ave 04103
Staci Hanscom	Staci P. Hanscom	33 Heather Rd 04103
BEN DONALDSON		80 Westminster Ave 04103 + 171 Allen Ave. 04103

NEIGHBORHOOD MEETNG MINUTES

Meeting Date: October 18, 2017
Location: Lyman Moore Cafeteria
Project Number: 13352C

Presenters: Michael Guethle (Wright-Pierce); Doug Rice (Wright-Pierce); David Onos (City of Portland)
Attendees: Attached

A neighborhood meeting for Lyseth – Lyman Moore Circulation and Access Improvements was held to inform the project abutters and interested parties about the proposed project. The presentation was completed in PowerPoint format, with full-size plans available on easels for attendees to view and comment on. Given the small turnout for the project, the nature of the presentation was very interactive and collaborative, while following the general outline indicated below:

- Introduced Project Team
- Discussed Project History
- Discussed the Funding Source, and Development of The School Referendum
- Reviewed Site Circulation
- Reviewed Site Parking and Access
- Discussed Environmental Impacts
- Reviewed Site Landscaping

From these discussion topics, the majority of the questions were related to the project site circulation. Several of the attendees lived in the adjacent neighborhood that is connected to the parcel by Junior Street. Questions and responses regarding site circulation are highlighted below:

- Presenters highlighted how bus circulation and parent drop-off circulation are the impetus of the project, and how emergency vehicle access and bus access guided the majority of project development.
- Attendees discussed how the bus turnaround into the Middle School is a point of contention for access to Junior Street. They requested that no passenger cars be allowed to access this loop during peak drop-off hour. They also noted it would be preferred to shut down this site access location.
- Attendees noted vehicle speed within the neighborhood at Junior Street is a concern. Proposed suggestions from attendees included making this road a one-way; minimize parking during certain hours; shutting down access during peak hours; traffic calming within the neighborhood; and traffic calming at the site access location.
- Presenters stressed that several of these items are not a result of increases in traffic from the proposed site, and how the proposed development is not increasing the amount of traffic within the parcel. Presenters also noted how much of these comments mention locations external to the site, and that enforcement of existing regulations for speed and parking should be a priority.

75 Washington Avenue, Suite 202
Portland, ME 04101
Phone: 207.761.2991 | Fax: 207.761.2978

Presenters stated that this information will be included in meeting minutes, and relayed to Planning.

- Attendees noted that the crosswalk from Junior Street into the development could be located at both sides of the street to more easily convey pedestrian access to the schools. Presenters agreed that this was a good suggestion.
- Traffic increase itself was not noted as a concern during the meeting.

The remainder of the presentation focused on the parking, access, and project landscaping. These discussions included:

- Presenters discussed the need for drop-off enforcement and signage, which attendees agreed was critical to the successful completion of the project.
- Presenters reviewed environmental impacts, and discussed the proposed stormwater treatement methods. Attendees asked if rain gardens were evaluated, and presenters re-enforced how salt/sand limitations existed for installing a rain garden. Presenters also highlighted how proposed stormwater basins will not be as deep as the gravel wetland at the existing site.
- Presenters discussed parking needs and screening needs, to which there were no questions.
- Presenters discussed minimal modifications to lighting, to which there were no questions.
- Presenters discussed walking/pedestrian circulation on campus. Attendees made suggestion to “soften” corners and make larger radii to sweep along paths, as most pedestrians will likely create shortcuts in locations between sidewalks.
- Presenters discussed landscaping. No comments were mentioned from abutters.

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November 22, 2017
W-P Project No. 13352C

Jean Fraser, Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

Subject: Lyseth-Lyman Moore Circulation and Access Improvements
Responses to Site Plan Review Comments

Wright-Pierce has developed the following responses to comments provided during the Site Plan Review.

Parking and Traffic

The following responses are to comments provided in an e-mail from Tom Errico, P.E., to Jean Fraser, City Planner, on October 26, 2017. The full comments are included as an attachment to this document.

1) Diagonal parking spaces are 60-degree parking spaces that are designed in accordance with City Technical Manual standards to be either 9'x18' parking spaces or 8'x15' compact parking spaces. Details have been provided in the updated revision to confirm this information. Please note that the dimensions on the Plans are on a scale of nearest foot unless otherwise noted, and that details provided shall prevail.
2) A waiver for compact parking spaces is included in Section 19 of the submitted Site Plan Permit. Wright-Pierce can provide this information upon request if the originally provided request is not available or adequate.
3) Travel lanes were made consistent in the proposed revision, with 12' travel lane for vehicles, a 16' travel lane for busses, and an 8' parking location for all vehicles.
4) Diagonal parking spaces are 60-degree parking spaces that are designed in accordance with City Technical Manual standards to be either 9'x18' parking spaces or compact parking spaces. A detail has been provided to confirm this information.
5) Curb extensions have been provided at crosswalk locations in front of the Middle School and Elementary School entrances in the updated plans.
6) Improvements have been made to the Junior Street intersection location to clarify vehicle movements. The location has been evaluated to confirm that bus and emergency vehicle access can be provided to this location, while making pedestrian and traffic movements more typical. Improvements include

realigning the vehicle flow, adding stop signs and stop lines, straightening the sidewalk between Junior Street and the Middle School, and additional striping and signage.

7) Improvements have been made to the multi-way intersection between the elementary and middle schools to clarify traffic movements. Improvements include sidewalk relocation along the south side of the elementary school, and additional signage and striping for vehicles in this location
8) The sidewalk connection between the schools has been slightly modified. Through conversations with the applicant, it is understood that there is infrequent movement between the two schools as each school has its own facilities.
9) Vertical granite curb is proposed throughout the majority of the site to better define parking locations. Striping and signage is proposed in high-turnover drop off areas to identify the difference between these locations and permanent parking areas.

Sincerely,
WRIGHT-PIERCE

Michael Guethle, P.E.
Project Engineer
Michael.guethle@wright-pierce.com

Portland Maine | Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

171 Auburn Street/LLM Campus Project - Preliminary Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com> Thu, Oct 26, 2017 at 4:01 PM
To: Jean Fraser <jf@portlandmaine.gov>
Cc: Keith Gray <kgray@portlandmaine.gov>, Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Bruce Hyman <bhyman@portlandmaine.gov>, "Jeff Tarling (JST@portlandmaine.gov)" <JST@portlandmaine.gov>, Lauren Swett <lswett@woodardcurran.com>

Hi Jean – I have reviewed the project plans and offer the following preliminary traffic comments.

- The applicant shall confirm that the diagonal parking spaces meet City standards for width.

- The applicant is proposing a significant number of compact parking spaces. The applicant should note if the number of compact parking spaces requires a waiver from City standards and if so provide documentation in support of the waiver.

- Bus drop-off area dimensions vary throughout the site (10 foot bus lane/10 foot travel lane; 8 foot bus lane/12 foot travel lane; 8 foot bus lane/16 foot travel lane; 8 foot bus lane/14.5 foot travel lane). An explanation shall be provided.

- The dimensions of the 15 visitor parking spaces do not meet City standards. An explanation shall be provided.

- A crosswalk construction detail shall be provided.

- I would suggest that curb extensions be considered at the 5-Minute parking area center crosswalk near the Lyseth School and at the 5-minute parking area leading to Lyman-Moore School. The curb extensions will prevent vehicles from blocking crosswalks.

- It is unclear if vehicle movements from Jr. Street are permitted to proceed straight through to the entry roadway system. Revisions to signage and pavement markings may be required to regulate vehicle circulation.

- The plan needs to incorporate a traffic control plan for the multi-way intersection of the circulatory roadway and side parking lot areas. I find the configuration to be confusing and potentially problematic.

- I find the sidewalk connection between the two schools (at the multi-way intersection) to be indirect and thus may lead to pedestrians walking in an uncontrolled location.

- During field observations, vehicles tend to park in areas not necessarily designated for parking (grass areas). It is unclear if the plan implements measures to prevent vehicles from parking in undesirable locations.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
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STORMWATER
INFRASTRUCTURE

November 22, 2017
W-P Project No. 13352C

Jean Fraser, Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

Subject: Lyseth-Lyman Moore Circulation and Access Improvements
Responses to Stormwater Review Comments

The following responses are to comments provided in a memorandum from Lauren Swett, P.E. to Jean Fraser, City Planner, on October 31, 2017. A follow-up to this letter providing confirmation was dated on November 15, 2017. The full comments are included as Attachment 1 to this document.

1) Stormwater Management Plan Review Comments
   a. Final construction documents will indicate the need for a Maine Construction General Permit, which will be provided by the contractor following the bid phase of the project.
   b. An infiltration rate of 2.41 in/hr has been incorporated in an updated revision of the HydroCAD modeling for the post-development conditions. This report has been included as Attachment 2 to this document.
   c. The site has been re-evaluated to meet the Urban Impaired Stream Standard in accordance with Chapter 501 requirements.
      i. The water quality storm for the project generates a total of 2,768 Cubic Feet of stormwater runoff that requires treatment. This area includes 30,419 SF of roof area and 2,800 Square Feet of other impervious areas. Additional runoff mitigation for the water quality storm is required to meet the Urban Impaired Stream Standard. The credit calculation, below, notes the total credit to be 0.172 credits.

Proposed New Impervious Area				
Location	**Total Impervious (sf)**	**Total Impervious (acre)**	**Credits Per Acre**	**Credits Required**
Roof Area	30,419	0.70	0.20	***0.140***
Additional Impervious	2,800	0.06	0.50	***0.032***
		Total	***0.172***	

ii. The proposed Grassed Underdrained Soil Filter has been expanded to accommodate additional surface flows. The tributary area to this location was sized to be in accordance with the General Standards to provide mitigation credits. This treatment incorporates flows from a school lot, which is defined as a medium-turnover lot by Chapter 501 with an associated credit of 1.2 credits/acre. The tributary area to the filter has been increased by 7,414 Square Feet, or 0.17 acres. Calculations for the credits have been indicated below:

Total Treated Amount							
System ID	Additional Area draining to system		Credits Per Acre		Impervious Credits	Landscaped Credits	TOTAL CREDITS PROVIDED
	Treated Impervious (ac)	Treated Landscaped Area (ac)	Impervious Treated	Landscaped Treated			
UGSF-1	0.170	0.000	1.2	0.3	0.204	0.000	***0.204***

iii. The sizing of the Grassed Underdrained Soil Filter is indicated in the two below tables. The first table indicates the total treatment needed from the proposed development, as provided in the Stormwater Management Report, Section 12 of the original Site Plan application. The second table indicates the total treatment necessary for the Urban Impaired Stream Standard.

Underdrained Soil Filter 1					
	Subcatchment Review				
Total Impervious Surfaces		29102	sf	0.67	acres
Total Non-Impervious Developed Surfaces		10356	sf	0.24	acres
Total Drainage Area		39458	sf	0.91	acres
	Basin Design				
	Treatment	Total acres	Multiplier	Volume	
	Impervious Area	0.668	1.0	2,425	
	Developed Area	0.238	0.4	345	
	Treatment Volume Required			**2,770**	**cf**
	Treatment Volume Provided			**3,707**	**cf**
Surface Area at Filter Elevation		2471	s.f.		
Water Quaility Volume (18-inch Ponding)		3707	cf		
	Surface Area Check				
	Impervious	29102	5%	1,455	
Non-Impervious Developed Area		10356	2%	207	
Total Surface Area Required, min.				**1,662**	**sf**

Underdrained Soil Filter 1: Urban Impaired Additions					
	Subcatchment Review				
Total Impervious Surfaces		7414	sf	0.17	acres
Total Non-Impervious Developed Surfaces		0	sf	0.00	acres
Total Drainage Area		7414	sf	0.17	acres
	Basin Design				
	Treatment	Total acres	Multiplier	Volume	
	Impervious Area	0.170	1.0	618	
	Developed Area	0.000	0.4	-	
	Treatment Volume Required			**618**	**cf**
	Treatment Volume Provided			**3,707**	**cf**
Surface Area at Filter Elevation		2471	s.f.		
Water Quaility Volume (18-inch Ponding)		3706.5	cf		
	Surface Area Check				
	Impervious	7414	5%	371	
Non-Impervious Developed Area		0	2%	-	
Total Surface Area Required, min.				**371**	**sf**

iv. From the information provided above, treatment volume is provided within the modified Grassed Underdrained Soil Filter to satisfy the General Standard for the proposed development (2,770 CF). The Soil Filter is sized to treat an additional amount of the site's surface area in accordance with the General Standards to provide mitigation credits to meet the Urban Impaired Stream Standards (618 CF). These two values total 3,388 CF, which is less than the total treatment volume of 3,707 CF. Therefore, the proposed modifications meet both the General Standard and the Urban Impaired Stream Standard.

d. The pre- and post-development areas vary as 30,419 SF of roof area is conveyed to the sanitary sewer in the pre-development condition. The areas have been revisited, and Subcatchment 2 has been modified to provide the correct subcatchment area (2,800 sf of non-impervious surfaces was not removed in the original submission to counteract the increase of impervious surface). Runoff rates were modified slightly from the original submission, but remain similar in that the 2-year storm is the only evaluated interval storm where the post-development runoff rate exceeds the pre-development conditions.

Runoff Rates for Interval Storm Years (CFS)

Study Point	*Pre 2-yr*	*Post 2-yr*	*Pre 10-yr*	*Post 10-yr*	*Pre 25-yr*	*Post 25-yr*
SP-1, Original	6.63	**7.23**	32.41	30.54	47.92	43.45
SP-1, Review		**7.43**		29.86		43.20

e. The time of concentration for Subcatchment 1 has been modified to be correctly represented on the plan. Sheet flow for Subcatchment 2 has not been changed since the original submission because the creation of a sidewalk changes the flow patterns in the post-development conditions.

2) Sewer and stormwater catch basins/manholes have been numbered/lettered for ease of review.

3) The proposed snow storage location is the same as the existing snow storage location. A barrier fence exists, and drainage improvements are proposed in this location to improve drainage and swale additional snowmelt into catch basins.

4) Whereas the project is a City/Facilities project, the applicant is reviewing options for contracting with a private maintenance and inspection company, or contracting with other City departments in the area. If allowed, it is preferred that a formal maintenance agreement can be incorporated as a condition of approval for this application. The applicant is aware that the cost for post-construction maintenance will be the responsibility of the applicant.

Sincerely,
WRIGHT-PIERCE

Michael Guethle, P.E.
Project Engineer
Michael.guethle@wright-pierce.com

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MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, P.E., and Amy LeBel, E.I.T.
DATE: October 31, 2017
RE: Lyseth Lyman-Moore Campus Improvements Peer Review

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed development project located at 171 Auburn Street in Portland, Maine. The project involves circulation, access and parking improvements for an elementary and middle school campus.

Documents Reviewed by Woodard & Curran

- Level III Site Plan Application and attachments, dated August 31, 2017, prepared by Wright-Pierce on behalf of the City of Portland.
- Engineering Plans, Sheets C1-14 and Figures 1-4, , dated September 1, 2017, prepared by Wright-Pierce, on behalf of the City of Portland.

Comments

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: The Applicant has provided a plan, notes, and details to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500.
      - Note that the project may require a Notice of Intent to Comply with the Maine Construction General Permit.
   b) General Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to include stormwater management features for stormwater quality control. The Applicant is proposing a grassed underdrained soil filter. The following comments should be addressed:
      - The Applicant has identified a media exfiltration rate of 0.375 in/hr. As this varies from the Maine DEP standard, justification for this rate should be provided.
   c) Urban Impaired Stream Standard: The project is located within the Fall Brook watershed and is subject to the Urban Impaired Stream Standard. The Applicant has requested a waiver from the Urban Impaired Stream Standard, due to the existing gravel wetland design condition. We are reviewing this waiver request with the Department of Public Works.
   d) Flooding Standard: The project is increasing impervious surface by 2,800 SF, and will also incorporate an additional 30,419 SF of roof area via roof drains to be disconnected from the sewer, and is required to control the rate or quantity of stormwater runoff from the site. The project will result in an increase in the 2-year storm, and decreases in the 10- and 25-year storm. We agree that the 2-year storm increase is small and we are reviewing this waiver request with the Department of Public Works. However, the following comments should be addressed:
      - The pre- and post- development project areas do not match. The Applicant should clarify the areas included.
      - The Applicant should review their time of concentration flow paths for Subcatchments S1 (pre) and S2 (post). The TC path for S1 shown on the pre-development drainage plan (pipe flow) does not match the path utilized in HydroCAD (sheet flow). S2 should be reviewed to ensure that the

non-impacted existing area of the site is evaluated in a similar manner to the pre-development model (i.e. similar amounts of sheet flow).

2) We suggest, for ease of review and coordination during construction that all of the proposed structures be numbered.
3) Snow storage has been designated in an area to the east of the building. This is very close to the property boundary and abutting neighbors. Applicant should verify that adequate buffering is provided from the neighbors, and additional definition of grading should be provided to ensure that the snow melt does not impact the neighbors.

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MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, P.E.
DATE: November 15, 2017
RE: Lyseth Lyman-Moore Campus Improvements Peer Review – Additional comments

---

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed development project located at 171 Auburn Street in Portland, Maine. The project involves circulation, access and parking improvements for an elementary and middle school campus.

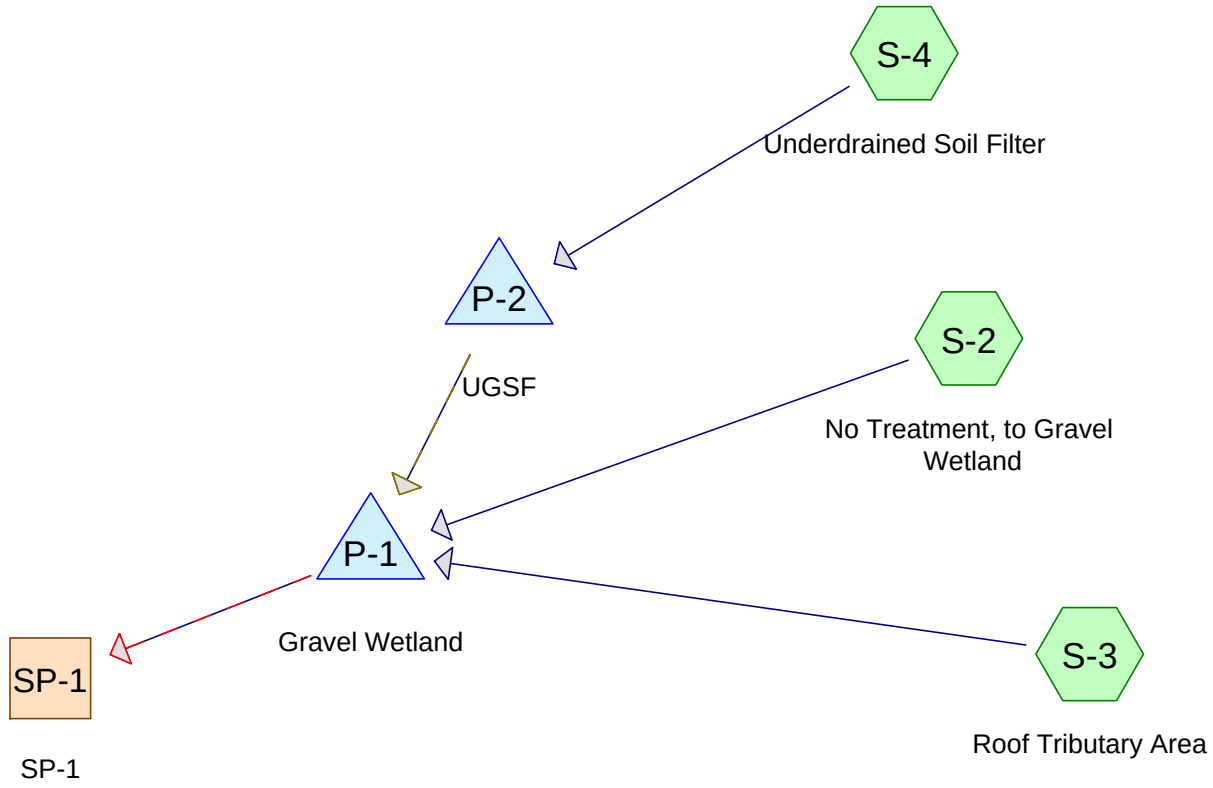
Documents Reviewed by Woodard & Curran

- Level III Site Plan Application and attachments, dated August 31, 2017, prepared by Wright-Pierce on behalf of the City of Portland.
- Engineering Plans, Sheets C1-14 and Figures 1-4, , dated September 1, 2017, prepared by Wright-Pierce, on behalf of the City of Portland.

We have reviewed the project with the City Department of Public Works, and can provide the following clarifications on the Applicant's proposed waivers.

Comments

1) The Applicant has requested a waiver of the flooding standard. With only a minor increase in the 2-year storm event, a waiver of the flooding standard can be supported.
2) The Applicant has requested a waiver of the urban impaired stream standard. Upon review by the Department of Public Works, it was established that there is no waiver option for the Urban Impaired Stream Standard. The City does not have the authority to waive this standard for a stream that is in non-attainment of the State water quality standards. There are two options for meeting the standard: (1) provide additional stormwater management per the standard; (2) pay into the Compensation Fee Utilization Plan for Fall Brook per the Maine DEP standard calculation. The City is in agreement that the removal of roof runoff from the combined sewer system will help with the overall goal of reducing CSO volumes to Back Cove. However, this action would not have a beneficial impact on Fall Brook, which is the purpose of the UIS Standard, so this work cannot be used to justify a waiver of the standard.
3) In addition, a stormwater management agreement will be required for the new stormwater treatment system. The City of Portland Department of Public Works will continue to maintain and inspect the existing gravel wetland. The Applicant will be required to inspect, maintain, and report on the underdrained soil filter in accordance with the Chapter 32 stormwater requirements. Public Works has indicated that arrangements may be made to have the same company perform inspections for the two systems, and that the options can be discussed with the School Department.



Subcat Reach Pond Link

Routing Diagram for During_Permit Proposed Gravel Wetland
Prepared by Microsoft, Printed 11/17/2017
HydroCAD® 10.00-12 s/n 01135 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.838	98	(S-4)
0.238	75	(S-4)
9.289	74	>75% Grass cover, Good, HSG C (S-2)
7.910	98	Paved parking & roofs (S-2)
0.761	98	Unconnected roofs, HSG A (S-3)
19.036	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.761	HSG A	S-3
0.000	HSG B	
9.289	HSG C	S-2
0.000	HSG D	
8.986	Other	S-2, S-4
19.036		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	1.076	1.076		S-4
0.000	0.000	9.289	0.000	0.000	9.289	>75% Grass cover, Good	S-2
0.000	0.000	0.000	0.000	7.910	7.910	Paved parking & roofs	S-2
0.761	0.000	0.000	0.000	0.000	0.761	Unconnected roofs	S-3
0.761	**0.000**	**9.289**	**0.000**	**8.986**	**19.036**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	S-2	0.00	0.00	1,327.0	0.0050	0.013	18.0	0.0	0.0
2	S-3	0.00	0.00	15.0	0.0100	0.013	15.0	0.0	0.0
3	S-3	0.00	0.00	500.0	0.0100	0.013	18.0	0.0	0.0
4	P-1	101.67	100.00	37.0	0.0451	0.011	12.0	0.0	0.0
5	P-2	106.00	105.50	50.0	0.0100	0.013	15.0	0.0	0.0

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=749,173 sf 45.99% Impervious Runoff Depth=1.73"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=18.02 cfs 2.482 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>2.94"
Flow Length=665' Tc=7.0 min CN=98 Runoff=2.28 cfs 0.186 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=46,872 sf 77.91% Impervious Runoff Depth=2.42"
Tc=7.0 min CN=93 Runoff=2.86 cfs 0.217 af

Reach SP-1: SP-1 Avg. Flow Depth=0.47' Max Vel=2.44 fps Inflow=7.44 cfs 2.886 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=7.43 cfs 2.886 af

Pond P-1: Gravel Wetland Peak Elev=106.52' Storage=43,579 cf Inflow=18.67 cfs 2.885 af
Primary=0.09 cfs 0.001 af Secondary=7.36 cfs 2.885 af Outflow=7.44 cfs 2.886 af

Pond P-2: UGSF Peak Elev=110.59' Storage=3,280 cf Inflow=2.86 cfs 0.217 af
Primary=0.20 cfs 0.217 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.217 af

Total Runoff Area = 19.036 ac Runoff Volume = 2.885 af Average Runoff Depth = 1.82"
50.05% Pervious = 9.527 ac 49.95% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

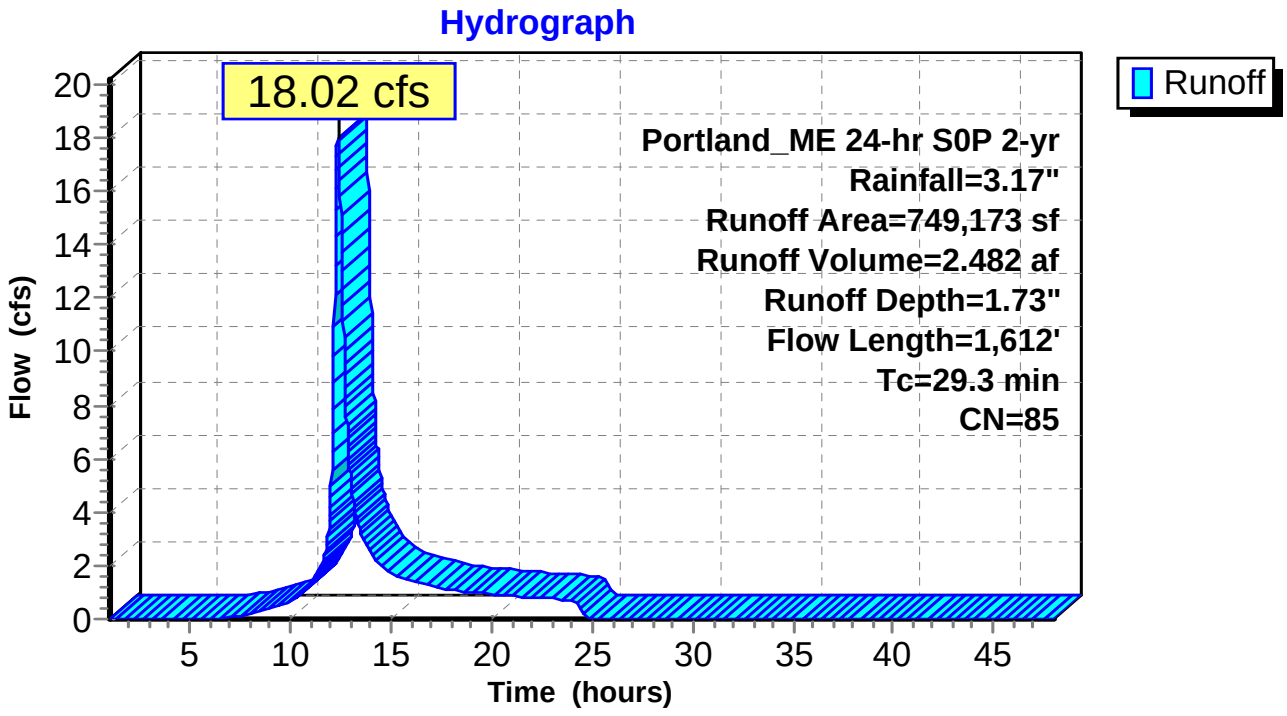
Runoff = 18.02 cfs @ 12.35 hrs, Volume= 2.482 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

Area (sf)	CN	Description
344,540	98	Paved parking & roofs
404,633	74	>75% Grass cover, Good, HSG C
749,173	85	Weighted Average
404,633		54.01% Pervious Area
344,540		45.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

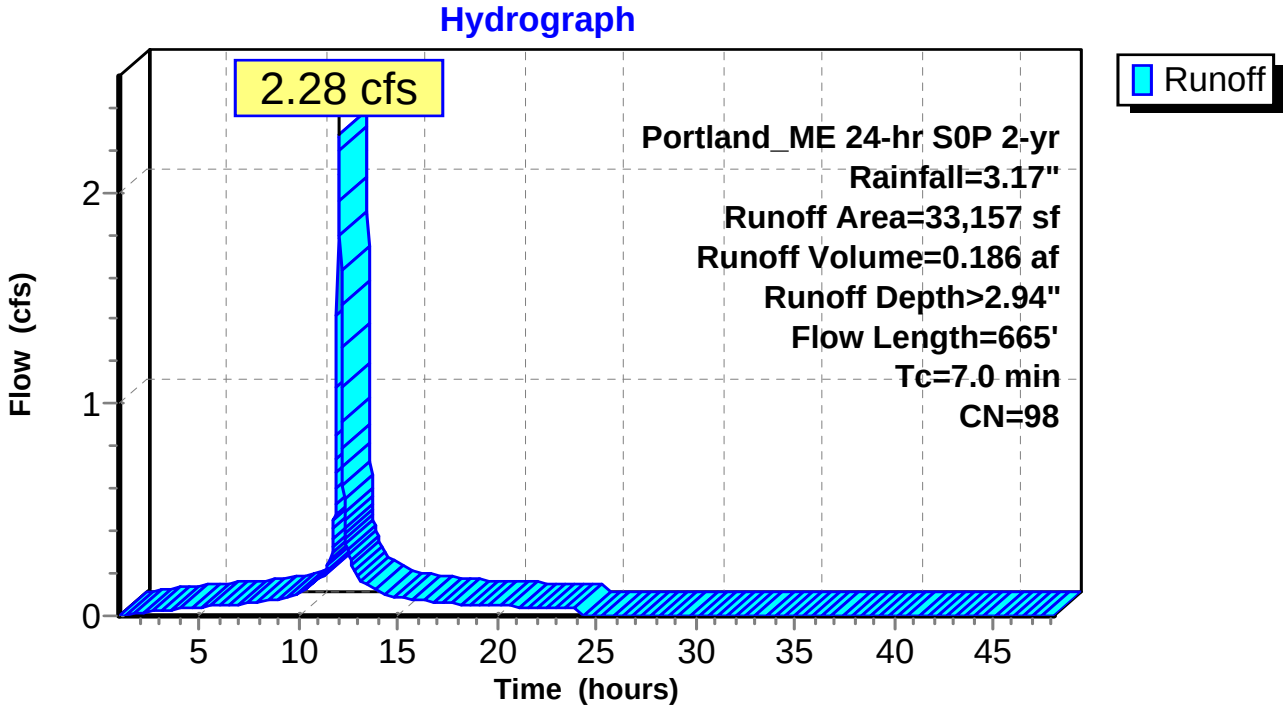
Runoff = 2.28 cfs @ 12.05 hrs, Volume= 0.186 af, Depth> 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

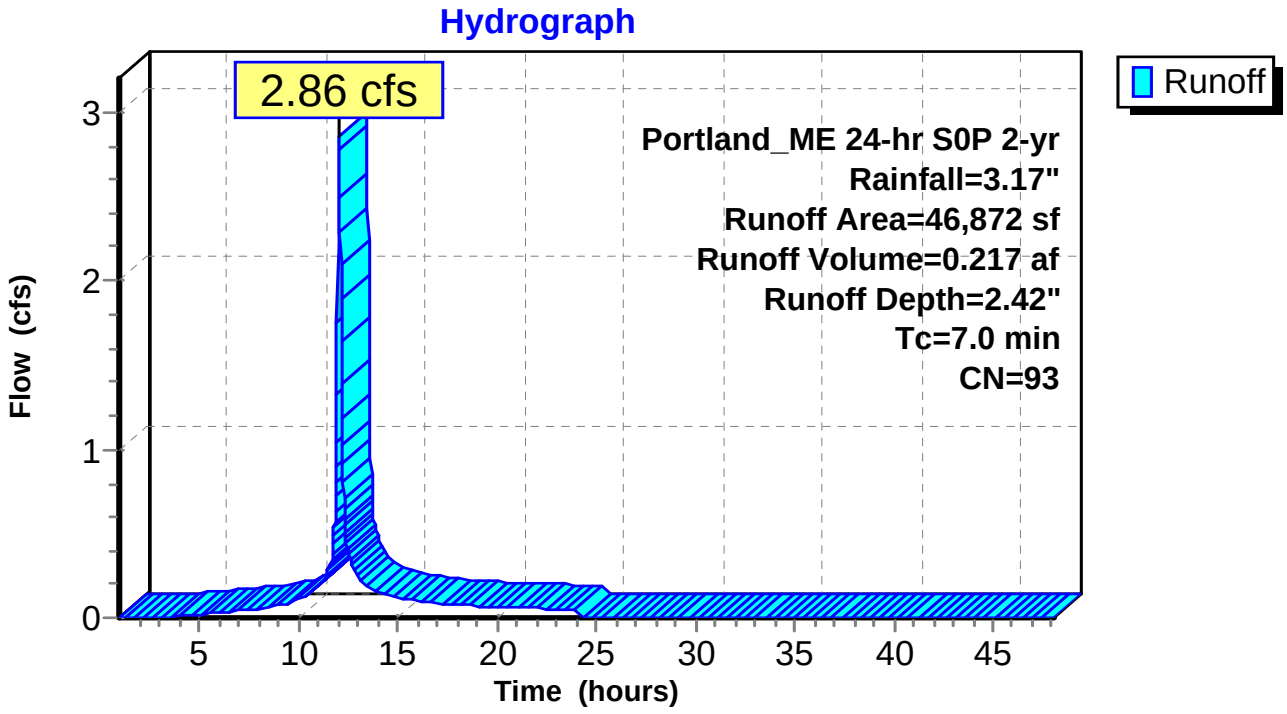
Runoff = 2.86 cfs @ 12.05 hrs, Volume= 0.217 af, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 2-yr Rainfall=3.17"

	Area (sf)	CN	Description
*	36,516	98	
*	10,356	75	
	46,872	93	Weighted Average
	10,356		22.09% Pervious Area
	36,516		77.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

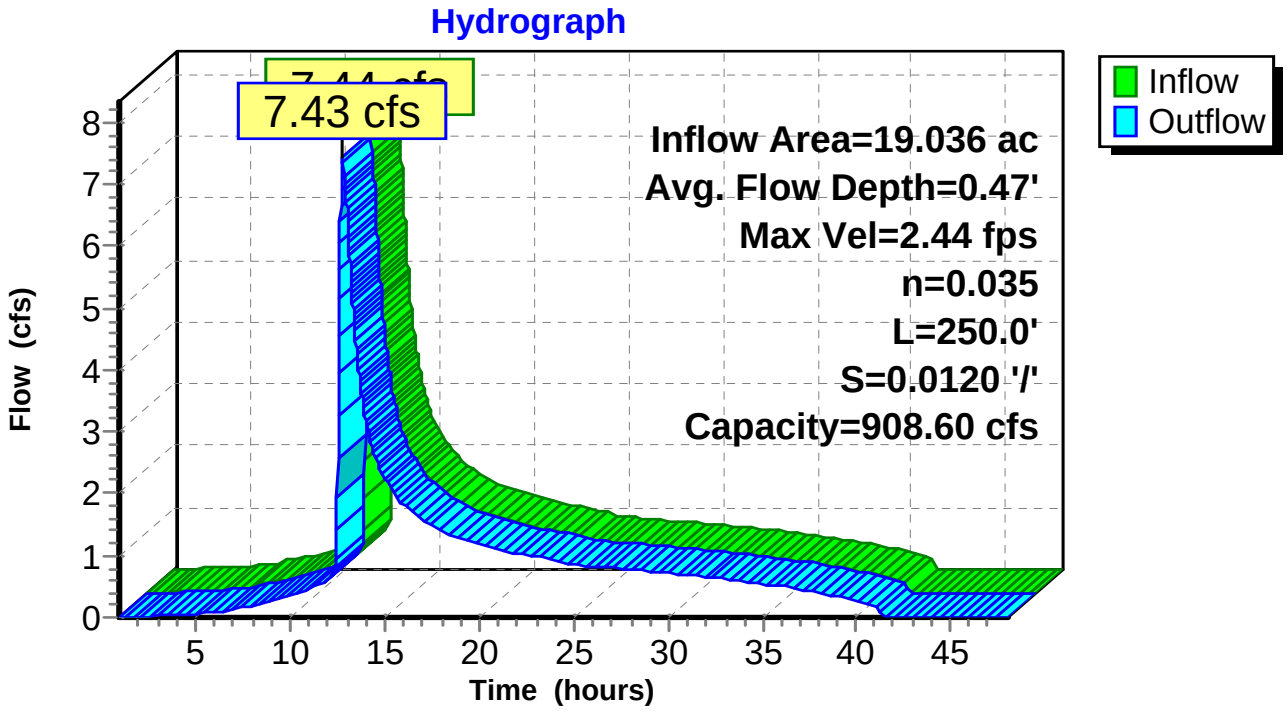
Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 1.82" for 2-yr event
Inflow = 7.44 cfs @ 12.82 hrs, Volume= 2.886 af
Outflow = 7.43 cfs @ 12.84 hrs, Volume= 2.886 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 2.44 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 3.9 min

Peak Storage= 760 cf @ 12.84 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth = 1.82" for 2-yr event
Inflow = 18.67 cfs @ 12.35 hrs, Volume= 2.885 af
Outflow = 7.44 cfs @ 12.82 hrs, Volume= 2.886 af, Atten= 60%, Lag= 28.2 min
Primary = 0.09 cfs @ 12.82 hrs, Volume= 0.001 af
Secondary = 7.36 cfs @ 12.82 hrs, Volume= 2.885 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 106.52' @ 12.82 hrs Surf.Area= 15,909 sf Storage= 43,579 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 344.2 min (1,217.9 - 873.7)

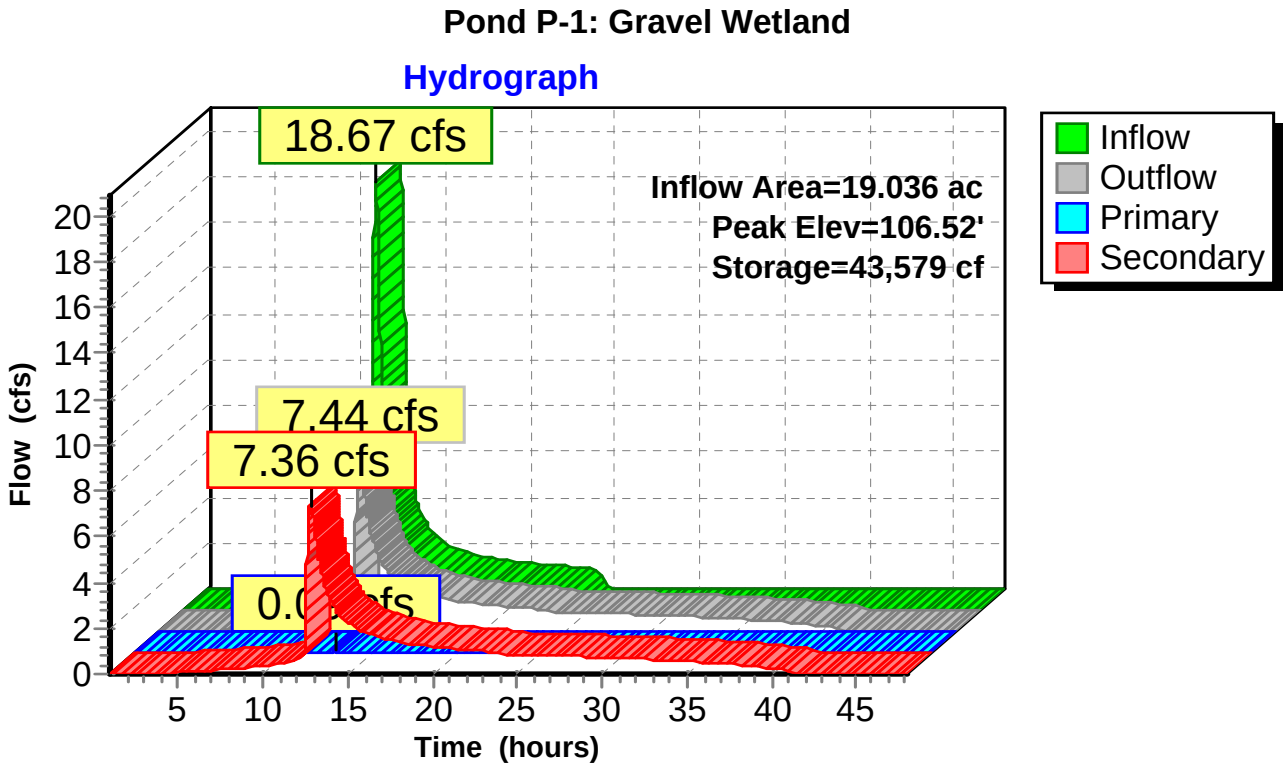
Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=0.09 cfs @ 12.82 hrs HW=106.52' TW=91.47' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 0.09 cfs @ 0.33 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=7.35 cfs @ 12.82 hrs HW=106.52' TW=91.47' (Dynamic Tailwater)
- **3=Culvert** (Passes 7.35 cfs of 7.89 cfs potential flow)
  - **4=Orifice/Grate** (Orifice Controls 0.91 cfs @ 10.42 fps)
  - **5=Broad-Crested Rectangular Weir** (Weir Controls 6.45 cfs @ 2.08 fps)



Summary for Pond P-2: UGSF

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 1.076 ac, 77.91% Impervious, Inflow Depth = 2.42" for 2-yr event
Inflow = 2.86 cfs @ 12.05 hrs, Volume= 0.217 af
Outflow = 0.20 cfs @ 13.47 hrs, Volume= 0.217 af, Atten= 93%, Lag= 85.1 min
Primary = 0.20 cfs @ 13.47 hrs, Volume= 0.217 af
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 110.59' @ 13.47 hrs Surf.Area= 3,551 sf Storage= 3,280 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 144.7 min (953.2 - 808.5)

Volume	Invert	Avail.Storage	Storage Description
#1	109.50'	11,839 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.50	2,471	0	0
112.00	4,950	9,276	9,276
112.50	5,300	2,563	11,839

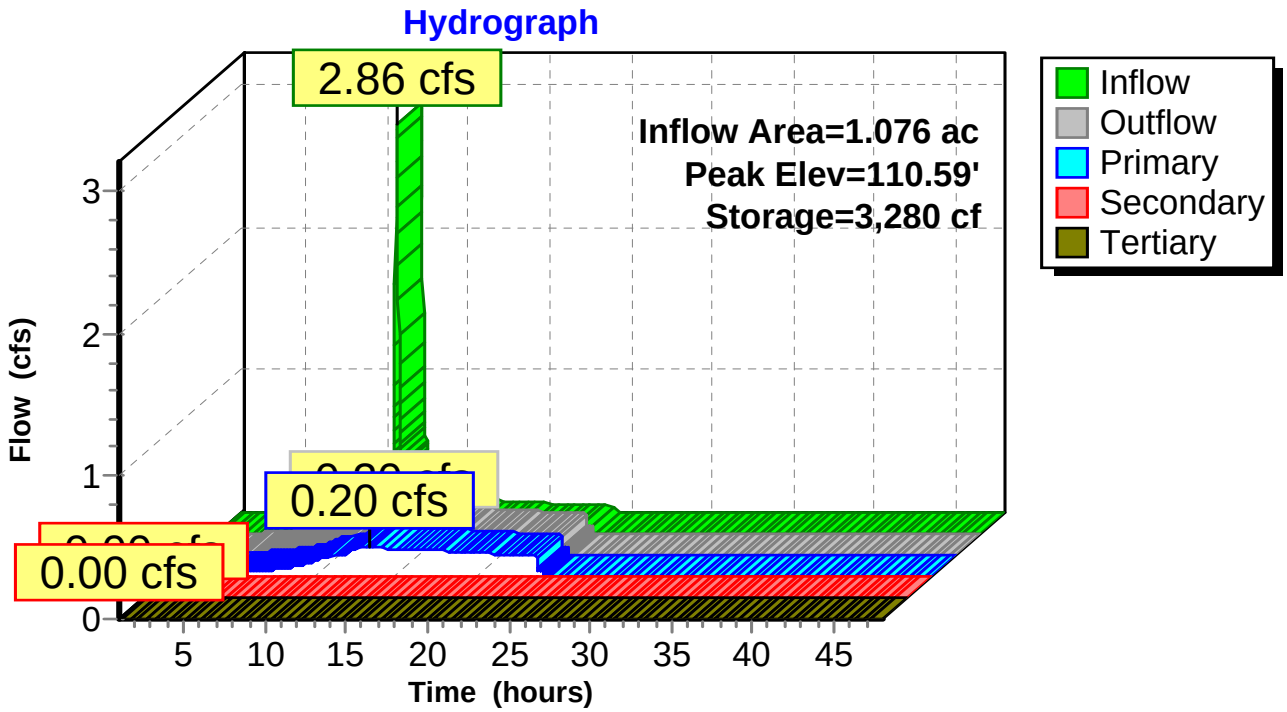
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	111.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	109.50'	**2.410 in/hr Exfiltration over Surface area**
#4	Tertiary	112.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.20 cfs @ 13.47 hrs HW=110.59' TW=106.36' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.20 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 7.91 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
2.86 cfs
0.20 cfs
0.00 cfs
Inflow Area=1.076 ac
Peak Elev=110.59'
Storage=3,280 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
2
3
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=749,173 sf 45.99% Impervious Runoff Depth=3.10"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=31.27 cfs 4.445 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=665' Tc=7.0 min CN=98 Runoff=3.20 cfs 0.284 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=46,872 sf 77.91% Impervious Runoff Depth=3.91"
Tc=7.0 min CN=93 Runoff=4.23 cfs 0.351 af

Reach SP-1: SP-1 Avg. Flow Depth=1.01' Max Vel=3.70 fps Inflow=29.94 cfs 5.079 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=29.86 cfs 5.079 af

Pond P-1: Gravel Wetland Peak Elev=107.10' Storage=53,394 cf Inflow=32.91 cfs 5.079 af
Primary=21.54 cfs 0.888 af Secondary=8.40 cfs 4.191 af Outflow=29.94 cfs 5.079 af

Pond P-2: UGSF Peak Elev=111.09' Storage=5,182 cf Inflow=4.23 cfs 0.351 af
Primary=0.23 cfs 0.311 af Secondary=0.71 cfs 0.040 af Tertiary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.351 af

Total Runoff Area = 19.036 ac Runoff Volume = 5.079 af Average Runoff Depth = 3.20"
50.05% Pervious = 9.527 ac 49.95% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

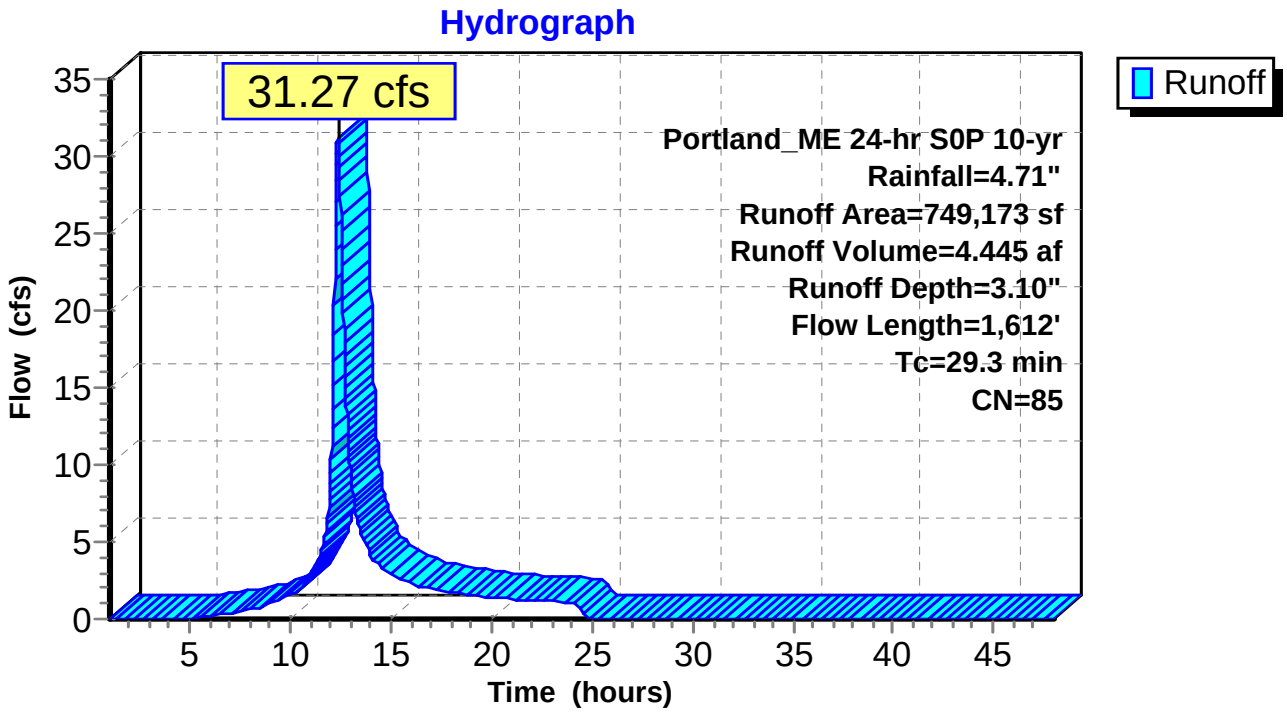
Runoff = 31.27 cfs @ 12.35 hrs, Volume= 4.445 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

Area (sf)	CN	Description
344,540	98	Paved parking & roofs
404,633	74	>75% Grass cover, Good, HSG C
749,173	85	Weighted Average
404,633		54.01% Pervious Area
344,540		45.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

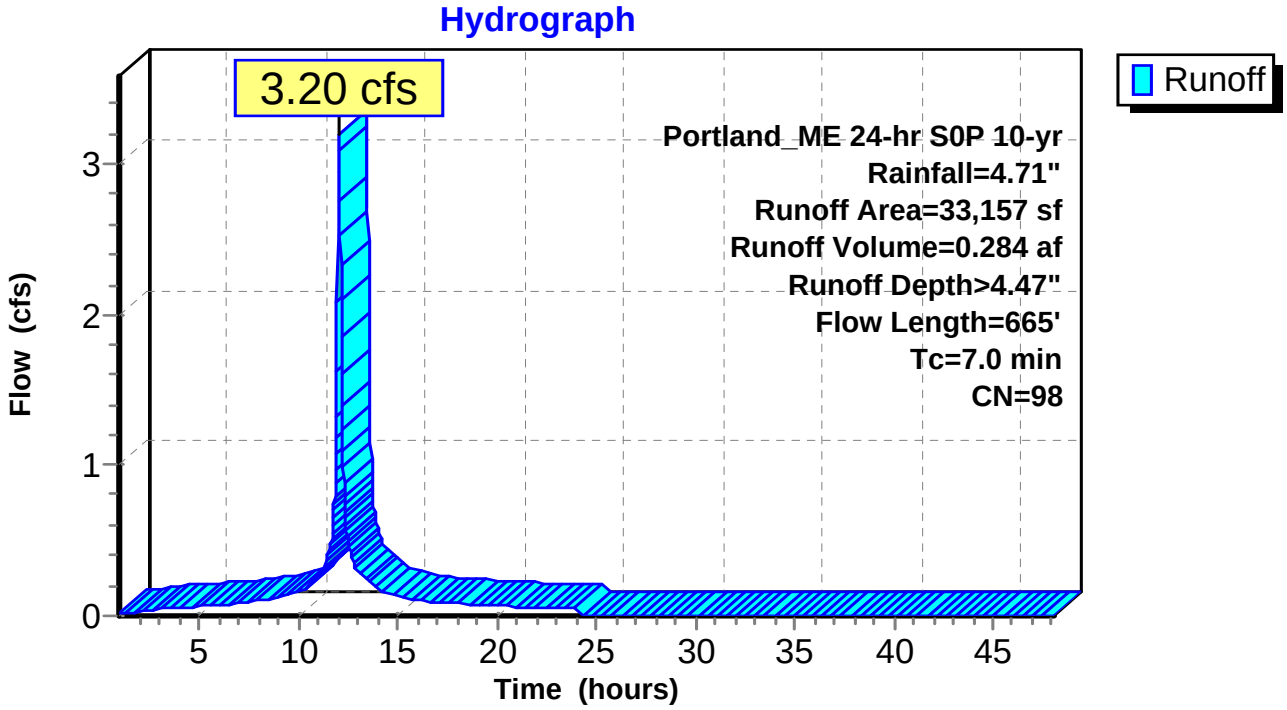
Runoff = 3.20 cfs @ 12.05 hrs, Volume= 0.284 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

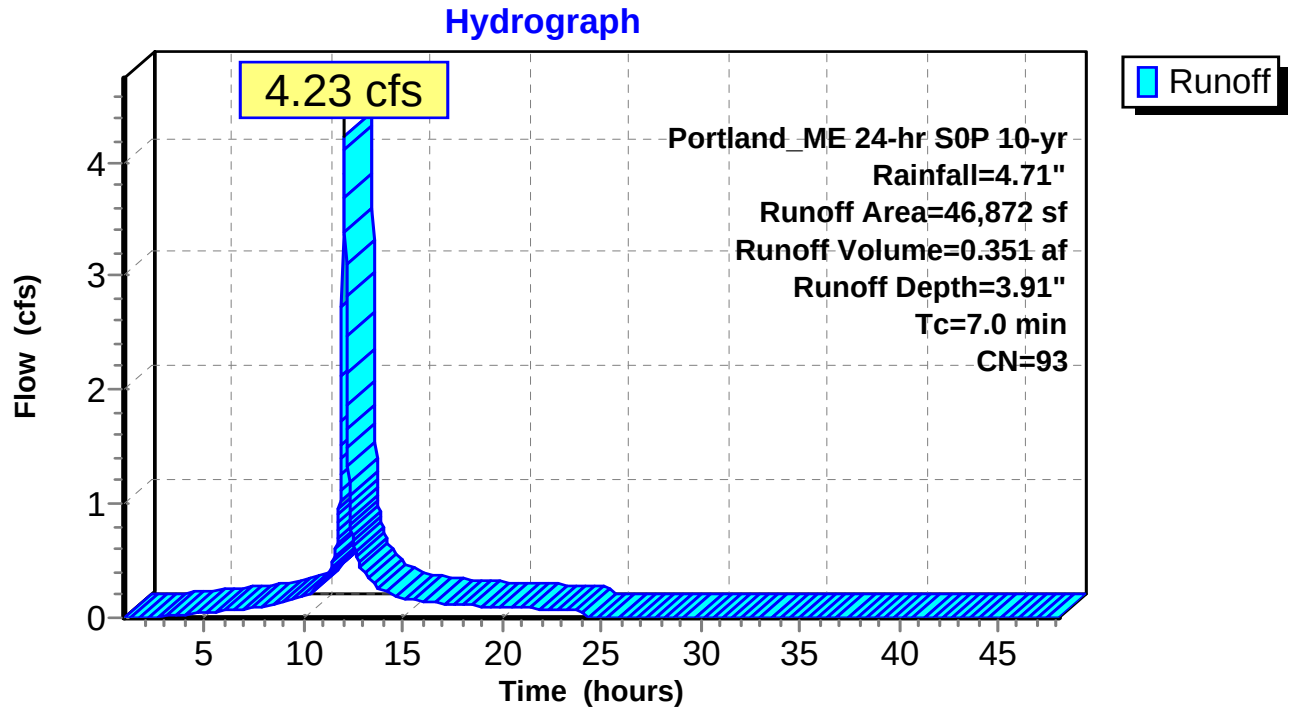
Runoff = 4.23 cfs @ 12.05 hrs, Volume= 0.351 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 10-yr Rainfall=4.71"

	Area (sf)	CN	Description
*	36,516	98	
*	10,356	75	
	46,872	93	Weighted Average
	10,356		22.09% Pervious Area
	36,516		77.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

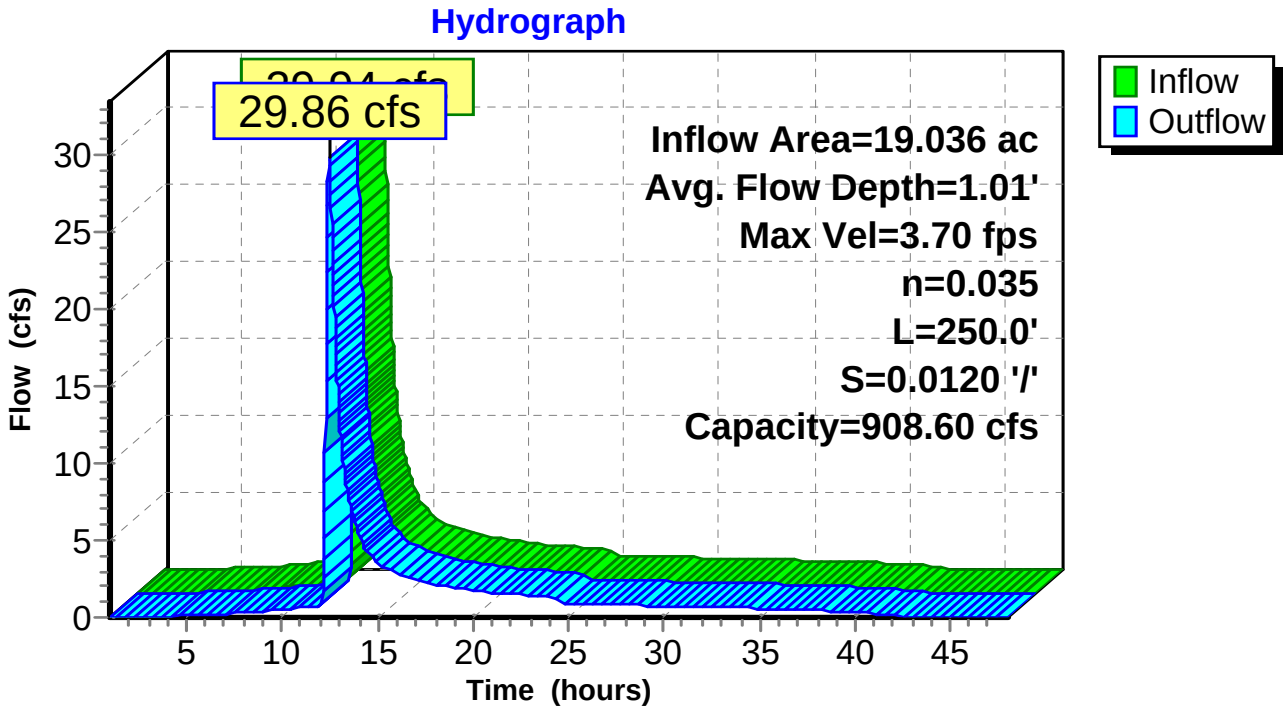
Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 3.20" for 10-yr event
Inflow = 29.94 cfs @ 12.46 hrs, Volume= 5.079 af
Outflow = 29.86 cfs @ 12.47 hrs, Volume= 5.079 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 3.70 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 3.5 min

Peak Storage= 2,016 cf @ 12.47 hrs
Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 3.20" for 10-yr event
Inflow = 32.91 cfs @ 12.35 hrs, Volume= 5.079 af
Outflow = 29.94 cfs @ 12.46 hrs, Volume= 5.079 af, Atten= 9%, Lag= 6.7 min
Primary = 21.54 cfs @ 12.46 hrs, Volume= 0.888 af
Secondary = 8.40 cfs @ 12.46 hrs, Volume= 4.191 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.10' @ 12.46 hrs Surf.Area= 17,668 sf Storage= 53,394 cf

Plug-Flow detention time= 219.2 min calculated for 5.077 af (100% of inflow)
Center-of-Mass det. time= 219.5 min (1,072.2 - 852.7)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

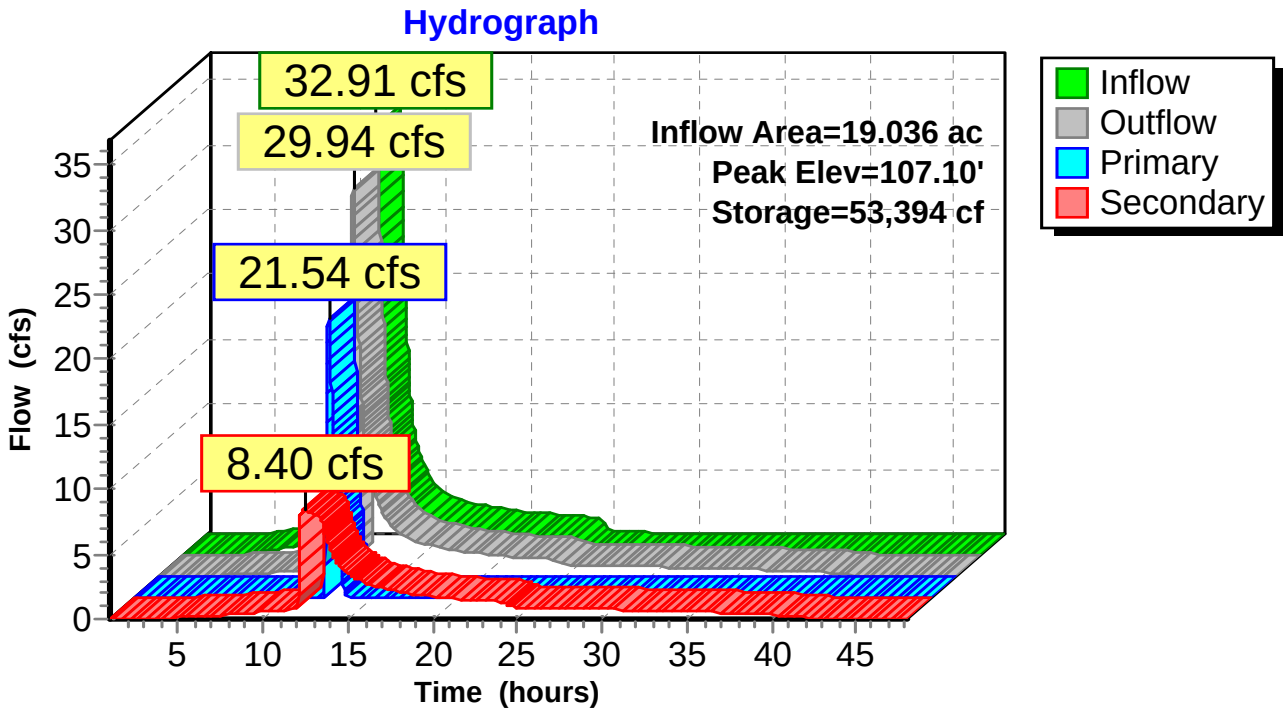
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=21.52 cfs @ 12.46 hrs HW=107.10' TW=92.00' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 18.99 cfs @ 2.10 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 2.53 cfs @ 0.76 fps)

Secondary OutFlow Max=8.40 cfs @ 12.46 hrs HW=107.10' TW=92.00' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.40 cfs @ 10.69 fps)
  - **4=Orifice/Grate** (Passes < 0.96 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 22.27 cfs potential flow)

Pond P-1: Gravel Wetland



Summary for Pond P-2: UGSF

Inflow Area = 1.076 ac, 77.91% Impervious, Inflow Depth = 3.91" for 10-yr event
Inflow = 4.23 cfs @ 12.05 hrs, Volume= 0.351 af
Outflow = 0.93 cfs @ 12.36 hrs, Volume= 0.351 af, Atten= 78%, Lag= 18.6 min
Primary = 0.23 cfs @ 12.36 hrs, Volume= 0.311 af
Secondary = 0.71 cfs @ 12.36 hrs, Volume= 0.040 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 111.09' @ 12.36 hrs Surf.Area= 4,048 sf Storage= 5,182 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 192.0 min (981.5 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	109.50'	11,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.50	2,471	0	0
112.00	4,950	9,276	9,276
112.50	5,300	2,563	11,839

Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	111.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	109.50'	**2.410 in/hr Exfiltration over Surface area**
#4	Tertiary	112.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

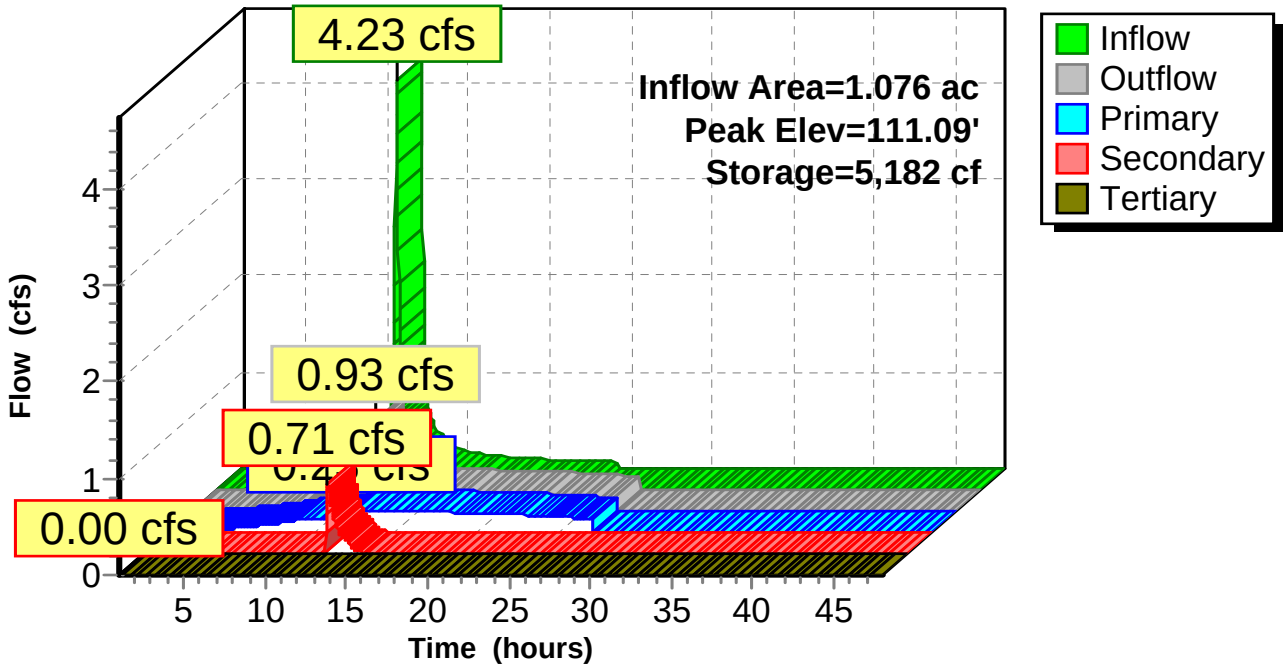
Primary OutFlow Max=0.23 cfs @ 12.36 hrs HW=111.09' TW=107.03' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=0.71 cfs @ 12.36 hrs HW=111.09' TW=107.03' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.71 cfs of 9.40 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 0.71 cfs @ 0.98 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF

Hydrograph



Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=749,173 sf 45.99% Impervious Runoff Depth=4.23"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=41.47 cfs 6.058 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>5.68"
Flow Length=665' Tc=7.0 min CN=98 Runoff=3.83 cfs 0.360 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=46,872 sf 77.91% Impervious Runoff Depth=5.10"
Tc=7.0 min CN=93 Runoff=5.18 cfs 0.458 af

Reach SP-1: SP-1 Avg. Flow Depth=1.22' Max Vel=4.10 fps Inflow=43.26 cfs 6.876 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=43.20 cfs 6.876 af

Pond P-1: Gravel Wetland Peak Elev=107.24' Storage=55,836 cf Inflow=44.26 cfs 6.876 af
Primary=34.74 cfs 1.832 af Secondary=8.52 cfs 5.045 af Outflow=43.26 cfs 6.876 af

Pond P-2: UGSF Peak Elev=111.23' Storage=5,751 cf Inflow=5.18 cfs 0.458 af
Primary=0.23 cfs 0.346 af Secondary=2.85 cfs 0.112 af Tertiary=0.00 cfs 0.000 af Outflow=3.08 cfs 0.458 af

Total Runoff Area = 19.036 ac Runoff Volume = 6.876 af Average Runoff Depth = 4.33"
50.05% Pervious = 9.527 ac 49.95% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

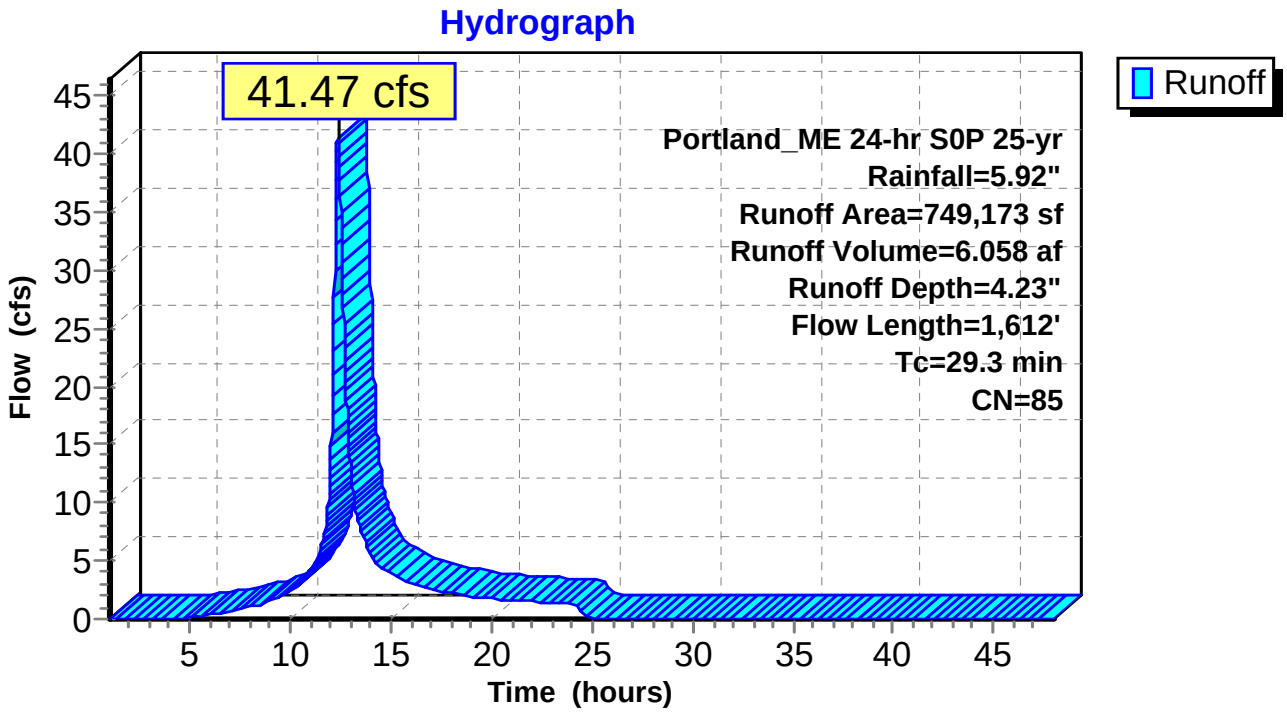
Runoff = 41.47 cfs @ 12.35 hrs, Volume= 6.058 af, Depth= 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

Area (sf)	CN	Description
344,540	98	Paved parking & roofs
404,633	74	>75% Grass cover, Good, HSG C
749,173	85	Weighted Average
404,633		54.01% Pervious Area
344,540		45.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

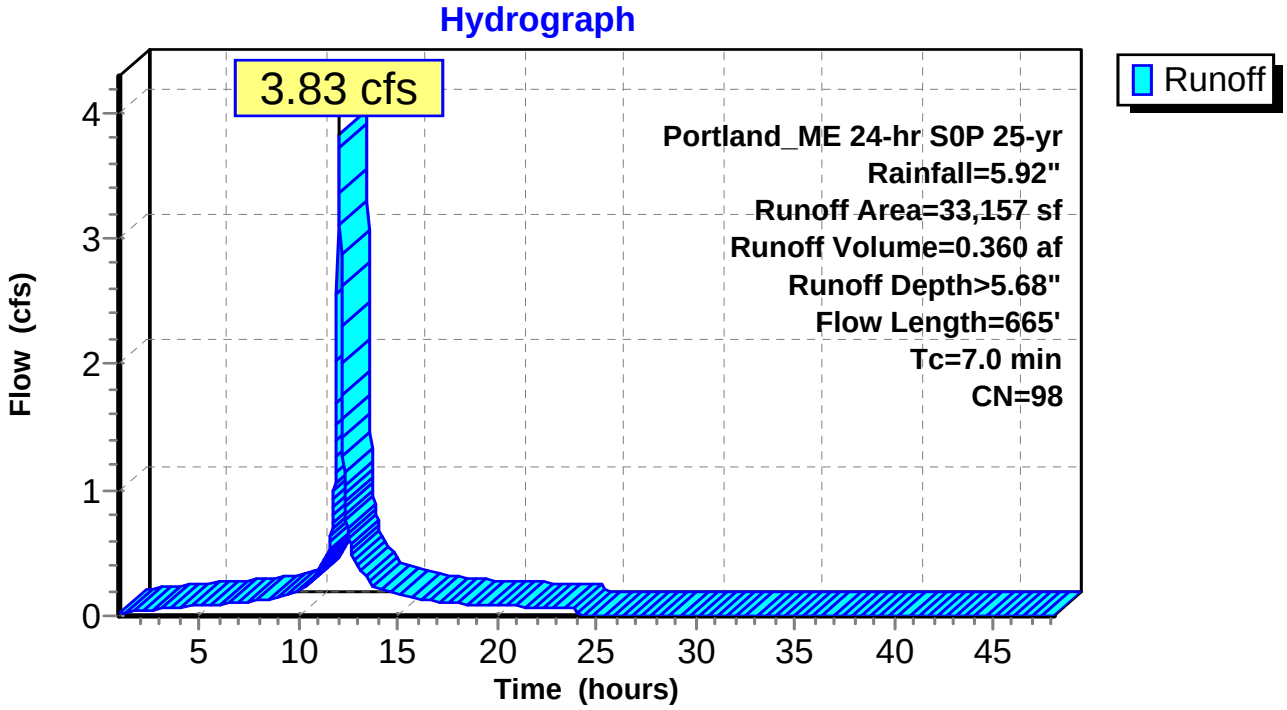
Runoff = 3.83 cfs @ 12.05 hrs, Volume= 0.360 af, Depth> 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

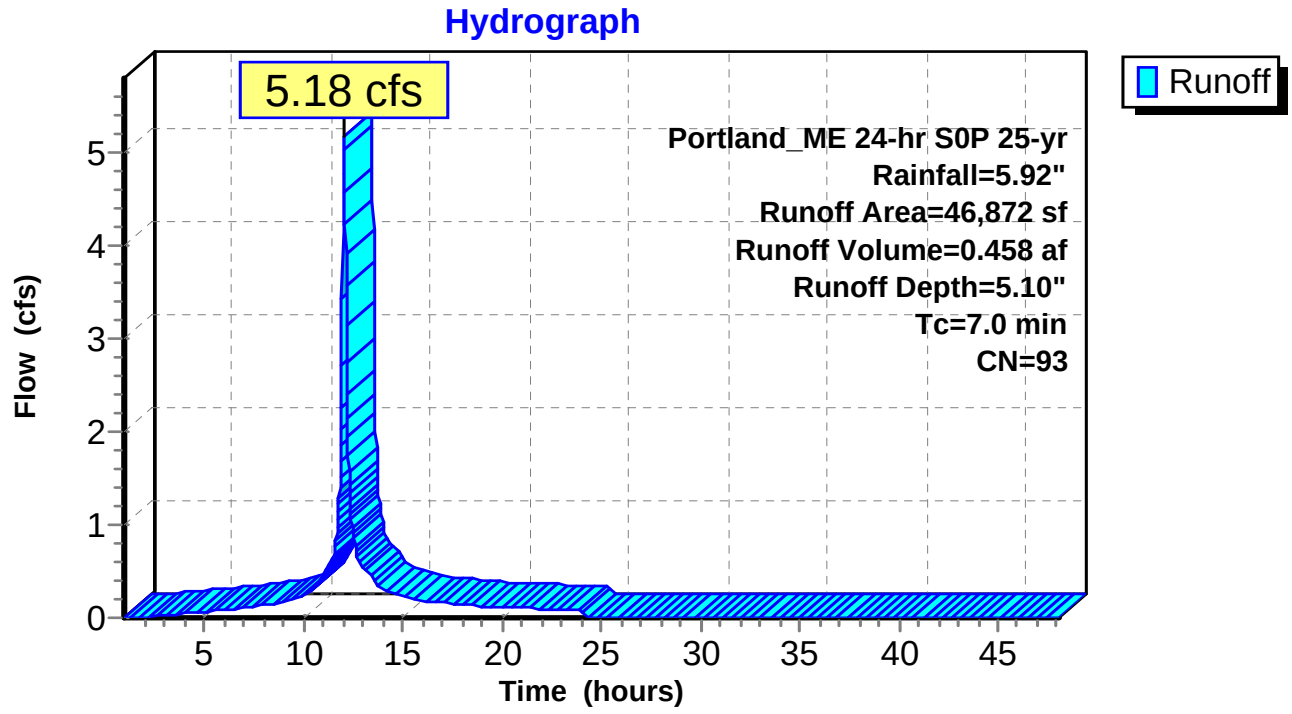
Runoff = 5.18 cfs @ 12.05 hrs, Volume= 0.458 af, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 25-yr Rainfall=5.92"

	Area (sf)	CN	Description
*	36,516	98	
*	10,356	75	
	46,872	93	Weighted Average
	10,356		22.09% Pervious Area
	36,516		77.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

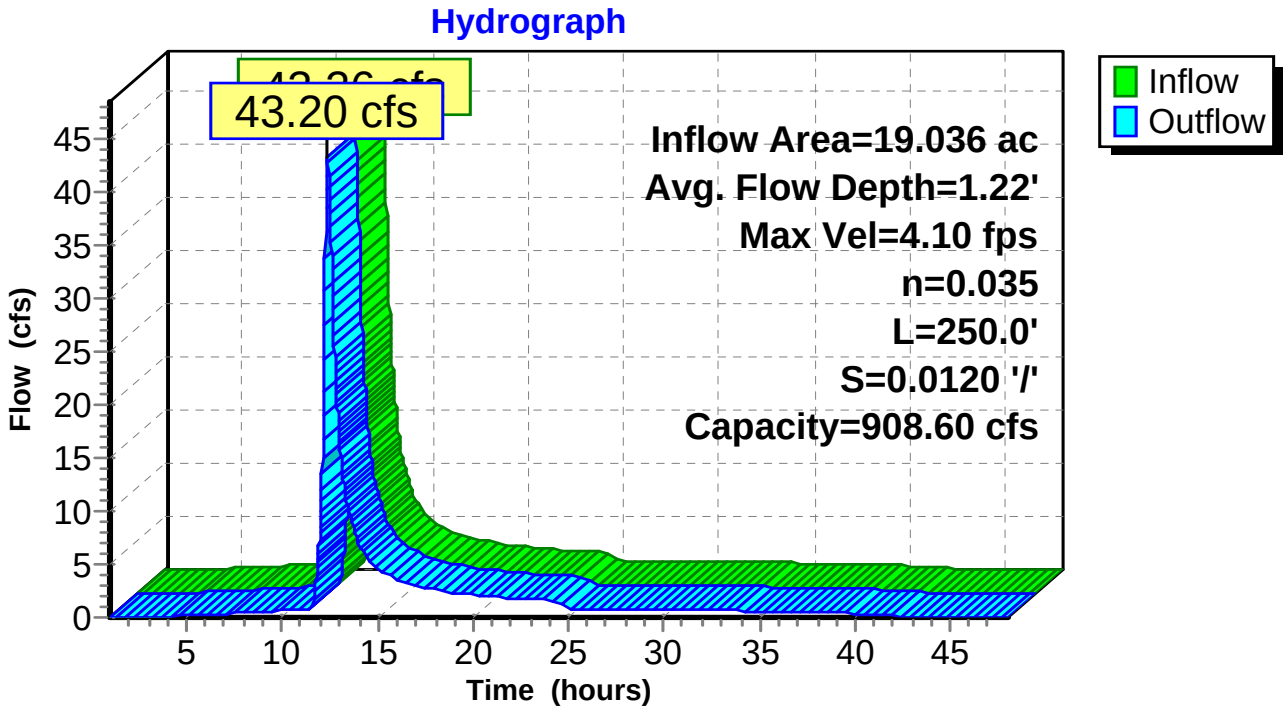
Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 4.33" for 25-yr event
Inflow = 43.26 cfs @ 12.39 hrs, Volume= 6.876 af
Outflow = 43.20 cfs @ 12.40 hrs, Volume= 6.876 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.10 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 3.3 min

Peak Storage= 2,631 cf @ 12.40 hrs
Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 4.33" for 25-yr event
Inflow = 44.26 cfs @ 12.34 hrs, Volume= 6.876 af
Outflow = 43.26 cfs @ 12.39 hrs, Volume= 6.876 af, Atten= 2%, Lag= 3.1 min
Primary = 34.74 cfs @ 12.39 hrs, Volume= 1.832 af
Secondary = 8.52 cfs @ 12.39 hrs, Volume= 5.045 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.24' @ 12.39 hrs Surf.Area= 18,184 sf Storage= 55,836 cf

Plug-Flow detention time= 173.3 min calculated for 6.873 af (100% of inflow)
Center-of-Mass det. time= 173.6 min (1,012.8 - 839.2)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

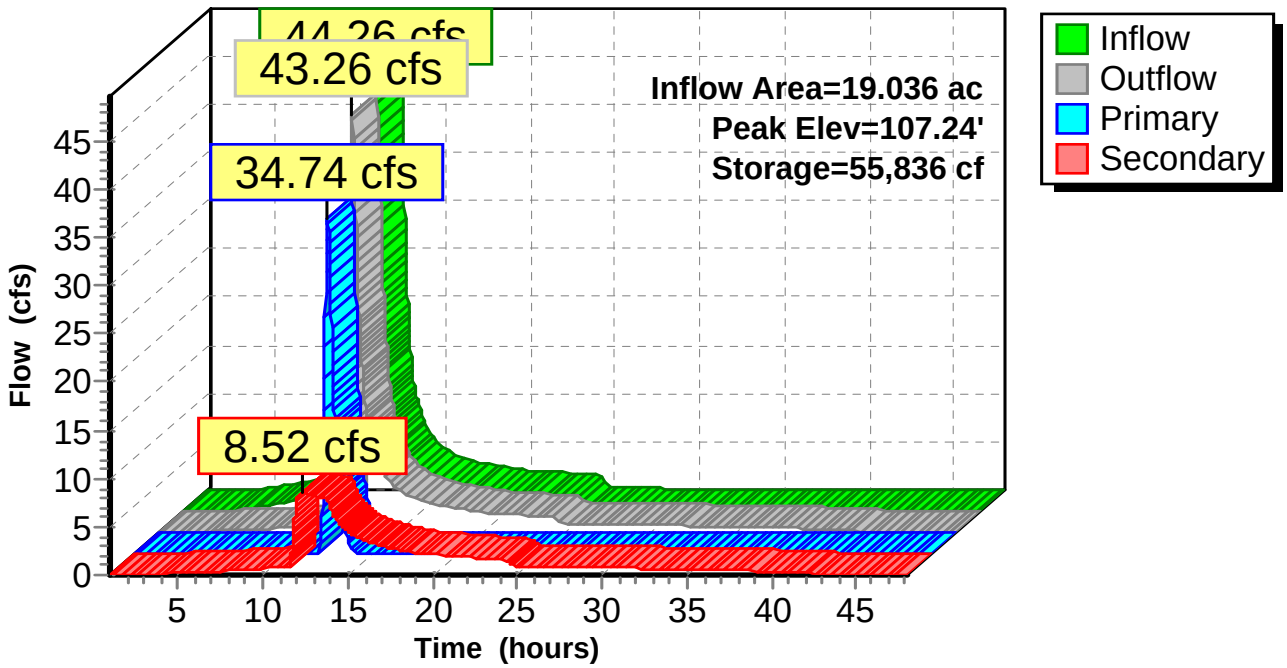
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=34.71 cfs @ 12.39 hrs HW=107.24' TW=92.22' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 25.70 cfs @ 2.32 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 9.01 cfs @ 1.17 fps)

Secondary OutFlow Max=8.51 cfs @ 12.39 hrs HW=107.24' TW=92.22' (Dynamic Tailwater)
└─**3=Culvert** (Inlet Controls 8.51 cfs @ 10.84 fps)
└─**4=Orifice/Grate** (Passes < 0.98 cfs potential flow)
└─**5=Broad-Crested Rectangular Weir** (Passes < 26.75 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 1.076 ac, 77.91% Impervious, Inflow Depth = 5.10" for 25-yr event
Inflow = 5.18 cfs @ 12.05 hrs, Volume= 0.458 af
Outflow = 3.08 cfs @ 12.18 hrs, Volume= 0.458 af, Atten= 40%, Lag= 8.0 min
Primary = 0.23 cfs @ 12.18 hrs, Volume= 0.346 af
Secondary = 2.85 cfs @ 12.18 hrs, Volume= 0.112 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 111.23' @ 12.18 hrs Surf.Area= 4,185 sf Storage= 5,751 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 171.5 min (952.0 - 780.4)

Volume	Invert	Avail.Storage	Storage Description
#1	109.50'	11,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.50	2,471	0	0
112.00	4,950	9,276	9,276
112.50	5,300	2,563	11,839

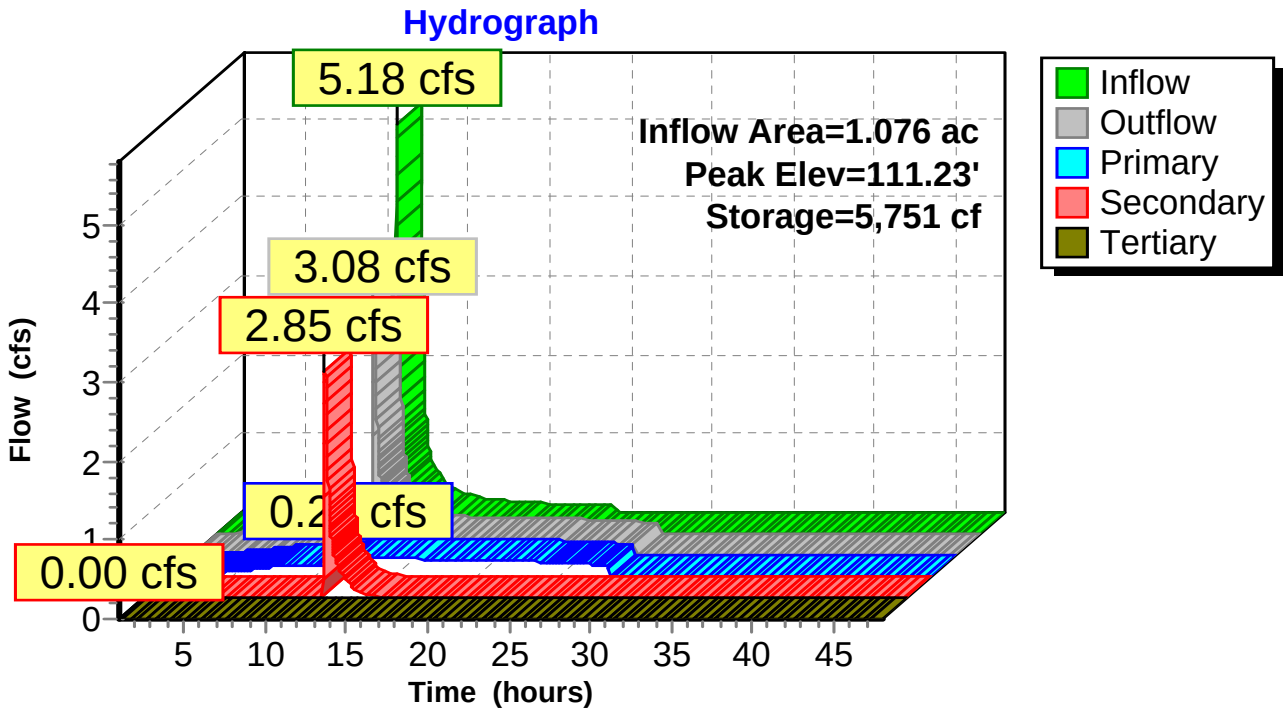
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	111.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	109.50'	**2.410 in/hr Exfiltration over Surface area**
#4	Tertiary	112.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.23 cfs @ 12.18 hrs HW=111.23' TW=107.03' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=2.84 cfs @ 12.18 hrs HW=111.23' TW=107.03' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.84 cfs of 9.56 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 2.84 cfs @ 1.56 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
5.18 cfs
3.08 cfs
2.85 cfs
0.2 cfs
0.00 cfs
Inflow Area=1.076 ac
Peak Elev=111.23'
Storage=5,751 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
1
2
3
4
5
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=749,173 sf 45.99% Impervious Runoff Depth=8.13"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=74.54 cfs 11.646 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>9.71"
Flow Length=665' Tc=7.0 min CN=98 Runoff=5.93 cfs 0.616 af

Subcatchment S-4: Underdrained Soil Filter Runoff Area=46,872 sf 77.91% Impervious Runoff Depth=9.12"
Tc=7.0 min CN=93 Runoff=8.23 cfs 0.818 af

Reach SP-1: SP-1 Avg. Flow Depth=1.64' Max Vel=4.83 fps Inflow=78.78 cfs 13.080 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=78.71 cfs 13.080 af

Pond P-1: Gravel Wetland Peak Elev=107.50' Storage=60,739 cf Inflow=79.54 cfs 13.080 af
Primary=70.05 cfs 5.423 af Secondary=8.73 cfs 7.657 af Outflow=78.78 cfs 13.080 af

Pond P-2: UGSF Peak Elev=111.42' Storage=6,577 cf Inflow=8.23 cfs 0.818 af
Primary=0.24 cfs 0.426 af Secondary=7.15 cfs 0.392 af Tertiary=0.00 cfs 0.000 af Outflow=7.39 cfs 0.818 af

Total Runoff Area = 19.036 ac Runoff Volume = 13.080 af Average Runoff Depth = 8.25"
50.05% Pervious = 9.527 ac 49.95% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

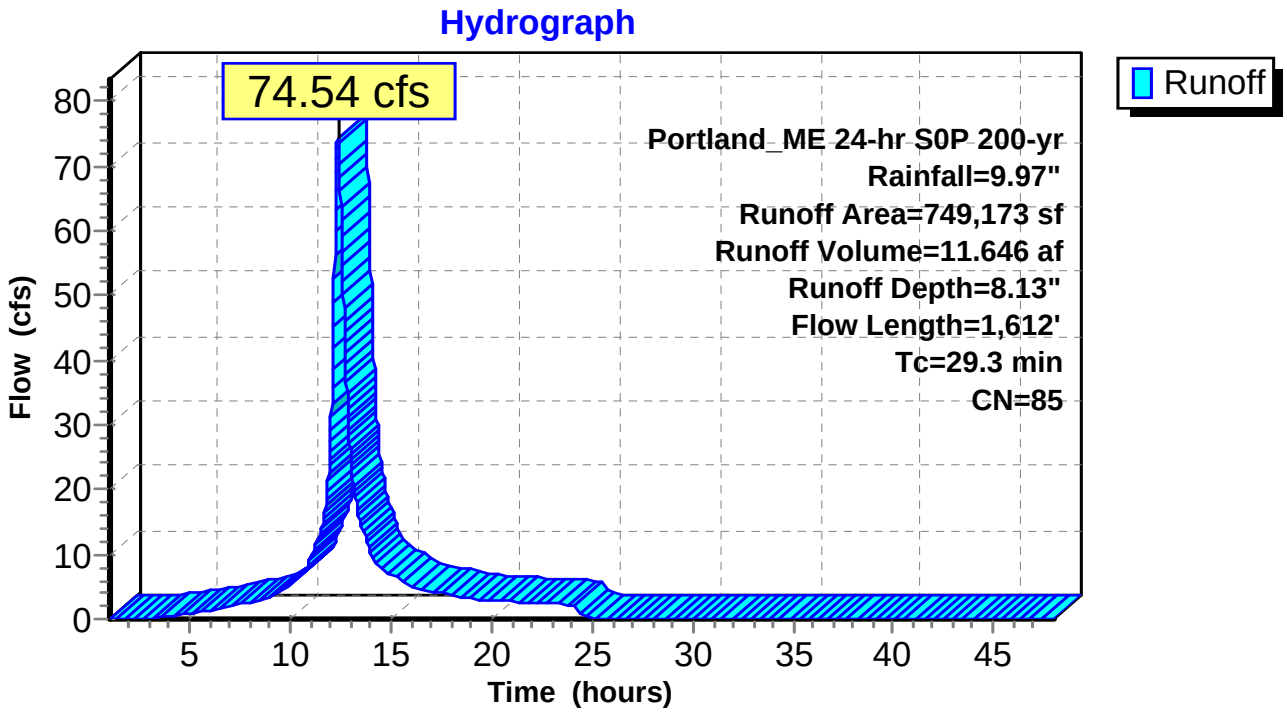
Runoff = 74.54 cfs @ 12.35 hrs, Volume= 11.646 af, Depth= 8.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

Area (sf)	CN	Description
344,540	98	Paved parking & roofs
404,633	74	>75% Grass cover, Good, HSG C
749,173	85	Weighted Average
404,633		54.01% Pervious Area
344,540		45.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

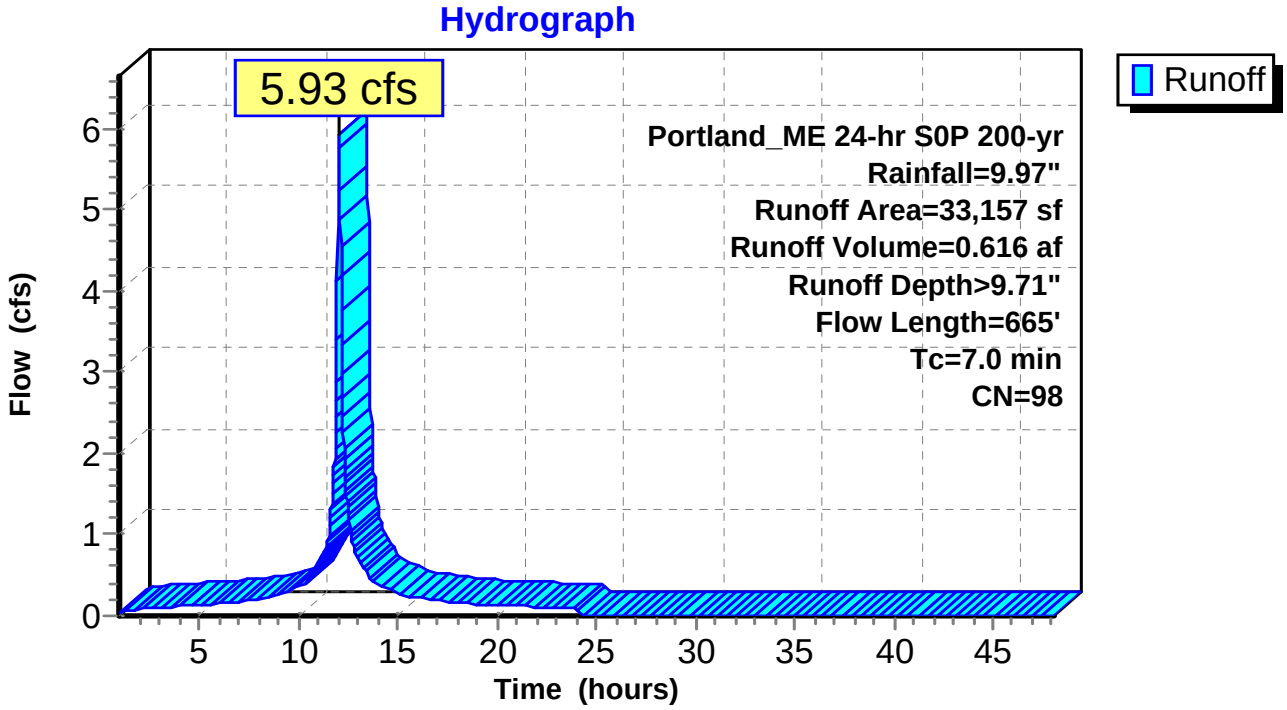
Runoff = 5.93 cfs @ 12.05 hrs, Volume= 0.616 af, Depth> 9.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

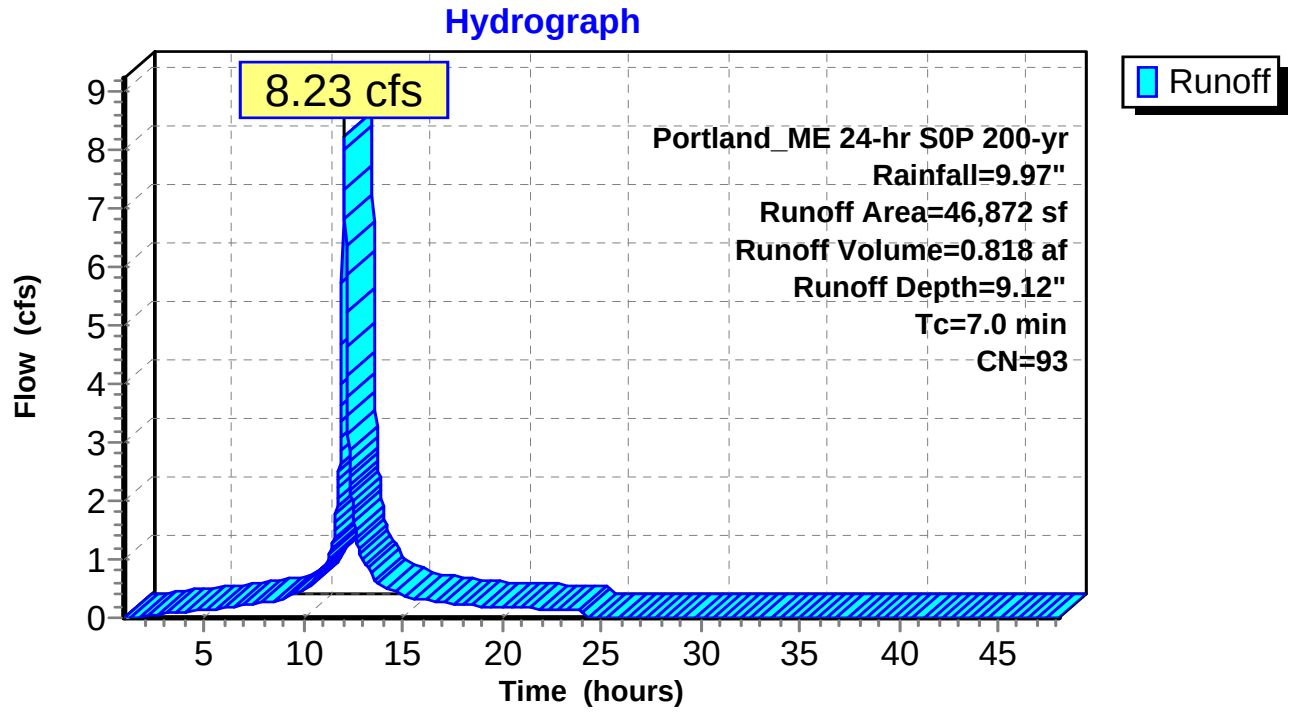
Runoff = 8.23 cfs @ 12.05 hrs, Volume= 0.818 af, Depth= 9.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 200-yr Rainfall=9.97"

	Area (sf)	CN	Description
*	36,516	98	
*	10,356	75	
	46,872	93	Weighted Average
	10,356		22.09% Pervious Area
	36,516		77.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



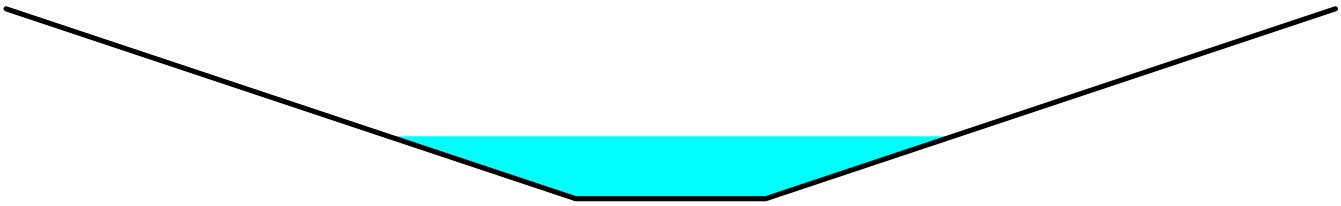
Summary for Reach SP-1: SP-1

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 8.25" for 200-yr event
Inflow = 78.78 cfs @ 12.37 hrs, Volume= 13.080 af
Outflow = 78.71 cfs @ 12.38 hrs, Volume= 13.080 af, Atten= 0%, Lag= 0.7 min

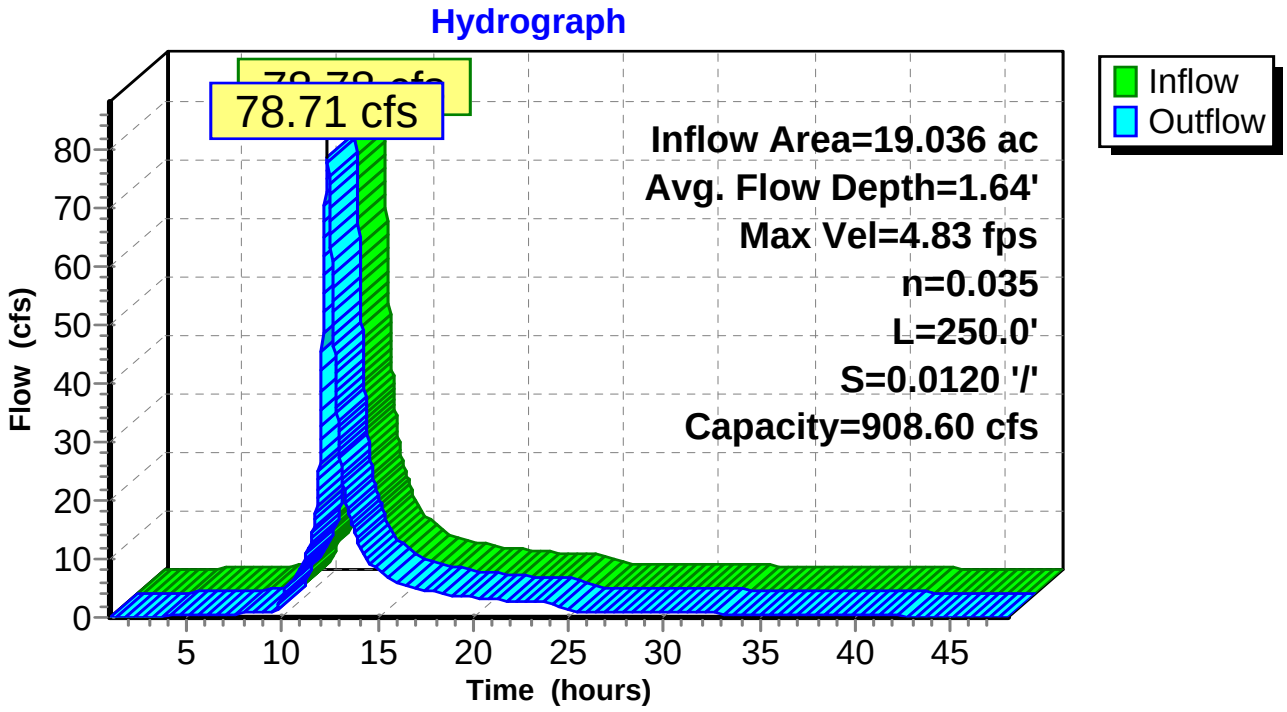
Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 4.83 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.45 fps, Avg. Travel Time= 2.9 min

Peak Storage= 4,072 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.64'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'



Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 8.25" for 200-yr event
Inflow = 79.54 cfs @ 12.34 hrs, Volume= 13.080 af
Outflow = 78.78 cfs @ 12.37 hrs, Volume= 13.080 af, Atten= 1%, Lag= 1.9 min
Primary = 70.05 cfs @ 12.37 hrs, Volume= 5.423 af
Secondary = 8.73 cfs @ 12.37 hrs, Volume= 7.657 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.50' @ 12.37 hrs Surf.Area= 19,200 sf Storage= 60,739 cf

Plug-Flow detention time= 106.8 min calculated for 13.075 af (100% of inflow)
Center-of-Mass det. time= 107.0 min (920.6 - 813.5)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

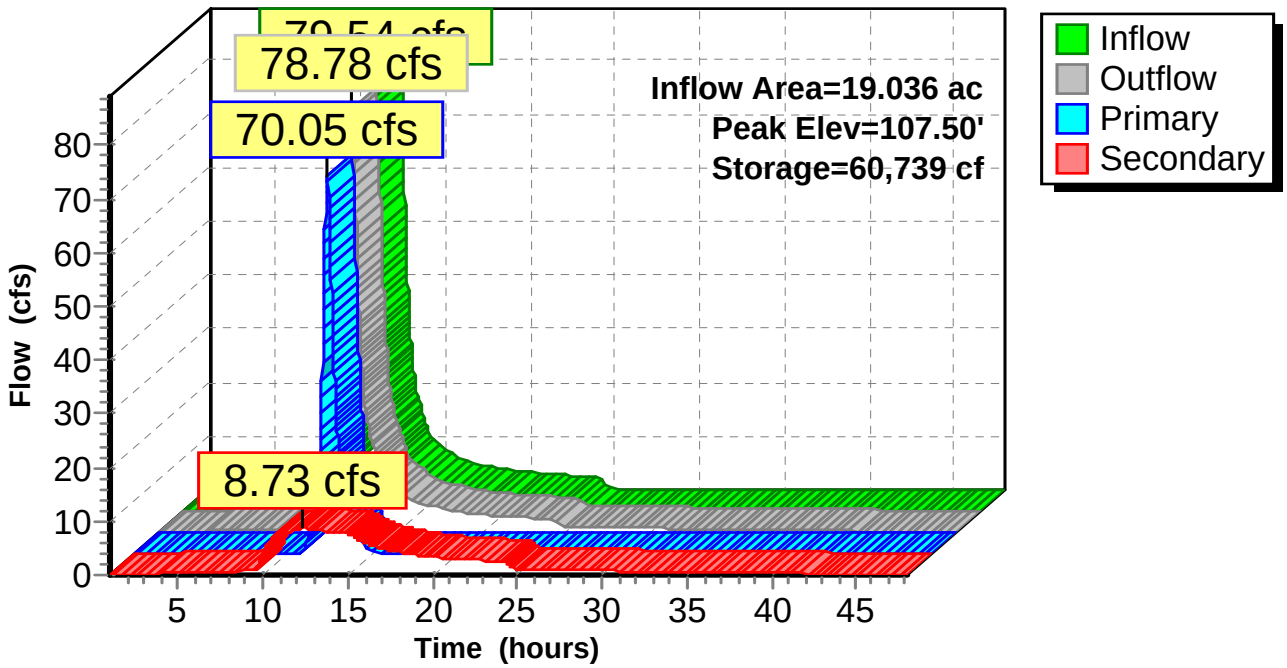
Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=69.99 cfs @ 12.37 hrs HW=107.50' TW=92.64' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 40.32 cfs @ 2.68 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 29.67 cfs @ 1.85 fps)

Secondary OutFlow Max=8.73 cfs @ 12.37 hrs HW=107.50' TW=92.64' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.73 cfs @ 11.12 fps)
  - **4=Orifice/Grate** (Passes < 1.00 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 36.28 cfs potential flow)

Pond P-1: Gravel Wetland

Hydrograph



Summary for Pond P-2: UGSF

Inflow Area = 1.076 ac, 77.91% Impervious, Inflow Depth = 9.12" for 200-yr event
Inflow = 8.23 cfs @ 12.05 hrs, Volume= 0.818 af
Outflow = 7.39 cfs @ 12.10 hrs, Volume= 0.818 af, Atten= 10%, Lag= 2.9 min
Primary = 0.24 cfs @ 12.10 hrs, Volume= 0.426 af
Secondary = 7.15 cfs @ 12.10 hrs, Volume= 0.392 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 111.42' @ 12.10 hrs Surf.Area= 4,376 sf Storage= 6,577 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 132.9 min (896.3 - 763.5)

Volume	Invert	Avail.Storage	Storage Description
#1	109.50'	11,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.50	2,471	0	0
112.00	4,950	9,276	9,276
112.50	5,300	2,563	11,839

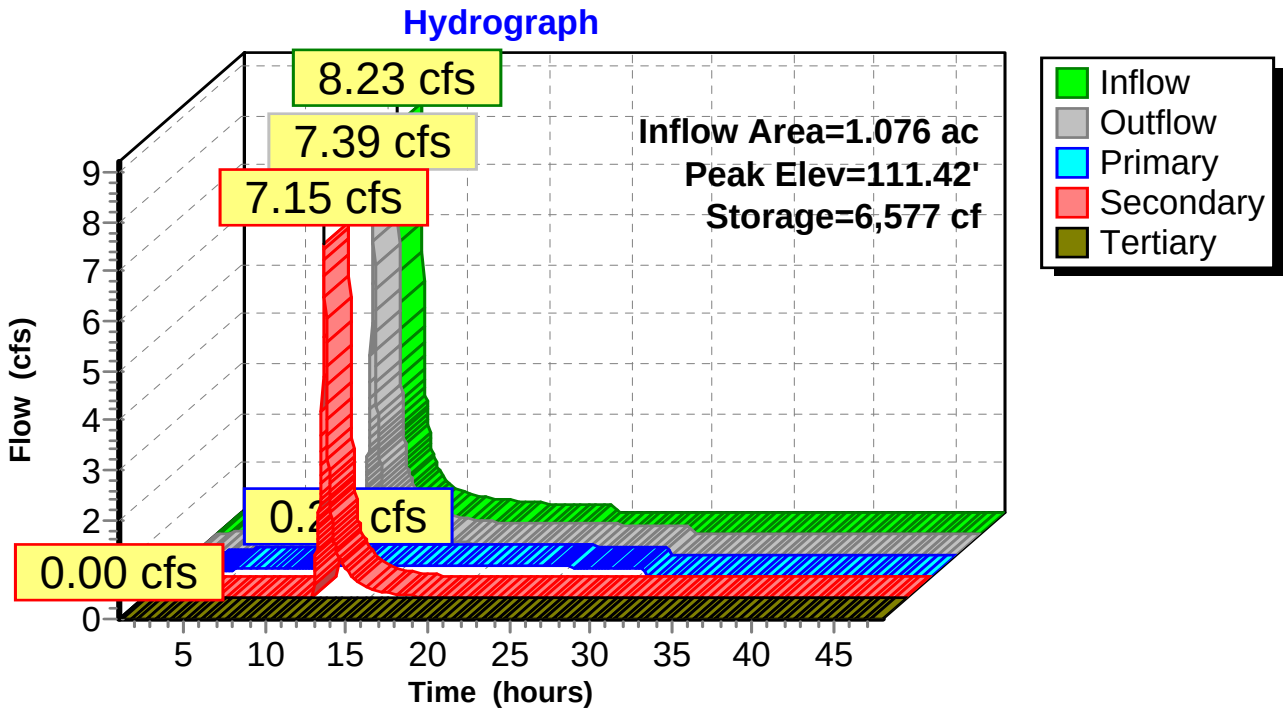
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	111.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	109.50'	**2.410 in/hr Exfiltration over Surface area**
#4	Tertiary	112.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.24 cfs @ 12.10 hrs HW=111.42' TW=107.28' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=7.14 cfs @ 12.10 hrs HW=111.42' TW=107.28' (Dynamic Tailwater)
└**1=Culvert** (Passes 7.14 cfs of 9.50 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 7.14 cfs @ 2.12 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
8.23 cfs
7.39 cfs
7.15 cfs
0.2 cfs
0.00 cfs
Inflow Area=1.076 ac
Peak Elev=111.42'
Storage=6,577 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
2
3
4
5
6
7
8
9
5
10
15
20
25
30
35
40
45
Time (hours)

Time span=1.00-48.00 hrs, dt=0.02 hrs, 2351 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2: No Treatment, to Runoff Area=749,173 sf 45.99% Impervious Runoff Depth=10.66"
Flow Length=1,612' Tc=29.3 min CN=85 Runoff=95.29 cfs 15.272 af

Subcatchment S-3: Roof Tributary Area Runoff Area=33,157 sf 100.00% Impervious Runoff Depth>12.28"
Flow Length=665' Tc=7.0 min CN=98 Runoff=7.22 cfs 0.779 af

Subcatchment S-4: Underdrained Soil Runoff Area=46,872 sf 77.91% Impervious Runoff Depth=11.69"
Tc=7.0 min CN=93 Runoff=10.08 cfs 1.048 af

Reach SP-1: SP-1 Avg. Flow Depth=1.85' Max Vel=5.16 fps Inflow=100.80 cfs 17.099 af
n=0.035 L=250.0' S=0.0120 '/' Capacity=908.60 cfs Outflow=100.72 cfs 17.099 af

Pond P-1: Gravel Wetland Peak Elev=107.63' Storage=63,269 cf Inflow=101.67 cfs 17.099 af
Primary=91.96 cfs 8.098 af Secondary=8.84 cfs 9.001 af Outflow=100.80 cfs 17.099 af

Pond P-2: UGSF Peak Elev=111.49' Storage=6,875 cf Inflow=10.08 cfs 1.048 af
Primary=0.25 cfs 0.457 af Secondary=8.94 cfs 0.591 af Tertiary=0.00 cfs 0.000 af Outflow=9.18 cfs 1.048 af

Total Runoff Area = 19.036 ac Runoff Volume = 17.098 af Average Runoff Depth = 10.78"
50.05% Pervious = 9.527 ac 49.95% Impervious = 9.509 ac

Summary for Subcatchment S-2: No Treatment, to Gravel Wetland

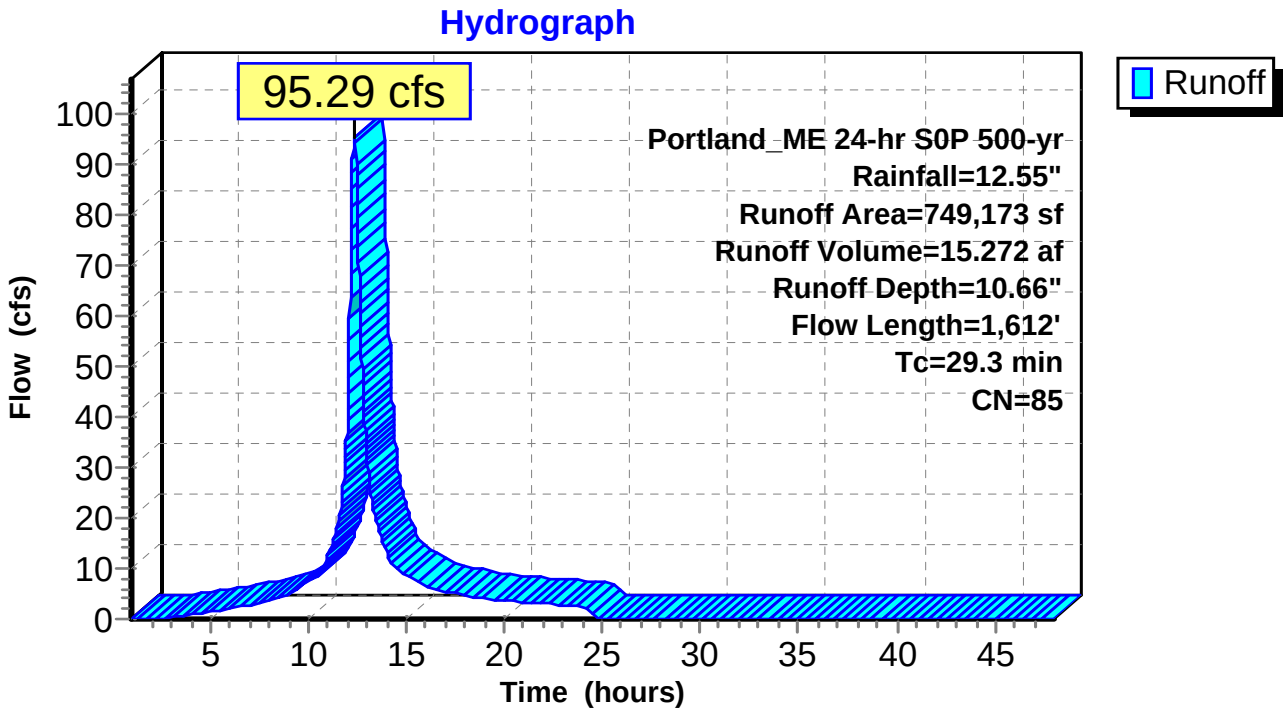
Runoff = 95.29 cfs @ 12.35 hrs, Volume= 15.272 af, Depth=10.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

Area (sf)	CN	Description
344,540	98	Paved parking & roofs
404,633	74	>75% Grass cover, Good, HSG C
749,173	85	Weighted Average
404,633		54.01% Pervious Area
344,540		45.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	285	0.0150	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.60"
5.3	1,327	0.0050	4.20	7.43	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
29.3	1,612	Total			

Subcatchment S-2: No Treatment, to Gravel Wetland



Summary for Subcatchment S-3: Roof Tributary Area

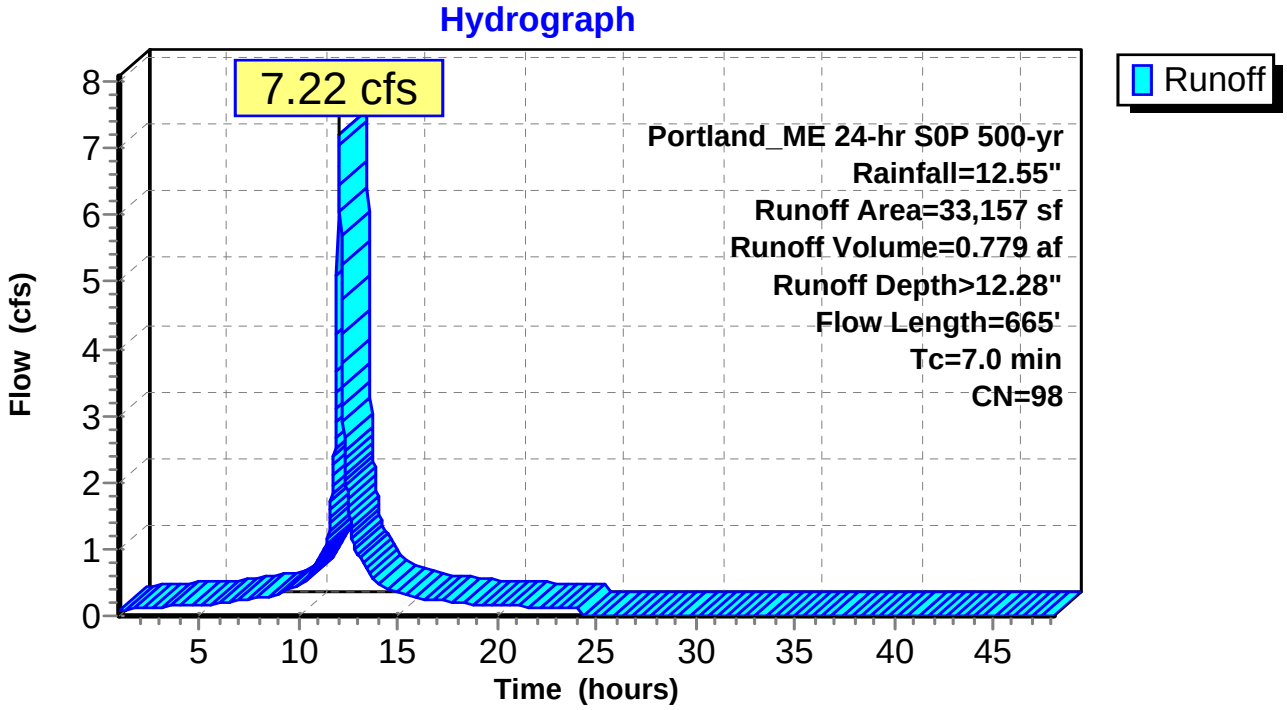
Runoff = 7.22 cfs @ 12.05 hrs, Volume= 0.779 af, Depth>12.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

Area (sf)	CN	Description
33,157	98	Unconnected roofs, HSG A
33,157		100.00% Impervious Area
33,157		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	150	0.0200	1.58		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.60"
0.0	15	0.0100	5.26	6.46	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
1.4	500	0.0100	5.94	10.50	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
4.0					**Direct Entry, Min TC 7**
7.0	665	Total			

Subcatchment S-3: Roof Tributary Area



Summary for Subcatchment S-4: Underdrained Soil Filter

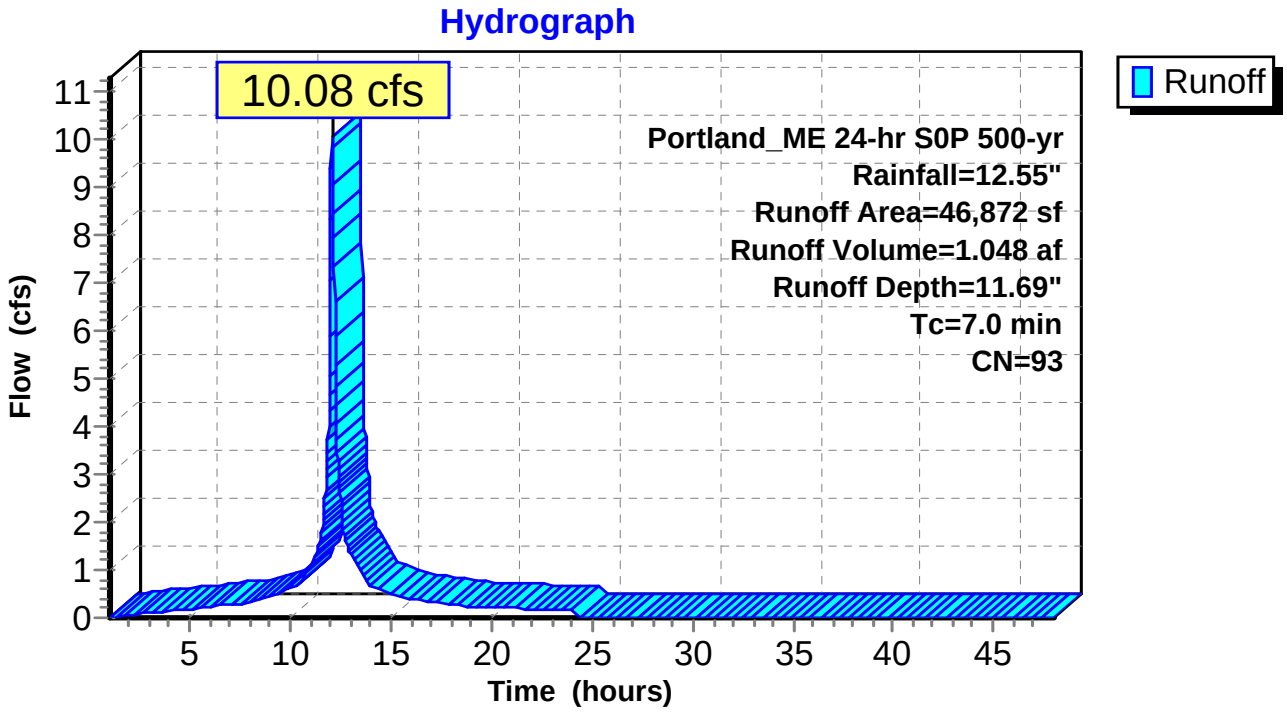
Runoff = 10.08 cfs @ 12.05 hrs, Volume= 1.048 af, Depth=11.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs
Portland_ME 24-hr S0P 500-yr Rainfall=12.55"

	Area (sf)	CN	Description
*	36,516	98	
*	10,356	75	
	46,872	93	Weighted Average
	10,356		22.09% Pervious Area
	36,516		77.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry,**

Subcatchment S-4: Underdrained Soil Filter



Summary for Reach SP-1: SP-1

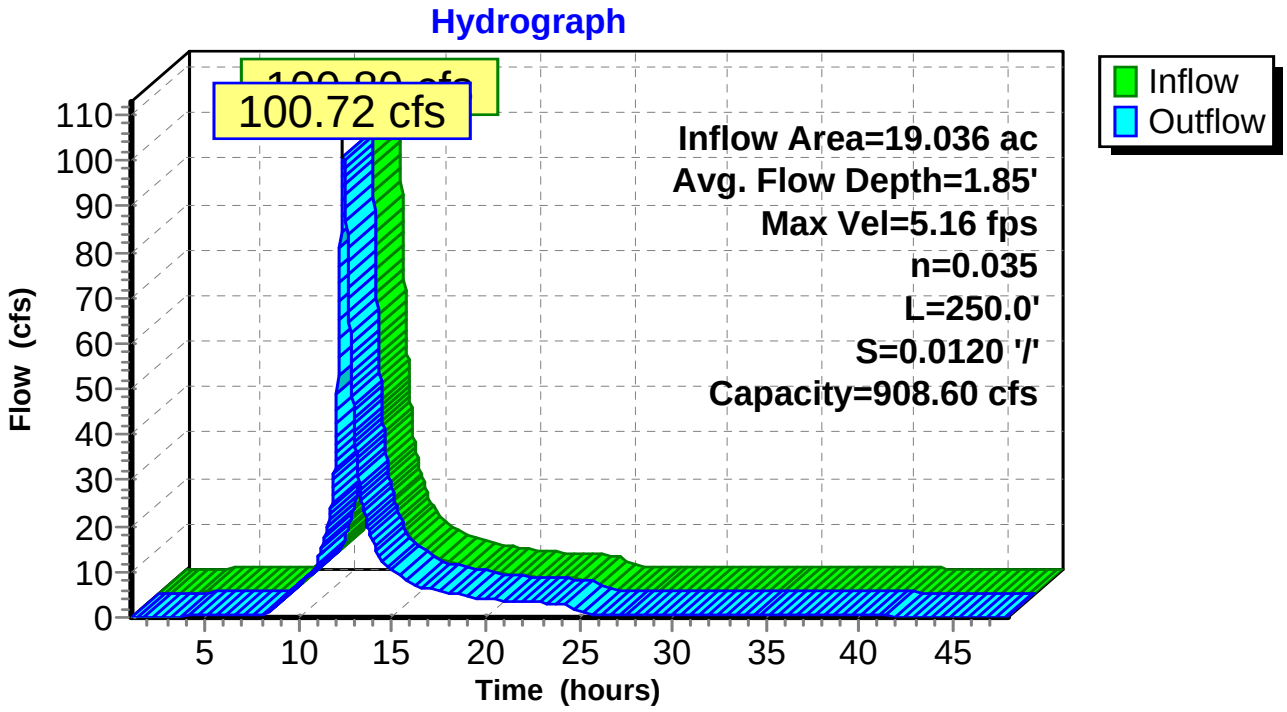
Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 10.78" for 500-yr event
Inflow = 100.80 cfs @ 12.37 hrs, Volume= 17.099 af
Outflow = 100.72 cfs @ 12.38 hrs, Volume= 17.099 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Max. Velocity= 5.16 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.55 fps, Avg. Travel Time= 2.7 min

Peak Storage= 4,880 cf @ 12.38 hrs
Average Depth at Peak Storage= 1.85'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 908.60 cfs

5.00' x 5.00' deep channel, n= 0.035 High grass
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0120 '/'
Inlet Invert= 91.00', Outlet Invert= 88.00'

Reach SP-1: SP-1



Summary for Pond P-1: Gravel Wetland

Inflow Area = 19.036 ac, 49.95% Impervious, Inflow Depth > 10.78" for 500-yr event
Inflow = 101.67 cfs @ 12.34 hrs, Volume= 17.099 af
Outflow = 100.80 cfs @ 12.37 hrs, Volume= 17.099 af, Atten= 1%, Lag= 1.8 min
Primary = 91.96 cfs @ 12.37 hrs, Volume= 8.098 af
Secondary = 8.84 cfs @ 12.37 hrs, Volume= 9.001 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 107.63' @ 12.37 hrs Surf.Area= 19,714 sf Storage= 63,269 cf

Plug-Flow detention time= 87.2 min calculated for 17.091 af (100% of inflow)
Center-of-Mass det. time= 87.5 min (891.6 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	102.00'	70,788 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

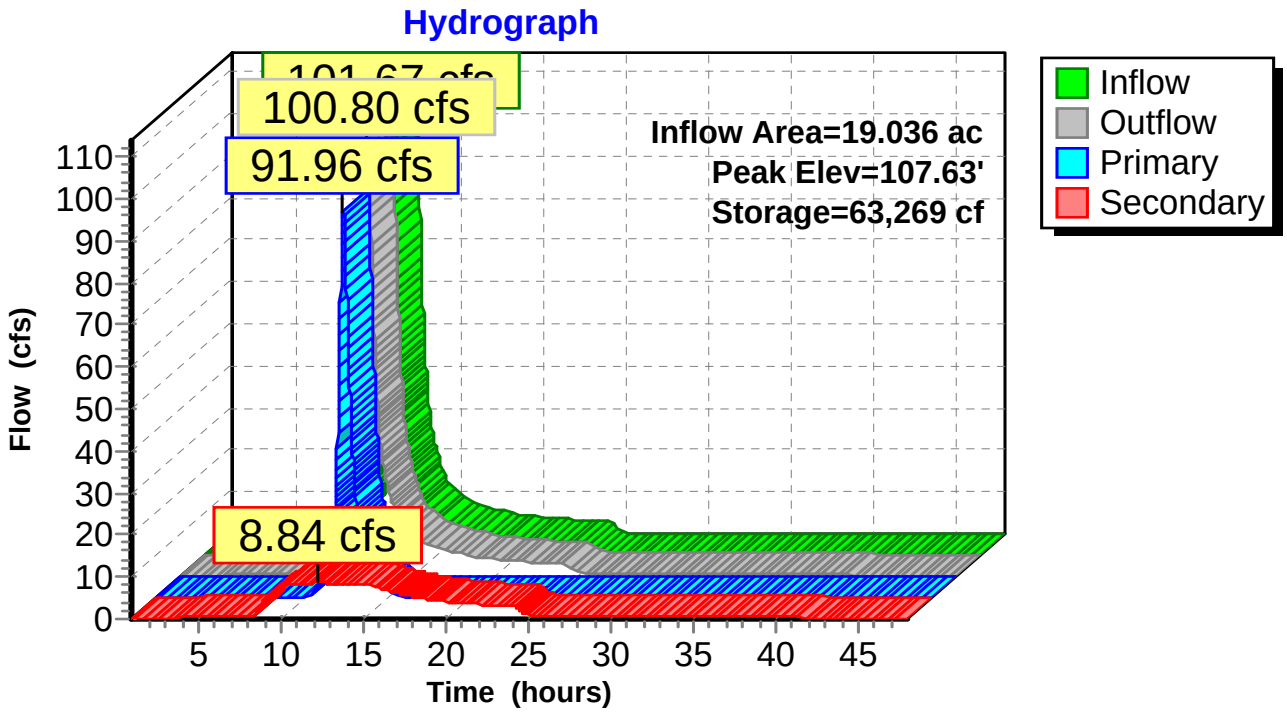
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
102.00	3,572	549.0	0	0	3,572
103.00	6,200	771.0	4,826	4,826	26,901
104.00	9,020	829.0	7,566	12,392	34,329
105.00	11,611	872.0	10,288	22,680	40,211
106.00	14,502	904.0	13,030	35,710	44,820
107.00	17,279	924.0	15,870	51,580	47,870
108.00	21,203	764.0	19,208	70,788	69,378

Device	Routing	Invert	Outlet Devices
#1	Primary	106.50'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	107.00'	**32.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Secondary	101.67'	**12.0" Round Culvert** L= 37.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.67' / 100.00' S= 0.0451 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#4	Device 3	101.67'	**4.0" Vert. Orifice/Grate** C= 0.600
#5	Device 3	106.00'	**6.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32

Primary OutFlow Max=91.89 cfs @ 12.37 hrs HW=107.63' TW=92.85' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 48.53 cfs @ 2.86 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 43.35 cfs @ 2.14 fps)

Secondary OutFlow Max=8.84 cfs @ 12.37 hrs HW=107.63' TW=92.85' (Dynamic Tailwater)
- **3=Culvert** (Inlet Controls 8.84 cfs @ 11.25 fps)
  - **4=Orifice/Grate** (Passes < 1.01 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Passes < 41.32 cfs potential flow)

Pond P-1: Gravel Wetland



Summary for Pond P-2: UGSF

Inflow Area = 1.076 ac, 77.91% Impervious, Inflow Depth = 11.69" for 500-yr event
Inflow = 10.08 cfs @ 12.05 hrs, Volume= 1.048 af
Outflow = 9.18 cfs @ 12.10 hrs, Volume= 1.048 af, Atten= 9%, Lag= 2.8 min
Primary = 0.25 cfs @ 12.10 hrs, Volume= 0.457 af
Secondary = 8.94 cfs @ 12.10 hrs, Volume= 0.591 af
Tertiary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.02 hrs / 3
Peak Elev= 111.49' @ 12.10 hrs Surf.Area= 4,443 sf Storage= 6,875 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 117.4 min (874.9 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1	109.50'	11,839 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
109.50	2,471	0	0
112.00	4,950	9,276	9,276
112.50	5,300	2,563	11,839

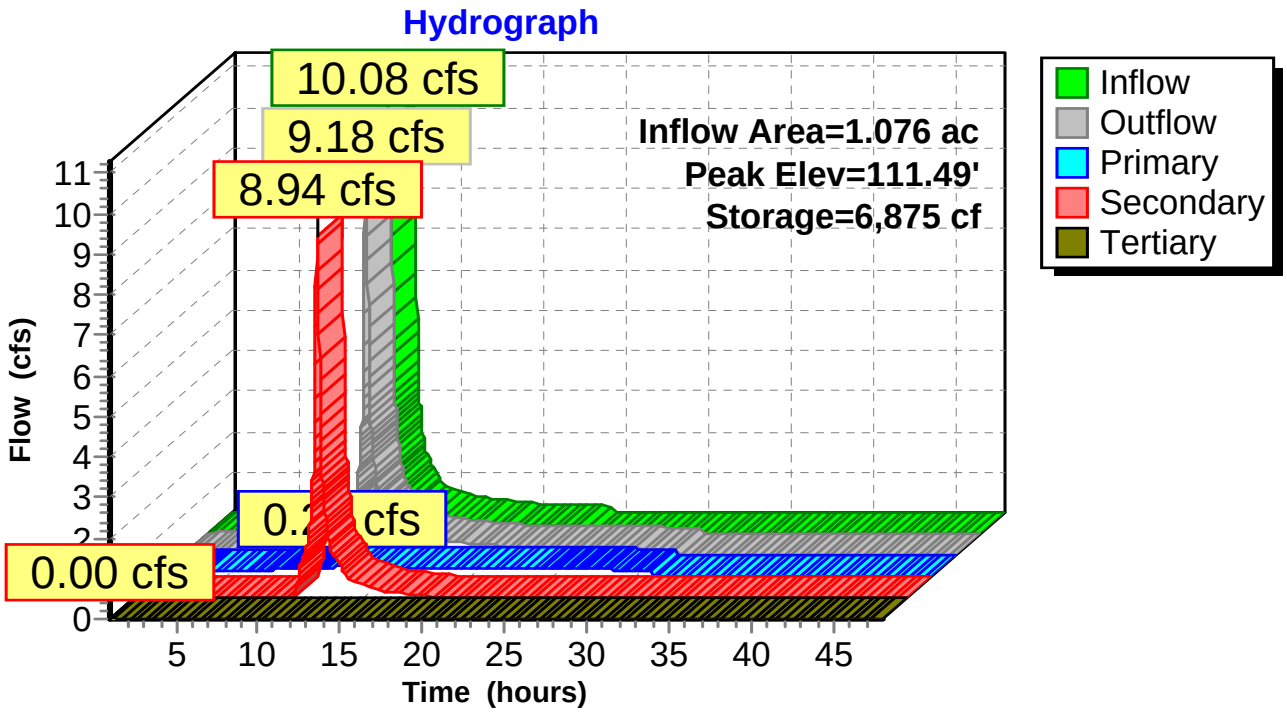
Device	Routing	Invert	Outlet Devices
#1	Secondary	106.00'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 106.00' / 105.50' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	111.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Primary	109.50'	**2.410 in/hr Exfiltration over Surface area**
#4	Tertiary	112.00'	**250.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.25 cfs @ 12.10 hrs HW=111.49' TW=107.40' (Dynamic Tailwater)
└**3=Exfiltration** (Exfiltration Controls 0.25 cfs)

Secondary OutFlow Max=8.92 cfs @ 12.10 hrs HW=111.49' TW=107.40' (Dynamic Tailwater)
└**1=Culvert** (Passes 8.92 cfs of 9.44 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 8.92 cfs @ 2.28 fps)

Tertiary OutFlow Max=0.00 cfs @ 1.00 hrs HW=109.50' TW=102.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P-2: UGSF


Hydrograph
10.08 cfs
9.18 cfs
8.94 cfs
0.00 cfs
Inflow Area=1.076 ac
Peak Elev=111.49'
Storage=6,875 cf
Inflow
Outflow
Primary
Secondary
Tertiary
Flow (cfs)
0
2
3
4
5
6
7
8
9
10
11
5
10
15
20
25
30
35
40
45
Time (hours)

WRIGHT-PIERCE
Engineering a Better Environment
70 YEARS 1947 - 2017
WATER
WASTEWATER
STORMWATER
INFRASTRUCTURE

November 22, 2017
W-P Project No. 13352C

Jean Fraser, Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

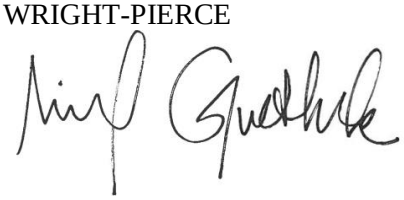
Subject: Lyseth-Lyman Moore Circulation and Access Improvements
Responses to Site Plan Review Comments

Fire Department Comments

From a meeting with the City review staff, project planner, and the Fire Department on 11/1/2017, Fire Department comments were the following:

1) A request to expand the bus lanes to 16' minimum to accommodate emergency vehicle passage. The bus travel lanes are expanded in the proposed improvements.
2) Sloped Granite Curb will be proposed along the 12' exit lane to serve as a mountable curb. 4' of clear passage in the form of lawn or non-fibrous plantings will extend from the base of the curb to any light fixtures or trees to allow for 16' of passage in this location.
3) Sloped granite curb will also be placed around the inner radius for the elementary school bus drop-off location.

Sincerely,
WRIGHT-PIERCE



Michael Guethle, P.E.
Project Engineer
Michael.guethle@wright-pierce.com

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WASTEWATER
STORMWATER
INFRASTRUCTURE

November 22, 2017
W-P Project No. 13352C

Jean Fraser, Planning Division
City of Portland
389 Congress Street
Portland, ME 04101

Subject: Lyseth-Lyman Moore Circulation and Access Improvements
Responses to Site Plan Review Comments - Landscaping

The following responses are to comments provided in an e-mail from Jeff Tarling, City Arborist, to Mike Guethle, P.E. on October 27, 2017. The full comments are included as an attachment to this document.

1) Shrub sizes have been updated to be a minimum of 3 gallons, with 18" minimum height. Winter Red variety has been specified for winterberry, and Miss Kim variety has been specified for lilacs.
2) The 2 maple trees adjacent to the visitor parking location have been identified as Karpick variety. The 9 Korean Ash plants within the circulation divider have been replaced with 10 of a Bowhall Red Maple. Regal Prince variety of English Oak has been specified.
3) Red Maple, Bowhall variety, has been specified for the location between the parking lot and the fields. Only one type of tree has been designed to provide for a grove appearance.

Sincerely,
WRIGHT-PIERCE

Michael Guethle, P.E.
Project Engineer
Michael.guethle@wright-pierce.com

Michael A. Guethle

From: Jeff Tarling <jst@portlandmaine.gov>
Sent: Friday, October 27, 2017 11:06 AM
To: Michael A. Guethle; Jean Fraser
Subject: Re: Moore/Lyseth Site Improvements

Follow Up Flag: Follow up
Flag Status: Completed

Hi Mike -

Thanks for reviewing the Lyseth / Lyman Moore School landscape plans this morning.

Overall the plan looks good, would recommend a couple minor plant type suggestions...

a) Shrub sizes should be 3 gal minimum and desired 18 -24" size, this is for the Winterberry and Lilac. 'Winter Red' is a preferred Winterberry cultivar and 'Miss Kim' the desired lilac which is a more compact form then the common lilac and less likely to need pruning in the future.

b) Tree type recommendations: Red Maple types - we like and have good success with 'Karpick' Red Maple which is a cultivar with oval upright crown shape and good Fall color. The 'Karpicks' could be used for the (2) Red Maple shown in the Northwest corner or entrance area.

Suggested alternative for the (9) Korean Mountain Ash in the island might include 'Bowhall' Red Maple, it is upright in form and we have used it in similar situations where we are looking for height without a wide crown spread.

The (2) Korean Mt Ash near the front plaza look good as shown.

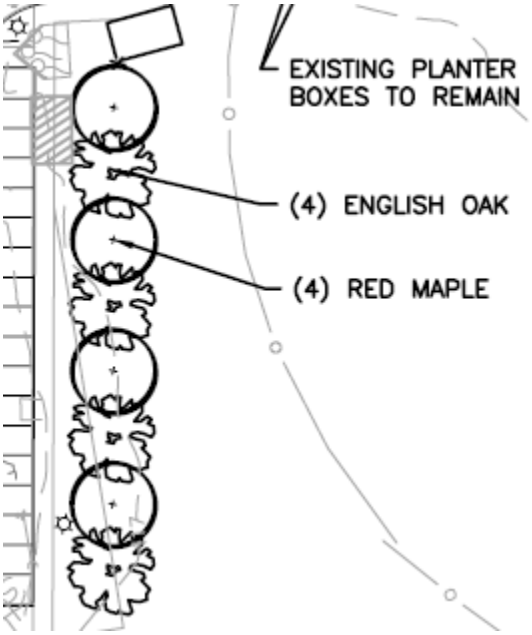
English Oak - we would suggest either the 'Regal Prince' or 'Crimson Spire' English Oak hybrid cross as a better selection then the straight English Oak.

We have used all three and we find the newer hybrids really do well.

c) Planting arrangement adjustment -
At the Lyman Moore parking near basketball court, it is always best to group similar tree types vs 'odd-even' or alternating English Oak and Red Maple.

As the trees mature the trees appear as a grove. Would recommend either the 'Regal Prince' Oak or the 'Bowhall' Red Maple for this planting and have all the trees of the same species in this group. Check out the web links below.

Thanks again for going over the landscape plan.



http://www.jfschmidt.com/pdfs/bowhallmaple.pdf

http://www.jfschmidt.com/pdfs/117/karpickmaple117.pdf

http://www.jfschmidt.com/pdfs/regalprinceoak.pdf

https://jfschmidt.com/introductions/crimsonspire/index.html

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Department
Forestry & Horticulture
212 Canco Road
Portland, ME. 04103
(207) 808-5446
jst@portlandmaine.gov

On Fri, Oct 27, 2017 at 9:31 AM, Michael A. Guethle <michael.guethle@wright-pierce.com> wrote:

> Want to have a quick chat around 10? Feel free to call 319-1512

Michael A. Guethle, P.E. | Project Engineer

75 Washington Avenue, Suite 202 | Portland, ME 04101

Portland Public Schools
Assuring that all students are learning for their future

Harrison Lyseth Elementary School
Administration
Lenore M. Williams, Principal
Peter McCormack, Asst. Principal
175 Auburn St., Portland, Maine 04103
(207) 874-8215

December 4, 2017

Dear Chair Boepple and Members of the Portland Planning Board:

It is with great enthusiasm that I support the proposal you have before you for Project #2017-202, 171 Auburn Street. Traffic flow and parking have been an on going concern on the Moore-Lyseth campus. Also a concern is the increase we have seen in both vehicle and pedestrian traffic on both campus' over recent years. Community members can and do access the campus from a various locations, most notably traffic enters from the main entrance on Auburn Street but also enters on Bartley Avenue and Junior Street. This scenario always presents challenges and safety concerns during our morning arrivals and afternoon dismissals.

Improvements to circulation and parking will dramatically decrease the likelihood of an incident where student (pedestrian) traffic is in conflict with buses and cars. Having clearly designated traffic loops (one for buses-nearest the school) and a second loop for passenger cars will substantially improve safety for both pedestrians and motorists.

I was particularly encouraged that thought and consideration has been given to improve crosswalks (Junior Street and Washington Ave. Ext.) and to increase crossing guard support at Allen Avenue and Bramblewood/Virginia. In my nearly 11 years as Principal of Lyseth Elementary School, I have lost count of the number of times I have received calls from concerned parents and community members regarding safety issues for students centered around the need for better delineated/defined crosswalks and sidewalks in addition to more crossing guard staff at key points/locations.

I am most appreciative of the time and effort that has been put into this plan by Mr. Onos and Consultants Rice and Guethle. The need is great and the time is now for the recommended improvements.

Sincerely,

Lenore M. Williams
Principal, Lyseth Elementary School

CITY OF PORTLAND
PARKS, RECREATION, AND FACILITIES DEPARTMENT

CONTRACT DRAWINGS

LYSETH LYMAN-MOORE CAMPUS CIRCULATION, ACCESS, AND PARKING IMPROVEMENTS

BID NUMBER:
PERMITTING SUBMISSION

ISSUED FOR PERMITTING
JANUARY 2018

DESIGNED BY:

WRIGHT-PIERCE
Engineering a Better Environment
Offices Throughout New England
888.621.8156 | www.wright-pierce.com

STATE OF MAINE — DOUGLAS RICE — No. 8702 — LICENSED PROFESSIONAL ENGINEER — 11/5/18

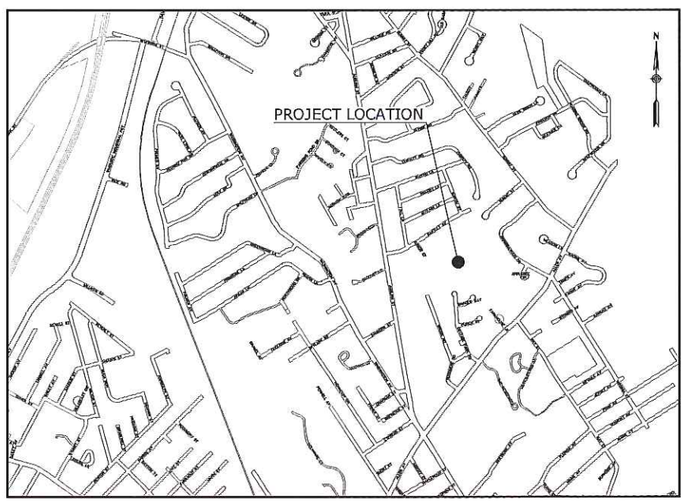
STATE OF MAINE — MICHAELA GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER — 11/5/18

1/15/2018

DOUGLAS RICE, P.E. DATE
WRIGHT-PIERCE

YEAR APPROVED
2018

PREPARED FOR:
DAVID ONOS, LEED AP
DIRECTOR OF PROJECT MANAGEMENT
AND PUBLIC BUILDINGS



INDEX OF PLANS

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5	SITE PLAN
6	GRADING AND UTILITY PLAN
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GENERAL NOTES

1. LOCATIONS OF UTILITIES ARE APPROXIMATE AND IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO HAVE ALL THE UTILITIES LOCATE THEIR SERVICES PRIOR TO THE START OF CONSTRUCTION. THE LOCATION, TYPE AND SIZE OF EXISTING PIPES, DUCTS, CONDUITS AND OTHER UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN ON THE DRAWINGS ARE NOT WARRANTED TO BE EXACT NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN. INFORMATION SHOWN IS CONSIDERED APPROXIMATE BOTH AS TO SIZE AND LOCATION AND IS INDICATED ON THE DRAWINGS TO GIVE BIDDERS A GENERAL IDEA OF EXISTING CONDITIONS. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR SHALL NOT RELY UPON THESE DRAWINGS FOR SUCH INFORMATION AND SHALL MAKE EXAMINATIONS IN THE FIELD BY VARIOUS AVAILABLE METHODS AND SHALL OBTAIN INFORMATION FROM UTILITY CORPORATIONS AND INDIVIDUALS AS TO THE LOCATION OF ALL SUBSURFACE STRUCTURES BOTH PUBLIC AND PRIVATE PRIOR TO COMMENCEMENT OF CONSTRUCTION. DEPTH OF SERVICES ARE UNKNOWN AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR. EXCAVATING TEST PITS AS NECESSARY TO VERIFY UTILITY LOCATIONS AND DEPTHS SHALL BE INCIDENTAL TO THE PROJECT.

2. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE (888-344-7233 OR DIAL 811) AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK AND SCHEDULE WITH THE UTILITY RELOCATION WORK AND PROPER UTILITY COMPANY. THE FOLLOWING UTILITIES ARE KNOWN TO HAVE FACILITIES WITHIN THE PROJECT LIMITS:

   CENTRAL MAINE POWER COMPANY
   UNITIL
   PORTLAND FIRE DEPARTMENT
   PORTLAND WATER DISTRICT
   CITY OF PORTLAND – DEPARTMENT OF PUBLIC SERVICES
   TIME WARNER CABLE
   FAIRPOINT

   ANY ADDITIONAL UTILITY WORK NOT SPECIFIED ON THE PLANS SHALL BE COMPLETED BY THE RESPECTIVE UTILITY COMPANY.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS PRIOR TO BIDDING.

4. THE CONTRACTOR SHALL COORDINATE DISRUPTION OF PRIVATE UTILITY SERVICES WITH LAND OWNER AT LEAST 2 DAYS (48 HOURS) PRIOR TO SCHEDULED DISRUPTION.

5. PRIOR TO THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL SECURE A STREET OPENING PERMIT FROM THE PORTLAND PUBLIC SERVICES DEPARTMENT. NO FEE WILL BE CHARGED FOR THIS PERMIT.

6. EXISTING CONDITIONS ARE BASED ON SURVEY COMPLETED BY WRIGHT-PIERCE OF PORTLAND, MAINE IN 2016.

7. VERTICAL DATUM IS REFERENCED TO THE CITY DATUM WITH ONE-FOOT CONTOUR INTERVALS. CITY DATUM IS +0.20' FEET OF NGVD 1929 (NGVD29-0.20'=CITY OF PORTLAND DATUM). HORIZONTAL DATUM IS REFERENCED TO STATE PLANE NAD 1983 (FEET), MAINE WEST ZONE.

8. EXISTING PROFILE GRADE IS CENTERED ON EXISTING ROADWAY OR RIGHT-OF-WAY CENTERLINE.

9. PROPERTY MARKERS AND STREET LINE MONUMENTS SHALL BE PROPERLY PROTECTED AND SHALL NOT BE DISTURBED. IF DISTURBED, THEY SHALL BE REPLACED BY A LICENSED SURVEYOR AT THE CONTRACTOR'S EXPENSE.

10. THE CONTRACTOR IS REQUIRED TO PROVIDE A SECURE PROJECT WORK AREA AND SHALL PROVIDE AND INSTALL 8' TEMPORARY CHAIN LINK SAFETY FENCING FOR ALL ACTIVE/STAGING AREAS THROUGHOUT CONSTRUCTION.

11. ALL EXISTING CATCH BASINS, MANHOLES, CONNECTIONS, CONDUIT AND PIPING SHALL BE CLEANED AND LEFT IN SATISFACTORY OPERATING CONDITION AFTER CONSTRUCTION HAS BEEN COMPLETED UNLESS OTHERWISE NOTED TO BE REMOVED OR ABANDONED. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

12. ALL LAWN AREAS, WALKWAYS, AND DRIVEWAYS OUTSIDE THE WORK AREA, DAMAGED BY THE CONTRACTOR, SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE CITY.

13. AT LOCATIONS WHERE EXISTING CATCH BASINS ARE BEING REMOVED AND NEW CATCH BASINS ARE ADDED IN A DIFFERENT LOCATION, THE CONTRACTOR SHALL REGRADE THE AREA WHERE THE OLD BASIN IS BEING REMOVED TO BLEND IN SMOOTHLY WITH ADJACENT GRADES. AT THE LOCATION OF THE NEW CATCH BASINS, THE CONTRACTOR SHALL CONSTRUCT APPROPRIATE DEPRESSION PER THE CITY OF PORTLAND DETAILS AND STANDARDS.

14. EXISTING PAVEMENT SHALL BE SAW CUT AND BUTTED TO THE NEW PAVEMENT. NO FEATHERING OF PAVEMENT WILL BE PERMITTED. DRIVEWAY BUTT JOINTS ARE INCIDENTAL TO THE CONTRACT AND SHALL NOT REQUIRE MEASUREMENT.

15. EXISTING DRAINAGE STRUCTURES SHALL NOT BE DISTURBED UNLESS OTHERWISE NOTED IN THE DRAWINGS OR BY THE CITY REPRESENTATIVE.

16. BEFORE CONNECTING NEW PIPES TO AN EXISTING SEWER LINE, THE CONTRACTOR SHALL NOTIFY SEWER MAINTENANCE DIVISION OR THE CITY OF PORTLAND PUBLIC SERVICES DEPARTMENT. NO WORK SHALL BE DONE WITHOUT THEIR APPROVAL.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY, REMOVAL OF UNACCEPTABLE MATERIALS, COMPLETE REPLACEMENT, JOINT SEALING OR RESUTTING PAVEMENT AS REQUIRED. THIS WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE ONE YEAR GUARANTEE. THIS WORK SHALL BE DONE AT THE CONTRACTORS EXPENSE.

18. ALL MANHOLE FRAMES SHALL BE SUPPLIED WITH SOLID MANHOLE COVERS. THE RIM ELEVATION OF PROPOSED STORM AND SEWER MANHOLES SHALL BE SET AT THE NEW FINISHED PAVEMENT SURFACE GRADE. WINTERIZATION MAY BE REQUIRED.

19. NEW CATCH BASINS SHALL BE INSTALLED WITH A TYPE A-4 CATCH BASIN INLET STONE INCIDENTAL TO PAY ITEM 604.131 THROUGH 604.133. RIM ELEVATIONS FOR CATCH BASINS ARE GIVEN AT THE FACE OF THE CURB AND TAKE INTO ACCOUNT THE 3" DEPRESSION. WINTERIZATION MAY BE REQUIRED.

20. ON ALL "REMOVE" STRUCTURES, THE CONTRACTOR SHALL REMOVE THE STRUCTURES ENTIRELY, UNLESS OTHERWISE NOTED ON THE PLANS, THE CONTRACTOR, UPON APPROVAL OF THE CITY OR ENGINEER, MAY REMOVE THE STRUCTURE THREE FEET BELOW GRADE, FILL THE STRUCTURE WITH STONE AND BACKFILL. ALL EXISTING GRANITE CATCH BASIN STONES, GRANITE CURB, MANHOLE FRAMES AND COVERS TO BE REMOVED SHALL BE DELIVERED TO THE CITY STOCKYARD AS DIRECTED. REMOVAL AND DISPOSAL OF EXISTING STRUCTURES IN WHICH THE CENTER OF THE EXISTING STRUCTURE IS WITHIN 8 FEET OF THE CENTER OF THE NEW STRUCTURE OR WITHIN 4 FEET OF THE HORIZONTAL LIMITS OF EXCAVATION FOR PROPOSED STRUCTURES SHALL BE INCIDENTAL TO THE PAY ITEM FOR THE NEW STRUCTURE BEING INSTALLED.

21. REMOVAL AND DISPOSAL OF EXISTING STORM DRAINS, SEWER PIPES, OR OTHER PIPE STRUCTURES WITHIN 4 FEET OF THE HORIZONTAL LIMITS OF EXCAVATION FOR PROPOSED PIPES OR STRUCTURES SHALL BE INCIDENTAL TO THE PAY ITEM FOR WHICH THE PROPOSED PIPE OR STRUCTURE IS INSTALLED.

22. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS AS REQUIRED TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL CODES.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS (STATIONS AND OFFSETS FOR MANHOLES AND OTHER STRUCTURES ARE SHOWN ON THE DRAWINGS TO BE CENTER OF EACH). ADDITIONALLY, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL "AS-BUILT" INFORMATION AS REQUIRED IN THE SPECIFICATION.

24. THE EXISTING COLLECTION SYSTEM INCLUDING PRECAST STORAGE CONDUIT, DIVERSION STRUCTURES, GRAVITY SEWERS AND STORM DRAINS SHALL REMAIN FULLY OPERATIONAL DURING CONSTRUCTION UNTIL THE PROJECT IS COMPLETED AND ACCEPTED BY THE OWNER. THE CONTRACTOR SHALL FULLY COORDINATE CONSTRUCTION ACTIVITIES WITH THE OWNER'S OPERATIONS TO MINIMIZE ADVERSE IMPACTS ON THEIR EXISTING OPERATIONS. THE COST OF ADDITIONAL WORK REQUIRED TO MAINTAIN EXISTING OPERATIONS THROUGHOUT CONSTRUCTION OPERATIONS, INCLUDING BYPASS PUMPING, WILL NOT BE ELIGIBLE FOR PAYMENT AS AN EXTRA UNDER A CHANGE ORDER; RATHER THESE COSTS WILL BE CONSIDERED AS "INCIDENTAL" TO THE BIDS SUBMITTED FOR THIS CONTRACT. ALSO, THE NECESSITY TO COORDINATE CONSTRUCTION ACTIVITIES WITH OWNER OPERATIONS WILL NOT BE CONSIDERED A VALID OR MERITORIOUS REASON FOR A DELAY CLAIM OR TIME EXTENSION ON THIS PROJECT.

25. THE CONTRACTOR SHALL MAINTAIN TRAFFIC IN A SAFE MANNER AT ALL TIMES DURING CONSTRUCTION. THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) MANUAL FOR BOTH WORK ZONE AND TRAFFIC CONTROL REQUIREMENTS SHALL APPLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CREATING A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH SECTION 652 (PAY ITEM 652.39).

26. EXISTING FACILITIES AND IMPROVEMENTS (I.E. LIGHT POLES, SIGNS, ETC.) SHALL BE REMOVED AND REPLACED OR PROTECTED AS REQUIRED DURING CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE RELATED PAY ITEMS. BRACING OF UTILITY POLES, WHERE REQUIRED, SHALL BE INCIDENTAL TO THE PROJECT.

27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES ON THE PROJECT THAT ARE NOT CALLED OUT TO BE REMOVED. EQUIPMENT AND MATERIALS SHALL NOT BE STORED OVER THE ROOT ZONE, WHICH SHALL BE DEFINED AS THE AREA ENCOMPASSED BY THE DRIPLINE. WHENEVER POSSIBLE, OTHER PLANTINGS SHALL BE PRESERVED BY METHODS NECESSARY INCLUDING TRANSPLANTING AND/OR TEMPORARY RELOCATION. THE ASSOCIATED COSTS ARE INCIDENTAL TO THE PROJECT. ANY TREES DAMAGED BY THE CONTRACTORS OPERATIONS SHALL BE REPAIRED USING APPROVED TREE DRESSING OR PAINT IN ACCORDANCE WITH THE APPROPRIATE PROVISIONS OF SECTION 201 OF THE STANDARD SPECIFICATIONS. ANY TREE DAMAGED BY THE CONTRACTOR SHALL RESULT IN A FINANCIAL PENALTY OF $1,500 FOR EACH INCIDENCE. DAMAGE SHALL INCLUDE ANY AND ALL IMPACTS TO TREES TO INCLUDE, BUT NOT LIMITED TO, LIMB/TREE BREAKAGE, DAMAGE TO TREE TRUNKS, ROOTS STRUCTURE AND ANY INCIDENTAL IMPACTS.

28. DELIVERED WITHIN (10) CALENDAR DAYS OF THE CONTRACT SIGNING, THE CONTRACTOR SHALL SUBMIT THREE (3) COPIES OF A CONSTRUCTION OPERATIONS PLAN TO THE ENGINEER, AND CITY OF PORTLAND. THE COST OF THE OPERATIONS PLAN SHALL BE INCIDENTAL.

29. ALL PIPE TRENCH EXCAVATIONS SHALL BE BACKFILLED "CLOSED" DURING CONTRACTOR NON-WORKING HOURS INCLUDING DAYS, NIGHTS, HOLIDAYS AND WEEKENDS. THE CONTRACTOR MAY REQUEST IN WRITING TO THE ENGINEER AND OWNER TO SECURE OPEN EXCAVATION IN LIEU OF BACKFILLED AND "CLOSED". NOT OBTAINING SECURE OPEN EXCAVATION PERMISSION SHALL NOT BE A BASIS FOR CONTRACTOR CLAIMS AGAINST THE OWNER.

30. GEOTECHNICAL AND ENVIRONMENTAL DATA WAS COLLECTED BETWEEN AUGUST AND SEPTEMBER, 2016. REFERENCE GEOTECHNICAL AND ENVIRONMENTAL DATA REPORT BY JONES ASSOCIATES IN THE APPENDICES OF THE SPECIFICATIONS. EXPLORATION LOCATIONS ARE DESIGNATED ON THE DRAWINGS FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT BE SHOWN AT EXACT LOCATIONS.

31. TEST PITS SHALL BE EXCAVATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE CONTRACTORS SHALL OBTAIN THE LOCATION OF THE UTILITY/STRUCTURE IN QUESTION WITH TIES TO SURROUNDING PERMANENT FEATURES AND OBTAIN THE ELEVATION OF BOTH THE TOP AND BOTTOM OF THE UTILITY/STRUCTURE. COSTS FOR TEST PITS WILL BE PAID FOR THROUGH BID ITEM 203.28.

32. REMOVE AND RESET ELECTRICAL SERVICE IN NEW 4" SCHEDULE 40 PVC CONDUIT WHEN DISTURBED DUE TO CONSTRUCTION. COSTS ASSOCIATED WITH THIS WORK SHALL BE INCIDENTAL TO THE RELATED PAY ITEM.

33. ANY EXCAVATION BY THE CONTRACTOR THAT UNCOVERS A HISTORICAL OR ARCHAEOLOGICAL ARTIFACT SHALL BE IMMEDIATELY REPORTED TO THE OWNER AND A REPRESENTATIVE OF THE STATE HISTORIC PRESERVATION OFFICE. CONSTRUCTION SHALL BE TEMPORARILY HALTED PENDING THE NOTIFICATION PROCESS AND FURTHER DIRECTIONS ISSUED BY THE AGENCY AFTER CONSULTATION WITH THE STATE HISTORIC PRESERVATION OFFICE (SHPO). THE CONTRACTOR SHALL NOT BE ENTITLED TO COMPENSATION DUE TO DELAYS ASSOCIATED WITH THIS ITEM. THE COST SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.

34. ANY REQUIRED PROJECT WORK NOT IDENTIFIED UNDER A PAY ITEM OR RELATED TO A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. NO EXTRA PAYMENT WILL BE MADE.

35. IF WORK IS NECESSARY BEYOND THE SAW CUT LINES SHOWN ON THE CONTRACT PLANS TO ACCOMMODATE PROJECT CONSTRUCTION, COSTS SHALL BE CONSIDERED INCIDENTAL TO COSTS OF CONSTRUCTION AND NO EXTRA PAYMENT WILL BE MADE. ALL REQUIRED PROJECT WORK ASSOCIATED WITH CONTRACT DRAWINGS, DETAILS, GENERAL CONDITIONS AND SPECIFICATIONS SHALL BE CONSIDERED INCIDENTAL TO THE RELATED PAY ITEMS. NO EXTRA PAYMENT WILL BE MADE FOR ANY DIRECT OR INCIDENTAL WORK REQUIRED TO COMPLETE THE PROJECT IN ITS ENTIRETY AND READY FOR OWNER ACCEPTANCE.

36. THE CITY OF PORTLAND SHALL HAVE THE RIGHT AND AUTHORITY TO DETERMINE THE ACCEPTABILITY OF WORK AND MATERIALS IN PROGRESS OR COMPLETED. THE CITY OF PORTLAND SHALL HAVE THE RIGHT TO REJECT ANY WORK OR MATERIALS THAT DO NOT CONFORM, IN IT'S SOLE OPINION, TO THE PLANS OR SPECIFICATIONS.

37. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULES BASED UPON PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.

38. ELECTRICAL AND TELECOMMUNICATIONS SERVICES ARE PROVIDED VIA OVERHEAD LINES UNLESS OTHERWISE SHOWN. THE CONTRACTOR SHALL USE CAUTION WHEN WORKING NEAR EXISTING OVERHEAD LINES.

39. DISPOSAL OF SURPLUS MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. SURPLUS MATERIAL SHALL NOT BE DISPOSED OF ON THE PROJECT SITE. DISPOSAL SHALL BE MADE ONLY AT WASTE AREAS THAT ARE LICENSED TO ACCEPT SUCH MATERIALS, UNLESS THE MATERIALS CAN BE INCORPORATED INTO OTHER PROJECTS OF THE CONTRACTOR.

40. IF THE CONTRACTOR PROPOSES TO TEMPORARILY STOCKPILE ANY SURPLUS SOIL AND ROCK IN THE CITY OF PORTLAND, THE CONTRACTOR SHALL OBTAIN APPROVAL FOR EACH STOCKPILE LOCATION FROM THE CITY OF PORTLAND. STOCKPILING AND DEWATERING OF CONTAMINATED SOIL MATERIAL SHALL ALSO REQUIRE APPROVAL FROM LOCAL AND STATE AGENCIES. IF THE CONTRACTOR PROPOSES PERMANENT STOCKPILE OF ANY SURPLUS SOIL AND ROCK IN THE CITY OF PORTLAND, THE CONTRACTOR MUST OBTAIN ANY SITE PLAN AND FILL PERMITS REQUIRED FROM THE CITY PLANNING AUTHORITY OR ANY FILL PERMITS REQUIRED FROM MAINE DEP OR THE US ARMY CORP OF ENGINEERS. BOTH TEMPORARY AND PERMANENT STOCKPILE LOCATIONS SHALL MEET THE APPLICABLE SETBACK REQUIREMENTS IN THE CITY LAND USE CODE.

41. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH OSHA REGULATIONS SUBPART P OF 29 CFR PART 1926.650-.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).

42. THE CONTRACTOR SHALL COMPLETE THE WORK WITHIN THE PARCEL, AND SHALL BE RESPONSIBLE IF TRESPASSING ON PRIVATE PROPERTY OCCURS.

43. THE CONTRACTOR SHALL NOT PARK ON, IMPEDE ACCESS TO OR STORE EQUIPMENT/MATERIAL ON ADJACENT CITY OR PRIVATELY OWNED LAND WITHOUT WRITTEN CONSENT FROM THE CITY OR LAND OWNER.

44. THE LYSETH AND LYMAN-MOORE SCHOOLS SHALL REMAIN OPEN AND OPERABLE DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, MAINTAINING PARKING, ROADWAY ACCESS TO BUILDINGS AND DELIVERY ACCESS TO BUILDINGS.

45. ALL WORK COMPLETED UNDER THIS CONTRACT SHALL BE GOVERNED BY AND SHALL CONFORM WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.

46. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND CITY OF PORTLAND CODES AND SPECIFICATIONS.

47. PIPE LENGTHS, PIPE SLOPES AND PIPE INVERT CALCULATIONS ARE MEASURED ALONG THE PIPE CENTER LINE TO THE INSIDE WALL OF MANHOLE AND CATCH BASIN STRUCTURES.

48. PROPOSED CATCH BASIN (CB), SEWER MANHOLE (SMH) AND DRAINAGE MANHOLE (DMH) SYMBOLS REPRESENT LOCATION OF NEW STRUCTURES. REFER TO DETAILS AND SPECIFICATIONS FOR INFORMATION ON FRAMES AND GRATES, COVERS, SHAPE, STYLE, AND DIMENSIONS.

49. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN ALL NECESSARY BARRIERS, FENCE LIGHTS, WARNING SIGNS AND OTHER DEVICES NECESSARY TO SAFEGUARD BOTH VEHICULAR AND BIKE/PEDESTRIAN TRAFFIC AND THE PUBLIC DURING WORKING AND NON-WORKING HOURS FOR THE DURATION OF THE PROJECT. THE SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS.

50. CAPPED PIPE STUB LOCATIONS SHALL BE MARKED WITH EMBEDDED STAKES AND A MINIMUM OF THREE TIES SHOULD BE RECORDED. EMBEDDED STAKES SHALL BE 2x4 WITH PK NAIL DRIVEN IN TOP, LENGTH AS REQUIRED TO SPAN FROM TOP OF PIPE TO 6' BELOW GRADE. LOCATION AND ELEVATION OF PIPE STUB SHALL BE PROVIDED TO THE CITY OF PORTLAND ENGINEERING OFFICE. WARNING TAPE AND WIRE SHALL BE INSTALLED OVER PIPE STUBS IN ACCORDANCE WITH SPECIFICATION.

51. COMPACTION REQUIREMENTS:

LOCATION	MINIMUM COMPACTION*
BELOW PAVED AREAS	95%
BELOW SEEDED AREAS	90%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557.

52. THE FOLLOWING WORK SHALL BE INCIDENTAL TO THE COST OF ALL NEW PIPE CULVERTS, STORM DRAINS, SEWER PIPES, AND NEW OR ALTERED MANHOLES, INLETS, AND CATCH BASINS (603 & 604 PAY ITEMS):

- CUTTING OF PIPE AND/OR CONNECTIONS AND FITTINGS NECESSARY TO CONSTRUCT NEW STORM DRAIN AND SEWER PIPE AND APPURTENANCES.
- WORK AND MATERIALS NECESSARY TO CONNECT NEW OR EXISTING PIPES TO EXISTING PIPES, CATCH BASINS, OR MANHOLES INCLUDING CORING AND PATCHING OF STRUCTURES AND INSTALLATION OF WATERTIGHT CONNECTIONS
- CHANGES TO FLOW LINES, PROFILE GRADES, AND PIPE INVERTS OF ONE FOOT OR LESS.

53. THE CONTRACTOR SHALL FOLLOW THE ENDANGERED SPECIES ACT "4(D) RULES REGARDING THE NORTHERN LONG EARED BAT. THIS INCLUDES AVOIDANCE OF TREE REMOVAL DURING THE MONTHS OF JUNE AND JULY. THE CONTRACTOR SHALL PLAN ACCORDINGLY.

LEGEND

EXISTING SYMBOLS	PROPOSED SYMBOLS
DRAIN/SEWER MANHOLE	DRAIN/SEWER MANHOLE
CATCH BASIN/INLET	CATCH BASIN, TYPE "E"
GAS/WATER VALVE	CATCH BASIN, TYPE "F"
WATER SHUT OFF	
HYDRANT	HYDRANT
LIGHT/UTILITY POLE	LIGHT/UTILITY POLE
MONUMENT FOUND (MF)	PROPOSED MONUMENT (MS)
IRON PIPE/REBAR (IPF/IRF/CIRF)	CAPPED REBAR SET (CIRS)
MAGNETIC NAIL SET (MAGS)	
SIDEWALK ACCESSIBILITY	SIDEWALK ACCESSIBILITY
BUSH/TREE STUMP	BUSH OR SHRUBBERY
DECIDUOUS TREE	BORING TEST
CONIFER TREE	TEST PIT

GENERAL LINE TYPE

CENTERLINE
PARCEL LINE
PROPERTY LINE
STREET LINE
RIGHT OF WAY LINE
BUILDING TIE LINE (67.84' B.S. HILD)
LEDGE PROFILE
STONE WALL
RAILROAD TRACKS

EXISTING LINEWORK	PROPOSED LINEWORK
	EDGE OF PAVEMENT
	GRANITE CURB
	MOUNTABLE GRANITE CURB
	GUARD RAIL
	SILT FENCE (SF)
	CHAIN LINK FENCE
	WOOD/STOCKADE FENCE
	EDGE OF TREES/SHRUBS

EXISTING UTILITIES	PROPOSED UTILITIES
	COMBINED SEWER
	HOUSE LATERAL
	STORM DRAIN
	SANITARY SEWER
	UNDERDRAIN
	CABLE TV
	ELECTRIC LINE
	FIRE ALARM
	GAS LINE
	TELEPHONE LINE
	WATER LINE

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE — DOUGLAS A. RICE — No. 9502 — LICENSED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1.15.18

STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — REGISTERED PROFESSIONAL ENGINEER — 1/25/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
GENERAL NOTES AND LEGEND

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM IN CINERE — CITY OF PORTLAND, MAINE

SHEET # 2 OF 15

PLAN NUMBER C-2

EROSION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED TO PROVIDE A STRATEGY FOR DEALING WITH SOIL EROSION AND SEDIMENTATION DURING AND AFTER RECONSTRUCTION. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION CONTROL AND SEDIMENTATION HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES", PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

PRE-CONSTRUCTION PHASE

1. PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS WILL BE STAKED/INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE AND ADJACENT TO PROPERTY LINES OR WATERCOURSES TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. THE PLACEMENT OF SEDIMENT BARRIERS SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THIS PLAN SET. THIS NETWORK IS TO BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 85%-90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.
2. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATE OF DISTURBANCE AND COMPLETION OF THE WORK. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE CITY STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE CITY THREE DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

1. IN ORDER TO PROTECT THE NATURAL RESOURCES IN THE PROJECT AREA, ONLY DISTURB THOSE AREAS NECESSARY TO CONSTRUCT THE SIDEWALKS, SPECIFIED PIPING AND LANDSCAPING.
2. AREAS UNDERGOING ACTUAL CONSTRUCTION SHALL ONLY EXPOSE THAT AMOUNT OF MINERAL SOIL NECESSARY FOR PROGRESSIVE AND EFFICIENT CONSTRUCTION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED BY PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD. OPEN AREAS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL AS SHOWN ON THE DESIGN PLANS AND AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN WITHIN 14-DAYS OF DISTURBANCE. AREAS LOCATED WITHIN 100' OF NATURAL RESOURCES SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL WITHIN SEVEN (7) DAYS. REFER TO WINTER EROSION CONTROL NOTES FOR THE TREATMENT OF OPEN AREAS AFTER OCTOBER 1ST OF THE CONSTRUCTION YEAR.
3. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MAXIMUM OF 14 DAYS FROM FINAL GRADING OF THE LOAM. LOAM WILL BE STOCKPILED FOR FUTURE USE AND PROTECTED FROM EROSION LOSSES BY MULCH AND FILTER FABRIC/HAY BALE BARRIERS. STOCKPILES SHALL BE LOCATED WITHIN THE STAGING AREAS IDENTIFIED ON THE DRAWINGS.
4. PRIOR TO ANY GRUBBING OR CLEARING, A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED AT THE INTERSECTION OF THE PROPOSED ENTRANCES AND EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM SITE.
5. PRIOR TO GRUBBING AND CLEARING THE SITE, STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS.
6. PRIOR TO GRUBBING AND CLEARING, SEDIMENT BARRIERS WILL BE INSTALLED ACROSS THE SLOPES, ON THE CONTOUR, AT OR JUST BELOW THE LIMITS OF CONSTRUCTION AND/OR JUST ABOVE ANY DOWNSLOPE ADJACENT PROPERTY OR WETLAND TO PROTECT AGAINST RELATED EROSION.
7. THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES THAT MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDANT UPON THE ACTUAL SIZE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.
8. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. THE DISPOSAL OF POST SEEDING SEDIMENT, IF ANY SHALL, BE THE RESPONSIBILITY OF THE CONTRACTOR.
9. WHEN WORK IS IMMEDIATELY ADJACENT TO ANY NATURAL RESOURCE, INCLUDING COASTAL WETLANDS, STREAMS AND HABITATS, THE CONSTRUCTION SITE MUST BE STABILIZED PRIOR TO THE END OF THE WORK DAY OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS SHALL BE PLACED BETWEEN ANY NATURAL RESOURCES AND THE DISTURBED AREA.
10. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS.
11. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.

WINTER CONSTRUCTION

1. WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15
2. WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 0.25 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
3. EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
4. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
5. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH.
6. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
7. THE APPLICATION OF MULCH TO FINE GRADED AREAS REQUIRING STABILIZATION WILL BE AS FOLLOWS:
   A) BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.
   B) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GRATER THAN 8%.
   C) MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
8. AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
9. ALL AREAS TO RECEIVE MULCH SHALL BE CLEARED OF SNOW.

APPLICATIONS AND MEASURES

THE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH SET GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES, THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET.

1. STABILIZED CONSTRUCTION ENTRANCE/EXIT:

   PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEPT OR WASHED TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. STABILIZED CONSTRUCTION EXIT LOCATIONS SHALL BE APPROVED BY THE CITY AND ENGINEER.

2. TEMPORARY VEGETATION AND MULCH:

   IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED BY SEPTEMBER 15TH OF THE YEAR OF CONSTRUCTION, THEN ON THAT DATE THESE AREAS WILL BE GRADED AND SMOOTHED, THEN SEEDED TO A WINTER COVER CROP OF RYE AT THE RATE OF 112 LBS/ACRE OR 3 LBS/1,000 SQUARE FEET AND MULCHED AT A RATE OF 70 LBS/1,000 SQUARE FEET. THE RYE SEEDING WILL BE PROCEEDED BY AN APPLICATION OF 3 TONS OF LIME AND 1,000 LBS OF 10-10-10 FERTILIZER PER ACRE, OR ITS EQUIVALENT. IF THE RYE SEEDING DOES NOT MAKE ADEQUATE GROWTH TO PROVE AT LEAST 75% VEGETATIVE COVER BY NOVEMBER 15TH, THEN ON THAT DATE A TEMPORARY MULCH OF HAY WILL BE APPLIED TO THAT AREA AT A RATE OF 150 LBS/1,000 SQUARE FEET. AREAS STABILIZED WITH RYE AND MULCH WILL BE TILLED AND RESEEDED USING THE VEGETATION PLAN FOR PERMANENT SEEDING THE FOLLOWING SPRING. FINAL VEGETATION OF THE SITE SHALL NOT BE CONSIDERED COMPLETE UNTIL EACH DISTURBED AREA NOT TO BE PAVED OR TREATED WITH RIPRAP HAS A VEGETATIVE COVER OVER AT LEAST 90% OF ITS SURFACE.

   ALL AREAS SEEDED DURING THE WINTER MONTHS WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGATATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

   TEMPORARY MULCH WILL BE APPLIED TO ALL EXPOSED SOIL SURFACES WITHIN FOURTEEN (14) DAYS OF EXPOSURE OR PRIOR TO ANY STORM EVENT.

3. SOIL STOCKPILES:

   STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY AT A RATE OF 75 LBS/1,000 SQUARE FEET (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND REESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

4. SEDIMENT BARRIERS:

   PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SILT FENCING SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. MAXIMUM STAKE SPACING OF 6 FEET SHALL BE USED.

   ALL SILT FENCE SHALL BE INSPECTED, REPLACED AND/OR REPAIRED WEEKLY, AS WELL AS IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL, OR WHEN SEDIMENT REACHES 1/3 THE BARRIER HEIGHT. ALL HAY BALE, FILTER FABRIC BARRIERS SHALL REMAIN IN PLACE UNTIL SEEDINGS HAVE BECOME 75% ESTABLISHED AND THEN REMOVED WITHIN 10 DAYS.

   ANY SILT FENCE IDENTIFIED BY THE OWNER OR REVIEWING AGENCIES AS NOT BEING PROPERLY INSTALLED DURING CONSTRUCTION SHALL BE IMMEDIATELY REPAIRED IN ACCORDANCE WITH THE INSTALLATION DETAILS.

5. STORM DRAIN INLET PROTECTION:

   SILT SACKS OR HAY BALES SHALL BE PLACED AROUND A STORM DRAIN DROP INLET OR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES. INSTALL SILT SACKS AND HAY BALES IN ACCORDANCE WITH THE DETAILS AND PER MANUFACTURER'S RECOMMENDATIONS.

6. DUST CONTROL:

   DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATER TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS. APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND/OR FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE.

7. PERMANENT VEGETATION:

   REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. PERMANENT REVEGETATION MEASURES INCLUDING LOAM, SEED AND MULCH SHALL MEET SECTION 615 OF THE SPECIFICATIONS.

WETLAND NOTES

1. WETLANDS AND SURFACE WATERS (EXCEPT THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) SHALL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
2. IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS WORKING IN THESE AREAS.
3. ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30.
4. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS.
5. WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
6. STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
7. SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN THE SPECIFICATIONS.

TRENCH DEWATERING

1. EXCAVATION AND INSTALLATION OF THE STORAGE CONDUIT, DRAINS AND SEWERS, AND ASSOCIATED STRUCTURES WILL REQUIRE CONTINUOUS DEWATERING THROUGHOUT CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING A DEWATERING PLAN MEETING ENVIRONMENTAL REGULATIONS AND REQUIREMENTS STIPULATED WITHIN THE CONTRACT DOCUMENTS AND PLANS. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A WRITTEN DEWATERING PLAN AND SHALL MEET WITH THE CITY REPRESENTATIVES TO REVIEW THE DEWATERING PLAN. THE CONTRACTOR SHALL MAKE ADJUSTMENTS TO THE DEWATERING PLAN AS REQUIRED BY THE CITY OR OTHER AGENCIES. ANY REQUIRED CHANGES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF DEWATERING AND NO EXTRA PAYMENT WILL BE MADE. ALL DEWATERING SHALL BE RUN THROUGH A PUMPED SEDIMENT REMOVAL SYSTEM EQUAL TO "DIRT BAG" OR ALTERNATIVE METHODS AS APPROVED BY THE ENGINEER. IT IS ANTICIPATED THAT HIGH VOLUMES OF PUMPING WILL BE REQUIRED FOR THE PROJECT. DISCHARGE LOCATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND COSTS ASSOCIATED WITH DEWATERING THE JOBSITE INCLUDING ANY CHANGES, MODIFICATIONS OR SPECIAL DEWATERING SYSTEMS/REQUIREMENTS TO ENSURE THE SITE IS DEWATERED. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE RELATED PAY ITEMS. WATER FROM CONSTRUCTION TRENCH DEWATERING WILL PASS FIRST THROUGH A SEDIMENT COLLECTION BAG PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE SEDIMENTATION COLLECTION BAG BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE UNLESS OTHERWISE APPROVED BY THE OWNER.

MONITORING

1. MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. WEEKLY AND AFTER EACH RAINFALL, A VISUAL INSPECTION WILL BE MADE BY THE CONTRACTOR OF ALL INSTALLED EROSION CONTROL MEASURES AND REPAIRS WILL BE MADE AS NEEDED TO ENSURE THEIR CONTINUING FUNCTION AS DESIGNED. FOLLOWING THE FINAL SEEDINGS, THE SITE WILL BE INSPECTED EVERY FIFTEEN DAYS UNTIL THE SEEDINGS HAVE BEEN ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 75% OF AREA VEGETATED WITH VIGOROUS GROWTH. RESEEDING WILL BE CARRIED OUT, WITH FOLLOW UP INSPECTIONS, IN THE EVENT OF ANY FAILURES. ALL EROSION CONTROL MEASURES WILL BE REMOVED WITHIN 10 DAYS WHEN VEGETATION IS ADEQUATELY ESTABLISHED.

DEMOLITION NOTES

1. DEMOLITION OF EXISTING SEWERS SHALL INCLUDE EXCAVATION, REMOVAL OF SEWER PIPE AND STRUCTURES, CONCRETE CRADLE, INSTALLATION OF GRAVEL (TYPE B), COMPACTION AND SURFACE RESTORATION (EXCLUDING PAVING).
2. DEMOLITION SHALL BE COMPLETED IN COORDINATION WITH NEW INFRASTRUCTURE. THE CONTRACTOR SHALL ENSURE EXISTING ROAD SURFACE DRAINAGE IS MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY DRAINAGE PROVISIONS. COSTS FOR TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE — DOUGLAS RICE — No. 9502 — REGISTERED PROFESSIONAL ENGINEER — 12/5/17

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DJR
SCALE: AS NOTED
DATE: 1-25-18

STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — REGISTERED PROFESSIONAL ENGINEER — 12/5/17

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

GENERAL NOTES

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

CITY OF PORTLAND MAINE — RESURGAM

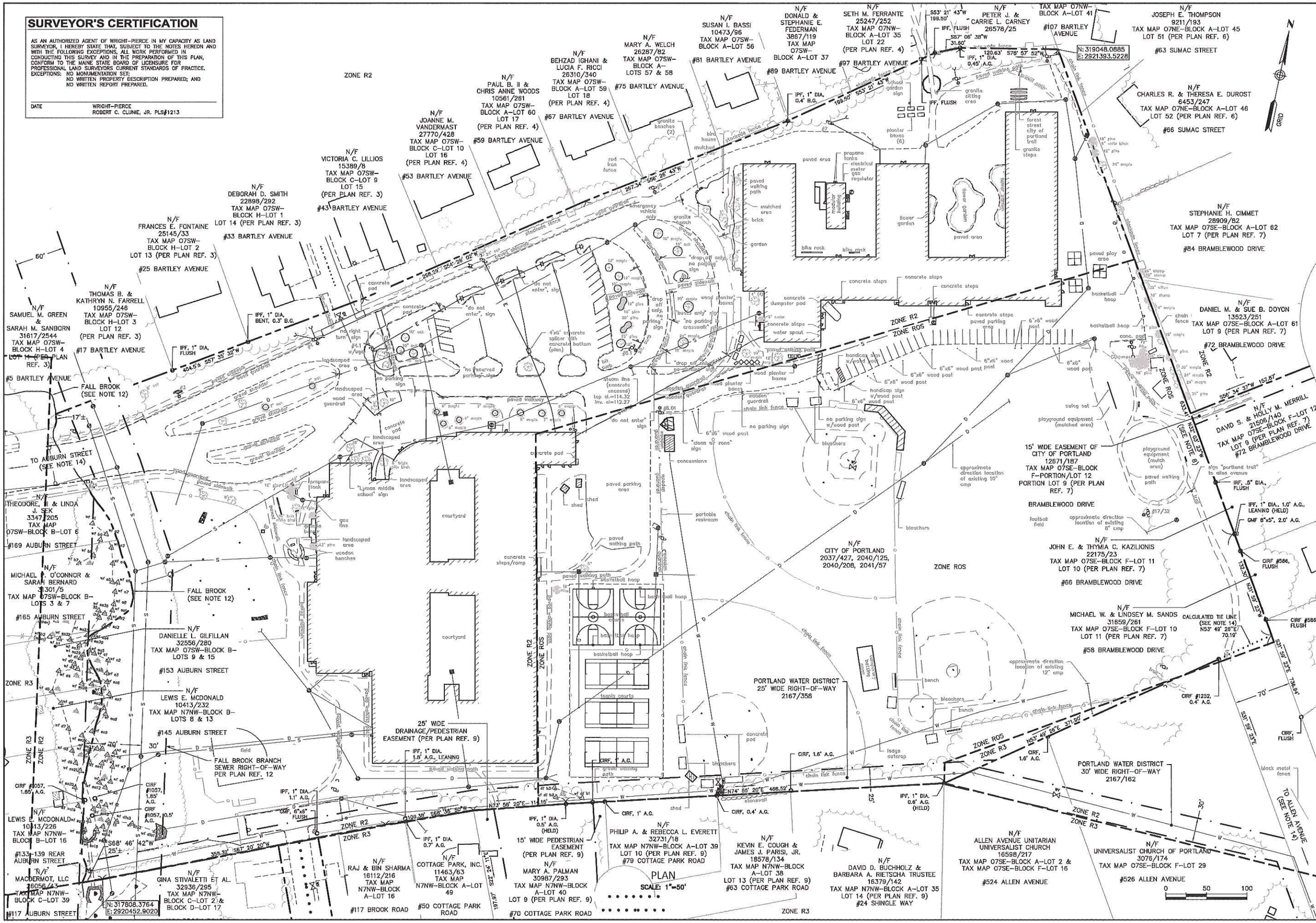
SHEET # 3 OF 15

PLAN NUMBER C-3

SURVEYOR'S CERTIFICATION

AS AN AUTHORIZED AGENT OF WRIGHT-PIERCE IN MY CAPACITY AS LAND SURVEYOR, I HEREBY STATE THAT, SUBJECT TO THE NOTES HEREON AND WITH THE FOLLOWING EXCEPTIONS, ALL WORK PERFORMED IN CONDUCTING THIS SURVEY AND IN THE PREPARATION OF THIS PLAN, CONFORM TO THE MAINE STATE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.
EXCEPTIONS: NO MONUMENTATION SET;
NO WRITTEN PROPERTY DESCRIPTION PREPARED; AND
NO WRITTEN REPORT PREPARED.

DATE WRIGHT-PIERCE
ROBERT C. CLUNIE, JR. PLS#1213



REFERENCES:

REVISIONS:

Civil 3D 2015 Drawing Name: "Lyseth-Lyman School_2016T.dwg"
Civil 3D 2015 Survey Database: "133528" and "13352C"

SURVEY CREW: CGH
DRAWN BY: CGH
CHECKED BY: MAG/BCC
SCALE: 1"=50'
DATE: MAY 11, 2016

LYSETH-LYMAN MOORE
MASTER PLAN PHASE I
EXISTING CONDITIONS PLAN

BOUNDARY PLAN

CITY OF PORTLAND, MAINE
PUBLIC SERVICES DEPARTMENT
ENGINEERING DIVISION

CITY OF PORTLAND, MAINE RESURGAM

SHEET # C-2

PLAN NUMBER 2 OF 3

PROJECT TBM#2
TOP OF "FLANGE BOLT"
ABOVE MAIN SPOUT
ELEV=119.51

PROJECT TBM#1
TOP (CENTER) OF 6"x6"
GRANITE MONUMENT
ELEV=104.02

PROJECT TBM#3
TOP OF MAG NAIL IN
UTILITY POLE #7½
ELEV=119.76

PLAN
SCALE: 1"=50'

0 50 100

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

DESIGNED BY: MAG/MAG
DRAWN BY: MBL/MRL
CHECKED BY: DAR/DAR
SCALE: AS NOTED
DATE: 1.15.18

REFERENCES:

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REVISIONS:
PLANNING BOARD SUBMISSION

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
EXISTING CONDITIONS & DEMOLITION PLAN

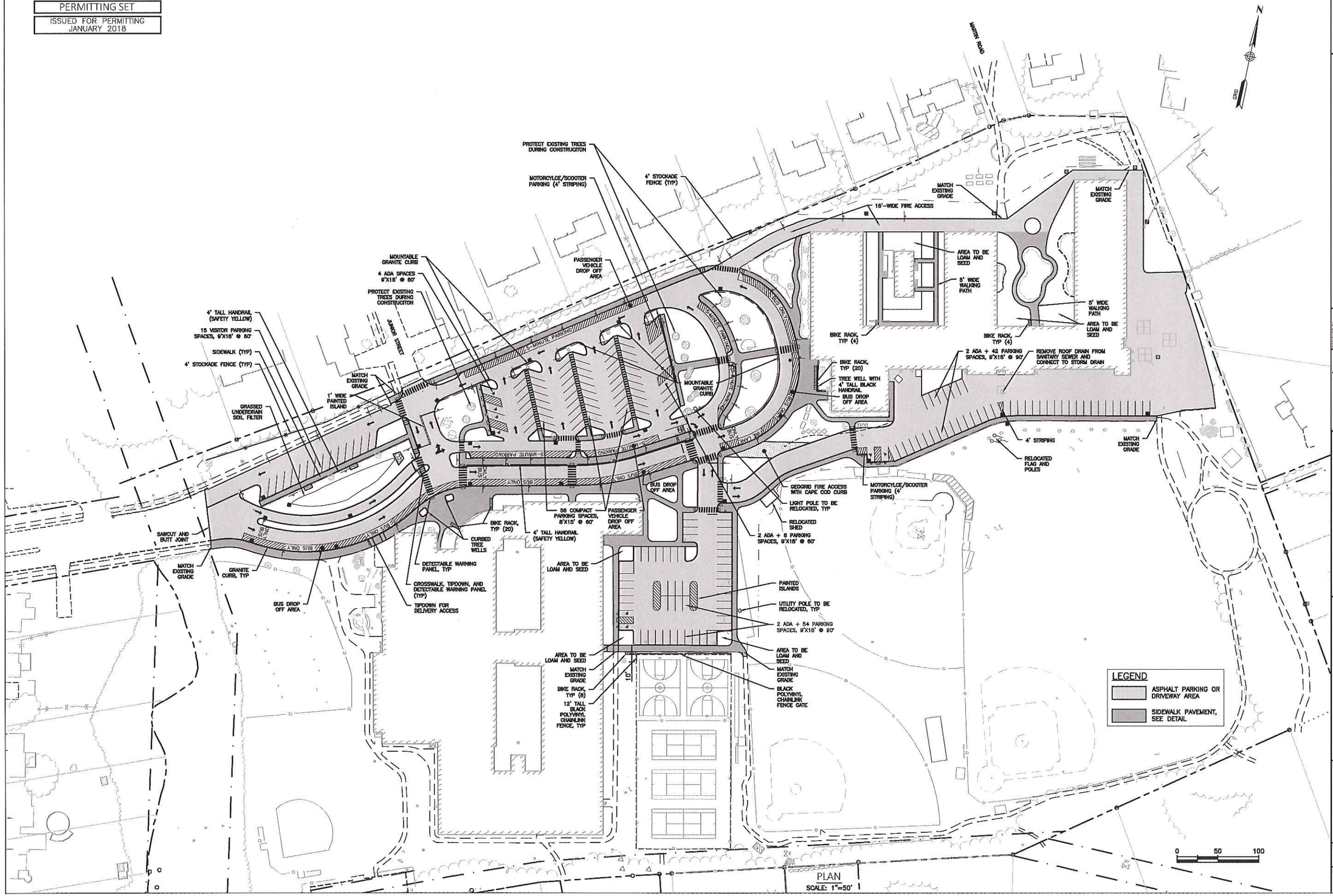
CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

SHEET # 4 OF 15

PLAN NUMBER C-4

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



PLAN
SCALE: 1"=50'

STATE OF MAINE
DOUGLAS A. RICE
No. 6702
LICENSED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAELA GUETHLE
14284
LICENSED PROFESSIONAL ENGINEER
1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

SITE PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 5 OF 15

PLAN NUMBER C-5

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018

NOTE:
INSTALL CATCH BASIN PROTECTION ON ALL CATCH BASINS UNTIL UP-SLOPE AREAS ARE STABALIZED

PROPOSED CB-27
RIM:119.80
6" INV IN(S)=116.8
15" INV IN(W)=116.4
15" INV OUT=116.3

PROPOSED CB-28
RIM:119.80
15" INV OUT=116.60

PROPOSED CB-15
RIM:117.3
15" INV OUT=113.3

PROPOSED CB-14
RIM:116.0
15" INV IN=111.5
15" INV OUT=111.4

PROPOSED CB-16
RIM:118.2
15" INV IN=112.5
15" INV OUT=112.4

PROPOSED CB-17
RIM:118.7
15" INV IN=112.8
15" INV OUT=112.7

PROPOSED CB-10
RIM:115.9
15" INV IN=112.7
12" INV OUT=112.6

PROPOSED CB-9
RIM:114.5
12" INV IN(N)=111.1
12" INV IN(E)=111.1
12" INV OUT=111.1

PROPOSED CB-12
RIM:115.6
12" INV OUT=111.9

PROPOSED CB-26
RIM:119.70
15" INV IN=116.1
15" INV OUT=116.0

PROPOSED CB-25
RIM:120.0
15" INV IN=115.6
15" INV OUT=115.5

PROPOSED CB-24
RIM:119.70
15" INV IN(NW)=115.2
EXISTING 15" INV IN(N)=116.65
15" INV OUT(S)=115.0

PROPOSED DMH-18
RIM:120.0
15" INV IN=113.10
15" INV OUT=113.0

EXISTING SMH-B
TO BE ALTERED
15" INV
OUT=113.25 +/-

EXISTING CB-9
ADJUST RIM TO 119.58
15" INV IN=114.75
15" INV OUT=114.64

EXISTING SMH-C
TO BE ALTERED
15" INV
OUT=113.25 +/-

PROPOSED CB-7
RIM:110.9
15" INV IN=106.4
15" INV OUT=106.3

PROPOSED CB-5
RIM:109.5
15" INV IN(E)=105.8
15" INV IN(N)=106.0
15" INV OUT=105.7

PROPOSED CB-4
RIM:116.5
15" INV IN=110.5
15" INV OUT=110.4

PROPOSED CB-3
RIM:114.9
15" INV IN=107.9
15" INV OUT=107.8

PROPOSED CB-11
RIM:114.9
12" INV IN=111.30
12" INV OUT=111.20

PROPOSED CB-6
RIM:111.5
15" INV IN=108.6
15" INV OUT=106.7

PROPOSED CB-2
RIM:111.9
15" INV IN=106.2
15" INV OUT=106.1

PROPOSED CB-8
RIM:111.0
4" INV IN=107.33
15" INV OUT=106.4

PROPOSED DOGHOUSE CB-1
RIM:109.4
15" INV IN(E)=105.3
15" INV IN(N)=105.4
EXG. 18" INV OUT=105.0±

EXISTING CB
RIM:ADJUST TO GRADE
12" INV IN(S)=110.0±
15" INV IN(E)=109.75
15" INV OUT(W)=109.5

EXISTING CB-1
RIM:114.90

EXISTING CB A
18" INV IN=108.25
18" INV OUT=108.57

PROPOSED CB-21
RIM:119.5
15" INV IN=115.0
15" INV OUT=114.9

EXISTING CB-5
RIM:118.5

PROPOSED CB-20
RIM:117.8
15" INV IN=114.0
15" INV OUT=113.9

EXISTING CB-4
RIM:117.0
15" INV IN=110.96

PROPOSED CB-19
RIM:117.0
15" INV IN=112.0
15" INV OUT=111.9

EXISTING CB-3
RIM:116.0

EXISTING CB-6
RIM:118.88

EXISTING CB-7
RIM:119.22

PROPOSED DOGHOUSE CB-23
RIM:118.85
15" INV IN=114.45
15" INV OUT=114.42

PROPOSED CB-22
RIM:119.0
15" INV IN=113.15
15" INV OUT=113.0

ADJUST EXISTING SMH-A RIM TO PROPOSED GRADE

GRADE TO DRAIN TO EXISTING CB-5

GRADE TO DRAIN TO EXISTING CB-7

6% SLOPE

8% SLOPE

Sill Elev.=121.50

Sill Elev.=120.83

Sill Elev.=117.51

Sill Elev.=117.43

Sill Elev.=113.60

PLACE INLET PROTECTION BARRIER AT ALL CB'S UNTIL UP-SLOPE AREAS ARE STABILIZED, TYP

EROSION CONTROL, TYP

MATCH EXISTING GRADE

INSTALL TWO LAYERS OF EROSION CONTROL UNTIL UP-SLOPE AREAS ARE FULLY STABALIZED

12" INV OUT=111.0

STORMWATER GRATE OVER CURB CUT

UNDERDRAIN GRASSED SOIL FILTER #1

RIP RAP APRON, TYP

4" UD

N/F PETER J. & CARRIE L. CARNEY

N/F SETH M. FERRANTE

N/F DONALD & STEPHANIE E. FEDERMAN

N/F SUSAN I. BASSI

N/F MARY A. WELCH

N/F BEHZAD IGHANI & LUCIA F. RICCI

N/F PAUL B. II & CHRIS ANNE WOODS

N/F JOANNE M. VANDERMAST

N/F VICTORIA C. LILLIOS

N/F DEBORAH D. SMITH

N/F JOSEPH E. THOMPSON

N/F CHARLES R. & THERESA E. DUROST

N/F STEPHANIE H. CIMMET

N/F DANILE M. & SUE B. DOYON

N/F CITY OF PORTLAND

N/F UNIVERSALIST CHURCH OF PORTLAND

N/F ALLEN AVENUE UNITARIAN UNIVERSALIST CHURCH

N/F MARY A. PALMAN

N/F PHILIP A. & REBECCA L. EVERETT

N/F KEVIN E. GOUGH & JAMES J. PARISI, JR.

N/F DAVID D. BUCHHOLZ & BARBARA A. RIETSCHA TRUSTEE

EROSION CONTROL, TYP

IPF, FLUSH

IPF, 1" DIA. 0.45' A.G.

IPF, 1" DIA. 0.4' B.G.

IPF, 1" DIA. BENT, 0.5' B.G.

IPF, 1" DIA. FLUSH

IPF, 1" DIA. 1.8' A.G., LEANING

IPF, 1" DIA. 0.7' A.G.

IPF, 1" DIA. 1.1' A.G.

IPF, 1" DIA. 0.5' A.G. (HELD)

IPF, 1" DIA. 0.6' A.G. (HELD)

IRF, .5" DIA., FLUSH

CIRF #1057, 1.85' A.G.

CIRF #1057, 1.5' A.G.

CIRF #1057, 0.5' A.G.

CIRF #1252, 0.4' A.G.

CIRF, 1' A.G.

CIRF, 1.6' A.G.

GNF, DRIL FLUSH

48" (plan)

EASEMENT FOR DRAINAGE & PEDESTRIAN ACCESS

PLAN
SCALE: 1"=50'

0 50 100

GRID

STATE OF MAINE
DOUGLAS RICE
No. 8702
REGISTERED PROFESSIONAL ENGINEER

STATE OF MAINE
MICHAEL A. GUETHLE
14284
REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

GRADING AND UTILITIY PLAN

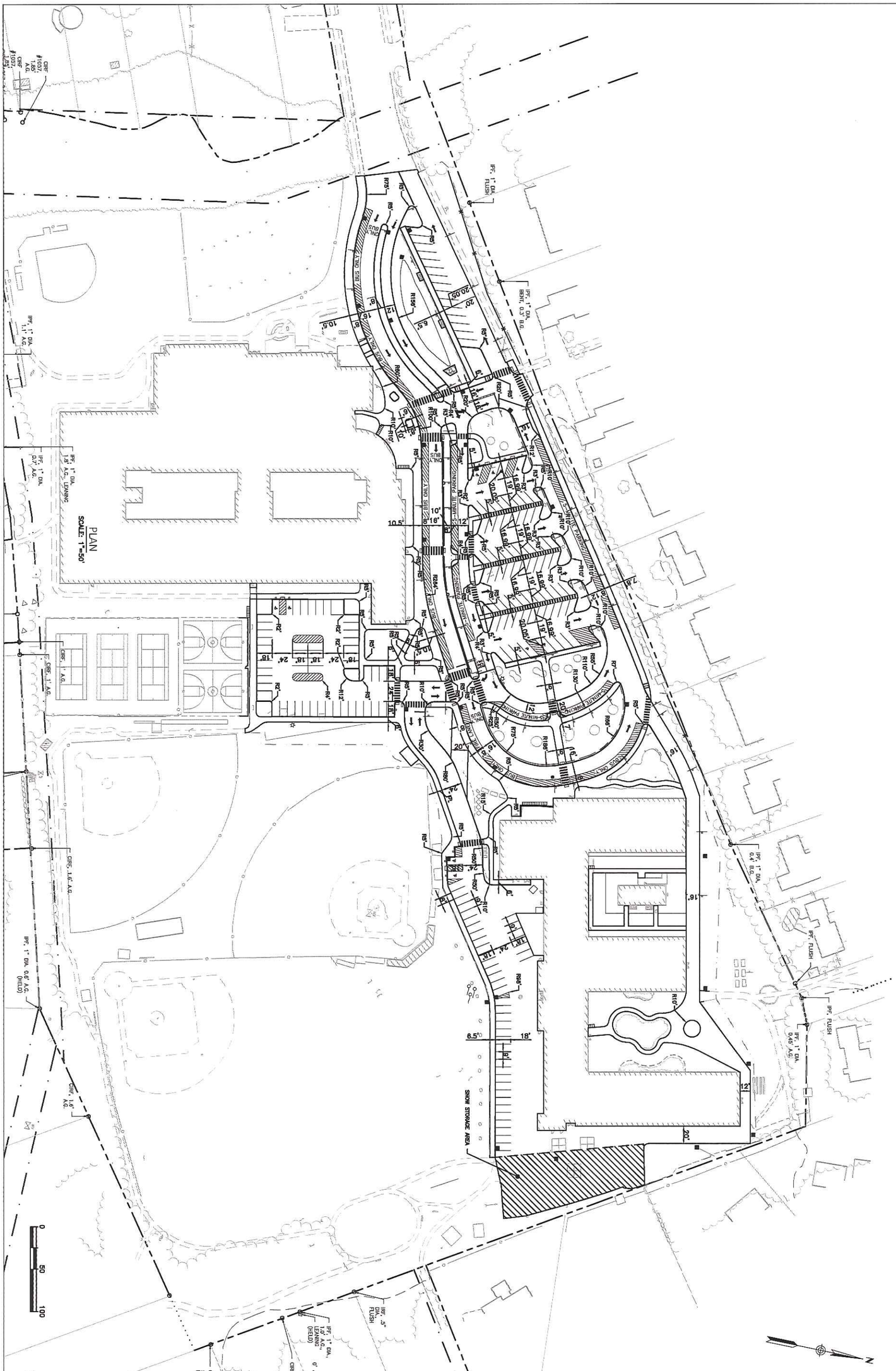
CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

RESURGAM CITY OF PORTLAND MAINE

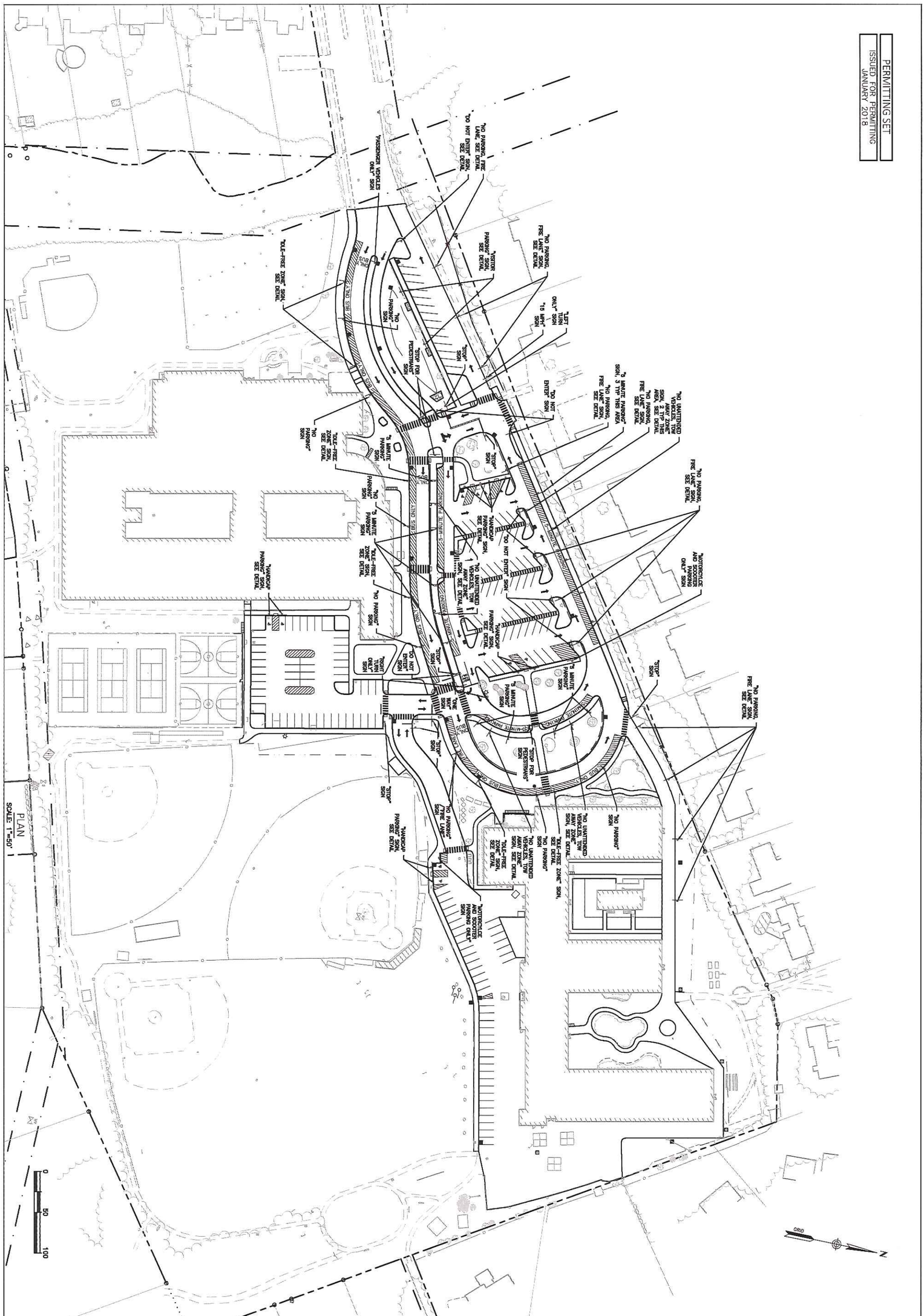
SHEET # 6 OF 15

PLAN NUMBER C-6

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018



PLAN NUMBER: C-7	SHEET # 7 OF 15	CITY OF PORTLAND, MAINE PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION	LLM CAMPUS IMPROVEMENTS CIRCULATION PROJECT SNOW STORAGE AND DIMENSION PLAN	MICHAELA GUETHLE 14284 LICENSED PROFESSIONAL ENGINEER 1/15/18	DESIGNED BY: MAG DRAWN BY: MBL CHECKED BY: DAR SCALE: AS NOTED DATE: 1-15-18	REFERENCES: REVISIONS: PLANNING BOARD SUBMISSION	Civil 3D 2015 Drawing Name: Civil 3D 2015 Survey Database: Civil 3D 2015 Data Shortcuts:	DOUGLAS A. REID No. 6702 LICENSED PROFESSIONAL ENGINEER 1/15/18



PLAN NUMBER: C-8

SHEET # 8 OF 15

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

SIGNAGE PLAN

STATE OF MAINE
MICHAELA GUETHLE
14284
LICENSED PROFESSIONAL ENGINEER
1/15/18

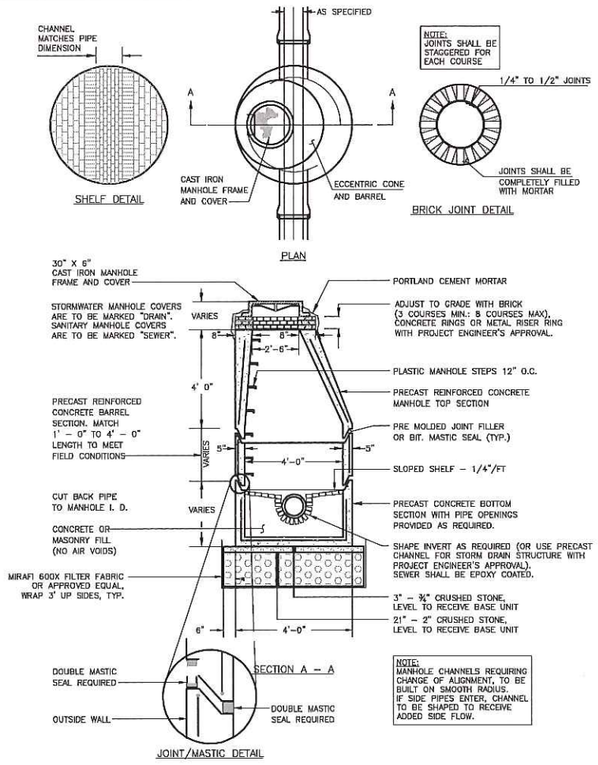
DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

REFERENCES:

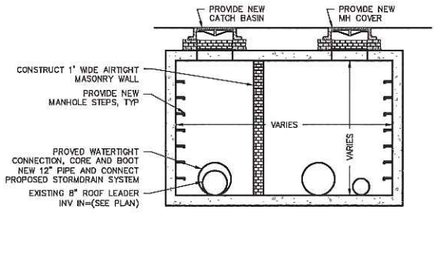
REVISIONS:
PLANNING BOARD SUBMISSION

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

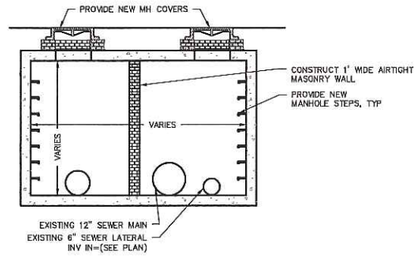
STATE OF MAINE
DOUGLAS A. RICE
No. 9702
LICENSED PROFESSIONAL ENGINEER
1/15/18



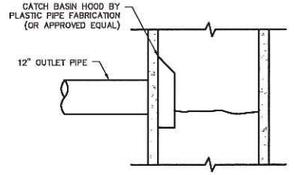
PRECAST CONCRETE MANHOLE TYPE "A"
NOT TO SCALE



EXISTING SEWER MANHOLE B TO BE ALTERED
NOT TO SCALE



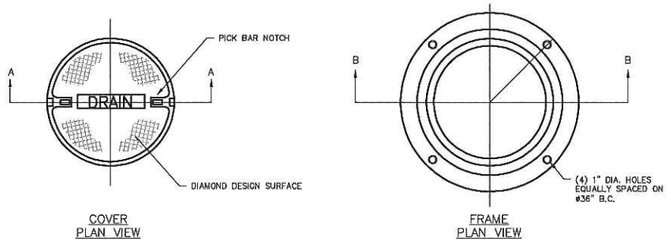
EXISTING SEWER MANHOLE C TO BE ALTERED
NOT TO SCALE



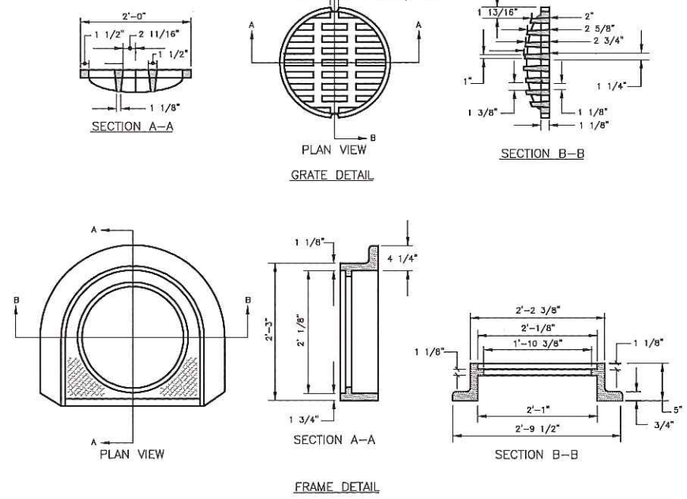
PPF CATCH BASIN HOOD
NOT TO SCALE

NOTES:
1. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
2. APPROVED MANHOLE FRAMES:
   2.1. EAST JORDAN = 2006Z,
   2.2. NEENAH = R–1743
   2.3. OR APPROVED EQUAL
3. APPROVED MANHOLE COVERS
   3.1. EAST JORDAN = 2006A1 EITHER "SEWER" OR "DRAIN"
   3.2. NEENAH = R–1743 EITHER "SEWER" OR "DRAIN"
   3.3. OR APPROVED EQUAL

1. APPROVED CATCH BASIN FRAMES:
   1.1. EAST JORDAN = 7375Z
   1.2. NEENAH = R–3248
   1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
   2.1. EAST JORDAN = 2440M
   2.2. NEENAH = R–3248
   2.3. OR APPROVED EQUAL



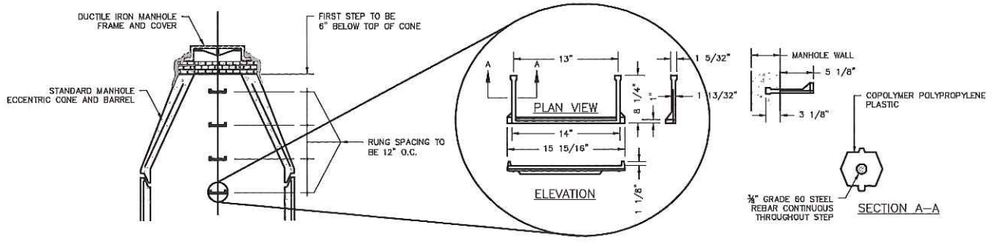
CAST IRON MANHOLE COVER AND FRAME
NOT TO SCALE



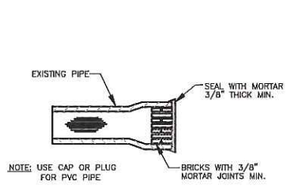
CATCH BASIN TYPE "D" FRAME & GRATE
NOT TO SCALE

GENERAL NOTES FOR MANHOLES AND CATCH BASINS

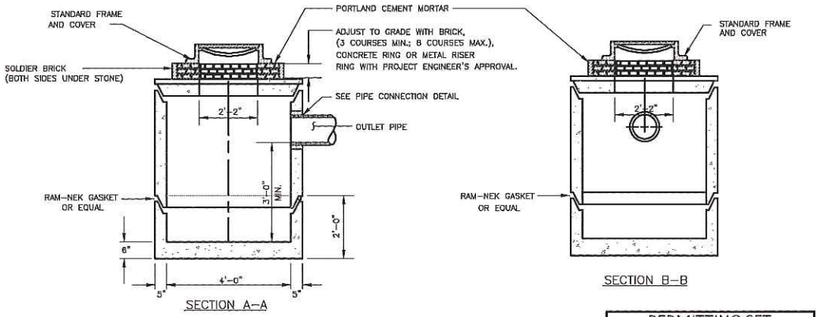
1. ALL CONCRETE SHALL BE CLASS "A" AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C–478–67.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C–32–63, GRADE MA AND SA.
7. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
8. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48–CLASS 35.
9. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
10. ALL 12" DIAMETER CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CATCH BASIN HOOD. HOODS SHALL NOT BE INSTALLED ON MAIN LINE THROUGH CATCH BASINS.
11. ALL CATCH BASINS SHALL BE INSTALLED WITH 3' SUMPS, UNLESS NOTED OTHERWISE.



PLASTIC MANHOLE STEPS
NOT TO SCALE



MASONRY PLUG
NOT TO SCALE



PRECAST CONCRETE CATCH BASIN
NOT TO SCALE

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE — DOUGLAS A. RICE — No. 6502 — REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: CMG
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE — MICHAEL A. GUETHLE — 14284 — REGISTERED PROFESSIONAL ENGINEER — 1/15/18

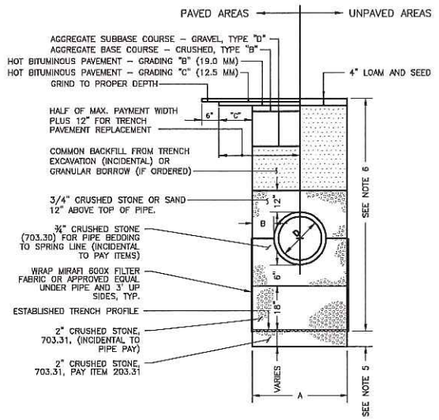
LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
CONSTRUCTION DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM IN CITY OF PORTLAND MAINE

SHEET # 9 OF 15

PLAN NUMBER C-9

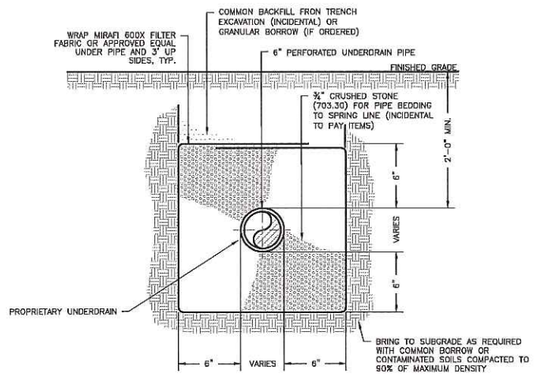


NOTES

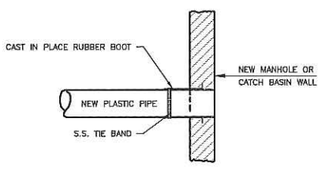
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 9".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE.
5. EXCAVATION BELOW ESTABLISHED TRENCH PROFILE (IF ORDERED). PAY ITEM 206.061
6. EXCAVATION INCIDENTAL TO PIPE PAY ITEMS (PAVED AND SEEDED AREAS).
7. DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY SECTIONS ON SHEET 66, SHEET 67 AND SHEET 68.
8. ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC WORKS.

PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)	PAVEMENT WIDTH OUTSIDE TRENCH, "C" (FEET)
4	4.0	2.5
6	4.0	2.5
8	4.0	2.5
10	4.0	2.5
12	5.0	2.5
15	5.0	2.5
18	5.0	2.0
21	5.0	2.0
24	6.0	1.75
27	6.0	1.5
30	6.0	1.5
36	6.0	1.0
42	7.0	1.0
48	7.0	1.0
66	8.0	1.0
72	8.0	1.0

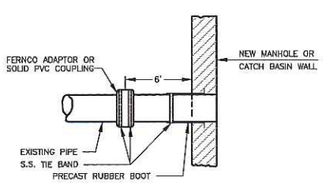
TYPICAL PIPE INSTALLATION DETAIL
NOT TO SCALE



UNDERDRAIN BEDDING
NOT TO SCALE

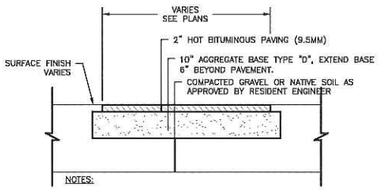


METHOD 2 – NEW CONSTRUCTION



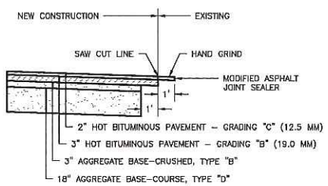
METHOD 1 – EXISTING PIPE INTO NEW STRUCTURE

PLASTIC PIPE CONNECTIONS TO DRAINAGE STRUCTURE
NOT TO SCALE

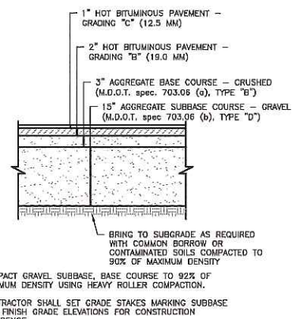


NOTES:
1. AGGREGATE TYPES PER MDOT SECTION 304.02

BITUMINOUS SIDEWALK
NOT TO SCALE

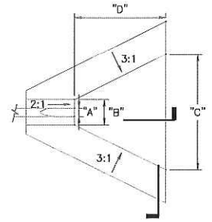


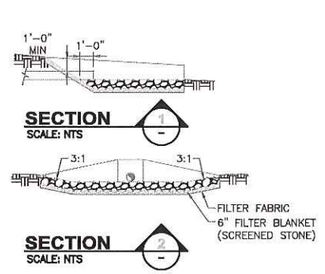
PAVEMENT BUTT–JOINT
NOT TO SCALE



NOTES:
1. COMPACT GRAVEL SUBBASE, BASE COURSE TO 92% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

TYPICAL PAVED PARKING AREA SECTION
NOT TO SCALE





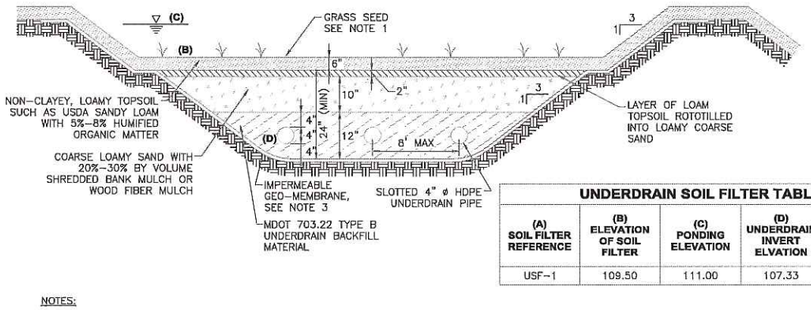
RIPRAP APRON
SCALE: NTS

RIPRAP SCHEDULE						
"A" PIPE DIAMETER (IN.)	"B" (FT)	"C" (FT)	"D" (FT)	RIPRAP CLASS	D_{50}	RIPRAP DEPTH (FT)
12"	3'–0"	6'–0"	4'–0"	I	6"	1'–6"
15"	3'–0"	7'–0"	5'–0"	II	8"	1'–8"
36"	7'–0"	14'–6"	12'–0"	II	9"	2'–0"

TABLE I	
SPECIFICATIONS FOR LOAMY COARSE SAND	
SEIVE #	% PASSING BY WEIGHT
10	85–100
20	70–100
60	15–40
200	8–15
200 CLAY SIZE	<2.0

TABLE II	
SPECIFICATIONS FOR SANDY LOAM TO FINE SANDY LOAM	
SEIVE #	% PASSING BY WEIGHT
4	75–95
10	60–90
40	35–85
200	20–70
200 CLAY SIZE	<2.0

TABLE III	
SEED MIXTURE	
CREEPING RED FESUCE	20 LBS/ACRE (0.5 LBS/1,000 S.F.)
TALL FESCUE	20 LBS/ACRE (0.5 LBS/1,000 S.F.)
BIRDSFOOT TREFOIL	8 LBS/ACRE (0.2 LBS/1,000 S.F.)



UNDERDRAIN SOIL FILTER TABLE				
(A) SOIL FILTER REFERENCE	(B) ELEVATION OF SOIL FILTER	(C) PONDING ELEVATION	(D) UNDERDRAIN INVERT ELVATION	MIN SURFACE AREA AT SOIL FILTER ELEVATION (SF)
USF–1	109.50	111.00	107.33	2,472

NOTES:
1. GRASS SEED MIXTURE SHALL BE DROUGHT TOLERANT CONSERVATION MIX.
2. PLACE FILTER MEDIA AND LOAM TOPSOIL ONLY AFTER SITE HAS BEEN STABILIZED.
3. IMPERMEABLE GEO–MEMBRANE SHALL BE 4 LDRE OR HDPE IMPERMEABLE LINER OF AT LEAST 20 MIL. THICKNESS. 60 MIL. HDPE LAGOON LINER IS ALSO ACCEPTABLE.

UNDERDRAINED SOIL FILTER CONSTRUCTION
SCALE: NTS

SOIL FILTER BASIN CONSTRUCTION NOTES:

1. CONSTRUCTION OVERSIGHT:
   INSPECTION OF THE FILTER BASINS SHALL BE PROVIDED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. AT A MINIMUM, INSPECTIONS WILL OCCUR:
   - AFTER PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED;
   - AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA;
   - AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED;
   - AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS.
2. TESTING AND SUBMITTALS:
   ALL MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN WILL BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
   THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MATERIAL. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:
   - SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE USED FOR THE FILTER MATERIAL AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
   - PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON THE UNDERDRAIN BEDDING MATERIAL.
   - PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90– 92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE · DOUGLAS A. ROCKWOOD · 12115 · REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: LAB
CHECKED BY: DJR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE · MICHAEL A. GUETHLE · 14284 · REGISTERED PROFESSIONAL ENGINEER · 1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
CONSTRUCTION DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

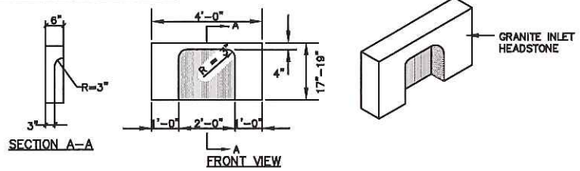
CITY OF PORTLAND, MAINE · RESURGAM

SHEET # 10 OF 15

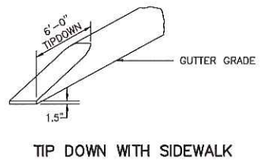
PLAN NUMBER C-10

PERMITTING SET

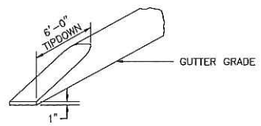
ISSUED FOR PERMITTING
JANUARY 2018



4' GRANITE HEADSTONE FOR CATCH BASIN INLET
NOT TO SCALE

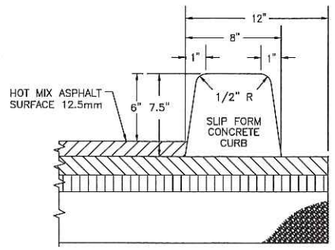


TIP DOWN WITH SIDEWALK

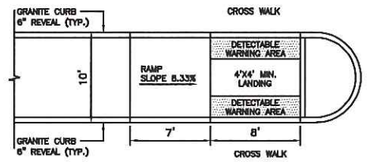


FOR ESPLANADE WIDER THAN 2'-6"

SLIPFORM CONCRETE CURB
SCALE: NTS

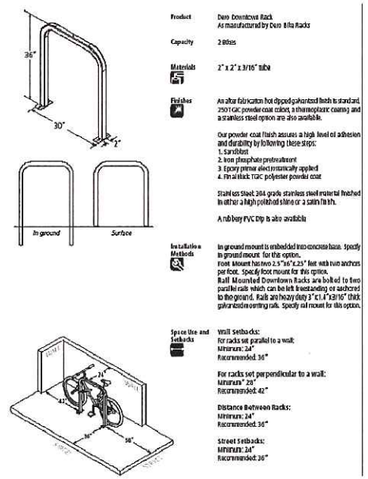


SLIPFORM CONCRETE CURB
SCALE: NTS

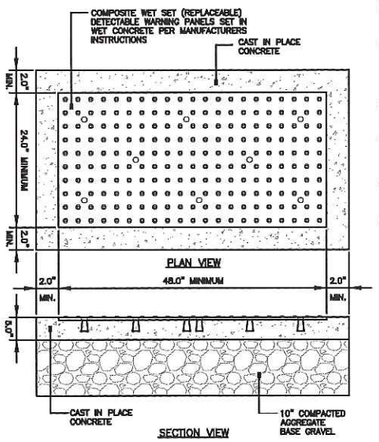


PLAN VIEW

ADA RAMP LAYOUT FOR SIDEWALK ISLAND
NOT TO SCALE



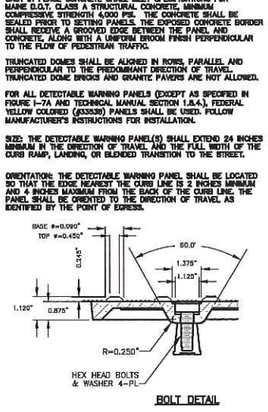
BIKE RACK DETAIL
NOT TO SCALE



SIDEWALK RAMP DETECTABLE WARNING PANEL
NOT IN OR ADJACENT TO HISTORIC DISTRICT
NOT TO SCALE

NOTES:

1. COMPOSITE WET SET (REPLACEABLE) DETECTABLE WARNING PANELS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADAYELLOW.COM), OR APPROVED EQUAL.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE CONCRETE SHALL BE SEALED PRIOR TO SETTING PANELS. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A GROOVED EDGE BETWEEN THE PANEL AND CONCRETE, ALONG WITH A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. FOR ALL DETECTABLE WARNING PANELS (EXCEPT AS SPECIFIED IN FIGURE 1-7A AND TECHNICAL MANUAL SECTION 1.8.4.), FEDERAL YELLOW COLORED (#33538) PANELS SHALL BE USED. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
5. SIZE: THE DETECTABLE WARNING PANEL(S) SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
6. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 2 INCHES MINIMUM AND 6 INCHES MAXIMUM FROM THE BACK OF THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

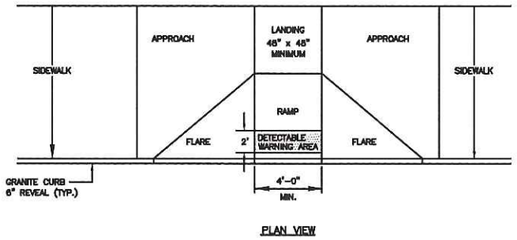


BOLT DETAIL

NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

GRANITE CURB ADJACENT TO RAMP SHALL BE FLUSH WITH STREET.

DESIGN ELEMENT	SLOPE IN DIRECTION OF TRAVEL	CROSS SLOPE
APPROACH	8.33% MAXIMUM	2% MAXIMUM
LANDING	2% MAXIMUM	2% MAXIMUM
RAMP	8.33% MAXIMUM	MATCH STREET GRADE
FLARE	10% MAX. AT CURB FACE	–
SIDEWALK	MATCH STREET GRADE	2% MAXIMUM



PLAN VIEW

PERPENDICULAR ADA RAMP LAYOUT FOR A SIDEWALK WITH NO ESPLANADE AND MINIMUM 48" X 48" LANDING
NOT TO SCALE

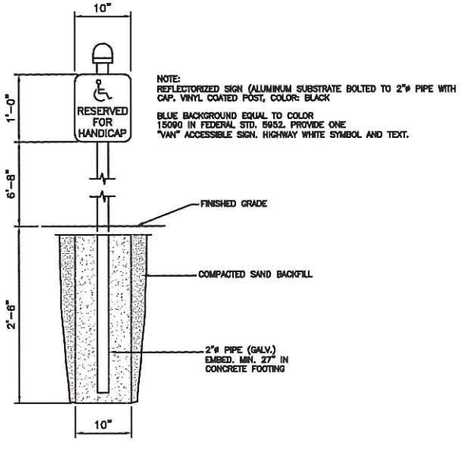
NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

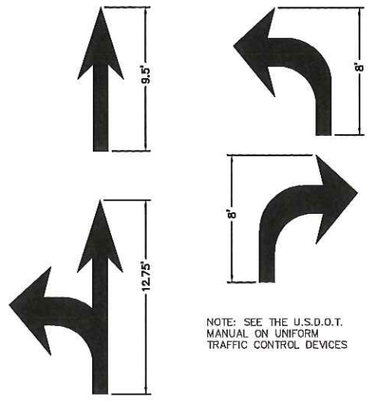
SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

PLAN VIEW

PARALLEL SIDEWALK RAMP LAYOUT FOR NARROW SIDEWALK WITH NO ESPLANADE
NOT TO SCALE

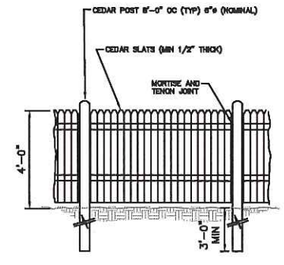


HANDICAP SIGN
SCALE: NTS



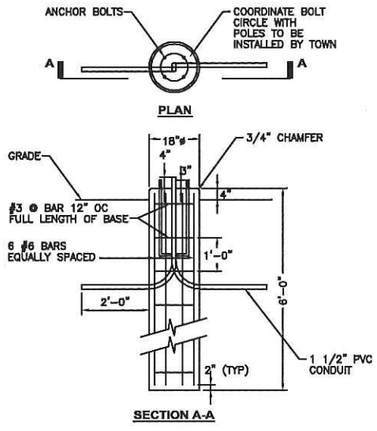
NOTE: SEE THE U.S.D.O.T. MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

ROADWAY DIRECTIONAL ARROWS DETAIL
SCALE: NTS

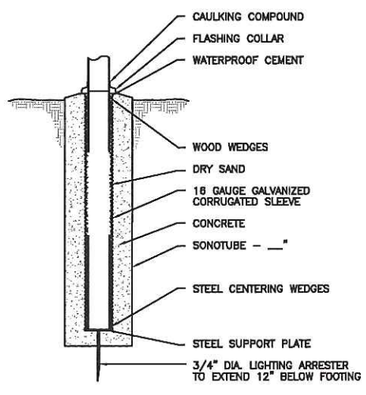


NOTES:
1. ALL METAL FASTENINGS TO BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
2. SUBMIT DETAILS FOR GATE FRAMING AND HARDWARE FOR ENGINEER'S APPROVAL PRIOR TO FABRICATION.
3. CONTRACTOR TO APPLY SEMI-TRANSPARENT PRESERVATIVE STAIN, COLOR TO BE COORDINATED WITH OWNER.

STOCKADE FENCE
SCALE: NTS



POLE BASE
SCALE: NTS



FLAGPOLE BASE
SCALE: NTS

STATE OF MAINE
DOUGLAS RIDGE
No. 9502
LICENSED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY:
CHECKED BY: DJR
SCALE: AS NOTED
DATE: 1.15.18

STATE OF MAINE
MICHAELA GUETHLE
14284
REGISTERED PROFESSIONAL ENGINEER
1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

CONSTRUCTION DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

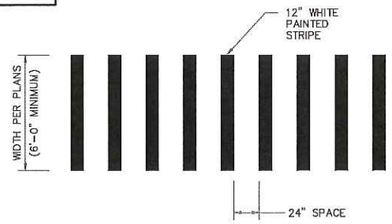
CITY OF PORTLAND, MAINE
SALVE RESURGAM

SHEET # 11 OF 15

PLAN NUMBER C-11

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



CROSSWALK LAYOUT
SCALE: NTS

R3-5R

LEFT TURN ONLY SIGN
NOT TO SCALE

R3-5L

RIGHT TURN ONLY SIGN
NOT TO SCALE

R5-1

DO NOT ENTER SIGN
NOT TO SCALE

R7-122

VISITOR PARKING SIGN
NOT TO SCALE

R7-1

NO PARKING SIGN
NOT TO SCALE

R8-3HP

EMPLOYEE PARKING SIGN
NOT TO SCALE

MOTORCYLE PARKING SIGN
NOT TO SCALE

R6-2R

ONE WAY SIGN
NOT TO SCALE

R8-31

NO PARKING FIRE LANE SIGN
NOT TO SCALE

R1-6A

STOP FOR PEDESTRIANS
NOT TO SCALE

R7-201aP

TOW-AWAY ZONE
NOT TO SCALE

R1-1

STOP SIGN
NOT TO SCALE

R7-8

HANDICAP PARKING SIGN
NOT TO SCALE

R2-1

SPEED LIMIT SIGN
NOT TO SCALE

NO IDLING ZONE SIGN
NOT TO SCALE

5 MINUTE PARKING SIGN
NOT TO SCALE

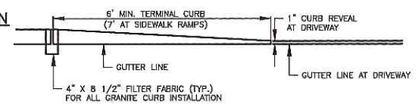
NO PARKING IN DRIVEWAY
NOT TO SCALE

R3-1

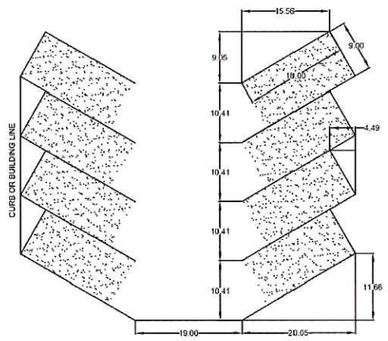
NO RIGHT TURN SIGN
NOT TO SCALE

R3-2

NO LEFT TURN SIGN
NOT TO SCALE

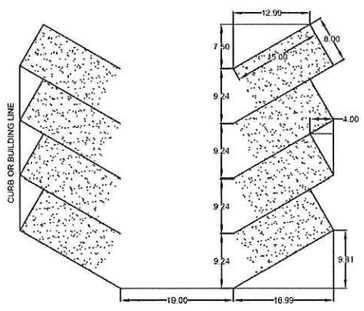


TERMINAL CURB PROFILE



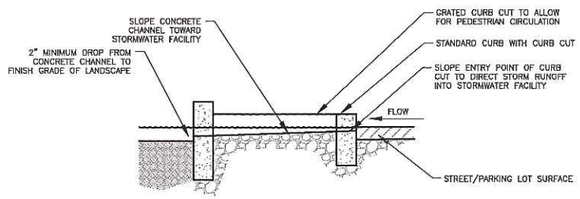
60° PARKING @ 9' x 18'

60° ANGLED PARKING LAYOUT
NOT TO SCALE

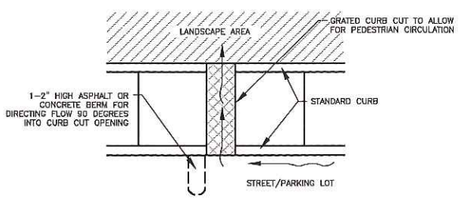


60° PARKING @ 8' x 15'

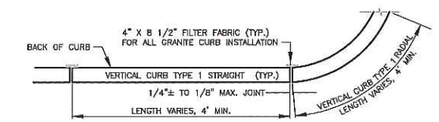
60° ANGLED COMPACT PARKING LAYOUT
NOT TO SCALE



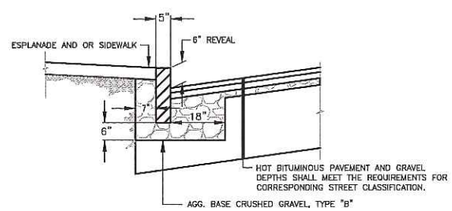
GRATED CURB CUT SECTION VIEW
NOT TO SCALE



GRATED CURB CUT PLAN VIEW
NOT TO SCALE



VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

VERTICAL GRANITE CURB
FULL DEPTH STREET CONSTRUCTION
NOT TO SCALE

STATE OF MAINE
DOUGLAS A. RICE
PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY:	MJG
DRAWN BY:	MJG
CHECKED BY:	MAL
CHECKED BY:	DAR
SCALE	AS NOTED
DATE:	1-15-18

STATE OF MAINE
MICHAEL A. GUETHLE
14284
PROFESSIONAL ENGINEER
1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

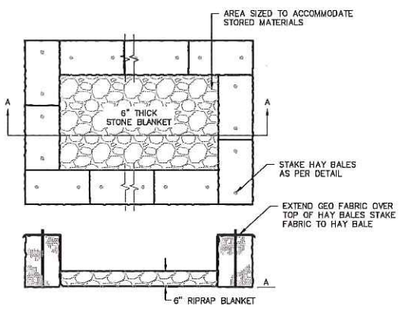
CONSTRUCTION DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

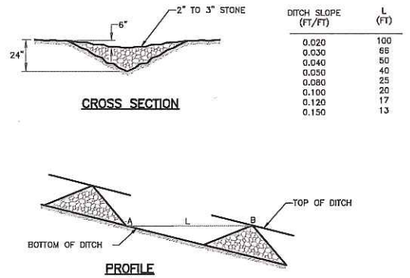
RESURGAM IN CITY OF PORTLAND, MAINE

SHEET #
12 OF 15

PLAN NUMBER
C-12



TEMPORARY HAY BALE SEDIMENT BASIN
NOT TO SCALE

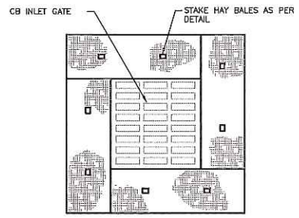


CROSS SECTION

DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

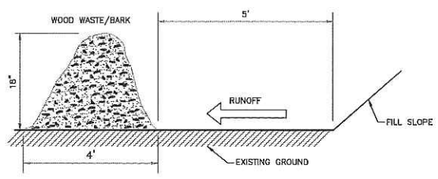
PROFILE

STONE CHECK DAM DETAIL
NOT TO SCALE

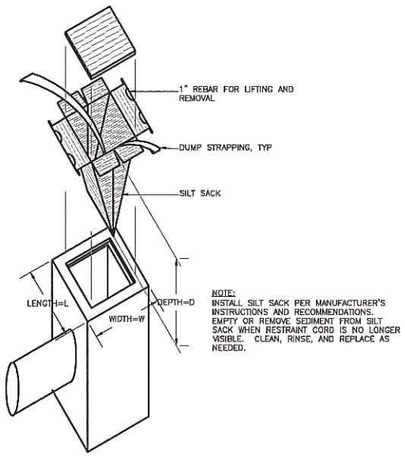


NOTE:
EMBED HAYBALES MINIMUM OF 4".

HAY BALE CB INLET PROTECTION
NOT TO SCALE

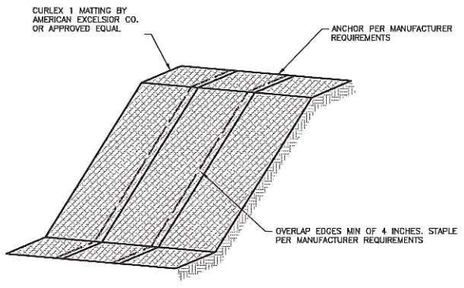


WOOD WASTE/BARK FILTER BERM
NOT TO SCALE



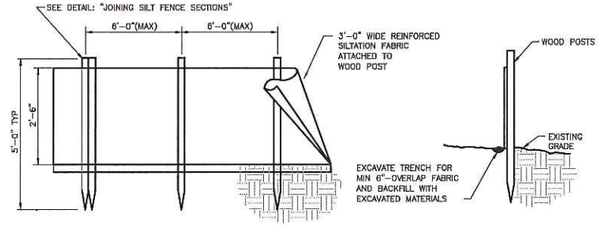
NOTE:
INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.

SILT SACK CATCH BASIN INLET
NOT TO SCALE

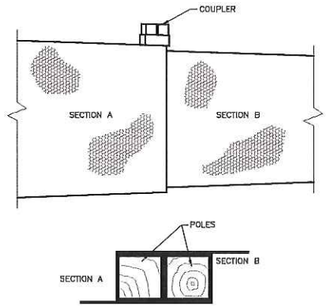


INSTALL ON SLOPES 3:1 OR GREATER

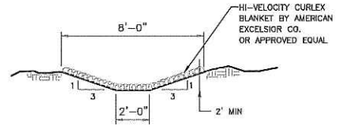
EROSION CONTROL MATTING–SLOPES
NOT TO SCALE



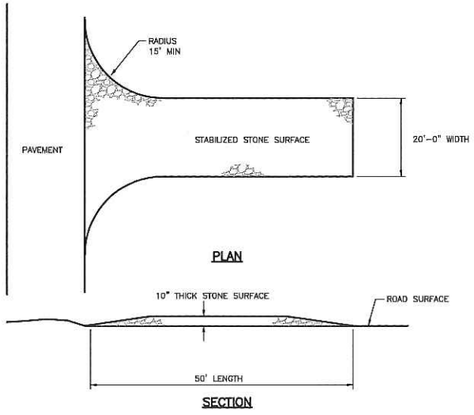
SILT FENCE INSTALLATION DETAIL
NOT TO SCALE



JOINING SILT FENCE SECTIONS
NOT TO SCALE



EROSION CONTROL MATTING–DITCHES
NOT TO SCALE



PLAN

SECTION

(TEMPORARY, TO BE REMOVED PRIOR TO FINAL SITE PAVING)

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE
DOUGLAS A. RICE
14282
REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: ARL
CHECKED BY: DJR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAEL A. GUETHLE
14284
REGISTERED PROFESSIONAL ENGINEER
1/12/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
CONSTRUCTION DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM CITY OF PORTLAND, MAINE

SHEET # 13 OF 15

PLAN NUMBER C-13

GRASS, LOAM AND SEED

(12) SAGE

(2) KOREAN MOUNTAIN ASH

(1) RED MAPLE (KARPICK)

GRASS, LOAM AND SEED

(2) ENGLISH OAK

(1) RED MAPLE (KARPICK)

GRASS, LOAM AND SEED

(2) (1) SUGAR MAPLE (KARPICK)

(10) SAGE

(11) WINTERBERRY

(11) COMMON LILAC

(1) SUGAR MAPLE (KARPICK)

(5) DOGWOOD

(10) RED MAPLE (BOWHALL)

EXISTING TREES TO REMAIN

GRASS, LOAM AND SEED

EXISTING TREES TO REMAIN

(1) KOREAN MOUNTAIN ASH

GRASS, LOAM AND SEED

GRASS, LOAM AND SEED

SHRUBS TO REMAIN

EXISTING PLANTER BOXES TO REMAIN

(2) SUGAR MAPLE (KARPICK)

(2) ENGLISH OAK

(8) RED MAPLE (BOWHALL)

GRASS, LOAM AND SEED

PLAN
SCALE: 1"=50'

0 50 100

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE
DOUGLAS RICE
14282
REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DJR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAELA GUETHLE
14284
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

LANDSCAPE & IRRIGATION PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

RESURGAM CITY OF PORTLAND, MAINE

SHEET # 14 OF 15

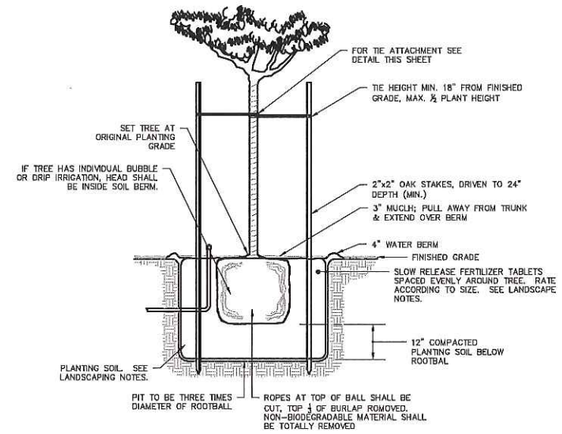
PLAN NUMBER C-14

TEMPORARY SEED MIXTURE			
SEED	LBS./ACRE	LBS./1000S.F.	RECOMMENDED SEEDING DATE
WINTER RYE	112	2.6	8/15 THRU 10/1
OATS	80	1.8	4/1 THRU 7/1 8/15 THRU 10/1
ANNUAL RYEGRASS	40	0.9	4/1 THRU 7/1
SUDANGRASS	40	0.9	5/15 THRU 8/15
PERENNIAL	40	0.9	8/15 THRU 9/15

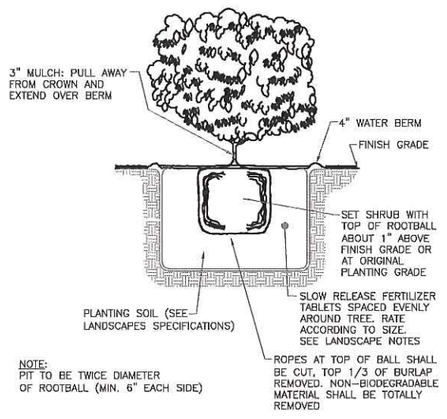
ATHLETIC FIELDS – PERMANENT SEED MIXTURE	
SEED TYPE	APPLICATION RATE
KENTUCKY BLUE GRASS	2.5 LBS/1,000S.F. (110 LBS./ACRE)

STANDARD – PERMANENT SEED MIXTURE	
SEED TYPE	APPLICATION RATE
CREEPING RED FESCUE	0.46 LBS/1,000S.F. (20 LBS./ACRE)
RED TOP	0.05 LBS/1,000S.F. (2 LBS./ACRE)
TALL FESCUE	0.46 LBS/1,000S.F. (20 LBS./ACRE)
TOTAL	0.97 LBS/1,000S.F. (42 LBS./ACRE)

PLANT SCHEDULE				
SYMBOL	QUANTITY	COMMON NAME	SCIENTIFIC NAME	NOTES
	4	SUGAR MAPLE	ACER SACCHARUM	1.75"–2" CALIPER, SPACING=50' O.C., 5' MIN. HEIGHT, 5 GALLON POT
	2	RED MAPLE (KARPICK)	ACER RUBRUM (KARPICK)	1.75"–2" CALIPER, SPACING=50' O.C., 5' MIN. HEIGHT, 5 GALLON POT
	19	RED MAPLE (BOWHALL)	ACER RUBRUM (BOWHALL)	1.75"–2" CALIPER, SPACING=50' O.C., 5' MIN. HEIGHT, 5 GALLON POT
	2	KOREAN MOUNTAIN ASH	SORBUS ALNIFOLIA	1.75"–2" CALIPER, SPACING=50' O.C., 5' MIN. HEIGHT, 5 GALLON POT
	4	ENGLISH OAK	QUERCUS ROBUR (REGAL PRINCE)	2" CALIPER, SPACING=50' O.C., 5' MIN. HEIGHT, 5 GALLON POT
	5	DOGWOOD	COMUS KOUSA	1.75" CALIPER, SPACING=40'
	22	RUSSIAN SAGE	PEROVSKIA ATRIPLICIFOLIA	SPACING 5' O.C., 1 GALLON POT
	11	WINTERBERRY	ILEX VERTICILLATA (WINTER RED)	3 GALLON POT, HEIGHT=18", SPACING=5'
	11	COMMON LILAC	SYRINGA VULGARIS (MISS KIM)	3 GALLON POT, HEIGHT=18", SPACING=5'



TREE INSTALLATION: UNDER 10'
NOT TO SCALE



PLANTING/SHRUB INSTALLATION
SCALE: NTS

PERMITTING SET
ISSUED FOR PERMITTING
JANUARY 2018

STATE OF MAINE DOUGLAS A. REECE No. 9502 REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE MICHAELA GUETHLE 14284 REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT 1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
LANDSCAPE DETAILS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

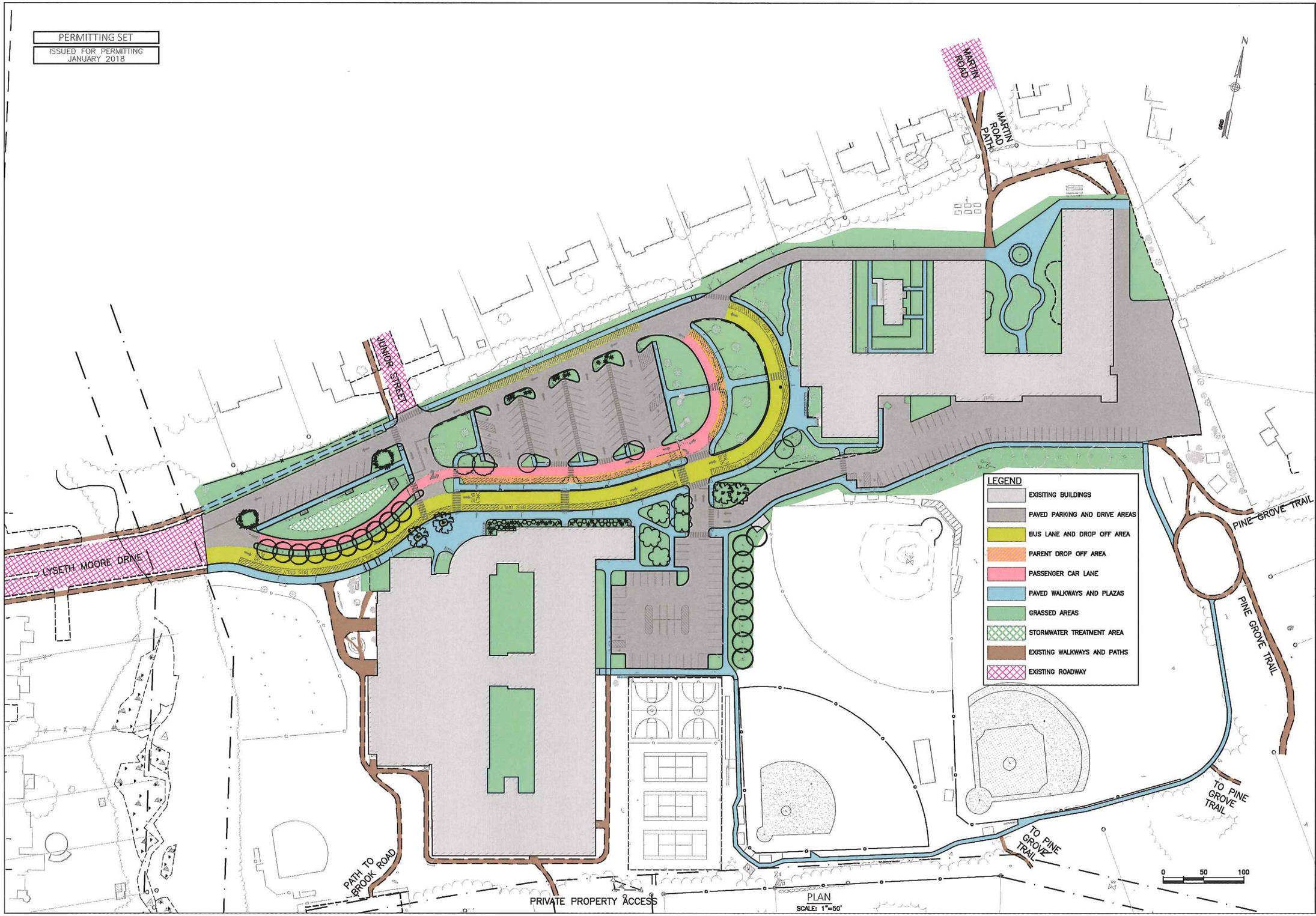
RESURGAM CIVITAS PORTLANDIA MAINE

SHEET # 15 OF 15

PLAN NUMBER C-15

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



PLAN
SCALE: 1"=50'

STATE OF MAINE
DOUGLAS A. RISE
No. 9262
REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAELA GUETHLE
14284
REGISTERED PROFESSIONAL ENGINEER
1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

CIRCULATION PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

RESURGAM CITY OF PORTLAND, MAINE

SHEET #
1 OF 1

PLAN NUMBER
FIG-1

LEGEND

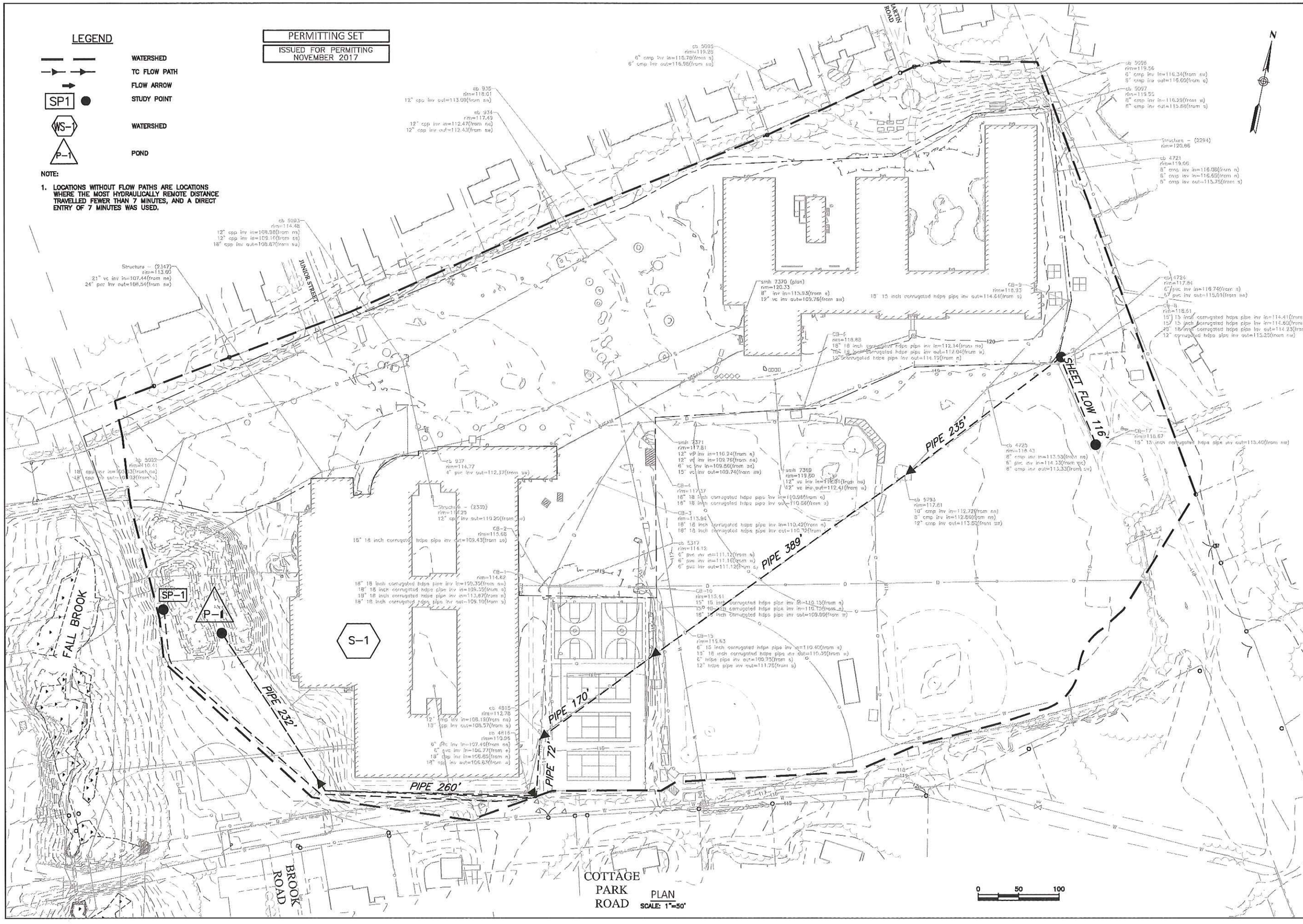
- WATERSHED
- TC FLOW PATH
- FLOW ARROW
- SP1 — STUDY POINT
- WS-1 — WATERSHED
- P-1 — POND

NOTE:

1. LOCATIONS WITHOUT FLOW PATHS ARE LOCATIONS WHERE THE MOST HYDRAULICALLY REMOTE DISTANCE TRAVELLED FEWER THAN 7 MINUTES, AND A DIRECT ENTRY OF 7 MINUTES WAS USED.

PERMITTING SET

ISSUED FOR PERMITTING
NOVEMBER 2017



PLAN
SCALE: 1"=50'

DESIGNED BY: MAGNAG
DRAWN BY: MKL/ARL
CHECKED BY: DMW/JK
SCALE: AS NOTED
DATE: 11-21-17

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PERMITTING SUBMISSION

STATE OF MAINE — DOUGLAS R. RICE — No. 9703 — REGISTERED PROFESSIONAL ENGINEER — 11/21/17

STATE OF MAINE — MICHAELA GUETHLE — 14284 — LICENSED PROFESSIONAL ENGINEER — 11/21/17

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT
PRE DEVELOPMENT DRAINAGE PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES MANAGEMENT DIVISION

SHEET # 1 OF 2

PLAN NUMBER FIG-2

PERMITTING SET

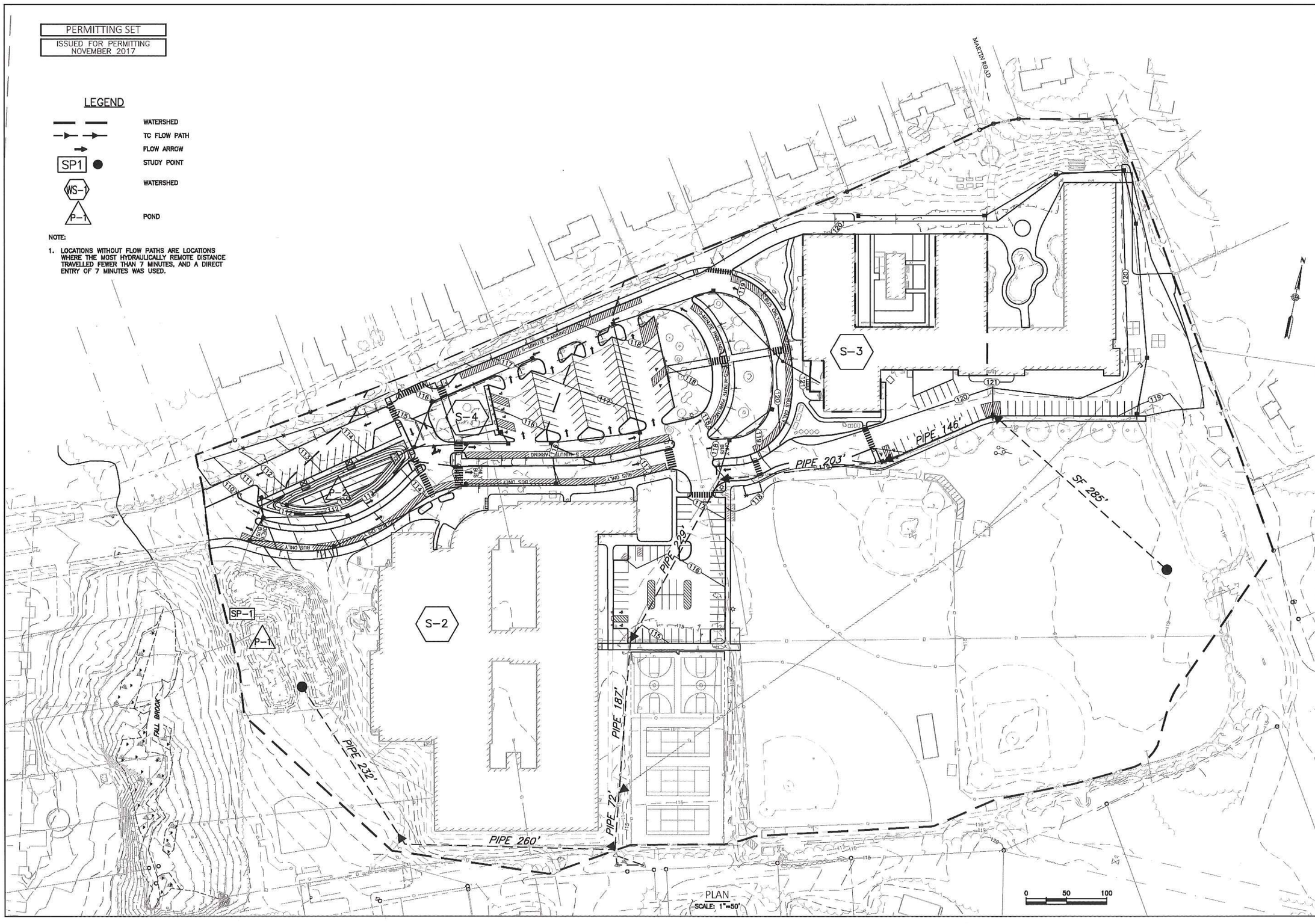
ISSUED FOR PERMITTING
NOVEMBER 2017

LEGEND

— —	WATERSHED
—▶— —▶—	TC FLOW PATH
→	FLOW ARROW
SP1 ●	STUDY POINT
WS-1	WATERSHED
P-1	POND

NOTE:

1. LOCATIONS WITHOUT FLOW PATHS ARE LOCATIONS WHERE THE MOST HYDRAULICALLY REMOTE DISTANCE TRAVELLED FEWER THAN 7 MINUTES, AND A DIRECT ENTRY OF 7 MINUTES WAS USED.



PLAN
SCALE: 1"=50'

REFERENCES:

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REVISIONS:
PERMITTING SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 11-21-17

STATE OF MAINE
DOUGLAS R. RICE
No. 8702
LICENSED
PROFESSIONAL ENGINEER
11/21/17

STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER
11/21/17

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

POST DEVELOPMENT
DRAINAGE PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

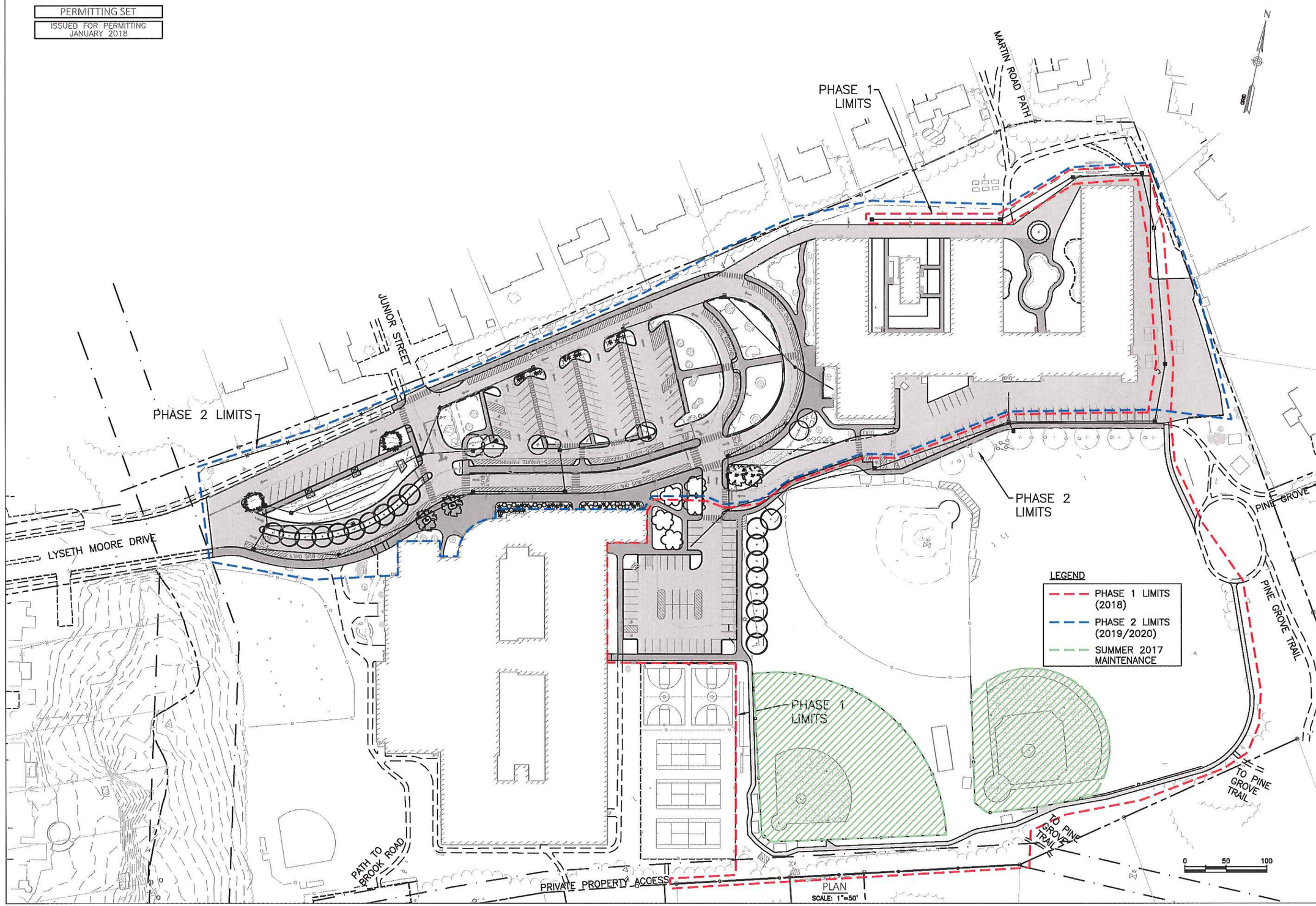
CITY OF PORTLAND, MAINE
RESURGAM

SHEET # 2 OF 2

PLAN NUMBER
FIG-3

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



STATE OF MAINE
DOUGLAS RICE
No. 6702
LICENSED
PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAELA GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

PHASING PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

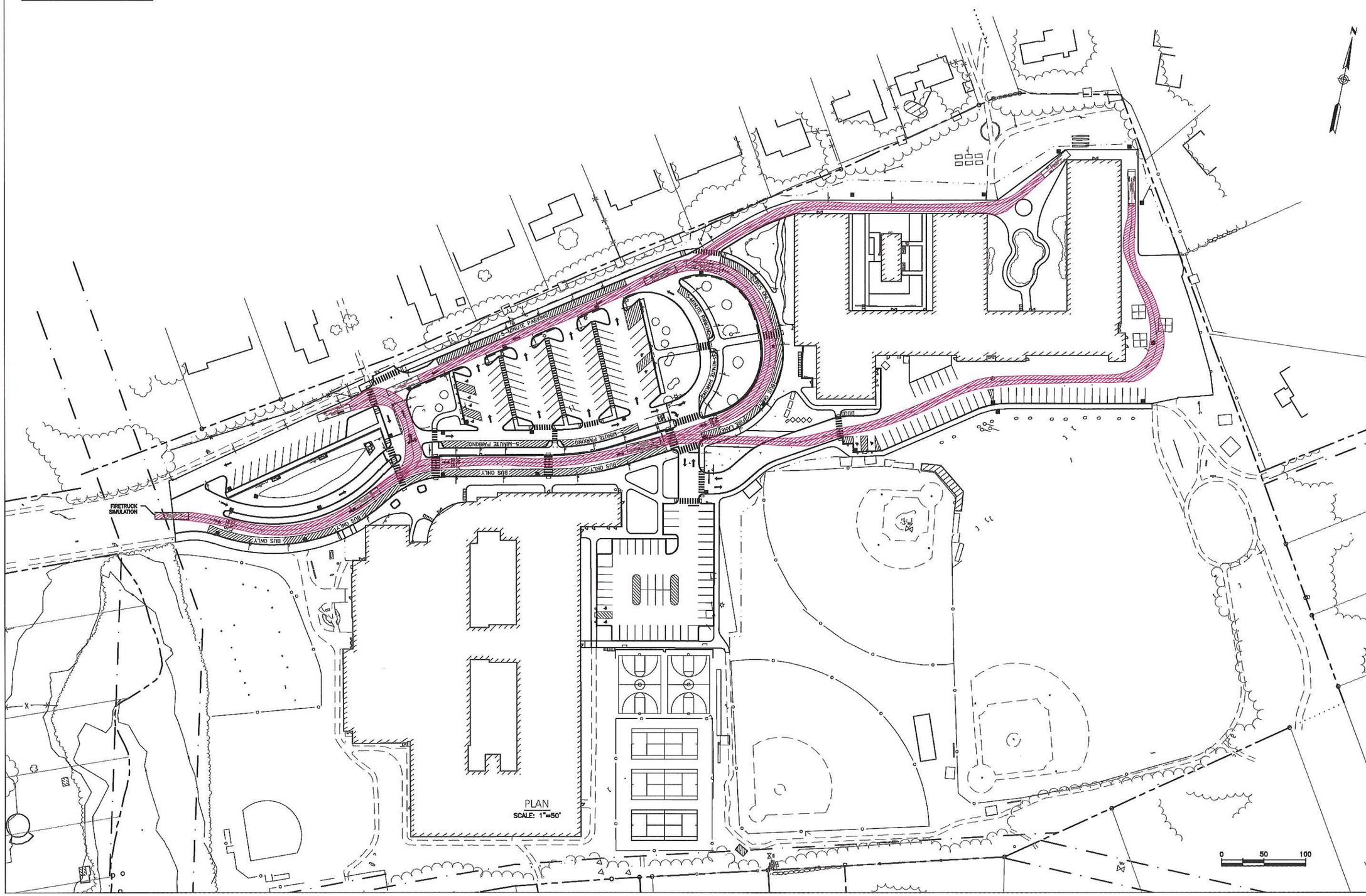
RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 1 OF 1

PLAN NUMBER
FIG-4

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



PLAN
SCALE: 1"=50'

STATE OF MAINE
DOUGLAS A. RICE
No. 6702
LICENSED
PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER
1/15/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

CIRCULATION PLAN - FIRETRUCK

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

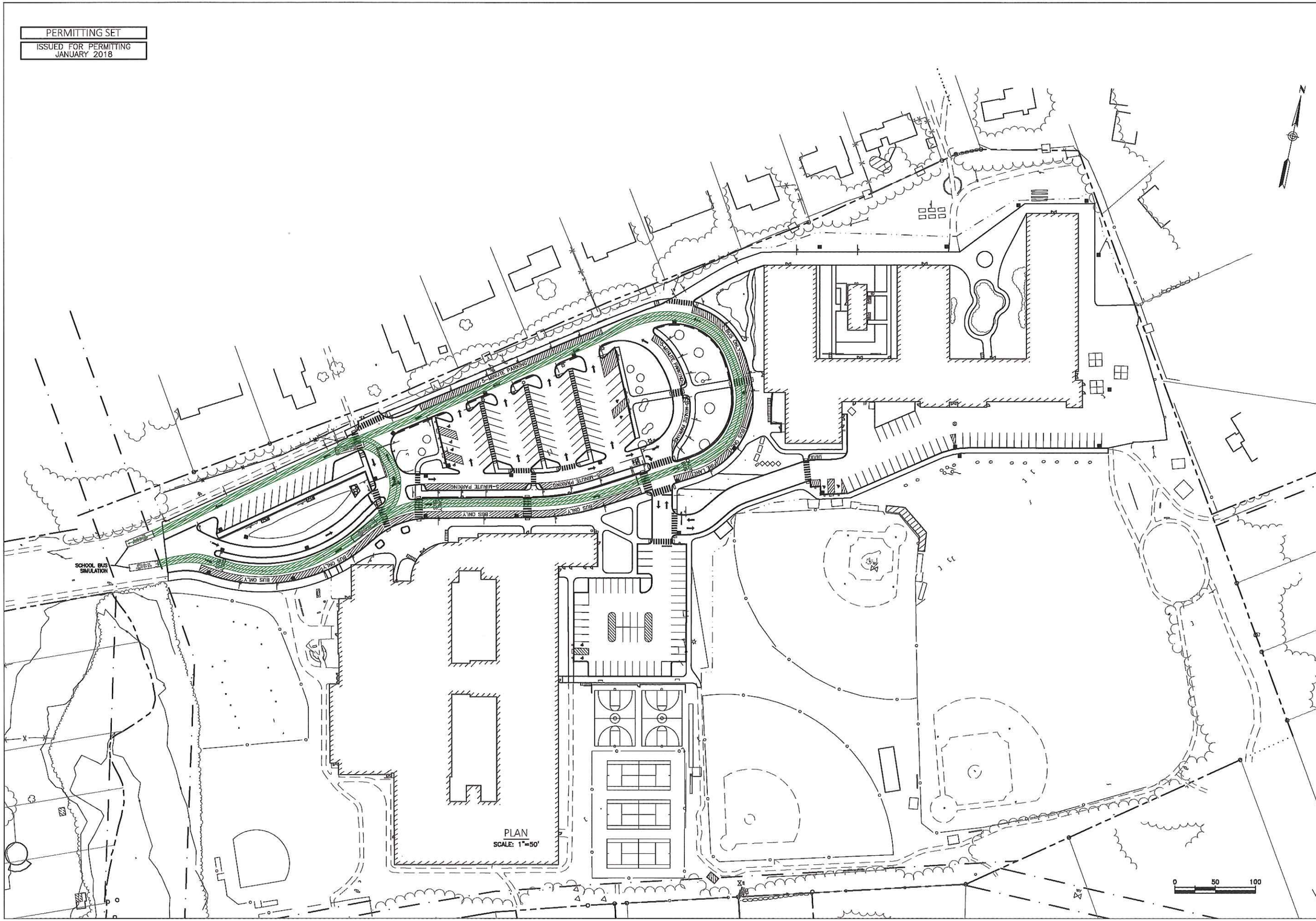
RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 1 OF 3

PLAN NUMBER
FIG-5

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018



STATE OF MAINE
DOUGLAS A. RICE
No. 6202
LICENSED
PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAG
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

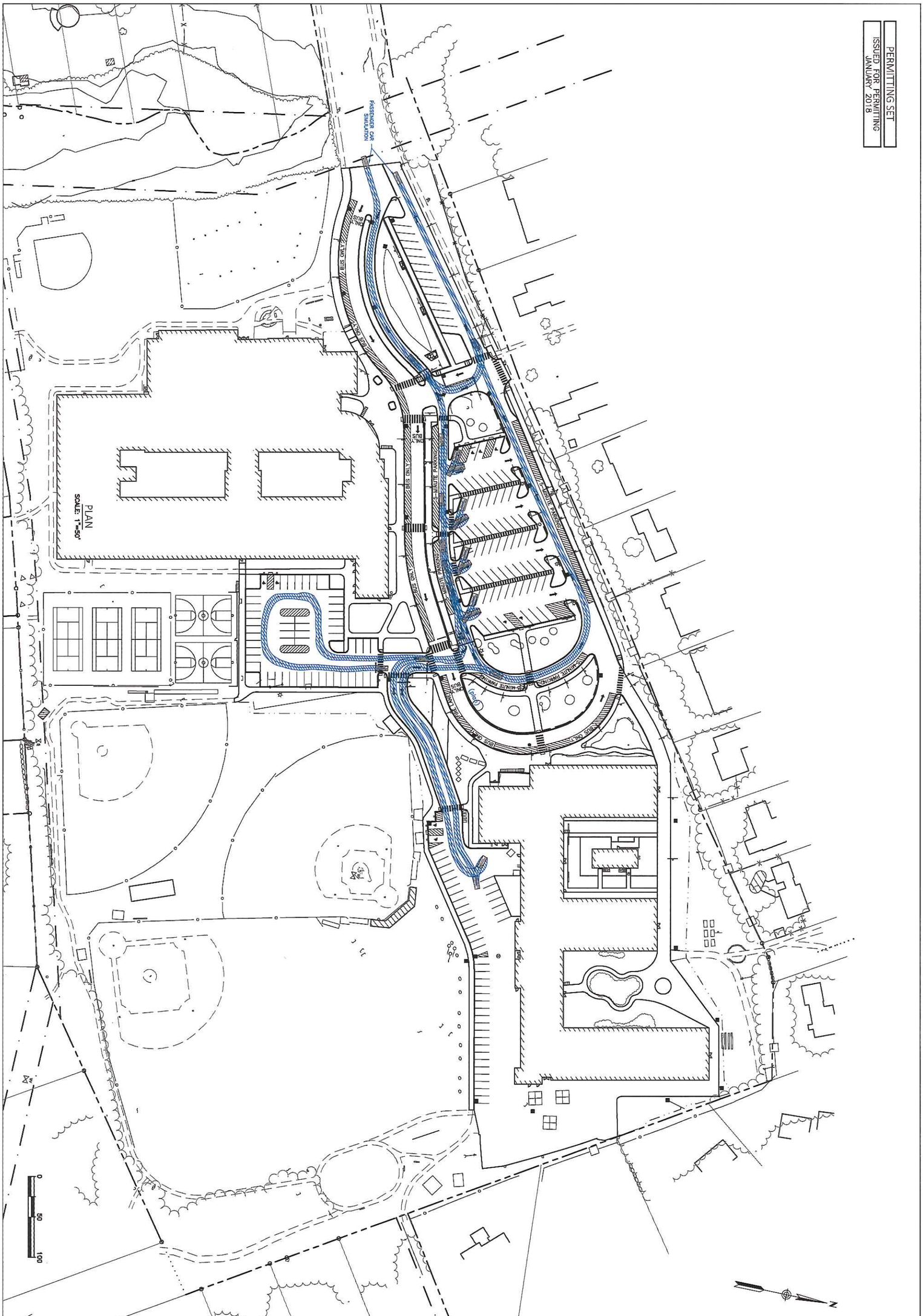
CIRCULATION PLAN - BUS

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 2 OF 3

PLAN NUMBER
FIG-6

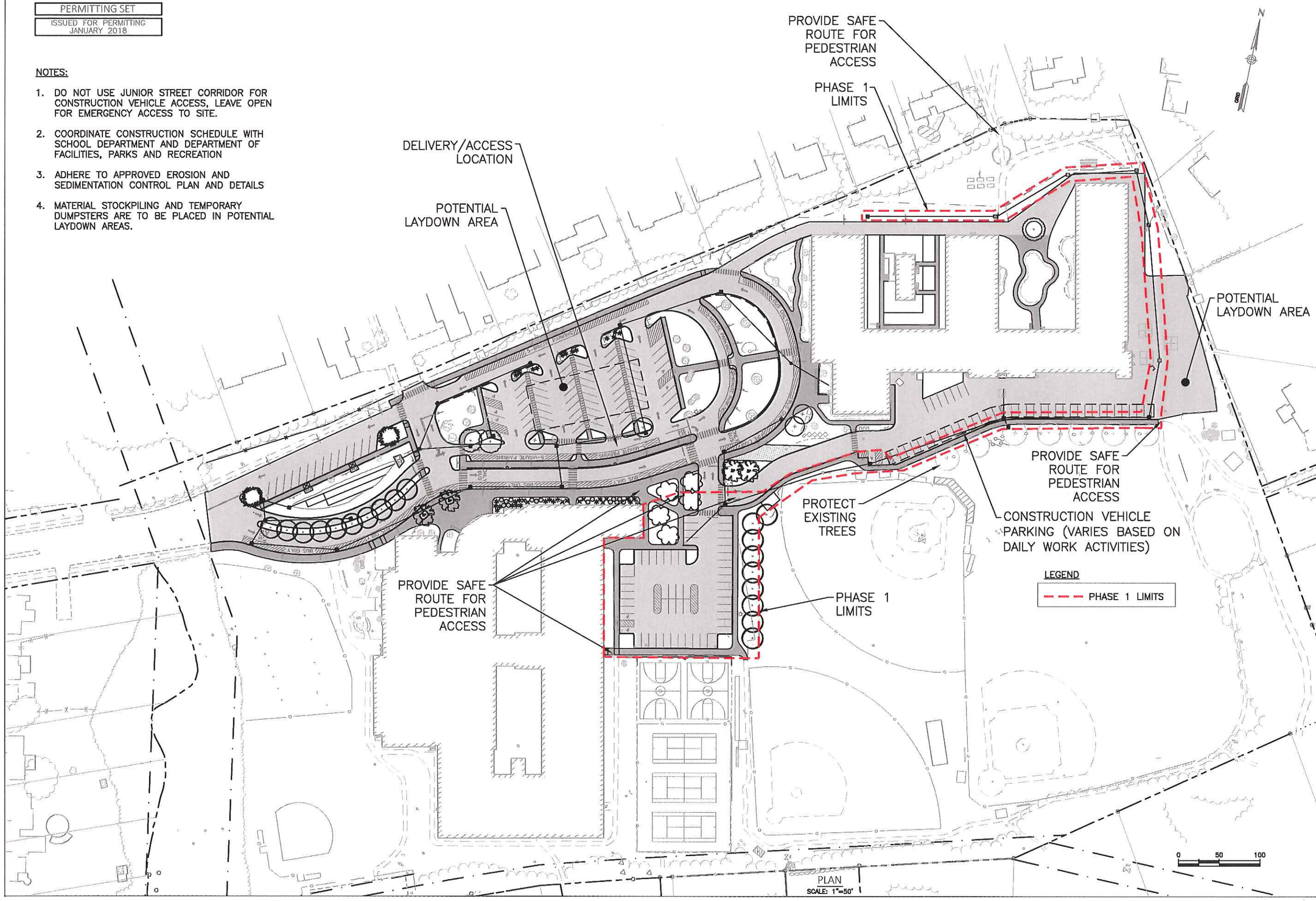

PASSENGER CAR SIMULATION
BUS ONLY
BUS ONLY
BUS ONLY

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018

NOTES:

1. DO NOT USE JUNIOR STREET CORRIDOR FOR CONSTRUCTION VEHICLE ACCESS, LEAVE OPEN FOR EMERGENCY ACCESS TO SITE.
2. COORDINATE CONSTRUCTION SCHEDULE WITH SCHOOL DEPARTMENT AND DEPARTMENT OF FACILITIES, PARKS AND RECREATION
3. ADHERE TO APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND DETAILS
4. MATERIAL STOCKPILING AND TEMPORARY DUMPSTERS ARE TO BE PLACED IN POTENTIAL LAYDOWN AREAS.



STATE OF MAINE
DOUGLAS RICE
No. 8702
LICENSED
PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY: MAB
DRAWN BY: MRL
CHECKED BY: DAR
SCALE: AS NOTED
DATE: 1-15-18

STATE OF MAINE
MICHAEL A. GUETHLE
14284
LICENSED
PROFESSIONAL ENGINEER

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

PHASE 1 - CONSTRUCTION MANAGEMENT PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM
CITY OF PORTLAND, MAINE

SHEET # 1 OF 2

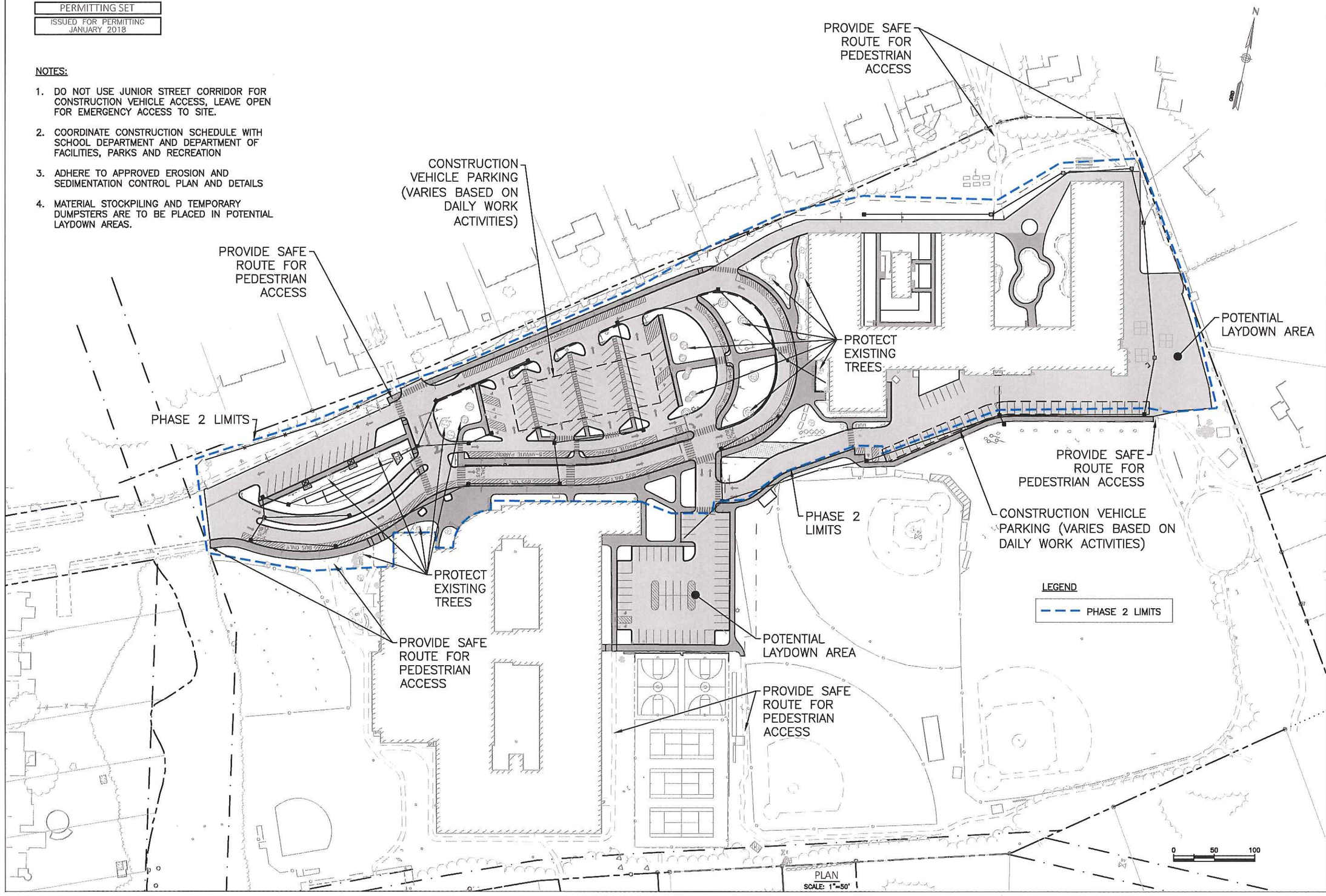
PLAN NUMBER
FIG-8

PERMITTING SET

ISSUED FOR PERMITTING
JANUARY 2018

NOTES:

1. DO NOT USE JUNIOR STREET CORRIDOR FOR CONSTRUCTION VEHICLE ACCESS, LEAVE OPEN FOR EMERGENCY ACCESS TO SITE.
2. COORDINATE CONSTRUCTION SCHEDULE WITH SCHOOL DEPARTMENT AND DEPARTMENT OF FACILITIES, PARKS AND RECREATION
3. ADHERE TO APPROVED EROSION AND SEDIMENTATION CONTROL PLAN AND DETAILS
4. MATERIAL STOCKPILING AND TEMPORARY DUMPSTERS ARE TO BE PLACED IN POTENTIAL LAYDOWN AREAS.



PLAN
SCALE: 1"=50'

STATE OF MAINE
DOUGLAS A. RIDGE
REGISTERED PROFESSIONAL ENGINEER

Civil 3D 2015 Drawing Name:
Civil 3D 2015 Survey Database:
Civil 3D 2015 Data Shortcuts:

REFERENCES:

REVISIONS:
PLANNING BOARD SUBMISSION

DESIGNED BY:	MAE
DRAWN BY:	MRL
CHECKED BY:	AJM
SCALE:	AS NOTED
DATE:	1-15-18

STATE OF MAINE
MICHAELA GUETHLE
14284
REGISTERED PROFESSIONAL ENGINEER
1/12/18

LLM CAMPUS IMPROVEMENTS
CIRCULATION PROJECT

PHASE 2 - CONSTRUCTION MANAGEMENT PLAN

CITY OF PORTLAND, MAINE
PARKS, RECREATION AND FACILITIES
MANAGEMENT DIVISION

RESURGAM CITY OF PORTLAND, MAINE

SHEET # 2 OF 2

PLAN NUMBER
FIG-9

PLANNING BOARD REPORT
PORTLAND, MAINE

St. Lawrence Arts Center Addition
66-76 Congress Street
Level III Site Plan Review
2016-265
Friends of the Saint Lawrence Church

Submitted to: Portland Planning Board Date: January 19, 2018 Public Hearing Date: January 23, 2018	Prepared by: Nell Donaldson, Planner CBL: 3-L001 Project #: 2016-265

I. INTRODUCTION

The Friends of the St. Lawrence Church appears before the Planning Board for a public hearing for the site plan review of a proposed addition to their property at 76 Congress Street, the St. Lawrence Arts Center. Notice of this hearing appeared in the *Portland Press Herald* on January 22 and 23, 2018. Notices were sent to 275 property owners within 500 feet and to the interested citizens list.

Applicant: Friends of the St. Lawrence Church
Consultants: David Lloyd, Archetype; Thomas Greer, Pinkham & Greer; William Bray, Traffic Solutions; Sarah Cushman, Cushman Transportation Consulting

II. REQUIRED REVIEWS

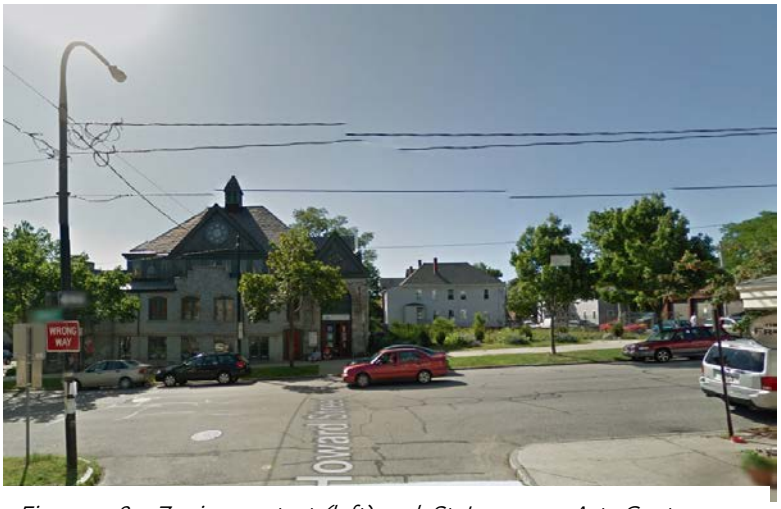
Waiver Requests	***Applicable Standards***
Driveway Separation – to allow a curb cut approximately 20' from the adjacent property's	Technical Manual, *Section 1.7.2.7.* Along arterial, collector, and local streets, minimum acceptable spacing shall be 100-150 feet, depending on speed limit.

Review	***Applicable Statute***
Site Plan	*Section 14-526, with Historic Preservation review*

III. PROJECT DATA

Existing Zoning	Conditional Zoning Agreement C58
Existing Use	Place of Assembly
Proposed Use	Place of Assembly
Proposed Development Program	14,768 SF Addition to include: • 401 seats and stage in sanctuary • New lobby and support space (green rooms, dressing rooms, bathroom, storage) • New conference and office space • New Promenade Room (to serve as lobby break area during performances, meeting space at other times)(200 person capacity)
Parcel Size	10,601 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	3,360	9,075 SF	5,715 SF
Building Floor Area	10,540 SF	25,308 SF	14,768 SF
Impervious Surface Area	9,463 SF	9,978 SF	515 SF
Parking Spaces (on site)	0	0	0
Bicycle Parking Spaces	0	20	20
Estimated Cost of Project	$10 million		



Figures 1 &2: Zoning context (left) and St. Lawrence Arts Center (existing Parish Hall theater) at present (above)

IV. CONTEXT

The St. Lawrence Arts Center sits at 76 Congress Street in the heart of Munjoy Hill. The property is subject to a conditional zoning agreement adopted in early 2015. While the underlying zoning is R-6 Residential, the St. Lawrence neighbors a B-1 Neighborhood Business zone and lies directly across from an active restaurant use in a B-1b zone *(Figure 1)*. Commercial uses sit on the Congress Street block immediately west. Residential uses surround the site to the north, east, and south. The property lies three blocks from the Eastern Promenade.

V. BACKGROUND

The building now occupied by the St. Lawrence Arts Center was originally constructed in 1897 as a church with two major building elements - the Parish Hall and the sanctuary. The building served as a church for almost a hundred years until its closure in 1986. In 2001, the Friends of the St. Lawrence took ownership of the building and renovated the Parish Hall into a live theater/auditorium space under the zoning provisions for a community hall; the sanctuary portion of the building, however, was left vacant as the Friends of St. Lawrence sought the means for renovation. Ultimately, the sanctuary fell into disrepair. In 2006, the primary roof trusses partially collapsed; shortly thereafter, the sanctuary was deemed unsalvageable. The sanctuary was dismantled in 2009. The Friends of the St. Lawrence recovered significant architectural features during the demolition with the intent of someday reconstructing the sanctuary building.

In 2010, the Friends of the St. Lawrence developed a proposal to rebuild the former church sanctuary in much its original form for use as a 402-seat performance venue. The applicant proposed a plan for the sanctuary that included many of the historic details of the old church building, including curbing, rose windows, and stone work. In order to rebuild such a structure, the applicant required relief from several provisions of the underlying R-6

zone, including the dimensional requirements. The concept was endorsed by the Historic Preservation Board and a conditional zoning agreement was drafted and formally adopted in November of 2010.

Following adoption of the agreement, the applicant embarked on a feasibility study with the intent of determining the extent of possible funding for the reconstruction project. It shortly became clear that the proposed reconstruction of the historic structure would be cost prohibitive. Instead, the Friends of the St. Lawrence shifted their vision for the proposed addition, focusing on what evolved into a contemporary expansion. In order to allow the change in design, an amended conditional zoning agreement was adopted by the City Council in early 2015.

It should be noted that the building was placed on the National Register in 1979, and was designated locally as a historic landmark in 1990. As a designated historic property, development on the site is subject to the Historic Preservation ordinance. The Historic Preservation Board has previously reviewed not only the demolition plans of the late 2000s, but also the reconstruction plans of 2010 and 2014.

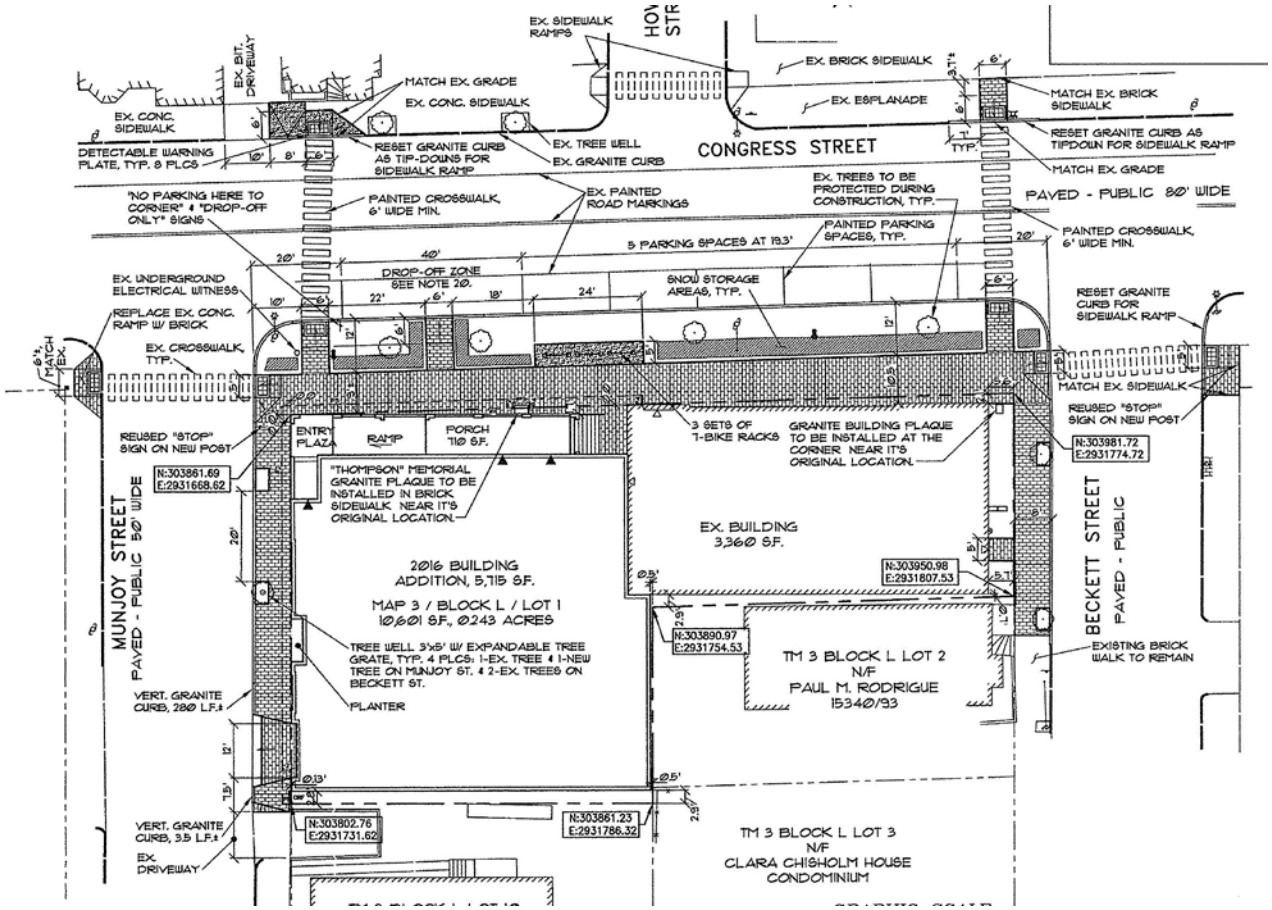


Figure 3: Final site plan

VI. PROPOSED DEVELOPMENT

The proposed St. Lawrence Arts Center project includes the renovation of the existing Parish Hall auditorium to increase the seating capacity to 120, add office space, and build a meeting room. The plans also include an addition in the old sanctuary space, including:

1. A 401-seat auditorium;

2. A new lobby to serve both the sanctuary and Parish Hall venues;
3. New support spaces including a catering kitchen, concession area, green room, dressing room, and bathrooms; and
4. A new function room, the Promenade Room, on the upper level, which would primarily be used as a lobby for the 401 seat performance hall

Overall, the footprint of the Arts Center is proposed to expand by just under 6,000 SF.

IX. PUBLIC COMMENT

The Planning Division has received no public comments on the site plan application for the St. Lawrence addition. However, the Planning Division did receive a number of comments over the course of the preceding conditional zoning agreement review. In general, the concerns regarding the development included its scale and massing, the proposed parking arrangement, and the TDM plan. The St. Lawrence held a neighborhood meeting at the outset of this site plan review. The summary indicates that attendees raised questions about architecture and parking *(Attachment P)*.

VII. RIGHT, TITLE, & INTEREST

The St. Lawrence's application includes a deed as evidence of right, title, and interest (*Attachment D*). The final site plan shows areas of sidewalk on Congress Street that are proposed on private property; these will require a public access easement. Licenses will also be required for a plaque to be set in the sidewalk near the addition and building footings, which are proposed to encroach into the right-of-way. These have been included as conditions of approval.

VIII. FINANCIAL & TECHNICAL CAPACITY

The estimated cost of the project is approximately $10 million. In their final submittal, the applicant has provided a letter attesting to their performance in fundraising as a 501(c)3 non-profit, and arguing that Planning Board approvals are necessary to allow effective fundraising for the Arts Center addition *(Attachment E)*. Staff is recommending a condition of approval requiring that the applicant provide final evidence of financial and technical capacity prior to issuance of a building permit.

IX. ZONING ANALYSIS

Staff has conducted a zoning analysis based on the conditional zoning agreement *(Attachment F)*.

Major Element of CZA		*CZA Requirement*	*Proposal*
Dimensional Standards	*Use*	Notwithstanding section 14-137(b)(6)(e)(i), the use shall be a place of assembly/community hall	Place of assembly
	Min. Lot Size	10,500 SF	10,601 SF
	Min. Front yard	0 ft.	0 ft.
	Min. Rear Yard	0 ft.	3 ft.
	Min. Side Yard on Side St.	0 ft.	0 ft.
	Max. Lot Coverage	95%	92% (9,785/10,601)
	Max. Sanctuary Structure Height	54 ft.	54 ft.
	Open Space Ratio	0%	0%
	Min. Lot Width	50 ft.	160 ft.

Major Element of CZA	*CZA Requirement*	*Proposal*
Occupancy restriction	Maximum number of attendees at any single event or combination of events limited to 485 persons. Maximum seats in Parish Hall theater restricted to 120. Seats in sanctuary auditorium restricted to 401. No separate audience events to be held in Parish Hall and sanctuary at same time.	
Maintenance	Owner responsible for ongoing maintenance.	
Sidewalks	Owner to install brick sidewalks along Munjoy, Beckett, and Congress Street frontages and reset existing pink granite curbing as necessary.	Brick sidewalks and note regarding pink granite curbing shown on final plan.
Street Trees	Owner to provide two street trees along Munjoy, Beckett, and Congress Street frontages, unless healthy trees exist.	One additional tree proposed on Munjoy Street. Other frontages have existing trees.
Street Lighting	Owner to install two Downtown District street lights along Congress Street frontage.	Two lights shown on plan. Use of Downtown light fixtures on this portion of Congress Street currently under review as city staff update the Technical Manual. Final lighting design suggested as condition of approval.
Crosswalks and Ramps	Owner to install remaining crosswalks, ADA-compliant ramps, and other pedestrian improvements at Congress/Beckett Streets or Congress/Howard Streets and Congress/Munjoy Streets.	Crosswalks denoted on plan. See specific comments under site plan review below.
TDM/Off-Street Parking Requirement[1]	TDM plan required, and must include annual $70,000 contribution to Sustainable Transportation Fund and monitoring provisions. Requirement of TDM plan to supersede any and all parking requirements of the land use code. During site plan review, Planning Board to provide communication to Council that may include recommendations for on-street parking regulations.	No off-street parking proposed. $70,000 annual contribution and monitoring requirements noted in TDM plan.
Tour buses	Owner to ensure that tour buses, vans, and trucks affiliated with events unload and relocate to remote, off-street parking location during event	Loading restrictions noted in TDM plan and in truck loading memo.

[1]The off-street parking requirement for places of assembly (including community halls) in Division 20 of the city's land use ordinance is 1 space/125 SF used for assembly purposes. Division 20 includes an exception for historic structures subject to the Historic Preservation ordinance *(Section 14-332.2)*.

X. SITE PLAN SUBMISSION REQUIREMENTS *(Section 14-527)*

The applicant has provided all required submittals. Staff has suggested a condition of approval that a final construction management plan be reviewed and approved at the time of building permit. Jeff Tarling, the city's arborist, has requested that the final construction management plan include notes regarding the preservation of street trees along Congress Street and Munjoy Street.

XI. SITE PLAN REVIEW

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's site plan ordinance. Staff comments are below.

1. *Transportation Standards*
   a. *Impact on Surrounding Street Systems*

   The final submittal includes an application for a Traffic Movement Permit (*Attachments J and K*). The analysis included in this application estimates a total trip generation of 182 vehicle trips during the future peak hour, and a net change in trip generation of 170, most of which are anticipated to use Congress Street to access the Arts Center and its vicinity. Thomas Errico, the city's consulting traffic engineer, has reviewed the application and found the following,

   > *In response to the TMP Scoping meeting, the applicant provided an estimate of likely traffic patterns for patrons attending SLAC events. As noted in the assessment, 182 vehicle trips can be expected to travel to an SLAC event during the peak hour. The applicant assumed 60 trips would be associated with the Valet Parking Services; 80 trips would be associated with patron drop-off activity – and parking locally; and 42 trips would directly park locally and walk to the site. The applicant estimated the following for traffic increases:*
   >
   > - *67 vehicles would travel to the project site via eastbound Congress Street.*
   > - *30 vehicles would depart the site on Congress Street as part of valet services.*
   > - *20 vehicles would travel to the project site via eastbound Cumberland Avenue.*
   > - *15 vehicles would travel to the project site via eastbound Fore Street.*
   > - *10 vehicles would travel to the project site via Walnut Street*
   >
   > *I find the estimate provided to be acceptable and the information satisfies the requirement of the Traffic Movement Permit (with the TDM Plan). The key outcome regarding the mitigation of traffic impacts is associated with the effectiveness of the TDM Plan.*

   The TDM Plan is discussed in further detail below.

   b. *Access and Circulation*

   The proposed Arts Center addition will fill out the remainder of the block frontage on Congress Street between Beckett and Munjoy Streets. New brick sidewalks are proposed on the Beckett, Congress, and Munjoy Street frontages. Two ADA-accessible crosswalks are proposed across Congress Street, at both Beckett and Munjoy Streets, and improvements are proposed to the existing crosswalks across Beckett and Munjoy Streets. In his final review, Mr. Errico has requested slight modifications to proposed ramps in these locations, writing,

   > *The [Congress Street at Munjoy Street crosswalk] ramp flares impact pedestrian accessibility along the sidewalk. The ramp should be redesigned with dimensional details. A condition of approval should be included for final design details to be provided for review and approval prior to any City Permit.*
   >
   > *Ramp flares at the westerly corner of Munjoy Street and Beckett Street currently impact the accessible route and revisions shall be provided including dimensioned*

details. A condition of approval should be included for final design details to be provided for review and approval prior to any City Permit.

The plans show a curb cut at the southeasterly corner of the site along Munjoy Street, where an overhead door will stand. A driveway separation waiver has been requested. This waiver is supported by Mr. Errico.

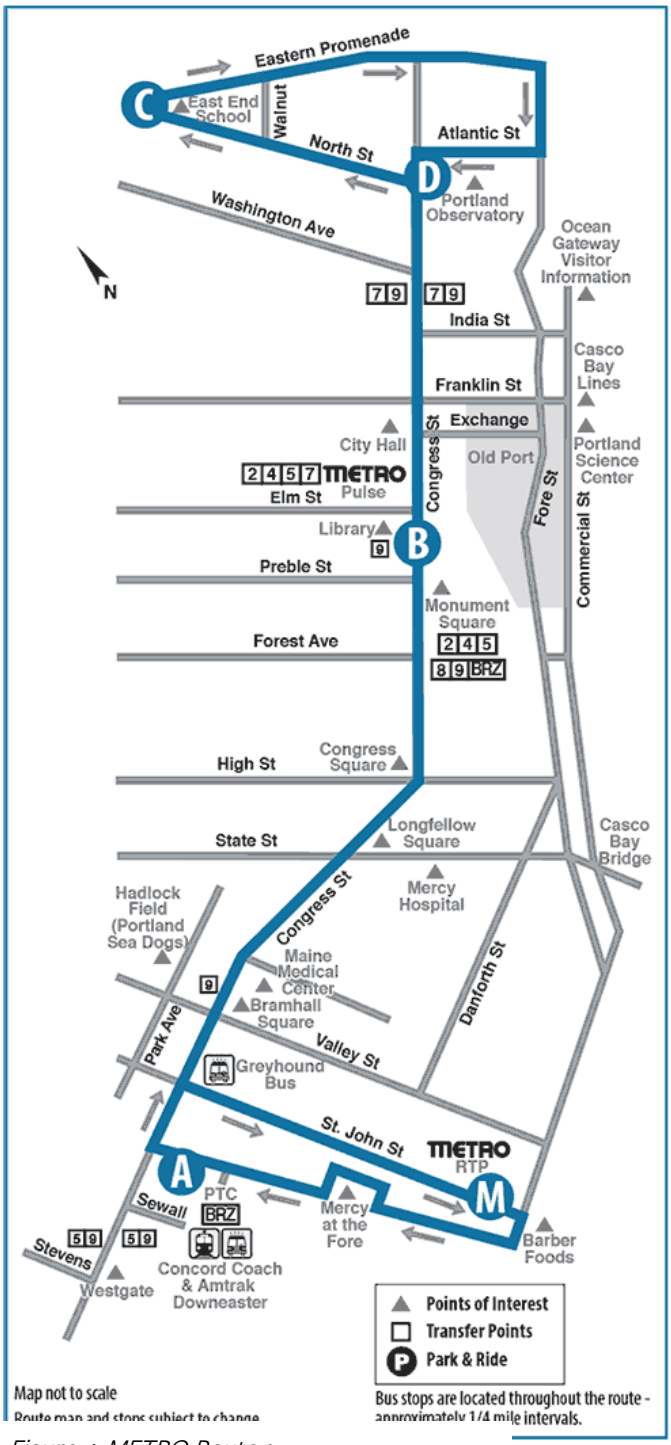


Figure 4: METRO Route 1

In the final submittal, the applicant has provided a plan for accommodating load-ins at this overhead door *(Attachment O)*. The conditional zoning agreement continues to require that the property owner ensure that tour buses, vans, and trucks serving the site unload and then relocate to a remote, off-street parking location. Mr. Errico has reviewed the plan and indicated his approval.

c. Public Transit Access

Greater Portland METRO's Route 1 extends up and down Congress Street into Munjoy Hill, where the route proceeds in a clockwise loop around the East End, first on North Street past the East End School, along the Eastern Promenade, and then up Atlantic Street (one block south of Munjoy Street) back to Congress. Though the St. Lawrence is not located directly on this route, the Route 1 has three stops proximate to the St. Lawrence, at North and Congress Streets, Lafayette and Congress, and Atlantic and Monument Streets. Headways are thirty minutes between 5:15 a.m. and 8:45 p.m., with decreased frequencies after 9. Sunday headways are one hour.

Since the St. Lawrence is not located directly on a transit route, they are not required to provide transit accommodations. However, in their Transportation Demand Management (TDM) Plan *(Attachment M)*, the St. Lawrence has proposed to provide an annual contribution of $70,000, to be directed to METRO, to enhance and expand existing service on Route 1, which would permit METRO to improve evening headways to 15-20 minutes and offer service to 11 p.m., Monday through Saturday. In addition to the contribution to METRO, the St. Lawrence is proposing to subsidize transit passes for ticket holders, allowing patrons to use their ticket as valid bus fare.

d. Parking

The St. Lawrence's conditional zoning agreement states that the requirements of a TDM plan "supersede any and all parking requirements of the land use code for the property." However, given neighborhood concerns raised through the conditional zoning agreement review, and at the request of the city's traffic engineer, the applicant has made an effort to show the potential impact of patron parking on the surrounding on-street parking supply. *(Attachment K)*. This analysis develops parking ratios based on survey data from recent shows at the St. Lawrence, and arrives at a total projected patron demand, at peak occupancy, of 158 spaces. This figure is below that from the original Parking Demand Management Plan developed in association with the conditional zoning agreement, which projected a total demand (including staff) of 228, but greater than that suggested by the city's TDM peer reviewer for the conditional zoning agreement review, Nelson-Nygaard, who developed an estimate of 122 based on ITE parking generation rates. Mr. Errico has reviewed the parking study methodology and writes,

> *The general estimate of a parking demand rate for the facility should be calculated according to the number of vehicles compared to the number of attendees at each of the surveyed events. Based upon the data supplied by the applicant for events that occurred on Tuesday, February 28, 2017; Tuesday, April 4, 2017; Wednesday, April 26, 2017; Saturday, April 29, 2017; Friday, May 5, 2017; Saturday, May 6, 2017; and Sunday, May 7, 2017, the average number of vehicles generated by each attendee is 0.4 vehicles. This rate corresponds well with ITE Parking Generation Rates (0.4 parking spaces per seat or attendee) and a parking survey conducted as part of the Contract Zone process on December 12, 2013 (0.4 parking spaces per seat or attendee). A parking survey was conducted on October 25, 2013 and determined a parking rate of 0.54 vehicles per seat or attendee. My general conclusions is that parking demand for a sold out event of 485 seats would be approximately 194 vehicles.*

As with the parking study developed along with the conditional zoning agreement, the St. Lawrence has provided the results of a parking utilization study conducted in April of 2017. This study, which surveyed on-street parking spaces within a 5-minute walk of the St. Lawrence, showed a total on-street supply of approximately 880 spaces, between 65% and 72% of which were occupied during recent show times (with 572 and 636 spaces occupied, respectively). Of all the April occupancy counts, the highest (taken on an early Sunday morning) continued to leave approximately 220 on-street spaces within a 5-minute walk of the St. Lawrence available. This capacity is considerably greater than the total parking demand projected by the applicant's consulting engineer (158 spaces) and above that of Mr. Errico (194 spaces) as well.

The applicant has proposed to modify on-street parking on Congress Street to include a 40-foot drop-off zone directly in front of the entrance at the southerly end of the block and five on-street spaces in the space between this zone and the Congress/Beckett Street corner. The drop-off zone would be used during show times only. Mr. Errico writes,

> *The City does not recommend a continuous 5-minute parking regulation in front of the site. City staff would prefer to provide longer time parking opportunities for the neighborhood during non-event time periods. Temporary 5-minute parking regulations will be permitted during events via portable signs.*

e. Transportation Demand Management

As required under the conditional zoning agreement, the applicant has included an updated Transportation Demand Management Plan in the preliminary submittal *(Attachment M).* The applicant developed this plan based on the draft included by reference in the conditional zoning agreement. As with the original plan, the current TDM plan includes a number of mechanisms designed to foster use of alternative modes and thus reduce SOV trips and parking demand. The St. Lawrence proposes the following:

- *METRO subsidies and transit incentives:* The central strategy of the TDM plan is a $70,000 annual subsidy to METRO to improve its Route #1 service, both in terms of arrival frequencies and extended hours. METRO has stated that this $70,000 would be sufficient to increase evening headways from 45 minutes to 30 minutes and extend service to 11 p.m. Monday through Saturday *(Attachment N)*. The St. Lawrence has argued that this expansion of service will not only effectively serve their patrons but the greater neighborhood as well, and in this reduce baseline parking demand. As an incentive and as part of the arrangement with METRO, St. Lawrence patrons will be able to use their theater tickets as valid fare to board the bus. The lobby of SLA would be designed to include a display screen with real-time tracking information, allowing this area to effectively serve as a waiting area.
- *Valet parking:* The TDM plan also includes front-door valet service for patrons, with "simple incentives" at point of ticket purchase. Cars would be stored in remote lots.
- *Bicycle and pedestrian infrastructure:* The St. Lawrence proposes to encourage bicycling by providing racks with 20 bicycle parking spaces in front of the building on Congress Street and becoming a Bicycle Benefits partner. They also propose pedestrian infrastructure improvements, such as sidewalks and crosswalks.
- *Free market options:* The TDM plan also notes the existence of other mode choices, such as cabs, pedicabs, and TNCs, which will be available to patrons.
- *Rideshare:* The TDM plan states that the St. Lawrence will offer discounted tickets for carpooling patrons and will facilitate ridesharing by developing one-time ride-matching services in conjunction with GoMaine.
- *Overall incentives:* In addition to discounted ticket pricing for those who use alternative modes, the TDM Plan proposes an incentive campaign with monthly raffles for the first year of operation.

- In addition to the above, the St. Lawrence proposes a number of programmatic elements around education and marketing in the TDM plan. The TDM plan states that the St. Lawrence will provide information regarding alternative mode choices on their website, at the point of ticket purchase, at a kiosk on site, and through consistent and regular communication with their patrons. The plan also includes a marketing campaign.

Lastly, the plan includes the designation of a TDM coordinator and provisions for immediate and long-term monitoring. The plan specifies monitoring to begin one month after opening and twice annual monitoring thereafter for five years. Annual monitoring would occur subsequently. Through surveys, ridership tracking, and valet data, the St. Lawrence would monitor mode choice and the potential for mode shifts. Ultimately, the goals of the TDM plan are to reduce trips and parking demand by 6-10% in the first year.

Mr. Errico has reviewed the TDM plan and writes,

> *The TDM Plan notes a number of incentives for reducing vehicle impacts. I would suggest some detail (likely amount or percentage) on ticket discounts and coupons be provided.*
>
> *It notes that SLAC will be partnering with the City on infrastructure improvements. Further detail on what is envisioned regarding this partnership and possible commitments should be provided.*
>
> *The applicant should provide details on the ticket surcharge (likely amount or percentage) and specifically describe how the surcharge proceeds will be managed/allocated towards TDM strategies.*
>
> *It is noted that METRO "could" further increase evening service. It is my understanding that METRO service will increase evening service and therefore the applicant should confirm this assumption.*
>
> *The applicant should note why only the Temple Street garage is the only facility eligible for a subsidy. Additionally, the applicant should note why free parking is limited to three hours (dinner plus event could be more than 3 hours).*
>
> *The applicant should provide greater detail on the anticipated Valet service program at the first event and details on specific operations and how the service is funded? Related to this is the relatively far distance to the parking lots for valet vehicles and how this may impact service and use.*
>
> *The applicant should provide details on the bicycle ticket discount program.*

A condition of approval related to final modifications of the TDM plan has been included.

2. *Environmental Quality Standards*
   a. *Preservation of Significant Natural Features*
   There are no known significant natural features on the site.

   b. *Landscaping and Landscape Preservation*
   The conditional zoning agreement requires two street trees along the Munjoy Street, Beckett Street, and Congress Street frontages. Each of these frontages currently has two or more trees, although one on Munjoy Street will need to be eliminated in order to allow room for the overhead door. This tree is proposed for replacement with an Armstrong maple. The landscaping plan shows other landscaping on the Beckett and Munjoy Street frontages, including miscanthus and hakonechloa grasses. Clematis and honeysuckle are proposed for the eastern property line. Jeff Tarling, the city's arborist, has reviewed the plans and verbally indicated his approval.

   c. *Water Quality/Storm Water Management/Erosion Control*
   Although the area of the proposed St. Lawrence expansion is currently undeveloped, it is the site of the former church sanctuary, and the city's records indicate that it has been assessed as impervious area since the sanctuary demolition. As such, the proposed expansion is not deemed to change the quantity

of existing impervious surface on site *(Attachment I)*. The applicant has not proposed any stormwater quality treatment measures. Roof drains are proposed to surface discharge, as requested by the city's consulting civil engineer.

3. Public Infrastructure and Community Safety Standards

a. Consistency with Related Master Plans

The project is generally deemed consistent with related master plans.

b. Public Safety and Fire Prevention

Keith Gatreau, Assistant Fire Chief, has reviewed the plans and has not requested any modifications *(Attachment 5)*.

c. Availability and Capacity of Public Utilities

The applicant has provided evidence of water and wastewater capacity *(Attachments G and H).*

4. Site Design Standards

a. Massing, Ventilation, and Wind Impact

The bulk, location, or height of the proposed buildings are not likely to result in health or safety problems from a reduction in ventilation to abutting structures.

b. Shadows

The project is not anticipated to result in shadows on publicly accessible open space.

c. Snow and Ice Loading

The project is not anticipated to result in snow or ice accumulation on public ways or adjacent properties.

d. View Corridors

The project does not abut a protected view corridor.

e. Historic Resources

The St. Lawrence is a historic property on the National Register of Historic Places. As such, development on the site is subject to Historic Preservation review. The city's Historic Preservation Board previously reviewed preliminary architectural plans for the St. Lawrence addition. Final approval by the Historic Preservation Board has been suggested as a condition of approval.

f. Exterior Lighting

In the final submittal, the applicant has provided a draft lighting plan *(Plan 21)* and cut sheets *(Attachment Q)*. This lighting plan will require further refinement, including an analysis of the plan with respect to the *Technical Manual* standards and an examination of the way in which the addition lighting is anticipated to relate to the existing exterior lighting on the Parish Hall. The final exterior lighting plan has been suggested as a condition of approval.

Likewise, the plan shows two street lights on Congress Street, which are specified as Downtown fixtures in the final plans. Planning staff are currently working on updating the city's *Technical Manual*, and it is anticipated that the lights specified on this portion of Congress Street may change. As such, final street lighting specifications have been suggested as a condition of approval.

g. Noise and Vibration
In the final submittal, the applicant has provided a roof plan showing that rooftop mechanicals will be screened from the public right-of-way.

h. Signage and Wayfinding
Signage will be reviewed under a separate sign permit by both Zoning and Historic Preservation.

i. Zoning-Related Design Standards
The conditional zoning agreement incorporates a set of elevations and floor plans by reference. These have been resubmitted with the site plan application *(Plans 10-20)*. Given the historic landmark status of the existing structure, the applicant is required to obtain a certificate of appropriateness from the Historic Preservation Board for the proposed addition. The site plan ordinance exempts projects from design review when the development affects a designated historic landmark or is within a historic district and thus requires a certificate of appropriateness. The Friends of the St. Lawrence have not yet submitted drawings to the Historic Preservation Board for final design review. The Historic Preservation Board has generally given positive indications of their support for the design.

XII. RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed St. Lawrence Arts Center addition at 76 Congress Street.

XIV. PROPOSED MOTIONS

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on January 23, 2018 for application 2016-265 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing:

1. The planning board [finds/does not find], based upon the consulting transportation engineer's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the *Technical Manual* standard *(Section 1.7.2.7)* which requires that along arterials, collectors, and local streets, minimum acceptable spacing between driveways shall be 100-150 feet, depending on speed limit, that substantial justice and the public interest are secured with the proposed variation in this standard, and that the variation is consistent with the intent of the ordinance. The Planning Board [waives/does not waive] the *Technical Manual* standard *(Section 1.7.2.7)* to allow the driveway cut on Munjoy Street approximately 20 feet from the adjacent driveway to the south as shown on the final plans.

B. TRAFFIC MOVEMENT PERMIT

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on January 23, 2018 for application 2016-265 relevant to Portland's technical and design standards and other regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the proposed plan [is/is not] in conformance with 23 MRSA 704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits.

C. DEVELOPMENT REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on January 23, 2018 for application 2016-265 relevant to the site plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan [is/is not] in conformance with the site plan standards of the land use code and [approves/does not approve] the application, subject to the following conditions of approval that must be met prior to the issuance of a building permit, unless otherwise stated:

1. The applicant shall provide recorded copies of all required easements and licenses, including:
    i. A public access easement from the applicant to the City of Portland for areas of sidewalk that are proposed on private property;
    ii. A license from the City of Portland for purposes of the Thompson Memorial plaque; and
    iii. A license from the City of Portland for footings proposed in the right-of-way
    for review and approval by Corporation Counsel, the Department of Public Works, and the Planning Division;
2. The applicant shall provide evidence of financial capacity from a financial institution for review and approval by the Planning Division;
3. The applicant shall provide a final construction management plan for review and approval by the Department of Public Works and the Planning Division;
4. The applicant shall provide a revised site plan including:
    i. Details required to determine ADA compliance of sidewalk and driveway ramps with respect to grades and clearances for review and approval by the Department of Public Works;
    ii. Street lighting as specified on Congress Street per pending revisions to the city's Technical Manual;
5. The applicant shall provide a revised TDM plan addressing the comments of the city's consulting traffic engineer for review and approval by the Department of Public Works and the Planning Division;
6. The applicant shall provide evidence of a Certificate of Appropriateness from the Historic Preservation Board; and
7. The applicant shall provide a final site lighting plan including photometric calculations compliant with the City of Portland *Technical Manual* and a plan for integration with the Sanctuary for review and approval by the Planning Division.

XIII. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Traffic Engineer review (memo from Thomas Errico, 1/15/18)
2. City Arborist review (memo from Jeff Tarling, 12/20/16)
3. Civil Engineer review (memo from Lauren Swett, 12/27/17)
4. Civil Engineer review (memo from Lauren Swett, 1/8/18)
5. Fire Prevention Bureau review (memo from Keith Gautreau, 12/21/16)

APPLICANT'S SUBMITTALS

A. Cover Letter (from Tom Greer, 11/18/16)

B. Authorization Letter
C. Level III Site Plan Application
D. Evidence of Right, Title, and Interest
E. Financial Capacity Letter
F. Recorded Contract Zone
G. Wastewater Capacity Letter
H. PWD Capacity Letter
I. Stormwater Narrative
J. TMP Application
K. Traffic and Parking Demand Assessment
L. Supplemental TMP Information
M. TDM Plan
N. METRO letter (from Greg Jordan, 9/17/14)
O. Truck Loading Memo
P. Neighborhood Meeting Minutes
Q. Lighting Cut Sheets

PLANS

Plan 1 Boundary & Topographic Survey
Plan 2 Site Plan
Plan 3 Existing Conditions & Demolition Plan
Plan 4 Grading & Utilities Plan
Plan 5 Erosion Control Plan
Plan 6 Landscape Plan
Plan 7 Sidewalk Ramp Details
Plan 8 Details
Plan 9 Details
Plan 10 Basement Plan
Plan 11 First Floor Plan
Plan 12 Upper Theater Level
Plan 13 Upper Theater Level Continued
Plan 14 Promenade Floor Plan
Plan 15 Roof Plan
Plan 16 North Elevation
Plan 17 West Elevation
Plan 18 South Elevation
Plan 19 East Elevation
Plan 20 Building Section
Plan 21 Lighting Plan
Plan 22 Construction Management Plan

Att. 1

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

SLAC Final Traffic Comments

Tom Errico <thomas.errico@tylin.com> Mon, Jan 15, 2018 at 4:13 PM
To: Helen Donaldson <HCD@portlandmaine.gov>

Hi Nell – The following is a status update of my May 2016 Status Traffic comments and represent my Final Traffic comments.

- The site plan proposes a crosswalk on Congress Street from the site frontage to the eastern corner of Howard Street. Given that the project will generate a significant amount of pedestrian activity during events, it is my recommendation that the proposed Howard Street crosswalk be replaced with a crosswalk on Congress Street from the west corner of Beckett Street to the area on the north side of Congress Street where parking is prohibited due to a fire hydrant. Additionally, a crosswalk should be added on Congress Street from the east corner of Monjoy Street to the opposite side of the street. The applicant shall submit plans for these two crosswalk locations for review and approval.

  Status: I have reviewed the site layout plan and find the crosswalk at Beckett Street to be acceptable. For the Monjoy Street crosswalk, some separation is suggested between the sidewalk ramp and the abutting driveway. It is suggested that the driveway be narrowed to the minimum allowable width (10 feet) and the ramp shifted to the east. We recognize that the resultant crosswalk alignment will not be perpendicular. In conjunction with the design the applicant shall consider maximizing on-street parking to Howard Street.

  Current Status: The ramp flares impact pedestrian accessibility along the sidewalk. The ramp should be re-designed with dimensional details. A condition of approval should be included for final design details to be provided for review and approval prior to any City Permit.

- The sidewalk ramp at the westerly corner of Monjoy Street and at Beckett Street shall be redesigned so that the ramp flares are not impacting the pedestrian accessible route.

  Status: It appears that the plans provide appropriate pedestrian accessibility, although dimensioning of the ramp area is required.

  Current Status: Dimensional details for the accessible route should be provided. Ramp flares currently impact the accessible route and revisions shall be provided including dimensioned details. A condition of approval should be included for final design details to be provided for review and approval prior to any City Permit.

- The on-street parking regulations are subject to change following a coordination with the City's Parking Division Manager and the revised crosswalk layout.

  Status: The "No Parking" designation on Congress Street abutting the site shall be eliminated and replaced with general unregulated parking. We continue to review the proposed 5-minute parking regulation. We find the time limit regulation to be acceptable, but would like to consider amending the regulation/condition so the spaces can be utilized during non-event time periods. We will provide guidance in the future.

  Current Status: The City does not recommend a continuous 5-minute parking regulation in front of the site. City staff would prefer to provide longer time parking opportunities for the neighborhood during non-event time periods. Temporary 5-minute parking regulations will be permitted during events via portable signs.

- Given changes in the project area since the 2014 parking supply observations were performed, it is recommended that an updated parking analysis be performed. The methods and schedule for surveys shall be coordinated with the City.

  Status: The applicant performed updated parking observations on Wednesday April 26th and Saturday April 29th. The intent of the observations was to quantify on-street parking availability within a 5-minute walking radius of the project site. The observations were performed prior, during and early the following morning of the event days. As noted in the application materials, 883 on-street parking spaces exist within a 5-minute walking distance with between 222 and 309 unused on-street parking spaces. During the Contract Zone process a similar parking survey was conducted on December 10, 2014. That survey identified an on-street parking supply of 838 parking spaces with 179 unused parking spaces. I'm somewhat surprised that the amount of available parking spaces have increased given development activity in the area. I am equally surprised that the overall parking supply has increased, although by only about 5 percent. I need to continue to review the data to gain a full understanding of factors influencing parking conditions.

  Current Status: I have reviewed the data and I have no further comment.

- The applicant has submitted the TDM plan that was prepared during the contract zone process. Given the numerous materials submitted, it is recommended that the applicant submit a complete updated standalone document for review and approval (with the updated parking survey information).

  Status: The applicant has submitted a TDM plan and my initial comments are noted as follows:

  - The plan notes a parking reduction target of 3-6%. For the estimated parking demand of about 200 parking spaces, this correlates to a reduction of between 6 and 12 vehicles. Given that the target will have a minor effectiveness on parking impacts, a higher target should be considered.

  - To further encourage use of transit, other supporting incentives should be considered including free or subsidized parking cost in the Portland Downtown District.

  - The applicant shall provide examples (with specific detail on use, cost, location of valet parking lots, etc.) of valet service systems at a similar type facility. The applicant should provide an estimate of likely number of valet users and locations where vehicles will be parked.

  - In an effort to promote bicycle and pedestrian modes to events, specific discussion on facility infrastructure improvements should be included. This may include, but not limited to, improvements to sidewalks, crosswalks, wayfinding signage, lighting (both pedestrian scale and roadway for bicyclists), bus shelters/stops, etc.

  - I tend to believe that a carpool service will get limited use unless incentives are provided (and even this may not correlate to high use). One suggested option would be to provide free valet service to registered carpool vehicles.

  Current Status: Regarding the trip and parking reduction strategies, my comments are noted below:

  - **The trip reduction target has been increased to 6 to 10% and will be re-visited after the first year of implementation. I find this to be a reasonable initial target.**

  - **The parking reduction target has also been increased to 6 to 10%. As noted below, it should be assumed that the parking demand is 194 vehicles, although adjustments are appropriate following review of actual data to be collected through monitoring.**

  - **The TDM Plan notes a number of incentives for reducing vehicle impacts. I would suggest some detail (likely amount or percentage) on ticket discounts and coupons be provided.**

  - **It notes that SLAC will be partnering with the City on infrastructure improvements. Further detail on what is envisioned regarding this partnership and possible commitments should be provided.**

  - **The applicant should provide details on the ticket surcharge (likely amount or percentage) and specifically describe how the surcharge proceeds will be managed/allocated towards TDM strategies.**

  - **It is noted that METRO "could" further increase evening service. It is my understanding that METRO service will increase evening service and therefore the applicant should confirm this**

assumption.

- **The applicant should note why only the Temple Street garage is the only facility eligible for a subsidy. Additionally, the applicant should note why free parking is limited to three hours (dinner plus event could be more than 3 hours).**

- **The applicant should provide greater detail on the anticipated Valet service program at the first event and details on specific operations and how the service is funded? Related to this is the relatively far distance to the parking lots for valet vehicles and how this may impact service and use.**

- **The applicant should provide details on the bicycle ticket discount program.**

- **The applicant notes that they will make sidewalk and crosswalk improvements in conjunction with the project. The applicant should specifically note the scope of this work.**

- The applicant shall provide documentation that a Traffic Movement Permit is not required.

  Status: Based upon updated traffic information provided by the applicant, the proposed project will generate traffic volumes that meet the requirement for a Traffic Movement Permit. The applicant has noted that a Traffic Movement Permit Application is being prepared.

  Current Status: The applicant has submitted a Traffic Movement Permit Application and a Scoping Meeting was held on June 1, 2017. A Traffic Movement Permit Study was submitted by Bill Bray, PE and my comments are noted below:

  - **In response to the TMP Scoping meeting, the applicant provided an estimate of likely traffic patterns for patrons attending SLAC events. As noted in the assessment, 182 vehicle trips can be expected to travel to an SLAC event during the peak hour. The applicant assumed 60 trips would be associated with the Valet Parking Services; 80 trips would be associated with patron drop-off activity – and parking locally; and 42 trips would directly park locally and walk to the site. The applicant estimated the following for traffic increases:**

    - **67 vehicles would travel to the project site via eastbound Congress Street.**
    - **30 vehicles would depart the site on Congress Street as part of valet services.**
    - **20 vehicles would travel to the project site via eastbound Cumberland Avenue.**
    - **15 vehicles would travel to the project site via eastbound Fore Street.**
    - **10 vehicles would travel to the project site via Walnut Street**

  I find the estimate provided to be acceptable and the information satisfies the requirement of the Traffic Movement Permit (with the TDM Plan). The key outcome regarding the mitigation of traffic impacts is associated with the effectiveness of the TDM Plan.

- The applicant should provide specific information on truck loadings and bus parking requirements.

  Status: Outstanding

  Current Status: The applicant has provided specific details on truck and bus parking. I find the provisions to be acceptable.

Additional Comments

- The general estimate of a parking demand rate for the facility should be calculated according to the number of vehicles compared to the number of attendees at each of the surveyed events. Based upon the data supplied by the applicant for events that occurred on Tuesday, February 28, 2017; Tuesday, April 4, 2017; Wednesday, April 26, 2017; Saturday, April 29, 2017; Friday, May 5, 2017; Saturday, May 6, 2017; and Sunday, May 7, 2017, the average number of vehicles generated by each attendee is 0.4 vehicles. This rate corresponds well with ITE Parking Generation Rates (0.4 parking spaces per seat or attendee) and a parking survey conducted as part of the Contract Zone process on December 12, 2013 (0.4 parking spaces per seat or attendee). A parking survey was conducted on October 25, 2013 and determined a parking rate of 0.54 vehicles per seat or attendee. My general conclusions is that parking demand for a sold out event of 485 seats would be approximately 194 vehicles.

Current Status: I have no further comment, other than to repeat that in my professional opinion, the project will generate a need for approximately 194 parking spaces.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TYLIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

Portland Maine | Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

SLAC - Supplemental Final Comments

Tom Errico <thomas.errico@tylin.com> Fri, Jan 19, 2018 at 1:47 PM
To: Helen Donaldson <HCD@portlandmaine.gov>

Hi Nell – The project is proposing a new driveway on Monjoy Street that will be used for equipment and other deliveries. The separation of the proposed driveway does not meet separation standards to an abutting residential driveway to the south. Given that this proposed driveway will not be used for general traffic access and only periodically be used for deliveries, I support a waiver from the City's technical standards. I would note that the driveway shall meet technical design standards and have a maximum cross slope of 2% along the pedestrian accessible route.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
+1.207.781.4721 main
+1.207.347.4354 direct
+1.207.400.0719 mobile
+1.207.781.4753 fax
thomas.errico@tylin.com
Visit us online at www.tylin.com
Twitter | Facebook | LinkedIn | Google+

"One Vision, One Company"

Att. 2

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

Saint Lawrence comments

Jeff Tarling <jst@portlandmaine.gov> Tue, Dec 20, 2016 at 5:21 PM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nel -

I have reviewed the landscape plan for the St Lawrence Arts Center project and offer the following comments:

a) Street trees - project proposes 1 new street tree, 'Armstrong' (upright) Red Maple located on Munjoy Street. (Tree can be 2" caliper to better fit into the space vs the 2.5" shown) This is a good selection for the tight space. Other street trees along the project frontage a scheduled to be saved. Knowing construction activities we will likely need to work closely with the project team to actually save the trees with the help of good tree protection measures. The project should include this topic in the pre-construction meeting and these measures should be in place prior to any construction / site work. Suggest construction fencing in the tree protection area - Congress Street esplanade to prevent the storage of equipment, materials etc. See Note # 9 to include fence along sidewalk edge vs dripline or as agreed upon in pre-construction meeting.

Bike rack placement impact to the existing tree roots should be adjusted away from existing root systems in the Congress Street esplanade. Would recommend that the two sets of five be placed closer towards the middle to avoid the existing trees.

See:
http://www.treesaregood.com/treecare/resources/AvoidingTreeDamage.pdf

b) Filterra System - We would like to review the list of plant(s) that are approved for this system, ideally we would like something other then the Miscanthus grass as shown, as it is in the City street ROW. Perhaps Bayberry...

Overall the Landscape Plan is acceptable as shown with these minor suggestions.

Thanks

Jeff

Jeff Tarling
City Arborist - City of Portland Maine
Parks, Recreation & Facilities Dept
212 Canco Road
Portland, ME. 04103
(207) 808-5446
jst@portlandmaine.gov

On Tue, Dec 20, 2016 at 9:12 AM, Helen Donaldson <hcd@portlandmaine.gov> wrote:
[Quoted text hidden]

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

MEMORANDUM

TO: Nell Donaldson, Planner
FROM: Lauren Swett, PE
DATE: December 27, 2017
RE: St. Lawrence Arts Center, Level III Site Plan Application

---

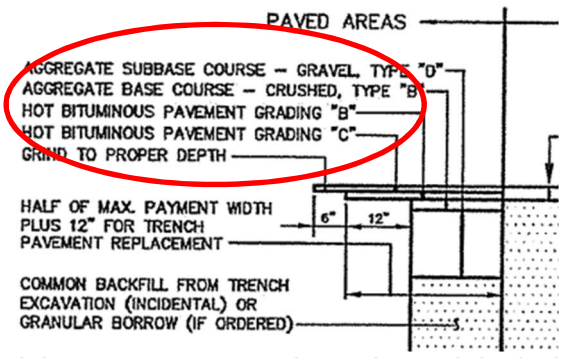
Woodard & Curran has reviewed the Level III Site Plan Application for the proposed redevelopment project at the St. Lawrence Arts Center in Portland, Maine. The project involves the construction of a building addition to add a performing arts center to the existing church building.

Documents Reviewed by Woodard & Curran

- Response Letter, dated December 7, 2017, prepared by Pinkham & Greer Civil Engineers on behalf of the Friends of St. Lawrence Church.
- Engineering Plans, dated December 7 and 22, 2017, prepared by Pinkham & Greer Civil Engineers on behalf of the Friends of St. Lawrence Church.

Comments *Comments from previous memos that have not been addressed are included in italics.*

1) In accordance with Section 5 of the City of Portland Technical Manual, a Level III development project is required to submit a stormwater management plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules, including conformance with the Basic, General, and Flooding Standards. We offer the following comments:
   a) Basic Standard: Plans, notes, and details have been provided to address erosion and sediment control requirements, inspection and maintenance requirements, and good housekeeping practices in accordance with Appendix A, B, & C of MaineDEP Chapter 500. *The location of a construction entrance/exit should be identified, and a detail should be provided.*
   b) General Standard: The project area has been evaluated with consideration of the building that was removed from the site in 2008 as existing impervious surface, resulting a net increase of only 515 square feet of impervious surface for the current project. This area is considered de minimis and compliance with the General is not required.
   c) Flooding Standard: As noted above for the General Standard, the increase in impervious surface is de minimis and compliance with the Flooding Standard is not required.
2) *The Applicant should provide a detail for bituminous pavement repair in accordance with the City of Portland's Technical Standards.* Applicant has noted that this detail is included as part of the pipe trench installation detail on sheet C2.1. Note (per screen shot to the right) that this detail does not include material thicknesses. It references that depths are determined by street classification, but this information is not provided anywhere on the plans.



3) The Applicant has removed the stormwater connection to the catch basin, but the note remains on sheet C1.3.
4) A Construction Management Plan should be provided.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

St Lawrence Arts Center 66 Congress

Lauren Swett <lswett@woodardcurran.com> Thu, Jan 18, 2018 at 4:45 PM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nell,

He's addressed all my plan comments adequately. The only thing left from my memo was the construction management plan, but I'm guessing that one will be a condition of approval.

Thanks,

Lauren

From: Helen Donaldson [mailto:hcd@portlandmaine.gov]
Sent: Thursday, January 18, 2018 11:35 AM
To: Lauren Swett <lswett@woodardcurran.com>
Subject: Fwd: FW: St Lawrence Arts Center 66 Congress

Lauren,

Last minute, but I'm hoping these new plans take care of your minor comments. Can you take a quick look either later today or early tomorrow and let me know.

Thanks,

Nell

---------- Forwarded message ----------
From: **Tom Greer** <tgreer@walsh-eng.com>
Date: Thu, Jan 18, 2018 at 11:23 AM
Subject: FW: St Lawrence Arts Center 66 Congress
To: Helen Donaldson <hcd@portlandmaine.gov>
Cc: Jody Cady <jody@walsh-eng.com>

Hi Nell,

Attached are the drawings showing the items in Lauren's letter. We have removed the note, added a stabilized construction entrance and added the pavement thicknesses. I believe they have been uploaded to the website as well.

Tom Greer

Walsh Engineering Associates, Inc.

Office: 207.553.9898

tgreer@walsh-eng.com

From: Jody Cady [mailto:jody@walsh-eng.com]
Sent: Thursday, January 18, 2018 11:29 AM
To: Tom Greer
Subject: RE: St Lawrence Arts Center 66 Congress

From: "Helen Donaldson" <hcd@portlandmaine.gov>
Date: Jan 17, 2018 3:43 PM
Subject: Fwd: St Lawrence Arts Center 66 Congress
To: "tgreer@pinkhamandgreer.com" <tgreer@pinkhamandgreer.com>, "Deirdre Nice" <deirdre.nice@stlawrencearts.org>
Cc:

Tom,

I'm not sure I sent you these comments from Lauren after the new year. I apologize.

There are a couple of minor edits you could probably make to the plans here (particularly Comments 2 and 3)? Let me know if you can do this by end of day tomorrow. If so, we can avoid conditions about these in the PB report.

Thanks,

Nell

--

Nell Donaldson
City of Portland Planning Division
874-8723
hcd@portlandmaine.gov

Notice: Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

--

Nell Donaldson
City of Portland Planning Division
874-8723
hcd@portlandmaine.gov

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MEMORANDUM

To: FILE

From: Nell Donaldson

Subject: Application ID: 2016-265

Date: 12/21/2016

Comments Submitted by: Keith Gautreau/Fire on 12/20/2016

Would like to see a capacity to serve letter from Portland Water District.

Comments Submitted by: Keith Gautreau/Fire on 12/20/2016

Premises Identification
The main entrance of the building must be the address for the property. This should be consistent with 911, tax assessor, Inspections Division and future mailing address.
Street addresses shall be marked on the structure and shall be as approved by the City E-911 Addressing Officer.
If the building entry faces a different street, both the street name and number should be large enough to read from the street.
Address numbers must be a minimum of 4 inches high.
The number should be in Arabic numerals rather than spelled out (for example, “130” instead of “One Hundred and Thirty’).
Color: Addresses should be in a color that contrasts with the background.
Whenever possible, should be illuminated.
Provide additional address signs at entrances to the property when the building address is not legible from the public street.
Buildings set back in groups that share common entrances can make quickly locating a specific building and the shortest route difficult. On such sites, additional signs with directional arrows and/or diagrams of the buildings and access layout should be posted.

Comments Submitted by: Keith Gautreau/Fire on 12/20/2016

Hydrant locations are within the acceptable distances per NFPA and AHJ.

Comments Submitted by: Keith Gautreau/Fire on 12/20/2016

Emergency access is excellent to the site. Access to three sides of the proposed structure.

Comments Submitted by: Keith Gautreau/Fire on 12/20/2016

Hydrants
2009 NFPA 1 18.3 Water Supplies and Fire Hydrants
-Fire Department Connections shall not be located where large diameter hose may block egress.

File: 16107

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Att. A

November 18, 2016

Ms. Barbara Barhydt, Planning Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

RE: LEVEL III SITE PLAN APPLICATION
ST. LAWRENCE ARTS CENTER, CONGRESS STREET

Dear Barbara,

We are pleased to submit the attached Site Plan Application and supporting documentation for the St. Lawrence Arts Center expansion.

As you know, this has a separate zone created for the expansion. We have included the zoning data for easy reference.

Included in the package is the Parking Demand Management Plan created at the time of the zone change. No additional traffic studies have been completed.

The stormwater assessment led to the use of a Filterra System to treat the runoff in Congress Street. There is no room on site for treatment. By treating Congress Street runoff, we believe we make a better environmental impact by treating more contaminated water than would come off the roof.

We have revised the cross walks to make them ADA compliant. The walks on all three sides will be redone. The sidewalk along Congress Street will be raised to provide ADA access. To leave the windows in place, a small granite curb was added with bollards. This is a new unique feature.

Bike racks have been added on the Congress Street side near the new entrance.

Water service will be extended from the existing building. A new sewer service will be extended out to Munjoy Street.

This project will be funded with donations. The start of the project will be dependent on that success.

PINKHAM & GREER
CIVIL ENGINEERS

Please let me know if you need any additional information.

Sincerely,

PINKHAM & GREER

Thomas S. Greer, P.E.

Enclosures

cc: Deirdre Nice, David Lloyd, File

TSG/rjs

Att. B

Friends of the St. Lawrence Church
St. Lawrence Arts
76 Congress Street
Portland, ME 04101

(207) 347-7177

September 28, 2016

To Whom It May Concern

This letter is to inform you that Thomas S. Greer and his associates of Pinkham & Greer, Civil Engineers in Portland are hereby authorized to represent me throughout the approval process of the St. Lawrence Art Center in Portland, Maine.

This includes representing me with the City of Portland and any other State or local agencies who may become involved in the process.

Should you have any questions or concerns, please feel free to contact me.

Sincerely,

Deirdre Nice
Executive Director
St. Lawrence Arts

Att. C

PROJECT NAME:

St. Lawrence Arts Addition

PROPOSED DEVELOPMENT ADDRESS:

76 Congress Street

PROJECT DESCRIPTION:

The addition of a 25,308 sq. ft. theater

CHART/BLOCK/LOT: 3 / L / 1

PRELIMINARY PLAN _____(date)
FINAL PLAN _____(date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Friends of St. Lawrence Church Business Name, if applicable: Deirdre Nice Address: 76 Congress Street City/State : Portland, ME Zip Code: 04101	**Applicant Contact Information** Work #: 207.347.7177 Home #: Cell #: 207.749.0507 Fax#: e-mail: deirdre.nice@stlawrencearts.org
Owner – (if different from Applicant) Name: Same as Applicant Address: City/State : Zip Code:	**Owner Contact Information** Work #: Home #: Cell #: Fax#: e-mail:
Agent/ Representative Thomas S. Greer Name: Pinkham & Greer, Civil Engineers Address: 28 Vannah Avenue City/State : Portland, ME Zip Code: 04103	**Agent/Representative Contact information** Work #: 207.781.5242 Home #: Cell #: Fax#: 207.781.4245 e-mail: tgreer@pinkhamandgreer.com
Billing Information Name: Same as Applicant Address: City/State : Zip Code:	**Billing Contact Information** Work #: Home #: Cell #: Fax#: e-mail:

Engineer Thomas S. Greer Name: Pinkham & Greer, Civil Engineers Address: 28 Vannah Avenue City/State : Portland, ME Zip Code: 04103	**Engineer Contact Information** Work #: 207.781.5242 Home #: Cell #: Fax#: 207.781.4245 e-mail: tgreer@pinkhamandgreer.com
Surveyor John Swan Name: Owen Haskell, Inc. Address: 390 US Route One, #10 City/State : Falmouth, ME Zip Code: 04105	**Surveyor Contact Information** Home #: Work #: 207.774.0424 Cell #: Fax#: 207.774.0511 e-mail: jswan@owenhaskell.com
Architect David Lloyd Name: Archetype Architects Address: 48 Union Wharf City/State : Portland, ME Zip Code: 04101	**Architect Contact Information** Work #: 207.772.6022 Home #: Cell #: Fax#: 207.772.4056 e-mail: lloyd@archetypepa.com
Attorney Barbara Vestal Name: Chester & Vestal Address: 107 Congress Street City/State : Portland, ME Zip Code: 04101	**Attorney Contact Information** Work #: 207.772.7426 Home #: Cell #: Fax#: 207.761.5822 e-mail: vestal@chesterand vestal.com
Designated person/person(s) for uploading to e-Plan: Name: Deirdre Nice e-mail: deirdre.nice@stlawrencearts.org Name: David Lloyd e-mail: lloyd@archetypepa.com Name: Rita Sawyer e-mail: rsawyer@pinkhamandgreer.com	

APPLICATION FEES:

Level III Development (check applicable reviews)	**Other Reviews (check applicable reviews)**
X Less than 50,000 sq. ft. ($750.00)	
___50,000 - 100,000 sq. ft. ($1,000)	___Traffic Movement ($1,500)
___100,000 – 200,000 sq. ft. ($2,000)	___Stormwater Quality ($250)
___200,000 – 300,000 sq. ft. ($3,000)	___Subdivisions ($500 + $25/lot)
___over 300,00 sq. ft. ($5,000)	# of Lots___x $25/lot = _____
___Parking lots over 11 spaces ($1,000)	___Site Location ($3,500, except for
___After-the-fact Review ($1,000.00 plus applicable application fee)	residential projects which shall be $200/lot)
	# of Lots___x $200/lot = _____
Plan Amendments (check applicable reviews)	___Other _____
___Planning Staff Review ($250)	___Change of Use
___Planning Board Review ($500)	___Flood Plain
_____	___Shoreland
The City invoices separately for the following:	___Design Review
• Notices ($.75 each)	___Housing Replacement
• Legal Ad (% of total Ad)	___Historic Preservation
• Planning Review ($50.00 hour)	
• Legal Review ($75.00 hour)	
Third party review fees are assessed separately. Any outside reviews or analysis requested from the Applicant as part of the development review, are the responsibility of the Applicant and are separate from any application or invoice fees.	

INSTRUCTIONS FOR ELECTRONIC SUBMISSION:

Please refer to the application checklist (attached) for a detailed list of submission requirements.

1. Fill out the application completely and e-mail the **application only** to planning@portlandmaine.gov (Please be sure to designate a person who will be responsible for uploading documents and drawings.) This step will generate the project ID number for your project.

2. An invoice for the application fee will be e-mail to you. Payments can be made on-line at Pay Your Invoice , by mail or in person at City Hall, 4th Floor. Please reference the Application Number when submitting your payment which is located in the upper left hand corner of the invoice.

3. The designated person responsible for uploading documents and drawings will receive an email from eplan@portlandmaine.gov with an invitation into the project. At this time, you will upload all corresponding documents and plans into the project. For first time users you will receive a temporary password which you must change on entry. Make note of your username and password for any future projects.

Reminder: Before the project can move forward, the application fee shall be paid in full and all required documents and drawings shall be uploaded into e-plan correctly.

4. Follow the link below (Applying Online Instructions) for step by step instructions on how to do the following:
   Tab 1 - Setting up the appropriate compatibility settings for your PC and getting started in e-plan.
   Tab 2 - Preparing your drawings, documents and photos for uploading using the correct naming conventions
   Tab 3 - Preparing and uploading revised drawings and documents

   Applying Online Instructions

5. When ready, upload your files and documents into the following folders:
   "Application Submittal – Drawings"
   "Application Submittal – Documents"

6. Once a preliminary check has been made of the submittal documents and drawings, staff will move them to permanent folders labeled Drawings and Documents. As the process evolves you will be able to log in and see markups, comments and upload revisions as requested into these folders.

APPLICANT SIGNATURE:

By digitally signing the attached document(s), you are signifying your understanding this is a legal document and your electronic signature is considered a ***legal signature*** per Maine state law.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:	**Date:**
Thomas G Lee	11/9/16

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	10,601 sq. ft.
Proposed Total Disturbed Area of the Site	7,095 sq. ft.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.	
Impervious Surface Area	
Impervious Area (Total Existing)	3,460 sq. ft.
Impervious Area (Total Proposed)	9,830 sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	3,360 sq. ft.
Building Footprint (Total Proposed)	9,075 sq. ft.
Building Floor Area (Total Existing)	10,540 sq. ft.
Building Floor Area (Total Proposed)	25,308 sq. ft.
Zoning	
Existing	C58 (Building is a Historic Landmark)
Proposed, if applicable	C58 (Building is a Historic Landmark)
Land Use	
Existing	Assembly
Proposed	Assembly
Residential, If applicable	N/A
# of Residential Units (Total Existing)	
# of Residential Units (Total Proposed)	
# of Lots (Total Proposed)	
# of Affordable Housing Units (Total Proposed)	
Proposed Bedroom Mix	N/A
# of Efficiency Units (Total Proposed)	
# of One-Bedroom Units (Total Proposed)	
# of Two-Bedroom Units (Total Proposed)	
# of Three-Bedroom Units (Total Proposed)	
Parking Spaces	
# of Parking Spaces (Total Existing)	0
# of Parking Spaces (Total Proposed)	0
# of Handicapped Spaces (Total Proposed)	0
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	0
# of Bicycle Spaces (Total Proposed)	20
Estimated Cost of Project	$10,000,000

PRELIMINARY PLAN (Optional) - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST**
x		1	Completed Application form
x		1	Application fees
x		1	Written description of project
x		1	Evidence of right, title and interest
n/a		1	Evidence of state and/or federal approvals, if applicable
See Contract Zone		1	Written assessment of proposed project's compliance with applicable zoning requirements
x		1	Summary of existing and/or proposed easement, covenants, public or private rights-of-way, or other burdens on the site
x		1	Written requests for waivers from site plan or technical standards, if applicable.
		1	Evidence of financial and technical capacity
See PDMP		1	Traffic Analysis (may be preliminary, in nature, during the preliminary plan phase)
Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST**
x		1	Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Preliminary Site Plan including the following: (information provided may be preliminary in nature during preliminary plan phase)**
x		Proposed grading and contours;	
x		Existing structures with distances from property line;	
x		Proposed site layout and dimensions for all proposed structures (including piers, docks or wharves in Shoreland Zone), paved areas, and pedestrian and vehicle access ways;	
x		Preliminary design of proposed stormwater management system in accordance with Section 5 of the Technical Manual (note that Portland has a separate applicability section);	
x		Preliminary infrastructure improvements;	
x		Preliminary Landscape Plan in accordance with Section 4 of the Technical Manual;	
x		Location of significant natural features (including wetlands, ponds, watercourses, floodplains, significant wildlife habitats and fisheries or other important natural features) located on the site as defined in Section 14-526 (b) (1);	
x		Proposed buffers and preservation measures for significant natural features, as defined in Section 14-526 (b) (1);	
x		Location , dimensions and ownership of easements, public or private rights of way, both existing and proposed;	
x		Exterior building elevations.	

FINAL PLAN - Level III Site Plan			
Applicant Checklist	Planner Checklist	# of Copies	**GENERAL WRITTEN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
		1	* Completed Application form
		1	* Application fees
		1	* Written description of project
		1	* Evidence of right, title and interest
		1	* Evidence of state and/or federal permits
		1	* Written assessment of proposed project's specific compliance with applicable Zoning requirements
		1	* Summary of existing and/or proposed easements, covenants, public or private rights-of-way, or other burdens on the site
		1	* Evidence of financial and technical capacity
		1	Construction Management Plan
		1	A traffic study and other applicable transportation plans in accordance with Section 1 of the technical Manual, where applicable.
		1	Written summary of significant natural features located on the site (Section 14-526 (b) (a))
		1	Stormwater management plan and stormwater calculations
		1	Written summary of project's consistency with related city master plans
		1	Evidence of utility capacity to serve
		1	Written summary of solid waste generation and proposed management of solid waste
		1	A code summary referencing NFPA 1 and all Fire Department technical standards
		1	Where applicable, an assessment of the development's consistency with any applicable design standards contained in Section 14-526 and in City of Portland Design Manual
		1	Manufacturer's verification that all proposed HVAC and manufacturing equipment meets applicable state and federal emissions requirements.

Applicant Checklist	Planner Checklist	# of Copies	**SITE PLAN SUBMISSIONS CHECKLIST** **(* If applicant chooses to submit a Preliminary Plan, then the * items were submitted for that phase and only updates are required)**
x		1	* Boundary Survey meeting the requirements of Section 13 of the City of Portland's Technical Manual
		1	**Final Site Plans including the following:**
x			Existing and proposed structures, as applicable, and distance from property line (including location of proposed piers, docks or wharves if in Shoreland Zone);
x			Existing and proposed structures on parcels abutting site;
x			All streets and intersections adjacent to the site and any proposed geometric modifications to those streets or intersections;
x			Location, dimensions and materials of all existing and proposed driveways, vehicle and pedestrian access ways, and bicycle access ways, with corresponding curb lines;
x			Engineered construction specifications and cross-sectional drawings for all proposed driveways, paved areas, sidewalks;
x			Location and dimensions of all proposed loading areas including turning templates for applicable design delivery vehicles;
x			Existing and proposed public transit infrastructure with applicable dimensions and engineering specifications;
x			Location of existing and proposed vehicle and bicycle parking spaces with applicable dimensional and engineering information;
x			Location of all snow storage areas and/or a snow removal plan;
n/a			A traffic control plan as detailed in Section 1 of the Technical Manual;
n/a			Proposed buffers and preservation measures for significant natural features, where applicable, as defined in Section 14-526(b)(1);
n/a			Location and proposed alteration to any watercourse;
n/a			A delineation of wetlands boundaries prepared by a qualified professional as detailed in Section 8 of the Technical Manual;
n/a			Proposed buffers and preservation measures for wetlands;
x			Existing soil conditions and location of test pits and test borings;
x			Existing vegetation to be preserved, proposed site landscaping, screening and proposed street trees, as applicable;
x			A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;
x			Grading plan;
x			Ground water protection measures;
x			Existing and proposed sewer mains and connections;

- Continued on next page -

		Location of all existing and proposed fire hydrants and a life safety plan in accordance with Section 3 of the Technical Manual;
		Location, sizing, and directional flows of all existing and proposed utilities within the project site and on all abutting streets;
n/a		Location and dimensions of off-premises public or publicly accessible infrastructure immediately adjacent to the site;
n/a		Location and size of all on site solid waste receptacles, including on site storage containers for recyclable materials for any commercial or industrial property;
		Plans showing the location, ground floor area, floor plans and grade elevations for all buildings;
		A shadow analysis as described in Section 11 of the Technical Manual, if applicable;
		A note on the plan identifying the Historic Preservation designation and a copy of the Application for Certificate of Appropriateness, if applicable, as specified in Section Article IX, the Historic Preservation Ordinance;
n/a		Location and dimensions of all existing and proposed HVAC and mechanical equipment and all proposed screening, where applicable;
		An exterior lighting plan in accordance with Section 12 of the Technical Manual;
		A signage plan showing the location, dimensions, height and setback of all existing and proposed signs;
		Location, dimensions and ownership of easements, public or private rights of way, both existing and proposed.

BK 13333PG009

056583

WARRANTY DEED

Know all Ye by these Presents,

That I, DEIRDRE E. NICE (Grantor) of 4 Glen Road, Falmouth, Maine 04105, for consideration paid, do hereby grant unto the said FRIENDS OF THE ST. LAWRENCE CHURCH (Grantee), of 76 Congress Street, Portland, Maine 04101, with Warranty Covenants, the following real property situated at 66-76 Congress Street, City of Portland, County of Cumberland, described as follows:

MAINE REAL ESTATE TAX PAID

A certain lot or parcel of land with the buildings thereon, situated in said Portland, and being more particularly described on Exhibit A attached hereto and made a part hereof.

Meaning and intending to convey the same premises described in a warranty deed from Stephen P. Sunenblick and Roger Conover to Grantor and Grantee dated December 9, 1993, and recorded in the Cumberland County Registry of Deeds in Book 11160, Page 21.

Witness my hand this 12 day of September, 1997.

Witness

Deirdre E. Nice

STATE OF MAINE
CUMBERLAND, ss

September 12, 1997

Personally appeared the above Deirdre E. Nice, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Attorney at Law/Notary Public

EXHIBIT A

Three certain lots or parcels of land and the church edifice and buildings on the same situated at the corners of Congress, Munjoy and Beckett Streets, in the said City of Portland and more particularly bounded and described as follows:

FIRST: Beginning at the corner formed by the intersection of the southerly side line of said Congress Street and the westerly side line of said Beckett Street; thence southeasterly by said Beckett Street forty-five (45) feet to a point; thence westerly on a line at right angles to said Beckett Street eighty (80) feet to Lot No. 1 in Block marked E. on a plan recorded in the Cumberland Registry of Deeds in Plan Book No. 4, Page 18; thence northerly by said Lot No. 1, forty-five (45) feet to said Congress Street; thence easterly by said Congress Street eighty (80) feet to the point begun at.

SECOND: Beginning at the northeasterly corner as formed by the intersection of the Southeasterly line of said Congress Street and the northeasterly line of said Munjoy Street; thence southeasterly by said Munjoy Street a distance of forty three and 27/100 (43.27) feet to a point; thence northeasterly at right angles to said Munjoy Street a distance of eighty (80) feet to a point; thence northwesterly at right angles to the last described line a distance of forty five and 69/100 (45.69) feet to Congress Street; thence southwesterly by said Congress Street to the corner begun at. Said lot is further shown on a plan of the premises recorded in said Cumberland Registry of Deeds in Plan Book 4, Page 18, and is the lot number one (1) in Block E on said Plan. The two parcels above described are the same conveyed to the St. Lawrence Street Parish by Jacob H. Groves by his deed dated September 28, 1895, and recorded in the Cumberland Registry of Deeds, Book 630, Page 261.

THIRD: Beginning at a point on the easterly side of Munjoy Street which point is forty three and 27/100 (43.27) feet southerly from the corner made by the intersection of the southerly line of Congress Street with the easterly line of Munjoy Street; thence southerly on said Munjoy Street forty three (43) feet to a point, and from these two points and keeping the same width extending back at right angles to Munjoy Street eighty (80) feet. Being the same premises conveyed to the Saint Lawrence Street Parish by John Cousens by his deed dated August 24, 1896 and recorded in said Registry, Book 639, Page 438. To the several deeds aforesaid and the records thereof reference is hereby made for further description of the premises hereby conveyed.

THIS CONVEYANCE IS MADE SUBJECT to an outstanding mortgage from the Grantor and Grantee herein to Fleet Bank of Maine, which mortgage the Grantee, as part of the consideration for this transaction, assumes and agrees to pay.

RECEIVED
RECORDED REGISTRY OF DEEDS
1997 SEP 19 PM 4:16
CUMBERLAND COUNTY
John B O'Brien

ST LAWRENCE ARTS

October 4, 2017

Helen Donaldson
City of Portland Planning Department
389 Congress Street
Portland, Maine 04101

Board of Directors

Guy Gaudette, CPA
President
Glenn Morin, CPA
Treasurer/Secretary

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Nan Cumming
Bruce Hyman, AICP
Jamie Isaacson
A. Robert Ruesch, Esq.
William Umbel

Deirdre Nice
Executive Director
Julia Kirby
Development Director
Gerry Shannon
Theater Manager

Dear Ms. Donadlson and Members of the City of Portland Planning Board,

Friends of St. Lawrence Church (FSLC) is seeking site plan approval to build a 401-seat Performance Hall where the original, historic sanctuary of the property stood. Although FSCL understands that applicants need to demonstrate financial capacity for approval, it is seeking exemption as a non-profit. FSLC believes its past history of undertaking the huge challenges associated with restoring and maintaining this property without committed funding or income sources combined with the current trend of high-end commercial and residential development of Munjoy Hill support our request.

Brief history

In 2001, five years after forming, FSLC rehabilitated an entire half of the deteriorating St. Lawrence Church, a nineteenth- century, stone building, and opened as a small arts center. The organization did not have funding upon commencement of this project or a dedicated income stream during renovation or upon opening. It had a strong, grass roots level of support and a vision to bring art and culture to Munjoy Hill, a part of Portland that was struggling economically. The abandoning of the building in the mid-1980s, arguably the anchor of the community occupying an entire city block on Congress Street, the city's main street, accelerated the slow decline of the neighborhood that began in the 1970s. The blight that followed emerged as a crisis for the area. By the 1990s this neighborhood, situated on the East End of the Portland Peninsula, was known for high crime, poverty, and absentee landlords.

St. Lawrence Arts has been operating successfully since its inception, bringing a wide range of performing arts to Munjoy Hill, serving this neighborhood, the City of Portland, as well as dozens of theater companies and artists.

The Neighborhood Today

The adaptive reuse of The St. Lawrence Church as St. Lawrence Arts (SLA) and its very successful seventeen-years in business has had a profound impact on the revitalization of Munjoy Hill, driving development and economic growth. Rehabilitation of this once derelict historic building not only created a thriving arts center, but also an environment conducive and inviting for residential and business investment. The formation of businesses, r estaurants, and art galleries flourished after the opening of the Parish Hall Theater in

2001. In addition to serving the neighborhood of Munjoy Hill, SLA also serves Portland, Southern Maine and Northern New England by bringing people and performers to the venue on a consistent basis, bringing a steady stream of commerce and vitality to Munjoy Hill. FSLC, after years of planning, preparing, and overcoming challenging obstacles is ready to move forward with its initial goal of bringing a whole St. Lawrence back to the community. This will create even greater economic value and serve the ever growing population of the neighborhood. Growth not only in numbers of people, but also in average median income.

Upon successful completion, FSLC will provide Portland with a mid- sized, community-based venue for the arts that will be an economic engine, a major contributor to the Creative Economy of Portland, and a solid support for the lively community of restaurants, shops, and art galleries that are thriving as part of the Renaissance happening in Portland's Munjoy Hill neighborhood. More importantly, the new building will ensure that this nineteenth-century property will remain a part of the historic fabric of the city. Upon its completion, the new performance hall will provide a revenue stream that will support the operating expenses of the organization in perpetuity. At present SLA relies on grant funding, donations, and limited earned income from its small, 110-seat theater to successfully carry out its mission. Operating as a vibrant arts center that gives back to the community with continued affordability and access to all; supporting other non-profits by offering space for discount or free; and collaborating more closely with the schools, offering a state of the art performing arts center for their use defines SLA's purpose.

Funding Progress to Date

FSLC has demonstrated savvy and resourceful fundraising capacity over the past decade with this project. The rehabilitation of the sanctuary half of the building began in 2006 with the award of a $250,000 Jane's Trust Grant. Since that time, the project has progressed a long way, weathering many daunting challenges. FSLC has been able to develop funding streams as opportunities have arisen over the course of eleven years. The initial conceptual drawings prepared by a notable architectural firm in 2010 were a thoughtful response to the unfortunate loss of the original sanctuary in 2008. These plans proposed a 400-seat, state-of-the-art Performance Hall for music, dance, and theatrical performances and an exterior in mass and style that exactly recreated the Sanctuary complete with a bell tower, granite façade, gabled roof and the ecclesiastical details that were its hallmark. These plans piqued the interest of many funders, and opened the door for conversation about FSLC's project. An exhaustive feasibility study conducted after receiving the conditional rezoning in 2010 determined that the plans, which carried a $17Million dollar budget, were too expensive and extravagant for the underlying purpose of building an arts center. The study concluded that the project focus and majority of the budget should not be usurped by recreating an old landmark but instead should be tailored to create a dynamic, sustainable arts center and preserve the original building still in existence that today houses the very successful Parish Hall Theater. The organization researched recent building projects that are similar in scope, size, and program to the project proposed by FSLC

and worked tirelessly with a Portland based development company to arrive at a new budget figure of $10 Million.

One of the first steps towards modifying the initial architectural plans was selecting an architect who could meet the challenge of designing a contemporary building with a reduced budget that complements the existing historic structure. Archetype Architects and Principal David Lloyd was selected to lead the organization to this final phase of realizing its goal of a fully restored arts center. The challenge has always been to make the project economically viable. In consultation with interested funders, SLA has developed a more realistic development budget and has received feedback that support of the project will be forthcoming based on more reasonable costs.

Conclusion

From the purchase of the building in 1993, the formation of the 501(c)3 in 1997, and the opening of the Parish Hall Theater in 2001, dedication to this project has been consistent giving it great momentum and making it successful. This project is unique by virtue of its non-profit status, which calls for different measurement. The sequence of events for non-profit projects and programs stands in contrasts to the profit world. Non-profits must make a strong case for support, have a clear vision that donors can understand and engage with and demonstrate the impact of the project/program to position itself for funding. For FSLC to accomplish this task, it requires that the new Performance Hall have City approvals, the plans must have concise details on all aspects of the development, and it needs to be ready to move forward.

Sincerely,

Deirdre Nice
Executive and Artistic Director

Att. E

CHESTER & VESTAL

A PROFESSIONAL ASSOCIATION

ATTORNEYS AT LAW

107 Congress Street, Portland, Maine 04101

Telephone (207) 772-7426 Fax (207) 761-5822

EDWIN P. CHESTER
BARBARA A. VESTAL
MICHAEL P. DIXON

chester@chesterandvestal.com
vestal@chesterandvestal.com
dixon@chesterandvestal.com

January 31, 2015

Nell Donaldson, Planner
Planning Division
City of Portland
389 Congress Street
Portland, Maine 04101

RE: Amended Conditional Rezoning/St. Lawrence Arts

Dear Nell:

Attached for the Planning Division records is a photocopy of the Amended Conditional Zone Agreement Re: St. Lawrence Church, with attached Exhibits A and B. As indicated on the copy, the document was recorded in the Cumberland County Registry of Deeds on January 15, 2015 in Book 32031, Pages 180 – 210.

It was a pleasure working with you on this matter.

Very truly yours,

Barbara A. Vestal

Enclosure
BAV/om
cc: Deirdre Nice

Doc#: 2017 Bk:32031 Ps: 180

A TRUE COPY
ATTEST: Katherine L. Jones
Katherine L. Jones, City Clerk
Portland, Maine
DATE 1-12-2015

Order 101-14/15
Tab 7 12-1-14

MICHAEL F. BRENNAN (MAYOR)
KEVIN J. DONOGHUE (1)
DAVID A. MARSHALL (2)
EDWARD J. SUSLOVIC (3)
JUSTIN COSTA (4)

CITY OF PORTLAND
IN THE CITY COUNCIL

DAVID H. BRENERMAN (5)
JILL C. DUSON (A/L)
JON HINCK (A/L)
NICHOLAS M. MAVODONES, JR (A/L)

AMENDMENT TO CITY CODE SEC. 14-49 (ZONING TEXT AND MAP AMENDMENT) RE: FIRST AMENDMENT TO THE CONDITIONAL REZONING AGREEMENT FOR PROPERTY IN THE VICINITY OF ST. LAWRENCE ARTS/CONGRESS STREET

SEAL

ORDERED, that the zoning map and text of the City of Portland, dated December 2000, as amended and on file in the Department of Planning & Development, and incorporated by reference into the Zoning Ordinance by Sec. 14-49 of the Portland City Code, is hereby amended to reflect a conditional rezoning as detailed below.

AMENDMENT TO CITY CODE SEC. 14-49 (ZONING MAP AMENDMENT) RE: FIRST AMENDMENT TO THE CONDITIONAL REZONING FOR PROPERTY IN VICINITY OF ST. LAWRENCE ARTS ~~CENTER~~/CONGRESS STREET

ORDERED, that the Zoning Map of the City of Portland, dated December 2000 as amended and on file in the Department of Planning & Development, and incorporated by reference into the Zoning Ordinance by Sec. 14-49 of the Portland City Code, which was amended by a Conditional Zone Agreement dated November 4, 2010 and recorded in the Cumberland County Registry of Deeds in Book 28250, Page 201, is hereby further amended to reflect an amended conditional rezoning as detailed below:

AMENDED CONDITIONAL ZONE AGREEMENT RE: ST. LAWRENCE CHURCH

Given first reading on 12/1/2104. Passage 9-0 on 12-15-2014

AGREEMENT made this 12 day of January, 2015 by Friends of the St. Lawrence Church, 76 Congress Street, Portland, Maine ("Developer"), and its successors and assigns.

WITNESSETH

WHEREAS, the Developer owns land located at 76 Congress Street, and more particularly described in a deed from Deirdre E. Nice dated September 12, 1997 and recorded in the Cumberland County Registry of Deeds in Book 13333, Page 9 (the "Property"); and

WHEREAS, the existing building and a previously dismantled portion of the building located on the Property wereas formerly used as the St. Lawrence Congregational Church until 1986; and

WHEREAS, in 1996, the St. Lawrence Arts Center was founded; and

WHEREAS, in 2001, the building located on the Property hads two principal portions, the sanctuary and the parish hall; and

WHEREAS, in 2001, the parish hall portion of the building was renovated to house a one hundred and ten (110) seat theater, green room, art studio workshops and staff offices; and

WHEREAS, in 2008, the sanctuary portion of the building was dismantled due to structural failure; and

WHEREAS, a conditional rezoning was approved in 2010 which was based upon a reconstruction of the dismantled sanctuary, but that reconstruction proved to be economically infeasible, so the Developer is seeking an amendment to the 2010 conditional rezoning which retains the same programmatic functions as proposed and approved in 2010 but contains them in a new rather than a reconstructed structure; and

WHEREAS, the Developer, as in 2010, proposes and intends to renovate the parish hall theater in order to increase its seating capacity to one hundred and twenty (120) seats substantially in accordance with the plans submitted as Exhibit A attached hereto; and

WHEREAS, the Developer proposes and intends to ~~reconstruct~~ a performance arts hall on the site of the former sanctuary to provide a full basement for "back of house" green rooms, ADA toilets and storage; a lobby that serves both the auditorium and theater space, a top floor "promenade room"/additional lobby, and a new four hundred and one(401) seat auditorium substantially in accordance with the plans submitted as Exhibit A attached hereto; and

WHEREAS, the Developer proposes and intends to develop the building on the Property as an energy efficient ~~and LEED-certified~~ facility; and

WHEREAS, the Developer intends to maintain the character of the original parish house, and construct a new structure which will respect the character-defining features of the historic ~~and~~ Property and complement the adjacent residential neighborhood; and

WHEREAS, the ~~existing~~ underlying zoning is R-6 which has dimensional requirements that the existing structure on the site does not meet; and

WHEREAS, the Developer has requested an amended rezoning of the Property in order to permit the proposed development of the Property; and

WHEREAS, the proposed community hall use of the Property is consistent with the Comprehensive Plan and existing and permitted uses in the underlying zone and neighborhood, which include a mix of residential, commercial and institutional uses including ~~churches~~places of assembly., schools, the Portland Observatory Museum and the Portland Company Marine Complex; and

WHEREAS, the City's Comprehensive Plan calls for strengthening neighborhood identity through cultural programming and creating connections between neighborhoods and the Arts District; and

WHEREAS, the City's Comprehensive Plan calls for the preservation ~~of the Downtown's~~Portland's unique identity and historic fabric through the re-use of existing structures and the development of new construction that is respectful of the built and natural surroundings; and

WHEREAS, the City's Comprehensive Plan promotes the enhancement of Portland's cultural community and creative economy through retaining and encouraging arts and cultural organizations and retaining and expanding performance and exhibition space, studio space and office/support space for artists, institutions and organizations; and

WHEREAS, the Planning Board, after notice and hearing and due deliberation thereon, recommended the rezoning of the Property as aforesaid, subject, however, to certain conditions contained in this Agreement; and

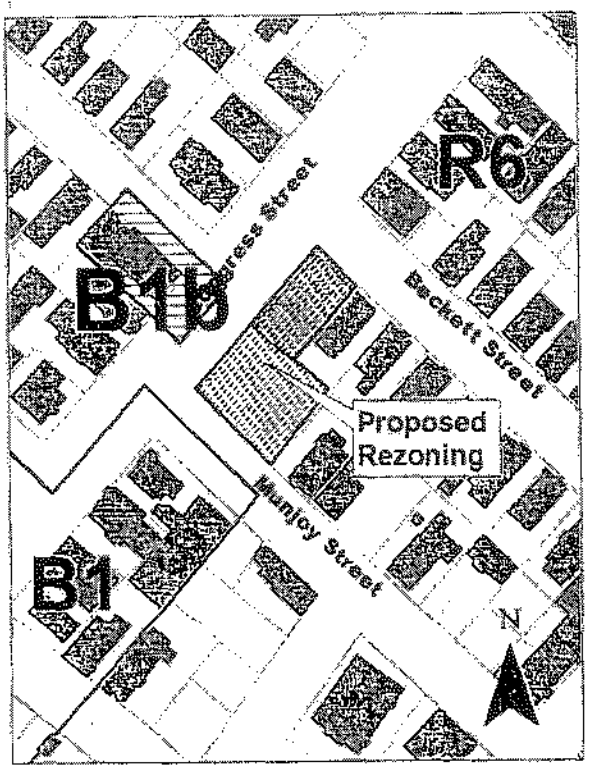
WHEREAS, the Portland City Council, pursuant to 30-A M.R.S.A. § 4352(8) and Portland City Land Use Code (the "Code") §§ 14-60 to 14-62, after notice, hearing and due deliberation thereon, has determined that because of the unusual nature and unique location of the proposed development, and its minimal impact on and compatibility with the surrounding community, it is necessary and appropriate to recommend the amended rezoning of the Property as aforesaid, with the following conditions and restrictions set forth in this Agreement; and

WHEREAS, the Portland City Council has on December 15, 2014 approved this Agreement in its entirety, by City Council Order No. 101-14/15, a true copy of which is attached hereto as Attachment 1 (the "Order");

NOW, THEREFORE, in consideration of the rezoning, the Developer covenants and agrees as follows:

1. Pursuant to the Order, the City shall amend the Zoning Map of the City of Portland, dated September, 2000 (as amended from time to time and on file in the Department of Planning and Urban Development, and incorporated by reference into the Zoning Ordinance by § 14-49 of the Code) by adopting the map change amendment shown below to zone the property conditional R-6, subject to the conditions contained below.

Image 1: Proposed Rezoning



If this Agreement is not recorded within sixty (60) days after the effective date of the City Council's approval of the Order, then the first amendment to the conditional rezoning shall become null and void and the zoning of the Property shall revert to the pre-existing R-6 zone or the equivalent zone in effect at the time of reversion.

2. Notwithstanding section 14-137(b)(6)(c)(i), the use of the Property shall be considered and be operated as a place of assembly/community hall.

3. The underlying dimensional requirements of the R-6 zone shall apply and are modified as follows:

a. Minimum lot Size: 10,500 square feet.

b. Minimum Yard Dimensions:

1. Front yard: 0 feet.
2. Rear Yard: 0 feet.
3. Side Yard on Side Streets: 0 feet.

c. Maximum Lot Coverage: 905%.

d. Maximum Tower Height: ~~90 feet~~ NA.

e. Maximum Sanctuary Structure Height: 5465 feet.

f. Open Space Ratio: 0%.

g. Minimum Lot Width: 50 feet

h. The following plans and documents are attached hereto and incorporated into this agreement by reference. The Property will be developed substantially in accordance with these plans and documents, provided, however, that the development of the Property shall be subject to site plan review by the Planning Board and to review by the Historic Preservation Board. Any site plan or historic preservation review applications shall fully comply with the application requirements in the City's Land Use Code. The Planning Board and Historic Preservation Board may require modifications to these documents during their review: ~~subject to such subsequent modifications as may be required by the Planning Board during site plan review and by the Historic Preservation Board during its review and approval~~: Site Plan A0.01 dated October 15, 2014, Floor Plans A1.00 through A1.04 dated January 16, 2014, and Elevations A2.00 through A2.03, dated September 10, 2014, St. Lawrence Arts Addition for Friends of the St. Lawrence Church by Archetype Architects..

4. The proposed theater in the parish hall shall have no more than one hundred and twenty (120) seats, and the proposed auditorium in the former sanctuary site shall have no more than four hundred and ~~five~~one (401~~5~~) seats. The Developer and its successors and assigns shall not be permitted to hold separate audience events in the parish hall and the sanctuary auditorium at the same time. The Developer shall be permitted to hold a separate event in the Promenade Room when another concurrent event is being held in the parish hall or the sanctuary auditorium. This does not preclude the Developer from using the parish hall, the Promenade Room and/or the

sanctuary auditorium for one (1) single event with the total number of attendees of said event not to exceed four hundred and eighty five (485) people. Under no circumstances may more than 485 attendees of any single event or combination of events be present on the Pproperty at the same time.

5. The owner of the Property shall be responsible for ongoing maintenance of the Property, including snowplowing, salting, sanding, sweeping, lighting, trash removal (at least weekly), mowing, etc.

6. Prior to the issuance of a Certificate of Occupancy, the Developer shall install, according to City specifications, new brick sidewalk-a along the Munjoy Street, Beckett Street and Congress Street property frontages and shall reset, as necessary, the existing pink granite curbing. If, at the time of site plan review, the Public Services Department determines that the curbing is in poor condition, the applicant shall replace it, as necessary.

7. Prior to the issuance of a Certificate of Occupancy, the Developer shall provide two (2) trees along each of the Munjoy Street, Beckett Street and Congress Street property frontages. If healthy street trees are already in place along any of these frontages, they may be counted towards this requirement. The size and type of trees to be planted shall be approved by the Portland City Arborist or their designee. If, due to site constraints, the Developer is unable to provide the two (2) required trees per street frontage, they shall contribute $200.00 per tree or, if the required contribution is greater at the time of the application, that amount, to the City of Portland's Tree Fund. This contribution, if necessary, is independent of any conditions which the Planning Board may lawfully require under site plan review. The Planning Board shall not be authorized, however, to waive this requirement.

8. Prior to the issuance of a Certificate of Occupancy, the Developer shall, at its own expense, install a minimum of two (2) municipal street lights along the Congress Street frontage of the property that meet the specifications and color designated for the Downtown Lighting District, as detailed in the Municipal Street Lighting Standards of the City of Portland Technical Manual, or of a type as may be specified by the City Lighting Plan at the time of the application or by the Planning Division.

~~9. Prior to the issuance of a Certificate of Occupancy, the Developer shall construct any remaining sidewalk connections and sidewalk ramps meeting City technical standards at the intersection of Congress Street and Eastern Promenade on both sides of the street and at the intersection of Moody Street and Eastern Promenade on both sides of the street, unless these improvements are already in place at the time of the application. This may include walkway connections to the Cutter Street parking lots as described in the Eastern Promenade Master Plan (2004).~~

9. Prior to the issuance of a Certificate of Occupancy, the developer shall install any remaining crosswalks, ADA-compliant sidewalk ramps, and other pedestrian improvements meeting City technical standards at the intersections of Congress Street

and Beckett Street or Howard Street and Congress Street and Munjoy Street, unless these improvements are already in place at the time of application.

10 The Developer shall submit a transportation demand management ("TDM") plan during site plan and conditional use review for review and approval by the Planning Board in a form substantially in accordance with Exhibit B attached hereto as a starting point subject to Planning Board and applicant modification during Site Plan Review (the terms of the attached TDM are incorporated by reference herein). The requirement of TDM plan shall supersede any and all parking requirements under the Land Use Code for the Property. During the site plan review process, the Planning Board shall provide a communication to the City Council that may include recommendations, if the Board deems it necessary, for additional on-street parking regulations in the vicinity of the project site. These may include but shall not be limited to two (2) hour parking limits and/or a residential parking program.

The TDM plan shall include provisions for the contribution of $70,000 annually to the city's Sustainable Transportation Fund, with the initial contribution due at the time of Certificate of Occupancy. This funding shall be designated at the city's sole discretion consistent with the provisions of Section 14-346.2 for improvements intended to enhance transportation choice, promote transit, and/or promote non-automotive transportation to and from Munjoy Hill, and shall initially be used for improvements to Greater Portland Transit District's #1 Line, which serves Congress Street and Munjoy Hill. If, following monitoring of the TDM plan, the Planning Board or Planning Authority deem other transportation demand management strategies to be more effective in meeting the benchmarks of the TDM plan, the Planning Board or Planning Authority may recommend redesignation of those funds toward such strategies.

The TDM plan shall include monitoring provisions to periodically review the efficacy of the plan over time. The efficacy of the TDM plan shall be reviewed by the TDM plan administrator within three (3) months from the issuance of the certificate of occupancy. The results shall be promptly provided to the City for evaluation upon completion of the review. From that time forward, the TDM plan administrator shall review the TDM plan and report results to the City for evaluation ~~on, at a minimum, an annual basis or~~ in accordance with the TDM monitoring schedule outlined in the TDM plan. Changes to the TDM plan as a product of monitoring shall be reviewed and approved by the Planning Authority.

If at the time of review (and/or at any time thereafter) the City and/or the Developer has received any ~~five (5) or more~~ complaints within a one (1) year period about traffic/parking generated by the use of the facility , the Developer shall report that information to ~~will be required to institute a review process, working in concert with~~ the Planning Authority as part of the ~~annual~~ review process, in accordance with ~~sub-paragraph F of~~ the attached TDM plan.

11. The Developer shall be responsible for ensuring that tour buses, vans and trucks affiliated with performances and events at the Property unload and then relocate to a remote, off street parking location away from the venue for the duration of the event.

12. The provisions of this Agreement are intended to replace and/or supersede the requirements of the underlying R-6 zone and the requirements of the 2010 conditional rezoning. As stated above, to the extent not otherwise altered herein, the zoning requirements for the R-6 zone shall otherwise apply to the Property.

13. In the event of a breach by the Developer or its successors or assigns of the zoning provisions and conditions contained herein (whether the Zoning Administrator, the Planning Authority, the Zoning Board of Appeals or a court determines such breach), the Planning Board, after notice and hearing, may recommend to the City Council that the conditional zone and this Agreement be amended, or be rescinded, such rescission to result in the termination of this Amended Agreement and a reversion of the Property to the underlying R-6 zone requirements ~~in place before the execution of this Agreement or~~ its equivalent in effect at the time of the reversion.

14. The above stated restrictions, provisions, and conditions are an essential part of the rezoning, shall run with the Property, shall bind and benefit the Developer, any entity affiliated with the Developer that takes title to the Property, its successors and assigns, and any party in possession or occupancy of said Property or any part thereof, and shall inure to the benefit of and be enforceable by the City of Portland, by and through its duly authorized representatives. The Developer shall file a counterpart original of this Agreement in the Cumberland County Registry of Deeds.

15. This amended conditional rezoning shall become null and void and the Property shall revert to the pre-existing R-6 zone or its equivalent in effect at the time of the reversion in the event that the Developer fails to commence construction within ten (10) years from the date of the Council approval of this amended rezoning agreement. This ten (10) year period shall be extended up to an additional one (1) year period if:

a. The Developer has applied for all required approvals but has not received all required approvals within the aforementioned ten (10) year period; or

b. Any other event beyond the control of the Developer has occurred which will delay the closing on some or all of the parcels and Developer has notified the City of such event.

If any required approval, including the Council's approval of this amended conditional rezoning, has been appealed, then this rezoning shall become null and void and shall revert to the underlying R-6 zoning or its equivalent in effect at the time of the reversion if the Developer fails to commence construction within one (1) year from the final disposition of such appeal or the above mentioned ten (10) year period, whichever occurs last.

16. This amended conditional rezoning agreement shall be enforced pursuant to the land use enforcement provisions of state law including, but not limited to, 30-A. MRSA § 4452 and the Portland City Code.

17. If any of the restrictions, provisions, conditions, or portions thereof set forth herein is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision and such determination shall not affect the validity of the remaining portions hereof.

18. Except as expressly modified herein, the development shall be governed by and comply with the provisions of the Portland City Code and any applicable amendments thereto or replacement thereof.

WITNESS:

FRIENDS OF THE ST. LAWRENCE CHURCH

BY: Deirdre Nice
Its Executive Director

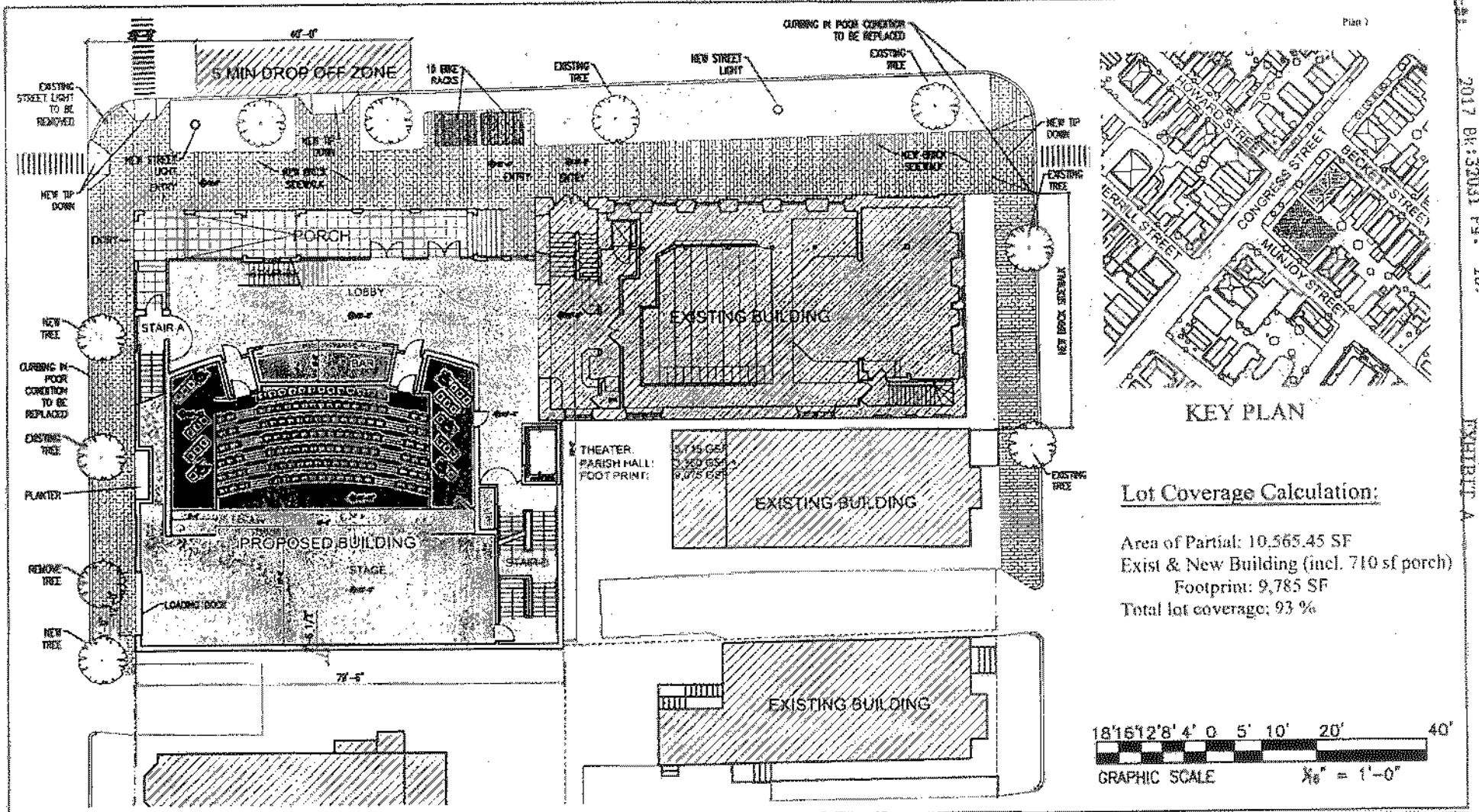
1/12/2015

STATE OF MAINE
CUMBERLAND, ss.
2010~~4~~ 2015

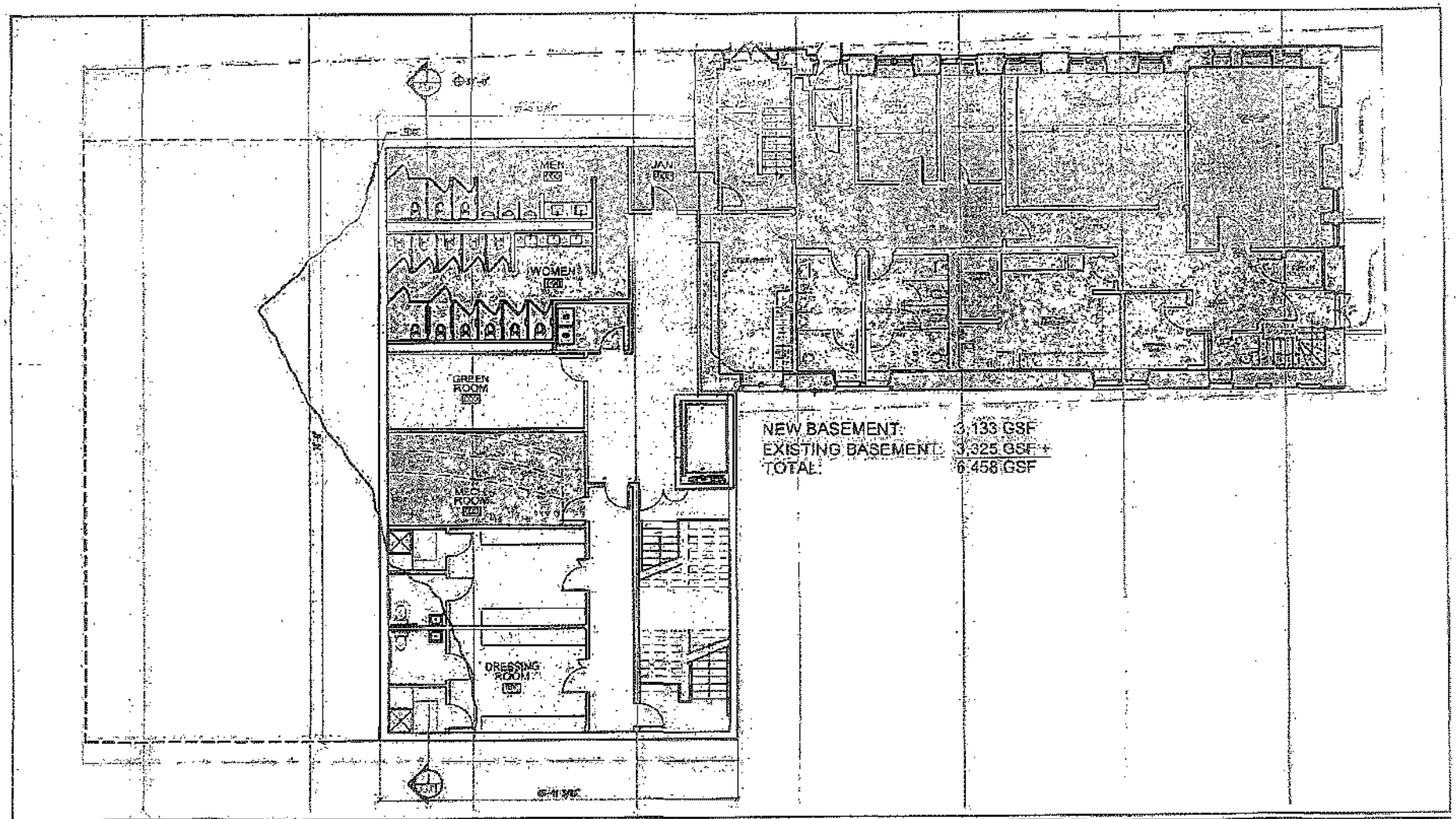
Personally appeared before me the above-named Deirdre Nice, in his/her capacity as Executive Director of FRIENDS OF THE ST. LAWRENCE CHURCH, and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of said corporation.

Before me,

Notary Public ~~Attorney at Law~~



N W E S	FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101		ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6021 Fax (207) 775-4056	ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Date: 15 OCT 2014 Scale: 1/16" = 1'-0" SITE PLAN A0.01



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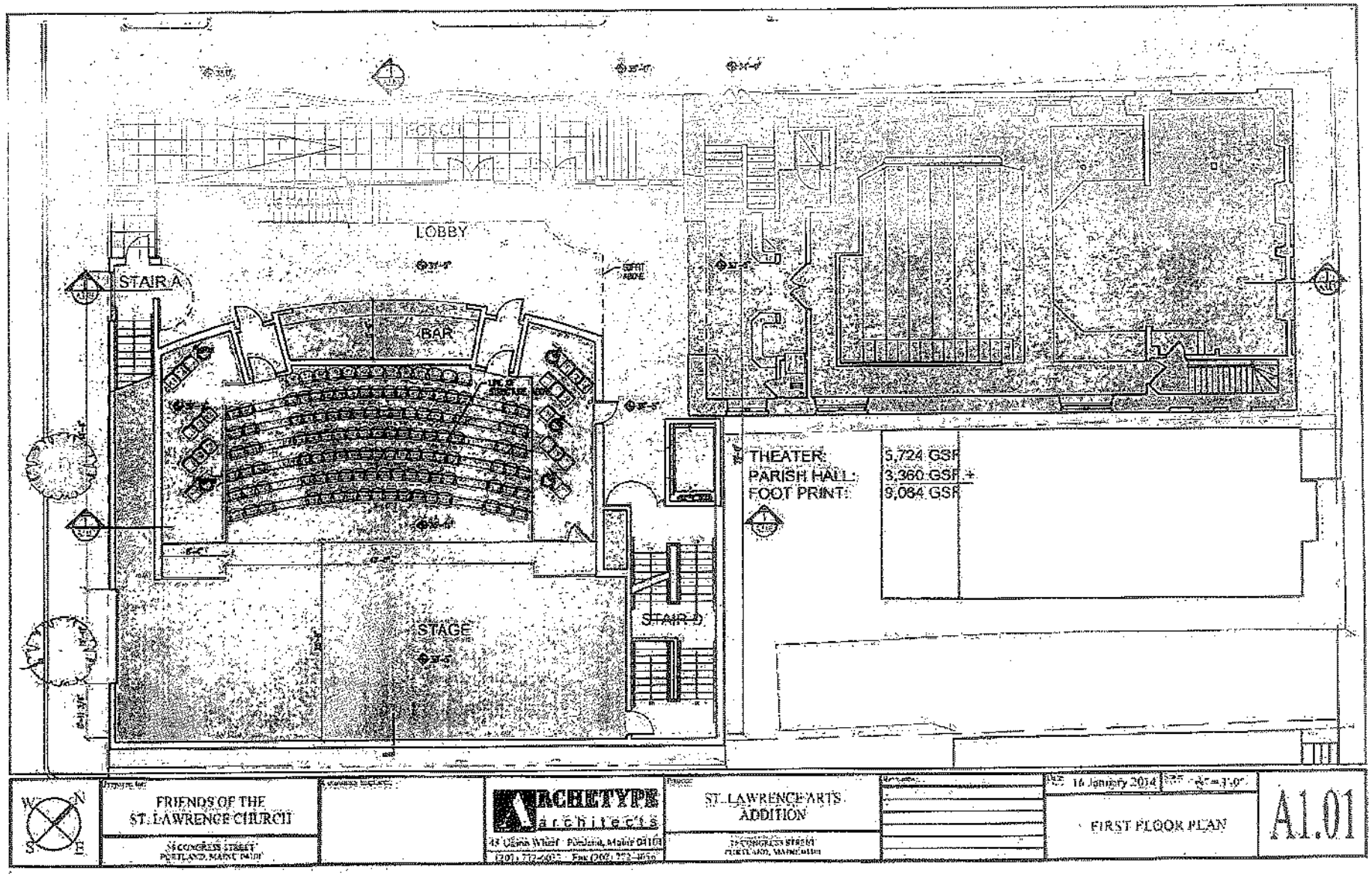
Rec'd: 2017 BK: 32031 Pg: 190



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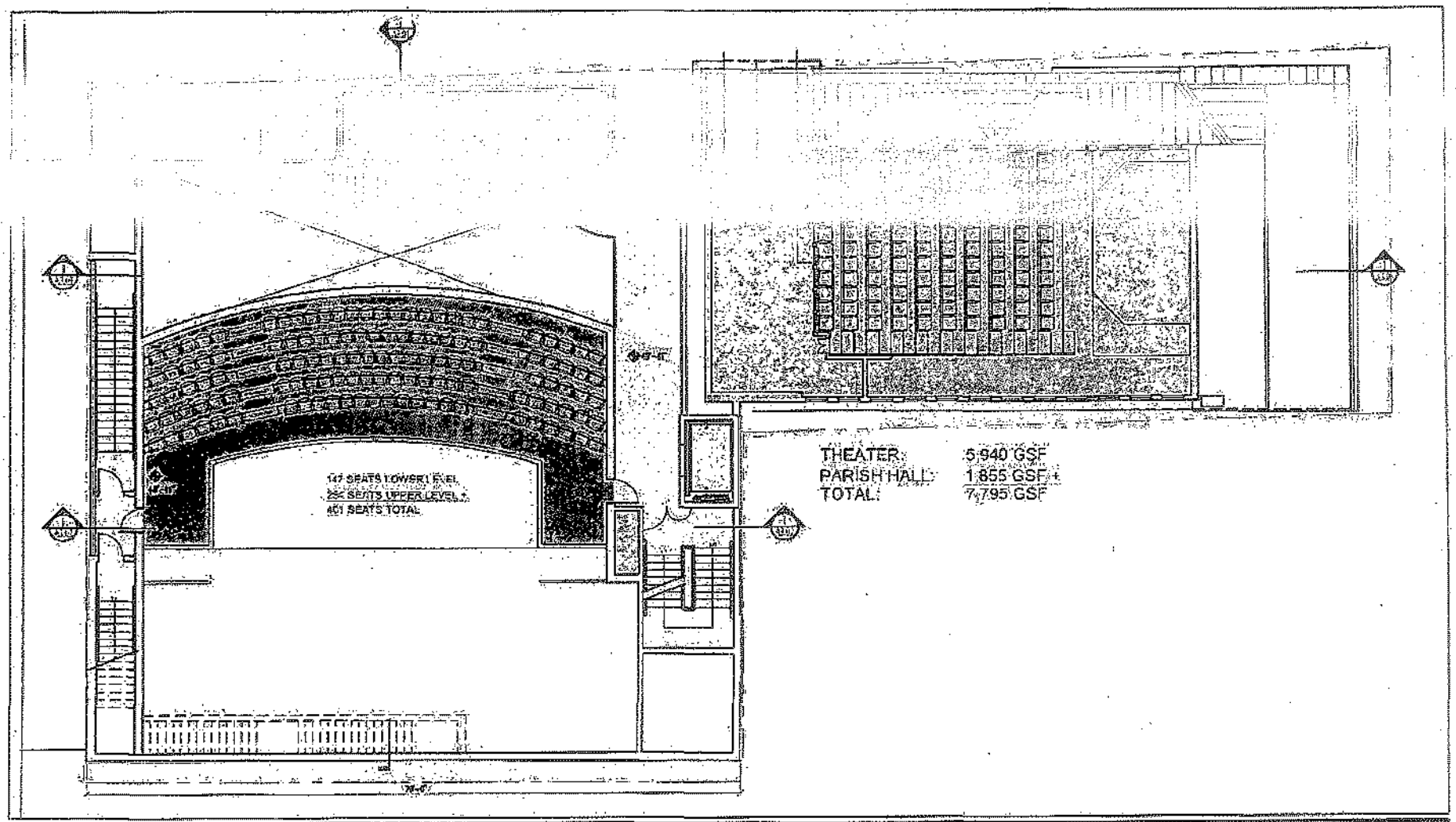

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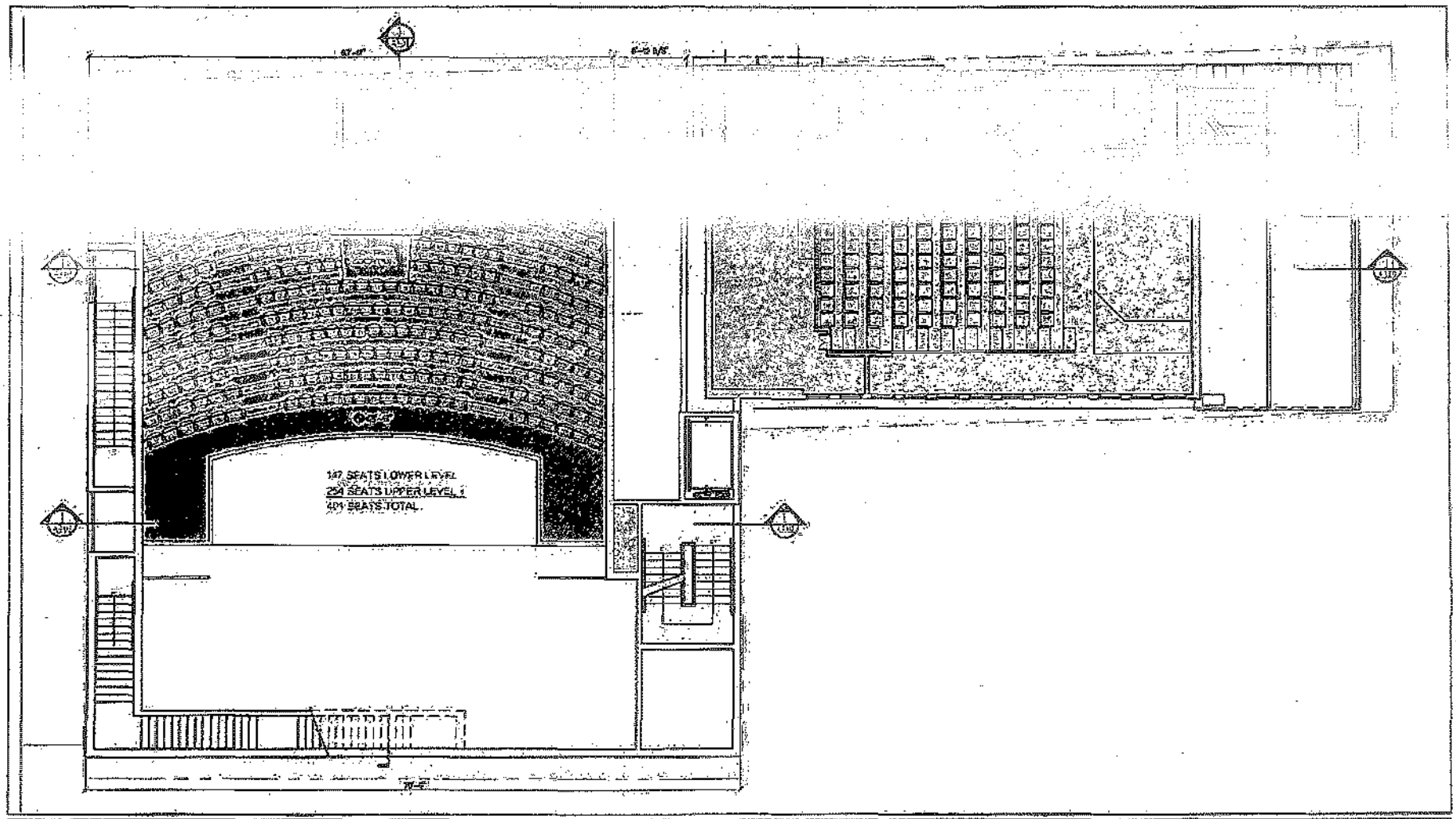
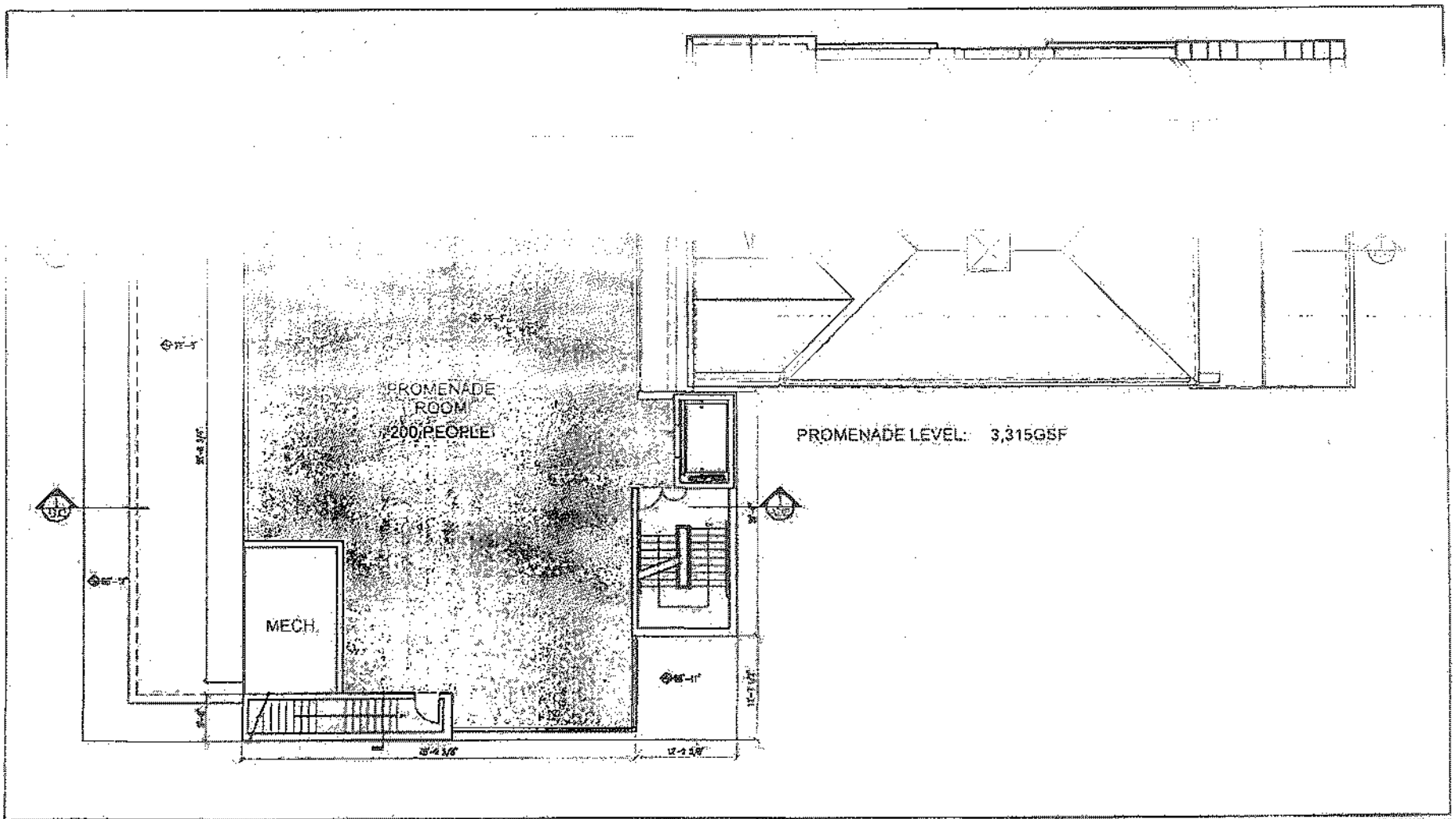


W N S E	FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101		ARCHETYPE architects 49 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-6356	ST. LAWRENCE ARTS ADDITION 76 CHERRY STREET PORTLAND, MAINE 04101		16 January 2014 · 1/4" = 1'-0"

UPPER THEATER LEVEL CONTINUED

A1.03

Doc#: 32031 Bk: 32017 Pg: 193



FRIENDS OF THE
ST. LAWRENCE CHURCH

ARCHETYPE
Architects

ST. LAWRENCE ARTS
ADDITION

16 January 2014

PROMENADE
FLOOR PLAN

A1.04

Doc#: 2017 Bk:32031 Pg: 194

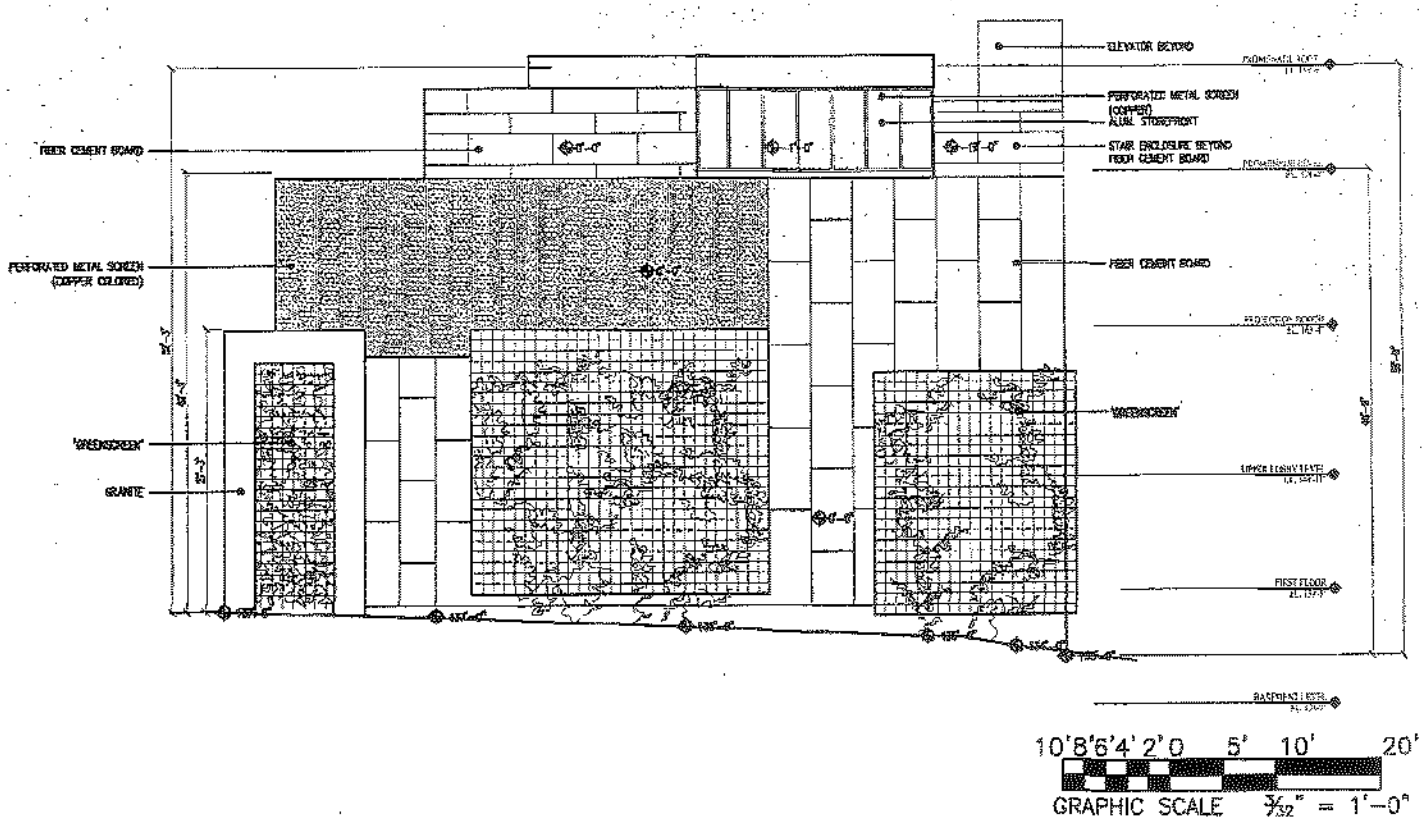
W N S E	FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE, 04101		ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-6024	ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101		10 Sept. 2014 / 3/32" = 1'-0" NORTH ELEVATION A2.00

Doc#: 2017 BK 32031 Pg: 195

Plan Set

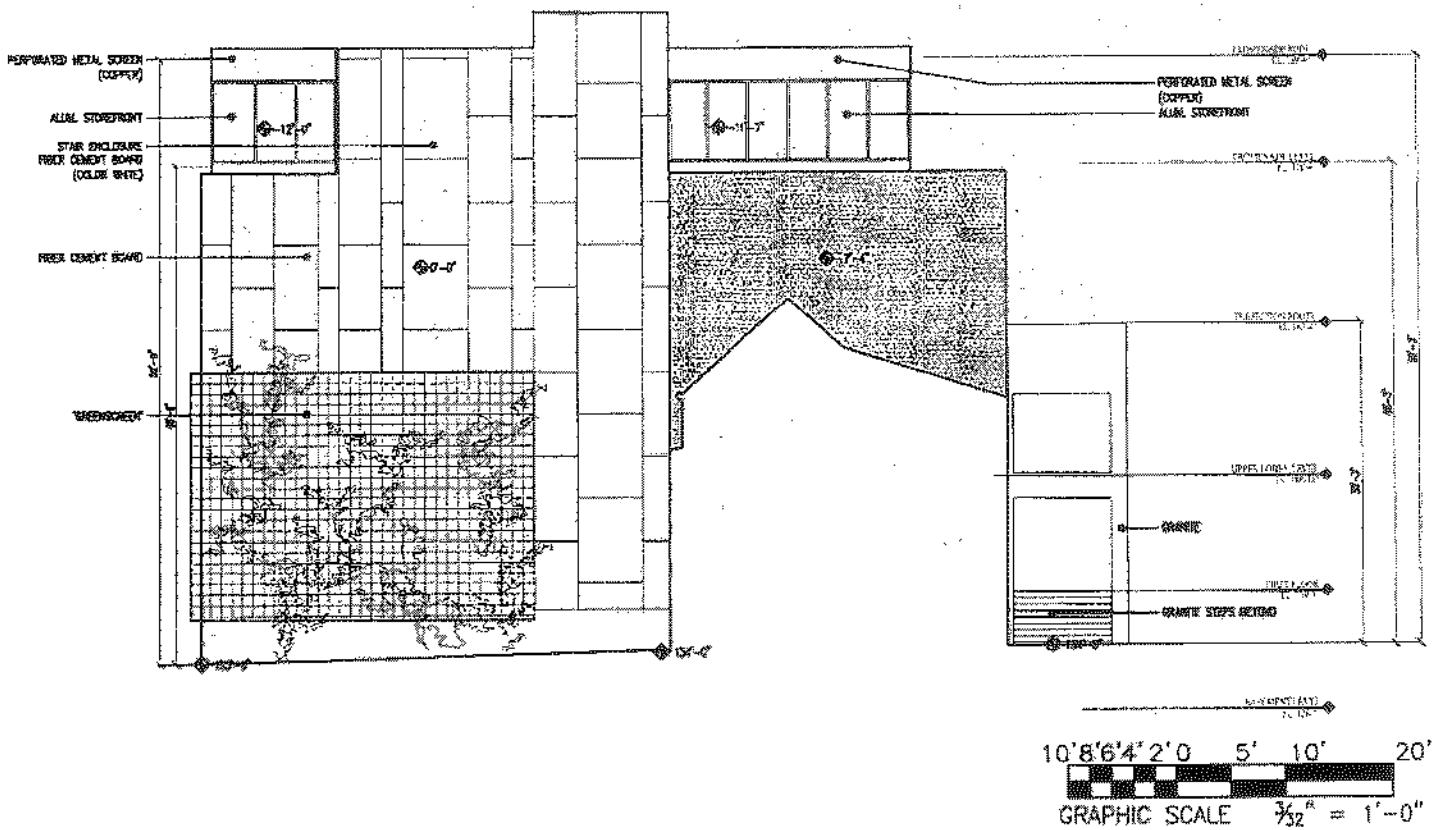
Book 32031 Page 196

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH, 76 CONGRESS STREET, PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE Architects, 48 Union Wharf Portland, Maine 04101, (207) 772-8022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION, 76 CONGRESS STREET, PORTLAND, MAINE 04101	Revisions	Date: 10 Sept. 2014 / Scale: 3/32" = 1'-0" / WEST ELEVATION / A2.01



Doc#: 2017 Bk: 32031 Pg: 197

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineers:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" SOUTH ELEVATION	A2.02



Doc#: 2017 Bk: 32031 Pg: 198

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineers:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6922 Fax (207) 772-6935	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" EAST ELEVATION	A2.03

EXHIBIT B

Doc#: 2017 Bk:32031 Pg: 199

Gorrill-Palmer Consulting Engineers, Inc.
Engineering Excellence Since 1998

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October 1, 2014

Deirdre Nice, Executive and Artistic Director
St Lawrence Art Center
76 Congress Street
Portland, ME 04101

Subject: Parking Demand Management Plan
St. Lawrence Arts Center
76 Congress Street Portland, Maine

Dear Ms Nice:

Gorrill-Palmer Consulting Engineers, Inc (GP) completed an evaluation of the parking demand anticipated when the capacity at St Lawrence Arts (SLA) on Congress Street in Portland is expanded from a capacity of 110 to 485 and worked with SLA to develop a Parking Demand Management Plan. The Performance Hall will be 401 seats; however, 485 is the limit set under the current Conditional Rezoning Agreement (2010) and is the number used to estimate parking demand. This report takes into consideration the comments and suggestions provided by an outside peer review (Nelson Nygaard Consulting) on the first TDM completed January, 2014, as well as input from City of Portland planning staff. GP and SLA appreciate that the peer review focused on tangible solutions to discourage patrons of SLA from seeking parking primarily on residential streets directly near the building. SLA plans to implement a combination of solutions to successfully mitigate a parking problem for Munjoy Hill residents, and businesses, as well as patrons of SLA.

Estimate of Parking Demand

There are three potential sources to estimate the parking demand for the facility. Each of these sources is discussed below:

Institute of Transportation Engineers

The Institute of Transportation Engineers (ITE) publication, "Parking Generation, 4th Edition" presents parking rates for various land uses based on studies across the country. Land Use 441, Live Theater projects an average parking ratio of 0.38 vehicles per attendee with a range of 0.37 to 0.40 vehicles per attendee based on rural sites with an average of 800 attendees. The information was based on four studies. Since SLA is only projected to have capacity for 485 and the trip rate increases with fewer attendees, the rate would likely be closer to 0.40 vehicles per attendee.

St Lawrence Arts Survey Data

SLA has furnished our office with the results of surveys of attendees to two Friday night shows which started at 7:30 p.m. on October 25, 2013 and December 13, 2013. The results are summarized below:

DATE	ATTENDANCE	SURVEYS COMPLETED	PARKING RATIO	NO. OF VEHICLES
10-25-13	103	103	0.54	56
12-13-13	110	110	0.40	44

It is our understanding that the October show attracted an older crowd and therefore the number of people traveling by car may have been higher than other shows.

Staff Demand- Based on information provided by SLA, an attendance of 401people (sold-out performance) will require 10 staff members. Assuming each staff member commutes in their own vehicle results in a need for 10 staff parking spaces.

Parking Observations

A parking study was conducted by Gorrill-Palmer Consulting Engineers, Inc. on October 25th, the same night as the first survey was distributed to attendees. Two counts were conducted, the first was done before the show (5:45 p.m. to 7:00 p.m.) and the second was completed during the show (7:40 p.m. to 9:10 p.m.). Parked vehicles were counted on all surrounding streets within a half-mile radius of SLA. However, vehicles parked in the vicinity of SLA were the main focus. A walking radius was measured from a one minute walk to the St Lawrence Arts Center up to a four minute walk, assuming the average person walks 3 feet per second (180 feet per minute).

The increase in parked vehicles during the show is provided below:

LENGTH OF WALK	*WALKING RADIUS*	*# OF VEHICLES BEFORE SHOW*	*# OF VEHICLES DURING SHOW*	*DIFFERENCE (+/-)*
1 minute	180 feet	36	45	**+ 9**
2 minutes	360 feet	129	147	**+ 18**
3 minutes	540 feet	293	336	**+ 43**
4 minutes	720 feet	415	490	**+ 75**
5 minutes	900 feet	544	664	**+ 120**

Although we might find these results informative and useful, we can't assume the entire difference of vehicles is representing SLA. The Front Room is a local restaurant and bar located across the street from

SLA, a popular spot on a Friday evening. Venues, like The Front Room, located near SLA can also influence the demand. Based on these considerations, the 56 vehicles based on the survey appear reasonable.

Comparing Estimates

The parking rate of 0.40 based on ITE coincides with the 0.40 ratio determined from the December show but is less than the 0.54 determined from the October show. However, as previously mentioned, the October show attracted an older crowd and therefore the number of people traveling by car may have been higher than other shows. In addition, as a general principal, parking ratio can be expected to decline as the number of seats increases.

Recommendation for Number of Spaces

After consideration of these variations, our office estimates a demand of 228 spaces (0.45 vehicles per attendee) for the site. This number comprises 218 cars from patrons, and 10 cars for staff. It is our understanding that SLA will distribute a policy to staff and performers that staff park at a set distance from the Performance Hall. This policy will apply to any performers, cast and crew travelling by bus to the Performance Hall in their own vehicle. Performers, cast, and crew who arrive in a bus will be able to unload on Munjoy Street, and all buses will be contractually required to park in an accommodating lot (i.e. not on a residential street). The recommendation for 228 spaces exceeds that forecast by ITE for a live theater and observed during the December show but less than the 0.54 ratio derived from October show which attracted an older crowd. Nelson Nygaard's review of the parking demand for a 401-seat Performance Hall in the Munjoy Hill neighborhood estimates that SLA will need to provide 122 parking spaces. Our parking analysis cited a need for 228 parking spaces, which is based on occupancy of 485 among the three different spaces (Parish Hall Theater, Performance Hall, and the Promenade Room) for one event. It should be noted the typical maximum audience will not exceed 401 people, and many times much less. It is our opinion that 228 spaces is more realistic as it is based on statistically significant surveys conducted during sold-out performances of the current 110-seat Parish Hall Theater (10/25/2013 and 12/13/13) operated by SLA. Furthermore, an independent survey of needed parking spaces for the venue conducted by members of the Concerned Citizens of Munjoy Hill (CCMH) complemented the recommended 228 spaces and therefore, we have proceeded drafting the plan based on a need of 228 spaces.

During the first year of monitoring, SLA will determine the actual parking demand. Once the actual number has been established, SLA will base its monitoring and reduction of single occupancy vehicle (SOV) goal upon the correct and realistic parking demand.

Parking Supply

A count was also done of the total number of occupied parking spaces on each street within a 900 foot radius of the SLA on Tuesday evening, December 10th beginning at midnight. The purpose of the counts was to estimate the number of spaces used by the area residences and most of the parking that late at night should be associated with residences. The results of these parking observations are provided as follows.

Length of Walk	*Walking Radius*	*# of Spaces*	*# Occupied 12:00 midnight Tuesday*	*Available Spaces*
1 minute	180 feet	42	30	12
2 minutes	360 feet	144	107	37
3 minutes	540 feet	345	273	72
4 minutes	720 feet	551	436	115
5 minutes	900 feet	838	659	179

The Cutter Street parking lots located on the Eastern Promenade were vacant during our surveys and have a capacity of 95 vehicles. Results of the Cutter Street parking lots are provided on the following page.

Parking Area	*# of Available Spaces*
Lower Parking Lot	24
Middle Parking Lot	35
Upper Parking Lot	15
On-Street Parking	21
Total:	**95**

Combining the results of the available on-street parking and Cutter Street lot parking, a total of 274 spaces are available to attendees.

Parking Demand and Supply

As discussed in the "Recommendations for Number of Spaces" section, SLA will typically incur a parking demand of approximately 228 vehicles (including 10 cars for staff) during show events. Though these spaces have been identified, SLA plans to encourage patrons to park downtown and travel by public transportation to the facility.

The available parking in the vicinity of the site is as follows:

- 179 on-street automobile parking spaces
- 95 Cutter Street automobile parking spaces

This will provide 274 automobile parking spaces for attendees of each show. The 179 on-street parking spaces are based on a 5 minute walk radius around SLA.

Transportation Demand Management (TDM)

Purpose of Plan

The City of Portland requires the creation of a Transportation Demand Management Plan for all projects in excess of 50,000 square feet, or with 100 or more employees or students. SLA meets these requirements. However, in the case of this project, the TDM Plan serves a series of important needs:

- Make maximum use of nearby existing transit infrastructure
- Reduce peak hour trip impacts to adjacent roadway infrastructure
- Reduce the amount of needed parking on-site, especially as land is limited
- Encourage healthy activities

It is important to note that this Plan should not be viewed as a series of fixed, or unchanging recommendations. It is a living document intended to be reviewed and updated on a regular basis as SLA works with changes in local transportation patterns, preferences, and prices. Ultimately, the goal will be to make significant reductions in peak hour single-occupancy vehicle (SOV) activity on the local street networks as well as the need for on-site parking.

TDM Coordinator

SLA has designated its Executive Director as the TDM Coordinator, charged with coordinating the TDM plan. The TDM coordinator will be responsible for the following:

- Coordinating and promoting rideshare opportunities
- Coordinating with and promoting Metro
- Monitoring parking usage
- Overseeing event scheduling
- Encouraging the greater use of bicycling, walking, and bus-based transit
- Overseeing ongoing monitoring and updating of the plan
- Filing annual reports with the City

The proposed TDM plan will be utilized during both public and private (i.e. corporate rental) events.

Single Occupancy Reduction Strategies

METRO Subsidies

SLA is located on Munjoy Hill in Portland on Congress Street. Its location is nearby the following transit services:

- *Metro Route 1, Congress Street*: Portland METRO provides service to Munjoy Hill with other major stops including Monument Square and the State Theatre. It also allows access to the Greyhound Bus Station and the Elm Street METRO facility. A limited service combining Routes 1 and 5 is provided on Sundays.
- Primary User: Patrons of SLA and Community Members
- Responsibility: SLA, METRO

SLA is proposing that the core of its TDM be a partnership with Metro to both extend and enhance the service of the Route 1 that travels up and down Congress Street. At present the Route 1 runs on a thirty-minute frequency between 7:00 a.m. and 8:00 p.m. with less frequency between 8:00 p.m. and 10:00 p.m. It is our understanding that Metro is working independently of this project to reduce those intervals to 20 minutes. Based on our conversations with SLA, they are mindful of the discussion taking place at the City of Portland on changes to the downtown's Tax Increment Finance (TIF) policy and that peninsula transit improvements are a potential use of this revenue. SLA recognizes that its proposed partnership with Metro and the revenue SLA proposes to bring to the table could be joined with TIF revenue to support a broader and more consequential transit improvement, one that could eventually lead to 15 minute frequency on the Route 1 all day and evening. The implications of this plan would not only serve the patrons of SLA, but would also allow residents the opportunity to take advantage of more frequent evening transit service on the peninsula.

With enhanced Metro service, patrons of SLA would be encouraged to utilize downtown parking lots, garages and street parking and use the Route 1 to travel up to SLA. The Temple Street and Free Street garages are open until 10:00 p.m. Monday – Saturday and it is our understanding that both have plenty of available parking after 5:00 p.m. Both garages are within one block of stops along the Route 1. The number of parking spaces that these parking facilities provide should exceed the 228 spaces we recommend. Patrons of SLA would have their parking ticket validated for up to three-hours of free parking. It is our understanding that SLA will subsidize and encourage use of this remote parking.

SLA has met with representatives from Metro and it is our understanding that both organizations are highly enthusiastic about a partnership. The Nelson Nygaard review encourages SLA to create a "more

specific and targeted PTDM" and part of doing so will be an understanding what motivates patrons of SLA to drive and park close to SLA. For this approach to work, SLA and Metro will need to effectively communicate and market the transit option as convenient, affordable, easy, and fun. In particular, the marketing effort should promote transit as a key piece of a fun night out that includes both dining and entertainment. In addition to the higher frequency service on the Route 1 proposed by this plan, Metro will be rolling out real-time bus arrival information in 2015. This technology will allow riders to get actual bus arrival information through smart phones, text, website and, in some places, message boards at bus shelters.

A financial investment by SLA to the Metro will enhance these kinds of conveniences to Portland's public transportation system. Another key of this partnership is making parking downtown and travelling to and from SLA easy by suggesting patrons park in a specific place (lot or garage) and wait for the Route 1 bus at a specific spot to ride up Munjoy Hill to SLA. At present, the Route 1 stops at the corner of North Street and Cumberland. Possible modifications to the Route 1 would include a stop at Congress and North Street as well as bringing the stop currently on Atlantic and Congress back to Munjoy and Congress (the corner of the new Performance Hall), where it originally was until poor street conditions forced it to be relocated. It is our understanding that SLA and Metro agree that a carefully laid out marketing plan is essential to the success of the TDM plan as well as making the parking and bus ride part of a ticket surcharge so that patrons do not incur extra charges along the way. SLA will commit to validating up to 3 hours of parking in a downtown garage. If patrons partake of other downtown entertainment, i.e. shopping or dinner, the "Park and Shop" system in place by Portland's Downtown District can be used by patrons to cover additional time in the parking garage. SLA patrons will be able to use their venue ticket as valid fare to board the bus. Based on discussions with SLA, they have included in their financial projections that each patron will pay a ticket surcharge.

SLA is proposing to commit $70,000 in annual funding to the Greater Portland Metro, which would increase evening frequency on the Route 1 (Congress) from about every 45 minutes to every 30 minutes and extend service to 11:00 p.m. (Monday-Saturday). SLA will provide this funding through its ticket surcharge. Furthermore, the long-term plan of the Greater Portland Metro is to expand its local partnerships in an effort to effectively work with the city of Portland and the Federal Transit Administration to develop the funding programs needed to improve transit service on the peninsula that will include all day frequencies of 20 minutes or even 15 minutes, hours of service through midnight, and added weekend service. While this service improvement to 30 minute frequency will help the Route 1 be an effective transit option for patrons, the number of patrons that can reasonably use the Route 1 bus must be considered. Metro buses' seating and standing capacity can comfortably accommodate 30-40 people; hence, it is realistic that 2 trips will be required before *and* after an event to accommodate SLA patrons. This makes the Route 1 option possible for 60-80 patrons. Service improvements that lower frequency to 15 minutes would increase Metro's capacity to the point where we could accommodate 120-160 patrons in the hour before and after an event. By growing ridership and diversifying the transit system's revenue base, the partnership can make Metro more competitive in obtaining new federal grant funds that can support further transit expansion. In this manner, this partnership is truly strategic in that it can help

achieve positive transportation outcomes for the broader community in addition to the specific goal of getting SLA patrons from point A to point B.

Patrons who use the Greater Portland Metro system will be able to wait in the lobby of the Performance Hall for the Route 1, which will negate needing a structure in inclement weather.

Valet Parking

- Primary User: Patrons

Gorrill-Palmer agrees with Nelson Nygaard's finding that a superior front-door valet service should be available to patrons who want to arrive at the Performance Hall with their car. SLA is proposing to work with Unified Parking Partners (UPP), a full service parking Management Company based in Portland, Maine, and servicing all of New England. UPP is an affiliate of Towne Park Ltd. from Annapolis, MD. Their focus is garage, flat lot, healthcare, hotel and restaurant, and event parking management. UPP is experienced with accommodating parking for large scale sporting and entertainment events. This service will be available to patrons who wish to pay for exceptionally convenient parking over and above the price of event tickets. Patrons can pay in advance for VIP valet parking as well as pay at the door. Patrons utilizing this service would be charged a fee to cover the cost above the (parking) ticket surcharge. Valet parking fees will fluctuate based on event sales as well as the performer(s). UPP will staff its valet parking service based on estimates of how many patrons will utilize the service. For example, if UPP expects to valet park 50 – 60 cars, a minimum of 5 valet parking attendants would be present. Estimates will be figured by how many patrons sign up in advance to use VIP valet parking as well as a "capture rate" that is based on how many cars are expected for a given event. The number of valet parking attendants is based on services levels, the primary one being the time the patron has to wait. Successfull valet parking will have enough valet parking attendants to ensure patrons have a less than 4-minute wait time. For a per-staff, per-hour fee, UPP provides valet parking attendants, environmentally safe and friendly vehicle shuttle for the valet parking staff, and security of the lot where cars are parked during the event. Unified Parking Partners manages several parking lots in Portland and their owner would also utilize Cutter Street and its two parking lots (95 spaces).

Patrons who use Valet Parking will be able to wait in the lobby of the Performance Hall for their car, which will negate needing a structure in inclement weather.

Bicycle Transportation

Portland is an extremely friendly pedestrian and biking city. SLA will encourage patrons who live within a walking and biking distance to access these TDM friendly modes of transportation. SLA will provide 10, uncovered bike racks outside the facility (20 spaces) encouraging patrons and staff members to bike to the Performance Hall. SLA will become a participating business in Bicycle Benefits (www.bicyclebenefits.org), a national program that offers incentives and rewards for patrons who show

up to an establishment on a bicycle. Portland, Maine businesses already have strong membership in Bicycle Benefits.

- Primary User: Patrons
- Responsibility: SLA

SLA will also work with the City of Portland's Pedestrian-Bicycle Committee as well as The Bicycle Coalition of Maine, an organization that formed in 1992 to make Maine better for bicycling and promote bicycling in Maine.

Pedestrian Accommodations

Pedestrian connections currently surround the SLA building. Congress Street provides sidewalks on both sides of the street for pedestrians walking from in-town Portland. A majority of side streets provide sidewalks for guests who are walking from local neighborhoods. Crosswalks are also provided to nearby streets including Beckett Street, Munjoy Street, and Howard Street as well as on the Eastern Promenade at Moody and Wilson Streets.

- Primary User: Patrons
- Responsibility: City of Portland

Education for Patrons

As discussed, the SLA will provide route maps, schedules, and ticket information via the website with ticket reservations. Information about the METRO Route 1 and downtown parking will be provided. There will also be announcements before and after the show regarding the bus schedule, including real-time arrivals available in the lobby. It is important that this information also be provided on SLA's website along with a link to the METRO Route 1 webpage. A direct link to the parking information should be at the top of SLA's website, next to "Directions." This link should provide exact directions to parking and bus incentives encouraging attendees to carpool or use the transit system.

- Primary User: Patrons
- Responsibility: SLA

Free Market Options

Transportation by Cabs and Pedicabs (bicycle cabs), will also be a viable option to patrons of SLA who live in Portland, or patrons who have parked downtown and elect to not use public transportation.

Carpooling

Some patrons will still travel by automobile up to Munjoy Hill and SLA will promote car sharing as an option to reduce the number of cars that travel to the facility for an event. SLA will provide information on its website for Go Maine, which is Maine's statewide commuter service providing access to low-cost, healthy, economical and eco-friendly options for commuting. SLA will promote ride share, a multi-modal, one-time ride share opportunity.

Marketing

A carefully thought-out marketing plan that provides easily accessible information is the key to implementing a successful TDM for SLA. SLA will create a marketing strategy that complements and works closely with the other area Portland organizations that promote walking, bicycling, and public transit as alternative modes of transportation. SLA will also implement "honor system" strategies such as a button at the end of the online ticket system to check if you are carpooling or travelling by bus/foot/bike with an associated discount. An outline of the marketing plan is presented below:

- SLA will have a "Where to Park" tab clearly posted on its website that outlines instructions on utilizing the Metro system, including what downtown garage to park in and where to wait for the Route 1 bus. Instructions on how to use public transportation, walk, and bike will be provided at the top of the page emphasizing it over travelling by automobile.
- SLA will have a travel information kiosk in its lobby
- All ticket holders will receive instructions on parking at the time of purchase.
- SLA's website will include a map of the neighborhood encouraging patrons NOT park within 300 feet of SLA citing the negative impact such congestion will have on residents and neighboring businesses.
- SLA's website will have easy to understand information (and links to Portland Trails and Metro) on how to bike or use transit to get to the Performance Hall. SLAwill provide a link to Google Transit walk trip planner.
- SLA will try to establish its Performance Hall as a Green Certified event space, acknowledging that the biggest carbon element to an event is how people travel to and from the property (i.e. encourage people to leave cars behind).
- SLA will work with Metro to create a catchy and green marketing campaign to target its audience. The marketing campaign will need to be developed, but will generally focus on the following key messages: Using the Route 1 to get to SLA is easy, free, fast, green and connects dining and entertainment.

Monitoring

Parking Counts

As part of its TDM Plan monitoring program, SLA will assess the use of its various operational components, starting one month after the opening of the expansion and twice annually thereafter for five years. After five years, once a year monitoring will take effect. As the most critical component of the TDM program will be to reduce parking demand, the first part of each monitoring effort will include a parking count of the surrounding streets before and during an event. This count will include the Cutter Street parking lots on the Eastern Promenade.

Greater Portland Metro

The goal is to have the Metro reduce SOV traffic by 6% in the first year or eliminate 14 cars. In order for SLA patrons to gain ridership on the Route 1, they will have to show their ticket (paper or smart phone), allowing Metro to keep track of ridership as well. This will provide SLA with an exact count of how many Performance Hall patrons are using the bus system.

Surveys – Employees

One month after the expansion of the facility, SLA employees will be surveyed regarding their transportation choices such as automobile/bicycle ownership, parking demand, and the frequency of trips using bicycle, walking carpool/vanpool, and the bus. The survey will be developed in consultation with the City's TDM manager and conform to overall City TDM modeling planning.

The surveys will be conducted to determine:

- Mode of travel to and from work (car/carpool/biking/walking/bus)
- Preferences or concerns with mode of travel
- An important component of the survey will be to determine the flexibility of employees to utilizing various travel modes to access the facility

Surveys – Attendees

For attendees to SLA, surveys will be either conducted as patrons enter the site in the form of one or two questions from a volunteer, or patrons will be given a survey they can complete and return in exchange for a free gift.
The surveys will be conducted to determine:

- Mode of travel to and from the show (car/carpool/walking/bus)
- Preferences or concerns with model of travel

- Specify as a driver or a passenger

Submission of Monitoring Information/Updated TDM Plan

Based upon the results of the monitoring, SLA will update the TDM Plan and submit a draft plan to the City's TDM Manager for review and comments. The primary goal of the initial year will be to ascertain the actual parking demand number (228 vs. 122) and reduce the parking demand six percent from the calculated demand.

Closure

The TDM plan and SLA's investment in Greater Portland Metro will be a tremendous benefit to the community at large as well as SLA patrons, emphasizing less reliance on automobile traffic, utilization of downtown structures, and investment in an important public infrastructure.

Please contact us with any questions.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Thomas L Gorrill, P.E., PTOE
Principal

TLG/tlg/JN2818 /TDM August 2014.doc

Received
Recorded Register of Deeds
Jan 15,2015 02:41:04P
Cumberland County
Nancy A. Lane

Portland, Maine — Yes. Life's good here.

Date: October 31, 2017

Re: Wastewater Capacity Authorization

Address: 76 Congress Street
Applicant: Friends of the St. Lawrence Church

Planner: Helen Donaldson

Anticipated Wastewater Flow:

Estimate of Anticipated Design Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Proposed flow				
Theater - Indoor	# Employees	50	12 GPD/Employee	600
Theater - Indoor	# Seats	500	5 GPD/Seat	2500
			Net Change	**+ 3,100**
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:
The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

You are reminded that the sewers you are proposing to connect into convey both sanitary and stormwater (Combined Sewer) and therefore a backflow preventer is suggested.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov

Sincerely,
CITY OF PORTLAND

Bradley A. Roland, P.E.
Senior Project Engineer

CC:
Jeffrey Levine, Director, Department of Planning and Urban Development, City of Portland
Stuart O'Brien, Planning Director, Department of Planning and Urban Development, City of Portland
Barbara Barhydt, Development Review Services Mgr., Dep't. of Planning and Urban Development, City of Portland

Kathi Earley, City Engineer/Engineering Manager, Portland Department of Public Works
Keith Gray, Senior Project Engineer, Portland Department of Public Works

Nancy Gallinaro, Water Resources Manager, Portland Department of Public Works
Rachel Smith, Industrial Pretreatment Coordinator, Portland Department of Public Works
John Emerson, Wastewater Coordinator, Portland Department of Public Works

Lauren Swett, Woodard & Curran, DPW Development Review
Scott Firmin, Director of Wastewater, Portland Water District

Att. G

Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

October 19, 2016

Rita Sawyer
Pinkham and Greer
28 Vannah Ave
Portland, ME 04103

Re: 66 Congress Street, PO
Ability to Serve with PWD Water

Dear Ms. Sawyer:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on September 29, 2016. Based on the information provided, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter does not constitute approval of this project from the District. Review and approval of final plans is required.**

Conditions of Service

The following conditions of service apply:

- Since the water demand at this site is not anticipated to exceed the capacity of the current service, the existing service line at this site may be used to provide domestic water to the building. Our records show that the property is currently served with a 1.5-inch domestic water service. If any use other than that stated in your letter of September 29, 2016 is expected, please contact the District so we can review the ability of the existing service to meet your domestic water needs. It is highly recommended that the service size on private be increased to 2-inches in order to avoid significant pressure loss due to pipe friction.

- Water District approval of water infrastructure plans will be required for the project prior to construction. As your project progresses, we advise that you submit any preliminary design plans to MEANS for review of the water main and water service line configuration. We will work with you to ensure that the design meets our current standards.

- Once the project is ready for construction, the owner or contractor will need to make an appointment to come in and complete a service application form and pay the necessary fees.

225 DOUGLASS STREET P.O. BOX 3553 PORTLAND, MAINE 04104-3553
PHONE: 207.774.5961 FAX: 207.761.8307 WEB: WWW.PWD.ORG

Existing Site Service

According to District records, the project site does currently have existing water service. A 1.5-inch diameter copper domestic water service line and a 6-inch ductile iron fire service line provides water service to this site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of these services.

Water System Characteristics

According to District records, there is an 8-inch diameter ductile iron water main in Beckett Street where the fire and domestic services originate and a public fire hydrant located 100 feet from the site. The most recent static pressure reading was 54 psi on July 21, 2016.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Gordon S. Johnson, P.E.
Engineering Services Manager

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Stormwater Management Report
St. Lawrence Arts Center

July 24, 2017

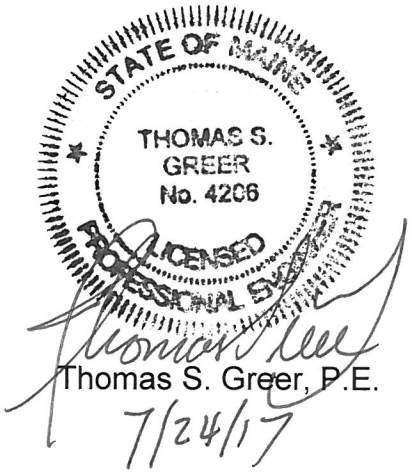
Project Description:

The Friends of St. Lawrence Church have been working to replace the addition, removed in 2008 with a Performing Arts Center in the same location. The new addition will have a footprint of 5,715 sq. ft. It will include 401 seats and a stage. The entrance off Congress Street will included a plaza area and an ADA entrance.

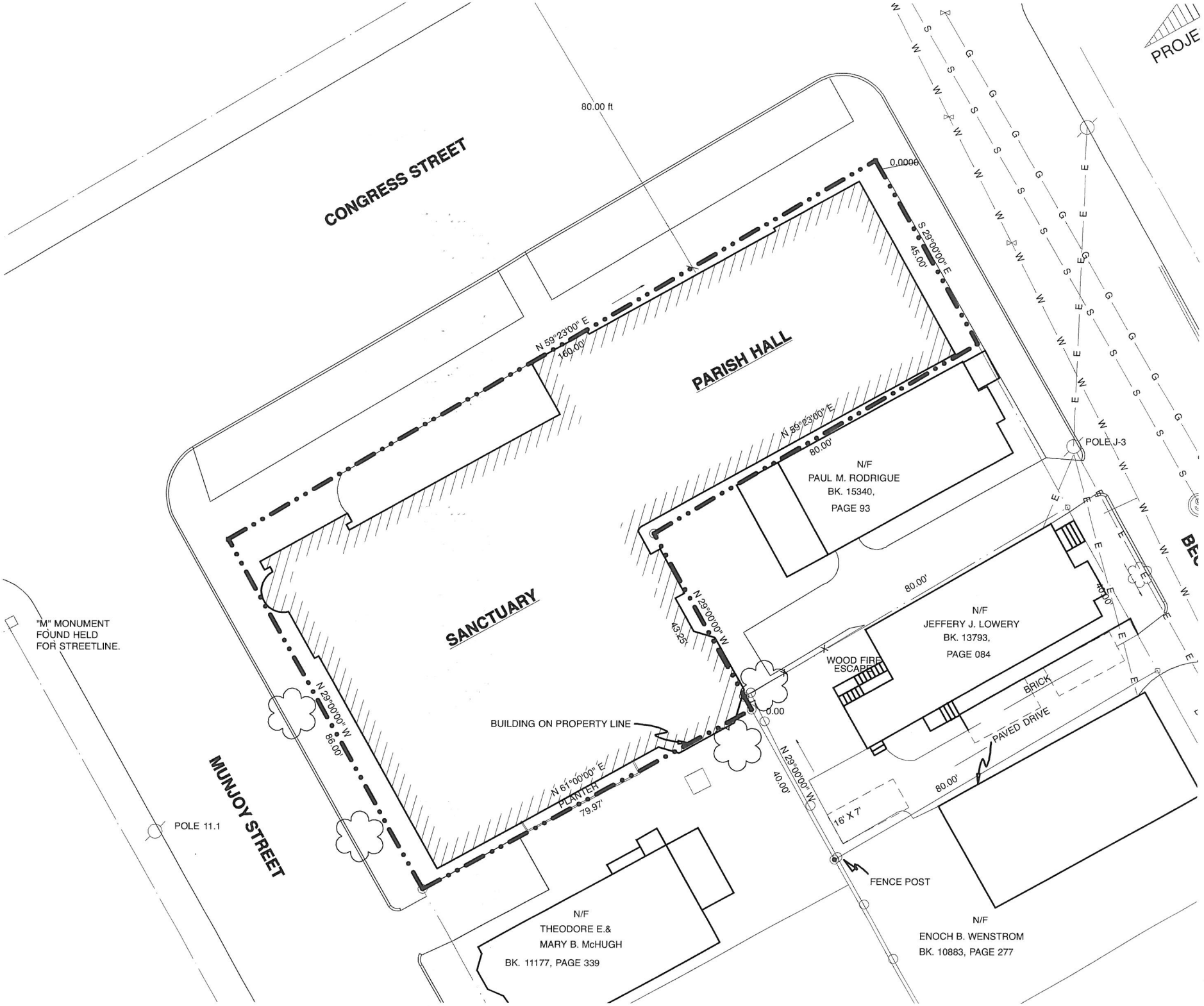
Analysis:

The existing site conditions are as of 2008, with the church building fully intact, see attached plan. Comparing the impervious surface from 2008 to the current plan, the area goes from 9,463 to 9,978 sq. ft., a 515 sq. ft. addition. This is below the City's threshold for requiring stormwater treatment. For all practical purposes there will be no change in stormwater runoff.

No stormwater control systems are planned as part of this project.



Thomas S. Greer, P.E.
7/24/17


CONGRESS STREET
80.00 ft
PARISH HALL
SANCTUARY
0.0000
S 29°00'00" E
45.00'
N 59°23'00" E
160.00'
N 59°23'00" E
80.00'
N/F
PAUL M. RODRIGUE
BK. 15340,
PAGE 93
POLE J-3
N 29°00'00" W
43.25'
80.00'
N/F
JEFFERY J. LOWERY
BK. 13793,
PAGE 084
WOOD FIRE ESCAPE
BRICK
PAVED DRIVE
"M" MONUMENT
FOUND HELD
FOR STREETLINE.
BUILDING ON PROPERTY LINE
0.00
N 29°00'00" W
86.00'
N 61°00'00" E
PLANTER
79.97'
N 29°00'00" W
40.00'
80.00'
16' X 7'
MUNJOY STREET
POLE 11.1
FENCE POST
N/F
THEODORE E.&
MARY B. McHUGH
BK. 11177, PAGE 339
N/F
ENOCH B. WENSTROM
BK. 10883, PAGE 277

Sw ccProvisionally Adopted 1/10/00

Department of Transportation
Traffic Engineering Division
State House Station
Augusta, ME 04333
Telephone: 207-287-3775

FOR MDOT USE 1/2000
ID #

Date Received:

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. § 704 – A

Please type or print:

This application is for:

Traffic 100-200 PCE's **X**
Traffic 200 + PC-E's _____

Name of Applicant: **Friends of St. Lawrence Church**

Address: **76 Congress Street, Portland, Maine** Telephone: **(207) 775-1248**

Name of local contact or agent: **William J. Bray, P.E., Traffic Solutions**

Address: **235 Bancroft Street, Portland, Maine 04102**
Telephone: **(207) 400-6890**

Name and type of development: **St. Lawrence Arts Center**

Location of development including road, street, or nearest route number: **76 Congress Street, Portland, Maine 04101**

City/Town/Plantation: **Portland,** County: **Cumberland**, Tax Map **3** Lot **L-1**

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? Yes ____ No **X**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30 – A, chapter 187)?
Yes _____ No **X**

Is this project located within a compact area of an urban compact municipality? Yes **X** No _____

Is this development or any portion of the site currently subject to state or municipal enforcement action? **No**

Existing DEP or MDOT permit number (if applicable): **N/A**

Name(s) of DOT staff person(s) contacted concerning this application:

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applications: _____

NOTICE OF INTENT TO FILE

Please take notice that:

Friends of St. Lawrence Church
76 Congress Street
Portland, Maine

Is intending to file a Traffic Movement Permit application with the Maine Department of Transportation (**City of Portland**) pursuant to the provisions of 23 M.R.S.A. § 704–A on or about

May 22, 2017

The application is for:

A proposed 401-seat building addition to the St. Lawrence Arts Center located at 76 Congress Street. The proposed project increases the existing seating capacity of the arts venue from 110 seats to a total of 485 seats. The proposed theater addition project will generate a total of 170 vehicle trips during the peak hour of the site.

At the following location: **76 Congress Street, Portland, Maine**

A request for a public hearing must be received by the Department (**City**), in writing, no later than 20 days after the application is found by the Department (**City**) to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

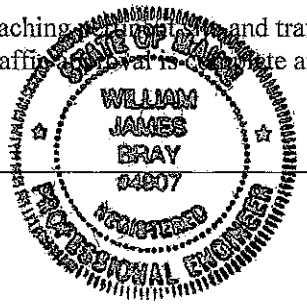
The application will be filed for public inspection at the **City of Portland's Planning office**, during normal working hours.

Written public comments may be sent to the Department of Transportation, Traffic Engineering Division, 16 State House Station, Augusta, Maine 04333.

1/2000

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching [illegible] and traffic information hereto, by signing below, certifies that the application for traffic [illegible] is complete and accurate to the best of his/her knowledge.



Signature: William J. Bray Re/Cert/Lic No.: [illegible]

Name (print): William J. Bray

Date: May 21, 2017

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Deirdre Nine — May 21, 2017

Signature of applicant — Date

Property Abutters

Paul Rodrique
98 Beckett Street
Portland, Maine 04101

Robert Levin, President
Clara Chisolm Condominium Association
98 Beckett Street
Portland, Maine 04101

Mary B. & Theodore E. McHugh
6 Loveitt Street
South Portland, Maine 04106

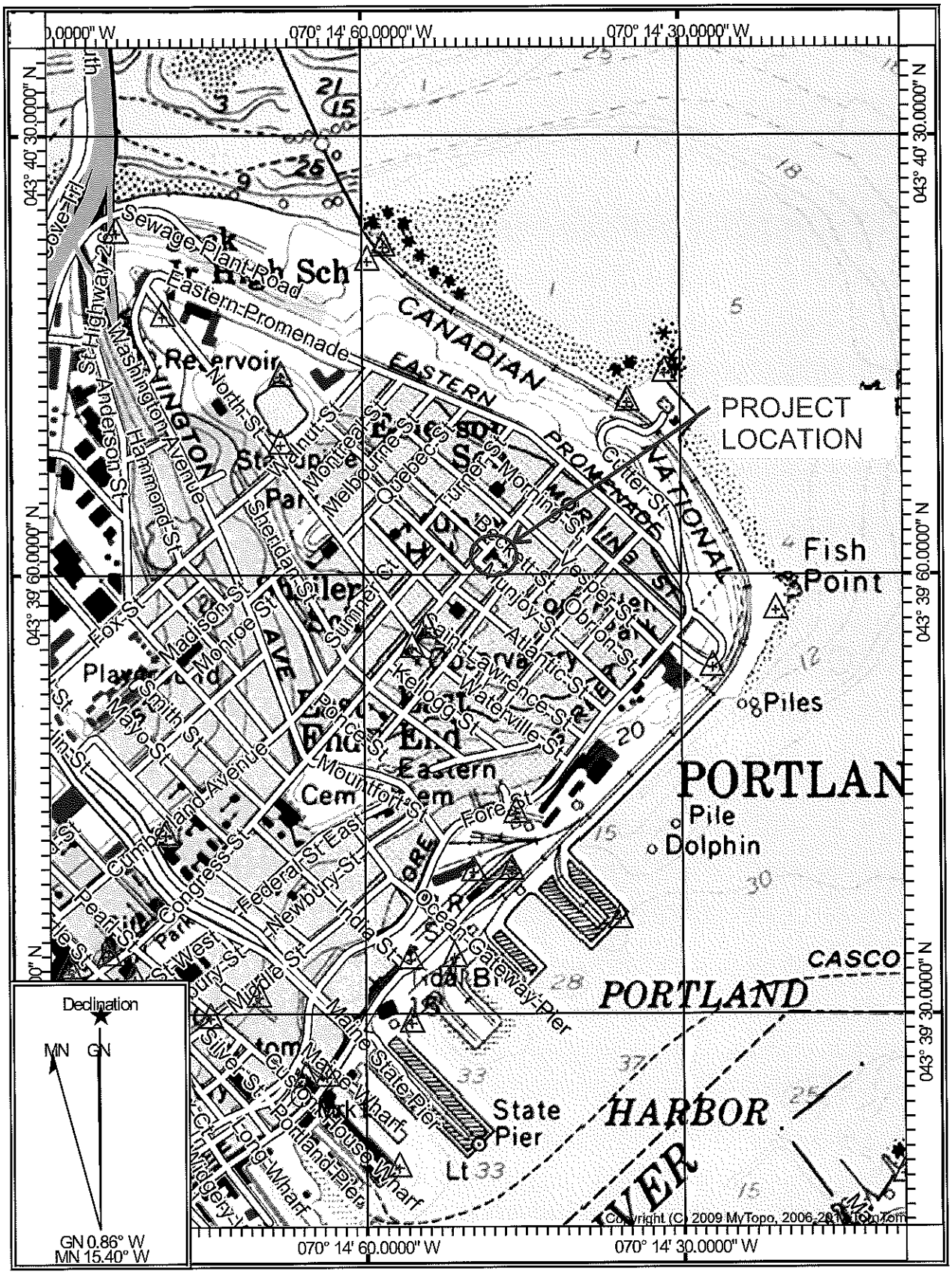
SECTION 1

A/B. SITE PLAN/EXISTING AND PROPOSED SITE USES

Friends of St. Lawrence Church are proposing a 401-seat building expansion to the existing St. Lawrence Arts Center located at 76 Congress Street in Portland. The proposed project increases the seating capacity of the arts venue from 110 (existing) seats to a total of 485 seats. Pedestrian sidewalk and street crossing improvements are incorporated into the proposed project design. Existing sidewalks that front the site on the sections of Munjoy Street, Beckett Street, and Congress Street will be fully reconstructed and two crosswalks added including required ADA ramps and detectable warning plates.

C. SITE AND VICINITY BOUNDARIES

The attached regional map depicts the existing 76 Congress Street site in the City of Portland.



SCALE 1:12000

0 1000 2000 3000

Feet

St. Lawrence Arts
April 21, 2017

D. PROPOSED USES IN THE GENERAL VICINITY OF THE PROPOSED DEVELOPMENT

Traffic generated by projects that have been approved by the Local Planning Board and/or the Maine Department of Transportation, yet are not opened, must be included in the estimate of pre-development traffic. Any follow-up traffic evaluations or study required by the City in their review of the proposed project will incorporate, as necessary, the traffic impacts associated with other development traffic.

E. TRIP GENERATION

The proposed St. Lawrence Arts Center building expansion project, with a total of 401 seats, increases the seating capacity of the existing arts venue from the current capacity of 110 seats to a total of 485 seats.

The Institute of Transportation Engineers ***Trip Generation*** manual is generally the accepted source of information applied in developing trip estimates for a specific project. The most recent edition of this document, the ninth edition, is very limited in this regard for a live theater venue. Land-Use Code #441 (Live Theater) in the noted publication presents a peak hour trip rate based upon the results of a single study. Users are cautioned in using the information "*because of the small sample size*".

Alternatively, peak hour trip forecasts are developed for the proposed arts center expansion project based upon travel choice surveys conducted at the existing smaller 110 arts center venue.

Patron surveys were conducted at seven recent scheduled shows by St. Lawrence Arts Center (SLAC) staff members to establish travel modal choice trends at the exiting 110-seat arts center. SLAC staff interviewed each attendee upon entering the theater asking the following questions:

1. *How did you get here?*
2. *If the answer was auto, a second question was asked; were you the driver?*
3. *If the answer was yes, a third question was asked; how many people traveled with you in your auto?*

A summary of the interview data is presented as follows:

Tuesday, February 28, 2017	Tuesday, April 4, 2017	Wednesday, April 26, 2017	Saturday, April 29, 2017
72 attendees	80 attendees	74 attendees	78 attendees
59 passengers in 24 autos	61 passengers in 21 autos	44 auto trips	64 passengers in 36 autos
7 attendees walked	15 attendees walked		3 people Uber
1 attendee METRO	2 people METRO		6 people walked
5 attendees cab/Uber	2 people scooter/Moped		

Friday, May 5, 2017	Saturday, May 6, 2017	Sunday, May 7, 2017
58 attendees	54 attendees	58 attendees
51 passengers in 23 autos	44 passengers in 21 autos	50 passengers in 22 autos
7 people walked	10 people walked	1 person biked
		5 people walked
		2 people in hotel shuttle

The survey data shows that the average number of occupants per vehicle attending an event at the existing SLAC is 2.20 persons.

The estimate of future peak hour trip generation assumes that the existing per vehicle occupancy levels will continue. Accordingly, the combined SLAC facility with 485 seats can be expected to generate a total of 182 vehicle trips and the actual "*net*" change [485 total proposed seats minus existing 110 seats] in trip generation for the site is somewhat lower at 170 vehicle trips.

F. TRIP DISTRIBUTION

The directional split of vehicle trips generated by the proposed SLAC site is expected at 100 percent arriving to the general area of the site pre-event and 100% of the trips departing the general geographic area of the site after the scheduled show.

G. TRIP ASSIGNMENT

Vehicle trips generated by the proposed SLAC site are generally expected to travel along the Congress Street corridor traveling to or from the SLAC site. Upon arriving at the SLAC, motorists will further divert to other nearby streets seeking both on and off-street parking options.

SECTION 2

TRAFFIC ACCIDENTS

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided three-year (2014 through 2016) safety records for the sections of streets highlighted on the attached figure, which includes all streets and street segments directly adjacent to the SLAC site. MaineDOT's report is presented as follows:

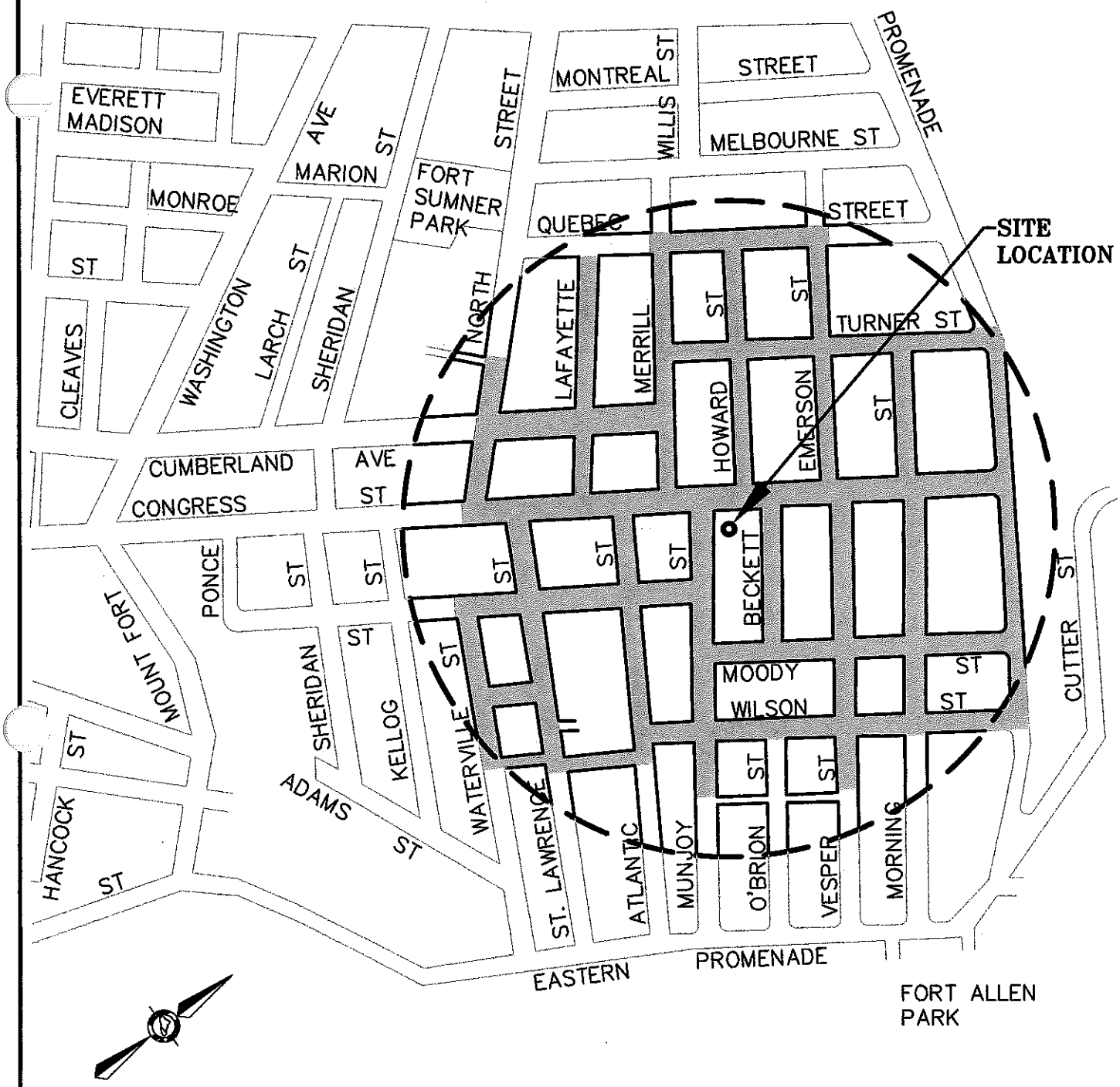
2014 - 2016 Accident Summary

Location	Number of Accidents	Critical Rate Factor
1. Eastern Promenade @ Moody Street	1	0.55
2. Moody Street @ Munjoy Street	1	5.96
3. St. Lawrence Street @ Monument Street	1	2.72
4. St. Lawrence Street @ Sherbrook Street	1	3.38
5. Congress Street @ Howard Street	1	0.60
6. Congress Street @ Merrill Street	1	0.60
7. Congress Street @ North Street	1	0.40
8. Turner Street @ Howard Street	1	1.92
9. Turner Street @ Merrill Street	1	3.39
10. Cumberland Avenue @ Merrill Street	1	2.99
11. Wilson Street btw. Morning St. and Eastern Prom.	2	n/a
12. Morning Street btw. Moody St. and Congress St.	1	2.28
13. Emerson Street btw. Quebec St. and Turner St.	1	2.35
14. Beckett Street btw. Congress St. and Moody St.	1	15.10
15. Munjoy Street btw. Monument St. and Congress St.	1	7.54
16. Atlantic Street btw. Wilson St. and Monument St.	1	2.73
17. St. Lawrence Street btw. Congress St. and Monument St.	1	3.76
18. St. Lawrence Street btw. Monument St. and Sherbrook St.	2	3.98
19. Waterville Street btw. Sherbrook St. and Monument St.	1	11.08
20. Congress Street btw. Morning St. and Eastern Prom.	4	5.93
21. Congress Street btw. Beckett St. and Emerson St.	1	1.85
22. Congress Street btw. St. Lawrence St. and Lafayette St.	1	1.06
23. Congress Street btw. St. Lawrence St. and North St.	1	1.07
24. North Street btw. Cumberland Ave. and Sumner Ct.	1	0.94
25. North Street btw. Congress St. and Cumberland Ave.	3	2.05
26. Lafayette Street btw. Quebec St. and Cumberland Ave.	3	2.91
27. Lafayette Street btw. Congress St. and Cumberland Ave.	1	8.95
28. Quebec Street btw. Merrill St. and Howard St.	1	2.63
29. Quebec Street btw. Merrill St. and Lafayette St.	1	4.92
30. Howard Street btw. Congress St. and Turner St.	1	1.98
31. Howard Street btw. Turner St. and Quebec St.	1	2.49
32. Merrill Street btw. Congress St. and Cumberland Ave.	1	13.30
33. Turner Street btw. Morning St. and Eastern Prom.	1	n/a
34. Cumberland Avenue btw. North St. and Lafayette St.	1	1.00
35. Monument Street btw. Waterville St. and Atlantic St.	2	29.35

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the table shows, the incidence of traffic crashes occurring on the noted sections of roadways is below MaineDOT's threshold criteria for identification of a high crash location.



LEGEND

5 MINUTE WALK RADUIS

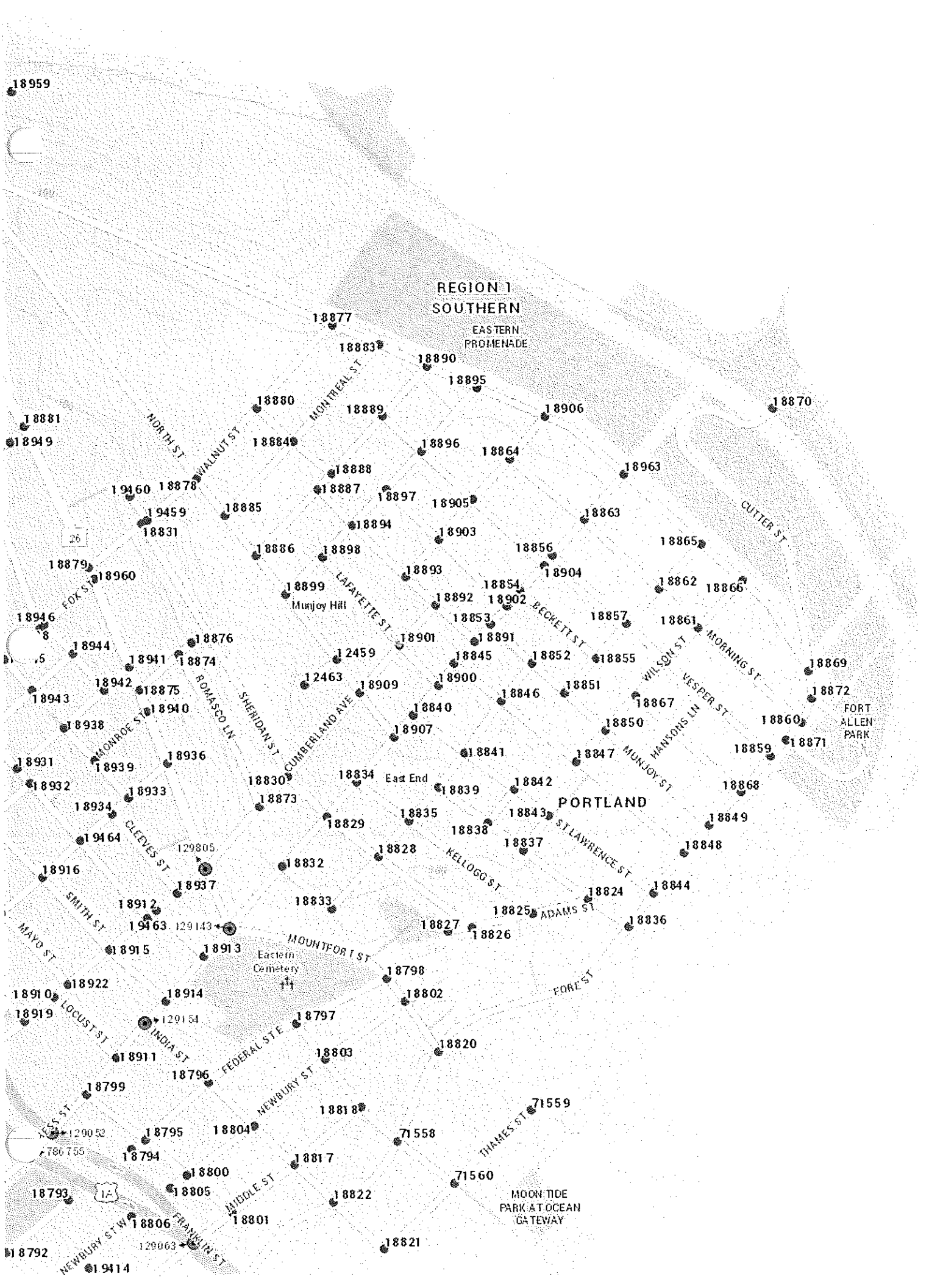
STUDY AREA

FIGURE 1

ON-STREET PARKING OCCUPANCY STUDY AREA

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ST. LAWRENCE ART CENTER\PLANSET\ST. LAWRENCE ART CENTER.DWG

ST. LAWRENCE ART CENTER PORTLAND, MAINE	TRAFFIC SOLUTIONS 235 BANCROFT STREET, PORTLAND, MAINE 04102-1730
DATE: MAY 4, 2017	FIGURE: 1


REGION 1
SOUTHERN
EASTERN PROMENADE
PORTLAND
Munjoy Hill
East End
Eastern Cemetery
FORT ALLEN PARK
MOON TIDE PARK AT OCEAN GATEWAY
NORTH ST
WALNUT ST
MONTREAL ST
LAFAYETTE ST
BECKETT ST
CUTTER ST
MORNING ST
WILSON ST
VESPER ST
HANSONS LN
MUNJOY ST
ST LAWRENCE ST
KELLOGG ST
ADAMS ST
FORE ST
THAMES ST
MIDDLE ST
FRANKLIN ST
NEWBURY ST
NEWBURY ST W
FEDERAL ST E
INDIA ST
LOCUST ST
MAYO ST
SMITH ST
CLEEVES ST
MONROE ST
ROMASCO LN
SHERIDAN ST
CUMBERLAND AVE
FOX ST
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18821
18792
19414

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Munjoy St area in Portland

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0560236**	Start Node: **18866**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18906**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560799**	Start Node: **18847**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18866**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560516**	Start Node: **18861**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18864**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560757**	Start Node: **18856**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18858**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560254**	Start Node: **18896**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18904**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560045**	Start Node: **18854**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18855**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560525**	Start Node: **18850**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18853**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560025**	Start Node: **18845**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18847**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560640**	Start Node: **18840**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18843**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560772**	Start Node: **18839**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **18837**	End Offset: **0**	☐ **Exclude Last Node**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☑ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Munjoy St area in Portland

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0560160**	Start Node: **18963**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18863**	End Offset: **0**	☑ Exclude Last Node
Route: **0560160**	Start Node: **18863**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18907**	End Offset: **0**	☐ Exclude Last Node
Route: **0560536**	Start Node: **18899**	Start Offset: **0**	☐ Exclude First Node
	End Node: **18907**	End Offset: **0**	☑ Exclude Last Node
Route: **0560424**	Start Node: **18898**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18900**	End Offset: **0**	☑ Exclude Last Node
Route: **0560606**	Start Node: **18899**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18896**	End Offset: **0**	☐ Exclude Last Node
Route: **0560383**	Start Node: **18897**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18902**	End Offset: **0**	☑ Exclude Last Node
Route: **0560503**	Start Node: **18894**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18891**	End Offset: **0**	☑ Exclude Last Node
Route: **0560717**	Start Node: **18903**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18893**	End Offset: **0**	☑ Exclude Last Node
Route: **0560717**	Start Node: **18905**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18903**	End Offset: **0**	☑ Exclude Last Node
Route: **0560717**	Start Node: **18906**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18905**	End Offset: **0**	☑ Exclude Last Node

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☑ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Munjoy St area in Portland

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0561238**	Start Node: **18901**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18892**	End Offset: **0**	☑ Exclude Last Node
Route: **0561238**	Start Node: **18909**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18901**	End Offset: **0**	☑ Exclude Last Node
Route: **0560513**	Start Node: **18852**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18846**	End Offset: **0**	☑ Exclude Last Node
Route: **0560513**	Start Node: **18846**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18841**	End Offset: **0**	☑ Exclude Last Node
Route: **0560513**	Start Node: **18841**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18839**	End Offset: **0**	☑ Exclude Last Node
Route: **0560514**	Start Node: **18851**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18857**	End Offset: **0**	☑ Exclude Last Node
Route: **0560514**	Start Node: **18857**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18862**	End Offset: **0**	☑ Exclude Last Node
Route: **0560514**	Start Node: **18862**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18865**	End Offset: **0**	☑ Exclude Last Node
Route: **0560658**	Start Node: **18838**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18842**	End Offset: **0**	☑ Exclude Last Node
Route: **0560384**	Start Node: **18837**	Start Offset: **0**	☑ Exclude First Node
	End Node: **18843**	End Offset: **0**	☑ Exclude Last Node

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☑ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Munjoy St area in Portland

REPORT PARAMETERS

Year 2014, Start Month 1 through Year 2016 End Month: 12

Route: **0560525**	Start Node: **18849**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18850**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560757**	Start Node: **18858**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18859**	End Offset: **0**	☑ **Exclude Last Node**

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18866	0560236 - 0.29	Int of EASTERN PROMENADE WILSON ST	2	0	0	0	0	0	0	0.0	1.186	0.00	0.51	0.00
												Statewide Crash Rate:	0.14	
18865	0560236 - 0.34	Int of EASTERN PROMENADE MOODY ST	2	1	0	0	0	1	0	100.0	1.204	0.28	0.51	0.00
												Statewide Crash Rate:	0.14	
18963	0560236 - 0.43	Int of CONGRESS ST EASTERN PROMENADE	2	0	0	0	0	0	0	0.0	1.548	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18906	0560236 - 0.52	Int of EASTERN PROMENADE TURNER ST	2	0	0	0	0	0	0	0.0	1.311	0.00	0.50	0.00
												Statewide Crash Rate:	0.14	
18847	0560799 - 0	0509267 POR,ATLANTIC,WILSON ST.	2	0	0	0	0	0	0	0.0	0.122	0.00	0.37	0.00
												Statewide Crash Rate:	0.14	
18850	0560799 - 0.04	0509270 POR,MUNJOY,WILSON ST.	2	0	0	0	0	0	0	0.0	0.190	0.00	0.54	0.00
												Statewide Crash Rate:	0.14	
18867	0560799 - 0.08	0509287 POR,OBRION,WILSON ST.	2	0	0	0	0	0	0	0.0	0.109	0.00	0.30	0.00
												Statewide Crash Rate:	0.14	
18858	0560799 - 0.12	0509278 POR,VESPER,WILSON ST.	2	0	0	0	0	0	0	0.0	0.166	0.00	0.50	0.00
												Statewide Crash Rate:	0.14	
18861	0560799 - 0.16	0509281 POR,MORNING,WILSON ST.	2	0	0	0	0	0	0	0.0	0.144	0.00	0.45	0.00
												Statewide Crash Rate:	0.14	
18862	0560516 - 0.17	0509282 POR,MORNING,MOODY ST.	2	0	0	0	0	0	0	0.0	0.113	0.00	0.32	0.00
												Statewide Crash Rate:	0.14	
18863	0560516 - 0.26	Int of CONGRESS ST, MORNING ST	2	0	0	0	0	0	0	0.0	0.703	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
18857	0560757 - 0.08	0509277 POR,VESPER,MOODY ST.	2	0	0	0	0	0	0	0.0	0.131	0.00	0.40	0.00
												Statewide Crash Rate:	0.14	
18905	0560254 - 0.11	0509325 POR,TURNER,EMERSON ST.	2	0	0	0	0	0	0	0.0	0.238	0.00	0.58	0.00
												Statewide Crash Rate:	0.14	
18851	0560525 - 0.17	0509271 POR,MUNJOY,MOODY ST.	2	1	0	0	0	0	1	0.0	0.134	2.49	0.42	5.96
												Statewide Crash Rate:	0.14	
18852	0560525 - 0.21	0509272 POR,MUNJOY,MONUMENT ST.	2	0	0	0	0	0	0	0.0	0.142	0.00	0.44	0.00
												Statewide Crash Rate:	0.14	
18846	0560025 - 0.05	0509266 POR,ATLANTIC,MONUMENT ST.	2	0	0	0	0	0	0	0.0	0.183	0.00	0.53	0.00
												Statewide Crash Rate:	0.14	
18841	0560640 - 0.04	0509261 POR,ST.LAWRENCE,MONUMENT ST.	2	1	0	0	0	0	1	0.0	0.216	1.54	0.57	2.72
												Statewide Crash Rate:	0.14	
18842	0560640 - 0.10	Int of SHERBROOKE ST ST LAWRENCE ST	2	1	0	0	0	0	1	0.0	0.185	1.80	0.53	3.38
												Statewide Crash Rate:	0.14	
18843	0560640 - 0.14	0509263 POR,ST.LAWRENCE ST,HOYTS LA.	2	0	0	0	0	0	0	0.0	0.212	0.00	0.56	0.00
												Statewide Crash Rate:	0.14	
18839	0560772 - 0	0509259 POR,MONUMENT,WATERVILLE ST.	2	0	0	0	0	0	0	0.0	0.110	0.00	0.31	0.00
												Statewide Crash Rate:	0.14	
18838	0560772 - 0.05	Int of SHERBROOKE ST WATERVILLE ST	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.05	0.00
												Statewide Crash Rate:	0.14	
18837	0560772 - 0.09	0509257 POR,WATERVILLE ST,HOYTS LA.	2	0	0	0	0	0	0	0.0	0.058	0.00	-0.43	0.00
												Statewide Crash Rate:	0.14	

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
P18856	0560160 - 0.09	Int of CONGRESS ST, VESPER ST	2	0	0	0	0	0	0	0.0	0.876	0.00	0.54	0.00
												Statewide Crash Rate:	0.14	
A18904	0560160 - 0.10	Int of CONGRESS ST EMERSON ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
18854	0560160 - 0.13	Int of BECKETT ST, CONGRESS ST	2	0	0	0	0	0	0	0.0	0.850	0.00	0.55	0.00
												Statewide Crash Rate:	0.14	
18902	0560160 - 0.15	Int of CONGRESS ST HOWARD ST	2	1	0	0	0	0	1	0.0	0.905	0.37	0.54	0.00
												Statewide Crash Rate:	0.14	
18853	0560160 - 0.17	Int of CONGRESS ST, MUNJOY ST	2	0	0	0	0	0	0	0.0	1.039	0.00	0.53	0.00
												Statewide Crash Rate:	0.14	
18891	0560160 - 0.19	Int of CONGRESS ST MERRILL ST	2	1	0	0	1	0	0	100.0	1.090	0.31	0.52	0.00
												Statewide Crash Rate:	0.14	
18845	0560160 - 0.22	Int of ATLANTIC ST, CONGRESS ST	2	0	0	0	0	0	0	0.0	1.292	0.00	0.50	0.00
												Statewide Crash Rate:	0.14	
18900	0560160 - 0.24	Int of CONGRESS ST LAFAYETTE ST	2	0	0	0	0	0	0	0.0	1.501	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18840	0560160 - 0.27	Int of CONGRESS ST, ST LAWRENCE ST	2	0	0	0	0	0	0	0.0	1.514	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18907	0560160 - 0.30	Int of CONGRESS ST NORTH ST	2	1	0	0	0	0	1	0.0	1.731	0.19	0.47	0.00
												Statewide Crash Rate:	0.14	
18899	0560536 - 0.42	0509319 POR,NORTH,QUEBEC ST.	2	0	0	0	0	0	0	0.0	0.739	0.00	0.56	0.00
												Statewide Crash Rate:	0.14	
12459	0560536 - 0.50	0502871 POR, NORTH ST, SUMNER CT	2	0	0	0	0	0	0	0.0	0.706	0.00	0.57	0.00
												Statewide Crash Rate:	0.14	
18909	0560536 - 0.53	0509329 POR,CUMBERLAND AVE,NORTH ST.	2	0	0	0	0	0	0	0.0	1.244	0.00	0.50	0.00
												Statewide Crash Rate:	0.14	
18901	0560424 - 0.09	Int of CUMBERLAND AV, LAFAYETTE ST	2	0	0	0	0	0	0	0.0	0.450	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
18898	0560606 - 0.04	0509318 POR,QUEBEC,LAFAYETTE ST.	2	0	0	0	0	0	0	0.0	0.183	0.00	0.53	0.00
												Statewide Crash Rate:	0.14	
18894	0560606 - 0.07	0509314 POR,QUEBEC,MERRILL ST.	2	0	0	0	0	0	0	0.0	0.266	0.00	0.59	0.00
												Statewide Crash Rate:	0.14	
18897	0560606 - 0.12	0509317 POR,HOWARD,QUEBEC ST.	2	0	0	0	0	0	0	0.0	0.316	0.00	0.60	0.00
												Statewide Crash Rate:	0.14	
18896	0560606 - 0.16	0509316 POR,QUEBEC,EMERSON ST.	2	0	0	0	0	0	0	0.0	0.180	0.00	0.53	0.00
												Statewide Crash Rate:	0.14	
18903	0560383 - 0.07	0509323 POR,TURNER,HOWARD ST.	2	1	0	0	0	0	1	0.0	0.290	1.15	0.60	1.92
												Statewide Crash Rate:	0.14	
18893	0560503 - 0.10	0509313 POR,MERRILL,TURNER ST.	2	1	0	0	0	0	1	0.0	0.185	1.80	0.53	3.39
												Statewide Crash Rate:	0.14	
18892	0560503 - 0.14	Int of CUMBERLAND AV, MERRILL ST	2	1	0	0	0	0	1	0.0	0.201	1.65	0.55	2.99
												Statewide Crash Rate:	0.14	
18864	0560717 - 0.04	0509284 POR,TURNER,MORNING ST.	2	0	0	0	0	0	0	0.0	0.117	0.00	0.34	0.00
												Statewide Crash Rate:	0.14	

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Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18855	0560514 - 0.03	0509275 POR,MOODY,BECKETT ST.	2	0	0	0	0	0	0	0.0	0.048	0.00	-0.78	0.00
												Statewide Crash Rate:	0.14	
Study Years:	3.00	**NODE TOTALS:**		10	0	0	1	1	8	20.0	24.203	0.14	0.25	0.56

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Crash Summary I

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18865	18866	3120758	0 - 0.05	0560236 - 0.29	0.05	2	0	0	0	0	0	0	0.0	0.00059	0.00	692.57	0.00
Int of EASTERN PROMENADE MOODY ST				RD INV 05 60236											Statewide Crash Rate: 171.87		
18865	18963	3106820	0 - 0.09	0560236 - 0.34	0.09	2	0	0	0	0	0	0	0.0	0.00108	0.00	611.18	0.00
Int of EASTERN PROMENADE MOODY ST				RD INV 05 60236											Statewide Crash Rate: 171.87		
18906	18963	3106827	0 - 0.09	0560236 - 0.43	0.09	2	0	0	0	0	0	0	0.0	0.00116	0.00	600.31	0.00
Int of EASTERN PROMENADE TURNER ST				RD INV 05 60236											Statewide Crash Rate: 171.87		
18847	18850	194475	0 - 0.04	0560799 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1581.77	0.00
0509267 POR,ATLANTIC,WILSON ST.				RD INV 05 60799											Statewide Crash Rate: 401.41		
18850	18867	194480	0 - 0.04	0560799 - 0.04	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-354.61	0.00
0509270 POR,MUNJOY,WILSON ST.				RD INV 05 60799											Statewide Crash Rate: 401.41		
18858	18867	194497	0 - 0.04	0560799 - 0.08	0.04	2	0	0	0	0	0	0	0.0	0.00003	0.00	83.80	0.00
0509278 POR,VESPER,WILSON ST.				RD INV 05 60799											Statewide Crash Rate: 401.41		
18858	18861	194496	0 - 0.04	0560799 - 0.12	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-593.67	0.00
0509278 POR,VESPER,WILSON ST.				RD INV 05 60799											Statewide Crash Rate: 401.41		
18861	18866	194504	0 - 0.05	0560799 - 0.16	0.05	2	2	0	0	0	0	2	0.0	0.00002	40142.51	-2322.37	0.00
0509281 POR,MORNING,WILSON ST.				RD INV 05 60799											Statewide Crash Rate: 401.41		
18861	18862	194503	0 - 0.05	0560516 - 0.12	0.05	2	0	0	0	0	0	0	0.0	0.00003	0.00	593.13	0.00
0509281 POR,MORNING,WILSON ST.				RD INV 05 60516											Statewide Crash Rate: 401.41		
18862	18863	194505	0 - 0.09	0560516 - 0.17	0.09	2	1	0	0	0	0	1	0.0	0.00009	3829.11	1680.52	2.28
282 POR,MORNING,MOODY ST.				RD INV 05 60516											Statewide Crash Rate: 401.41		
863	18864	194507	0 - 0.08	0560516 - 0.26	0.08	2	0	0	0	0	0	0	0.0	0.00004	0.00	767.31	0.00
Int of CONGRESS ST, MORNING ST				RD INV 05 60516											Statewide Crash Rate: 401.41		
18856	18857	194490	0 - 0.08	0560757 - 0	0.08	2	0	0	0	0	0	0	0.0	0.00009	0.00	1701.06	0.00
Int of CONGRESS ST, VESPER ST				RD INV 05 60757											Statewide Crash Rate: 401.41		
18857	18858	194493	0 - 0.05	0560757 - 0.08	0.05	2	0	0	0	0	0	0	0.0	0.00005	0.00	1214.69	0.00
0509277 POR,VESPER,MOODY ST.				RD INV 05 60757											Statewide Crash Rate: 401.41		
18896	18905	194560	0 - 0.07	0560254 - 0.04	0.07	2	1	0	0	0	0	1	0.0	0.00008	3929.61	1671.91	2.35
0509316 POR,QUEBEC,EMERSON ST.				RD INV 05 60254											Statewide Crash Rate: 401.41		
18904	18905	194568	0 - 0.07	0560254 - 0.11	0.07	2	0	0	0	0	0	0	0.0	0.00004	0.00	1006.32	0.00
Int of CONGRESS ST EMERSON ST				RD INV 05 60254											Statewide Crash Rate: 401.41		
18854	18855	194486	0 - 0.08	0560045 - 0	0.08	2	1	0	0	0	0	1	0.0	0.00003	9674.17	640.62	15.10
Int of BECKETT ST, CONGRESS ST				RD INV 05 60045											Statewide Crash Rate: 401.41		
18850	18851	194479	0 - 0.05	0560525 - 0.12	0.05	2	0	0	0	0	0	0	0.0	0.00006	0.00	1435.18	0.00
0509270 POR,MUNJOY,WILSON ST.				RD INV 05 60525											Statewide Crash Rate: 401.41		
18851	18852	194481	0 - 0.04	0560525 - 0.17	0.04	2	0	0	0	0	0	0	0.0	0.00005	0.00	1254.49	0.00
0509271 POR,MUNJOY,MOODY ST.				RD INV 05 60525											Statewide Crash Rate: 401.41		
18852	18853	194483	0 - 0.05	0560525 - 0.21	0.05	2	1	0	0	0	0	1	0.0	0.00004	7872.78	1044.37	7.54
0509272 POR,MUNJOY,MONUMENT ST.				RD INV 05 60525											Statewide Crash Rate: 401.41		
18845	18846	194469	0 - 0.05	0560025 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00006	0.00	1507.34	0.00
Int of ATLANTIC ST, CONGRESS ST				RD INV 05 60025											Statewide Crash Rate: 401.41		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18846	18847	194472	0 - 0.08	0560025 - 0.05	0.08	2	1	0	0	0	0	1	0.0	0.00008	4424.62	1622.13	2.73
0509266 POR,ATLANTIC,MONUMENT ST.				RD INV 05 60025											Statewide Crash Rate: 401.41		
18840	18841	194461	0 - 0.04	0560640 - 0	0.04	2	1	0	0	0	0	1	0.0	0.00006	5541.52	1472.62	3.76
Int of CONGRESS ST, ST LAWRENCE ST				RD INV 05 60640											Statewide Crash Rate: 401.41		
18841	18842	194464	0 - 0.06	0560640 - 0.04	0.06	2	2	0	0	0	0	2	0.0	0.00010	6810.16	1710.51	3.98
0509261 POR,ST.LAWRENCE,MONUMENT ST.				RD INV 05 60640											Statewide Crash Rate: 401.41		
18842	18843	194466	0 - 0.04	0560640 - 0.10	0.04	2	0	0	0	0	0	0	0.0	0.00008	0.00	1621.17	0.00
Int of SHERBROOKE ST ST LAWRENCE ST				RD INV 05 60640											Statewide Crash Rate: 401.41		
18838	18839	194458	0 - 0.05	0560772 - 0	0.05	2	1	0	0	0	0	1	0.0	0.00004	8953.35	808.25	11.08
Int of SHERBROOKE ST WATERVILLE ST				RD INV 05 60772											Statewide Crash Rate: 401.41		
18837	18838	194456	0 - 0.04	0560772 - 0.05	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-727.18	0.00
0509257 POR,WATERVILLE ST,HOYTS LA.				RD INV 05 60772											Statewide Crash Rate: 401.41		
18863	18963	3131700	0 - 0.05	0560160 - 0	0.05	2	4	0	0	0	0	3	0.0	0.00030	4401.17	741.94	5.93
Int of CONGRESS ST, MORNING ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18856	18863	194491	0 - 0.04	0560160 - 0.05	0.04	2	0	0	0	0	0	0	0.0	0.00028	0.00	741.89	0.00
Int of CONGRESS ST, VESPER ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18856	18904	3123722	0 - 0.01	0560160 - 0.09	0.01	2	0	0	0	0	0	0	0.0	0.00008	0.00	254.72	0.00
Int of CONGRESS ST, VESPER ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18854	18904	194488	0 - 0.03	0560160 - 0.10	0.03	2	1	0	0	0	0	1	0.0	0.00024	1363.86	737.12	1.85
f BECKETT ST, CONGRESS ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
3854	18902	3120116	0 - 0.02	0560160 - 0.13	0.02	2	0	0	0	0	0	0	0.0	0.00017	0.00	684.88	0.00
Int of BECKETT ST, CONGRESS ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18853	18902	3124002	0 - 0.02	0560160 - 0.15	0.02	2	0	0	0	0	0	0	0.0	0.00019	0.00	712.05	0.00
Int of CONGRESS ST, MUNJOY ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18853	18891	3122294	0 - 0.02	0560160 - 0.17	0.02	2	0	0	0	0	0	0	0.0	0.00021	0.00	720.78	0.00
Int of CONGRESS ST, MUNJOY ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18845	18891	3118712	0 - 0.03	0560160 - 0.19	0.03	2	0	0	0	0	0	0	0.0	0.00032	0.00	741.02	0.00
Int of ATLANTIC ST, CONGRESS ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18845	18900	3130201	0 - 0.02	0560160 - 0.22	0.02	2	0	0	0	0	0	0	0.0	0.00028	0.00	741.78	0.00
Int of ATLANTIC ST, CONGRESS ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18840	18900	3129297	0 - 0.03	0560160 - 0.24	0.03	2	1	0	0	1	0	0	100.0	0.00044	766.01	723.55	1.06
Int of CONGRESS ST, ST LAWRENCE ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
18840	18907	3106817	0 - 0.03	0560160 - 0.27	0.03	2	1	0	0	0	0	1	0.0	0.00043	778.35	724.87	1.07
Int of CONGRESS ST, ST LAWRENCE ST				RD INV 05 60160											Statewide Crash Rate: 171.87		
12459	18899	186810	0 - 0.08	0560536 - 0.42	0.08	2	6	0	0	1	0	1	50.0	0.00055	3649.08	1370.11	2.66
0502871 POR, NORTH ST, SUMNER CT				RD INV 05 60536											Statewide Crash Rate: 401.41		
12459	18909	186811	0 - 0.03	0560536 - 0.50	0.03	2	1	0	0	0	0	0	0.0	0.00021	1565.11	1660.65	0.00
0502871 POR, NORTH ST, SUMNER CT				RD INV 05 60536											Statewide Crash Rate: 401.41		
18907	18909	194570	0 - 0.07	0560536 - 0.53	0.07	2	3	0	0	0	0	3	0.0	0.00031	3187.21	1552.44	2.05
Int of CONGRESS ST NORTH ST				RD INV 05 60536											Statewide Crash Rate: 401.41		

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18898	18901	194563	0 - 0.09	0560424 - 0	0.09	2	3	0	0	0	0	3	0.0	0.00021	4855.09	1668.47	2.91
0509318 POR,QUEBEC,LAFAYETTE ST.				RD INV 05 60424											Statewide Crash Rate: 401.41		
18900	18901	194564	0 - 0.05	0560424 - 0.09	0.05	2	1	0	0	0	0	1	0.0	0.00004	8378.37	936.33	8.95
Int of CONGRESS ST LAFAYETTE ST				RD INV 05 60424											Statewide Crash Rate: 401.41		
18898	18899	194562	0 - 0.04	0560606 - 0	0.04	2	1	0	0	0	0	1	0.0	0.00008	4299.63	1635.79	2.63
0509318 POR,QUEBEC,LAFAYETTE ST.				RD INV 05 60606											Statewide Crash Rate: 401.41		
18894	18898	194556	0 - 0.03	0560606 - 0.04	0.03	2	1	0	0	0	0	1	0.0	0.00005	6476.89	1316.55	4.92
0509314 POR,QUEBEC,MERRILL ST.				RD INV 05 60606											Statewide Crash Rate: 401.41		
18894	18897	194555	0 - 0.05	0560606 - 0.07	0.05	2	0	0	0	0	0	0	0.0	0.00007	0.00	1605.83	0.00
0509314 POR,QUEBEC,MERRILL ST.				RD INV 05 60606											Statewide Crash Rate: 401.41		
18896	18897	194559	0 - 0.04	0560606 - 0.12	0.04	2	0	0	0	0	0	0	0.0	0.00007	0.00	1566.99	0.00
0509316 POR,QUEBEC,EMERSON ST.				RD INV 05 60606											Statewide Crash Rate: 401.41		
18897	18903	194561	0 - 0.07	0560383 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00011	0.00	1727.65	0.00
0509317 POR,HOWARD,QUEBEC ST.				RD INV 05 60383											Statewide Crash Rate: 401.41		
18902	18903	194566	0 - 0.07	0560383 - 0.07	0.07	2	1	0	0	0	0	1	0.0	0.00010	3388.65	1711.45	1.98
Int of CONGRESS ST HOWARD ST				RD INV 05 60383											Statewide Crash Rate: 401.41		
18893	18894	194553	0 - 0.06	0560503 - 0.04	0.06	2	1	0	0	0	0	1	0.0	0.00008	4113.70	1654.78	2.49
0509313 POR,MERRILL,TURNER ST.				RD INV 05 60503											Statewide Crash Rate: 401.41		
18892	18893	194551	0 - 0.04	0560503 - 0.10	0.04	2	0	0	0	0	0	0	0.0	0.00004	0.00	800.23	0.00
CUMBERLAND AV, MERRILL ST				RD INV 05 60503											Statewide Crash Rate: 401.41		
18891	18892	194550	0 - 0.04	0560503 - 0.14	0.04	2	1	0	0	0	0	1	0.0	0.00004	9395.49	706.31	13.30
Int of CONGRESS ST MERRILL ST				RD INV 05 60503											Statewide Crash Rate: 401.41		
18893	18903	194554	0 - 0.03	0560717 - 0.14	0.03	2	0	0	0	0	0	0	0.0	0.00004	0.00	1050.02	0.00
0509313 POR,MERRILL,TURNER ST.				RD INV 05 60717											Statewide Crash Rate: 401.41		
18903	18905	194567	0 - 0.05	0560717 - 0.09	0.05	2	0	0	0	0	0	0	0.0	0.00008	0.00	1643.30	0.00
0509323 POR,TURNER,HOWARD ST.				RD INV 05 60717											Statewide Crash Rate: 401.41		
18864	18906	194510	0 - 0.04	0560717 - 0	0.04	2	1	0	0	0	0	1	0.0	0.00003	12408.18	-53.66	0.00
0509284 POR,TURNER,MORNING ST.				RD INV 05 60717											Statewide Crash Rate: 401.41		
18864	18905	194509	0 - 0.05	0560717 - 0.04	0.05	2	0	0	0	0	0	0	0.0	0.00004	0.00	827.95	0.00
0509284 POR,TURNER,MORNING ST.				RD INV 05 60717											Statewide Crash Rate: 401.41		
18892	18901	2724912	0 - 0.05	0561238 - 1.34	0.05	2	0	0	0	0	0	0	0.0	0.00011	0.00	1727.98	0.00
Int of CUMBERLAND AV, MERRILL ST				RD INV 05 61238											Statewide Crash Rate: 401.41		
18901	18909	194565	0 - 0.09	0561238 - 1.25	0.09	2	1	0	0	0	0	0	0.0	0.00020	1682.78	1677.18	1.00
Int of CUMBERLAND AV, LAFAYETTE ST				RD INV 05 61238											Statewide Crash Rate: 401.41		
18846	18852	194473	0 - 0.04	0560513 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00003	0.00	346.82	0.00
0509266 POR,ATLANTIC,MONUMENT ST.				RD INV 05 60513											Statewide Crash Rate: 401.41		
18841	18846	194465	0 - 0.05	0560513 - 0.04	0.05	2	2	0	0	0	0	2	0.0	0.00003	19226.15	655.11	29.35
0509261 POR,ST.LAWRENCE,MONUMENT ST.				RD INV 05 60513											Statewide Crash Rate: 401.41		
18839	18841	194460	0 - 0.04	0560513 - 0.09	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1268.51	0.00
0509259 POR,MONUMENT,WATERVILLE ST.				RD INV 05 60513											Statewide Crash Rate: 401.41		

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18851	18855	194482	0 - 0.03	0560514 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7893.47	0.00
0509271 POR,MUNJOY,MOODY ST.				RD INV 05 60514											Statewide Crash Rate: 401.41		
18855	18857	194489	0 - 0.04	0560514 - 0.03	0.04	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7893.47	0.00
0509275 POR,MOODY,BECKETT ST.				RD INV 05 60514											Statewide Crash Rate: 401.41		
18857	18862	194494	0 - 0.04	0560514 - 0.07	0.04	2	0	0	0	0	0	0	0.0	0.00001	0.00	-6263.04	0.00
0509277 POR,VESPER,MOODY ST.				RD INV 05 60514											Statewide Crash Rate: 401.41		
18862	18865	194506	0 - 0.06	0560514 - 0.11	0.06	2	0	0	0	0	0	0	0.0	0.00002	0.00	-932.28	0.00
0509282 POR,MORNING,MOODY ST.				RD INV 05 60514											Statewide Crash Rate: 401.41		
18838	18842	194459	0 - 0.04	0560658 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00001	0.00	-	0.00
Int of SHERBROOKE ST WATERVILLE ST				RD INV 05 60658											Statewide Crash Rate: 401.41	10737.15	
18837	18843	194457	0 - 0.03	0560384 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00000	0.00	-	0.00
0509257 POR,WATERVILLE ST,HOYTS LA.				RD INV 05 60384											Statewide Crash Rate: 401.41	21268.43	
18849	18850	194477	0 - 0.12	0560525 - 0	0.12	2	1	0	0	0	0	1	0.0	0.00019	1773.97	1688.19	1.05
Int of EASTERN PROMENADE MUNJOY ST				RD INV 05 60525											Statewide Crash Rate: 401.41		
18858	18859	194495	0 - 0.12	0560757 - 0.13	0.12	2	0	0	0	0	0	0	0.0	0.00013	0.00	1732.67	0.00
0509278 POR,VESPER,WILSON ST.				RD INV 05 60757											Statewide Crash Rate: 401.41		
Study Years: 3.00				**Section Totals:**	3.49		42	0	0	2	0	33	4.8	0.00983	1424.37	494.87	2.88
				Grand Totals:	3.49		52	0	0	3	1	41	7.7	0.00983	1763.50	641.00	2.75

SECTION 3

A. ENTRANCE/EXIT LOCATION

City ordinances do not require driveway access to the proposed St. Lawrence Arts Center project.

SECTION 3

B. ENTRANCE AND EXIT PLAN VIEW

The requirements of this section of the Traffic Movement Permit application are not applicable to the project site design.

C. ENTRANCE/EXIT DESIGN

The proposed project, including all required off-site improvements, will be designed and constructed as directed by the City.

SECTION 4

TITLE, RIGHT OR INTEREST

The attached Warranty Deed and Exhibit A documents show proof that Deirdre E. Nice conveyed for considerations paid the property rights of the 76 Congress Street property to the Friends of the St. Lawrence Church on September 12, 1997.

BK13333PG009

056583

WARRANTY DEED

Know all Ye by these Presents,

That I, DEIRDRE E. NICE (Grantor) of 4 Glen Road, Falmouth, Maine 04105, for consideration paid, do hereby grant unto the said FRIENDS OF THE ST. LAWRENCE CHURCH (Grantee), of 76 Congress Street, Portland, Maine 04101, with Warranty Covenants, the following real property situated at 66-76 Congress Street, City of Portland, County of Cumberland, described as follows:

MAINE REAL ESTATE TAX PAID

A certain lot or parcel of land with the buildings thereon, situated in said Portland, and being more particularly described on Exhibit A attached hereto and made a part hereof.

Meaning and intending to convey the same premises described in a warranty deed from Stephen P. Sunenblick and Roger Conover to Grantor and Grantee dated December 9, 1993, and recorded in the Cumberland County Registry of Deeds in Book 11160, Page 21.

Witness my hand this 12 day of September, 1997.

Witness

Deirdre E. Nice

STATE OF MAINE
CUMBERLAND, ss

September 12, 1997

Personally appeared the above Deirdre E. Nice, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Attorney at Law/Notary Public

EXHIBIT A

Three certain lots or parcels of land and the church edifice and buildings on the same situated at the corners of Congress, Munjoy and Beckett Streets, in the said City of Portland and more particularly bounded and described as follows:

FIRST: Beginning at the corner formed by the intersection of the southerly side line of said Congress Street and the westerly side line of said Beckett Street; thence southeasterly by said Beckett Street forty-five (45) feet to a point; thence westerly on a line at right angles to said Beckett Street eighty (80) feet to Lot No. 1 in Block marked E. on a plan recorded in the Cumberland Registry of Deeds in Plan Book No. 4, Page 18; thence northerly by said Lot No. 1, forty-five (45) feet to said Congress Street; thence easterly by said Congress Street eighty (80) feet to the point begun at.

SECOND: Beginning at the northeasterly corner as formed by the intersection of the Southeasterly line of said Congress Street and the northeasterly line of said Munjoy Street; thence southeasterly by said Munjoy Street a distance of forty three and 27/100 (43.27) feet to a point; thence northeasterly at right angles to said Munjoy Street a distance of eighty (80) feet to a point; thence northwesterly at right angles to the last described line a distance of forty five and 69/100 (45.69) feet to Congress Street; thence southwesterly by said Congress Street to the corner begun at. Said lot is further shown on a plan of the premises recorded in said Cumberland Registry of Deeds in Plan Book 4, Page 18, and is the lot number one (1) in Block E on said Plan. The two parcels above described are the same conveyed to the St. Lawrence Street Parish by Jacob H. Groves by his deed dated September 28, 1895, and recorded in the Cumberland Registry of Deeds, Book 630, Page 261.

THIRD: Beginning at a point on the easterly side of Munjoy Street which point is forty three and 27/100 (43.27) feet southerly from the corner made by the intersection of the southerly line of Congress Street with the easterly line of Munjoy Street; thence southerly on said Munjoy Street forty three (43) feet to a point, and from these two points and keeping the same width extending back at right angles to Munjoy Street eighty (80) feet. Being the same premises conveyed to the Saint Lawrence Street Parish by John Cousens by his deed dated August 24, 1896 and recorded in said Registry, Book 639, Page 438. To the several deeds aforesaid and the records thereof reference is hereby made for further description of the premises hereby conveyed.

THIS CONVEYANCE IS MADE SUBJECT to an outstanding mortgage from the Grantor and Grantee herein to Fleet Bank of Maine, which mortgage the Grantee, as part of the consideration for this transaction, assumes and agrees to pay.

RECEIVED
RECORDED REGISTRY OF DEEDS
1997 SEP 19 PM 4:16
CUMBERLAND COUNTY
John B O'Brien

SECTION 5

PUBLIC OR PRIVATE RIGHTS-OF-WAY

There are no known public or private easements that encumber the site.

SECTION 6

SCHEDULE

Friends of the St. Lawrence Church have not established a construction schedule for the project at this point; construction is likely to commence in the next 3 to 5-year time period.

Att. I

Traffic Solutions
William J. Bray, P.E.
235 Bancroft Street
Portland, ME 04102
(207) 774-3603
(207) 400-6890 mobile
trafficsolutions@maine.rr.com

May 10, 2017

Traffic and Parking Demand Assessment
For Proposed
St. Lawrence Arts Center
Portland, Maine

Friends of St. Lawrence Church are proposing a 401-seat addition to the existing St. Lawrence Arts Center (SLAC) at 76 Congress Street increasing the capacity of the arts venue from 110 to 485 seats. Preliminary traffic and parking demand forecasts have been developed for the proposed project based upon travel choice and parking trends measured at the existing 110-seat venue.

Theater attendees to seven scheduled shows in 2017 were interviewed by the SLAC staff to establish travel modal choice trends of the existing 110-seat facility. Neighborhood parking supply and demand studies were also conducted on the eve of two of these events; Wednesday and Saturday events to develop parking demand and supply patterns within the extended neighborhood area.

Travel Mode Survey Summary

Patron interviews were completed by SLAC staff during the following scheduled events:

Tuesday, February 28, 2017
Tuesday, April 4, 2017
Wednesday, April 26, 2017
Saturday, April 29, 2017
Friday, May 5, 2017
Saturday, May 6, 2017
Sunday, May 7, 2017

SLAC staff interviewed each attendee upon entering the theater:

1. *How did you get here?*
2. *If the answer was auto, a second question was asked: were you the driver?*
3. *If the answer was yes, a third question was asked – how many people traveled with you in your auto?*

A summary of the interview survey information is presented as follows:

Tuesday, February 28, 2017	Tuesday, April 4, 2017	Wednesday, April 26, 2017	Saturday, April 29, 2017
72 attendees 59 passengers in 24 autos 7 attendees walked 1 attendee METRO 5 attendees cab/Uber	80 attendees 61 passengers in 21 autos 15 attendees walked 2 people METRO 2 people scooter/Moped	74 attendees 44 auto trips	78 attendees 64 passengers in 36 autos 3 people Uber 6 people walked

Friday, May 5, 2017	Saturday, May 6, 2017	Sunday, May 7, 2017
58 attendees 51 passengers in 23 autos 7 people walked	54 attendees 44 passengers in 21 autos 10 people walked	58 attendees 50 passengers in 22 autos 1 person biked 5 people walked 2 people in hotel shuttle

Vehicle occupancy and parking space rates were established for the existing 110-seat SLAC by "*averaging*" the survey results recorded for each scheduled event. The average vehicle occupancy rate determined for the SLAC is **2.20** persons per automobile [59 ÷24 = 2.46 + 61÷21 = 2.90 + 74÷44 =1.68 + 64÷36 = 1.77 = 51÷23 = 2.22+ 44÷21 = 2.10 +50÷22 = 2.27].

Average peak parking rates were established for the SLAC venue based upon the survey data for two variables consistent with the Institute of Transportation Engineers 4th edition of the Parking Generation publication; 1) per attendee and, 2) per seat. The calculations for each follows:

Average Parking Rate/Attendee = **0.40** spaces per attendee [24÷72 = 0.33 + 21÷80 = 0.26 + 44÷74 = 0.59 + 36÷78 = 0.46 + 23÷58 = 0.40 + 21÷54 = 0.39 + 22÷58 = 0.38]
Average Parking Rate/Seat = **0.25** spaces per seat [24÷110 = 0.21 +21÷110 = 0.19 + 44÷110 = 0.40 + 36 ÷110 = 0.33 + 23÷110 = 0.21+ 21÷110 = 0.19 + 22÷110 = 0.20]

Estimate of Peak Hour Trip and Parking Demand

Peak hour trip generation and parking demand values were determined for the proposed SLAC project based upon rates determined for the existing smaller 110-seat SLAC site.

Peak Hour Trip Generation: An increase of **170** vehicle trips are generated in the peak hour of the site with completion of the proposed 401-seat expansion of the SLAC [485 total seats of new facility minus existing 110 seat facility] equals a "*net*" increase of 375 seats ÷ 2.20 = **170** vehicle trips.

Peak Parking Space Demand: Peak parking space demand was calculated for the proposed SLAC site by averaging the calculations performed for two variables: 0.40 spaces per attendee and 0.25 spaces per seat. The former rate generates a parking demand of 194 spaces and the latter value estimates the parking demand at 121spaces. Accordingly, the proposed 485-seat facility can be expected to generate peak parking demand of **158** spaces[1].

Parking Supply Determination

Parking Space Inventory: An inventory of existing neighborhood parking spaces was completed for all streets located within an approximate 900-foot walking radius (approximately 5-minute walk at 3 feet/second) from the 76 Congress SLAC site. Figure 1 illustratively identifies all streets and street segments included in the survey. The number of parking spaces were estimated applying City ordinance requirements (i.e. parking restrictions at hydrants, driveways, crosswalks and intersections) and an average parking stall length of 20-feet. A total of **883** parking spaces were counted within the study area.

Parking Studies: Parking occupancy studies were conducted on Wednesday, April 26 and Saturday, April 29, 2017. Both dates coincide with scheduled theater events at the existing SLAC. Total vehicle parking counts were recorded for each street block during three separate time periods: 1) Pre-event time, 2) During the show, and 3) Early morning after show. Actual survey times were as follows:

---

[1] April 18, 2014 Nelson/Nygaard project review memorandum estimated peak parking demand at 122 spaces.
August 18, 2014 Gorrill-Palmer, Inc. study estimated peak parking demand at 218 spaces.

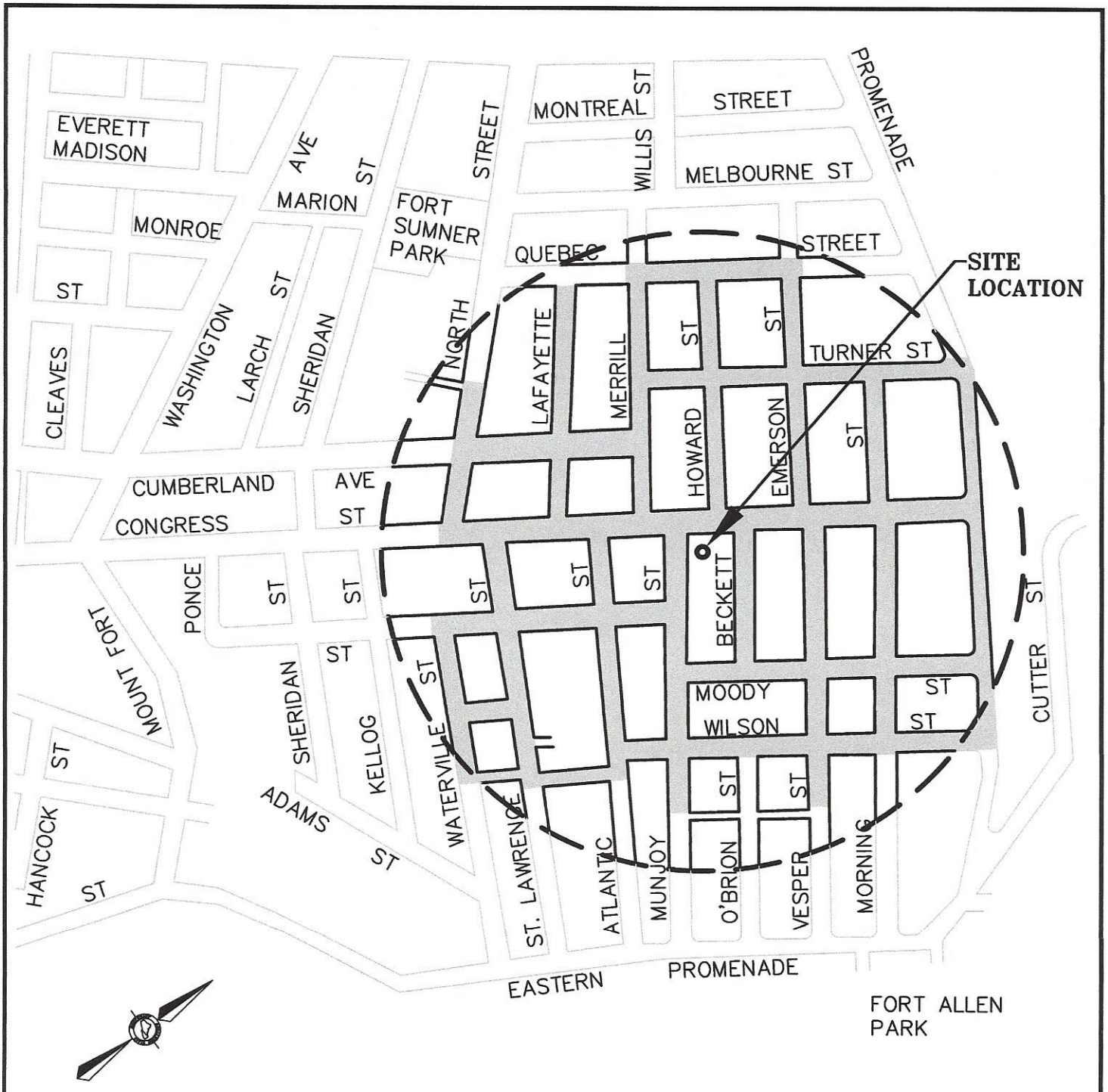


FIGURE 1
ON-STREET PARKING OCCUPANCY STUDY AREA

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ST. LAWRENCE ART CENTER\PLANSET\ST. LAWRENCE ART CENTER.DWG

Project Name and Location: ST. LAWRENCE ART CENTER, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: MAY 4, 2017 FIGURE: 1	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730

Wednesday, April 26, 2017	Saturday, April 29, 2017
1. Pre-Show = 5:00 to 5:30 PM	1. Pre-Show = 5:30 to 6:00 PM
2. During Show = 7:15 to 7:45 PM	2. During Show = 7:45 to 8:15 PM
3. Thursday morning = 4:30 to 5:00 AM	3. Thursday morning = 4:30 to 5:00 AM

Table 1 presents the actual vehicle occupancy counts recorded for each street and street segment located with the defined study area.

Table 1

Summary Report
On-Street Parking Occupancy Study

		April 26/27, 2017			April 29/30, 2017		
Street/Segment	Measured[1] Spaces	5:00 to 5:30 PM	7:15 to 7:45 PM	4:30 to 5:00 AM	5:30 to 6:00 PM	7:45 to 8:15 PM	4:30 to 5:00 PM
Howard Street Entire	17	14	18	18	15	18	17
Merrill Street	41	30	30	20	28	28	24
- Congress to Quebec							
Quebec Street	11	15	11	9	15	13	12
- Merrill to Emerson							
Emerson Street Entire	45	14	30	32	26	26	33
Congress Street	75	57	73	70	66	74	62
- North to E. Prom							
North Street	14	12	15	14	14	13	12
- Congress to Stetson							
Lafayette Street Entire	40	28	17	16	33	25	25
Eastern Promenade	47	7	10	14	36	20	15
- Turner to Wilson							
Cumberland Avenue	26	20	16	11	21	17	16
- North to Merrill							
Turner Street	60	37	35	13	41	31	29
Morning Street	67	54	59	61	55	57	65
- Wilson to Turner							
Wilson Street Entire	64	13	14	31	24	27	37
Moody Street Entire	46	5	14	21	14	20	20
St. Lawrence Street	51	30	32	36	33	36	39
- Congress to Hoyt's							
Sherbrook Street	13	3	5	10	7	5	9
Waterville Street	38	13	19	25	22	22	25
- Congress to Hoyt's							
Atlantic Street	44	25	33	31	27	35	32
- Congress to Gilbert							
Munjoy Street	48	28	44	37	43	51	42
- Congress to Alley							
Beckett Street Entire	42	17	25	24	26	24	25
Vesper Street	54	50	45	54	55	58	61
- Congress to Alley							
Monument Street	40	18	27	27	30	36	30
- Waterville to Munjoy							
TOTAL	**883**	**490**	**572**	**574**	**631**	**636**	**661**
PERCENT OCCUPANCY		**55%**	**65%**	**65%**	**71%**	**72%**	**75%**

Note[1]: Number of spaces estimated based upon City Ordinance Requirements and parking stall length of 20-feet

Approximately 56% of the parking spaces located in the neighborhood study area were occupied on Wednesday evening prior to the theater show time and the number of spaces occupied during the show time increased to 572 spaces. A total of 574 spaces were occupied in the early hours of Thursday morning. Parking occupancy trends measured on Saturday, overall, were somewhat higher than the weekday values. A total of 631 vehicles were parked in the study area before the start of the event, that number increased to 636 vehicles during the show, increased again in the early morning hours of Sunday to 661 vehicles.

The early Sunday morning parking usage value (661 vehicles), which represents the highest recorded number of parked vehicles in the study area, leaves a balance of **222** unused parking spaces in the neighborhood.

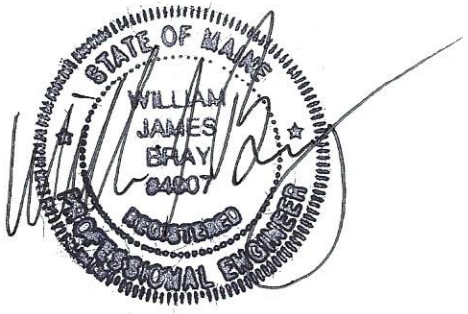
Summary of Findings

- The proposed 485-seat St. Lawrence Arts Center project will generate a "*net*" increase of **170** vehicle trips during the peak hour of the site. Show times are presently scheduled in the early evening hours when peak traffic times have diminished and that practice will continue with the new arts center.

- The Maine Department of Transportation requires any project whose peak hour trip generation exceeds 100 trips per hour to file for and obtain a Traffic Movement Permit. An application permit is currently being prepared and will be submitted to the City this month.

- The proposed Arts Center project can be expected to generate a peak parking demand of **158** parking spaces with sellout of all 401 theater seats and companion events occurring in other rooms of the facility.

- A total of **883** public on-street parking spaces exists on streets located within a walking time of 5-minutes or less (approximately 900-feet) from the SLAC site at 76 Congress Street. Parking studies conducted in the early morning hours (4:30 to 5:00 AM) on Thursday, April 27 and Sunday, April 30, 2017 (Both dates follow a schedule evening theater event at SLAC) measured a peak neighborhood parking demand of 574 spaces on Thursday and 661 spaces on Sunday, leaving an unencumbered balance of **309** parking spaces on Thursday and **222** spaces on Sunday.



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July 7, 2017

Thomas A. Errico, P.E.
Senior Associate-Traffic Engineering Director
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RE: St. Lawrence Arts – Traffic Movement Permit

Dear Tom:

We are pleased to provide, for your review and approval, the additional supporting traffic information requested by your office for the proposed St. Lawrence Arts (SLA) project. At the formal project Traffic Movement Permit scoping meeting, you specifically requested further detail on possible travel patterns of patrons of the SLA site. In response, we have developed a likely travel model of "*pre-event*" trips to the proposed SLA site at 76 Congress Street. The following narrative provides detail of the process used in the development of the requested traffic model.

Trip Projection
The proposed St. Lawrence Arts building expansion project, with a total of 401 seats, increases the seating capacity of the existing arts venue from the current capacity of 110 seats to a total of 485 seats.

The Institute of Transportation Engineers ***Trip Generation*** manual is generally the accepted source of information applied in developing trip estimates for a specific project. The most recent edition of this document, the ninth edition, is very limited in this regard for a live theater venue. Land-Use Code #441 (Live Theater) in the noted publication presents a peak hour trip rate based upon the results of a single study. Users are cautioned in using the information "*because of the small sample size*".

Alternatively, peak hour trip forecasts are developed for the proposed arts center expansion project based upon travel choice surveys conducted at the existing smaller 110-seat arts center venue.

St. Lawrence Arts (SLA) staff members conducted patron surveys at seven recently scheduled shows to establish travel modal choice trends at the existing 110-seat arts center. SLA staff interviewed each attendee upon entering the theater asking the following questions:

1. *How did you get here?*
2. *If the answer was auto, a second question was asked; were you the driver?*
3. *If the answer was yes, a third question was asked; how many people traveled with you in your auto?*

A summary of the interview data is presented as follows:

Tuesday, February 28, 2017	Tuesday, April 4, 2017	Wednesday, April 26, 2017	Saturday, April 29, 2017
72 attendees	80 attendees	74 attendees	78 attendees
59 passengers in 24 autos	61 passengers in 21 autos	44 auto trips	64 passengers in 36 autos
7 attendees walked	15 attendees walked		3 people Uber
1 attendee METRO	2 people METRO		6 people walked
5 attendees cab/Uber	2 people scooter/Moped		

Friday, May 5, 2017	Saturday, May 6, 2017	Sunday, May 7, 2017
58 attendees	54 attendees	58 attendees
51 passengers in 23 autos	44 passengers in 21 autos	50 passengers in 22 autos
7 people walked	10 people walked	1 person biked
		5 people walked
		2 people in hotel shuttle

The survey data shows that the average number of occupants per vehicle attending an event at the existing SLA is 2.20 persons.

The estimate of future peak hour trip generation assumes that the existing per vehicle occupancy levels will continue. Accordingly, the combined SLA facility with 485 seats can be expected to generate a total of **182** vehicle trips during the "*pre-event*" peak hour.

Traffic Model

The proposed SLA facility will, without question, attract audiences from a very large geographic area including residents and visitors alike from both the State of Maine and other communities in New England. Projecting the percentage of persons attending from any one community or location is clearly an unpredictable task. The demographics of each show will be uniquely different.

For the purposes of meeting your request, we have selected very detailed survey information gathered by the SLA staff at the 2014 Nutcracker Burlesque shows that provides zip code information of 474 people attending the noted shows in developing a travel model for the project.

The traffic model presented in this report creates travel routing information for each survey respondent grouping the information into four general directions of travel to the SLA site (i.e. north, east, south and west). The following directional distribution patterns were established:

- 40% north
- 10% east
- 20% south
- 30% west

Trip Composition

The SLA project is expected to generate a total of **182** vehicle trips in the "*pre-event*" peak hour. Trips are generated by the following three distinctly different trip purposes: 1) Valet parking users; 2) Motorists dropping off vehicle occupants to the site and, 3) motorists traveling directly to off-site parking areas. The estimated number of vehicle trips generated by each category is as follows:

- A total of **60** trips are generated by the valet parking program with 30 trips arriving to the site and 30 trips leaving the 76 Congress Street site. The estimate of valet trips was based upon information provided by Unified Parking Professionals. Asher Chapel with United Parking Processionals estimates that approximately 30 motorists out of 175 to 200 auto trips will use the valet service. Accordingly, we have assumed that 30 persons will use the valet service generating a total of 30 entry trips and 30 exit trips during the peak hour. It is assumed that all valet vehicles will be parked in parking facilities located away from Munjoy Hill. This report assumes all valet operator employees will use Congress Street exclusively for this purpose.
- A modest estimate of 40 motorists will drop other vehicle occupants off at the SLA venue and then leave and park their vehicle off-site generating a total of **80** vehicle trips (40 entry and 40 exiting trips).
- The remaining balance of **42** trips are generated by motorists traveling directly to parking options on Munjoy Hill.

A total of **112** trips are expected to travel towards the proposed venue and a total of **70** trips will depart. Thirty (30) of the 70 total trips departing the site are employees of the valet service that are expected to travel on Congress Street to parking areas outside of the Munjoy Hill neighborhood for temporary vehicle storage. The remaining 40 trips leaving the venue will travel to parking options within the neighborhood and, as a result, do not leave Munjoy Hill.

Traffic Assignment

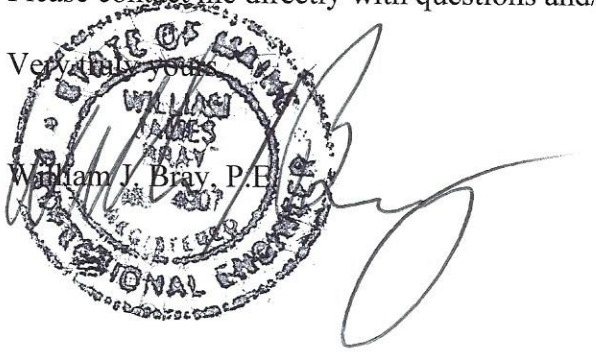
All vehicle trips generated by the proposed SLA project during the "*pre-event*" peak hour are expected to travel to the 76 Congress Street site using one of four streets: Walnut Street, Cumberland Avenue, Congress Street and/or Fore Street. We fully recognize that there are a myriad of other possible travel routes or combination thereof; however, it is expected that the majority of entry trips (**112**) will enter through one of the noted streets and **30** trips will exit for a total of **142** vehicle trips.

Figure 1 illustratively presents the assignment of the **142** vehicle trips to each of the four entry streets to Munjoy Hill at their intersection with Washington Avenue and/or Fore Street.

As highlighted on the enclosed traffic figure, approximately 100 trips will use Congress Street (70 enter and 30 exit) much lower volumes of trips are forecast for the other three travel routes. A total of 20 trips will use Cumberland Avenue, 15 trips enter at Fore Street and 10 trips on Walnut Street.

Please contact me directly with questions and/or additional informational needs.

Very truly yours,



William J. Bray, P.E.

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Transportation Demand Management (TDM) Plan
St. Lawrence Arts
July 11, 2017

St. Lawrence Arts (SLA) provides this updated Transportation Demand Management (TDM) Plan for its proposed 401-seat Performance Arts Hall, located at 76 Congress Street. This plan is based directly on the TDM work conducted by Gorrill Palmer, the City of Portland initiated review of Gorrill Palmer's plan by Nelson\Nygaard Consulting Associates, and TDM planning documents that informed SLA's conditional rezoning application in 2014. This plan is also informed by the updated parking study conducted by Traffic Solutions.

SLA has been a vibrant and engaged neighbor since the venue's opening in 2001 and has made compelling financial commitments to mitigate the potential parking and transportation impact of its proposed addition to the Munjoy Hill neighborhood. SLA will enable patrons to access a variety of transportation options, including: public transportation, remote parking, shared vehicles, bicycling and walking - versus single occupancy vehicles parked near the venue. The plan is strategic and achieves positive transportation outcomes for the broader community, emphasizing less reliance on the automobile, utilization of downtown amenities, and investment in important public infrastructure.

A. Site Transportation Overview & Context

The Performance Hall will be built on the site of the former historic sanctuary, which suffered a partial collapse in 2006 and was subsequently dismantled in 2008 after it was determined that the integrity of the structure was at risk. The new design integrates a state-of-the-art performing arts venue with an exterior that complements both the mix of contemporary and historic architecture of the neighborhood as well as the existing historic façade of the Parish Hall. The activities of the Performance Hall support the mixed-use, urban form, and multi-modal objectives of the primary 1993 *A Time of Change: Portland Transportation Plan* and the City of Portland's newly adopted 2017 Comprehensive Plan.

Munjoy Hill is a dense residential neighborhood that has experienced tremendous growth with the addition of businesses, restaurants, and art galleries that have flourished in the area since the opening of the Parish Hall Theater in 2001. This growth has stimulated development, specifically of high-end residential real estate and condominiums. New residents to Munjoy Hill, attracted by the amenities of the neighborhood, are within walking distance of SLA. The site is pedestrian and bicycle-friendly, located within the strong sidewalk network and lower-speed street grid of the Portland peninsula, and it is generally a short walk and bike ride from the Eastern Promenade Trail. The neighborhood is served by the METRO Route 1 bus, which enables easy access to other bus routes via the METRO Pulse on Elm Street.

Meanwhile, nearby restaurants provide an attractive dual-purpose trip for other patrons who drive and park nearby to dine before an event and then walk to the venue. These "internally captured" trips represent no net new parking demand over existing restaurant demand. Many event-goers are also likely to originate or conclude their entertainment trip to the downtown area, where dynamic nightlife

and after-work hour parking availability is greater. Given the inherent shared parking synergies of nearby residents who attend performances, dual-purpose restaurant and venue patrons, and those parking and then traveling by other means from downtown, the parking demand in the immediate vicinity could be lower still. Internal capture rates between performance venues and nearby businesses similar to the area in question on this stretch of Congress Street are generally very high.

The proposed Performance Hall will create a mid-sized venue not currently available in Portland that will attract tier one and tier two musicians (determined by guaranteed fees), a broader range of performances from Portland Ovations, and provide much needed space to many local non-profit organizations including Portland Ballet Company. The rectilinear stage and state-of-the-art lighting and sound system has been designed to successfully feature a multitude of performing arts and events, including dance, top-touring theater groups, film, lectures, assembly activities for neighborhood, social, and civic events, readings, and music. These events will substantially enhance the creative arts available to the community, offering a boost to Portland's economy as well as bringing in a wider and younger demographic of patrons to SLA.

SLA's TDM Plan serves a series of important needs:

- Making maximum use of existing transit infrastructure near the Performance Hall
- Reducing event peak-hour trip impacts to adjacent roadway infrastructure
- Reducing the amount of needed parking on-site, especially as land is limited
- Reducing on-street parking demands on residential streets directly near the building
- Encouraging healthy, cost-saving and sustainable transportation activities

B. TDM Coordinator

Highly successful TDM programs share three vital characteristics: (1) they are dynamic: piloting strategies, assessing impacts, and modifying tactics as needed; (2) they are rigorously monitored and supported by local governing bodies, in this case, the City of Portland; and (3) they are managed by committed and enthusiastic staff who are responsible for overseeing, promoting and sustaining the program.

The St. Lawrence has designated its Development Director as the TDM Coordinator, charged with coordinating the TDM plan. SLA's dedication to the TDM program is excellent and the organization's ongoing care for it at a senior staff level throughout the planning and development process is further evidence of this commitment. Acknowledging that roles and responsibilities change over time in any position, the organization has enumerated the TDM Coordinator's responsibilities in detail for any other staff to uphold the responsibility of the position. Julia Kirby is the current Development Director and will be the TDM Coordinator for the new combined Performing Arts Hall and Parish Hall Theatre. The Coordinator's contact information is: Julia Kirby, St. Lawrence Arts, 76 Congress Street, Portland, ME 04101; (207) 775-1248. SLA's dedication to the TDM program throughout the planning and development process is evidence of the organization's commitment to successful implementation.

The SLA TDM coordinator is responsible for the following:

- Growing the organization's alternate transportation fund via ticketing surcharges and coordinating the Metro subsidy (see Section D)

- Encouraging the greater use of transit, bicycling, walking, remote parking, ridesharing and valet parking through website development, subsidies and incentives, and the on-site kiosk (Sections D & E)

- Overseeing event scheduling; the TDM plan will be utilized during both public and private (i.e., rental) events

- Overseeing comprehensive surveying of patrons, volunteers and staff (Section F)

- Monitoring of patron parking usage and the effectiveness of TDM strategies (Section F)

- Filing annual reports and updating the plan with the City (Section F)

- Exploration of additional TDM strategies, if needed

C. Trip Generation and Parking Demand Projections and Targets

SLA is committed to reduce single and low-occupancy patron automobile trips and parking near the building. The goal of the TDM is to improve multi-modal safety at and near the site while easing traffic congestion and parking demand. On behalf of SLA and at the request of the City of Portland, Traffic Solutions has updated ITE trip generation and parking demand projections to establish the impact of the combined St. Lawrence Performance Arts Hall and Parish Hall.

These numbers are preliminary and SLA staff and the engineering team have continued to collect and refine the data. The estimate of future peak hour trip generation assumes that the existing per vehicle occupancy levels will continue. Accordingly, the combined SLA facility with 485 seats can be expected to generate a total of **182** vehicle trips during the "*pre-event*" peak hour. Again, subsequent patron survey data will likely enhance these numbers.

A total of 112 trips are expected to travel towards the proposed venue and a total of 70 trips will depart. Thirty (30) of the 70 total trips departing the site are employees of the valet service that are expected to travel on Congress Street to parking areas outside of the Munjoy Hill neighborhood for temporary vehicle storage. The remaining 40 trips leaving the venue will travel to parking options within the neighborhood and, as a result, do not leave Munjoy Hill.

All vehicle trips generated by the proposed SLAC project during the "*pre-event*" peak hour are expected to travel to the 76 Congress Street site using one of four streets: Walnut Street, Cumberland Avenue, Congress Street and/or Fore Street. Approximately 100 trips will use Congress Street (70 enter and 30 exit) and much lower volumes of trips are forecast for the other three travel routes. Upon arriving at SLA, motorists will further divert to other nearby streets seeking both on and off-street parking options.

The parking demand projection is for 158 spaces. This forecast is based on the average of the two different methods the *ITE Parking Generation* manual offers for making projections for similar venues, one based on the number of seats and one based on the number of attendees. It also happens to

land in the middle of the 218 spaces that Gorrill Palmer projected and the 122 spaces that Nelson\Nygaard's peer review suggested as an alternate interpretation during the 2014 conditional rezoning process.

Trip Reduction Target
SLA will use the first full year of operations to confirm a more consistent number of drive-alone trips to the site, METRO transit trips, valet parking usage and other transportation modes. Based on the venue's expansion and multi-modal accessibility and depending on the number of single-occupancy trips determined, an achievable trip reduction target for patrons is 6-10% for the first year. The trip target will be re-visited after the first year of implementation.

Parking Reduction Target
Similar to the trip reduction target, the primary goal of the initial year will be to ascertain the actual parking demand number for the expanded site from the three provided estimations and reduce the demand by 6-10%, depending on the determined demand:

- 228 spaces by Gorrill-Palmer
- 122 spaces by Nelson/Nygaard
- 158 spaces by Traffic Solutions

The parking demand target will also be re-visited after the first year of implementation.

SLA plans to work with a local TDM consultant to continue creating and achieving goals for shifting modes and to closely monitor existing trends to attain a reasonable mode-shift goal over time.

D. Trip/Parking Reduction Strategies & Incentives

SLA proposed a number of strong and sensible parking and trip reduction strategies during the 2014 Conditional Rezoning Process that it continues to develop and plan for in this next stage of site review and eventual construction. These include:

- Subsidizing extended METRO bus service from downtown for both patrons and the larger community
- Subsidizing remote parking downtown
- Incentivizing and facilitating carpooling, bicycling, walking, and valet parking use among patrons. Incentives will include:
  - ticket discounts for carpooling, bicycling, and walking
  - point-of-purchase concession coupons and other incentives for valet parking use
  - the provision of on-site bicycle parking
  - working with the City of Portland on infrastructure improvements for walking and bicycling routes from downtown to ensure they are inviting, well-lit, well-signed and navigable, safe, and in good condition
  - marketing transit, remote parking, rideshare, bicycling, walking, valet parking and other free market travel information at the point of ticket purchase, on the website and via the on-site TDM kiosk
- Funding the organization's alternate, preferred transportation modes programming and services through a small ticket surcharge and valet service revenue.

METRO Subsidy & Downtown Parking Incentives

The core of SLA's TDM program will be a partnership with the Greater Portland Transit District (METRO) to both extend and enhance the service of the Route 1 bus that travels up and down Congress Street. In 2015, METRO increased frequency and length of service on the Route 1; currently it runs on a thirty minute frequency between 5:15 a.m. and 8:45 p.m. with less frequency between 9:00 p.m. and 10:50 p.m. With the approximate $70,000 in annual funding from a ticket surcharge that the Arts Center is proposing to commit to the expansion project, METRO could further increase evening frequency on the Route 1 from about every 30 minutes to every 15-20 minutes and extend service to 11:00 p.m. (Monday-Saturday).

At the point of purchase, event patrons will be offered parking validation from SLA to park in Portland's downtown district, where they can enjoy dinner and use their performance ticket as valid fare to ride the Route 1 bus to and from SLA. Service improvements that lower frequency to 15 minutes would increase METRO's capacity to accommodate 120-160 patrons in the hour before and after the event. METRO will ascertain how many patrons used the transit system free of charge and will recoup the cost from SLA.

In June of 2016, METRO also introduced "real time" transit tracking so riders know when the bus will arrive at their stop. This information can be accessed through the smttracker.com website, smart-phone app, or by texting using a bus stop ID number. A display screen will also be installed in the lobby of SLA with live, up-to-the-minute bus arrival information for patrons. New fare media that METRO has planned for 2018 could streamline the process for this partnership for both METRO and SLA by allowing patrons to use smartphone technology to scan their tickets. In addition, possible modifications to the Route 1 bus could include a stop on Munjoy Hill on Congress near North Street, in addition to the current stop on North Street & Cumberland Avenue.

The proposed partnership between SLA and METRO is part of a broader plan by the Greater Portland METRO to participate in arts programming and citywide initiatives for transit use. For example, since last summer METRO has partnered with Creative Portland and Portland Downtown District to offer free bus rides during First Friday Art Walk. This partnership exemplifies how easy, low-cost or free transportation methods can directly support creative and artistic events. Creative Portland and METRO are in discussion about increasing service on First Friday Art Walk and expanding to neighborhoods off the peninsula that are considered First Friday Art Walk destinations. METRO is also developing a partnership with the Portland Museum of Art and opportunities for enhanced transportation for patrons to and from its service area.

METRO and Portland Public Schools have implemented a Transit Pass Program for high school students. This program provides a free METRO Student Transit Pass to all high school students enrolled in Portland, Deering and Casco Bay High Schools, including students living within two miles of school. The pass allows unlimited use of METRO bus routes during the academic school year, including weekends and break periods. This initiative is establishing a new generation of savvy METRO users who will take advantage of the TDM incentives SLA is proposing and who will favor public transportation over single-occupancy vehicles.

With enhanced METRO service, patrons will be incentivized to utilize downtown parking lots, garages and street parking. Evening parking is abundantly available, according to the recent findings of the City of Portland Parking Study, underway for areas of the downtown and waterfront. In addition to on-street parking, the Temple Street garage is open until 12:00am (midnight) and is within one block of a METRO Route 1 stop. SLA would subsidize this remote parking by validating patrons' parking tickets

for up to three hours of free parking at the garage. The number of parking spaces that this facility provides should exceed the needed 158 spaces recommended by Traffic Solutions.

SLA staff met recently with representatives from METRO and both organizations continue to be highly enthusiastic about a partnership. The 2014 Nelson\Nygaard review of SLA's TDM plan encourages a "more specific and targeted PTDM" and part of doing so will be understanding what motivates patrons to drive and park close to the venue. For this approach to work, SLA and METRO will need to effectively communicate and market the transit option as convenient, affordable, easy, and fun. In particular, the marketing effort will promote transit as a key piece of a fun night out that includes both dining and entertainment. SLA and METRO agree that a carefully laid out marketing plan is essential. SLA details its ongoing planning process for education and promotion in Section E.

SLA is aware of the City of Portland's Downtown Transit-Oriented Development Tax Increment Financing (TIF) approved in 2015 and activated in 2016, and that peninsula transit improvements are a potential use of this revenue. SLA recognizes that its proposed partnership with METRO and the revenue it will bring to the table could be joined with TIF revenue to support even broader and more consequential transit improvements. By growing ridership and diversifying the transit system's revenue base, the partnership can make METRO more competitive in obtaining new federal grant funds that can support further transit expansion.

This plan will not only serve SLA patrons, but also will allow all city residents and visitors the opportunity to take advantage of more frequent evening transit availability on the peninsula. For example, the enhancement of METRO serves not only the community at large, but also collaborates closely with the many different arts organizations along Congress Street, making these cultural offerings in the city more accessible. In addition, the availability of inexpensive, handicapped-accessible transportation removes the barrier many people face of how to travel to and from arts-related events in Portland. SLA is keen to participate in this city-wide initiative to benefit its patrons and neighbors.

Valet Parking

Another component of SLA's TDM plan is to offer superior front-door valet service. Next year SLA will begin to experiment with valet parking for the existing Parish Hall Theater, which will help inform best practices for using valet service for the expanded site. SLA will offer concession coupons and experiment with other incentives at the point of purchase to encourage driving patrons to pay for this exceptionally convenient parking, in lieu of on-street parking. The organization will work with Unified Parking Partners (UPP), a full-service parking management company based in Portland, Maine and servicing all of New England. UPP is an affiliate of Towne Park Ltd. From Annapolis, Maryland. Its focus is garage, flat lot, healthcare, hotel and restaurant, and event parking management with experience accommodating parking for large-scale sporting and entertainment events.

SLA has met with Asher Chapel of Unified Parking Partners to understand how valet parking at the newly proposed venue would operate (function). At present, SLA's location in a dense residential neighborhood and a clearly identified parking lot next to the venue poses specific challenges to implementation of valet services. Citing examples of other valet services provided by UPP in a challenging situation, Asher referred to The Westin Portland Harborview Hotel, located at 157 High Street, Portland. Valet parking was approved as the primary method of parking management for the The Westin Portland Harborview Hotel, yet the garage adjacent to the facility was not available for use for valet parking, the location of the hotel on a busy, one-way highway is difficult for valet services, and the volume of cars using the valet service far exceeded expectations due to the combination of

both event patrons at the hotel and guests. UPP's response to these challenges was to park cars in the Elm Street Parking Garage (owned by UPP) at 121 Elm Street, 0.6 miles away. UPP also purchased lots between The Westin Portland Harborview Hotel and the Elm Street Parking Garage to successfully handle the overflow volume of cars.

For Valet Service at SLA, UPP will park cars in one of their nearby lots or garages, the closest two being the Top of the Old Port Lot located at 119 Pearl Street (0.3 miles away from SLA), and the Free Street Garage (0.4 miles away from SLA).

Patrons will be able to pay in advance for valet parking, as well as pay at the door. Similar to the universal ticket surcharge to subsidize the METRO partnership, UPP shares part of its revenue with each site; this income would contribute further to SLA's transportation alternatives fund to benefit both patrons and the larger community. Valet parking fees will fluctuate based on event sales as well as the specific performer(s). Patrons who use valet parking will be able to wait in the lobby of the Performance Hall for their vehicle, which will negate needing a covered structure outside in inclement weather.

UPP will staff its valet parking service based on estimates of how many patrons will utilize the service. For example, if UPP expects to valet park 50-60 cars, a minimum of 5 valet parking attendants would be present. Estimates will be made using the number of patrons who sign up in advance to use valet parking as well as a "capture rate" that is based on how many cars are expected for a given event. In recent discussions, UPP staff shared that in situations where event attendees realize it is hard to park they will be more likely to use valet service.

The number of valet parking attendants is based on service levels, the primary one being the time the patron has to wait. Successful valet parking will have enough parking attendants to ensure patrons have a less than 4-minute wait time. For a per-staff, per-hour fee, UPP provides valet parking attendants, environmentally safe and friendly vehicle shuttling for the valet staff, and security of the lot where cars are parked during the event. UPP manages a number of lots in Portland.

Bicycle and Pedestrian Transportation

Portland's sidewalks and roadways make it an extremely pedestrian and bicycle friendly city. SLA's location on the peninsula makes it especially accessible on foot and by bike. Through ticket discounts and the provision of 10 bicycle racks (20 spaces), SLA will encourage patrons who live within walking and biking distance to use these TDM-friendly modes of transportation. SLA is also committed to meeting a higher demand for bike parking if needed. One possibility might be an on-street bike parking corral for the extended "no parking" segment on Congress Street near the corner of Beckett Street. SLA will join Bicycle Benefits (www.bicyclebenefits.org) as a participating business, a national program that offers incentives and rewards for patrons who arrive at an establishment by bicycle. Portland, Maine businesses already have strong membership in Bicycle Benefits.

Pedestrian connections currently surround SLA; Congress Street provides contiguous sidewalks on both sides of the street for pedestrians walking from in-town Portland. A majority of side streets provide sidewalks and crosswalks for patrons who are walking from local neighborhoods. SLA will also make sidewalk and crosswalk improvements as part of this project.

SLA will continue to work with City of Portland staff, the Portland Bicycle & Pedestrian Advisory Committee, Portland Trails and the Bicycle Coalition of Maine to further enhance safe and convenient pedestrian and bicycle access to the site.

Free Market Options
Transportation by rented bicycle and Pedicabs (bicycle cabs) in the warmer months and taxis and transportation network companies (TNCs) such as Uber and Lyft year-round will also be a viable option for patrons of SLA who are overnight visitors to Portland or live in the city – or for those who park downtown and elect not to use public transportation.

Rideshare
SLA understands that some patrons will still travel by automobile to Munjoy Hill and not use the valet parking service. The organization will offer discounted tickets for patrons who carpool and will facilitate ridesharing as an option to reduce the number of cars that travel to the facility for a performance. SLA will work with Go Maine, the statewide commuter assistance program, to develop a system for one-time ride-matching to connect patrons with others driving to the same event. This service is not currently in place under Go Maine's new technology contract with NuRide; however, Go Maine is working to develop and provide this additional amenity for use by various local organizations and events. Those who use Go Maine are also eligible for NuRide rewards for non-single occupancy vehicle trips, such as discounts at local stores. If the Go Maine option is not implemented, SLA will investigate the use of groupcarpool.com, a national app and online service that is specifically designed and caters best to one-time events. For example, one package would charge the St. Lawrence $10 for each event of up to 500 participants, with no registration or fee required for attendees to use the service. This is a very attractive and extremely low-barrier option for patrons who are already familiar with paid services like uberPOOL.

Other Overall Incentives
To help build patron awareness of SLA's TDM efforts and encourage a cultural change in transportation habits, the organization will implement an incentive campaign for the first year after opening, entering attendees who use preferred transportation modes into a monthly raffle for gift cards, movie passes, or other benefits. SLA sees this experiment as part of the dynamic nature of the plan and exploring what works.

E. Marketing

A carefully thought-out marketing plan that provides easily accessible information is another critical and valued component for the success of SLA's TDM Plan. SLA has begun designing a marketing strategy that complements other area Portland organizations that promote walking, bicycling, and public transit as preferred modes of transportation. For example, SLA will utilize marketing materials that the City of Portland and Portland Downtown District are developing for area partners with a marketing firm. (RFP for marketing firms is expected to be issued by the City of Portland this summer). SLA will also implement "honor system" strategies such as a button at the end of the online ticket system to check if attendees are carpooling or travelling by preferred transportation modes and offer an associated discount.

SLA's initial marketing plan:

- Instruct all online ticket purchasers at the point of sale regarding incentives and the use of preferred modes to reach the site.
- Work with the City of Portland, METRO and other community partners to design and actively maintain a "How to Get Here/Where to Park" page for SLA's website that is clearly posted. The page will include:

- Prioritizing the instructions for how to use the preferred modes of public transportation, remote parking, walking, bicycling, and valet service at the top of the page; emphasizing these options over travelling by automobile
- Instructions for using METRO, the preferred downtown garage for parking, locations of Route 1 bus stops closest to the garage, and bus arrival times - including a link to the Google Maps (Transit) trip planner and Southern Maine Transit Tracker
- Valet parking information
- A map identifying:
    - the walk zone, common walk routes and bike lanes and trails, links to Google Maps walking and bicycling trip planners and Portland Trails. Estimated walk and bike times will be provided to emphasize ease and swiftness to encourage these preferred transportation options.
    - transit stops and routes
    - one-time carpooling match source
    - valet service drop-off and "no parking" area within 300 feet (one block) of SLA
- A clear and compelling statement citing the negative impact of traffic congestion on residents, neighboring businesses, and visitors. Emphasis of ease of preferred transportation methods (E.g., "Why drive around frustrated looking for parking when these options are available.")
- Information about specific subsidies and incentives offered by SLA for patrons to use METRO, park downtown, carpool, walk, bike and use valet parking
- Information sharing, such as the results of patron and staff transportation surveys

- Broadcast real-time METRO Route 1 arrival information on a transit screen in the lobby
- Provide a highly visible and well-maintained travel information kiosk in the lobby containing the same content as the website "How to Get Here/Where to Park" page and similarly involving the City of Portland, METRO and other community partners
- Consistent and regular communication via email, the website, social media and at events: "SLA's goal is to shift as many patrons as possible to preferred ways of reaching the venue."
- Work to establish the Performance Hall as a Green Certified event space, acknowledging that an event's largest environmental impact comes from how people travel to and from the venue
- SLA's utilization of and co-branding with the upcoming multi-modal marketing campaign elements that are soon to be developed by the City of Portland and Portland Downtown District for use by area partners. SLA will adapt these materials to create a catchy marketing campaign to target its audience and promote the various preferred modes to reach the site. In particular, the marketing effort will emphasize public transportation as an integral part to a fun night out of dining and entertainment. One key message will be a version of: "using the Route 1 bus to travel to SLA is easy, free, fast and green!"

F. Surveying & Monitoring

Recognizing that the implementation of a TDM Plan is a dynamic process, SLA's TDM Coordinator will monitor the TDM Plan's components to assess whether they are achieving the trip and parking reduction targets listed above. This evaluation will begin one month after the opening of the expansion and be conducted twice annually thereafter for five years. After five years, once-a-year monitoring will

be implemented. The most critical component of SLA's TDM plan is to reduce parking demand, thus an assessment of METRO usage by event patrons, valet parking utilization and a survey of how attendees arrived at events will be the first part of the monitoring assessment. A particularly important piece of this surveying will be to determine the flexibility of patrons to utilize various travel modes to access the facility. SLA will also use the monitoring period to assess the value of both the METRO subsidy and valet service to the TDM program and make improvements.

Greater Portland Metro
SLA patrons will show their ticket (paper or smart phone) to ride the Route 1 bus, enabling METRO to track ridership and bill SLA appropriately. This will provide SLA with an exact count of how many event attendees are using transit.

Valet Parking
SLA will work with Unified Parking Partners to produce a summary of valet parking usage by event.

Patron Surveys
SLA will survey patrons with two travel mode questions as they enter the site. In addition, patrons will be given a survey to further determine their travel flexibility and preferences. They will complete and return this in exchange for a free gift. The surveys will be conducted to determine:

- Mode of travel to and from the show
- If by car:
  - Specify as a driver or a passenger
  - If driver, ascertain how many passengers and parking location (downtown or on-street in the neighborhood)
- Preferences, barriers or concerns with modes of travel

Surveys – Employees & Volunteers
SLA currently has a written policy and contractual agreement with employees, volunteers, and performers to park five blocks from the Parish Hall Theater during high peak hours. This policy will be in place and enforced for all employees, volunteers, and performers for the expanded site. Furthermore, one month after the operations begin, SLA will survey its employees and volunteers. This survey will then be conducted annually. The survey will be developed in consultation with the city's TDM manager and conform to overall city TDM modeling and planning. It will include:

- Mode of travel to and from work or volunteering
- Flexibility of employees to utilize various travel modes to access the facility
- Verification of employee and volunteer commitment to the parking policy

While SLA will conduct traffic and parking observations to cross-reference with the annual surveying, extensive parking counts of surrounding streets before and during an event have not been as helpful and do not seem appropriate for the monitoring phase. As stated in the 2014 SLA Parking and TDM Plan drafted by Gorrill-Palmer, "While we might find these results informative and useful, we can't assume the entire difference of vehicles is representing SLA. The Front Room is a local restaurant and bar located across the street from SLA, a popular spot on a Friday evening." In addition to the Front Room, four other establishments with evening hours are located within a block of the SLA: Lolita and the Blue Spoon (both restaurants) and Rosemont Market and Hilltop Coffee Shop. Moreover, the

Eastern Promenade Park, located just three blocks from SLA, is a busy destination for vehicular traffic during early evenings in the spring, summer and fall.

The data collection and surveys will produce comparable data from year to year and be available for compilation with other sites' travel data by a third party, such as the city. Based upon the results of the monitoring, SLA will update the TDM Plan and submit a draft to the city's TDM Manager for review and comments.

Oversight and enforcement of the TDM plan will be conducted in-house by the appointed SLA TDM Coordinator; however, SLA will retain the services of a TDM consultant to review initiatives, problem-solve, and develop new strategies where and when necessary.

G. Project Specific Improvements

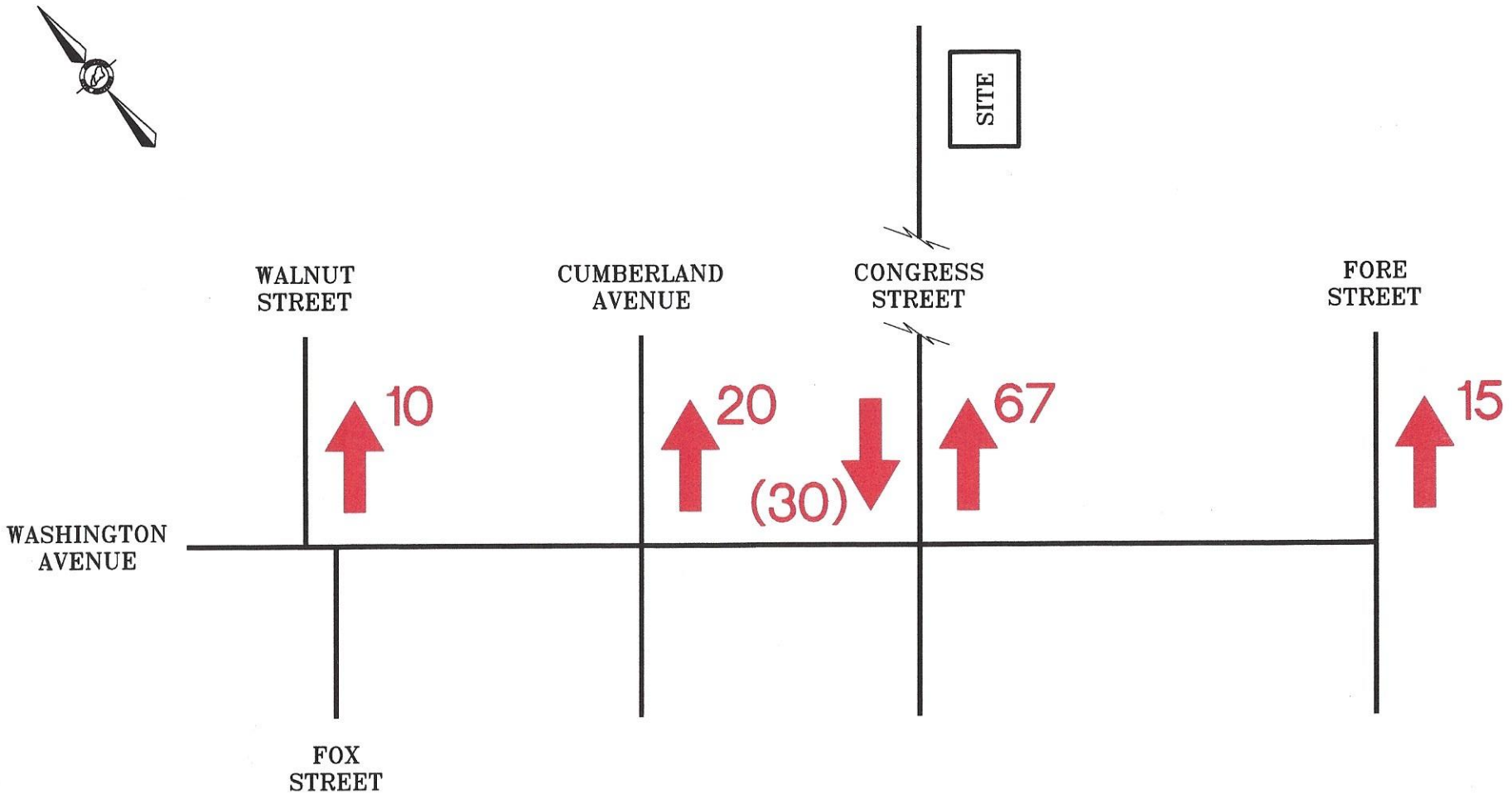
METRO Subsidy for Expanded Service
SLA will contribute $70,000 per year to the Greater Portland Transit District (METRO) to expand the frequency and length of service of the Route 1 bus from Monday through Saturday.

Sidewalk Improvements
SLA will rebuild the sidewalks immediately adjacent to the site on Congress, Beckett and Munjoy Streets.

Crossing Improvements
SLA will construct two ADA-accessible crosswalks traversing Congress Street and make improvements to the existing crosswalks at Beckett and Munjoy Streets.

Bicycle Parking
A total of 10 bicycle racks are being installed for parking 20 bicycles as part of SLA's site plan. If demand warrants additional bike parking, SLA will provide it, including exploration of a bicycle parking corral for the extended "no parking" segment on Congress Street near the corner of Beckett Street.

TDM Bulletin Board
In addition to SLA's website transportation page, the venue will erect a transportation bulletin board in a prominent location with information on the preferred modes for reaching the site, valet parking, and venue parking policies.



LEGEND

XX = EVENT VEHICLE TRIPS

(XX) = OFF-SITE VALET VEHICLE STORAGE TRIPS

SITE TRIP ASSIGNMENT (PRE-EVENT PEAK)

FIGURE 1

E:\LAND PROJECTS\34000\344399 TRAFFIC SOLUTIONS\ST. LAWRENCE ART CENTER\PLANSET\ST. LAWRENCE ART CENTER FIG 1.DWG

Project Name and Location: ST. LAWRENCE ART CENTER, PORTLAND, MAINE	TRAFFIC SOLUTIONS
DATE: JULY, 2017 — FIGURE: 1	235 BANCROFT STREET, PORTLAND, MAINE 04102-1730

METRO
Greater Portland Transit District

September 17, 2014

Ms. Deirdre Nice
Executive Director
St. Lawrence Arts
76 Congress Street
Portland, Maine 04101

Re: Enhanced Transit Service on Congress in support of St. Lawrence Theater

Dear Deirdre:

The Greater Portland Transit District (Metro) is pleased to partner with St. Lawrence Arts and offer useable transit services as part of your multi-pronged effort to manage the traffic and parking impacts associated with the theater's proposed expansion.

Using the approximate $70,000 in annual funding that St. Lawrence Arts is proposing to commit, Metro would increase evening frequency on the Route 1 (Congress) from about every 45 minutes to every 30 minutes and extend service to 11:00 p.m. (Monday-Saturday). As part of this program, theater patrons will be able to use their venue ticket as valid fare to board the bus. This plan will make it easier for patrons to park in Portland's downtown district, enjoy pre-performance activities or dinner, then catch the Route 1 for a quick ride up to the theater on Munjoy Hill.

Additionally METRO will work with St. Lawrence Arts staff to develop a marketing plan to promote these public transit options in a way the catches people's attention. Elements of this plan will include promoting patron's use of "Real-Time Arrival" technology either through smartphones, text or possibly on display in the theater's lobby as well as providing incentives for taking public transit to performances at St. Lawrence.

While this service improvement to 30 minute frequency will help the Route 1 be an effective transit option for some theater patrons, we must be mindful of the number of patrons the Route 1 can reasonably transport both before and after events. Realistically, 2 trips both before and after events (depending performance start and end times) are likely to be reasonable options for theater patrons. Metro buses' seating and standing capacity can comfortably accommodate 30-40 people. So, the Route 1 can be a realistic option for up to 60-80 people per event. Service improvements that lower frequency to 15 minutes would increase Metro's capacity to the point where we could accommodate 120-160 patrons in the hour before and after an event.

Not only does this partnership benefit St. Lawrence patrons with convenient transit service connecting the downtown district with the theater, it will also provide enhanced transit service for Portland residents and visitors travelling on the peninsula and up to Munjoy Hill and the Eastern Promenade. This is truly a strategic partnership in that we can work together toward making transit a

useable option for theater patrons while also improving transit service generally for Portland residents of Munjoy Hill and the Eastern Promenade.

As Metro continues advancing transit in Portland and growing ridership, we also plan to expand this concept and work with other cultural and artistic venues along our transit routes to promote public transit use through this kind of creative payment arrangement. As we expand our local partners, Metro can more effectively work with the city of Portland and the Federal Transit Administration to develop the funding programs needed to seriously improve transit service on the peninsula with all day frequencies of 20 minutes or better, hours of service through midnight, and added weekend service.

Thank you for this opportunity to work with you and we look forward to a successful partnership.

Sincerely,

Gregory Jordan
General Manager

MEMO

TO: Helen Donaldson, and Barbara Barhydt, City of Portland
FROM: Deirdre Nice, Executive Director, St. Lawrence Arts
DATE: May 19, 2017
SUBJECT: Truck Loading and Bus parking requirements

Staff of St. Lawrence Arts met with John Peverada in February of 2017 to discuss the logistics of having performers unloading and loading trucks/buses into the new Performance Hall and requirements for parking of these larger vehicles.

It should be noted that the New Performance Hall is a mid-sized space that will not be attracting large-scale performances that have large, multi-performer casts and the equipment that would accompany such a grand-scale production. For example, the trucks and buses parked on Center and Spring streets before and during performances at the Cross Insurance Arena will not be the kinds of performances coming to SLA.

In the event a performer does arrive in a bus and/or with an equipment truck, all loading and unloading will be done on Munjoy Street near the facility loading dock during **non-peak** parking hours. For smaller storage vehicles like passenger trucks and vans, the facility will have a small pull-up area near the dock for the purpose of loading and unloading. Temporary parking will be requested on Munjoy Street for large buses and trucks in an effort to keep pedestrian walkways clear at all times.

St. Lawrence Arts will have a contractual agreement with all performers requiring that equipment vehicles and buses will not be parked near the facility, but will be required to park in designated satellite parking on Commercial Street promptly after unloading and loading. Furthermore, the agreement will include time-frames for unloading (during non-peak hours), and enforced time-limits.

In summary, St. Lawrence Arts will continue enforcement of its current policies regarding unloading and loading equipment for performers and their vehicles for the new Performance Hall. SLA will not allow trucks and/or buses to block pedestrian walkways, will require performers to utilize the five-minute zone and/or temporary parking in front of or near the building, and will contractually require all performers park trucks and/or buses in satellite lots designated by the City of Portland.

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

St. Lawrence Arts Center, Congress Street
December 28, 2016

SUMMARY OF PUBLIC INFORMATIONAL MEETING

The neighborhood meeting was held on site. The meeting was attended by 9 members of the public. Deirdre Nice opened the meeting and went through the history of the project and the Arts Center. The current building is sited on the same footprint as the building removed in 2008 for structural reasons. This is the second design to be completed. The first was a recreation of the previous building. It was too expensive to move forward. This building has its own architecture and program for the future.

The project is in a Contract Zone which was approved by the City after many meetings. The people attending knew much of the history.

David Lloyd went through the architecture and responded to questions.

Questions included:

Do the stain glass windows stay at the front of the existing building? Yes.

What were the costs of the previous design and the new design? 17 million dollars and 10 million dollars.

Julie Kirby went through the parking study prepared as part of the Contract Zone. The neighborhood was surveyed within a 5 minute walk. There are excess parking spaces available to meet the demand.

Parking was raised by several people as an issue. A Howard Street landlord was concerned about visitors to his unit. Overall parking is the only issue of concern.

It was noted the neighbor has changed in the last 10 years for the better, making parking the issue. It was noted the center will not operates 365 days a year and that performances are spread out. The parking demand will use Metro busses and valet parking to help offset the issues.

In general the project was well received.

Respectfully Submitted

Thomas S. Greer P.E.

File: 16107

Neighborhood Meeting Certification

I, Thomas S. Greer hereby certify that a neighborhood meeting was held on December 28, 2016 at 76 Congress Street, in Portland at 6:00PM concerning the St. Lawrence Arts Center.

I also certify that on November 29, 2016 and December 6, 2016, invitations were mailed to all addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change and the residents on the "interested parties" list.

A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,

Thomas S. Greer 12/30/16 (date)

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Neighborhood Meeting

November 29, 2016

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for the St. Lawrence Arts Addition at 76 Congress Street. We will add 25,308 sq. ft. theater addition.

Meeting Location: 76 Congress Street (St. Lawrence Arts)
Meeting Date: December 21, 2016 (Wednesday)
Meeting Time: 6:00pm

The purpose of this meeting is to introduce the project to our neighbors as part of the City approval process.

If you have any questions, please call Thomas S. Greer, P.E., Pinkham & Greer, Civil Engineers at 207-781-5242 or email him at tgreer@pinkhamandgreer.com.

St. Lawrence Arts - North East Rendering

*** MEETING DATE CHANGE ***

Due to a schedule conflict
the
Public Neighborhood Meeting
for
St. Lawrence Arts
Has Been Changed!

Meeting Date: December 28, 2016 (Wednesday)
Same Place
St. Lawrence Arts Center
76 Congress Street
6:00PM

NEIGHBORHOOD MEETING ATTENDEE LIST
St. Lawrence Arts Addition, 76 Congress Street
December 28, 2016

Name & Address	Name & Address
Thomas S. Greer Pinkham & Greer Civil Engineers 28 Vannah Avenue Portland, ME 04103	
CAROL McCRACKEN 645 Congress ST. Portland ME	
Laurie McBride 55 Moody St Portland. ME	
Jennifer Wikström + Paul Morrissey 82 Munjoy Street Ptld 04101-4444	
Peter Manning 20 Howard ST.	
GARY MARCISSO 60 Vesper ST gMarcisso@yahoo.com	
Gary Armenti 14 Mountfort	
SUSAN MORRIS 118 Congress St #601 Portland ME 04101	
WHITNEY MEYER 85 BECKETT ST PORTLAND ME 04101	

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

St. Lawrence Arts Center, Congress Street
December 28, 2016

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Respectfully Submitted

Thomas S. Greer P.E.

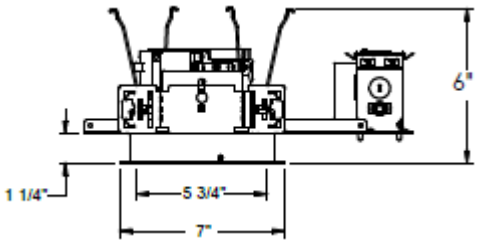
File: 16107

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET BATH, MAINE 04530
TEL (207) 443-5447
bartlettdesigninc@comcast.net

St. Lawrence Arts Addition Lighting Fixtures
Congress Street
Portland, Maine

November 3, 2017

TYPES S1 & S1A



HOUSING:
One-piece 22 gauge non-corrosive steel platform. Pre-wired j-box with snap-on cover for easy access. Snap-in- connection from driver compartment allows easy installation of light engine/trim assembly without tools above or below the ceiling and can be upgraded to accommodate technology improvements. Approve for 8 (4 in/4 out) No. 12 AWG conductors rated for 90°C through wiring.

REFLECTOR:
High purity aluminum, Alzak, iridescence suppressed, semi-diffuse reflector. Self-trim standard.

LED LIGHT ENGINE:
The LF6SL uses the Philips Fortimo DLM Gen 5 LED Module with remote phosphor technology. This technology provides controlled color consistency (3 SDCM) from fixture to fixture. The system is designed for optimal life and lumen maintenance (>50,000 hours at 70% lumen maintenance). Both reflector and light engine assembly are mechanically retained to housing. The light engine comes standard with 90 CRI in all Kelvin temperatures

LED DRIVER:
The LF6SL utilizes the Philips Fortimo LED Driver specifically designed to optimize efficiency of the Fortimo DLM Module. Driver is designed to match the 50,000 hour minimum life expectancy of the system. Meets UL Class 2, inherent short circuit protection, self limited, overload protected. If critical temperatures are reached on driver or LED module, integrated thermal feedback loop will gradually reduce current to protect system life. Driver is universal 120V-277V. Optional Lutron Series A driver is also available.

DIMMING:
Comes standard with 0-10V dimming capability. Flicker-free dimming to 10%. 0-10V control may consume up to 1mA. Lutron 2 wire, 3 wire, and EcoSystem dimming available to 1% and DMX with RDM (remote device management) dimming to less than 0.1%.

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A Division of Hubbell Lighting, Inc.

TYPE S1 – 1500 Lumens Type S1A – 1100 Lumens

HOUSING
- ❑ **LF6SL** Standard Lumen 0-10V 10% dimming 120-277V

DRIVER OPTION
Standard 0-10V 10% Dimming
- ❑ **DM1** 0-10V dimming at 1%
- ❑ **DMT**[14,15] SpectraSync™ Tunable White
- ❑ **DMTW**[16] SpectraSync™ Tunable Dim to Warm

VOLTAGE OPTION
Standard 120V-277V
- ❑ **347** 347V

HOUSING OPTIONS
- ❑ **EMR**[2] Emergency Battery Pack with remote test switch and indicator light
- ❑ **CP**[2,3,4,5,15,17] Chicago Plenum
- ❑ **LV**[12] Lutron Vive Enabled, 0-10V, 120-277V
- ❑ **NXWE**[3,15,18,19] NX Wireless Enabled
- ❑ **NXE**[3,15,18,19] NX Enabled, Dual SmartPorts

TRIM APERTURE
- ❑ **6LF5L** Semi-Diffuse Clear Alzak

OUTPUT
- ❑ **11L** 1100 Lumen Module
- ❑ **15L** 1500 Lumen Module
- ❑ **20L**[17] 2000 Lumen Module

KELVIN
- ❑ **30K** 3000 Kelvin, 90 CRI
- ❑ **35K** 3500 Kelvin, 90 CRI
- ❑ **40K** 4000 Kelvin, 90 CRI
- ❑ **2230TD** 2200K-3000K SpectraSync™ Dim to Warm
- ❑ **2750T** 2700K-5000K SpectraSync™ Tunable White
- ❑ **2765T** 2700K-6500K SpectraSync™ Tunable White

REF. FINISH OPTION
- ❑ **SP** Specular
- ❑ **SS** Semi-Specular
- ❑ **MFC** American Matte™
- ❑ **V** Kurt Versen Specular ❑
- **VS** Kurt Versen Softglow®
- ❑ **VSS** Kurt Versen SoftSheen™ ❑

REF. COLOR OPTIONS
Standard Clear Alzak
- ❑ **CG** Champagne Gold Alzak
- ❑ **GD** Gold Alzak
- ❑ **BL** Black Alzak
- ❑ **WE** Wheat Alzak
- ❑ **LW** Light Wheat Alzak
- ❑ **PW** Pewter Alzak
- **WH** Painted Matte White Reflector and Flange
- ❑ **BC** Painted Black Reflector and Flange

TRIM OPTIONS
- ❑ **WT** Painted White Flange Only
- ❑ **TRG** Trim Ring Gasket
- ❑ **WF**[10] Wide Flange
- ❑ **BNCT**[9,13] Black Non-conductive Trim
- ❑ **WNCT**[9,13] White Non-conductive Trim
- ❑ **BNCTB**[9,13] Black Non-conductive Trim Baffled
- ❑ **WNCTB**[9,13] White Non-conductive Trim Baffled

LENS
- ❑ **CL**[8] Clear Lens (Regressed Standard)
- ❑ **DL**[8] Diffuse Lens (Regressed Standard)

TYPE S2

DIMENSIONS
Height: 12-1/4”
Diameter: 6”
Projection: 8-7/8”

HOUSING:
Seamless heavy gauge extruded aluminum cylinder body with durable powder coat paint finish and die cast aluminum canopy arm (wall mount) in a variety of architectural colors including Prescolite's exclusive Zet, metallic silver.

REFLECTOR:
High purity spun aluminum self-flanged reflector with iridescence suppressed Alzak semi-diffuse anodized (standard) or optional white or black painted finish.

LED LIGHT ENGINE:
The LCC6LED light engines apply mid power Nichia LEDs, specifically mixed to provide a minimum of 80 CRI with 3 SDCM color consistency. The use of multiple mid power LEDs allows for optimal thermal management by effectively spreading the heat over a larger area, eliminating hot spots. A diffuse yet highly transmissive lens obscures the view of the LEDs and creates a smooth, even look from below.

The light engine is available in multiple lumen packages and Kelvin temperatures to accommodate any design requirement. The system is designed to provide optimal life and lumen maintenance (50,000 hrs at 70% lumen maintenance). The reflector/light engine assembly features a twist-and-lock installation and is mechanically retained with a safety cable for ease of maintenance

LED DRIVER:
The LCC6LED is offered standard with a 25-watt constant current Osram LED driver with 0-10V flicker free dimming to 10%. Other driver options are available including Osram LED 0-10V dimming to 1% (DM1), Lutron EcoSystem to 1% (EDM), or Lutron 2-wire Leading Edge dimming to 1% (120V only). All options are Class 2 compliant, have inherent short-circuit and overload protection, and meet UL 8750 with a 50,000 hour minimum anticipated life.

CYLINDER	MOUNTING	OUTPUT	LED COLOR TEMP	CRI	VOLTAGE	OPTIONS	BEAM	REFLECTOR FINISH	REFLECTOR COLOR	CYLINDER COLOR
❑ **LCC6LED** 6" LED Cylinder	❑ **P** Pendant (18" standard) ❑ **S** Surface ❑ **CM**[1,2] Cord Mount ❑ **W** Wall Mount	❑ **10L** 1000 Delivered Lumens ❑ **14L** 1400 Delivered Lumens ❑ **18L** 1800 Delivered Lumens	❑ **27K** 2700 Kelvin ❑ **30K** 3000 Kelvin ❑ **35K** 3500 Kelvin ❑ **40K** 4000 Kelvin ❑ **50K** 5000 Kelvin	❑ **8** 80+ CRI	❑ **Blank** 120-277 Volt ❑ **120V** 120V (for 2DM)	❑ **Blank** Standard 0-10V dimming to 10% ❑ **EDM**[3] Hi-Lume 1% EcoSystem LED Driver ❑ **2DM** Hi-Lume 1% 2-wire LED Driver (120V only) ❑ **DM1** Osram dimming to 1% 0-10V	❑ **WFL45** 45 Degree Cutoff ❑ **WW**[4] Wall Wash	❑ **Blank** Clear Alzak	❑ **BC** Painted Black Cone ❑ **WC** Painted White Cone	❑ **BA** Brushed Aluminum ❑ **BZ** Bronze ❑ **BL** Matte Black ❑ **WH** Matte White ❑ **Z** Zet

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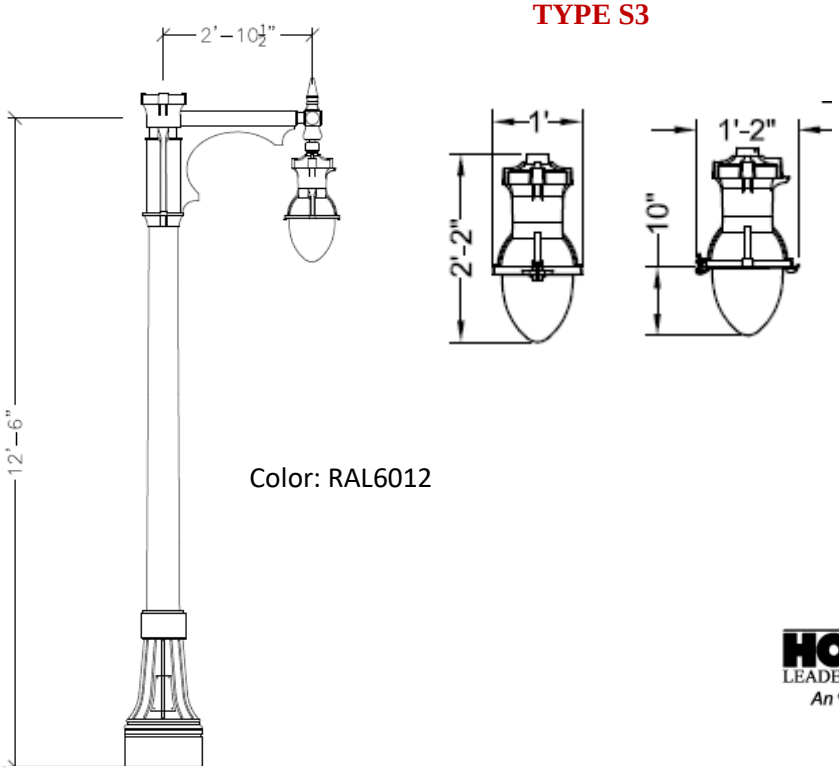
St. Lawrence Arts Addition Congress Street Portland, Maine

TYPE S3



Color: RAL6012

HOLOPHANE®
LEADER IN LIGHTING SOLUTIONS
An AcuityBrandsCompany

DESCRIPTION
The Esplanade Pedestrian luminaire is styled to replicate the "teardrop" luminaires that lighted boulevards in the first half of this century. Designed for light control and ease of installation and maintenance, the Esplanade Pedestrian has a precision optical system for true street lighting performance.

WIRING CHAMBER
The wiring chamber has either a 1.50 inch NPT and stainless steel set screw or a welded stem. The stem aids in installation speed. A three station terminal block will accept #16 through #2 wires and is prewired to one half of the plug assembly that connects to the removable electrical module.

ELECTRICAL / REFLECTOR ASSEMBLY
The unitized electrical assembly, composed of the electronic driver, surge protection device, and other selected components is mounted on a removable tray. The assembly is easily accessible by loosening the optical wing nut and opening the optical door. The disconnect plug connect the driver to the terminal block located in the upper housing wiring chamber. On the underside of the electrical assembly facing downward is the LED module, which is sealed to the door assembly cradling the glass lens.

MOUNTING STYLE (LEVELING FITTER OPTIONS)
The Quick Lock Stem Mounting style is compatible with the following leveling fitters:
- Boston Harbor Decorative Arm Fitter (BHDF13)
- GlasWerks Decorative Arm Fitter (GWDF13)
- West Liberty Decorative Arm Fitter (WLDF13)

LED MODULE / REFRACTOR DOOR ASSEMBLY
The cast aluminum door cradles a teardrop or shallow prismatic, thermal resistant borosilicate glass refractor that controls the light to provide the desired asymmetric or symmetric distribution. The refractor (and optional decorative skirts) hinges form the main electrical housing and is latched by a corrosion resistant, captive, wing nut assembly. There are two or three COB (Chip on Board) LED's (dependent upon wattage package desired) mounted to an aluminum heatsink for optimum thermal operating characteristics. The LED's are covered and sealed by individual borosilicate glass lens', designed to provide the appropriate asymmetric or symmetric distribution in conjunction with the main teardrop or shallow refractor.

DRIVER
LED 0-10V dimmable driver is standard.

FINISH / MATERIAL
The luminaire is finished with polyester powder paint to insure maximum durability. All castings utilize low copper aluminum for maximum corrosion resistance and all exposed hardware is stainless steel.

COVER TYPE
ESPL2 =
Esplanade Pedestrian LED

COLOR TEMPERATURE
30K = 3000 SERIES CCT
40K = 4000 SERIES CCT
50K = 5000 SERIES CCT

LED PERFORMANCE PACKAGE
(SEE PERFORMANCE TABLE FOR DETAILS)
P10 = 27 W (2 COB)
P20 = 38 W (2 COB)
P30 = 51 W (2 COB)
P40 = 77 W (3 COB)
P50 = 120 W (3 COB)

VOLTAGE
AS = AUTO-SENSING VOLTAGE (120 THRU 277V)
AH = AUTO-SENSING VOLTAGE (347 THRU 480V)

HOUSING COLOR
A = AS SPECIFIED
B = BLACK
N = GREEN
W = WHITE
Z = BRONZE

OPTICS
4 = TEARDROP ASYMMETRIC
5 = TEARDROP SYMMETRIC
6 = SHALLOW SYMMETRIC
7 = SHALLOW ASYMMETRIC

MOUNTING
P = 1.5 NPT PENDANT MOUNT
S[1] = QUICK LOCK STEM MOUNT

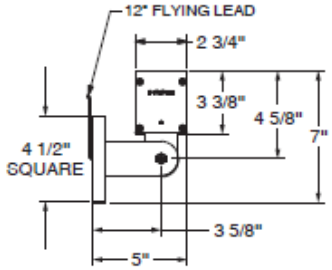
R = NEMA TWISTLOCK PHOTOCONTROL (PC) RECEPTACLE - 3 PIN

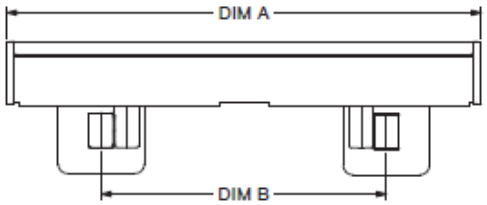
St. Lawrence Arts Addition Congress Street Portland, Maine

TYPE S4

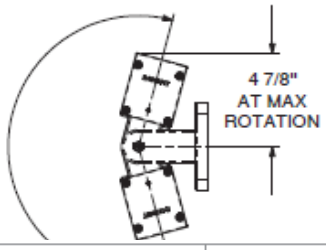
LENGTHS TO BE DETERMINED BY LOCATION

LEFT SIDE VIEW





RIGHT SIDE VIEW



PREFIX	WATTAGE W / FT	LED COLOR	OPTICS	MOUNTING	FIXTURE LENGTH	VOLTAGE/ WIRING METHOD	CONTROL OPTIONS	FINISH
MVWII MEDLEY VIEW II SERIES	RGB - TRI-CHROMATIC			CONCEALED WIRE MOUNTING OPTIONS (12" - 48" FIXTURES)			DMXFX = DMX Control Fixture Resolution DMXFT = DMX Control Foot By Foot Resolution Not available with 6W RGB or 12W RGB+W DMXSY = DMX Control System Resolution DMX controls are required. Order separately. Contact factory for Insight's wireless option.	TW = Textured White TBL = Textured Black TBR = Textured Bronze TLB = Textured Light Bronze TN = Textured Natural TS = Textured Sandstone CC = Custom Color ② ② Contact factory for custom colors. Additional charges will apply.
	6	RGB	100° = 100°X100°	SMSCW = Surface Mount EASCW-X = Extended Arm X = Arm Length CDSCW = Conduit Mount	12" 24" 36" 48"	INT1 = 120V Integral power supply INT2 = 277V Integral power supply Load not to exceed 16 amps.		
	9	RGB	12° = 12°X60° 20° = 20° X 60° 45° = 45°X60° 100° = 100°X100°					
	6W RGB: fixture control only							
	RGB - DISCREET			EXPOSED WIRE MOUNTING OPTIONS (24" - 48" FIXTURES)				
	17	RGBd	7° = 7° X 60° 15° = 15°X60° 30° = 30° X 60° 45° = 45°X60° 60° = 60° X 60° 100° = 100°X100°	SMS = Surface Mount SMSS = Surface Side Mount FMS = Fixed FMSS = Fixed Side Mount EAS-X = Extended Arm X = Arm Length EXA-S-X = Extended Arm Side Mount X = Arm Length CDS = Conduit Mount	24" 36" 48"	INT1 = 120V Integral power supply INT2 = 277V Integral power supply ACV1 = 120V feed thru wiring for plug and play connection for multiple fixture runs ① ACV2 = 277V feed thru wiring for plug and play connection for multiple fixture runs ① ① ACV1 & ACV2 require a Leader Cable at the beginning of a fixture run. See below.		
	RGB+W - TRI-CHROMATIC							
	12	RGB+W	100° = 100°X100°					
	RGB + W: RGB (tri-chromatic) plus 4000K (fixture control only)							
	RGBW - DISCREET							
	17	RGBWd	7° = 7° X 60° 15° = 15°X60° 30° = 30° X 60° 45° = 45°X60° 60° = 60° X 60° 100° = 100°X100°					

LPT	DMX PROGRAMMING TOOL: One LPT is required for field re-addressing of factory DMX settings.
CDS-A	DMX DISTRIBUTION KIT ONLY (4 OUTPUTS): CDS-A consists of four outputs. Each output accommodates up to 32 fixtures in INT/REM wiring methods and unlimited fixtures in ACV wiring method. Four terminators are included for use as required.

INSIGHT
SHAPING THE EXPERIENCE OF LIGHT®

Portland Maine Yes. Google's good here.

Jennifer Munson <jmy@portlandmaine.gov>

Fwd: St Lawrence Arts Center

1 message

Barbara Barhydt <bab@portlandmaine.gov> Mon, Jan 22, 2018 at 3:08 PM
To: "Munson, Jennifer" <jmy@portlandmaine.gov>, "Donaldson, Helen" <hcd@portlandmaine.gov>

Public comment for St. Lawrence ARts

Barbara Barhydt
Development Review Services Manager
Planning Division
389 Congress Street 4th Floor
Portland, ME 04101
(207) 874-8699
Fax: (207) 756-8256
bab@portlandmaine.gov

---------- Forwarded message ----------
From: **nini mc manamy** <ninimaine@aol.com>
Date: Mon, Jan 22, 2018 at 3:04 PM
Subject: St Lawrence Arts Center
To: sgo@portlandmaine.gov
Cc: Hilarydbassett@gmail.com, jlarry@portlandlandmarks.org, Karine Snyder <karsny@yahoo.com>, mswnola@gmail.com, "rob@whittenarchitects.com" <rob@whittenarchitects.com>, bab@portlandmaine.gov, alandsberg@aol.com, jhurley@cspinet.org, vana carmona <vanacarmona@gmail.com>

As a longtime fan of the Arts Center and its significant contribution to the community, I am pleased to see the project progressing. However it still presents considerable problems, all resolvable, as presented.

1. The parking and transportation plan is inadequate. I fully support staff recommendations. A three hour parking deal with a single garage is inadequate in length. While theatregoers can choose to park longer, they need more garage options.

As a neighborhood resident I am extremely concerned about the presence of large delivery vehicles and charter buses for extended periods of time. There is the matter of pollution from idling engines, the loss of highly coveted neighborhood parking, and traffic hazards. Commercial vehicles, including daytime delivery by catering or beer trucks, need to be restricted to curb parking and the same kind of restrictions imposed on city hall events.

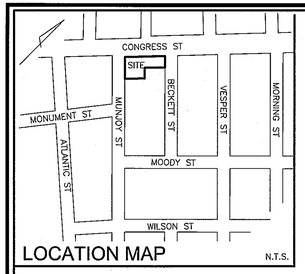
Finally, Metro service is unreliable. One needs to get to the show on time. Having an app that tells you how late the bus is doesn't solve this problem. Often I have tried to take Metro home from downtown, given up, and walked home on Congress St before the bus gets there. At night, this presents safety concerns. In addition, the lack of shelter at the stop nearest the Temple St garage makes the bus an unappetizing option in bad weather. I would note that the bus schedule doesn't specify the time the bus reaches the corner of Atlantic and Congress: if big cities can put arrival times on a stop sign, so can Metro. And something needs to be done to police sidewalk conditions much better.

2. With the ferment and momentum around preserving the built character of the Hill, the proposed building needs some tweaking with respect to surface treatment and roof lines. It is not clear what the surface material will be, but a corrugated metal siding or yellow brick would be grossly out of character with the existing built fabric of the neighborhood. Why is there no stone facing on this building, recalling not only the former church, but the current parish hall? Why is there no window work recalling the glorious stained glass of the church? No artwork? We have artists in this community who can create beautiful windows. Nothing about this building says Munjoy Hill—it is entirely generic and reminds me of Boston City Hall.

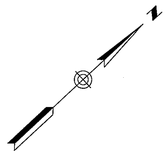
I hope that the Historic Preservation Commission can address some of the design concerns, but the Planning Board is influential and has considerable control over the impact of this facility on the neighborhood.

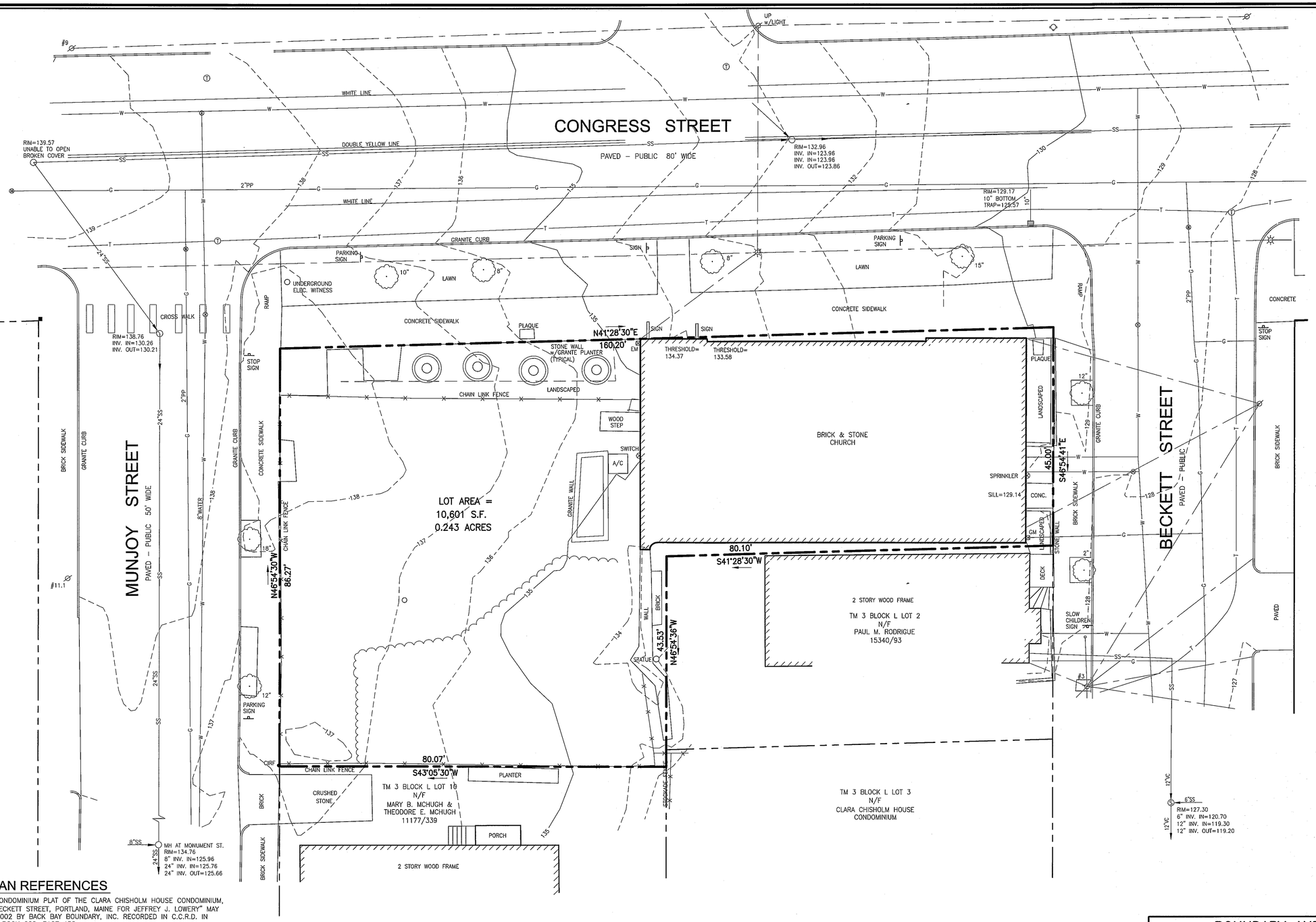
Thank you.
Sincerely,
Jean (Nini) McManamy
10 Willis St.

Sent from my iPad



LOCATION MAP N.T.S.





LEGEND

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- EM/GM ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- LIGHT POLE
- DECIDUOUS TREE
- FENCE
- CURB
- OHW OVERHEAD WIRES
- E UNDERGROUND POWER
- W WATER LINE
- G GAS LINE
- T TELEPHONE
- SD STORM DRAIN
- SS SANITARY SEWER
- 135 1' CONTOUR
- FFE FINISHED FLOOR ELEVATION
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK AND PAGE

GRAPHIC SCALE

0 5' 10' 20' 40'

PLAN REFERENCES

1. "CONDOMINIUM PLAT OF THE CLARA CHISHOLM HOUSE CONDOMINIUM, 94 BECKETT STREET, PORTLAND, MAINE FOR JEFFREY J. LOWERY" MAY 13, 2002 BY BACK BAY BOUNDARY, INC. RECORDED IN C.C.R.D. IN PLAN BOOK 202, PAGE 458.

2 "STANDARD BOUNDARY SURVEY OF THE ST. LAWRENCE ARTS & COMMUNITY CENTER, 66–76 CONGRESS STREET, PORTLAND, MAINE FOR THE FRIENDS OF THE ST. LAWRENCE CHURCH" OCT. 18, 2002 BY BACK BAY BOUNDARY, INC.

3 "SURVEY PLAT 'BECKETT ON THE PROM' CONDOMINIUMS, 99 BECKETT STREET, PORTLAND, MAINE MADE FOR CYNTHIA L. HOLMES" AUGUST 2, 2001 BY OWEN HASKELL, INC.

4 "PLAN OF BOUNDARY SURVEY, 59 MUNJOY STREET CONDOMINIUMS, 59 MUNJOY STREET, PORTLAND, MAINE MADE FOR PENINSULA PROPERTY DEVELOPMENT LLC" FEBRUARY 11, 2013 BY TITCOMB ASSOCIATES RECORDED IN C.C.R.D. PLAN BOOK 215, PAGE 355.

5. "EXISTING CONDITIONS PLAN, BECKETT STREET, WILSON STREET TO CONGRESS STREET, FOR CITY OF PORTLAND, MAINE PUBLIC SERVICES DEPARTMENT ENGINEERING DEPARTMENT" DECEMBER 16, 2014 BY OWEN HASKELL, INC.

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1–888–DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

GENERAL NOTES

1. OWNER OF RECORD: FRIENDS OF THE ST. LAWRENCE CHURCH, 76 CONGRESS STREET, PORTLAND, MAINE
CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 13333, PAGE 9
TAX MAP 3 BLOCK L LOT 1

2. BASIS OF BEARINGS: MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD83. BASED ON CITY MONUMENTS T102–69–7 AND T102–68–5.

3. ELEVATIONS ARE BASED ON NGVD 1929. BENCH MARK: MONUMENT WITH BOLT NORTHWEST CORNER OF MORNING AND WILSON STREETS ELEVATION 114.63.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE, WITH THE EXCEPTION OF MARKERS NOT SET AT ALL CORNERS.

9/28/16
DATE

JOHN W. SWAN, PLS NO. 1038

STATE OF MAINE
JOHN W. SWAN
NO. 1038
PROFESSIONAL
LAND SURVEYOR

BOUNDARY AND TOPOGRAPHIC SURVEY

OF

SAINT LAWRENCE ARTS CENTER
66 CONGRESS STREET, PORTLAND, MAINE
MADE FOR
ARCHETYPE, P.A.

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207) 774–0424

Drawn By RS	Date MARCH 23, 2016	Job No. 2016–045 P
Trace By JLW		
Check By JWS	Scale 1" = 10'	Drwg. No. 1
Book No. FILE		

CITY OF PORTLAND SITE PLAN NOTES

1. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
2. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS AND LOCATION AND SIZE OF BUILDINGS.
3. ALL POWERLINE UTILITIES SHALL BE UNDERGROUND FROM THE EXISTING SERVICE POLE.
4. SIDEWALKS AND CURBING SHALL BE DESIGNED AND BUILT WITH TIPDOWN RAMPS AT ALL STREET CORNERS, CROSSWALKS AND DRIVEWAYS IN CONFORMANCE WITH THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
5. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.
6. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
7. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES (SEE ABOVE).
8. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORK'S REPRESENTATIVE AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
9. EXISTING VEGETATION SHALL BE CONSERVED IN AREAS SHOWN ON THIS SITE. FENCING OR OTHER PROTECTIVE BARRIERS SHALL BE ERECTED OUTSIDE THE DRIP-LINE OF INDIVIDUAL, GROUPINGS OF TREES DESIGNATED FOR PRESERVATION PRIOR TO THE ONSET OF CONSTRUCTION. REGRADING SHALL NOT TAKE PLACE WITHIN THE DRIP-LINE OF TREES DESIGNATED FOR PRESERVATION. NO STORAGE OR CONSTRUCTION MATERIALS SHALL BE PERMITTED WITHIN THE DRIP-LINE OF TREES TO BE PRESERVED.

ZONE INFORMATION

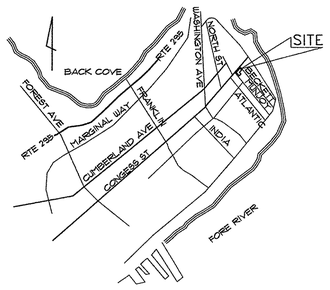
EXISTING ZONE: CSB (UNDERLYING ZONE: R-6)
EXISTING USE: PERFORMING ARTS HALL

SPACE STANDARDS	REQUIRED	PROVIDED
MINIMUM LOT SIZE	10,000 SF.	10,601 SQ. FT.
MINIMUM FRONT YARD	0 FEET	0 FEET
MINIMUM REAR YARD	0 FEET	3 FEET
MINIMUM SIDE ON A SIDE STREET	0 FEET	0 FEET
MAXIMUM LOT COVERAGE	95%	92%
MAXIMUM TOWER HEIGHT	NA	-
MAXIMUM SANCTUARY STRUCTURE HEIGHT	54 FEET	EXISTING
OPEN SPACE RATIO	0%	0%
MINMUM LOT WIDTH	50 FEET	160 FEET

WAIVERS

1. WAIVER REQUESTED FOR MINIMUM DRIVEWAY SEPARATION ON MUNJOY STREET, TECHNICAL MANUAL, SECTION 1.7.2.7

   THE PLANNING BOARD VOTED TO APPROVE THE REDUCTION IN THE DRIVEWAY SEPARATION ON MUNJOY STREET TECHNICAL MANUAL SECTION 1.7.2.7.



LOCATION PLAN

SCALE: 1"=250'±

GENERAL NOTES

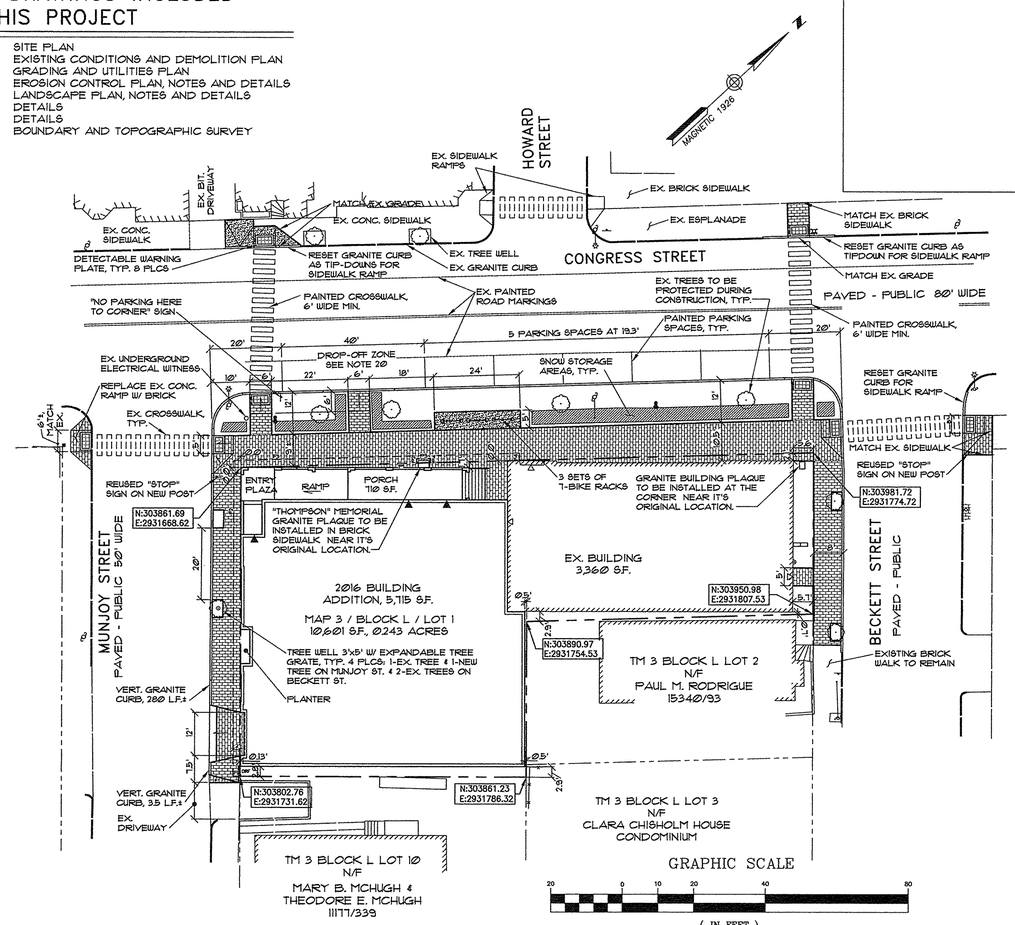
1. OWNER/APPLICANT: FRIENDS OF THE ST. LAWRENCE CHURCH, 76 CONGRESS STREET PORTLAND MAINE 04101. DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BK. 13333, PG. 9, DATED SEPTEMBER 19, 1997.
2. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
3. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE, 04101
4. TOPOGRAPHIC AND BOUNDARY INFORMATION: OWEN HASKELL, INC. 390 US ROUTE ONE, FALMOUTH, MAINE. BENCHMARK: MONUMENT WITH BOLT NORTHWEST CORNER OF MORNING AND WILSON STREETS ELEVATION 114.63. BASIS OF BEARINGS: MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD83. BASED ON CITY MONUMENTS T102-69-1 AND T102-68-5.
5. SOILS MAPPING TAKEN FROM SOIL CONSERVATION STUDY OF CUMBERLAND COUNTY AND CLASSIFIED AS HINCKLEY (HIB), GRAVELLY SANDY LOAM, 3-8% SLOPES, HYDROLOGICAL GROUP "A".
6. TAX MAP REFERENCE: MAP 3 / BLOCK L / LOT 1.
7. TOTAL PARCEL = 0.243 acres
8. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 1-800-DIG-SAFE.
9. ALL WORK WITHIN THE RIGHT OF WAY IS TO MEET CITY OF PORTLAND STANDARDS.
10. BUILDING TO BE SERVICED BY PUBLIC WATER AND SEWER. THESE SERVICES, INCLUDING EXISTING HYDRANTS, ARE AS SHOWN ON SHEET C1.4, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND. THESE SERVICES ARE SHOWN ON SHEET C1.4, GRADING AND UTILITIES PLAN.
12. EXISTING UTILITIES, INCLUDING SIZE AND VERTICAL AND HORIZONTAL LOCATIONS, ARE SHOWN ON SHEET C1.4, GRADING AND UTILITIES PLAN.
13. THERE ARE NO APPARENT PERMANENT ONSITE EASEMENTS OR RESTRICTIONS BURDENING OR BENEFITING THE SUBJECT PROPERTY.
14. THE EXISTING ONSITE STRUCTURE IS LISTED BY THE CITY OF PORTLAND AS A HISTORIC LANDMARK. NO OTHER STRUCTURES OR HISTORIC SITES ON OR ADJACENT TO THIS SITE APPEAR ON OR ARE NOMINATED TO THE NATIONAL REGISTER.
15. THE SUBJECT PARCEL SHOWN AS 76 CONGRESS STREET IS SUBJECT TO THE CITY OF PORTLAND LEVEL III SITE PLAN DEVELOPMENT REVIEW APPLICATION.
16. REQUIRED STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR ST. LAWRENCE ARTS ADDITION SITE PLAN.
17. FLOODPLAIN: THIS PROPERTY SHOWN ON FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 2300151 0014 A, EFFECTIVE DATE JULY 17, 1986. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
18. THIS PROJECT COMPLIES WITH CONDITIONS OF PORTLAND CODE OF ORDINANCES, CHAPTER 32 STORMWATER, INCLUDING ARTICLE III, POST-CONSTRUCTION STORMWATER MANAGEMENT. THE DEVELOPER/CONTRACTOR/SUBCONTRACTORS MUST COMPLY WITH CONDITIONS OF THE CONSTRUCTION STORMWATER MANAGEMENT PLAN AND SEDIMENT & EROSION CONTROL PLAN BASED ON CITY STANDARDS AND STATE GUIDELINES. SEE SHEET C1.4, GRADING AND UTILITIES PLAN, FOR THE LIST OF INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES REQUIREMENTS.
19. EXISTING TREE PRESERVATION AND PROTECTION MEASURES ARE TO BE UNDERTAKEN IN ACCORDANCE WITH THE STANDARDS SHOWN ON SHEET L1.0, LANDSCAPE IMPROVEMENT PLAN.
20. THE PARKING SPACE AT THE DROP-OFF ZONE SHALL BE MARKED WITH MOVEABLE SIGNS DURING PERFORMANCES. ALL OTHER TIMES IT WILL BE TWO REGULAR SPACES.

SITE PLAN CONDITIONS OF APPROVAL

PLANNING BOARD CONDITIONS OF APPROVAL PER THE CITY OF PORTLAND PLANNING BOARD REVIEW MEMO DATED:

SITE DRAWINGS INCLUDED IN THIS PROJECT

C1.1 SITE PLAN
C1.2 EXISTING CONDITIONS AND DEMOLITION PLAN
C1.3 GRADING AND UTILITIES PLAN
C1.4 EROSION CONTROL PLAN, NOTES AND DETAILS
C1.5 LANDSCAPE PLAN, NOTES AND DETAILS
C2.1 DETAILS
C2.2 DETAILS
1 BOUNDARY AND TOPOGRAPHIC SURVEY



GRAPHIC SCALE

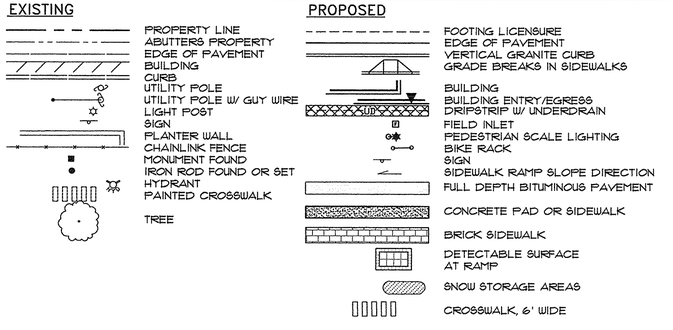
20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

SITE PLAN NOTES

1. EX. PINK GRANITE CURB TO BE RESET AS NECESSARY ALONG MUNJOY, BECKETT AND CONGRESS STREETS.
2. 2-DOWNTOWN DISTRICT PEDESTRIAN SCALE STREETLIGHTS TO BE SET IN THE CONGRESS STREET ESPLANADE.
3. NOTIFY THE CITY OF PORTLAND ARBORIST 5 DAYS PRIOR TO REMOVING THE EXISTING TREES.
4. CONTRACTOR IS TO TAKE CARE TO ACTUALLY SAVE THE TREES DESIGNATED TO REMAIN WITH THE HELP OF GOOD TREE PROTECTION MEASURES. PROTECTION MEASURES ARE TO BE PLACED PRIOR TO ANY CONSTRUCTION OR SITE WORK. CONSTRUCTION FENCING IS TO BE USED TO SEPARATE THE ESPLANADE AREA FROM THE CONSTRUCTION AREA AND TO PREVENT STORAGE OF EQUIPMENT OR MATERIALS UNDER OR AROUND THE EXISTING TREES.

LEGEND



EASEMENTS & LICENSES

1. PROPOSED TEMPORARY EASEMENT: CONSTRUCTION EASEMENT FROM CITY OF PORTLAND TO THE FRIENDS OF ST. LAWRENCE CHURCH.
2. PROPOSED LICENSE: FROM THE CITY OF PORTLAND TO THE FRIENDS OF ST. LAWRENCE CHURCH FOR BUILDING FOOTINGS.
3. PROPOSED LICENSE: FROM THE CITY OF PORTLAND TO THE FRIENDS OF ST. LAWRENCE CHURCH FOR "THOMPSON" MEMORIAL PLAQUE PLACEMENT.

FOOTING LICENSE

LINE	BEARING	DISTANCE
F1	S 43°05'30" W	2.00'
F2	N 46°54'30" W	88.21'
F3	N 41°28'30" E	80.00'
F4	S 46°54'30" E	2.00'

PLAQUE LICENSE

LINE	BEARING	DISTANCE
P1	N 41°28'30" E	49.14'
P2	N 46°59'46" W	1.19'
P3	N 43°00'14" E	4.00'
P4	S 46°59'46" E	1.09'

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE., PORTLAND, ME. 04103
TEL: 207.780.0466 FAX: 207.780.0495

STATE OF MAINE — THOMAS JOSEPH GREER — No. 4206 — LICENSED PROFESSIONAL ENGINEER

11/9/18

REV.	DATE	DESCRIPTION
5	1/19/18	REMOVE SIGN REFERENCE FOR DROP-OFF ZONE
4	12/7/17	REV'D PER CITY COMMENTS
3	11/3/17	REV'D FOR FINAL REVIEW
2	7/21/17	REV'D PER CITY REVIEW COMMENTS 5/23/17
1	4/20/17	REV'D SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

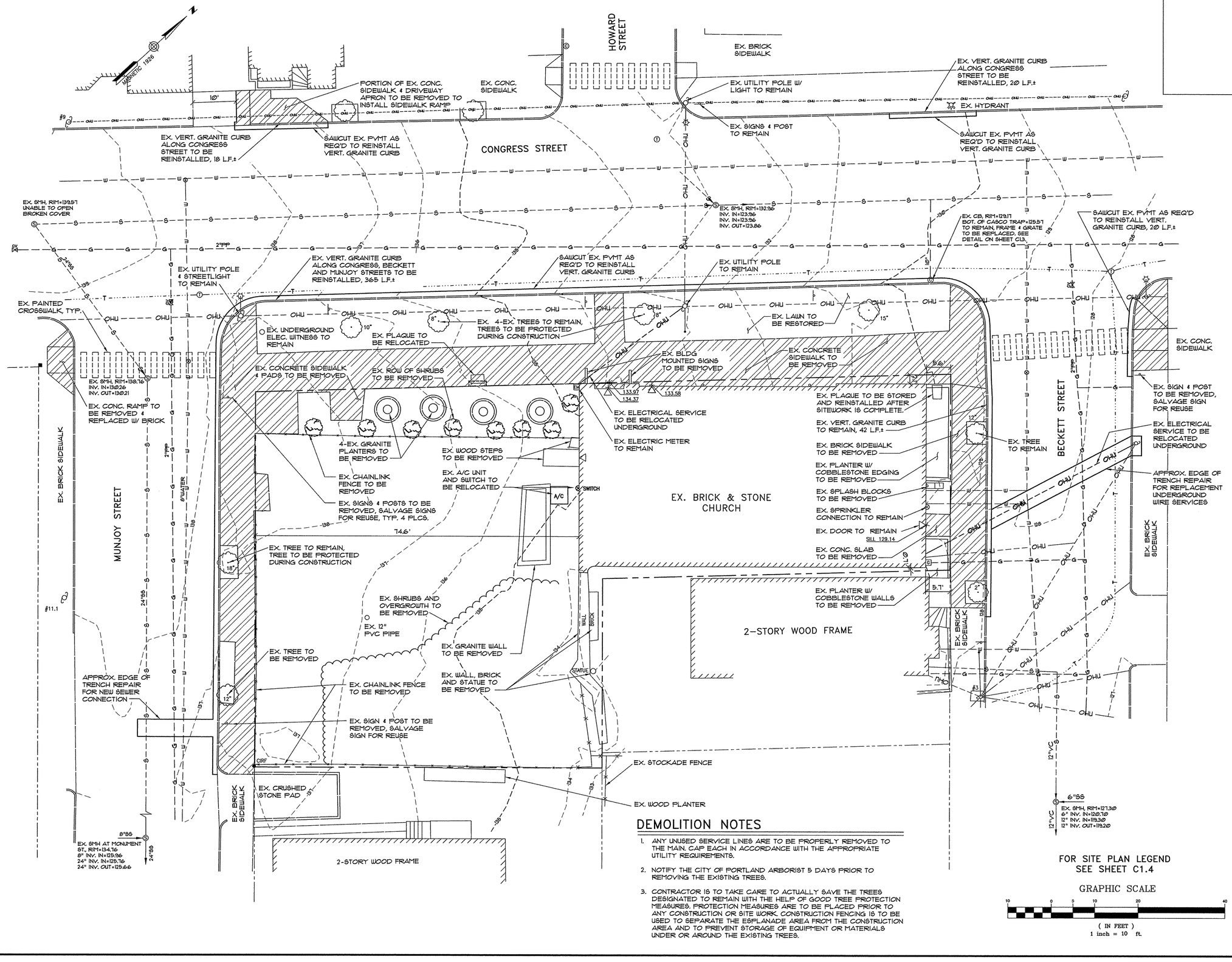
SCALE: AS SHOWN
DATE: OCTOBER 4, 2016
PROJECT: 16107
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

SITE PLAN

C1.1

MAP/LOT /BLOCK 3/L/1



DEMOLITION NOTES

1. ANY UNUSED SERVICE LINES ARE TO BE PROPERLY REMOVED TO THE MAIN. CAP EACH IN ACCORDANCE WITH THE APPROPRIATE UTILITY REQUIREMENTS.
2. NOTIFY THE CITY OF PORTLAND ARBORIST 5 DAYS PRIOR TO REMOVING THE EXISTING TREES.
3. CONTRACTOR IS TO TAKE CARE TO ACTUALLY SAVE THE TREES DESIGNATED TO REMAIN WITH THE HELP OF GOOD TREE PROTECTION MEASURES. PROTECTION MEASURES ARE TO BE PLACED PRIOR TO ANY CONSTRUCTION OR SITE WORK. CONSTRUCTION FENCING IS TO BE USED TO SEPARATE THE ESPLANADE AREA FROM THE CONSTRUCTION AREA AND TO PREVENT STORAGE OF EQUIPMENT OR MATERIALS UNDER OR AROUND THE EXISTING TREES.

PINKHAM & GREER
CIVIL ENGINEERS
28 WAINWAY AVE, PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE — THOMAS S. GREER No. 10078 — LICENSED PROFESSIONAL ENGINEER — REGISTERED
12/7/17

REV.	DATE	DESCRIPTION
4	12/7/17	REV'D PER CITY COMMENTS
3	11/3/17	REV'D PER FINAL REVIEW
2	7/21/17	REV'D PER CITY REVIEW COMMENTS 5/23/17
1	4/20/17	REV'D SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

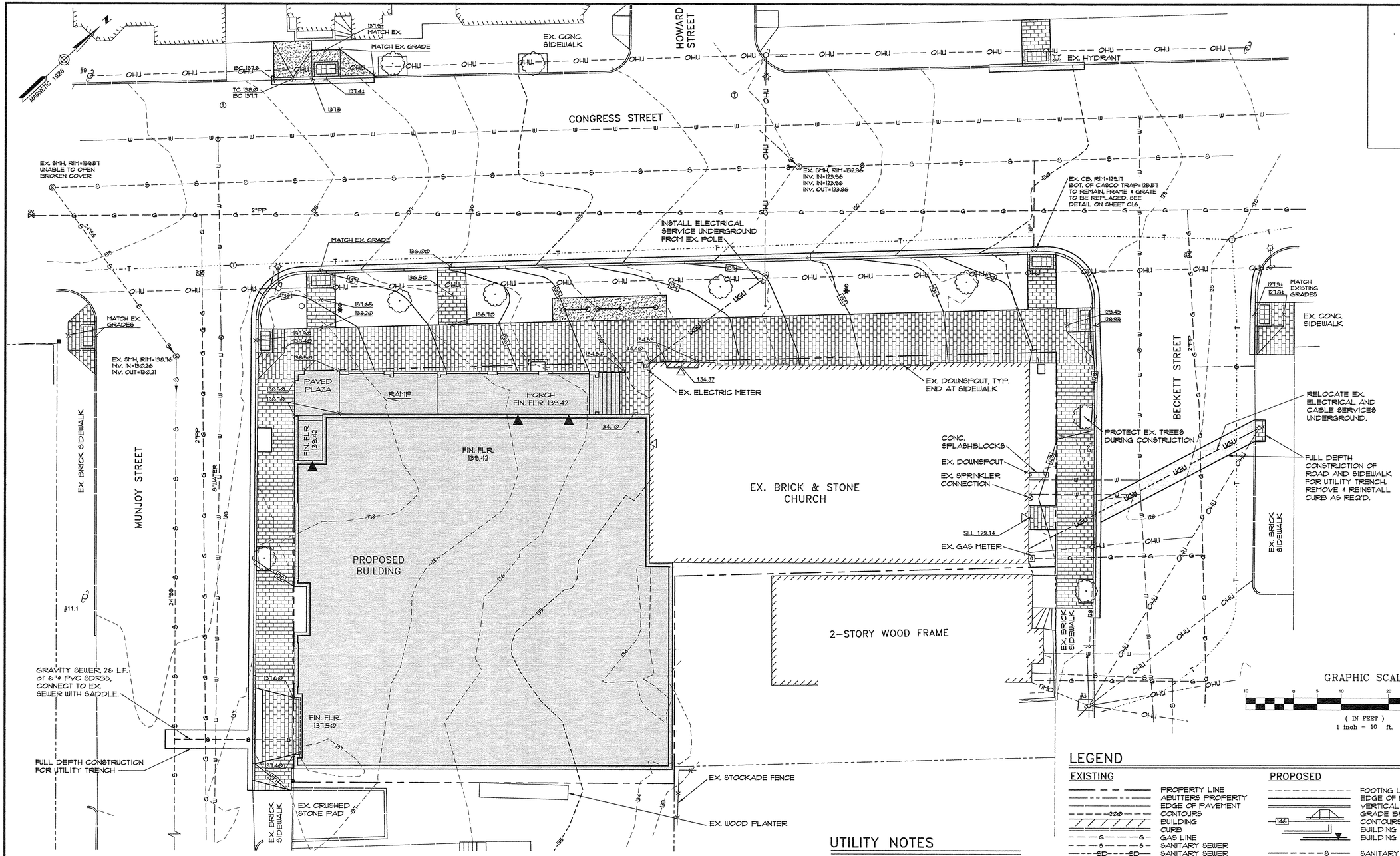
SCALE: AS SHOWN — DRN BY: JDC
DATE: OCTOBER 4, 2016 — DESG BY: TSG
PROJECT: 16107 — CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

EXISTING CONDITIONS AND DEMOLITION PLAN

C1.2

MAP/LOT /BLOCK 3/L/1



UTILITY NOTES

1. SPRINKLER SERVICE AND WATER SERVICE TO BE EXTENDED FROM EXISTING BUILDING.
2. NEW 6" SEWER SERVICE TO MUNJOY ST.
3. ELECTRIC, TELEPHONE & CABLE SERVICES TO BE RELOCATED UNDERGROUND FROM AN EXISTING POLE.

LEGEND

EXISTING		PROPOSED	
	PROPERTY LINE		FOOTING LICENSURE
	ABUTTERS PROPERTY		EDGE OF PAVEMENT
	EDGE OF PAVEMENT		VERTICAL GRANITE CURB
200	CONTOURS		GRADE BREAKS IN SIDEWALKS
	BUILDING	146	CONTOURS
	CURB		BUILDING
G G	GAS LINE		BUILDING ENTRY/EGRESS
S S	SANITARY SEWER		
SD SD	SANITARY SEWER	S S	SANITARY SEWER
OHU	OVERHEAD UTILITY	SD SD	STORMDRAIN
UGU	UNDERGROUND UTILITY	UGU	UNDERGROUND UTILITY
T	UNDERGROUND TELEPHONE		DRIPSTRIP W/ UNDERDRAIN
W	WATER LINE	× 145.5	SPOT GRADE
86.4 +	SPOT GRADE	TC 145.58 BC 145.08	TOP OF CURB/BOTTOM OF CURB SPOT GRADE
	CATCH BASIN		FIELD INLET
	DRAIN MANHOLE		PEDESTRIAN SCALE LIGHTING
T	TELEPHONE OR ELECTRICAL MANHOLE		BIKE RACK
S	SEWER MANHOLE		SIGN
	WATER VALVE PIT		FULL DEPTH BITUMINOUS PAVEMENT
EM	ELECTRIC METER		
G	GAS METER		CONCRETE PAD OR SIDEWALK
	UTILITY POLE		
	UTILITY POLE W/ GUY WIRE		BRICK SIDEWALK
	LIGHT POST		
	SIGN		DETECTABLE SURFACE AT RAMP
	PLANTER WALL		
	CHAINLINK FENCE		SNOW STORAGE AREAS
	MONUMENT FOUND		
	IRON ROD FOUND OR SET		BARKMULCH BED
	HYDRANT		
	GATE VALVE		
	GAS VALVE		
	TREE		

PINKHAM & GREER
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STATE OF MAINE
THOMAS S. GREER No. 4220
REGISTERED PROFESSIONAL ENGINEER
1/18/18

REV.	DATE	DESCRIPTION
6	1/18/18	REMOVED OBSOLETE STORMDRAIN REFERENCES
5	12/22/17	RELOCATED SIDEWALK RAMP DETAILS TO SHEET C1.6
4	12/7/17	REV'D PER CITY COMMENTS
3	11/3/17	REV'D PER FINAL REVIEW
2	7/21/17	REV'D PER CITY REVIEW COMMENTS 5/23/17
1	4/20/17	REV'D SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN DRN BY: JDC
DATE: OCTOBER 4, 2016 DESG BY: TSG
PROJECT: 16107 CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

GRADING AND UTILITIES PLAN

C1.3

MAP/LOT /BLOCK 3/L/1

EROSION CONTROL NOTES

GENERAL:

THE DRAWINGS DEPICT THE REQUIRED SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE IN SUCH A MANNER THAT:

1. SOIL EROSION IS KEPT TO A MINIMUM.
2. NO SEDIMENT LEAVES THE CONSTRUCTION SITE PROPER.
3. ALL POSSIBLE MEASURES ARE EMPLOYED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE COURSES AND WETLANDS EVEN BEYOND THE DETAILS SHOWN ON THIS PLAN IF NECESSARY.

1. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.
2. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATERBODIES, OR WETLAND AS A RESULT OF THIS PROJECT.
3. LOAM AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE, BUT NO LONGER THAN 7 DAYS. LOAM AND SEED ANY DISTURBED AREA WITHIN 75' OF WETLANDS OR WATERBODEIS WITHIN 48 HOURS OR PRIOR TO AND STORM EVENT. USE WINTER SEED RATES AND SPECIFICATIONS IF APPROPRIATE.
4. INSPECT SOIL EROSION MEASURES WEEKLY AND AFTER SIGNIFICANT STORM EVENTS. MAKE ALL NECESSARY REPAIRS TO FACILITIES AS SOON AS POSSIBLE, BUT NO LONGER THAN 2 DAYS. CLEAN AND RESET SILT FENCES AND STONE CHECK DAMS WHICH ACCUMULATE SEDIMENT AND DEBRIS.
5. PROTECT AND STABILIZE ALL AREAS NOT SCHEDULED FOR EROSION PREVENTION OR STABILIZATION BUT THAT SHOW SIGNS OF EROSION. NOTIFY OWNER OF ANY SIGNIFICANT EROSION PROBLEM.
6. APPLY MULCH TO BARE SOILS WITHIN 7 DAYS OF INITIAL DISTURBANCE OF SOILS, WITHIN 48 HOURS IF WITHIN 75' OF WETLAND OR WATERBODY, PRIOR TO ANY RAIN EVENT, OR PRIOR TO ANY WORK SHUTDOWN LASTING MORE THAN ONE DAY.
7. TEMPORARILY SEED WITHIN 7 DAYS ANY AREA WHICH WILL BE LEFT DISTURBED AND UNWORKED FOR MORE THAN 14 DAYS WITH THE TEMPORARY SEED MIX LISTED BELOW. IF AREA IS WITHIN 75' OF A WETLAND OR WATERBODY, SEED WITHIN 48 HOURS. PERMANENTLY SEED ANY AREA WHICH CAN BE LOAMED AS SOON AS POSSIBLE WITH THE PERMANENT SEED MIX LISTED BELOW. DO NOT USE PERMANENT SEED MIX AFTER SEPTEMBER 15.
8. MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. DURING THE GROWING SEASON (APRIL 15 - SEPT. 30) USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
   -THE BASE OF GRASSED WATERWAYS
   -SLOPES STEEPER THAN 15%
   -WITHIN 1000 FT. OF STREAMS AND WETLANDS
   BETWEEN OCT. 1 AND APRIL 14 USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
   -SIDE SLOPES OF GRASSED WATERWAYS
   -SLOPES STEEPER THAN 8%
9. FOLLOW SILT FENCE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR INSTALLATION OF SILT FENCE. SECURE ENTIRE BOTTOM OF FENCE EITHER BY BURYING BOTTOM OF FENCE IN A TRENCH OR BERMING WITH SOIL OR CHIPPED GRUBBINGS. REFER TO SILT FENCE DETAILS.
10. PLACE AND GRADE LOAM IN A REASONABLY UNIFORM MANNER. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEED BED IS PREPARED. REMOVE FROM SURFACE ALL STONES LARGER THAN 2" AND ALL OTHER UNSUITABLE MATERIAL. LIME AND FERTILIZER SHOULD BE MIXED INTO SOIL PRIOR TO ROLLING EXCEPT IF INCLUDED IN HYDROSEED MIXTURE. PERMANENT STABLILIZATION OF REVEGETATED AREAS IS CONSIDERED AS 90% CATCH.
11. ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT SACKS DURING CONSTRUCTION.
12. ALL CITY STREETS AND SIDEWALKS ARE TO BE SWEPT AND KEPT CLEAN FOR ANY SOIL SEDIMENT TRACKED ON THEM FROM THE PROJECT.

TOPSOIL:

1. SUITABLE TOPSOIL SALVAGED FROM SITE OR SCREENED, LOOSE AND FRIABLE SANDY LOAM OR LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE CLASSIFICATION SYSTEM, FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS, ROOTS, WEEDS, RHIZOMES OR OTHER UNDESIREABLE FOREIGN MATTER AS DETERMINED BY THE INSPECTING AUTHORITY. CONTRACTOR SHALL SUBMIT REPORTS OF LOAM TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY FOR TOPSOIL FROM DIFFERENT SOURCES PRIOR TO PLACING. THE COST OF TESTING SHALL BE INCIDENTAL TO THE COST OF TOPSOIL. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
2. MATERIAL

   SAND - 0.08 IN. TO 0.002 IN. DIAMETER (% BY VOLUME) ..... 45 - 75
   SILT - 0.002 IN. TO 0.00008 IN. DIAMETER (% BY VOLUME) ... 20 - 40
   CLAY - LESS THAN 0.00008 IN. DIAMETER (% BY VOLUME) .... 5 - 15

   ORGANICS (SHALL MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION 717.03 PEAT HUMUS) (% BY VOLUME) . 10 - 20

   NUTRIENTS:
   CALCIUM (CA) (% SATURATION) ..... 60 - 80
   MAGNESIUM (MG) (% SATURATION) ..... 10 - 25
   POTASSIUM (K) (% SATURATION) ..... 2.1 - 3.0
   PHOSPHORUS (P) (POUNDS/ACRE) ..... 10 - 40
   PH ..... 6.0 - 6.5

   PERMEABILITY (INCHES PER HOUR) ..... 3 - 10

   MAXIMUM STONE SIZE (INCHES) 3/4

SEEDING:

USE PERMANENT SEED MIXES AND RATES BETWEEN 5/15 AND 9/30. USE TEMPORARY SEED MIXES FOR PERIODS LESS THAN 12 MONTHS. IF USING TEMPORARY SEED MIXES AND RATES BETWEEN 10/1 AND 5/14, RE-SEED WITH PERMANENT SEED MIX AFTER 5/15.

PERMANENT SEED:

MDOT 717.03(a) METHOD NUMBER 3

TEMPORARY SEED:

OATS	80.00 LBS/ACRE	4/01 - 5/14
ANNUAL RYEGRASS	40.00 LBS/ACRE	
SUDANGRASS	40.00 LBS/ACRE	5/15 - 8/14
ANNUAL RYEGRASS	80.00 LBS/ACRE	5/15 - 9/14
WINTER RYE	112.00 LBS/ACRE	9/15 - 9/30
WINTER RYE (W/ MULCH COVER)	112.00 LBS/ACRE	10/01 - 3/31

LIME AND FERTILIZER:

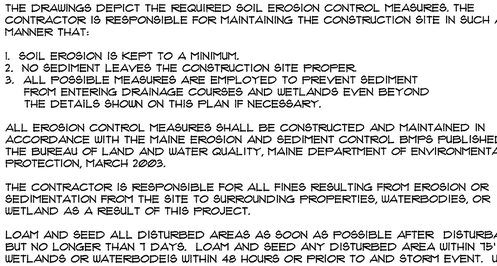
APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 POUNDS PER 1000 SQUARE FEET). APPLY FERTILIZER (10-20-20) AT A RATE OF 800 POUNDS PER ACRE (18.4 POUNDS PER 1000 SQUARE FEET).

MULCH:

STRAW OR HAY (ANCHORED)	70 - 90 LBS	PROTECTED AREAS
STRAW OR HAY (ANCHORED)	185 - 275 LBS	WINDY AREAS
SHREDDED OR CHOPPED	185 - 275 LBS	
JUTE MESH	AS REQUIRED	MODERATE TO HIGH VELOCITY AREAS & STEEP SLOPES
EXCELSIOR MAT	AS REQUIRED	

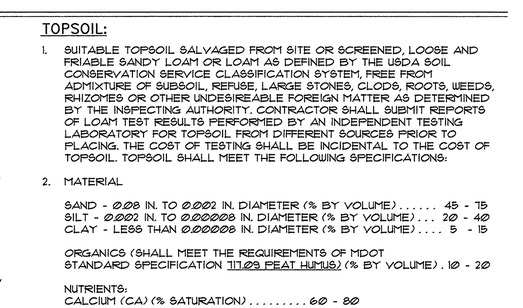
MULCH ANCHORING

PEG AND TWINE	LIQUID ASPHALT
MULCH NETTING	WOOD CELLULOSE FIBER
ASPHALT EMULSION	CHEMICAL TACK



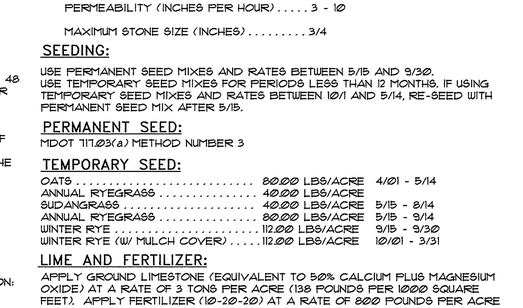
3 CATCH BASIN PROTECTION

NOT TO SCALE



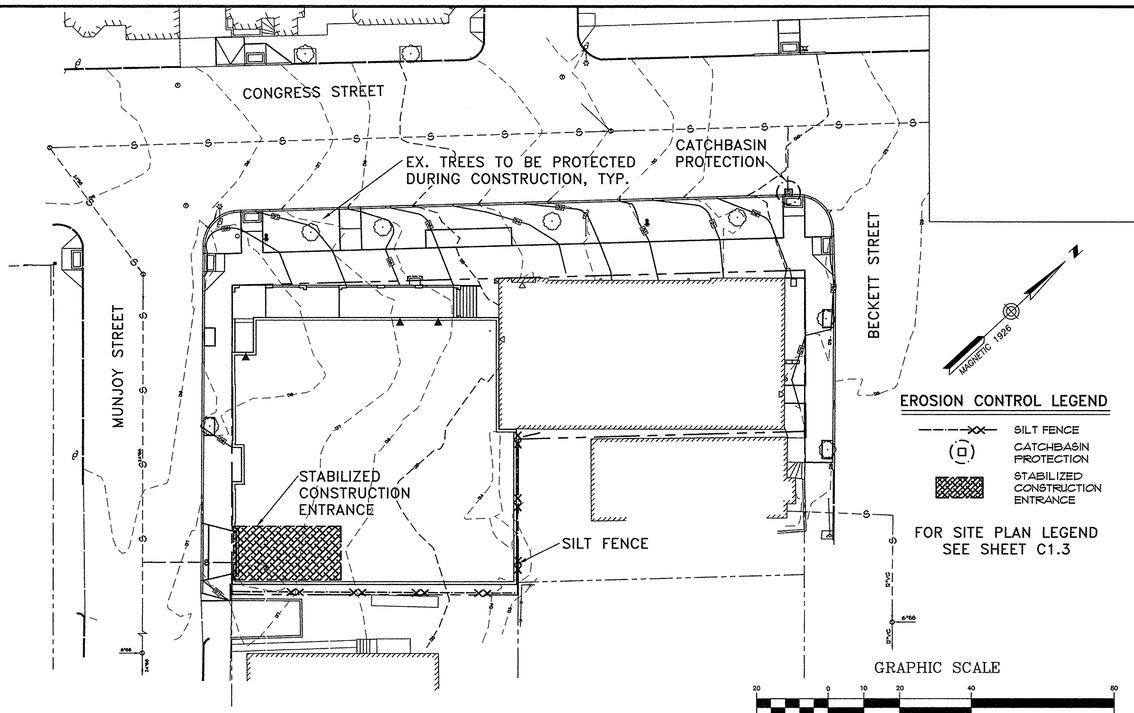
2 SILT FENCE DETAIL

NOT TO SCALE



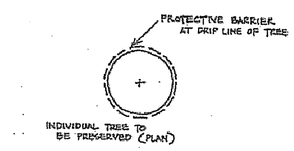
4 STABILIZED CONSTRUCTION ENTRANCE DETAIL

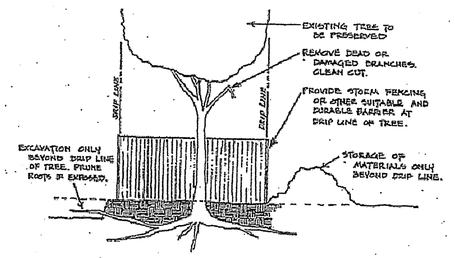
NOT TO SCALE



EROSION CONTROL PLAN

SCALE: 1"=20'





1 TREE PRESERVATION DETAIL (IV-2)

NOT TO SCALE

HOUSEKEEPING NOTES

THIS PROJECT IS LOCATED IN A RESIDENTIAL ZONE. PROTECTION OF THE GROUNDWATER AND SURFACE WATER QUALITY IS ENSURED BY HAVING GOOD HOUSEKEEPING PRACTICES AND MAINTENANCE OF THE STORMWATER SYSTEMS. SPILL PREVENTION MUST BE INCORPORATED INTO THE PLAN. THE FACILITY SHOULD FOLLOW THE FOLLOWING STEPS:

1. IDENTIFY ANY PRODUCTS THAT IF SPILLED WILL CREATE CONTAMINATION OF THE GROUNDWATER.
2. MAINTAIN A LIST OF THE MATERIALS AND KEEP THE MSDS SHEETS AVAILABLE TO ALL EMPLOYEES.
3. IF PETROLEUM PRODUCTS ARE STORED ON SITE, KEEP ABSORBENT PADS AVAILABLE FOR USE IN CLEAN UP.
4. POST THE NAMES AND CONTRACT INFORMATION FOR THE EMPLOYEE RESPONSIBLE FOR ENVIRONMENTAL MATTERS AND THE NAMES AND CONTACT INFORMATION OF COMPANIES TO BE CALLED IN THE EVENT OF A SPILL.
5. AS PART OF EMPLOYEE TRAINING, INFORM EMPLOYEES OF THE PROCEDURES FOR RESPONSE TO ENVIRONMENTAL MATTERS.

THE MAINTENANCE OF THE LANDSCAPING AND PARKING AREA SHOULD INCLUDE REMOVAL OF THE MATERIALS THAT MAY CAUSE DUST.

DURING CONSTRUCTION FOLLOW THE EROSION CONTROL MEASURES OUTLINED ON THE PLANS.

DURING CONSTRUCTION, DEVELOP A WASTE HANDLING PROGRAM THAT IDENTIFIED POTENTIAL CONTAMINATES THAT COULD BE INTRODUCED TO THE ENVIRONMENT. FOLLOW HAZARDOUS WASTE RULES IF ANY ITEMS USED ARE CONSIDERED A HAZARDOUS WASTE. IT IS CRITICAL TO THE SITE THAT UNCONTROLLED RELEASES BE PREVENTED.

THIS SITE WILL NOT REQUIRE DEWATERING OF TRENCHES. DURING CONSTRUCTION, MONITOR STORMWATER RUNOFF FROM THE EQUIPMENT AND GROUND AREAS TO MINIMIZE CONTAMINATION OF GROUNDWATER.

SUGGESTED SEQUENCE OF CONSTRUCTION TO CONTROL EROSION:

THIS SEQUENCE OF CONSTRUCTION IS A GENERAL GUIDE TO THE CONTRACTOR. ACTUAL CONSTRUCTION PRACTICES WILL DICTATE VARIATIONS IN THE ORDER OF MAJOR EVENTS.

1. INSTALL PERIMETER SILT FENCE.
2. DEMOLISH EXISTING BUILDING.
3. CLEAR AND GRUB WORK AREAS. TEMPORARILY SEED AREAS NOT TO BE WORKED ON WITHIN 14 DAYS.
4. BEGIN EARTHWORK FOR BUILDING FOUNDATION.
5. STABILIZE AREAS DRAINING TO STORMDRAIN SYSTEM.
6. CONNECT STORMDRAIN SYSTEM TO EXISTING SYSTEM.
7. BEGIN BUILDING CONSTRUCTION.
8. FINE GRADE SIDEWALKS AND ROUGH GRADE REMAINDER OF SITE.
9. RESEED OR TEMPORARILY SEED ANY AREA WHICH WILL BE LEFT UNDISTURBED FOR MORE THAN 14 DAYS.
10. COMPLETE FINE GRADING AND INSTALLATION OF SIDEWALKS AND STREET PAVEMENT.
11. CLEAN STORMDRAIN SYSTEM OF CONSTRUCTION SEDIMENTATION.
12. FINE GRADE, LOAM, SEED AND FERTILIZE REMAINDER OF SITE.
13. REMOVE TEMPORARY SOIL EROSION MEASURES.

PINKHAM & GREER
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TEL. 207.781.5242 FAX. 207.781.4293

STATE OF MAINE — THOMAS GREER No. 4206 — LICENSED PROFESSIONAL ENGINEER

11/9/18

REV.	DATE	DESCRIPTION
4	1/16/18	ADDED STABILIZED CONSTRUCTION ENTRANCE
3	12/7/17	REVD PER CITY COMMENTS
2	7/21/17	REVD PER CITY REVIEW COMMENTS 5/23/17
1	4/20/17	REVD SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN — DRN BY: JDC
DATE: OCTOBER 4, 2016 — DESG BY: TSG
PROJECT: 16107 — CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

EROSION CONTROL PLAN, NOTES AND DETAILS

C1.4

MAP/LOT /BLOCK 3/L/1

LANDSCAPE NOTES

GENERAL:

1. SAVE EXISTING TREES AS SHOWN. DO NOT CUT OR CLEAR ANY VEGETATION BEYOND THE CONSTRUCTION LIMIT.
2. ALL PLANT MATERIALS INSTALLED ARE TO MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
3. ALL PROPOSED PLANT LOCATIONS SHALL BE AS SHOWN ON PLANS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO PLANTING AND WILL NOTIFY OWNER'S REPRESENTATIVE IN THE EVENT OF CONFLICTS.
4. PLANT LOCATIONS ARE TO BE SCALED FROM THE LANDSCAPE PLAN UNLESS NOTED OTHERWISE.
5. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL FINAL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
6. FINAL QUANTITY FOR EACH PLANT TYPE IS NOTED IN THE PLANT LIST. THIS NUMBER SHALL TAKE PRECEDENCE IN THE CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE LIST AND ON THE PLAN.
7. ANY PROPOSED SUBSTITUTIONS MUST BE APPROVED BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
8. ALL NON-LANDSCAPED DISTURBED AREAS TO BE LOAMED AND SEEDED.

MAINTENANCE:

1. LAWNS: SHALL BE WATERED, FERTILIZED AND MOWN ON A REGULAR BASIS ACCORDING TO SEASON AND RAINFALL, TO PRODUCE A STRONG TURF OF 80% MIN. COVERAGE WITHIN THE FIRST YEAR, FREE FROM SIZABLE THIN OR BARE SPOTS. REGRADING AND RESEEDING WILL BE PERFORMED ON BARE SPOTS UNTIL COVERAGE IS COMPLETE.
2. TREES & SHRUBS: THE ESTABLISHMENT PERIOD SHALL BE TWO CALENDAR YEARS FROM THE DATE OF FINAL ACCEPTANCE. DURING THE ESTABLISHMENT PERIOD THE OWNER OR OWNER'S CONTRACTOR SHALL WATER, CULTIVATE AND PRUNE AS REQUIRED TO MAINTAIN A HEALTHY GROWING CONDITION.
3. AT THE END OF THE ESTABLISHMENT PERIOD AND UPON SUBSEQUENT ANNUAL INSPECTIONS, PLANTS WHICH HAVE DIED OR FAILED TO THRIVE SHALL BE REPLACED WITH EQUIVALENT SIZE AND SPECIES. AFTER THE CONTRACTOR'S GUARANTEE PERIOD HAS ENDED, IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN AND REPLACE PLANTINGS.
4. TREES, SHRUBS AND LAWNS WHICH ARE NOT IRRIGATED WITH AN AUTOMATIC SPRINKLER OR DRIP SYSTEM SHALL BE THOROUGHLY WATERED ON A REGULAR BASIS DURING PERIODS OF BELOW AVERAGE RAINFALL. SOIL SHOULD BE SAMPLED AT A DEPTH OF 12" AND IF DRY, WATER TO DEPTH OF 24".
5. MULCH IS TO BE MAINTAINED AT A DEPTH TO COMPLETELY COVER THE SOIL AND TO PRESERVE MOISTURE AND MINIMIZE WEEDS.
6. TREES, SHRUBS AND LAWNS SHALL BE FERTILIZED ANNUALLY AND TREATED WITH INSECTICIDES AND/OR FUNGICIDES AS REQUIRED FOR CONTINUED HEALTHY GROWTH.
7. SUCKERS, WEEDS, AND DEAD WOOD SHALL BE REMOVED ON A SEASONAL BASIS, AND SHRUBS SHALL BE PRUNED TWICE A YEAR ACCORDING TO THE REQUIREMENTS OF EACH SPECIES (I.E. SOME SPECIES SHOULD NOT BE PRUNED AT ALL). SHRUBS SHALL NOT BE PRUNED INTO INDIVIDUALS BUT ALLOWED TO GROW INTO A MASS.
8. WHERE TREES ARE LOCATED NEAR SIDEWALKS OR PARKING LOTS, THE CANOPY SHALL BE LIMBED UP TO PROMOTE SAFE CLEARANCE TO 8' ABOVE GRADE.
9. LAWN AREAS SHALL BE MOWN AS OFTEN AS NECESSARY TO KEEP LAWNS TO A 2 1/2 - 3" HEIGHT, AND AERATED ON A SEASONAL BASIS.
10. BEDS AND LAWN EDGES SHALL BE REGULARLY TRIMMED AND EDGED.
11. PERENNIAL AND ANNUAL BEDS SHALL BE DESIGNED, PLANTED AND MAINTAINED FOR SEASONAL COLOR AND INTEREST. ANNUALS MAY BE INCORPORATED TO A MAXIMUM LIMIT OF 25% OF THE BED AREA OF MAINTAINED BEDS FROM MAY 15 THROUGH NOVEMBER 15. PERENNIAL BEDS SHALL BE WATERED AS REQUIRED FOR HEALTHY PLANT GROWTH, AND WEEDED AND DEADHEADED ON A MONTHLY BASIS.

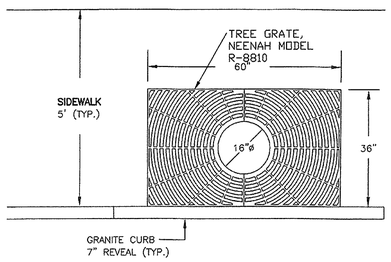
NOTES:

16"ø EXPANDABLE TREE OPENING. 0.25" SLOT OPENINGS.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

WHEN THE TREE GRATE IS INSTALLED IN A CONCRETE SIDEWALK, A NOTCH MUST BE INSTALLED ALONG THE EDGE TO HOLD THE GRATE. WHEN INSTALLED IN A BRICK SIDEWALK IT REQUIRES A FRAME TO BE INSTALLED TO HOLD THE GRATE IN PLACE.

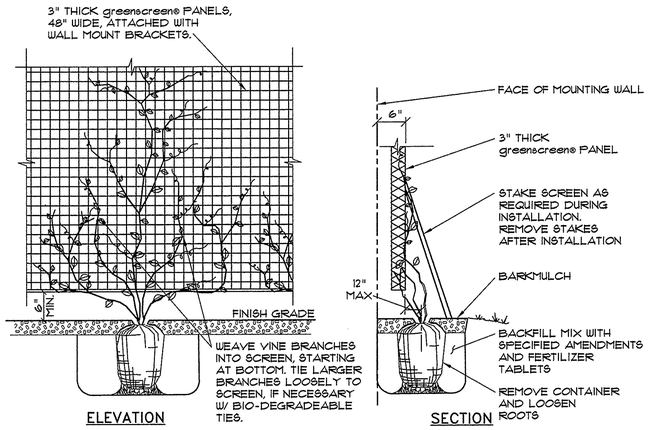
ALTERNATE: POROUS PAVEMENT, KBI FLEXI-PAVE (WWW.KBIUS.COM)



PLAN VIEW

2 EXPANDABLE TREE GRATE (IV-4A)

NOT TO SCALE



1 greenscreen® VINE PLANTING DETAIL

NOT TO SCALE

PLANT LIST

(A / 12) SYMBOL / QUANTITY

SYMBOL	COMMON NAME/BOTANICAL NAME	SIZE	QUANTITY	ROOT
A	MISCANTHUS / Miscanthus Autumn Anthem	1 gal.	3	POTTED
C	HAKONECHLOA / Hakonechloa macra All Gold	1 gal.	29	POTTED
D	ARMSTRONG MAPLE / acer fresmanii 'Armstrong'	2" cal.	1	B&B
G	CLEMATIS VERIETIES / SWEET AUTUMN / paniculata	--	13	POTTED
H	HONEYSUCKLE VINE / lonicera x heckrottii 'goldflame'	--	13	POTTED

FOR SITE PLAN LEGEND SEE SHEET C1.3

LANDSCAPE PLAN

PINKHAM & GREER
CIVIL ENGINEERS
28 WITHAM AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE — THOMAS S. GREER No. 4208 — REGISTERED PROFESSIONAL ENGINEER

4/19/17

REV.	DATE	DESCRIPTION
3	12/7/17	REV'D PER CITY COMMENTS
2	7/21/17	REV'D PER CITY REVIEW COMMENTS 5/23/17
1	4/20/17	REV'D SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

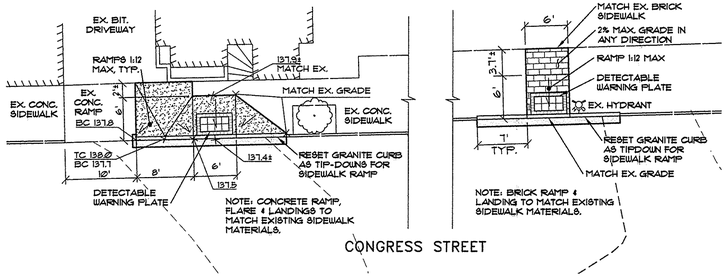
SCALE: AS SHOWN — DRN BY: JDC
DATE: OCTOBER 4, 2016 — DESG BY: TSG
PROJECT: 16107 — CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

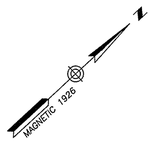
LANDSCAPE PLAN, NOTES AND DETAILS

C1.5

MAP/LOT /BLOCK 3/L/1



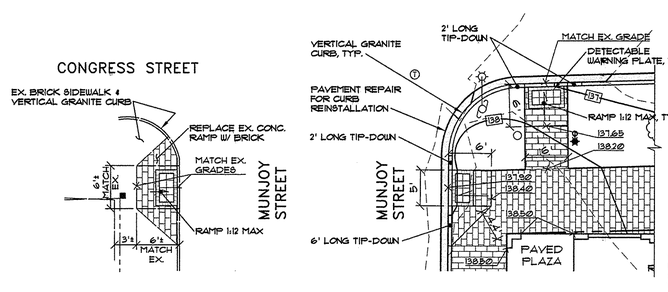
FOR PLAN LEGEND SEE SHEET C1.3



GRAPHIC SCALE

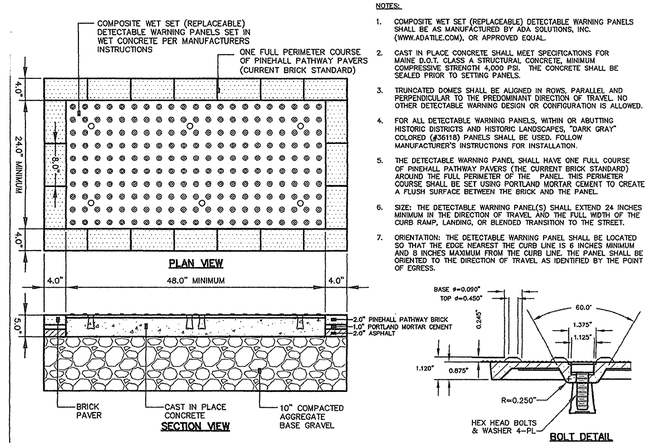
10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.



SIDEWALK RAMP PLANS

SCALE: 1"=10'



NOTES:

1. COMPOSITE WET SET (REPLACEABLE) DETECTABLE WARNING PANELS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADATILE.COM), OR APPROVED EQUAL.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE CONCRETE SHALL BE SEALED PRIOR TO SETTING PANELS.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. NO OTHER DETECTABLE WARNING DESIGN OR CONFIGURATION IS ALLOWED.
4. FOR ALL DETECTABLE WARNING PANELS, WITHIN OR ABUTTING HISTORIC DISTRICTS AND HISTORIC LANDSCAPES, "DARK GRAY" COLORED (#36118) PANELS SHALL BE USED. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
5. THE DETECTABLE WARNING PANEL SHALL HAVE ONE FULL COURSE OF PINEHALL PATHWAY PAVERS (THE CURRENT BRICK STANDARD) AROUND THE FULL PERIMETER OF THE PANEL. THIS PERIMETER COURSE SHALL BE SET USING PORTLAND MORTAR CEMENT TO CREATE A FLUSH SURFACE BETWEEN THE BRICK AND THE PANEL.
6. SIZE: THE DETECTABLE WARNING PANEL(S) SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
7. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

3 SIDEWALK RAMP DETECTABLE WARNING TILE (I-7A)

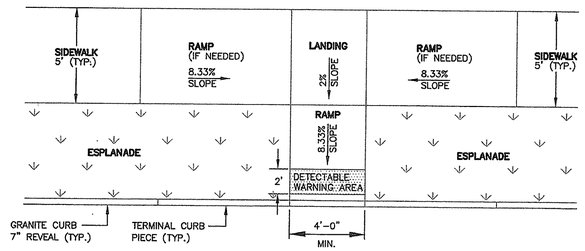
NOT TO SCALE

NOTES:

ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.



PLAN VIEW

2 PERPENDICULAR ADA RAMP LAYOUT FOR NARROW SIDEWALK WITH ESPLANADE (I-6C)

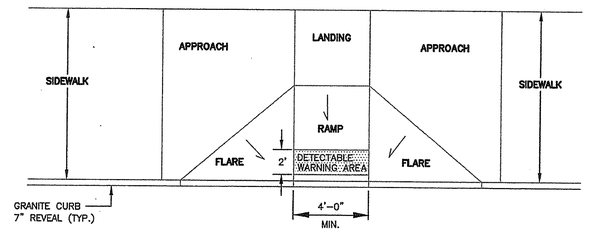
NOT TO SCALE

NOTES:

ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

GRANITE CURB ADJACENT TO RAMP SHALL BE FLUSH WITH STREET.

DESIGN ELEMENT	SLOPE IN DIRECTION OF TRAVEL	CROSS SLOPE
APPROACH	8.33% MAXIMUM	2%
LANDING	2%	2%
RAMP	8.33% MAXIMUM	MATCH STREET GRADE
FLARE	10% MAX. AT CURB FACE	–
SIDEWALK	MATCH STREET GRADE	2%



PLAN VIEW

1 PERPENDICULAR ADA RAMP LAYOUT FOR WIDE SIDEWALK WITH NO ESPLANADE (I-6A)

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 WANWAH AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE — THOMAS S. GREER No. 10295 — LICENSED PROFESSIONAL ENGINEER

12/22/17

REV.	DATE	DESCRIPTION
1	12/22/17	CONSOLIDATED SIDEWALK RAMP INFORMATION

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE:
PROJECT: 16107

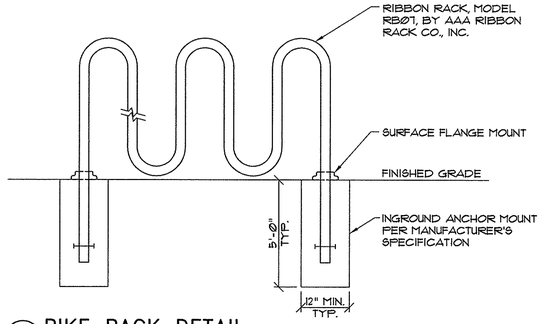
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

SIDEWALK RAMP DETAILS

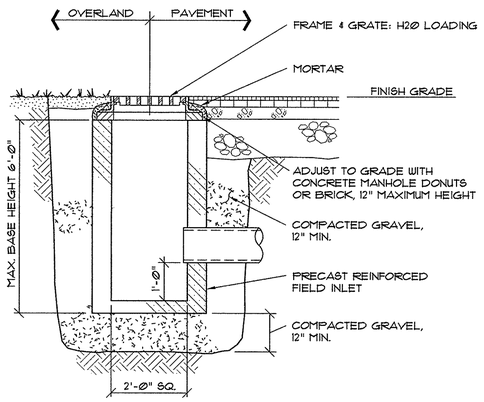
C1.6

MAP/LOT /BLOCK 3/L/1



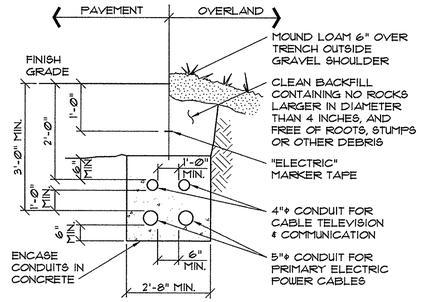
6 BIKE RACK DETAIL

NOT TO SCALE



3 FIELD INLET DETAIL

NOT TO SCALE



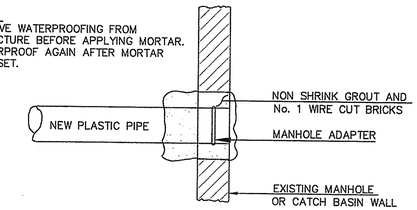
NOTES:
1. INSTALLATION SHALL NOT ALLOW INTER-TWINING OF CABLES.
2. PROVIDE SCH. 40 PVC CONDUIT FULL LENGTH OF INSTALLATION.

4 CABLE TRENCH SECTION

NOT TO SCALE

NOTE: EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION. IF PIPE DIAMETER IS SO LARGE THAT CORE DRILLING IS PROHIBITED, THE CONTRACTOR MAY SAW CUT THE STRUCTURE TO CREATE PIPE OPENING. THE NEW OPENING MUST THEN BE SEALED AND WATERTIGHT BOTH INSIDE AND OUTSIDE THE STRUCTURE.

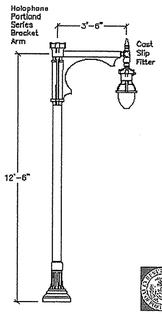
NOTE:
REMOVE WATERPROOFING FROM STRUCTURE BEFORE APPLYING MORTAR. WATERPROOF AGAIN AFTER MORTAR HAS SET.



METHOD 3 – NEW PIPE INTO EXISTING STRUCTURE

5 PLASTIC PIPE CONNECTION METHODS 3 (11–14)

NOT TO SCALE



LUMINAIRE
Holophane Lighting model ESP7CDMH12A5-PR
Luminaire shall be furnished and installed by The Central Maine Power Company under the municipal lease agreement for street lighting.
Luminaire shall be custom color RAL-6012 (dark green).
LAMP
Holophane Lighting model S-MP70/MED 64548
Vertical mounted, 70 watt mogul base clear metal halide lamp.
BRACKET ARM
Holophane Lighting model PD42CARAL6012
Steel crossarm with a post-top fitting for a 3-1/2" by 8" tenon.
Bracket arm shall be custom color RAL-6012 (dark green).
SLIP FITTER
Holophane Lighting model WLLF200SCARAL6012
2-3/8" O.D. with swivel cast fitter.
Slip fitter shall be custom color RAL-6012 (dark green).
LIGHTING POLE
Tapered aluminum pole shaft rated for a 90mph wind load with a 1.3 gust factor.
Provide four hot-dipped galvanized steel L-type anchor bolts.
Lighting pole shall be custom color RAL-6012 (dark green).
DECORATIVE POLE BASE
Holophane Lighting NY10SS17CARAL6012
Decorative clamshell cast aluminum base.
Hardware shall be stainless steel.
Decorative pole base shall be custom color RAL-6012 (dark green).
APPLICATION
Sidewalk lighting or small area lighting.
Suggested layout:
60–80 ft on center (one side only)
100–175 ft on center (staggered pattern both sides)

COLOR:
DARK GREEN–TIGER DRYLAC RAL 6012

City of Portland, Maine
Street & Sidewalk Lighting
CONGRESS STREET DISTRICT
Pedestrian Lighting Pole–Style 1
03/25/07

7 DOWNTOWN DISTRICT PEDESTRIAN SCALE LIGHT–STYLE 1 (X–3B)

NOT TO SCALE

UNDERGROUND UTILITIES WARNING TAPE

IDENTIFICATION TAPE TO BE INSTALLED ABOVE ALL NEW UNDERGROUND UTILITIES AND ABOVE ANY EXISTING UTILITIES THAT MAY BE EXPOSED BY THIS CONSTRUCTION.

DETECTABLE UNDERGROUND MARKING TAPE TO BE PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED PLASTICIZED ALUMINUM TAPE, INTENDED FOR DIRECT-BURIAL SERVICE NOT LESS THAN 3" WIDE x 5 MILS THICK. PROVIDE TAPE WITH BLACK PRINTING IDENTIFYING THE UTILITY. DETECTABLE WARNING TAPE REQUIRED OVER ALL WATER, SEWER, DRAINAGE, OR GAS UTILITIES. TAPE TO BE TERRA TAPE BY REEF INDUSTRIES, INC., www.reefindustries.com, OR EQUAL.

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

1 UNDERGROUND UTILITIES WARNING TAPE

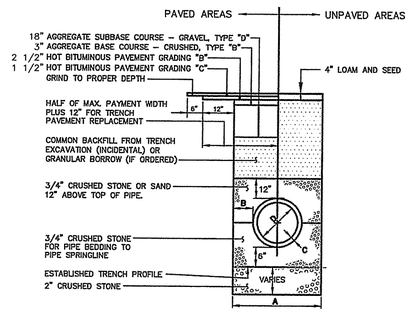
GENERAL NOTES FOR MANHOLES AND CATCH BASINS

1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVED EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR3A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CASCO TRAP. SEE FIGURE II-09.

2 GENERAL NOTES FOR MANHOLES AND CATCH BASINS (II–4)

NOTES:
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



NOTES
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 9".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4 – – – –	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18 – – – –	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36 – – – –	6.0
42	7.0
48	7.0

3 TYPICAL PIPE TRENCH INSTALLATION (11–12)

PINKHAM & GREER
CIVIL ENGINEERS
28 WINTHROP AVE. PORTLAND, ME. 04103
TEL: 207.781.5342 FAX: 207.781.4295

STATE OF MAINE THOMAS S GREER NO. 4268 LICENSED PROFESSIONAL ENGINEER
11/19/18

REV.	DATE	DESCRIPTION
2	1/16/18	ADDED TRENCH PAVEMENT THICKNESS BASED ON STREET CLASSIFICATION
1	4/20/17	REVD SIDEWALK PER STAFF REVIEW

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

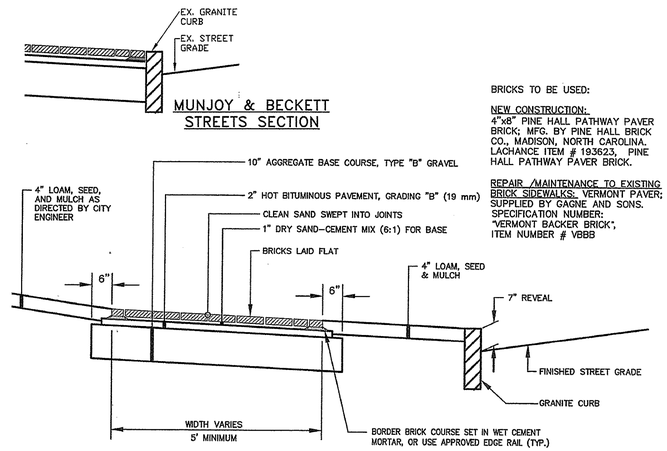
SCALE: AS SHOWN
DATE: OCTOBER 4, 2016
PROJECT: 16107
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

DETAILS

C2.1

MAP/LOT /BLOCK 3/L/1



BRICKS TO BE USED:

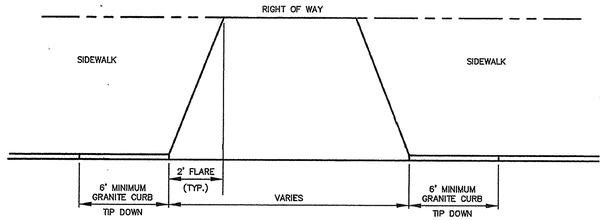
NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB

3 BRICK SIDEWALK WITH BITUMINOUS BASE (I-10)

NOT TO SCALE

NOTE:
MATCH GRADE OF EXISTING DRIVEWAY AT R. O. W. LINE, EXCEPT WHEN DIRECTED OTHERWISE BY CITY ENGINEER.



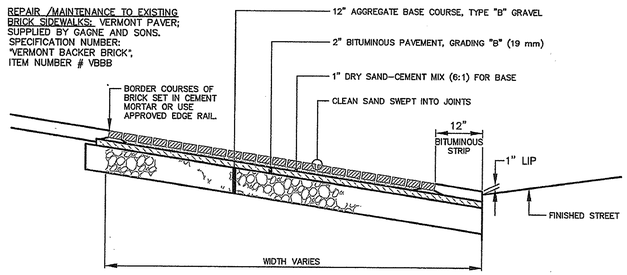
4 DRIVEWAY APRON LAYOUT (I-9)

NOT TO SCALE

BRICKS TO BE USED:

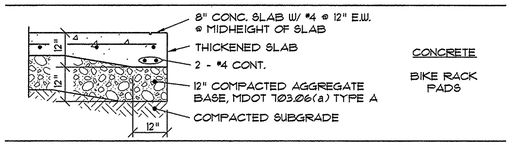
NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



5 BRICK DRIVEWAY APRON WITH BITUMINOUS BASE (I-11)

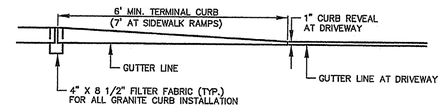
NOT TO SCALE



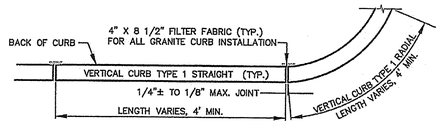
NOTES:
1. HMA = HOT MIX ASPHALT.
   MDOT = MAINE DEPARTMENT OF TRANSPORTATION.
2. ALL COURSE THICKNESS AFTER FINAL COMPACTION.

1 SCHEDULE OF SURFACE FINISHES

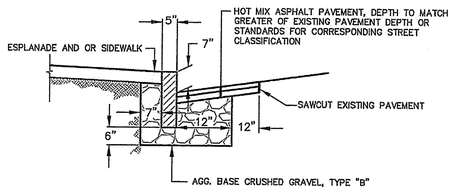
NOT TO SCALE



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW



VERTICAL GRANITE CURB CROSS SECTION

2 VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREET (I-17)

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 VAUGHAN AVE., PORTLAND, ME. 04103
TEL: 207.781.3242 FAX: 207.781.4245

STATE OF MAINE
THOMAS S. GREER No. 4206
LICENSED PROFESSIONAL ENGINEER
12/22/17

REV.	DATE	DESCRIPTION
1	12/22/17	RELOCATED DETAILS 6, 7, & 8 TO SHEET C1.6

FRIENDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

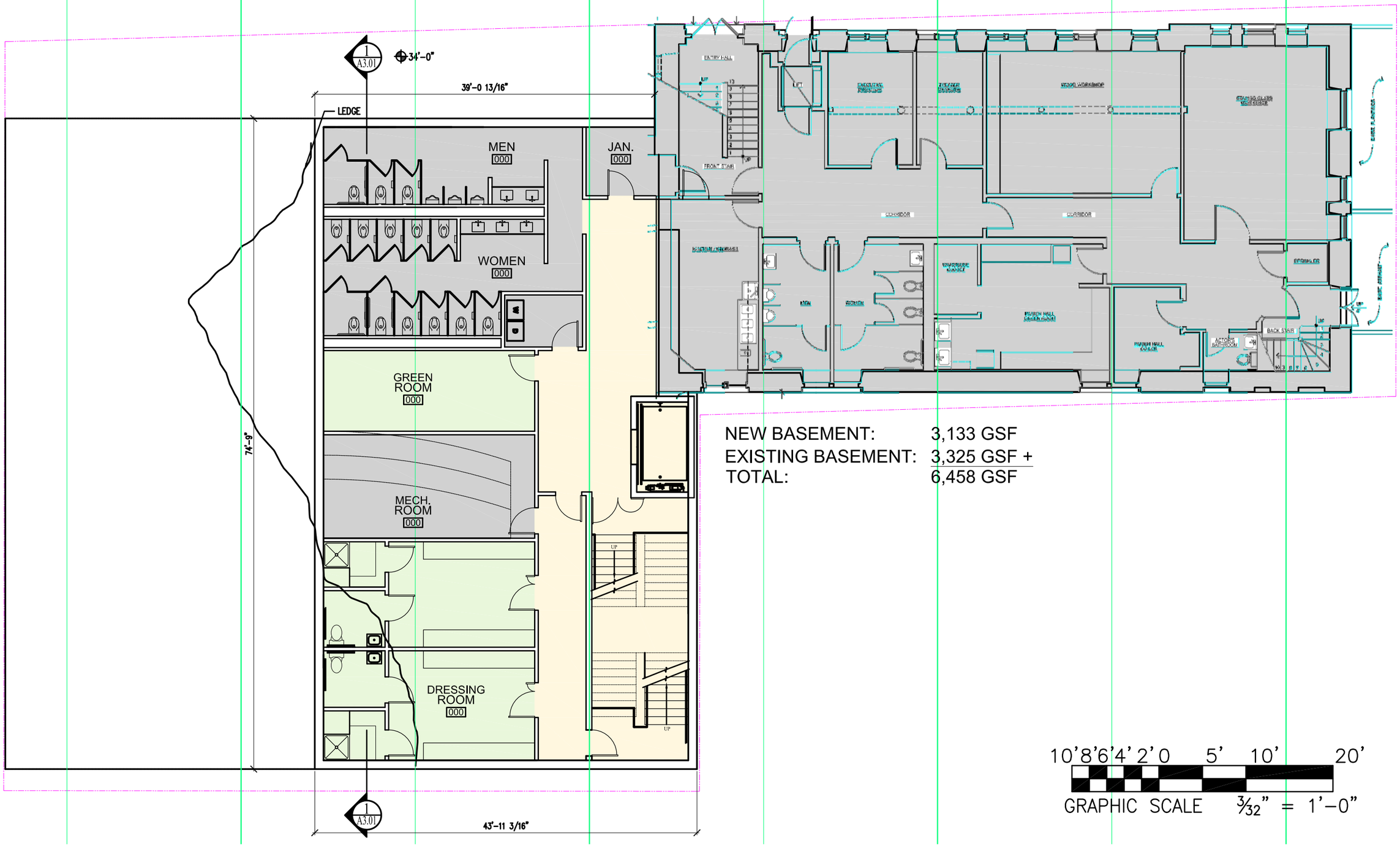
SCALE: AS SHOWN
DATE: OCTOBER 4, 2016
PROJECT: 16107
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

DETAILS

C2.2

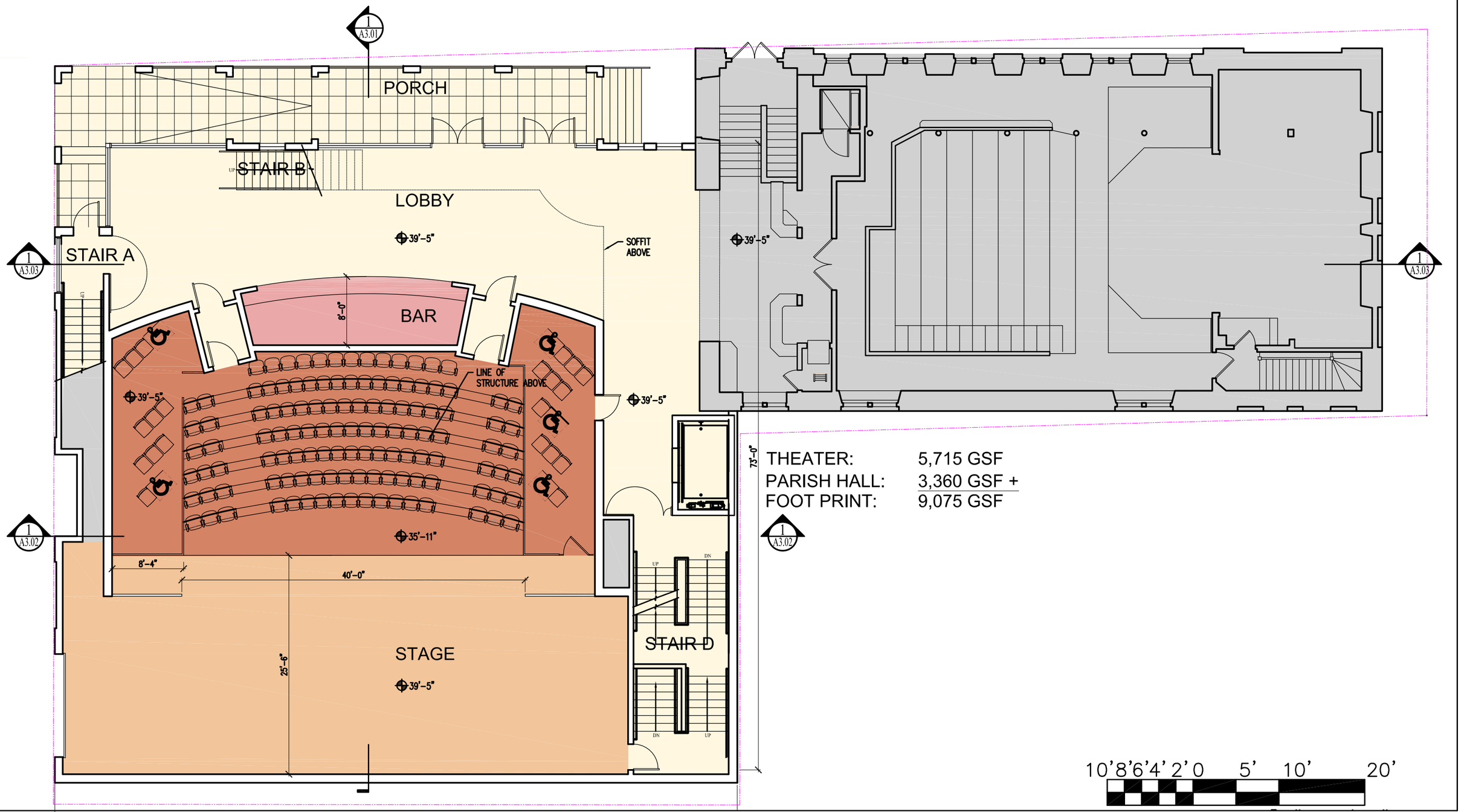
MAP/LOT /BLOCK 3/L/1



NEW BASEMENT: 3,133 GSF
EXISTING BASEMENT: 3,325 GSF +
TOTAL: 6,458 GSF

10'8'6'4' 2' 0 5' 10' 20'
GRAPHIC SCALE 3/32" = 1'-0"

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" BASEMENT PLAN	A1.00



W N S E

Prepared for:
FRIENDS OF THE
ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

Consulting Engineer:

ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
ST. LAWRENCE ARTS
ADDITION
76 CONGRESS STREET
PORTLAND, MAINE 04101

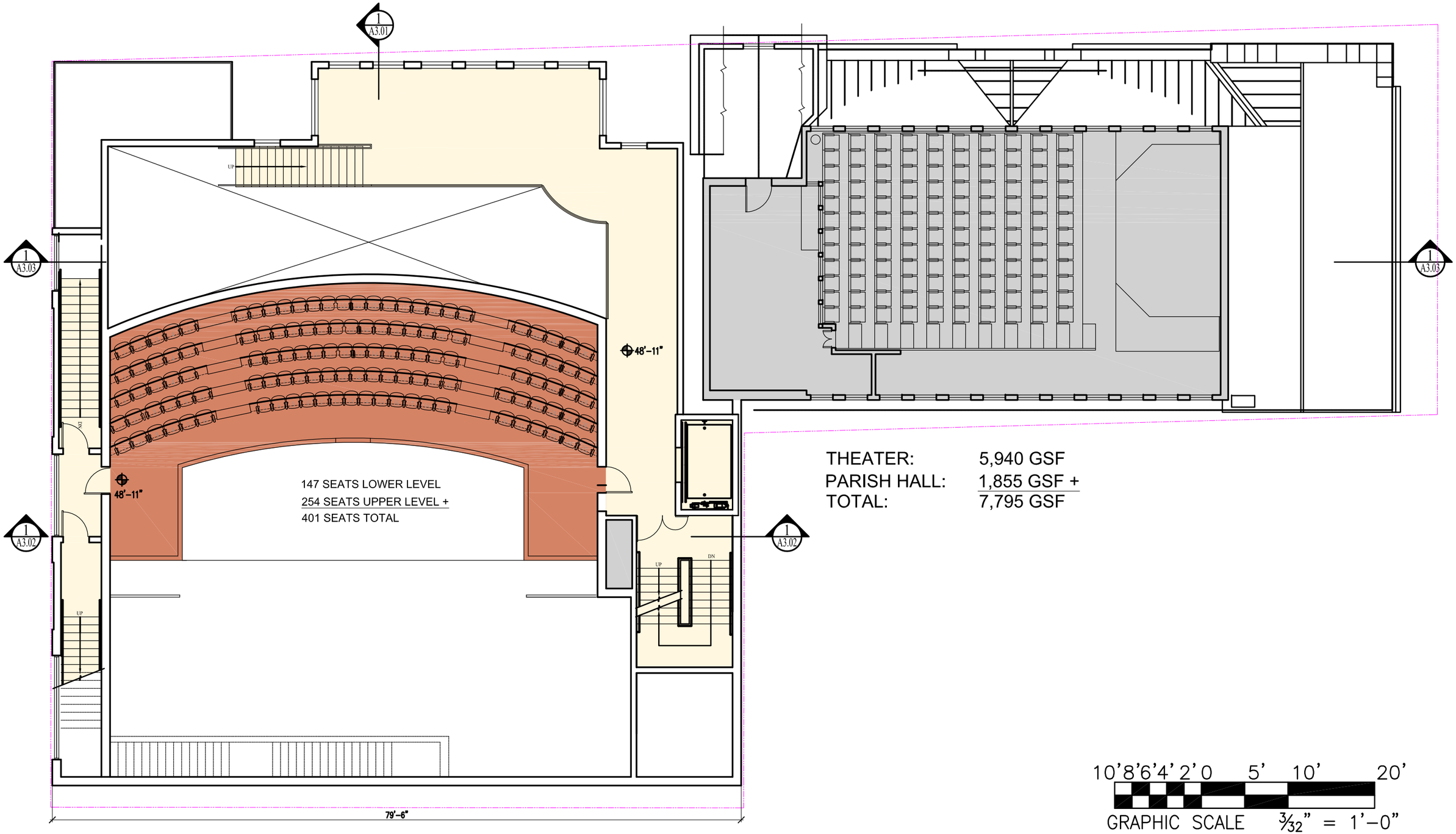
Revisions:

Date: 10 Sept. 2014

Scale: $\frac{3}{32}$" = 1'-0"

FIRST FLOOR PLAN

A1.01



THEATER:	5,940 GSF
PARISH HALL:	1,855 GSF +
TOTAL:	7,795 GSF

10'8'6'4' 2' 0 5' 10' 20'

GRAPHIC SCALE 3/32" = 1'-0"

W N S E

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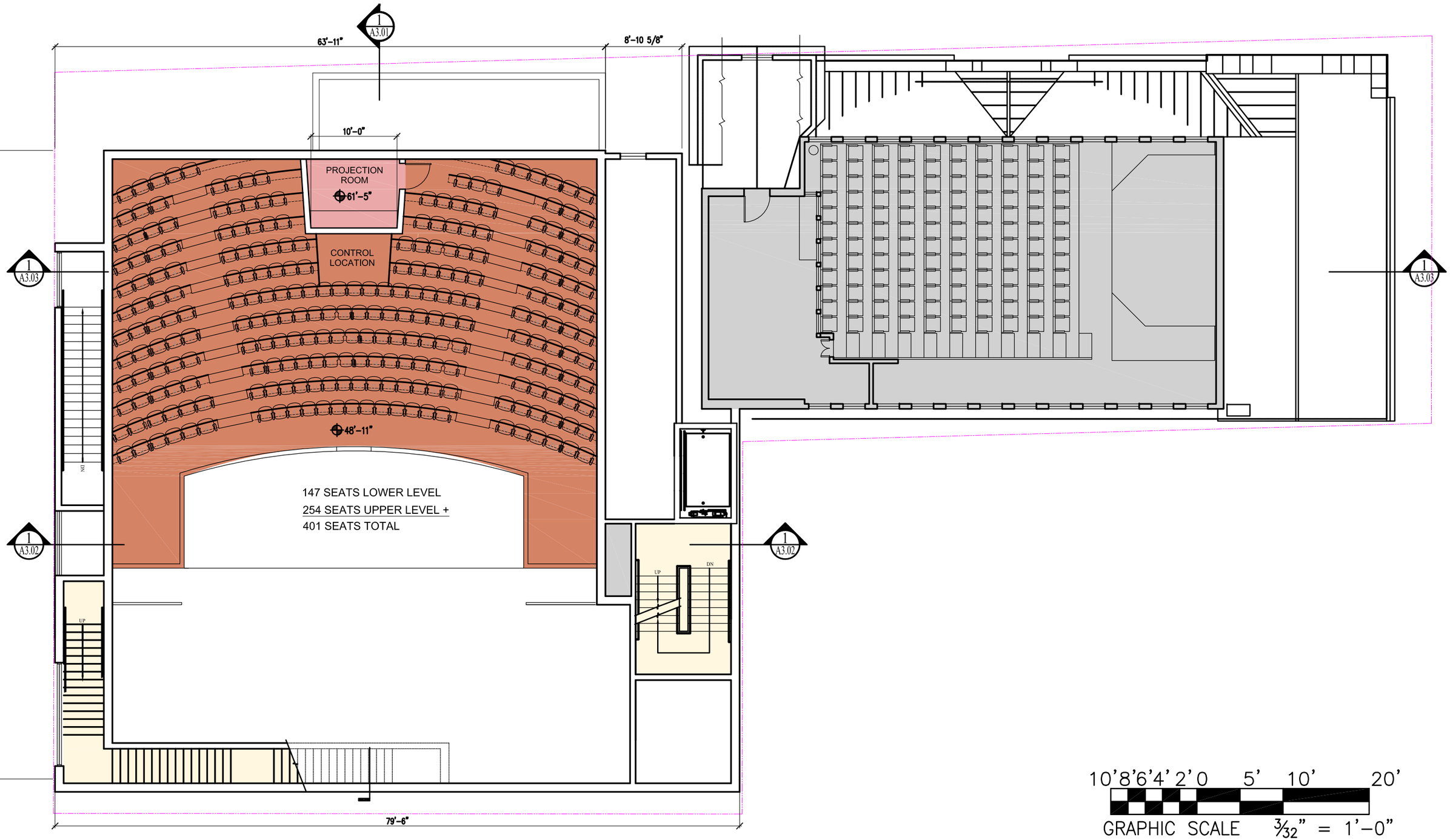
Scale: 3/32" = 1'-0"

UPPER THEATER LEVEL

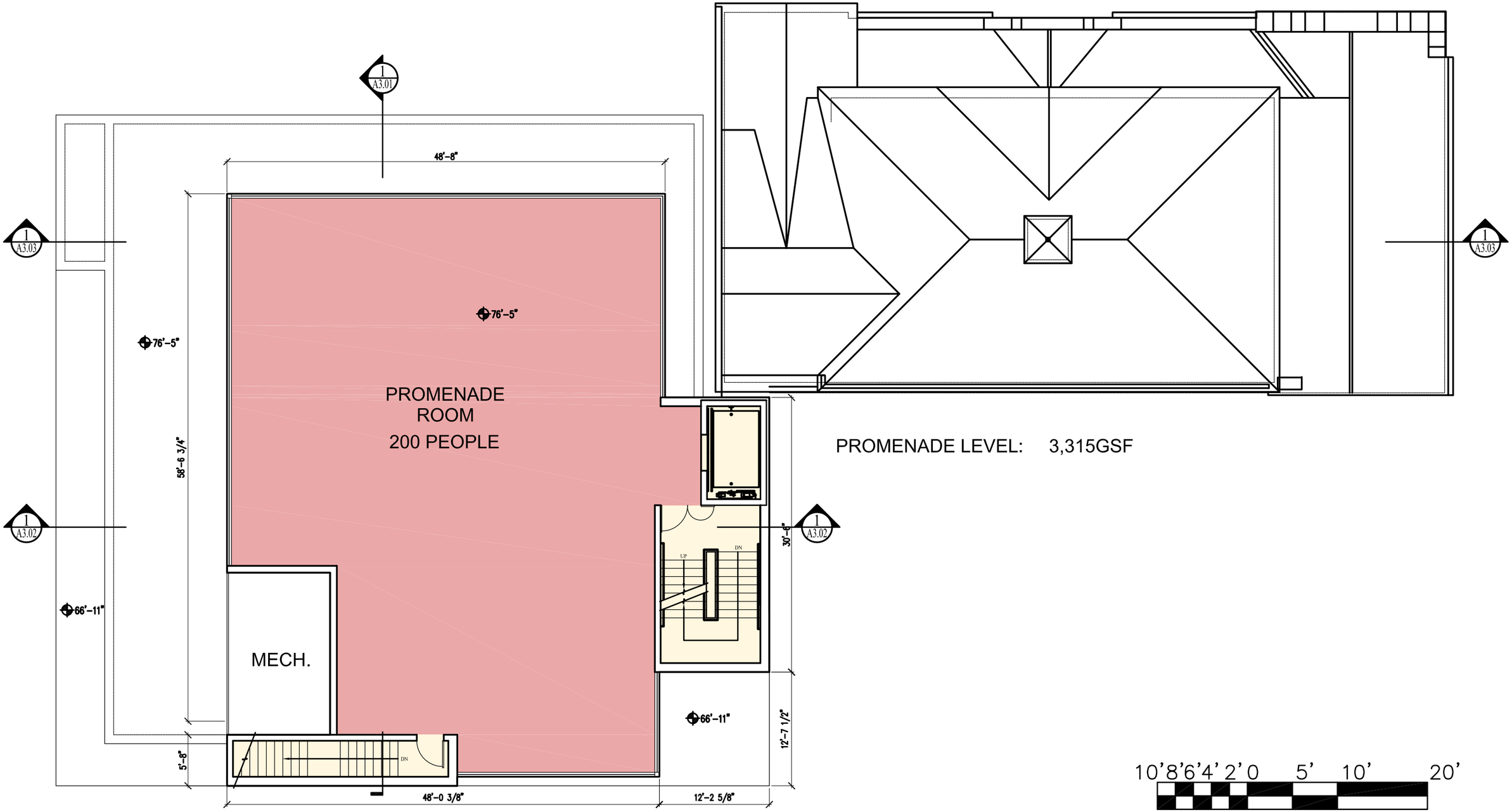
A1.02



10' 8' 6' 4' 2' 0 5' 10' 20'

GRAPHIC SCALE 3/32" = 1'–0"

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" UPPER THEATER LEVEL CONTINUED	A1.03



PROMENADE LEVEL: 3,315GSF

10'8'6'4' 2'0 5' 10' 20'

GRAPHIC SCALE 3/32" = 1'–0"

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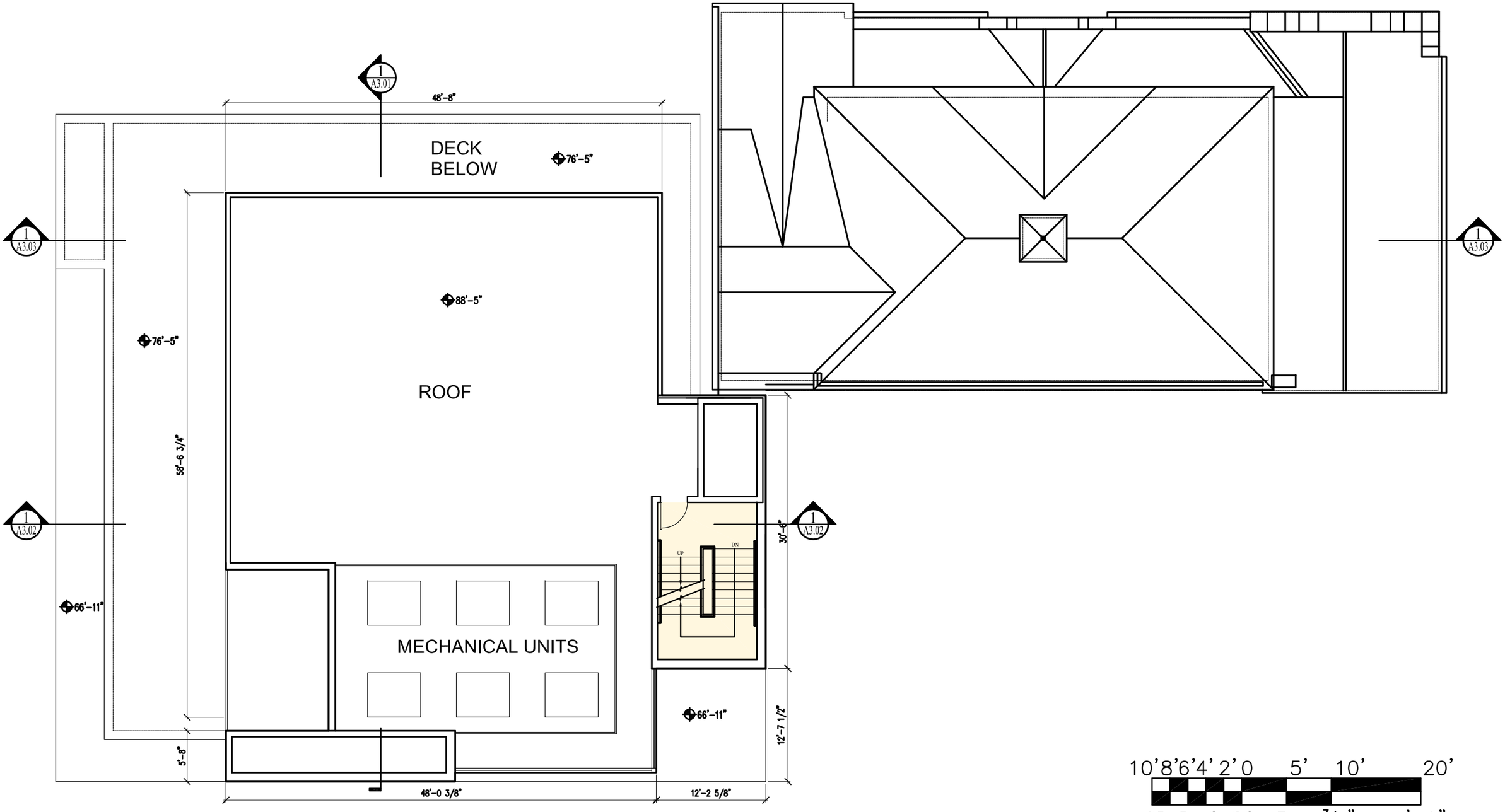


10'8'6'4' 2' 0 5' 10' 20'

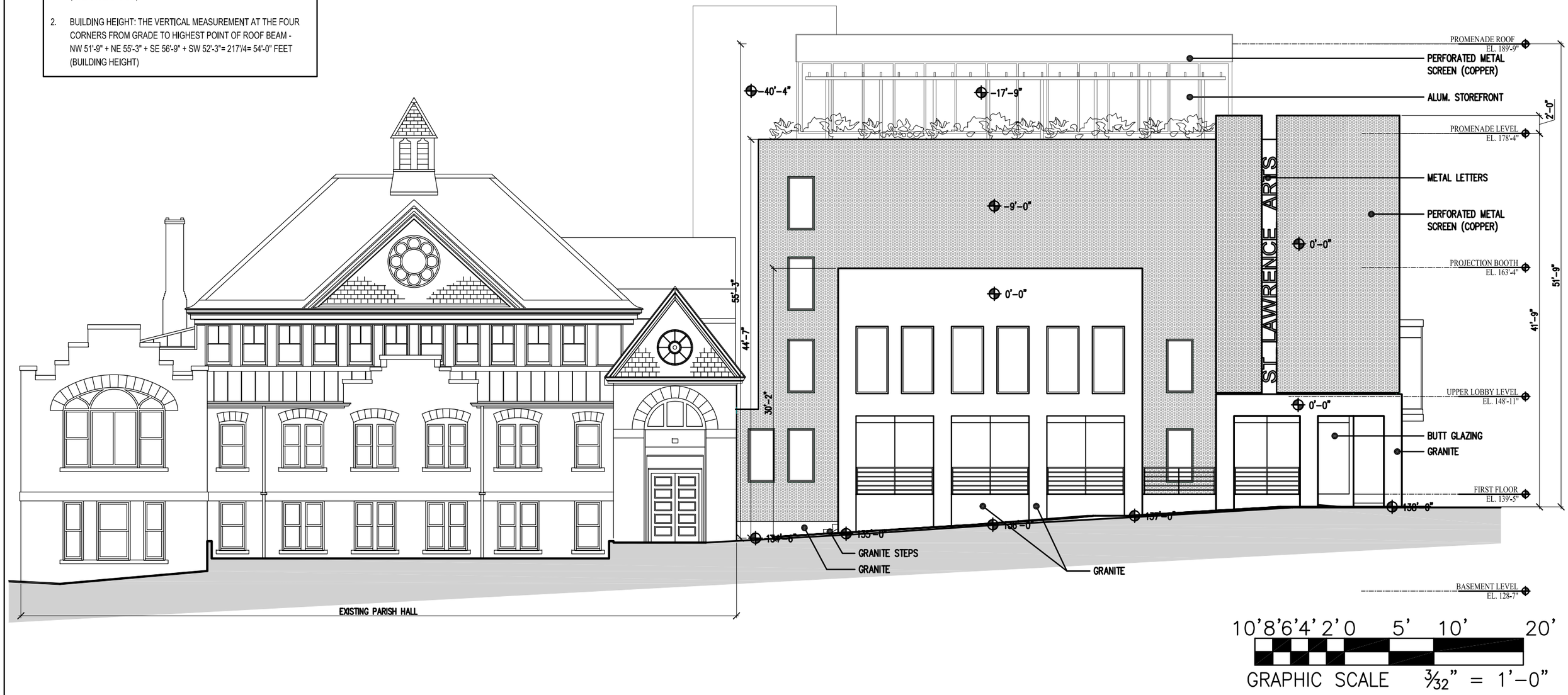
GRAPHIC SCALE 3/32" = 1'–0"

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 3 Nov. 2017 Scale: 3/32" = 1'-0" ROOF PLAN	A1.05

GENERAL NOTES:

1. AVERAGE GRADE BY DEFINITION: 4 CORNER AVERAGE GRADE - NW 138'-0" + NE 134'-6" + SE 133'-0" + SW 137'-6"= 136'-0" / 4 = 135'-9" (AVERAGE GRADE)

2. BUILDING HEIGHT: THE VERTICAL MEASUREMENT AT THE FOUR CORNERS FROM GRADE TO HIGHEST POINT OF ROOF BEAM - NW 51'-9" + NE 55'-3" + SE 56'-9" + SW 52'-3"= 217'/4= 54'-0" FEET (BUILDING HEIGHT)



10'8'6'4'2'0 5' 10' 20'

GRAPHIC SCALE 3/32" = 1'-0"

W N S E

Prepared for:
FRIENDS OF THE ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

Consulting Engineer:

ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, MAINE 04101

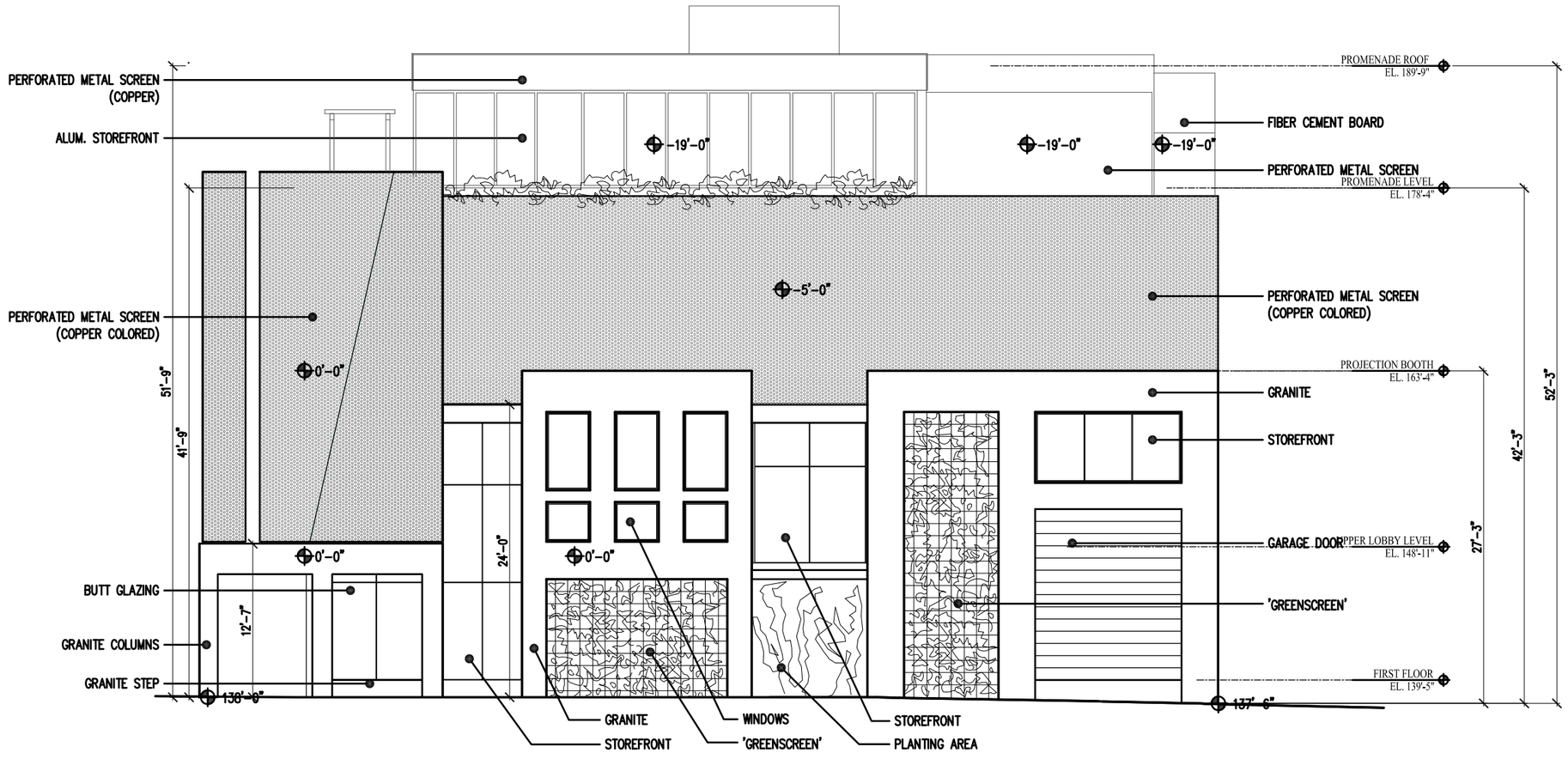
Revisions:

Date: 10 Sept. 2014

Scale: 3/32" = 1'-0"

NORTH ELEVATION

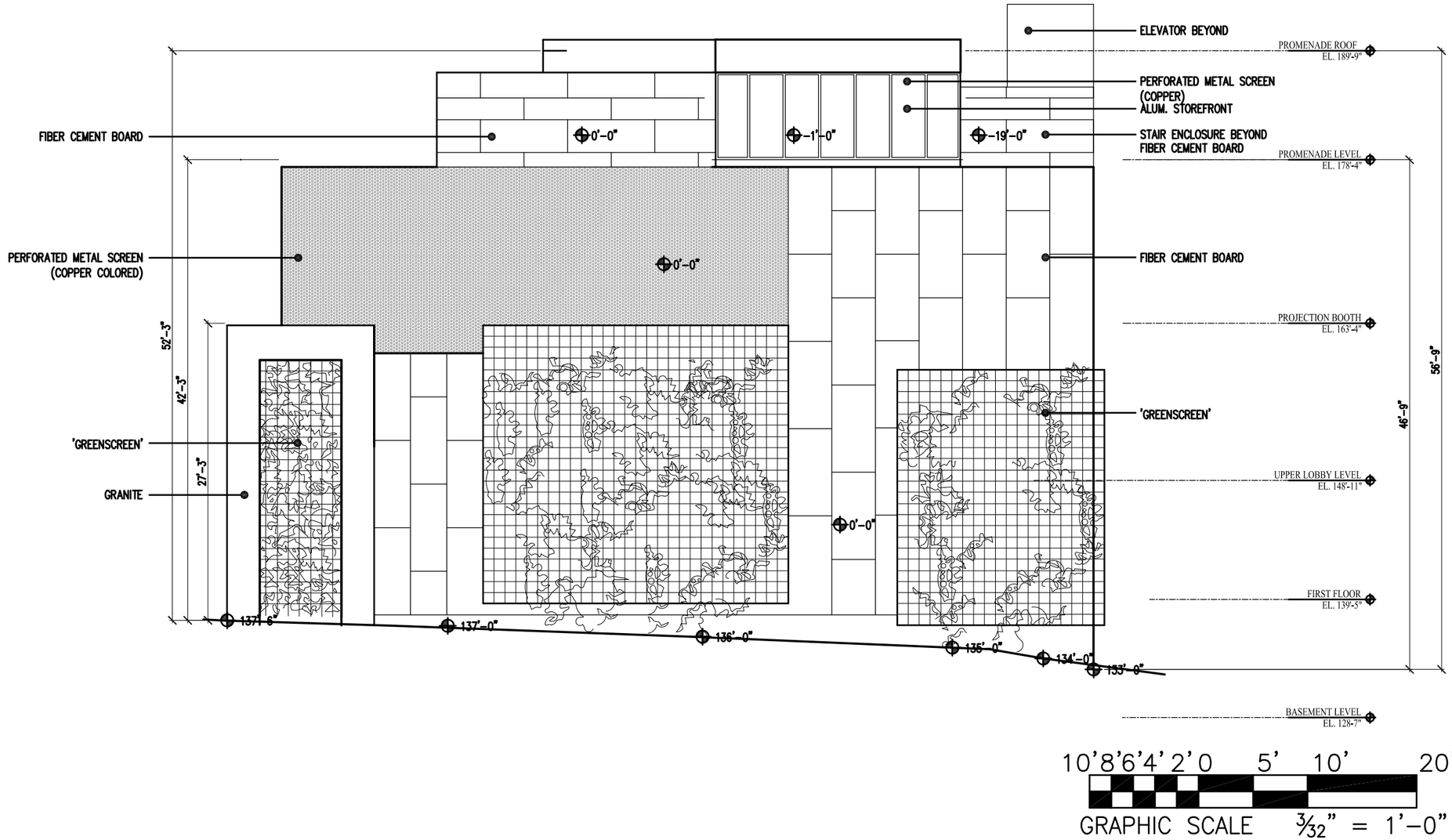
A2.00



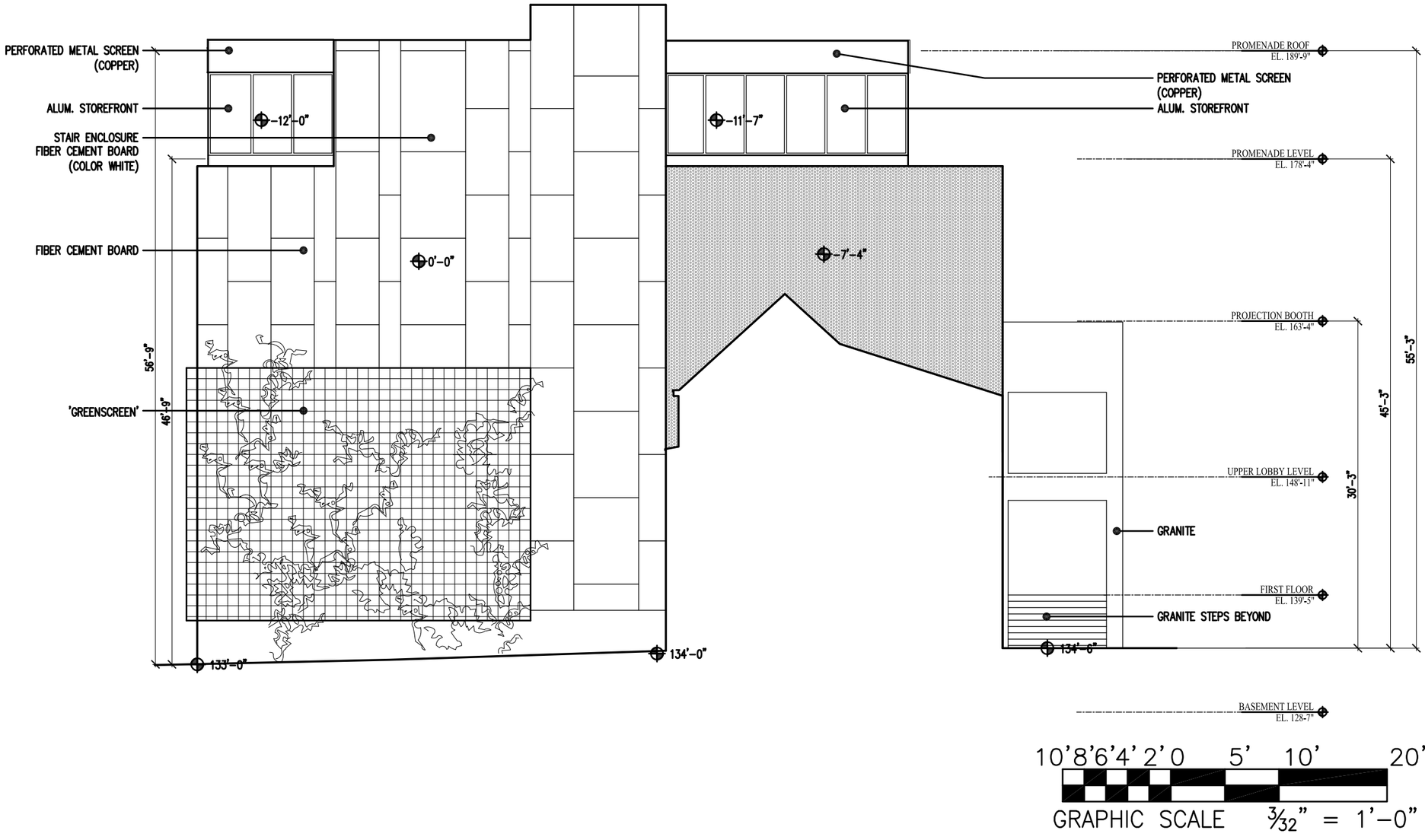
10'8'6'4'2'0 5' 10' 20'

GRAPHIC SCALE 3/32" = 1'-0"

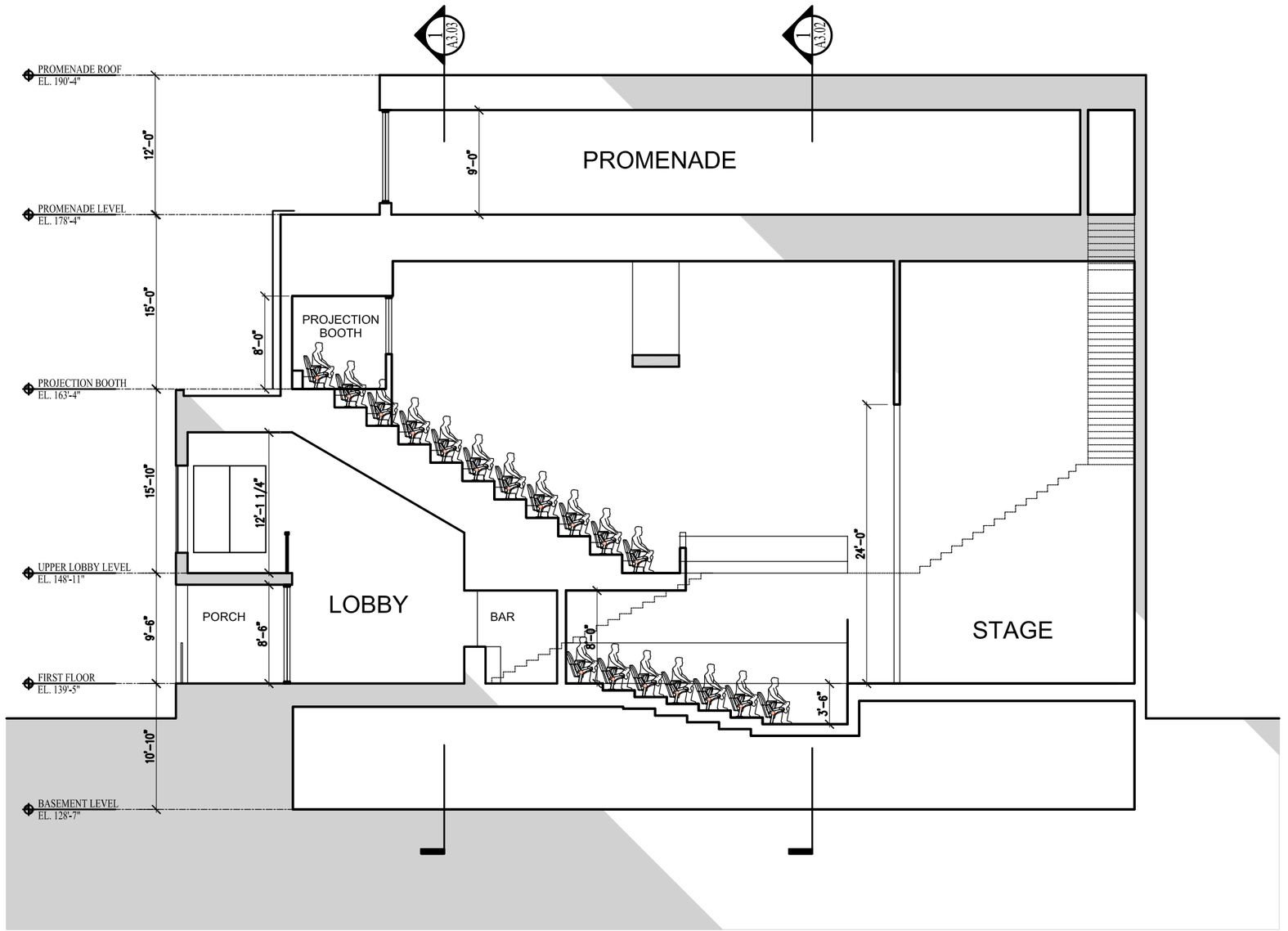
N W E S	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0"	WEST ELEVATION A2.01



W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" SOUTH ELEVATION	A2.02



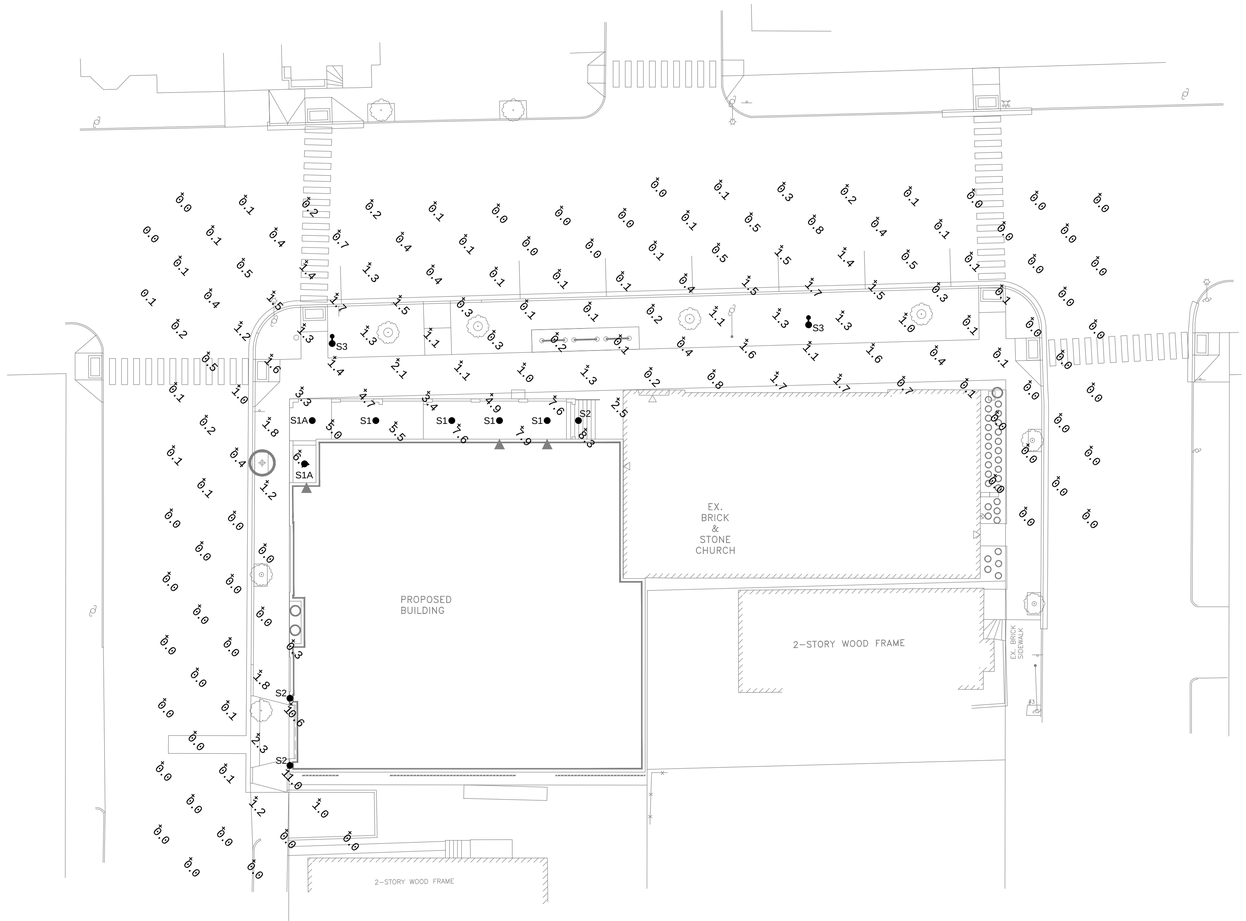
W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: 3/32" = 1'-0" EAST ELEVATION	A2.03



10'8'6'4' 2' 0 5' 10' 20'

GRAPHIC SCALE $\frac{3}{32}$" = 1'-0"

W N S E	Prepared for: FRIENDS OF THE ST. LAWRENCE CHURCH 76 CONGRESS STREET PORTLAND, MAINE 04101	Consulting Engineer:	ARCHETYPE architects 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056	Project: ST. LAWRENCE ARTS ADDITION 76 CONGRESS STREET PORTLAND, MAINE 04101	Revisions:	Date: 10 Sept. 2014 Scale: $\frac{3}{32}$" = 1'-0" BUILDING SECTION	A3.01

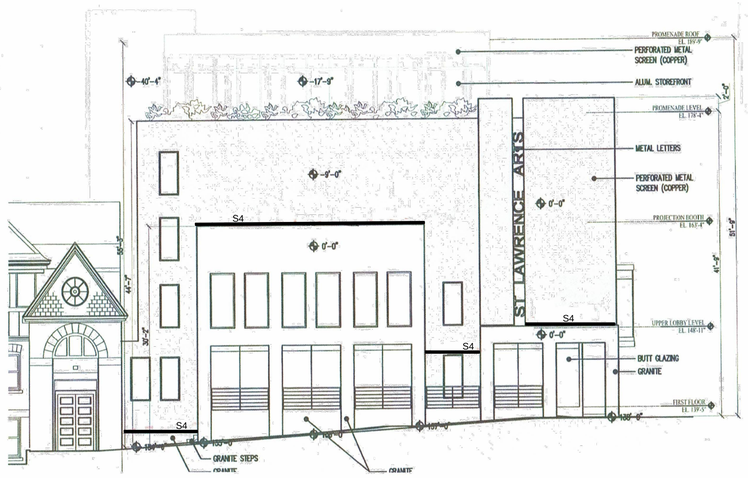


1 | SITE LIGHTING CALCULATION PLAN
1/16" = 1'-0"

NORTH

INITIAL HORIZONTAL ILLUMINANCE IN FOOTCANDLES INDICATED AT GRADE.

CONTRIBUTION FROM EXISTING STREET LIGHTS ALONG CONGRESS STREET IS NOT INCLUDED.

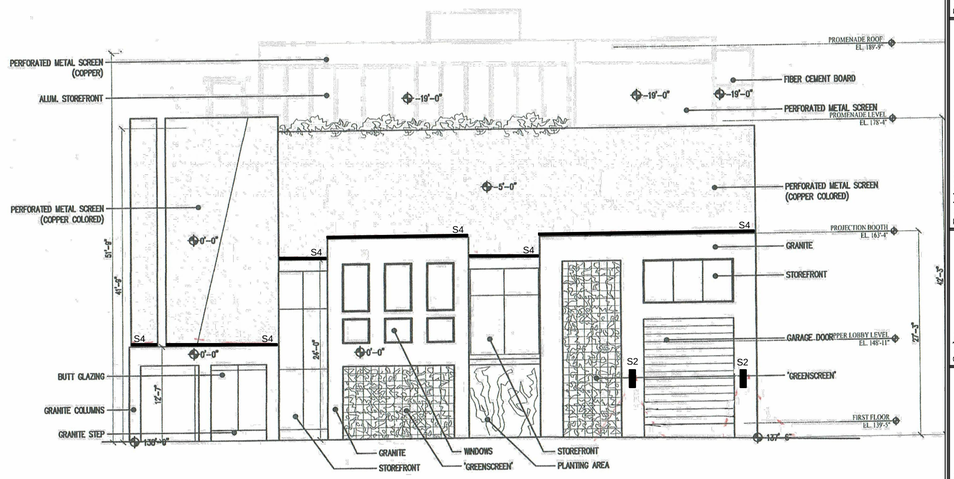


3 | CONGRESS STREET ELEVATION
NOT TO SCALE

TYPE S2 LIGHTS TO BE INSTALLED AT 8'-0" ABOVE GRADE.

TYPE S4 LIGHTS ARE TO BE INSTALLED BEHIND DECORATIVE PERFORATED METAL PANEL SYSTEM.

CONTRIBUTION FROM TYPE S4 LIGHTS IS NOT INCLUDED IN ILLUMINANCE CALCULATION BECAUSE THEY WILL NOT PROVIDE ANY SIGNIFICANT ILLUMINANCE AT GRADE.



2 | MUNJOY STREET ELEVATION
NOT TO SCALE

STATE OF MAINE
LAWRENCE E. BARTLETT
No. 7928
REGISTERED PROFESSIONAL ENGINEER
LICENSED
Lawrence E. Bartlett
11/2/17

Owner:
FRIENDS OF THE ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

Consultanting Engineer:
Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET, BATH, ME 04530
TEL (207) 443-5447

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, MAINE 04101

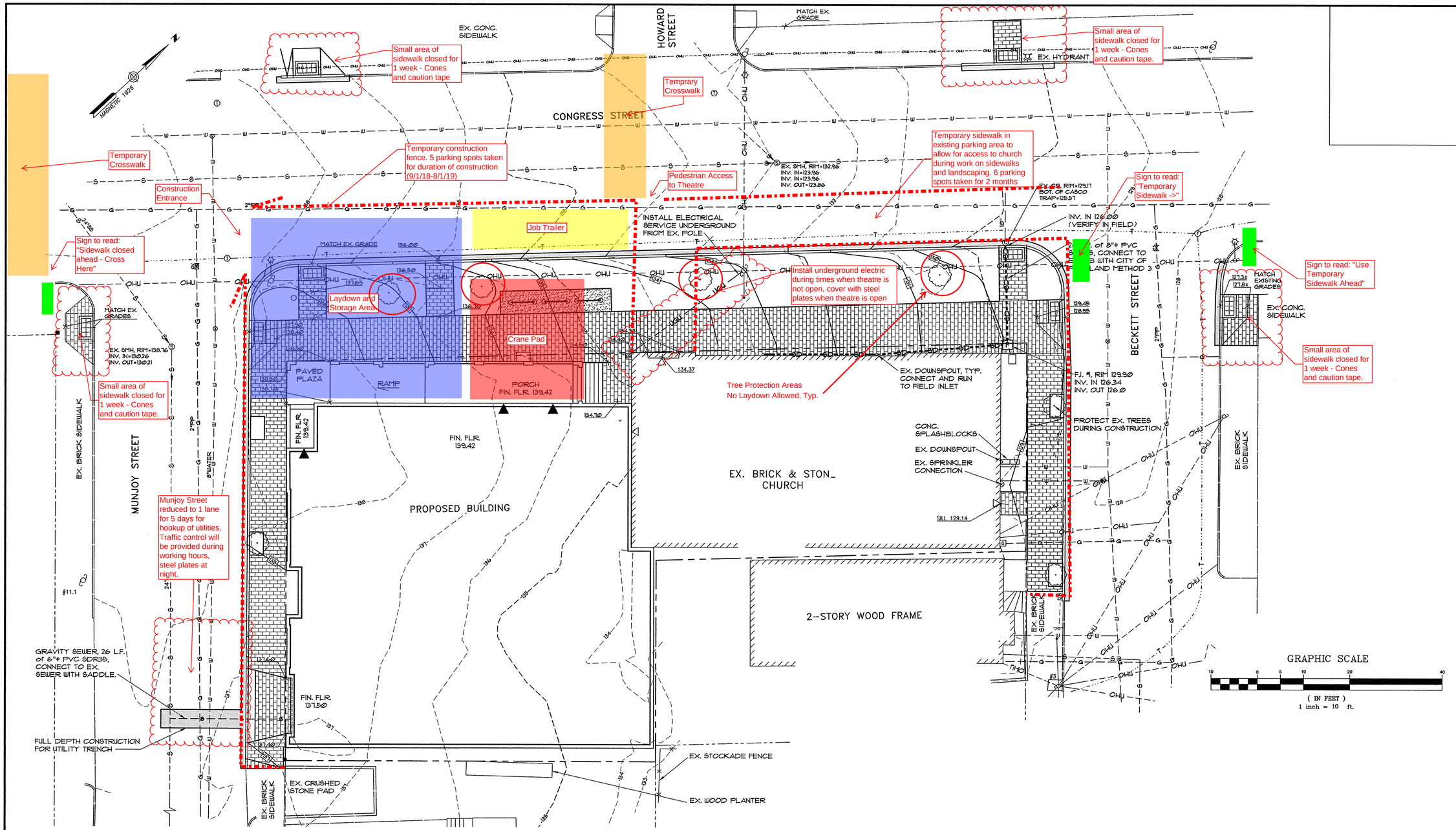
Revisions:

Scale: AS NOTED

Date: 02 Nov. 2017

SITE LIGHTING CALCULATION PLAN

E0.01



WR
Wright-Ryan

Title: St. Lawrence Theatre CM Plan
Address: 76 Congress Street, Portland, ME
Date: December 7, 2017

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4245

STATE OF MAINE
THOMAS S. GREER No. 4206
LICENSED PROFESSIONAL ENGINEER
4/20/17

REV.	DATE	DESCRIPTION
1	4/20/17	REV'D SIDEWALK PER STAFF REVIEW

FREINDS OF ST. LAWRENCE CHURCH
76 CONGRESS STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: OCTOBER 4, 2016
PROJECT: 16107
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

ST. LAWRENCE ARTS ADDITION
76 CONGRESS STREET
PORTLAND, ME

GRADING AND UTILITIES PLAN

C1.3

MAP/LOT /BLOCK 3/L/1