1. Legal Ad

Documents:

PB LEGAL AD 7-26-16.PDF

2. Agenda

Documents:

PB AGENDA 7-26-16.PDF

3. 70 Anderson Street

3.I. Report

Documents:

ANDERSON ST. - 70 (REPORT).PDF

3.II. Report Attachments

Documents:

ANDERSON ST. - 70 (REPORT ATTACHMENTS).PDF

3.III. Applicants Submittal

Documents:

ANDERSON ST. - 70 (APPLICANTS SUBMITTAL).PDF

3.IV. Plans

Documents:

ANDERSON ST. - 70 (PLANS).PDF

4. 23 Ocean Avenue

4.I. Memo

Documents:

OCEAN AVE. - 23 (MEMO).PDF

4.II. Report Attachments

Documents:

OCEAN AVE. - 23 (REPORT ATTACHMENTS).PDF

4.III. Applicants Submittal

Documents:

OCEAN AVE. - 23 (APPLICANTS SUBMITTAL).PDF

4.IV. Public Comment

4.IV.i. Howard Levine

Documents:

OCEAN AVE. - 23 (PUBLIC COMMENT - HOWARD LEVINE) .PDF

4.V. Plans

Documents:

OCEAN AVE. - 23 (PLANS).PDF

5. 415 Cumberland Avenue

5.I. Report

Documents:

CUMBERLAND AVE. - 415 (REPORT).PDF

5.II. Report Attachments

Documents:

CUMBERLAND AVE. - 415 (REPORT ATTACHMENTS).PDF

5.III. Applicants Submission

Documents:

CUMBERLAND AVE. - 415 (APPLICANTS SUBMISSION).PDF

5.IV. Plans

Documents:

CUMBERLAND AVE. - 415 (PLANS).PDF

6. Chapter 500 Stormwater Regulations

6.I. Report And Attachments

Documents:

CHAPTER 500 (REPORT AND ATTACHMENTS).PDF

7. 1945 Congress Street

7.I. Memo

Documents:

CONGRESS ST. - 1945 (MEMO).PDF

7.II. Report Attachments

Documents:

CONGRESS ST. - 1945 (REPORT ATTACHMENTS).PDF

7.III. Applicants Submittal

Documents:

CONGRESS ST. - 1945 (APPLICANTS SUBMITTAL).PDF

7.IV. Public Comment

Documents:

CONGRESS ST. - 1945 (PUBLIC COMMENT).PDF

7.V. Additional Public Comment

Documents:

CONGRESS ST. - 1945 (ADDITIONAL PUBLIC COMMENT).PDF

7.VI. Plans

Documents:

CONGRESS ST. - 1945 (PLANS).PDF

LEGAL ADVERTISEMENT
PORTLAND PLANNING BOARD MEETING

The Portland Planning Board will hold a meeting on Tuesday, July 26, 2016, Council Chambers, 2nd Floor, City Hall, 389 Congress Street. **Public comments will be taken at this meeting.**

Workshop - 4:30 p.m.

i. Level III Subdivision; Townhouses; 70 Anderson Street (currently 1 East Lancaster Street); Jonathan Culley, representing Redfern Properties, Applicant. (4:30 – 5:15 p.m. estimated time) The Board will hold a workshop on a proposal for 10 townhouses at 70 Anderson Street. The proposal includes demolishing one single family home and constructing 10 3-bedroom units on the 9,064 sq. ft. site. One affordable unit is proposed within the project to meet the Ensure Workforce Housing requirements. The property is located in the Residential R-6 zone.

ii. Level III Subdivision; Mixed Use Project; 23 Ocean Avenue; 23 Ocean Avenue Assoc., LLC., Applicant. (5:15 -6:15 p.m. estimated time) The Board will hold a workshop on a proposal for a mixed use project at 23 Ocean Avenue (corner of Hersey Street). The existing structure on the site, which is currently offices, will remain. A new building is proposed with office uses on the basement and first floors and with four 2-bedroom residential units on the upper two floors. The proposed building has a total floor area of 8,520 sq. ft. The proposed plan includes 10 on-site parking spaces and 15 leased off-site spaces. The site is in the Business b-1 zone.

Public Hearing – 7:00 p.m.

i. Level III Subdivision; Conversion to 3 Units; 415 Cumberland Avenue; M & A Lowcountry Investments, LLC., Applicant. (7:00-7:45 p.m. estimated time) The Board will hold a public hearing to review the final application for the redevelopment of 415 Cumberland Avenue. Co-working office space is proposed for the existing building. The proposal includes converting the rear portion of the building into 3 residential units. The bedroom mix of the units include one 1-bedroom, one 2-bedroom and one 3-bedroom. The site is located at the corner of Cumberland and Forest Avenues and is within the Downtown B-3c zone.

ii. Technical Manual, Section 5 update with DEP's Chapter 500 Stormwater Regulations, City of Portland, Applicant. (7:45 -8:15 p.m. estimated time) The Board will hold a public hearing on the proposed technical manual updates to incorporate DEP's recent changes to the Chapter 500 Stormwater Regulations buy cross-reference to the rules and to update the local applicability standards of development for Portland. Currently, Portland has delegated review for storm water permits required under DEP's stormwater management rules and the changes are proposed in order to retain delegated authority and comply with Municipal Separate Storm Sewer System (MS4) General Permit.

Evening Workshop (immediately following the public hearing)

i. Level III Site Plan and Subdivision; 1945 Congress Street; Northland Enterprises, LLC., Applicant. (8:15-9:15 p.m. estimated time) The Planning Board will hold a workshop on a proposal to renovate the Elks building and add two office buildings. The site is in the Office Park zone and includes information for a master plan under the OP development standards. The condominium office park is proposed with a 15,000 sq. ft. medical office building and a 35,300 sq. ft. general office building.

ELIZABETH BOEPPLE, CHAIR - PORTLAND PLANNING BOARD

CITY OF PORTLAND, MAINE
PLANNING BOARD

Elizabeth Boepple, Chair
Sean Dundon, Vice Chair
Carol Morrissette
David Eaton
Kristien Nichols
Maggie Stanley
Lisa Whited

AGENDA
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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 FOLLOWING MEETING HELD ON JULY 12, 2016:

Public Hearing: Boepple, Dundon, Eaton, Nichols and Whited present. Morrissette and Stanley absent.
Workshop: Boepple, Dundon, Eaton, Nichols and Whited present. Morrissette and Stanley absent.

4. REPORT OF DECISIONS AT THE MEETING HELD ON JUNE 12, 2016:

i. Level III Subdivision and Site Plan; Hotel and Townhouses; 749 Congress Street; Joe Delois, representing Denovo, LLC., Applicant. Dundon moved and Eaton seconded a motion to waive the street tree requirement due to site constraints and allow a contribution to the street fund.

Vote: 5-0, Morrissette and Stanley absent. Dundon moved and Eaton seconded a motion to waive the landscape buffer requirement for understory landscaping due to site constrains Vote: 5-0, Morrissette and Stanley absent. Dundon moved and Eaton seconded a motion to approve the subdivision plan with four conditions of approval. Vote: 5-0, Morrissette and Stanley absent. Dundon moved and Eaton seconded a motion to approve the site plan with 10 conditions of approval. Vote: 5-0, Morrissette and Stanley absent.

5. PUBLIC HEARING – 7:00 p.m.

i. Level III Subdivision; Conversion to 3 Residential Units; 415 Cumberland Avenue; M & A Lowcountry Investments, LLC., Applicant. (7:00-7:45 p.m. estimated time) The Board will hold a public hearing to review the final application for the redevelopment of 415 Cumberland Avenue. Co-working office space is proposed for the existing building. The proposal includes converting the rear portion of the building into 3 residential units. The bedroom mix of the units include one 1-bedroom, one 2-bedroom and one 3-bedroom. The site is located at the corner of Cumberland and Forest Avenues and is within the Downtown B-3c zone.

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6. EVENING WORKSHOP (IMMEDIATELY FOLLOWING THE PUBLIC HEARING)

i. Level III Site Plan and Subdivision; 1945 Congress Street; Northland Enterprises, LLC., Applicant. (8:15-9:15 p.m. estimated time) The Planning Board will hold a workshop on a proposal to renovate the Elks building and add two office buildings. The site is in the Office Park zone and includes information for a master plan under the OP development standards. The condominium office park is proposed with a 15,000 sq. ft. medical office building and a 35,300 sq. ft. general office building.

Memorandum
Planning and Urban Development Department
Planning Division

To:	Elizabeth Boepple, Chair, and Members of the Portland Planning Board		
From:	Shukria Wiar, Planner		
Date:	July 18, 2016		
Re:	70 Anderson Street		
Project #:	2016-099	**CBL:**	023-B-021
Meeting Date:	July 26, 2016		

I. INTRODUCTION

Redfern Properties has requested a preliminary Level III site plan and subdivision review of a ten-unit townhouse urban infill development at the corner of East Lancaster and Anderson Streets in East Bayside. The proposed 12,312 SF development includes two buildings containing the 10 townhouses. The proposal also includes seven surface parking spaces, and sidewalk and landscaping improvements. The site is currently occupied by a residential single-family house, garage and shed.

The Planning Board will review the application for compliance with the site plan and subdivision standards. A total of 138 notices were sent to property owners within 500 feet of the site and a legal ad ran on July 18th and 19th, 2016. No public comments have been received.

Applicant: Jonathan Culley, Redfern Properties
Consultants: Will Savage, Acorn Engineering; Ryan Senatore, Ryan Senatore Architecture; Nick Elliston, Titcom Associates

II. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
Aisle width – To allow a 20 foot aisle in the parking area	Technical Manual, *Section 1.14*, requiring that aisle width for right-angle parking be 24 feet per Figure I-27
Compact parking spaces and parking dimensions – To allow six compact spaces at 8.5 X 18' to be acceptable alternatives to the standard 9' X 18' space; the one remaining parking space will be a standard size, therefore it is 85% is compact spaces.	Technical Manual, *Section 1.14 and Figures I-27 to I-29.* Parking lots with greater than 10 spaces may be comprised of up to 20% compact spaces. *7 proposed = 1 compact permitted by right*
Parking lot landscaping – *Applicant to provide additional detail in final submittal*	Site Plan Standard, *Section 14-526(b)2.b(ii).* Developments with 5+ parking spaces shall include at least 2 trees (or 1 tree and 3 shrubs) per 5 parking spaces planted in landscaped islands. Waiver permitted where site constraints prevent it, with applicant contributing proportionate amount to Tree Fund. *7 parking spaces proposed = 2trees or 1 trees & 3shrubs required*
Street trees – To plant 4 street trees, less than required (6 are proposed in the rain garden area between the building)	Site Plan Standard, *Section 14-526(b)2.b(iii)* and Technical Manual, *Section 4.6.1.* All multi-family development shall provide one street tree per unit. Waiver permitted where site constraints prevent it. *10 units = 10 street trees required*

Review	***Applicable Standards***
Site Plan	*Section 14-526*
Subdivision	*Section 14-497*
Workforce Housing Inclusionary Zoning	*14-484 (Applicant is required to have one unit, which is being proposed)*

III. PROJECT DATA

Existing Zoning	Residential R-6
Existing Use	Residential
Proposed Use	Residential
Proposed Development Program	10 residential units in two building: 6 unit and 4 units
Parcel Size	9,064 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	1,054 SF	4,104 SF	3,050 SF
Building Floor Area	1,054 SF	12,312 SF	11,258 SF
Impervious Surface Area	4,376 SF	7,370 SF	-2,994 SF
Parking Spaces (on site)	Two	Seven (zoning req. 7)	Five
Bicycle Parking Spaces	0	4 internal and 2 in ROW (meets standard)	6
Estimated Cost of Project	$1,800,000		

IV. BACKGROUND & EXISTING CONDITIONS

The site of the proposed porject lies at the southeast corner of E. Lancaster and Anderson Streets in East Bayside. The site is currently occupied by a single-family house with a detached garage and shed. About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Streets.

The uses surrounding the site are mostly residential uses, including some large three-story multi-family housing. Most of the adjacent housing is of a smaller scale, with a mix of single and two-family buildings characteristic of the city's East End. The Portland Housing Authority multifamily housing directly abuts the property on the west side and also is adjacent of site. The Kennedy Park basketball courts and the Fox Street recreational field, sites a couple of parcel to the northwest at the corner of Anderson and Fox Streets.

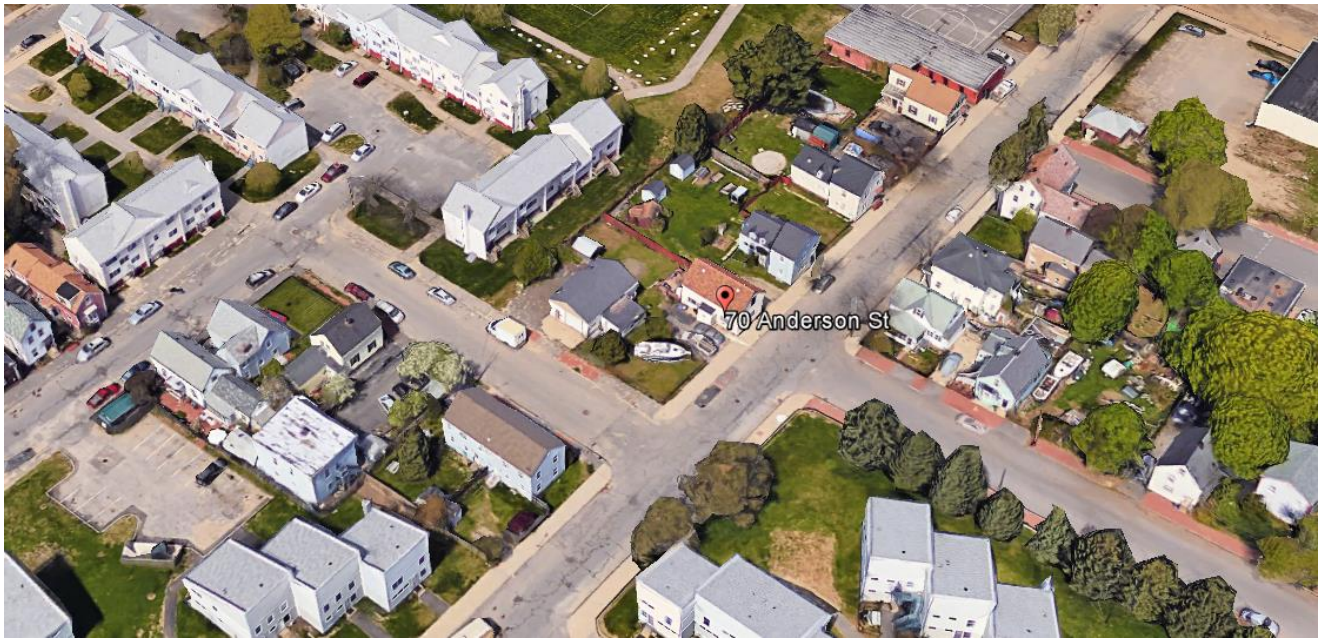

Figure 1: 70 Anderson Street Site

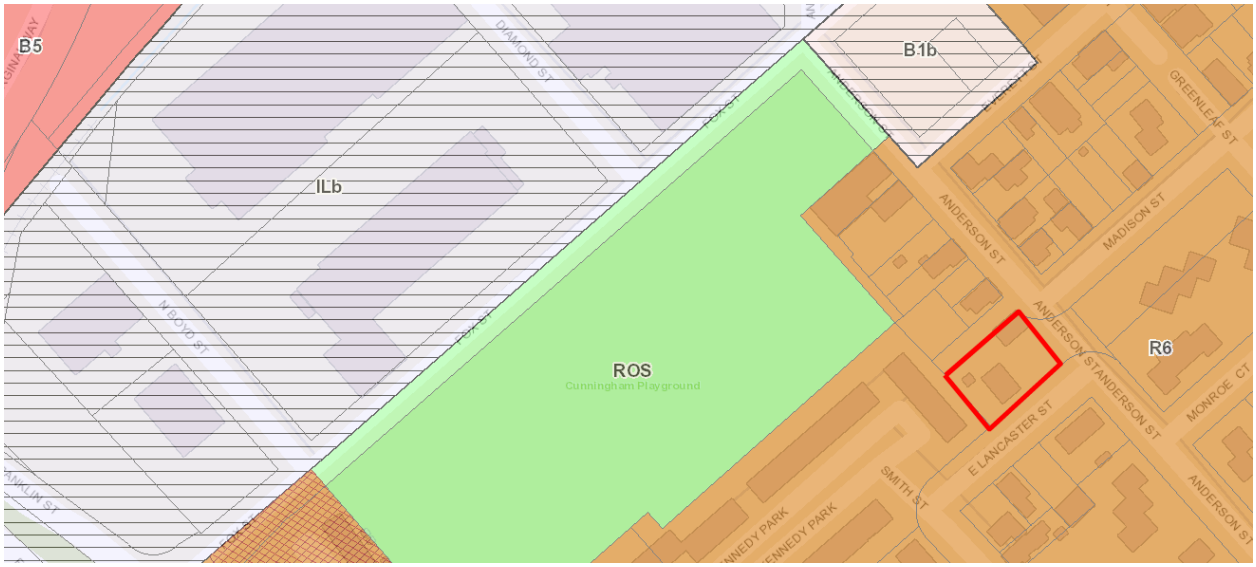

Figure 2: 70 Anderson Street; zoning context

V. PROPOSED DEVELOPMENT

The development is proposed as a residential project with frontages on Anderson and E. Lancaster Streets. The project will consist of two townhouse buildings, one with six units and the other with four units. The new ten units will be orientated as such to create a courtyard and central walking space through the property. Within the courtyard, a rain garden is proposed as a central focus on stormwater mitigation on site and will be landscaped with perennials and other plantings. All ten townhouses are three-bedroom, 1,254 square foot units. The interior fit out for each unit is identical; the proposed workforce unit does not differ in size or standard from the market-rate units. The market strategy for the workforce unit will also mimic the strategy of the market-rate units and is proposed to be approached in the same fashion.

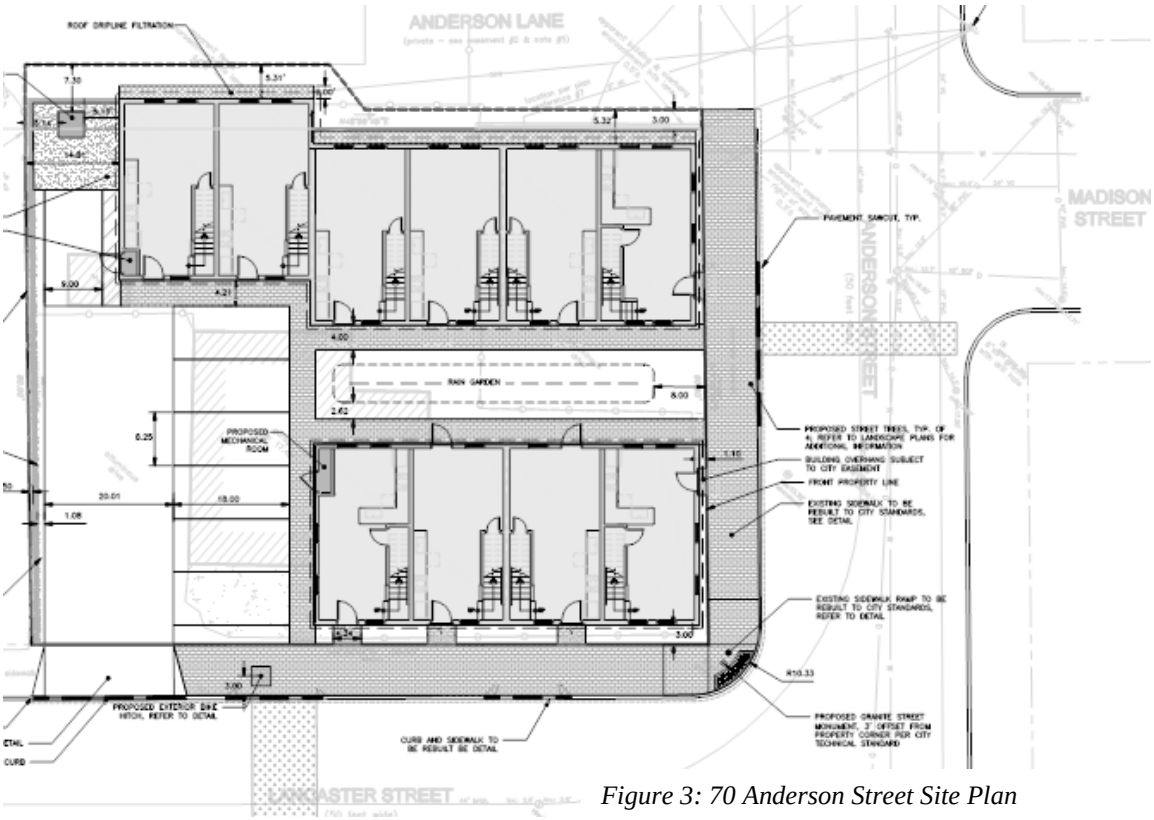

Figure 3: 70 Anderson Street Site Plan

Tenant parking is to be provided on-site with a driveway access from East Lancaster Street. There will be seven surface parking spaces as part of the project. The development will also have a rain garden between the buildings, visible from Anderson Street and a green wall is proposed on both frontages. The applicant is proposing six trees in the rain garden. New brick sidewalks and street trees are proposed on Anderson and E. Lancaster Streets. The development is also proposed with landscaping between the building and proposing a green wall on both frontages.

Figure 4: 70 Anderson Street Rendering Looking East on Anderson Street

Figure 5: 70 Anderson Street Rendering Looking West on Anderson Street

VI. PUBLIC COMMENT

As of the writing of this report, Cynthia Cochran, one of the neighbors, requested the applicant's application from the Planning Division office. No public comments have been received.

VII. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

a. The owner of the property is Redfern Properties LLC. The applicant has provided a copy of a warranty deed, recorded at the Cumberland County Registry of Deeds (Book 32559 Page 282), which demonstrates their right, title and interest in the property.

b. The estimated cost of the development is $1.8 Million. The applicant has submitted a letter from NBT Bank, dated April 21, 2016, as demonstration of their financial and technical capacity to complete the proposed development.

VIII. ZONING ANALYSIS

The proposed residential ten unit townhouses are a permitted use in the Residential R-6 which allows multi-family dwellings. Under the R-6 zone all of the dimensional requirements are being met, except for maximum lot

coverage. The applicant will need to show documentation that they meet this standard. For off street parking, Division 20 requires one parking space per unit for residential uses on the peninsula, except in the R-6 zone, the first three spaces are exempt. A total of seven parking spaces are shown which meets the zoning requirement. Under external effects, section 14-167(b), the maximum noise requirement of 55 decibels at lot boundaries shall be maintained.

IX. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527) and SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS (Section 14-496)

Per the city's land use ordinance, the following materials should be submitted at time of final review:

- A subdivision plat meeting all plat requirements as noted in 14-496; and
- Final plan submittal requirements as noted in 14-527(f) and (g). The final site plan should include:
    - State plane coordinates to the four property corners to be set;
    - Clarification regarding the location of curbing;
    - Documentation of distance to property line at ground floor and above 35', where a stepback applies per the R-6 zone;
    - The stamp of a professional engineer; and
    - Overhead Easement along Anderson Street.

B. SUBDIVISION (Section 14-497)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. *Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) 1), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)*
   Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the erosion and sediment control plan and states the "*plans, notes, and details have been provided to address erosion and sediment control requirements and inspection and maintenance requirements, in accordance with the Basic Standard*".; please see Attachment 3 for the complete analysis.

2. *Sufficient Water Available (Section 14-497 (a) 2 and 3)*
   The project will be served by new water service located in E. Lancaster Street. The Applicant will have to contact the Portland Water District and the City Department of Public Services requesting ability to serve water and sewer demand. Confirmation of ability to serve water and sewer from PWD and DPS should be forwarded to the Planning Authority upon receipt.

   The applicant is proposing a central rain garden and a roof dripline drain system for stormwater management. The plans show that a number of sewer and water services crossing beneath the rain garden to service the units. Ms. Swett states that the "*Applicant should verify that these utility pipes will be adequately deep beneath the rain garden system to provide for adequate frost protection. The landscaping plan identifies serviceberry as the trees planted within the rain garden. The Applicant should verify that these plants will not be in conflict with the utility crossings. The pipe trench detail included in the plans notes that no trees should be planted within five feet of a sewer pipe*".

3. *Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)*
   The site will be accessed by an existing curb cut on E. Lancaster Street. The circulation for the site will consist of vehicles pulling in and backing out onto E. Lancaster Street. After reviewing the site plan, there may be opportunity for the first three parking spaces along the street, to maneuver so they can pull out of the parking lot instead of backing out. Tom Errico, P.E. Ty Lin reviewed this detail and also reviewed the proposal's details including the access, parking, and vehicle circulation (Attachment 1). The proposed project is not anticipated to cause unreasonable traffic congestion. Mr. Errico finds the project to be acceptable and states:

- *Given low trip generation estimates for the project, a traffic impact study is not required. The project would not be expected to have a significant impact on traffic mobility and safety.*
- *The parking layout will likely require vehicles to back out into East Lancaster Street. Given low traffic volumes on East Lancaster Street and low trip generation from the site, I find this condition to be acceptable.*

4. *Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)*
There is an existing sewer lateral that will be abandoned in Anderson Street. The project will be served by new sewer line located in E. Lancaster Street. Ms. Swett has reviewed the plans and offers the following recommendations:

- *The Applicant should include a note referencing the City's technical standards for sewer lateral abandonment. Per Section 2 of the standards, a permit will be required, and the City will need to be notified at the time of demolition so that the Sewer Maintenance Division may assist with the abandonment.*
- *Pavement trenching/repair in the roadway should be noted on the plan at the locations of the connections to the storm drain.*
- *The plans show a foundation drain with connected in-line drains around the southern-most building. The Applicant should clarify where this system will discharge.*

5. *Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)*
The proposal site is not within an historic district. It is in an urban neighborhood surrounded by a variety of residential building types. The proposed building does not impact the natural beauty of the area or adversely affect any significant wildlife habitat, rare or irreplaceable natural areas, or any public access to the shoreline. The staff finds the proposal in conformance with this standard.

6. *Comprehensive Plan (Section 14-497 (a) 9)*
The staff has identified the following goals and policies which are relevant to the proposed housing development and finds the proposal in conformance with the Comprehensive Plan:

Portland Housing Goal: Ensure that an adequate supply of housing is available to meet the needs, preferences, and financial capabilities of all Portland households, now and in the future.

Policies

- Ensure the construction of a diverse mix of housing types that offers a continuum of options across all income levels, which are both renter and owner-occupied, including but not limited to the following:
  ii. Housing units for decreasing household size, such as young professionals, empty nesters, single-parent households, and senior citizens.
- Encourage higher density housing for both rental and home ownership opportunities, particularly located near services, such as schools, businesses, institutions, employers, and public transportation.
- Increase Portland's rental housing stock to maintain a reasonable balance between supply and demand yielding consumer choice, affordable rents, and reasonable return to landlords.
- Identify vacant land and redevelopment opportunities throughout the City to facilitate the construction of new housing.

7. *Financial Capability (Section 14-497 (a) 10)*
The estimated cost of the development is $1.8 Million. The applicant has submitted a letter from NBT Bank, dated April 21, 2016, as demonstration of their financial and technical capacity to complete the proposed development.

C. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. *Transportation Standards*

a. Impact on Surrounding Street Systems and Access and Circulation- see Subdivision, Paragraph VIII (B) (3), above.

b. Construction Management Plan

A construction management plan has been submitted by the applicant for review. All the construction is proposed within the limits of the property lines. Tom Errico has reviewed the plan and notes that the applicant "*should provide details on how the sidewalks along the property will be managed during construction*".

c. Sidewalks

The applicant is proposing to install new brick sidewalk along their frontage on both streets, as well as internal brick walkways. Pedestrian access to the site will be provided off of Anderson Street into the central courtyard and via East Lancaster Street along the parking area. Mr. Errico has reviewed the plans and recommends the following:

- *A crosswalk on Anderson Street (to Madison Street) may be a requirement for this project. I am coordinating this item with other City staff and will provide feedback in the future.*
- *I continue to review and coordinate the design of the proposed sidewalk ramp on the project corner. I am coordinating with other City staff on the ramp design. Additionally, the crosswalk on East Lancaster Street shall include a fully compliant ramp on the south corner of the intersection.*
- *The driveway apron along the sidewalk shall have a maximum cross slope of 2%. The plans shall include details specifying this requirement.*

d. Public Transit Access

The public transit requirements do not apply to this project.

e. Parking

The applicant is proposing seven surface parking spaces to meet zoning requirements and these are located on the rear of the property. Six of the seven parking spaces do not meet technical standards. The dimension of a standard parking space is 9'x18', the standard for compact space is 8'x15', and the applicant is proposed 8.5'x 18'. The applicant has requested that the six spaces be considered compact spaces. The technical manual states "*Any parking lot with 10 or fewer spaces shall contain standard sized parking spaces. Parking lots with greater than 10 spaces may be comprised of up to 20% compact parking spaces*"; the six spaces is exceeding this standard since the proposal is at 85%. Mr. Errico addresses this in his memo, Attachment 1:

> *The applicant is proposing parking spaces (one space meets City standards) that are slightly narrower than City standards (8.25 feet vs. 9 feet). An Auto-turn analysis should be provided documenting adequate vehicle circulation.*

The surface parking lot will have a twenty foot (20') parking aisle width that does not meet standard of twenty-four feet (24'); therefore the applicant has requested a waiver. An auto-turn analysis will have to be provided documenting adequate vehicle circulation for review by the City's traffic engineer.

f. Bicycle Parking

The proposals include 2 bicycle parking spaces at the rear of the existing building, which meets the ordinance standard of 2 bicycle spaces per 5 vehicle spaces. The bicycle rack should be located on the property and not in the right of way. There is space near the parking area that the rack can be relocated at.

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 site will have a green wall along the front of the buildings as well as a rain garden in the middle of two building, visible along Anderson Street. There is a fence at the westerly side of the property and staff recommends a screening at the northerly side as well. The applicant is proposing four street trees on Anderson Street, in front of the buildings. The street tree requirement would be one tree per unit, or ten street trees, in or near the ROW. The applicant is proposing four street trees on Anderson Street and six trees at the rain garden along the two buildings which will be on site and away from the street. The Section of 4.6 Street Trees of the Technical Manual does state:

> *If it is determined by the City Arborist that there is not adequate space or conditions for street trees in the public right of way or if there is a conflict between the location of proposed street trees and the location of existing or proposed underground utilities, the required number of street trees shall be provided on private property within 10 feet of the property line along the street frontage.*

All of the six trees will be internal to the property, except for one that is with the 10 feet of the property line along the Anderson Street frontage; five of the six trees will not qualify as street trees. Therefore the applicant will need to contribute to the City's Tree Fund for the remaining five trees.

Jeff Tarling, City Arborist, has reviewed the proposed landscaping plan and offers the following recommendations:

- *Street-trees - extend the street tree planting to include Lancaster Street as well as Anderson Street. After taking a closer look the space is too tight or restrictive to include two trees in the tree planters.*
- *Tree planters should not be raised due to on-street parking; they should be rectangular in shape 4' x 7' ideal.*
- *Landscape treatment should be considered for the area near the parking lot.*
- *Ornamental grasses proposed for the 5' boarder is acceptable, applicant may want to consider alternatives, woody plants or herbaceous plant material / perennials that offer flowers / texture and year around interest.*

The applicant is proposing a transformer and a solid waste storage at the rear of the property that will be visible from the E. Lancaster Street. According to the cover letter, both the solid waste and transformer will be screened; the plans will need to show this as well.

c. Water Quality, Storm Water Management and Erosion Control

Currently the stormwater runoff is directed to the westernmost corner of the site and eventually enters the Fox Street municipal stormwater system. The site as a whole is relatively flat with an average grade of approximately 3% sloping to the rear of the property. The project will result in a net increase of impervious area above 1,000 sf, as such, is required to include stormwater management features for stormwater quality & quantity control.

The applicant will provide water quality treatment to the stormwater through filtration by utilizing

a rain garden and roof dripline filtration. These treatments will provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area. The remainder of the stormwater will be transported to the municipal stormwater system within Anderson Street via a perforated distribution pipe.

Under 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. Lauren Swett, P.E. with Woodard and Curran Engineering, has reviewed the drainage plan and stormwater report, and offers her recommendations regarding the General and Flooding Standards:

- *General Standard: The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing to install a rain garden and a roof drip edge filter as stormwater management BMPs. It appears that the proposed systems will provide adequate stormwater treatment in accordance with Maine DEP standards. We have the following comments on the stormwater design:*

    - *Additional clarification is needed on the HydroCAD model of the Rain Garden. The modeled storage is unclear. It appears that separate volumes have been calculated for the water quality volume, loam/soil filter layer, and crushed stone layer, but it is not clear if only the void space within the soil materials was included as storage. It also appears, based on elevations that the calculated volumes for water quality volume and loam/soil filter may overlap. The Maine DEP BMP standard for bioretention cells allows for one third of the soil filer volume to be included as storage volume when designing a system.*
    - *The Applicant should clarify the exfiltration invert included in the model for the rain garden. The elevation doesn't match the base elevation of the rain garden.*
    - *The Applicant has noted that a vertical orifice/grate has been modeled for both the rain garden and the roof drip edge outlet to provide for 24-hour stormwater detention. This orifice is not identified on the plans.*

- *Flooding Standard: The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. A comparison of pre-development flows with post-development flows shows that there is no increase in the 10-year and the 25-year storm events, but there is a small increase in the 2-year storm. We are in agreement that the level of increase indicated by the Applicant for this storm event is minor and should not negatively impact the site or the stormwater system. Please see additional comments under the general standard for questions in regards to the stormwater modeling method utilized for the site and the stormwater BMPs. If any changes are made to the stormwater model, compliance with the flooding standard will be reevaluated as required.*

3. *Public Infrastructure and Community Safety Standards*

a. Consistency with Master Plans

See Subdivision, Paragraph VIII (B)6 above.

b. Public Safety and Fire Prevention

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime.

The applicant has not submitted a lighting and photometric plan. As a subdivision, street lighting

may be required to provide lighting for the area by the entrances and parking spaces. This will be reviewed when a lighting plan is submitted.

c. Availability and Adequate Capacity of Public Utilities
The project will be served by the Portland Water District, City Department of Public Works, and underground\ power /cable/communications. The Applicant will need to contact the Portland Water District and the City Department of Public Services requesting ability to serve water and sewer demand. Confirmation of ability to serve water and sewer from PWD and DPS should be forwarded to the Planning Authority upon receipt.

4. Site Design Standards

a. Snow and Ice Loading
The applicant will need to show how snow removal is being handled on site. If the applicant will be storing snow on site, the plans will need to show the proposed on-site snow storage areas.

b. View Corridors
This site is not within a Protected View Corridor as per the "View Corridor Protection Plan" approved by the Portland City Council in 2001.

c. Historic Resources
The site is not in any historic district; therefore the project does not have to be reviewed by Historic Preservation.

d. Exterior Lighting
The applicant has not submitted a lighting and photometric plan. As a subdivision, street lighting may be required to provide lighting for the area by the entrance and parking spaces. This will be reviewed when a lighting plan is submitted. All exterior site lighting including lighting of building entrances will be cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties or streets. Illumination levels will be adequate but not excessive for the safety, comfort and convenience of occupants and user of the site and will conform to all applicable standards of Section 12 of the Technical Manual.

e. Noise and Vibration
All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will have to be shown on the plans and meet state and federal emissions requirements. These mechanical equipment should be located to the interior of the site, away from abutting residential properties and be screened from view from any public street and from adjacent sites by structure walls, evergreen landscaping, fencing, masonry wall or a combination thereof. This information will have to be submitted for review.

f. Signage and Wayfinding
This standard does not apply to the proposal.

g. Zoning Related Design Standards
A design review according to the *City of Portland Design Manual* Standards was performed for the proposed new construction of a multi-family dwelling at 70 Anderson Street. The review was performed by Caitlin Cameron, Urban Designer, Nell Donaldson, Planner, and Shukria Wiar, Planner. The project was reviewed against the *R-6 Small Infill Development Design Principles & Standards*. The proposed design does not pass all of the criteria – please refer Attachment 5 for the full review of the design standards. The outstanding comments from this review include lack of relationship to the street, the roof pitch and height of the gable roofs do not reflect and reinforce the traditional building character of the neighborhood, and lack of façade articulation (no bays, gables/dormers, recessed entry, balconies are proposed). The applicant may either revise the

design according to the review comments and resubmit or appeal the decision of the design review to the Planning Board.

XI. NEXT STEPS

1. Address staff comments;
2. Address additional comments of the Planning Board;
3. Prepare final plan submission, including subdivision and site plan submittal requirements as included in 14-496(a) and (b) and 14-527(f) and (g) for review by the Planning Authority and Planning Board; and
4. Hold final Planning Board Hearing.

XII. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Traffic Engineer review (memo from Thomas Errico, 7.20.2016)
2. Civil Engineer and Department of Public Services review (memo from Lauren Swett, 7.20.2016)
3. City Arborist review (memo from Jeff Tarling, 7.21.2016)
4. Fire Prevention Department review (memo from Craig Messinger, 7.13.2016)
5. Design review (memo from Caitlin Cameron, 7.20.2016)

APPLICANT'S SUBMITTALS

A. Cover Letter (from Will Savage of Acorn Engineering , Inc., 4.26.16)
B. Level III Site Plan application
C. Evidence of Right, Title, and Interest
D. Zoning Analysis
E. Summary of Easements
F. Written Request for Waivers
G. Evidence of Financial Capacity
H. Stormwater Report
I. Erosion and Sedimentation Control Report
J. Fire Department Letter
K. Solid Waste
L. Utility Cover
M. Construction Management Plan
N. Architectural Design Narrative
O. Cover Letter (from Will Savage of Acorn Engineering , Inc., 6.28.16- IZ)
P. Conditional Use IZ Application
Q. Conformity with Conditional Use Standards

PLANS

Plan 1. Cover Sheet & Legend
Plan 2. General Notes
Plan 3. Existing Conditions Plan
Plan 4. Site Plan
Plan 5. Utility Plan
Plan 6. Grading, Drainage, & Erosion Control Plan
Plan 7. Site Details - 1
Plan 8. Site Details - 2
Plan 9. Utility Details
Plan 10. Drainage Details
Plan 11. Erosion Control Details & Notes
Plan 12. Demolition and Construction Management Plan
Plan 13. Landscape Schematic Design
Plan 14. First Floor Plan
Plan 15. Second Floor Plan
Plan 16. Third Floor Plan

Plan 17. Roof Plan
Plan 18. First Floor Plan
Plan 19. Second Floor Plan
Plan 20. Third Floor Plan
Plan 21. Roof Plan
Plan 22. Looking East from Anderson
Plan 23. Looking West from Anderson
Plan 24. Looking South on Madison
Plan 25. Looking North on E. Lancaster
Plan 26. NE and SE Elevation
Plan 27. SW and NW Elevation
Plan 28. Floor Plans and Interior Standards

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

70 Anderson Street - Preliminary Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Jul 20, 2016 at 2:28 PM
To: Shukria Wiar <shukriaw@portlandmaine.gov>
Cc: Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Jeff Tarling <jst@portlandmaine.gov>, "Swett, Lauren" <lswett@woodardcurran.com>

Hi Shukria – I have reviewed the application materials and offer the following preliminary traffic comments.

- Given low trip generation estimates for the project, a traffic impact study is not required. The project would not be expected to have a significant impact on traffic mobility and safety.
- The applicant is proposing parking spaces (one space meets City standards) that are slightly narrower than City standards (8.25 feet vs. 9 feet). An Auto-turn analysis should be provided documenting adequate vehicle circulation.
- The parking layout will likely require vehicles to back out into East Lancaster Street. Given low traffic volumes on East Lancaster Street and low trip generation from the site, I find this condition to be acceptable.
- The applicant is proposing a parking aisle width of 20 feet and this does not meet the City standards. An Auto-turn analysis should be provided documenting adequate vehicle circulation.
- The driveway apron along the sidewalk shall have a maximum cross slope of 2%. The plans shall include details specifying this requirement.
- A crosswalk on Anderson Street (to Madison Street) may be a requirement for this project. I am coordinating this item with other City staff and will provide feedback in the future.
- I continue to review and coordinate the design of the proposed sidewalk ramp on the project corner. I am coordinating with other City staff on the ramp design. Additionally, the crosswalk on East Lancaster Street shall include a fully compliant ramp on the south corner of the intersection.
- The construction management plan should provide details on how the sidewalks along the property will be managed during construction.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

thomas.errico@tylin.com

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www.woodardcurran.com

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T 207.774.2112
F 207.774.6635

Att. 2

MEMORANDUM

TO: Shukria Wiar, Planner
FROM: Lauren Swett, PE
DATE: July 20, 2016
RE: 70 Anderson Street, Level III Site Plan Application

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed redevelopment located at 70 Anderson Street. The project includes the construction of a 10-unit townhouse urban infill redevelopment on the parcel which currently contains a single story home and garage.

Documents Reviewed by Woodard & Curran

- Level III Site Plan application and attachments, dated April 26, 2016, prepared by Acorn Engineering, Inc., on behalf of Redfern Properties, LLC.
- Project plans, dated April 26, 2016, prepared by Acorn Engineering, Inc., on behalf of Redfern Properties, LLC.

Comments

1) The Applicant has submitted requests for ability to serve to the City of Portland for sewer and Portland Water District for water. The Applicant should note that they will be required to provide evidence of capacity to serve and approval of the proposed design from the City of Portland and Portland Water District.
2) 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 and inspection and maintenance requirements, in accordance with the Basic Standard.
   b) General Standard: The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing to install a rain garden and a roof drip edge filter as stormwater management BMPs. It appears that the proposed systems will provide adequate stormwater treatment in accordance with Maine DEP standards. We have the following comments on the stormwater design:
      - Additional clarification is needed on the HydroCAD model of the Rain Garden. The modeled storage is unclear. It appears that separate volumes have been calculated for the water quality volume, loam/soil filter layer, and crushed stone layer, but it is not clear if only the void space within the soil materials was included as storage. It also appears, based on elevations, that the calculated volumes for water quality volume and loam/soil filter may overlap. The Maine DEP BMP standard for bioretention cells allows for one third of the soil filer volume to be included as storage volume when designing a system.
      - The Applicant should clarify the exfiltration invert included in the model for the rain garden. The elevation doesn't match the base elevation of the rain garden.
      - The Applicant has noted that a vertical orifice/grate has been modeled for both the rain garden and the roof drip edge outlet to provide for 24-hour stormwater detention. This orifice is not identified on the plans.
   c) Flooding Standard: The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. A comparison of pre-development flows with post-development flows shows that there is no increase in the 10-year and the 25-year storm events, but there is a small increase in the 2-year storm. We are in agreement that the level of increase indicated by the Applicant for this storm event is minor and should not negatively impact the site or

the stormwater system. Please see additional comments under the general standard for questions in regards to the stormwater modeling method utilized for the site and the stormwater BMPs. If any changes are made to the stormwater model, compliance with the flooding standard will be re-evaluated as required.

3) All of the bituminous pavement details should be corrected to refer to 12.5mm HMA (not 9.5 mm) for the surface courses of pavement, in accordance with the City of Portland Technical Standards.
4) A call-out note for street trees is included on the Site Plan (sheet C-10), but the trees and planters within the sidewalk are not shown.
5) The Applicant has noted that there will be an existing sewer lateral abandoned at the site. The Applicant should include a note referencing the City's technical standards for sewer lateral abandonment. Per Section 2 of the standards, a permit will be required, and the City will need to be notified at the time of demolition so that the Sewer Maintenance Division may assist with the abandonment.
6) Pavement trenching/repair in the roadway should be noted on the plan at the locations of the connections to the storm drain.
7) The plans show a foundation drain with connected in-line drains around the southern-most building. The Applicant should clarify where this system will discharge.
8) The rain garden is shown with numerous sewer and water service crossings. The Applicant should verify that these utility pipes will be adequately deep beneath the rain garden system to provide for adequate frost protection. The landscaping plan identifies serviceberry as the trees planted within the raingarden. The Applicant should verify that these plants will not be in conflict with the utility crossings. The pipe trench detail included in the plans notes that no trees should be planted within five feet of a sewer pipe.

Portland Maine Yes. Google's good here.

Shukria Wiar <shukriaw@portlandmaine.gov>

70 Anderson Street

Jeff Tarling <jst@portlandmaine.gov> Thu, Jul 21, 2016 at 9:21 AM
To: Shukria Wiar <shukriaw@portlandmaine.gov>

Hi Shukria -

In review of the landscape plan for the proposed 70 Anderson Street the following tree & landscape recommendations would improve the project:

* Street-trees - extend the street tree planting to include Lancaster Street as well as Anderson Street. After taking a closer look the space is too tight or restrictive to include two trees in the tree planters.

* Tree planters should not be raised due to on-street parking, they should be rectangular in shape 4' x 7' ideal.

* Landscape treatment should be considered for the area near the parking lot.

* Ornamental grasses proposed for the 5' boarder is acceptable, applicant may want to consider alternatives, woody plants or herbaceous plant material / perennials that offer flowers / texture and year around interest.

Thanks

Jeff Tarling
Portland Parks & Recreation - City Arborist
55 Portland Street
Portland, ME. 04101
(207) 874.8820
jst@portlandmaine.gov

MEMORANDUM

To: FILE

From: Shukria Wiar

Subject: Application ID: 2016-099

Date: 7/21/2016

Comments Submitted by: Craig Messinger/Fire on 7/13/2016

We will consider this "New Construction" and say that both buildings will require NFPA 13R systems and will require local smoke and Carbon Monoxide protection in all the units.

Planning and Urban Development Department
Planning Division

Subject: R-6 Small Infill Design Review – 70 Anderson Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, July 20, 2016

A design review according to the *City of Portland Design Manual* Standards was performed for the proposed new construction of a multi-family dwelling at 70 Anderson Street. The review was performed by Caitlin Cameron, Urban Designer, Nell Donaldson, Planner, and Shukria Wiar, Planner, all within the Planning Division of the Department of Planning & Urban Development. The project was reviewed against the *R-6 Small Infill Development Design Principles & Standards* (Appendix 7 of the Design Manual).

Findings of the Design Review:
The proposed design **does not pass** all of the criteria – please refer to comments below. The applicant may either revise the design according to the review comments and resubmit or appeal the decision of the design review to the Planning Board.

Design Review Comments *(red text denotes principles or standards that are not met)**:***

- Roof plans lacking information – slopes, ridge lines.
- Building height is measured to the mid-point of a sloped or gabled roof, not the ridge.
- Either provide scaled drawings or dimension key components like building height, height from sidewalk of ground floor windows, roof slopes, etc.
- Why is the second floor taller than the other two floors?

Principle A Overall Context – Not Met – see below.

- *A-1 Scale and Form:* The scale the project is larger than most buildings on this small street, but the height is three stories and does not overshadow the neighboring 2.5 or 3 story residential buildings. The form is mostly defined by the gabled roof which is a traditional New England roof form, however, see comments below about proportion and slope of roof.
- *A-2 Composition of Principal Facades:* The composition of the street-facing facades is consistent with context in terms of using symmetrical bays (two or three bays).
- *A-3 Relationship to the Street:* The building placement is consistent with the spacing of the residential fabric – slightly setback from sidewalk to allow for stoops and provide some privacy. The ground floor is not raised and is not consistent with residential development patterns.

Principle B Massing – Not Met – The roof pitch and height of the gable roofs do not reflect and reinforce the traditional building character of the neighborhood.

- *B-1 Massing:* The proposed mass is wider on the street than the typical building context but the use of row houses mitigates that massing.
- *B-2 Roof Forms:* The proposed gable roof is not correctly proportioned and sloped for the context or the scale of the building. Gable roofs are steeper and typically would start after the second floor with the roof space occupied and expanded with dormers.
- *B-3 Main Roofs and Subsidiary Roofs:* Met – there is a clear main roof form.
- *B-4 Roof Pitch:* The standard requires gable roofs to have a slope between 7:12 and 12:12. This roof is too shallow, especially in consideration of the building height and width, throwing the proportion of the building ends off. There are several options to revise to meet the standard (in order of preference):
    - Lower the height of the roof to start at the second floor and use dormers/dustpan design to accommodate the living spaces of the third floor. This is in keeping with the massing and form of residential buildings.
    - Correct the slope of the gable roof to meet the standard.
    - Change the roof to a hipped roof
- *B-5 Façade Articulation:* The project employs only one of the required articulation elements – covered entries. An additional articulation element (bays, gables/dormers, recessed entry, balconies) must be part of the design to meet the standard.
- *B-6 Garages:* Not applicable.

Principle C Orientation to the Street – Not Met – The project is oriented to the streets, however, the privacy associated with private residential architecture is not created – ground floor living spaces too low, windows too low, lack of transition at entries.

- *C-1 Entrances:* The entry to each unit is well-emphasized with the canopy.
- *C-2 Visual Privacy:* Visual privacy is not adequately addressed; many ground floor windows do not appear to be higher than 48" above adjoining sidewalk grade; the ground floor is not adequately raised above sidewalk grade appropriate for private residential buildings with living space on the ground floor (at least 24" is required by the standard).
- *C-3 Transition Spaces:* The project uses a canopy at each entrance but very little transition space is provided – ground floor living spaces are not elevated or separated with vestibules.
-

Principle D Proportion and Scale – Not Met – While the scale of the buildings overall are harmonious and human-scaled, the overall proportion of the gable-end of the buildings is awkward – the roof height and slope is out of proportion with the width and height of the building (as discussed above).

- *D-1 Windows:* The majority of windows are rectangular and have vertical proportion; window proportion is not a proportion found in the context, however.
- *D-2 Fenestration:* The project appears to meet the 12% fenestration requirement and appropriately scaled to the massing of the building.
- *D-3 Porches:* Not applicable

Principle E Balance – Met – The building façade composition creates a sense of balance with good use of overall and local symmetry and articulation of façade materials.

- *E-1 Window and Door Height:* The majority of window and door head heights align along a common horizontal datum.
- *E-2 Window and Door Alignment:* The majority of windows shall stack so that centerlines of windows are in vertical alignment.
- *E-3 Symmetricality:* Primary window compositions are arranged symmetrically around discernable vertical axes.

Principle F Articulation – Met – Based on the information given, it appears the project employs visually interesting and well composed facades.

- *F-1 Articulation:* It is a little bit difficult to discern the trim and window details of the project however, if there is a little bit of a shadow line created with these details, as it appears there would be, then the standard is met.
- *F-2 Window Types:* Two window types
- *F-3 Visual Cohesion:* The visual cohesion of the façade is good.
- *F-4 Delineation between Floors:* The first floor is delineated through trim and change of clapboard reveal.
- *F-5 Porches, etc.:* The stoop and canopy are well integrated into the overall design.
- *F-6 Main Entries:* The main entry is emphasized with prominent placement facing the street, the use of a canopy.
- *F-7 Articulation Elements:* It appears the rake of the roof meets the 6" requirement; the trim details are not clear; there do not appear to be offsets in the principal façades.

Principle G Materials – Met – The material choices are well-placed and clapboard is contextual for residential architecture in this neighborhood.

- *G-1 Materials:* The residential context is predominantly clapboards with occasional shingle or brick.
- *G-2 Material and Façade Design:* The materials are appropriately placed according to their nature.
- *G-3 Chimneys:* Not applicable.
- *G-4 Window Types:* Two window types.
- *G-5 Patios and Plazas:* More info needed: Internal patio space design not clear – what are material choices?

ACORN ENGINEERING, INC.

Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

April 26, 2016

Subject: Preliminary Site Plan and Subdivision Application
Redevelopment of 70 Anderson Street - Portland, Maine

To Whom It May Concern,

Redfern Properties, LLC is pleased to submit the accompanying package of submission materials related to the proposed 10-unit townhouse urban infill redevelopment of 70 Anderson Street. The property is currently listed within the tax records as 1 East Lancaster Street. The development will include one workforce housing unit for rent in accordance with Division 30, Affordable Housing of the Land Use Ordinance.

This submission package is intended to meet the City's Preliminary Submission Requirements as outlined in the Level III Application procedures. The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. The lot is currently occupied by a single story home with a detached garage and shed and is proposed to be redeveloped into townhouses classified as ten "attached single-family" residences. The development site is located within the City's R-6 Zoning District, and complies with the permitted uses within the zone.

Accompanying this cover letter are the following materials:

- Site Plan Application
- Preliminary Architectural Submission
- Section 1: Title, Right and Interest
- Section 2: Technical and Financial Capacity
- Section 3: Construction Management Plan
- Section 4: Stormwater Management Plan
- Section 5: Erosion and Sedimentation Control Plan
- Section 6: Utilities
- Section 7: Solid Waste Disposal
- Section 8: Fire Safety
- Section 9: Conformity with Applicable Zoning Requirements
- Section 10: Request for Waivers
- Section 11: Summary of Written Easements

Redfern Properties LLC and the design team look forward to your review of this project and are requesting to be placed on the next available workshop meeting with the Planning Board. Please find one (1) hard copy of the application materials including one set each of 11x17 and full size plans,

along with a CD containing PDF files for all submitted materials. If you have any questions regarding these materials or the completeness of the application materials, please contact us within the next five (5) days.

Sincerely,

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.

Att. B

Portland, Maine — Yes. Life's good here.

Jeff Levine, AICP, Director
Planning & Urban Development Department

Electronic Signature and Fee Payment Confirmation

Notice: Your electronic signature is considered a legal signature per state law.

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. You are also signifying your intent on paying your fees by the opportunities below.

I, the undersigned, intend and acknowledge that no Site Plan or Historic Preservation Applications can be reviewed until payment of appropriate application fees are ***paid in full*** to the Inspections Office, City of Portland Maine by method noted below:

☐ Within 24-48 hours, once my complete application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☐ Within 24-48 hours, once my application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☒ I intend to deliver a payment method through the U.S. Postal Service mail once my application paperwork has been electronically delivered.

Applicant Signature: _____ Date: 4/26/2016

I have provided digital copies and sent them on: _____ Date: 4/26/16

NOTE: All electronic paperwork must be delivered to buildinginspections@portlandmaine.gov or by physical means i.e. a thumb drive or CD to the Inspections Office, City Hall, 3rd Floor, Room 315.

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) which is available on our website:

Land Use Code: http://me-portland.civicplus.com/DocumentCenter/Home/View/1080
Design Manual: http://me-portland.civicplus.com/DocumentCenter/View/2355
Technical Manual: http://me-portland.civicplus.com/DocumentCenter/View/2356

Planning Division
Fourth Floor, City Hall
389 Congress Street
(207) 874-8719

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

Updated: October 6, 2015

PROJECT NAME: 70 Anderson Street Redevelopment

PROPOSED DEVELOPMENT ADDRESS:

70 Anderson Street Portland, Maine 04101

PROJECT DESCRIPTION:

Redevelopment of an existing lot with a single level home and detached garage into ten townhouse units with parking to the rear of the property.

CHART/BLOCK/LOT: 023-B-021

PRELIMINARY PLAN 4/26/16 (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Jonathan Culley Redfern Properties, LLC Business Name, if applicable: Address: P.O. Box 8816 Portland, ME 04104 City/State : Zip Code:	**Applicant Contact Information** Work # (207)776-9715 Home# Cell # Fax# e-mail: jonathan@redfernproperties.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Acorn Engineering, Inc. Will Savage, P.E. Address: 158 Danforth Street Portland, ME 04102 City/State : Zip Code:	**Agent/Representative Contact information** Work # (207)775-2655 Cell # (207)317-1884 e-mail: wsavage@acorn-engineering.com
Billing Information Name: (See Applicant Information) Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:

Engineer Name: Acorn Engineering, Inc. Will Savage, P.E. Address: 158 Danforth Street City/State : Portland, ME Zip Code: 04012	**Engineer Contact Information** Work # (207)775-2655 Cell # Fax# e-mail: wsavage@acorn-engineering.com
Surveyor Name: Titcomb Associates Nick Elliston, PLS Address: 133 Gray Road City/State : Falmouth, ME Zip Code: 04105	**Surveyor Contact Information** Work # (207)797-9199 Cell # Fax# e-mail: NElliston@titcombsurvey.com
Architect Name: Ryan Senatore Architecture Ryan Senatore, AIA Address: 565 Congress St, Suite 304 City/State : Portland, ME Zip Code: 04101	**Architect Contact Information** Work # (207)747-5159 Cell # Fax# e-mail: ryan@senatorearchitecture.com
Attorney Name: Eben Adams- Pierce Atwood Address: Merrill's Wharf, 254 Commercial St City/State :Portland, ME Zip Code: 04101	**Attorney Contact Information** Work # (207) 791-1175 Cell # Fax# e-mail: eadams@pierceatwood.com

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Credit Card, Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews)

X Less than 50,000 sq. ft. ($500.00)
___ 50,000 - 100,000 sq. ft. ($1,000)
___ 100,000 – 200,000 sq. ft. ($2,000)
___ 200,000 – 300,000 sq. ft. ($3,000)
___ over 300,00 sq. ft. ($5,000)
___ Parking lots over 11 spaces ($1,000)
___ After-the-fact Review ($1,000.00 plus applicable application fee)

Plan Amendments (check applicable reviews)

___ Planning Staff Review ($250)
___ Planning Board Review ($500)

The City invoices separately for the following:

- Notices ($.75 each)
- Legal Ad (% of total Ad)
- Planning Review ($40.00 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.

Other Reviews (check applicable reviews)

___ Traffic Movement ($1,000)
X Stormwater Quality ($250)
X Subdivisions ($500 + $25/lot)
# of Lots 1 x $25/lot = $25
___ Site Location ($3,000, except for residential projects which shall be $200/lot)
# of Lots ___ x $200/lot = _____
___ Other _____
___ Change of Use
___ Flood Plain
___ Shoreland
___ Design Review
___ Housing Replacement
___ Historic Preservation

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal

2. In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Building Inspections Office to start the review process.

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. **One (1) full size site plans** that must be **folded.**
2. One (1) copy of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

APPLICANT SIGNATURE:

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:**
	4/26/2016

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	9064 sq. ft.
Proposed Total Disturbed Area of the Site	9064 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)	4376 sq. ft.
Impervious Area (Total Proposed)	7370 sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	1054 sq. ft.
Building Footprint (Total Proposed)	4104 sq. ft.
Building Floor Area (Total Existing)	1054 sq. ft.
Building Floor Area (Total Proposed)	12312 sq. ft.
Zoning	
Existing	R-6
Proposed, if applicable	
Land Use	
Existing	Single-Family
Proposed	Attached Single-Family
Residential, If applicable	
# of Residential Units (Total Existing)	1-unit
# of Residential Units (Total Proposed)	10-unit
# of Lots (Total Proposed)	1 Lot
# of Affordable Housing Units (Total Proposed)	1-unit
Proposed Bedroom Mix	
# of Efficiency Units (Total Proposed)	None
# of One-Bedroom Units (Total Proposed)	None
# of Two-Bedroom Units (Total Proposed)	None
# of Three-Bedroom Units (Total Proposed)	Ten
Parking Spaces	
# of Parking Spaces (Total Existing)	Two
# of Parking Spaces (Total Proposed)	Seven
# of Handicapped Spaces (Total Proposed)	N/A
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	None
# of Bicycle Spaces (Total Proposed)	Four (Internal) 2 (ROW)
Estimated Cost of Project	$1.8 Million

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
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
N/A		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
X		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);	
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.	

Att. C

MAINE REAL ESTATE TAX PAID

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, that **CECELIA M. BICKFORD** f/k/a Cecelia M. Yargeau of Portland, Maine ("Grantor"), for consideration paid, GRANTS to **REDFERN PROPERTIES LLC**, a Maine limited liability company having a mailing address of P.O. Box 8816, Portland, Maine 04104 ("Grantee"), with Warranty Covenants, the land and any improvements thereon situated in the City of Portland, Cumberland County, Maine, being more particularly bounded and described as follows:

See EXHIBIT A attached hereto and made a part hereof.

WITNESS my hand and seal this 1st day of September, 2015.

Witness:

Cecelia M. Bickford

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. September 1st, 2015

Personally appeared the above-named Cecelia M. Bickford, and acknowledged the foregoing instrument to be her free act and deed.

Before me,

~~Notary Public~~/Maine Attorney at Law
Name: Eben Adams
My Commission Expires:

{W5049631.2}

EXHIBIT A

A certain lot or parcel of land situated on the northerly side line of Lancaster Street, adjoining the westerly side line of Anderson Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the northerly side line of Lancaster Street and the westerly side line of Anderson Street;

Thence in a generally westerly direction by the northerly side line of Lancaster Street, 105 feet, more or less to land now or formally of the Portland Housing Authority, known as Kennedy Park;

Thence in a general northerly direction by the easterly side line of said land now or formally of the Portland Housing Authority, known as Kennedy Park, 80 feet, more or less, to the southerly side line of Anderson Lane;

Thence in a generally easterly direction by the southerly side line of Anderson Lane, 105 feet, more or less, to the westerly side line of Anderson Street;

Thence in a general southerly direction by the westerly side line of Anderson Street, 80 feet, more or less, to the northerly side line of Lancaster Street and the point of beginning.

This conveyance is made SUBJECT TO the covenants and restrictions set forth in a deed from Portland Renewal Authority recorded in the Cumberland County Registry of Deeds in Book 3129, Page 374; as affected by Quitclaim Deed from Portland Renewal Authority to Cecelia M. Bickford recorded at the Cumberland County Registry of Deeds together herewith.

Being the same premises conveyed by Warranty Deed from Grace Bickford to Cecelia M. Yargeau and Rocky P. Yargeau dated March 10, 1982 and recorded in Cumberland County Registry of Deeds in Book 4929, page 256; Further reference is made to a Quitclaim Deed with Covenant from Rocky P. Yargeau to Cecelia M. Yargeau dated July 26, 2006 and recorded in the Cumberland County Registry of Deeds in Book 24231, Page 280 and to a Quitclaim Deed with Covenant from Cecelia M. Yargeau n/k/a Cecelia M. Bickford, dated September 12, 2006, and recorded in the Cumberland County Registry of Deeds in Book 24418, Page 195.

Received
Recorded Register of Deeds
Sep 01,2015 02:17:40P
Cumberland County
Nancy A. Lane

RELEASE DEED

PORTLAND HOUSING AUTHORITY, a Maine public and body corporate and politic having a mailing address of 14 Baxter Boulevard, Portland, Maine 04101 (the "Grantor") for consideration paid, releases to REDFERN PROPERTIES, LLC, a Maine limited liability company with a mailing address of P.O. Box 8816, Portland, Maine 04104 (the "Grantee"), all of the Grantor's right, title, or interest in and to that portion of the private way known as Anderson Lane located in Portland, Cumberland County, Maine that abuts Grantee's property at the corner of Lancaster Street and Anderson Street, in Portland, Maine, as described in a deed to Grantee from Cecelia M. Bickford date September 1, 2015 and recorded in the Cumberland County Registry of Deeds in Book 32559, Pate 282.

IN WITNESS WHEREOF, Portland Housing Authority has caused this instrument to be executed and delivered by Mark B. Adelson, its Executive Director, this 17th day of June, 2016.

PORTLAND HOUSING AUTHORITY

Witness

By: _____
Mark B. Adelson
Its: Executive Director

STATE OF MAINE
CUMBERLAND ss.

June 17, 2016

Personally appeared before me the above named Mark B. Adelson, Executive Director of Portland Housing Authority, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said Portland Housing Authority.

Before me,

_____
Notary Public
Printed Name: Heidi Deleo

Date Commission Expires: HEIDI DELEO
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES FEBRUARY 27, 2022

12RETTD

00

RETTD

MAINE REVENUE SERVICES
REAL ESTATE TRANSFER TAX DECLARATION

TITLE 36, M.R.S.A. SECTIONS §§4641-4641N

BOOK/PAGE—REGISTRY USE ONLY

1. County

CUMBERLAND

2. Municipality/Township

PORTLAND

3. GRANTEE/ PURCHASER

3a) Name LAST or BUSINESS, FIRST, MI: REDFERN PROPERTIES, LLC

3b) SSN or Federal ID:

3c) Name, LAST or BUSINESS, FIRST, MI:

3d) SSN or Federal ID:

3e) Mailing Address: P.O. BOX 8816

3f) City: PORTLAND

3g) State: ME

3h) Zip Code: 04104

4. GRANTOR/ SELLER

4a) Name, LAST or BUSINESS, FIRST, MI: PORTLAND HOUSING AUTHORITY

4b) SSN or Federal ID: 01-6001034

4c) Name, LAST or BUSINESS, FIRST, MI:

4d) SSN or Federal ID:

4e) Mailing Address: 14 BAXTER BLVD

4f) City: PORTLAND

4g) State: ME

4h) Zip Code: 04101

5. PROPERTY

5a) Map | Block | Lot | Sub-Lot

5b) Type of property—Enter the code number that **best** describes the property being **sold**. (See instructions)—»

Check any that apply:

- [ ] No tax maps exist
- [ ] Multiple parcels
- [ ] Portion of parcel

5c) Physical Location: ANDERSON LANE

5d) Acreage:

6. TRANSFER TAX

6a) Purchase Price (If the transfer is a gift, enter "0") — 6a: 0 .00

6b) Fair Market Value (enter a value **only** if you entered "0" in 6a) or if 6a) was of nominal value) — 6b: 0 .00

6c) Exemption claim – [✓] Check the box if either grantor or grantee is claiming exemption from transfer tax and explain.

Grantor is a governmental entity and exempt under 36 MRSA § 4641-C(1)

7. DATE OF TRANSFER (MM-DD-YYYY)

MONTH DAY YEAR

8. WARNING TO BUYER–If the property is classified as Farmland, Open Space, Tree Growth, or Working Waterfront a substantial financial penalty could be triggered by development, subdivision, partition or change in use.

- [ ] CLASSIFIED

9. SPECIAL CIRCUMSTANCES—Were there any special circumstances in the transfer which suggest that the price paid was either more or less than its fair market value? If yes, check the box and explain: [✓]

Release by Grantor, of its easement interest, if any, in and to a private way abutting Grantor's adjoining property.

10. INCOME TAX WITHHELD– Buyer(s) not required to withhold Maine income tax because:

- [✓] Seller has qualified as a Maine resident
- [ ] A waiver has been received from the State Tax Assessor
- [✓] Consideration for the property is less than $50,000
- [ ] Foreclosure Sale

11. OATH

Aware of penalties as set forth by Title 36 §4641-K, we hereby swear or affirm that we have each examined this return and to the best of our knowledge and belief, it is true, correct, and complete. Grantee(s) and Grantor(s) or their authorized agent(s) are required to sign below:

Grantee _____ Date _____ Grantor [signature] Date 6/16/16

Grantee _____ Date _____ Grantor _____ Date _____

12. PREPARER

Name of Preparer: Margaret Brann

Phone Number: 207-772-1941

Mailing Address: Drummond Woodsum, 84 Marginal Way, Suite 600, Portland, ME 04101

E-Mail Address: mbrann@dwmlaw.com

Fax Number: 207-772-3627

Portland Housing Authority

Secretary's Certificate

The undersigned, being the duly authorized Secretary of Portland Housing Authority, does hereby certify that the following resolution was adopted by the Board of Commissioners of Portland Housing Authority at a meeting of the Board of Commissioners on June 16, 2016, at which a quorum was present and acting throughout.

RESOLVED: That the Portland Housing Authority (the "Authority") release to Redfern Properties, LLC, all right, title and interest of the Authority in and to that portion of Anderson Lane, adjoining property of Redfern Properties, LLC at the corner of Anderson Street and Lancaster Street, in Portland, Maine, in order to facilitate the creation of additional dwelling units by Redfern Properties, LLC on its property at the corner of Lancaster Street and Anderson Street in Portland, Maine.

RESOLVED: That the Executive Director, Mark B. Adelson, be authorized to execute a release deed in accordance with the foregoing resolution.

June 16, 2016

Secretary, Portland Housing Authority

9. Conformity with Applicable Design Standards

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-526.

9.1 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 site is located on the corner of Anderson and East Lancaster Street. Both are low volume, residential public roads with some additional cut-through traffic on Anderson Street during typical rush hour times. The proposed driveway is situated on the lower volume street access, East Lancaster, at a point furthest from the intersection with Anderson Street. It is predicted that the incremental increase in traffic volume will not create or aggravate any hazards and thus not impact overall safety.

2. Access and Circulation:

   a. Site Access and Circulation.

      (i) The development will provide safe access and internal circulation for both pedestrians and vehicles.

      (ii) Points of access and egress are located to the greatest extent practical from the both intersections on East Lancaster Street. It is expected that the proposed driveway will serve at most seven vehicles and thus will not create a conflict with existing turning movements or traffic flows. As commonly found within urban environment and more specifically within the East Lancaster and Anderson St. neighborhood, the some of the parking spaces will require backing out of the driveway to exit the property. The overall width of the driveway is generous and will thereby aid in the ability for vehicle drivers to safely observe oncoming pedestrian traffic within the nine-foot-wide sidewalk.

      (iii) The site does not feature drive up services as mentioned in this requirement.

   b. Loading and Servicing.

      (i) Not required. There will be adequate area along adjacent streets and within the proposed drive aisle for infrequent periods of tenants moving in/out of the building.

c. Sidewalks.

(i) The existing sidewalk along both street frontages are made of concrete, bituminous, or brick and will be reconstructed to City Standards as part of the project.

(ii) Due to the substandard condition of the existing sidewalks and likelihood that the proposed construction will impact the sidewalk integrity, the sidewalks will be replaced with curb added in or reclaimed to areas as noted on the Civil Site Plan, C-10.

(iii) Internal sidewalks will be provided to facilitate the movement of pedestrians to the City ROW and to and from parking spaces.

3. Public Transit Access:

a. The development does not exceed twenty (20) or more residential dwelling units.

b. A new transit stop is not proposed as part of the project.

c. A new transit stop is not proposed as part of the project.

4. Parking:

a. Location and Required Number of Vehicle Parking Spaces:

(i) The proposed parking lot meets the one space per unit after three units parking requirement. With the proposed ten units, seven parking spaces maximizes available space on-site and fulfills the requirement.

(ii) A parking study is not required.

(iii) The amount of parking is does not exceed the requirements.

(iv) The applicant is requesting a waiver for the proposed parking lot design; some spaces are currently compact with six spaces at 8.5' X 18' and one space at the standard 9' X 18' with a drive aisle at 20'. This design was proven to be accessible and maneuverable by completing an AutoTurn analysis, a vehicle circulation CAD accessory. The produced simulations show circulation to be possible.

(v) The parking lot will be constructed of a permanent and durable bituminous surface that is not subject to ponding or erosion.

b. Location and Required Number of Bicycle Parking Spaces:

(i) Each unit currently has internal storage space provided within each unit that has the potential for bike storage. One bicycle hitch for two bicycles will also be provided within the sidewalk in conformance with the City of Portland Technical requirements.

c. Motorcycles and Scooter Parking:

(i) The project does not provide designated motorcycle/scooter parking but on-street opportunities exist within Anderson Street.

d. Snow Storage:

(i) Snow storage space will be provided in the landscaped areas surrounding the parking lot including the space along the westernmost fence line and temporarily stored within the seventh, northernmost parking space when necessary.

(ii) Snow storage shall not be located where it will adversely impact the functionality of the stormwater management system.

5. Transportation Demand Management (TDM):

a. A TDM plan is not required for this project.
b. A TDM plan is not required for this project.
c. A TDM plan is not required for this project.

(b) Environmental Quality Standards

1. Preservation of Significant Natural Features:

a. The existing site contains no prominent significant natural features therefore no issue related to the preservation of these features applies.

b. Not applicable.

2. Landscaping and Landscaping Preservation:

a. Landscape Preservation.

(i) There is only one existing, mature tree on site as identified in the Existing Conditions Plan; it is proposed that it be replaced with landscaping elements as noted in the Landscape Plan.

(ii) There are no existing trees within the property setback.

(iii) Due to the existing, sparse landscaping on site, no protection during construction will be necessary.

(iv) The applicant does not require a waiver as described previously.

(v) Not applicable.

b. Site Landscaping.

(i) Landscaped Buffers:

(a) The outdoor solid waste storage located within the parking area will be screened and not visible from the public sidewalks, street, and adjacent properties via fencing.

(b) The project has eighty-three linear feet of frontage along Anderson Street and 105 feet along East Lancaster; per requirement, it is proposed that a minimum of six shrubs or shrub alternatives are planted within this setback as noted in greater detail in the Landscape Plan.

(c) Not applicable.

(d) Not applicable.

(ii) Parking Lot Landscaping:

a) Due to limited space within the parking area, no trees or shrubs are to be proposed as lot landscaping. Instead, in the idea of a compact urban setting, a series or vines supported by trellis structures is proposed within the one-foot setback between the retaining wall and outer pavement edge. The vertical growth will provide a green screen between properties and add landscaping to the parking area.

b) Not applicable.

c) Not applicable.

d) Not applicable.

e) Not applicable.

f) Not applicable.

(iii) Street Trees:

(a) Four new street trees are proposed to be planted within the City ROW along Anderson Street. The remaining street tree requirement will be fulfilled by the trees populating the rain garden within the site. Refer to Landscape Plan for more details.

(b) Due to site constraints within the property, it is not feasible to plant the remaining street trees within ten feet of the property lines per waiver requirement. Therefore, the applicant is requesting that the trees planted internally be considered in the total tree requirement count.

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

(i) The site is proposed to be graded as such to direct the majority of runoff into a dripline filter or rain garden BMP as listed within and designed to the standards of the State of Maine BMP Manual; all remaining stormwater will be directed offsite into the existing municipal systems within East Lancaster and Anderson Street. There is no anticipated ponding or flooding using this design.

(ii) The majority of stormwater runoff from the site is proposed to be treated using infiltration via a dripline or rain garden BMP. All remaining runoff will be redirected into the stormwater line within Anderson Street. The redirected runoff is less than what is currently produced within the site. Therefore, the project will not increase the net rate of runoff nor adversely impact adjacent lots or the City street system.

(iii) The project will increase the stormwater flows directly within the Anderson Street separated sewer system but will not increase the overall flows within nor create adverse impacts to the East Bayside neighborhood nor wastewater treatment plant when compared to existing conditions.

(iv) The City's separated storm sewer system is anticipated to accommodate the increase in stormwater flow; any increase will not exceed the capacity of the existing system within Anderson Street.

b. A site specific Stormwater Management Plan has been developed for the project to show compliance with Section 5 of the Technical Manual, including the basic, general, and flooding standards of MeDEP Chapter 500. Please refer to the Stormwater Management plan for more information.

c. The project is not located in a watershed of an urban impaired stream as listed by the MaineDEP.

d. Not applicable.

e. The development is not anticipated to pose a risk to groundwater contamination either during or post-construction. The project is serviced by a public wastewater system.

f. The development will provide for adequate and sanitary disposal or sewage in accordance with Section 2 of the Technical Manual.

(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.

b. Not applicable.

2. Public Safety and Fire Prevention:

   a. The site has been designed to promote safe and inviting public and residential access.

   b. No changes to emergency access conditions within the surrounding streets is proposed.

   c. Fire hydrants are located within the adjacent street system. The new building will have fire suppression.

3. Availability and Adequate Capacity of Public Utilities:

   a. Public utilities in the vicinity of the site have the capacity to serve the proposed project. More information on utilities is included within the ability to serve letters to the respective utility companies.

   b. All electrical service lines will be underground.

   c. All new utility infrastructures will meet the provisions of the Technical Manual.

   d. The project will be served by connection to the public sewer system within Anderson Street

   e. The sanitary sewer collection system meets all applicable sections of the Technical Manual. The stormwater management system is designed to meet the standards of Chapter 500.

   f. The proposed building includes provisions for on-site storage of trash and recyclables temporarily until waste is removed from the site via a private hauler.

(d) Site Design Standards.

1. Massing, Ventilation and Wind Impact:

   a. The bulk, location and height of the existing building does not result in adverse impacts to abutting properties.

   b. The proposed building is designed to minimize bulk and height and is positioned as such to affect abutting buildings as little as possible.

   c. Proposed HVAC venting per unit is to be a deminimis change from existing conditions.

2. Shadows:

   a. Not applicable.

3. Snow and Ice Loading:

   a. The proposed building will have a pitched roof. Should a standing seam metal roof be utilized, snow bars will be installed on each rooftop to prevent snow and ice accumulation and prevent it from falling 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 designated landmark, historic district, or historic landscape district.

   c. There are no known archaeological resources on the site.

6. Exterior Lighting:

   a. Site Lighting

      (i) Exterior lighting will be designed to meet the requirements of Section 12 of the Technical Manual. Cut sheets may be provided for the lighting typical of residential lights. Please let us know if a photometric plan is required for a project of this scale.

      (ii) All proposed exterior lighting will employ house-side shielding per requirement.

   b. Architectural and Specialty Lighting

      (i) No architectural or specialty lighting is proposed.

      (ii) No up-lighting is proposed.

   c. Street Lighting

      (i) No new street lights are proposed.

7. Noise and Vibration:

   All HVAC and Mechanical equipment shall be accordance with the applicable zoning requirements.

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) Not applicable.

      (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 will be designed to meet the design standards within the R6 Zone.

11. Summary of Written Easements

- **Existing Easements** – The Existing Conditions Plan developed by Titcomb Associates identified an existing easements regarding Anderson Lane; details outlining the rights to the paper street are recorded within Book 293, Page 128.

- **Proposed Easements** – The following easements have been identified during the design process thus far:

  - Existing Easements: All existing easements will be released prior to project start.
  - Overhead Easement along Anderson Street: A portion of the proposed project will include overhangs for the front door entrances along Anderson Street that extend into the City right-of-way. As part of the easement agreement, the project team will ensure that all snow and ice generated from the overhangs will be properly removed and accounted for.

  Final easements to be finalized at a later date on the Subdivision Plat submitted as part of the final application.

10. Written Request for Waivers

The following is a list of known project related waivers.

1. **Compact Parking Spaces** – Given the compact and high unit density of the proposed project, it is not feasible to fit seven standard parking spaces while maintaining a maneuverable drive aisle and internal sidewalks. Therefore, the applicant is seeking a waiver for six compact spaces at 8.5 X 18' to be acceptable alternatives to the standard 9' X 18' space; the remaining parking space will be a standard size.

2. **Drive Aisle Width** – The applicant is seeking a waiver for the standard 24' drive aisle to be reduced to the proposed 20' aisle. This width was determined to be maneuverable with compact spaces using an AutoTurn analysis, a vehicle circulation CAD accessory. The produced simulations show circulation to be possible.

3. **Street Trees** – The applicant is seeking a waiver to the street trees requirements for multi-family residential properties. Due to the large proposed building footprint, parking lot within the site and limited street frontage, it is not feasible to plant the required one street tree per residential unit within the City ROW. There is room for four street trees along Anderson Street and space within the rain garden on-site for an additional six trees. It is our intent to meet the ten tree requirement by proposing these trees and thus adding to the total tree count.

4. **Parking Lot Landscaping** – By maximizing total on-site parking spaces, there is no remaining space for additional landscaping such as tree and shrub plantings as specified. However, by utilizing the one-foot buffer between the retaining wall and pavement edge as a base for vine plantings, a green screen along the rear property line and parking lot border is proposed as substitute to the two tree per five parking space requirement.

5. **Traffic Study** - Given the net increase in units is nine and the existing low traffic volume flow along East Lancaster Street, we are requesting a waiver to complete a Traffic Impact Study as allowed for within the City of Portland Technical Manual Section 1.1.1.2. Scope of Study.

6. **Soil Survey Standards** - Given the urban development, no onsite wastewater is proposed, the applicant does not intend to perform a more intense (Class A, B, or C) hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/11 are met.

7. **Front Setback** – Per R-6 zoning requirements the front setback can be defined as the average front setback of the existing buildings on the abutting properties; the directly adjacent property at 76 Anderson Street is set back approximately four inches from the property line as identified by the Existing Conditions Plan while the building at 2 East Lancaster Street, is set back almost 10 feet. However, when compared to the rest of the

neighborhood, the building at 2 East Lancaster is an anomaly: the majority of homes along Anderson Street and the surrounding side streets are set within a foot of the front property line and have a gable roof form including the existing building on 70 Anderson Street. The building on East Lancaster does not represent the neighborhood norm. Therefore, the applicant is seeking a waiver to the front setback requirement in using the abutting property building as a reference point due its non-conformance with the majority of the neighborhood.

Att. G

April 21, 2016

City of Portland, Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: 70 Anderson Street Apartment Project

To whom it may concern:

Redfern Properties and its affiliates are well known to NBT Bank. I have worked with Redfern for nearly 10 years and have been directly involved in the financing of numerous successful projects. NBT Bank is providing financing for Redfern's current apartment project at 89 Anderson Street. The Bank is interested in entertaining financing for 70 Anderson Street and believes Redfern has the financial capacity to successfully complete the proposed project. We are looking forward to more substantive conversations as this project materializes.

Please feel free to contact me should you need any additional information. I can be reached at (207) 808-4486.

Sincerely,

Joe Delano
Vice President
NBT Bank Maine

254 Commercial St., Merrill's Wharf, Portland, Maine 04101
Phone: 207-808-4485 · Toll Free 1-800-NBT BANK

Att. H

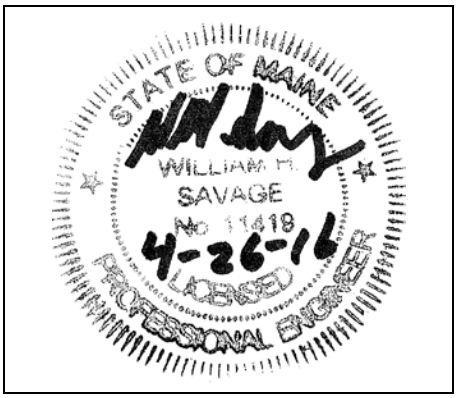
STORMWATER MANAGEMENT REPORT

Prepared For:

Redfern Properties, LLC
70 Anderson Redevelopment
70 Anderson Street
Portland, Maine 04101

Prepared By:

Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102



April 2016

INTRODUCTION

Acorn Engineering, Inc. has been retained by Redfern Properties, LLC to provide civil engineering services for the proposed redevelopment of 70 Anderson Street (1 East Lancaster Street). The proposed project is to develop an existing single family residence into ten townhouses.

A stormwater analysis will be prepared to demonstrate that the project will meet the following requirements of the City of Portland (the City):

- City of Portland Land Use Ordinance Chapter 14, Article V. Site Plan Section 14-523. Required Approvals and Applicability (F) Level III Site Plan Review.
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.

The proposed project will include the redevelopment of existing, impervious area including rooftops, and paved asphalt and concrete driveways. The project will result in a net increase of impervious area above 1,000 sf, as such, is required to include stormwater management features for stormwater quality & quantity control. The stormwater analysis is documented with supporting calculations and reports attached to this narrative.

The current course of action is to provide primary water quality treatment to the stormwater through filtration utilizing a Maine Department of Environmental Protection – Rain Garden (Bioretention Cell) and Roof Dripline Filtration approved stormwater Best Management Practice (BMP); for the remainder of this report, 'Rain Garden' will be used in place of 'Bioretention Cell'. The implemented BMPs are to provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area.

EXISTING CONDITIONS

The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated January 14th, 2016.

Abutting Uses:

- North R-6 Zone Multi-Family Residential
- West R-6 Zone Multi-Family Residential
- South R-6 Zone Multi-Family Residential
- East R-6 Zone Multi-Family Residential

The property is also near a recreation open space, Kennedy Park (Cunningham Playground), that is due west of the property.

About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Street (a portion of the East Lancaster driveway is concrete), a 1.5 story dwelling, a detached garage, and covered shed. The remaining surface is a grassy lawn. The site as a whole is relatively flat with an average

grade of approximately 3% sloping to the rear of the property. Based on existing conditions, the stormwater runoff is directed to the westernmost corner of the site and eventually enters the Fox Street municipal stormwater system.

The project team is not aware of the presence of any existing significant natural features located on the site. Given the urban setting, and existing free-draining soils, a field inventory of significant natural feature was not undertaken. The project is not located within a watershed classified as an Urban Impaired Stream.

PROPOSED DEVELOPMENT

The proposed project is a 10-unit redevelopment of an existing single-family lot. The new ten units will be orientated as such to create a courtyard and central walking space through the property. Within the courtyard, a Rain Garden is proposed as a central focus on stormwater mitigation on site and will be landscaped with perennials and other shrubbery as designed Soren Denoird Design Studio. The side setback along the abandoned paper street, Anderson Lane, is to be partially vegetated and contain the proposed Roof Dripline Filtration BMP. The final landscaping design has been provided by Soren Denoird Design Studio.

Tenant parking is to be provided on-site with a driveway access from East Lancaster Street. Pedestrian access to the site shall be provided off of Anderson Street into the central courtyard and via East Lancaster Street along the parking area.

The development will be served by the Portland Water District, underground power/cable/communications, and the municipal sewer system. The project anticipates incorporating Maine DEP approved stormwater Best Management Practices to meet the General and Flooding Standards.

GENERAL STANDARDS - WATER QUALITY

The Roof Dripline Filtration system and the Rain Garden was sized to meet or exceed to the requirements set forth within the MDEP Volume III BMPs Technical Design Manual, Chapter 7.6 and 7.2 respectively. Filter BMP systems have shown to be effective at filtering out and removing a wide range of pollutants from stormwater runoff.

Impervious Treatment Area

The majority of the impervious runoff is from the roof and 30% of all roof stormwater runoff shall be redirected into the Roof Dripline BMP. The water will then filter through a series of permeable layers before exfiltrating into the ground below the system. All runoff not exiting the BMP will be transported to the municipal stormwater system within Anderson Street via a perforated distribution pipe; the pipe is positioned within the BMP as such to act as the foundation drain as well.

The remaining impervious runoff to be treated shall be redirected into the Rain Garden within the courtyard. This runoff includes that redirected from a portion of the rooftops as well as the internal brick sidewalks and shall flow into the rain garden whose plants and storage area shall provide initial treatment. The stormwater is to be detained above the

surface before flowing vertically through the permeable soil filter layer before exfiltrating into the ground below. All remaining treated stormwater not dispersed into the ground, shall then be collected within perforated pipes and released slowly by the outlet control at an attenuated rate. Larger storm events are to overflow into an oversized horizontal atrium grate.

The treatment of the impervious surface by the BMPs are as follows:

Table 1 - Impervious Treatment Area Table					
	Existing Impervious Area (SF)	Proposed Total Impervious Area (SF)	Net change in Impervious Area (SF)	Proposed Impervious Area with Treatment (SF)	% Overall New Imp. Area Treated
Roof Dripline				1260	
Rain Garden				2141	
TOTAL	4376	7266	2890	3401	118%

As shown above the project anticipates meeting and exceeding the required treatment for new impervious surfaces through the use of the filter BMPs.

Rain Garden Calculations

According to the requirements for a rain garden as defined in the Volume III: BMPs Technical Design Manual, Chapter 7.2, the surface area of the filter shall be no less than the sum of 7% of the tributary impervious area and 3% of the tributary vegetated area. The filter area is calculated by the following formula:

[(Imp. SF x 0.07) + (Veg. SF x 0.03)] = Filter Area (SF)

Please refer to Table 2 below.

Table 2 – Total Filter Surface Area, displays the proposed Rain Garden sizing requirements, actual size and the percentage of required area.

Table 2 –Total Filter Surface Area			
	Required Filter Area (SF)	Actual Filter Area (SF)	Percentage of Required Area (%)
Rain Garden	150	210	140%

The outflow from the Rain Garden is then tributary to the municipal stormwater system. As shown, the size of the soil filter area will meet and exceed the surface area requirements. Values from the HydroCAD calculations attached to this report.

Water Quality Volume

In accordance with the Volume III: BMPs Technical Design Manual, a water quality volume of 1.0 inch times the tributary impervious area plus 0.4 inch times the tributary landscaped developed area is required to be treated by the Roof Dripline and Rain Garden. The water quality volume is calculated by the following formula:

$$\left(\frac{\text{Imp. SF x 1.0”}}{\text{12”/1’}} \right) + \left(\frac{\text{Dist. SF x 0.4”}}{\text{12”/1’}} \right) = \text{Treatment Volume (CF)}$$

The proposed water quality volume is as follows:

Table 4 - Water Quality Volume Table				
	Developed Area (SF)	Impervious Area (SF)	Treatment Volume Required (CF)	Treatment Volume Provided
Roof Dripline	379	1190	**112**	**180**
Rain Garden	0	2255	**188**	**360**
Total	379	3445	**333**	**540**

As shown, the size of the combined water quality volume will meet and exceed the treatment volume requirements. Values from the HydroCAD calculations are attached to this report.

Per the requirements set by Chapter 7.6 of the BMP Technical Manual, Volume III for Roof Dripline Filtration, the Water Quality Volume entering the system defines the width and depth of the rock storage bed. Assuming that the overall depth must be a minimum of four feet to effectively act as a foundation drain as well as a BMP and the maximum storage width is limited to two feet due to site constraints, the rock storage bed must be a minimum of 12” deep to store the 1” of rainfall per impervious area.

HydroCAD Adjustments

Provided the infiltration rates of the water quality volume through the soil filter are variable a water quality outlet is modeled to provide the required minimum 24-hour release time. This is completed by adjusting the rainfall amount in HydroCAD until the inflow volume is equal to or greater than the calculated treatment volume. The storm events are modeled as type III, 24-hour storm events in HydroCAD.

A vertical orifice is modeled in HydroCAD at the outlet structures of each BMP. The orifice diameter is sized to detain the stormwater for an approximate period of 24 hours.

FLOODING STANDARD – WATER QUANTITY

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall

amounts for these storms are 3.10", 4.60", and 5.80" respectively. Rainfall amounts are from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu), Extreme Precipitation Tables.

Both the pre and post-development conditions were modelled so that all runoff would enter the Fox Street municipal stormwater system. This assumption is based on the existing grades sloping downward from the property, Anderson Street, and East Lancaster towards Fox Street and allows the two conditions and their corresponding peak flows to be compared directly.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number or to the nearest tenth for urban infill project. Due to the small size of the project the stormwater runoff shall be rounded to the nearest tenth of a cubic foot per second (cfs).

Time of Concentration (T_c)

A time of concentration (T_c) of 5 minutes was applied to the subcatchment for both the pre and post-development condition, given the urban setting.

Curve Number

Conservative curve number (CN) runoff values were used within the subcatchment for the landscaped area. The stormwater calculations used the following CN values in the post development condition for vegetated areas, as follows:

- Woods/Grass Combination Good

Given the landscaping plan is to design a densely planted perennial gardens within the rain garden and street frontages, the Woods/Grass Combination was deemed an appropriate CN value for the projected portion of the project area to receive such landscaping. The remaining landscaping along the side setbacks to be mostly grass covered.

Pre-development Calculations

The pre-development condition was modeled as one subcatchment to determine the net impact of the development.

- Subcatchment 1 – The subcatchment area is defined by the property line to the corner of Anderson and East Lancaster Street

A Pre-Development Watershed Map developed for this project can be viewed in Attachment A, and a copy of the HydroCAD calculations is included within Attachment C, or this report. Peak flow rates for the storm events are as follows:

Table 4 – Pre-Development Peak Stormwater Flows			
Drainage Area	**2 – Year Storm Event (cfs)**	**10 – Year Storm Event (cfs)**	**25 – Year Storm Event (cfs)**
Fox Street	0.2	0.5	0.7

Post-development Calculations:

The one predevelopment subcatchment was broken into four separate subcatchments for the post-development condition.

- Subcatchment 1 – Northernmost roof surface and landscaped area along the side setback
- Subcatchment 2 – Centralmost roof surfaces, courtyard brick sidewalks, and landscaped area within the rain garden
- Subcatchment 3 – Southernmost roof surface, paved parking, remaining brick sidewalk surface, and landscaped areas along the East Lancaster Street frontage and rear setback
- Subcatchment 4 – Landscaped area along the Anderson Street frontage

The post development calculations include changes to the land use and compensation provided by the BMP systems. The following table represents comparison of predevelopment and post-development condition peak runoff rates for the proposed development and tributary area.

Table 5 – Comparison of Peak Flows						
Drainage Area	**2 – Year Storm Event (cfs)**		**10 – Year Storm Event (cfs)**		**25 – Year Storm Event (cfs)**	
Fox Street	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
	0.22	0.27	0.5	0.4	0.7	0.6

As shown in Table 5 the net impact of the post development peak flows shall remain below the predevelopment levels for the ten and twenty-five-year storm. The net change between the pre and post-development flows for the two year storm was 0.05 cubic feet per gallon. Given that it is a standard of care to round to the nearest whole number and the analysis was completed to the tenth of a cubic foot due to the small project scope, this net change, though greater, is de minimis.

A Post-Development Watershed Map created for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment C of this report.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Typical of the East End of Portland the Soil Survey list, Deerfield and Hinckley are the existing onsite soil series The Deerfield series is composed of deep, moderately well drained

soils while the Hinckley series consists of very deep, excessively drained soils; both are formed in glaciofluvial materials. The permeability of Deerfield and Hinckley soil is rapid in the surface layer and subsoil and very rapid in the substratum with typically a low groundwater table. Given the soils information, listed above, no onsite wastewater is proposed, the applicant does not intend to perform a more intense hydric soil boundary delineation or permeability test because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/12 are met. Acorn has used the conservative exfiltration rate of 2.41 in/hr when modeling the roof dripline and rain garden in HydroCAD.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 3 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Deerfield	0.17	0.17
Hinckley	0.17	0.17

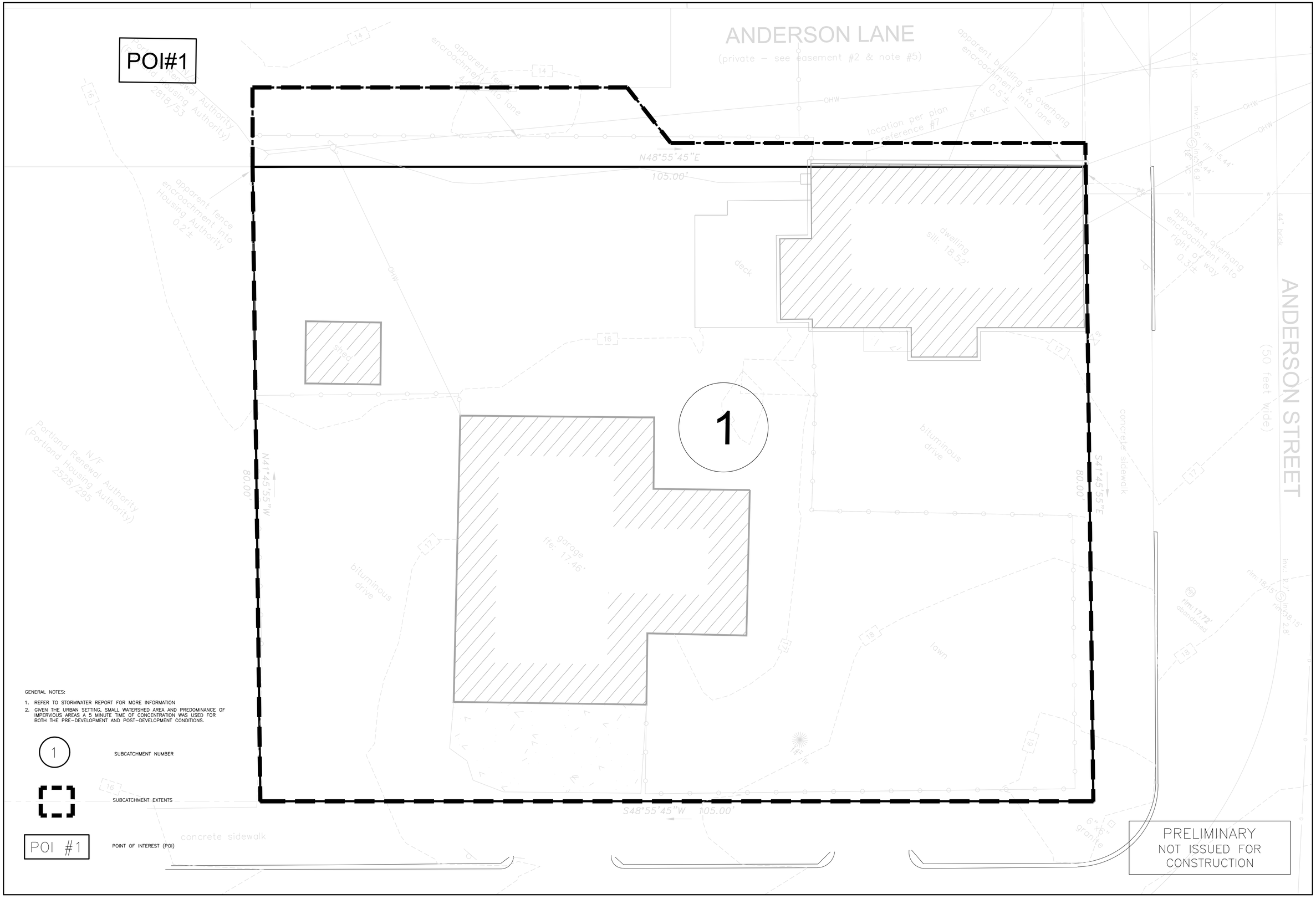
The soil "K" values for the soils, listed above, show a low susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will still be of considerable importance.

Conclusion

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. As a result, the design of the proposed development and stormwater system does not anticipate to create erosion, drainage or runoff problems either in the development or with respect to adjoining properties.

Attachments

Attachment A: Pre Development Watershed Map
Attachment B: Post Development Watershed Map
Attachment C: HydroCAD Calculations
Attachment D: Soils Map



GENERAL NOTES:

1. REFER TO STORMWATER REPORT FOR MORE INFORMATION
2. GIVEN THE URBAN SETTING, SMALL WATERSHED AREA AND PREDOMINANCE OF IMPERVIOUS AREAS A 5 MINUTE TIME OF CONCENTRATION WAS USED FOR BOTH THE PRE-DEVELOPMENT AND POST-DEVELOPMENT CONDITIONS.

1 — SUBCATCHMENT NUMBER

SUBCATCHMENT EXTENTS

POI #1 — POINT OF INTEREST (POI)

ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/26/16

DRAWING NAME: PRE-DEVELOPMENT STORMWATER PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.

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ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND, MAINE 04102
(207) 775-2855

FILE:	1067_CIVIL
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11419
4-26-16
LICENSED
PROFESSIONAL ENGINEER

DRAWING NO.
PRE

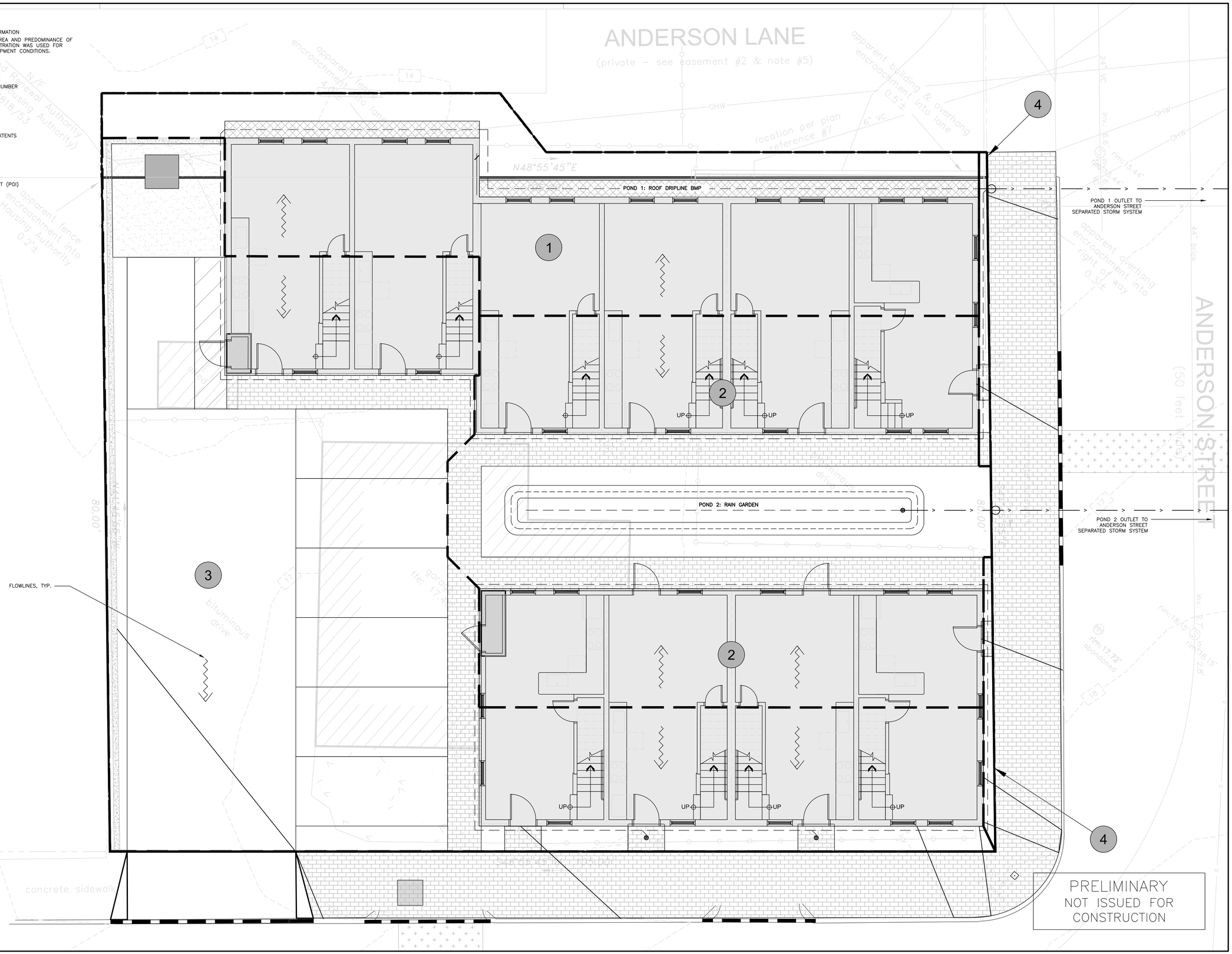
GENERAL NOTES:

1. REFER TO STORMWATER REPORT FOR MORE INFORMATION
2. GIVEN THE URBAN SETTING, SMALL WATERSHED AREA AND PREDOMINANCE OF IMPERVIOUS AREAS A 5 MINUTE TIME OF CONCENTRATION WAS USED FOR BOTH THE PRE-DEVELOPMENT AND POST-DEVELOPMENT CONDITIONS.

1 — SUBCATCHMENT NUMBER

SUBCATCHMENT EXTENTS

POI #1 — POINT OF INTEREST (POI)



ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/26/16

DRAWING NAME: POST-DEVELOPMENT STORMWATER PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

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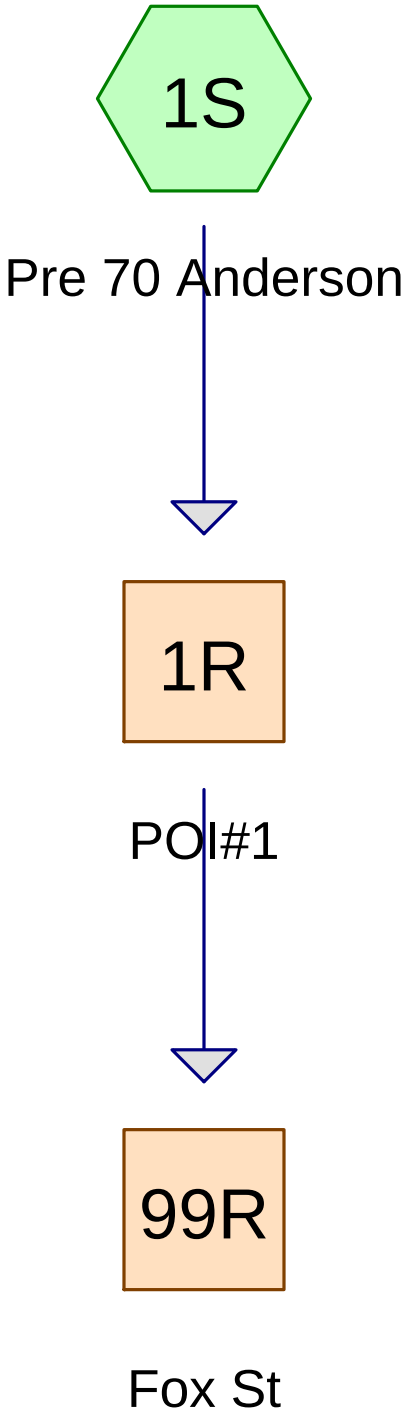
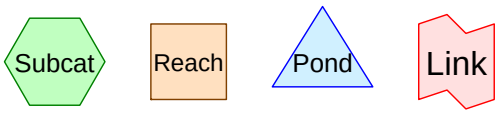
158 DANFORTH STREET, PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1067_CIVIL
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE 4-26-16 PROFESSIONAL ENGINEER

DRAWING NO.
POST





Routing Diagram for Pre_4-26-16
Prepared by Acorn Engineering, Inc., Printed 4/26/2016
HydroCAD® 10.00-15 s/n 00620 © 2015 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.101	49	50-75% Grass cover, Fair, HSG A (1S)
0.004	68	<50% Grass cover, Poor, HSG A (1S)
0.043	98	Building (1S)
0.002	96	Gravel surface, HSG A (1S)
0.058	98	Paved parking & roofs (1S)
0.208	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.108	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.100	Other	1S
0.208		**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
0.101	0.000	0.000	0.000	0.000	0.101	50-75% Grass cover, Fair	1S
0.004	0.000	0.000	0.000	0.000	0.004	<50% Grass cover, Poor	1S
0.000	0.000	0.000	0.000	0.043	0.043	Building	1S
0.002	0.000	0.000	0.000	0.000	0.002	Gravel surface	1S
0.000	0.000	0.000	0.000	0.058	0.058	Paved parking & roofs	1S
0.108	**0.000**	**0.000**	**0.000**	**0.100**	**0.208**	**TOTAL AREA**	

Time span=1.00-36.00 hrs, dt=0.03 hrs, 1168 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=0.92"
Tc=5.0 min CN=73 Runoff=0.22 cfs 0.016 af

Reach 1R: POI#1 Inflow=0.22 cfs 0.016 af
Outflow=0.22 cfs 0.016 af

Reach 99R: Fox St Inflow=0.22 cfs 0.016 af
Outflow=0.22 cfs 0.016 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.016 af Average Runoff Depth = 0.92"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

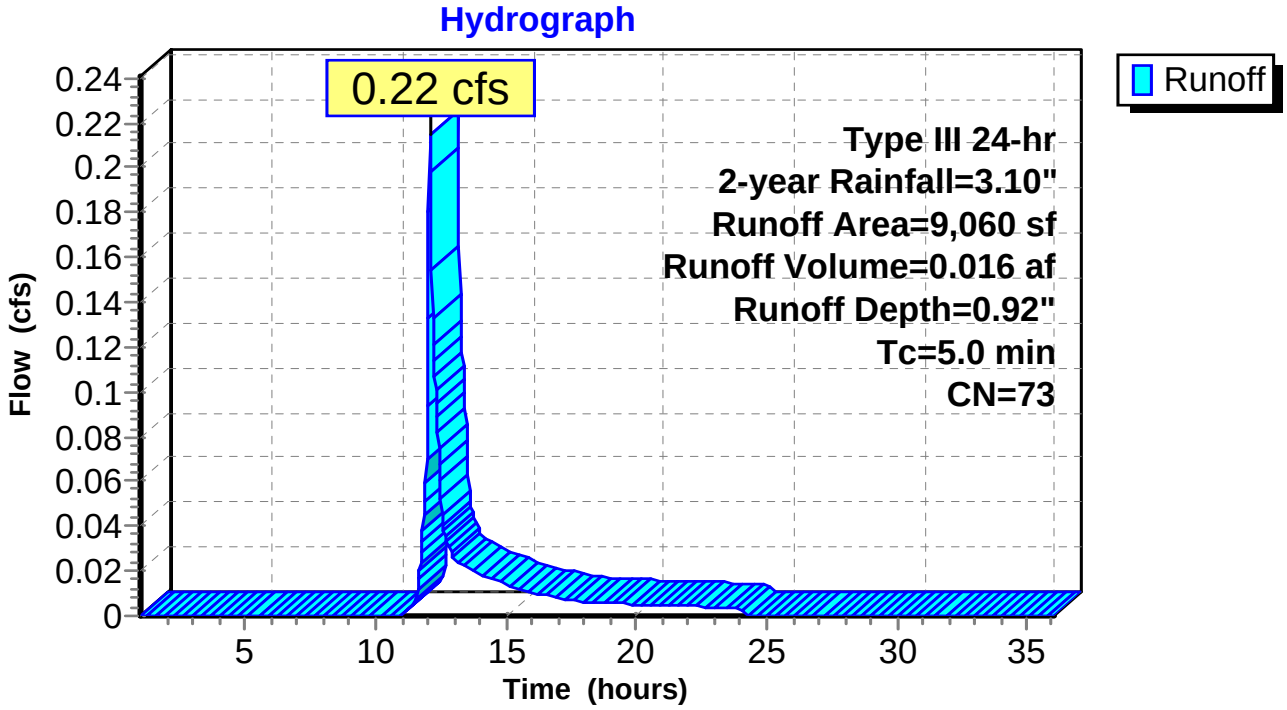
Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		51.70% Pervious Area
	4,376		48.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Pre 70 Anderson

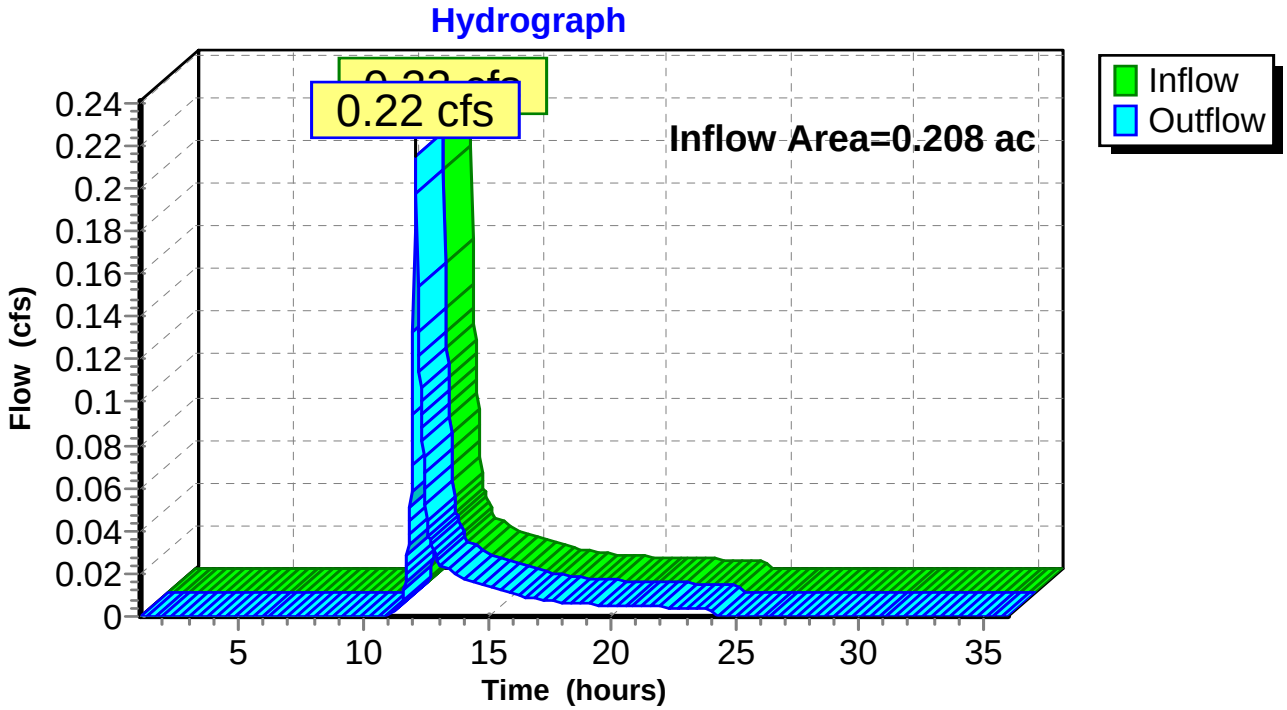


Summary for Reach 1R: POI#1

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 0.92" for 2-year event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 1R: POI#1

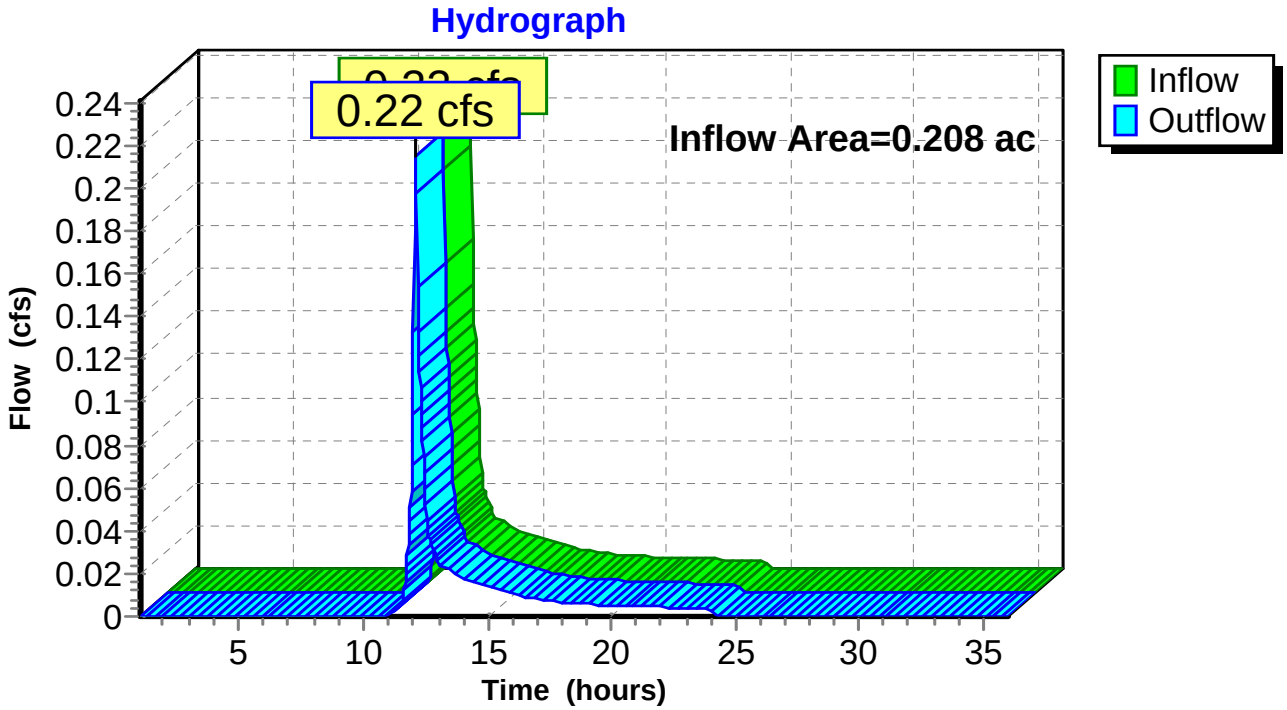


Summary for Reach 99R: Fox St

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 0.92" for 2-year event
Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af
Outflow = 0.22 cfs @ 12.08 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 99R: Fox St



Time span=1.00-36.00 hrs, dt=0.03 hrs, 1168 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=1.97"
Tc=5.0 min CN=73 Runoff=0.49 cfs 0.034 af

Reach 1R: POI#1 Inflow=0.49 cfs 0.034 af
Outflow=0.49 cfs 0.034 af

Reach 99R: Fox St Inflow=0.49 cfs 0.034 af
Outflow=0.49 cfs 0.034 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.034 af Average Runoff Depth = 1.97"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

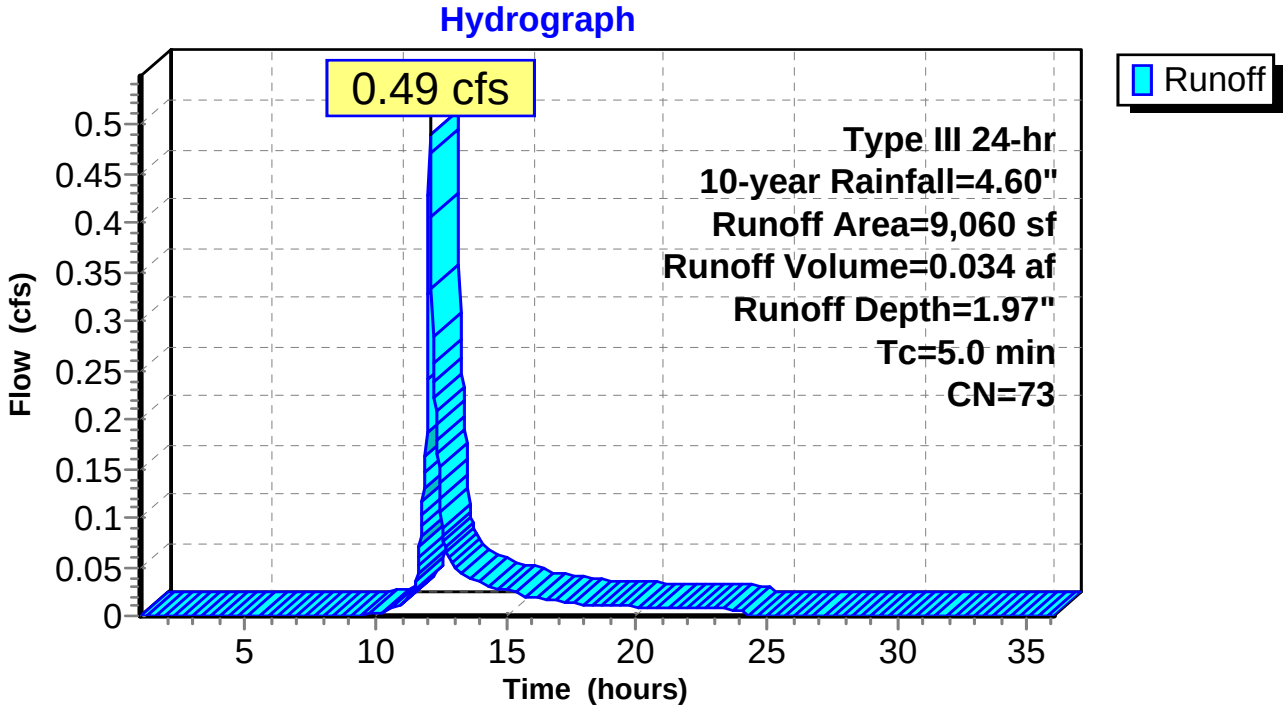
Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		51.70% Pervious Area
	4,376		48.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Pre 70 Anderson

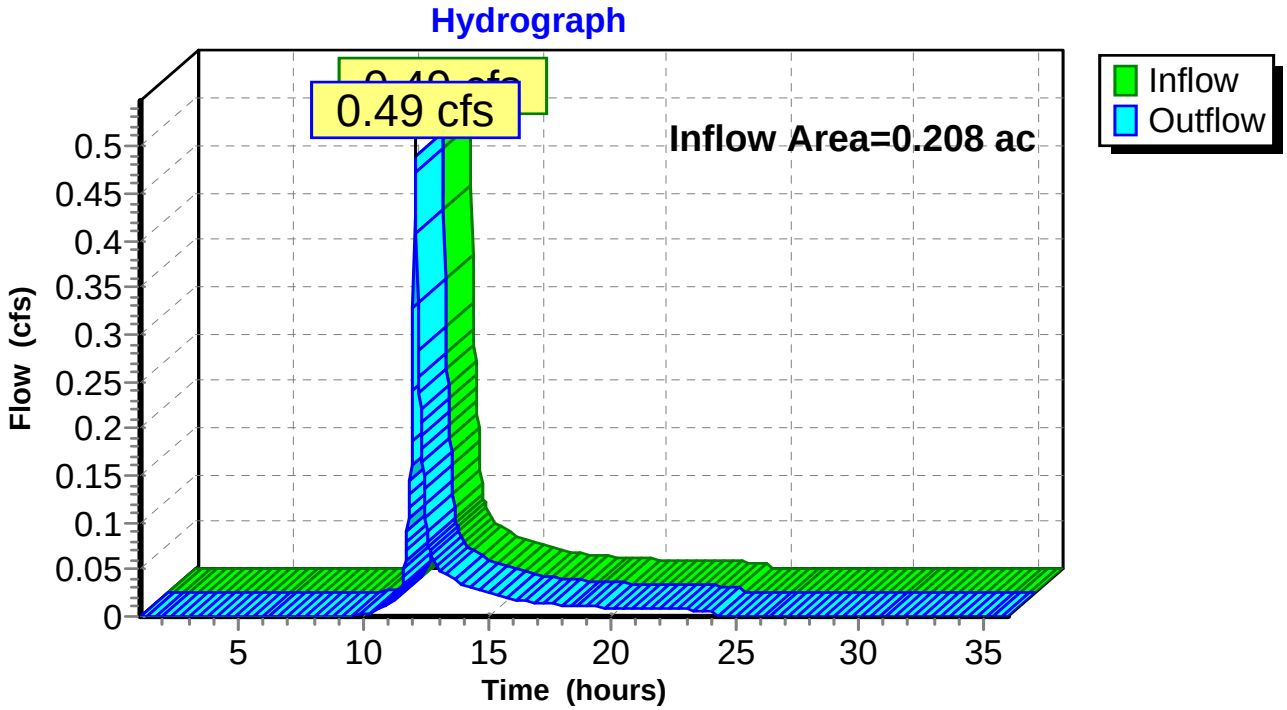


Summary for Reach 1R: POI#1

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 1.97" for 10-year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 1R: POI#1

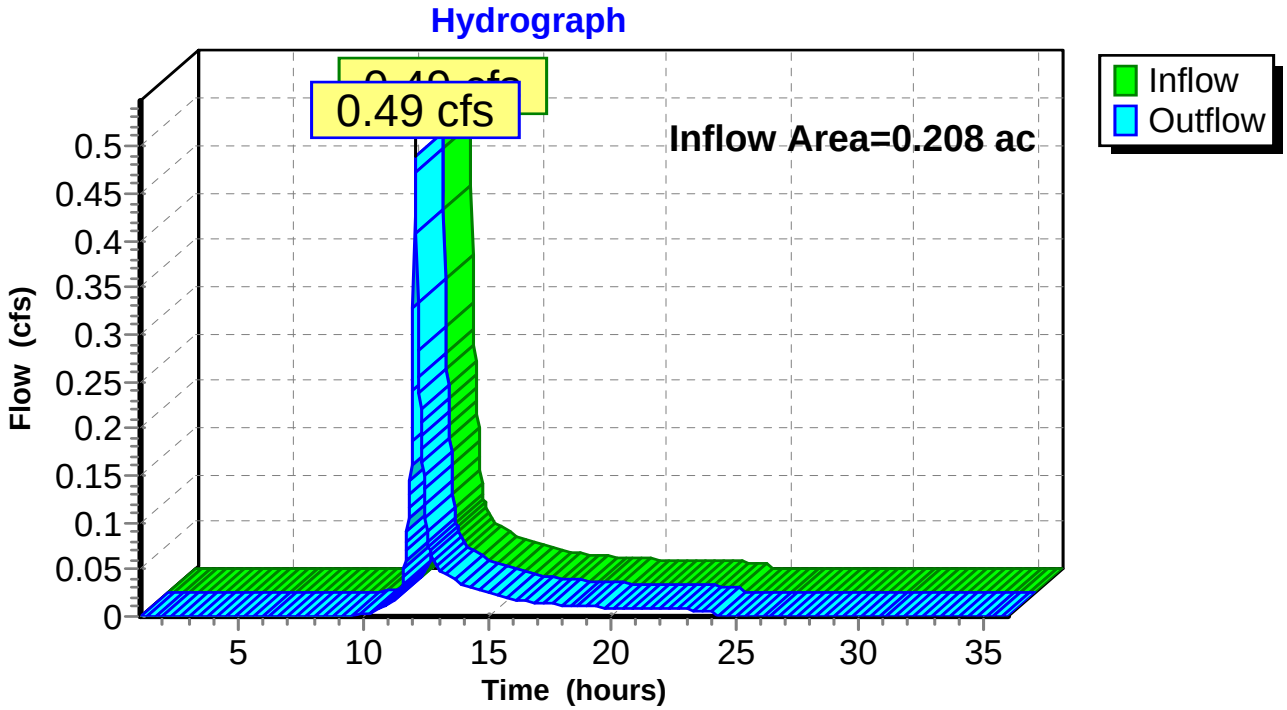


Summary for Reach 99R: Fox St

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 1.97" for 10-year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af
Outflow = 0.49 cfs @ 12.08 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 99R: Fox St



Time span=1.00-36.00 hrs, dt=0.03 hrs, 1168 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre 70 Anderson Runoff Area=9,060 sf 48.30% Impervious Runoff Depth=2.92"
Tc=5.0 min CN=73 Runoff=0.73 cfs 0.051 af

Reach 1R: POI#1 Inflow=0.73 cfs 0.051 af
Outflow=0.73 cfs 0.051 af

Reach 99R: Fox St Inflow=0.73 cfs 0.051 af
Outflow=0.73 cfs 0.051 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.051 af Average Runoff Depth = 2.92"
51.70% Pervious = 0.108 ac 48.30% Impervious = 0.100 ac

Summary for Subcatchment 1S: Pre 70 Anderson

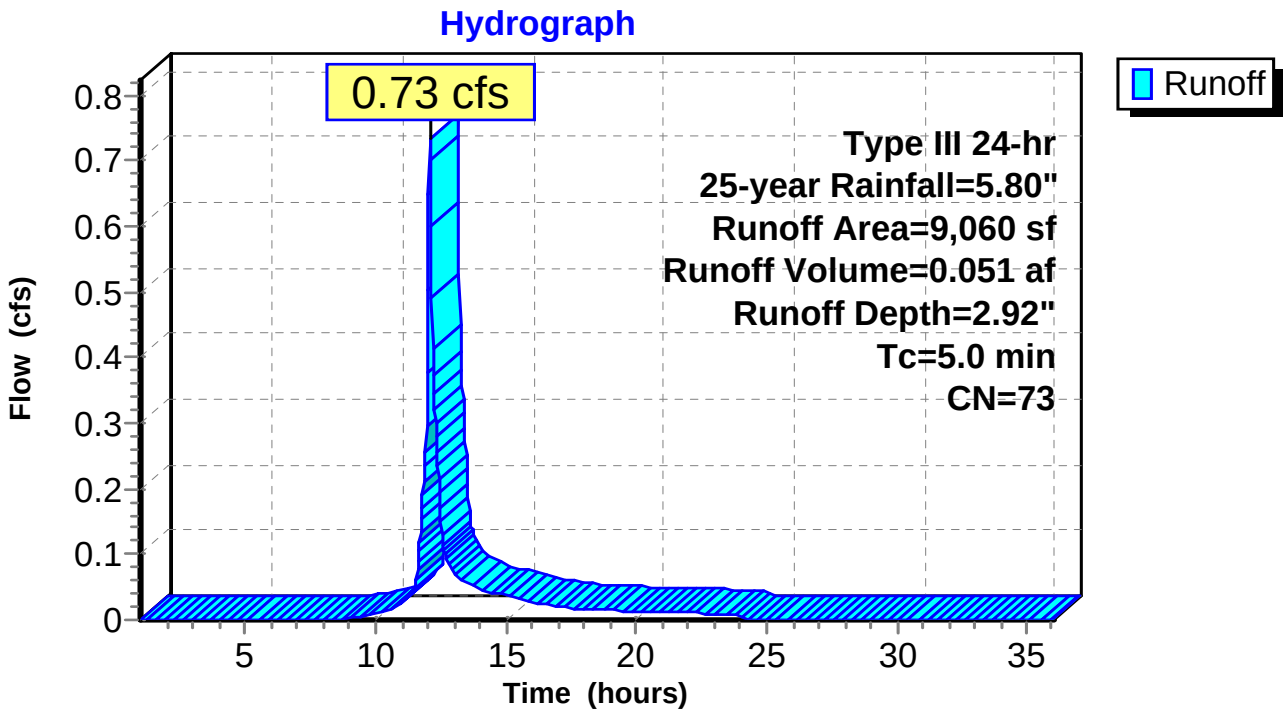
Runoff = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,861	98	Building
	75	96	Gravel surface, HSG A
	188	68	<50% Grass cover, Poor, HSG A
	2,515	98	Paved parking & roofs
	4,421	49	50-75% Grass cover, Fair, HSG A
	9,060	73	Weighted Average
	4,684		51.70% Pervious Area
	4,376		48.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: Pre 70 Anderson

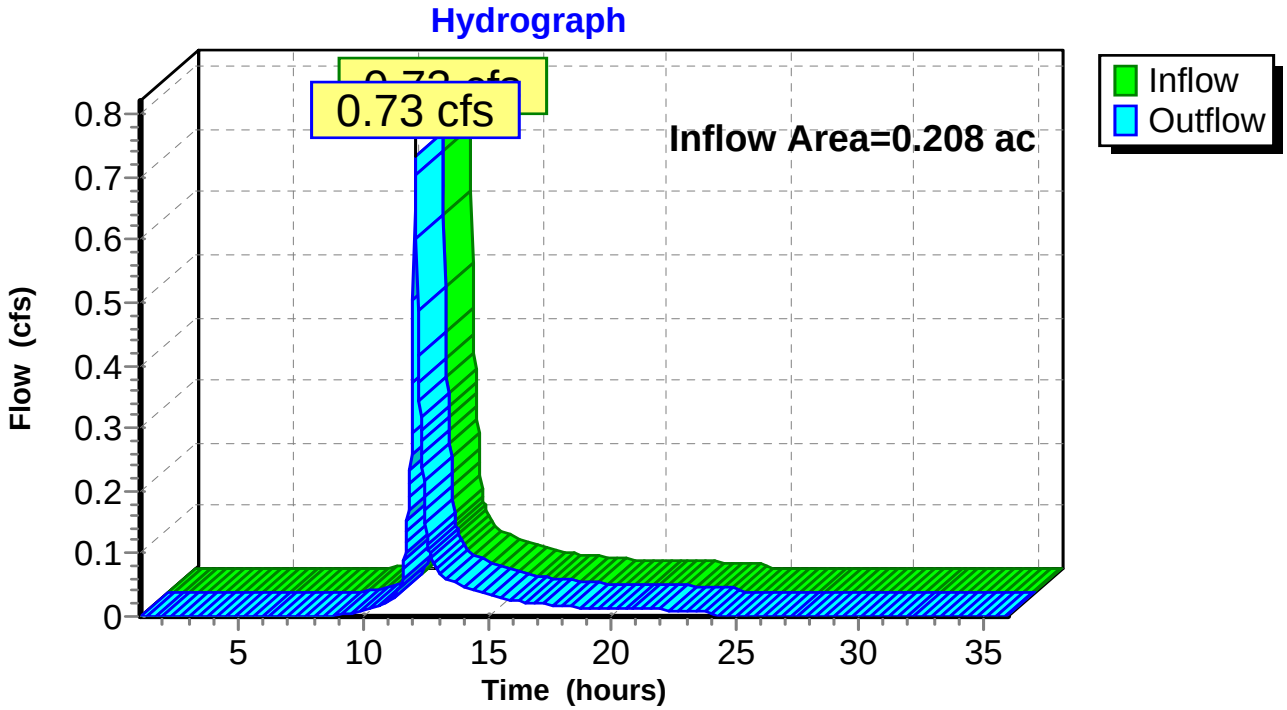


Summary for Reach 1R: POI#1

Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 1R: POI#1

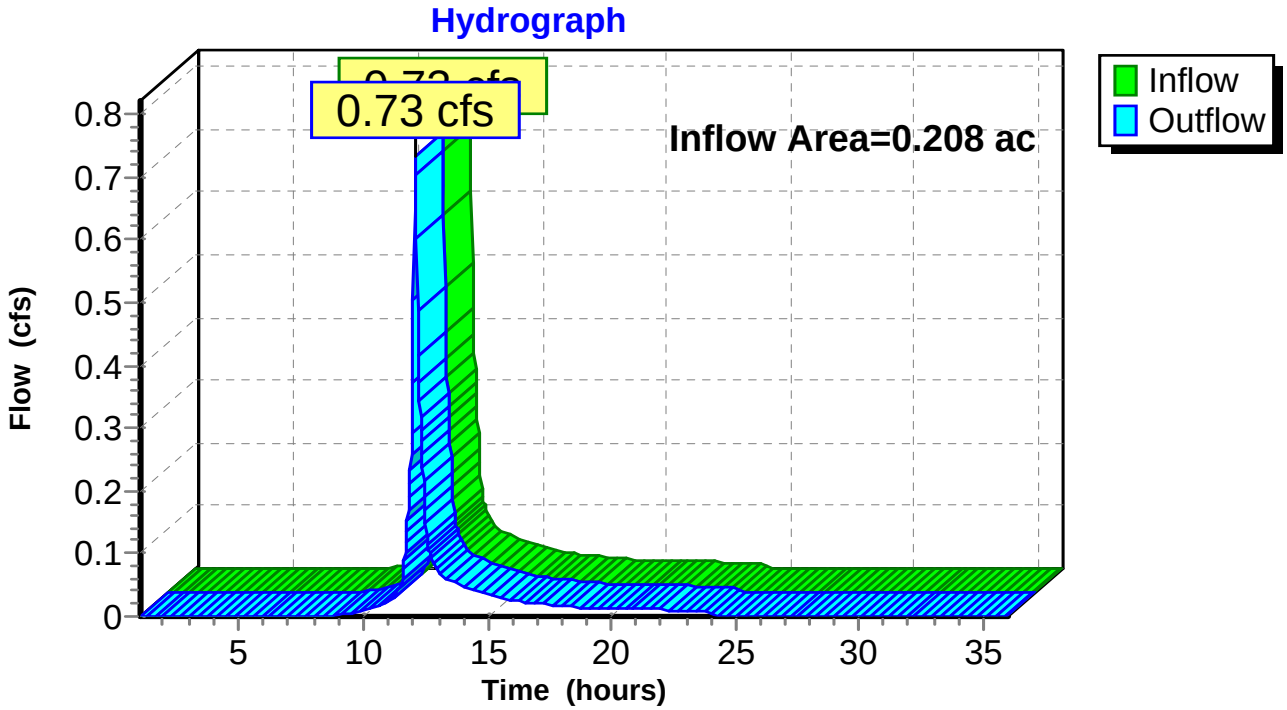


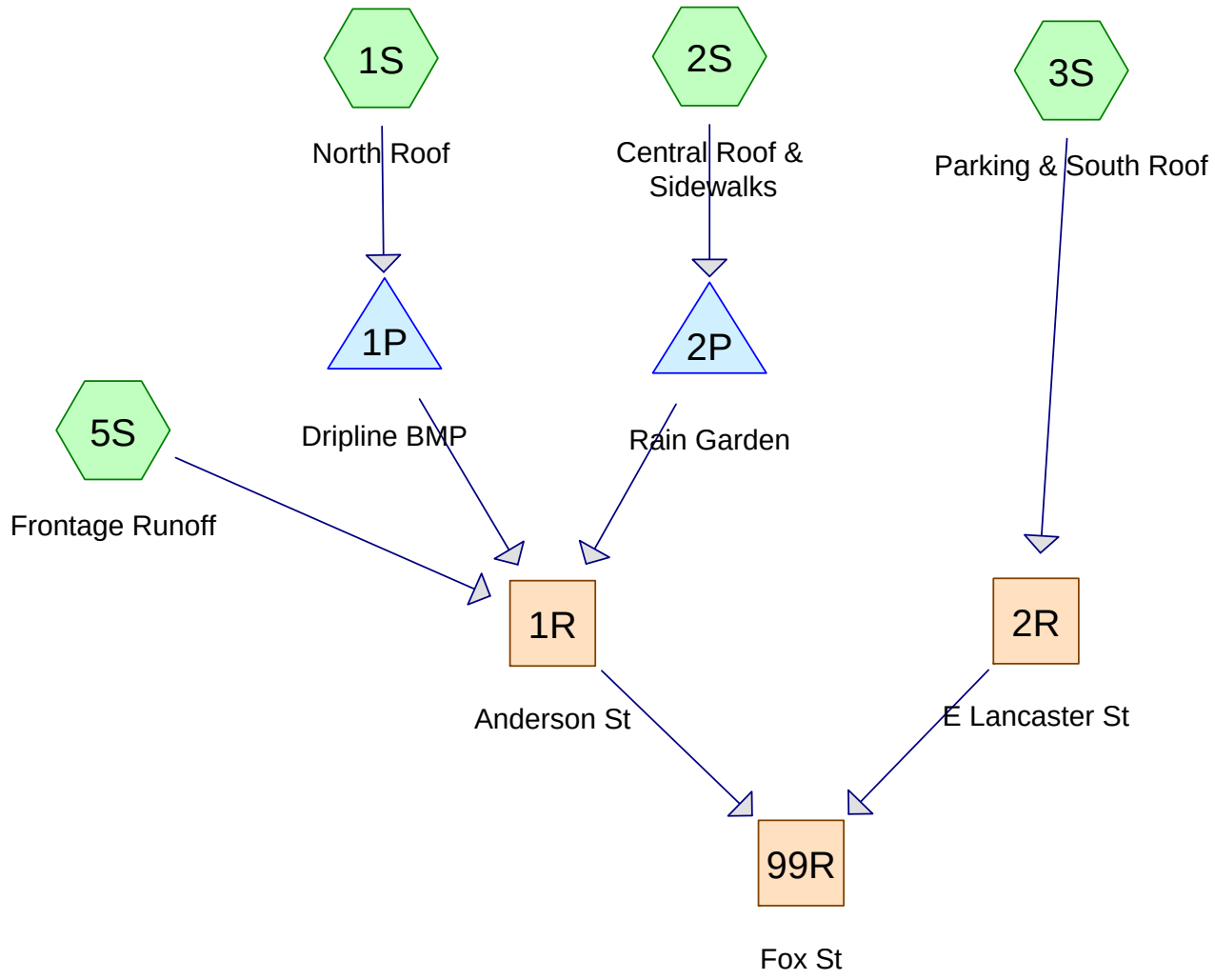
Summary for Reach 99R: Fox St

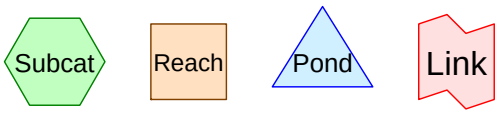
Inflow Area = 0.208 ac, 48.30% Impervious, Inflow Depth = 2.92" for 25-year event
Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af
Outflow = 0.73 cfs @ 12.08 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-36.01 hrs, dt= 0.03 hrs

Reach 99R: Fox St







Routing Diagram for Post_4-26-16
Prepared by Acorn Engineering, Inc., Printed 4/26/2016
HydroCAD® 10.00-15 s/n 00620 © 2015 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.025	96	Brick Pavers, HSG A (2S, 3S, 5S)
0.003	77	Crushed Stone, HSG A (3S)
0.053	98	Paved Parking, HSG A (3S)
0.064	98	Roofs, HSG A (1S, 2S)
0.035	32	Woods/grass comb., Good, HSG A (1S, 2S, 3S, 5S)
0.027	98	roofs, HSG A (3S)
0.208	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.208	HSG A	1S, 2S, 3S, 5S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
0.208		**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
0.025	0.000	0.000	0.000	0.000	0.025	Brick Pavers	2S, 3S, 5S
0.003	0.000	0.000	0.000	0.000	0.003	Crushed Stone	3S
0.053	0.000	0.000	0.000	0.000	0.053	Paved Parking	3S
0.064	0.000	0.000	0.000	0.000	0.064	Roofs	1S, 2S
0.035	0.000	0.000	0.000	0.000	0.035	Woods/grass comb., Good	1S, 2S, 3S, 5S
0.027	0.000	0.000	0.000	0.000	0.027	roofs	3S
0.208	**0.000**	**0.000**	**0.000**	**0.000**	**0.208**	**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	1P	11.00	10.84	229.0	0.0007	0.010	6.0	0.0	0.0
2	2P	13.40	12.95	43.0	0.0105	0.010	6.0	0.0	0.0

Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Roof Runoff Area=1,749 sf 68.04% Impervious Runoff Depth=1.14"
Tc=5.0 min CN=77 Runoff=0.05 cfs 0.004 af

Subcatchment 2S: Central Roof & Sidewalks Runoff Area=2,886 sf 54.89% Impervious Runoff Depth=1.53"
Tc=5.0 min CN=83 Runoff=0.12 cfs 0.008 af

Subcatchment 3S: Parking & South Roof Runoff Area=4,324 sf 80.80% Impervious Runoff Depth=2.35"
Tc=5.0 min CN=93 Runoff=0.27 cfs 0.019 af

Subcatchment 5S: Frontage Runoff Runoff Area=101 sf 0.00% Impervious Runoff Depth=0.15"
Tc=5.0 min CN=52 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach 2R: E Lancaster St Inflow=0.27 cfs 0.019 af
Outflow=0.27 cfs 0.019 af

Reach 99R: Fox St Inflow=0.27 cfs 0.020 af
Outflow=0.27 cfs 0.020 af

Pond 1P: Dripline BMP Peak Elev=11.01' Storage=36 cf Inflow=0.05 cfs 0.004 af
Discarded=0.02 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.004 af

Pond 2P: Rain Garden Peak Elev=15.04' Storage=172 cf Inflow=0.12 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.032 af Average Runoff Depth = 1.83"
30.82% Pervious = 0.064 ac 69.18% Impervious = 0.144 ac

Summary for Subcatchment 1S: North Roof

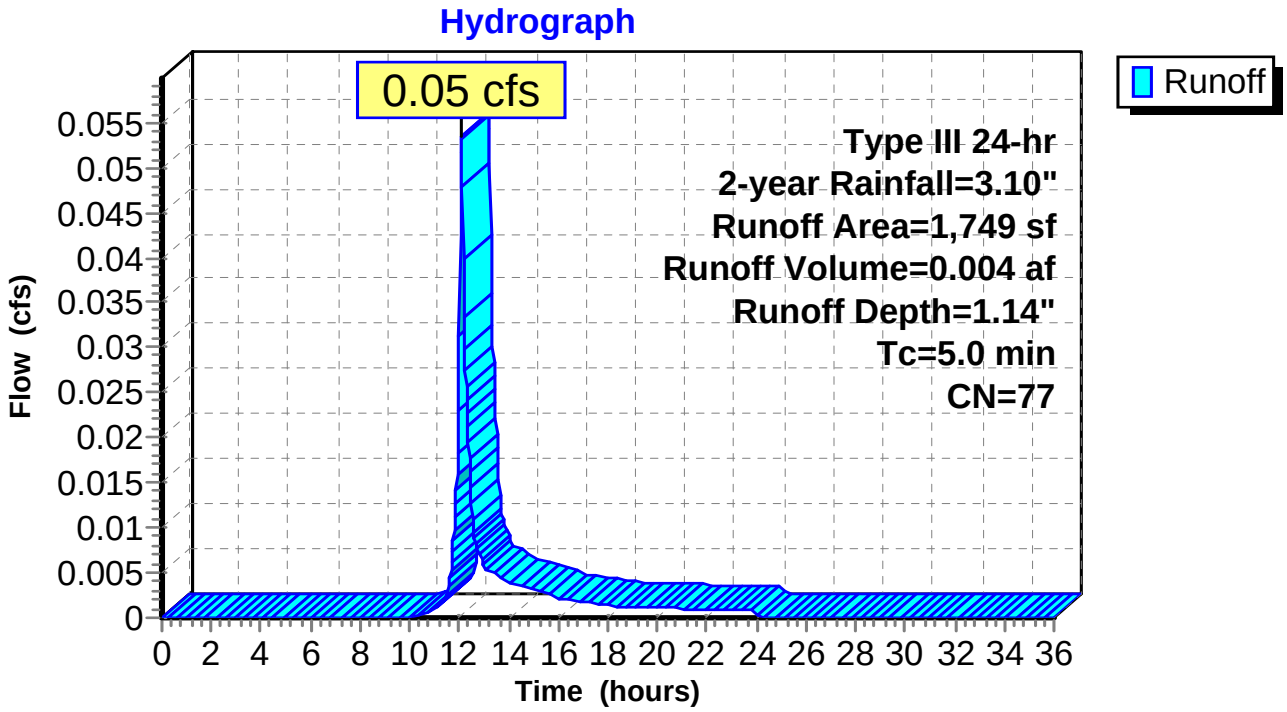
Runoff = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,190	98	Roofs, HSG A
	559	32	Woods/grass comb., Good, HSG A
	1,749	77	Weighted Average
	559		31.96% Pervious Area
	1,190		68.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: North Roof



Summary for Subcatchment 2S: Central Roof & Sidewalks

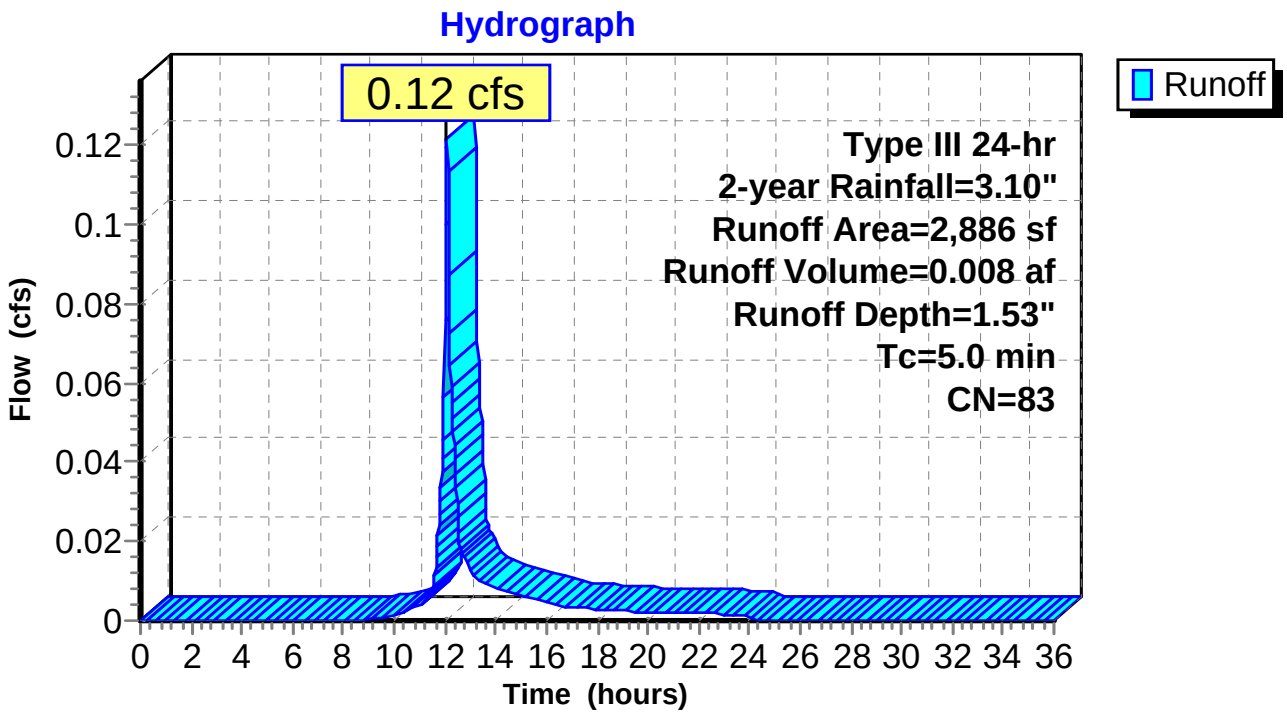
Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	791	98	Roofs, HSG A
*	793	98	Roofs, HSG A
*	671	96	Brick Pavers, HSG A
	631	32	Woods/grass comb., Good, HSG A
	2,886	83	Weighted Average
	1,302		45.11% Pervious Area
	1,584		54.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Central Roof & Sidewalks



Summary for Subcatchment 3S: Parking & South Roof

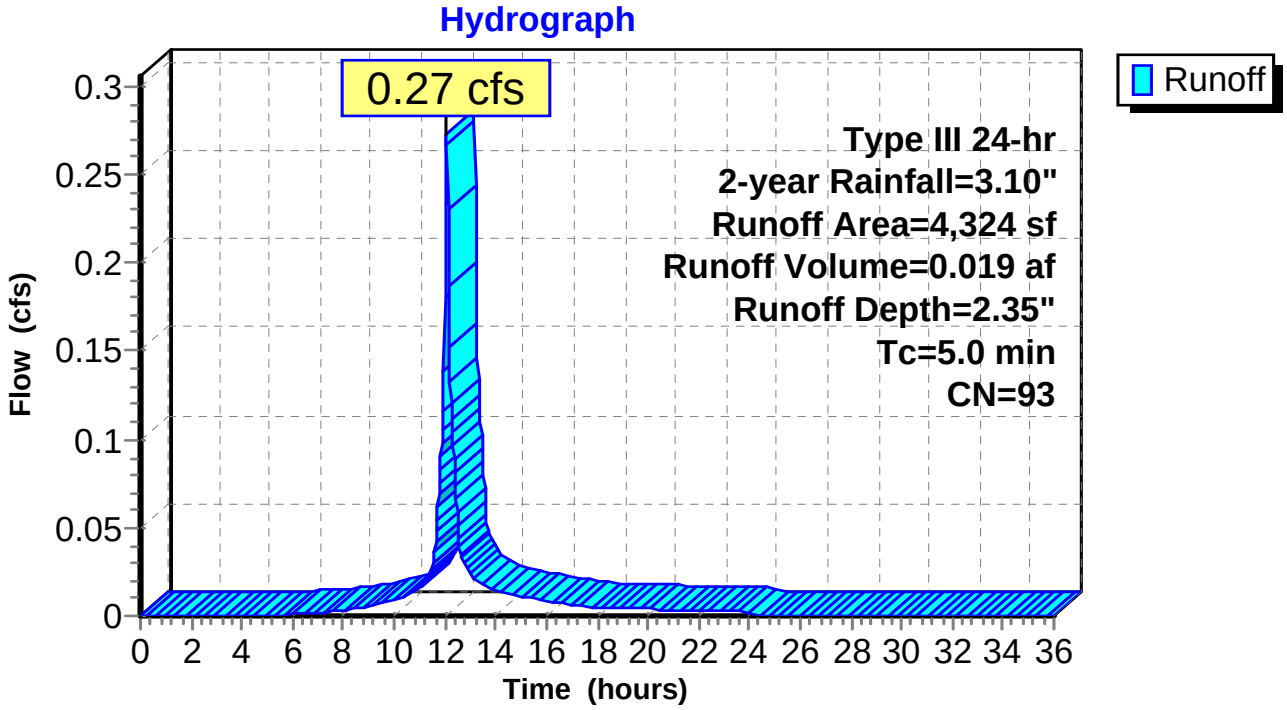
Runoff = 0.27 cfs @ 12.07 hrs, Volume= 0.019 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,302	98	Paved Parking, HSG A
*	399	96	Brick Pavers, HSG A
*	1,192	98	roofs, HSG A
	280	32	Woods/grass comb., Good, HSG A
*	151	77	Crushed Stone, HSG A
	4,324	93	Weighted Average
	830		19.20% Pervious Area
	3,494		80.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Parking & South Roof



Summary for Subcatchment 5S: Frontage Runoff

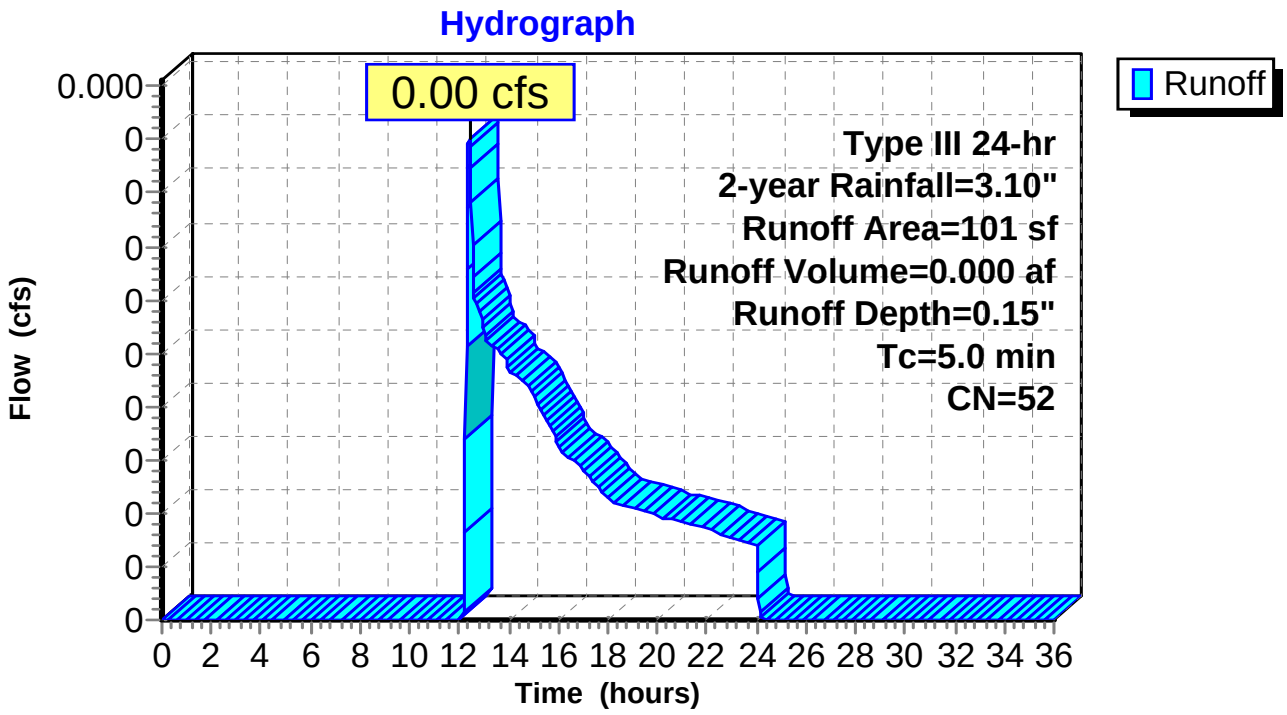
Runoff = 0.00 cfs @ 12.42 hrs, Volume= 0.000 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
	69	32	Woods/grass comb., Good, HSG A
*	32	96	Brick Pavers, HSG A
	101	52	Weighted Average
	101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Frontage Runoff

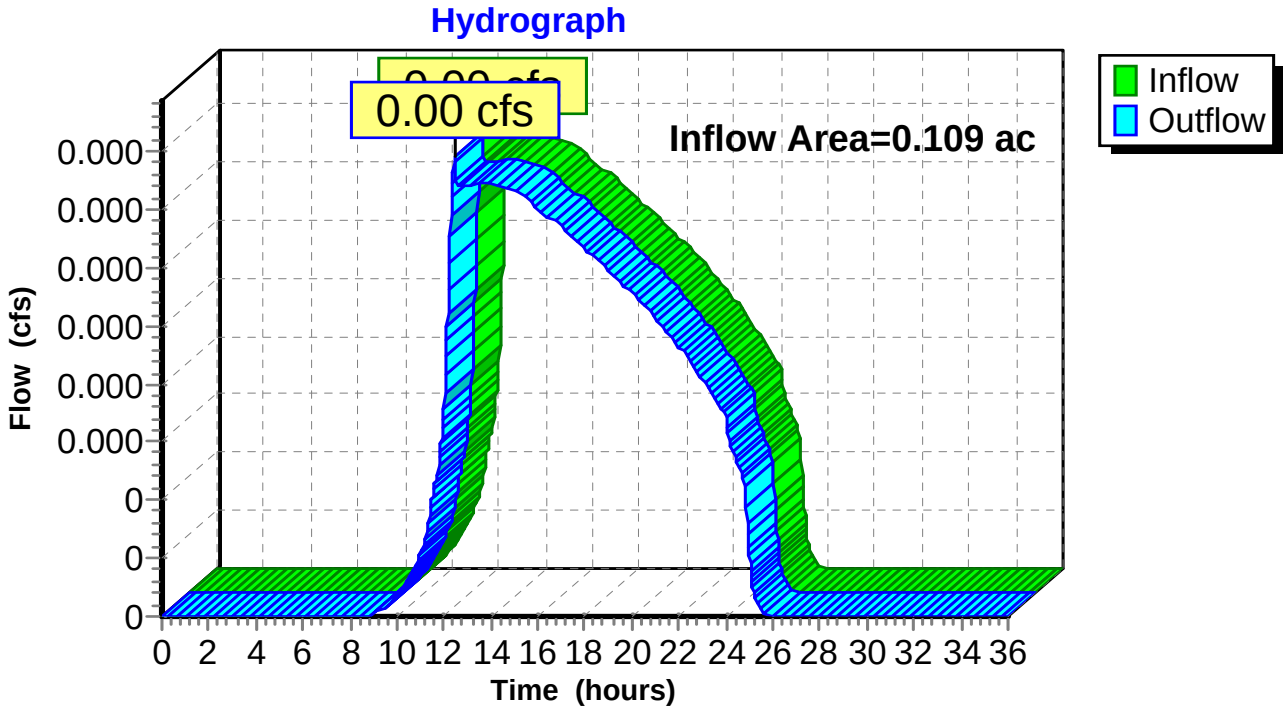


Summary for Reach 1R: Anderson St

Inflow Area = 0.109 ac, 58.57% Impervious, Inflow Depth = 0.04" for 2-year event
Inflow = 0.00 cfs @ 12.46 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.46 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 1R: Anderson St

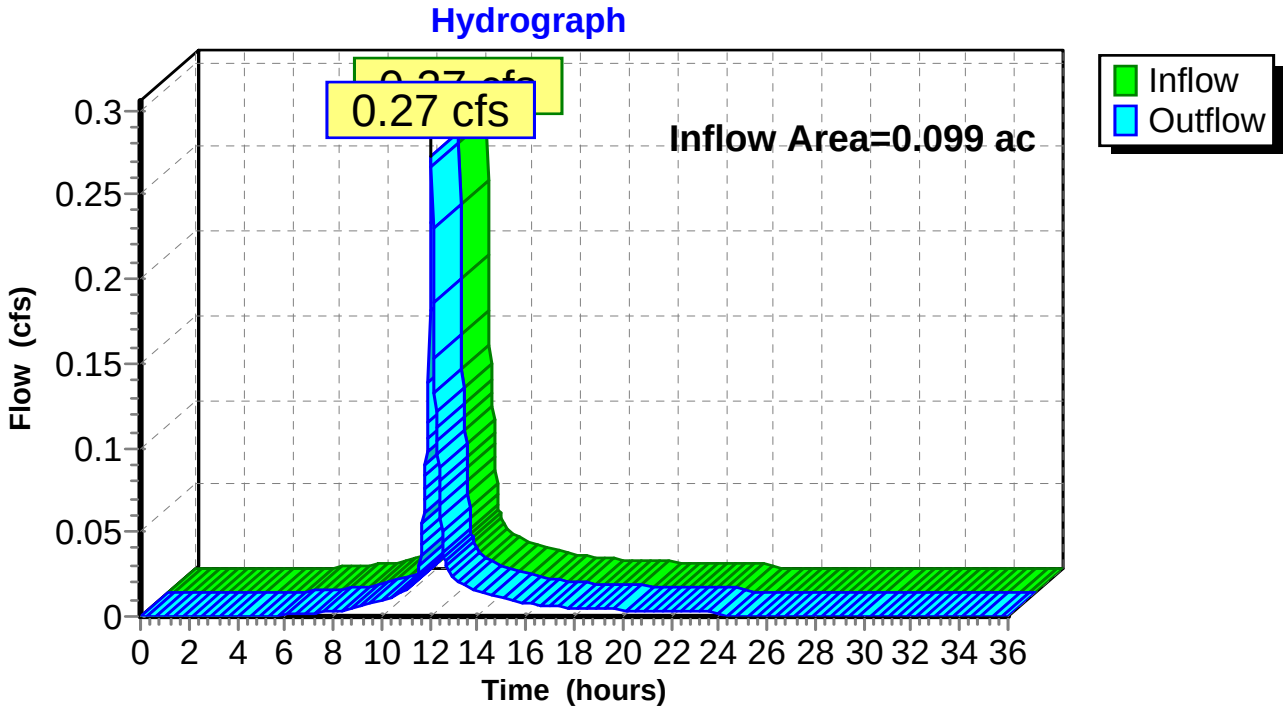


Summary for Reach 2R: E Lancaster St

Inflow Area = 0.099 ac, 80.80% Impervious, Inflow Depth = 2.35" for 2-year event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.019 af
Outflow = 0.27 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 2R: E Lancaster St

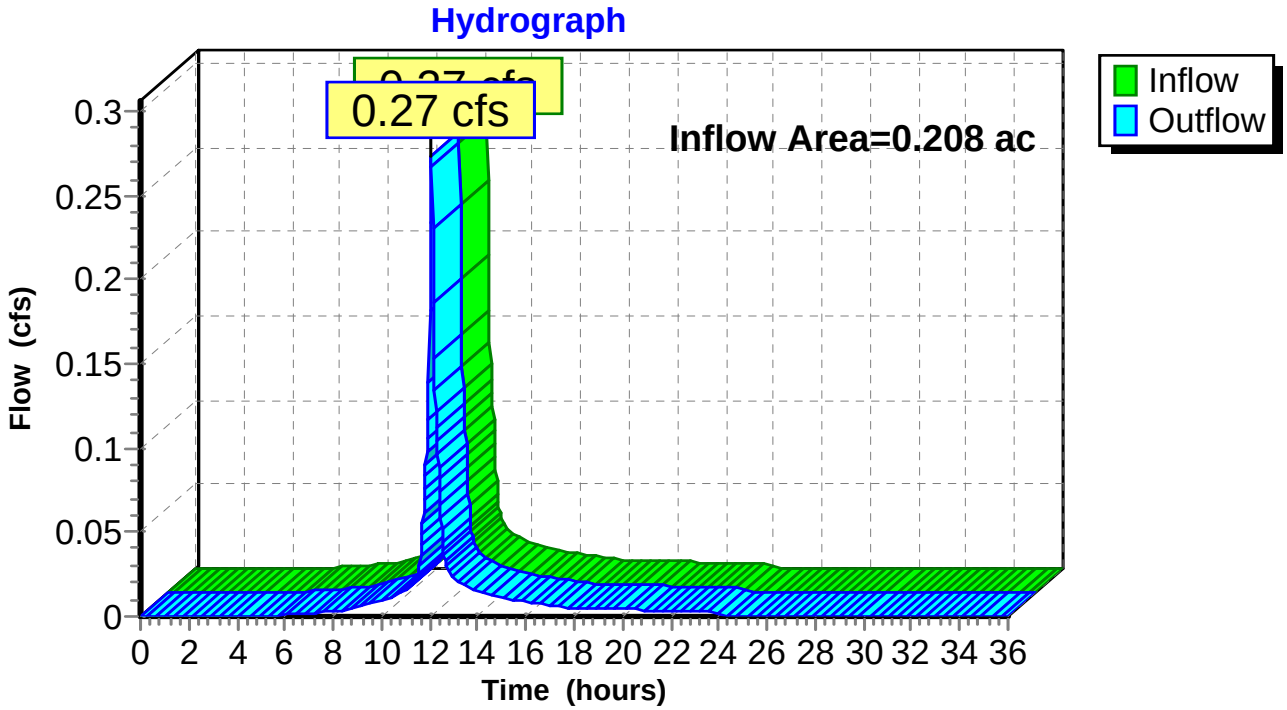


Summary for Reach 99R: Fox St

Inflow Area = 0.208 ac, 69.18% Impervious, Inflow Depth = 1.14" for 2-year event
Inflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af
Outflow = 0.27 cfs @ 12.07 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 99R: Fox St



Summary for Pond 1P: Dripline BMP

Inflow Area =	0.040 ac, 68.04% Impervious, Inflow Depth = 1.14" for 2-year event				
Inflow =	0.05 cfs @	12.08 hrs,	Volume=	0.004 af	
Outflow =	0.02 cfs @	12.47 hrs,	Volume=	0.004 af,	Atten= 72%, Lag= 23.1 min
Discarded =	0.02 cfs @	12.47 hrs,	Volume=	0.004 af	
Primary =	0.00 cfs @	12.47 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 11.01' @ 12.47 hrs Surf.Area= 180 sf Storage= 36 cf

Plug-Flow detention time= 17.0 min calculated for 0.004 af (100% of inflow)
Center-of-Mass det. time= 17.0 min (870.3 - 853.3)

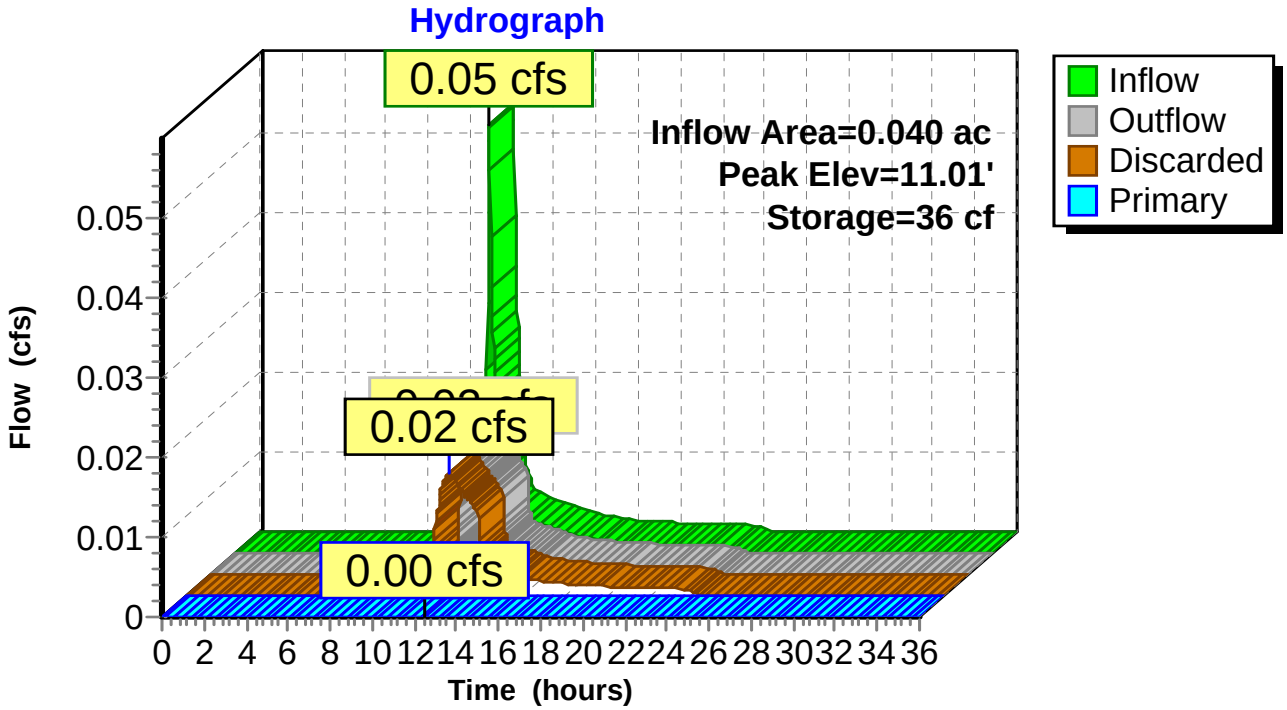
Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	72 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Water Quality Volume** 180 cf Overall x 40.0% Voids
#2	12.50'	18 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Soil Filter Media** 180 cf Overall x 10.0% Voids
#3	10.50'	144 cf	**2.00'W x 90.00'L x 2.00'H Prismatoid - Crushed Stone** 360 cf Overall x 40.0% Voids
		234 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.00'	**6.0" Round Culvert** L= 229.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.00' / 10.84' S= 0.0007 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	11.00'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Discarded	10.50'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.47 hrs HW=11.01' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 12.47 hrs HW=11.01' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 0.00 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.25 fps)

Pond 1P: Dripline BMP



Summary for Pond 2P: Rain Garden

Inflow Area = 0.066 ac, 54.89% Impervious, Inflow Depth = 1.53" for 2-year event
Inflow = 0.12 cfs @ 12.08 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 14.34 hrs, Volume= 0.008 af, Atten= 94%, Lag= 136.0 min
Discarded = 0.01 cfs @ 11.58 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 14.34 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 15.04' @ 14.34 hrs Surf.Area= 124 sf Storage= 172 cf

Plug-Flow detention time= 239.7 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 239.6 min (1,073.1 - 833.5)

Volume	Invert	Avail.Storage	Storage Description
#1	16.65'	360 cf	**Water Quality Volume (Prismatic)** Listed below (Recalc)
#2	15.15'	248 cf	**Loam/Soil Filter Media (Prismatic)** Listed below (Recalc)
#3	13.65'	186 cf	**Crushed Stone (Prismatic)** Listed below (Recalc)
		794 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.65	124	0	0
17.15	272	99	99
17.82	506	261	360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.15	124	0	0
17.15	124	248	248

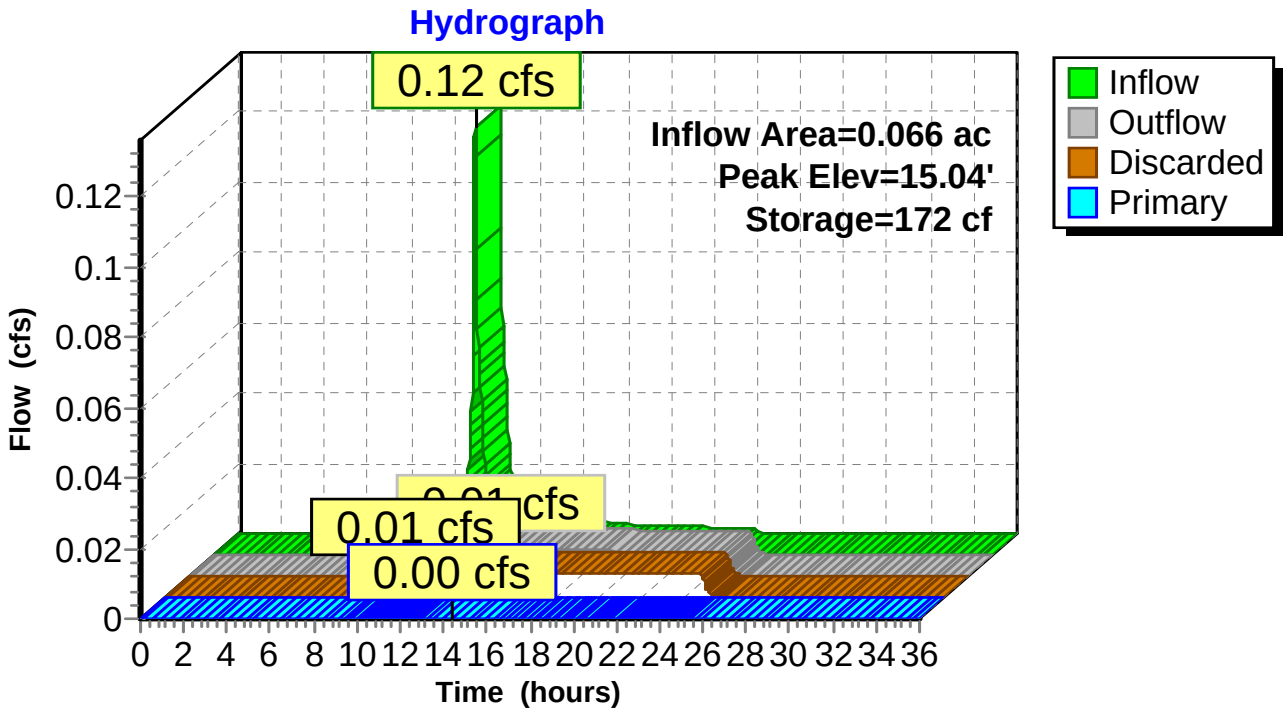
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.65	124	0	0
15.15	124	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	13.40'	**6.0" Round Culvert** L= 43.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 13.40' / 12.95' S= 0.0105 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	13.50'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	17.15'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	13.65'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 11.58 hrs HW=13.69' (Free Discharge)
└─**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 14.34 hrs HW=15.04' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 0.98 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 5.96 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Rain Garden



Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Roof Runoff Area=1,749 sf 68.04% Impervious Runoff Depth=2.29"
Tc=5.0 min CN=77 Runoff=0.11 cfs 0.008 af

Subcatchment 2S: Central Roof & Sidewalks Runoff Area=2,886 sf 54.89% Impervious Runoff Depth=2.81"
Tc=5.0 min CN=83 Runoff=0.22 cfs 0.016 af

Subcatchment 3S: Parking & South Roof Runoff Area=4,324 sf 80.80% Impervious Runoff Depth=3.81"
Tc=5.0 min CN=93 Runoff=0.43 cfs 0.031 af

Subcatchment 5S: Frontage Runoff Runoff Area=101 sf 0.00% Impervious Runoff Depth=0.63"
Tc=5.0 min CN=52 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach 2R: E Lancaster St Inflow=0.43 cfs 0.031 af
Outflow=0.43 cfs 0.031 af

Reach 99R: Fox St Inflow=0.43 cfs 0.032 af
Outflow=0.43 cfs 0.032 af

Pond 1P: Dripline BMP Peak Elev=11.86' Storage=98 cf Inflow=0.11 cfs 0.008 af
Discarded=0.02 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

Pond 2P: Rain Garden Peak Elev=16.29' Storage=328 cf Inflow=0.22 cfs 0.016 af
Discarded=0.01 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.016 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.055 af Average Runoff Depth = 3.16"
30.82% Pervious = 0.064 ac 69.18% Impervious = 0.144 ac

Summary for Subcatchment 1S: North Roof

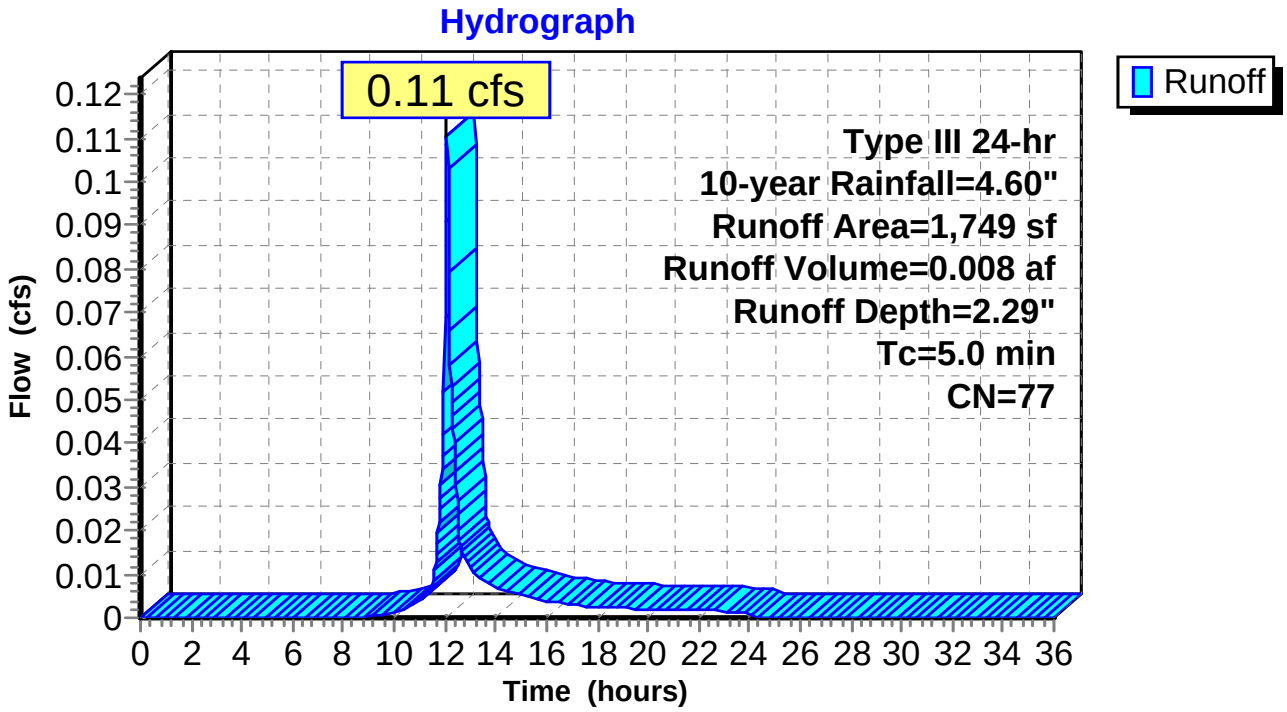
Runoff = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,190	98	Roofs, HSG A
	559	32	Woods/grass comb., Good, HSG A
	1,749	77	Weighted Average
	559		31.96% Pervious Area
	1,190		68.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: North Roof



Summary for Subcatchment 2S: Central Roof & Sidewalks

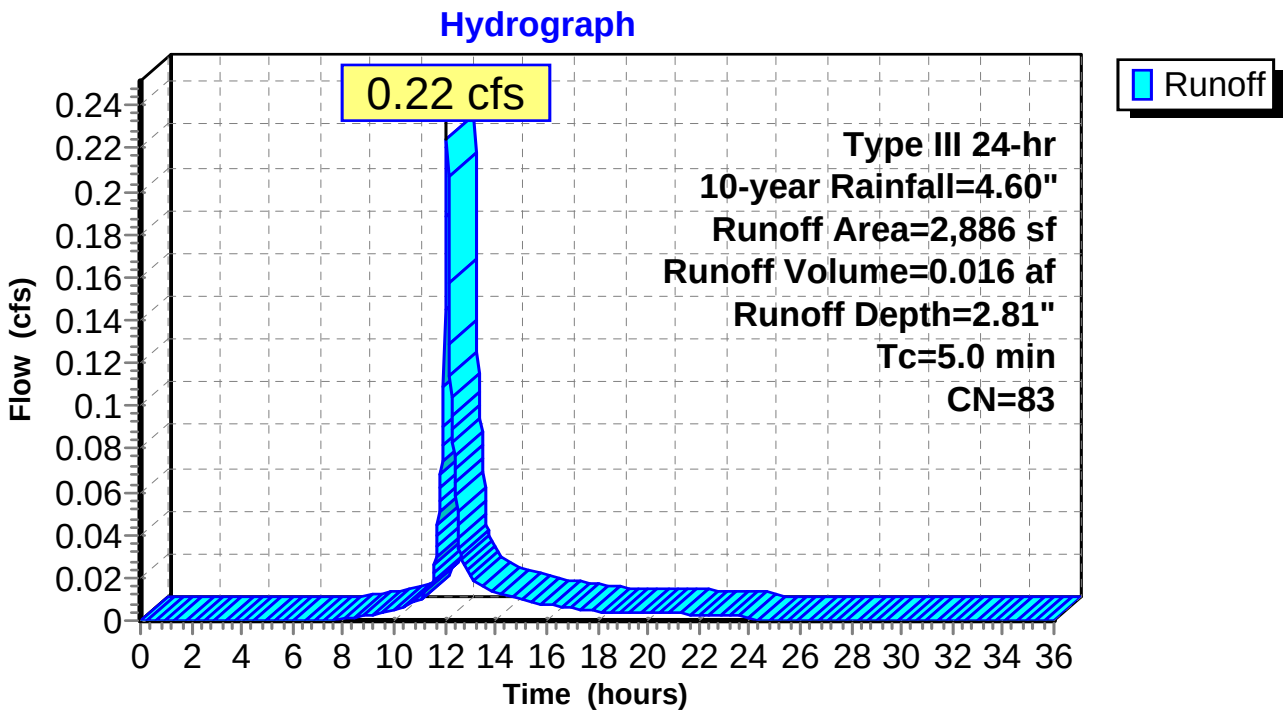
Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.016 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	791	98	Roofs, HSG A
*	793	98	Roofs, HSG A
*	671	96	Brick Pavers, HSG A
	631	32	Woods/grass comb., Good, HSG A
	2,886	83	Weighted Average
	1,302		45.11% Pervious Area
	1,584		54.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Central Roof & Sidewalks



Summary for Subcatchment 3S: Parking & South Roof

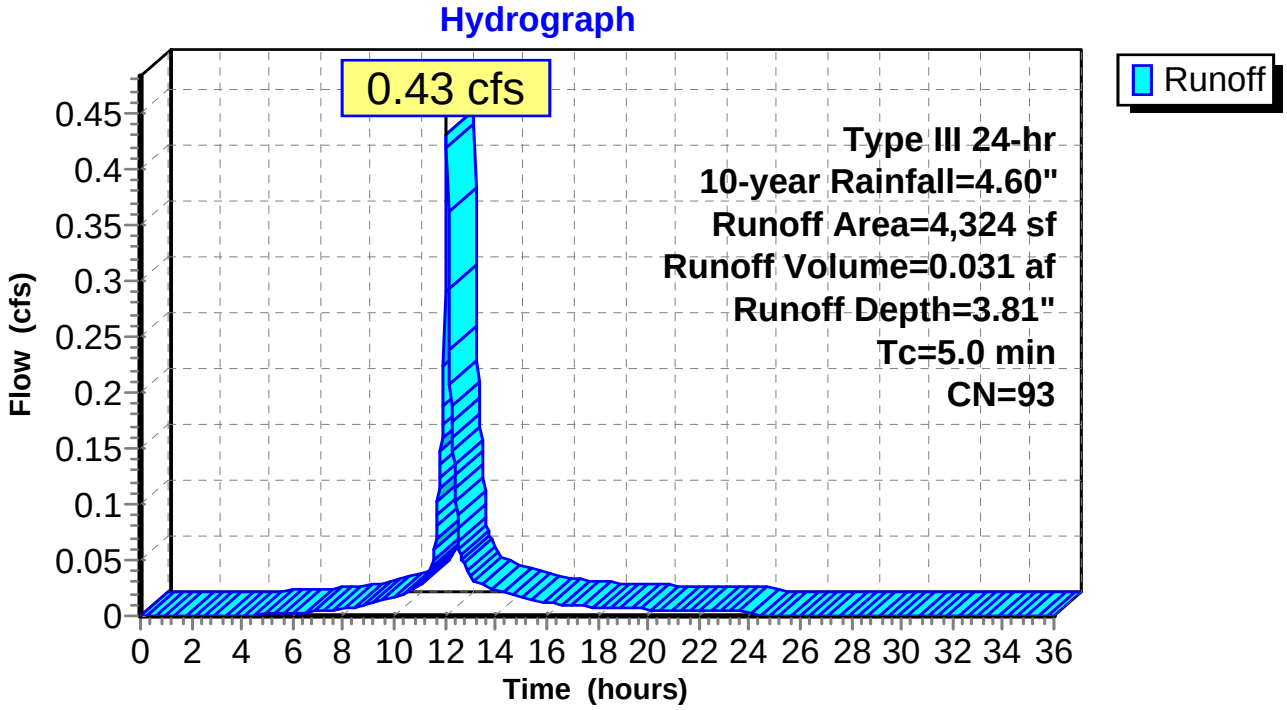
Runoff = 0.43 cfs @ 12.07 hrs, Volume= 0.031 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,302	98	Paved Parking, HSG A
*	399	96	Brick Pavers, HSG A
*	1,192	98	roofs, HSG A
	280	32	Woods/grass comb., Good, HSG A
*	151	77	Crushed Stone, HSG A
	4,324	93	Weighted Average
	830		19.20% Pervious Area
	3,494		80.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Parking & South Roof



Summary for Subcatchment 5S: Frontage Runoff

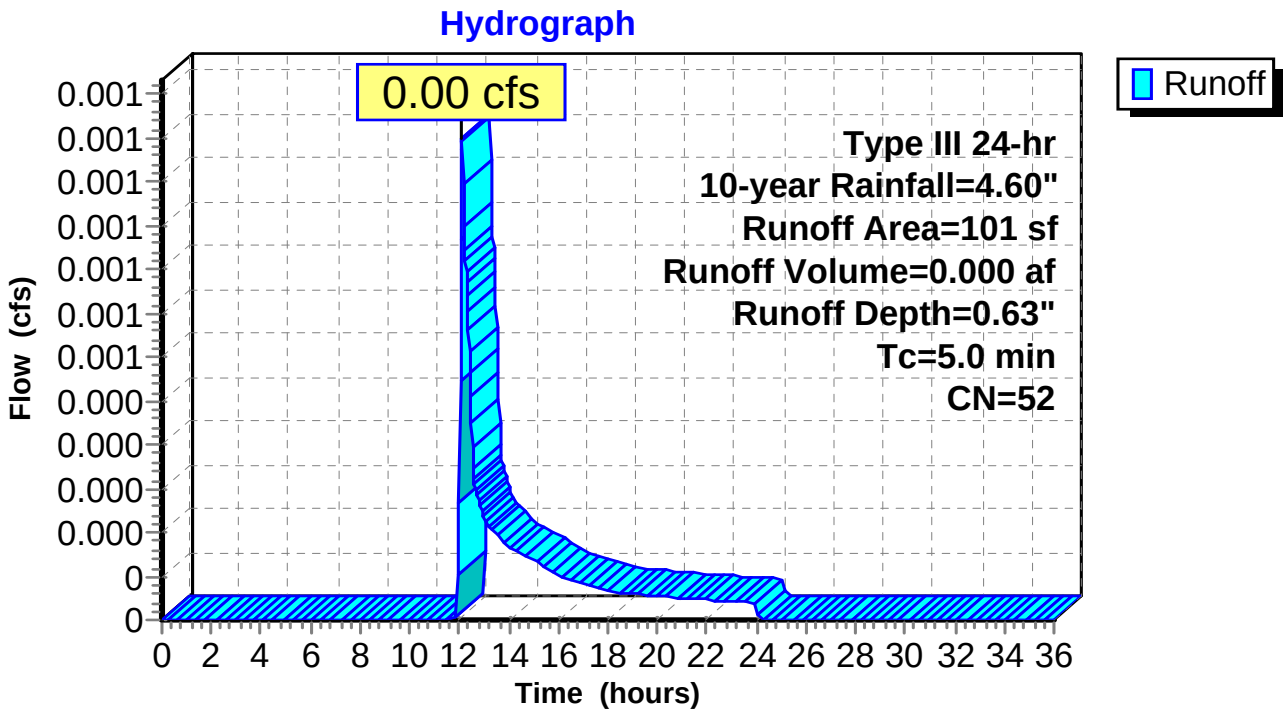
Runoff = 0.00 cfs @ 12.11 hrs, Volume= 0.000 af, Depth= 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
	69	32	Woods/grass comb., Good, HSG A
*	32	96	Brick Pavers, HSG A
	101	52	Weighted Average
	101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Frontage Runoff

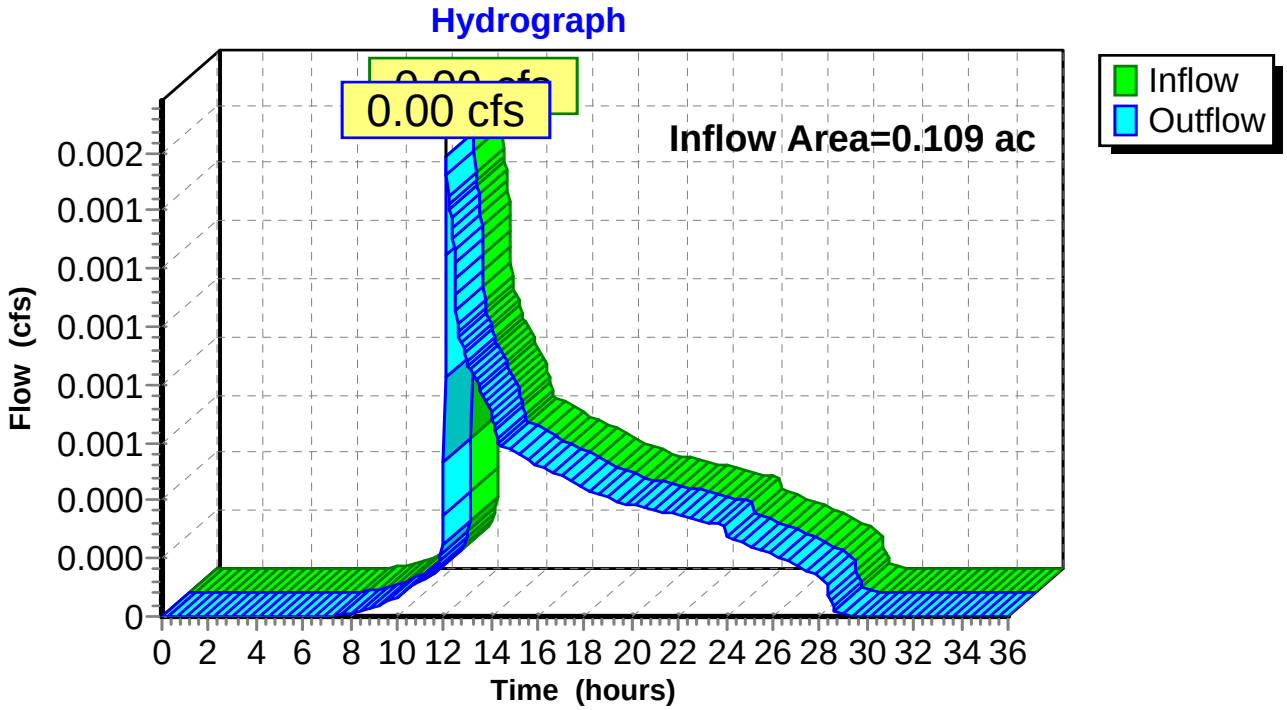


Summary for Reach 1R: Anderson St

Inflow Area = 0.109 ac, 58.57% Impervious, Inflow Depth = 0.07" for 10-year event
Inflow = 0.00 cfs @ 12.12 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.12 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 1R: Anderson St

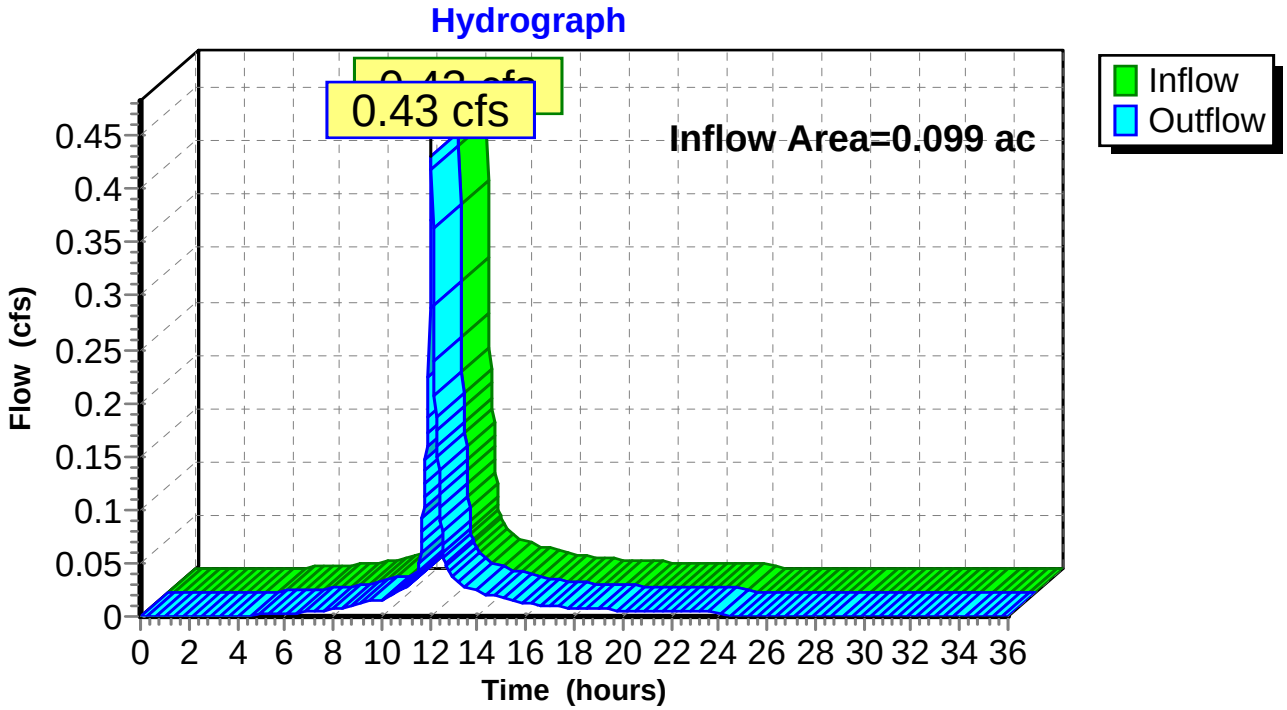


Summary for Reach 2R: E Lancaster St

Inflow Area = 0.099 ac, 80.80% Impervious, Inflow Depth = 3.81" for 10-year event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 0.031 af
Outflow = 0.43 cfs @ 12.07 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 2R: E Lancaster St

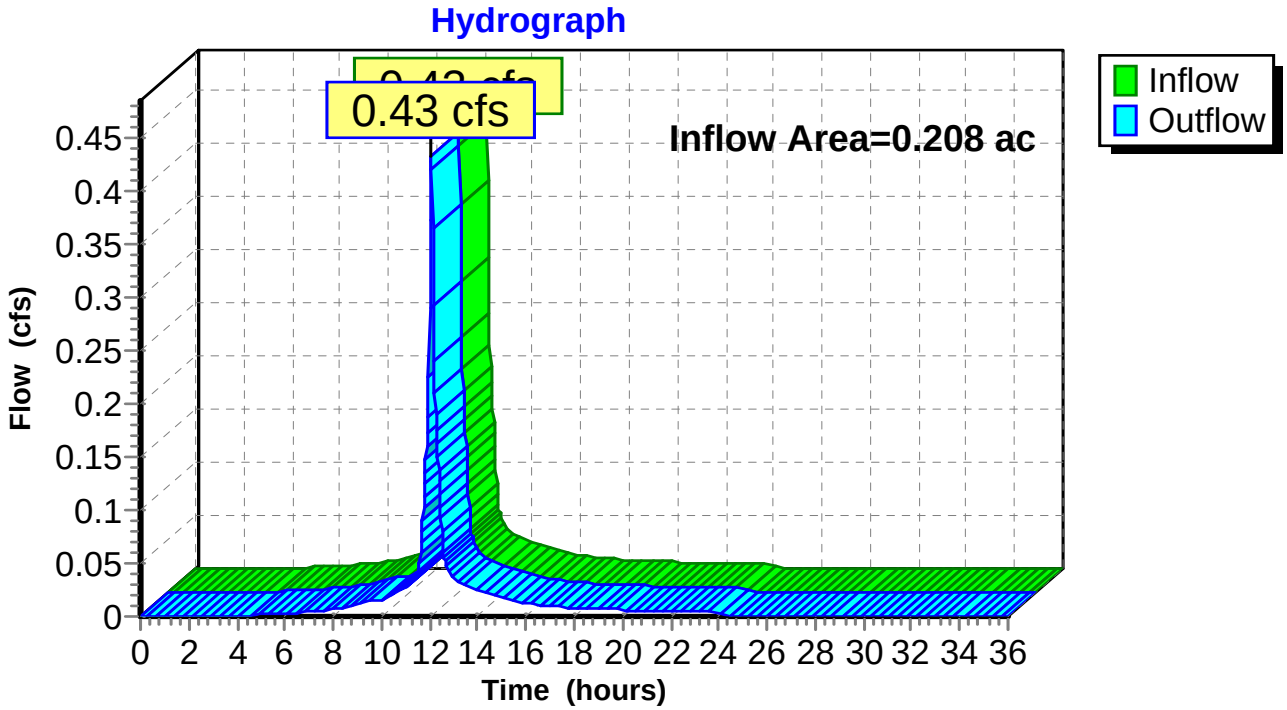


Summary for Reach 99R: Fox St

Inflow Area = 0.208 ac, 69.18% Impervious, Inflow Depth = 1.85" for 10-year event
Inflow = 0.43 cfs @ 12.07 hrs, Volume= 0.032 af
Outflow = 0.43 cfs @ 12.07 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 99R: Fox St



Summary for Pond 1P: Dripline BMP

Inflow Area =	0.040 ac, 68.04% Impervious, Inflow Depth = 2.29" for 10-year event				
Inflow =	0.11 cfs @	12.08 hrs,	Volume=	0.008 af	
Outflow =	0.02 cfs @	12.51 hrs,	Volume=	0.008 af,	Atten= 78%, Lag= 25.7 min
Discarded =	0.02 cfs @	12.51 hrs,	Volume=	0.008 af	
Primary =	0.00 cfs @	12.51 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 11.86' @ 12.51 hrs Surf.Area= 180 sf Storage= 98 cf

Plug-Flow detention time= 34.7 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 34.7 min (867.4 - 832.7)

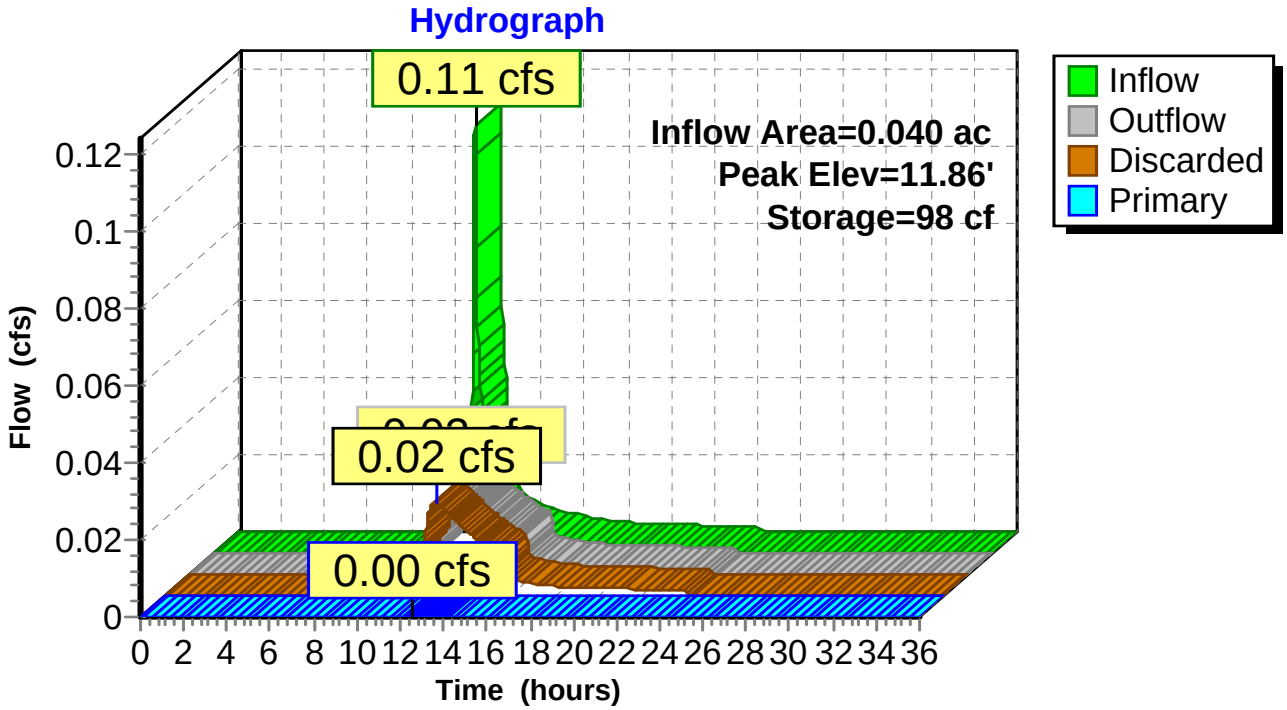
Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	72 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Water Quality Volume** 180 cf Overall x 40.0% Voids
#2	12.50'	18 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Soil Filter Media** 180 cf Overall x 10.0% Voids
#3	10.50'	144 cf	**2.00'W x 90.00'L x 2.00'H Prismatoid - Crushed Stone** 360 cf Overall x 40.0% Voids
		234 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.00'	**6.0" Round Culvert** L= 229.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.00' / 10.84' S= 0.0007 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	11.00'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Discarded	10.50'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.02 cfs @ 12.51 hrs HW=11.86' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 12.51 hrs HW=11.86' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 0.32 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 4.44 fps)

Pond 1P: Dripline BMP



Summary for Pond 2P: Rain Garden

Inflow Area =	0.066 ac, 54.89% Impervious, Inflow Depth = 2.81" for 10-year event				
Inflow =	0.22 cfs @	12.07 hrs,	Volume=	0.016 af	
Outflow =	0.01 cfs @	13.85 hrs,	Volume=	0.016 af,	Atten= 94%, Lag= 106.3 min
Discarded =	0.01 cfs @	12.12 hrs,	Volume=	0.015 af	
Primary =	0.00 cfs @	13.85 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 16.29' @ 13.85 hrs Surf.Area= 248 sf Storage= 328 cf

Plug-Flow detention time= 270.7 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 270.8 min (1,086.7 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	16.65'	360 cf	**Water Quality Volume (Prismatic)** Listed below (Recalc)
#2	15.15'	248 cf	**Loam/Soil Filter Media (Prismatic)** Listed below (Recalc)
#3	13.65'	186 cf	**Crushed Stone (Prismatic)** Listed below (Recalc)
		794 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.65	124	0	0
17.15	272	99	99
17.82	506	261	360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.15	124	0	0
17.15	124	248	248

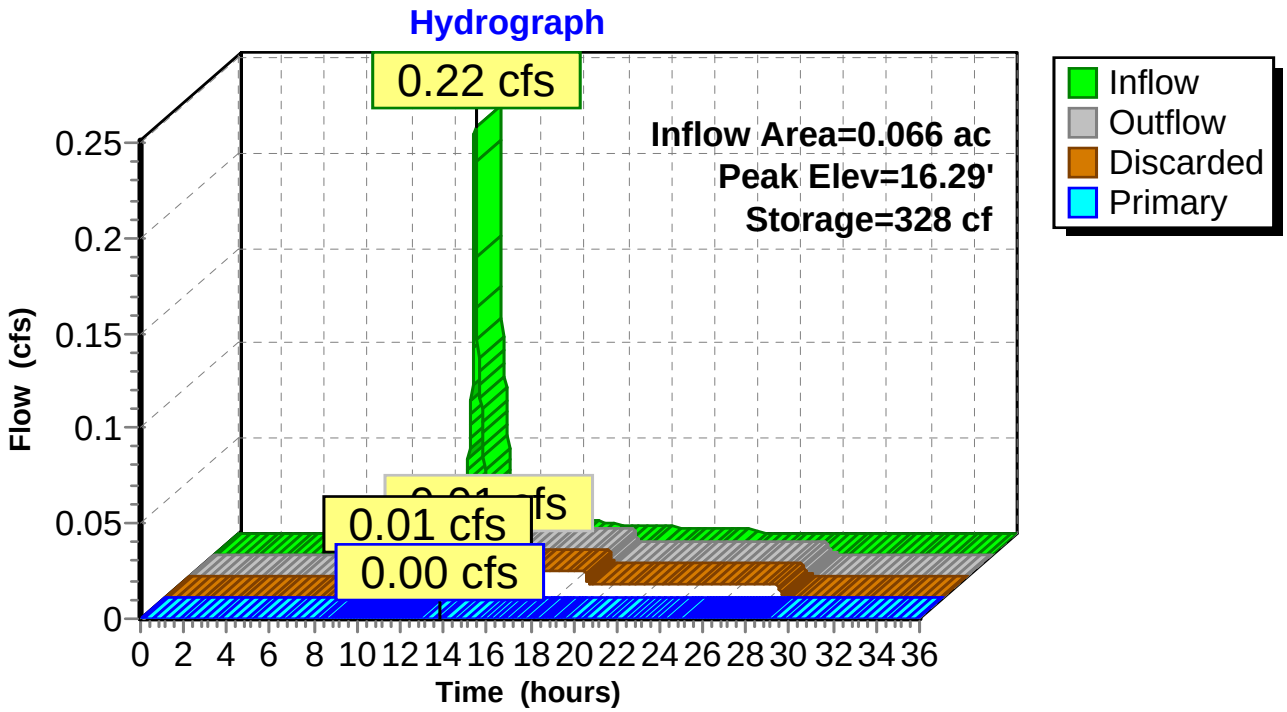
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.65	124	0	0
15.15	124	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	13.40'	**6.0" Round Culvert** L= 43.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 13.40' / 12.95' S= 0.0105 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	13.50'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	17.15'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	13.65'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 12.12 hrs HW=15.15' (Free Discharge)
└─**4=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 13.85 hrs HW=16.29' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 1.36 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 8.04 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Rain Garden



Time span=0.00-36.00 hrs, dt=0.03 hrs, 1201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: North Roof Runoff Area=1,749 sf 68.04% Impervious Runoff Depth=3.31"
Tc=5.0 min CN=77 Runoff=0.16 cfs 0.011 af

Subcatchment 2S: Central Roof & Sidewalks Runoff Area=2,886 sf 54.89% Impervious Runoff Depth=3.91"
Tc=5.0 min CN=83 Runoff=0.31 cfs 0.022 af

Subcatchment 3S: Parking & South Roof Runoff Area=4,324 sf 80.80% Impervious Runoff Depth=4.99"
Tc=5.0 min CN=93 Runoff=0.56 cfs 0.041 af

Subcatchment 5S: Frontage Runoff Runoff Area=101 sf 0.00% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=52 Runoff=0.00 cfs 0.000 af

Reach 1R: Anderson St Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Reach 2R: E Lancaster St Inflow=0.56 cfs 0.041 af
Outflow=0.56 cfs 0.041 af

Reach 99R: Fox St Inflow=0.56 cfs 0.042 af
Outflow=0.56 cfs 0.042 af

Pond 1P: Dripline BMP Peak Elev=12.69' Storage=147 cf Inflow=0.16 cfs 0.011 af
Discarded=0.04 cfs 0.011 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.011 af

Pond 2P: Rain Garden Peak Elev=16.93' Storage=452 cf Inflow=0.31 cfs 0.022 af
Discarded=0.03 cfs 0.021 af Primary=0.00 cfs 0.001 af Outflow=0.03 cfs 0.022 af

Total Runoff Area = 0.208 ac Runoff Volume = 0.074 af Average Runoff Depth = 4.27"
30.82% Pervious = 0.064 ac 69.18% Impervious = 0.144 ac

Summary for Subcatchment 1S: North Roof

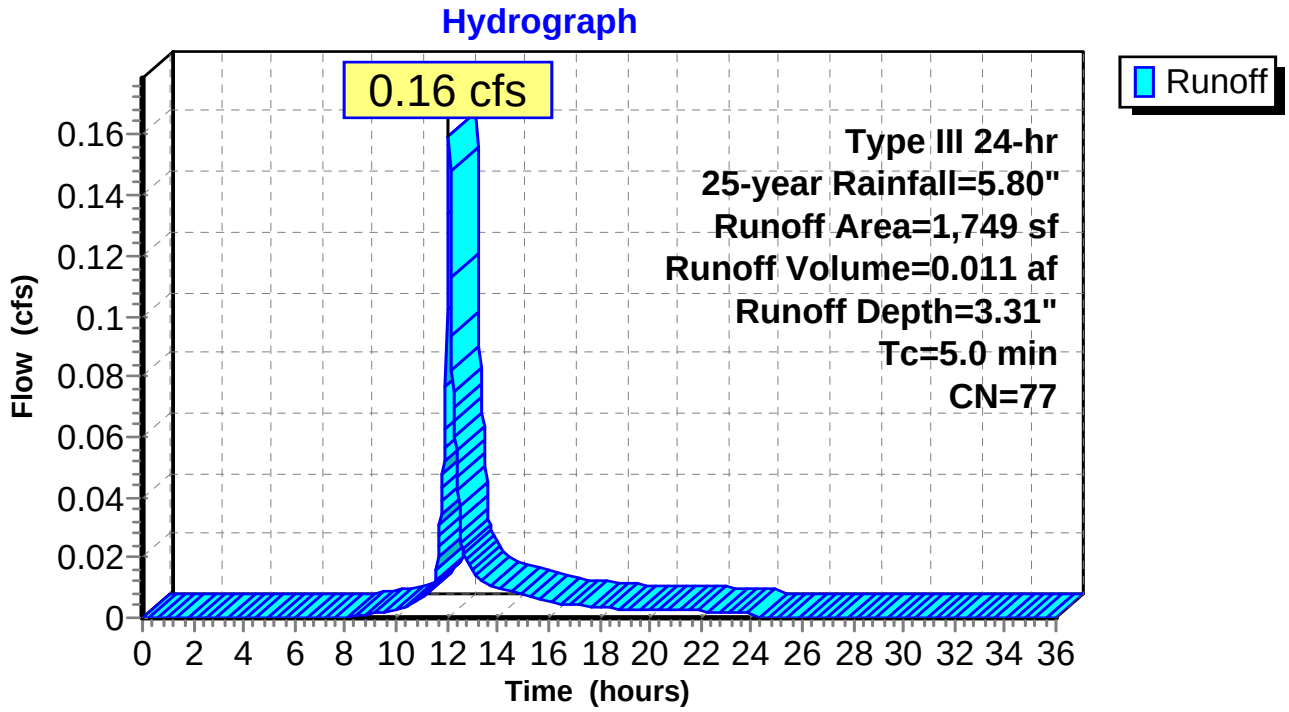
Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.011 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,190	98	Roofs, HSG A
	559	32	Woods/grass comb., Good, HSG A
	1,749	77	Weighted Average
	559		31.96% Pervious Area
	1,190		68.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: North Roof



Summary for Subcatchment 2S: Central Roof & Sidewalks

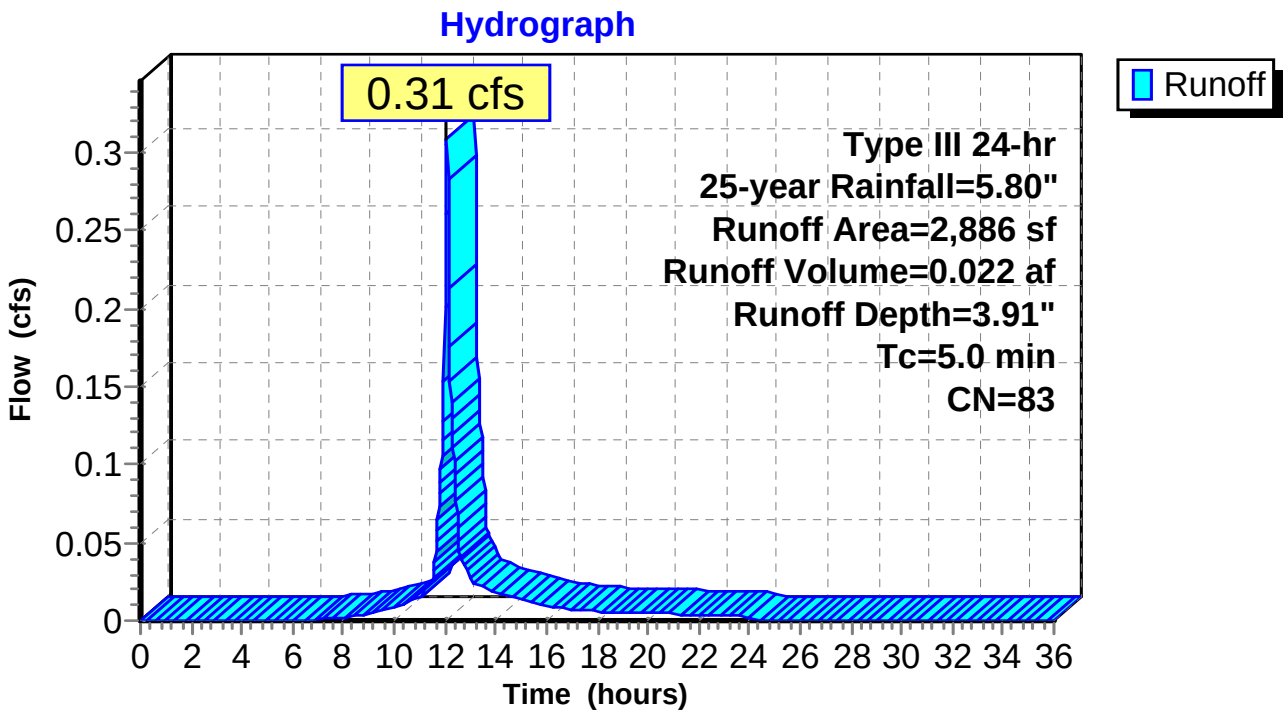
Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	791	98	Roofs, HSG A
*	793	98	Roofs, HSG A
*	671	96	Brick Pavers, HSG A
	631	32	Woods/grass comb., Good, HSG A
	2,886	83	Weighted Average
	1,302		45.11% Pervious Area
	1,584		54.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 2S: Central Roof & Sidewalks



Summary for Subcatchment 3S: Parking & South Roof

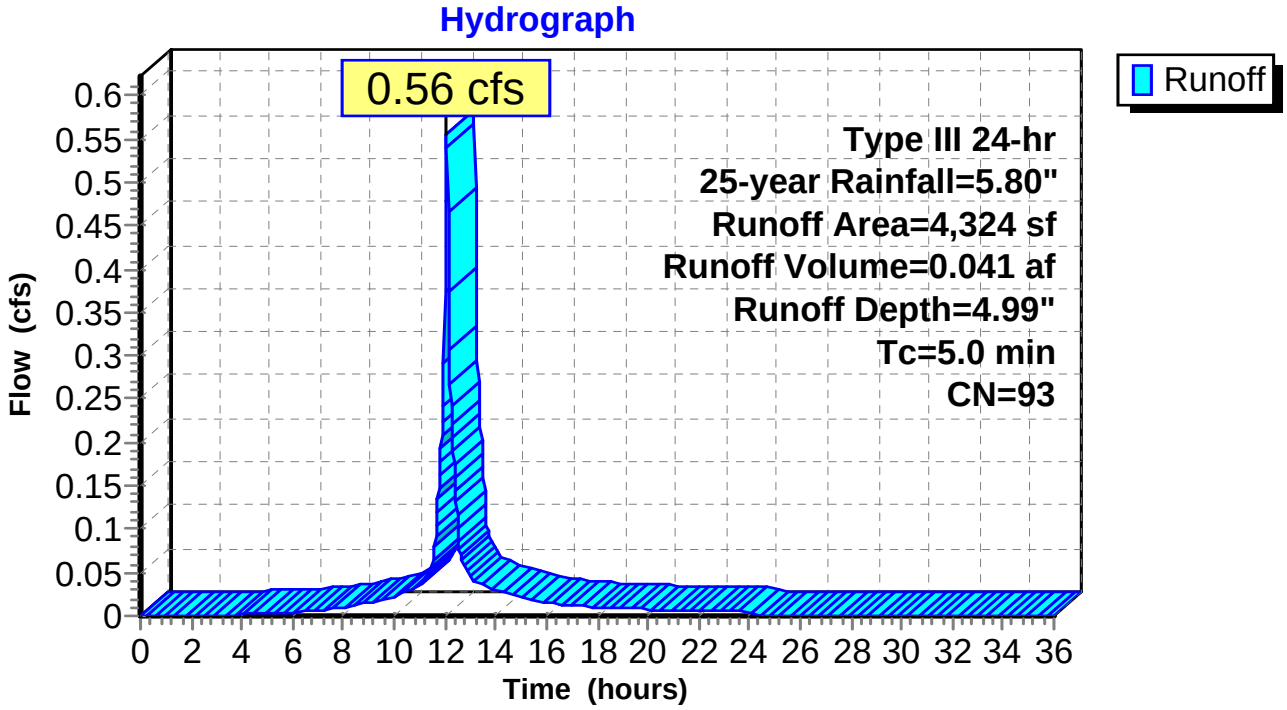
Runoff = 0.56 cfs @ 12.07 hrs, Volume= 0.041 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,302	98	Paved Parking, HSG A
*	399	96	Brick Pavers, HSG A
*	1,192	98	roofs, HSG A
	280	32	Woods/grass comb., Good, HSG A
*	151	77	Crushed Stone, HSG A
	4,324	93	Weighted Average
	830		19.20% Pervious Area
	3,494		80.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Parking & South Roof



Summary for Subcatchment 5S: Frontage Runoff

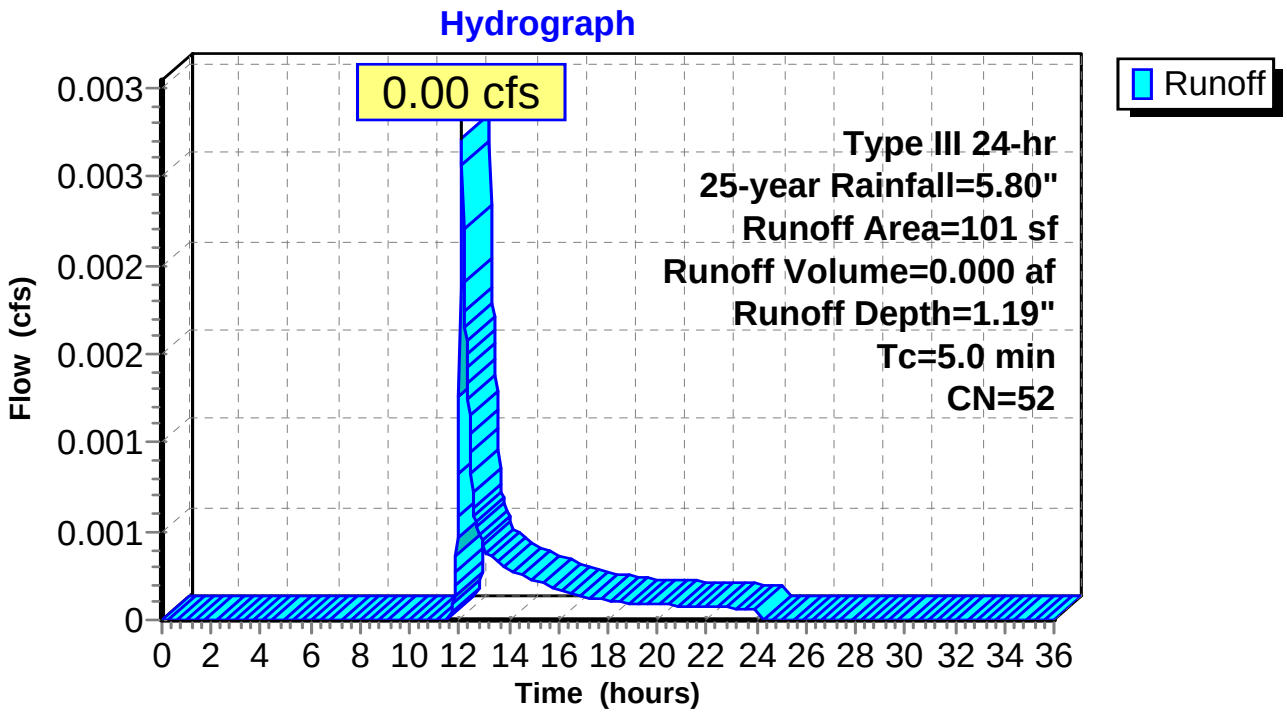
Runoff = 0.00 cfs @ 12.09 hrs, Volume= 0.000 af, Depth= 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	69	32	Woods/grass comb., Good, HSG A
*	32	96	Brick Pavers, HSG A
	101	52	Weighted Average
	101		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 5S: Frontage Runoff

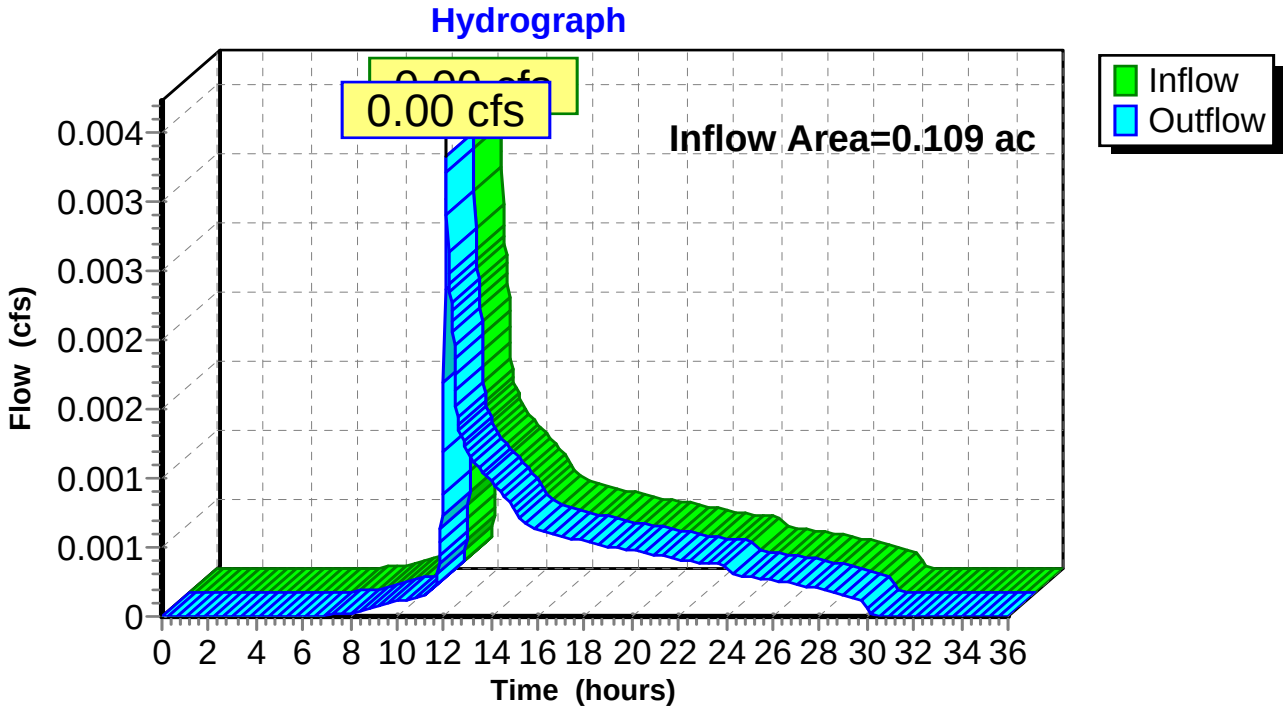


Summary for Reach 1R: Anderson St

Inflow Area = 0.109 ac, 58.57% Impervious, Inflow Depth = 0.09" for 25-year event
Inflow = 0.00 cfs @ 12.10 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.10 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 1R: Anderson St

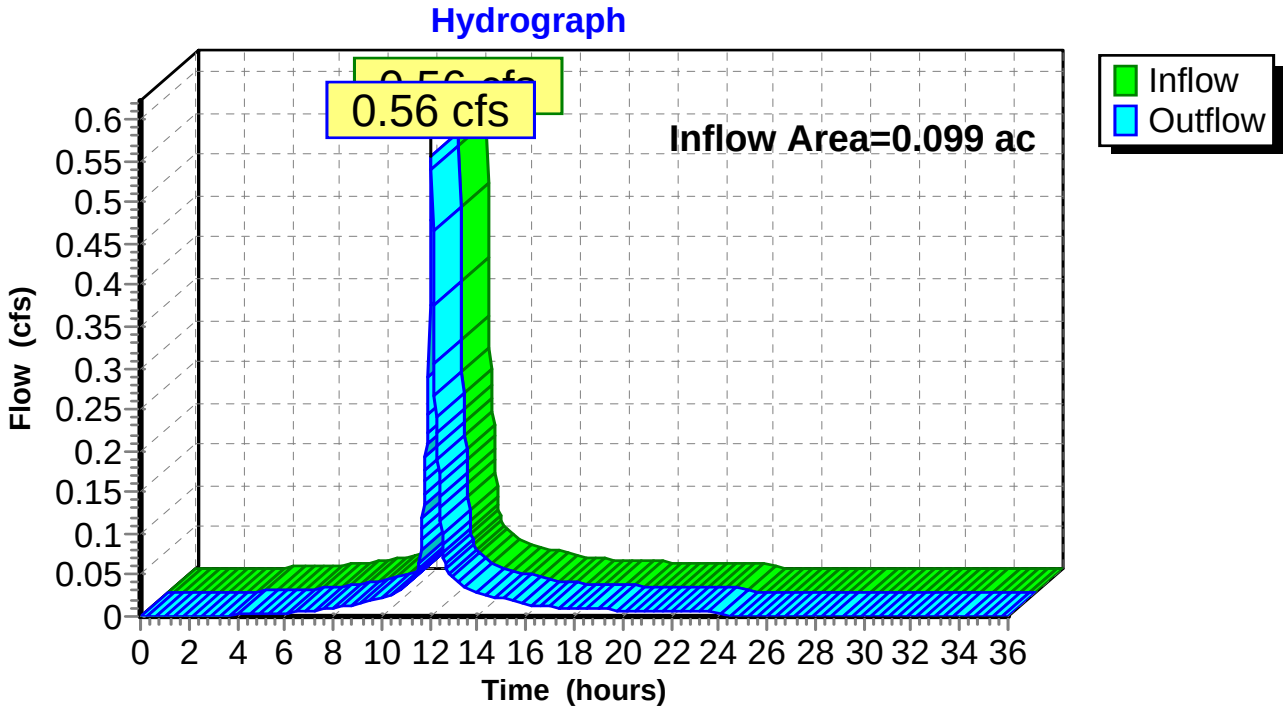


Summary for Reach 2R: E Lancaster St

Inflow Area = 0.099 ac, 80.80% Impervious, Inflow Depth = 4.99" for 25-year event
Inflow = 0.56 cfs @ 12.07 hrs, Volume= 0.041 af
Outflow = 0.56 cfs @ 12.07 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 2R: E Lancaster St

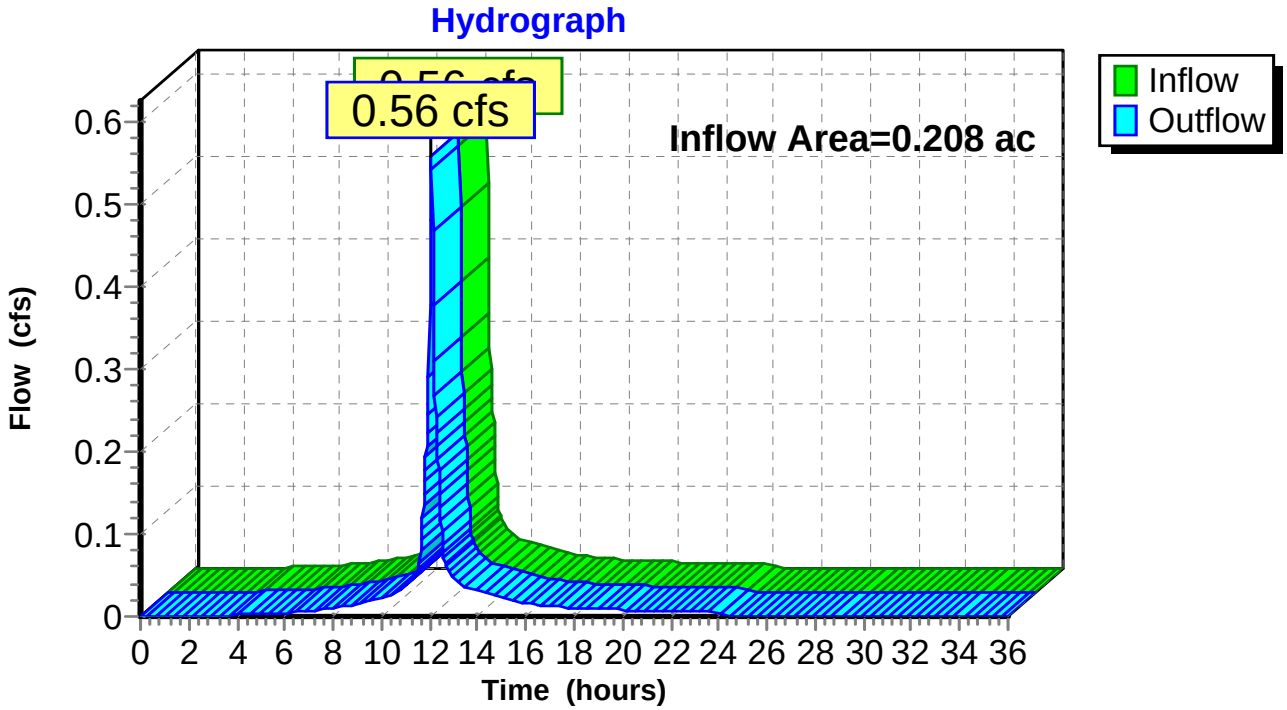


Summary for Reach 99R: Fox St

Inflow Area = 0.208 ac, 69.18% Impervious, Inflow Depth = 2.43" for 25-year event
Inflow = 0.56 cfs @ 12.07 hrs, Volume= 0.042 af
Outflow = 0.56 cfs @ 12.07 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs

Reach 99R: Fox St



Summary for Pond 1P: Dripline BMP

Inflow Area =	0.040 ac, 68.04% Impervious, Inflow Depth = 3.31" for 25-year event				
Inflow =	0.16 cfs @	12.08 hrs,	Volume=	0.011 af	
Outflow =	0.04 cfs @	12.45 hrs,	Volume=	0.011 af,	Atten= 73%, Lag= 22.2 min
Discarded =	0.04 cfs @	12.45 hrs,	Volume=	0.011 af	
Primary =	0.00 cfs @	12.45 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 12.69' @ 12.45 hrs Surf.Area= 360 sf Storage= 147 cf

Plug-Flow detention time= 42.6 min calculated for 0.011 af (100% of inflow)
Center-of-Mass det. time= 42.5 min (864.7 - 822.1)

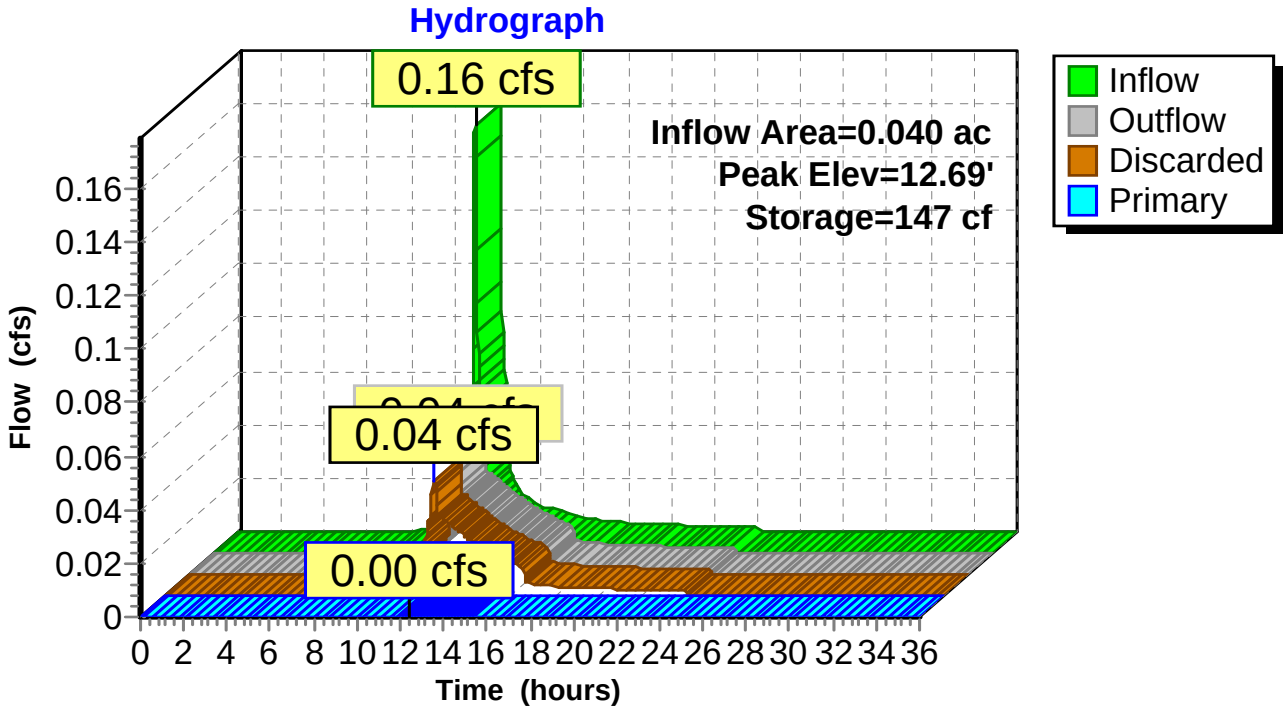
Volume	Invert	Avail.Storage	Storage Description
#1	13.50'	72 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Water Quality Volume** 180 cf Overall x 40.0% Voids
#2	12.50'	18 cf	**2.00'W x 90.00'L x 1.00'H Prismatoid - Soil Filter Media** 180 cf Overall x 10.0% Voids
#3	10.50'	144 cf	**2.00'W x 90.00'L x 2.00'H Prismatoid - Crushed Stone** 360 cf Overall x 40.0% Voids
		234 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	11.00'	**6.0" Round Culvert** L= 229.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 11.00' / 10.84' S= 0.0007 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	11.00'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Discarded	10.50'	**2.410 in/hr Exfiltration over Wetted area**

Discarded OutFlow Max=0.04 cfs @ 12.45 hrs HW=12.68' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 12.45 hrs HW=12.68' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 0.52 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 6.24 fps)

Pond 1P: Dripline BMP



Summary for Pond 2P: Rain Garden

Inflow Area =	0.066 ac, 54.89% Impervious, Inflow Depth = 3.91" for 25-year event				
Inflow =	0.31 cfs @	12.07 hrs, Volume=	0.022 af		
Outflow =	0.03 cfs @	13.05 hrs, Volume=	0.022 af, Atten= 92%, Lag= 58.9 min		
Discarded =	0.03 cfs @	13.05 hrs, Volume=	0.021 af		
Primary =	0.00 cfs @	13.05 hrs, Volume=	0.001 af		

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.03 hrs
Peak Elev= 16.93' @ 13.05 hrs Surf.Area= 454 sf Storage= 452 cf

Plug-Flow detention time= 271.4 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 271.5 min (1,078.1 - 806.6)

Volume	Invert	Avail.Storage	Storage Description
#1	16.65'	360 cf	**Water Quality Volume (Prismatic)** Listed below (Recalc)
#2	15.15'	248 cf	**Loam/Soil Filter Media (Prismatic)** Listed below (Recalc)
#3	13.65'	186 cf	**Crushed Stone (Prismatic)** Listed below (Recalc)
		794 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.65	124	0	0
17.15	272	99	99
17.82	506	261	360

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
15.15	124	0	0
17.15	124	248	248

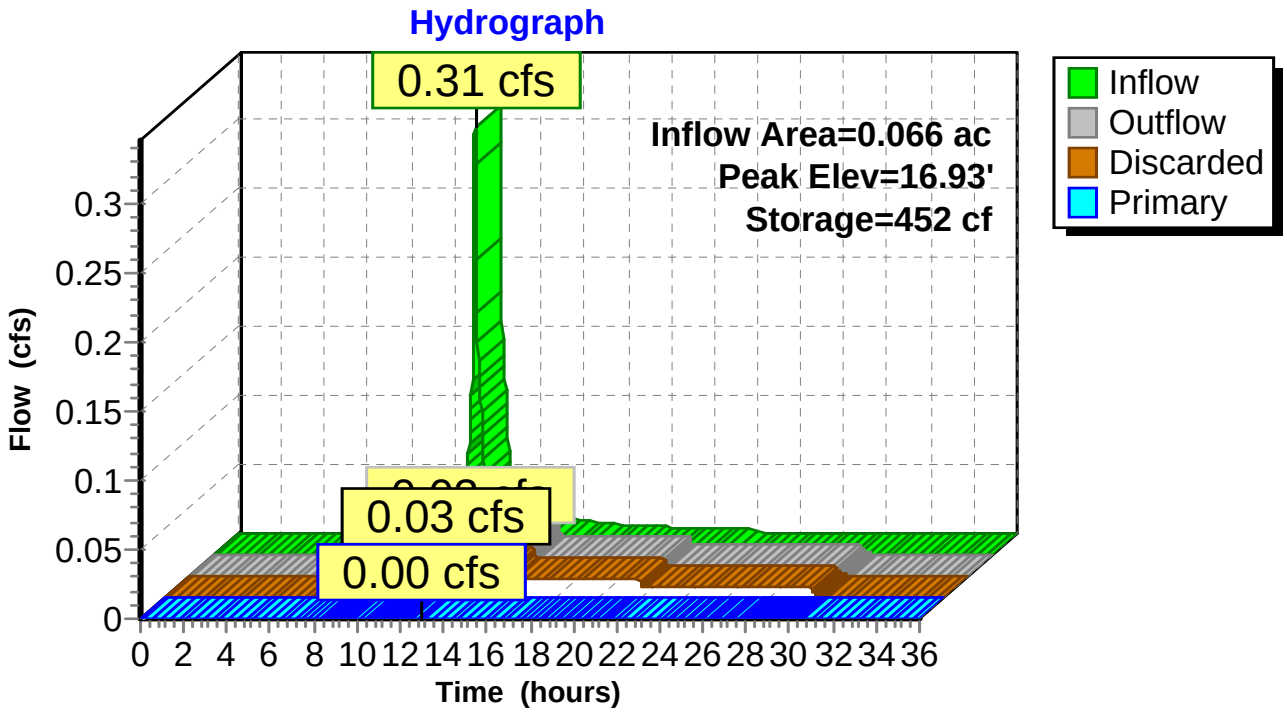
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
13.65	124	0	0
15.15	124	186	186

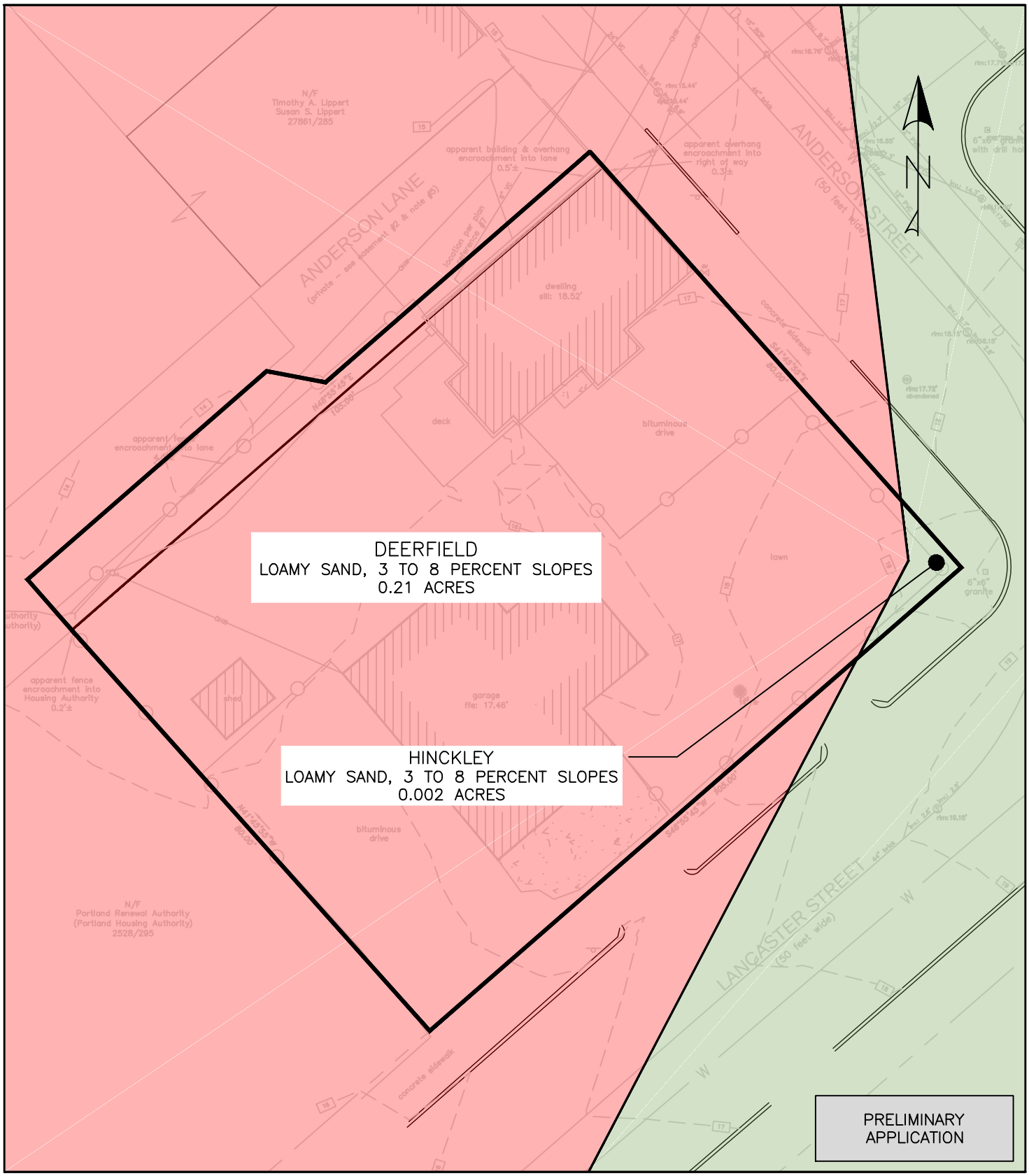
Device	Routing	Invert	Outlet Devices
#1	Primary	13.40'	**6.0" Round Culvert** L= 43.0' CMP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 13.40' / 12.95' S= 0.0105 '/' Cc= 0.900 n= 0.010, Flow Area= 0.20 sf
#2	Device 1	13.50'	**0.1" Vert. Orifice/Grate** C= 0.600
#3	Device 1	17.15'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	13.65'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 13.05 hrs HW=16.93' (Free Discharge)
└─**4=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 13.05 hrs HW=16.93' (Free Discharge)
└─**1=Culvert** (Passes 0.00 cfs of 1.51 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 8.91 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 2P: Rain Garden





THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.
SOILS

FILE:	CIVIL_1067
DATE:	4/22/16
JN:	1067
SCALE:	1":20'
DESIGN BY:	OJD
DRAWN BY:	OJD
CHECKED BY:	WHS

ACORN ENGINEERING, INC

ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

DRAWING NAME:
SOILS MAP

PROJECT NAME:
70 ANDERSON STREET
REDEVELOPMENT

CLIENT:
REDFERN PROPERTIES, LLC
PORTLAND, ME 04104

ISSUED FOR	BY DATE
PRELIM APP	WHS 4/26/16
	REV. DATE

Att. I

ACORN ENGINEERING, INC.

EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

Redfern Properties, LLC
70 Anderson Redevelopment
70 Anderson Street
Portland, Maine 04101

Prepared By:

Acorn Engineering, Inc.
158 Danforth Street
Portland, Maine 04102

April 2016

INTRODUCTION

Acorn Engineering, Inc. has been retained by Redfern Properties, LLC to provide civil engineering services for the proposed redevelopment of 70 Anderson Street (1 East Lancaster Street). The proposed project is to develop an existing single family residence into ten townhouses.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended January 11, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2014.

1.0 EXISTING CONDITIONS

The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. A boundary plan has been prepared by Titcomb Associates of Falmouth, Maine dated January 14th, 2016.

Abutting Uses:

- North R-6 Zone Multi-Family Residential
- West R-6 Zone Multi-Family Residential
- South R-6 Zone Multi-Family Residential
- East R-6 Zone Multi-Family Residential

The property is also near a recreation open space, Kennedy Park (Cunningham Playground), that is due west of the property.

About half of the property is currently covered by impervious surfaces including two bituminous driveways from Anderson and East Lancaster Street (a portion of the East Lancaster driveway is concrete), a 1.5 story dwelling, a detached garage, and covered shed. The remaining surface is a grassy lawn. The site as a whole is relatively flat with an average grade of approximately 3%.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Given the soils information, listed above, no onsite wastewater is proposed, the applicant does not intend to perform a more intense hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/12 are met.

The area within and surrounding the project includes soils types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

Table 3 - "K" Value		
Soils Type	**Subsurface**	**Substratum**
Deerfield	0.17	0.17
Hinckley	0.17	0.17

The soil "K" values for the soils, listed above, show a low susceptibility to erosion. The site's susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil "K" values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance, given the long sustained slopes.

1.2 Existing Erosion Problems

There are no existing erosion control issues.

1.3 Critical Areas

Critical areas that would require special attention during construction are the areas adjacent to the municipal stormwater system. This includes, but is not limited to, the catch basins located at the corner of Madison and Anderson Street and at Anderson and East Lancaster.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches, or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public road ways.

2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.5 O'Brion Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14 gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.8 Stormdrain inlet protection shall be provided to stormdrains through the use of any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.9 Dust control shall be accomplished by the use of any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.

2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7 day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. 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 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4 inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall 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 or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall 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 not been loamed, final grading 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 placed prior to the placement of mulch or erosion control blankets. 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/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% 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.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., 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 fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. 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 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs

per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% f the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. 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 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a "storm event". A "storm event" shall consist 0.5 inches of rain within a 24 hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should 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.

6.2 Stabilized Stone Construction Entrances

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 and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence installation of drainage infrastructure.
5. Prioritize the downhill foundation walls to contain runoff within the site while providing an engineered outlet with siltation barrier to the municipal stormwater system within O'Brion.
6. Commence earthwork operations, wall and foundation installation.
7. Commence installation of utilities.
8. Continue earthwork and grading to subgrade as necessary for construction.
9. Complete installation of drainage infrastructure, as well as other utility work.
10. Complete remaining earthwork operations.
11. Install sub-base and base gravels in paved areas.
12. Install paving, curbing and brickwork.
13. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
14. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete remove all temporary erosion control measures.
15. Touch up areas without a vigorous catch of grass with loam and seed.
16. Complete site signage and striping.
17. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review.

1. Name, address, telephone number of applicant
2.
3. Name address, telephone number of architect

4. Proposed uses of any structures [NFPA and IBC classification]
5.
6. Square footage of all structures [total and per story]

7. Elevation of all structures

8. Proposed fire protection of all structures
   - ***<u>As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)</u>***

9. Hydrant locations

10. Water main[s] size and location

11. Access to all structures [min. 2 sides]

12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards.

Some structures may require Fire flows using annex H of NFPA 1

ACORN ENGINEERING, INC.

Assistant Chief Keith Gautreau
City of Portland Fire Department
380 Congress St.
Portland, ME 04101

April 26th, 2016

Subject: 70 Anderson St. Site Review – Fire Department Checklist
Section 8 of Application

On behalf of Redfern Properties, LLC the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant

   Redfern Properties, LLC
   P.O. Box 8816
   Portland, Maine 04104
   (207) 776-9715

2. Name address, telephone number of architect

   Ryan Senatore Architects
   565 Congress St., Suite 304
   Portland, Maine 04101

   Proposed uses of any structures [NFPA and IBC classification]

   The Code Analysis will be provided under separate cover by Ryan Senatore Architecture.

3. Square footage of all structures [total and per story]

1st Floor	4211	sf
2nd Floor	4211	sf
3rd Floor	4211	sf
Total	12,633	**sf**

4. Elevation of all structures

   The average building height is less than 45 feet at three stories tall for each unit (10). See the attached elevations provide by the Architect for additional information.

5. Proposed fire protection of all structures

The building will have a sprinkler system with additional protection per code. Fire flows and requirements for system storage or booster pumping are subject to the fire professional design which will be performed prior the request for a building permit.

6. Hydrant locations

   An existing hydrant is located at the corner of East Lancaster and Anderson Street. The hydrant is located approximately 40 ft. from the nearest building edge. Hydrant flow data from the Portland Water District once received may be made available to the Fire Department upon request.

7. Water main size and location

   The development will be serviced by the existing water main within East Lancaster Street. A 4" fire service line will extend from the existing water main to the building fire suppression system. The building is expected to have an internal sprinkler risers and a Fire Department pump connection on the street side of the building.

8. Access to all structures [min. 2 sides]

   Access to the structure is provided on Anderson and East Lancaster Street as well as internally within the site using the paved, bituminous driveway and parking lot.

9. The Architect will provide a code summary referencing NFPA 1 and all fire department technical standards.

<u>NFPA 1 – Chapter 18 Fire Department Access and Water Supply</u>

18.2 Fire Department Access:

The project site is located in a densely developed area and is fronted by a public street. The following street widths are currently available:

- Anderson Street: 32 ft.
- East Lancaster Street: 32 ft.

Per NFPA 1 – Chapter 18.2.3.3.1, there will be public street access within 50 ft. of at least one exterior door. Per NFPA 1 – Chapter 18.2.3.2.2.1, all first story floors shall be located not more than 450 ft. from a Fire Department access road.

City of Portland Technical Manual – Section 3 Public Safety
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).

Response: Not applicable

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.

Response: As depicted on the site plan, the proposed building layout provides a minimum of two paved access points to the structure: one from either East Lancaster or Anderson Street and internally from the parking lot.

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.*

Response: The proposed development layout has contemplated emergency access conditions and provides for safe and efficient access along the public street 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.

Response: The building will be provided with exterior doors that will be within 50' of a Fire Department access route, namely Anderson Street.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Response: Not applicable; no covered driveway proposed.

3.4.6. Elevators shall be sized to accommodate an 80 x 24-inch stretcher.

Response: Not applicable; no proposed elevators.

3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.

Response: The applicant will work with the City's Public Services Division to assign street addresses and numbering to meet City Standards.

Please let me know if you have any additional questions or comments.

Sincerely,

William H. Savage, P.E.
Principal
Acorn Engineering, Inc.

7. Solid Waste Disposal

Per City requirement, all solid waste generated by the ten residential units will be collected by a private, authorized collector and not collected by the city. The ten unit owners, or their property management company shall be responsible for relocating the solid waste and recyclable material to the space allocated for solid waste storage as necessary and noted on the Site Plan (C-10).

The solid waste containers will be fully enclosed and screened from the public view.

6. Utilities

The proposed project will include installation of new utility services to the buildings and individual units.

As identified in the Existing Conditions Plan, the site has existing overhead services that connect to the front and rear of the property with one line spanning directly over the lot; this overhead utility will be rerouted underground as part of the project and the existing pole on subject property will be removed. There is also an existing gas valve and outdated service to the single family residence that will be abandoned; there is currently no gas planned for this project.

Ability to serve letters have been sent out to the respectively utility companies in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use, Section 14-527(g)(7). Please refer to the attached letters. Pending responses will be forwarded to the planner once received.

A C O R N
ENGINEERING, INC.

Unitil Service Corp.
Attn: Kelly Fowler
P.O. Box 3586
Portland, Maine 04104

March 25th, 2016

Subject: 70 Anderson Street Redevelopment
Re: Ability to Serve

Kelly Fowler,

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Unitil's ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

The developer has yet to confirm whether the site will be serviced by gas or not. In order to make the most informed decision, we are looking for a possible confirmation of an existing or abandoned line in the service area that was not originally identified in the survey.

On behalf of the client we are requesting the following information:

1. Any additional information, such as additional utility mapping within Anderson and Lancaster Street, and Anderson Lane.
2. Unitil's proposed infrastructure improvements within the project vicinity.
3. Unitil's ability to serve the project.

I have attached an existing conditions plan by Titcomb Associates and proposed preliminary utility plan by our office to facilitate your review.

Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

March 28, 2016

Acorn Engineering
Attn: Olivia Dawson
Po Box 3372
Portland Maine 04104

Subject: 70 Anderson Street, Portland Maine
Re: Ability to Serve

Dear Miss. Dawson:

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that natural gas can be made available from our distribution system to serve your proposed mixed use redevelopment project.

There is an existing ½ plastic gas service to the existing building that will need to be cut off prior to construction. Any improvements to the existing distribution system necessary to provide this service, as well as the design of the gas system in the project itself will be established as the overall design and scope of your project progresses.

All work necessary to provide service will be performed in accordance with the Maine Public Utilities Commission requirements.

ME GAS CUSTOMER ENERGY SOLUTIONS
376 Riverside Industrial Parkway
Portland, ME 04103

T 207-541-2508 www.unitil.com

If you have any further questions or require additional information, please contact me directly at (207) 541-2536 or at Harmon@unitil.com.

Sincerely,

Bridget L. Harmon
Business Development Representative
Unitil Corporation
(o) 207-541-2536 (f) 207-541-2586

A C O R N
ENGINEERING, INC.

Time Warner Cable
Attn: Mark Pelletier
5 Davis Farm Road
118 Johnson Road
Portland, Maine 04102

March 25th, 2016

Subject: 70 Anderson Street Redevelopment
Re: Ability to Serve

Mark Pelletier,

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Time Warner Cable's ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

We believe that there is an overhead service to the existing home as well as a connection to a utility pole in the rear that services the standalone garage. It is proposed that the overhead lines and rear utility pole are removed and the new townhouses be serviced by an underground conduit from the existing pole across Anderson Street.

On behalf of the client we are requesting the following information:

1. Any additional information, such as additional utility mapping within Anderson and Lancaster Street.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the development to the existing communication system.
4. Time Warner Cable's proposed infrastructure improvements within the project vicinity.
5. Time Warner Cable's ability to serve the project.

I have attached an existing conditions plan by Titcomb Associates and proposed preliminary utility plan by our office to facilitate your review.

Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

A C O R N Engineering, Inc. • PO Box 3372 • Portland • Maine • 04104
Voice: 207-775-2655 • Fax: 207-358-7979 • www.acorn-engineering.com

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

William Savage

From: Pelletier, Mark <mark.pelletier@twcable.com>
Sent: Monday, March 28, 2016 8:53 AM
To: Olivia Dawson
Subject: RE: Ability to Serve Request: 70 Anderson Street Redevelopment

Olivia,

Time Warner Cable can provide all TWC services to this new MDU bldg.. We have existing cable and fiber plant on pole line on Anderson St.
We will require 1- 4inch schedule 40 conduit from riser pole to utility room. Both ends of conduit to swept up above grade. 1 against base of pole and 1 into utility room.

Please keep me in the loop to construction start times etc.

Mark

Mark Pelletier
Construction Project Coordinator 4
Time Warner Cable
118 Johnson Rd
Portland Me 04102
207-253-2324
mark.pelletier@twcable.com

From: Olivia Dawson [mailto:odawson@acorn-engineering.com]
Sent: Friday, March 25, 2016 9:53 AM
To: Pelletier, Mark <mark.pelletier@twcable.com>
Subject: Ability to Serve Request: 70 Anderson Street Redevelopment

Good Morning,

Acorn Engineering, Inc., on behalf of Redfern Properties, LLC, is sending a formal Ability to Serve letter to your office for the proposed development of 70 Anderson Street in Portland, Maine.

Attached is the Ability to Serve Letter, preliminary Utility Plan, and an existing conditions survey as completed by Titcomb Associates.

Please do not hesitate to contact myself or our office with any questions or clarifications.

Thanks!

Olivia Dawson
Engineer
Registered E.I. in Maine
Registered E.I.T in New York

Acorn Engineering, Inc
PO Box 3372
Portland, Maine 04104
www.acorn-engineering.com

A C O R N
ENGINEERING, INC.

Portland Water District
Attn: MEANS Department
225 Douglas Street
Portland, Maine 04104

March 25th, 2016

Subject: 70 Anderson Redevelopment
Re: Ability to Serve

To Whom It May Concern:

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Central Maine Power's ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

Based upon the Section 4 of the Maine Subsurface Water Disposal Rules, the project anticipates the following design flows:

Estimate of Anticipated Design Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing flow to be removed				
Single Family Residential Units	1 Bedroom	0	180	0
	2 Bedroom	0	180	0
	3 Bedroom	1	270	270
				270
Proposed flow				
Townhouse/Attached Single Family Residential Units	1 Bedroom	0	180	0
	2 Bedroom	0	180	0
	3 Bedroom	10	270	2,700
	_			*2,700*
			Net Change	**2,430**
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, effective 8/3/15				

A C O R N Engineering, Inc. • PO Box 3372 • Portland • Maine • 04104
Voice: 207-775-2655 • Fax: 207-358-7979 • www.acorn-engineering.com

The proposed project is anticipated to add a net water usage from the development of approximately 2,430 gallons per day (GPD). It should be noted that these values were developed using conservative estimates from the State of Maine Subsurface Wastewater Disposal Rules and, considering the compact nature of the units (1200 square feet total per unit), the actual flows are anticipated to be lower.

On behalf of the client we are requesting the following information:

1. Any additional information, such as additional utility mapping within Anderson and Lancaster Street.
2. Alternative connection locations from the development to the existing system.
3. PWD's proposed infrastructure improvements within the project vicinity.
4. Flow data for adjacent hydrants.
5. PWD's ability to serve the project.

I have attached an existing conditions plan by Titcomb Associates and a proposed preliminary utility plan by our office to facilitate your review. Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

A C O R N
ENGINEERING, INC.

Fairpoint Communications
Attn: Scott Derrig
5 Davis Farm Road
Portland, Maine 04103

March 25th, 2016

Subject: 70 Anderson Redevelopment
Re: Ability to Serve

Scott Derrig,

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Fairpoint's ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

We believe that there is an overhead service to the existing home as well as a connection to a utility pole in the rear that services the standalone garage. It is proposed that the overhead lines and rear utility pole are removed and the new townhouses be serviced by an underground conduit from the existing pole across Anderson Street.

On behalf of the client we are requesting the following information:

1. Any additional information, such as additional utility mapping within Anderson and Lancaster Street.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the development to the existing communication system.
4. Fairpoint's proposed infrastructure improvements within the project vicinity.
5. Fairpoint's ability to serve the project.

I have attached an existing conditions plan by Titcomb Associates and proposed preliminary utility plan by our office to facilitate your review.

Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

A C O R N Engineering, Inc. • PO Box 3372 • Portland • Maine • 04104
Voice: 207-775-2655 • Fax: 207-358-7979 • www.acorn-engineering.com

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

5 Davis Farm Rd
Portland, ME 04103
207- 797-1866 office
207- 797-1098 fax

March 25, 2016

To Whom It May Concern:

This letter is to inform that FairPoint Communications has the capacity and willingness to serve the proposed residential 10 unit building to be located on an existing lot at 70 Anderson St in Portland. FairPoint currently has aerial facilities on a pole across the street from the proposed building. FairPoint would require underground conduit from the existing pole to the new building for future service. Please do not hesitate to contact me with any questions.

Sincerely,

Scott Derrig

FairPoint Outside Plant Engineer

207-797-1866

A C O R N
ENGINEERING, INC.

Department of Public Services
Attn: David Margolis-Pineo
55 Portland Street
Portland, Maine 04101

March 25th, 2016

Subject: 70 Anderson Street Redevelopment
Re: Ability to Serve

Dear David,

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Department of Public Services' ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

On behalf of the client we are requesting the following information:

1. Any additional information, such as additional utility mapping within Anderson and Lancaster Street including inverts.
2. Alternative connection locations from the development to the existing system.
3. DPS's proposed infrastructure improvements within the project vicinity.
4. DPS's ability to serve the project.

I have attached an existing conditions plan by Titcomb Associates and proposed preliminary utility plan by our office to facilitate your review. Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

A C O R N Engineering, Inc. • PO Box 3372 • Portland • Maine • 04104
Voice: 207-775-2655 • Fax: 207-358-7979 • www.acorn-engineering.com

A C O R N
ENGINEERING, INC.

Central Maine Power Company
Attn: Paul DuPerre
162 Canco Road
Portland, Maine 04103

March 25th, 2016

Subject: 70 Anderson Street Redevelopment
Re: Ability to Serve

Paul DuPerre,

On behalf of Redfern Properties, LLC, we are pleased to submit the following request for Central Maine Power's ability to serve the proposed development. The project is a residential 10-unit redevelopment of an existing building and detached garage located at 70 Anderson Street (23-B-21), within the R-6 residential zoning district, in Portland, Maine. The existing buildings are to be demolished and replaced with ten townhouses with parking to the side of the property and a central courtyard. Per agreements with the abutting land owner, the property lines have extended slightly over the original lot size into the abandoned paper street, Anderson Lane. The new property lines now encroach up to ten feet into the lane.

We believe that there is an overhead service to the existing home as well as a connection to a utility pole in the rear that services the standalone garage. It is proposed that the overhead lines and rear utility pole are removed and the new townhouses be serviced by an underground conduit from the existing pole across Anderson Street.

On behalf of the client we are requesting the following information:

1. Any easements for overhead services currently crossing the proposed development.
2. Alternative connection locations from the development to the existing system.
3. CMP's proposed infrastructure improvements within the project vicinity.
4. CMP's ability to serve the project.
5. Confirmation the existing pole will be an allowed location for the transformer.
6. Access requirements to the CMP meters.

I have attached an existing conditions plan by Titcomb Associates and proposed preliminary utility plan by our office to facilitate your review.

Please do not hesitate myself or the office for questions or clarifications.

Sincerely,

A C O R N Engineering, Inc. • PO Box 3372 • Portland • Maine • 04104
Voice: 207-775-2655 • Fax: 207-358-7979 • www.acorn-engineering.com

Olivia Dawson, E.I.
Design Engineer
Acorn Engineering, Inc.

Central Maine Power
162 Canco Road, Portland, Maine 04103
1-800-750-4000

March 31, 2016

Acorn Engineering Inc.
C/O Ms. Oliva Dawson
PO Box 3372
Portland, Maine 04104-3372

RE: Electric Service, 70 Anderson Street, Portland, Maine

Dear Ms. Dawson,

This letter is to advise you Central Maine Power has sufficient single phase electrical capacity in the area to serve the subject project.

Once the project is accepted by the City of Portland, the owner will need to call our Customer Service Center at 1-800-565-3181 to sign up for a New Account and a Work Request Order so we may start a cost estimate.

Please provide to CMP what size service and voltage the Customer will be requiring in order to get the needed information for costs and easements possibilities.

If you have any questions please feel free to call me at 828-2882.

Sincerely,

Paul DuPerre
Energy Service Specialist

3. Construction Management Plan

Project Address: 70 Anderson Street

Project Description:

The proposed project is a residential 10-unit redevelopment of a single family residence. The site is currently occupied by a 1.5 story home, detached garage, and small shed. The proposed site is to be redeveloped using access via the proposed driveway on East Lancaster Street.

Project Team Summary:

Owner:	Redfern Properties, LLC
General Contractor:	To Be Determined
Civil Engineer:	Acorn Engineering, Inc.
Architect:	Ryan Senatore Architecture
Structural Engineer:	Structural Integrity
Landscape Architect:	Soren Denoird Design Studio

Timeline and Schedule:

Projected Start Date:	Summer 2016
Project Duration:	Approximately One Year
Projected Completion:	Summer 2017
Street Interruption:	During the installation of utilities within the street.
Sidewalk Interruption:	During the installation of utilities and foundation wall construction.

Emergency Contact:	Jonathan Culley (207) 776-9715
Estimated Work Hours:	7:00 am to 5:00 pm
Delivery Truck Access:	Contact Jonathan Culley or the owner's representative to coordinate.
Worker Parking:	On the street.

Redfern Properties, LLC and their contractor will work with the City of Portland, and adjacent landowners to minimize any project impacts.

The contractor will remain solely and completely responsible for enforcement of and compliance with 1) all contract plans and specifications and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case both by the contractor and its subcontractors. These include all OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. The General Contractor will remain responsible for safeguarding the general public.

Refer to the Civil/ Site Plan Set, Sheet C-03 Demolition & Construction Management Plan, for visual representation of the measures to be taken during construction.

RYAN SENATORE **ARCHITECTURE**

April 25, 2016

Nell Donaldson
Planner
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: 70 Anderson Street - Design Narrative

The proposed buildings to be located at the corner of East Lancaster and Anderson Streets in Portland's East bayside Neighborhood consist of a 10 unit townhouse style apartments. these apartments are within two buildings on the site, a 4 unit building and a six unit building.

Prior to developing the building concept we spent much time walking the streets of East Bayside, taking photos, analyzing existing streetscapes, existing development densities, building massing, forms, materials and textures. This approach allowed us to develop a design concept that is grounded by the existing neighborhood context but reflects our contemporary time.

The neighborhood is comprised of a diverse palate of Architectural forms, scales and density. We noted that the predominant residential form is that of a multi-story structure with a gable roof form. We designed 70 Anderson to reflect this vernacular massing predominant in the neighborhood, the streetscape along Anderson Street has two Gables facing the street. The facade on East Lancaster is the longer elevation which we designed to clearly reflect the use within, a townhouse. Portland has a history of townhouse development, these are buildings that use a rhythm of fenestration color and details to demark the different units in typically a playful manner. We designed 70 Anderson by using color and texture to scale and define the residential units, each unit per building has its unique color defining unit boundaries. We also recognize the importance of the units having defined entrances facing the street, we have provided entry doors and projecting canopies both along Eat Lancaster and Anderson Streets to engage the sidewalk and

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101

enhance the streetscape. The buildings are placed close to the street similar to the historic building placement of the neighborhood.

Building Scale is a very important in this neighborhood, we have utilized color (as described above) as well as texture and massing to scale the buildings to fit in with their surroundings. We opted to break the project into two buildings to scale them down to a more typical building width found within the neighborhood. We have used differing siding exposures on the facades to help define the first floor from the second and third floor above, this siding texture changes is trimmed by a horizontal trim band between the two. We have added a substantial fascia trim detail to cap the buildings and transition from the third floor to the roof above.

The siding materials proposed are factory finished composite lap siding chosen for its traditional crisp appearance and long tern durability. The windows proposed are dark in color to enhance the contrast to the siding color and also further reinforce the crisp simplicity of the design. The roofing proposed is an Architectural asphalt shingle dark in color similar to many roofs found throughout the neighborhood.

70 Anderson is an urban infill project that will help define the city block it is located on. The design of the building is derived from the Vernacular Architecture that exists in the neighborhood, we have used color, texture, massing and rhythm as tools to scale the project and integrate it into the existing neighborhood fabric.

We look forward to discussing the project at the upcoming Planning Board workshop.

Sincerely,

Ryan Senatore, AIA LEED AP

Principal

207-650-6414

senatorearchitecture.com

ryan@senatorearchitecture.com

565 Congress Street, Suite 304
Portland, Maine 04101

ACORN ENGINEERING, INC.

Planning and Urban Development Department
Planning Division and Housing and Community Development
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

June 28th, 2016

Subject: Conditional Use for Ensuring Workforce Housing Inclusionary Zoning
Planning Board Review
Redevelopment of 70 Anderson Street - Portland, Maine

Dear Tyler Norod,

Redfern Properties, LLC is pleased to submit the accompanying package of submission materials related to the proposed 10-unit townhouse urban infill redevelopment of 70 Anderson Street and its compliance with the standards set by the Workforce Housing Inclusionary Zoning. Per requirement, the development will include one workforce housing unit for rent in accordance with Division 30, Affordable Housing of the Land Use Ordinance.

This submission package is intended to meet the City's Inclusionary Zoning Submission Requirements as outlined in the Planning Board Review Application. The proposed project site is located on the corner of Anderson and East Lancaster Street within the East Bayside neighborhood. The lot is currently occupied by a single story home with a detached garage and shed and is proposed to be redeveloped into townhouses classified as ten "attached single-family" residences. The development site is located within the City's R-6 Zoning District, and complies with the permitted uses within the zone.

All ten townhouses are three-bedroom, 1,254 square foot units with identical interior standards; the proposed workforce unit does not differ in size or standard from the market-rate units. The market strategy for the workforce unit will also mimic the strategy of the market-rate units and is proposed to be approached in the same fashion.

Accompanying this cover letter are the following materials:

- Site Plan Application
- Section 1: Title, Right and Interest
- Section 2: Conformity with Conditional Use Standards
- Section 3: Floor Plans and Interior Standards

Redfern Properties LLC and the design team look forward to your review of this project. The applicant is currently working with their lawyer to create a Draft Workforce Housing Agreement; the draft will be submitted under a separate cover. Please find one (1) hard copy of the application materials including one set each of 11x17 and full size plans, along with a CD containing PDF files

for all submitted materials. If you have any questions regarding these materials or the completeness of the application materials, please contact us within the next five (5) days.

Sincerely,

William H. Savage, P.E.
Principal - Project Manager
Acorn Engineering, Inc.

Conditional Use for Ensuring Workforce Housing
Inclusionary Zoning
Planning Board Review
Application
Portland, Maine

Planning and Urban Development Department
Planning Division and Housing and Community Development

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 Conditional Use review of applications to ensure workforce housing in development projects that create ten or more new dwelling units. The units may be for rent or for sale and created through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a non-residential use to residential use, or any combination of these elements. At least ten percent (10%) of the units in the project shall meet the definition of workforce housing unit for sale or rent. All developments of ten units or more a conditional uses subject to Planning Board review on the condition that they comply with the requirements of section 14-487.

A. Ensuring Workforce Housing: Standards -Section 14-484

(d) Workforce Housing Minimum At least ten percent (10%) of the units in the project shall meet the definition of workforce housing unit for sale or for rent. The number of units required is rounded down to a whole number if providing units on- or off-site, or shall include a fractional value in cases where a project prefers to pay a fee-in-lieu as per (e)3. below.

(e) Standards

1. Projects shall not be segmented or phased to avoid compliance with these provisions. In cases where projects are completed in phases, affordable units shall be provided in proportion to the development of market rate units unless otherwise permitted through regulations.

2. Workforce units are encouraged to be integrated with the rest of the development, should use a common entrance and should provide no indications from common areas that these units are workforce housing units.

3. Workforce units need not be the same size as other units in the development but the number of bedrooms in such units, either on- or off-site, shall be 10 percent of the total number of bedrooms in the development. For the purposes of this section, for every 400 square feet in a market rate unit will count as a bedroom if the actual number of bedrooms in the unit is lower.

4. As an alternative to providing workforce housing units, projects may pay a fee in lieu of some or all of the units. In-lieu fees shall be paid into the Housing Trust Fund as defined in Sec. 14-489. The fee for affordable units not provided shall be $100,000 per unit, adjusted annually in the same way as the fee under Division 29 for Housing Replacement.

5. Workforce housing units for sale, if converted to workforce housing units for rent, shall become subject to the income limits and other requirements of such units.

6. If at least 33 percent of the units in a development are workforce units, the development is eligible for subsidy through an Affordable Housing TIF, subject to City Council approval.

7. The term of affordability for the required 10 percent workforce units provided shall be defined as follows:

Percentage of Workforce Units Provided	Minimum Term of Affordability for Required Workforce Units
10%	Longest term permitted under federal, state and local laws and ordinances
25%	30 years
50%	20 years
100%	10 years

(f) Implementing Regulations. Regulations to further specify the details of this section shall be developed, including, but not limited to:

1. Specific methodology for income verification;
2. Situations where less than permanent affordability might be considered; and
3. Guidelines for meeting the requirement that off-site units be "in the same neighborhood".

B. Site Plan Application: Please submit the Conditional Use Application in addition to the applicable Site Plan Application.

PROJECT NAME: 70 Anderson Street Redevelopment

PROPOSED DEVELOPMENT ADDRESS: 70 Anderson Street Portland, Maine 04101

ASSESSOR'S CHART/BLOCK/LOT (s): 023-B-021 **Applicable Zone**: R-6

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Jonathan Culley Business Name, if applicable: Redfern Properties, LLC Address: P.O. Box 8816 Portland, ME 04104 City/State : Zip Code:	**Applicant Contact Information** Work # (207)776-9715 Home# Cell # Fax# e-mail: jonathan@redfernproperties.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Billing Information Name: (See Applicant Information) Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:

RIGHT, TITLE OR INTEREST: (See attached)

(Please identify the status provide documentary evidence, attached to this application, of the applicant's right, title, or interest in the subject property (ex: deed, option or contract to purchase or lease the property.)

EXISTING USE: Describe the existing use of the subject property.

Subject property is currently occupied by a single family, single level home and detached garage and shed.

PROJECT DESCRIPTION:

The proposed project is to redevelop the lot into ten townhouses forming two separate buildings with on-site parking in the rear.

INCLUSIONARY ZONING:	
# IZ Units	1
On-Site IZ Units	1
Off-Site IZ Units	
# IZ Homeownership Units	
# IZ Rental Units	
# IZ Efficiencies	
# IZ 1-Beds	
# IZ 2-Beds	
# IZ 3-Beds	
IZ Fee In-Lieu	

APPLICATION FEES:
(Payment may be made by Credit Card, Cash or Check payable to the City of Portland.)

___ Conditional Use Review to Ensure Workforce Housing ($100.00) (Please submit a separate application for the applicable site plan review. Fees and charges are listed within the application)	The City invoices separately for the following: • Notices ($.75 each) • Legal Ad (% of total Ad) • Planning Review ($40.00 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.

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal

2. **In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Building Inspections Office to start the review process.**

Applicant Checklist	Planner Checklist	# of Copies	Written Submissions Checklist
X		1	Application form that is completed and signed.
X		1	Cover letter stating the nature of the project.
X		1	Evidence of right, title and interest.
X		1	Written Submittals that address the conditional use standards of Sec. 14-484, including unit size and bedroom count
*		1	Draft Workforce Housing Agreement
X		1	Proposed Marketing Strategy
N/A		1	Written Proposal for providing workforce units on-site, off-site, or payment of fee-in-lieu.
N/A		1	If the project is to be phased, provide written description of project phasing and accommodation of workforce units.
			Plans and Construction Details Submission Checklist
X		1	An accompanying site plan application, as applicable.
X		1	Floor Plans of all units and identifying proposed designated workforce housing units
X		1	Interior Standards for Units for market rate and workforce housing units, including kitchen, bathroom, flooring and closet amenities
N/A		1	If workforce units are proposed off-site, provide vicinity map with project location and workforce unit locations within the applicable census block group map or within 1500 feet of the project.

The Conditional Use Application to Ensure Workforce Housing must be complete, including but not limited to the contact information, project data, application checklist, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. One (1) full size site plans that must be folded.
2. One (1) copy of all written materials or as follows, unless otherwise noted:

APPLICANT SIGNATURE:

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 Conditional Use 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: AGENT	Date:
Will Dunn	6/28/16

*Draft Workforce Housing Agreement to be submitted by the applicant under separate cover

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14) which is available on our website:

Land Use Code: http://me-portland.civicplus.com/DocumentCenter/Home/View/1080
Design Manual: http://me-portland.civicplus.com/DocumentCenter/View/2355
Technical Manual: http://me-portland.civicplus.com/DocumentCenter/View/2356

Planning Division	**Housing and Community Development**	**Office Hours**
Fourth Floor, City Hall	Room 313, Third Floor, City Hall	Monday thru Friday
389 Congress Street	389 Congress Street	8:00 a.m. – 4:30 p.m.
(207) 874-8719	(207) 482-5028	

2. Conformity with Conditional Use Standards

The following statement is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14-487.

2.1 OVERVIEW

This project conforms with all the applicable design standards of Section 14-487 (e) as demonstrated in the following narrative.

(e) Standards

1. The proposed project is not anticipated to be segmented or phased and is to be completed in a single construction period. Therefore, the workforce unit will be available for rent at the same time the market-rate units are available.

2. The proposed workforce unit is to share the same common entrance and parking lot as the market-rate units; the front facades and entrance designs are identical.

3. All ten townhouses including the workforce housing unit have three-bedrooms and are 1,254 square feet.

4. Not Applicable

5. Any conversion of the workforce units will be subject to the conditions set by the inclusionary zoning standards.

6. This project is composed of 10% workforce unit and is therefore ineligible for the Affordable Housing TIF subsidy.

7. The workforce units shall have the longest term of affordability as permitted under federal, state, and local laws and ordinances as required.

70 ANDERSON STREET REDEVELOPMENT

REDFERN PROPERTIES, LLC
PORTLAND, MAINE

LEGEND:

EXISTING		PROPOSED
REFER TO THE EXISTING CONDITIONS PLAN FOR ADDITIONAL INFORMATION	STRIPING	
	BRICK SIDEWALK	
	EDGE OF EX. PAVEMENT	
	RESURFACED PAVEMENT	
	PROPERTY ADDITION	
	UTILITY PAVEMENT CUTS	
	SEDIMENTATION BARRIER	
	UNDERDRAIN	
	CURB	
	SIGN	
	LAMP OR LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	WATER VALVE	
	FIRE HYDRANT	
	SEWER MANHOLE	
	CATCH BASIN	
	DRAIN MANHOLE	
	INTERIOR DRAIN INLET	
	UNDERGROUND ELECTRIC LINE	UGE/T/C
	UNDERGROUND WATER LINE	EW EW EW
	MINOR CONTOURS (1FT EX., 0.5FT PROP.)	
	MAJOR CONTOURS (5FT)	
	GAS LINE	GAS
	STORM DRAIN LINE	
	SEWER LINE	S S
	EXISTING/PROPOSED BUILDING	
	PROPERTY LINE	
	FOUNDATION DRAIN	
	ROOF DRAIN	RD
X	OVERHEAD ELECTRICAL/TELEPHONE/CABLE	OHE/T/C

INDEX:

C-01	COVER SHEET & LEGEND
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EX	EXISTING CONDITIONS PLAN
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C-20	UTILITY PLAN
C-30	GRADING & DRAINAGE PLAN
C-40	SITE DETAILS - 1
c-41	SITE DETAILS - 2
C-42	UTILITY DETAILS
C-43	DRAINAGE DETAILS
C-44	EROSION CONTROL DETAILS & NOTES

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

UTILITIES

SEWER:

PUBLIC SERVICES ENGINEERING DEPARTMENT
55 PORTLAND STREET
PORTLAND, MAINE 04101
CONTACT: DAVID MARGOLIS-PINEO
(207) 874-8850

WATER:

PORTLAND WATER DISTRICT
225 DOUGLAS STREET
PO BOX 3553
PORTLAND, MAINE 04104
ATTN: MEANS DIVISION
(207) 774-5961

ELECTRIC:

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: PAUL DUPERRE
(207)

TELEPHONE:

FAIRPOINT COMMUNICATIONS
45 FOREST AVE
PORTLAND MAINE 04101
CONTACT: SCOTT DERRIG
(207) 797-1866

CABLE:

TIME WARNER CABLE
118 JOHNSON ROAD
PORTLAND, MAINE, 04102
CONTACT: MARK PELLETIER
(877) 546-0962

NATURAL GAS:

UNITIL SERVICE CORP
1075 FOREST AVENUE
PORTLAND, ME 04103
CONTACT: KELLY FOWLER
(207) 541-2536

PROJECT TEAM

DEVELOPER:

REDFERN PROPERTY LLC
PORTLAND, MAINE
CONTACT: JONATHAN CULLEY
(207) 776-9715

ARCHITECT:

RYAN SENATORE ARCHITECTURE
PORTLAND, MAINE
CONTACT: RYAN SENATORE, MAINE LICENSED ARCHITECT
(207) 650-6414

SURVEYOR:

TITCOMB SURVEY
PORTLAND, MAINE
CONTACT: NICK ELLISTON P.L.S.
(207) 797-9199

LANDSCAPE ARCHITECT:

SOREN DENOIRD DESIGN STUDIO
PORTLAND, MAINE
CONTACT: SOREN DENOIRD
(207) 400-2450

STRUCTURAL ENGINEER:

STRUCTURAL INTEGRITY CONSULTING ENGINEERS, INC.
PORTLAND, MAINE
CONTACT: AARON JONES, P.E.
(207) 774-4614

ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CY	CUBIC YARD
DIP	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
GAL.	GALVANIZED
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TWC	TIME WARNER CABLE
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY / DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: COVER SHEET AND LEGEND
PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT
CLIENT: REDFERN PROPERTIES, LLC P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATION, WHETHER AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND, MAINE 04102
(207) 775-2655

FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE 4-26-16 PROFESSIONAL ENGINEER

DRAWING NO.
C-01

GENERAL NOTES:

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE, ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.

4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.

5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS STAMPED "AS-BUILT".

6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.

7. EXISTING CONDITIONS, BOUNDARY SURVEY AND TOPOGRAPHIC FROM THE PLAN TITLED EXISTING CONDITIONS SURVEY BY TITCOMB ASSOCIATES FOR REDFERN PROPERTIES, DATED JANUARY 14TH, 2016.

8. SUBSURFACE DATA MAY BE OBTAINED FOR THE STRUCTURAL ENGINEER'S DESIGN. THE CONTRACTOR SHALL REQUEST AND REVIEW THE GEOTECHNICAL REPORT PRIOR TO SUBMITTING A BID. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT.

9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AND ALL ADJACENT PROPERTIES AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THOUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.

10. THE CONTRACTOR SHALL REVIEW ACORN'S CONSTRUCTION MANAGEMENT PLAN. ANTICIPATED PROJECT SCHEDULE AND CLOSURES. CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONSTRUCTION MANAGEMENT, MEANS AND METHODS, TRAFFIC CONTROL, ETC. SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

11. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.

12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO MODIFY THE CONTRACT DOCUMENTS.

2. ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR ENGINEER'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.

3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING.

4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.

5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.

6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.

8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.

9. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.

10. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED.

11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE.

12. THE ENGINEER BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.

SPECIAL INSPECTION NOTES:

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS, AS WELL AS SITE DRAINAGE, SHALL BE REVIEWED BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF MAINE.

2. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT.

3. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.

4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.

5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

6. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.

7. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.

8. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.

9. SPECIAL INSPECTION FIRM SHALL BE EMPLOYED BY REDFERN AND COORDINATED BY THE CONTRACTOR.

LAYOUT NOTES:

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, OR ELEVATION AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO THEIR ORIGINAL LOCATION BY A REGISTERED LAND SURVEYOR.

2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.

3. SIGNAGE, STRIPING AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF PORTLAND, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE.

6. CONTRACTOR TO ENSURE THAT DRIVEWAYS AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND IN USE AT ALL TIMES.

PERMITTING NOTES

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF SITE PLAN – LEVEL III AND SUBDIVISION PERMIT FROM THE CITY OF PORTLAND.

2. 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.

GRADING AND DRAINAGE NOTES:

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY LOAM WILL BE ACCEPTABLE FOR REUSE WITH THEIR ESTIMATE.

2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING. CONTRACTOR SHALL REQUEST BORING LOGS FOR REFERENCE IF ANY ARE AVAILABLE.

3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY PRIVATE ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE OWNER. PRIOR TO THE CONTRACTOR PRICING THE WORK THE CONTRACTOR SHALL REQUEST PROOF OF SUCH EASEMENT OR TEMPORARY RIGHTS. SHOULD EASEMENTS OR TEMPORARY RIGHTS NOT BE AVAILABLE THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.

4. THE CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. THE MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.

5. NO ADDITIONAL PAYMENT FOR UNSUITABLE MATERIALS.

6. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF N=0.012 OR LESS.

7. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.

8. NATIVE SOILS; IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER.

EROSION CONTROL NOTES:

1. ALL ROUTINE MAINTENANCE ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.

2. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.

3. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.

4. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

5. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.

6. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

UTILITY NOTES:

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE CIVIL ENGINEER FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.

2. CONTRACTOR TO BYPASS EXISTING SEWER FLOW CONTROL AT CONNECTION TO EXISTING SYSTEM AT NO ADDITIONAL COST.

3. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES.

4. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED BEFORE BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.

5. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.

6. CONTRACTOR TO PROVIDE **5-6'** OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.

7. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAIN ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN ON SHEET C-42.

8. WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT "WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURES", MOST RECENT REVISION.

9. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH CITY OF PORTLAND, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.

10. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.

11. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.

12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

13. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.

14. COORDINATE EXIT POINT FOR SECONDARY SERVICE WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN ENGINEERING WITHIN THE UTILITY PLAN.

15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.

16. 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.

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: GENERAL NOTES

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.

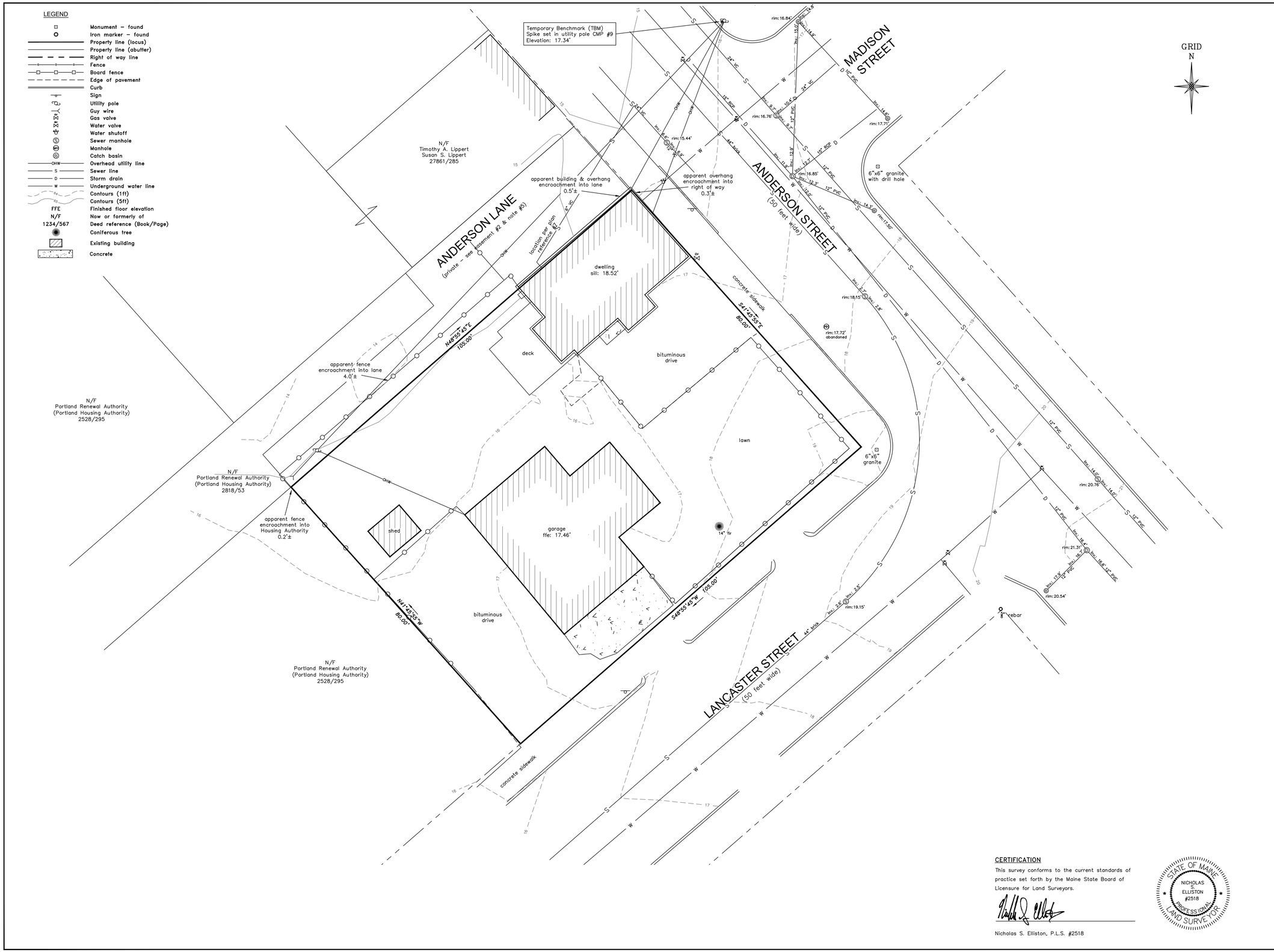
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATIONS, WHETHER WRITTEN OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

158 DANFORTH ST. PORTLAND MAINE 04102
(207) 775-2655

FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11419
4-26-16
PROFESSIONAL ENGINEER

DRAWING NO.
C-02



VICINITY MAP

No Scale

NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone. Coordinate information based on City of Portland Existing Conditions Survey for Anderson Street, Fox Street, and Gould Street dated April 1, 2014 provided by the City of Portland Engineering Department.

3) Elevations are based on City of Portland Datum derived from a benchmark located at the intersection of Fox Street & Anderson Street. Elevation data provided by City of Portland Engineering Department.

4) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

5) The fee interest in Anderson Lane apparently lies with the heirs of Moses Gould as described in a deed recorded in Book 290, Page 310.

6) Property lies within Zone C based on FIRM Community #230051 Panel #0013–B, dated July 17, 1986. It does not lie within a special flood hazard area.

7) Project area was covered by snow and ice at the time of the survey and some features may have been obscured and not shown on this plan.

LAN REFERENCES

1) Plan of Property made for Bayside Park Urban Renewal Project ME R–1 (Condemnation Area IV) by H.I. & E.C. Jordan dated March 26, 1964. Recorded in Plan Book 67, Page 12.

2) Plan of Property made for Bayside Park Urban Renewal Project ME R–1 (Condemnation Area III) by H.I. & E.C. Jordan dated September 13, 1962. Recorded in Plan Book 61, Page 65.

3) Street right of way locations obtained from the City of Portland Engineering Department.

4) Plan of Boundary Survey made for Redfern Properties by Titcomb Associates dated October 2, 2015.

5) Plan of Anderson Street Reconstruction by City of Portland, Maine Parks and Public Works Department dated October 13, 1994, Sheets 2 and 3 of 30. On file at the City of Portland Engineering Department.

6) Plan of Madison Street & Greenleaf Street Reconstruction by Gorrill–Palmer dated May 2009. On file at the City of Portland Engineering Department.

7) Sewer Connection Card for #70 Anderson Street by Portland Sewer Division dated January 4, 1962.

EASEMENTS ENCUMBRANCES

1) Subject to covenants and restrictions as set forth in a deed from Portland Renewal Authority recorded in Book 3129, Page 374; as affected by Quitclaim Deed from Portland Renewal Authority to Cecelia M. Bickford recorded in Book 32559, Page 280.

2) Rights to Anderson Lane exist as described in a deed between Moses Gould and Thomas McEwan recorded in Book 293, Page 128.

AREA

8,400 Square Feet

O NERS OF RECORD

Redfern Properties LLC
PO Box 8816
Portland, ME 04104

Book 32559, Page 282

SCALE IN FEET

10 0 10 20

1" = 10'

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston, P.L.S. #2518

STATE OF MAINE
NICHOLAS S. ELLISTON #2518
PROFESSIONAL LAND SURVEYOR

PLAN OF

E C d

70 Anderson Street — Portland, Maine

MADE FOR

R d r Pr r

PO Box 8816 — Portland, Maine

JOB #215064	DATE: January 14, 2016	SCALE: 1" = 10'
BOOK #890	Titcomb Associates	
215064_R1.dwg	133 Gr R d, F , M 04105	
FILE #9804	(207)797-9199 r	

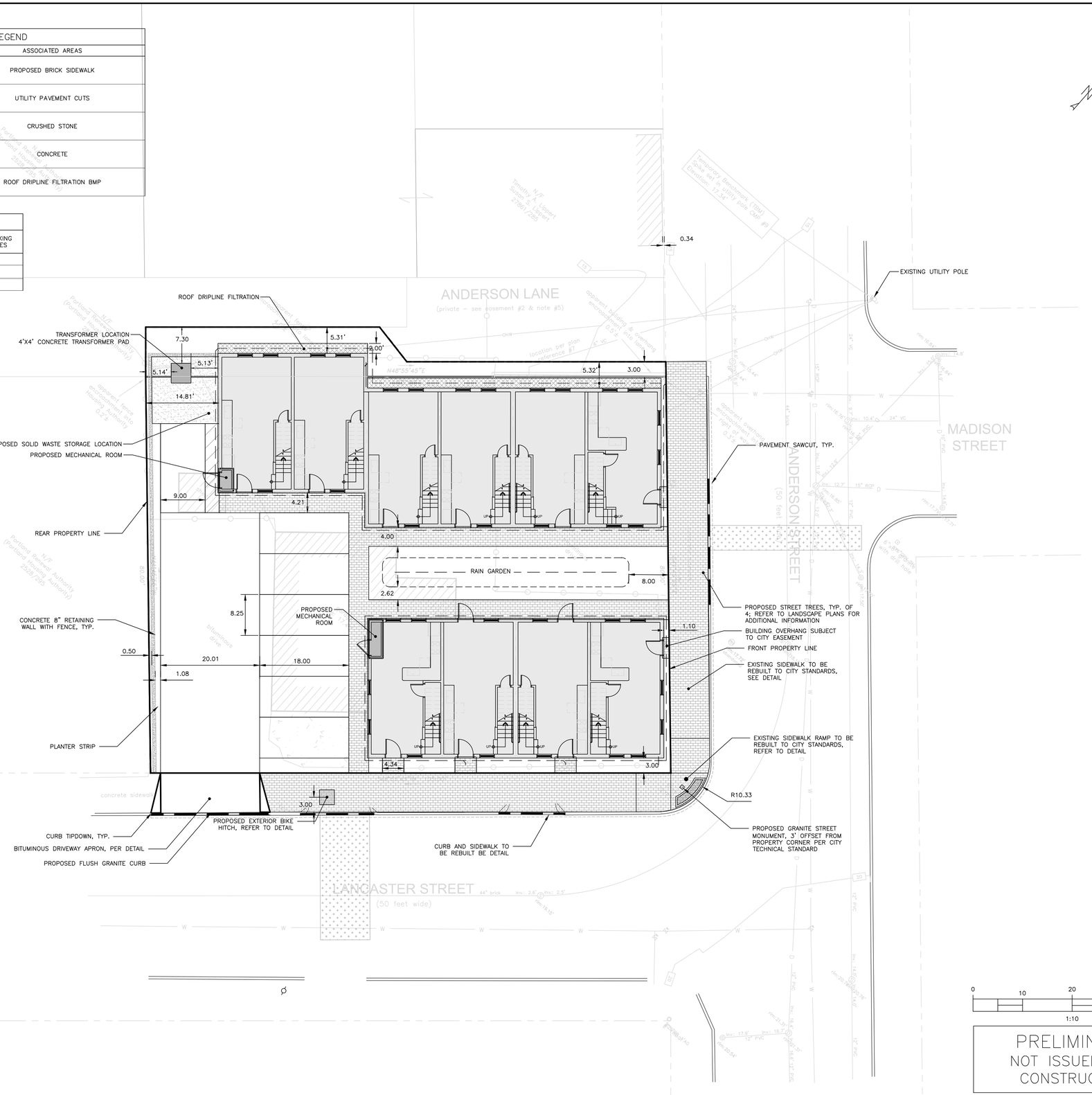
SPACE AND BULK STANDARDS		
ZONE: R6	REQUIRED	PROVIDED
MINIMUM LOT SIZE	2,000 SF	9,080 SF
MINIMUM STREET FRONTAGE	20'	188'
FRONT YARD (AVG. SETBACK)	2'-6"	1'-10"
SIDE YARD	5'	5'
REAR YARD	10'	14'
STRUCTURE STEPBACKS (REAR YARD ABOVE 35')	15'	N/A
MAXIMUM LOT COVERAGE	60%	60%
MINIMUM LOT WIDTH	20'	83'
MAXIMUM BUILDING HEIGHT	45'	35'
LANDSCAPED OPEN AREA	20%	20%
MAXIMUM NUMBER OF DWELLING UNITS	725 SF/UNIT = 12 UNITS	10 UNITS
RESIDENTIAL PARKING	1 SPACE/UNIT = 7 SPACES	7 SPACES
MIN. INTERNAL RESIDENT BIKE STORAGE SPACES	2 SPACES/5 D.U. = 4	4 SPACES
MAX. GARAGE OPENING	20'	N/A

LEGEND	
HATCH STYLE	ASSOCIATED AREAS
	PROPOSED BRICK SIDEWALK
	UTILITY PAVEMENT CUTS
	CRUSHED STONE
	CONCRETE
	ROOF DRIPLINE FILTRATION BMP

PARKING SUMMARY	
PARKING DIMENSION	# PARKING SPACES
COMPACT (8.5'X18')	6
STANDARD (9'X18')	1
TOTAL SPACES	7

GENERAL NOTES:

1. CONTRACTOR SHALL PLACE NEW CURBING IN LOCATIONS WITHOUT EXISTING CURBING, IN ACCORDANCE WITH DETAIL. EXISTING TIPDOWNS ARE LOCATED AT ALL CURB CUTS. FOR PURPOSES OF BIDDING, CONTRACTOR SHALL NOTE THAT ALL TIPDOWNS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH DETAIL, AND THAT EXISTING TIPDOWNS MAY NOT MEET CITY OF PORTLAND STANDARD.
2. INTERIOR STRIPING AS INDICATED ON SITE PLAN SHALL BE 4" WIDE. STRIPING SHALL BE WHITE UNLESS OTHERWISE NOTED.
3. REFER TO THE LANDSCAPE PLAN DEVELOPED BY SOREN DENOIRD DESIGN STUDIO FOR PLANTING SCHEDULES AND ASSOCIATED PLANTING DETAILS.
4. PER SECTION 14-332.1(k), NO PARKING IS REQUIRED FOR THE FIRST THREE UNITS IN THE R-6 ZONE.



0 10 20 40 Feet
1:10

PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/26/16

DRAWING NAME: SITE PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING INC

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ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND, MAINE 04102
(207) 775-2855

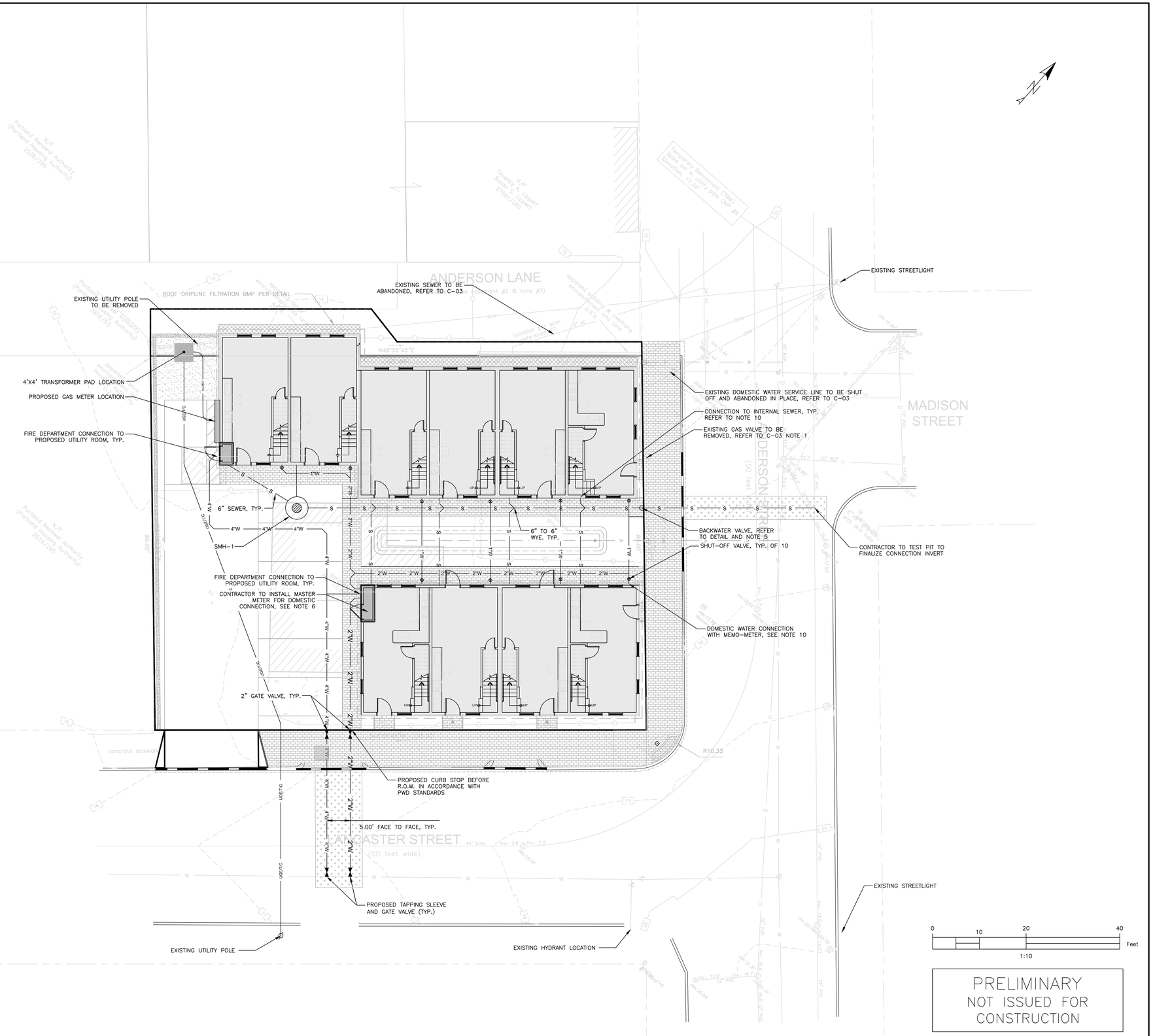
FILE:	1067_CIVIL
JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 7818
4-26-16
LICENSED
PROFESSIONAL ENGINEER

DRAWING NO.
C-10

GENERAL NOTES:

1. STORMWATER DRAINAGE INFRASTRUCTURE INDICATED ON SHEET C–30.
2. LOCATION OF PROPOSED CONNECTIONS APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
3. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT OR COMPLETE. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH UTILITY COMPANY AND DIG SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY SURVEY, PRIOR TO ANY CHANGES.
4. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS EXTEND TO OUTSIDE WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
5. SEWER: SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF FIELD CONDITIONS FROM INVERT VARY FROM DESIGN.
6. WATER UTILITIES: FINAL PIPE SIZING PROVIDED BY MEP ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION BY M.E.P. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION.
8. GAS UTILITIES: NO GAS SERVICE IS PROPOSED TO THE SITE.
9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY FAIRPOINT AND TIME WARNER PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE.
10. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTION LOCATION TO EACH RESIDENTIAL UNIT.



PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/28/16

DRAWING NAME: UTILITY PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING INC.

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ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND, MAINE 04102
(207) 775–2655

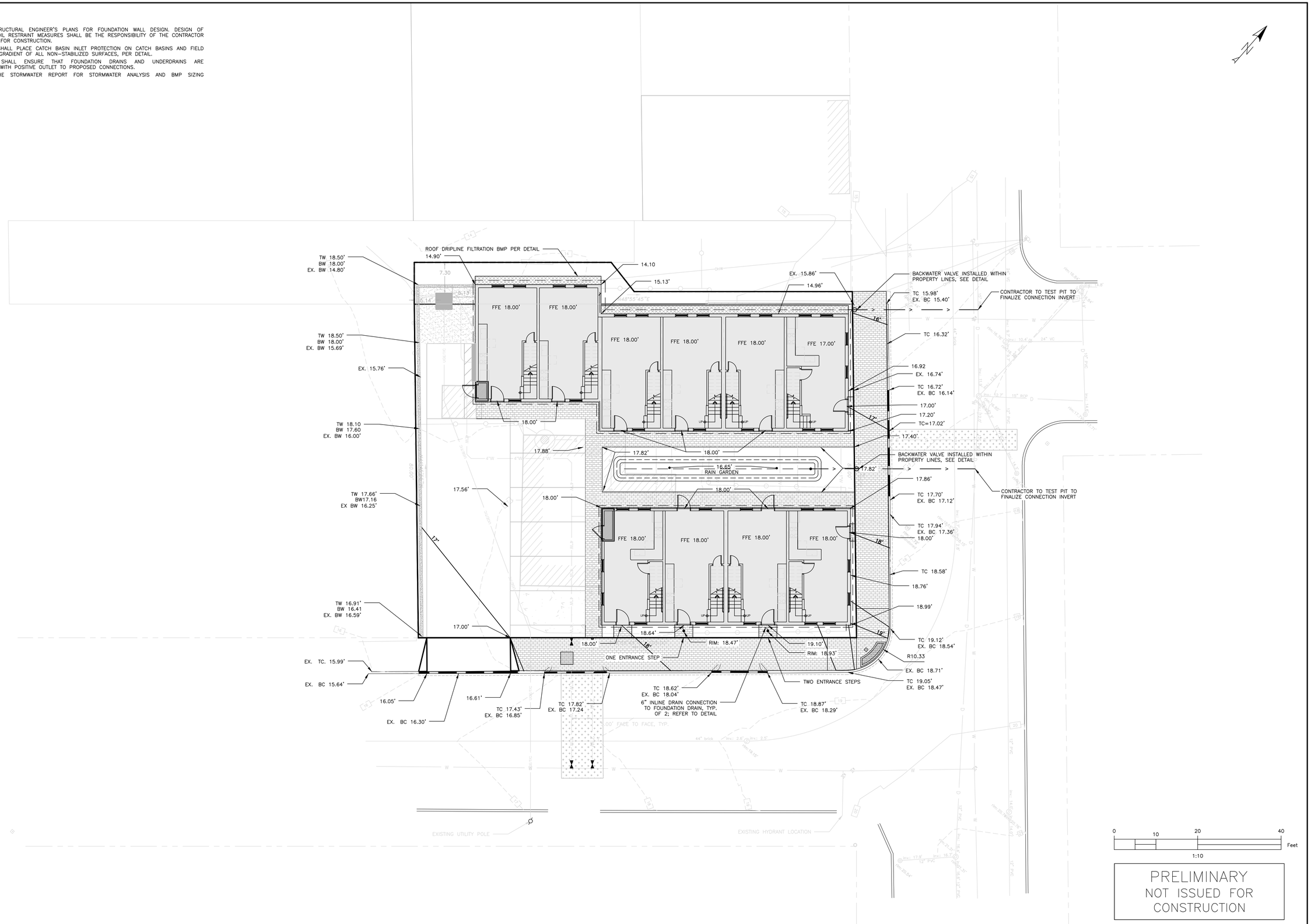
FILE:	1067_CIVIL
JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE No. 13419 LICENSED PROFESSIONAL ENGINEER 4-28-16

DRAWING NO.
C-20

GENERAL NOTES:

1. REFER TO STRUCTURAL ENGINEER'S PLANS FOR FOUNDATION WALL DESIGN. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
2. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
3. CONTRACTOR SHALL ENSURE THAT FOUNDATION DRAINS AND UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. REFER TO THE STORMWATER REPORT FOR STORMWATER ANALYSIS AND BMP SIZING CALCULATIONS.



PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/26/16

DRAWING NAME: GRADING & DRAINAGE PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

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158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

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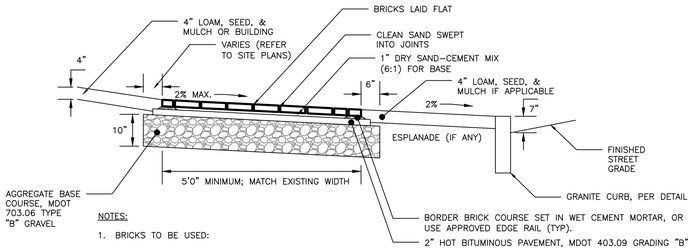
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11418
LICENSED
PROFESSIONAL ENGINEER
4-26-16

DRAWING NO.
C-30



NOTES:

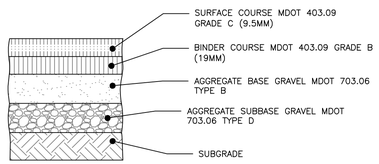
1. BRICKS TO BE USED:

   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.

2. INSTALL BRICK FLUSH UP TO BUILDING, PAVEMENT, STAIRS, CONCRETE SURFACES, CURB OR LANDSCAPED AREAS.

BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL

NOT TO SCALE



NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D–1557
2. LOCAL BITUMINOUS PAVEMENT PROFILE APPLIES TO THE SITE DRIVEWAY & WATERVILLE STREET

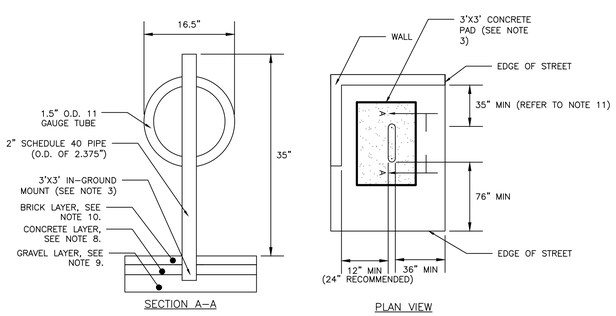
THICKNESS OF LAYERS	
STANDARD	LAYERS
1–1/2"	SURFACE COURSE MDOT 403.09 GRADE C (9.5mm)
2"	BINDER COURSE MDOT 403.09 GRADE B (19mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B
15"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

LOCAL BITUMINOUS PAVEMENT PROFILE: EAST LANCASTER STREET

NOT TO SCALE

NOTES:

1. BICYCLE RACK SHALL HAVE CAPACITY FOR TWO BICYCLES.
2. BICYCLE RACK PARTS SHALL BE OF UNIFORM COLOR AND SHALL BE FINISHED IN ACCORDANCE WITH PRODUCT SPECIFICATION.
3. BICYCLE RACK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S MOST RECENT INSTALLATION RECOMMENDATIONS, AND SHALL BE INSTALLED WITH AN IN–GROUND MOUNT UNLESS OTHERWISE APPROVED BY ENGINEER.
4. BICYCLE RACK SHALL BE "DERO BIKE HITCH", AS MANUFACTURED BY DERO BIKE RACKS.
5. MINIMUM OFFSETS SHOWN. MANUFACTURER'S RECOMMENDED OFFSETS SHALL BE ENFORCED WHERE POSSIBLE.
6. MINIMUM DISTANCE BETWEEN BICYCLE RACKS SHALL BE 24". RECOMMENDED DISTANCE BETWEEN BICYCLE RACKS SHALL BE 38".
7. ALL OFFSETS ARE FROM OUTSIDE EDGES OF ITEMS.
8. CONCRETE SHALL BE 4000 PSI @28 DAYS. BOTTOM OF CONCRETE SHALL BE AT TOP OF SIDEWALK GRAVEL ELEVATION. DEPTH VARIES APRROX. 4"–7".
9. GRAVEL LAYER SHALL BE INSTALLED IN ACCORDANCE WITH BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL, AND SHALL BE MAINEDOT 703.06 TYPE B.
10. TOP OF BRICK LAYER SHALL BE AT SAME ELEVATION IN ACCORDANCE WITH BRICK SIDEWALK DETAIL.
11. 54" MIN DISTANCE BETWEEN EDGE OF STREET AND BICYCLE HITCH IF AISLE IS REQUIRED.

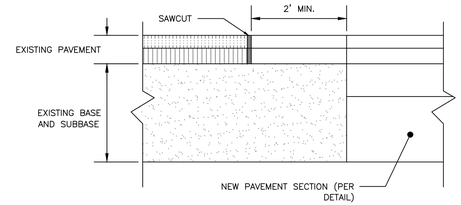


BICYCLE HITCH DETAIL

NOT TO SCALE

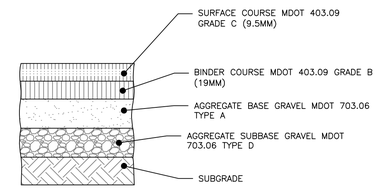
NOTES:

1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. APPLY BITUMINOUS TACK COAT PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
2. THE NEW PAVEMENT SECTION SHALL MEET THE CITY OF PORTLAND ARTERIAL BITUMINOUS PAVEMENT SECTION DETAIL AT A MINIMUM OR THE THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



PAVEMENT SAWCUT DETAIL

NOT TO SCALE



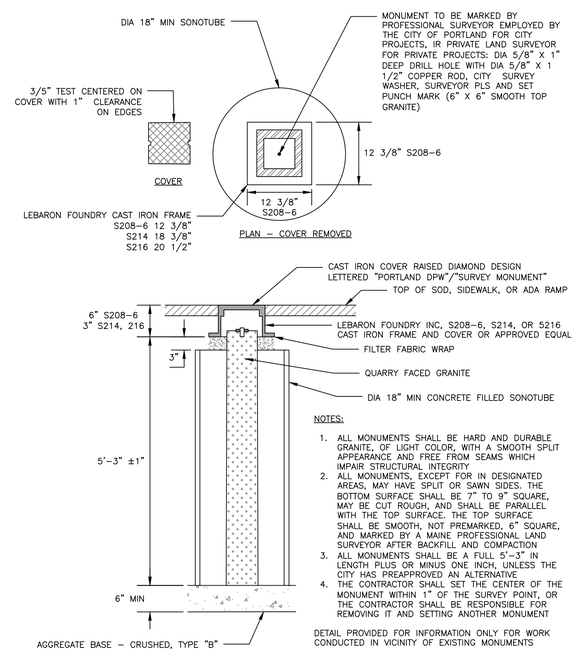
NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D–1557.
2. ARTERIAL BITUMINOUS PAVEMENT PROFILE APPLIES ONLY WITHIN FORE STREET R.O.W.

THICKNESS OF LAYERS	
STANDARD	LAYERS
2"	SURFACE COURSE MDOT 403.09 GRADE C (12.5mm)
3"	BINDER COURSE MDOT 403.09 GRADE B (19mm)
6"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B
18"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

CITY OF PORTLAND ARTERIAL BITUMINOUS PAVEMENT PROFILE: ANDERSON STREET

NOT TO SCALE



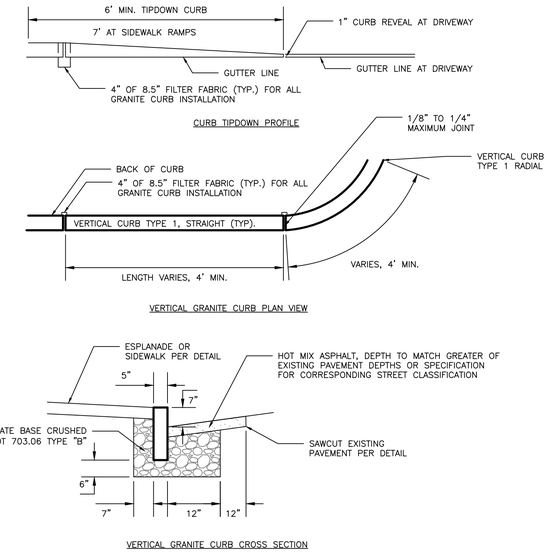
NOTES:

1. ALL MONUMENTS SHALL BE HARD AND DURABLE GRANITE, OF LIGHT COLOR, WITH A SMOOTH SPLIT APPEARANCE AND FREE FROM SEAMS WHICH IMPAIR STRUCTURAL INTEGRITY
2. ALL MONUMENTS, EXCEPT FOR IN DESIGNATED AREAS, MAY HAVE SPLIT OR SAWN SIDES. THE BOTTOM SURFACE SHALL BE 7" TO 9" SQUARE, MAY BE CUT ROUGH, AND SHALL BE PARALLEL WITH THE TOP SURFACE. THE TOP SURFACE SHALL BE SMOOTH, NOT PREMARKED, 6" SQUARE, AND MARKED BY A MAINE PROFESSIONAL LAND SURVEYOR AFTER BACKFILL AND COMPACTION
3. ALL MONUMENTS SHALL BE A FULL 5'–3" IN LENGTH PLUS OR MINUS ONE INCH, UNLESS THE CITY HAS PREAPPROVED AN ALTERNATIVE
4. THE CONTRACTOR SHALL SET THE CENTER OF THE MONUMENT WITHIN 1" OF THE SURVEY POINT, OR THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING IT AND SETTING ANOTHER MONUMENT

DETAIL PROVIDED FOR INFORMATION ONLY FOR WORK CONDUCTED IN VICINITY OF EXISTING MONUMENTS

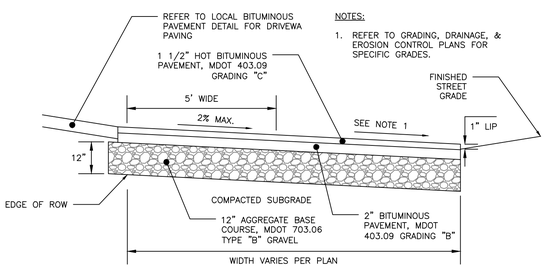
GRANITE STREET MONUMENT

NOT TO SCALE



VERTICAL GRANITE CURB AND TIPDOWN INSTALLATION

NOT TO SCALE



NOTES:

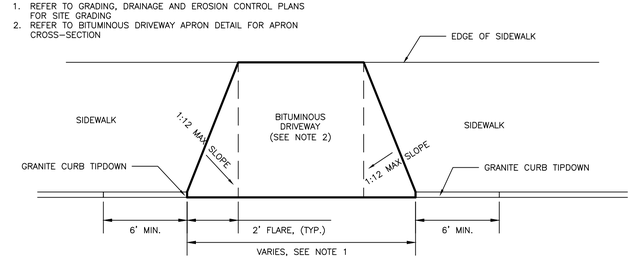
1. REFER TO GRADING, DRAINAGE, & EROSION CONTROL PLANS FOR SPECIFIC GRADES.

BITUMINOUS DRIVEWAY APRON DETAIL

NOT TO SCALE

NOTES:

1. REFER TO GRADING, DRAINAGE AND EROSION CONTROL PLANS FOR SITE GRADING
2. REFER TO BITUMINOUS DRIVEWAY APRON DETAIL FOR APRON CROSS–SECTION



DRIVEWAY APRON LAYOUT DETAIL

NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY / DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: SITE DETAILS – 1

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING INC
ACORN ENGINEERING, INC.
158 DANFORTH STREET, PORTLAND, MAINE 04102
(207) 775–2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATION, WITHOUT PERMISSION OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

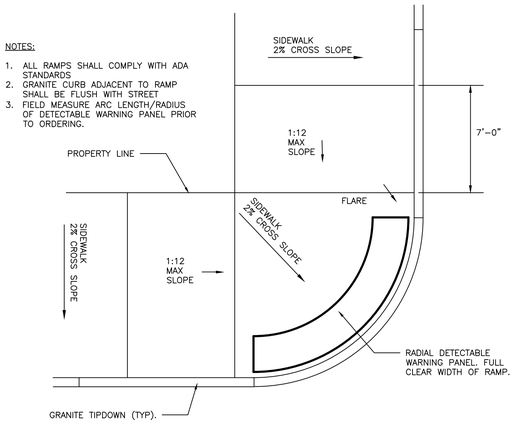
FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM E. SAVAGE No. 11418 LICENSED PROFESSIONAL ENGINEER 4-26-16

DRAWING NO.
C-40

NOTES:

1. ALL RAMPS SHALL COMPLY WITH ADA STANDARDS
2. GRANITE CURB ADJACENT TO RAMP SHALL BE FLUSH WITH STREET
3. FIELD MEASURE ARC LENGTH/RADIUS OF DETECTABLE WARNING PANEL PRIOR TO ORDERING.

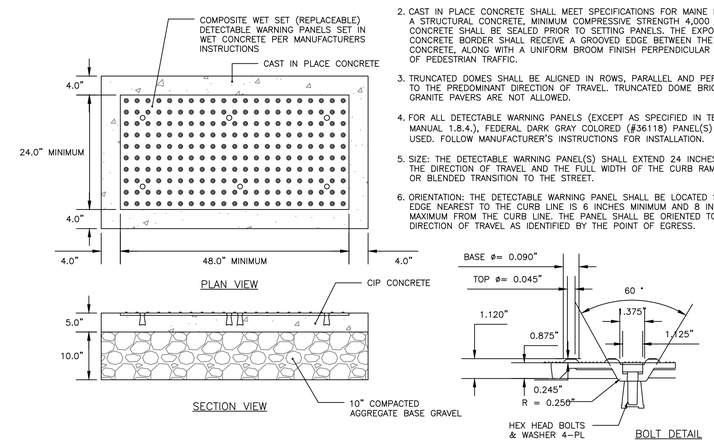


DIAGONAL SIDEWALK RAMP LAYOUT AT INTERSECTION FOR SIDEWALK WITHOUT ESPLANADE

NOT TO SCALE

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. 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 TECHNICAL MANUAL 1.8.4.), FEDERAL DARK GRAY COLORED (#36118) PANEL(S) 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 TO 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.



SIDEWALK RAMP DETECTABLE WARNING PANEL

NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY / DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: SITE DETAILS – 2

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

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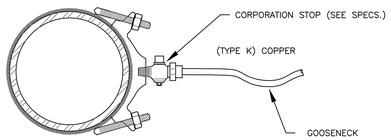
ACORN ENGINEERING, INC.
158 DANFORTH ST PORTLAND MAINE 04102
(207) 775-2655

FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

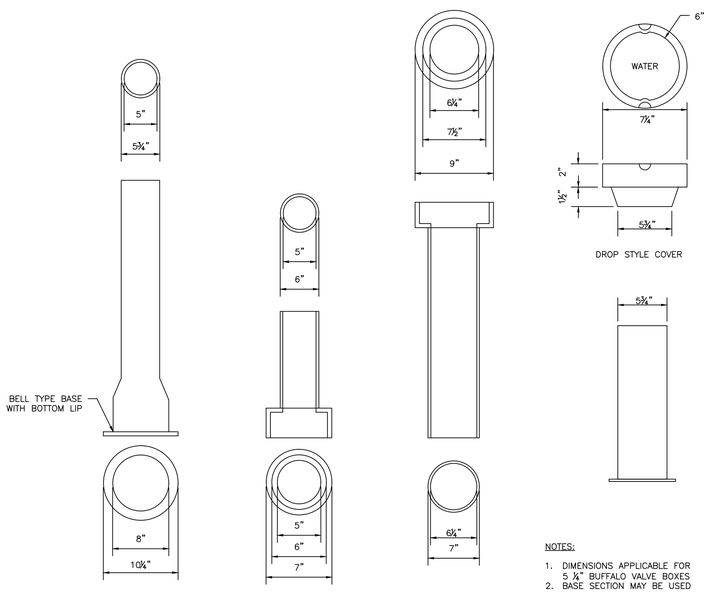
STATE OF MAINE
WILLIAM H. SAVAGE
No. 11418
4-26-16
LICENSED
PROFESSIONAL ENGINEER

DRAWING NO.
C-41



SERVICE SADDLE: 1–1/2" AND 2" C.C. THREAD)

NOT TO SCALE

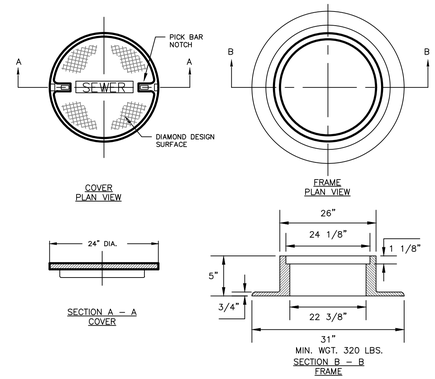


NOTES:

1. DIMENSIONS APPLICABLE FOR 5 ¼" BUFFALO VALVE BOXES
2. BASE SECTION MAY BE USED AS INTERMEDIATE SECTION

VALVE BOX & COVER

NOT TO SCALE



NOTES:

1. ALL SANITARY AND STORMWATER/DRAIN MANHOLE COVERS SHALL BE 24" x 5".
2. ALL SANITARY MANHOLE COVERS AND SHALL HAVE "SEWER" CAST INTO THE COVER.
3. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
4. APPROVED MANHOLE FRAMES:

4.1. EAST JORDAN = 1690Z
4.2. OR APPROVED EQUAL

5. APPROVED MANHOLE COVERS

5.1. EAST JORDAN = 2160A
5.2. OR APPROVED EQUAL

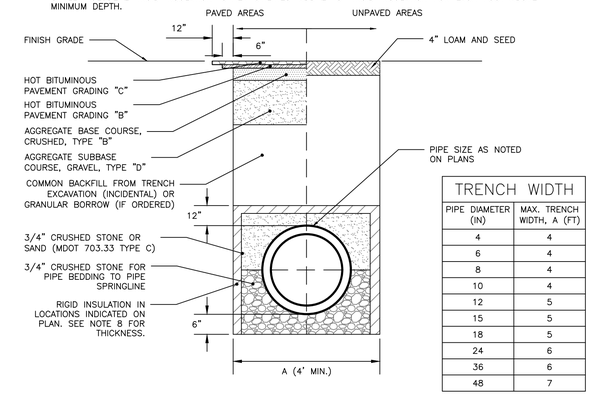
6. FRAME AND COVER CONSTRUCTION SHALL BE COMPATIBLE WITH STANDARD PRECAST SEWER MANHOLE DETAIL

CAST IRON MANHOLE COVER AND FRAME

NOT TO SCALE

NOTES:

1. ANY ALTERNATE TRENCHING METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. ALL CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF PORTLAND TECHNICAL STANDARDS FIGURE II–2.
3. BRACING & SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. WHERE APPLICABLE, PERFORATIONS IN STORM DRAIN (PERF.SD) SHALL BE ORIENTED UP.
5. ALL STORM DRAINS SHALL BE PVC SDR 35 MIN PS–46 RATING OR OR IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL MANUAL , SECTION 2 – SANITARY SEWER AND STORM DRAIN – PART 2.5.2
6. 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.
7. THIS DETAIL SHALL BE APPLIED ONLY TO PIPE TRENCHES WITHIN OF THE CITY OF PORTLAND ROW.STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2' RIGID INSULATION. OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.



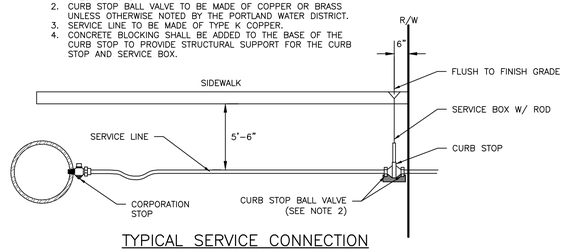
TRENCH WIDTH	
PIPE DIAMETER (IN)	MAX. TRENCH WIDTH, A (FT)
4	4
6	4
8	4
10	4
12	5
15	5
18	5
24	6
36	6
48	7

CITY OF PORTLAND TYPICAL PIPE TRENCH DETAIL

NOT TO SCALE

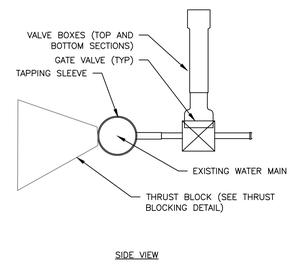
NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH THE CITY OF PORTLAND WATER DISTRICT (PWD) SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE PORTLAND WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.



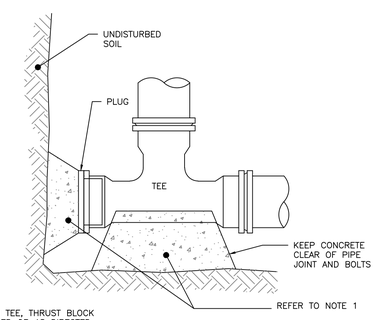
TYPICAL SERVICE CONNECTION

NOT TO SCALE



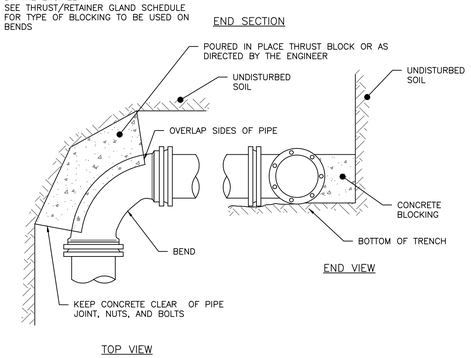
TAPPING SLEEVE AND VALVE

NOT TO SCALE



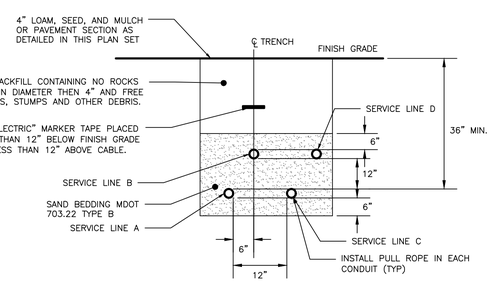
NOTES:

1. IF DEAD END WITH TEE, THRUST BLOCK WOULD BE REQUIRED OR AS DIRECTED BY THE ENGINEER
2. SEE THRUST/RETAINER GLAND SCHEDULE FOR TYPE OF BLOCKING TO BE USED ON BENDS



THRUST BLOCKING: REGULAR BEND

NOT TO SCALE



CONDUIT TYPE				
SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
A	2–5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	2–4"	SCHEDULE 40 PVC	COMMUNICATION	–
C	2–4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARE	IF REQUIRED
D	2–4"	SCHEDULE 40 PVC	CABLE	–

NOTES:

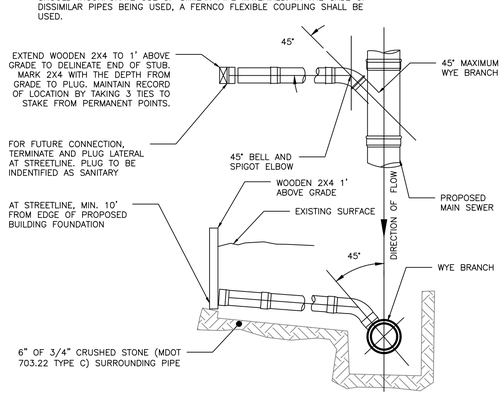
1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND–OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.

UTILITY TRENCH: PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE

NOTES:

1. LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
2. SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO HOUSEHOLD PLUMBING WITH ARCHITECTURAL CONTRACTOR
3. CONNECTION OF PROPOSED SEWER LATERAL TO HOUSEHOLD PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.

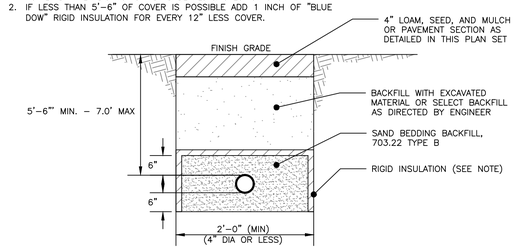


SEWER TEE/WYE CONNECTION DETAIL

NOT TO SCALE

NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARD DETAILS & SPECIFICATIONS.
2. IF LESS THAN 5'–6" OF COVER IS POSSIBLE ADD 1 INCH OF "BLUE DOW" RIGID INSULATION FOR EVERY 12" LESS COVER.



WATER SERVICE TRENCH SECTION DETAIL

NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: UTILITY DETAILS

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

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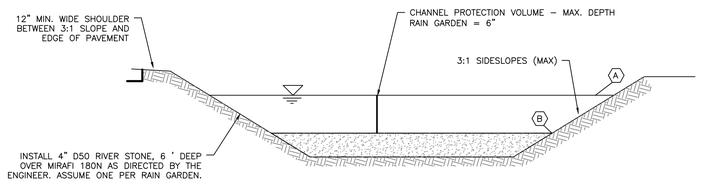
ACORN ENGINEERING INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775–2655

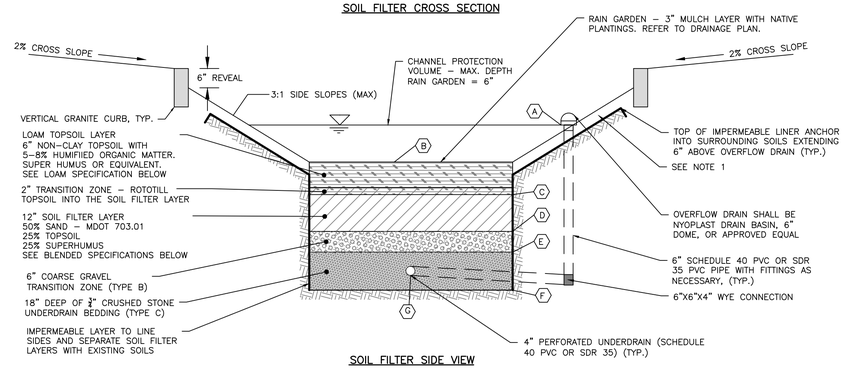
FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE No. 11419 4-26-16 LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-42



SOIL FILTER CROSS SECTION



SOIL FILTER SIDE VIEW

NOTES:

1. WRAP ALL SIDES BETWEEN THE SOIL FILTER MATERIALS, IMPERMEABLE LINER AND EXISTING SOILS WITH MIRAFI 180N OR EQUIVALENT.
2. THE SIDESLOPES SHALL BE STABILIZED WITH A MIN. OF 4" LOAM, EROSION CONTROL BLANKETS SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL AND A CONSERVATION SEED MIX.
3. LIGHT COMPACTION SOIL FILTER AND PIPE BEDDING MATERIAL. (90 TO 92% STANDARD PROCTOR). TESTING SHALL BE PERFORMED BY A QUALIFIED MATERIAL TESTING FIRM.
4. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.
5. A SCHEDULE OF APPROPRIATE PLANTS FOR THE RAIN GARDENS AT THE SITE CONDITIONS IS LOCATED IN THE GRADING PLAN. LANDOWNER IS TO FINALIZE THE SCHEDULE.
6. TESTING: SIEVE ANALYSIS INCLUDING HYDROMETER TESTING FOR CLAY CONTENT FOR EACH LAYER SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO CONSTRUCTION. ALL TESTING AND SUBMITTALS SHALL BE IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE MAINE DEP – TECHNICAL DESIGN MANUAL SECTION 7.2.5 TESTING AND SUBMITTALS.
7. ACORN ENGINEERING, INC., RECOMMENDS THE SOIL FILTER LAYER BE SUPPLIED BY JONES ASSOCIATES, INC., AUBURN, ME.

SCHEDULE	
ITEM	RG–1
(A) PROPOSED OVERFLOW RIM	17.15'
(B) TOP OF LOAM TOPSOIL LAYER	16.65'
(C) TOP OF SOIL FILTER	16.15'
(D) TOP OF GRAVEL	15.15'
(E) TOP OF STONE	14.65'
(F) BOTTOM OF STONE	13.15'
(G) UNDERDRAIN INVERT	13.40'

6" LOAM TOPSOIL LAYER SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
#4	75–95
#10	60–90
#40	35–85
#200	20–70
1. CLAY FRACTION <10% PASSING THE #200 SIEVE.*	
2. LOAM SHALL BE LOOSE AND FRIABLE AND SHALL BE FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS OR ROOTS OR RHIZOMES OR "WITCH GRASS" OR OTHER UNDESIRABLE GRASSES.	

*<10% CLAY PASSING THE #200 SIEVE ALLOWED PER EMAIL FROM MARIANNE HUBERT – MDEP TO WILL SAVAGE DATED 9/20/13

SOIL FILTER BED – SUPERHUMUS OR EQUIV. SPECIFICATION	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
#200	0–5
MINIMAL CLAY CONTENT, NO MORE THAN 3–5% PASSING #200 SIEVE	

12" SOIL FILTER BED – BLENDED SAND, LOAM, SUPERHUMUS SIEVE ANALYSIS	
SIEVE SIZE	% PASSING BY WEIGHT
#10	85–100
#20	70–100
#60	15–40
#200	8–15
1. CLAY FRACTION <2% PASSING THE #200 SIEVE. 2. SUPERHUMUS OR EQUIVALENT	

SOIL FILTER BED – TRANSISTION ZONE (TYPE B)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

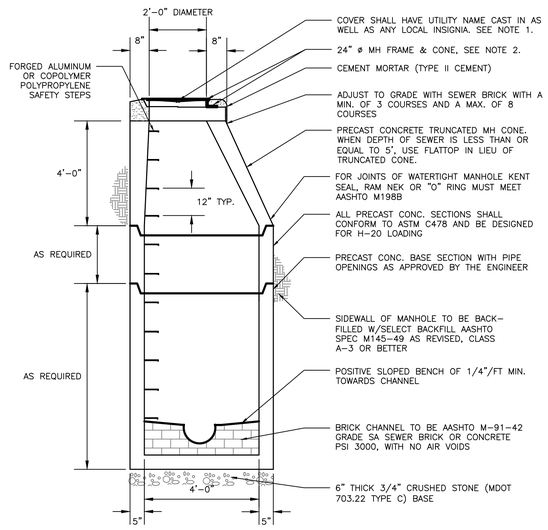
SOIL FILTER BED – UNDERDRAIN BEDDING (TYPE C)	
SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90–100
3/8"	0–75
#4	0–25
#10	0–5

RAIN GARDEN DETAIL

NOT TO SCALE

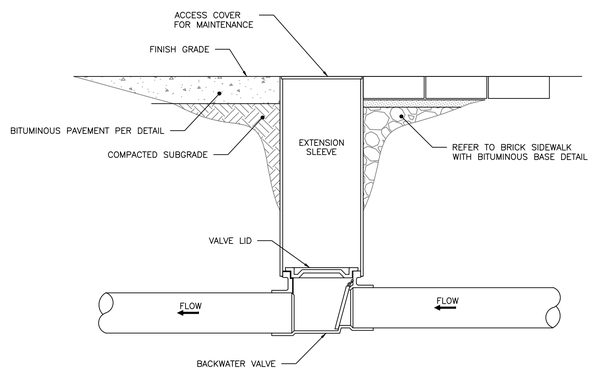
NOTES:

1. MANHOLE COVER FOR SEWER MANHOLE SHALL BE ENGRAVED "SEWER", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960002 AS MANUFACTURED BY NEENAH FOUNDRY. MANHOLE COVER FOR STORM SEWER SHALL BE ENGRAVED "DRAIN", AND SHALL BE EITHER ITEM # 2160A AS MANUFACTURED BY EAST JORDAN CO. OR ITEM # 14960003 AS MANUFACTURED BY NEENAH FOUNDRY.
2. MANHOLE FRAME SHALL BE EITHER ITEM # 14960001, AS MANUFACTURED BY NEENAH FOUNDRY, OR ITEM # 1960Z, AS MANUFACTURED BY EAST JORDAN CO.
3. WITHIN CITY OF PORTLAND ROW, STORM DRAIN MANHOLE SHALL CONFORM WITH "STANDARD PRECAST SEWER MANHOLE DETAIL", WITH THE EXCEPTION THAT THE COVER SHALL BE MARKED AS "DRAIN". REFER TO CITY OF PORTLAND TECHNICAL MANUAL, SECTION 2 – SANITARY SEWER AND STORM DRAIN, FIGURE II–1
4. SUBMITTAL REQUIRED FOR MANHOLES, MANHOLE FRAMES & MANHOLE COVERS



STANDARD PRECAST SEWER MANHOLE

NOT TO SCALE

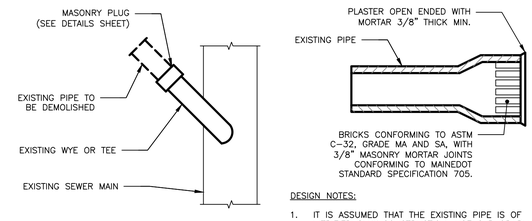


BACKWATER VALVE ASSEMBLY

NOT TO SCALE

NOTES:

1. BACKWATER VALVE TO BE PROVIDED BY AGRI DRAIN CORPORATION OR AN APPROVED EQUAL.
2. VALVE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS AND COMPLY WITH RULES AND REGULATIONS AS OUTLINED IN SECTION 2 OF THE CITY OF PORTLAND TECHNICAL MANUAL.
3. VALVE SHALL BE INSTALLED WITH A VALVE BOX AND COVER TO PROVIDE EASY ACCESS AND MAINTENANCE; VALVE COVER SHALL STATE "SEWER" ON LID FLUSH TO SURFACE.

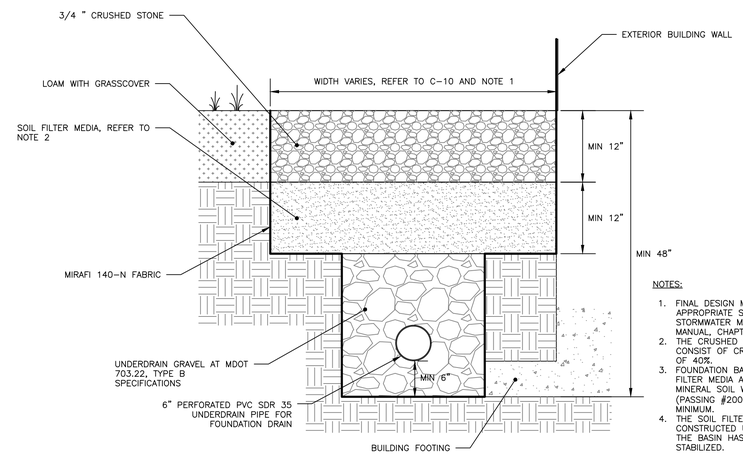


DESIGN NOTES:

1. IT IS ASSUMED THAT THE EXISTING PIPE IS OF VITRIFIED CLAY CONSTRUCTION. USE CAP OR PLUG FOR PVC PIPE

MASONRY PLUG DETAIL

NOT TO SCALE

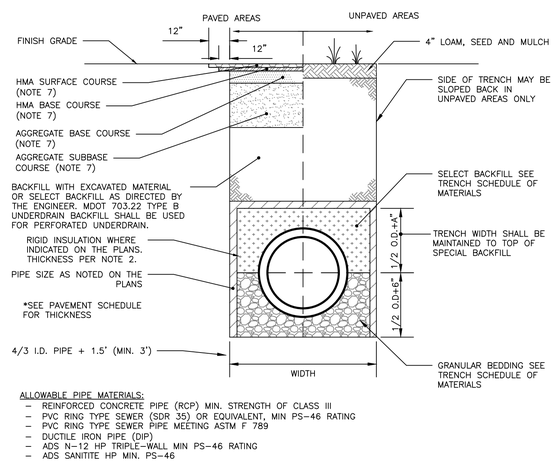


NOTES:

1. FINAL DESIGN MUST COMPLY WITH ALL APPROPRIATE SPECIFICATIONS FROM THE STORMWATER MANAGEMENT FOR MAINE BMP MANUAL, CHAPTER 7.
2. THE CRUSHED STONE RESERVOIR BED MUST CONSIST OF CRUSHED ROCK WITH A POROSITY OF 40%.
3. FOUNDATION BACKFILL MAY BE USED AS SOIL FILTER MEDIA AS LONG AS THE MATERIAL IS A MINERAL SOIL WITH BETWEEN 4–7% FINES (PASSING #200 SIEVE) AND IS 4" THICK AT MINIMUM.
4. THE SOIL FILTER MEDIA SHALL NOT BE CONSTRUCTED UNTIL THE AREA DRAINING TO THE BASIN HAS BEEN PERMANENTLY STABILIZED.

ROOF DRIPLINE FILTRATION DETAIL

NOT TO SCALE



ALLOWABLE PIPE MATERIALS:

- REINFORCED CONCRETE PIPE (RCP) MIN. STRENGTH OF CLASS III
- PVC RING TYPE SEWER (SDR 35) OR EQUIVALENT, MIN PS–46 RATING
- PVC RING TYPE SEWER PIPE MEETING ASTM F 789
- DUCTILE IRON PIPE (DIP)
- ADS N–12 HP TRIPLE–WALL MIN PS–46 RATING
- ADS SANITITE HP MIN. PS–46

SCHEDULE OF MATERIALS		
TYPE OF PIPE	GRANULAR BEDDING	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC/HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
CMP	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

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. STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2' RIGID INSULATION. OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.
3. INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES AT THE TOP OF SUBGRADE.
4. MINIMUM COVER
   4.1. 2'–0" – STORM DRAIN
   4.2. 5'–0" – SEWER
5. NO TREES SHALL BE PLANTED WITHIN 5' OF A SEWER PIPE OR SERVICE
6. THIS DETAIL SHALL BE APPLIED ONLY TO DRAINAGE PIPE TRENCHES OUTSIDE OF THE CITY OF PORTLAND ROW.
7. THICKNESS AS NOTED BY SURFACE DETAILS

STORM DRAIN AND SEWER TYPICAL TRENCH SECTION

NOT TO SCALE

PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: DRAINAGE DETAILS

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775–2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATIONS MADE WITHOUT WRITTEN PERMISSION, OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE No. 7419 4-26-16 PROFESSIONAL ENGINEER

DRAWING NO.
C-43

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
- STONE SIZE SHALL BE 2–3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
- THE ENTRANCE SHALL NOT BE LESS THAN 20 FEET WIDE, HOWEVER NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS. THE LENGTH SHALL NOT BE LESS THAN 50 FEET IN LENGTH.
- GEOTEXTILE FABRIC (WOVEN OR NON–WOVEN) SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA.
- THE ENTRANCE/EXIT SHALL BE MAINTAINED TO THE EXTENT THAT IT WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC ROAD WAYS.

1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.

1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENUDED OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.

1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.

1.1.5 VERNON PLACE, AVON STREET, AND CONGRESS STREET SHALL BE SWEPT TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SIDE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.

1.1.7 SILT FENCE STAKE SPACING SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE "TOED" INTO THE GROUND.

1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED ½ THE DESIGN HEIGHT.

1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.

1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.

1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.

1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.

1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4" OF LOAM, LIMED, AND MULCHED. EROSION CONTROL BLANKETS OR MATS SHALL BE PLACED OVER THE MULCH IN AREAS NOTED IN PARAGRAPH 4.2 OF THIS REPORT.

1.2.2 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.

1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER–WINTER STABILIZATION. ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

4.1 SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.

4.2 MULCHING

ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. 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 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE–INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL 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 OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WHEN THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4.3 SOIL STOCKPILING

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR–INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE–ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.

4.4 SEEDING

BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL 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 NOT BEEN LOAMED, FINAL GRADING 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 PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. 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/1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% 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.

4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS

BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION – BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1,000 S.F., 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 FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER–WINTER PROTECTION.

- STABILIZE THE SOIL WITH SOD – STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. 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 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES

ALL STONE–COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS – BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDING. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% F THE SLOPE BY NOVEMBER 1ST, THEN THE CONTRACTOR SHALL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP.

- STABILIZE THE SOIL WITH SOD – THE DISTURBED SLOPE SHALL BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. 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 3H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

- STABILIZE THE SOIL WITH EROSION CONTROL MIX – EROSION CONTROL MIX SHALL BE PROPERLY INSTALLED BY NOVEMBER 15TH. THE CONTRACTOR SHALL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 2H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

- STABILIZE THE SOIL WITH STONE RIPRAP – PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. A REGISTERED PROFESSIONAL ENGINEER SHALL BE HIRED TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A "STORM EVENT". A "STORM EVENT" SHALL CONSIST 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL – BEST MANAGEMENT PRACTICES (BMP'S) SHALL INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE–HALF THE HEIGHT OF THE BARRIER. FILTER BERMS SHOULD 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.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

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 AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS, WHICH HAVE EXPERIENCED MUD–TRACKING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE–INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE. WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: WILL SAVAGE, PE
TELEPHONE: (207) 775–2655

QUALIFICATIONS:

- MAINE PROFESSIONAL ENGINEERING LICENSE #11419
- MAINE DEP – CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT #14
- CERTIFIED EROSION, SEDIMENT AND STORM WATER INSPECTOR (CESSWI) CERT #0293
- CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #4620

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

1. INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
2. INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
3. INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
4. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
5. PRIORITIZE THE DOWNHILL RETAINING AND FOUNDATION WALLS TO CONTAIN RUNOFF WITHIN THE SITE WHILE PROVIDING AN ENGINEERED OUTLET WITH SILTATION BARRIER TO THE MUNICIPAL STORMWATER SYSTEM WITHIN AVON.
6. COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
7. COMMENCE INSTALLATION OF UTILITIES.
8. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
9. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
10. COMPLETE REMAINING EARTHWORK OPERATIONS.
11. INSTALL SUB–BASE AND BASE GRAVELS IN PAVED AREAS.
12. INSTALL PAVING, CURBING AND BRICKWORK.
13. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
14. ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
15. TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
16. COMPLETE SITE SIGNAGE AND STRIPING.
17. EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE–VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 CONCLUSION

THE ABOVE EROSION CONTROL NARRATIVE IS INTENDED TO MINIMIZE THE DEVELOPMENT IMPACT BY IMPLEMENTING TEMPORARY AND PERMANENT EROSION CONTROL MEASURES. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

TEMPORARY SEEDING PLAN

SITE PREPARATION

THE SEEDED AREAS SHALL BE FEASIBLY GRADED OUT TO PROVIDE THE USE OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IF NECESSARY, THE SITE MAY REQUIRE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL REPORT.

SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10–10–10 (N–P205–K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

TEMPORARY SEED APPLICATION RATES

SEED	LBS / ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	2.57	8/15 TO 10/1
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15
ANNUAL RYGRASS	0.92	4/1 TO 7/1
SUDANGRASS	0.92	5/15 TO 8/15
PERENNIAL	0.92	8/15 TO 9/15
TOTAL	7.17 LBS/ACRE	

MULCHING

MULCH SHALL BE APPLIED AT A RATE OF 70 LBS – 90 LBS PER 1,000 SQUARE FEET. THE MULCH SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4 INCHES. THE SEEDED AREA SHALL BE MULCHED IMMEDIATELY AFTER SEED IS APPLIED. MULCHING DURING THE WINTER SEASON SHALL BE DOUBLE THE NORMAL AMOUNT.

CONCLUSION

PLEASE REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION PERTAINING TO TEMPORARY SEEDING AND MULCHING.

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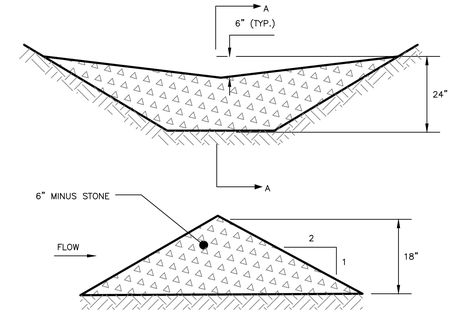
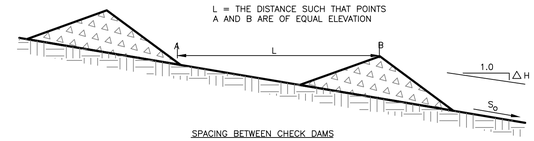


SECTION A–A

L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



SPACING BETWEEN CHECK DAMS

S_o (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	10

STONE CHECK DAM

NOT TO SCALE

NOTES:

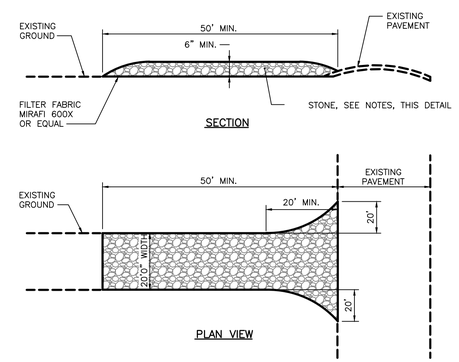
1) CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

2) STONE SHALL BE 2"–3" COARSE AGGREGATE

3) CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.

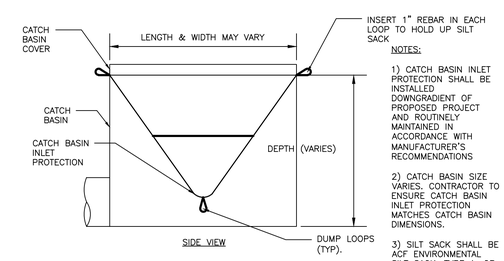
4) WHEN NECESSARY, ON–SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.

5) CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT–OF–WAY



STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTES:

1) CATCH BASIN INLET PROTECTION SHALL BE INSTALLED DOWNGRADIENT OF PROPOSED PROJECT AND ROUTINELY MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

2) CATCH BASIN SIZE VARIES. CONTRACTOR TO ENSURE CATCH BASIN INLET PROTECTION MATCHES CATCH BASIN DIMENSIONS.

3) SILT SACK SHALL BE ACF ENVIRONMENTAL SILT SACK, TYPE A, OR APPROVED EQUAL.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

ISSUED FOR	BY / DATE
PRELIMINARY APP	WHS 4/25/16

REVISION	REV. DATE

DRAWING NAME: EROSION & SEDIMENTATION CONTROL DETAILS

PROJECT NAME: 70 ANDERSON STREET REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

ACORN ENGINEERING INC

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY MODIFICATIONS, ALTERATIONS OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

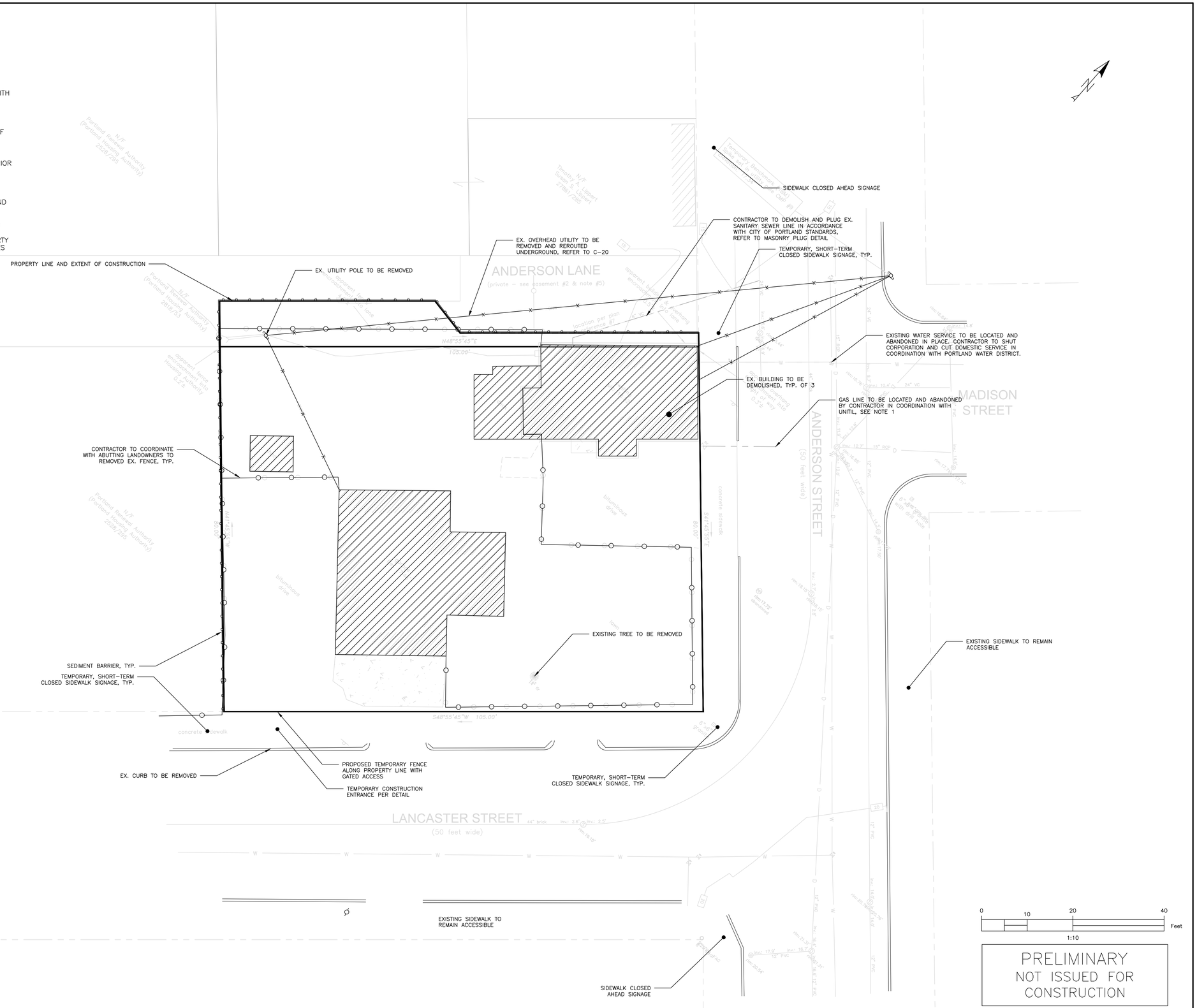
ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775–2655

FILE:	CIVIL_1067
JN:	1067
SCALE:	NTS
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE WILLIAM H. SAVAGE No. 11419 LICENSED P

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE WITH UNITIL TO SHUT DOWN THE EXISTING GAS SERVICE AND ABANDON THE LINE IN ACCORDANCE WITH UNITIL'S REGULATIONS AND PROCEDURES.
2. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. I
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
4. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. FOR ADDITIONAL ENVIRONMENTAL INFORMATION, REFER TO THE PHASE I ENVIRONMENTAL SITE ASSESSMENT FOR REDFERN PROPERTIES, LLC, 70 ANDERSON STREET DATED 2/5/16.CONTRACTOR TO REVIEW PHASE I – ESA PRIOR TO BID OR WORK. A COPY CAN BE MADE AVAILABLE UPON REQUEST.
6. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
7. NOTE THAT ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION.
8. SEDIMENT BARRIERS TO BE PLACED DIRECTLY ON THE REAR AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES.
9. CONTRACTOR SHALL INSTALL CONSTRUCTION ENTRANCE AT ALL LOCATIONS OF INGRESS AND EGRESS DURING CONSTRUCTION TO THE SITE. SEE DETAIL.



PRELIMINARY
NOT ISSUED FOR CONSTRUCTION

ISSUED FOR	BY	DATE
PRELIMINARY APP	WHS	4/26/16

DRAWING NAME: DEMOLITION AND CONSTRUCTION MANAGEMENT PLAN

PROJECT NAME: 70 ANDERSON ST REDEVELOPMENT

CLIENT: REDFERN PROPERTIES, LLC
P.O. BOX 8816 PORTLAND, ME 04104

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ACORN ENGINEERING, INC.
158 DANFORTH STREET PORTLAND, MAINE 04102
(207) 775-2655

FILE:	1067_CIVIL
JN:	1067
SCALE:	1"=10'
DESIGNED BY:	WHS
DRAWN BY:	OJD
CHECKED BY:	WHS

STATE OF MAINE
WILLIAM H. SAVAGE
No. 11418
LICENSED
PROFESSIONAL ENGINEER
4-26-16

DRAWING NO.
C-03

SYMBOLS LEGEND

HARDSCAPE

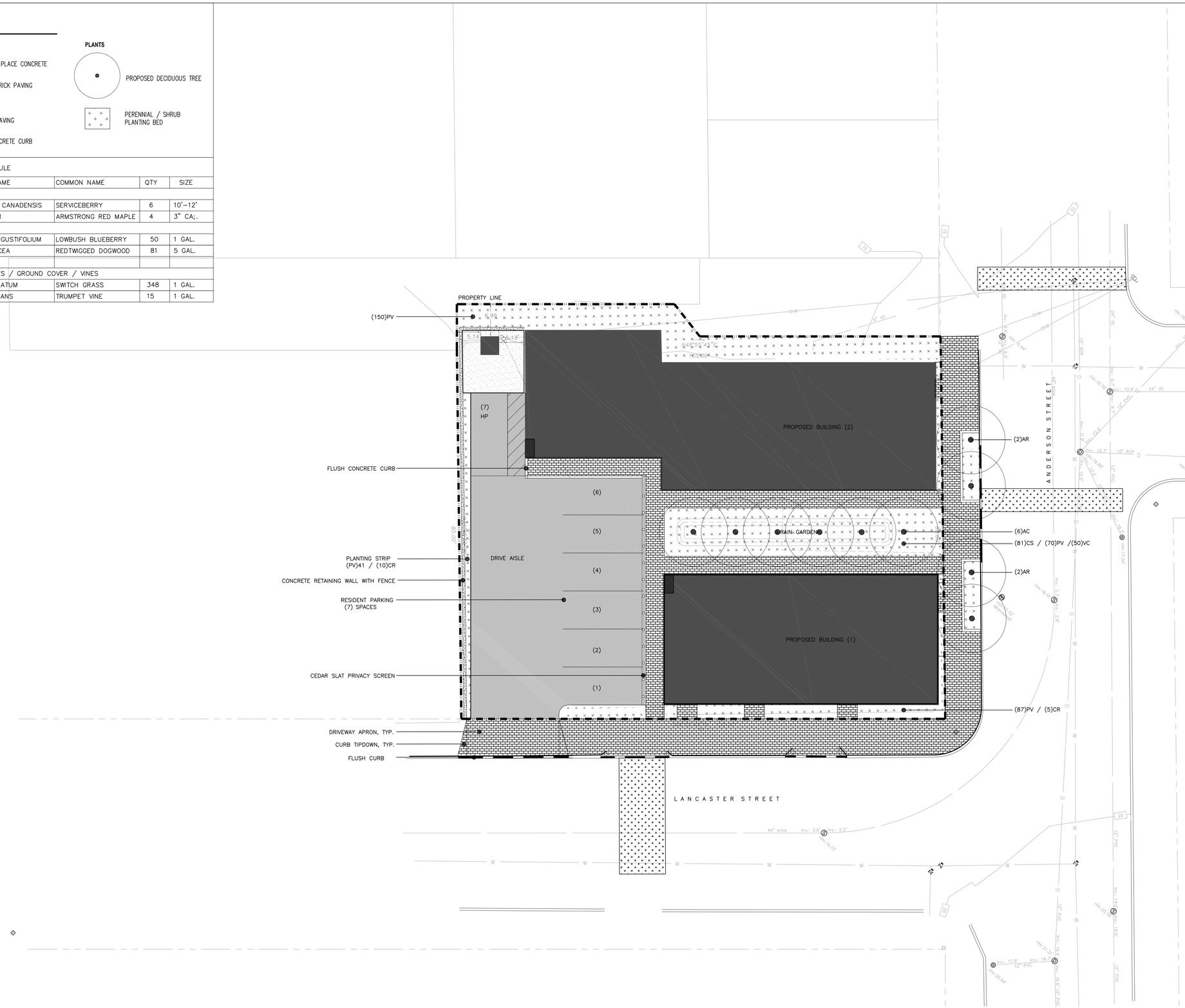
- POURED IN PLACE CONCRETE
- PINE HALL BRICK PAVING
- ASPHALT PAVING
- FLUSH CONCRETE CURB

PLANTS

- PROPOSED DECIDUOUS TREE
- PERENNIAL / SHRUB PLANTING BED

PLANT SCHEDULE

ID	BOTANICAL NAME	COMMON NAME	QTY	SIZE
DECIDUOUS TREES				
AC	AMELANCHIER CANADENSIS	SERVICEBERRY	6	10'–12'
AR	ACER RUBRUM	ARMSTRONG RED MAPLE	4	3" CA;.
SHRUBS				
VA	VACCINIUM ANGUSTIFOLIUM	LOWBUSH BLUEBERRY	50	1 GAL.
CS	CORNUS SERICEA	REDTWIGGED DOGWOOD	81	5 GAL.
PERENNIALS / GRASSES / GROUND COVER / VINES				
PV	PANICUM VIRGATUM	SWITCH GRASS	348	1 GAL.
CR	CAMPIS RADICANS	TRUMPET VINE	15	1 GAL.



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Soren deNiord Design Studio
43 Wellwood Road
Portland, ME
04103
T: 207-400-2450
E: soren@sorendeniord.com

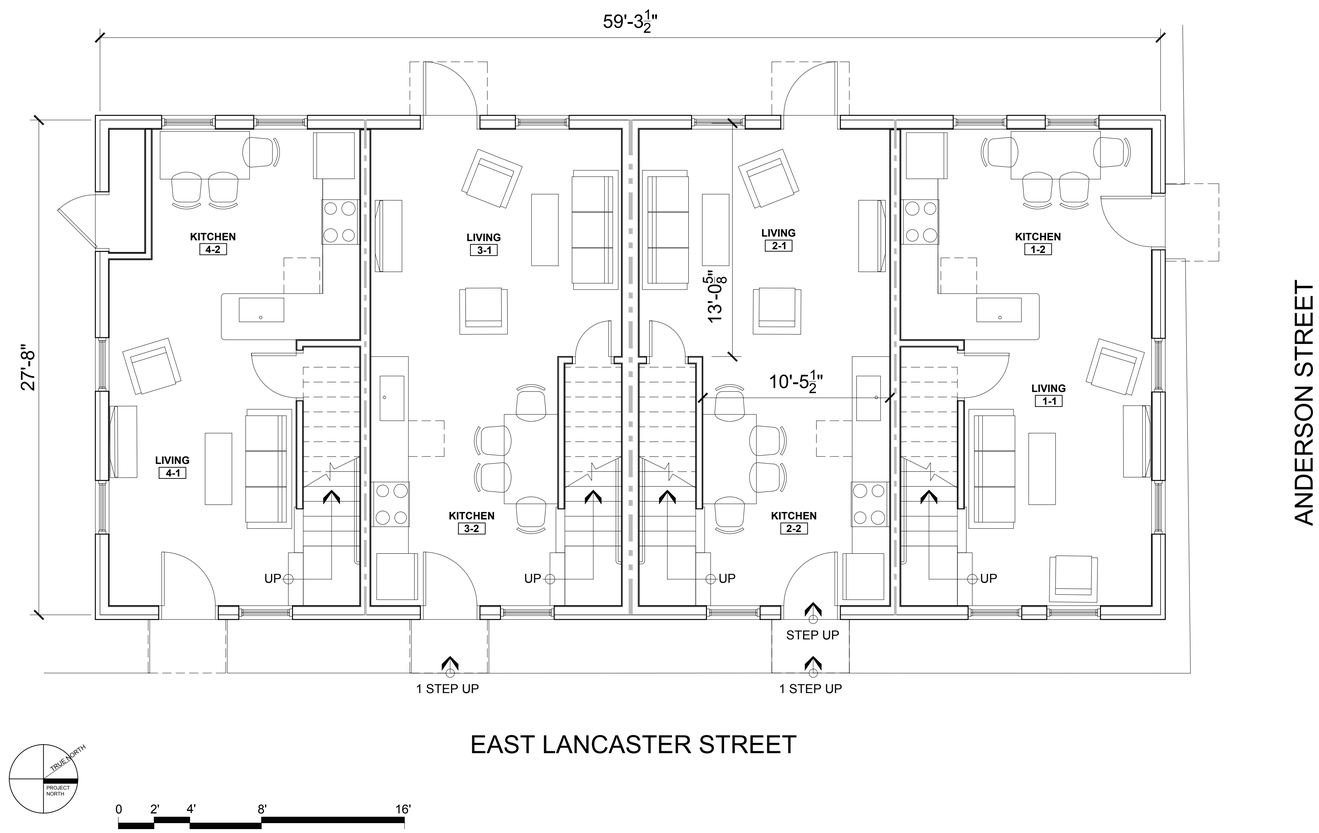
70 ANDERSON ST
REDEVELOPMENT
PORTLAND, MAINE

No:	Revision / Submission	Date:

revisions:
date: APRIL 26, 2016
scale: As Noted
drawn: XX
checked: XX

L1.0

SCHEMATIC DESIGN



1 FIRST FLOOR PLAN
1/4" = 1'-0"

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25 APRIL, 2016

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APARTMENTS
70 ANDERSON STREET
PORTLAND, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
565 CONGRESS STREET
PORTLAND, MAINE 04101
207-650-6414

CONSULTANTS

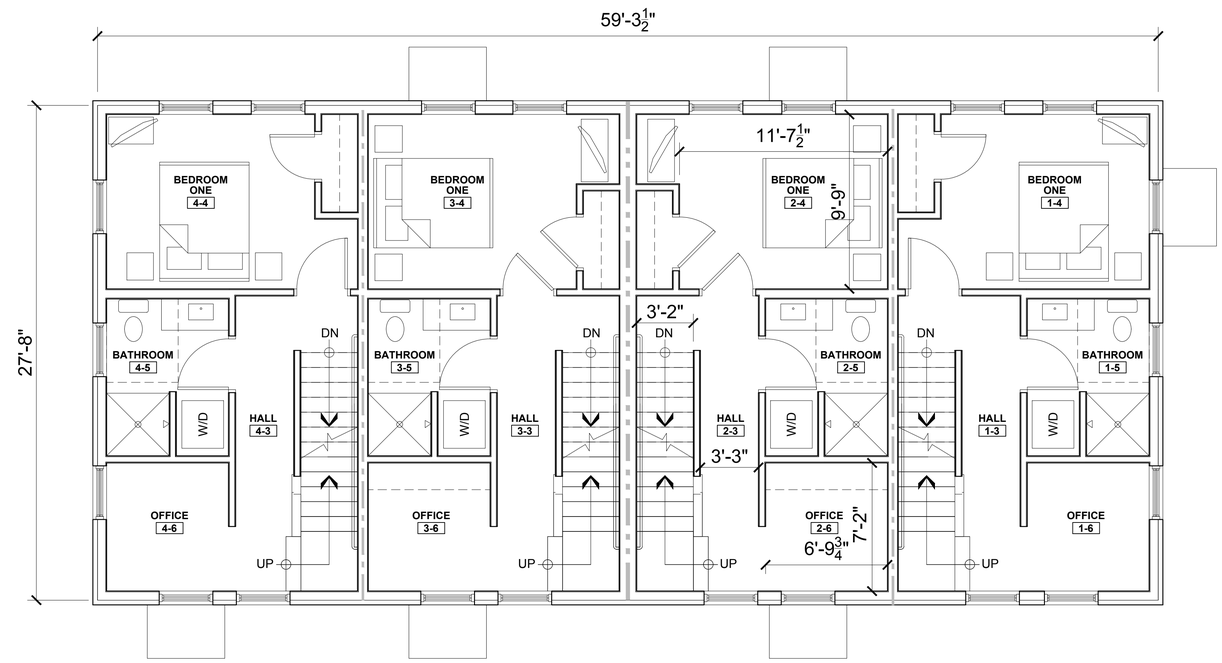
STRUCTURAL:
Structural Integrity
77 O S
P ME 04101
207-774-4614

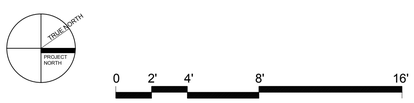
REVISIONS

DATE	
PROJECT NO.	1616
DRAWN BY	RRT, RJS
CHECKED BY	RJS
SCALE	AS NOTED

SHEET TITLE
BUILDING A
FIRST FLOOR
PLAN

A1-1A





1 SECOND FLOOR PLAN
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CONSULTANTS

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REVISIONS

DATE	
PROJECT NO.	1616
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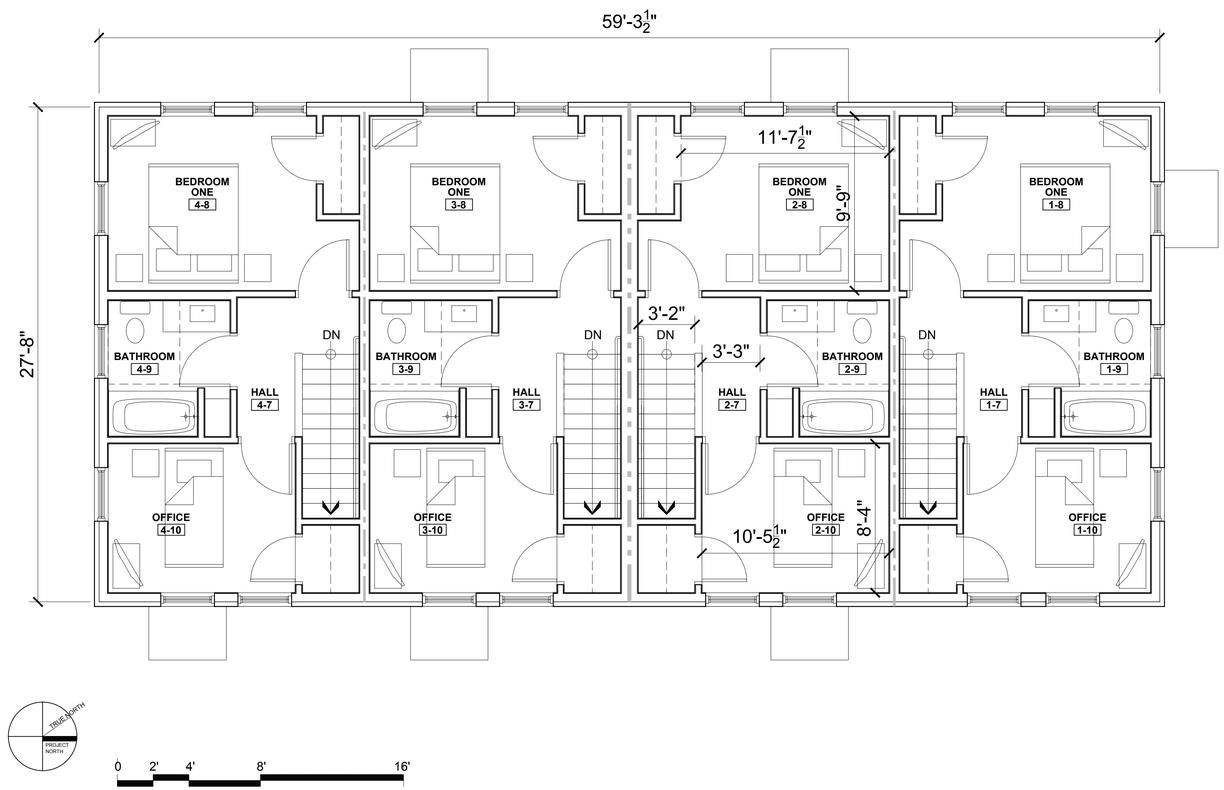
SCALE	AS NOTED

SHEET TITLE
BUILDING A - SECOND FLOOR PLAN

A1-2A



1 THIRD FLOOR PLAN
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CONSULTANTS:
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REVISIONS:

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PROJECT NO.:	1616
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SCALE:	AS NOTED

SHEET TITLE:
BUILDING A
THIRD FLOOR
PLAN

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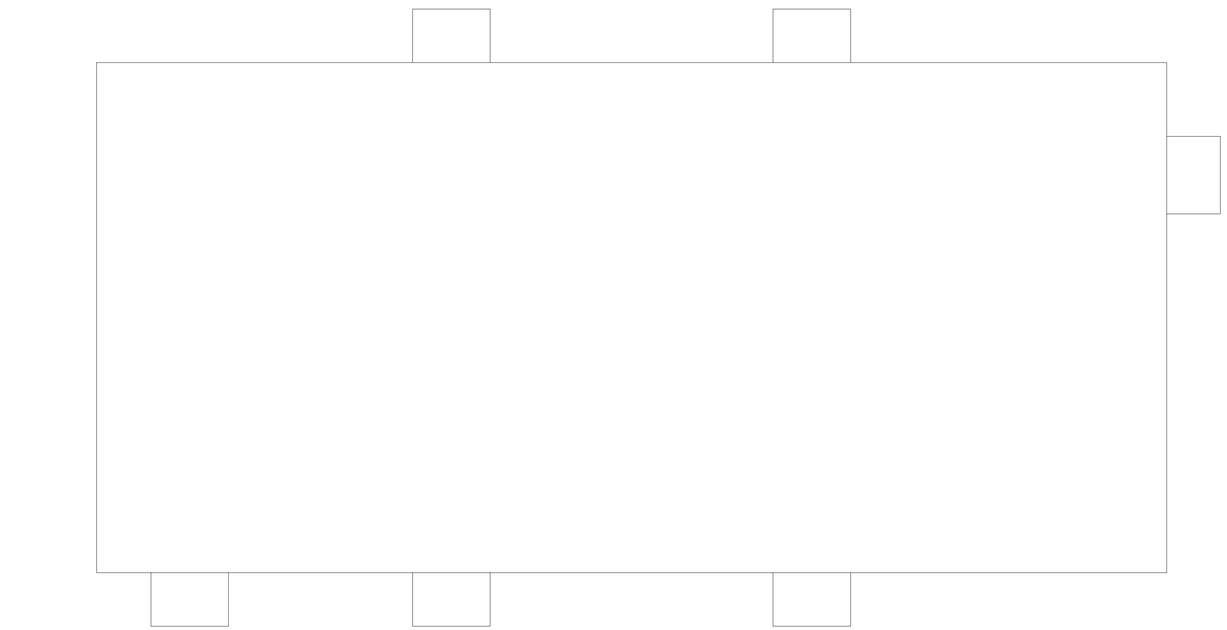

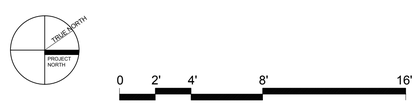

1 ROOF PLAN
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207-650-6414

CONSULTANTS

STRUCTURAL:
Structural Integrity
77 O[illegible] S[illegible]
P[illegible]d, ME 04101
207-774-4614

REVISIONS

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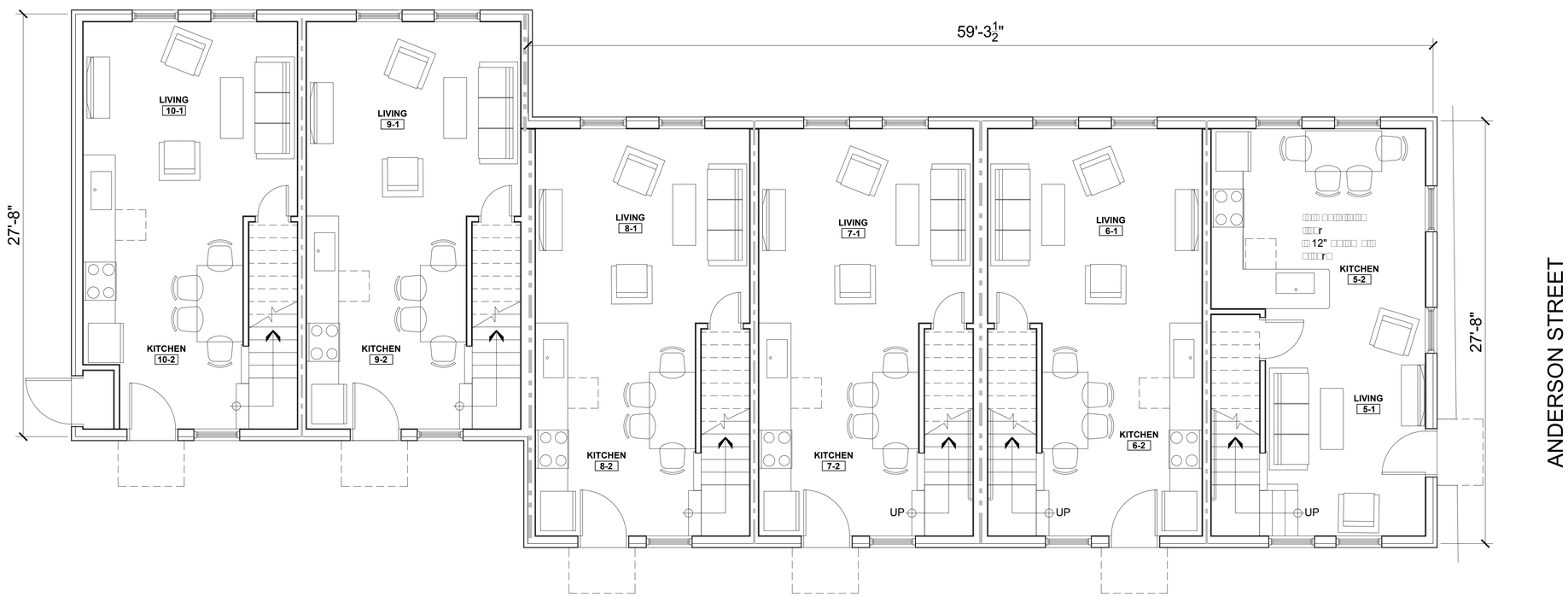
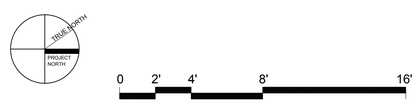
SCALE	AS NOTED

SHEET TITLE
BUILDING A
ROOF PLAN

A1-4A





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ARCHITECTURE
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207-650-6414

CONSULTANTS

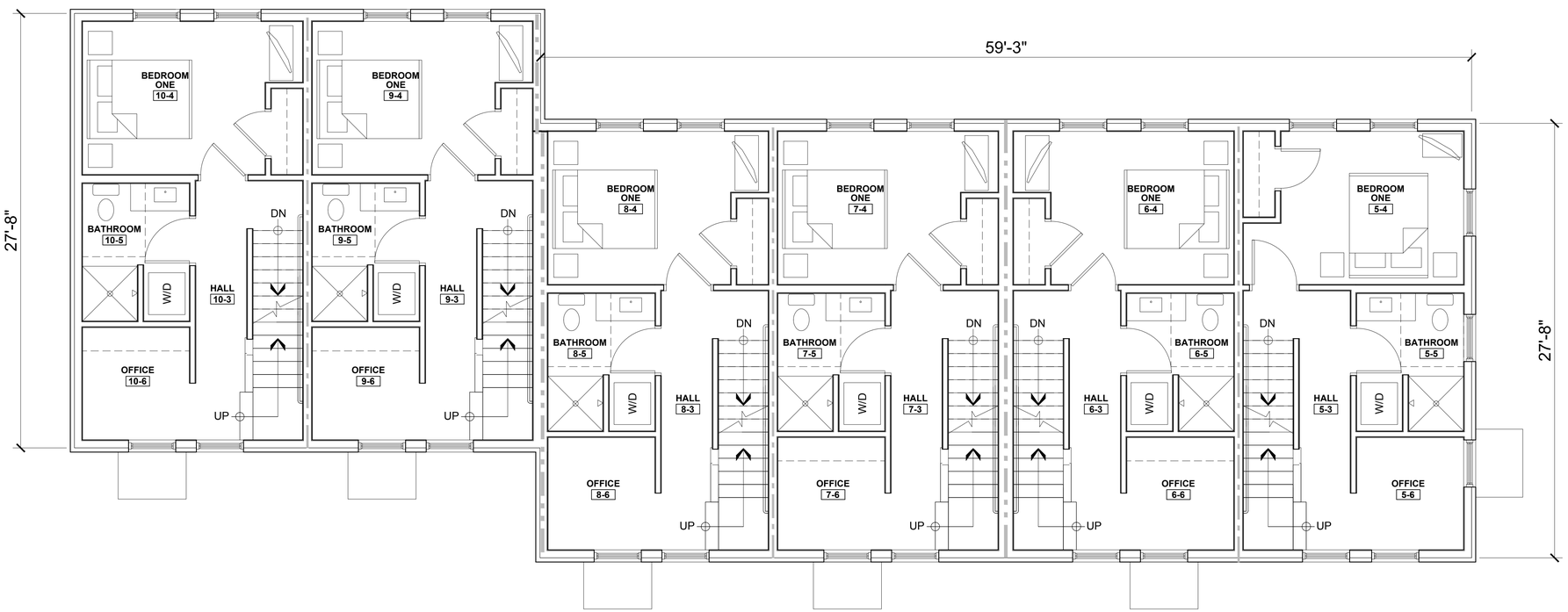
STRUCTURAL:
Structural Integrity
77 O[illegible] St[illegible]
P[illegible]d, ME 04101
207-774-4614

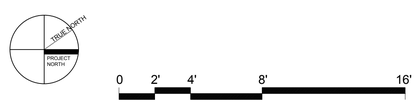
REVISIONS

DATE	
PROJECT NO.	1616
DRAWN BY	RRT, RJS
CHECKED BY	RJS
SCALE	AS NOTED

SHEET TITLE
BUILDING B
FIRST FLOOR
PLAN

A1-1B





1 SECOND FLOOR PLAN
1/4" = 1'-0"

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APARTMENTS

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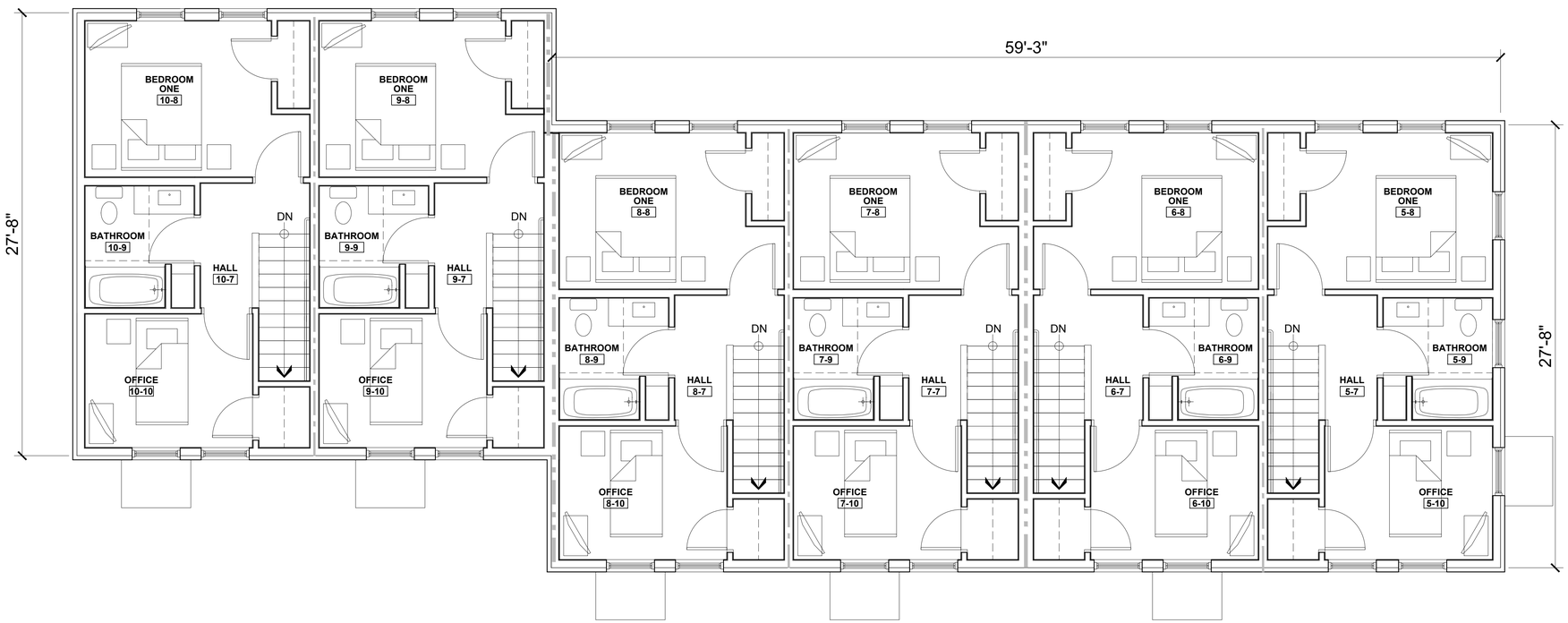
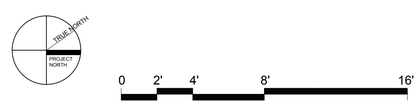
SHEET TITLE:
BUILDING B
SECOND FLOOR
PLAN

A1-2B





1 THIRD FLOOR PLAN
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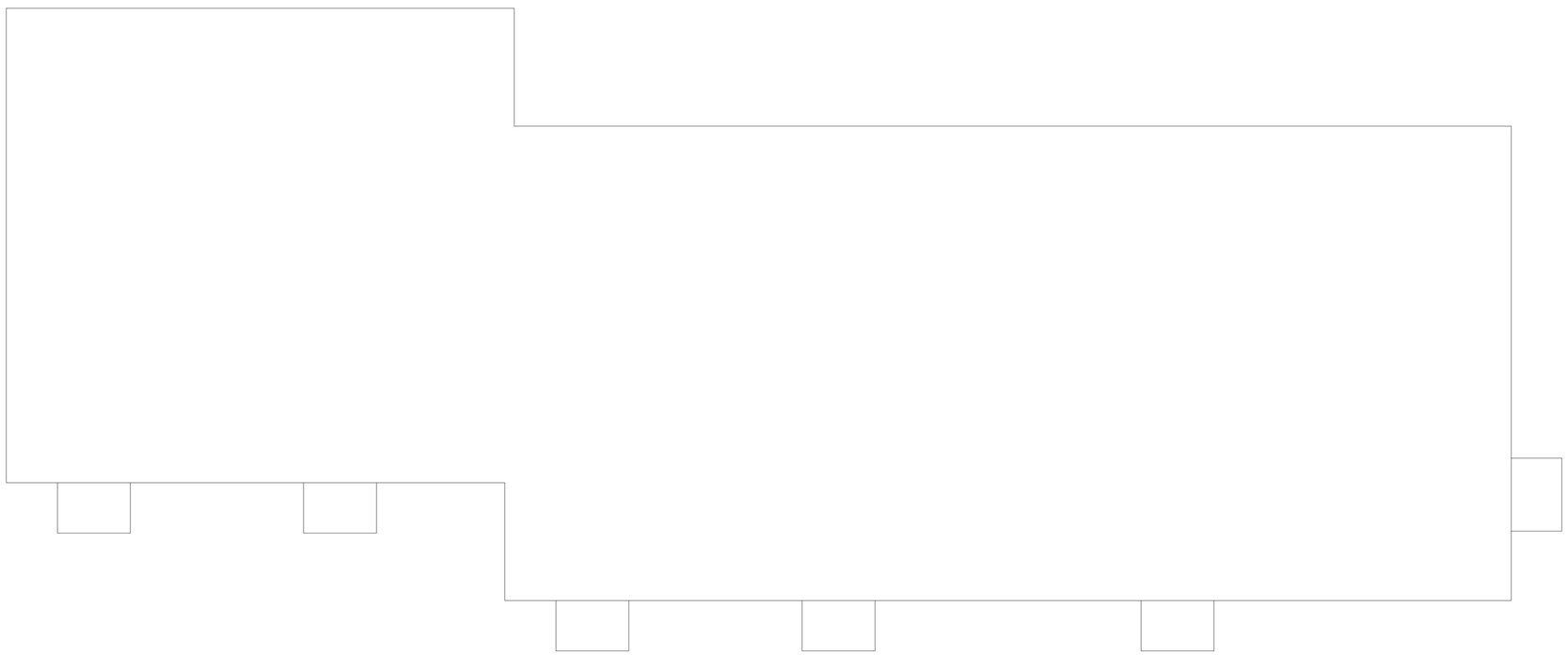
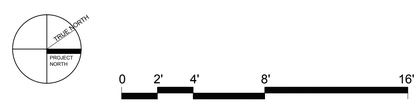
SHEET TITLE
BUILDING B
THIRD FLOOR
PLAN

A1-3B





1 ROOF PLAN
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207-774-4614

REVISIONS

DATE

PROJECT NO.	1616
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SCALE	AS NOTED

SHEET TITLE
BUILDING B
ROOF PLAN

A1-4B

70 ANDERSON

APRIL 26, 2016

VIEW LOOKING EAST ON ANDERSON STREET

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REDFERN PROPERTIES

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70 ANDERSON

APRIL 26, 2016

VIEW LOOKING WEST ON ANDERSON STREET

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REDFERN PROPERTIES

RYAN SENATORE ARCHITECTURE

70 ANDERSON

APRIL 26, 2016

VIEW LOOKING SOUTH ON MADISON STREET

REDFERN PROPERTIES

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70 ANDERSON

APRIL 26, 2016

VIEW LOOKING NORTH ON EAST LANCASTER STREET

REDFERN PROPERTIES

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70 ANDERSON

APRIL 26, 2016

NORTH EAST ELEVATION VIEW

SOUTH EAST ELEVATION VIEW

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REDFERN PROPERTIES

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70 ANDERSON

APRIL 26, 2016

SOUTH WEST ELEVATION VIEW

NORTH WEST ELEVATION VIEW

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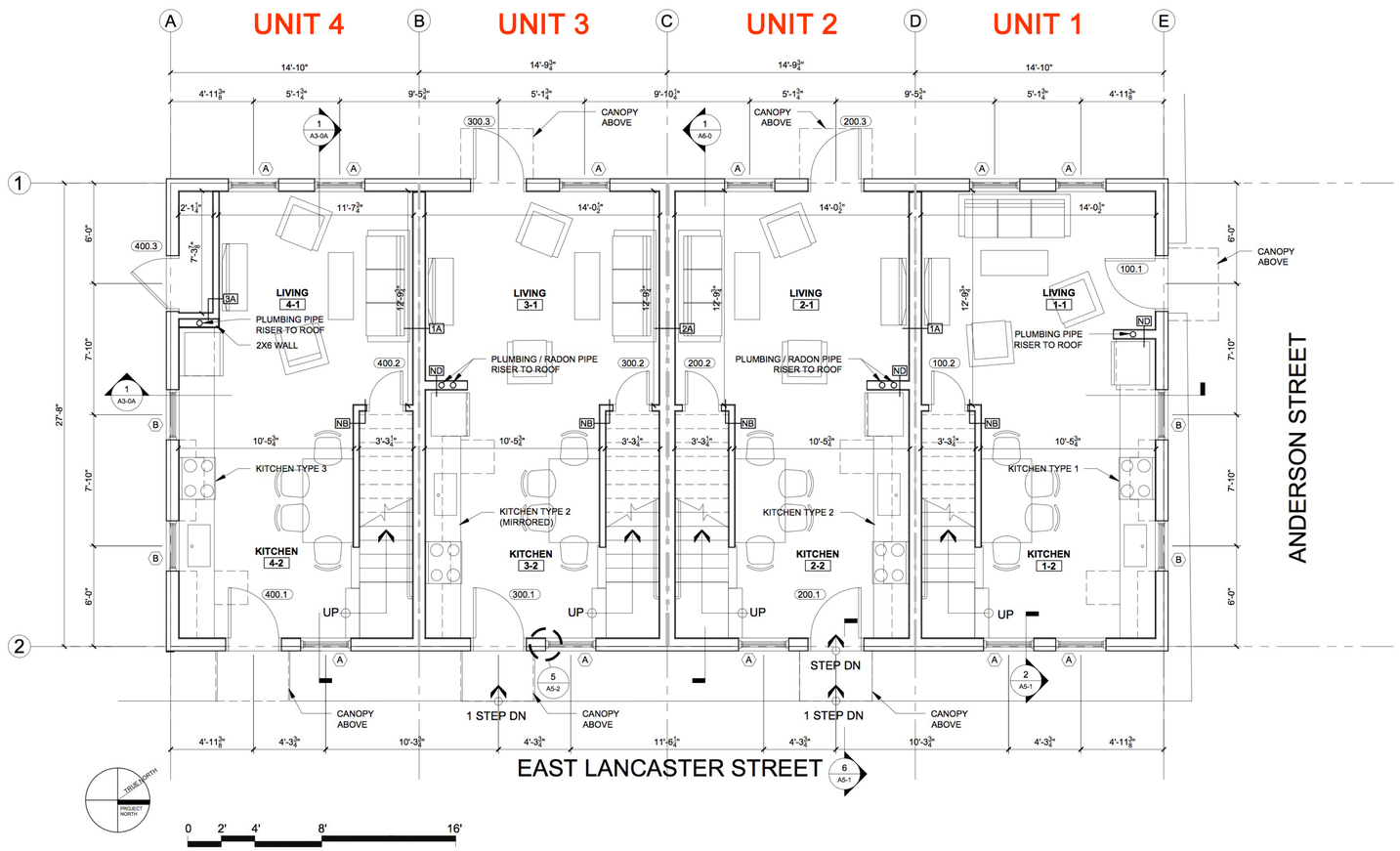
REDFERN PROPERTIES

RYAN SENATORE **ARCHITECTURE**

NOTES:
1.) ALL UNITS ARE 1,254 SF WITH 3 BEDROOMS
2.) INTERIOR STANDARD FOR UNITS FOR MARKET RATE AND WORKFORCE HOUSE ARE ALL THE SAME



1 FIRST FLOOR PLAN
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REVISIONS:

DATE:

PROJECT No.	1616
DRAWN BY:	RRT, RJS
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
BUILDING A FIRST FLOOR PLAN

A1-1A

NOTES:
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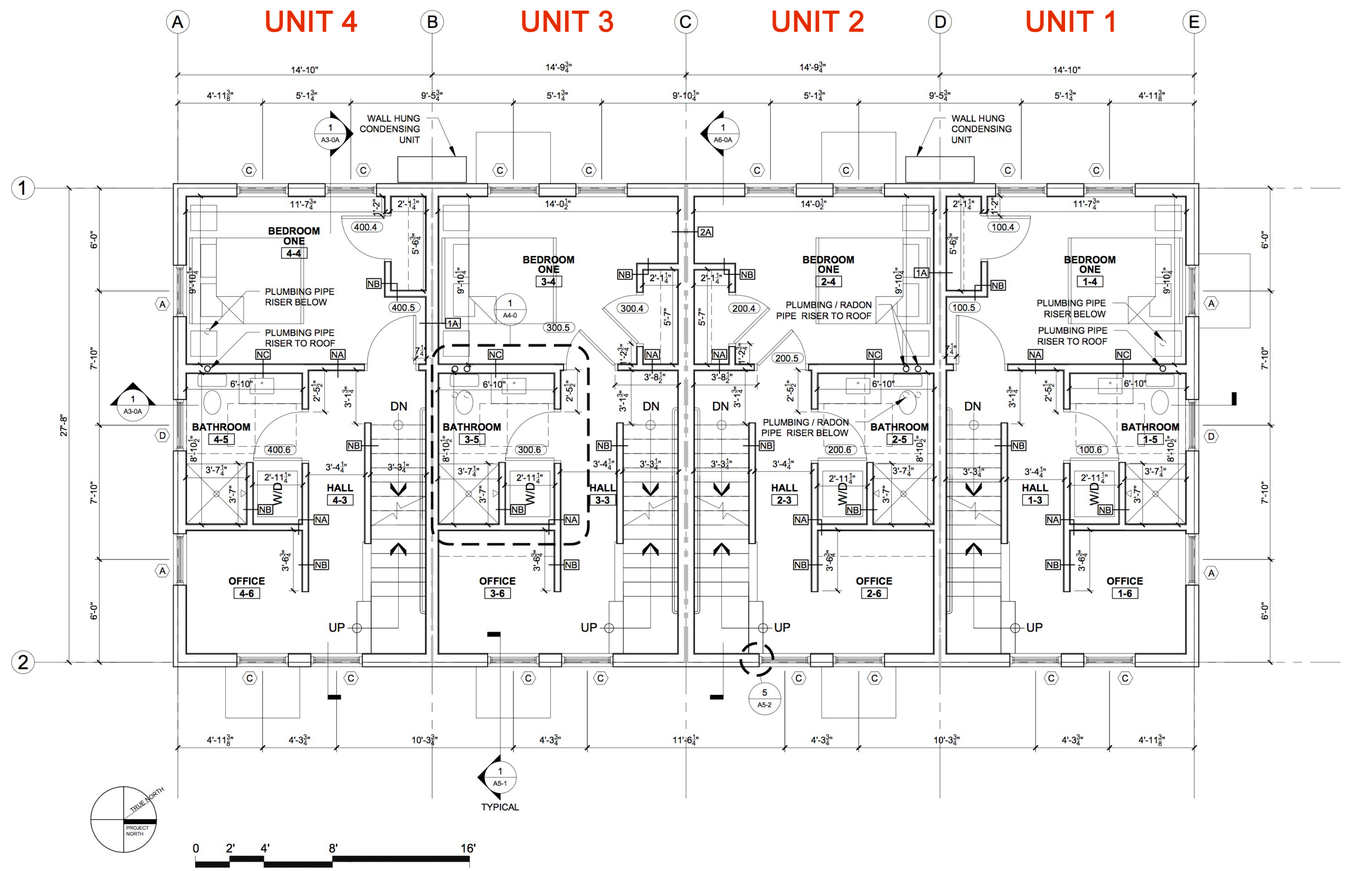

1 SECOND FLOOR PLAN
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REVISIONS:

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SCALE:	AS NOTED

SHEET TITLE:
BUILDING A SECOND FLOOR PLAN

A1-2A

NOTES:
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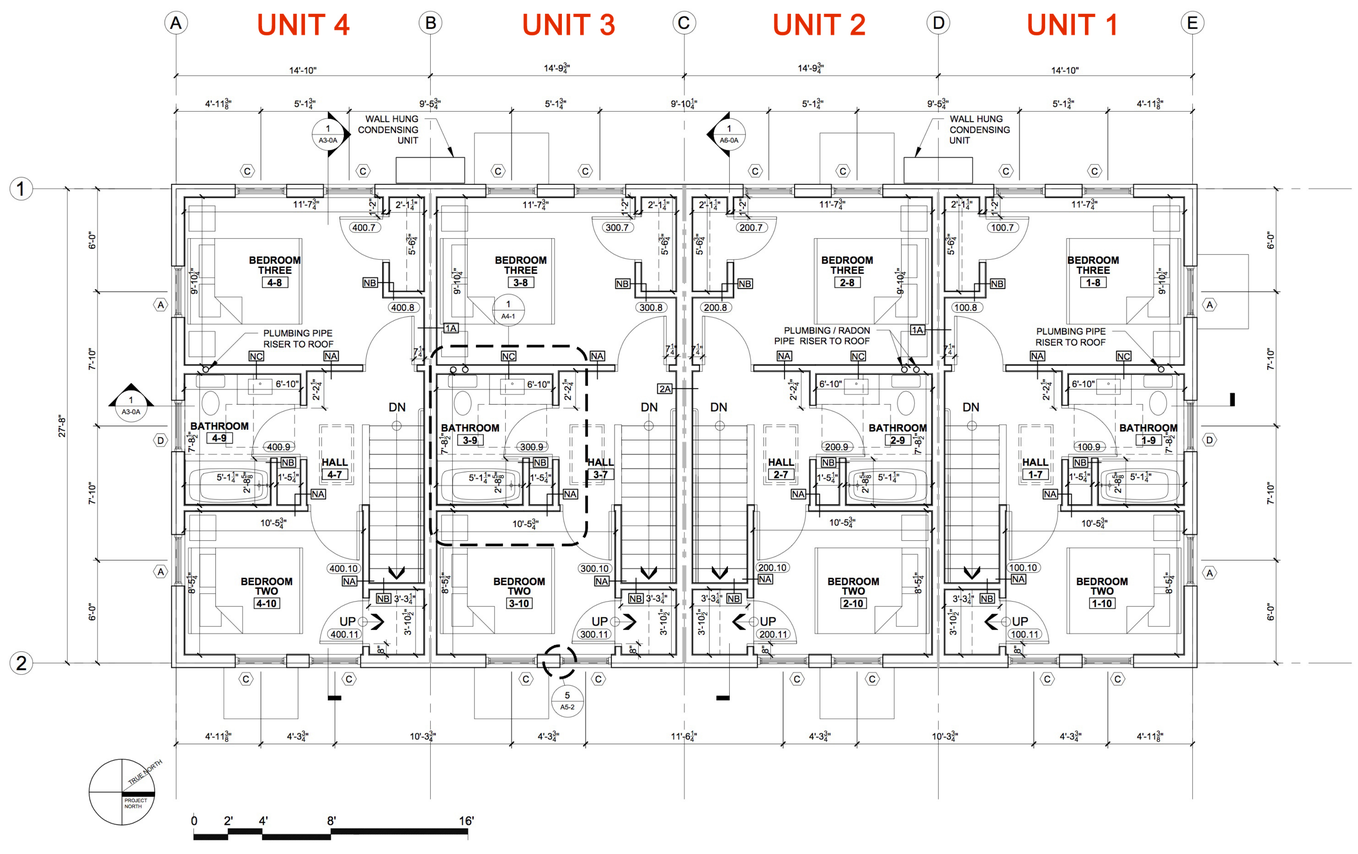

1 THIRD FLOOR PLAN
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SHEET TITLE:
BUILDING A THIRD FLOOR PLAN

A1-3A

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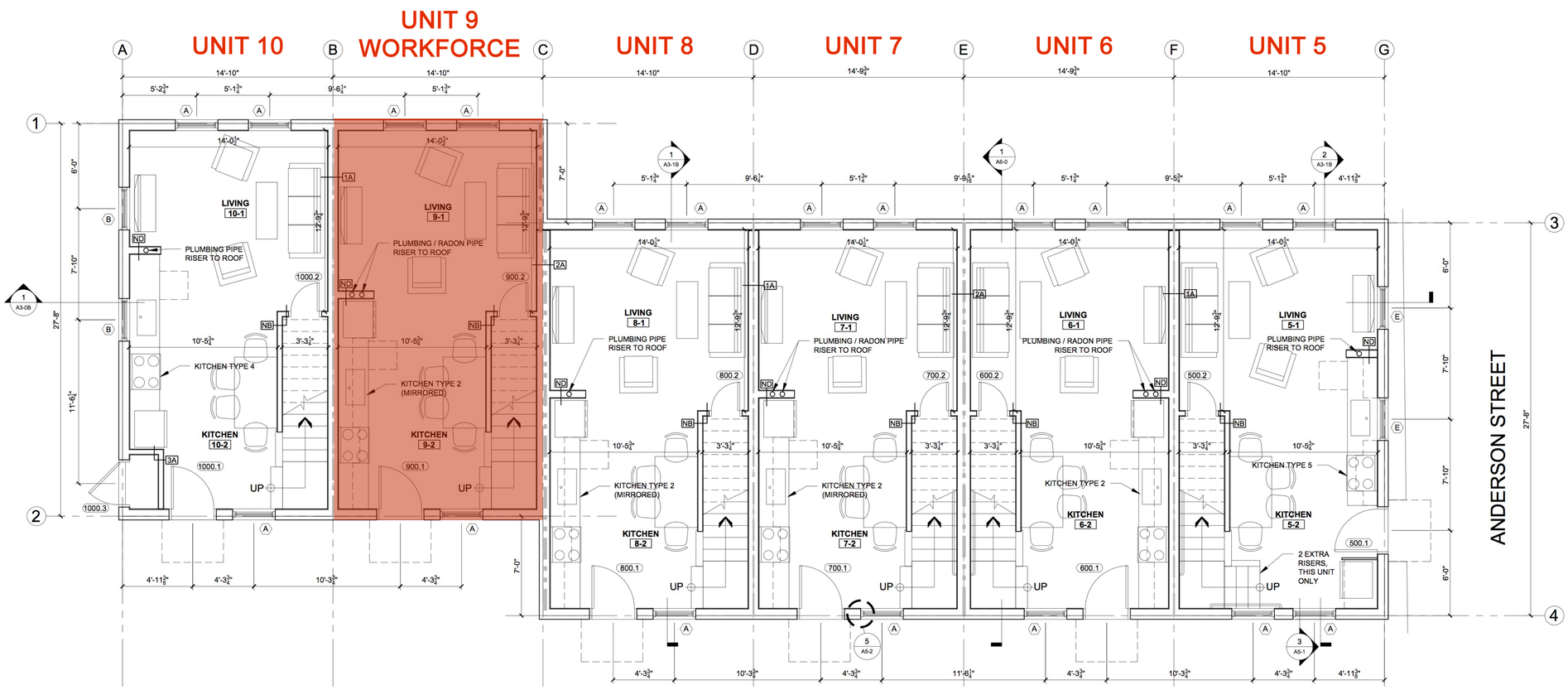

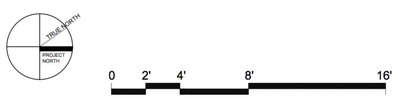

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SHEET TITLE:
BUILDING B
FIRST FLOOR PLAN

A1-1B

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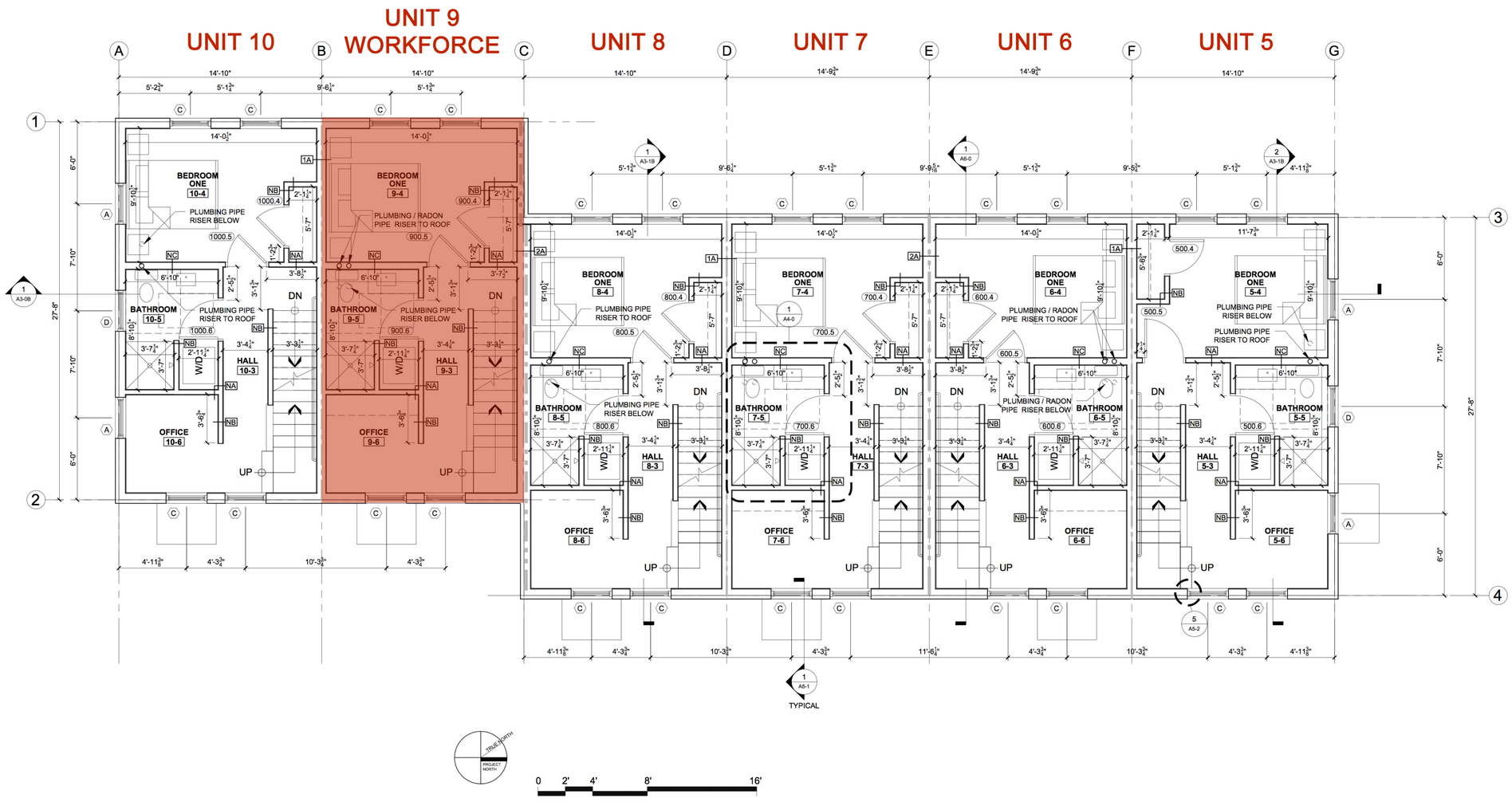

1 SECOND FLOOR PLAN
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SHEET TITLE:
BUILDING B
SECOND FLOOR
PLAN

A1-2B

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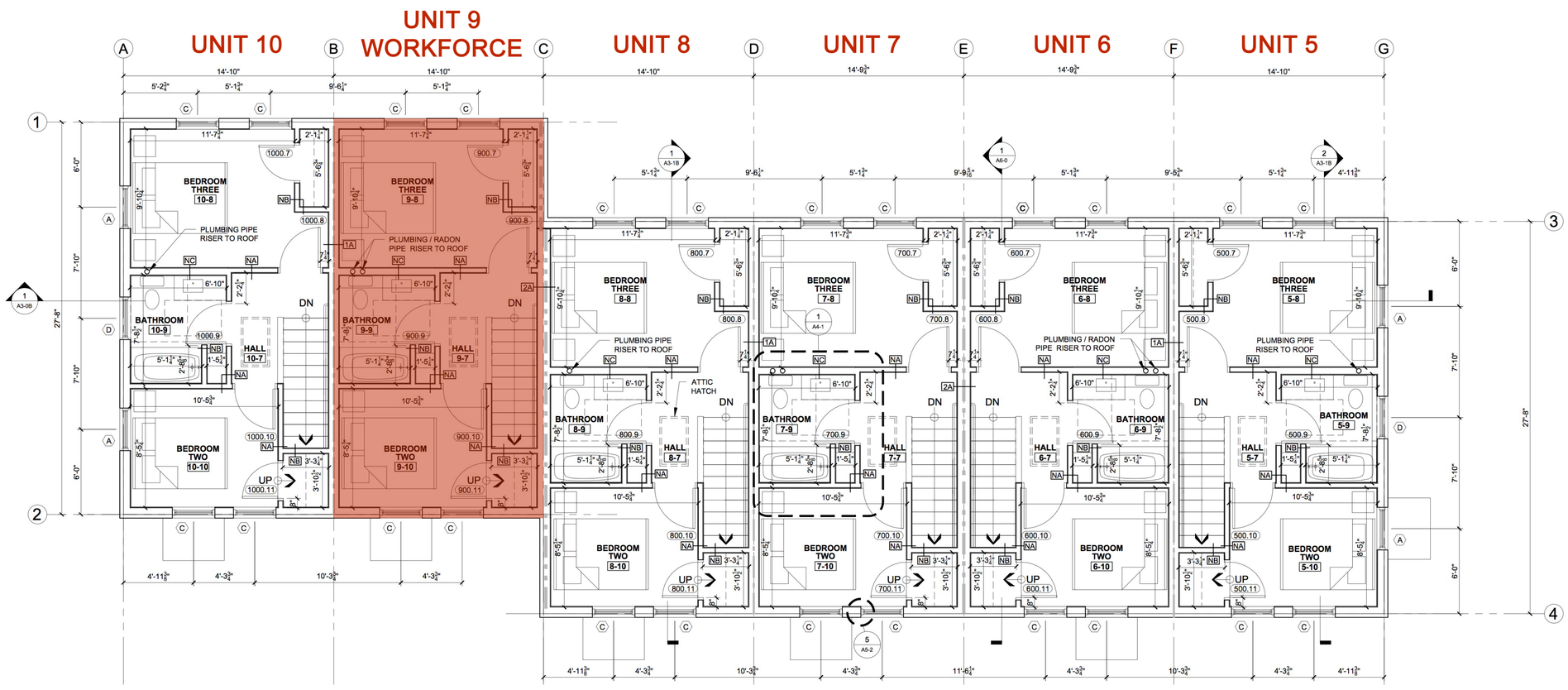

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SHEET TITLE:
BUILDING B
THIRD FLOOR
PLAN

A1-3B

Memorandum
Planning and Urban Development Department
Planning Division

To: Elizabeth Boepple, Chair, and Members of the Portland Planning Board
From: Nell Donaldson, Planner
Date: July 21, 2016
Re: Mixed-Use Development, 23 Ocean Avenue
Project #: 2016-150 **CBL:** 129-G-1
Meeting Date: July 26, 2016

I. INTRODUCTION

23 Ocean Avenue Association, LLC has requested a preliminary Level III site plan and subdivision review for a mixed-use development at 23 Ocean Avenue, at the corner of Ocean Avenue and Hersey Street near Woodford's Corner. The proposed 7,000 SF development includes approximately 2,400 SF of office space on the basement level and first floor, and four two-bedroom apartments on the second and third floors. The proposal also includes new sidewalks on Ocean Avenue and Hersey Street, 10 off-street parking spaces with a lease for additional off-site parking, landscaping, and stormwater treatment. The site is currently occupied by a former residential building which has been converted to office use and a large lawn area. This open space would be developed under the proposal. The existing office building would remain.

This development is being referred to the Planning Board for compliance with the site plan and subdivision standards of the land use code. A total of 144 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on July 18 and 19, 2016.

Applicant: Steve and Roberta Cope, 23 Ocean Avenue Association, LLC
Consultants: Kevin Moquin Architects, Ransom Consulting, Carroll Associates

II. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
Aisle width – to allow 21 foot aisle in parking area	Technical Manual, *Section 1.14*. Aisle width for right-angle parking be 24 feet per *Figure I-27*.
Flooding standard – pertaining to peak flows of discharge from the site	Technical Manual *Section 5*/Maine DEP Chapter 500

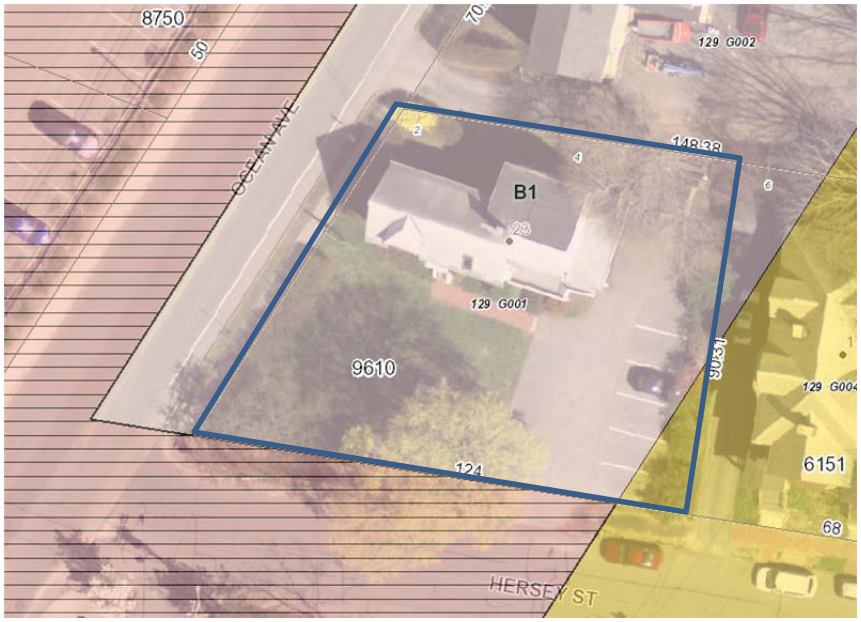
Review	***Applicable Standards***
Site Plan	*Section 14-526*
Subdivision	*Section 14-497*

III. PROJECT DATA

Existing Zoning	B-1/R-3
Existing Use	Office
Proposed Use	Mixed use (office and residential)
Proposed Development Program	App. 2,400 SF office ; App. 4,700 SF residential (4 2-br apartment units); App. 220 SF storage
Parcel Size	9,519 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	1,030 SF	2,730 SF	1,700 SF
Building Floor Area	1,580 SF	10,220 SF	8,640 SF
Impervious Surface Area	4,036 SF	6,396 SF	2,360 SF
Parking Spaces	5	10 on-site and 15 off-site (14 required)	20
Bicycle Parking Spaces	0	6	6
Estimated Cost of Project	$1,000,000		

Figures 1, 2, and 3 (Clockwise from top right):
23 Ocean Avenue from above, showing existing building in office use;
Site from the corner of Ocean Ave./Hersey St.;
Zoning context



IV. BACKGROUND & EXISTING CONDITIONS

23 Ocean Avenue lies at the intersection of Ocean Avenue and Hersey Street where Woodford's Corner meets the residential neighborhood of Back Cove. The Woodford's Corner Rite Aid sits directly across Ocean Avenue from the site and Thurston's Burgers lies directly to the south across Hersey Street, yet residential uses abut the site to the east and north. The site was originally developed for residential use, but the original home has since been repurposed for office. The majority of the site is zoned B-1, with a small sliver in the southeast corner lying in the R-3 zone.

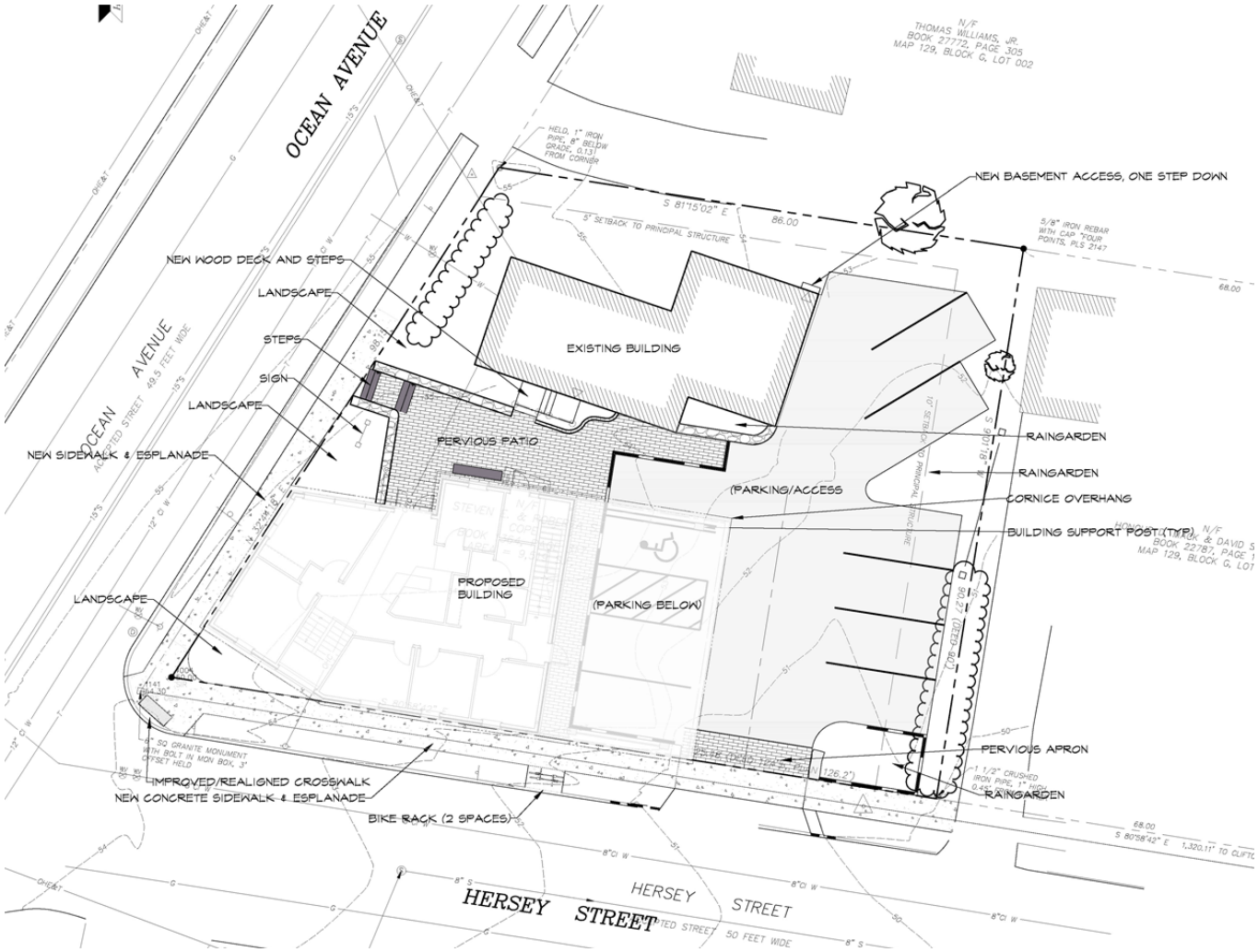


Figure 4: Preliminary site plan

V. PROPOSED DEVELOPMENT

The applicant proposes to develop the existing, undeveloped portion of the lot with a 7,000 SF building including 2,400 SF of office space on the basement and first levels and four 2-bedroom apartment units on the top two floors. The main entrances for both uses would front a pervious patio courtyard area at the interior of the site, which would be shared with the existing office use. Vehicular access would be provided via an existing curb cut from Hersey Street. Ten parking spaces are proposed on site and 15 additional spaces would be leased off-site. New concrete sidewalks are proposed on Ocean Avenue and Hersey Street. The plans also include landscaping around the proposed building. Stormwater treatment would be managed through rain gardens near the parking area. Utilities are generally proposed to and from Hersey Street, with the gas and electrical connections to Ocean Avenue.

VI. PUBLIC COMMENT

The Planning Division has received no public comments on the submittal. The applicant is not required to host a neighborhood meeting, since only four residential units are proposed.

VII. RIGHT, TITLE, & INTEREST

The applicant's submittal includes a deed as evidence of right, title, and interest *(Attachment E)*. A license is proposed for encroachments into the right-of-way for the purposes of footings and cornices. A public access easement will also be necessary for areas of sidewalk which are depicted on private property on the site.

VIII. FINANCIAL & TECHNICAL CAPACITY

The estimated cost of the development is approximately $1 million. The applicant has not provided evidence of financial capacity at this time. This documentation will be required at the time of final review.

IX. ZONING ANALYSIS

The applicant has provided a zoning analysis documenting that the plans meet the dimensional requirements of the B-1 zone, including the front yard maximum of 10 feet and the maximum height of 35 feet *(Attachment D).* It should be noted that the elevations show a stair tower extending above the roofline of the building, and above the permitted height limit. Stair towers are permitted to extend beyond the height limit per *Section 14-430* of the city code.

X. SITE PLAN SUBMISSION REQUIREMENTS *(Section 14-527)* and SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS *(Section 14-496)*

Per the city's land use ordinance, the following materials should be included in the final plan submission:

- A subdivision plat meeting all plat requirements as noted in *Section 14-496*, depicting all proposed easements and licenses, zone lines, and references to the proposed stormwater management features and associated maintenance agreement.

  The draft plat has been reviewed by William Clark, the city's surveyor, who has provided a markup *(Attachment 1)* and made the following comments:

  1. The sidewalk at corner of Ocean Ave and Hersey St shows as being constructed on the private property. Currently the sidewalk is within the City street ROW limits for Ocean Ave and Hersey St. If it is expanded onto the private property the City will need a public easement for that area and a detail on the plan showing bearings, distances, and curve data for the easement metes and bounds description.

  2. The proposed aerial licenses in Ocean Ave and Hersey St will need bearings, distances, and curve data added to the plan for the license metes and bounds descriptions. The vertical clearance in the license areas will also need to be stated.

- Final plan submittal requirements as noted in *Sections 14-527(e) and (f)*, including a site plan stamped by a licensed engineer.

XI. SUBDIVISION REVIEW *(14-497(a). Review Criteria)*

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's subdivision ordinance. Staff comments are below.

1. Water, Air Pollution

Lauren Swett, consulting civil engineer, has reviewed the plans relating to stormwater runoff and water quality *(Attachment 2).* Her comments are discussed in detail under site plan review below. No detrimental water or air quality impacts are anticipated.

2 & 3. Adequacy of Water Supply

The plans show water service from an existing 8-inch main in Hersey Street. The applicant has provided evidence of water capacity *(Attachment J).*

4. Soil Erosion

No unreasonable soil erosion or reduction in the capacity of the land to hold water is anticipated.

5. Impacts on Existing or Proposed Highways and Public Roads

The applicant has not provided traffic analysis in their preliminary submittal. Tom Errico, the city's consulting traffic engineer, has provided comments on potential traffic impacts, which are discussed in detail under site plan review below.

6. Sanitary Sewer/Stormwater Disposal

One 6-inch sewer line is proposed to service the building; this line would outlet to Hersey Street. The applicant has submitted a wastewater capacity application to the Department of Public Services *(Attachment J)*. Verification of capacity will be required at the time of final plan review.

As noted above, a stormwater management plan has been provided. Ms. Swett's comments on the proposed plan are discussed in detail under site plan review below.

7. Solid Waste
The applicant has proposed curbside trash and recycling. No dumpster is proposed. The applicant writes that "[t]enants will be informed of collection day and appropriate interim on-site storage of waste and recycling" *(Attachment D)*. Staff has requested that the applicant identify the location of interim on-site storage.

8. Scenic Beauty
This proposal is not deemed to have an adverse impact on the scenic beauty of the area.

9. Comprehensive Plan
The applicant's narrative argues that the project would achieve a number of goals of the city's Comprehensive Plan, including goals related to housing and neighborhood stability and integrity. The applicant also cites the Woodford's Corner Public Improvement Plan and Transforming Forest Avenue, which called for improvements that "promote livability, economic vibrancy, and mobility in Woodford's Corner" *(Attachment D).*

10. Financial and Technical Capacity
As noted above, evidence of financial capacity will be required at the time of final review.

11. Wetland/Water Body Impacts
There are no wetlands or water bodies on or immediately proximate to the site.

12. Groundwater Impacts
There are no anticipated impacts to groundwater supplies.

13. Flood-Prone Area
Per the city's existing flood maps, the site is not located in a flood zone.

XII. 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

As noted above, the applicant has not provided an analysis of the potential traffic impacts of the proposed development. Mr. Errico has reviewed the plans and writes,

> *The applicant should provide a summary of the anticipated trip generation increase expected during the AM and PM peak hours following project completion. While I do not expect the project to significantly impact the public street system, I do believe documentation of traffic volumes changes is necessary.*
>
> *The applicant should provide a review of safety data in the immediate vicinity of the project.*

b. Access and Circulation

The plans include new concrete sidewalks on the length of the site's Hersey Street frontage and the majority of the site's Ocean Avenue frontage. Mr. Errico writes,

> *The plans do not include full replacement of the sidewalk on Ocean Avenue along the entire property frontage. The applicant should either include full sidewalk replacement or document justification for the current proposal.*

The applicant has proposed to provide a new detectable warning panel and "improved/realigned crosswalk" across Hersey Street at the Ocean Avenue intersection as well. Mr. Errico writes,

> *Further review of the sidewalk ramp configuration is required. I would suggest that a fully ADA compliant ramp be provided on the opposite side of Hersey Street.*

The major building entrances are proposed from Ocean Avenue via a patio at the interior of the site, which sits below the sidewalk elevation and thus is accessible via stair. Staff has requested that the applicant provide evidence of accessibility to building entrances.

The preliminary plans show continued use of an existing curb cut from Hersey Street. Mr. Errico has reviewed this driveway location and writes,

> *I find the driveway location and configuration to be acceptable given existing site conditions. A detail for the driveway shall be provided that notes that the crossslope shall not exceed 2%.*

Regarding vehicular circulation on the site, however, he writes,

> *I would prefer that backing maneuvers onto Hersey Street not be required and thus the applicant should either provide a layout that allows for onsite vehicle circulation – for headout egress, or supporting documentation on the proposed circulation condition.*

The applicant has requested a waiver for parking lot aisle width. Mr. Errico writes,

> *The applicant is requesting a waiver for parking lot aisle width (21 feet versus the City standard of 24 feet). The applicant should provide documentation that supports the waiver request.*

c. *Public Transit Access*
No accommodation for public transit is required.

d. *Parking*
Division 20 of the land use ordinance requires parking for residential uses at a ratio of two/unit off-peninsula and one/ 400 SF of usable area for office uses. At these ratios, 14 parking spaces are required. The applicant has proposed 10 of these spaces in a surface parking area on site. For the remainder, it has provided a lease at the Woodford's Club, 1,200 feet distant and across Woodford's Corner *(Attachment I)*. Technically, this is permissible per Section 14-334 of the city's ordinance, which allows the Planning Board to approve off-street parking within 1,500 feet upon presentation of a lease agreement. Mr. Errico has not yet reviewed this lease. Of the parking arrangement in general, he writes,

> *The applicant is proposing to meet parking demand needs via leased parking spaces off Woodford Street west of Forest Avenue. Given on street parking regulations, it is my professional opinion that occupants of the project site will park on Hersey Street given parking availability and convenience. Recognizing this factor, the applicant should provide a detailed parking demand and supply management plan that realistically proposes parking conditions. I would note that I'm open to the idea of shared parking given site uses, if it works from a management perspective. Further coordination and review on this subject is needed.*

e. *Transportation Demand Management*
A transportation demand management plan is not required.

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 applicant's landscape plans show a mix of evergreens, grasses, and deciduous shrubs along the Ocean Avenue and Hersey Street frontages, as well as climbing hydrangeas to screen the under-building parking and assorted perennials on the eastern property line. Staff has requested that the applicant consider more robust planting on the eastern property line, where the site abuts a residential zone and use. Jeff Tarling, the city's arborist, writes,

> *[P]arking lot on Hersey Street should have a 4' buffer with plant material at back of sidewalk. A smaller 3' or 2' buffer might not make it. Ideally like to see woody shrub planting but could do ornamental grasses. Wood guardrail on the parking lot side is needed to protect this space from vehicles, snow etc. Without protection plant material would likely be damaged. This buffer on the residential side is more important then the more commercial Ocean Avenue side. Add a couple of trees on the parking lot edge to buffer parking lot from next door residential use. See photos (Attachment 4).*

The applicant has also proposed five street trees in the esplanade on Ocean Avenue and four in the esplanade on Hersey Street, more than sufficient to meet the street tree requirement. Of these, Mr. Tarling writes,

> *The existing esplanade width is problematic just too narrow to support Street trees on both sides, Ocean & Hersey Street. I checked the entire length of Ocean Avenue and no existing street trees, also this is a busy truck / commercial vehicle route and tree canopy even on an upright tree would unlikely to survive. Snow storage in winter along with deicing salts, this sidewalk route is on our priority school walk route and we plow so we need as much space as possible. Thus we would like to see 'setback' tree planting in available spaces.*

c. Water Quality/Storm Water Management/Erosion Control

The site is currently occupied by a residential structure which has been converted to office use, a surface parking lot, and a landscaped lawn area. The project will disturb approximately 7,170 SF of the parcel and result in a total impervious area of approximately 6,400 SF, or an increase of 2,360 SF. As such, the applicant has provided a stormwater management plan outlining their approach for managing and treating stormwater on the site *(Attachment H)*. Portions of the proposed parking lot and existing building roof are proposed to drain to a rain garden within the parking area on the site's eastern property line. The entire roof of the proposed building and half of the roof of the existing building, as well as the new building's foundation drain, would be piped into an underdrain which daylights to another rain garden in the parking area along Hersey Street. The underdrain in this rain garden is proposed to connect to the existing combined sewer in Hersey Street. Pervious pavers are proposed in the patio and driveway apron.

Ms. Swett has reviewed the design of this system and provided the following comments,

> *Plans, notes, and details should be 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 applicant has provided details, and notes indicating erosion control requirements, but we recommend the addition of erosion and sedimentation control locations on the plans and additional notes on inspection and maintenance requirements should be added to the plans to be in conformance with the standards.*
>
> *The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing to install rain gardens, pervious pavers, and underdrained roof drain collection systems on the site.*

- *The proposed systems are anticipated to provide acceptable stormwater treatment, but the Applicant is required to provide calculations and additional design information verifying compliance with the Maine DEP Chapter 500 and City of Portland Technical Standards Section 5.*
- *The proposed rain gardens do not appear to have any overflow structures or bypass outlets. Applicant should provide model and information indicating the peak water elevations within these systems during storm events, as well as information on infiltration rates at these sites.*
- *The Applicant should provide comment on the potential for these systems to overflow during storm events, and the impact that this may have on their site and adjacent properties.*

The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant has requested a waiver of the flooding standard. The project will result in the creation of greater than 1,000 square feet of new impervious surface, which cannot be considered as a de minimus increase. Additional information, including stormwater calculations and verification of downstream infrastructure capacity to handle any increases in flow, is required before we can consider a potential waiver of the flooding standard.

The Applicant has requested that the outlet from one of the proposed rain gardens on the site be connected to the City of Portland combined sewer system in Hersey Street. Per Section 2 of the City of Portland Technical Manual, "the introduction of non-contaminated water such as rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow shall not be allowed to discharge into a sewer which conveys sanitary waste unless approved by the City Engineer." A waiver of this requirement may be considered when no other alternative exists. Before a waiver can be considered for this project, additional information on the anticipated flow quantities must be provided.

3. Public Infrastructure and Community Safety Standards

a. Consistency with Related Master Plans

As noted above, the project is generally deemed consistent with related master plans.

b. Public Safety and Fire Prevention

The applicant has provided a life safety summary for review by the city's Fire Prevention Bureau *(Plan 16).* Per this summary, the building would be fully sprinklered and accessible from two sides. Assistant Fire Chief Keith Gautreau has reviewed the plans and indicated that he has no comments *(Attachment 5).*

c. Availability and Capacity of Public Utilities

As noted above, at the time of final site plan review, the applicant will need to present evidence that there is sufficient sewer capacity to service the office and residential units on the site. Ms. Swett writes,

The Applicant has submitted a City of Portland Wastewater Capacity Application. The Applicant should note that they will be required to provide evidence of capacity to serve and approval of the proposed design from the City of Portland.

The applicant has proposed to connect to existing water and sewer lines in Hersey Street and to provide gas via a line in Ocean Avenue. Electrical service would be provided from an existing overhead line in Ocean Avenue. Staff has advised the applicant that overhead electrical is not permitted, and the applicant will need to coordinate with CMP on the placement of underground utilities. Staff has also requested that the applicant pursue the removal of an existing utility pole on Hersey Street which will no longer be necessary with the removal of overhead lines to the existing building on site. Ms. Swett has reviewed the plans and notes,

The Applicant has indicated on their plans that they will be extending gas and electrical services from meters to be installed on the existing building to remain. The Applicant should provide

verification from both Unitil and CMP that the ability to serve exists, and that the configuration will be acceptable to each utility.

The proposed underground gas and electric utilities will be located beneath an existing hedge located along Ocean Avenue. The site preparation plan notes that the hedge is to remain, and the landscaping plan does not provide any new plantings in this area. The Applicant should comment on the plan for maintaining this existing landscaping with the proposed utility installation

4. Site Design Standards

a. Massing, Ventilation, and Wind Impact
The bulk, location, or height of the building is not likely to result in health or safety problems from a reduction in ventilation to abutting structures. However, staff has requested information on the location of HVAC systems.

b. Shadows
The project will not result in shadow impacts to publicly accessible open spaces.

c. Snow and Ice Loading
The project is not likely to result in snow or ice loading impacts.

d. View Corridors
The project does not lie on a protected view corridor.

e. Historic Resources
There are no historic resources within 100 feet.

f. Exterior Lighting
The applicant has provided a photometric plan and lighting cut sheets which meet the standards of the Technical Manual *(Plan 17 and Attachment K)*. Staff is coordinating with current work in Woodford's Corner on the need for street lights.

g. Noise and Vibration
As noted above, staff has requested information on the location of HVAC equipment.

h. Signage and Wayfinding
One sign is depicted on the site plan near the patio entrance. This sign is intended to serve both buildings on the site. The sign will be subject to separate sign permits, and is not being reviewed at this time.

i. Zoning-Related Design Standards
Projects within the B-1 zone are subject to design review, as are all multi-family buildings. The applicant has provided a brief narrative responding to the design guidelines *(Attachment D)*. Caitlin Cameron, the city's urban designer, has provided preliminary comments from a design review *(Attachment 6)*. These comments raise several concerns about the building design, including the treatment of building entrances, windows, and materials. Ms. Cameron writes,

B-1 Commercial Business Zones

- *Standard (1) c. Building Entrances – We're concerned about visibility of entries from street – can office entrance be located closer to or on one of the streets? If not, visual cues from the street are needed, especially from the corner approach and indicating ADA route.*
- *Standard (1) d. Windows – Façade character of the office portion of the building places fenestration with wrong emphasis – why are the largest windows at the stair instead of the active spaces? Corner approach should be made more open or active with fenestration. The office fenestration pattern versus the residential is not distinct enough – the upper floor residential should have consistent alignment and have a different character than the office.*

Figures 5 and 6: Rendering of proposed building from corner of Ocean Ave./Hersey Street (top) and Ocean Avenue (bottom).

- *Standard (1) e. Façade Character – Street-facing facades are oriented to and/or adjacent to public sidewalk. The office use should have a more distinctive façade character whether through floor delineation, fenestration patterns/sizes, and/or materials.*
- *Standard (1) g. Building Materials – Metal siding is not found in either the residential or commercial context. Revise the material selection – fiber cement clapboard is recommended.*

Appendix 2: Development in the B-1, B-1b, B-2, B-2b

- *Standard 1: Building Location and Form – Met – Building matches surrounding context in its relationship to the street which contributes positively to the streetscape. Building contributes to the street wall with its position, form, and height. See comments above regarding fenestration patterns. Some window proportions also not consistent with predominant residential character*
- *Standard 3: Orientation of Buildings and their Entrances to the Street – Entries to commercial spaces can be made more prominent with the use of features such as signage, canopies, or lights. Alternatively, entrance could be moved to face a street.*

*Two-family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, and Emergency Shelter***s**

- *Standard 1 – The street-facing façades provide a high level of fenestration and visual interest with façade variation, changes in materials, and projecting balconies. The form, scale, and roof line are consistent with and complement the surrounding residential context. Adjust fenestration on corner approach to distinguish office from residential uses. Window proportions could be adjusted to reflect context.*

XIII. NEXT STEPS

1. Applicant to address staff comments and additional comments of the Planning Board;
2. Applicant to prepare final plan submission, including subdivision and site plan submittal requirements as included in 14-496(a) and (b) and 14-527(e) and (f) for review by the Planning Authority and Planning Board; and
3. Hold final Planning Board Hearing.

XIV. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. City Surveyor review (memo from Bill Clark, 7/11/16)
2. Traffic Engineer review (memo from Thomas Errico, 7/13/16)
3. Civil Engineer review (memo from Lauren Swett, 7/14/16)
4. City Arborist review (memo from Jeff Tarling, 7/12/16)
5. Fire Prevention Bureau review (memo from Keith Gautreau, 7/11/16)
6. Design review (memo from Caitlin Cameron, 7/8/16)
7. Planning review (memo from Nell Donaldson)

APPLICANT'S SUBMITTALS

A. Cover Letter
B. Application
C. Project Data
D. Application Narrative
E. Right, Title, and Interest
F. Construction Management Plan
G. Fire Department Checklist
H. Stormwater Management Plan
I. Parking Lease
J. Capacity Letters
K. Lighting Cut Sheets

PLANS

Plan 1. Subdivision Plat
Plan 2. Existing Conditions
Plan 3. Site Preparation
Plan 4. Site Plan
Plan 5. Materials and Layout Plan
Plan 6. Grading Plan
Plan 7. Stormwater/Utility Plan
Plan 8. Landscape Plan
Plan 9. Landscape Details
Plan 10. Details
Plan 11. Details
Plan 12. Details
Plan 13. Details
Plan 14. Floor Plans
Plan 15. Elevations and Sections

Plan 16. Code Review Plans
Plan 17. Photometric Plan

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

draft subdivision plat review

William Clark <wbc@portlandmaine.gov> Mon, Jul 11, 2016 at 10:36 AM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nell,

A nice clean subdivision plan.

Several items as shown on the attached survey review.

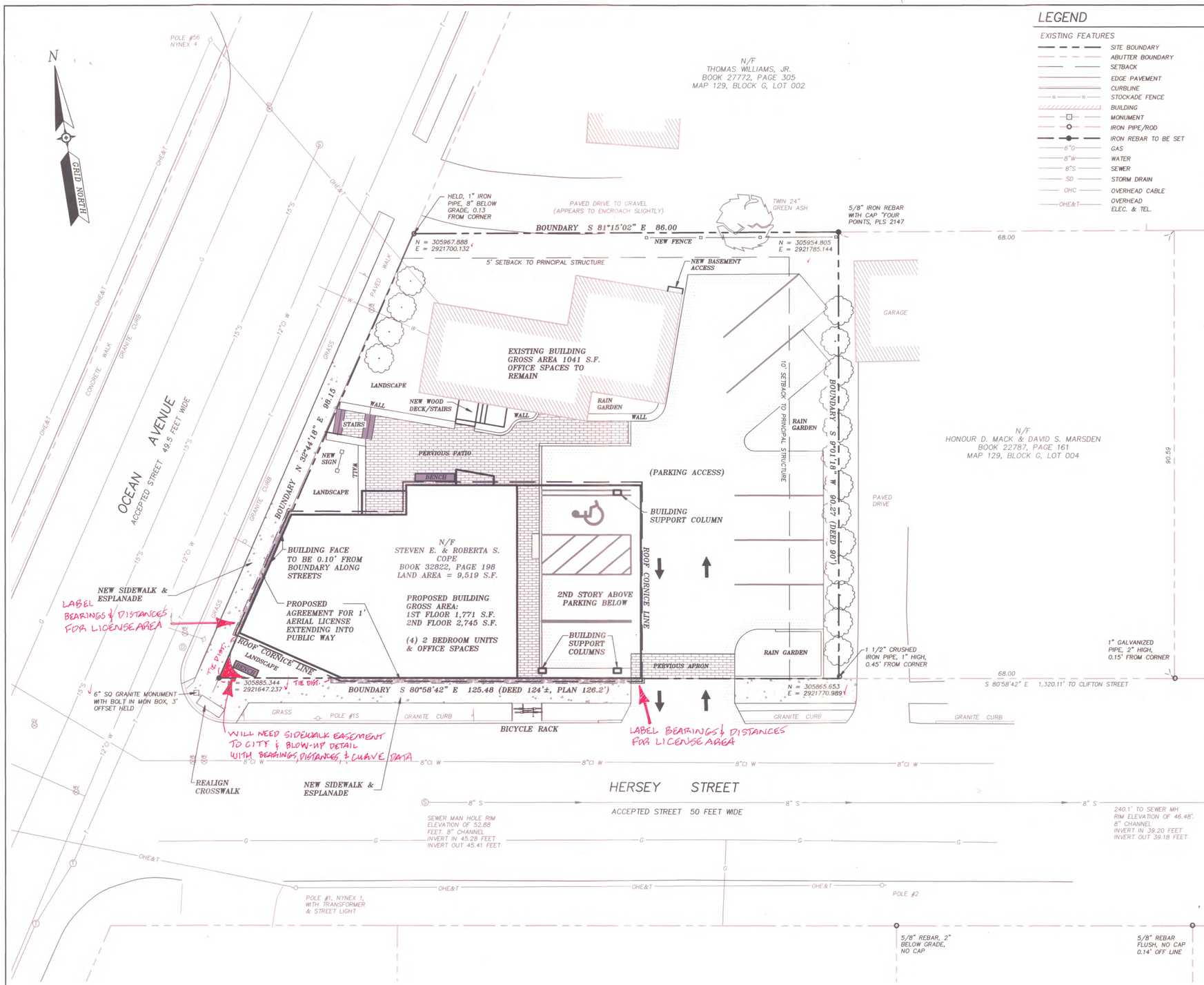
1. The sidewalk at corner of Ocean Ave and Hersey St shows as being constructed on the private property. Currently the sidewalk is within the City street ROW limits for Ocean Ave and Hersey St. If it is expanded onto the private property the City will need a public easement for that area and a detail on the plan showing bearings, distances, and curve data for the easement metes and bounds description.

2. The proposed aerial licences in Ocean Ave and Hersey St will need bearings, distances, and curve data added to the plan for the license metes and bounds descriptions. The vertical clearance in the license areas will also need to be stated.

Thanks,

Bill
[Quoted text hidden]
--
William Clark, PLS
Senior Project Engineer
DPW Engineering
City of Portland
55 Portland St.
Portland, ME 04101
207 874 8847

Ocean Ave No 23 Site Subdivision Plat 6 07 2016 Survey Review 7 11 2016.PDF
859K



LEGEND

EXISTING FEATURES	EXISTING FEATURES	PROPOSED IMPROVEMENTS
SITE BOUNDARY	SIGN	BUILDING
ABUTTER BOUNDARY	WATER VALVE	FENCE
SETBACK	GAS VALVE	EDGE PAVEMENT
EDGE PAVEMENT	UTILITY POLE	SHRUBS
CURBLINE	GUY WIRE	CURBING
STOCKADE FENCE	HYDRANT	
BUILDING	CATCH BASIN	
MONUMENT	DRAINAGE MANHOLE	
IRON PIPE/ROD	SEWER MANHOLE	
IRON REBAR TO BE SET	DECIDUOUS TREE	
GAS		
WATER		
SEWER		
STORM DRAIN		
OVERHEAD CABLE		
OVERHEAD ELEC. & TEL.		

GENERAL NOTES:

1. RECORD OWNERS OF THE PROPERTY ARE STEVEN E. & ROBERTA S. COPE BY DEED OF STEPHEN D. SEWALL DATED DECEMBER 22, 2015, RECORDED AT THE CUMBERLAND COUNTY REGISTRY OF DEEDS DECEMBER 24, 2015 IN BOOK 32822, PAGE 198.

2. THE PROPERTY IS SHOWN ON THE CITY OF PORTLAND TAX MAP 129 AS LOT G-001 AND THE MAJORITY OF THE PROPERTY IS LOCATED WITHIN THE NEIGHBORHOOD BUSINESS 1 (B1) ZONE, A SMALL PORTION IN THE RESIDENTIAL 3 (R3) ZONE

SPACE AND BULK:
MIN. LOT SIZE ..... N/A
MIN. FRONTAGE ..... 20 FEET
MIN. REAR YARD ..... PRINCIPAL STRUCTURE 0 FEET, 10 FEET IF ABUTTING RESIDENTIAL
5 FEET FOR ACCESSORY STRUCTURE
MIN. SIDE YARD ..... PRINCIPAL 0 FEET
5 FEET IF ABUTTING RESIDENTIAL
MAX. IMPERVIOUS SURFACE 90%

3. PLAN REFERENCES:

A) PLAN OF CODMAN STREET SUBDIVISION SURVEYED OCTOBER OF 1913 BY PERCY H. RICHARDSON, C.E. AND RECORDED AT SAID REGISTRY IN PLAN BOOK 12, PAGE 99.

B) PLAN OF LAND IN PORTLAND MAINE SURVEYED FOR STANDARD OIL COMPANY OF NEW YORK, DATED JULY 1926 BY PERCY H. RICHARDSON, C.E. (ON THE OPPOSITE SIDE OF HERSEY STREET ON OCEAN AVENUE) RECORDED AT SAID REGISTRY IN PLAN BOOK 17, PAGE 28.

C) PLAN OF HERSEY SAUNDERS FIELD, WOODFORDS MAINE BY PERCY H. RICHARDSON, C.E. RECORDED MAY 18, 1926 AT SAID REGISTRY IN PLAN BOOK 17, PAGE 4. THIS WAS THE LATEST OF SEVERAL PLANS SHOWING LOTS ON BOTH SIDES OF HERSEY STREET.

D) STANDARD BOUNDARY AND EXISTING CONDITIONS SURVEY 701 FOREST AVENUE, PORTLAND, ME FOR THERMO CONSULTING ENGINEERS REVISED TO JUNE 1, 1998 INCLUDING AS-BUILT SURVEY BY TITCOMB ASSOCIATES AND RECORDED AT SAID REGISTRY IN PLAN BOOK 198, PAGE 203.

E) EXISTING CONDITIONS PLAN PREPARED BY FOUR POINTS ASSOCIATES, INC. AND OTHER PLANS SUBMITTED AS PART OF THE APPLICATION BEING SUBMITTED TO THE CITY OF PORTLAND. PLEASE REFER TO THE EXISTING CONDITIONS PLAN AND SITE PLAN FOR ADDITIONAL INFORMATION.

✓ F) BLUE SHEETS FOR HERSEY STREET DATED FEBRUARY 3, 1938 AND OCEAN AVENUE DATED NOVEMBER 1, 1973 PROVIDED BY THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT. THE STREET LINE FOR HERSEY STREET WAS DETERMINED BY HOLDING AN OFFSET OF 0.08' OFF AN 8" SQUARE MONUMENT WITH BOLT FOUND IN A MONUMENT BOX ON THE WEST SIDE OF BAXTER BOULEVARD AND AN OFFSET OF 3 FEET FROM THE MONUMENT SHOWN HEREON AT THE INTERSECTION WITH OCEAN AVENUE. THE STREET LINE FOR OCEAN AVENUE WAS DETERMINED BY HOLDING AN ANGLE OF 66°17' OFF HERSEY STREET.

4. THE FIELD SURVEY WAS COMPLETED USING A COMBINATION OF REAL TIME KINEMATIC GPS EQUIPMENT AND A QSA ROBOTICS INSTRUMENT. ALL POINTS LOCATED WITHIN A POSITIONAL TOLERANCE OF 0.10 FEET HORIZONTALLY AND 0.15 FEET VERTICALLY. BEARINGS ARE BASED ON RAPID STATIC OBSERVATIONS ON THE MONUMENT AT HERSEY AND OCEAN AS WELL AS THE MONUMENT AT CLIFTON AND HERSEY. HORIZONTAL DATUM IS MAINE STATE PLANE COORDINATES, WEST ZONE, NAD 1983(2011) AS PROCESSED ON THE NGS OPUS WEBSITE.

✓ 5. VERTICAL DATUM IS NGVD 1929 AND WAS TAKEN FROM A MONUMENT WITH BOLT FOUND IN A MONUMENT BOX AT THE NORTHWEST CORNER OF THE INTERSECTION BETWEEN HERSEY AND CLIFTON STREETS, ELEVATION OF 29.16 FEET PER PORTLAND PUBLIC WORKS DEPT. A RAPID STATIC OBSERVATION ON THE MONUMENT CONFIRMED THE ELEVATION TO WITHIN 0.03 FEET, (THE ORTHO HEIGHT COMPUTED USING GEOID 12B).

6. THIS PLAN IS BASED ON A SURVEY COMPLETED TO THE BEST OF MY KNOWLEDGE IN ACCORDANCE WITH THE STATE OF MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS STANDARDS OF PRACTICE, EXCEPTING NO REPORT OR METES AND BOUNDS DESCRIPTION PREPARED.

7. FOUR POINTS ASSOCIATES, INC. HAS NOT CONFIRMED ALL UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHOWN HEREON ARE APPROXIMATE AND BASED ON VISIBLE ABOVE GROUND STRUCTURES, THE CITY OF PORTLAND'S GIS MAPPING FOR WATER AND SEWER AND A PLAN FOR THE DEVELOPMENT OF THE RITE AID PARCEL ON THE OPPOSITE SIDE OF OCEAN AVENUE. NO EXCAVATION OF ANY KIND CAN BE PERMITTED WITHOUT THE CONTRACTOR 'CONTACTING DIG-SAFE AT 1-888-DIGSAFE FOR THE LOCATION OF ANY POSSIBLE UNDERGROUND UTILITIES, ABANDONED AND OTHERWISE. THE CONTRACTOR RESPONSIBLE FOR EXCAVATION AND CONNECTION OF ALL UNDERGROUND UTILITIES MUST CONFIRM ALL INVERTS AND PIPE SIZES PRIOR TO ANY CONSTRUCTION.

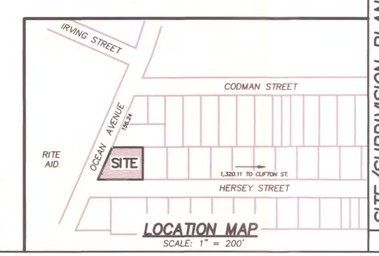
8. THE PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA PER THE FEMA FIRM FLOOD HAZARD MAP 23005C0007C EFFECTIVE DATE DECEMBER 8, 1998.

9. THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES. PLEASE REFER TO THE SITE PLAN AND ARCHITECTURAL PACKAGE FOR ANY NEW CONSTRUCTION.

APPROVED BY CITY OF PORTLAND PLANNING BOARD

DATE

CHAIRPERSON



LOCATION MAP
SCALE: 1" = 200'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

SURVEY REVIEW 7/11/2016

DESIGN TEAM:

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
CARROLL ASSOCIATES
Patrick J. Caroll, Principal
Maine Licensed Landscape Architect
217 Commercial Street, Suite 200
Portland, Maine 04101
Tel: 207-772-1552

RANSOM Consulting Engineers and Scientists
RANSOME CONSULTING, INC.
John Mahoney, P.E.
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Tel: 207-772-2891 Ex 32
Website: www.ransomenv.com

km a
KEVIN MOQUIN ARCHITECT
Kevin Moquin
Portland, Maine 04103
Tel: 207-615-6421
Website: www.km-a.me

STATE OF MAINE
CUMBERLAND COUNTY SS REGISTRY OF DEEDS
RECEIVED _____, 2016
AT ____h _____m _____M. AND RECORDED IN
PLAN BOOK _____ PAGE _____ REGISTER
ATTEST _____

THIS PLAN SHALL NOT BE MODIFIED, WITHOUT WRITTEN PERMISSION FROM FOUR POINTS ASSOCIATES, INC. ANY MODIFICATIONS MADE, OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO FOUR POINTS ASSOCIATES, INC.

REV:	DATE:	STATUS:	DWG NAME: 23 OCEAN	SCALE: 1"=10'	PLAN BY: DED
B	06/07/2016	REVISIONS TO BUILDING FOOTPRINT, COLUMNS AND OTHER IMPROVEMENTS PER DESIGN TEAM RECEIVED 06/06/16			
A	06/04/2016	ADD PROPOSED BUILDING/PARKING/WALKS, PRELIMINARY SUBMISSION			

PROJ. NO: 15069

NAME: :
LIC. #:

DONALD E. DOSTIE
P.L.S. #2147

STATE OF MAINE
DONALD E. DOSTIE
2147
PROFESSIONAL LAND SURVEYOR

SITE/SUBDIVISION PLAN (PRELIMINARY)

OF:
23 OCEAN AVENUE
PORTLAND, MAINE

FOR RECORD OWNERS:
STEVEN E. AND ROBERTA S. COPE
P.O. BOX 1398
PORTLAND, MAINE 04104

Four Points Associates, Inc.
Donald E. Dostie PLS, Principal
9 Ralph Avenue, Lewiston, ME 04240 Tel: 207-577-5840

PLAN DATE: 06/04/2016

Att. 2

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

23 Ocean Avenue - Preliminary Traffic Comments

Tom Errico <thomas.errico@tylin.com> Wed, Jul 13, 2016 at 12:22 PM
To: Helen Donaldson <HCD@portlandmaine.gov>
Cc: Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Jeff Tarling <jst@portlandmaine.gov>, "Swett, Lauren" <lswett@woodardcurran.com>

Hi Nell – I have reviewed the application materials and offer the following preliminary traffic comments.

- The applicant is requesting a waiver for parking lot aisle width (21 feet versus the City standard of 24 feet). The applicant should provide documentation that supports the waiver request.
- I find the driveway location and configuration to be acceptable given existing site conditions.
- The applicant should provide a summary of the anticipated trip generation increase expected during the AM and PM peak hours following project completion. While I do not expect the project to significantly impact the public street system, I do believe documentation of traffic volumes changes is necessary.
- The applicant should provide a review of safety data in the immediate vicinity of the project.
- I would prefer that backing maneuvers onto Hersey Street not be required and thus the applicant should either provide a layout that allows for on-site vehicle circulation – for head-out egress, or supporting documentation on the proposed circulation condition.
- A pedestrian easement will be required at the Ocean Avenue/Hersey Street intersection (a portion of the sidewalk is located on the applicants property).
- A detail for the driveway shall be provided that notes that the cross-slope shall not exceed 2%.
- The plans do not include full replacement of the sidewalk on Ocean Avenue along the entire property frontage. The applicant should either include full sidewalk replacement or document justification for the current proposal.
- Further review of the sidewalk ramp configuration is required. I would suggest that a fully ADA compliant ramp be provided on the opposite side of Hersey Street.
- The applicant is proposing to meet parking demand needs via leased parking spaces off Woodford Street west of Forest Avenue. Given on-street parking regulations, it is my professional opinion that occupants of the project site will park on Hersey Street given parking availability and convenience. Recognizing this factor, the applicant should provide a detailed parking demand and supply management plan that realistically proposes parking conditions. I would note that I'm open to the idea of shared parking given site uses, if it works from a management perspective. Further coordination and review on this subject is needed.

Please contact me if you have any questions.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

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207.347.4354 (direct)

207.400.0719 (mobile)

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thomas.errico@tylin.com

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"One Vision, One Company"

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COMMITMENT & INTEGRITY
DRIVE RESULTS

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T 207.774.2112
F 207.774.6635

Att. 3

MEMORANDUM

TO: Nell Donaldson, Planner
FROM: Lauren Swett, PE
DATE: July 14, 2016
RE: 23 Ocean Ave, Level III Site Plan Application

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed redevelopment located at 23 Ocean Avenue. The project includes the construction of a new mixed use building and associated site improvements.

Documents Reviewed by Woodard & Curran

- Level III Site Plan application and attachments, dated June 6, 2016, prepared by Kevin Moquin and Ransom Consulting, Inc., on behalf of owner Steven and Roberta Cope.
- Project plans, dated June 6, 2016, prepared by Kevin Moquin, Ransom Consulting, Inc., and Carroll Associates Landscape Architects, on behalf of owner Steven and Roberta Cope..

Comments

1) The Applicant has submitted a City of Portland Wastewater Capacity Application. The Applicant should note that they will be required to provide evidence of capacity to serve and approval of the proposed design from the City of Portland.
2) The Applicant has indicated on their plans that they will be extending gas and electrical services from meters to be installed on the existing building to remain. The Applicant should provide verification from both Unitil and CMP that the ability to serve exists, and that the configuration will be acceptable to each utility.
3) The proposed underground gas and electric utilities will be located beneath an existing hedge located along Ocean Avenue. The site preparation plan notes that the hedge is to remain, and the landscaping plan does not provide any new plantings in this area. The Applicant should comment on the plan for maintaining this existing landscaping with the proposed utility installation
4) 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 should be 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 applicant has provided details, and notes indicating erosion control requirements, but we recommend the addition of erosion and sedimentation control locations on the plans and additional notes on inspection and maintenance requirements should be added to the plans to be in conformance with the standards.
   b) General Standard: The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing to install rain gardens, pervious pavers, and underdrained roof drain collection systems on the site.
      - The proposed systems are anticipated to provide acceptable stormwater treatment, but the Applicant is required to provide calculations and additional design information verifying compliance with the Maine DEP Chapter 500 and City of Portland Technical Standards Section 5.
      - The proposed rain gardens do not appear to have any overflow structures or bypass outlets. Applicant should provide model and information indicating the peak water elevations within these systems during storm events, as well as information on infiltration rates at these sites. The Applicant should provide comment on the potential for these systems to overflow during storm events, and the impact that this may have on their site and adjacent properties.

c) Flooding Standard: The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant has requested a waiver of the flooding standard. The project will result in the creation of greater than 1,000 square feet of new impervious surface, which cannot be considered as a de minimus increase. Additional information, including stormwater calculations and verification of downstream infrastructure capacity to handle any increases in flow, is required before we can consider a potential waiver of the flooding standard.

5) The Applicant has requested that the outlet from one of the proposed rain gardens on the site be connected to the City of Portland combined sewer system in Hersey Street. Per Section 2 of the City of Portland Technical Manual, "the introduction of non-contaminated water such as rain water, non-contact cooling water, groundwater from foundation drains, sump pumps, surface drains or any other sources of inflow shall not be allowed to discharge into a sewer which conveys sanitary waste unless approved by the City Engineer." A waiver of this requirement may be considered when no other alternative exists. Before a waiver can be considered for this project, additional information on the anticipated flow quantities must be provided.

6) The Applicant should provide proposed locations for snow storage, or comment on a plan for snow removal from the site. The site's stormwater features should not be utilized for snow storage.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

23 Ocean Avenue (2016-150) and 1945 Congress (2016-075)

Jeff Tarling <jst@portlandmaine.gov> Tue, Jul 12, 2016 at 9:27 AM
To: Helen Donaldson <hcd@portlandmaine.gov>

Hi Nel -

Thanks !

Lets do the 23 Ocean Avenue plan first...

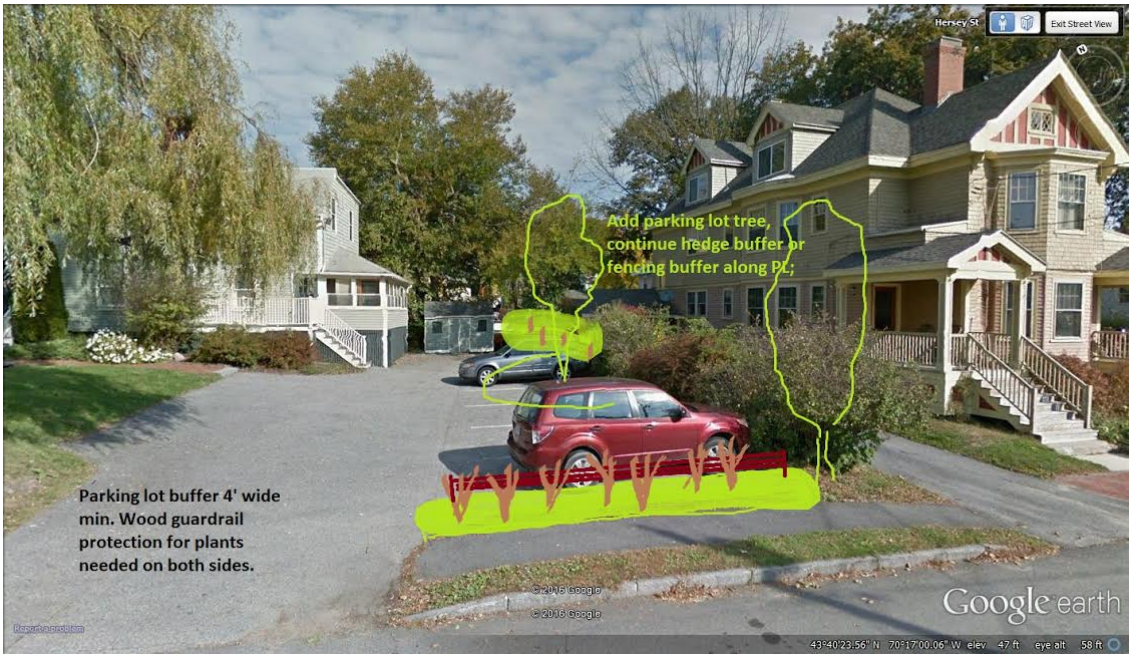
The existing esplanade width is problematic - just too narrow to support Street-trees on both sides, Ocean & Hersey Street. I checked the entire length of Ocean Avenue and no existing street trees, also this is a busy truck / commercial vehicle route and tree canopy even on an upright tree would unlikely to survive. Snow storage in winter along with deicing salts, this sidewalk route is on our priority school walk route and we plow so we need as much space as possible.

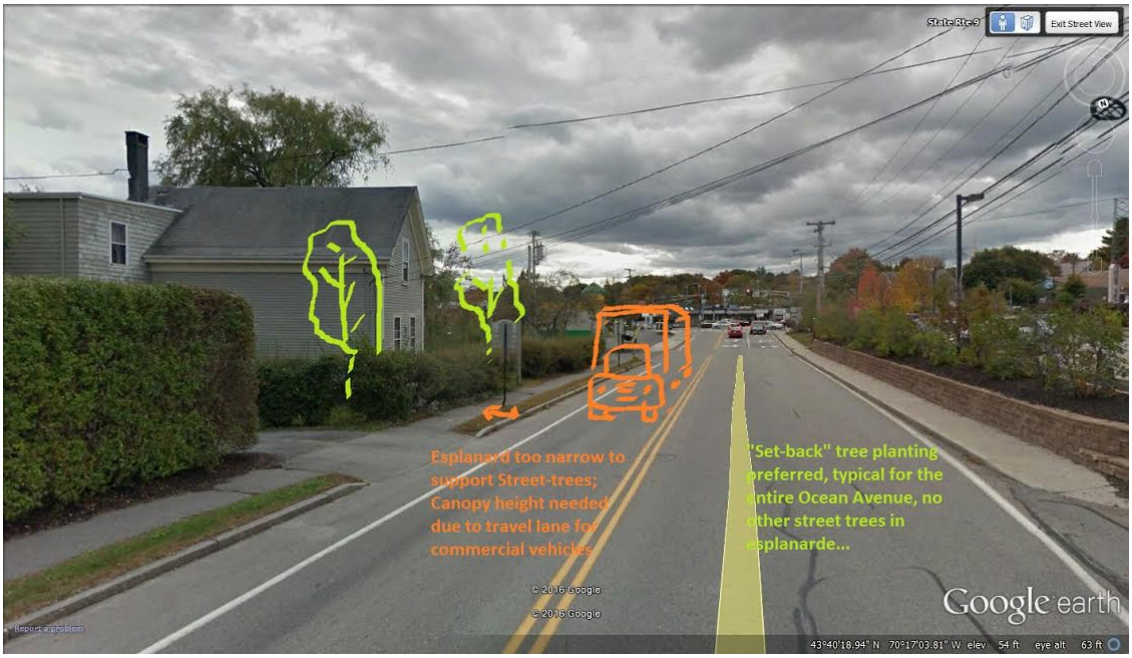
Thus we would like to see 'set-back' tree planting in available spaces. Also parking lot on Hersey Street should have a 4' buffer with plant material at back of sidewalk. A smaller 3' or 2' buffer might not make it. Ideally like to see woody shrub planting but could do ornamental grasses. Wood guardrail on the parking lot side is needed to protect this space from vehicles, snow etc. Without protection plant material would likely be damaged. This buffer on the residential side is more important then the more commerical Ocean Avenue side. Add a couple of trees on the parking lot edge to buffer parking lot from next door residential use. See photos, (I got creative with the pics !)

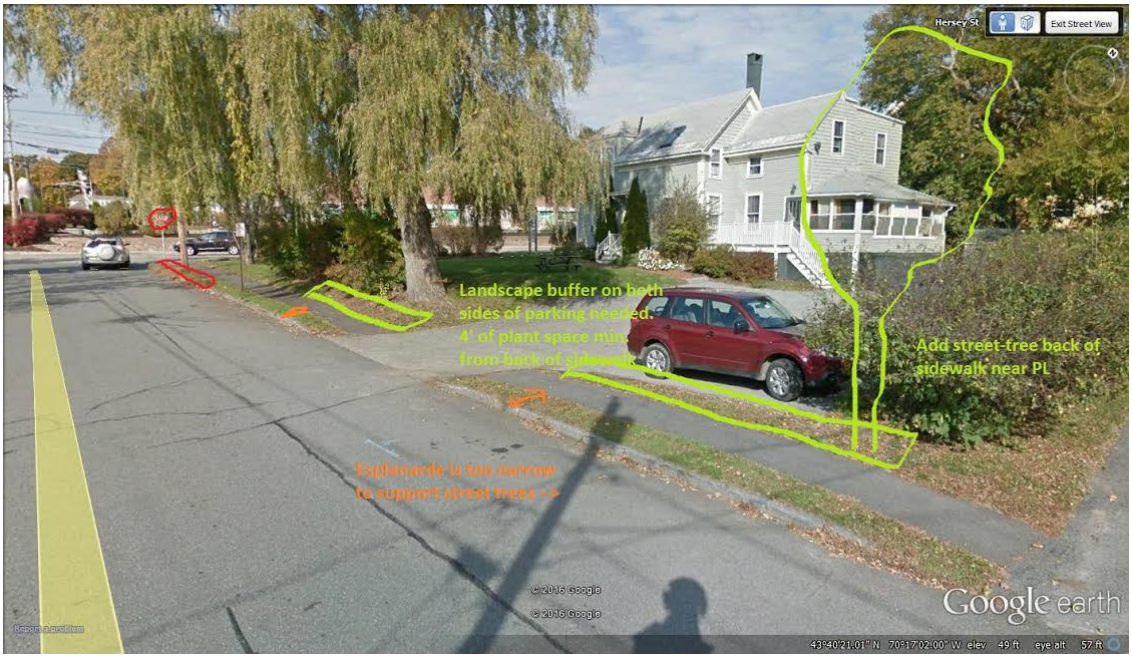
Thanks,

Jeff

Jeff


Hersey St
Exit Street View
Add parking lot tree, continue hedge buffer or fencing buffer along PL;
Parking lot buffer 4' wide min. Wood guardrail protection for plants needed on both sides.
© 2016 Google
© 2016 Google
Google earth
Report a problem
43°40'23.56" N 70°17'00.06" W elev 47 ft eye alt 58 ft


State Rte 9
Exit Street View
Esplanard too narrow to support Street-trees; Canopy height needed due to travel lane for commercial vehicles
"Set-back" tree planting preferred, typical for the entire Ocean Avenue, no other street trees in esplanarde...
© 2016 Google
© 2016 Google
Google earth
Report a problem
43°40'18.94" N 70°17'03.81" W elev 54 ft eye alt 63 ft



Jeff Tarling
Portland Parks & Recreation - City Arborist
55 Portland Street
Portland, ME. 04101
(207) 874.8820
jst@portlandmaine.gov

[Quoted text hidden]

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

23 Ocean Avenue (2016-150) and 1945 Congress (2016-075)

Keith Gautreau <kng@portlandmaine.gov> Mon, Jul 11, 2016 at 2:48 PM
To: Helen Donaldson <hcd@portlandmaine.gov>

All set!

On Mon, Jul 11, 2016 at 9:23 AM, Helen Donaldson <hcd@portlandmaine.gov> wrote:
[Quoted text hidden]

--
Keith Gautreau, Assistant Fire Chief
Fire Prevention Bureau
Community Outreach Branch
Portland Fire Department
380 Congress Street
Portland, ME 04101
(207)874-8409
kng@portlandmaine.gov

Planning and Urban Development Department
Planning Division

Subject: B-1 Design Review – 23 Ocean Avenue

Written by: Caitlin Cameron, Urban Designer

Date of Review: Friday, July 8, 2016

23 Ocean Avenue was reviewed against *the B-1 Commercial Business Zones Standards* (Section (d) of the Design Manual) as well as the *Two-family, Special Needs Independent Living Units, Multiple-family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters Standards* (Section (i) of the Design Manual).

Design Review Comments *(red text denotes standards that are not met)**:***

(d) B-1 Commercial Business Zones

Standard (1) a. Urban Street Wall – Met – Project is located on or near the property line and creates strong street walls on all street-facing facades.

Standard (1) b. Mixed Uses – Met – Project is both mixed-use and multi-storied.

Standard (1) c. Building Entrances – We're concerned about visibility of entries from street – can office entrance be located closer to or on one of the streets? If not, visual cues from the street are needed, especially from the corner approach and indicating ADA route.

Standard (1) d. Windows – Façade character of the office portion of the building places fenestration with wrong emphasis – why are the largest windows at the stair instead of the active spaces? Corner approach should be made more open or active with fenestration. The office fenestration pattern versus the residential is not distinct enough – the upper floor residential should have consistent alignment and have a different character than the office.

Standard (1) e. Façade Character – Street-facing facades are oriented to and/or adjacent to public sidewalk. The office use should have a more distinctive façade character whether through floor delineation, fenestration patterns/sizes, and/or materials.

Standard (1) f. Building Design – Overall, the building design is compatible with the surrounding context in its scale, roof pitch, and fenestration.

Standard (1) g. Building Materials – Metal siding is not found in either the residential or commercial context. Revise the material selection – fiber cement clapboard is recommended.

Standard (1) h. Building Scale – The building scale, only three stories, is compatible with the two and three-story residential buildings in nearby.

Standard (1) i. Landscaping and Buffers - See notes from Planner.

Appendix 2: Development in the B-1, B-1b, B-2, B-2b

Standard 1: Building Location and Form – Met – Building matches surrounding context in its relationship to the street which contributes positively to the streetscape. Building contributes to the street wall with its position, form, and height. See comments above regarding fenestration patterns. Some window proportions also not consistent with predominant residential character.

Standard 2: Building Function – Met – Proposed project is mixed-use.

Standard 3: Orientation of Buildings and their Entrances to the Street – Entries to commercial spaces can be made more prominent with the use of features such as signage, canopies, or lights. Alternatively, entrance could be moved to face a street.

Standard 4: Windows – See comment above.

Standard 5: Building Character, Detail, Scale, and Graphic Qualities – See comments in Standard (d) above.

Standard 6: Signage and Building Entrances – No signage information provided at this time.

Standard 7: Development Relationship to Street – Met – Building is located at street line.

Standard 8: Parking Lots – Met – Parking lot is screened with a wall at the public street edge. See note from Planner regarding landscaping.

(i) Two-family, Special Needs Independent Living Units, Multiple-Family, Lodging Houses, Bed and Breakfasts, and Emergency Shelters

Standard 1 – The street-facing façades provide a high level of fenestration and visual interest with façade variation, changes in materials, and projecting balconies. The form, scale, and roof line are consistent with and complement the surrounding residential context. Adjust fenestration on corner approach to distinguish office from residential uses. Window proportions could be adjusted to reflect context.

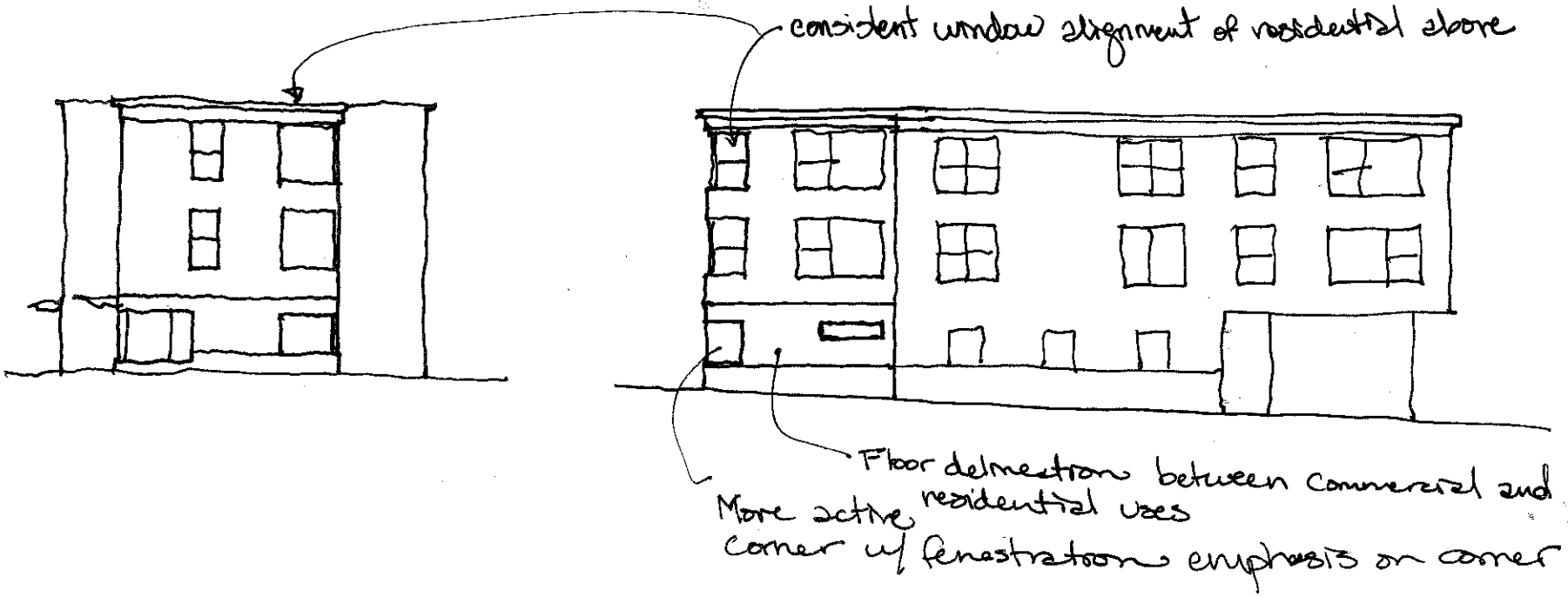
Standard 2 – Met – The building is consistent with the surrounding context in its orientation to and relationship with the street. The project is successful at its gateway location and transitioning between commercial and residential neighborhoods.

Standard 3 – Met – Open space provided at entry court and roof access.

Standard 4 – Met – The project has a high level of fenestration and storage.

Standard 5 – See note from Planner.

Standard 6 – Not Applicable


consistent window alignment of residential above
Floor delineation between commercial and residential uses
More active corner w/ fenestration emphasis on corner

23 Ocean Avenue – 4 residential units, app. 2,400 SF office

Att. 7

LEVEL III SITE PLAN REVIEW (14-526)

		Preliminary Review
Transportation	a. Impact on Surrounding Street Systems	•
	b. Access and Circulation	• Sidewalk should be reconstructed along entire length of Ocean Avenue frontage • Need documentation of ADA accessibility from the street
	c. Public Transit Access	•
	d. Parking	• Standard (14-332): Residential: 2/unit…4 units = 8 spaces Office: 1/400 SF 'exclusive of cellar not used for bulk storage'…2,400 SF (per floor plans) = 6 spaces Please provide evidence of lease agreement for four spaces to be provided off-site. Note that there may be neighborhood concerns about spillover parking on Hersey Street.
	e. Transportation Demand Management (TDM)	•
Environmental Quality	a. Preservation of Significant Natural Features	•
	b. Landscaping and Landscape Preservation	• Provide additional evergreen landscaping on eastern property line where site abuts residential zone
	c. Water Quality, Storm Water Management and Erosion Control	•
Public Infrastructure and Community Safety	a. Consistency with Master Plans	•
	b. Public Safety and Fire Prevention	•
	c. Availability and Adequate Capacity of Public Utilities	• Overhead electric is not permitted. Please confirm a plan for underground electrical with CMP and revise plans accordingly • Can the existing pole on Hersey Street be removed?
Site Design	a. Massing, Ventilation and Wind Impact	• Where is HVAC venting?
	b. Shadows	•
	c. Snow and Ice Loading	•
	d. View Corridors	•
	e. Historic Resources	•
	f. Exterior Lighting	• Provide an exterior lighting plan in the revised submittal
	g. Noise and Vibration	•
	h. Signage and Wayfinding	
	i. Zoning Related Design Standards	•

SUBDIVISION REVIEW (14-497)

	Preliminary Review
1. Water/Air Pollution	•
2. & 3. Water Supply	•
4. Erosion	•
5. Transportation Impacts	•
6. Sanitary Sewer/Stormwater	•
7. Solid Waste	•
8. Scenic Beauty	•
9. Comprehensive Plan	•
10. Financial and Technical Capacity	•
11. Wetland Impacts	•
12. Groundwater Impacts	•
13. Flood-Prone Area?	
14. & 15. ID Wetlands & Rivers	

Additional Submittals Required
Evidence of financial capacity
Utility capacity letters

Plat Revisions
Show proposed easements & licenses
Show zone line
Include reference to stormwater system & maintenance agreement

Easements
Footings & cornice in ROW
Public pedestrian easement will be required for sidewalk which encroaches on private property

Att. A

23 Ocean Mixed Use

City of Portland
Level III Final Application Submission

Kevin Moquin Architect – Carroll Associates Landscape Architects – Ransom Consulting Inc.

Kevin Moquin, AIA, LEED AP BD+C
Maine Licensed Architect
29 Bedell St
Portland, ME 04103
info@km-a.me
T 207-265-6421

Ms.Barbara Barhydt
Development Review Manager
City of Portland Planning Authority
389 Congress Street 4th Floor
Portland, ME 04101

June 6, 2016

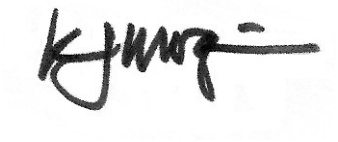
Dear Barbara,

Kevin Moquin Architect and our consultants have prepared a submission package for a Level III Final Site Plan Review on behalf of Steven and Roberta Cope, the property owner and applicant. The project is substantially as presented at our Pre-Application Conference on March 30, 2016.

The proposed project is located at 23 Ocean Avenue (Assessors Chart 19, Block G, Lot 001) and currently contains offices in a former a single family house and a parking lot. The project site is located in the B-1 Neighborhood Business Zone. The proposed project includes the construction of a new mixed use building containing offices and four apartments. The new building, as proposed, meet all applicable zoning standards. The existing building will remain.

Please include our project on the Planning Board agenda at your earliest convenience. We look forward to working with you, the Staff, and the Planning Board in the review of this project. Please feel free to contact me to discuss any questions or concerns you may have regarding the attached application materials.

Sincerely,



Kevin Moquin, AIA, LEED AP BD+C
Maine Licensed Architect
Portland, Maine

June 6, 2016
To: City of Portland Planning Authority
Re: 23 Ocean Mixed Use
Level III Final Application Submission

Attachment List

1. Cover Letter
2. Attachment List
3. Application Submission
4. Project Data
5. Checklist
6. Narrative
    a. Description of Project
    b. Evidence of right, title, and interest
    c. Evidence of State and/or Federal Permits
    d. Zoning Assessment
    e. Neighborhood Meeting
    f. Requests for waivers
    g. Existing and proposed easements or other burdens
    h. Evidence of Financial and Technical Capacity
    i. Construction Management Plan
    j. Traffic Analysis
    k. Significant natural features
    l. Stormwater Management Plan
    m. Consistency with City master plans
    n. Evidence of Utilities Capacity to Serve
    o. Solid Waste management Plan
    p. Summary of Fire Safety
    q. Consistency with Design Standards
7. Warranty Deed
8. Construction Management Plan
9. Fire Department Checklist
10. Landscape Architecture Attachments
    a. Site / Subdivision Recording Plat
    b. Existing Conditions Survey
    c. L-1.0 Site Preparation Plan
    d. L-2.0 Site Plan
    e. L-3.0 Materials and Layout
    f. L-4.0 Grading
    g. L-5.0 Landscape
    h. L-5.1 Landscape Details
    i. L-6.0 Details
    j. L-6.1 Details
11. Civil Engineering Attachments
    a. C-1 Utility and Stormwater Management Plan
    b. C-2 Civil Details
    c. C-3 Civil Details
    d. 23 Ocean Avenue Stormwater Management Narrative
    e. City of Portland Wastewater Capacity Application
    f. Portland Water District Capacity Application
12. Architectural Attachments
    a. A-001 Fire Department Code Review Drawing
    b. A-101 Floor Plans and Exterior Views
    c. A-201 Exterior Elevations Parcel A
    d. Photometric Site Plan (to follow)

Att. B

Portland, Maine — Yes. Life's good here.

Jeff Levine, AICP, Director
Planning & Urban Development Department

Electronic Signature and Fee Payment Confirmation

Notice: Your electronic signature is considered a legal signature per state law.

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. You are also signifying your intent on paying your fees by the opportunities below.

I, the undersigned, intend and acknowledge that no Site Plan or Historic Preservation Applications can be reviewed until payment of appropriate application fees are ***paid in full*** to the Inspections Office, City of Portland Maine by method noted below:

☐ Within 24-48 hours, once my complete application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☐ Within 24-48 hours, once my application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☒ I intend to deliver a payment method through the U.S. Postal Service mail once my application paperwork has been electronically delivered.

Applicant Signature: _____ Date: 6/7/16

I have provided digital copies and sent them on: KEVIN MOQUIN ARCH. Date: 6.7.16.

NOTE: All electronic paperwork must be delivered to buildinginspections@portlandmaine.gov or by physical means i.e. a thumb drive or CD to the Inspections Office, City Hall, 3rd Floor, Room 315.

PROJECT NAME: 23 Ocean Mixed Use

PROPOSED DEVELOPMENT ADDRESS:

23 Ocean Avenue, Portland, Maine 04103

PROJECT DESCRIPTION:

The Proposed project includes the construction a new mixed use structure containg professional offices and four two bedroom apartments. An existing residence previously converted to offices will remain in it's current form and current use.

CHART/BLOCK/LOT: 129 - G - 001

PRELIMINARY PLAN _____ (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Steven and Roberta Cope Business Name: 23 Ocean Avenue Associates, LLC Address: PO Box 1398 City/State : Portland, ME Zip Code: 04104	**Applicant Contact Information** Work # n/a Home# Cell # (207) 415-5833 Fax# n/a e-mail: bcope@maine.rr.com
Owner – (if different from Applicant) Name: Applicant Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Adam Cope Business Name: 23 Ocean Avenue Associates, LLC Address: PO Box 1398 City/State : Portland, ME Zip Code: 04104	**Agent/Representative Contact information** Work # Home# Cell # (207) 939-3326 Fax# n/a e-mail: adcope1@yahoo.com
Billing Information Name: Applicant Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:

Structural Engineer Name: Casco Bay Engineering, Eric Dube P.E. Address: 424 Fore Street City/State : Portland, ME Zip Code: 04101	**Structural Engineer Contact Information** Work # (207)842-2800 Cell # (207)712-7022 Fax# e-mail: ericd@cascobayengineering.com
Surveyor Name: Owen Haskell, Inc. Address: 390 US Route 1 City/State : Falmouth, ME Zip Code: 04105	**Surveyor Contact Information** Work # (207) 7740424 Cell # Fax# (207) 774-0511 e-mail:
Architect Name: Kevin Moquin Architect Address: 29 Bedell St. City/State : Portland, ME Zip Code: 04103	**Architect Contact Information** Work # (207) 615-6421 Cell # (207) 615-6421 Fax# n/a e-mail: kevin@km-a.me
Attorney Name: n/a Address: City/State : Zip Code:	**Attorney Contact Information** Work # Cell # Fax# e-mail:
Landscape Architect Name: Carroll Associates Landscape Architects Address: 217 Commercial St. City/State : Portland, ME Zip Code: 04101	**Landscape Architect Contact Information** Work # (207) 772-1552 Cell # Fax# (207) 772-0712 e-mail: pcarroll@carrroll-assoc.com
Civil Engineer Name: Ransom Consulting Inc. John Mahoney, PE Address: 400 Commercial St. Suite 404 City/State : Portland, ME Zip Code: 04101	**Civil Engineer Contact Information** Work # (207) 772-2891 Ex 32 Cell # Fax# e-mail: john.mahoney@ransomenv.com

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews)	**Fees Paid** (office use)	**Other Reviews** (check applicable reviews)	**Fees Paid** (office use)
X Less than 50,000 sq. ft. ($500.00)	___	___ Traffic Movement ($1,000)	___
___ 50,000 - 100,000 sq. ft. ($1,000)	___	___ Stormwater Quality ($250)	___
___ 100,000 – 200,000 sq. ft. ($2,000)	___	X Subdivisions ($500 + $25/lot)	___
___ 200,000 – 300,000 sq. ft. ($3,000)	___	# of Lots 4 x $25/lot = $100	___
___ over 300,000 sq. ft. ($5,000)	___	___ Site Location ($3,000, except for residential projects which shall be $200/lot)	
___ Parking lots over 100 spaces ($1,000)	___	# of Lots ___ x $200/lot = _____	
___ After-the-fact Review ($1,000.00 plus applicable application fee)	___		
---		___ Other _____	
The City invoices separately for the following: - Notices ($.75 each) - Legal Ad (% of total Ad) - Planning Review ($40.00 hour) - Legal Review ($75.00 hour) Third party review is assessed separately.		___ Change of Use ___ Flood Plain ___ Shoreland ___ Design Review ___ Housing Replacement ___ Historic Preservation	
Plan Amendments (check applicable reviews)	**Fees Paid** (office use)		
___ Planning Staff Review ($250)	___		
___ Planning Board Review ($500)	___		

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal

2. **In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Building Inspections Office to start the review process.**

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. **One (1) full size site plans** that must be **folded.**
2. One (1) copy of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

APPLICANT SIGNATURE:

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:
	6/7/16

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.
X		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
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)**
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:**
			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;
			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;
			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);
			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;
			Ground water protection measures;
			Existing and proposed sewer mains and connections;

- Continued on next page -

X		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;
X		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.

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site		**9,519** sq. ft.
Proposed Total Disturbed Area of the Site		**7,173** 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)		**4,036** sq. ft.
Impervious Area (Total Proposed)		**6,396** sq. ft.
Building Ground Floor Area and Total Floor Area		
Building Footprint (Total Existing)	*exist. building*	**1,030** sq. ft.
Building Footprint (Total Proposed)	*exist + proposed*	**2,730** sq. ft.
Building Floor Area (Total Existing)	*exist. building*	**1,580** sq. ft.
Building Floor Area (Total Proposed)	*exist + proposed*	**8,520** sq. ft.
Zoning		
Existing		**B-1**
Proposed, if applicable		**B-1**
Land Use		
Existing		**Business**
Proposed		**Business and Apartments**
Residential, If applicable		
# of Residential Units (Total Existing)		**0**
# of Residential Units (Total Proposed)		**4**
# of Lots (Total Proposed)		**1**
# of Affordable Housing Units (Total Proposed)		**0**
Proposed Bedroom Mix		
# of Efficiency Units (Total Proposed)		**0**
# of One-Bedroom Units (Total Proposed)		**0**
# of Two-Bedroom Units (Total Proposed)		**2**
# of Three-Bedroom Units (Total Proposed)		**0**
Parking Spaces		
# of Parking Spaces (Total Existing)		**5**
# of Parking Spaces (Total Proposed)		**25 Total (10 on site, 15 leased off site)**
# of Handicapped Spaces (Total Proposed)		**1 van accessible**
Bicycle Parking Spaces		
# of Bicycle Spaces (Total Existing)		**0**
# of Bicycle Spaces (Total Proposed)		**6 Total (2 outdoor, 4 indoor)**
Estimated Cost of Project		**$1,000,000**

June 6, 2016
To: City of Portland Planning Authority
Re: 23 Ocean Mixed Use
Level III Final Application Submission

Narrative

Description of Project

The proposed project includes the the construction of a new mixed use building and associated site improvements. The new building consists of offices in the basement and on the first floor. Two 2 bedroom apartments are located on both the second and third floors. The proposed building contains approximately 8,640 square feet. The new building, as proposed, meets all applicable zoning standards. The building will be served by existing underground and overhead utilities. Proposed landscaping is in character with the neighborhood and proposed street trees have been reviewed by the City Arborist. Rain gardens will be constructed to address stormwater on the property (see Civil Stormwater Narrative.)

Evidence of right, title, and interest

See attached warranty deed.

Evidence of State and/or Federal permits

The State Fire Marshall's office requires a Barrier-Free Construction Permits for all new construction of Business occupancy. This project will be reviewed by The State Fire Marshall's Office as part of the building Permit application. No Federal permits are required.

Zoning Assessment

The project site is located at the corner of Ocean Avenue and Hersey Street, and lies within the B-1 Zone.

The lot is in conformance with the Zoning Ordinance. The proposed structure falls within the setback requirements for the property. All zoning requirements established in the B-1 Zone shall be met by this project.

The Owners have a verbal agreement with the Woodford's Club to lease 15 spaces. A formal agreement is currently being prepared

Zone:	B-1 Neighborhood Business Zone.
Legal Description:	129-G-001
Lot size:	0.219 acres (9,519 square feet)
CBL:	129 G001001
Land Use Existing:	Office and Business Service
Land Use Proposed:	Office and Business Service, Multi-Family (4 residential units)

Zoning Regulations	*Required-Allowed*	*Proposed*
Min. Lot Area:	none	9,519 sf
Min. Lot Area/Dwelling:	1,000 sf	2,379 sf (9,519 sf / 4 units)
Min. Lot Width:	none	90.59’
Min. Street Frontage:	20’	98.15’ on Ocean, 125.48' on Hersey
Front Yard Setback:	10’ max.	0’
Side Yard Setback:	none	51'

Rear Yard Setback:	none, 10' at res. zone	37'
Building Height:	35' max.	31' plus rooftop stair enclosure (per Sec. 14-430)
Parking:	8 res., 6 office = 14	10 on site, 15 leased off site at Woodford's Club (Leased parking is 1,164 feet away)
Maximum Impervious:	90%	67.1%

Neighborhood Meeting

A Neighborhood meeting is not required for 4 unit development per Sec.14-52-3.d.(i).

Requests for waivers

We are requesting a reduction of the parking aisle width to 21 feet.

Existing and proposed easements or other burdens

The property at 23 Ocean Avenue is not burdened by any easements of record. The development of 23 Ocean Avenue will include encroachments into the City's airspace over the City owned sidewalks on Ocean Avenue and Hersey Street for the construction of the proposed structure's footings and cornice. The applicant will work with the City's Legal Department to obtain the requisite easement or license from the City for these encroachments into City owned property.

Evidence of Financial and Technical Capacity:

The Owners, Steven and Roberta Cope, are proposing to complete this project utilizing private funds and lending assistance from a Bank or other Financial Institution. The Applicant qualifies for the funds available to complete this project.

The project team consists of a Maine Licensed Architect, a Maine Licensed Landscape Architect, a Maine Licensed Professional Structural Engineer, and a Maine Licensed Civil Engineer. The services of an experienced contractor and sub-contractors will be engaged to execute the construction.

Construction Management Plan:

See construction management plan attachment.

Traffic Analysis

Not required

Significant natural features

The site contains no significant natural areas, wildlife habitat, or archaeological sites to the best of our knowledge.

Stormwater Management Plan:

See stormwater management narrative attachment.

Consistency with City master plans

The housing component of The Comprehensive Plan, City of Portland, Maine titled “Housing, Sustaining Portland’s Future” outlines a number of policies which this project is consistent with.

Policy 1 looks to “Ensure an Adequate and Diverse Supply of Housing for All.” This project brings housing units built at a density compatible with the neighborhood. The City’s goal of adding additional units is supported by this project which introduces four new residential units.

Policy 3 asks for “Neighborhood Stability and Integrity.” This project creates new housing within an existing vibrant residential neighborhood thus bolstering its livelihood. The building scale and materials of the neighborhood are respected and reflected in the proposed new structures. This project will be an asset to Woodfords Corner, which is slated for improvements in the near future. This project has access to existing City assets such as public transportation, nearby Payson Park playground and fields, Baxter Woods, Back Cove Trail, Ocean Avenue School, and various retail outlets.

Policy 5 encourages “Sustainable Development.” This project aids the City’s goal to achieve and maintain a 25% share of Cumberland County’s population by creating new multi-family housing. Three adjacent bus lines, M2, M4, and Lakes Region Bus, fulfill the desire for Transit Oriented Development. As outlined above, the project site is within walking distance of many community, recreation, and retail amenities.

As the report points out “Portland has limited vacant land suitable for development, thus redevelopment options are the primary opportunities for creating new housing.” The proposed project assists Portland in tackling the challenge of increased population and density within the City.

This project will bolster the goals of The Woodford's Corner Public Improvement Plan. The goals of the plan are that “*public improvements to Woodford's Corner build on the vision from the Transforming Forest Avenue plan to promote livability, economic vibrancy and mobility in Woodford's Corner. Building on the assets already existing in the area, the plans will provide better pedestrian and bicycle crossings, new street furnishings and public spaces, better transit routing, and better traffic circulation.*” This project will introduce new residents and business to support the continued growth of Woodford's Corner neighborhood in Portland.

Evidence of Utilities Capacity to Serve:

Capacity to serve documents have been applied for. See attachment.

Solid Waste management Plan:

The proposed building will be served by the City of Portland curbside trash and recycling collection. Tennants will be informed of collection day and appropriate interim on-site storage of waste and recycling.

Summary of Fire Safety

The building is accessible to emergency vehicles from both Ocean Avenue and Hersey Street. There is a fire hydrant located near the intersection of Ocean and Hersey. The information requested on the Portland Fire Department Site Review Checklist is included on the attached Fire Department Code Review drawings and exterior elevation sheets.

Consistency with Design Standards

This project is within the B-1 zone and subject to the “B-1 and B-1B neighborhood Business and B-2 and B-2B Commercial Business Zone” standards and guidelines as described in the City of Portland Design Manual.

Standard a – Urban Street Wall (Guideline 1 Location and Form, Guideline 7 – Development Relationship to Street): The new building is set close to the property lines and creates a strong definition of the urban street wall. It is intended that this building expand the urban nature of Woodford's Corner and begin it's transition to Ocean Avenue. This structure will reinforce the street wall which has been left vacant by the chain pharmacy across Ocean Ave. and the fast food restaurant across Hersey St. The three story height is sufficient to define a “room-like” street.

Standard b – Mixed Uses (Guideline 2 Building Function): This project contains a mix of residential and office uses.

Standard c – Building Entrances (Guideline 3 Orientation of Building and their Entrances to the Street): The building entrances are directly accessible from the sidewalk on Ocean Avenue via an entry court that serves both the existing and new building. The entrances to the offices are closest to Ocean avenue, while the entrance to the residences is set a bit further back within the entry court. Canopies announce the locations of entry.

Standard d – Windows (Guideline 4 Windows): Facades along both streets contain generous window openings. The windows along the sidewalk strike a balance between displaying some of the life inside the building to create an active presence on the sidewalk and the privacy desired by the office tenants. Reflective glass will not be specified.

Standard e – Facade Character (Guideline 5 Building Character, Detail, Scale, and Graphic Qualities): The windows along the sidewalk strike a balance between displaying some of the life inside the building to create an active presence on the sidewalk and the privacy desired by the office tenants. Canopies announce the locations of entry. The building is clad with brick at the base that will provide an accent to horizontal painted metal siding above.

Standard f – Building Design (Guideline 5 Building Character, Detail, Scale, and Graphic Qualities): The scale of the building is in character with it's location on the edge between a residential neighborhood and the busy commercial an transportation thoroughfare of Forest Avenue.

Standard g – Building Materials(Guideline 5 Building Character, Detail, Scale, and Graphic Qualities): The facades of the building is clad with brick at the base and a horizontal painted metal siding above. The horizontal metal siding will create a scale and texture evocative of the wood clapboard siding in the nearby residences, but will be free of the maintenance burden of wood siding.

Standard h – Scale (Guideline 5 Building Character, Detail, Scale, and Graphic Qualities): The building scale is compatible with surrounding residential structures. Structures nearby include large multi-family homes, Triple Decker apartment buildings and modest single family houses. In general, the larger structures are located on or near Ocean Avenue. The scale of the structure is suitable to it's location on the corner of Ocean Avenue and Hersey Street.

Standard I – Landscape Buffers: The north side of the property will retain the majority of it's existing vegetation. The east side of the property that borders the nearest residence on Hersey street will be planted to screen the parking area. The building form is chamfered away from the acute geometry of the intersection of Ocean and Hersey to create a small planting area. New street trees will be added long Ocean and Hersey. The entrance court between the existing and new building will also be landscaped.

Guideline 6 Signage and Building Entrances: Building signage will be located at the sidewalk on Ocean Avenue adjacent to the entry court.

Guideline 7 Development Relationship to the Street: see description at “Standard a” above

Guideline 8 Parking Lots: A landscape buffer will screen the parking lot from the adjacent residential neighbor. The parking located below the building overhang will be screened from Hersey Street with a green screen of trellis and climbing plants. The building overhang provides a covered route from the accessible parking space to a building entrance.

Guideline 9 Transit Connections: The project is located neat three bus lines, M2, M4, and Lakes Region Bus.

<u>Manufacturer’s verification of HVAC system emission requirements:</u>

All mechanical equipment will be energy efficient sealed combustion units that meet or exceed all Local, State, and Federal emission and sound requirements. The HVAC equipment will meet the energy efficiency requirements of the International Energy Conservation Code (2009 IECC).

Site Plan Submittal

See attached Landscape Architecture Drawings and Civil Engineering Drawings.

Architectural Submittal

See attached Architectural Drawings.

WARRANTY DEED

KNOW ALL BY THESE PRESENTS, That STEPHEN D. SEWALL, of Portland, County of Cumberland and State of Maine,

in consideration of One Dollar and other valuable considerations,

paid by STEVEN E. COPE and ROBERTA S. COPE, as joint tenants, of Portland, in the County of Cumberland and State of Maine,

whose mailing address is: P.O. Box 1398, Portland, Maine 04104,

the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said STEVEN E. COPE, his heirs and assigns forever.

A certain lot or parcel of land, with the buildings thereon, situated in the City of Portland, County of Cumberland and State of Maine, at the corner formed by the intersection of the easterly side of Ocean Avenue with the northerly side of Hersey Street, bounded and described as follows:

Beginning on said easterly side of Ocean Avenue at the southwesterly corner of land now or formerly of G.C. Codman; thence running easterly by said Codman land eighty-six (86) feet, more or less, to land now or formerly of Wilbur Trask; thence southerly by said Trask land and on a line at right angles to said Hersey Street ninety (90) feet to said Hersey Street; thence westerly by said Hersey Street one hundred twenty-four (124) feet, more or less, to said Ocean Avenue; thence northeasterly by said Ocean Avenue to the point of beginning.

Being the same premises conveyed to Stephen D. Sewall by Friends of Day One by deed dated March 5, 1998 and recorded in the Cumberland County Registry of Deeds in Book 13647, Page 317.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all the privileges and appurtenances thereof, to the said STEVEN E. COPE, his heirs and assigns, to them and their use and behoof forever.

And I do covenant with the said Grantee, his heirs and assigns, that he is lawfully seized in fee of the premises, that they are free of all encumbrances, that he has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that he and his heirs and assigns 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, the said Stephen D. Sewall, being the said Grantor, has hereunto set his hand and seal this 22nd day of December, 2015.

Signed, Sealed and Delivered
in the Presence of:

_____

Stephen D. Sewall

8967367

State of Maine
County of Cumberland, ss.

December 22, 2015

Then personally appeared the above-named Stephen D. Sewall and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Notary Public

Steven W. Rand, Esq.
Typed or Printed Name
My Commission Expires: n/A

8967367

June 6, 2016
To: City of Portland Planning Authority
Re: 23 Ocean Mixed Use
Level III Final Application Submission

Construction management Plan

1.0 GENERAL

1.1 PURPOSE
The purpose of this Construction Management Plan Manual is to provide a consistent policy under which certain physical aspects of construction management will be implemented. These standards cannot anticipate all situations. They are intended to assist, but not to substitute for competent work by design and construction professionals. The construction management plan will be kept on site.

1.2 APPLICABILITY
This manual shall govern the construction and development of a new mixed use building at 23 Ocean Avenue in Portland Maine.

2.0 PROJECT LOCATION

2.1 DISTURBANCE AREA
The Landscape Plan describes and computes the total project disturbance area. Soil disturbance shall be kept to a minimum. Construction staging and phasing shall occur, where applicable, to minimize soil disturbance time.

2.2 LOCATION
23 Ocean Avenue, Portland ME

3.0 PROJECT DOCUMENTATION

3.1 PERMITS / OTHER DOCUMENTS
The contractor shall maintain all applicable local, state and federal licenses and permits that apply to the construction project.

3.2 PUBLIC NOTIFICATION
All public notification required by the City of Portland will be provided.

3.3 PROJECT SIGN
A project sign may be constructed and posted that may include the contractors name, the architects name, a project description, contact information, and any other applicable project information.

3.4 CONTACT DESIGNATION
The Final Application documents and building permit drawings shall include all applicable contact information.

4.0 PROJECT IMPLEMENTATION

4.1 DATES OF CONSTRUCTION
Dates of construction shall be specified in the Plan. Any work being performed within City ROW shall be completed as per the City of Portland Right of Way requirements.

4.2 HOURS OF CONSTRUCTION
Construction hours shall be limited to 7am – 5pm Monday through Friday and 9am – 5pm on Saturday. No construction is permitted on Sundays, 4th of July day and/or weekend if it falls on a Friday or Monday, Memorial

Day and Labor Day weekends, Thanksgiving Day, Christmas Day, and New Year's Day. During Presidents Day and during the Christmas week (12/26-12/31)

4.3 SEQUENCE (PHASING) OF CONSTRUCTION
A construction schedule including all project phasing shall be available from the contractor upon request.

4.4 ADJOINING PROPERTIES
No person shall excavate on land close enough to a property line to endanger any adjacent public street, sidewalk, and alley, other public or private property, or easement, without supporting and protecting the property from any damage that might result from construction operations.

4.5 PROJECT FENCING
All construction areas shall have a non-removable construction fence or other approved device securely placed around the areas to be protected. The fence shall be six feet (6') in height and constructed out of chain-link fence.

5.0 PARKING MANAGEMENT

5.1 EMERGENCY VEHICLE ACCESS
The contractor shall maintain continuous emergency vehicle access, on and around site, including but not limited to police, fire, and ambulance services.

5.2 CONSTRUCTION PARKING DETAILS
Specific construction parking may be provided on site or on street in compliance with the City parking regulations. Subcontractors will be encouraged to carpool whenever possible.

5.3 STAGING AREAS
Material and equipment staging will be accommodated within the project site.

5.4 CONSTRUCTION TRAILER, MATERIALS STORAGE, AND WASTE MANAGEMENT
There will be no job site trailer installed. Materials will be stored on site. Management of both construction waste and recycling will be accommodated on site or on an adjacent parcel upon agreement with the Owner.

6.0 TRAFFIC CONTROL

6.1 GENERAL
All traffic control operations shall be managed by the general contractor.

6.2 DELIVERY REQUIREMENTS
Deliveries to the project site will be via the public way. Cones, flagging, or traffic direction will be deployed as necessary to alert normal vehicle traffic.

7.0 PEDISTRIAN PROTECTION

7.1 GENERAL
Signage directing pedestrians to use the sidewalk on the opposite side of Ocean Avenue or Hersey Street will be posted throughout construction or at such times as necessary for safe pedestrian passage.

8.0 SEDIMENT AND EROSION CONTROL

8.1 REQUIREMENTS
A Storm Water Pollution Prevention Plan has been submitted as part of the City of Portland Site Plan Approval process.

9.0 EMISSIONS

9.1 GENERAL
All vehicles and equipment used on site will be properly maintained such that the engines will function within manufacture's standards or parameters.

9.2 IDLING
Contractors, Subcontractors, delivery drivers, and other visitors will be requested to observe a no idling policy.

10.0 NOISE SUPRESSION

10.1 GENERAL
All construction equipment shall be adequately muffled and maintained to minimize project noise. The installation of noise barriers will be used to suppress noise when necessary. Portable loud equipment including generators, compressors, and cement mixers shall be located on the property to reduce impacts on individual neighbors. The use of radios on the site before 8:00 am is not allowed.

June 6, 2016
To: City of Portland Planning Authority
Re: 23 Ocean mixed use
Level III Final Application Submission

Fire Department Checklist

Applicant:
Steven & Roberta Cope
23 Ocean Avenue Associates, LLC
PO Box 1398
Portland, ME 04104
207-415-5833

Architect:
Kevin Moquin Architect, LLC
29 Bedell St.
Portland, ME 04103
207-615-6421
kevin@km-a.me

Use:
IBC=Business B & residential R-2
NFPA=Business (ch 38) & Apartment Building (ch 30)

Construction type: V-B, sprinklered

Building Elevations: see sheet A2.1

Occupant load (table 14.8.1.2):
49 total occupants

Basement = 10 occupants

Office	900 sf @ 100 sf/occ.	9 occupants
Storage	220 sf @ 500 sf/occ	1 occupant

First floor = 15 occupants

Office	1,500 sf @ 100 sf/occ.	15 occupants

Second floor = 12 occupants

Apartments	2,300 sf @ 200 sf/occ.	12 occupants

Third floor = 12 occupants

Apartments	2,400 sf @ 200 sf/occ.	12 occupants

Square footage (gross)

Basement	1,700
First floor	1,700
Second floor	2,620
Third floor	2,620
Total	8,640

Fire protection:
Sprinkler system to be type 13 R system.

Smoke alarms shall be interconnected such that the activation of one alarm will
Activate all alarms in the individual unit. Smoke alarms shall receive their primary power from the building wiring and shall be equipped with a battery backup.

Hydrants: Near corner of Ocean Ave. and Hersey St. and located on site plan.

Water main: size and location is shown on site plan.

Access to structure: the building is accessible by equipment from the front on Ocean Avenue, from Hersey Street on the south side and from the parking area at the rear side.

Door and wall ratings from NFPA 101 table 8.3.4.2 & NFPA 1 section 14.3.1

One exit from each dwelling unit IBC 1021.1(ex.4) & table 1021.2, NFPA 101-30.2.4.4

Emergency lighting not required NFPA 101-30.2.9

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

23 Ocean Avenue Stormwater Management Narrative

Date:	June 2, 2016
From:	John Mahoney, P.E.
Peer Review:	Stephen J. Bradstreet, P.E.
Location:	23 Ocean Avenue, Portland, Maine

Existing Conditions:

The site is a 9,519 SF (.22 acres) acre parcel located at 23 Ocean Avenue, which is located at the northeast corner of the intersection of Ocean Avenue and Hersey Street. The parcel is currently occupied by a 1,222 square-foot office building, parking area, and lawn. The parcel drains from northwest to southeast with a change in elevation of approximately four feet.

Stormwater runoff currently drains across the lawn area to the existing paved parking lot to the southeast. The site is graded such that stormwater runoff concentrates in the southeast corner. Runoff exits the site through the existing driveway into the public right-of-way on Hersey Street. Runoff then flows down the Hersey Street gutter for approximately 300 feet then into a catch basin that is connected to a 15" combined sewer.

The existing drainage systems on Ocean Avenue and Hersey Street are currently combined sanitary sewer and stormdrain systems.

Based on the Cumberland County USDA soil survey GIS data, the existing soils on this site are hydrological group C & D, moderately to somewhat poorly drained.

Proposed Development:

The owner is proposing to continue the use of the existing building as office space and to construct a mixed-use building with four two-bedroom apartments and eight offices. The proposed development will result in a moderate increase in the impervious area.

Stormwater Management – Basic Standards:

Erosion and sedimentation control measures are detailed and described on Sheets C1 - C3. Good housekeeping practices shall be in accordance with Maine DEP Best Management Practices. A post

construction stormwater management plan and a stormwater BMP inspection and maintenance log are included with this submission.

Stormwater Management - Quality:

We are proposing to install pervious pavers in the patio between the buildings and at the driveway entrance, to construct two rain gardens and to install an underdrained roof drain collection system in order to capture and infiltrate stormwater runoff.

Approximately one third of the parking lot, half the existing building's roof and a portion of the property to the north will drain overland to a shallow rain garden situated on the eastern lot boundary. Overflow from this rain garden will be directed to the rain garden at the southeastern corner, allowing for two opportunities for stormwater quality improvement. The site is graded such that the entire parking area is directed to this second deeper rain garden. We have included a strip of pervious pavers (pitched away from Hersey Street at the driveway entrance to capture stormwater and direct it towards the rain garden before it can leave the site.

The entire roof of the proposed building and the southern half of the roof of the existing building will be piped into an underdrain system with 12" of crushed stone storage below the pipe. This underdrain system will daylight to the rain garden in the southeast corner. The proposed building's foundation drainage will be collected and pumped to this underdrain system and daylight to the same rain garden area. During larger storm events, when the capacity of the rain gardens and stone storage is exceeded, stormwater will overflow from the rain garden in the southeast corner through the driveway into the Hersey Street gutter as it does now.

Because the water from the entire site flows to this southeast corner and because the site's soils are not well drained, it is our opinion that it will be necessary to underdrain the rain garden in the southeast corner. We are proposing to connect this underdrain to the 8" combined sewer in Hersey Street because it is the only viable option. This underdrain will be significantly lower than and separated from the roof drain conveyance system by 18" of sand (Underdrain Type B Backfill MDOT 703.22), which will dramatically reduce the rate of discharge into the combined sewer and reduce pollutant loads.

Stormwater Management - Quantity:

In our opinion, the combination of collecting and treating stormwater prior to discharging to the combined sewer on Hersey Street will reduce the site's contribution to surface drainage on Hersey Street during typical precipitation events. Due to the size of the property and the existing drainage patterns, meeting the flooding standard would require underground storage and piping a significant amount of surface runoff directly into the combined system. For these reasons, we are requesting a waiver to the flooding standard. Installation of the proposed stormwater management measures on this property will also facilitate connection to separated storm drain in the event that the City undertakes separation of storm drain and sewer on Hersey Street.

23 Ocean Avenue: Post-Construction Stormwater Compliance Requirements

The Applicant shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with the plan as follows:

(a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, rain gardens, pervious pavers, 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 and 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 BMPs.

23 Ocean Avenue: Stormwater BMP Inspection and Maintenance Log

The City of Portland, ME requires ongoing annual inspections to ensure the proper maintenance and operation of stormwater management facilities. Inspections must be conducted by third parties qualified by the City.

A. General Information

Use only one Cover Sheet per site with as many specific structural BMP Inspection Report attachments as needed. Attach required color digital photos of site, structures and devices as applicable with captions.

Project Name:	23 Ocean Avenue	**Inspection Date:**	
Parcel Map, Block and Lot:	129 G001	**Current Weather:**	
BMP Owner:	Steven & Roberta Cope	**Date / Amount Last Precip:**	
Owner Mailing Address:	172 Concord Street Portland, ME 04103	**3PI Company:**	
		3PI Mailing Address:	
Owner Phone #:	(207) 939-3326		
Owner Email:	adcope1@yahoo	**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Inspection Report Attachments

Please document the number of each structural BMP type found at this site in the blank spaces provided below. Use additional Attachments if / as needed and submit all Attachments together with the Cover Sheet as a single report.

BMP Type	Number BMPs at site
Vegetated Areas	-
Rain Garden Areas	2
Parking-Driveway Area	1
Stormdrain (Roof Drain) Outlets	1
Pervious paver areas	2

Other (describe	

C. Inspection Results

FAIL** ☐

** If any one item on an Inspection Report attachment is coded as "Work Needed" then entire BMP fails inspection.

** If a site has multiple BMPs and one fails inspection, mark as "Fail" until all BMPs pass inspection.

Note: Applicable BMP Inspection Reports and confirmatory color digital photos summarizing required repairs must be submitted to the City following completion of the preliminary inspection. A re-inspection and certification must be completed within 60 days of the failed preliminary report. It is recommended that the inspector be part of the repair / maintenance process to ensure that repairs are performed properly.

PASS ☐

Note: a qualified professional (as determined by the City) must sign below and include all applicable Inspection Report attachments and confirmatory digital color photos with captions.

D. Professional Certification (as qualified by City of Portland Stormwater Program Coordinator)

To be completed only when all BMPs at this site are functioning as designed with no outstanding maintenance issues.

I, _____, as a duly qualified third party inspector attest that a thorough inspection has been completed for ALL applicable BMPs that are associated with this particular site. All inspected structural BMPs are performing as designed and intended and are in compliance with the provisions of the City Portland's Standards

Signature: _____

Date: _____

Form Adapted from the City of South Portland's Annual Structural BMP Inspection Report Cover Sheet

	Date:
General Information	**Observations**
Inspection duration (hours)	
Days since last precipitation	
Quantity of last precipitation (in)	
Type of inspection	
Storm event	
Current weather	
Photos taken	☐ Yes ☐ No ☐ NA
Nearby natural resources	☐ Yes ☐ No ☐ NA
Copy of ESC plan	☐ Yes ☐ No ☐ NA
MEDEP Permit # (*if applicable*)	
General info notes	
Vegetated Areas	**Observations**
No bare areas (< 90% covered) with sparse growth	☐ Yes ☐ No ☐ NA
No erosion	☐ Yes ☐ No ☐ NA
Vegetated area notes	
Stormdrain (roof drain) outlets	**Observations**
Accumulated sediments and debris at the outlet and within the conduit have been removed.	☐ Yes ☐ No ☐ NA
Erosion damage at the outlet have been repaired	☐ Yes ☐ No ☐ NA
Outlet notes	
Pervious Pavers	**Observations**
Pavers observed to be free draining and clear of sediment and debris.	☐ Yes ☐ No ☐ NA
Sediment and debris removed with shop vacuum	☐ Yes ☐ No ☐ NA
Pervious Paver Notes: Pervious pavers should be cleaned of leaf matter by using a blower. Sweeping is inferior as it will only push material into the gaps. Sanding of pervious paver surfaces should be minimized because sand will collect in the gaps and clog the pavers. The pervious paved surface should be inspected annually and daring rain events. If the gaps are observed to be clogged then sediment/debris will need to be removed by vacuuming.	
Rain Garden Areas	**Observations**
Accumulated sediments and debris (trash) within the infiltration area have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Sediment forebays are clear of debris	☐ Yes ☐ No ☐ NA
Grades as shown on the Drainage & Utilities Plan – C1 have been retained	☐ Yes ☐ No ☐ NA
Plantings are healthy	☐ Yes ☐ No ☐ NA

Rain Garden Notes
The rain garden areas are planted depressions intended to slow and infiltrate stormwater run-off and it is critical that they not be filled in. Sediment forebays must be clear of debris and mulch must be replaced annually.

Parking/Driveway Area	
Accumulated winter sand has been cleared	☐ Yes ☐ No ☐ NA
Pavement swept to help remove sediment	☐ Yes ☐ No ☐ NA
No stormwater is impeded by accumulations of material	☐ Yes ☐ No ☐ NA

Notes:

Other Comments	**Observations**
Corrective action needed	☐ Yes ☐ No ☐ NA

If corrective action in needed, please explain detail

Verbal notification provided to responsible party	☐ Yes ☐ No
Verbal notification contact	
Follow up required	☐ Yes ☐ No

Final comment notes

Photos (*use additional pages as needed*)

Review Notes
Date Reviewed: Reviewed by: Date entered: Date edited: Edited by:

23 Ocean Avenue, Portland, Maine

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT AND
RELEASE FROM LIABILITY

IN CONSIDERATION OF the site plan and subdivision approval granted by the Planning Board of the City of Portland to a plan entitled **23 Ocean Avenue: Utility & Stormwater Management Plan** prepared for **Steven & Roberta Cope,** by **Ransom Consulting, Inc**. dated **_____, 2016** recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____ (the "Plan") and pursuant to a condition thereof, **Steven & Roberta Cope** (owner) having a mailing address of **172 Concord Street, Portland, Maine 04103**, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the stormwater drainage system, as shown on said plan, including but not limited to the **rain gardens, roof drain outlets, and pervious pavers** in strict compliance with the Maintenance of Facilities as described in **23 Ocean Avenue Stormwater Management Narrative and the 23 Ocean Avenue Stormwater Inspection and Maintenance Log** (Stormwater Management Plan) dated **_____, 2016** and Chapter 32 of the Portland City Code. Owner of the subject premises further agrees to keep a Stormwater Maintenance Log that will be made available for inspection by the City of Portland upon reasonable notice and request.

This Agreement is for the benefit of the said City of Portland and all persons in lawful possession of the property; further, that the said City of Portland may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice as described in this Agreement, and a stated time to perform, that the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon the property in question to maintain, repair, or replace said stormwater drainage system, including but not limited to the **rain gardens, roof drain outlets, and pervious pavers** thereon in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear. The Owner agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions.

For the purpose of this Agreement the real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the Owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by this Agreement shall be complete on the date the notice is mailed to the owner of record as shown on the tax roles on file in the City Assessor's Office. If the property has more than one owner on said tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this Agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this_____day of _____, 20__.

_____
By:_____
Its: _____

STATE OF MAINE
CUMBERLAND, ss.

Date: _____

Personally appeared the above-named_____, and acknowledged the foregoing instrument to be his/his free act and deed in his/her said capacity, and the free act and deed of said_____.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

Att. I

Lease for Parking Spaces

This Agreement is made and entered this 17th day of June, 2016, between Woodfords Club, with a mailing address of 179 Woodfords Street, Portland, ME 04103, hereinafter referred to as "Landlord" and 23 Ocean Avenue Associates, LLC, with a mailing address of P.O. Box 1398, Portland, ME 04104, hereinafter referred to as "Tenant".

WHEREAS, Landlord desires to lease to Tenant and Tenant desires to lease from Landlord a portion of the premises generally described as the Woodfords Club parking lot at 179 Woodford Street, Portland, Maine ("the Parking Lot").

For good and valuable consideration, the receipt and sufficiency of which is acknowledged by the parties, it is agreed as follows:

1. Landlord hereby leases to Tenant and Tenant hereby leases from Landlord fifteen (15) undesignated parking spaces located at Parking Lot. The term of the Lease shall begin on January 1, 2017 and shall end on December 31, 2022. Tenant shall have the option to renew this Lease for an additional five year term upon the same terms and conditions as the initial term except for the rent, which shall be negotiated by the parties in good faith. Notwithstanding, the rent payable in any year of the renewal term shall not exceed 125 percent of the rent payable during the fifth year of the initial term. The parties shall memorialize their agreement with respect to rent for the renewal term in writing by an amendment to this Lease. At the option of Tenant, upon written notice to Landlord, the Lease may begin earlier than January 1, 2017.

2. Tenant agrees to pay $265 per month for the initial year of the term. The monthly rent shall increase three percent (3%) each successive year of the term. Rent shall be payable to Landlord by mail or in person to Landlord at its address set forth above.

3. Each party shall maintain general liability insurance for any claims or damages which may result from the negligence or fault of either party. Notwithstanding the foregoing, Landlord shall not be responsible for any lost or stolen items or damage done to vehicles parked at the Parking Lot.

4. Landlord shall be responsible for all maintenance of the Parking Lot including but not limited to snow removal, salting and sanding.

5. This Lease shall not be assigned by either party without the prior written consent of the other, which consent shall not be unreasonably withheld, conditioned or delay. Notwithstanding the foregoing, Tenant shall be permitted to assign its rights and obligations under this Lease to an entity which is owned or controlled by Tenant or Tenant's current principals, without the consent of Landlord

6. Tenant agrees that it shall limit the use of the parking spaces to Tenant's commercial tenants at its 23 Ocean Avenue mixed use development and Tenant's employees, invitees and principals. Any assignment, subletting or transfer of any parking space or parking privileges by such tenants is prohibited. The primary expected usage is Monday through Friday, 8 AM to 6 PM.

7. Tenant shall have the right to terminate this Lease without penalty upon written notice to Landlord in the event that it does not receive satisfactory approval from the City of Portland for its mixed use development.

8. Landlord agrees to execute and deliver a memorandum of lease in recordable form, which memorandum shall be prepared by Tenant at Tenant's expense.

9. This Agreement may be executed in counterparts.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by an authorized representative on the date first above written.

Woodfords Club

Witness

By: Don Bouwens
Its: Secretary/Treasurer

Carol K. Chapman
Witness
To Both

By: Paul Aranson
Its: President

Landlord

23 Ocean Avenue Associates, LLC

Witness

By: Steven E. Cope
Its: Member
Tenant

Att. J

Portland Water District

From Sebago Lake To Casco Bay

June 27, 2016

Mr. John Mahoney
Ransom Consulting, Inc.
400 Commercial Street Suite 404
Portland, ME 04101

Re: 23 Ocean Avenue - Portland
Ability to Serve with PWD Water

Dear Mr. Mahoney:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on June 2, 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.

Conditions of Service

The following conditions of service apply:

- A new 4-inch fire service and 2" domestic service may be installed to the new building from the water main in Hersey Street as shown on a plan entitled Utility Plan for 23 Ocean Avenue. We will need written confirmation from the sprinkler designer that the 2" domestic service tapped off the 4" service is acceptable.

- Based on the fixture count you provided, we have calculated a peak flow of 35 gallons per minute. A 1-inch meter will be adequate for this demand.

- The existing ¾-inch service (SV279107) to that parcel will continue to serve the existing building.

- 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 final plans are approved and 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 3/4-inch diameter copper water service line, located as shown on the attached water service card, provides 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 an 12-inch diameter cast iron water main on the southeast side of Ocean Avenue, an 8-inch diameter cast iron water main on the north side of Hersey Street and a public fire hydrant located at the site. Recent flow data is not available in this area. The most recent static pressure reading was 90 psi on April 21, 2015.

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. 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 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.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Gordon S. Johnson
Engineering Services Manager

SERVICE RECORD

NO. 23 Ocean St.

REG. NO. SV279107

Name

Name

Name

ST. DIVISION 027

Code No.

Name

Name

SERVICE DATA

Size of Pipe 3/4"

Kind of Pipe Copper

Main to Stop 15'

Stop to St. Line 8'

Date 5-27/35

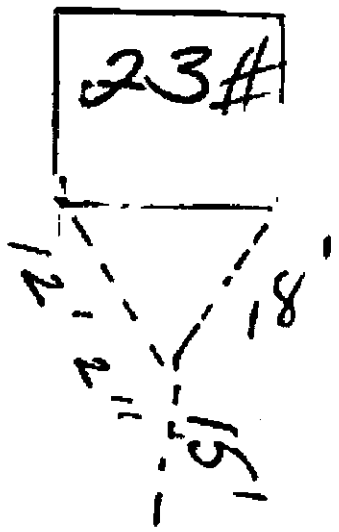
Mat. on Private Copper

Depth/Main 5'/5 ft

Depth/Private 5 ou

Shut at Corp. On

MEASURES



CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: 6/2/16

Mr. Frank J. Brancely,
Senior Engineering Technician,
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail:fjb@portlandmaine.gov

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 23 Ocean Ave, Portland, Maine, 04103

Chart Block Lot Number: 129 G001

Proposed Use: Residential & Commercial

Previous Use: Commercial

Existing Sanitary Flows: 140 GPD

Existing Process Flows: 0 GPD

Description and location of City sewer that is to receive the proposed building sewer lateral.
Existing Ocean Ave Gravity Sewer

Site Category		
	Commercial *(see part 4 below)*	X
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	X
	Other *(specify)*	

(Clearly, indicate the proposed connections, on the submitted plans)

2. Please, Submit Contact Information.

City Planner's Name: _____ Phone: _____

Owner/Developer Name: Steven & Roberta Cope

Owner/Developer Address: 172 Concord Street, Portland, ME, 04103

Phone: 207 939-3326 Fax: _____ E-mail: adcope1@yahoo.com

Engineering Consultant Name: John Mahoney, Ransom Consulting

Engineering Consultant Address: 400 Commercial Street, Portland, ME, 04101

Phone: 207 772 2891 Fax: _____ E-mail: john.mahoney@ransomenv.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: 992 GPD

Peaking Factor/ Peak Times: _____

Specify the source of design guidelines: *(i.e.* X *"Handbook of Subsurface Wastewater Disposal in Maine,"* __ *"Plumbers and Pipe Fitters Calculation Manual,"* __ *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: NA

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: NA _____ 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 below, or attached, as a separate sheet)

Notes, Comments or Calculation

23 Ocean Avenue Sewer/Water Capacity Estimate

Dwelling Unit Type	Qty	Total Bedrooms	Flow per Bedroom (GPD)	Design Flow (GPD)
Two-bedroom	4	8	90	720
			Subtotal:	720

Commercial Space Type	Qty	Number of Employees	Flow per employee (GPD)	Design Flow (GPD)
Office - no shower		11	12	132
Office w/ shower (existing)		7	20	140
			Subtotal:	272
			Total:	**992**

ARCEOS™
ARS SERIES
SURFACE/CEILING/GARAGE

Cat.#	
Job	Type

SPAULDING LIGHTING

Approvals

SPECIFICATIONS

Intended Use:
Ceiling applications from eight to eighteen feet for surface, box or pendant mount. Applications include parking garage, walk-way or building canopies, corridors, tunnels, large stairwells and other interior applications with ambient 40˚C. A wide range of lumen packages and optical distributions are available making the ARS Series luminaire both versatile and functional.

Construction:
- Die cast aluminum housing features vertical fins for two directional air flow that maximizes heat dissipation and ensures long electrical component life and luminaire performance
- LED light engines and electrical compartment are thermally isolated with an air gap for optimum component performance and long life
- One piece molded silicone gasket ensures weather proof seal around each individual LED; Stamped stainless steel bezel provides mechanical compression to seal the optical assembly; 18L and and 24L luminaires include finish (color) matching blanking bezel
- IP65 luminaire rating
- Vandal resistant polycarbonate and low brightness acrylic shield accessories available

LED/Optics:
- Light engine is hexagonal LED module containing 6 high output LEDs with PMMA acrylic lenses that create precise photometric performance
- Choice of multiple light outputs based on quantity of hexagonal LED arrays: 3 = 18 LEDs, 4 = 24 LEDs or 6 = 36 LEDs hexagonal LED modules, lumen range 4,000-8,600
- Three distribution types: Type V Square (5M), Type V Rectangular (5R) or Type IV (4)
- Type V Rectangular (5R) lenses provides low brightness "drive aisle optics" solution for low mounting height applications when the lens is oriented perpendicular to the flow of traffic
- Variety of color temperatures offered: 3000K (80CRI), 4000K (70CRI) or 5000K (70 CRI) CCT
- Each hexagonal light engine comes with a connector for easy replacement

Electrical:
- 120V-277V 50/60Hz, 54.4W, 57W or 86W 700mA configurations
- Drivers RoHS compliant and IP66
- 0-10V dimming drivers
- Lumens per watt > 92-102
- Designed and certified for 40˚C ambient temperatures
- Thermal management protection device shuts driver/LED systems off when temperatures are too high
- Operating temperature range -30˚C/-22˚F – 40˚C/104˚F
- Surge protection – 20KA; Turns fixture off at end of life; Includes LED for end of life indication (see surge suppressor page 3)

Controls/Options:
- Occupancy Sensors, photocells controls available for on/off or dimming operation
- wiSCAPE in fixture wireless control module, features dimming, switching motion sensor
- Up light option available in 24L and 36L configurations

Installation:
Quick disconnect plate mounts over standard junction box and allows for simplified fixture installation. A 3/4" hub provides pendant stem mounting making the fixture adaptable to a variety of applications. Each mounting can be accomplished while maintaining a watertight seal. Four ½" conduit hubs allow side access as required. A pattern indicator on the mounting plate allows the installer to properly orient the fixture without energizing the light engines.

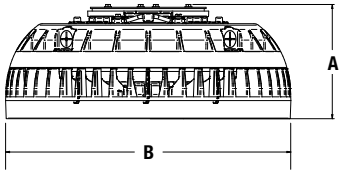
Listings:
Listed to UL 1598 for use in wet locations, 40˚ C ambient environments; Meets DesignLights Consortium (DLC) qualifications 4K & 5K models only, Consult DLC website for more details: http://www.designlights.org/QPL; IP65

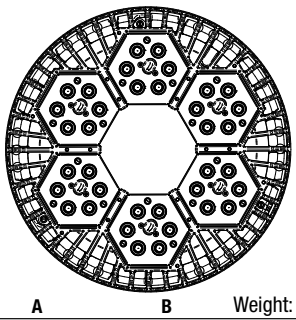
Warranty:
Five year limited warranty (for more information visit: http://www.hubbelllighting.com/resources/warranty/

PRODUCT IMAGE(S)

Shown with motion control option

DIMENSIONS





A	B	Weight:
5.68"	14.00"	18 lbs
(144.22 mm)	(355.6 mm)	8.16 kg

CERTIFICATIONS/LISTINGS

C US **IP65**

ORDERING INFORMATION

ORDERING EXAMPLE: ARS-36L5K-070-5M-1-DB-PC

ARS - [ ] [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

SERIES	NUMBER OF LEDS	LED COLOR	DRIVE CURRENT	IES DISTRIBUTION	VOLTAGE[2]	FINISH	OPTIONS
ARS Arceos™ surface/ceiling/ garage luminaire	**18L** 18 LEDs **24L** 24 LEDs **36L** 36 LEDs	**3K** 3000K **4K** 4000K **5K** 5000K	**070** 700mA **083**[1] 833mA	**5M** Type V Square **5R** Type V Rectangle **5W** Type V Wide **4** Type IV	**U** 120V-277V **1** 120V **2** 208V **3** 240V **4** 277V	**DB** Bronze **BL** Black **WH** White **PS** Platinum Silver **GR** Gray **FG** Forest Green (premium color) **RD** Red (premium color) **CC** Custom Colors (Consult factory) Controls Guide	**PC**[2] Photocontrol (voltage specified and determined by voltage field) **F**[2] Fusing (voltage specified and determined by voltage field) **UD** Up light option, available in 24L and 36L only (see page 3) **WIR** wiSCAPE, In-fixture wireless control module

MOTION CONTROL OPTIONS

SCP[2,3,5] High/low control - for up to 20' mounting heights user programmable settings; Factory default is 10%

SCPW[2,3,5] High/low control - wide lens for up to 8' mounting heights

ACCESSORIES **- Order separately**

[1] 833 only available in 18L drive current
[2] Specify voltage for voltage specific options (only 120V-277V available for Fusing)
[3] 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings; Must order minimum of one SCP-REMOTE to program dimming settings
[4] One per LED module e.g. 3 – 18L, 4 – 24L, and 6 – 36L luminaires (see page 3)
[5] PC option not applicable, included in sensor. For SCP, PC function turns on to lower setting until motion is detected

See page 2 and 3 for Accessories.

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HUBBELL Lighting

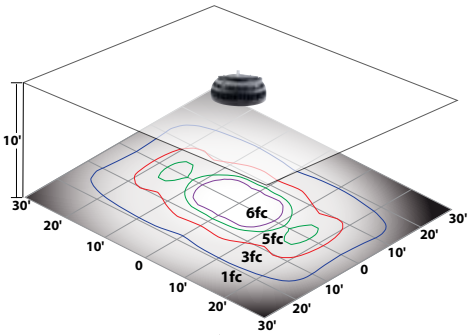
ACCESSORIES/REPLACEMENT PARTS - Order Separately

Catalog Number	Description
ARS-SPC[4]	Vandal shield (1 per LED module)
ARS-BS-XX*	Bird shield
ARS-CS[4]	Comfort shield - Reduces source brightness and imagining P95 acrylic with nominal 10% lumen reduction (1 per LED module)
SCP-REMOTE[3]	Remote control for SCP option; order at least on per project to program and control
93052458	20KA surge protection with an end of life LED indicator

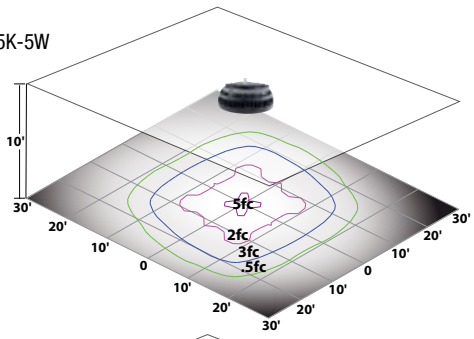
*XX = Color Options: DB, BL, WH, PS and GR

PHOTOMETRICS

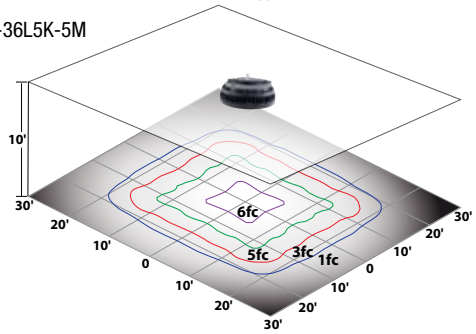
Type V Rectangle
Drive Aisle Optic
ARS-36L5K-5R



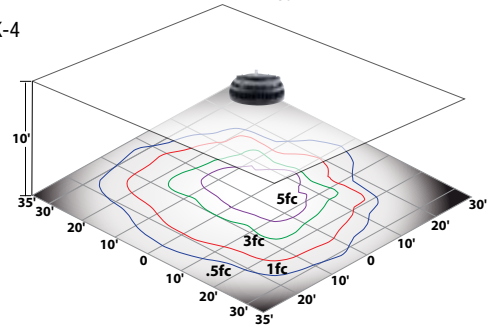
Type V Wide – ARS-36L5K-5W



Type V Square – ARS-36L5K-5M



Type IV – ARS-36L5K-4



PERFORMANCE DATA

# LED'S	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 67 CRI) LUMENS	LPW[1]	B	U	G	4K (4000K nominal, 70 CRI) LUMENS	LPW[1]	B	U	G
18	(833 MA)	54.4W	4	4300	79	1	0	2	4,083	75	1	0	2
			5M	4425	81	1	0	2	4,208	77	1	0	2
			5R	4725	87	1	0	2	4,508	83	1	0	2
24	STD. (700 MA)	57W	4	5360	94	1	0	2	4986	87	1	0	2
			5M	5485	96	2	0	1	5012	88	2	0	1
			5R	5800	102	3	0	3	5375	94			
36		86W	4	7966	93	1	0	2	7522	87	1	0	2
			5M	8203	95	3	0	1	7439	87	3	0	1
			5R	8604	100	3	0	3	8030	93			

[1]Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

PROJECTED LUMEN MAINTENANCE

AMBIENT TEMP.	0	25,000	50,000	[1]TM-21-11 60,000	100,000	Calculated L70 (HOURS)
10°C / 50°F	1.01	1.00	0.99	0.99	0.97	>1,085,000
25°C / 77°F	1.00	0.99	0.98	0.98	0.96	>1,085,000
40°C / 104°F	0.97	0.96	0.96	0.95	0.94	>782,000

[1] Projected per IESNA TM-21-11 Data references the extrapolated performance projections for the **ARS-36LU-5K** base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

ELECTRICAL DATA

# OF LEDS	NUMBER OF DRIVERS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)
18	1	(833 MA)	120	54.5	0.50
			277	56.8	0.22
24	2	STD. (700 MA)	120	57	0.48
			277	59	0.24
36	3		120	86	0.73
			277	89	0.35

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

AMBIENT TEMPERATURE		LUMEN MULTIPLIER
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

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VERSATILE CONFIGURATIONS

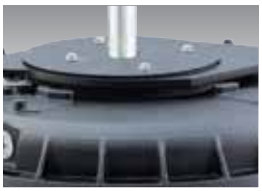
ARS-18LU

ARS-24LU

ARS-36LU

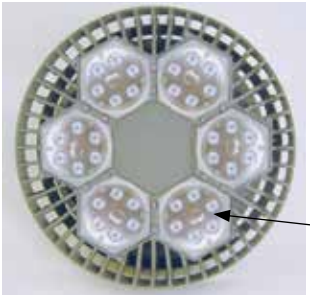
MOUNTING OPTIONS & ACCESSORIES

Specially designed internal hook and hinge allows easy access to wiring and internal components for easy installation



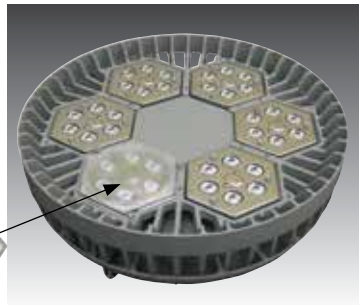
Pendant mount with ¾" wiring hub; Bird shield accessory available; J-Box mounting slots and wire way accommodate 3 ½" and 4" J-Box designs

Four – ½" wiring hubs for surface conduit wiring and photocell option



ARS-SPC - Clear vandal shield installs over each hexagonal LED bezel with 3 provided screws, specify quantity when ordering:

- 3 for 18L
- 4 for 24L
- 6 for 36L



ARS-CS - Frosted comfort shield installs over each hexagonal LED bezel with 3 provided screws, improved uniformity and reduced LED brightness, specify quantity when ordering:

- 3 for 18L
- 4 for 24L
- 6 for 36L

Up light option provides ambient light reducing the "cave effect" in parking garage applications (available in 24L and 36L only)

SURGE PROTECTION

- Field replaceable surge protection device (SPD) provides 20KA and 10KV protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3
- The SPD is designed with a clamping voltage of 1600V at 20KA using industry standard 8/20µs waveform
- Max surge current = 20,000 Amps (see table)
- LED Indicator – Green LED is unlit at end of life

Pulse Rating (8 x 20 µSec)	
Strikes	**Surge**
1	20,000 A
2	15,000 A
15	10,000 A
120	3,000 A

	cRUus	CE
I_n	10KA	5KA

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CIMARRON LED CL1S

Cat.#		
Job	Type	

SPAULDING LIGHTING

Approvals

SPECIFICATIONS

Construction:
- Stylish vertically finned die-cast solid top housing for maximum heat dissipation; Stops collection of unsightly debris
- Rugged lower die-cast aluminum heat sink optimizes thermal management and optical performance
- One piece die-cut silicone gasket with mechanically compressed stainless steel bezel ensures weather proof seal around each individual LED for IP65 rating
- Backlight Control (BC) option available for 85% spill light reduction, doesn't change fixture appearance or EPA, recommended for Type III and Type IV distributions
- Complements the Cimarron LED CL1 i
- Weight - 19 pounds, EPA - .45 ft^2

Optics:
- Choice of 126 high brightness LED configurations with individual acrylic lenses specially designed for IES Type II, III, IV and V distributions
- 3000K, 80 CRI; 4000K, 70 CRI; 5000K, 67 CRI, Turtle friendly Amber

Electrical:
- Universal input voltage 120-277 VAC, **50/60 Hz**
- Ambient operating temperature -40˚ C to 40˚ C
- Drivers have greater than 90% power factor and less than 10% THD
- 700mA drive current standard, 350mA and 525mA options available with 32L and 48L LED models
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Surge protection – 20KA; Turns fixture off at end of life; Includes LED for end of life indication (see surge suppressor page 3)
- Optional 0-10VDC continuous dimming to 10%
- Automatic thermal self-protection
- LED electrical assembly, including PR devices, consumes no power in the 'off' state

Controls:
- Drivers are 0-10V dimming standard. Photocell and occupancy sensors available for complete on/off and dimming control

Installation:
- Quick-mount plate included for easy installation
- The decorative integral arm houses two stage hinge mechanism
- Safety latch holds luminaire door to prevent "free swing"
- Quick-connect wiring for simplified, hassle-free installation
- Suitable for applications requiring 3G testing prescribed by ANSI @136.31

Finish:
- TGIC thermoset polyester powder paint finish applied at nominal 2.5 mil thickness

Warranty:
Five year limited warranty, for more information visit: http://www.hubbelloutdoor.com/resources/warranty/

Listings:
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations
- 700mA models meet DesignLights Consortium (DLC) qualifications, consult DLC website for more details: http://www.designlights.org/QPL
- IDA approved
- IP66
- **IES Progress Award Winner - 2013**

PRODUCT IMAGE(S)

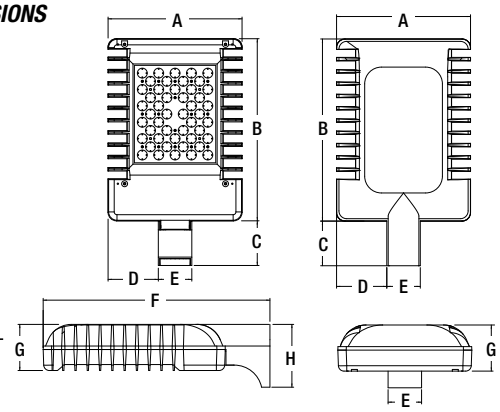
48 LED 3/4 VIEW

16 LED

32 LED

48 LED

DIMENSIONS



Weight

19 lbs.
8.62 kgs.

A	B	C	D	E	F	G	H
12"	16.312"	4"	4.5"	3"	20.312"	4.13"	5.625"
305mm	414mm	102mm	114mm	76mm	515mm	105mm	143mm

CERTIFICATIONS/LISTINGS

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HUBBELL Lighting

ORDERING INFORMATION ORDERING EXAMPLE: CL1S-A-48LU-5K-3-DB-RPA3

CL1S - A - ☐ ☐ - ☐ - ☐ - ☐ - ☐ - ☐

SERIES

CL1S Cimarron LED Pedestrian Scale

MOUNTING

A 4" straight arm attached to housing complete with quick-mount plate

NO. OF LEDS

16L 16 High brightness LEDs
32L 32 High brightness LEDs
48L 48 High brightness LEDs

VOLTAGE

U[1] Universal 120V-277V, 50/60 Hz
1 120V
2 208V
3 240V
4 277V
5 480V, 60 Hz
F 347V, 60 Hz
E[3] 220V, 50 Hz

CCT

3K 3000K, 80 CRI
4K 4000K, 70 CRI
5K 5000K, 67 CRI

DISTRIBUTION

2 Type II
3 Type III
4 Type IV
5M Type V Medium
5S Type V Short
5W Type V Wide
2L Type II rotated left
3L Type III rotated left
4L Type IV rotated left
2R Type II rotated right
3R Type III rotated right
4R Type IV rotated right

DRIVE CURRENT

Leave blank for 700mA (standard)
035[5] 350mA (32L, 48L)
053 525mA (32L) 520mA (48L)

COLOR

DB Dark Bronze
BL Black
WH White
GR Gray
PS Platinum Silver
RD Red (premium color)
FG Forest Green (premium color)
CC Custom Color

OPTIONS

BC[3] Backlight control
CD Continuous dimming
F(X)[2] Fusing (replace X with voltage: 1-120V, 2-208V, 3-240V, 4-277V, 5-480V, F-347V)
RPA3 3" Round pole adapter
RPA4 4" Round pole adapter
TB Terminal block
WB Wall bracket
7PR Photocell receptacle

PIR MOTION/OCCUPANCY CONTROL OPTIONS

SCO[5] On/Off control (line voltage device not for use with 7PR receptacle option and external wireless control devices)
SCL[5] Add-on occupancy sensor for use with ext. wireless control device connected thru 7PR receptacle. Consult control manufacturer for compatibility.
SCP[4,5] Programmable dimming control (line voltage device not for use with 7PR receptacle option and external wireless control devices). A minimum of one SCP-REMOTE accessory remote control required for configuration; (Standard lens with greater sensitivity; motion detection radius equal to .75 X luminaire mounting height (approx. distance)
SCPW[4,5] Programmable dimming control wide lens

WIRELESS CONTROL OPTIONS

WIR[6] wiSCAPE Fixture Module, in-fixture relay for wireless lighting control
WIRSC[6] wiSCAPE Fixture Module, in-fixture relay for wireless lighting control and motion/occupancy control

Notes:
1 - Fuse option not available with universal voltage
2 - Select F3 fusing option for 220V
3 - Recommended for Type III and IV distributions only
4 - 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, must order minimum of one SCP-REMOTE control to program dimming settings (see accessories)
5 - Not available with WIR or WIRSC
6 - Not available with SCO, SCL, SCP or SCPW

CONTROLS GUIDE

As energy codes become more restrictive and we push for sustainable lighting designs, the integration of lighting controls and luminaires have become more and more important. Hubbell Lighting offers numerous outdoor lighting controls solutions for the most demanding applications. Visit the link below to learn more about energy-saving controls.

www.hubbelllighting.com/solutions/controls/

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PERFORMANCE DATA

				5K (5000K NOMINAL, 67 CRI)					4K (4000K NOMINAL, 70 CRI)					3K (3000K NOMINAL, 80 CRI)				
NUMBER OF LEDS	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	LUMENS	LPW*	B	U	G	LUMENS	LPW*	B	U	G	LUMENS	LPW*	B	U	G
16	700mA	38w	2	3053	80	1	1	1	3077	81	1	2	2	2438	64	1	2	2
			3	3075	81	1	1	1	3099	82	1	1	1	2456	65	1	1	1
			4	3113	82	1	1	1	3136	83	1	1	1	2486	65	1	1	1
			5S	3457	91	2	0	0	3484	92	2	0	0	2761	73	2	0	0
			5M	3731	98	2	0	0	3454	91	2	0	1	2737	72	2	0	0
			5W	3166	83	3	1	1	3160	83	2	1	1	2725	72	2	1	1
32	700mA	76w	2	6527	86	2	1	2	6042	80	2	1	2	4788	63	1	1	2
			3	6574	87	2	1	2	6085	80	2	1	2	4823	63	1	1	2
			4	6654	88	1	1	2	6159	81	1	1	2	4881	64	1	1	2
			5S	7391	97	3	0	0	6841	90	3	0	0	5422	71	2	0	0
			5M	7327	96	3	0	1	6782	89	3	0	1	5375	71	3	0	1
			5W	6704	88	3	1	2	6206	82	3	1	2	4918	65	3	0	1
	525mA	56w	2	4930	88	2	1	2	4564	81	1	1	2	3617	65	1	1	2
			3	4966	89	1	1	2	4596	82	1	1	1	3643	65	1	1	1
			4	5026	90	1	1	2	4652	83	1	1	2	3687	66	1	1	1
			5S	5583	100	2	0	0	5168	92	2	0	0	4096	73	2	0	0
			5M	5535	99	2	0	1	5123	91	2	0	1	4060	73	2	0	1
			5W	5064	90	3	1	1	4688	84	3	1	1	3715	66	2	1	1
	350mA	38w	2	3488	92	1	1	2	3229	85	1	1	1	2559	67	1	1	1
			3	3513	92	1	1	1	3252	86	1	1	1	2578	68	1	1	1
			4	3556	94	1	1	1	3292	87	1	1	1	2609	69	0	1	1
			5S	3950	104	2	0	0	3656	96	2	0	0	2898	76	1	0	0
			5M	3916	103	2	0	0	3625	95	2	0	0	2873	76	2	0	0
			5W	3583	94	3	1	1	3317	87	2	1	1	2628	69	2	1	1
48	700mA	110w	2	9864	90	2	2	3	9131	83	2	2	3	7236	66	2	1	2
			3	9935	90	2	1	2	9593	87	2	1	2	7288	66	2	1	2
			4	10056	91	2	1	2	9309	85	1	1	2	7377	67	1	1	2
			5S	11169	102	3	0	0	10339	94	3	0	0	8193	74	3	0	0
			5M	11073	101	4	1	2	10250	93	4	1	2	8123	74	3	1	2
			5W	10132	92	3	1	2	9379	85	3	1	2	9662	88	3	1	2
	525mA	82w	2	7230	88	2	1	2	6692	82	2	1	2	5303	65	1	1	2
			3	7282	89	2	1	2	7031	86	2	1	2	5342	65	1	1	2
			4	7370	90	1	1	2	6823	83	1	1	2	5407	66	1	1	2
			5S	8186	100	3	0	0	7578	92	3	0	0	6005	73	3	0	0
			5M	8116	99	3	1	2	7512	92	3	1	2	5954	73	3	1	1
			5W	7426	91	3	1	1	6874	84	3	1	1	7081	86	2	1	1
	350mA	55w	2	5211	95	2	1	2	4823	88	1	1	2	3822	69	1	1	1
			3	5248	95	1	1	2	5067	92	1	1	1	3850	70	1	1	1
			4	5312	97	1	1	2	4917	89	1	1	2	3897	71	1	1	1
			5S	5900	107	2	0	0	5462	99	2	0	0	4328	79	2	0	0
			5M	5849	106	3	1	1	5415	98	3	1	1	4291	78	2	1	1
			5W	5352	97	3	1	1	4954	90	2	1	1	5104	93	2	1	0

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment, application and inherent performance tolerances of the electrical components.

PROJECTED LUMEN MAINTENANCE

AMBIENT TEMP.	0	25,000	50,000	*TM-21-11 60,000	100,000	CALCULATED L70 (hours)
25°C / 77°F	1.00	0.98	0.96	0.96	0.94	>675,000
40°C / 104°F	0.98	0.96	0.95	0.94	0.92	>556,000

* Nichia 219B, 700mA, 85°C Ts, 10,000hrs

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

AMBIENT DATA		
TEMP		LUMEN MULT.
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.98
50°C	122°F	0.98

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ELECTRICAL DATA

NUMBER OF LED's	NUMBER OF DRIVERS	Drive Current [milliamps]	INPUT VOLTAGE (VOLTS)	OPER. CURRENT [AMPS]	SYSTEM POWER [WATTS]	IN-RUSH CURRENT (AMPS)
16	1	std. (700mA)	120	0.32	37.8	
			277	0.15	37.5	
			347			
			480			
32	2		120	0.63	75.5	
			277	0.29	74.8	
			347			
			480			
48	3		120	0.95	110.5	
			277	0.44	110.9	
			347			
			480			

Consult factory for 350mA and 520mA electrical data

ACCESSORIES/REPLACEMENT PARTS - Order Separately

CATALOG NUMBER	DESCRIPTION
SCP-REMOTE[9]	Remote control for SCP option. Order at least one per project to program and control
93052458	20KA surge protection with an end of life LED indicator

PHOTOCONTROL EQUIPMENT

CATALOG NUMBER	DESCRIPTION
PTL-1	Photocontrol - twist-lock cell (120V)
PTL-8	Photocontrol - twist-lock cell (120-277V)
PTL-5	Photocontrol - twist-lock cell (480V)
PTL-6	Photocontrol - twist-lock cell (347V)
PSC	Shorting cap - twist-lock

MOUNTING ACCESSORIES

CATALOG NUMBER	DESCRIPTION
CL1S-RPA3-ACC-XX[1]	Round pole adapter for straight arm (3¼ - 3¾")
CL1S-RPA4-ACC-XX[1]	Round pole adapter for straight arm (3⅞ - 4½")
WB-CR-XX	Wall bracket

1 Replace XX with color choice, eg.: DB for Dark Bronze

TENON TOP POLE BRACKET ACCESSORIES

(2 3/8" OD tenon, RSS version requires 4" round pole adapter)

Catalog Number	Description
SETA-XX[1]	Square pole tenon adapter (4 at 90 degrees)
RETA-XX[1]	Round pole tenon adapter (4 at 90 degrees)
TETA-XX[1]	Triangular pole tenon adapter (3 at 120 degrees)

1 Replace XX with color choice, eg.: DB for Dark Bronze

SURGE PROTECTION

- Field replaceable surge protection device (SPD) provides 20KA and 10KV protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3
- The SPD is designed with a clamping voltage of 1600V at 20KA using industry standard 8/20µs waveform
- Max surge current = 20,000 Amps (see table)
- LED Indicator – Green LED is unlit at end of life

Pulse Rating (8 x 20 µSec)	
Strikes	**Surge**
1	20,000 A
2	15,000 A
15	10,000 A
120	3,000 A

	cRUus	CE
I_n	10KA	5KA

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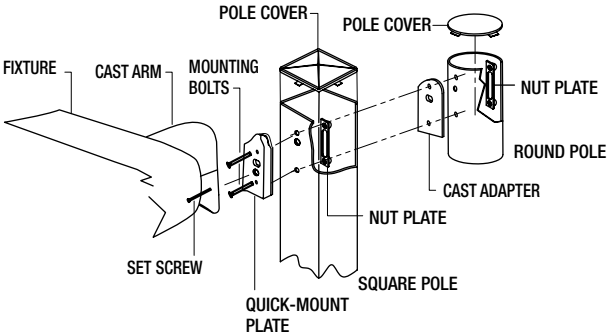
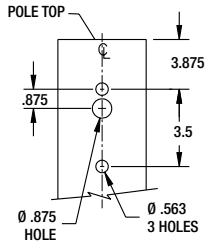
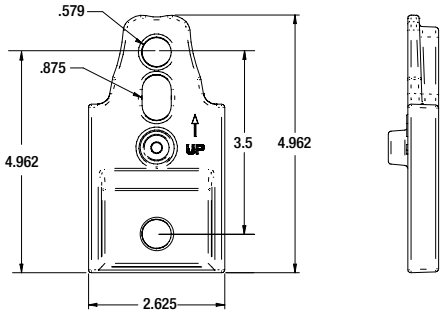
FIXTURE MOUNTING





#2 DRILL PATTERN FOR POLES

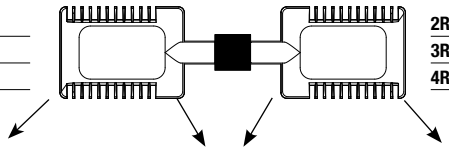


QUICK-MOUNT PLATE

FIXTURE MOUNTING – FACTORY ROTATED OPTICS

For proper light distribution and performance, rotated optics must be mounted as referenced in illustration. Consult instruction sheet included when mounting.

2L	Type II rotated 90˚ left
3L	Type III rotated 90˚ left
4L	Type IV rotated 90˚ left



2R	Type II rotated 90˚ right
3R	Type III rotated 90˚ right
4R	Type IV rotated 90˚ right

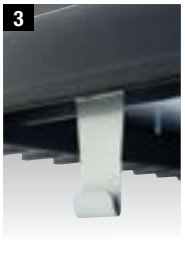
QUICK MOUNT INSTALLATION

The Cimarron CL1S installation features:

1. Quick-mount plate attaches to pole with two 3/4" bolts
2. 4 - slot hex 1/4" captured screws secure luminaire door to top
3. Safety-latch holds luminaire door to prevent "free swing" door
4. Two stage hinge mechanism built into integral arm
5. Quick-connect wiring for a simplified, hassle-free installation

For installation video scan this code or visit link below:

http://www.youtube.com/user/hubbelloutdoorbrands



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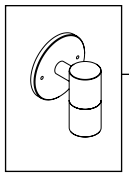
HUBBELL Lighting



BKSSL® SOLID STATE LIGHTING

the power of dimming with adjust-e-lume® TECHNOLOGY

EL CAPITAN™

PROJECT:	
TYPE:	
CATALOG NUMBER:	
SOURCE:	
NOTES:	

CATALOG NUMBER LOGIC

			EC		LED																	
Example	-		**EC**	-	**LED**	-	**e65**	-	**SP**	-	**A7**	-	**BLW**	-	**12**	-	**11**	-	**B**			

Material

Blank - Aluminum
B - Brass
S - Stainless Steel

Series

EC - El Capitan Series™

Source

LED - **'e'** Technology with Integral Dimming Driver (See Specifications for Dimming)
Designed for use with remote 12VAC BKSSL® transformers. Requires magnetic Low Voltage dimmer.

LED Type

e64 - 7WLED/2.7k
e65 - 7WLED/3k
e66 - 7WLED/4k
e74 - 7WLED/Amber

Optics*

NSP - Narrow Spot (Red Indicator)
SP - Spot (Green Indicator)
MFL - Medium Flood (Yellow Indicator)
WFL - Wide Flood (Blue Indicator)

Adjust-e-Lume® Output Intensity *(Choose factory setting)*

A9 (Standard), **A8, A7, A6, A5, A4, A3, A2, A1**

Finish

Aluminum Finish

Powder Coat Color	Satin	Wrinkle
Bronze	**BZP**	**BZW**
Black	**BLP**	**BLW**
White (Gloss)	**WHP**	**WHW**
Aluminum	**SAP**	—
Verde	—	**VER**

Brass Finish

Machined	**MAC**
Polished	**POL**
Mitique™	**MIT**

Stainless Finish

Machined	**MAC**
Polished	**POL**
Brushed	**BRU** *Interior use only.*

Premium Finish

ABP	Antique Brass Powder	**CMG**	Cascade Mountain Granite	**RMG**	Rocky Mountain Granite
AMG	Aleutian Mountain Granite	**CRI**	Cracked Ice	**SDS**	Sonoran Desert Sandstone
AQW	Antique White	**CRM**	Cream	**SMG**	Sierra Mountain Granite
BCM	Black Chrome	**HUG**	Hunter Green	**TXF**	Textured Forest
BGE	Beige	**MDS**	Mojave Desert Sandstone	**WCP**	Weathered Copper
BPP	Brown Patina Powder	**NBP**	Natural Brass Powder	**WIR**	Weathered Iron
CAP	Clear Anodized Powder	**OCP**	Old Copper	*Also available in RAL Finishes See submittal SUB-1439-00*	

Lens Type

12 - Soft Focus Lens
13 - Rectilinear Lens

Shielding

11 - Honeycomb Baffle*

Cap Style

A - 45°
B - 90°
C - Flush
D - 45° less Weep Hole *(Interior Use Only)*
E - 90° less Weep Hole *(Interior Use Only)*
F - 90° cutoff with Flush Lens

**Accommodates up to 2 Lens/Shielding media*

DRIVER DATA

Input Volts	InRush Current	Operating Current	Dimmable	Operation Ambient Temperature
12VAC/DC 50/60Hz	250mA (non-dimmed)	700mA	Magnetic Low Voltage Dimmer	-10°F-130°F

LM79 DATA

BK No.	CCT (Typ.)	Input Watts (Typ.)	CRI (Typ.)
e64	2700K	7.0	80
e65	3000K	7.0	80
e66	4000K	7.0	80
e74	Amber (590nm)	7.0	~

L70 DATA

Minimum Rated Life (hrs.) 70% of initial lumens(L70)
50,000
50,000
50,000
50,000

*OPTICAL DATA

Beam Type	Angle	e66 CBCP	Visual Indicator
Narrow Spot	13°	6889	Red Dot
Spot	15°	5225	Green Dot
Medium Flood	23°	1984	Yellow Dot
Wide Flood	31°	1300	Blue Dot

B-K LIGHTING

40429 Brickyard Drive • Madera, CA 93636 • USA
559.438.5800 • FAX 559.438.5900
www.bklighting.com • info@bklighting.com

RELEASED 06-06-16

DRAWING NUMBER SUB000942

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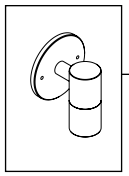


BKSSL® SOLID STATE LIGHTING

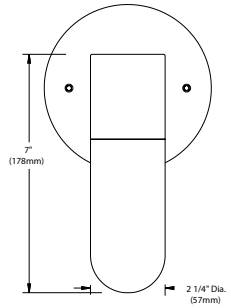
the power of dimming with adjust-e-lume® TECHNOLOGY

EL CAPITAN™

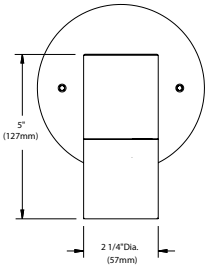
PROJECT:	
TYPE:	

FRONT VIEW

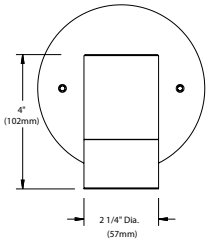
"A/D" CAP



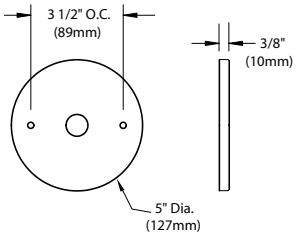
"B/E/F" CAP



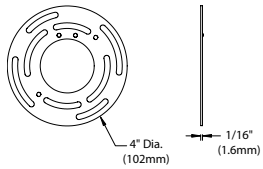
"C" CAP



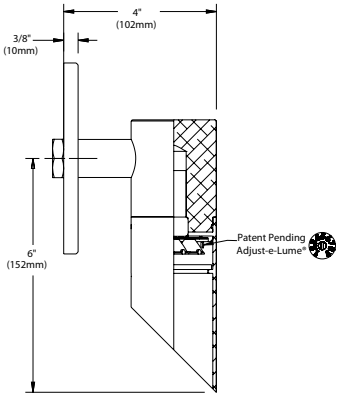
CANOPY DETAIL

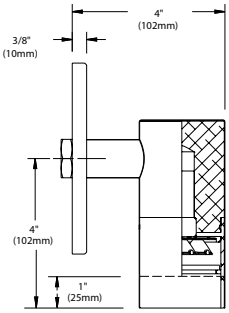


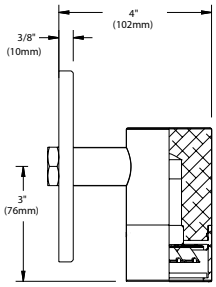
UNIVERSAL RING



SIDE VIEW

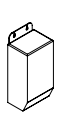




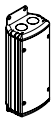


Accessories *(Configure separately)*

Remote options:



TR Series



UPMRM™

All dimensions indicated on this submittal are nominal.
Contact Technical Sales if you require more stringent specifications.

SPECIFICATIONS

GreenSource Initiative™
Metal and packaging components are made from recycled materials. Manufactured using renewable solar energy, produced on site. Returnable to manufacturer at end of life to ensure cradle-to-cradle handling. Packaging contains no chlorofluorocarbons (CFC's). Use of this product may qualify for GreenSource efficacy and recycling rebate(s). Consult www.bklighting.com/greensource for program requirements.

Materials
Furnished in Copper-Free Aluminum (Type 6061-T6), Brass (Type 360) or Stainless Steel (Type 316).

Body
Fully machined from solid billet. Unibody design provides enclosed, water-proof wireway and integral heat sink for maximum component life. High temperature, silicone 'O' Ring provides water-tight seal.

Cap
Fully machined. Accommodates [1] lens or louver media. Choose from 45° cutoff ('A' or 'D'), 1" deep bezel with 90° cutoff ('B' or 'E'), flush lens ('C') cap styles, or 1" deep cutoff with flush mounted lens ('F'). 'A' and 'B' caps include weephole for water and debris drainage. 'D' and 'E' caps exclude weep-hole and are for interior use only.

Lens
Shock resistant, tempered, glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment. Specify soft focus (#12) or rectilinear (#13) lens.

BKSSL®
Integrated solid state system with 'e' technology is scalable for field upgrade. Modular design with electrical quick disconnects permit field maintenance. High power, forward throw source complies with ANSI C78.377 binning requirements. Exceeds ENERGY STAR® lumen maintenance requirements. LM-80 certified components.

Integral, constant current driver. 12VAC/VDC input. 50/60Hz. Proprietary input control scheme achieves power factor correction and eliminates inrush current. Output, over-voltage, open-circuit, and short circuit protected. Inrush current limited to <1A (non-dimmed). Conforms to Safety Std. C22.2 No. 250.13-12.

Dimming
Line voltage dimmable via magnetic low voltage dimmer. For use with low voltage dimmer with dedicated neutral conductor. For purposes of dimming: Remote magnetic transformer with BKSSL® Power of 'e' technology loads should be loaded to 25% of the transformer VA (watts) rated value.

Optics
Interchangeable OPTIKIT™ modules permit field changes to optical distribution. Color-coded for easy reference: Narrow Spot (NSP) = Red. Spot (SP) = Green. Medium Flood (MFL) = Yellow. Wide Flood (WFL) = Blue.

Adjust-e-Lume® (Pat. Pending)
Integral electronics allows dynamic lumen response at the individual fixture. Indexed (100% to 25% nom.) lumen output. Maintains output at desired level or may be changed as conditions require. Specify factory preset output intensity.

Installation
5" dia., machined canopy with stainless steel universal mounting ring permits mounting to 4'' octagonal junction box (by others). Suitable for uplight or downlight installation.

Remote Transformer
For use with 12VAC BKSSL SOLID STATE LIGHTING remote transformer or magnetic transformers only. B-K Lighting cannot guarantee performance with third party manufacturers' transformers.

Wiring
Teflon® coated, 18AWG, 600V, 250° C rated and certified to UL 1659 standard.

Hardware
Tamper-resistant, stainless steel hardware. Canopy mounting screws are additionally black oxide treated for additional corrosion resistance.

Finish
StarGuard®, our exclusive RoHs compliant, 15 stage chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating. Brass components are available in powder coat or handcrafted metal finish. Stainless steel components are available in handcrafted metal finish. (Brushed finish for interior use only).

Warranty
5 year limited warranty.

Certification and Listing
ITL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. Suitable for indoor or outdoor use. Suitable for use in wet locations. RoHs compliant. Made in USA.

c UL us LISTED RoHS MADE IN THE USA

**Teflon is a registered trademark of DuPont Corporation.*
**Energy Star is a registered trademark of the United States Environmental Protection Agency.*

B-K LIGHTING

40429 Brickyard Drive • Madera, CA 93636 • USA
559.438.5800 • FAX 559.438.5900
www.bklighting.com • info@bklighting.com

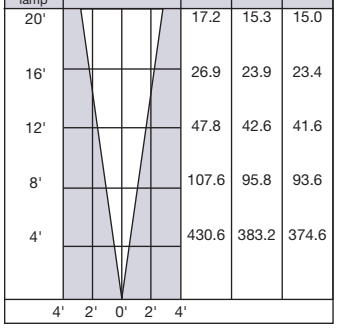
RELEASED	DRAWING NUMBER
06-06-16	SUB000942

adjust-e-lume®
TECHNOLOGY

Select OptiKit™ for desired distribution

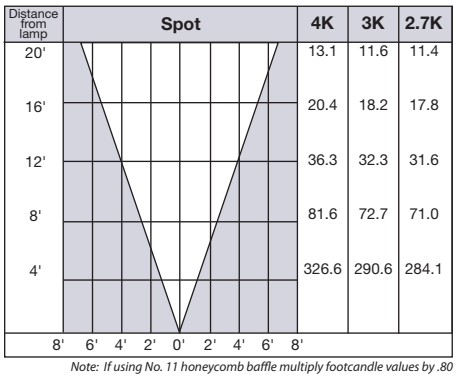
RED	Narrow Spot (NSP)
GREEN	Spot (SP)
YELLOW	Medium Flood (MFL)
BLUE	Wide Flood (WFL)

Set adjust-e-lume® Dial to desired output



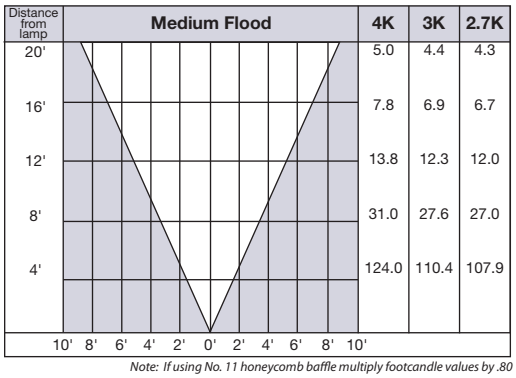
Distance from lamp	Narrow Spot	4K	3K	2.7K
20'		17.2	15.3	15.0
16'		26.9	23.9	23.4
12'		47.8	42.6	41.6
8'		107.6	95.8	93.6
4'		430.6	383.2	374.6

Note: If using No. 11 honeycomb baffle multiply footcandle values by .80



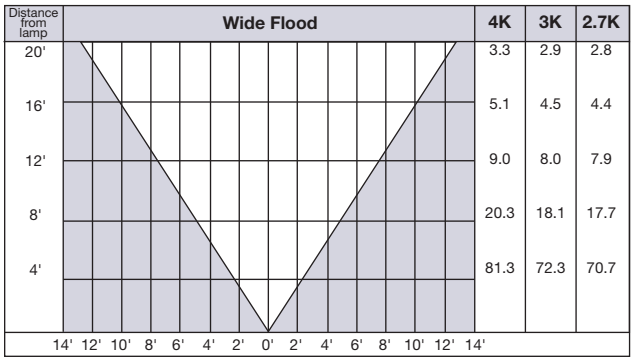
Distance from lamp	Spot	4K	3K	2.7K
20'		13.1	11.6	11.4
16'		20.4	18.2	17.8
12'		36.3	32.3	31.6
8'		81.6	72.7	71.0
4'		326.6	290.6	284.1

Note: If using No. 11 honeycomb baffle multiply footcandle values by .80



Distance from lamp	Medium Flood	4K	3K	2.7K
20'		5.0	4.4	4.3
16'		7.8	6.9	6.7
12'		13.8	12.3	12.0
8'		31.0	27.6	27.0
4'		124.0	110.4	107.9

Note: If using No. 11 honeycomb baffle multiply footcandle values by .80



Distance from lamp	Wide Flood	4K	3K	2.7K
20'		3.3	2.9	2.8
16'		5.1	4.5	4.4
12'		9.0	8.0	7.9
8'		20.3	18.1	17.7
4'		81.3	72.3	70.7

Note: If using No. 11 honeycomb baffle multiply footcandle values by .80

KIM LIGHTING

Wall, Step, Path Light **EL807**

120 / 277 Volt Die-Cast Aluminum LED

revision 2/11/15 • kl_el807_spec.pdf

Type:
Job:
Fixture Catalog number:

_____ / _____
Fixture Mode Finish

Approvals:

Date:

Specifications

Housing: Die-cast low copper alloy (<0.6% Cu) aluminum with clear anodized finish. Two ½″ NPT in sides. Housing mounts into concrete, brick, or masonry (non-combustible materials). Internal splice area provided behind lamp plate.

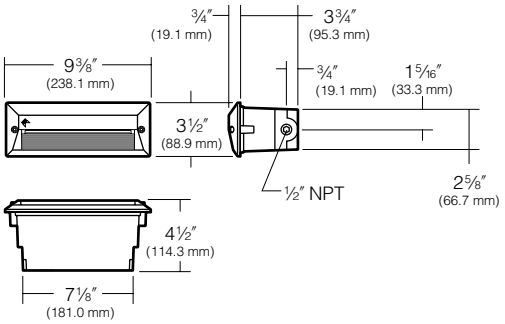
Lens Frame: Die-cast aluminum, with silicone gasket, attaches to housing with two captive 10-32 stainless steel, hex socket cap screws.

Lens: Tempered prismatic glass with silicone gasket, concealed above lens frame opening.

Finish: On lens frame only, each luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat finish. Standard colors are Black **(BL)**, Dark Bronze **(DB)**, and Verde Green **(GR)**.

Optical System: A total of 3 or 9 LED emitters are configured together as a module. Available in 3000K, 4200K, and 5100K.

Driver: Universal Voltage from 120 to 277V with a ±10% tolerance. -40° F. starting temperature. All drivers are Underwriters Laboratories recognized.



ORDERING INFORMATION

Fixture	Source
☐ **EL807 / 3L3KUV**[1]	5.3W, 3 LED's, 3000K
☐ **EL807 / 3L4KUV**[1]	5.3W, 3 LED's, 4200K
☐ **EL807 / 3L5KUV**[1]	5.3W, 3 LED's, 5100K

Fixture	Source
☐ **EL807 / 9L3KUV**[1]	10.5W, 9 LED's, 3000K
☐ **EL807 / 9L4KUV**[1]	10.5W, 9 LED's, 4200K
☐ **EL807 / 9L5KUV**[1]	10.5W, 9 LED's, 5100K

[1] Universal Voltage from 120 to 277V with a ±10% tolerance. For 5.3W, Max Amps. are .13 for 120V, .080 for 208V, .080 for 240V, .060 for 277V. For 10.8W, Max Amps. are .090 for 120V, .050 for 208V, .040 for 240V, .040 for 277V..

Finish

☐ **BL** - Black
☐ **DB** - Dark Bronze
☐ **GR** - Verde Green

Listings and Ratings		
UL cUL 1598[1]	IP66 Rated	25C Ambient

[1]Suitable for wet locations

KIM LIGHTING RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

HUBBELL®
Hubbell Lighting, Inc.

c UL us LISTED

Lumen Data

Spectroradiometric			
	3000K	4200K	5100K
Correlated Color Temp. CCT (K)	2800 to 3175K	3800 to 4600K	4600 to 5600K
Color Rendering Index (CRI)	≥75	≥70	≥65

ELECTRICAL - Drive Current @350mA (3 LEDs)		
Volts -AC	Amps - AC	System Watts
120	0.13	5.3
208	0.08	5.3
240	0.08	5.3
277	0.06	5.3

ELECTRICAL - Drive Current @350mA (9 LEDs)		
Volts -AC	Amps - AC	System Watts
120	0.09	10.5
208	0.05	10.5
240	0.04	10.5
277	0.04	10.5

Absolute Lumens (3 LEDs)	
Temperature	EL807/3L*K
3000K	61
4200K	71
5100K	78

Absolute Lumens (9 LEDs)	
Temperature	EL807/9L*K
3000K	167
4200K	188
5100K	211

Lumens Per Watt (3 LEDs)	
Temperature	EL807/3L*K
3000K	11.5
4200K	13.4
5100K	14.7

Lumens Per Watt (9 LEDs)	
Temperature	EL807/9L*K
3000K	15.9
4200K	17.9
5100K	20.1

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

23 Ocean Ave

2 messages

Levine, Howard A. <Howard.Levine@klgates.com> Thu, Jul 21, 2016 at 12:53 PM
To: "Nell Donaldson (hcd@portlandmaine.gov)" <hcd@portlandmaine.gov>
Cc: Stuart O'Brien <SGO@portlandmaine.gov>, "JEFF LEVINE (jlevine@portlandmaine.gov)" <jlevine@portlandmaine.gov>

Greetings: My wife and I own the property at 84 Hersey Street. My wife, Karen, grew up in the house. I have been to City Hall to review the proposed plans for the redevelopment of 23 Ocean Ave (access off Hersey St) and look forward to following its progress through the public process.

Because we are not in residence all the time (our primary location is Newton, Ma -- where I grew up), is it possible to have all future notifications mailed to that address (as is the case with our Portland tax bill, etc.)? **Howard and Karen Levine, 27 Lantern Lane, Newton, Ma 02459.** We would greatly appreciate that. Please let me know? Thanks.

In addition, I have reviewed the Zoning Ordinance, Section 14-161 to begin to familiarize myself with the regulations, process, parking requirements, requirement for traffic studies, etc. I would like to offer the following very preliminary comments:

1. Where is the off-site parking to be located? Distance from site? Walkable or is a van needed? Why is that being required? Is the lease non-terminable so it will be an ongoing condition? Are parking restrictions being considered for that section or all of Hersey Street -- some of the allowed office uses could produce a large number of visitors. I have not yet been able to review Division 20 (is off site parking as a condition required to be within a certain distance and in the same business zone, and allowed as a use so that the parking will not put the property on which it is located into zoning violation?).

2. Will the traffic engineer require a Traffic Study as a result of the threshholds set forth in the Ordinance? I suppose that will depend in part on the type of office uses?

3. Will there be an analysis of the intersection of Hersey and Ocean, which is currently quite difficult to maneuver even on non-peak hours?

4. Will there be consideration of removing or limiting the Hersey Street access? Consideration of entrance and/or exit off Ocean Ave seems now to make more sense.

Those are my preliminary thoughts. Please let me know if you will be able to mail the futuure public notices to our home in Newton!!! Thank you very much. I can always be reached at the telephone number and email below as well.

Regards, Howard

K&L GATES

Howard A. Levine

Of Counsel
K&L Gates LLP
One Lincoln Street

State Street Financial Center

Boston, Massachusetts 02111

617-951-9290

Howard.levine@klgates.com

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Helen Donaldson <hcd@portlandmaine.gov> Thu, Jul 21, 2016 at 2:20 PM
Draft To: "Levine, Howard A." <Howard.Levine@klgates.com>

[Quoted text hidden]
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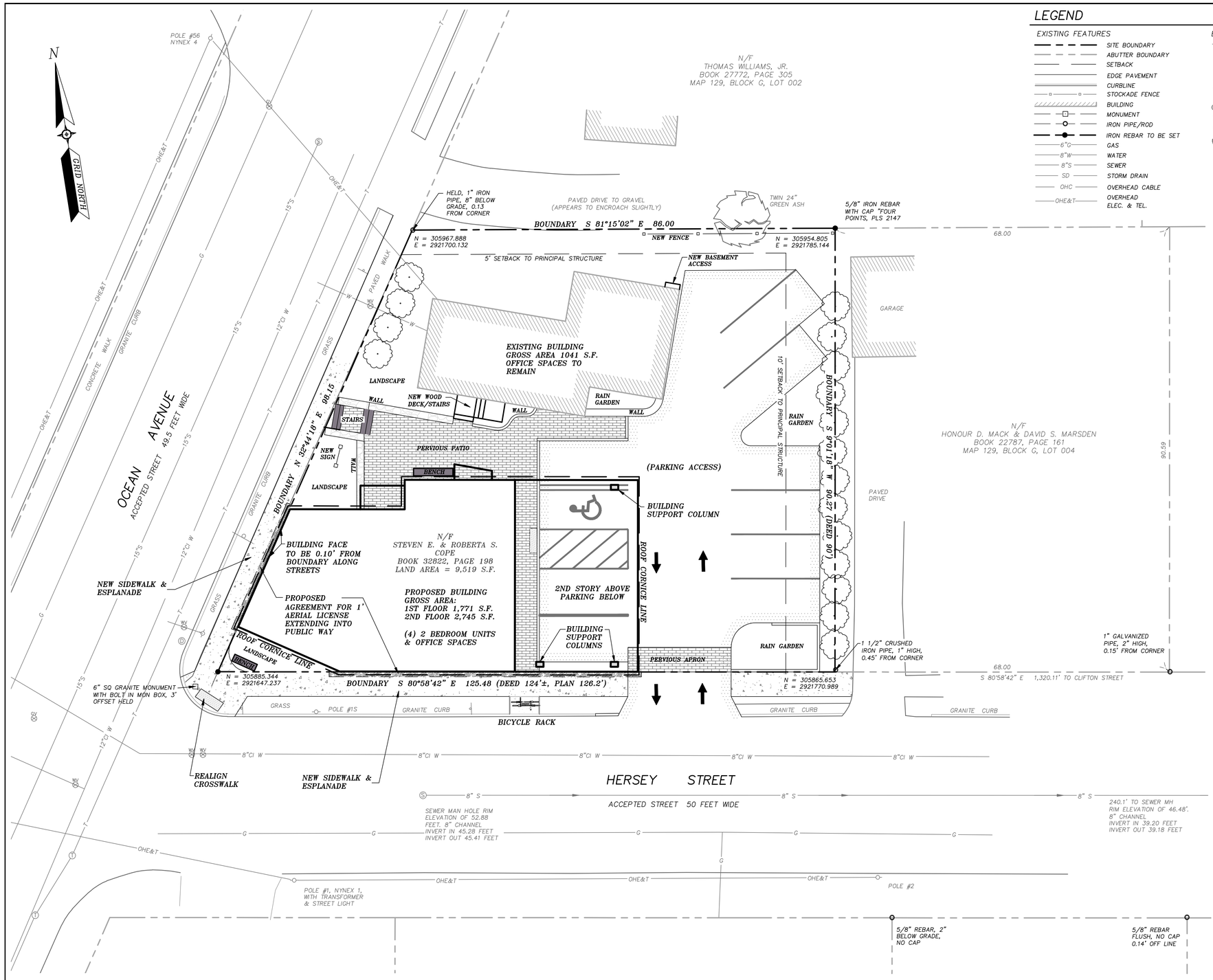
Nell Donaldson
Planner, City of Portland
874-8723
hcd@portlandmaine.gov



LEGEND

EXISTING FEATURES

- SITE BOUNDARY
- ABUTTER BOUNDARY
- SETBACK
- EDGE PAVEMENT
- CURBLINE
- STOCKADE FENCE
- BUILDING
- MONUMENT
- IRON PIPE/ROD
- IRON REBAR TO BE SET
- 6"G — GAS
- 8"W — WATER
- 8"S — SEWER
- SD — STORM DRAIN
- OHC — OVERHEAD CABLE
- OHE&T — OVERHEAD ELEC. & TEL.

EXISTING FEATURES

- SIGN
- WV — WATER VALVE
- GV — GAS VALVE
- UTILITY POLE
- GUY WIRE
- HYDRANT
- CATCH BASIN
- DRAINAGE MANHOLE
- SEWER MANHOLE
- DECIDUOUS TREE

PROPOSED IMPROVEMENTS

- BUILDING
- FENCE
- EDGE PAVEMENT
- SHRUBS
- CURBING

GENERAL NOTES:

1. RECORD OWNERS OF THE PROPERTY ARE STEVEN E. & ROBERTA S. COPE BY DEED OF STEPHEN D. SEWALL DATED DECEMBER 22, 2015, RECORDED AT THE CUMBERLAND COUNTY REGISTRY OF DEEDS DECEMBER 24, 2015 IN BOOK 32822, PAGE 198.

2. THE PROPERTY IS SHOWN ON THE CITY OF PORTLAND TAX MAP 129 AS LOT G-001 AND THE MAJORITY OF THE PROPERTY IS LOCATED WITHIN THE NEIGHBORHOOD BUSINESS 1 (B1) ZONE, A SMALL PORTION IN THE RESIDENTIAL 3 (R3) ZONE

SPACE AND BULK:

MIN. LOT SIZE .....N/A
MIN. FRONTAGE.....20 FEET
MIN. REAR YARD.....PRINCIPAL STRUCTURE 0 FEET,
10 FEET IF ABUTTING RESIDENTIAL
5 FEET FOR ACCESSORY STRUCTURE
MIN. SIDE YARD.....PRINCIPAL 0 FEET
5 FEET IF ABUTTING RESIDENTIAL
MAX. IMPERVIOUS SURFACE.....90%

3. PLAN REFERENCES:

A) PLAN OF CODMAN STREET SUBDIVISION SURVEYED OCTOBER OF 1913 BY PERCY H. RICHARDSON, C.E. AND RECORDED AT SAID REGISTRY IN PLAN BOOK 12, PAGE 99.

B) PLAN OF LAND IN PORTLAND MAINE SURVEYED FOR STANDARD OIL COMPANY OF NEW YORK, DATED JULY 1926 BY PERCY H. RICHARDSON, C.E. (ON THE OPPOSITE SIDE OF HERSEY STREET ON OCEAN AVENUE) RECORDED AT SAID REGISTRY IN PLAN BOOK 17, PAGE 28.

C) PLAN OF HERSEY SAUNDERS FIELD, WOODFORDS MAINE BY PERCY H. RICHARDSON, C.E. RECORDED MAY 18, 1926 AT SAID REGISTRY IN PLAN BOOK 17, PAGE 4. THIS WAS THE LATEST OF SEVERAL PLANS SHOWING LOTS ON BOTH SIDES OF HERSEY STREET.

D) STANDARD BOUNDARY AND EXISTING CONDITIONS SURVEY 701 FOREST AVENUE, PORTLAND, ME FOR THERMO CONSULTING ENGINEERS REVISED TO JUNE 1, 1998 INCLUDING AS-BUILT SURVEY BY TITCOMB ASSOCIATES AND RECORDED AT SAID REGISTRY IN PLAN BOOK 198, PAGE 203.

E) EXISTING CONDITIONS PLAN PREPARED BY FOUR POINTS ASSOCIATES, INC. AND OTHER PLANS SUBMITTED AS PART OF THE APPLICATION BEING SUBMITTED TO THE CITY OF PORTLAND. PLEASE REFER TO THE EXISTING CONDITIONS PLAN AND SITE PLAN FOR ADDITIONAL INFORMATION.

F) BLUE SHEETS FOR HERSEY STREET DATED FEBRUARY 3, 1938 AND OCEAN AVENUE DATED NOVEMBER 1, 1973 PROVIDED BY THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT. THE STREET LINE FOR HERSEY STREET WAS DETERMINED BY HOLDING AN OFFSET OF 0.08' OFF AN 8" SQUARE MONUMENT WITH BOLT FOUND IN A MONUMENT BOX ON THE WEST SIDE OF BAXTER BOULEVARD AND AN OFFSET OF 3 FEET FROM THE MONUMENT SHOWN HEREON AT THE INTERSECTION WITH OCEAN AVENUE. THE STREET LINE FOR OCEAN AVENUE WAS DETERMINED BY HOLDING AN ANGLE OF 66°17' OFF HERSEY STREET.

4. THE FIELD SURVEY WAS COMPLETED USING A COMBINATION OF REAL TIME KINEMATIC GPS EQUIPMENT AND A QSA ROBOTICS INSTRUMENT. ALL POINTS LOCATED WITHIN A POSITIONAL TOLERANCE OF 0.10 FEET HORIZONTALLY AND 0.15 FEET VERTICALLY. BEARINGS ARE BASED ON RAPID STATIC OBSERVATIONS ON THE MONUMENT AT HERSEY AND OCEAN AS WELL AS THE MONUMENT AT CLIFTON AND HERSEY. HORIZONTAL DATUM IS MAINE STATE PLANE COORDINATES, WEST ZONE, NAD 1983(2011) AS PROCESSED ON THE NGS OPUS WEBSITE.

5. VERTICAL DATUM IS NGVD 1929 AND WAS TAKEN FROM A MONUMENT WITH BOLT FOUND IN A MONUMENT BOX AT THE NORTHWEST CORNER OF THE INTERSECTION BETWEEN HERSEY AND CLIFTON STREETS. ELEVATION OF 29.16 FEET PER PORTLAND PUBLIC WORKS DEPT. A RAPID STATIC OBSERVATION ON THE MONUMENT CONFIRMED THE ELEVATION TO WITHIN 0.03 FEET, (THE ORTHO HEIGHT COMPUTED USING GEOID 12B).

6. THIS PLAN IS BASED ON A SURVEY COMPLETED TO THE BEST OF MY KNOWLEDGE IN ACCORDANCE WITH THE STATE OF MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS STANDARDS OF PRACTICE, EXCEPTING NO REPORT OR METES AND BOUNDS DESCRIPTION PREPARED.

7. FOUR POINTS ASSOCIATES, INC. HAS NOT CONFIRMED ALL UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHOWN HEREON ARE APPROXIMATE AND BASED ON VISIBLE ABOVE GROUND STRUCTURES, THE CITY OF PORTLAND'S GIS MAPPING FOR WATER AND SEWER AND A PLAN FOR THE DEVELOPMENT OF THE RITE AID PARCEL ON THE OPPOSITE SIDE OF OCEAN AVENUE. NO EXCAVATION OF ANY KIND CAN BE PERMITTED WITHOUT THE CONTRACTOR CONTACTING DIG-SAFE AT 1-888-DIGSAFE FOR THE LOCATION OF ANY POSSIBLE UNDERGROUND UTILITIES, ABANDONED AND OTHERWISE. THE CONTRACTOR RESPONSIBLE FOR EXCAVATION AND CONNECTION OF ALL UNDERGROUND UTILITIES MUST CONFIRM ALL INVERTS AND PIPE SIZES PRIOR TO ANY CONSTRUCTION.

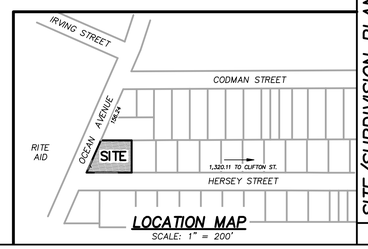
8. THE PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA PER THE FEMA FIRM FLOOD HAZARD MAP 2300510007C EFFECTIVE DATE DECEMBER 8, 1998.

9. THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES. PLEASE REFER TO THE SITE PLAN AND ARCHITECTURAL PACKAGE FOR ANY NEW CONSTRUCTION.

APPROVED BY CITY OF PORTLAND PLANNING BOARD

DATE

CHAIRPERSON



LOCATION MAP
SCALE: 1" = 200'

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.

DESIGN TEAM:

CARROLL ASSOCIATES
Patrick J. Caroll, Principal
Maine Licensed Landscape Architect
217 Commercial Street, Suite 200
Portland, Maine 04101
Tel: 207-772-1552

RANSOME CONSULTING, INC.
John Mahoney, P.E.
Project Engineer
400 Commercial Street, Suite 404
Portland, Maine 04101
Tel: 207-772-2891 Ex 32
Website: www.ransomenv.com

KEVIN MOQUIN ARCHITECT
Kevin Moquin
Portland, Maine 04103
Tel: 207-615-6421
Website: www.km-a.me

STATE OF MAINE
CUMBERLAND COUNTY SS REGISTRY OF DEEDS
RECEIVED _____ 2016
AT ____h _____m _____M. AND RECORDED IN
PLAN BOOK _____ PAGE _____
ATTEST _____ REGISTER

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM FOUR POINTS ASSOCIATES, INC. ANY ALTERATIONS AUTHORIZED WITHOUT WRITTEN PERMISSION ARE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO FOUR POINTS ASSOCIATES, INC.

REV:	DATE:	
B	06/07/2016	REVISIONS TO BUILDING FOOTPRINT, COLUMNS AND OTHER IMPROVEMENTS PER DESIGN TEAM RECEIVED 06/06/16
A	06/04/2016	ADD PROPOSED BUILDING/PARKING/WALKS, PRELIMINARY SUBMISSION

PROJ. NO: 15069 | DATE: 06/04/2016 | STATUS: | DWG NAME: 23 OCEAN | SCALE: 1"=10' | PLAN BY: DED

NAME: . .
LIC. # . .

DONALD E. DOSTIE
PLS #2147

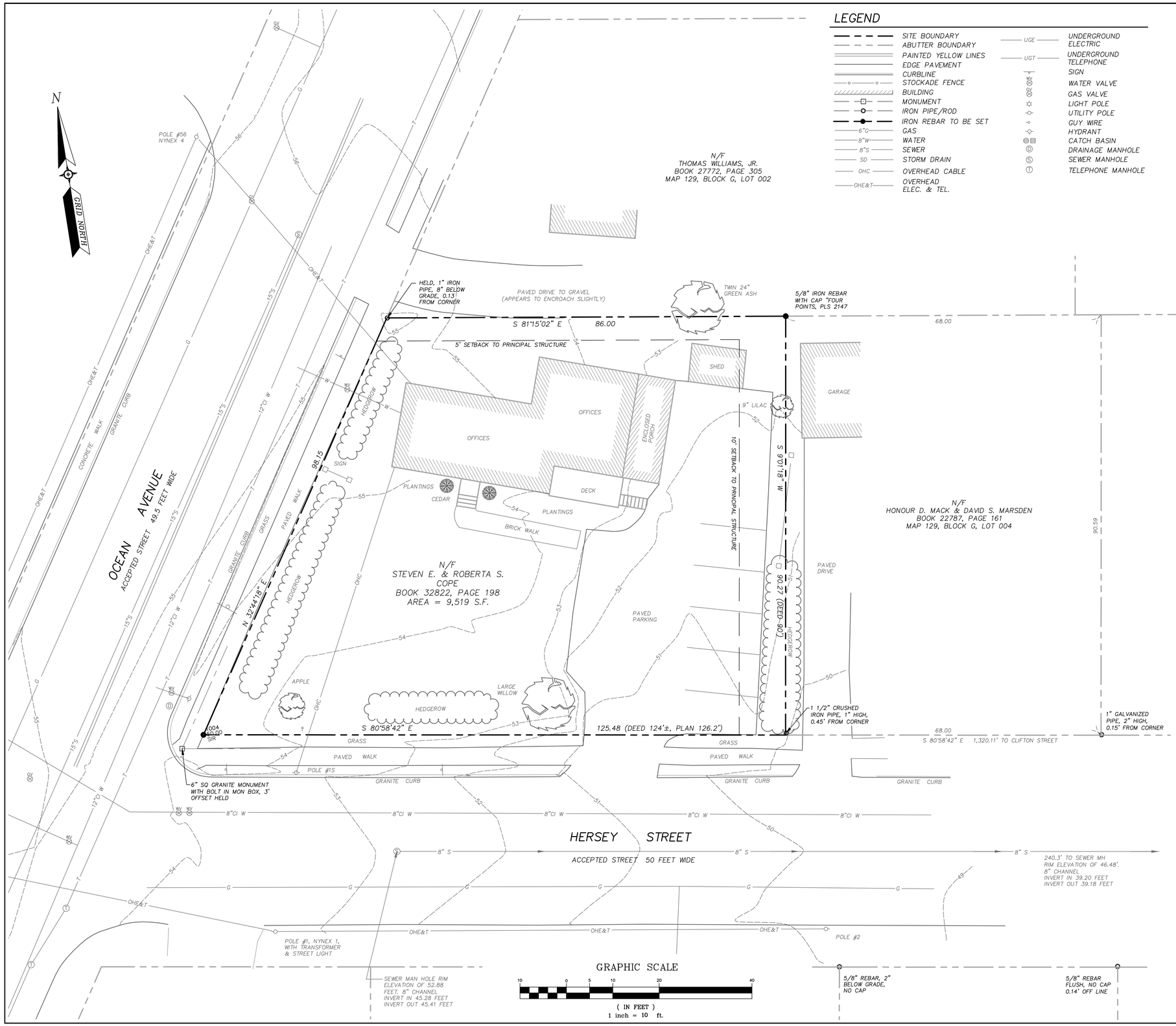
SITE/SUBDIVISION PLAN (PRELIMINARY)

OF:
23 OCEAN AVENUE
PORTLAND, MAINE

FOR RECORD OWNERS:
STEVEN E. AND ROBERTA S. COPE
P.O. BOX 1398
PORTLAND, MAINE 04104

Four Points Associates, Inc.
Donald E. Dostie PLS, President
9 Ralph Avenue, Lewiston, ME 04240 Tel: 207-577-5840

PLAN DATE: 06/04/2016



LEGEND

SITE BOUNDARY	UNDERGROUND ELECTRIC (UGE)
ABUTTER BOUNDARY	UNDERGROUND TELEPHONE (UGT)
PAINTED YELLOW LINES	SIGN
EDGE PAVEMENT	WATER VALVE
CURBLINE	GAS VALVE
STOCKADE FENCE	LIGHT POLE
BUILDING	UTILITY POLE
MONUMENT	GUY WIRE
IRON PIPE/ROD	HYDRANT
IRON REBAR TO BE SET	CATCH BASIN
GAS (6"G)	DRAINAGE MANHOLE
WATER (8"W)	SEWER MANHOLE
SEWER (8"S)	TELEPHONE MANHOLE
STORM DRAIN (SD)	
OVERHEAD CABLE (OHC)	
OVERHEAD ELEC. & TEL. (OHE&T)	

GENERAL NOTES:

1. RECORD OWNERS OF THE PROPERTY ARE STEVEN E. & ROBERTA S. COPE BY DEED OF STEPHEN D. SEWALL DATED DECEMBER 22, 2015, RECORDED AT THE CUMBERLAND COUNTY REGISTRY OF DEEDS DECEMBER 24, 2015 IN BOOK 32822, PAGE 198.

2. THE PROPERTY IS SHOWN ON THE CITY OF PORTLAND TAX MAP 129 AS LOT G-001 AND THE MAJORITY OF THE PROPERTY IS LOCATED WITHIN THE NEIGHBORHOOD BUSINESS 1 (B1) ZONE, A SMALL PORTION IN THE RESIDENTIAL 3 (R3) ZONE

SPACE AND BULK:
MIN. LOT SIZE.....10,000 S.F.
MIN. FRONTAGE.....20 FEET
MIN. REAR YARD.....PRINCIPAL STRUCTURE 0 FEET,
10 FEET IF ABUTTING RESIDENTIAL
5 FEET FOR ACCESSORY STRUCTURE
MIN. SIDE YARD.....PRINCIPAL 0 FEET
5 FEET IF ABUTTING RESIDENTIAL
MAX. IMPERVIOUS SURFACE.....90%

3. PLAN REFERENCES:

A) PLAN OF CODMAN STREET SUBDIVISION SURVEYED OCTOBER OF 1913 BY PERCY H. RICHARDSON, C.E. AND RECORDED AT SAID REGISTRY IN PLAN BOOK 12, PAGE 99.

B) PLAN OF LAND IN PORTLAND MAINE SURVEYED FOR STANDARD OIL COMPANY OF NEW YORK, DATED JULY 1926 BY PERCY H. RICHARDSON, C.E. (ON THE OPPOSITE SIDE OF HERSEY STREET ON OCEAN AVENUE) RECORDED AT SAID REGISTRY IN PLAN BOOK 17, PAGE 28.

C) PLAN OF HERSEY SAUNDERS FIELD, WOODFORDS MAINE BY PERCY H. RICHARDSON, C.E. RECORDED MAY 18, 1926 AT SAID REGISTRY IN PLAN BOOK 17, PAGE 4. THIS WAS THE LATEST OF SEVERAL PLANS SHOWING LOTS ON BOTH SIDES OF HERSEY STREET.

D) STANDARD BOUNDARY AND EXISTING CONDITIONS SURVEY 701 FOREST AVENUE, PORTLAND, ME FOR THERMO CONSULTING ENGINEERS REVISED TO JUNE 1, 1998 INCLUDING AS-BUILT SURVEY BY TITCOMB ASSOCIATES AND RECORDED AT SAID REGISTRY IN PLAN BOOK 198, PAGE 203.

E) BLUE SHEETS FOR HERSEY STREET DATED FEBRUARY 3, 1938 AND OCEAN AVENUE DATED NOVEMBER 1, 1973 PROVIDED BY THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT. THE STREET LINE FOR HERSEY STREET WAS DETERMINED BY HOLDING AN OFFSET OF 0.08' OFF AN 8" SQUARE MONUMENT WITH BOLT FOUND IN A MONUMENT BOX ON THE WEST SIDE OF BAXTER BOULEVARD AND AN OFFSET OF 3 FEET FROM THE MONUMENT SHOWN HEREON AT THE INTERSECTION WITH OCEAN AVENUE. THE STREET LINE FOR OCEAN AVENUE WAS DETERMINED BY HOLDING AN ANGLE OF 66°17' OFF HERSEY STREET.

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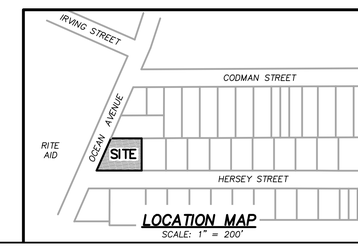
7. THIS PLAN IS SUBJECT TO REVISION UPON RECEIPT OF A TITLE OPINION WHICH MAY NOTE OTHER POSSIBLE RESTRICTIONS, EASEMENTS OR CONDITIONS ENCUMBERING OR BENEFITING THE SITE.

8. FOUR POINTS ASSOCIATES, INC. HAS NOT CONFIRMED ALL UNDERGROUND UTILITY LOCATIONS. ALL UTILITIES SHOWN HEREON ARE BASED ON VISIBLE ABOVE GROUND STRUCTURES, THE CITY OF PORTLAND'S GIS MAPPING FOR WATER AND SEWER AND A PLAN FOR THE DEVELOPMENT OF THE RITE AID PARCEL ON THE OPPOSITE SIDE OF OCEAN AVENUE. NO EXCAVATION OF ANY KIND CAN BE PERMITTED WITHOUT THE CONTRACTOR CONTACTING DIG-SAFE FOR LOCATION OF POSSIBLE UNDERGROUND UTILITIES.

9. THE PROPERTY IS NOT LOCATED WITHIN A FLOOD HAZARD AREA PER THE FEMA FIRM FLOOD HAZARD MAP 230051007C EFFECTIVE DATE DECEMBER 8, 1998.



LOCATION MAP
SCALE: 1" = 200'

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REV:	DATE:	STATUS:
C	05/29/2016	CONVERSION TO STATE PLANE COORDINATES NAD83, ADD DATA
B	01/18/2016	ADD ENCLOSED PORCH, HEDGES AND MORE TREES
A	01/13/2016	SUBMISSION TO CLIENT FOR REVIEW

PROJ. NO: 15069 | DWG NAME: 23 OCEAN | SCALE: 1"=10' | PLAN BY: DED

NAME: .
LIC. # .

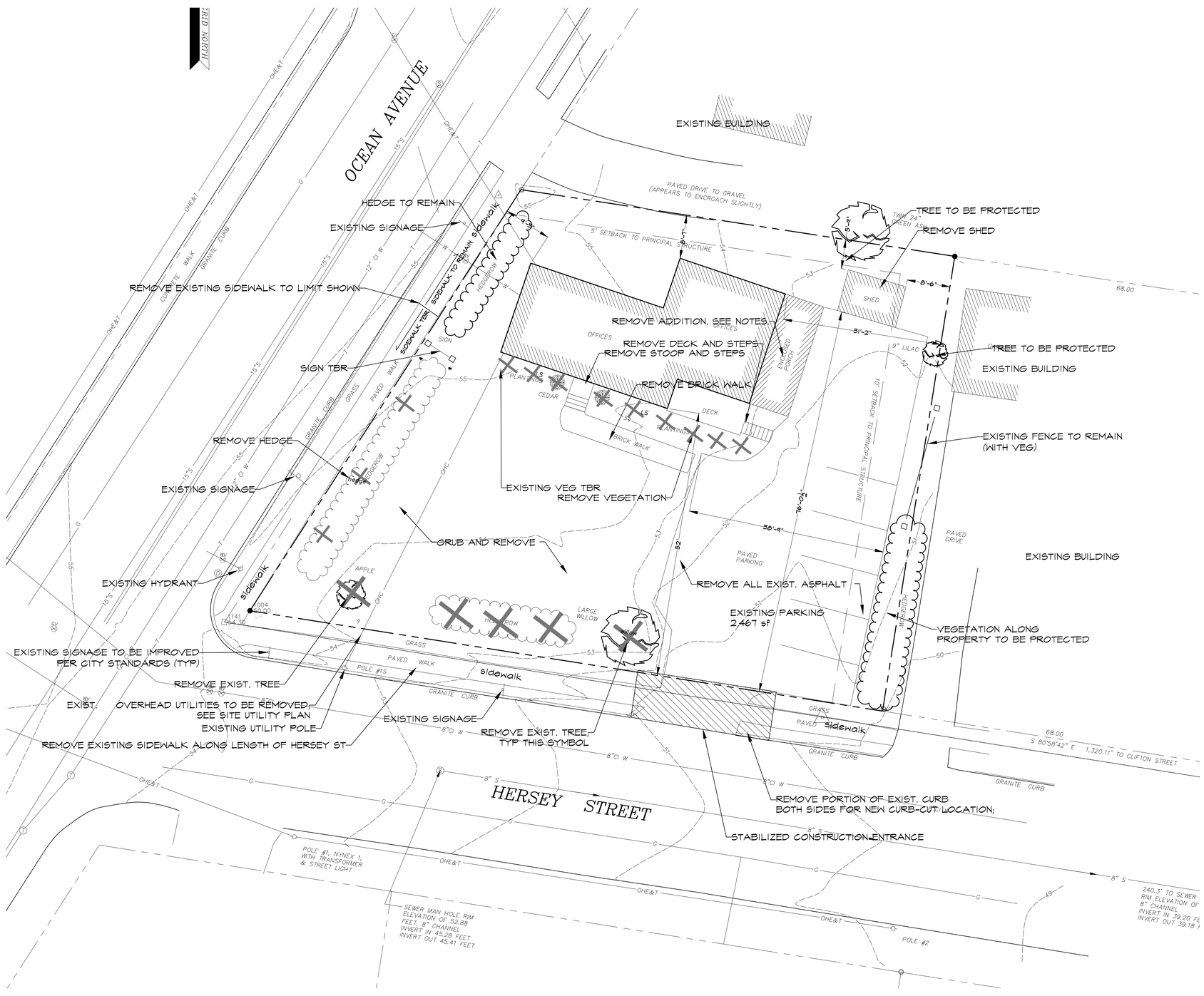
DONALD E. DOSTIE
PLS #2147

STATE OF MAINE
DONALD E. DOSTIE
2147
Professional
LAND SURVEYOR

EXISTING CONDITIONS PLAN
OF:
23 OCEAN AVENUE
PORTLAND, MAINE

FOR RECORD OWNERS:
STEVEN E. AND ROBERTA S. COPE
P.O. BOX 1398
PORTLAND, MAINE 04104

Four Points Associates, Inc.
Donald E. Dostie PLS, President
9 Ralph Avenue, Lewiston, ME 04240 Tel. 207-577-5840



GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 inch = 10 ft.

NORTH

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY/ROW	
	SETBACK	
	EASEMENT	
	CENTERLINE	
	MONUMENT	
	IRON PIPE/ROD	
	BUILDING	
	EDGE PAVEMENT	
	GRAVEL ROAD	
	CURBLINE	
124	CONTOURS	124
	CULVERT	SD
W	WATER	W
S	SEWER	S
SD	STORM DRAIN	SD
UGE	UNDERGROUND ELEC. & TEL.	UGE&T
OHE	OVERHEAD ELEC. & TEL.	OHE&T
	GATE VALVE	
	UTILITY POLE	
	MANHOLE	
	POTABLE WELL	
	WETLANDS	
	EDGE WETLAND	
	SIGN	
	BENCHMARK	
	SPOT GRADE	
	CHAIN LINK FENCE	
	RIPRAP	
	STOCKADE FENCE	
	ZONE LINE	

SITE PREPARATION NOTES

1. EXISITNG CONDITIONS BASED ON TOPOGRAPHIC SURVEY COMPLETED BY FOUR POINTS ASSOCIATES DATED 1/13/16. FIELD CONDITIONS MAY VARY SLIGHTLY FROM WHAT IS DEPICTED ON THE PLANS.

INSTALL INLET PROTECTION FOR ALL CATCH BASINS WITHIN WORK ZONE CONSISTING OF SILT SACK OR OTHER APPROVED METHODS.

2. THE SITE SHALL BE GRUBBED AS SHOWN ON THE PLANS. EXISTING PAVEMENT SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.

3. KEEP ALL STREETS FREE OF DUST, MUD, AND DEBRIS. SURFACES MUST BE SWEPT CLEAN AT END OF EACH WORK DAY AND OTHER TIMES AS REQUIRED TO MINIMIZE TRACKING OF MUD AND CREATION OF DUST. INSTALL STABILIZED CONSTRUCTION ENTRANCE AT PRIMARY ACCESS ROUTE ONTO LANCASTER STREET AND MAINTAIN AS REQUIRED THROUGHOUT CONSTRUCTION.

4. REMOVAL OF EXISTING BUILDING BY OTHERS UNDER SEPARATE CONTRACTS WITH THE OWNER PRIOR TO CONSTRUCTION. BUILDING REMOVAL WORK SHALL INCLUDE COMPLETE DEMOLITION OF ALL ABOVE-GRADE STRUCTURES AND FOUNDATIONS, DISPOSAL OF DEMOLITION WASTE GENERATED, AND DISCONNECTION OF ELECTRICAL, WATER, SEWER, AND GAS SERVICE TO THE BUILDING.

5. CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS.

NOT FOR CONSTRUCTION

Project Name:

23 Ocean Ave
Portland, Maine

Owner:
Steven & Roberta Cope
172 Concord Street
Portland, Maine 04103

Consultants:

Architect
Kevin Moquin, Architect
Hammond Stret
Portland, Maine 04104
207.615-6421

Lanscape Architects
Carroll Associates
217 Commercial St.
Portland, ME 04101
207.772.1552

Civil Engineer
Ransom Consulting
400 Commercial St.
Portland, ME 04101
207.772.2891

Drawing Set:

No.	Date	Revision

Drawing Set:
FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

Drawing Title:
SITE PREPARATION PLAN

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-1.0

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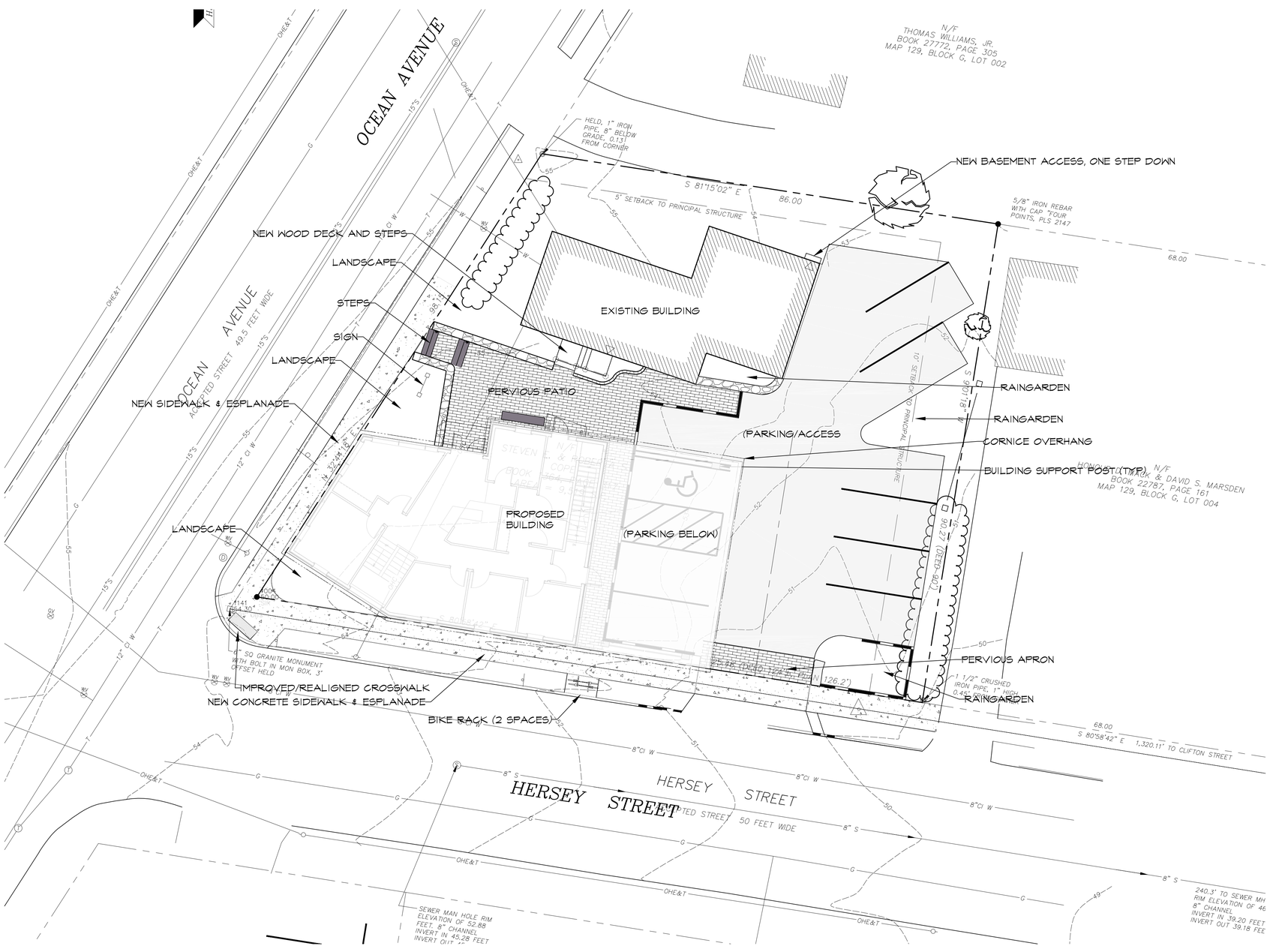
Plan 4



GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 inch = 10 ft.

NORTH

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY/ROW	
	SETBACK	
	EASEMENT	
	CENTERLINE	
	MONUMENT	
	IRON PIPE/ROD	
	BUILDING	
	EDGE PAVEMENT	
	GRAVEL ROAD	
	CURBLINE	
124	CONTOURS	124
	CULVERT	SD
W	WATER	W
S	SEWER	S
SD	STORM DRAIN	SD
UGE	UNDERGROUND ELEC. & TEL.	UGE&T
OHE	OVERHEAD ELEC. & TEL.	OHE&T
	GATE VALVE	
	UTILITY POLE	
	MANHOLE	
	POTABLE WELL	
	WETLANDS	
	EDGE WETLAND	
	SIGN	
	BENCHMARK	
	SPOT GRADE	
	CHAIN LINK FENCE	
	RIPRAP	
	STOCKADE FENCE	
	ZONE LINE	

NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.
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3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE OWNER.
4. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.
5. CONTRACTOR SHALL PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED.
6. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
7. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
8. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.
9. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A STREET-OPENING PERMIT FROM THE CITY OF PORTLAND AS APPLICABLE.

NOT FOR CONSTRUCTION

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Portland, Maine

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Drawing Set:

No.	Date	Revision

Drawing Set:
FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawing Title:
SITE PLAN

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-2.0

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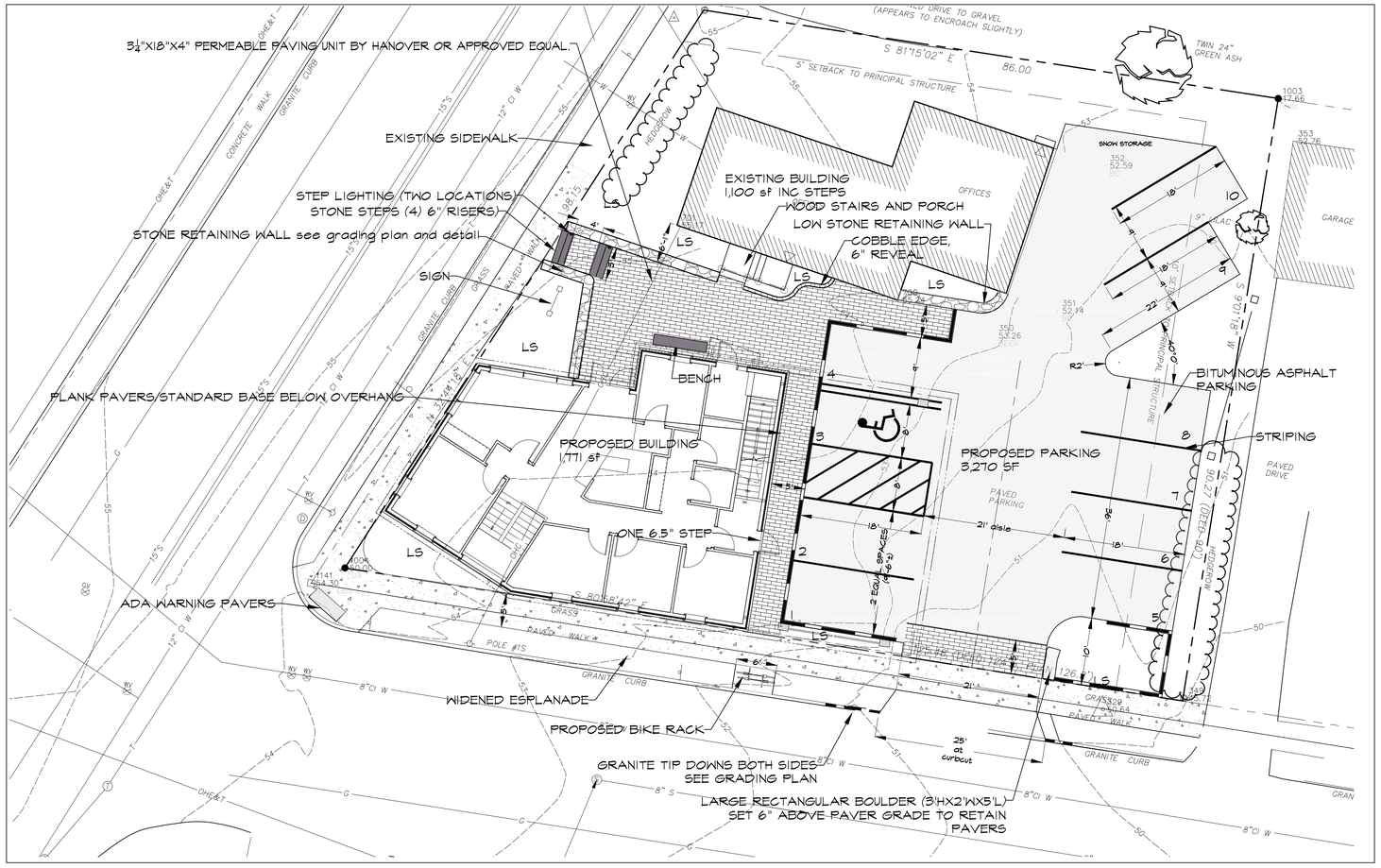
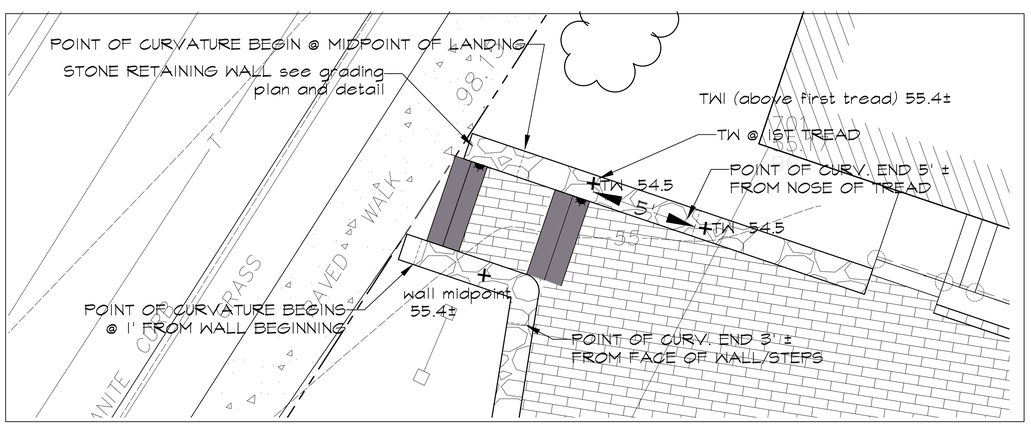


OVERALL LAYOUT



WALL LAYOUT DETAIL-SEE DETAIL SHEET

PLANK PAVER (PERVIOUS INSTALLATION NOT SHOWN)

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 inch = 10 ft.

NORTH

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	PROPERTY/ROW	
	SETBACK	
	EASEMENT	
	CENTERLINE	
	MONUMENT	
	IRON PIPE/ROD	
	BUILDING	
	EDGE PAVEMENT	
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124	CONTOURS	124
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	SPOT GRADE	
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	RIPRAP	
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	ZONE LINE	

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Drawing Set:

No.	Date	Revision

Drawing Set:
FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawing Title:
MATERIALS AND LAYOUT PLAN

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-3.0

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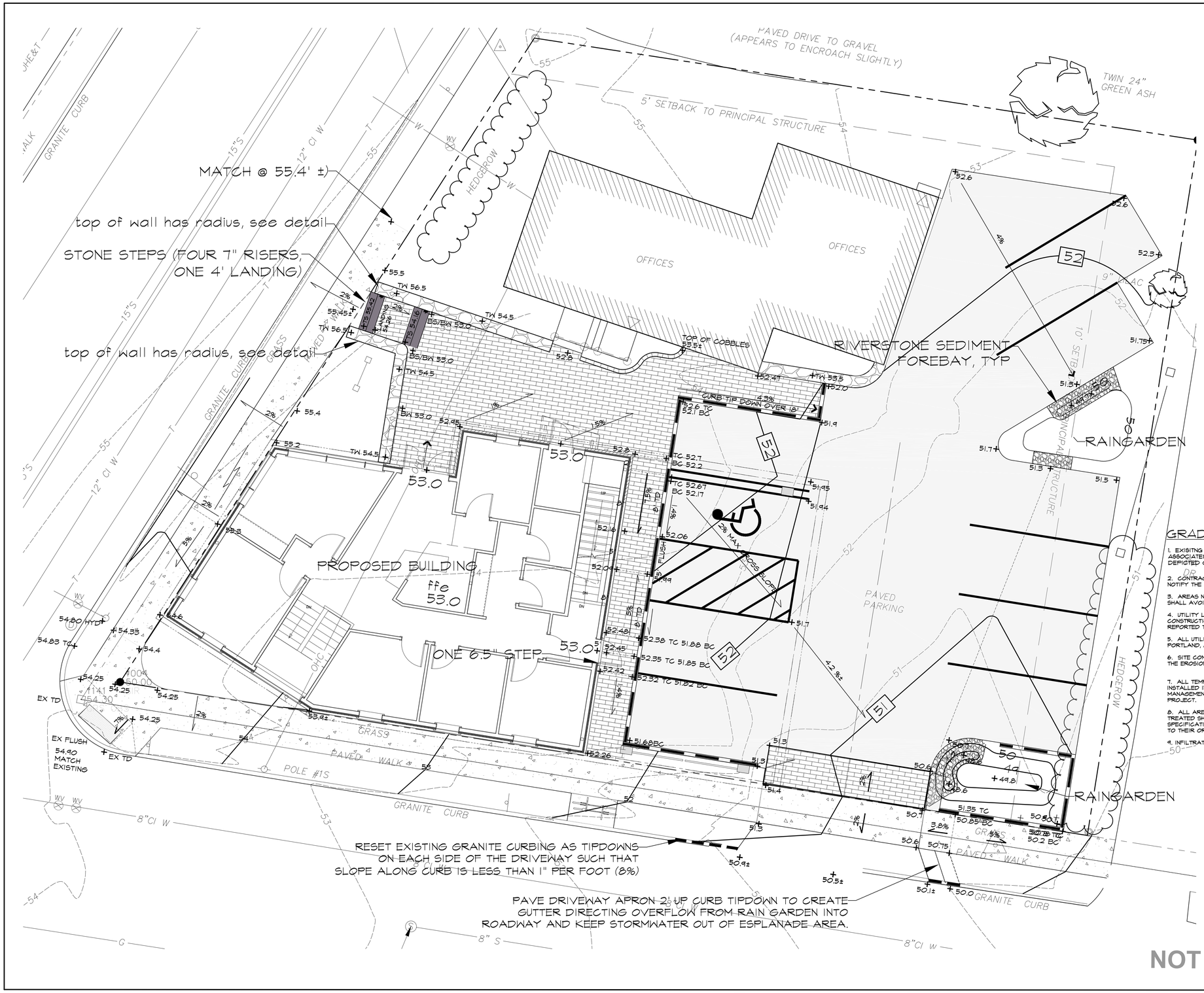

GRAPHIC SCALE

6 0 3 6 12

(IN FEET)
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NORTH

LEGEND

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124	CONTOURS	124
	CULVERT	SD
W	WATER	W
S	SEWER	S
SD	STORM DRAIN	SD
UGE	UNDERGROUND ELEC. & TEL.	UGE&T
OHE	OVERHEAD ELEC. & TEL.	OHE&T
	GATE VALVE	
	UTILITY POLE	
	MANHOLE	
	POTABLE WELL	
	WETLANDS	
	EDGE WETLAND	
	SIGN	
	BENCHMARK	
	SPOT GRADE	
	CHAIN LINK FENCE	
	RIPRAP	
	STOCKADE FENCE	
	ZONE LINE	

GRADING AND DRAINAGE NOTES

1. EXISITNG CONDITIONS BASED ON TOPOGRAPHIC SURVEY COMPLETED BY FOUR POINTS ASSOCIATES IN JANUARY 2016. FIELD CONDITIONS MAY VARY SLIGHTLY FROM WHAT IS DEPICTED ON THE PLANS.

2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES.

3. AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL AVOID THESE AREAS AND PRESERVE ALL EXISTING VEGETATION AS NOTED.

4. UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ANY DISCREPANCIES OR CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT.

5. ALL UTILITY INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND, AS WELL AS ANY OTHER LOCAL, STATE, AND FEDERAL REQUIREMENTS.

6. SITE CONTRACTOR SHALL REPAIR ALL DISTURBED AREAS IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS.

7. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE GUIDELINES ESTABLISHED IN THE BEST MANAGEMENT PRACTICES, AND MAINTAINED THROUGHOUT CONSTRUCTION OF THIS PROJECT.

8. ALL AREAS DISTURBED BY CONSTRUCTION NOT TO BE PAVED OR OTHERWISE TREATED SHALL BE LOAMED AND SEEDED ACCORDING TO THE PROJECT SPECIFICATIONS. EXISTING LAWN AREAS WHICH ARE DISTURBED SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

9. INFILTRATION POND AREAS ARE NOT TO BE UTILIZED FOR SNOW STORAGE.

NOT FOR CONSTRUCTION

Project Name:

23 Ocean Ave
Portland, Maine

Owner:
Steven & Roberta Cope
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Consultants:

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Drawing Set:

No.	Date	Revision

Drawing Set:
FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

PATRICK J. CARROLL NO. 127 — LICENSED LANDSCAPE ARCHITECT — STATE OF MAINE

Drawing Title:
GRADING PLAN

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-4.0

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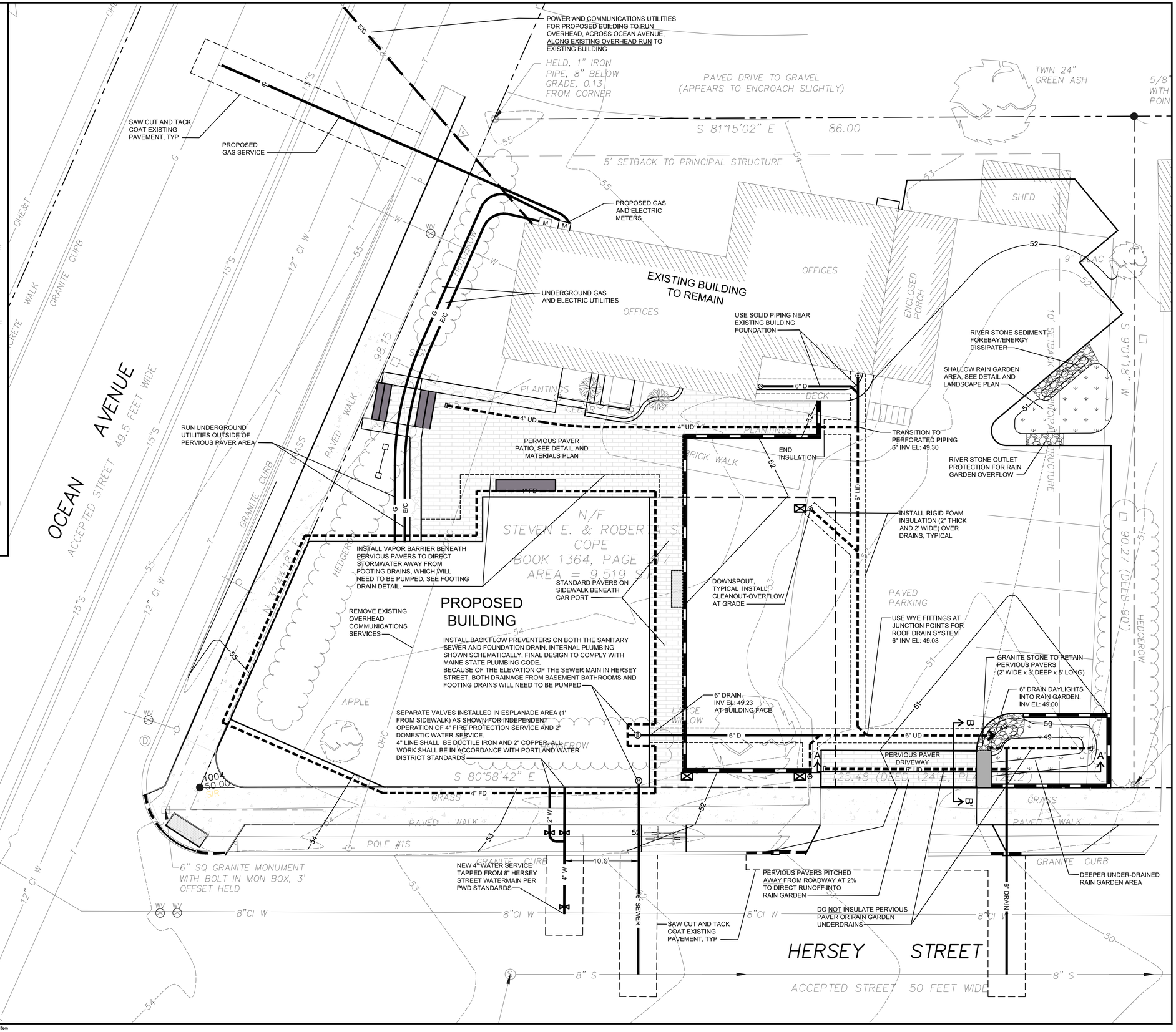
NOTES

1. THE CITY OF PORTLAND REQUIRES A PRE-CONSTRUCTION MEETING BEFORE SITE WORK CAN BEGIN.
2. DRAIN PIPING SHOWN WITH SOLID LINES IS NON-PEFRORATED PVC SDR 35. DRAIN PIPE SHONE WITH DASHED LINES IS PERORATED UNDERDRAIN (PERORATED PVC SDR 35 - OR - PERFORATED, CORRUGATED HDPE WITH SMOOTH INTERIOR.
3. INSTALL EROSION AND SEDIMENTATION CONTROL IN COMPLIANCE WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION's BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING PRACTICES IN ACCORDANCE WITH APPENDICES A, B AND C OF MAINE DEP CHAPTER 500.
   CONTRACTOR SHALL UTILIZE VARYING BMPs TO MINIMIZE THE MIGRATION OF EXPOSED SOILS FROM THE SITE. THESE INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
   - 3.1. GRADE SITE TO DRAIN INTERNALLY
   - 3.2. INSTALL LOCALIZED SEGMENTS OF MULCH BERM, SILT SOCK, HAY BALES AND/OR CRUSHED STONE CHECK DAMS TO FILTER RUNOFF BEFORE IT LEAVES THE SITE.
   - 3.3. INSTALL SILT SACKS (OR APPROVED EQUAL) IN DOWNGRADE CATCH BASINS.
   - 3.4. INSTALL TEMPORARY CONSTRUCTION ENTRANCE (SEE DETAIL) TO MINIMIZE TRACKING OF SOILS ONTO HERSEY STREET.
   - 3.5. SWEEP HERSEY STREET FREQUENTLY. WATER AND/OR VACUUMING SHALL BE USED TO CONTROL DUST WHEN SWEEPING.
4. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER RAIN/STORM EVENTS AND SHALL KEEP A LOG OF THESE INSPECTIONS. ANY ISSUES IDENTIFIED SHALL BE ADDRESSED AS SOON AS POSSIBLE AND BEFORE ADDITIONAL PRECIPITATION.
5. ALL WORK IN THE RIGHT OF WAY SHALL MEET THE CITY OF PORTLAND TECHNICAL MANUAL STANDARDS
6. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM.
7. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
8. UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ANY DISCREPANCIES OR CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER.
9. ALL UTILITY INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND, AS WELL AS ANY OTHER LOCAL, STATE, FEDERAL AND UTILITY OWNER REQUIREMENTS.
10. SITE CONTRACTOR SHALL REPAIR ALL DISTURBED AREAS IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS.
11. ALL AREAS DISTURBED BY CONSTRUCTION NOT TO BE PAVED OR OTHERWISE TREATED SHALL BE LOAMED AND SEEDED ACCORDING TO THE PROJECT SPECIFICATIONS.



PERMITTING SET

Plan 7

23 Ocean Avenue

23 OCEAN A□EN□E, PORTLAND, MAINE

O□ner □□ eveloper□

Steven & Roberta Cope
172 Concord Street
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RANSOM Consulting, Inc.

Civil Engineer
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0 3 6 12
SCALE in FEET
1"=6'

STATE OF MAINE
John I. Mahoney
#12340
LICENSED
PROFESSIONAL ENGINEER

□TILIT□ □
STORM□ATER MANAGEMENT PLAN

No.	Revision/Issue	Date
A	SITE PLAN PERMITTING	6-6-16

Design by: JIM	Checked by: SJB
Drawn by: JIM	Approved by: SJB
Project: 161.06035	
Sheet No: C1	

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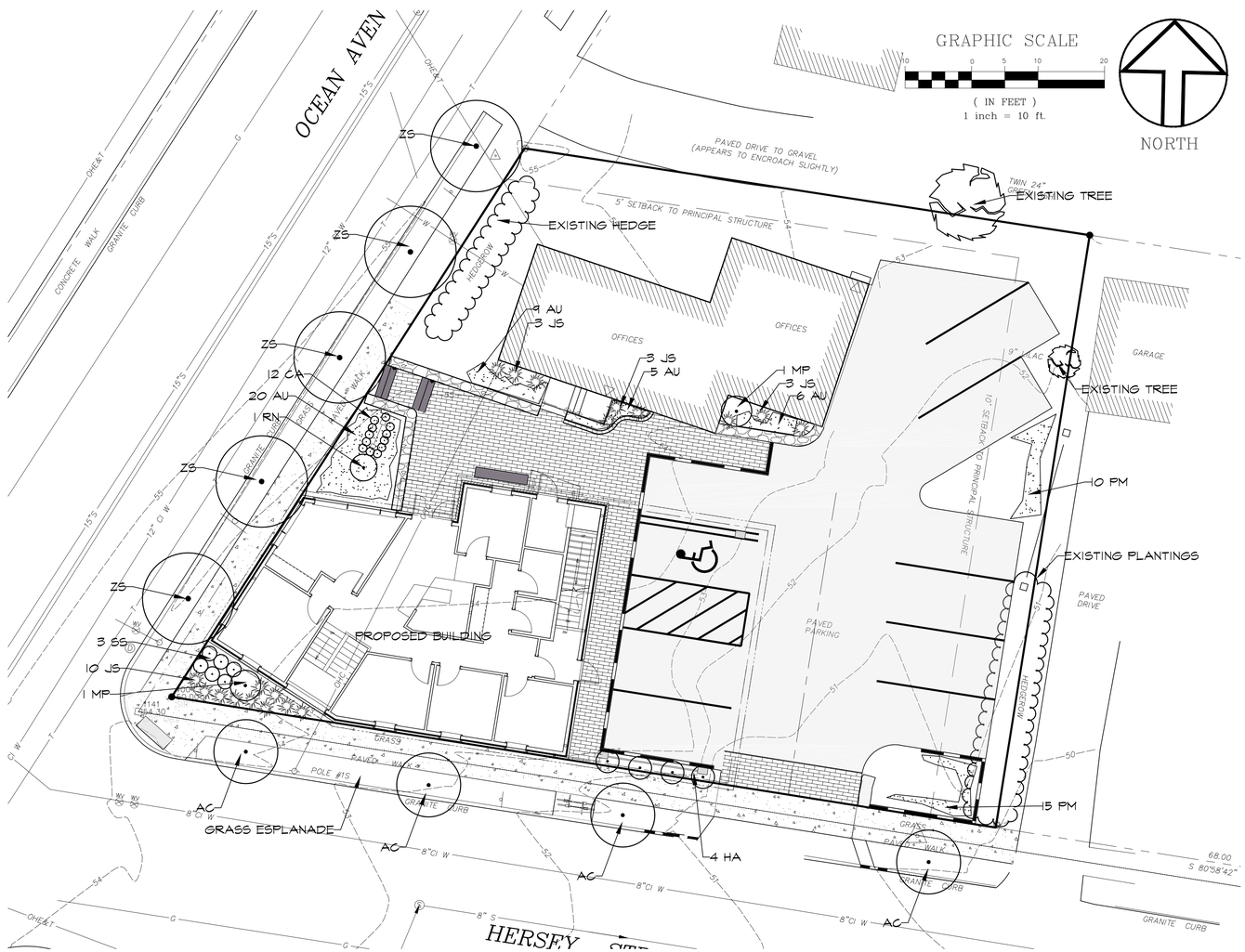

PLANTING NOTES

1. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL FINAL ACCEPTANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
2. CONTRACTOR SHALL SUPPLY PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE WORK SHOWN ON THE PLAN. ANY DISCREPANCY BETWEEN THE QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED ON THE PLAN SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL RENUMERATION. ANY DESCREPANCIES SHALL BE CLARIFIED WITH THE LANDSCAPE ARCHITECT PRIOR TO ORDERING PLANT MATERIAL.
3. ALL MATERIALS SHALL CONFORM TO SPECIFICATIONS OF THE AMERICAN STANDARDS FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THE ORIGINAL GRADES BEFORE DIGGING.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
6. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AT THE NURSERY AND AT THE SITE.
7. ALL PLANT BEDS SHALL MEET MINIMUM TOPSOIL REQUIREMENTS (SEE SPECIFICATIONS).
8. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL GRUBBING, BED PREPARATION, AND FINISH GRADING HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
9. ALL PLANTS BEDS AND TREE WELLS SHALL HAVE A MINIMUM OF 3" OF UNIFORMLY DISTRIBUTED, DARK, SHREDDED BARK MULCH.
10. CONTRACTOR SHALL SUBMIT SOIL SAMPLE AND TEST OF TOPSOIL TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SOIL ADMIXTURE SHALL BE ADDED TO EXISTING SOIL (BY CONTRACTOR) IF DEEMED NECESSARY BY SOIL TEST RESULTS.
11. ROUGH GRADING AND BED PREPARATION SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO REQUIRED SITE VISIT.
12. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. ALL ROOT WRAPPING AND CONTAINER MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED AT THE TIME OF PLANTING.
13. ALL BROAD LEAF EVERGREEN PLANTS SHALL BE SPRAYED WITH AN ANTIDESSICANT AT THE BEGINNING OF THEIR FIRST WINTER.
14. ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE CONTRACT SPECIFICATIONS. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. CONTRACTOR SHALL STAKE TREES SHALL IF DEEMED NECESSARY.
16. THE LANDSCAPE CONTRACTOR SHALL PROVIDE LOAM FILL AS PER THE CONTRACT SPECIFICATIONS.
17. ALL PLANTS SHALL THEN BE WATERED BY THE CONTRACTOR, AS NECESSARY TO INSURE HEALTH UNTIL FINAL ACCEPTANCE.
18. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE PLANT LIST AND PLANTING SPECIFICATIONS FOR SEASONAL REQUIREMENTS AND OTHER RESTRICTIONS RELATED TO THE TIME AND SEASON OF PLANTING.

PLANT SCHEDULE

QTY.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
			TREES		
4	AC	ACER CAMPESTRE	HEDGE MAPLE	2" CAL.	B&B
5	ZS	ZELKOVA SERRATA	ZELKOVA	2" CAL.	B&B
		SHRUBS / PERENNIALS			
40	AU	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	#1	CONT.
19	JS	JUNIPERUS SQUAMATA	HOLGER JUNIPER	18-24"	B&B
2	MP	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	#3	CONT.
3	SS	SCHIZACHYRIUM SCOPARIUM 'The Blues'	LITTLE BLUESTEM	#1	CONT.
1	RN	RHODODENDRON NOVA-ZEMBLA	RHODODENDRON	2.5-3'	CONT.
12	CA	CAREX APPALACHICA	APPALACHIAN SEDGE	#1	CONT.
4	HA	HYDRANGEA ANOMALA PETIOLARIS	CLIMBING HYDRANGEA	#5	CONT.
25	PM	MIXED DROUGHT TOLERANT PERENNIALS		#1	CONT.

NOTE: ALL SUBSTITUTIONS SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO ORDERING OF PLANTS

ZELKOVA

HEDGE MAPLE

APPALACHIAN SEDGE

HOLGER JUNIPER

LITTLE BLUESTEM

BEARBERRY

NOVA ZEMBLA RHODODENDRON

BAYBERRY

CLIMBING HYDRANGEA

NOT FOR CONSTRUCTION

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Drawing Set:

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Drawn: PAB
Checked: PC
Approved:

LICENSED LANDSCAPE ARCHITECT
PATRICK J. CARROLL
NO. 127
STATE OF MAINE

Drawing Title:
LANDSCAPE PLAN

Job Number:
File:
Date: 6-6-16
Scale: As Shown

Drawing Number:
L-5.0

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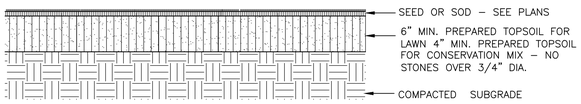
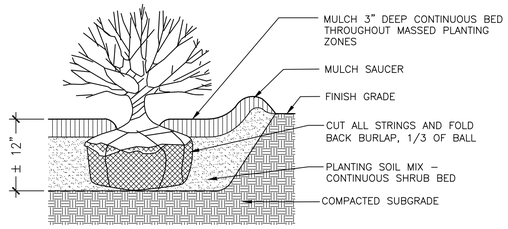
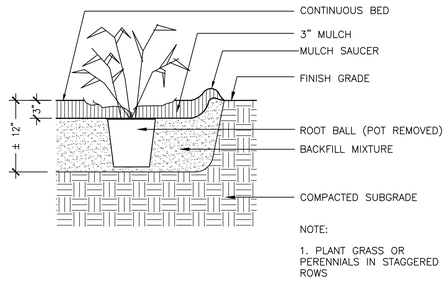


1 SEEDED OR SODDED LAWN
SCALE:1"=1'-0"

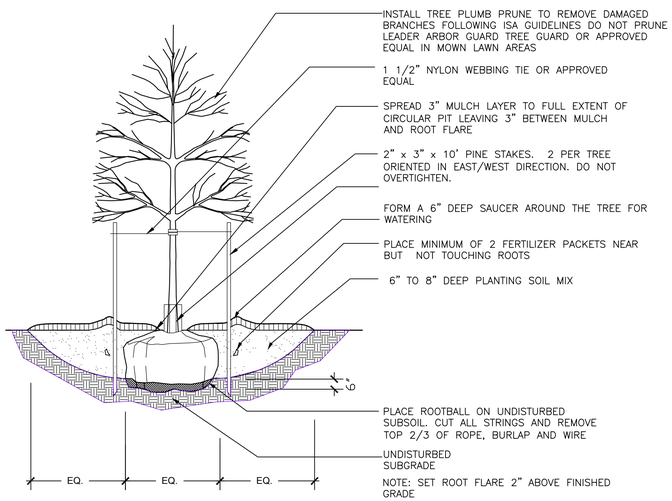


2 SHRUB PLANTING
SCALE: 3/4"=1'-0"

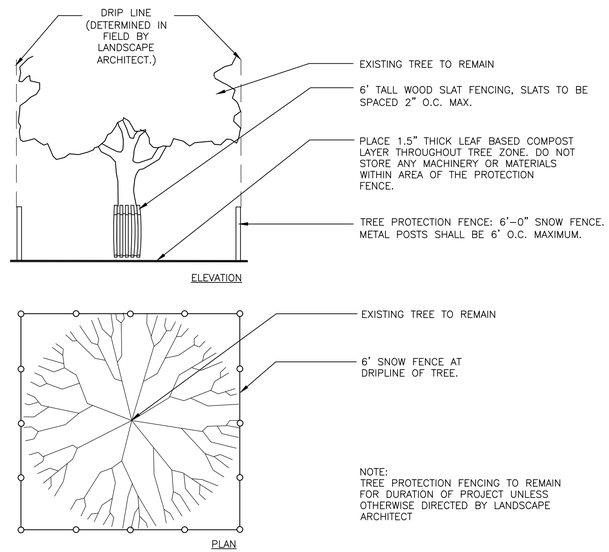


NOTE:
1. PLANT GRASS OR PERENNIALS IN STAGGERED ROWS

3 ORNAMENTAL GRASS / PERENNIAL PLANTING
SCALE:1"=1'-0"

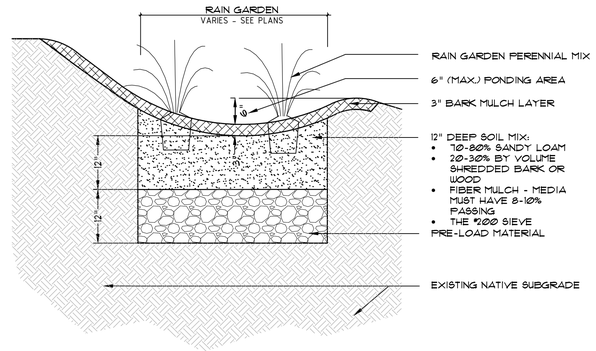


4 TREE IN LAWN OR ESPLANADE
SCALE:1"=1'-0"



NOTE:
TREE PROTECTION FENCING TO REMAIN FOR DURATION OF PROJECT UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT

5 TREE PROTECTION
SCALE:1"=1'-0"



6 ORNAMENTAL RAIN GARDEN
SCALE:3/4"=1'-0"

A LANDSCAPE AREA	3" SHREDDED BARK MULCH; SUBMIT SAMPLE TO L.A PRIOR TO INSTALLATION 10" PREPARED TOPSOIL (MIN); SEE SPECIFICATIONS PREPARED SUBGRADE
B LOAM AND SEED	SEED MIX; SEE SPECS PREPARED, FINELY GRADED TOPSOIL (5" MIN); NO STONES OVER 3/4" DIA. PREPARED SUBGRADE
NOTE: ALL COURSE MATERIALS REFLECT THICKNESS AFTER FINAL COMPACTION.	

7 LANDSCAPE SURFACES
SCALE:1"=1'-0"

NOT FOR CONSTRUCTION

Project Name:

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Portland, Maine

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Drawing Set:

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Drawn: PAB
Checked: PC
Approved:

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawing Title:
LANDSCAPE DETAILS

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Drawing Number:
L-5.1

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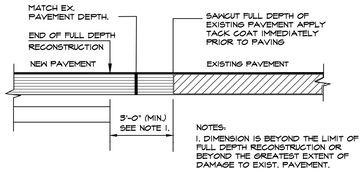
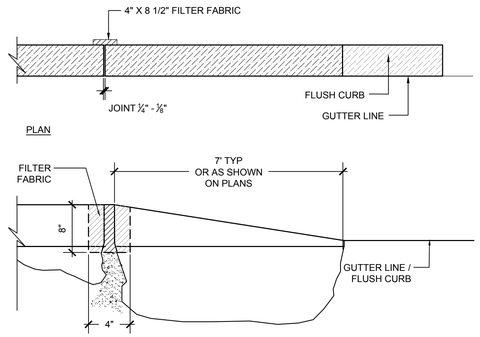


X PAVEMENT CUTTING/MATCHING
NOT TO SCALE

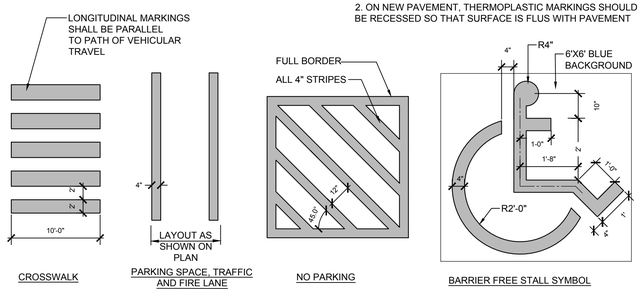


X TIP DOWN CURB
NOT TO SCALE

NOTE:

1. ALL MARKINGS SHOULD CONSIST OF NON-SKID, THERMOPLASTIC, RETRO-REFLECTIVE MATERIAL

2. ON NEW PAVEMENT, THERMOPLASTIC MARKINGS SHOULD BE RECESSED SO THAT SURFACE IS FLUS WITH PAVEMENT



X PAINT STRIPING
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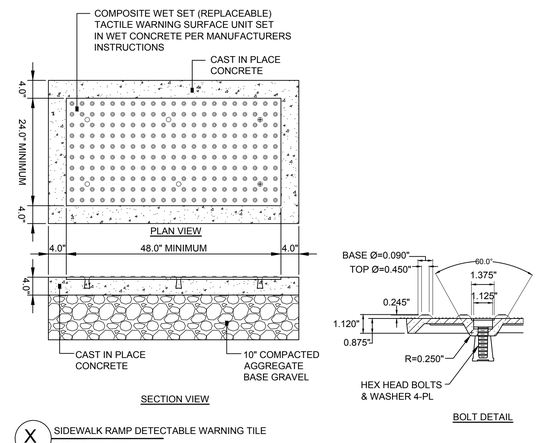

X SIDEWALK RAMP DETECTABLE WARNING TILE
NOT TO SCALE

NOTES:

1. COMPOSITE WET SET (REPLACEABLE) TACTILE WARNING SURFACE UNITS SHALL BE AS MANUFACTURED BY ADA SOLUTIONS, INC. (WWW.ADATILE.COM), OR APPROVED EQUAL.

2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT 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 TILE 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 SIDEWALK RAMPS MADE OF CONCRETE OR ASPHALT, FEDERAL YELLOW COLORED (#33538) TILES SHALL BE USED. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.

5. FOR ALL SIDEWALK RAMPS MADE OF BRICK, SEATTLE YELLOW (#23594) COATED COLORED TILES SHALL BE USED.

NOT FOR CONSTRUCTION

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Drawing Set:

No.	Date	Revision

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FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

REGISTERED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawing Title:
DETAILS

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-6.0

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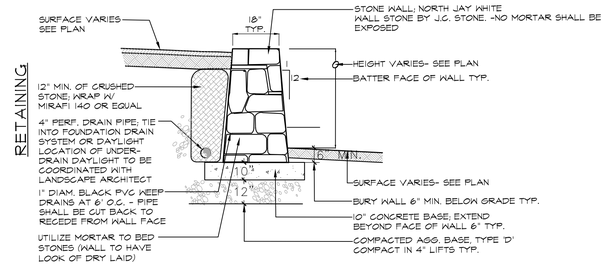
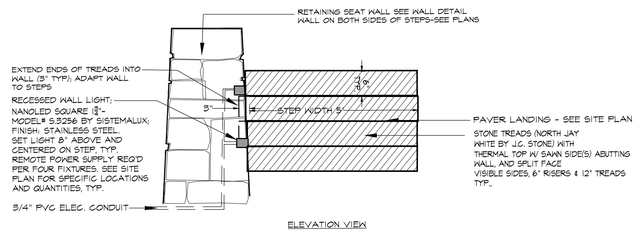
NOTES:
1. MORTAR SHALL BE USED TO BED ALL JOINTS. MORTAR SHALL BE TINTED TO MATCH THE DARKEST STONE COLOR.
2. CLEAN ALL MORTAR FROM EXTERIOR SURFACES-NO MORTAR SHALL BE VISIBLE ON VERTICAL FACES.
3. TOP JOINTS SHALL BE FLUSH. AVOID REGULAR COURSING. FOLLOW GENERAL RULE OF ONE OVER TWO, TWO OVER ONE.
4. CONTRACTOR SHALL MOCK-UP PANEL OF STONE LAY-UP FOR APPROVAL OF L.A. PRIOR TO CONSTRUCTION.

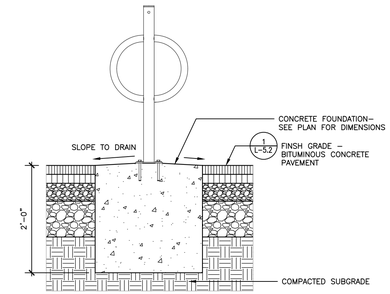


X STONE WALL ON CONC BASE
NOT TO SCALE

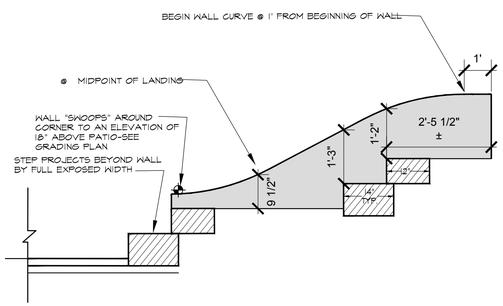
NOTES:
1. STEPS WITH WALLS ARE TO BE 3" OR 6" LONGER THAN SHOWN ON PLAN IN ORDER TO COMPENSATE FOR 3" EXTENSION INTO WALLS.
2. TREADS ARE TO BE 14" MIN. TO COMPENSATE FOR (2") OVERLAP.



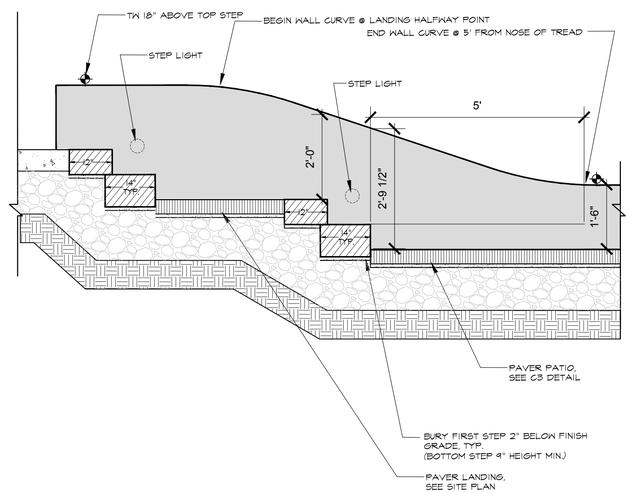
X STONE STEPS
NOT TO SCALE



X BICYCLE RACK
NOT TO SCALE

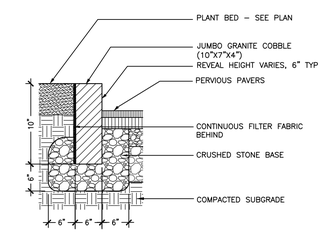


SECTION LOOKING TOWARDS NEW BUILDING



SECTION LOOKING TOWARDS OLD BUILDING

X STONE STEP SECTIONS
NOT TO SCALE



X COBBLE EDGING
NOT TO SCALE

NOT FOR CONSTRUCTION

Project Name:

23
Ocean Ave
Portland, Maine

Owner:
Steven & Roberta Cope
172 Concord Street
Portland, Maine 04103

Consultants:

Architect
Kevin Moquin, Architect
Hammond Stret
Portland, Maine 04104
207.615-6421

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Lanscape Architects
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217 Commercial St.
Portland, ME 04101
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CARROLL ASSOCIATES LANDSCAPE ARCHITECTS

Civil Engineer
Ransom Consulting
400 Commercial St.
Portland, ME 04101
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RANSOM
Consulting Engineers and Scientists

Drawing Set:

No.	Date	Revision

Drawing Set:
FOR PERMITTING

Drawn: PAB
Checked: PC
Approved:

LICENSED LANDSCAPE ARCHITECT PATRICK J. CARROLL NO. 127 STATE OF MAINE

Drawing Title:
DETAILS

Job Number:
File:
Date: 6-6-16 Scale: As Shown

Drawing Number:
L-6.1

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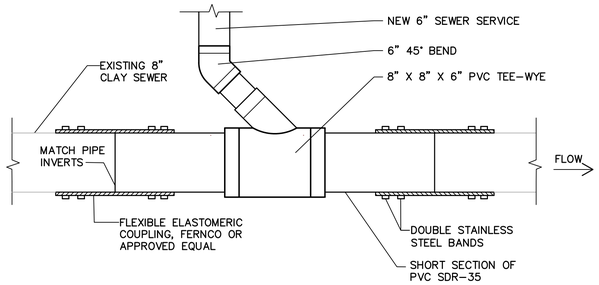
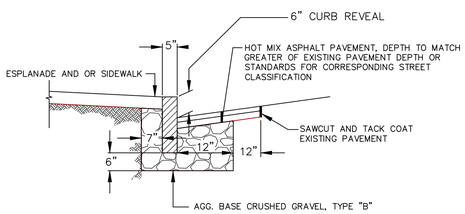


1. If the existing sewer is PVC then the connection shall be made using bell and spigot joints, NOT Ferncos.
2. All damaged piping shall be removed by saw cutting or removing an entire segment of pipe and replaced with new PVC. Contractor shall remove clay bell(s) (by saw cutting) to facilitate Fernco installation. Saw cuts shall be square so that joints between new and existing pipes do not have gaps, particular attention shall be paid to maintaining a smooth invert.
3. Contractor is responsible for maintaining sewer flows while while making the new sewer service and drain connections. If required, bypass pumping shall be coordinated with the City. Contractor shall provide the City 24 hours notice.
4. Bypass pumping may be required and shall be coordinated with the City

CONNECTION TO SANITARY SEWER

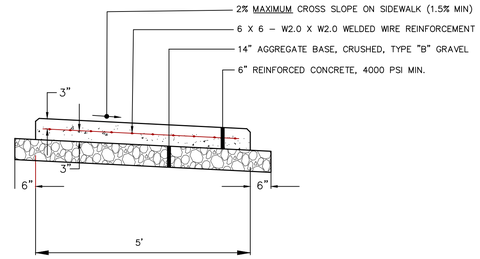
NOT TO SCALE



VERTICAL GRANITE CURB CROSS SECTION

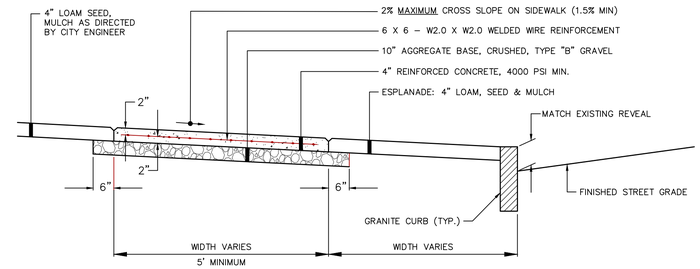
VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREETS

NOT TO SCALE



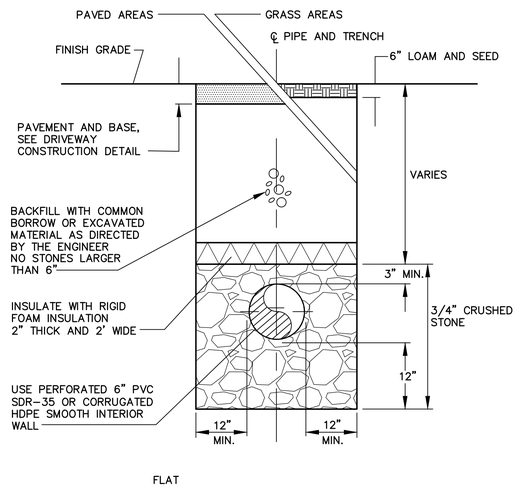
REINFORCED CONCRETE DRIVEWAY APRON

NOT TO SCALE



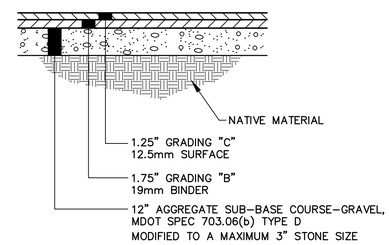
REINFORCED CONCRETE SIDEWALK

NOT TO SCALE



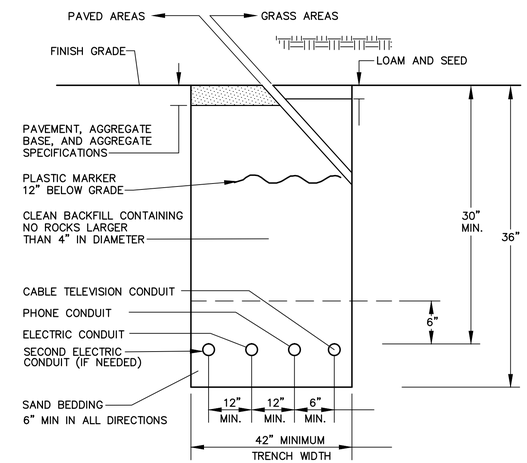
UNDERDRAIN DETAIL FOR ROOF DRAIN COLLECTION SYSTEM

NOT TO SCALE



TYPICAL DRIVEWAY CONSTRUCTION OUTSIDE OF RIGHT OF WAY

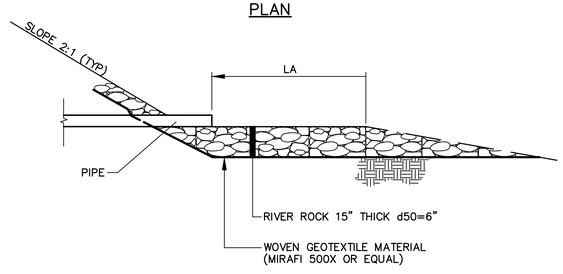
NOT TO SCALE



SEE ELECTRICAL PLANS FOR CONDUIT SIZES

UNDERGROUND ELECTRIC/COMUNICATIONS UTILITY TRENCH DETAIL

NOT TO SCALE

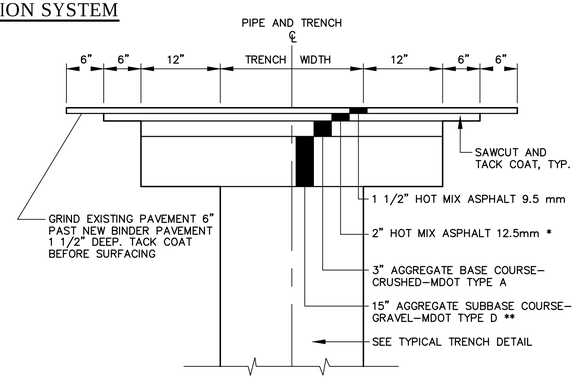


APRON SCHEDULE*					
	RIPRAP**		RIPRAP**		
PIPE	d50 SIZE (FT)	THICKNESS t (INCH)	LENGTH LA (FT) (MIN)	WIDTH W1 (FT)	WIDTH W2 (FT)
12" OR LESS	0.5'	15"	10'	3.0'	12'

* SEE PLANS FOR SHAPE/SIZE OF ENERGY DISSAPAROTRS
** RIP RAP SHALL COSSIST OF ROUND NATURAL STONE SUCH AS RIVER ROCK

ENERGY DISSIPATER (RIVER ROCK) DETAIL

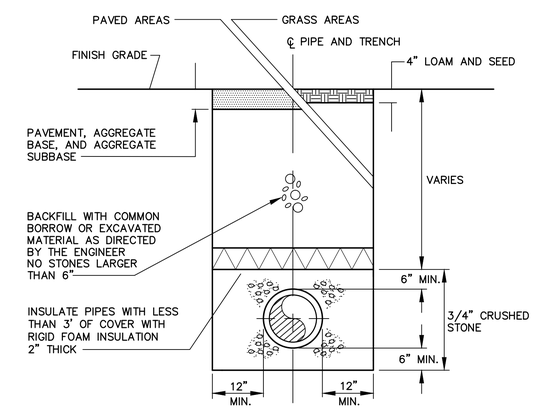
NOT TO SCALE



* ON OCEAN AVENUE 12.5 mm HMA BASE SHALL BE 2.5" THICK
** ON OCEAN AVENUE TYPE D SUB BASE GRAVEL SHALL BE 18" THICK

TYPICAL TRENCH PAVING DETAIL

NOT TO SCALE



TYPICAL TRENCH REPAIR DETAIL

NOT TO SCALE

PERMITTING SET

Plan 12

23 Ocean Avenue

23 OCEAN A□EN□E, PORTLAND, MAINE

O□ner □□ eveloper□

Steven & Roberta Cope
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STATE OF MAINE
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PROFESSIONAL ENGINEER

CI□IL DETAILS

No.	Revision/Issue	Date
A	SITE PLAN PERMITTING	6–6–16

Design by: JIM
Drawn by: JIM
Checked by: SJB
Approved by: SJB
Project: 161.06035
Sheet No: C2

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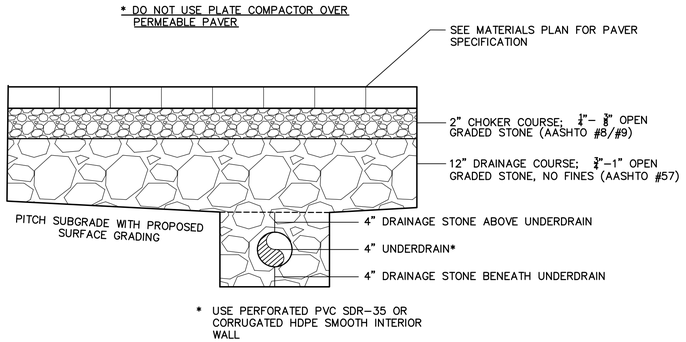
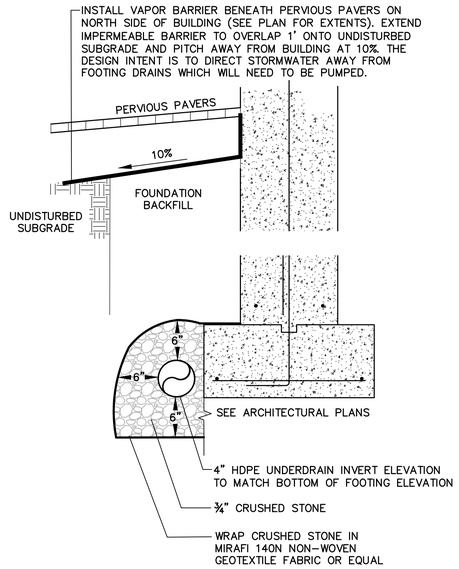


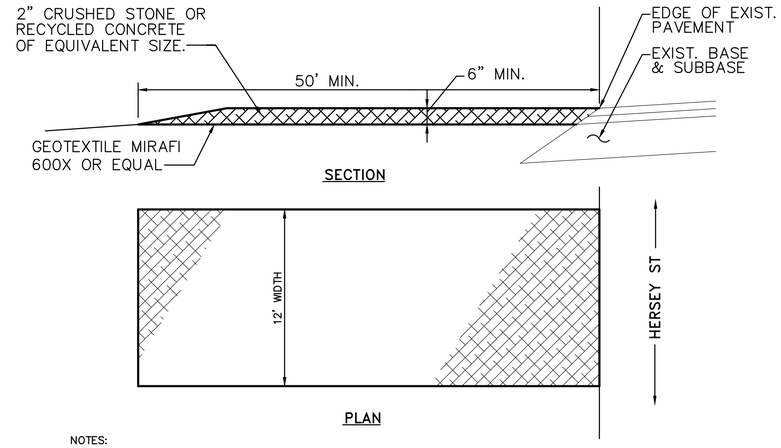
PERMEABLE PAVER DETAIL (PATIO AREA)

NOT TO SCALE



FOOTING DRAIN DETAIL

NOT TO SCALE

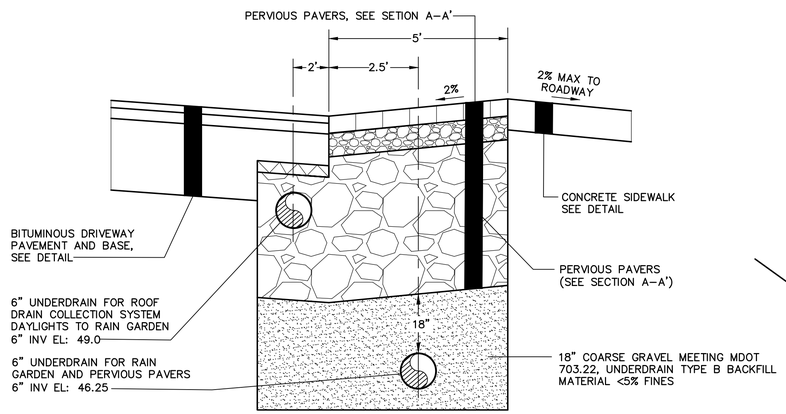


NOTES:

1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

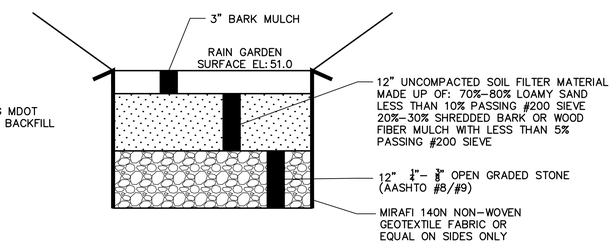
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



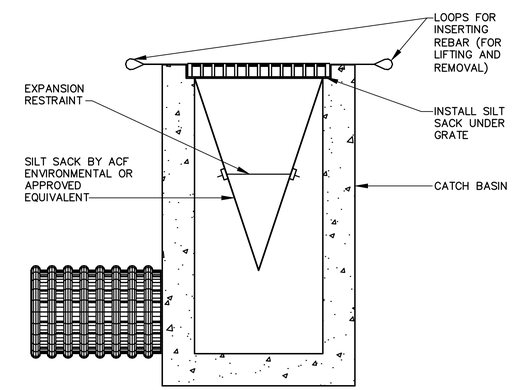
SECTION B-B' - RAIN GARDEN AND DRIVEWAY PERVIOUS PAVERS

NOT TO SCALE



SHALLOW RAIN GARDEN AREA

NOT TO SCALE

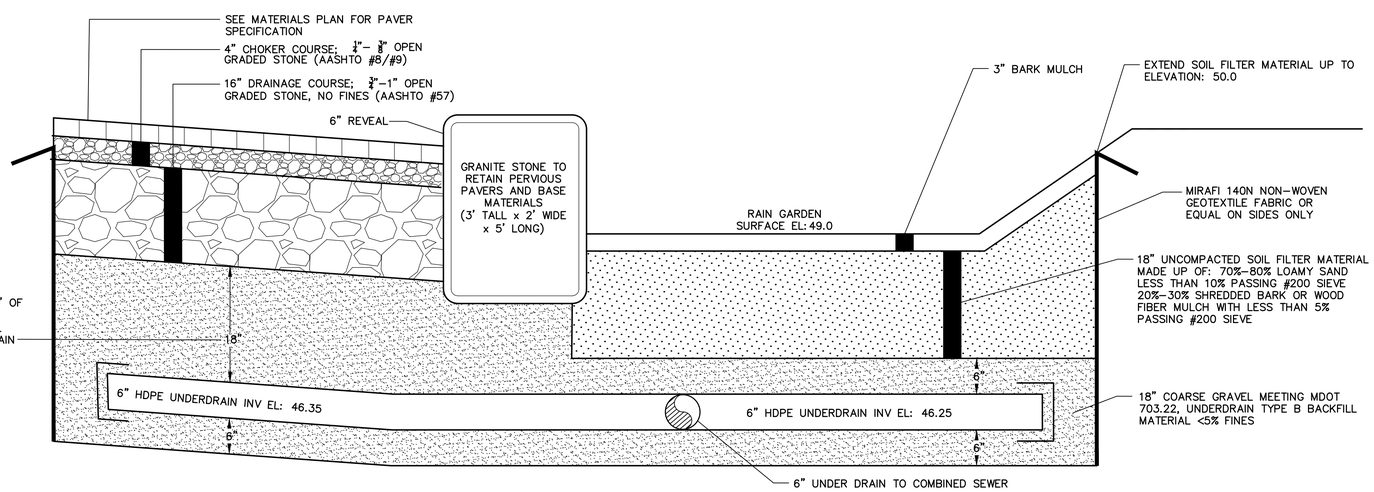


NOTES:

1. INSTALL SILTSACK PER MANUFACTURER'S RECOMMENDATIONS.
2. SILTSACKS SHALL BE CHECKED FOR SEDIMENT LEVEL AND OVERALL CONDITION IMMEDIATELY AFTER EVERY RAIN EVENT AND AT LEAST EVERY DAY DURING PROLONGED RAINFALL..
3. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE SILTSACK. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT WILL NOT ERODE.
4. SEDIMENT SHALL ONLY BE REMOVED BY REMOVING THE SILTSACKS FROM THE CATCH BASINS ACCORDING TO MANUFACTURER RECOMMENDATIONS.
6. CARE SHALL BE TAKEN TO AVOID SPILLING SEDIMENT WHILE REMOVING THE SILTSACK.
7. ANY DAMAGED SILTSACK SHALL BE REPLACED WITH A NEW SILTSACK.

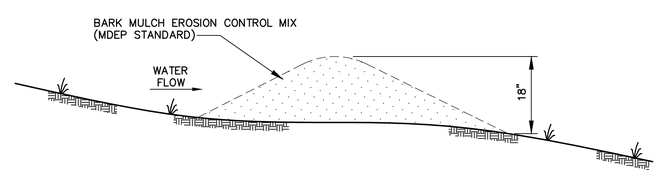
INLET PROTECTION - SILT SACK

NOT TO SCALE



SECTION A-A' - RAIN GARDEN AND DRIVEWAY PERVIOUS PAVERS

NOT TO SCALE



MULCH BERM DETAIL

NOT TO SCALE

PERMITTING SET

Plan 13

23 Ocean Avenue

23 OCEAN A□EN□E, PORTLAND, MAINE

O□ner □□ eveloper□

Steven & Roberta Cope
172 Concord Street
Portland, Maine 04103

Consultants□

Architect
Kevin Moquin, Architect
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CARROLL ASSOCIATES
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STATE OF MAINE
John L. Mahoney
#12340
LICENSED
PROFESSIONAL ENGINEER

CI□IL DETAILS

No.	Revision/Issue	Date
A	SITE PLAN PERMITTING	6-6-16

Design by: JIM	Checked by: SJB
Drawn by: JIM	Approved by: SJB
Project: 161.06035	
Sheet No: C3	

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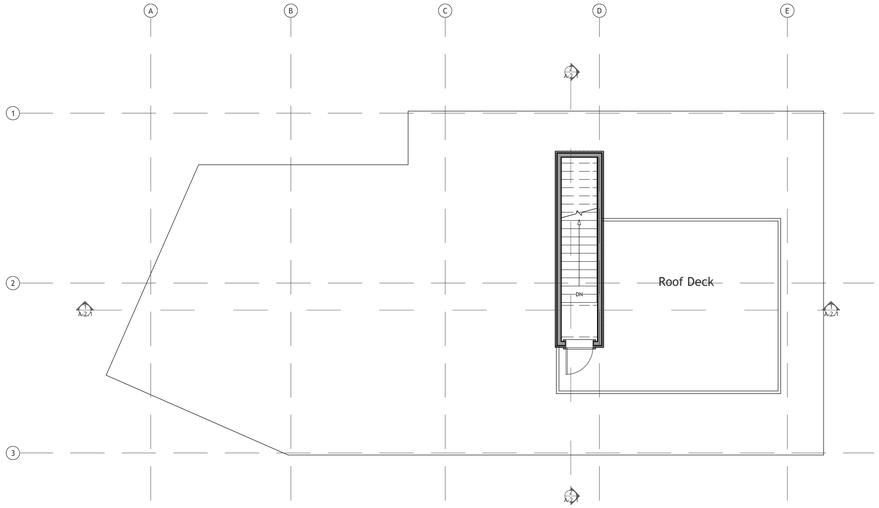
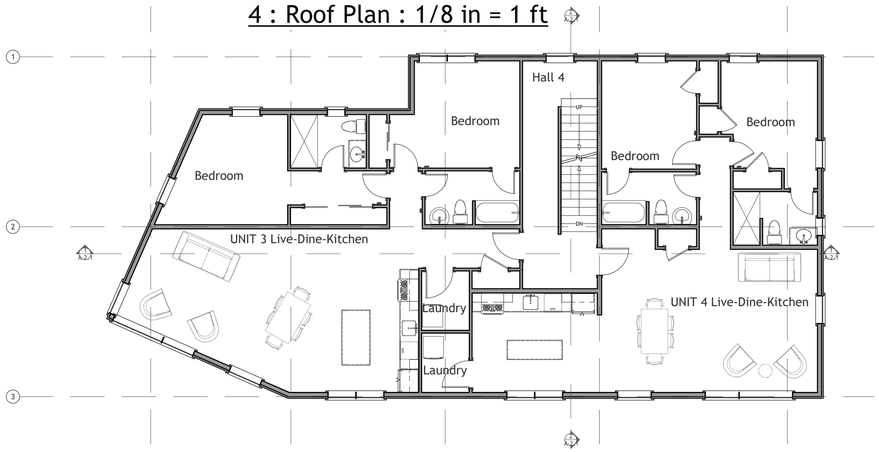
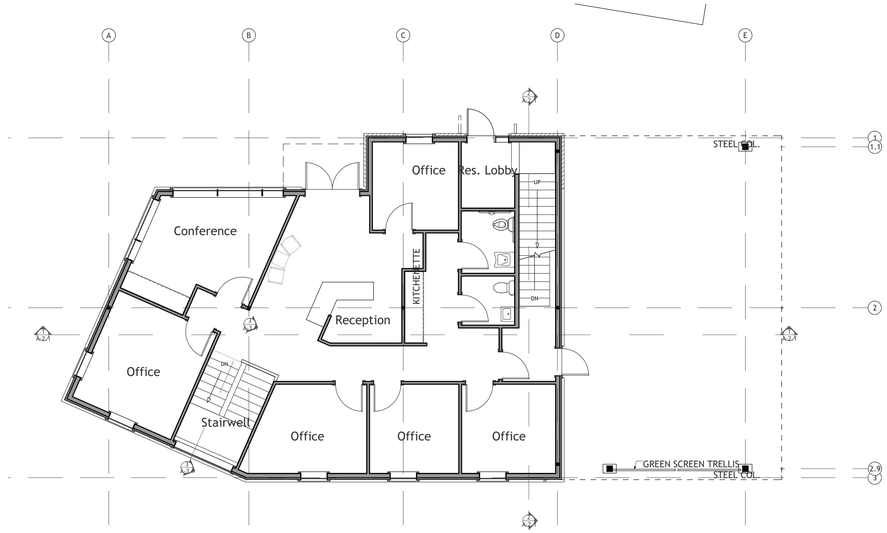
Plan 14



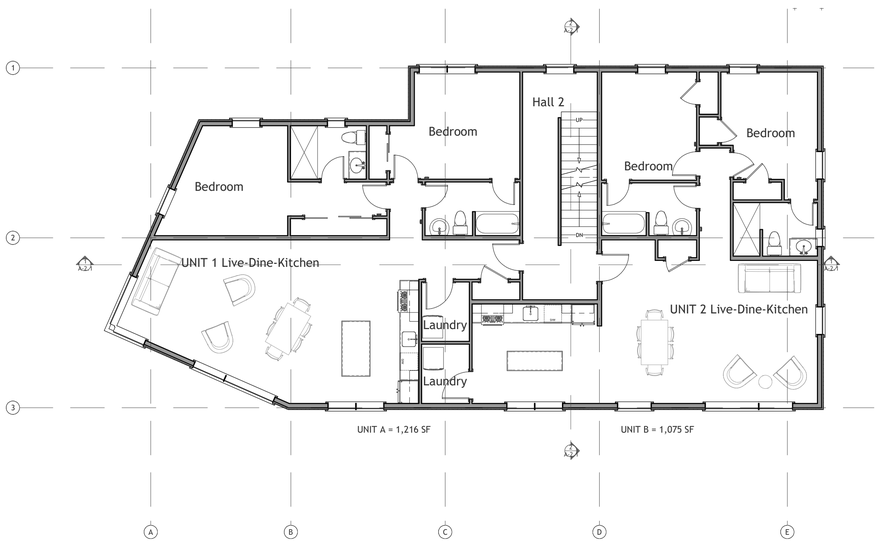
4 : Roof Plan : 1/8 in = 1 ft



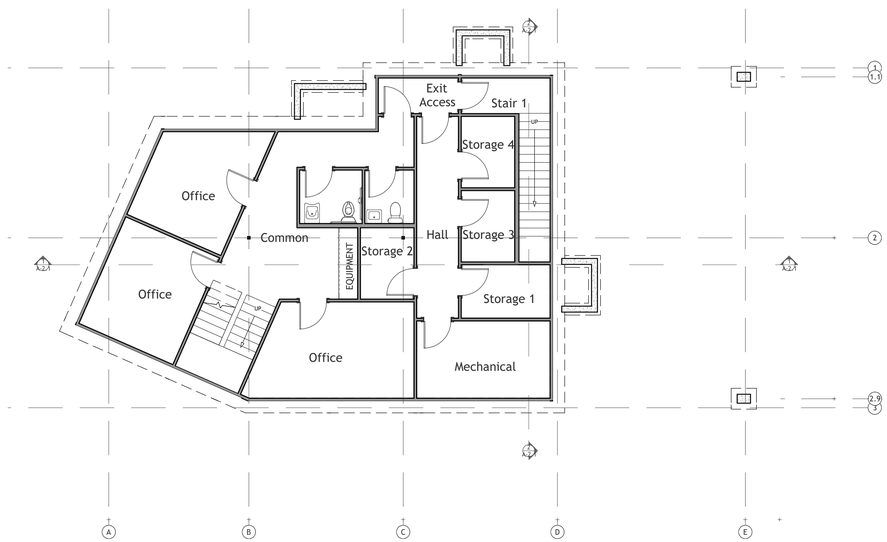
3 : Third Floor Plan : 1/8 in = 1 ft



1 : First Floor Plan : 1/8 in = 1 ft



2 : Second Floor Plan : 1/8 in = 1 ft



0 : Basement Plan : 1/8 in = 1 ft

0 5' 10' 15'
Graphic Scale
1/8" = 1'-0"

Kevin Moquin Architect
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Revisions:

23 Ocean

Portland, ME

FLOOR PLANS

6/6/2016

A-1.1

PROGRESS PRINT

2 of 3

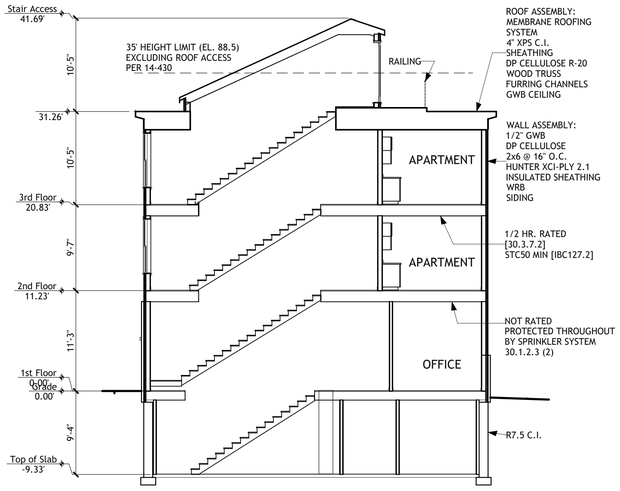
Plan 15

1 : East Elevation : 1/8 in = 1 ft

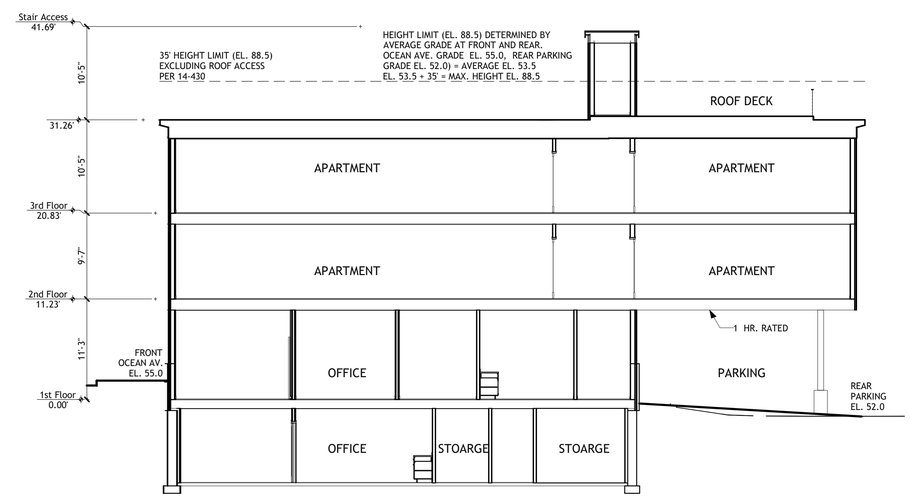
2 : North Elevation : 1/8 in = 1 ft

3 : West Elevation : 1/8 in = 1 ft

4 : South Elevation : 1/8 in = 1 ft



5 : Section at Stair : 1/8 in = 1 ft



6 : Longitunional Section : 1/8 in = 1 ft

0 5' 10' 15'

Graphic Scale
1/8" = 1'-0"

Kevin Moquin Architect
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Portland, ME
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(207)-615-6421

Revisions:

23 Ocean

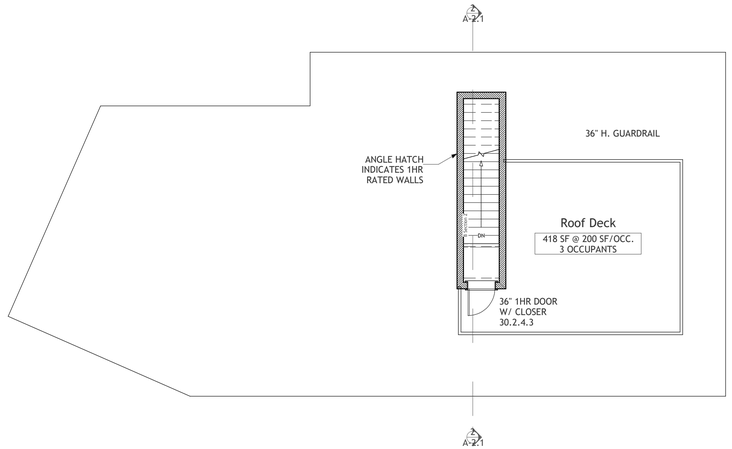
Portland, ME

ELEVATIONS
& SECTIONS

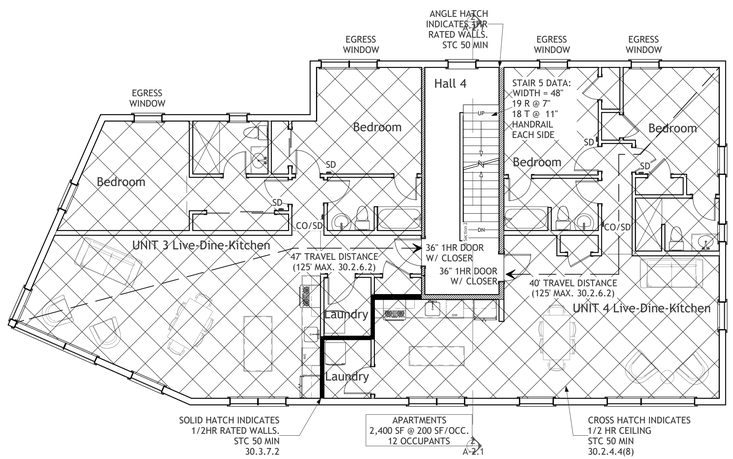
6/6/2016

A-2.1

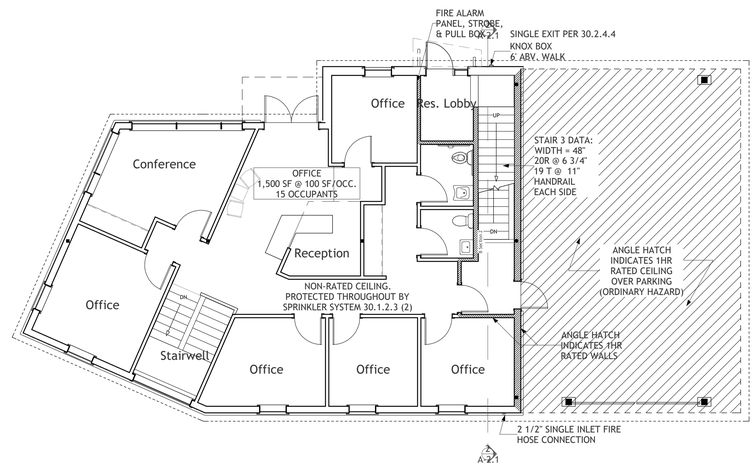
PROGRESS PRINT



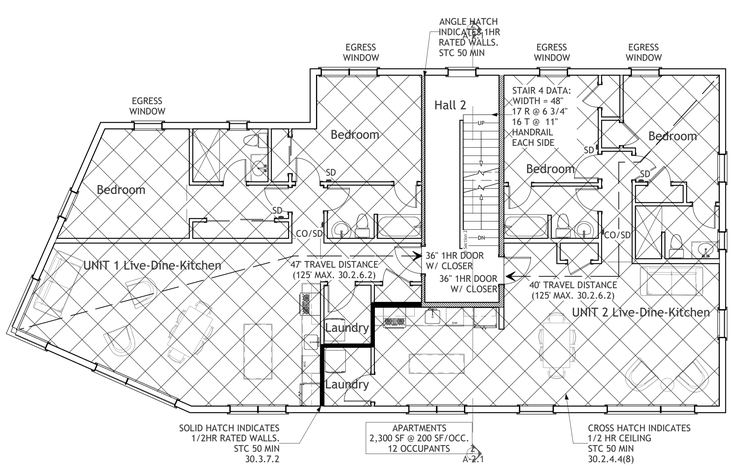
4 : Roof Plan : 1/8 in = 1 ft



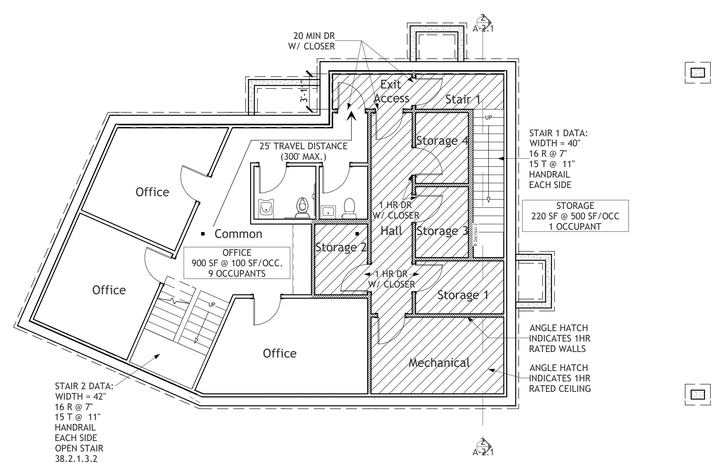
3 : Third Floor Plan : 1/8 in = 1 ft



1 : First Floor Plan : 1/8 in = 1 ft



2 : Second Floor Plan : 1/8 in = 1 ft



0 : Basement Plan : 1/8 in = 1 ft

Plan 16

GENERAL NOTES:

FROM FINAL APPLICATION FIRE DEPARTMENT CHECKLIST

APPLICANT:
Steven & Roberta Cope, 172 Concord St., Portland, ME 04103, 207-415-5833

ARCHITECT:
Kevin Moquin Architect, 29 Bedell St., Portland, ME 04103, 207-615-6421, kevin@km-a.me

USE:
IBC=BUSINESS B & RESIDENTIAL R-2
NFPA=BUSINESS (CH 38) & APARTMENT BUILDING (CH 30)

CONSTRUCTION TYPE: V-B, SPRINKLERED

BUILDING ELEVATIONS: SEE SHEETS A2.1 AND A2.2

OCCUPANT LOAD (TABLE 14.8.1.2):
49 TOTAL OCCUPANTS

BASEMENT = 10 OCCUPANTS

OFFICE	900 SF @ 100 SF/OCC.	9 OCCUPANTS
STORAGE	220 SF @ 500 SF/OCC	1 OCCUPANT

FIRST FLOOR = 15 OCCUPANTS

OFFICE	1,500 SF @ 100 SF/OCC.	15 OCCUPANTS

SECOND FLOOR = 12 OCCUPANTS

APARTMENTS	2,300 SF @ 200 SF/OCC.	12 OCCUPANTS

THIRD FLOOR = 12 OCCUPANTS

APARTMENTS	2,400 SF @ 200 SF/OCC.	12 OCCUPANTS

SQUARE FOOTAGE (GROSS)

BASEMENT	1,700
FIRST FLOOR	1,700
SECOND FLOOR	2,620
THIRD FLOOR	2,620
TOTAL	8,640

FIRE PROTECTION:
SPRINKLER SYSTEM TO BE TYPE 13 R SYSTEM.

SMOKE ALARMS SHALL BE INTERCONNECTED SUCH THAT THE ACTIVATION OF ONE ALARM WILL
ACTIVATE ALL ALARMS IN THE INDIVIDUAL UNIT. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING AND SHALL BE EQUIPPED WITH A BATTERY BACKUP.

HYDRANTS: NEAR CORNER OF OCEAN AVE. AND HERSEY ST. AS LOCATED ON SITE PLAN.

WATER MAIN: 8" MAIN, LOCATION IS SHOWN ON SITE PLAN.

ACCESS TO STRUCTURE: THE BUILDING IS ACCESSIBLE BY EQUIPMENT FROM THE FRONT ON OCEAN AVENUE, FROM HERSEY STREET ON THE SOUTH SIDE AND FROM THE PARKING AREA AT THE REAR SIDE.

DOOR AND WALL RATINGS FROM NFPA 101 TABLE 8.3.4.2 & NFPA 1 SECTION 14.3.1

ONE EXIT FROM EACH DWELLING UNIT IBC 1021.1(EX.4) & TABLE 1021.2, NFPA 101-30.2.4.4

EMERGENCY LIGHTING NOT REQUIRED NFPA 101-30.2.9

0 5' 10' 15'
Graphic Scale
1/8" = 1'-0"

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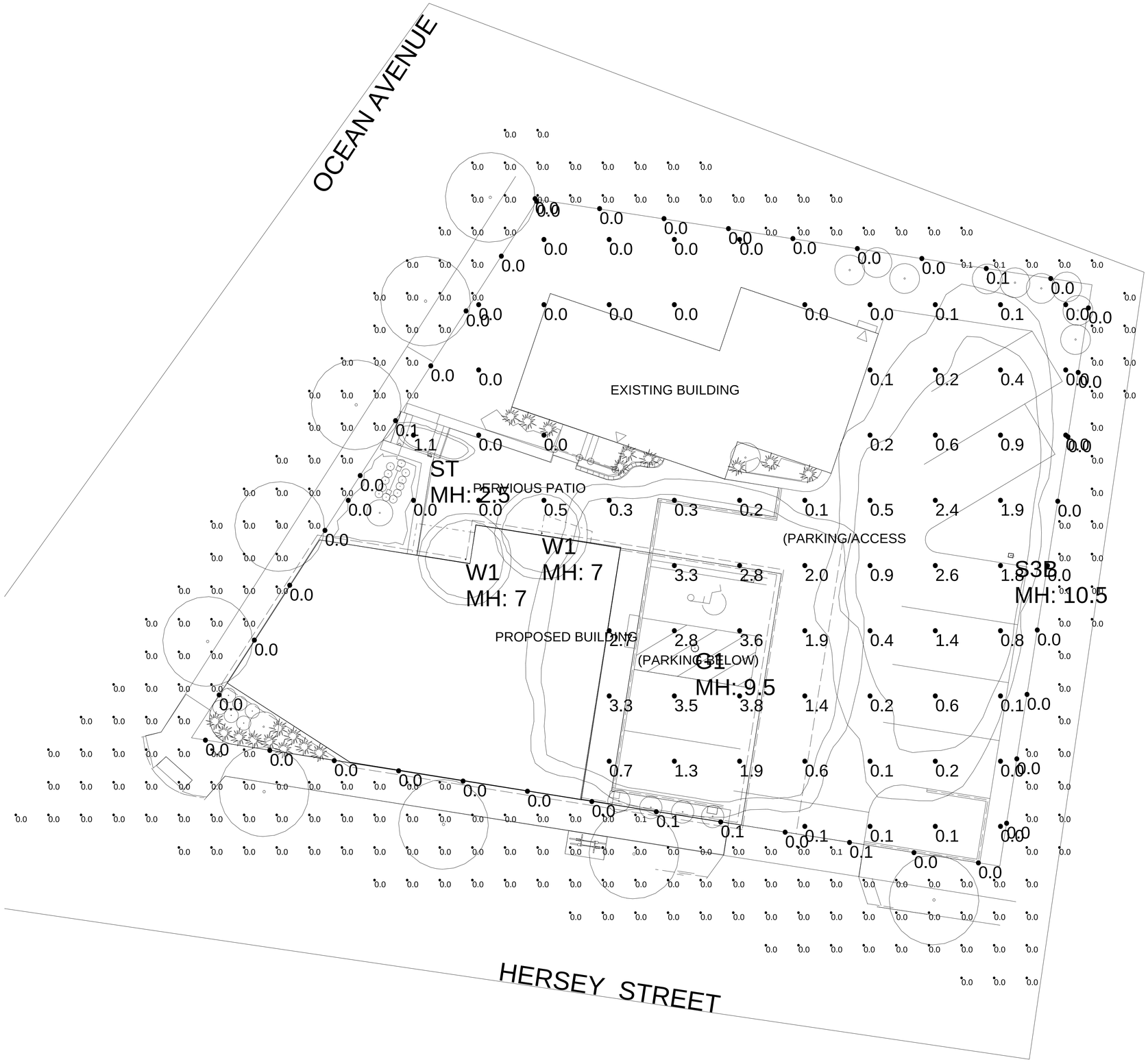
Info@km-a.me
(207)-615-6421
Revisions:

23 Ocean
Portland, ME

CODE REVIEW

6/6/2016

A-0.1
PROGRESS PRINT
1 of 3



PLAN VIEW

NOTES:

1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE UNLESS OTHERWISE INDICATED.
4) THIS CALCULATION IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO SWANEY LIGHTING ASSOCIATES AND STANDARD ASSUMPTIONS OF THE SPACE AND/OR SITE.
5) CONFORMANCE TO CODES AND OTHER LOCAL REQUIREMENTS AS DETERMINED BY THE AHJ ARE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
6) THIS LAYOUT DRAWING MUST BE COORDINATED WITH THE SITE LOCATION FOR CORRECT FIXTURE ORIENTATION.
7) CHECK GRAPHIC SCALE. DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY OCCUR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.

Plan 17

Calculation Summary

Label	Avg	Max	Min	Avg/Min	Max/Min
full site	0.82	3.8	0.0	N.A.	N.A.
Off Property	0.00	0.1	0.0	N.A.	N.A.
property line	0.01	0.1	0.0	N.A.	N.A.

Luminaire Schedule (note fixture cataloge numbers are not complete)

Type	Qty	Lumens	LLF	Lum. Watts	Description
G1	1	4460	0.900	55.8	ARS-18L4K-083-5M-U-XX
S3B	1	1890	0.900	112.9	CL1S-16LU-4K-3-BC
ST	1	64	0.900	5.32	EL807_3L3K_UNV
W1	2	462	0.900	6.8	EC-LED-e66-WFL-12

TITLE
23 OCEAN AVE
PORTLAND, ME
PRELIMINARY SITE LIGHTING

Date:6/17/2016

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

GENERATED FOR:
WESCO
BH MILLIKEN

SCALE NOT TO SCALE
prelim site.AGI
Page 1 of 1

SWANEY LIGHTING ASSOCIATES, INC.

NOTICE: THIS DRAWING IS THE EXCLUSIVE PROPERTY OF SWANEY LIGHTING ASSOCIATES. ITS ACCEPTANCE CONSTITUTES AN AGREEMENT THAT THE DRAWING WILL BE TREATED AS CONFIDENTIAL. THIS DRAWING IS TO BE USED FOR NO PURPOSE OTHER THAN AS SET FORTH HEREIN AND IS NOT TO BE COPIED, DISCLOSED OR OTHERWISE MADE AVAILABLE. IF RETURNED UPON REQUEST AND IS NOT TO BE COMMUNICATED, DISCLOSED OR COPIED, EXCEPT AS EXPRESSLY AUTHORIZED BY SWANEY LIGHTING ASSOCIATES.
PLANNED LIGHTING LEVELS ARE DESIGNED TO ACHIEVE THE BEST UTILIZATION OF LIGHTING FIXTURES INCLUDED IN THIS DRAWING. IT IS PROVIDED USING FIXTURE PHOTOMETRICS PUBLISHED BY THE MANUFACTURER AND ASSUMES NO VARIATION IN FIXTURE QUALITY OR PERFORMANCE SHOWN IN IES FILE IS NOT THE RESPONSIBILITY OF THE MANUFACTURER. IT'S USE FOR ANY OTHER PURPOSE IS NOT AUTHORIZED BY SWANEY LIGHTING ASSOCIATES.

PLANNING BOARD REPORT
PORTLAND, MAINE

SUBDIVISION AND CHANGE OF USE/ RENOVATION OF BUILDING

TO CO-WORKING OFFICES AND THREE APARTMENTS

415 Cumberland Avenue (proposed residential addressed 62 Forest Avenue)

Level III Subdivision Plan and Site Plan

Project ID #2016-152 CBL 036 G033001

Andrew Kraus, M&A Lowcountry Investments, LLC, Applicant

Submitted to: Portland Planning Board Public Hearing Date: July 26, 2016	Prepared by: Jean Fraser, Planner Date: July 22, 2016

I. INTRODUCTION

The applicant is requesting approval to a Level III application for conversion of the existing 3-4 story building at 415 Cumberland Avenue into 3 residential units and one "co-working" shared business office unit, along with window replacements /reopenings and roof decks. A similar proposal for conversion of most of the property into 10 residential units was approved by the Planning Board in October 2015, although the previous proposal did not include any external alterations to the building.

The property is located at the corner of Cumberland and Forest Avenues in the B3c zone, and currently owned by the applicant who proposes to convert the front part of the building to shared mixed business office space, and the rear part of the building into 3 residential units with parking in the first level garage.

The building is of historic importance although not considered eligible for any specific historic designation. The Congress Street historic district is located diagonally across the Cumberland/Forest intersection.

A total of 197 notices of this Hearing were sent to residents within 500 feet and interested citizens. A notice also appeared in the July 18th and 19th, 2016 editions of the *Portland Press Herald.* A Neighborhood Meeting is not required for this project as it is being subdivided into fewer than 5 units.

II. REQUIRED REVIEWS and REQUESTED WAIVERS

Review	***Applicable Standards***
Site Plan	*Section 14-526* for the proposed redevelopment
Subdivision of overall site	*Section 14-497* for the division into 1 business offfice unit and 3 residential units.

[No requested waivers]

III. PROJECT SUMMARY

Existing Zoning: B3c Business Zone
Proposed Use: Commercial Co-Working and three (3) Residential Units
Parcel Size: 6098 sq ft
Total Disturbed Area: None- all interior improvements

Existing Building footprint: 4,929 sq ft
Proposed Building footprint: 4,929 sq ft
Existing Building floorspace: 15,745 sq ft over 4 stories
Proposed Building floorspace: 15,745 sq ft over 4 stories excluding decks which total 2,608 sq ft

Existing use: Commercial space (most recently Hurley Travel)
Proposed uses: 5,549 sq ft residential including units, deck & parking
12,804 sq ft "co-working" offices, incl. basement, common area and deck

Residential Data:
- **Existing Res. Units:** None
- **Proposed Res. Units:** 3 units totaling 2970 sq ft
- **Bedroom Mix:** 1 No 1-bedroom unit
  1 No 2- bedroom unit
  1 No 3-bedroom unit

Parking Spaces:
- **Existing:** 6 (within garage as part of building)
- **Proposed:** 6 (within garage as part of building shown for residential use) (includes one handicapped space)
- **Required:** In this zone no parking provision is required for a change of use

Bicycle Parking Spaces:
- **Existing:** None
- **Proposed:** 14 (6 outside; 4 in garage for residential units; 4 in common area for business use
- **Required:** Requirement is 2 spaces for residential; 2 for spaces for the business unit

Estimated Cost of Project: $950,000

III. PROJECT DESCRIPTION

The existing 3-4-story building is part of a group of 4-5 story buildings that include the YMCA at the corner of Forest and Cumberland Avenues. The part of the building fronting onto Forest Avenue dates from the 1860's and the rear section is recent.

There are three small areas of open site: the landscaped area at the front; a paved sliver along the west side which is currently the location of a fire escape; and an open but fenced area at the north side which has an access easement over it for the YMCA. (see photos submitted by the applicant in Plan P6)

The proposals are described in Attachment A and illustrated in Plans P2 to P7; the key aspects of the proposals are listed below (some shown on draft plat and not on site plan):

- Creation of a "co-working" business office unit that includes a number of common amenities such as fitness center; kitchen/lounge; conference room

- Creation of three residential units with dedicated parking
- Installation of 15 new windows on three facades (not on the Cumberland Avenue elevation), most being a replacement of existing or a re-opening of original;
- Retention of historic exterior and interior features (eg ballroom)
- Addition of two roof top decks;
- Elevator to serve the co-working office unit including the penthouse and roof deck;
- Planting of two street trees in front landscaped area;
- Provision of 6 bicycle parking spaces in the vicinity of the fire escape on the west elevation and 8 inside;
- Use of part of the rear (north) open easement area for trash storage in 7 separate bins;
- Repair or replacement of the ADA ramp in the ROW at the corner of Forest and Cumberland Avenues.

IV. RIGHT, TITLE AND INTEREST AND FINANCIAL CAPACITY

a. The owner of the property is M&A Lowcountry Investments, LLC and the deed in Attachment C. demonstrates their right, title and interest in the property. The YMCA has an access easement over a small area to the north of the property that provides ADA access to a side door.

b. The estimated cost of the development is $950,000 (see Attachment B data sheet) and the applicant has confirmed that funds have been secured (Attachment D).

V. ZONING ASSESSMENT

The building is located primarily in the B3c zone, with the northern edge and abutting small yard located within the R6 zone. The previous use of the building was retail, workshop and offices (Hurley Travel; commercial under site plan definitions) and the proposed uses are a change of use to residential and general and business offices. The proposed uses are permitted in the B3c zone, and the residential part is within the R6 zone.

The site is not within the PAD Overlay Zone but the Downtown Urban Design Standards apply (see below). The project is exempt from providing any additional dedicated parking for the project under the zoning ordinance as a change of use in the B3c Downtown Business Zone. The proposal does not include any alterations to the existing footprint of the building nor its height. The staff finds the application to be in conformance with the B-3c zone, and notes that the trash storage is regulated in the *External effects* section 14-221.1.

VI. DEVELOPMENT REVIEW

A. SUBDIVISION and SITE PLAN SUBMISSION REQUIREMENTS (Section 14-497 & Section 14-527)

All requirements have been met. The subdivision plat (Plan P2.) clarifies the subdivision units and is comprehensive, though the YMCA easement needs to be shown more clearly and a few notes need to be clarified. The final version will need to be reviewed by the Legal Department and DPS Surveyor prior to signature by the Planning Board, as recommended in the condition of approval.

It is understood that the apartments are being created for market-rate rental so there are no Condominium Documents submitted. A suggested subdivision condition of approval requires the submission of such documents if the nature of the units is changed in the future.

B. SUBDIVISION REVIEW

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's Subdivision Ordinance and applicable regulations. Staff comments are listed below.

1. Will Not Result in Undue Water and Air Pollution (Section 14-497 (a) I), and Will Not Result in Undue Soil Erosion (Section 14-497 (a) 4)
   Staff finds the proposed project is in conformance with this standard.

2. Sufficient Water Available (Section 14-497 (a) 2 and 3)
   The applicant is in discussions with the Portland Water District but has not yet received a letter confirming capacity, and a condition of approval requires its submission prior to the issuance of a building permit.

3. Will Not Cause Unreasonable Traffic Congestion (Section 14-497 (a) 5)
   Please see paragraph C1 below. The staff finds the proposal will not cause unreasonable traffic congestion.

4. Will Provide for Adequate Sanitary Sewer and Stormwater Disposal (Section 14-497 (a) 6), and Will Not Cause an Unreasonable Burden on Municipal Solid Waste and Sewage (Section 14-497 (a) 7)
The wastewater capacity letter has not been issued at the time this report was completed and a suggested condition of approval requires its submission prior to the issuance of a building permit. The current roof drain discharges to the sewer which is not acceptable to DPW, and the applicant has shown (roof plan in Plan P4.) "roof drain to grade" in order to remove it from the sewer. Staff recommend a condition (Attachment 5) that requires further details of the discharge piping and erosion control at the discharge location, for review and approval.

5. Scenic Beauty, Natural, Historic, Habitat and other Resources (Section 14-497 (a) 8)
The proposed project will not have an adverse effect on the scenic or natural beauty of the area, thus the proposed project is in conformance with this standard.

6. Comprehensive Plan (Section 14-497 (a) 9)
The following statement is housing policy that is relevant to this proposal and the staff finds the proposed project is in conformance with this standard.

The first policy of Housing: Sustaining Portland's Future is to ensure an adequate and diverse supply of housing for all. Objectives under that policy include the following:

- Ensure the construction of a diverse mix of housing types that offers a continuum of options across all income levels, which are both renter and owner-occupied. The list of potential housing options under this objective include:
  - ii. Housing units for decreasing household sizes, such as young professionals, empty nesters, single parent households and senior citizens.
  - v. Higher density housing, such as row houses, small lots, reuse of non-residential buildings, and mixed use buildings.
- Encourage higher density housing for both rental and home ownership opportunities, particularly located near services, such as schools, businesses, institutions, employers and public transportation.
- Evaluate and update current zoning, as needed, to encourage higher density multi-family developments and mixed use projects that incorporate housing, particularly along major public transportation routes, near services areas, and in redevelopment or infill areas, where appropriate.
- Encourage housing within and adjacent to the downtown. Evaluate and update current zoning and building codes, as needed, to facilitate new housing and redevelopment opportunities….

The proposals also address Comprehensive Plan policies regarding economic development that derive from the Portland Industry and Commerce Plan – 1994:

- Strengthen and Diversify the Economic Base
  - create a variety of job opportunities for the full spectrum of the labor pool which:
    - are appropriate to our current and potential skills
    - provide good pay and benefits - a living wage
    - are rewarding/satisfying
  - strengthen and diversify the tax base

7. Financial Capability (Section 14-497 (a) 10) Please see above under Section IV.

C. SITE PLAN STANDARDS (Section 14-526)
The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. Transportation Standards

a. Impact on Surrounding Street Systems
b. Access and Circulation
c. Public Transit Access
d. Parking
e. Transportation Demand Management (TDM)

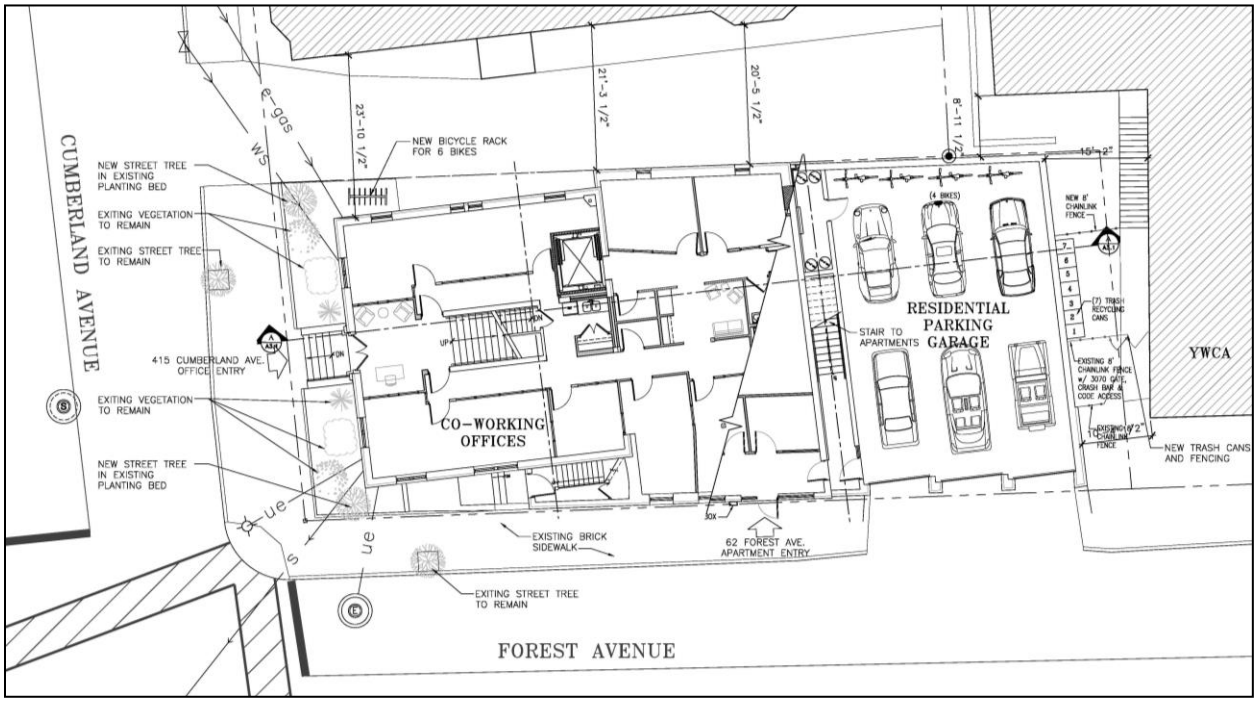
STAFF COMMENT: The proposed project is not anticipated to have any significant adverse effect on regional traffic, and the parking needs have been addressed by the retention of the 6 existing parking spaces (shown on Plan P3 as "Residential") in the garage which have an existing curb cut that is satisfactory. The Traffic Engineering reviewer Tom Errico has commented (Attachment 3):

> *I have reviewed the project application materials and I find conditions to be acceptable. I would suggest a condition of approval that notes the parking tandem parking spaces be designated for the residential units only (or for low turnover use). Backing maneuvers onto Forest Avenue should be minimized given vehicle and pedestrian traffic levels.*

A suggested condition of approval reflects these comments.

Bicycle parking totaling spaces for 14 bikes has been provided for both occupants and visitors (see Plan B3) and exceeds the ordinance requirement of 4 spaces. However, access to the 6 spaces outside is over property outside the site, so a suggested condition of approval requests that the bike parking be accessible over the applicant's property.

A recent aspect of the review of pedestrian access relates to compliance with current ADA requirements and the applicant has submitted a letter confirming compliance where applicable (Attachment F). The Public Transit and TDM standards do not apply to this project.



Proposed Site Plan

2. ***Environmental Quality Standards***
   a. Preservation of Significant Natural Features
   b. Landscaping and Landscape Preservation
   c. Water Quality, Storm Water Management and Erosion Control

STAFF COMMENT: The applicant has added two street trees to the front (existing) landscaped area and, together with the existing two street trees, meet the requirement of 4 street trees.

The trash storage is provided near the existing curb cut in Forest Avenue (see Attachment A and Plan 3 for details) although it appears that neither of the two sets of gates/fencing are proposed to be upgraded and do not fully screen the trash storage from the public sidewalk nor from the adjacent ADA access to the YMCA. The trash storage is near the YMCA building and the applicant will need to ensure that these meet the zoning requirement that no dust nor fumes are created. Suggested conditions are included to address these points.

The reuse of the building and surrounding impervious surfaces do not require any upgrading to meet current stormwater requirements as noted in Attachment 5. However, staff recommend erosion control during construction and in relation to the roof drains (see above in Section Vi B (4) and this is included in the suggested conditions of approval.

3. Public Infrastructure and Community Safety Standards

a. Consistency with Master Plans
b. Public Safety and Fire Prevention
c. Availability and Adequate Capacity of Public Utilities

STAFF COMMENT: The sidewalks along the frontage are in good condition but the Department of Public Works has requested (Attachment 5) that the ramp panel within the tipdown at the corner crosswalk be replaced and the applicant has shown this improvement on the draft Plat in Plan P2. A suggested condition of approval requests that this be included on the site plan and requests detailed plans.

Captain Keith Gautreau of the Fire Department reviewed the previous conversion proposal for this property and his colleagues have confirmed this comment remains applicable to the current proposal. He identifies 911 and street addressing as a particular concern because the entrances to the building are on two streets, and this has been highlighted in a suggested condition of approval. The current proposal gives these two different addresses which will also require further review in the context of emergency service concerns.

The capacity letters for water and wastewater are outstanding, as described in Section Vi B 1 and 4.

4. Site Design Standards

a. Massing, Ventilation and Wind Impact; Shadows; Snow and Ice Loading; View Corridors: The alterations to the existing building are minor and would not alter these impacts.

b. Historic Resources: STAFF COMMENT: The proposal is 100ft +/- from the Congress Street Historic District and landmark NE Telephone building. The proposals include recladding and new windows in part of the Forest Avenue elevation that faces the historic district and staff considered that this elevation should be reviewed under the Site Plan standard that requires compatibility with the historic context. The proposal also adds an elevator overrun in the roof area facing west (away from Forest Avenue) and this small structure has been well integrated into the roof design.

The Historic Preservation Program Manager, Deb Andrews, welcomes the removal of the brown wood cladding and offered preliminary comments on the proposed elevation including encouragement of a more compatible cladding color (no specific color was recommended), better window and cornice alignment with that on the front part of the building, and a smaller and more permanent type of awning (Attachment 2).

The applicant revised the elevations on 7.20.2016 in response to the preliminary comments and explained the design intent in a narrative in Attachment F. The existing elevation, the proposed elevation (Plan P5) and the rendering of the current proposal (Plan P7) are shown on the next page.

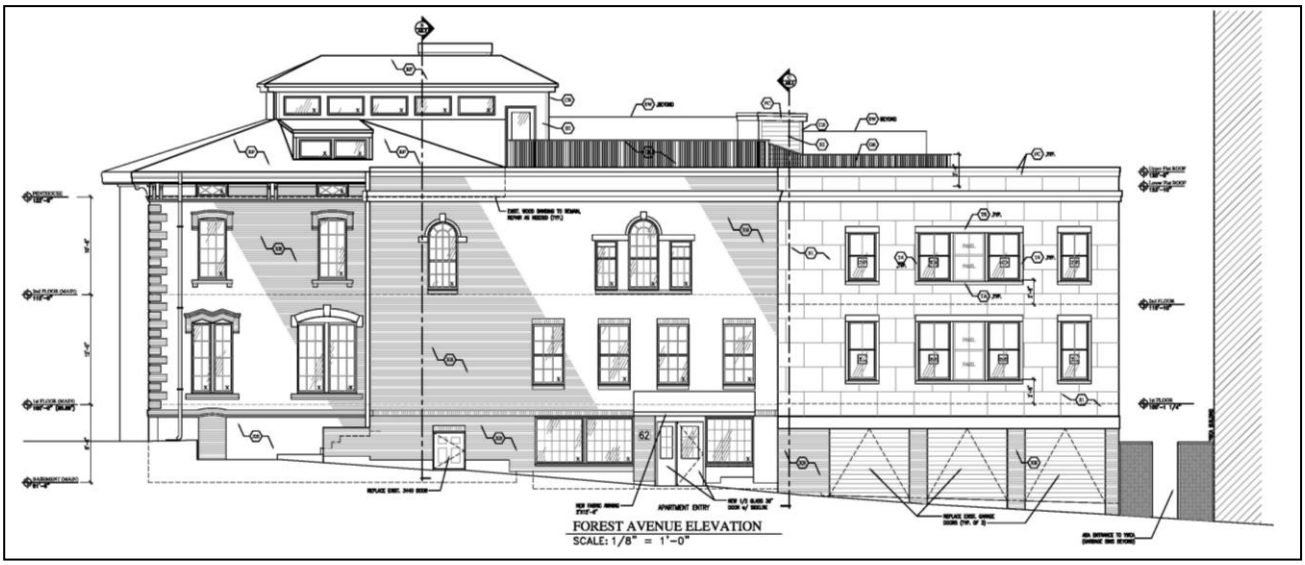
Ms Andrews has reviewed the revised proposals and notes (Attachment 6):

> *The 7/20 design appears to be responsive to most of the previous review comments provided by this office, as well as comments of the Planning Board and staff. The one outstanding issue that might warrant further consideration is the replacement exterior cladding proposed for the rear addition facing Forest Avenue. Although the material itself is acceptable and its running bond pattern relates to the running bond brick of the abutting historic structure, staff suggests that the scale of the individual cement panels be reduced somewhat. A reduction in scale of individual modules would likely result in a more subtle and intentional relationship between the finer grain brick of the historic structure and the contemporary exterior of the addition. Also, staff suggests that the tone of the addition be darker than what is presented to provide a more recessive appearance.*

A suggested condition of approval that reflects these comments is included in the motion for the Board to consider.

Existing

Rendering of Proposed



Proposed Elevation facing Forest Avenue

c. Exterior Lighting
d. Noise and Vibration
e. Signage and Wayfinding

STAFF COMMENT: The application does not clarify the proposed lighting, so the submission of details has been included in a suggested condition of approval. The application shows (Plan P4., top left) a number of screened HVAC units, and further information showing that they comply with the B3c sound level maximums is requested in a suggested condition of approval. As noted by the Fire Department in relation to addressing, the fact that the same building is proposed to have two different addresses needs to be considered further in light of the 911 requirements and the need for clear associated signage.

f. Zoning Related Design Standards

STAFF COMMENT: The *B3 Downtown Urban Design* Standards technically apply to his property but generally focus on issues related to new build. These Standards require enclosure of rooftop appurtenances and compatible materials and entrance designs. The proposals address these standards as they include

screening of the rooftop HVAC and have placed them in the least visible location, and the Historic compatibility review (above) has addressed the material and entrance aspects.

The proposals include a multi-family development and therefore must meet the following standards:

TWO-FAMILY, SPECIAL NEEDS INDEPENDENT LIVING UNITS, MULTIPLE-FAMILY, LODGING HOUSES, BED AND BREAKFASTS, AND EMERGENCY SHELTERS:

(1) ***STANDARDS.*** *Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts, and emergency shelters shall meet the following standards:*

a. Proposed structures and related site improvements shall meet the following standards:

1. *The exterior design of the proposed structures, including architectural style, facade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and facade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;*
2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;*

Staff comment: These standards do not apply as the development is within an existing building.

3. *Open space on the site for all two-family, special needs independent living unit, bed and breakfast and multiple-family development shall be integrated into the development site. Such open space in a special needs independent living unit or a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;*

Staff comment: There is little opportunity for additional planting, and the proposal to upgrade the front planted area generally addresses this standard.

4. *The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas;*

Staff comment: This standard appears to be met.

5. *The scale and surface area of parking, driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets;*

Staff comment: The parking is within an enclosed building and the vehicles are screened.

VII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed subdivision and site plan for three residential units and one co-working business offices unit within the existing building at 415 Cumberland Avenue.

VIII. PROPOSED MOTIONS FOR THE BOARD TO CONSIDER

A. SUBDIVISION 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 July 26, 2016 for application #2016-152 (415 Cumberland Avenue) relevant to the Subdivision regulations, and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan (**is/is not**) in conformance with the subdivision standards of the land use code subject to the following condition of approval:

i. That the Subdivision Plat shall be finalized to the satisfaction of the Planning Authority, Corporation Counsel, and Department of Public Works, and include clarification of easement and other information along with relevant notes and conditions prior to submission for Planning Board signature; and

ii. That in the event the property is converted to a condominium, that the recorded condominium documents shall be copied to the Planning Authority.

C. SITE PLAN 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 July 26, 2016 for application #2016-152 (415 Cumberland Avenue) 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, subject to the following conditions of approval:

i. That the applicant shall submit detailed plans/revised site plan to show the proposals for the following, all for review and approval by the Planning Authority (including the Transportation Division for item C) and Department of Public Works prior to the issuance of a building permit:
   A) The locations of roof drains and their discharge locations, with surface erosion protection noted as necessary (roof drains shall not discharge into the sewer);
   B) All work in the Right of Way, including but not limited to pavement for trench patching, utility installations, sidewalk repair and handicap ramp construction, to be in conformance with all City of Portland Technical Standards;
   C) The repair/replacement of the ADA ramp panel in the ROW at the corner of Forest Avenue and Cumberland Avenue (to meet the City's Technical Standards for any work in the ROW);
   D) The route to the outside bike racks located within the applicant's property; and
   E) Improved screening of the trash storage area.

ii. That the applicant address the comments of the Historic Preservation Manager dated 7.21.2016 in respect of the scale and tone of proposed new cladding on the Forest Avenue elevation, prior to the issuance of a building permit; and

iii. That the tandem parking spaces be designated for the residential units only (or for low turnover use) to ensure that backing maneuvers onto Forest Avenue are minimized given vehicle and pedestrian traffic levels; and

iv. That the Construction Management Plan shall be revised to note that existing catch basins near any disturbed areas shall be protected, and cleaned following construction as necessary, and that if the site disturbance results in the tracking of any sediment onto the surrounding streets, they will be swept as required; and

v. That the applicant shall submit the capacity letters in respect of water supply and wastewater capacity prior to the issuance of a building permit; and

vi. That any exterior lighting shall meet the City's Site Lighting Standards in Section 12 of the Technical Manual; the trash storage area and HVAC sound levels shall meet the B3c *External Effects* standards; - documentation of these to be submitted for review and approval by the Planning Authority prior to the issuance of a building permit; and

vii. That the applicant shall address the comments of the Fire Department dated 10.7.15 regarding the development of street addresses and their marking on the structure/signage prior to the issuance of a certificate of occupancy; and

viii. That a separate "change of use" permit shall be obtained from the Permitting and Inspections Division, and that any signage would require separate permits from the Permitting and Inspections Division.

Attachments:

Planning Board Report Attachments

1. Fire Department comments 2015 (confirmed still apply)
2. Staff and HP Manager prelim comments 7.15.16
3. Traffic Engineering Review comments 7.22.2016
4. City Arborist comments [not received at time report finalized]
5. Peer Engineer/DPW comments 7.22.2016
6. Historic Preservation Manager final comments 7.21.2016

Public comments (none received)

Applicant's Submittal

A. Cover letter
B. Application
C. Evidence of RTI (Deed)
D. Financial Capacity Information
E. Construction Management Plan
F. HP & ADA Narrative
G. Water and Sewer Capacity [not received at time report finalized]

Plans

Plan P1 Boundary Survey
Plan P2 Draft Subdivision Plat
Plan P3 Site Plan
Plan P4 Floor Plans
Plan P5 Elevations
Plan P6 Photos of existing building
Plan P7 Rendering from corner Forest/Cumberland Ave

MEMORANDUM

To: FILE

From: Jean Fraser

Subject: Application ID: 2015-162

Date: 10/22/2015

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

Life Safety requirements for the change of use will be addressed in the Building Permit process.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

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.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

There are two hydrants within 200' from the propose site which is more than adequate.

Comments Submitted by: Keith Gautreau/Fire on 10/7/2015

Access to the site is good at it sits on the corner of Forest Ave. & Cumberland Ave.

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

415 Cumberland

1 message

Jean Fraser <jf@portlandmaine.gov> Fri, Jul 15, 2016 at 4:33 PM
To: "mark@alphaarchitects.com" <mark@alphaarchitects.com>

Mark

Thanks for sending along the additional plan/rendering/photos. The review of the new architectural details is partly based on the "generally compatible" requirement as its near an Historic District, and also because its in the B3 zone and there are Design Standards for that zone (most of which do not apply to this project). The Standards (attached) largely are intended for new construction and will not be discussed in detail in the PB Report, but there are a few standards that apply (eg re materials, entrances, roof top appurtenances).

I just spoke to Deb Andrews and she and I both feel that its generally a great improvement over the existing, but she had a number of suggestions as to how to integrate it more fully with the existing historic and prominent building. I have listed below the more substantive comments (which ideally would be addressed in a revised version that could go to the Board):

- **Cladding:** suggest that you remove the existing and then add the new so that the reveal with the older building is maintained (that may be what you are intending, but it is not clear on the elevations)
- **New cladding color**: we suggest a color that is subdued (and does not detract from the rest of the building) and maybe picks up on a color on the front building;
- **Cornice line**: Suggest that the new cladded wall should have a cornice line that continues the one on the front building (so both cornice lines wrap around); material need not be same;
- **Awning over resident's door**: suggest that this be of a more permanent material and only be over the door; (also the window in the doors would benefit from being the same vertical dimension and in line with adjacent large windows)
- **New Windows**: suggest align better with the existing windows on the adjacent part of the building (and that the panels are placed to avoid seams near the windows)
- **Fencing of roof decks:** Could you please double-check that the fencing would not be seen in the rendering, as it seems to be at the same height as the windows that are visible and would be nearer to the roof edge.

Also, could you please send a short architectural narrative that clarifies what is being added to the exterior and what is being removed- to include clarification re the elevator over-run, the fencing on the roof top (its difficult to understand where the 6 ft high fence (SW) is located), the cladding installation and proposed building mounted lighting and

signage. This would help since there will not be a PB Workshop during which you could explain the proposals. I am struggling to understand some of the elements of the proposal, so I am guessing the Board may also be confused.

We will be uploading your plans and documents into the City's web site on Thursday afternoon (7/21), so whatever I get before noon on Thursday will be included in the Board's packet. We may be able to upload/send additional submissions to the Board after that.

I appreciate that this is a somewhat compressed timetable, so if these requests are problematic please let me know.

Thank you
Jean

--
Jean Fraser, Planner
City of Portland
874 8728

---

3 B-3 Downtown Urban Design Guidelines.pdf
136K

Att. 3

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

415 Cumberland Avenue - Final Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com> Fri, Jul 22, 2016 at 7:04 AM
To: Jean Fraser <jf@portlandmaine.gov>

Hi Jean – I have reviewed the project application materials and I find conditions to be acceptable. I would suggest a condition of approval that notes the parking tandem parking spaces be designated for the residential units only (or for low turnover use). Backing maneuvers onto Forest Avenue should be minimized given vehicle and pedestrian traffic levels.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T·Y·LIN INTERNATIONAL T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

thomas.errico@tylin.com

Visit us online at www.tylin.com

Twitter | Facebook | LinkedIn | YouTube

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

Att. 5

MEMORANDUM

TO: Jean Fraser, Planner
FROM: Lauren Swett, PE
DATE: July 21, 2016
RE: 415 Cumberland Avenue, Level III Site Plan Application

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed redevelopment located at 415 Cumberland Avenue. The project includes the conversion of the space from commercial office into mixed use commercial and residential market rate apartments. The work includes renovation of the building and some minor site improvements including utilities.

Documents Reviewed by Woodard & Curran

- Level III Site Plan application and attachments, dated June 15, 2016, prepared by Alpha Architects, on behalf of M&A Lowcountry Investments LLC.

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: Erosion and sediment control should be provided in accordance with the Basic Standard. It is noted that only minor site disturbance will be necessary for utility work, sidewalk ramp construction, and landscaping. The Construction Management Plan should note that existing catch basins near any disturbed areas shall be protected, and cleaned following construction as necessary, and that if the site disturbance results in the tracking of any sediment onto the surrounding streets, they will be swept as required.
   b) General Standard and Flooding Standard: No changes to impervious surface are proposed as part of this project. The project will not be required to provide stormwater management systems in accordance with the General and Flooding Standard.
2) The Application notes in their application narrative that "all existing rain leaders will be removed from flowing into the City storm sewers." The locations of roof drains and their discharge locations, with surface erosion protection noted as necessary, should be shown on the site plan.
3) The Subdivision Plat notes that the existing ADA ramp at the intersection of Cumberland Avenue and Forest Avenue will be repaired or replaced. The site plan should also note that this work will be completed. The ramp and crosswalk layout should be in conformance with the City of Portland Technical Standards, and should be reviewed by the Transportation Division of the Department of Planning & Urban Development prior to construction.
4) All work within the Right Of Way shall be in conformance with all City of Portland Technical Standards. This includes, but is not limited to, pavement for trench patching, utility installations, sidewalk repair and handicap ramp construction.

Portland Maine Yes. Google's good here.

Jean Fraser <jf@portlandmaine.gov>

415 Cumberland Avenue - Review of Final Design Proposal

1 message

Deb Andrews <dga@portlandmaine.gov> Thu, Jul 21, 2016 at 5:40 PM
To: Jean Fraser <jf@portlandmaine.gov>

Thank you for the opportunity to review ALPHA Architect's final design proposal (dated July 20) for the renovation of 415 Cumberland. The following comments are pursuant to Sec. 14-526 (b) of the site plan ordinance which requires historic preservation staff or Board to provide comments to the Planning Board regarding the relative compatibility of the project on the abutting historic resource or district. In this particular instance, the subject building itself, while located outside the designated historic district, is an architecturally notable structure, warranting careful rehabilitation and sympathetic additions.

The 7/20 design appears to be responsive to most of the previous review comments provided by this office, as well as comments of the Planning Board and staff. The one outstanding issue that might warrant further consideration is the replacement exterior cladding proposed for the rear addition facing Forest Avenue. Although the material itself is acceptable and its running bond pattern relates to the running bond brick of the abutting historic structure, staff suggests that the scale of the individual cement panels be reduced somewhat. A reduction in scale of individual modules would likely result in a more subtle and intentional relationship between the finer grain brick of the historic structure and the contemporary exterior of the addition. Also, staff suggests that the tone of the addition be darker than what is presented to provide a more recessive appearance.

--

Deb Andrews
Historic Preservation Program Manager
City of Portland
389 Congress Street
Portland, Maine 04101
(207) 874-8726

Att. A

June 15, 2016

ALPHAarchitects

Barbara Barhydt
Development Review Manager
Planning Department
City of Portland
379 Congress Street
Portland ME 04101

RE: CBL 036 G033001
Station 415
Level III Site Plan Application
415 Cumberland Avenue
Portland ME 04101

Dear Barbara,

The applicant is M&A Lowcountry Investments LLC, 110 Marginal Way #154, Portland ME 04101, (610) 888-9929. The Project Architect is Mark Sengelmann of ALPHAarchitects, 17 Chestnut St, Portland ME 04101 (207) 761-9500. The property is in the IL zone.

Please use the information provided in this narrative as complimentary material to the boundary survey and architectural floor plans and elevations provided. This narrative serves to clarify the general items required of a Level 3 Site Plan not identified on the provided drawings.

Project Description
The submitted project intent is to convert 415 Cumberland Ave from commercial office space into mixed use commercial and residential market rate apartments. Specifically, the planned commercial space, with an address of 415 Cumberland Ave., will be a "co-working" space, providing business and individuals with dedicated workspace. The back portion of the building, with a mailing address of 62 Forest Ave., will be converted into 3 residential units. The building was most recently used by Hurley Travel, and before that by Thomas Moser as a furniture gallery.

The renovation of the building includes changes to the exterior façade, which will include the installation of new windows where they have been filled in on the west side of the building, and residing of the residential portions of the building. There will also be changes made to address minor repairs to the cornice, freeze and roof trim. In addition, we will add a roof top deck.

ALPHAarchitects
17 Chestnut Street, Suite 201, Portland ME 04101 • **207.761-9500** • Fax 207.761.9595 • mark@ALPHAarchitects.com

The interior of the building will be substantially rehabbed to provide residential and commercial space. The main ballroom, which was the meeting site of the first Women's Social Club in Maine (and possibly all of New England), will be predominantly preserved and improved upon. In addition, we will also be adding a 5-stop elevator to the commercial portion of the space to make each level, including the roof top deck, fully accessible.

Evidence of Right, Title & Interest
Reference attached Exhibit A (deed, bill of sale)

Evidence of State and Federal Permits
Not applicable.

Projected Compliance with Applicable Zoning
The subject property is located within the B3c zone and multi-family housing and commercial office space are permitted uses

- Sec 14-217. Permitted uses (a) The following uses are permitted in the B-3, B-3b and B-3c zones:
    - 1 Residential: a. Attached single family, two-family and multifamily dwellings
    - 2 Business: a. General and business offices; b. professional services; c. personal services

Summary of Existing Easements
There are one known easement. The neighboring YMCA was granted the rights to a small portion of land between the subject property and the YMCA by Albert S. Rines in 1923. This easement was recorded in the in the Cumberland County Registry of Deeds Book 1153, page 136. This deed was amended in book 1212, page 217. This deed late passed to Thomas F Moser and Mary W Moser, located in book 12089, page 243.

Reference attached Exhibit B

Evidence of Financial and Technical Capacity
This building was purchased by M&A Lowcountry Investments, LLC ("M&A") with the intention to redevelop the property as an owner-occupied commercial property with additional residential units for rent. M&A contributed equity to the project and received financing from a local lending institution. M&A has already retained a Construction Manager to oversee the construction process.

See Construction Management plan for more detail.

Traffic Study
A traffic study is not required for this building

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Storm water Management Plan
This subject property and renovation will make no disturbance to existing sidewalks, landscaped areas or hardscape areas. Therefore, there will be no impact to the existing storm water management that exists. During the redevelopment process, all existing rain leaders will be removed from flowing into the City storm sewers.

Consistency with City's Master Plan
We believe this project will benefit the City of Portland in the following ways:

1. It will preserve a historically significant building that is falling into disrepair and has been largely unoccupied for several years
2. It will provide much need market rate housing
3. It will provide much needed flexible commercial office space for small and growing companies. The project aims to be a central part of Southern Maine's entrepreneurial ecosystem
4. It will create short term employment from construction jobs, and long term employment from building management (and tenants)
5. It will increase the city tax base
6. It will set an example that an existing historic building can be repurposed into effective commercial and residential space

Proposed Management of Solid Waste
We have exterior space for 7 large rolling trash cans and recycle bins, which will be collected weekly. For the commercial space, recycling of all waste will be managed and prioritized.

Code Summary Analysis for Proposed Redevelopment
2009 IBC and 2009 NFPA 101 Code Review
Station 415, 415 Cumberland Avenue, Portland, Maine

For purposes of this review the project will be evaluated as two separate buildings:
415 Cumberland Ave (M-Mercantile) and 62 Forest Ave (R-2, residential)
415 will be a traditional 2 exit building and 62 will be a single exit building.

Proposed Primary Use Group: B- Business (IBC 2009, 304.1), 7247 s.f.
Proposed Primary Use Group: R-2 (IBC 2009, 310.1), 3662 s.f.
Secondary Use Groups: Storage 1569 s.f.
Parking 1844 s.f.
Common 1423 s.f.
Assembly 1242 s.f.

Construction Type: Type III(B) and Type V(A)

Automatic Sprinkler System: New Type 13 & Type 13r

Allowable Height & Area: IBC 2009 Table 503

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Type III(A) Front- Offices
Allowable Area: 24,000 s.f. / floor
Existing: 3,200 s.f. / floor
Allowable Height 65' / 4 stories
Existing: 40' / 4 stories

Type V(A) Rear- Apartments
Allowable Are: 12,000 s.f. / floor
Existing: 1,700 s.f. / floor
Allowable Height: 50' / 3 stories
Existing: 30' / 3 stories

Occupancy:

NFPA 6.1.11 Business
NFPA 6.1.8 Residential
NFPA 6.1.8.1.5 Apartment Buildings
NFPA 6.1.13 Storage (Residential & Parking)
NFPA 6.1.14 Multiple

Occupant Load: IBC Table 1004.1.1

Residential: 18 maximum occupants
Business: 73 max
Garage/ Storage: 24 max
Rooftop Assembly: 83 max
Total Occupant Load: 198

Egress:

415 Cumberland- Minimum Number of Exits: IBC 2009 Table 1021.1
1-500 occupants: 2 exits minimum
62 Forest Ave- Single Exit: NFPA 101 2009 30.2.4.4

Egress Width:

198 occupants / 2 exits = 99 occupants / exit
198 occupants / 2 stairs = 99 occupants / stair

Doors: (occ*0.2) = 99*0.2 = 19.8 inches minimum, 36 provided
Stairs: (occ*0.3) = 99*0.3 = 29.7 inches minimum, 44 provided

ALPHAarchitects
17 Chestnut Street, Suite 201, Portland ME 04101 • **207.761-9500** • Fax 207.761.9595 • mark@ALPHAarchitects.com

Travel Distance:

IBC 2009:

Residential:	250’ w/ sprinklers
Business:	300’ w/ sprinklers
Storage:	400’ w/ sprinklers

NFPA: (Table a.31.1)

Residential:	200’ apartment door to exit
Smoke Barriers:	Not Required
Interior Finish:	A, B, or C
Exit Fire Resist:	1 hour
Door Fire Resist:	1 hour
Escape Windows:	Type ‘E’ egress windows in apartment bedrooms

We will look forward to your review and comments.

Sincerely,
ALPHAarchitects

Mark Sengelmann, NCARB
Maine Licensed Architect

Cc: Andrew Kraus, M&A Lowcountry Investments LLC
Encl. Warranty Deed, Construction Management Plan, Letter of Financial Viability, HVAC Sound Limits and Existing Easements.

ALPHAarchitects
17 Chestnut Street, Suite 201, Portland ME 04101 • **207.761-9500** • Fax 207.761.9595 • mark@ALPHAarchitects.com

Att. B

Portland, Maine Yes. Life's good here.

Jeff Levine, AICP, Director
Planning & Urban Development Department

Electronic Signature and Fee Payment Confirmation

Notice: Your electronic signature is considered a legal signature per state law.

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. You are also signifying your intent on paying your fees by the opportunities below.

I, the undersigned, intend and acknowledge that no Site Plan or Historic Preservation Applications can be reviewed until payment of appropriate application fees are ***paid in full*** to the Inspections Office, City of Portland Maine by method noted below:

☐ Within 24-48 hours, once my complete application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☐ Within 24-48 hours, once my application and corresponding paperwork has been electronically delivered, I intend to **call the Inspections Office** at 207-874-8703 and speak to an administrative representative and provide a credit/debit card over the phone.

☒ I intend to deliver a payment method through the U.S. Postal Service mail once my application paperwork has been electronically delivered.

Applicant Signature: _____ Date: 6/15/16

I have provided digital copies and sent them on: _____ Date: 6/15/16

NOTE: All electronic paperwork must be delivered to buildinginspections@portlandmaine.gov or by physical means i.e. a thumb drive or CD to the Inspections Office, City Hall, 3rd Floor, Room 315.

PROJECT NAME: Station 415

PROPOSED DEVELOPMENT ADDRESS:
415 Cumberland Ave Portland, ME 04101 + 62 Forest Ave Portland, ME 04101

PROJECT DESCRIPTION:
Redevelopment of 415 Cumberland Ave to Commercial Co-working
Redevelopment of 62 Forest Ave to 3 residential units

CHART/BLOCK/LOT: 036 G033001

PRELIMINARY PLAN _____ (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Andrew Kraus Business Name, if applicable: MtA Lowcanty Investments, LLC Address: 110 Marginal Way #154 City/State : Portland, ME Zip Code: 04101	**Applicant Contact Information** Work # 610-888-9929 Home# Cell # Fax# e-mail: ajkraus09@gmail.com
Owner – (if different from Applicant) Name: Address: City/State : Zip Code:	**Owner Contact Information** Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Address: City/State : Zip Code:	**Agent/Representative Contact information** Work # Cell # e-mail:
Billing Information Name: ANDREW KRAUS Address: 110 MARGINAL WAY #154 City/State : PORTLAND ME Zip Code: 04101	**Billing Information** Work # 610-888-9929 Cell # Fax# e-mail: AJKRAUS09@GMAIL.COM

Updated: October 6, 2015

Engineer	Engineer Contact Information
Name: BENNETT ENGINEERING	Work # 865-9475
Address: PO BOX 297	Cell # Fax#
City/State : FREEPORT ME Zip Code: 04032	e-mail: WILL@BENNETTENGINEERING.COM
Surveyor	**Surveyor Contact Information**
Name: ELWOOD ELLIS	Work # 592-2735
Address: PO BOX 6234	Cell # Fax#
City/State : CHINA VILLAGE Zip Code: 04026	e-mail: BLUESBRO@ROADRUNNER.COM
Architect	**Architect Contact Information**
Name: Mark Sangelmann dba ALPHAarchitects	Work # 761-9500
Address: 17 CHESTNUT ST	Cell # 671-4110 Fax# 761-9595
City/State : PORTLAND ME Zip Code: 04101	e-mail: Mark@ALPHAarchitects.com
Attorney	**Attorney Contact Information**
Name:	Work #
Address:	Cell # Fax#
City/State : Zip Code:	e-mail:

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Credit Card, Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews)

✓ Less than 50,000 sq. ft. ($500.00)
___ 50,000 - 100,000 sq. ft. ($1,000)
___ 100,000 – 200,000 sq. ft. ($2,000)
___ 200,000 – 300,000 sq. ft. ($3,000)
___ over 300,00 sq. ft. ($5,000)
___ Parking lots over 11 spaces ($1,000)
___ After-the-fact Review ($1,000.00 plus applicable application fee)

Plan Amendments (check applicable reviews)

___ Planning Staff Review ($250)
___ Planning Board Review ($500)

The City invoices separately for the following:

- Notices ($.75 each)
- Legal Ad (% of total Ad)
- Planning Review ($40.00 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.

Other Reviews (check applicable reviews)

___ Traffic Movement ($1,000)
___ Stormwater Quality ($250)
✓ Subdivisions ($500 + $25/lot)
# of Lots 4 x $25/lot = 100
___ Site Location ($3,000, except for residential projects which shall be $200/lot)
# of Lots ___ x $200/lot = _____
___ Other _____
✓ Change of Use
___ Flood Plain
___ Shoreland
___ Design Review
___ Housing Replacement
___ Historic Preservation

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal

2. **In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Building Inspections Office to start the review process.**

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. **One (1) full size site plans** that must be **folded.**
2. One (1) copy of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

APPLICANT SIGNATURE:

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:
	6/15/16

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	6098 sq. ft.
Proposed Total 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)	0 sq. ft.
Impervious Area (Total Proposed)	0 sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	4929 sq. ft.
Building Footprint (Total Proposed)	4929 sq. ft.
Building Floor Area (Total Existing)	sq. ft.
Building Floor Area (Total Proposed)	sq. ft.
Zoning	
Existing	B3c
Proposed, if applicable	n/a
Land Use	
Existing	Commercial
Proposed	Commercial and Residential
Residential, If applicable	
# of Residential Units (Total Existing)	0
# of Residential Units (Total Proposed)	3
# of Lots (Total Proposed)	0
# of Affordable Housing Units (Total Proposed)	0
Proposed Bedroom Mix	
# of Efficiency Units (Total Proposed)	
# of One-Bedroom Units (Total Proposed)	1
# of Two-Bedroom Units (Total Proposed)	1
# of Three-Bedroom Units (Total Proposed)	1
Parking Spaces	
# of Parking Spaces (Total Existing)	6
# of Parking Spaces (Total Proposed)	6
# of Handicapped Spaces (Total Proposed)	0
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	0
# of Bicycle Spaces (Total Proposed)	14
Estimated Cost of Project	$950,000

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
n/a		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
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))
n/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
n/a		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)**
✓		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;
n/a			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;
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;
✓			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;
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;
n/a			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;
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;
✓			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;
✓		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;
✓		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.

Doc#: 9703 Bk:32953 Pg: 37

QUITCLAIM DEED WITH COVENANT

KNOW ALL BY THESE PRESENTS, that 415 Cumberland, LLC, a Maine limited liability company, in consideration of one dollar ($1.00) and other good and valuable consideration paid by M&A Lowcountry Investments, LLC, a Maine limited liability company whose mailing address is 110 Marginal Way, Portland, Maine, 04101, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, and forever quitclaim unto the said M&A Lowcountry Investments, LLC, its successors and assigns forever, the land and buildings located in Portland, Cumberland County, Maine, and more particularly described in the attached

MAINE REAL ESTATE TAX PAID

Exhibit A.

Meaning and intending to release the premises described in the deed from Pamela A. Hurley Moser to 415 Cumberland, LLC herein dated March 5, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30443, Page 133.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said M&A Lowcountry Investments, LLC, its successors and assigns to its and their use and behoof forever.

And 415 Cumberland, LLC does covenant with the said Grantee, its successors and assigns, that it will warrant and 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, 415 Cumberland, LLC has caused this instrument to be executed by Justin H. Schair, its Manager thereunto duly authorized, this 2nd day of March, 2016.

415 Cumberland, LLC

WITNESS

By: _____
Name: JUSTIN SCHAIR
Title: MANAGER

STATE OF MAINE
COUNTY OF CUMBERLAND/ ss

March 2, 2016

On March 2, 2016, personally appeared the above-named Justin H. Schair, Manager of 415 Cumberland, LLC, and acknowledged the foregoing instrument to be his free act and deed in said capacity, and the free act and deed of said limited liability company.

Before me, _____
~~Notary Public/~~Attorney-at-Law

Printed Name: M. E. Mistretta

EXHIBIT A

The Land referred to herein below is situated in the County of Cumberland , State of Maine ,
and is described as follows:

A certain lot or parcel of land with the buildings thereon, situated on the westerly corner of Cumberland Avenue and Forest Avenue in the City of Portland, County of Cumberland, and State of Maine bounded and described as follows:

Beginning at the intersection of the southwesterly sideline of Forest Avenue with the northwesterly sideline of Cumberland Avenue; thence northwesterly by said Forest Avenue one hundred twenty-two (122) feet to the land conveyed by Albert S. Rines to the Young Men's Christian Association of the City of Portland by deed dated November 2, 1923 and recorded in the Cumberland County Registry of Deeds in Book 1153, Page 136; thence southwesterly by said land conveyed to the Young Men's Christian Association as aforesaid fifty (50) feet, more or less, to an angle in said land of the Young Men's Christian Association; thence southeasterly by said land of the Young Men's Christian Association, twenty-two (22) feet, more or less, to land now or formerly of Enoch C. Richards; thence southeasterly by said Richard's land one hundred (100) feet, more or less, to said Cumberland Avenue; thence northeasterly by said Cumberland Avenue fifty (50) feet, more or less, to the corner and point of beginning.

Received
Recorded Register of Deeds
Mar 02,2016 02:03:28P
Cumberland County
Nancy A. Lane

WARRANTY DEED

PAMELA A. HURLEY MOSER, f/k/a Pamela A. Hurley

of Portland, County of Cumberland and State of Maine

for consideration paid, grants to

415 CUMBERLAND, LLC

A Maine limited liability company with an office and place of business located in Portland, County of Cumberland and State of Maine, with WARRANTY COVENANTS, the following described real property in Portland, County of Cumberland and State of Maine:

See Exhibit A attached hereto and made a part hereof

Also hereby conveying all rights, easements, privileges, and appurtenances, belonging to the premises hereinabove described.

WITNESS my hand and seal this 5 day of March, 2013.

MAINE REAL ESTATE TAX PAID

WITNESS

AE Caulfield
Witness

Pamela A. Hurley-Moser
Pamela A. Hurley Moser

State of Maine
Cumberland, ss.

March 5th, 2013

Personally appeared before me Pamela A. Hurley Moser and acknowledged the foregoing instrument to be her free act and deed.

Before me,

AE Caulfield
~~Notary Public~~/Attorney-at-Law

Alexandra E. Caulfield
Attorney at Law

G:\CLIENTS\H\HURLEY\415Cumberland.Sale\Deed.doc

EXHIBIT A

A certain lot or parcel of land with the buildings thereon situated on the westerly corner of Cumberland Avenue and Forest Avenue in Portland, and bounded and described as follows:

Beginning at the intersection of the southwesterly sideline of Forest Avenue with the northwesterly side of Cumberland Avenue; thence northwesterly by said Forest Avenue one hundred twenty-two (122) feet to the land conveyed by Albert S. Rines to the Young Men's Christian Association of the City of Portland by deed dated November 2, 1923 and recorded in the Cumberland County Registry of Deeds in Book 1153, Page 136; thence southwesterly by said land conveyed to the Young Men's Christian Association as aforesaid fifty (50) feet more or less to an angle in said land of the Young Men's Christian Association; thence southeasterly by said land of the Young Men's Christian Association twenty-two (22) feet, more or less, to land now or formerly of Enoch C. Richards; thence southeasterly by said Richard's land one hundred (100) feet, more or less, to Cumberland Avenue; thence northeasterly by said Cumberland Avenue fifty (50) feet, more or less, to the corner and the point of beginning.

Including herein and hereby conveying the right of way and other easements described in deed by the Young Men's Christian Association of Portland to R. Hight Rines, dated September 16, 1925 and recorded in said Registry of Deeds in Book 1212, Page 217.

The above described premises are conveyed subject to the right of way and other easements described in deed of R. Hight Rines to the Young Men's Christian Association of Portland, dated September 16, 1925 and recorded in said Registry of Deeds in Book 1212, Page 215.

For title reference see Deed given by Thomas F. Moser and Mary W. Moser to Pamela A. Hurley, dated August 1995 and recorded in the Cumberland County Registry of Deeds in Book 12089, Page 243.

G:\CLIENTS\H\HURLEY\415Cumberland.Sale\Deed.doc

Received
Recorded Register of Deeds
Mar 05,2013 02:14:53P
Cumberland County
Pamela E. Lovley

Att. D

M&A LOWCOUNTRY INVESTMENTS, LLC

200 Cobblestone Drive
Ardmore, Pennsylvania 19003
(610) 971-0878

To whom it may concern,

This letter is provided in support of the Level III Site Plan application for the redevelopment of 415 Cumberland Ave in Portland, Maine. The owner and developer of the property, M&A Lowcountry Investments, LLC, and its principals, have secured funding and have the financial capacity to complete the proposed redevelopment.

If you have any questions or are seeking clarification, please do not hesitate to contact me by phone at 610-888-9929 or by email at ajkraus09@gmail.com.

Respectfully,

For: M&A Lowcountry Investments, LLC

By: Andrew Kraus
Its: Manager

Ducas Construction Inc.

CONSTRUCTION MANAGEMENT PLAN
415 Cumberland Ave – Station 415
PREPARED FOR CITY OF PORTLAND, MAINE
May 31st, 2016

Purpose:

This construction management plan has been developed to provide sufficient information to the City Of Portland on how the project will interface with the surrounding neighborhood.

Project Synopsis:

The renovation of the existing building to be re-purposed as a modern day co-working office space, and (4) residential apartments.

Construction Administration:

1. Contractor Information

   Ducas Construction Inc
   17 Chestnut Street
   Portland, ME 04101

   Phone: 207-536-0838

   Project Executive: Patrick Ducas

2. Ducas Construction shall maintain the following hours.
   - Job site hours are to begin at 7:00 AM – 7:00 PM, Monday – Friday.
   - Saturday 8:00 AM – 5:00 PM.
   - Off Hours by Work Permit Only.
   - No Sunday and Holiday Work.

Neighborhood Interface:

Overview

- This project is confined to the limits of the existing site. The work will include new utility services but should otherwise have very little impact on the surrounding public infrastructure.

Demolition

- The building will be gutted from the inside, but the exterior envelope will remain structurally intact with very few changes. A few cosmetic updates will be made to the siding to improve the building aesthetic.
- Debris will be direct loaded onto trucks and removed from the site.

Site Work

- Utility connections will be coordinated with the city, and Ducas Construction will supervise and enforce flagging, street and sidewalk closures and pedestrian re-routing as required for the safe and timely execution of the work.
- All trucks entering and exiting the site will be accompanied by flagmen, and trucking will be limited to neighborhood friendly hours.

Exterior Improvements

- Scaffolding may be required for the masonry restoration and installation of new siding materials. Sidewalk permits will be obtained, and Ducas Construction will provide the required signage to divert traffic to the other side of the street where there is also a sidewalk.

Site Access

- All Deliveries will be scheduled for none "rush hour" times Monday – Friday, and after 8:00 AM on Saturdays.
- No idling or start-up of equipment before 7:00 AM Monday-Friday, and before 8:00 AM on Saturdays.

Storage/Parking/Ancillary Services

- Ducas Construction shall take appropriate steps to eliminate dust generation. These steps shall include but are not limited to: wetting down material, placing stone mats where necessary, and requiring all equipment transporting materials that create dust, to be covered.
- Ducas Construction will provide adequate sanitary facilities within the construction fence.
- Temporary drinking water will be provided.

- Dumpsters on site will be located within the construction fence. Removal and replacement will take place during construction hours.
- Ducas Construction will post appropriate signage including but not limited to the following: Parking Restrictions Construction Entrance, Staging Area, Site Phone Number, and Contact Information.
- A Pre-Construction meeting will be held with the Owner, Architect, Ducas Construction, and Subcontractors. It will outline, Ducas Construction Policies, and all necessary rules and procedures.

We feel this plan represents practical and safety conscious solutions that will ensure this project fits in to the neighborhood while creating minimal disturbance to others in the vicinity of the site.

Respectfully

Patrick Ducas

July 20, 2016

Jean Fraser
City Planner
City of Portland
389 Congress Street
Portland ME 04101

ALPHAarchitects

Architect's Memo

Architectural Narrative

RE: **Station 415**
415 Cumberland Avenue
Portland ME 04101

Dear Jean and members of the Planning Board,

This letter is in response to various comments and requests that were noted in an e-mail that was sent to our office 7-15-2016 and a second email received 7-20-2016 regarding the renovation to 415 Cumberland Ave. Portland, ME. I will briefly describe the materials to be added to the building and the method of their application as well as their potential visual impact. The following additional items were also brought to our attention and I will address each item individually.

Proposed Forest Avenue View

Exterior Cladding (Forest Ave. Elevation)

The existing brick façade will be repaired and cleaned as needed as noted in the drawings. The planning department has indicated a concern regarding the new cement panel system and it's relation to the existing brick portion of the façade. The panels themselves will be applied in a rain-screen fashion to ½" furring strips to allow for the required drainage/weeping behind the panels. We

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17 Chestnut Street, Suite 102, Portland ME 04101 • **207.761-9500** • Fax 207.761.9595 • mark@ALPHAarchitects.com

intend to maintain the existing reveal that separates the brick from the wood horizontal siding that is created at the corner by making sure that the new panel siding sits back (4-5 inches) from the brick wall in a similar fashion to the current offset.

New Panel Cladding Color

The new cladding color is yet to be determined. The Planning Board has recommended a color that is subdued and perhaps picks–up some of the color from the front portion of the building. We have shown a yellow/beige color in the first rendering and after review by HP and Planning staff has since been revised to show a muted grey option.

Cornice line

HP recommended that the cornice on the existing portions of the building should remain. Our first proposal removed the cornice from the back portion of the (at the cement panel area) façade. We have now included a continuous cornice that will be made out of a “built-up” system using the Hardie panel that will wrap around the rear of the building and terminate at the downspout on the alley-side elevation. (see revised elevation rendering)

Awning Over Residential Entry

There was a concern over the size and material choice of the awning over the residential entry; that is as made of a fabric and was perhaps too large. We intend to specify the awning material to be made of metal or some other rigid material instead of fabric for increased durability, and to reduce the size of it to cover only the entry doors themselves.

New Windows

The windows are miss-aligned do to the fact that the floors do not line up across the various additions to the building. The building was constructed in three phases at three different points in time. The rear portion was the latest of these expansions, and its floor levels unfortunately are not the same height as the earlier portions of the structure, leading to a slight misalignment. This is purely a function of the current conditions and is not intentional and is functionally unavoidable.

Rooftop Fencing

The rooftop fencing is setback far enough from the edge that from the position of the rendering, it would be barely visible. Further up Forest Avenue it would be more prevalent. It is shown in its approximate location from the current perspective.

ADA

The commercial portion of the project is fully accessible with a new 5 stop elevator leading from a barrier free entry on Forest Avenue to the rooftop deck. The residential portion of this project is exempt from The ADA per my conversations with Kathy Gipps, Director of the New England ADA Center regarding this issue. Since the project will not receive any federal funds and is not applying for any historic preservation tax credits it is therefore exempt from any Federal ADA barrier removal for ADA apartment accommodations.

I have also spoken with Barbara Archer Hirch, Maine Human Rights Council. Fair Housing and the ADA apply for new construction. MHRC defines new construction to be 75% or more of the replacement cost. The building is currently valued at $2.1M replacement cost by the owner’s insurance company. The total construction costs are not-to-exceed $1.2M which is 57% and

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therefore exempt.

Summary:
The building located at 415 Cumberland Ave is to be converted to a mixed use structure with both office use and residential components (3 apartment units). The masonry exterior shall be restored, and in the rear portion of the building, updated and re-clad with a more contemporary and durable material (Hardie cement panels). The area to be resurfaced currently has a horizontal wood siding finish that has little to do with the rest of the structure's masonry construction and is very worn and weathered. Our choice of Hardie panel will update the building's image while maintaining the Cumberland Ave. façade as the older historical segment of the building.

The exterior changes to the building are minimal, as previously mentioned (along Forest Ave). On the alley-side, we intend on adding a few windows that were removed during a prior renovation to allow more natural light into the workspaces.

The other noticeable exterior improvement will be the addition of some common outdoor deck areas on the roof and a required safety rail to protect the users. The building will also have a new elevator service to all floors plus the roof, but the only place where this will be visible from the exterior is the bulkhead at the top of the elevator shaft; this roof projection is required mechanical space for the hoist beam and other necessary elevator equipment and clearances.

Exterior signage will be located on or next to the front door (Cumberland Ave) and simple street numbering at the residential entry. Exterior lighting already exists on the Cumberland side, but a shaded exterior sconce should be included at the residential entry.

I hope this clarifies some of the concerns that you raised. We have attached a revised rendering of the building that has addressed the preliminary concerns that were brought to our attention. Please let us know if there are any other issues or concerns that you may have and we will directly respond to each one in kind.

Sincerely,
ALPHAarchitects

Mark Sengelmann NCARB
Maine Licensed Architect

Encl: Rendering dated 7-15-16, 7-19-16, Current Site Photos

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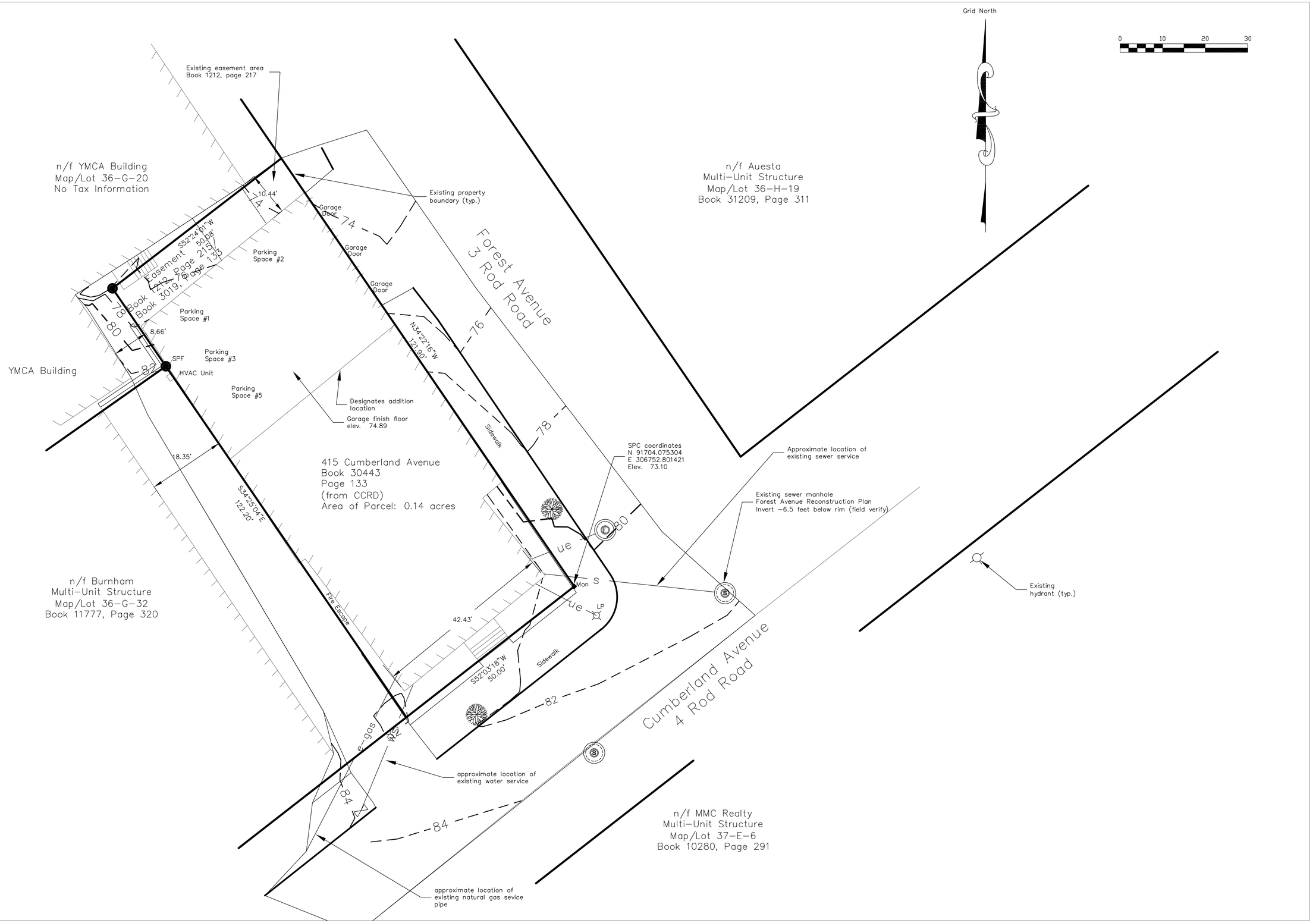
17 Chestnut Street, Suite 102, Portland ME 04101 • **207.761-9500** • Fax 207.761.9595 • mark@ALPHAarchitects.com



NO.	REVISIONS	DATE
1	Plan revisions	10/22/15
2	Plan revisions	07/14/16
3	Plan revisions	07/21/16

OWNER
M&A Lowcountry Investments LLC
415 Cumberland Avenue
Portland, Maine 04101

SCALE 1" = 10'

DATE: 06/18/16

PROJECT:
M & A Lowcountry Investments, LLC
Subdivision Plat

ADDRESS: 415 Cumberland Avenue
CITY: Portland
COUNTY: Cumberland
STATE: Maine

D. S. D.
DOWNEAST SURVEYING & DEVELOPMENT
REGISTERED P.L.S. # 1176
P.O. BOX 6324
CHINA VILLAGE, MAINE 04926
(207) 968-2507
MEMBER MAINE SOCIETY OF LAND SURVEYORS

STATE OF MAINE
EDWOOD DILLON SMITH
LICENSED
LAND SURVEYOR

BUILDING FLOOR AREA SCHEDULE

APT. #	FLOOR LEVEL	FLOOR AREA (SF)
A(LOT #2)	1st	1,530
B(LOT #3)	2nd	947
C(LOT #4)	2nd	493
RESIDENTIAL TOTAL:		2,970
COMMERCIAL	0,1,2,3	7,247
GARAGE	0	1,844
BASEMENT	0	1,569
COMMON AREA	0,1,2,3	2,115
COMMERCIAL TOTAL:		12,775

Approved by the Portland Planning Board

_____

_____

_____

_____

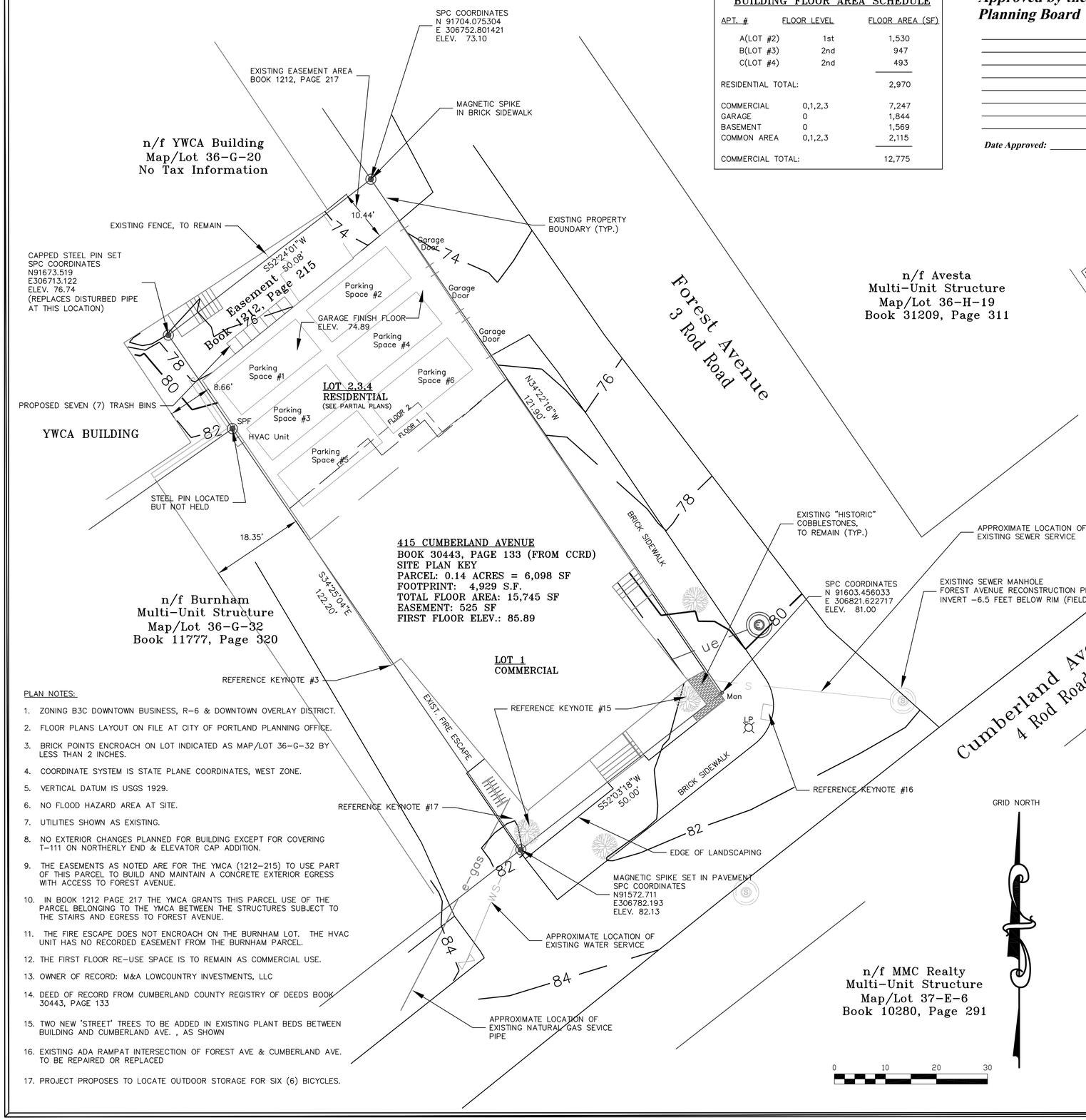
_____

_____

_____

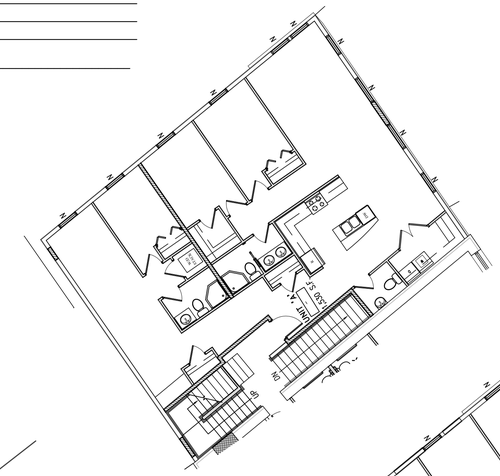
_____

Date Approved: _____

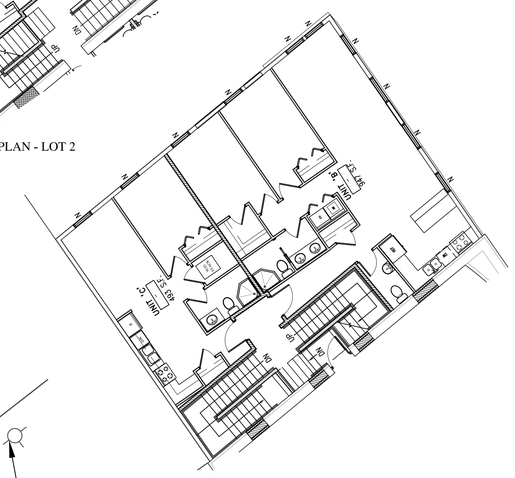


PLAN NOTES:

1. ZONING B3C DOWNTOWN BUSINESS, R-6 & DOWNTOWN OVERLAY DISTRICT.
2. FLOOR PLANS LAYOUT ON FILE AT CITY OF PORTLAND PLANNING OFFICE.
3. BRICK POINTS ENCROACH ON LOT INDICATED AS MAP/LOT 36-G-32 BY LESS THAN 2 INCHES.
4. COORDINATE SYSTEM IS STATE PLANE COORDINATES, WEST ZONE.
5. VERTICAL DATUM IS USGS 1929.
6. NO FLOOD HAZARD AREA AT SITE.
7. UTILITIES SHOWN AS EXISTING.
8. NO EXTERIOR CHANGES PLANNED FOR BUILDING EXCEPT FOR COVERING T-111 ON NORTHERLY END & ELEVATOR CAP ADDITION.
9. THE EASEMENTS AS NOTED ARE FOR THE YMCA (1212-215) TO USE PART OF THIS PARCEL TO BUILD AND MAINTAIN A CONCRETE EXTERIOR EGRESS WITH ACCESS TO FOREST AVENUE.
10. IN BOOK 1212 PAGE 217 THE YMCA GRANTS THIS PARCEL USE OF THE PARCEL BELONGING TO THE YMCA BETWEEN THE STRUCTURES SUBJECT TO THE STAIRS AND EGRESS TO FOREST AVENUE.
11. THE FIRE ESCAPE DOES NOT ENCROACH ON THE BURNHAM LOT. THE HVAC UNIT HAS NO RECORDED EASEMENT FROM THE BURNHAM PARCEL.
12. THE FIRST FLOOR RE-USE SPACE IS TO REMAIN AS COMMERCIAL USE.
13. OWNER OF RECORD: M&A LOWCOUNTRY INVESTMENTS, LLC
14. DEED OF RECORD FROM CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 30443, PAGE 133
15. TWO NEW 'STREET' TREES TO BE ADDED IN EXISTING PLANT BEDS BETWEEN BUILDING AND CUMBERLAND AVE. , AS SHOWN
16. EXISTING ADA RAMPAT INTERSECTION OF FOREST AVE & CUMBERLAND AVE. TO BE REPAIRED OR REPLACED
17. PROJECT PROPOSES TO LOCATE OUTDOOR STORAGE FOR SIX (6) BICYCLES.



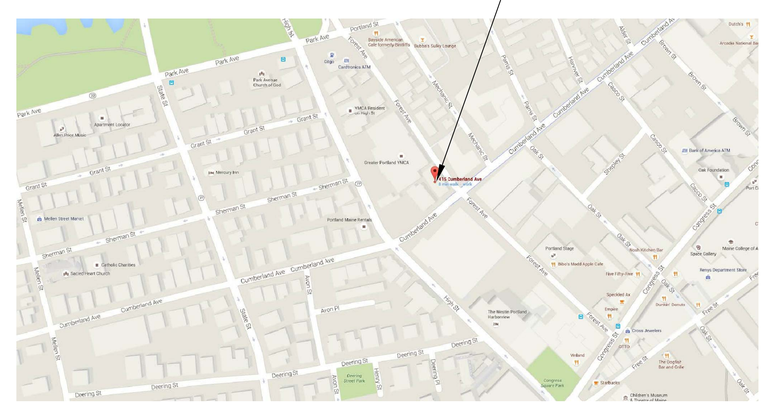
PARTIAL FIRST FLOOR PLAN - LOT 2
SCALE: 1" = 10'



PARTIAL SECOND FLOOR PLAN - LOTS 3 & 4
SCALE: 1" = 10'

EXISTING HYDRANT (TYP.)

PROJECT SITE



LOTUS Map

NO.	REVISIONS	DATE
1	Plan revisions	10/22/15
2	Plan revisions	07/14/16
3	Plan revisions	07/21/16

OWNER: M&A Lowcountry Investments LLC, 415 Cumberland Avenue, Portland, Maine 04101

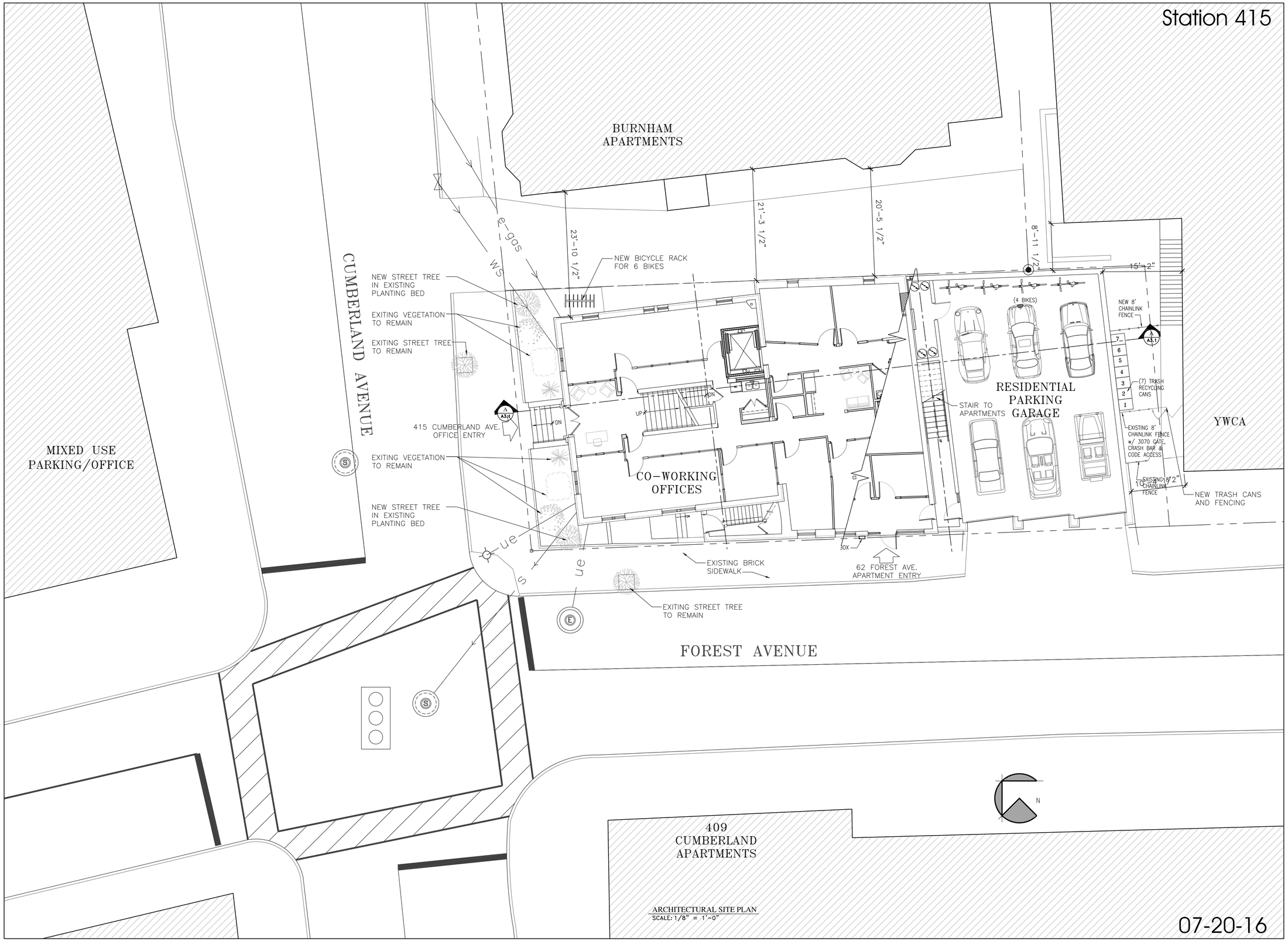
DATE: 06/15/16 SCALE: 1" = 10'

PROJECT: M & A Lowcountry Investments, LLC
Subdivision Plat

ADDRESS: 415 Cumberland Avenue
CITY: Portland COUNTY: Cumberland STATE: Maine

D. S. D.
DOWNEAST SURVEYING & DEVELOPMENT
CHRISTOPHER D. SHIELDS, P.L.S. # 1176
P.O. BOX 6524
CHINA VILLAGE, MAINE 04926
(207) 968-2507
MEMBER MAINE SOCIETY OF LAND SURVEYORS

STATE OF MAINE
EDWOOD ELLIS SHIELDS
LICENSED
LAND SURVEYOR



ARCHITECTURAL SITE PLAN
SCALE: 1/8" = 1'-0"

07-20-16

ALPHAarchitects
17 CHESTNUT STREET
PORTLAND, ME 04101
PHONE: 207.761.9500
FAX: 207.761.9595
design@alphaarchitects.com

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Station 415
415 Cumberland Avenue
Portland, ME 04101

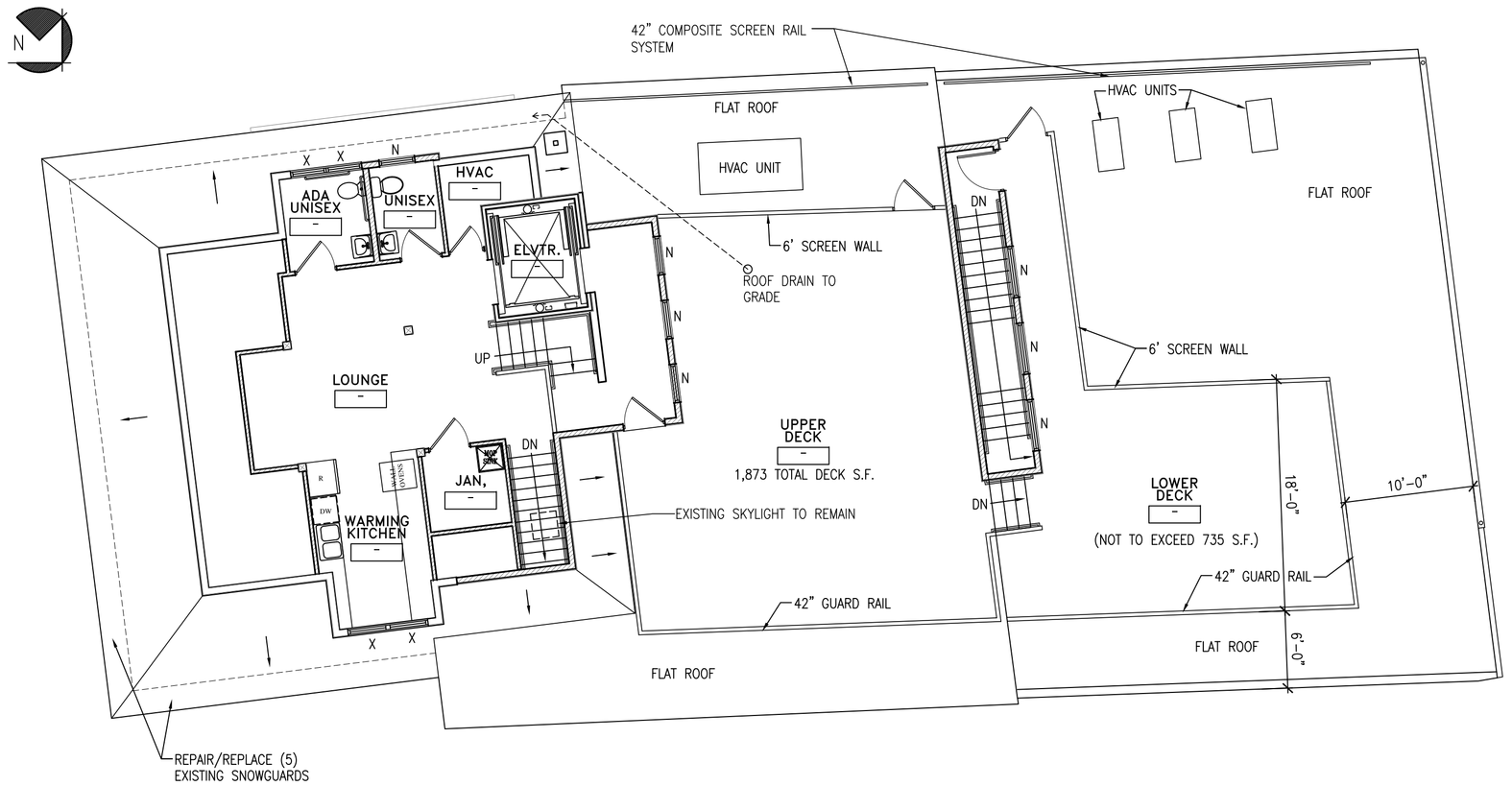
JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	07-20-16

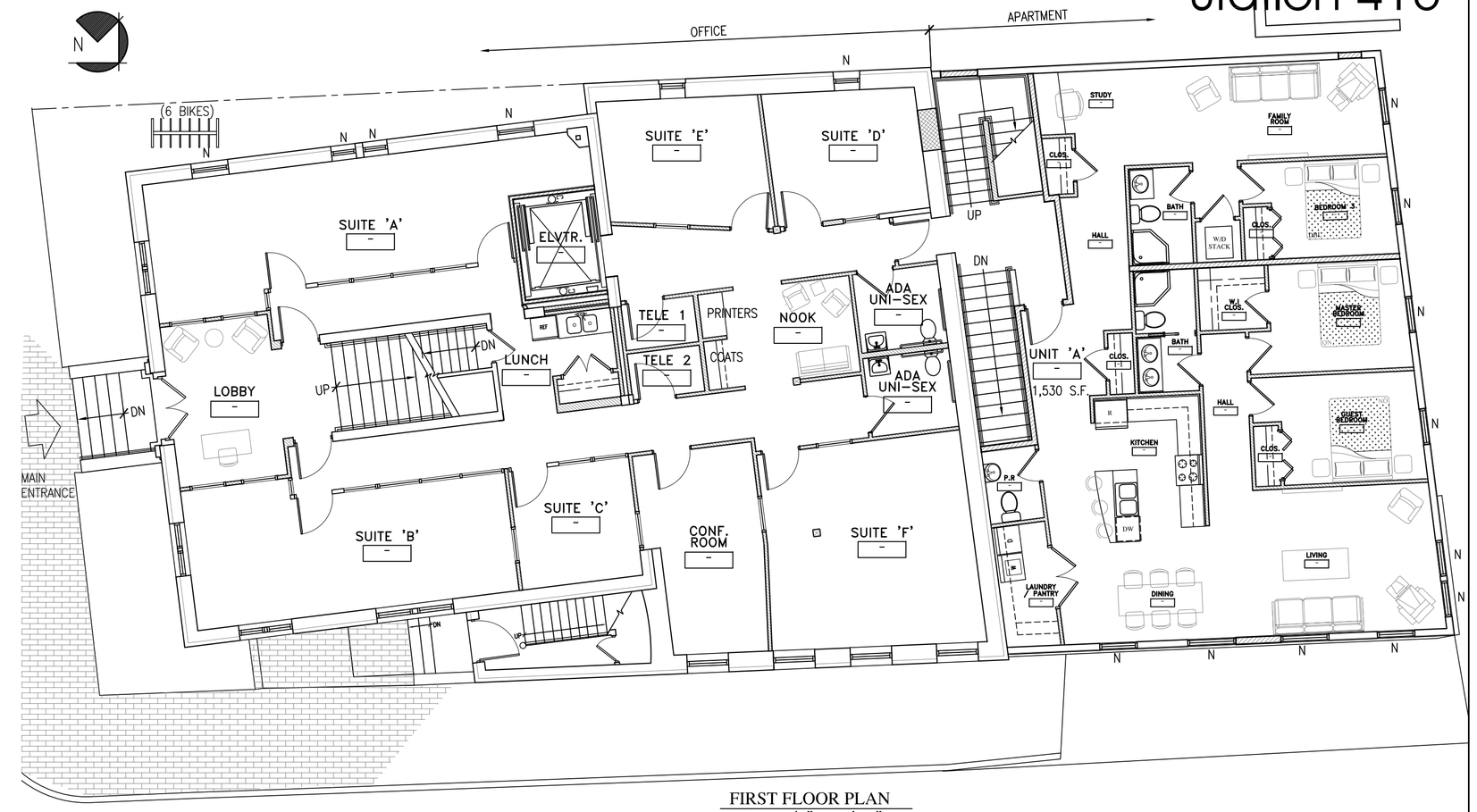
ARCHITECTURAL SITE PLAN

AS1.1

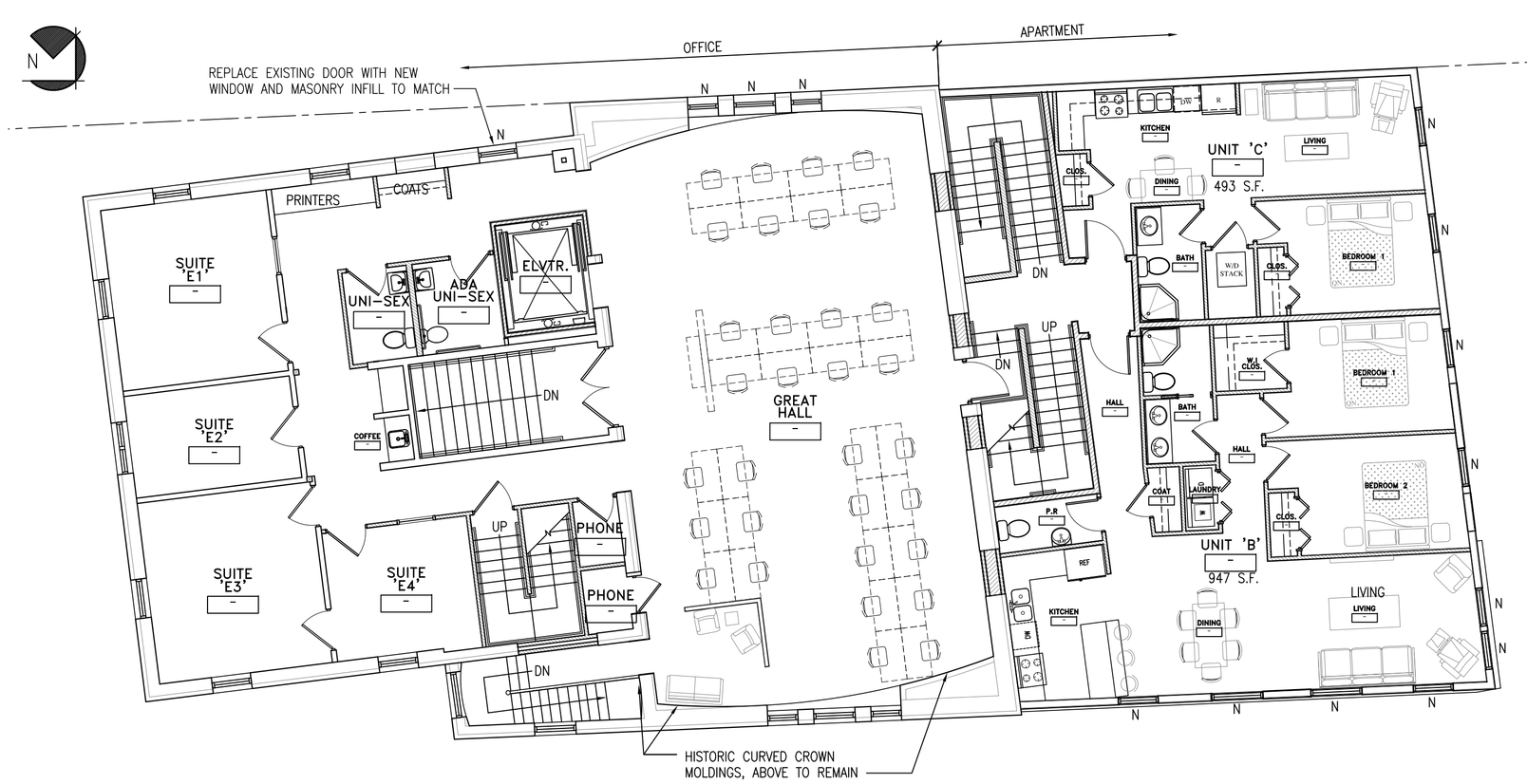
Station 415



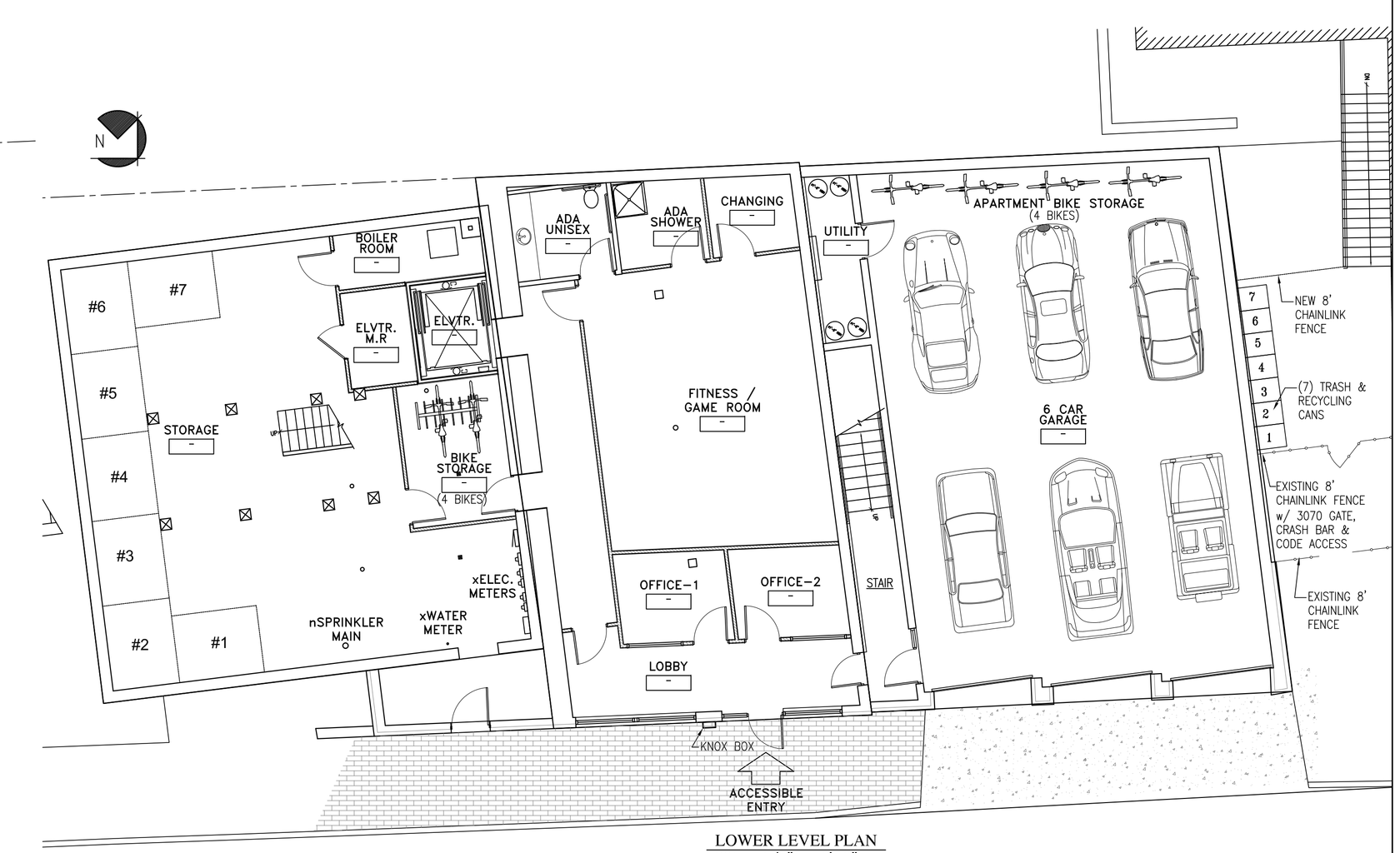
PENTHOUSE PLAN
SCALE: 1/8" = 1'-0"
1051sf Gross Area



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"
4929sf Gross Area



SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"
4929sf Gross Area



FOREST AVENUE

LOWER LEVEL PLAN
SCALE: 1/8" = 1'-0"
4836sf Gross Area

06-08-16

ALPHAarchitects
17 CHESTNUT STREET
PORTLAND, ME 04101
PHONE: 207.761.9500
FAX: 207.761.9595
design@alphaarchitects.com

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REGISTERED ARCHITECT
MARK E. CHAMPAGNE
No. 2303
STATE OF MAINE

Station 415

415 Cumberland Avenue
Portland, ME. 04101

JOB: 16110

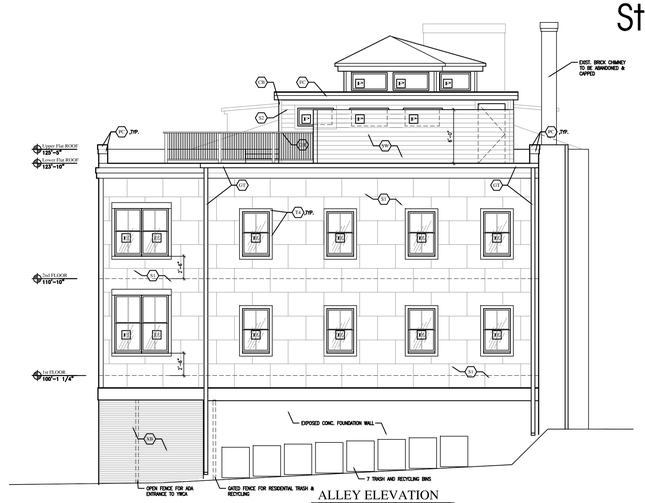
ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	06-08-16

BASEMENT, 1st FL., 2nd FL. & PENTHOUSE PLANS

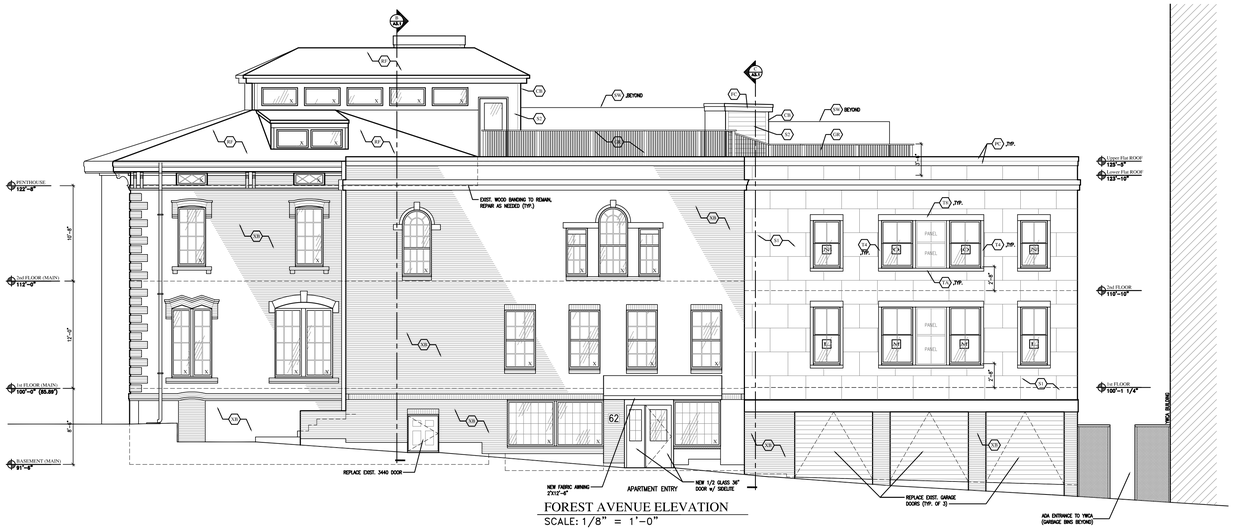
A1.0

Station 415

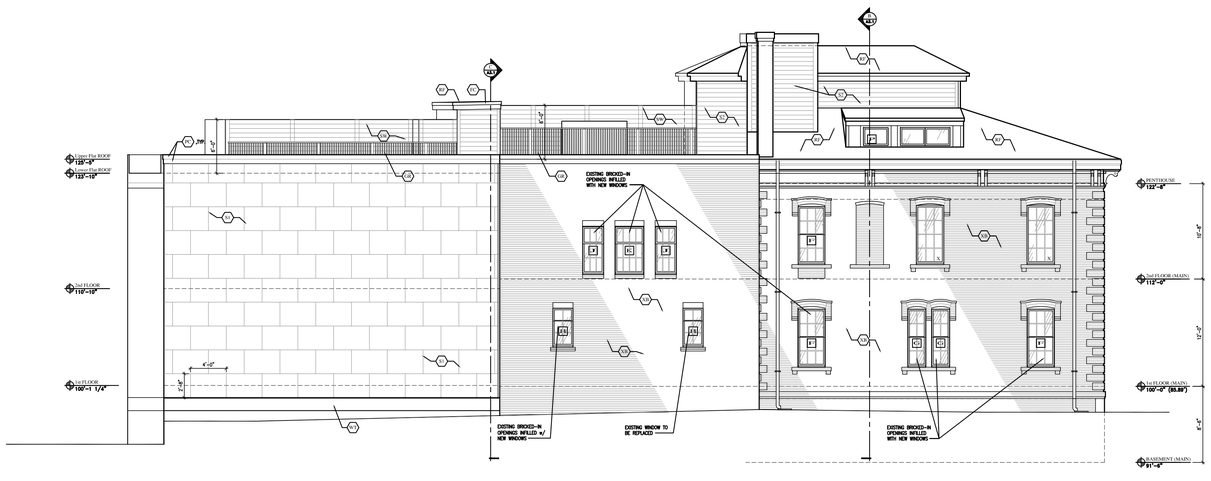
CUMBERLAND AVENUE ELEVATION
SCALE: 1/8" = 1'-0"



ALLEY ELEVATION
SCALE: 1/8" = 1'-0"



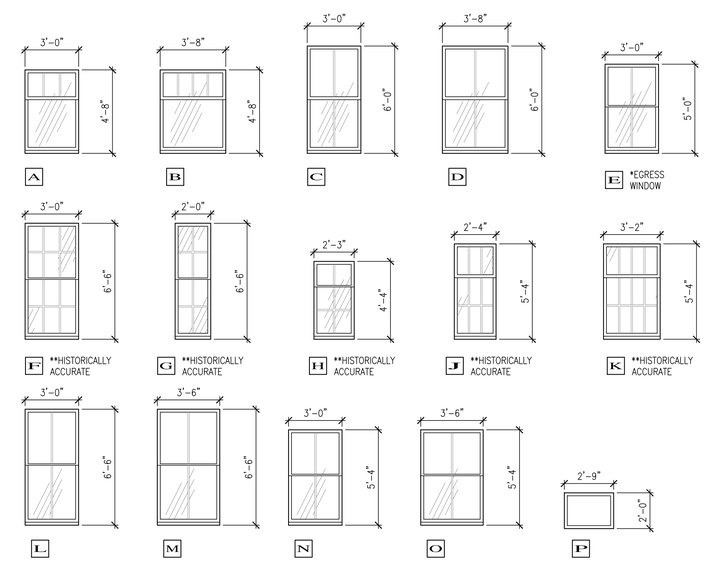
FOREST AVENUE ELEVATION
SCALE: 1/8" = 1'-0"



SIDE ELEVATION
SCALE: 1/8" = 1'-0"

MATERIAL LEGEND:

- CB — 1x6 'HARDI' CORNER BOARDS –COLOR:
- FC — 1x4 ON 1x10 'HARDI' FASCIA w/ CONT. PREFINISHED ALUM. FLASHING –COLOR:
- GR — +42" WHITE 'PREMIER' COMPOSITE RAILING SYSTEM
- GT — 6" PREFINISHED ALUM. GUTTER SYSTEM ON ALUM. CLAD 1x8 FACIA –COLOR: BROWN GUTTER w/ BROWN DOWNSPOUTS
- PC — 1x6 ON 1x10 TRIM BD. w/ PREFINISHED ALUM. CAP –COLOR:
- T4 — 4" HARDI TRIM
- T8 — 8" HARDI TRIM
- RF — MEMBRANE ROOFING SYSTEM. REFER TO PENTHOUSE PLAN
- S1 — 48" x 32" 'HARDIE' REVEAL PANEL SYSTEM w/ ALUM. TRIM OVER 'TYPAR' BUILDING WRAP, TYP. –COLOR: WITH ALUM. FRY REGLETS
- S2 — 6" TTW 'HARDI' SIDING OVER 'TYPAR' BUILDING WRAP, TYP. –COLOR:
- SW — 6' TALL SCREEN WALL/FENCE w/ 1x6 HORIZ. HARDI BOARDS ALTERNATING Ea. SIDE –COLOR: TBD
- XB — EXISTING BRICK VENEER, TO REMAIN



WINDOW TYPES
SCALE: 1/4" = 1'-0"

07-20-16

ALPHAarchitects
17 CHESTNUT STREET
PORTLAND, ME 04101
PHONE: 207.761.9500
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design@alphaarchitects.com

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Station 415
415 Cumberland Avenue
Portland, ME 04101

JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	07-20-16

EXTERIOR ELEVATIONS

A2.1

Station 415

CUMBERLAND AVE. ELEVATION
SCALE: N.T.S

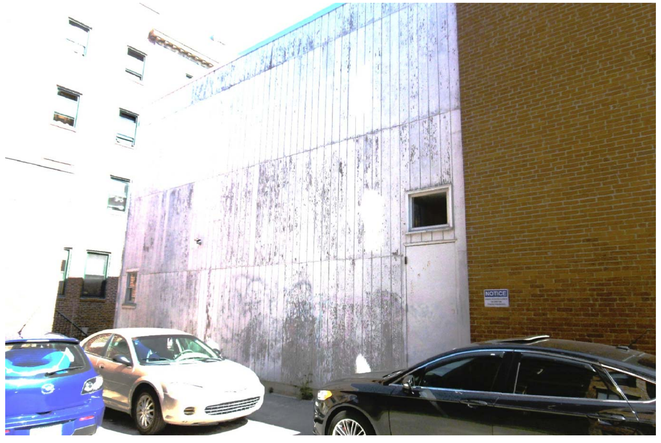
CORNER OF CUMBERLAND & FOREST AVE.'S
SCALE: N.T.S

FOREST AVE. ELEVATION
SCALE: N.T.S

FOREST AVE. ELEVATION
SCALE: 1/4" = 1'-0"

FOREST AVE. ELEVATION
SCALE: N.T.S

ALLEY @ YMCA
SCALE: N.T.S



DRIVEWAY SIDE ELEVATION
SCALE: N.T.S

DRIVEWAY SIDE ELEVATION
SCALE: N.T.S

07-15-16

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PRELIMINARY:
NOT FOR CONSTRUCTION:

Station 415
415 Cumberland Avenue
Portland, ME 04101

JOB: 16110

ISSUE DATE	
PRELIM	01-17-16
SFMO	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	07-15-16

EXISTING EXTERIOR ELEVATIONS

A2.0

Station 415

EXTERIOR RENDERING 415 CUMBERLAND AVE

SCALE: N.T.S.

07-20-16

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Station 415
415 Cumberland Street
Portland, ME 04101

JOB: 16110

ISSUE DATE	
PRELIM.	01-17-16
PBoard	-
CD's	-
REV. 1	-
REV. 2	-
PRINT	07-15-16

EXTERIOR MATERIAL RENDERING

R-2

PLANNING BOARD REPORT
PORTLAND, MAINE

Update of Chapter 5, Portland Technical Manual
Text Amendments to Technical Manual
City of Portland, Applicant

Submitted to: Portland Planning Board: Public Hearing Date: July 26, 2016	Prepared by: Barbara Barhydt, Development Review Services Manager Date: July 21, 2016

A. INTRODUCTION

Maine's Department of Environmental Protection amended the Chapter 500 Stormwater Management Rules, which went into effect on August 12, 2015. In order for Portland to retain its delegated review of Stormwater Permits under Chapter 500 and to remain consistent with reviews under the State's Site Location Law, the amended regulations must be incorporated into Portland's Technical Manual by August 12, 2016. Once the regulations are adopted by the Planning Board, the rules must be reviewed by DEP for compliance with their regulations (Attachment 1 a and 1b, letters from Mary Beth Richards, DEP).

The draft before the Board has been prepared by David Senus, Woodard and Curran, Doug Roncarati, Water Resources Division of the Department of Public Works, Lauren Swett, Woodard and Curran, and Barbara Barhydt, Department of Planning and Urban Development.

A workshop was held on this item on July 12, 2016. Notices for the public hearing were e-mailed to the interested citizen list and the legal ad appeared in the Portland Press Herald on July 18th and July 19th. No public comment has been received.

B. BACKGROUND

On November 25, 2008, the Portland Planning Board adopted the Chapter 500 regulations in their entirety as Section V of the Portland's Technical and Design Standards and Guidelines. At that time, the Board also revised the local applicability requirements for Section V to include projects smaller in scale than those required for review under Chapter 500 with the intent of meeting MS4 requirements under the Clean Water Act. In addition, Section VI of Portland's technical was modified to address erosion and sedimentation controls for single and two-family development, which remains as is.

Adopting the updated Chapter 500 stormwater management regulations preceded the full rewriting of Portland's site plan ordinance and the technical standards. The aim of this comprehensive update, which was adopted in 2010, was to put all of Portland's technical regulations into one document, the Technical Manual. Thus all of Chapter 500 was included as Section V in the adoption of the Technical Manual in 2010 (http://meportland.civicplus.com/DocumentCenter/Home/View/2345).
As part of the update in 2010, a new site plan ordinance was substituted for the previous version. The stormwater standards of review are listed below for context. Please note the stormwater standards apply to all development with some exceptions for single and two-family homes.

3. Water Quality, Stormwater Management and Erosion Control:

a. All development must demonstrate that the proposed site improvements are designed to minimize the amount of stormwater leaving the site. This must include consideration of the design and location of improvements to minimize the total area of impervious surface on the site and stormwater management techniques to minimize both the volume and rate of runoff from the lot. The stormwater management plan must demonstrate the following:

(i) Any stormwater draining onto or across the lot in its pre-improvement state will not be impeded or re-directed so as to create ponding on, or flooding of, adjacent lots;

(ii) Any increase in volume or rate of stormwater draining from the lot onto an adjacent lot following the improvement can be handled on the adjacent lot without creating ponding, flooding or other drainage problems and that the owner of the lot being improved has the legal right to increase the flow of stormwater onto the adjacent lot;

(iii) Any increase in volume or rate of stormwater draining from the lot onto City property following the improvement can be handled without creating ponding, flooding or other drainage problems and that the owner of the lot being improved has the legal right to increase the flow of stormwater onto the City's property; and

(iv) Any increase in volume or rate of stormwater draining from the lot into the City's separate storm sewer system can be accommodated in the system without creating downstream problems or exceeding the capacity of the storm sewer system.

b. All development, except Level I minor residential development, shall comply with the standards of Section 5 of the Technical Manual including basic, general and flooding standards, as applicable, to prevent and control the release of pollutants to waterbodies, watercourses, wetlands

and groundwater, and reduce adverse impacts associated with increases or changes in flow, soil erosion and sedimentation.

c. *All development, except Level I minor residential development, that are located within the watershed of an Urban Impaired Stream shall comply with the Urban Impaired Stream standards pursuant to Maine DEP Chapter 500 Stormwater Management Rules, as described in Section 5 of the Technical Manual.*

d. *Level I: minor residential development shall comply with basic erosion control standards, as described in Section 6 of the City of Portland Technical Manual.*

C. PROPOSED PORTLAND TECHNICAL MANUAL UPDATES SECTION V: Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management

The proposed amendments to Section V of the Technical Manual offer a different approach for the Board's consideration (Attachment 2). Rather than adopting Chapter 500 in total as was done in 2008, the proposal is to cross reference the State regulations within Section V of the Technical Manual. Section V focuses on Portland's intention, applicability and submission requirements with cross references to Maine's Chapter 500 for all of the stormwater management standards. From the municipal perspective, this approach would automatically incorporate any regulatory updates and keep Portland's Technical Manual current with State regulations. It does; however, require applicants to access DEP's website for the regulations. The proposed Section V also cross references Chapter 32 of the City Code, which governs stormwater systems, illicit discharges, and post-construction stormwater management plans. The full text of the current Section V is on the city's web site: http://me-portland.civicplus.com/DocumentCenter/Home/View/2345

The proposed replacement for Section V is included at Attachment 2 and is shown below with staff commentary inserted for the Board's consideration.

I. Intention

The goal of the City of Portland's Stormwater Management Program is to address the effects of development on both the quantity and quality of stormwater runoff in order to protect and improve water quality and meet Clean Water Act requirements. The Technical Manual standards support the review criteria contained in Portland's site plan and subdivision ordinances and with the stormwater management requirements within Chapter 32. Please see Chapter 32 of the City Code of Ordinances for regulations governing stormwater systems, illicit discharges and Post-Construction Stormwater Management Plans in Portland.

Staff Comment:
Currently, the intention states the following:

The goal of the City of Portland's Stormwater Management Program is to

address the effects of development on both the quantity and quality of stormwater runoff. Please see Chapter 32 of the City Code of Ordinances for regulations governing stormwater systems in Portland.

The additional language in the intention statement is to clearly identify the other City ordinances that guide stormwater management in Portland.

II. Applicability In Portland

PROJECTS REQUIRING STATE PERMITS:

Projects that require a Stormwater Permit pursuant to 38 M.R.S.A. Sec. 420-D (Stormwater Management Law) and projects that may substantially affect the environment and require a site location of development (Site Law) permit pursuant to 38 M.R.S. A Sec 481-490 shall be reviewed for conformance with Chapter 500 under the City's Delegated Review Authority or by the Maine Department of Environmental Protection.

Staff Comment:
Project that require review for state permits will be conducted pursuant to the Chapter 500 regulations either under the City's delegated review or by DEP. Portland has conducted most of the stormwater permit reviews in the City, but there are large projects, such as the IMT, where DEP performed the reviews.

PROJECTS REQUIRING MUNICIPAL REVIEW IN PORTLAND:

The City of Portland's applicability requirements for all development within Portland, which are specified below, supersede the applicability thresholds specified within the Chapter 500 Rules. The City of Portland conducts reviews under the City's Code of Ordinances, specifically Chapter 32 Stormwater and Chapter 14 Land Use Code. With the intent of improving water quality within Portland's urban environment, the City has adopted codes and regulations that require development proposals of a scale smaller than the thresholds established under the state laws, to comply with the provisions of Chapter 500.

As outlined in the Section 14-526 of the City of Portland Code of Ordinances, the developments specified below shall comply with the Urban Impaired Stream, Basic, General, and Flooding Standards of the most recent version of the Maine Department of Environmental Protection (Maine DEP) Chapter 500 Rules for Stormwater Management (http://www.maine.gov/dep/land/stormwater/storm.html)

Staff Comment:
Over the past few years, there has been some confusion among new applicants on whether a stormwater management plan is required for projects. As noted above in the background section, the site plan ordinance sets standards for review that apply to all development, with a few exceptions. This draft seeks to highlight and clarify the municipal thresholds for review.

A. Development within Urban Impaired Stream Watersheds: All development, except single and two-family homes, subject to City of Portland review under the Level I: Minor Residential Application, shall be required to comply with the Urban Impaired Stream Standard pursuant to Maine DEP Chapter 500 Stormwater Management Rules if they are located within the following watersheds:

- Capisic Brook,
- Fall Brook,
- Nasons Brook,
- As listed in the most recent version of the Maine DEP Chapter 502 Rules.

Developments which will result in the creation of up to 1,000 square-feet of new impervious area or up to 10,000 square-feet of new non-impervious developed area, as defined under Definitions in the Maine DEP Chapter 500, are considered de minimis and are exempt from the Urban Impaired Stream Standard. Development within the Long Creek watershed shall be subject to the requirements set forth by the Long Creek Watershed Management District.

The City of Portland has an approved Compensation Fee Utilization Plan (CFUP) and can therefore receive in-lieu-fee payments to meet the UIS Standard.

Staff Comment:
Portland has three designated Urban Impaired Watersheds, which require additional treatment and mitigation. The current version states:

> *All development, except single and two-family homes, subject to City of Portland review shall be required to comply with the Urban Impaired Stream Standard pursuant to Maine DEP Chapter 500 Stormwater Management Rules if they are located within these watershed:*
> *a. Capisic Brook*
> *b. Fall Brook*
> *c. Nason's Brook*

The proposed section lists the three watershed and references the potential for other streams to be listed by the State under the rules of Chapter 502.

A new provision is proposed to clearly exempt some small projects from this review. As noted above, the Site Plan Ordinance and Technical manual refer to "all development." The applicability for a Level I: Site Alteration is the increase of impervious surface area of 1,000 sf to 7,500 sf. If the increase in impervious surface exceeds 7,500, then a Level II site plan is required. Thus the staff is recommending language to clarify that an increase in impervious surface area of less than 1,000 sf would be considered de minimis and exempt from this standard.

In addition, the state has proposed a new definition of developed area which includes landscaped areas and disturbed areas. The threshold for review by the state is 1 acre. The site plan ordinance requires a level I: Site Alteration Review

for the following:

> *Alteration of a site. The disturbance of land areas of less than one (1) acre that are stripped, graded, grubbed, filled or excavated. The Planning Authority shall exempt from review the loam and seeding of lawns and the cumulative placement of less than fifteen (15) cubic yards of fill on any lot provided such loaming or placement does not alter a drainage course, swale, wetland or redirect water onto adjoining property and does not violate any other provision of the Portland City Code or state or federal law. "Disturbed area" does not include routine maintenance, but does include re-development and new impervious areas.*

The proposed City regulations suggest a threshold of up to 10,000 square-feet of new non-impervious developed area (landscaped and disturbed areas) would be exempt from this standard. This exemption, as proposed, excludes roof or other impervious area within the 5,000 exemption. Any new floor area over 500 square feet triggers a Level II site plan review, which would require a stormwater review. DEP's developed definition does include all impervious area (roof and pavement), landscaped areas and disturbed areas within its overall definition.

B. Basic Erosion and Sedimentation Control Standards for all Development: All development subject to City of Portland site plan review, including but not limited to Level I: Site Alteration, Level II, and Level III site plans, shall comply with the Basic Standard pursuant to Maine DEP Chapter 500 Stormwater Management Rules; single and two-family homes (Level I: Minor Residential Applications) shall be exempt from the Inspection and Maintenance Documentation Requirements of Appendix B1c.

> **Staff Comment:**
> *The current regulations simply state that single and two-family development proposals shall be required to meet Basic Standards, excluding Appendix B1c. The proposed language is offered to clarify that all development shall meet these basic standards and retains the exemption for Level I: Minor Residential applications from meeting the construction site stormwater BMP maintenance documentation requirements.*

C. Stormwater Management Plans for New Development: 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:

1. 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.
2. Level II and Level III Site Plans.
3. Subdivisions as defined in the Land Use Code Section 14-493 except for those projects, which do not 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.

4. Other projects that the Planning Authority determines that special conditions warrant a stormwater management plan; and
5. Projects that require a Stormwater Permit pursuant to 38 M.R.S.A. Sec. 420-D (Stormwater Management Law), a development that may substantially affect the environment and requires a site location of development (Site Law) permit pursuant to 38 M.R.S.A. Sec 481-490; and certain projects that may be eligible for license by rule for the infiltration of stormwater pursuant to 38 M.R.S.A. Sec 413.

Exemption:

1. Level I Minor Residential, as defined in the Land Use Code - Section 14-522.

Staff Comment:
The above language is similar to what is currently found in the regulations. There has been confusion in the past on whether a stormwater management plan was required for a site alteration, as the Level I: Site Alteration application was not listed as a review category because it was created after Section V was adopted in 2008. Thus, the language proposed attempts to clarify all the levels of review subject to Section V and clearly exempt Level I: Minor Residential projects.

Please note that one of the changes proposed specific to Portland is to set the thresholds of review for impervious area and new non-impervious developed area as defined in Chapter 500, but to not include the impervious areas for roof (this is controlled by the site plan thresholds for review). The proposed thresholds are as follows:

> *…which will result in the creation of at least 1,000 square-feet of new impervious area or 10,000 square-feet or more of new non-impervious developed area, as defined under Developed Area and listed under Definitions of Chapter 500.*

D. <u>Redevelopment Projects:</u> All projects not subject to requirements of an existing Site Law or Stormwater Management Law Permit that include redevelopment of non-roof impervious area greater than 5,000 square-feet and are subject to City of Portland review shall provide stormwater quality treatment in accordance with the General Standards for no less than 50% of the redeveloped impervious area. The runoff from any upgradient area must be either directed away from the stormwater treatment measure or that measure must be sized to treat the runoff from the upgradient area.

Staff Comment:
Under the former Chapter 500 regulations, redevelopment projects were exempt from meeting standards. Under the revised version, redevelopment projects as defined are subject to review. The new definition of redevelopment is as follows:

Redevelopment. "Redevelopment" means an activity, not including maintenance, undertaken to redevelop or otherwise improve property in which the newly developed area, is located within the same footprint as the existing developed area. A minor amount of undeveloped land, as determined by the Department on a case-by-case basis, may be included within the perimeter of the existing developed area.

Related to this definition is the term newly developed area, which is defined as follows:

Developed area. "Developed area" means an impervious area, landscaped area, or unrevegetated area. Developed area includes all disturbed areas except an area that is returned to a condition that existed prior to the disturbance and is revegetated within one calendar year of being disturbed, provided the area is not mowed more than twice per year.

While treatment was not required in the past, many projects have installed control and treatment measures to alleviate burdens on the City's system. The most cost-effective approach to addressing historic stormwater runoff issues, whether they impact the separate storm drain system or combined sewer system, is to deal with them during redevelopment. As an added incentive, the City offers credits under the Stormwater Service Charge program for applicants that install stormwater management systems for redevelopment projects. Again the threshold for DEP's requirements under Chapter 500 is 1 acre and the City's requirements refer to all development. Under the site plan ordinance, a building footprint increase over 500 sf triggers a Level II site plan review and an increase of 1,000 sf of pavement triggers a Level I: Site Alteration review. The staff is suggesting setting a threshold area of 5,000 square feet of redevelopment would trigger stormwater management controls. The redevelopment of 5,000 sf includes both impervious area (including roof area), landscaped areas and unrevegated areas.

E. <u>Low Impact Development and Stormwater Quality treatment:</u> Developments that are not required to comply with the General and Flooding standards are encouraged to incorporate Low Impact Development (LID) and stormwater quality treatment techniques in their design to the maximum extent practicable; however, only projects that meet or exceed the General and Flooding Standards may qualify for a credit from the Stormwater Service Charge in accordance with the Stormwater Credit Manual. A separate application must be completed and submitted to the City for consideration of Stormwater Service Charge credits.

Staff Comment:
For projects that are not required to meet the general and flooding standards, this section encourages the use of low impact development and stormwater quality treatment in their designs. It also makes clear that if a proposal is seeking to receive credits under Portland's Stormwater Service Charge, then

the design must comply with the Stormwater Credit Manual and apply for the credits through a separate application process.

III. Stormwater Management Standards

Developments as specified under Section II Applicability in Portland shall be required to comply with most recent version of the Maine Department of Environmental Protection (Maine DEP) Chapter 500 Rules for Stormwater Management(http://www.maine.gov/dep/land/stormwater/storm.html), including but not limited to the standards for Urban Impaired Stream, Basic, General, and Flooding Standards for the suitability, design, installation, and maintenance of systems to comply with the General and Flooding Standards are provided in Volume III of the Maine Stormwater Best Management Practices Manual.

Developments shall also comply with Chapter 32 Stormwater of the City Code and with the Subdivision and Site Plan Ordinances contained in the Land Use Code, Chapter 14.

Staff Comment: *This is cross references the state and local standards to be considered for development. Corporation Counsel's Office has reviewed the draft and has determined that the cross referencing sufficiently incorporates the technical manual and Chapter 500.*

IV. Submission Requirements

Applicants are required to submit a stormwater management and drainage plan as part of development review application and to provide the following submission items to demonstrate compliance with the applicable stormwater management standards:

- Urban Impaired Stream Standard: Calculations for the Compensation Fee or Mitigation Credit per the tables provided in Chapter 500 Rules and other associated Maine DEP regulations. (Note: The City of Portland has an approved Compensation Fee Utilization Plan (CFUP) and can therefore receive in-lieu-fee payments to meet the UIS Standard.)
- Basic Standard: An Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules
- General Standard: Written narrative demonstrating compliance, site plans showing grading and drainage infrastructure, site plan showing water quality treatment area(s) with table showing compliance, BMP sizing calculations, construction details, and a Post-Construction Stormwater Inspection & Maintenance Plan per Maine DEP Chapter 500 Appendix B with reporting requirements per Chapter 32 of City of Portland Code of Ordinances, and a Stormwater Maintenance Agreement.
- Flooding Standard: Subcatchment plans with flow paths, full hydrology computations/model output of pre- and post-development conditions, summary of pre- and post-development flowrates, and a written request for waiver with rationale for waiver as noted in Section 5.II.F. (as applicable)

The following references provide guidance on LID techniques:

- *LID Guidance Manual for Maine Communities*, prepared for the Maine Coastal Program, dated September 21, 2007.
- *Low-Impact Development Design Strategies – An Integrated Design Approach,* prepared by Prince George's County, Maryland & Department of Environmental Resources, Programs and Planning Division, dated June 1999.

Staff Comment: *The site plan application submission requirements call for a plan of stormwater controls for a Level I: Site Alteration application. Level II and Level III site plans require the following:*

> *A stormwater management and drainage plan, in accordance with Section 5 of the Technical Manual;*

The content of a stormwater management and drainage plan are listed in the above submission requirements.

CHAPTER 500: STORMWATER MANAGEMENT

The Chapter 500 regulations are included as Attachment 4 and the changes as presented in a power point presentation prepared by Maine DEP and presented at the Bureau of Land Resources on March 2016 is included as Attachment 3. Doug Roncarati and Lauren Swett will attend the workshop to answer questions.

Background:
The Maine Storm Water Management Law was adopted in 1995 with the Chapter 500 Stormwater Management Law Rules adopted in 1997. Portland adopted rules that were consistent with the Law and obtained Delegated Review Authority. The State rules were updated in 2006 and Portland adopted the updated rules in November 2008 as part of the Technical and Design Standards and Regulations, which later became the Technical Manual in 2010.

As summarized by DEP, the significant revisions to Chapter 500 include the following:

- New Changes were effective on 8/12/2015
- General standards – options are provided when 95% and 80% treatment levels can't be met
- Redevelopment standards are included, so red
- Innovative treatment measures are allowed
- Clarification of treatment standards for Site Law redevelopment projects
- Rainfall table updates
- Voluntary low impact development credit

Section 2 Applicability
As summarized by DEP, the same types of projects are subject to review as those under the last version with some revisions for stormwater and site law projects, specifically redevelopment proposals. Gravel Pits, quarries and hydropower projects may be reviewed at the Department's request. The applicability section clarifies there may be other standards that

a project must meet (e.g. in MS4 communities), which is consistent with Portland's lower thresholds of review to meet other Federal and State obligations under the City's MS4 permit. The applicability section is below:

> **Applicability:** This Chapter applies to a project that disturbs one acre or more of land area and requires a stormwater permit pursuant to the Stormwater Management Law 38 M.R.S. §420-D; a development that may substantially affect the environment and requires a site location of development (Site Law) permit pursuant to 38 M.R.S. §§ 481- 490; changes to a project reviewed under the Stormwater Management Law or Site Law that require a modification of the project's permit, as described in Section 16; and certain discharges of stormwater to groundwater that may be exempt from licensing under 38 M.R.S. §413, as described in Appendix D of this Chapter. The Department may also require a Department-licensed excavation, quarry or hydropower project to meet the stormwater standards of this Chapter. Additional stormwater standards and requirements, such as those involving the Maine Pollutant Discharge Elimination System (MEPDES) program and the Municipal Separate Storm Sewer System (MS4) program may also apply in addition to the standards and requirements set forth in this Chapter.

Section 3: New Definitions

The proposed new definitions include the following:

> **Linear portion of a project.** "Linear portion of a project" means that portion of a project consisting of a utility corridor, roads and road shoulders, driveway, railroad track outside a yard or station, or other similar transportation corridor. The linear portion of a project does not include roads and road shoulders within 50 feet of an impervious area of the same project that is not a sidewalk, bike path, driveway or other road entrance, or single or two family residential buildings.
>
> **Low impact development.** "Low impact development" or "green infrastructure" means site planning and design strategies intended to replace or replicate predevelopment hydrology through the use of source control and relatively small-scale measures integrated throughout a site to disconnect impervious surfaces and enhance filtration, treatment, and management of stormwater runoff as close to its source as possible. Low impact development strategies may be either nonstructural or structural, except that low impact development strategies utilizing structural stormwater management techniques shall be limited to an impervious contributing drainage area equal to or less than 1 acre. Low impact development strategies include, but are not limited to: bio retention filters, grass swales and channels, vegetated filter strips, permeable pavements, rain gardens and vegetated rooftops.
>
> **Medium-use parking lot.** "Medium-use parking lot" means a parking lot that is used most days and where vehicles are parked for an extended period of time, typically longer than two consecutive hours, such as an "employees only" parking lot, a school, and long-term parking at an intermodal transportation facility such as an airport, bus terminal or railroad station.

New development or construction. "New development or construction" means activity undertaken to develop property, including but not limited to: the construction of buildings, parking lots, roads and other new impervious surfaces; landscaping; and other activities that disturb land areas. New development or construction does not include redevelopment or maintenance.

Nonstructural stormwater management techniques. "Nonstructural stormwater management techniques" means stormwater management techniques that are designed to encourage the treatment, infiltration, evaporation, and transpiration of precipitation close to where it falls, while helping to maintain a more natural and functional landscape.

Proprietary stormwater management systems. "Proprietary stormwater management systems" means manufactured systems that use proprietary settling, filtration, absorption, vortex principles, vegetation and other processes to manage stormwater.

Redevelopment. "Redevelopment" means an activity, not including maintenance, undertaken to redevelop or otherwise improve property in which the newly developed area, is located within the same footprint as the existing developed area. A minor amount of undeveloped land, as determined by the Department on a case-by-case basis, may be included within the perimeter of the existing developed area.

Other related definitions include the following, but they are not presented below:

- Soil hydrologic groups
- Structural techniques
- Time of concentration
- Waterbody

Section 4: Stormwater standards

B. Basic Standards

- The Basic Standards which refers to erosion and sedimentation control, inspection and maintenance, and housekeeping standards apply to all applicable projects, including any changes to permitted projects.

C. General Standards (from power point)

Amount of Treatment

Old	New
• Must treat 95% of impervious area and 80% of developed area • When 95% is not practical the Department could waive to 90% if greater depth of runoff treated no	• Still must treat 95% of impervious and 80% developed if practical • When 95% treatment can't be reached, must treat 0.05-inch increase in runoff depth for every 1% treatment area is

numerical standard	decreased • Must treat at least 80% developed are or meet Table 1

Treatment Required

- Runoff from upgradient areas must either be diverted around the treatment measure or the treatment measure must be designed to treat 50% of the runoff from that area.

Redevelopment

Old	New
• For Stormwater projects redeveloped areas did not have to meet the General Standards as long as no increase in pollutant level • For Site Law projects required to meet General Standard to extent practical	• Establishes a pollutant ranking • Treatment is scaled based on pollutant ranking • Formula for calculating pre and post redevelopment ranking • Table to determine amount of treatment based on formula (staff note: see pages 7-9 of Attachment 4)

Wet Ponds

Old	New
• Permanent pool must have 1-inch X subcatchment impervious area + 0.4-inch X subcatchment developed area of storage capacity. • Storage volume below the permanent pool must be 1.5 inches X impervious area + 0.6 inches' times non-impervious developed area and be 3' deep with length to width ratio of 2:1	• Permanent pool must have 1-inch X subcatchment impervious area + 0.4-inch X subcatchment developed area of storage capacity • Storage volume below the permanent pool must be 2.0 inches X impervious area + 0.8- inches times non-impervious developed area and be 3' deep with length to width ratio of 3:1

Innovative treatment measures

- The Department (staff note: or the City) may on a case-by-case basis approve an alternative treatment measure if the measure will provide as much pollutant removal, channel protection and temperature control.
- If channel protection and temperature control are not issues, we can waive that requirement.
- Applicant must demonstrate control will work.

Exemptions

- Linear portions of projects, but not within 50 feet of other impervious area
- Wetland road crossings
- Roofs
- Treatment of impervious area constructed prior to January 1, 2016

Urban Impaired Stream Standards

Old	New
• Projects in watershed of stream listed Chapter 502 and need a Site Permit or modification • Compensation fee or mitigation of other impacts • Exception for redevelopment if increase in SW impacts	• Same triggers for when standard must be met • Still have compensation fee or mitigation • Replacement of impervious area is exempt if no increase in pollutant ranking • Areas where DEP approved SW management plan

Low Impact Development (LID)

- LID definition in Ch. 500 Rules
  - Site planning and design strategies intended to replace or replicate redevelopment hydrology through the use of source control and relatively small-scale measures integrated throughout a site to disconnect impervious surfaces and enhance filtration, treatment, and management of stormwater runoff as close to its source as possible. Low impact development strategies may be either nonstructural or structural.
- Encourage innovation and creativity
- Voluntary LID credit (staff note: low impact development strategies can reduce stormwater storage volume requirements)

LID objectives:

- Maximize undisturbed land and minimize disturbance
- Protect natural drainage patterns
- Minimize decrease in Tc from pre- to post-construction
- Minimize soil compaction
- Utilize low-maintenance landscaping to minimize need for chemicals
- Minimize/break up impervious areas
- Use vegetated open-channel systems to stabilize vegetated areas
- Control pollutants at the source

To Qualify for LID credit:

- At least 50% of the runoff volume from developed area must be treated with LID measures.
- Credit awarded based on percentage of developed area treated with LID measures.

Some ways to minimize impervious areas:

Alternative Roadway Layout: Alternative road layouts can be used to reduce total pavement, while allowing for the same amount of development. Clustering will decrease imperviousness.

Narrow Road Sections: The width of pavement can be reduced by including the primary driving surface, a pervious base for the shoulders, and a ditch drainage swale in place of curb and gutter.
Sidewalks: Sidewalks can be reduced to one side of the road or be eliminated.
Rooftops: Vertical construction can be used over horizontal construction since the number and size of buildings dictates the impervious area associated with rooftops.
Driveways: Minimizing paved driveway area can be accomplished through narrower driveways or length reduction. Shared driveways will also reduce imperviousness. Porous driveway material would reduce runoff.

Phosphorous standard: (not included as it applies to lake watersheds)

Flooding Standard

Additional Standard:

Design standards of the local municipality, MDOT, or the Maine Turnpike Authority may need to also be met by the project. The applicant must contact the entity that owns or controls a primary access road or public road if project may cause flooding of that road, and must meet applicable standards.

Permit-by-Rule

To extend an existing Stormwater Management license, a minor revision will need to be submitted. PBR is no longer applicable.

Submission & Pre-application meetings

- Maine licensed landscape architect, knowledgeable in stormwater management, can design system that includes any form of conveyance structure
- Requires the submission of calculation tables and subcatchment plans
- Must include a log of detailed soil pit/boring in area where treatment measure is proposed. Soil test data must be prepared by certified soil scientist

Municipal or quasi-municipal stormwater programs

Now includes the Long Creek Watershed Management District for substitution of stormwater management system. Projects in this District are exempt.

Conditions of approval stormwater projects

- Recertification now included in Standard Conditions
- Added a requirement that proprietary systems be maintained per manufacturer's recommendations
- Added a requirement that proprietary systems have a 5-year maintenance contracts
- Added a provision that exempts permittees from 5-year recertification if subject to a Multisector General Permit and if the applicant demonstrates those provide effective control

- New transfer condition which requires deed restrictions stipulating land that has flow or is subject to flooding is subject to permit and conditions

Conditions of approval for Site Location projects

- In addition to regular Standard Conditions of Approval
- Department may require DEP-approved inspector to oversee construction if project in a lake watershed or an urban impaired stream watershed
- Same recertification requirement as for SW projects

Transition & Jurisdictional threshold

- Projects that had less than 1 acre of impervious prior to 9/17/2005 this impervious area is not counted toward if project is expanded
- Only the expanded areas are subject to the Storm Water Law
- Disturbed areas less than 1 acre continue to count toward threshold if considered developed area

Appendix A: Erosion and Sedimentation Control

- When practicable, no disturbance should take place within 50 feet of any protected resource. If disturbance takes place between 30' and 50' and stormwater flows through disturbed areas, DOUBLE erosion control measures are required. If disturbance takes place less than 30' from resource and stormwater discharges through disturbed area, perimeter erosion controls must be doubled and disturbed areas must be temporary or permanent stabilized within 7 days
- Requires stabilized construction entrances
- Adds specific measures to be met for Winter Construction
- Adds Sizing & Maintenance criteria for sedimentation basins
- Allows for use of flocculants in basins with DEP approval

Appendix B: Inspection & Maintenance

- Adds a timing requirement for the start of repairing erosion controls
- Adds inspection requirement for stormwater ponds, under drained filters & manufactured systems

Appendix C: Housekeeping

- Incorporates notes relating to groundwater protection and tracking dirt onto roads in the actual standards
- Specifies additional materials that should not be exposed to precipitation and runoff
- Lists both authorized and unauthorized non-stormwater discharges

Appendix D: Infiltration basins, dry wells and subsurface fluid distribution systems

- Specifies runoff from industrial, vehicle maintenance & commercial facilities are generally not permitted

- Clarifies that infiltration from vegetated soil filters is de Minimis
- Establishes standards for soil filter media and required infiltration time

Appendix E: Stormwater basins, ponds, and under drained vegetated soil filter beds

- Establishes new limitations on the use of under drained filters based on permeability of the in-situ soils and distance from water supply wells

Appendix F: Vegetated Buffers

- Alternative buffer design for residential subdivision lots – Table 12 sets up required minimum length of flow path through the buffer dependent on soil class and buffer type

Appendix H: 24-hour duration rainfalls

- Revised precipitation projections for all levels of storm probability (Data extracted by MDEP from the NE Regional Climate Center website, Extreme Precipitation Tables (sourced from NOAA Regional Climate Center))

Chapter 501 Rule

- Effective date 1/13/2015. Compensation fees and mitigation credits moved from Chapter 500
- Noteworthy change: Compensation fee for phosphorus is not available for subdivisions where at least 60% phosphorus reduction cannot be achieved or when using BMP's other than buffers.

D. CONSISTENCY WITH THE COMPREHENSIVE PLAN

The Combined Sewer Overflow Abatement Study has a number of goals to address water quality, including the goals that pertain to stormwater management:

- Control 99% of all waste water flows generated during wet weather.
- Improve the quality of Portland's surface waters.
- Reduce significantly the CSO events, volume, and duration in waters with remaining CSOs.
- Improve habitats for critical uses and sensitive areas.
- Expand the recreational potential of Portland's waters.

The Capisic Brook study also calls for implementing an integrated watershed plan that is intended to maximize beneficial uses in the watershed, by maximizing natural treatment of stormwater flow. Specifics include remediation of flooding, storm drainage, elimination of erosion and debris accumulation, and remediation of water quality problems.

Green Spaces/Blue Edges: An Open Space and Recreation Plan, has the overall goal to "Develop an open space system that considers the natural forces of air, water, vegetation and landform to minimize foul odors, eyesores, and noise, and to maximize clean soil, clean air and clean water in Portland." Related to this is a policy calling for studies that

identify "… the most critical climate and air pollution, flooding, erosion, surface and ground water pollution problems, and threats to the City water supplies, plant communities and wildlife, and their sources." The Capisic Brook Watershed Management Plan was adopted in 2012, which offers the implementation measures for this watershed, including but not limited to:

- Continue separation of the City's CSO system in order to eliminate input of sanitary wastewater into the stream thus significantly reducing nutrient and bacterial loads.
- Mitigation of the impacts of stormwater pollution from the developed landscape through a combination of pollution prevention best practices, planning policies that promote the use of low impact design or "green" stormwater management and installation of structural stormwater treatment systems as part of the municipal drainage system.

Lastly, the Portland Industry and Commerce Plan calls for adopting clear, predictable and enforceable regulations and create a process that provides a quick response on development permitting.

E. STAFF RECOMMENDATION

The Planning staff recommend adopting the proposed Section V to replace the existing Section V of the Technical Manual, which addresses Stormwater Management.

F. PROPOSED MOTION

Based on the material provided in Planning Report for Update of Chapter 5, Portland Technical Manual, public testimony, a review of applicable policies, and other information the Planning Board finds that the proposed text amendment to replace Section 5 with the proposed Section 5 Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management of Portland's Technical Manual **[is or is not]** consistent with the Comprehensive Plan and **[approves or does not approve]** the proposed amendments.

Attachments:

Att. 1a. Correspondence, Mary Beth Richards, DEP, December 2015
Att 1b. Correspondence, Mary Beth Richards, DEP, January , 2016
Att. 2 Proposed amendments to Section V of the Technical Manual
Att. 3 Transcript of Power Point by Maine DEP and presented at the Bureau of Land Resources on March 2016
Att.4 Chapter 500

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

AVERY T. DAY
ACTING COMMISSIONER

December 23, 2015

City of Portland
ATTN: Barbara Barhydt
389 Congress St., 4th floor
Portland, ME 04101

Re: Amendments to Stormwater Management rules

Dear Barbara:

On August 12, 2015, amendments to the Department's Stormwater Management rules (also known as Chapter 500 Rules) became effective. The amendments are intended to provide greater flexibility while encouraging the use of innovative stormwater designs that will accommodate measures for addressing climate change, resiliency, and adaptation in our infrastructure.

Briefly, the major changes include: 1) treatment levels in the General Standards have been revised to provide additional stormwater treatment options where the standard treatment requirements are impractical or cannot be met; 2) a new voluntary Low Impact Development (LID) credit has been established that reduces the volume of stormwater that must be treated if an applicant uses LID techniques; 3) new treatment levels have been created for redevelopment projects, through the use of scaled treatment requirements based on stormwater impact changes; and 4) the appendices, which provide basic performance standards for a variety of stormwater management and associated activities, have been updated to reflect current stormwater best management practices. There are also minor revisions to the rules that will provide greater clarity and consistency with other Department rules.

Pursuant to the Stormwater Management Law, 38 M.R.S.A. § 420-D(7)(C), projects subject to the Stormwater Management Law are exempt from Department permitting in Portland, because Portland was previously determined to have Ordinances related to stormwater management that meet or exceed the Department's standards and have the resources to enforce those Ordinances. This is known as having "capacity" to review stormwater projects solely at the municipal level.

In order to maintain the designation of having "capacity", Portland must do the following:

1. amend its Ordinances within one calendar year of the effective date of the rule amendments;
2. submit its amended Ordinances to the Commissioner for review within 45 calendar days of its adoption; and

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AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
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(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

website: www.maine.gov/dep

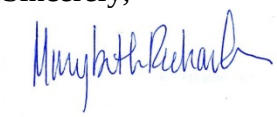
3. the Commissioner determines that the amended Ordinances meet or exceed the provisions of the amended Department rules.

Department staff are available to assist Portland in revising its Ordinances to meet or exceed the provisions of the amended Stormwater Management rules. You may request a meeting with staff or submit draft Ordinance amendments for our review prior to officially amending them at the municipal level. By seeking a pre review of the proposed Ordinance amendments, you can avoid the possibility of having adopted revisions that do not meet or exceed the standards of the Department's revised Stormwater Management rules.

If you have any questions, or wish to discuss the Ordinance revisions necessary to remain a city deemed to have capacity under the Stormwater Management Law, please feel free to contact me at 592-1692 or at Marybeth.richardson@maine.gov.

Thank you very much for your attention to this matter.

Sincerely,



Marybeth Richardson
Regional Licensing and Compliance Manager
Bureau of Land Resources

STATE OF MAINE
DEPARTMENT OF
ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PAUL MERCER
COMMISSIONER

January 21, 2016

City of Portland
ATTN: Barbara Barhydt
389 Congress St., 4th floor
Portland, ME 04101

Re: Municipal review of developments, 38 M.R.S.A. § 489-A

Dear Barbara:

On August 12, 2015, amendments to the Department's Stormwater Management rules (also known as Chapter 500 Rules) became effective. The amendments are intended to provide greater flexibility while encouraging the use of innovative stormwater designs that will accommodate measures for addressing climate change, resiliency, and adaptation in our infrastructure.

Briefly, the major changes include: 1) treatment levels in the General Standards have been revised to provide additional stormwater treatment options where the standard treatment requirements are impractical or cannot be met; 2) a new voluntary Low Impact Development (LID) credit has been established that reduces the volume of stormwater that must be treated if an applicant uses LID techniques; 3) new treatment levels have been created for redevelopment projects, through the use of scaled treatment requirements based on stormwater impact changes; and 4) the appendices, which provide basic performance standards for a variety of stormwater management and associated activities, have been updated to reflect current stormwater best management practices. There are also minor revisions to the rules that will provide greater clarity and consistency with other Department rules.

Pursuant to the Site Location of Development Act (Site Law), 38 M.R.S.A. § 489-A, the Department determined that Portland may substitute permits it issues pursuant to Title 30-A Chapter 141 or 187 for permits required by the Site Law. This is commonly referred to as "delegated authority". One of the requirements to maintain your delegated authority is that Portland must ensure that its site plan review regulations continue to be as stringent as the Department's regulations.

In accordance with the Site Law, Portland must adopt amendments to its regulations to reflect the changes to the Stormwater Management rules within one calendar year of the effective date of the changes and submit those amendments to the Commissioner within 45 days of municipal adoption. Failure to upgrade your regulations may lead to the Commissioner suspending this authority.

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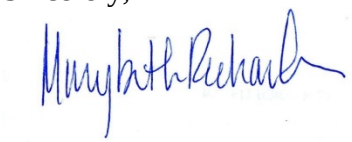
web site: www.maine.gov/dep

Department staff are available to assist Portland in revising its site plan review regulations to meet or exceed the provisions of the amended Stormwater Management rules. You may request a meeting with staff or submit draft regulation amendments for our review prior to officially amending them at the municipal level. By seeking a pre-review of the proposed regulation amendments, you can avoid the possibility of having adopted revisions that do not meet or exceed the standards of the Department's revised Stormwater Management rules.

If you have any questions or wish to discuss the regulation revisions necessary to remain a city deemed to have delegated authority under the Site Law, please feel free to contact me at 592-1692 or at Marybeth.richardson@maine.gov.

Thank you very much for your attention to this matter.

Sincerely,



Marybeth Richardson
Regional Licensing and Compliance Manager
Bureau of Land Resources

Attachment 2 7-21-16 draft

5. PORTLAND STORMWATER MANAGEMENT STANDARDS AND MAINE DEP CHAPTER 500 STORMWATER MANAGEMENT

I. INTENTION

The goal of the City of Portland's Stormwater Management Program is to address the effects of development on both the quantity and quality of stormwater runoff in order to protect and improve water quality and meet Clean Water Act requirements. The Technical Manual standards support the review criteria contained in Portland's site plan and subdivision ordinances and with the stormwater management requirements within Chapter 32. Please see Chapter 32 of the City Code of Ordinances for regulations governing stormwater systems, illicit discharges and Post-Construction Stormwater Management Plans in Portland.

II. APPLICABILITY IN PORTLAND

PROJECTS REQUIRING STATE PERMITS:

Projects that require a Stormwater Permit pursuant to 38 M.R.S.A. Sec. 420-D (Stormwater Management Law) and projects that may substantially affect the environment and require a site location of development (Site Law) permit pursuant to 38 M.R.S. A Sec 481-490 shall be reviewed for conformance with Chapter 500 under the City's Delegated Review Authority or by the Maine Department of Environmental Protection.

PROJECTS REQUIRING MUNICIPAL REVIEW IN PORTLAND:

The City of Portland's applicability requirements for all development within Portland, which are specified below, supersede the applicability thresholds specified within the Chapter 500 Rules. The City of Portland conducts reviews under the City's Code of Ordinances, specifically Chapter 32 Stormwater and Chapter 14 Land Use Code. With the intent of improving water quality within Portland's urban environment, the City has adopted codes and regulations that require development proposals of a scale smaller, than the thresholds established under the state laws, to comply with the provisions of Chapter 500.

As outlined in the Section 14-526 of the City of Portland Code of Ordinances, the developments specified below shall comply with the Urban Impaired Stream, Basic, General, and Flooding Standards of the most recent version of the Maine Department of Environmental Protection (Maine DEP) Chapter 500 Rules for Stormwater Management (http://www.maine.gov/dep/land/stormwater/storm.html)

Attachment 2 7-21-16 draft

A. Development within Urban Impaired Stream Watersheds: All development, except single and two-family homes, subject to City of Portland review under the Level I: Minor Residential Application, shall be required to comply with the Urban Impaired Stream Standard pursuant to Maine DEP Chapter 500 Stormwater Management Rules if they are located within the following watersheds:

- Capisic Brook,
- Fall Brook,
- Nasons Brook,
- As listed in the most recent version of the Maine DEP Chapter 502 Rules.

Developments which will result in the creation of up to 1,000 square-feet of new impervious area or up to 10,000 square-feet of new non-impervious developed area, as defined under Definitions in the Maine DEP Chapter 500, are considered de minimis and are exempt from the Urban Impaired Stream Standard. Development within the Long Creek watershed shall be subject to the requirements set forth by the Long Creek Watershed Management District.

The City of Portland has an approved Compensation Fee Utilization Plan (CFUP) and can therefore receive in-lieu-fee payments to meet the UIS Standard.

B. Basic Erosion and Sedimentation Control Standards for all Development: All development subject to City of Portland site plan review, including but not limited to Level I: Site Alteration, Level II, and Level III site plans, shall comply with the Basic Standard pursuant to Maine DEP Chapter 500 Stormwater Management Rules; single and two-family homes (Level I: Minor Residential Applications) shall be exempt from the Inspection and Maintenance Documentation Requirements of Appendix B1c.

C. 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:

1. 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.
2. Level II and Level III Site Plans.
3. Subdivisions as defined in the Land Use Code Section 14-493 except for those projects, which do not 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.

4. Other projects that the Planning Authority determines that special conditions warrant a stormwater management plan; and
5. Projects that require a Stormwater Permit pursuant to 38 M.R.S.A. Sec. 420-D (Stormwater Management Law), a development that may substantially affect the environment and requires a site location of development (Site Law) permit pursuant to 38 M.R.S.A. Sec 481-490; and certain projects that may be eligible for license by rule for the infiltration of stormwater pursuant to 38 M.R.S.A. Sec 413.

Exemption:

1. Level I Minor Residential, as defined in the Land Use Code - Section 14-522.

D. Redevelopment Projects: All projects not subject to requirements of an existing Site Law or Stormwater Management Law Permit that include redevelopment of non-roof impervious area greater than 5,000 square-feet and are subject to City of Portland review shall provide stormwater quality treatment in accordance with the General Standards for no less than 50% of the redeveloped impervious area. The runoff from any upgradient area must be either directed away from the stormwater treatment measure or that measure must be sized to treat the runoff from the upgradient area.

E. Low Impact Development and Stormwater Quality Treatment: Developments that are not required to comply with the General and Flooding standards are encouraged to incorporate Low Impact Development (LID) and stormwater quality treatment techniques in their design to the maximum extent practicable; however, only projects that meet or exceed the General and Flooding Standards may qualify for a credit from the Stormwater Service Charge in accordance with the Stormwater Credit Manual. A separate application must be completed and submitted to the City for consideration of Stormwater Service Charge credits.

III. STORMWATER MANAGEMENT STANDARDS

Developments as specified under Section II Applicability in Portland must comply with the most recent version of the Maine Department of Environmental Protection (Maine DEP) Chapter 500 Rules for Stormwater Management(http://www.maine.gov/dep/land/stormwater/storm.html), including but not limited to the standards for Urban Impaired Stream, Basic, General, and Flooding Standards for the suitability, design, installation, and maintenance of systems to comply with the General and Flooding Standards are provided in Volume III of the Maine Stormwater Best Management Practices Manual.

Developments shall also comply with Chapter 32 Stormwater of the City Code and with the Subdivision and Site Plan Ordinances contained in the Land Use Code, Chapter 14

Attachment 2 7-21-16 draft

IV. Submission Requirements

Applicants are required to submit a stormwater management and drainage plan as part of development review application and to provide the following submission items to demonstrate compliance with the applicable stormwater management standards:

- Urban Impaired Stream Standard: Calculations for the Compensation Fee or Mitigation Credit per the tables provided in Chapter 500 Rules and other associated Maine DEP regulations. (Note: The City of Portland has an approved Compensation Fee Utilization Plan (CFUP) and can therefore receive in-lieu-fee payments to meet the UIS Standard.)
- Basic Standard: An Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules
- General Standard: Written narrative demonstrating compliance, site plans showing grading and drainage infrastructure, site plan showing water quality treatment area(s) with table showing compliance, BMP sizing calculations, construction details, and a Post-Construction Stormwater Inspection & Maintenance Plan per Maine DEP Chapter 500 Appendix B with reporting requirements per Chapter 32 of City of Portland Code of Ordinances, and a Stormwater Maintenance Agreement.
- Flooding Standard: Subcatchment plans with flow paths, full hydrology computations/model output of pre- and post-development conditions, summary of pre- and post-development flowrates, and a written request for waiver with rationale for waiver as noted in Section 5.II.F. (as applicable)

The following references provide guidance on LID techniques:

- *LID Guidance Manual for Maine Communities*, prepared for the Maine Coastal Program, dated September 21, 2007.
- *Low-Impact Development Design Strategies – An Integrated Design Approach,* prepared by Prince George's County, Maryland & Department of Environmental Resources, Programs and Planning Division, dated June 1999.

CHAPTER 500 2015 REVISIONS

(source: power point presentation from the Bureau of Land Resources, March 2016)

Chapter 500 – The Past

- 1995- Maine Storm Water Management Law
- 1997 – Chapter 500 Stormwater Management Law Rules
- 2006 – Stormwater Management Rules last updated
- 2009 – Stakeholder group discussions

Chapter 500 – The Recent Past

- New Changes were effective 8/12/2015
- General standards – options when 95% and 80% treatment levels can't be met
- Redevelopment standards
- Innovative treatment measures
- Clarification of treatment standards for Site law redevelopment projects
- Rainfall table updates
- Voluntary low impact development credit

Chapter 502 – The Future

- Watersheds most at risk, and urban impaired streams
- Last updated in 2006
- Potential start of review in 2016
- Major substantive rule

What do the changes Mean?:

Section 3: New Definitions

- Linear portion of a project: clarified to exclude roads within 50 feet of other impervious areas
- Low Impact Development

Other new definitions

- Medium-use parking lot
- New development or construction
- Nonstructural techniques
- Proprietary system
- Redevelopment
- Soil hydrologic groups
- Structural techniques
- Time of concentration
- Waterbody

Applicability

- Same types of projects as the old rule
- Changes to permitted SW or Site Law projects

- Gravel Pits, quarries and hydropower projects at the Department's request
- Clarifies there may be other standards that a project must meet (e.g. in MS4 communities)

Basic Standards

- Applies to all projects, including any changes to permitted projects.

General Standards

Amount of Treatment

Old	New
• Must treat 95% of impervious area and 80% of developed area • When 95% is not practical the Department could waive to 90% if greater depth of runoff treated no numerical standard	• Still must treat 95% of impervious and 80% developed if practical • When 95% treatment can't be reached, must treat 0.05-inch increase in runoff depth for every 1% treatment area is decreased • Must treat at least 80% developed are or meet Table 1

General Standard

Treatment Required

- Runoff from upgradient areas must either be diverted around the treatment measure or the treatment measure must be designed to treat 50% of the runoff from that area.

General Standards

Redevelopment

Old	New
• For Stormwater projects redeveloped areas did not have to meet the General Standards as long as no increase in pollutant level • For Site Law projects required to meet General Standard to extent practical	• Establishes a pollutant ranking • Treatment is scaled based on pollutant ranking • Formula for calculating pre and post redevelopment ranking • Table to determine amount of treatment based on formula

General Standards

Wet Ponds

Old	New
• Permanent pool must have 1-inch X subcatchment impervious area + 0.4-inch X subcatchment developed area of storage capacity. • Storage volume below the permanent pool must be 1.5 inches X impervious area + 0.6 inches times non-impervious developed area and be 3' deep with length to width ratio of 2:1	• Permanent pool must have 1-inch X subcatchment impervious area + 0.4-inch X subcatchment developed area of storage capacity • Storage volume below the permanent pool must be 2.0 inches X impervious area + 0.8 inches times non-impervious developed area and be 3' deep with length to width ratio of 3:1

General Standards

Innovative treatment measures

- The Department may on a case-by-case basis approve an alternative treatment measure if the measure will provide as much pollutant removal, channel protection and temperature control.
- If channel protection and temperature control are not issues, we can waive that requirement.
- Applicant must demonstrate control will work.

General Standards

Exemptions

- Linear portions of projects, but not within 50 feet of other impervious area
- Wetland road crossings
- Roofs
- Treatment of impervious area constructed prior to January 1, 2016

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Driveways: Minimizing paved driveway area can be accomplished through narrower driveways or length reduction. Shared driveways will also reduce imperviousness. Porous driveway material would reduce runoff.

Phosphorous Standard

Exception

Must demonstrate that the standard calculations for determining P export are not appropriate due to "unusual circumstances" – and that the P export will meet the project's site allocation.

If evidence is provided, the Department may determine that the P standard has been met.

Flooding Standard

Additional Standard:

Design standards of the local municipality, MDOT, or the Maine Turnpike Authority may need to also be met by the project. The applicant must contact the entity that owns or controls a primary access road or public road if project may cause flooding of that road, and must meet applicable standards.

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- Recertification now included in Standard Conditions
- Added a requirement that proprietary systems be maintained per manufacturer's recommendations
- Added a requirement that proprietary systems have a 5-year maintenance contracts
- Added a provision that exempts permittees from 5-year recertification if subject to a Multisector General Permit and if the applicant demonstrates those provide effective control
- New transfer condition which requires deed restrictions stipulating land that has flow or is subject to flooding is subject to permit and conditions

Conditions of approval for Site Location projects

- In addition to regular Standard Conditions of Approval
- Department may require DEP-approved inspector to oversee construction if project in a lake watershed or an urban impaired stream watershed
- Same recertification requirement as for SW projects

Transition & Jurisdictional threshold

- Projects that had less than 1 acre of impervious prior to 9/17/2005 this impervious area is not counted toward if project is expanded
- Only the expanded areas are subject to the Storm Water Law
- Disturbed areas less than 1 acre continue to count toward threshold if considered developed area

Appendix A: Erosion and Sedimentation Control

When practicable, no disturbance should take place within 50 feet of any protected resource. If disturbance takes place between 30' and 50' and stormwater flows through disturbed areas, DOUBLE erosion control measures are required. If disturbance takes place less than 30' from resource and stormwater discharges through disturbed area, perimeter erosion controls must be doubled and disturbed areas must be temporary or permanent stabilized within 7 days

Appendix A (continued)

- Requires stabilized construction entrances
- Adds specific measures to be met for Winter Construction
- Adds Sizing & Maintenance criteria for sedimentation basins
- Allows for use of flocculants in basins with DEP approval

Appendix B: Inspection & Maintenance

- Adds a timing requirement for the start of repairing erosion controls
- Adds inspection requirement for stormwater ponds, under drained filters & manufactured systems

Appendix C: Housekeeping

- Incorporates notes relating to groundwater protection and tracking dirt onto roads in the actual standards
- Specifies additional materials that should not be exposed to precipitation and runoff
- Lists both authorized and unauthorized non-stormwater discharges

Appendix D: Infiltration basins, dry wells and subsurface fluid distribution systems

- Specifies runoff from industrial, vehicle maintenance & commercial facilities are generally not permitted
- Clarifies that infiltration from vegetated soil filters is de minimis
- Establishes standards for soil filter media and required infiltration time

Appendix E: Stormwater basins, ponds, and under drained vegetated soil filter beds

- Establishes new limitations on the use of under drained filters based on permeability of the in-situ soils and distance from water supply wells

Appendix F: Vegetated Buffers

- Alternative buffer design for residential subdivision lots – Table 12 sets up required minimum length of flow path through the buffer dependent on soil class and buffer type

Appendix H: 24-hour duration rainfalls

- Revised precipitation projections for all levels of storm probability
  (Data extracted by MDEP from the NE Regional Climate Center website, Extreme Precipitation Tables (sourced from NOAA Regional Climate Center))

Chapter 501 Rule

- Effective date 1/13/2015. Compensation fees and mitigation credits moved from Chapter 500
- Noteworthy change: Compensation fee for phosphorus is not available for subdivisions where at least 60% phosphorus reduction cannot be achieved or when using BMP's other than buffers.

Chapter 500: STORMWATER MANAGEMENT

SUMMARY: This Chapter describes stormwater standards for activities licensed under the State's Stormwater Management Law and Site Location of Development Law. It also describes the conditions under which discharges of stormwater to groundwater are exempt from licensing under the Waste Discharge Law. Additional stormwater standards and requirements for federally-delegated programs may also apply in addition to the standards and requirements set forth in this Chapter.

1. **Introduction.** Land use activities can cause changes in stormwater flows. Many pollutants, such as nutrients and metals, attach to fine particles of soil from throughout the watershed. Soil and attached pollutants are carried in the stormwater down to a waterbody or wetland. A project is required to meet appropriate standards to prevent and control the release of pollutants to waterbodies, wetlands, and groundwater, and reduce impacts associated with increases and changes in flow.

2. **Applicability.** This Chapter applies to a project that disturbs one acre or more of land area and requires a stormwater permit pursuant to the Stormwater Management Law 38 M.R.S. §420-D; a development that may substantially affect the environment and requires a site location of development (Site Law) permit pursuant to 38 M.R.S. §§ 481- 490; changes to a project reviewed under the Stormwater Management Law or Site Law that require a modification of the project's permit, as described in Section 16; and certain discharges of stormwater to groundwater that may be exempt from licensing under 38 M.R.S. §413, as described in Appendix D of this Chapter. The Department may also require a Department-licensed excavation, quarry or hydropower project to meet the stormwater standards of this Chapter. Additional stormwater standards and requirements, such as those involving the Maine Pollutant Discharge Elimination System (MEPDES) program and the Municipal Separate Storm Sewer System (MS4) program may also apply in addition to the standards and requirements set forth in this Chapter

3. **Definitions**. The following terms have the following meanings as used in this Chapter and 06-096 CMR Chapter 502 (Direct Watersheds of Lakes Most at Risk from New Development and Urban Impaired Streams), unless the context otherwise indicates.

   A. **Certified Professional in Erosion and Sedimentation Control (CPESC). "**Certified Professional in Erosion and Sedimentation Control (CPESC)" means a professional certified by Enviro-Cert International in erosion and sediment control practices.

   B. **Compensation fee utilization plan.** "Compensation fee utilization plan" means a plan that specifies how funds received as a compensation fee payment will be allocated to reduce the impact of stormwater pollution to an impaired water resource.

   C. **Detention basin.** "Detention basin" means a basin designed and constructed to provide temporary storage of runoff to control stormwater outflow from the site and manage peak flows downstream and to provide gravity settling of pollutants.

   D. **Developed area.** "Developed area" means an impervious area, landscaped area, or unrevegetated area. Developed area includes all disturbed areas except an area that is returned to a condition that

existed prior to the disturbance and is revegetated within one calendar year of being disturbed, provided the area is not mowed more than twice per year.

E. Direct watershed of a waterbody or wetland. “Direct watershed of a waterbody or wetland” means the land area that drains via overland flow, drainageways, waterbodies, or wetlands to a given waterbody or wetland without first passing through a lake or pond.

F. Disturbed area. “Disturbed area” means all land areas that are stripped, graded, grubbed, filled, bulldozed or excavated at any time during the site preparation or removal of vegetation for, or construction of, a project. "Disturbed area" does not include maintenance. A land area on which the cutting of trees, without grubbing, stump removal, disturbance or exposure of soil has taken place is not considered a "disturbed area".

G. Drainageway. “Drainageway” means a natural or man-made channel or course to or from which surface discharge of water may occur. Drainageways include, but are not limited to streams (whether intermittent or perennial), swales, ditches, pipes, culverts, and wetlands with localized discharge of water.

H. Erosion and sedimentation control best management practices (erosion control BMPs). “Erosion and sedimentation control best management practices (erosion control BMPs)” means methods, techniques, designs, practices, and other means to control erosion and sedimentation.

NOTE: The Department has prepared protocols for the control of erosion and sedimentation. See "Maine Erosion and Sediment Control BMPs Maine Department of Environmental Protection.”

I. Erosion control mix. “Erosion control mix” means a mulch that consists primarily of organic material such as shredded bark, stump grindings, composted bark, or fragmented wood generated as a by-product from log handling at wood mills. It includes a well-graded mixture of particle sizes with a mineral content that is less than 20% by weight, and is free from construction debris, refuse, and contaminants.

J. High-use parking lot. “High-use parking lot” means a commercial or other parking lot, where parking is used most days and each visit is typically for a duration of less than two consecutive hours, such as a parking lot serving a convenience store, high-turnover restaurant, shopping center, or supermarket.

K. Hydrologic Soil Groups. Hydrologic Soil Groups are a ranking of soil types for runoff potential adopted by the Natural Resources Conservation Service of the U.S. Department of Agriculture used in estimating direct runoff. The four hydrologic groups are A, B, C, or D, where group A generally has the lowest runoff potential and group D has the highest.

L. Impervious area. “Impervious area” means the total area of a parcel covered with a low-permeability material that is highly resistant to infiltration by water, such as asphalt, concrete, or rooftop, and areas such as gravel roads and unpaved parking areas that will be compacted through design or use to reduce their permeability. Common impervious areas include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and macadam or other surfaces which similarly impede the natural infiltration of stormwater. Pervious pavement, pervious pavers, pervious concrete and underdrained artificial turf fields are all considered impervious. For the purpose of

determining jurisdictional thresholds, the Department may, depending on the design, consider such facilities to provide alternative treatment as described in Section 4(B)(3)(e) of this Chapter.

M. Infiltration. "Infiltration" means the process by which runoff percolates through the unsaturated overburden and fractured bedrock to the water table, including any process specifically used to meet all or part of the stormwater standards of this Chapter by actively directing all or part of the stormwater into the soil. For the purposes of this Chapter, infiltration does not include:

(1) Incidental wetting of soil in ditches, detention basins or the equivalent;

(2) Wetting of underdrained basins, dry swales, or similar filtration systems that do not subsequently discharge to groundwater; or

(3) Wetting of buffers meeting Department requirements for use as stormwater control.

Discharge of runoff to areas of the site where the water will collect and percolate into the ground is considered infiltration if the volume, rate, or quality of the discharge does not meet Department standards for use of the area as a stormwater treatment buffer. Underdrained swales, underdrained ponds, and similar practices that discharge to surface waters or to buffer strips meeting Department requirements in Appendix F of this Chapter for stormwater buffers are not considered infiltration systems, although these may be used to treat runoff prior to discharge to an infiltration area.

N. Lake or pond. "Lake or pond" means a lake or pond classified as GPA under the Water Classification Program, 38 M.R.S. §464 *et seq.*

O. Landscaped area. "Landscaped area" means an area of land that has been disturbed and re-planted or covered with one or more of the following: grass or other herbaceous plants, shrubs, trees, or mulch; but not including area that has reverted to a natural, vegetated condition. An area of grass is considered landscaped if it is mowed more than twice per twelve month period.

P. Linear portion of a project. "Linear portion of a project" means that portion of a project consisting of a utility corridor, roads and road shoulders, driveway, railroad track outside a yard or station, or other similar transportation corridor. The linear portion of a project does not include roads and road shoulders within 50 feet of an impervious area of the same project that is not a sidewalk, bikepath, driveway or other road entrance, or single or two family residential buildings.

Q. Low impact development. "Low impact development" or "green infrastructure" means site planning and design strategies intended to replace or replicate predevelopment hydrology through the use of source control and relatively small-scale measures integrated throughout a site to disconnect impervious surfaces and enhance filtration, treatment, and management of stormwater runoff as close to its source as possible. Low impact development strategies may be either nonstructural or structural, except that low impact development strategies utilizing structural stormwater management techniques shall be limited to an impervious contributing drainage area equal to or less than 1 acre. Low impact development strategies include, but are not limited to: bioretention filters, grass swales and channels, vegetated filter strips, permeable pavements, rain gardens and vegetated rooftops.

R. Maintenance. "Maintenance" means an activity undertaken to maintain operating condition, original line and grade, hydraulic capacity, and original purpose of the project. Paving an impervious gravel surface at original line, grade and hydraulic capacity is considered maintenance. Replacement of a building is not considered maintenance of the building.

S. Major river segment. "Major river segment" means, the rivers or portions of rivers, including any impoundments, identified as follows: Saco River; Androscoggin River; Kennebec River; West Branch Penobscot River below Elbow Lake; East Branch Penobscot River below Wassataquiok Stream; Piscataquis River below Dover-Foxcroft; St. Croix River below Grand Lake; Aroostook River below Ashland; and St. John River below the Allagash River.

T. Medium-use parking lot. "Medium-use parking lot" means a parking lot that is used most days and where vehicles are parked for an extended period of time, typically longer than two consecutive hours, such as an "employees only" parking lot, a school, and long-term parking at an intermodal transportation facility such as an airport, bus terminal or railroad station,

U. New development or construction. "New development or construction" means activity undertaken to develop property, including but not limited to: the construction of buildings, parking lots, roads and other new impervious surfaces; landscaping; and other activities that disturb land areas. New development or construction does not include redevelopment or maintenance.

V. Nonstructural stormwater management techniques. "Nonstructural stormwater management techniques" means stormwater management techniques that are designed to encourage the treatment, infiltration, evaporation, and transpiration of precipitation close to where it falls, while helping to maintain a more natural and functional landscape.

W. Parcel. "Parcel" is defined the same as "parcel of land" in rules adopted pursuant to the Site Location of Development Law, 38 M.R.S. §481 *et seq*.

X. Peak flow. "Peak flow" means the greatest rate of flow in a drainageway, measured as volume per unit of time, resulting from a storm of specified frequency and duration.

Y. Person. "Person" is defined the same as in rules adopted pursuant to the Site Location of Development Law 38 M.R.S. §481 *et seq.*

Z. Practicable. "Practicable" means available and feasible considering cost, existing technology and logistics based on the overall purpose of the project.

AA. Pre-development area. "Pre-development area" means an impervious or developed area created prior to the effective date of the Stormwater Management Law for a stormwater project, or the effective date of the jurisdictional threshold under which a development is licensed for a Site Law development.

BB. Proprietary stormwater management systems. "Proprietary stormwater management systems" means manufactured systems that use proprietary settling, filtration, absorption, vortex principles, vegetation and other processes to manage stormwater.

CC. Protected natural resource. "Protected natural resource" means coastal sand dunes, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, community public water system primary protection areas, great ponds or rivers, streams or brooks as defined in the *Natural Resources Protection Act* at 38 M.R.S. §480-B.

DD. Redevelopment. "Redevelopment" means an activity, not including maintenance, undertaken to redevelop or otherwise improve property in which the newly developed area, is located within the

same footprint as the existing developed area. A minor amount of undeveloped land, as determined by the Department on a case-by-case basis, may be included within the perimeter of the existing developed area.

EE. Site Law. "Site Law" means the Site Location of Development Law, 38 M.R.S. §§ 481-490.

FF. Stormwater. "Stormwater" means the part of precipitation, including runoff from rain or melting ice and snow, that flows across the surface as sheet flow, shallow concentrated flow, or in drainageways.

GG. Stormwater Management Law. "Stormwater Management Law" means the Storm Water Management Law, 38 M.R.S. §420-D.

HH. Stream. "Stream" means a river, stream, or brook as defined in the *Natural Resources Protection Act* at 38 M.R.S. §480-B.

II. Structural stormwater management techniques. "Structural stormwater management techniques" means stormwater management techniques or devices that are designed to mitigate the impact or stormwater discharges.

JJ. Subcatchment. "Subcatchment" means an area of a project site with a unique flow path to a specific point.

KK. Time of concentration. "Time of concentration" means the time it takes for runoff to travel from the hydraulically most distant point of the drainage area to the point of interest within a watershed.

LL. Two (ten, twenty-five)-year, 24-hour storm. "Two (ten, twenty-five)-year, 24-hour storm" means a precipitation event with a 50% (for two-year), 10% (for ten-year), or 4% (for 25-year) probability of being equaled or exceeded during any twenty-four hour period during any given year.

MM. Urban impaired stream. "Urban impaired stream" means a stream or stream segment that meets the criteria of 06-096 CMR 502(3)(B) and is listed in 06-096 CMR 502 Appendix B.

NN. Waterbody. "Waterbody" means a lake, pond, river or stream.

OO. Watershed. "Watershed" means the land area that drains, via overland flow, drainageways, waterbodies, or wetlands to a given waterbody or wetland.

PP. Wetlands. "Wetlands" means coastal and freshwater wetlands as defined in the *Natural Resources Protection Act*, 38 M.R.S. §480-B.

4. Stormwater standards. The stormwater standards described in this Section include basic, general, phosphorous, urban impaired stream, flooding and other standards.

A. Applicability. This section applies to:

1) A project that requires a Stormwater Management Law permit, other than a stormwater permit by rule (PBR) issued pursuant to Section 6 of this Chapter;

2) A project that requires a Site Law permit; and

3) Changes to a project licensed pursuant to the Stormwater Management Law or Site Law that requires a modification of a project's license, as described in Section 16 of this Chapter.

For the purpose of determining the applicability of the general and phosphorous standards, when a project is located in separate watersheds, the area of the entire project is considered in determining whether a standard applies. For example, if a portion of a project drains to a lake, and another portion drains to a non-lake water body, the project needs to meet the applicable standards for each watershed.

B. Basic standards. The basic standards apply to all projects described above. The applicant must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C to this Chapter, respectively, are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

C. General standards. The general standards apply as described below in addition to the basic standards described in Section 4(B).

(1) When the general standards must be met. A project must meet the general standards if the project results in:

(a) Direct watershed of an urban impaired stream. 20,000 square feet or more of impervious area, or 5 acres or more of developed area, in the direct watershed of an urban impaired stream; or

(b) Any other non-lake watershed. One acre or more of impervious area, or 5 acres or more of developed area anywhere else for a project that is not in the direct watershed of a lake.

(2) **Treatment requirements**. To meet the general standards, the applicant must demonstrate that a project's stormwater management system includes treatment measures that will provide pollutant removal or treatment, and mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms and potential temperature impacts, unless the Department determines that channel protection and/or temperature control are unnecessary due to the nature of the resource. This must be achieved by using one or more of the methods described in this Section as follows:

(a) **Treatment level**. A project's stormwater management system must:

(i) Provide treatment of no less than 95% of the impervious area and no less than 80% of the developed area;

(ii) Where treatment of 95% of the impervious area is not practicable, the Department may allow treatment of as low as 90% of the impervious area if the applicant is able to demonstrate that treatment of a greater depth of runoff than specified in the standards will result in at least an equivalent amount of overall treatment of the impervious area. The treatment depth of runoff must be increased by 0.05 inch for each 1% that the treatment area is decreased. Treatment must still be provided for no less than 80% of the developed area; or

(iii) Provide treatment in accordance with Table 1.

Table 1
Stormwater Treatment Based on Percentage of Parcel Developed

Percentage of Developed Area to Land Available for Development*	Percentage of Total Impervious Area Requiring Treatment**	Percentage of Total Developed Area Requiring Treatment**
>70	95	80
65	92.5	77.5
<60	90	75

* Including all contiguous land area owned by the applicant, but not including land with greater than 25% sustained slope or consisting of a protected natural resource.
** Percentage may be pro-rated for values between 60% and 70% in left-hand column.

(b) **Upgradient runoff**. The runoff from any upgradient area must be either directed away from the stormwater treatment measure or that measure, not including buffers, must be sized to address the runoff volume from the upgradient area at 50% of the sizing requirements for an area that is landscaped, unless the upgradient area is on soil with hydrologic condition A or B.

(c) **Mitigation**. The Department may allow the portion of a project's impervious or developed acreage that must be treated to be reduced through mitigation by eliminating or reducing an untreated off-site or on-site impervious stormwater source within the same watershed (see 06-096 CMR 501) if a project is not in a direct watershed of an urban impaired stream. The Department may, on a case-by-case basis, also determine that mitigation may include providing stormwater treatment for existing developed areas that do not require treatment under this Chapter.

(d) **Redevelopment project**. This subparagraph describes how much treatment is required for a redevelopment project.

(i) The requirement for treatment is scaled based on the pollutant discharge that, if the stormwater was untreated, would result from the redevelopment project. The Department will assign a pollutant ranking based on Table 2, and may, on a case-by-case evaluation of individual projects, modify the ranking by up to 2 points in light of project-specific features.

Table 2
Pollutant Impact Rankings of Various Redevelopment Land Uses

Land Use	Pollutant Ranking
Roads where idling may occur periodically due to traffic volume and intersections; High use parking lots	5
Other roads; Medium use parking lots	4

Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

The method for determining the treatment requirement for redevelopment projects includes:

a. For the existing condition, calculating a weighted average of impact by multiplying the land area (in acres) of each type of existing land use by its pollutant ranking. Add these values together to get an existing impact rating.

b. For the proposed condition, calculating a weighted average of impact by multiplying the land area (in acres) of each type of proposed redevelopment land use by its pollutant ranking. Add these values together to get a proposed impact rating.

c. Divide the existing impact rating by the number of total redevelopment acres.

d. Divide the proposed impact rating by the number of total redevelopment acres.

e. Subtract the value in Item c from the value in Item d. Note: this value can be a negative number. Use this value in the left column of Table 3 (below) to determine the applicable treatment level required for the redevelopment project.

Table 3
Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment	**Percentage of Developed Area that Must be Treated**
0.0 or less	0% (Stormwater projects) 50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

(ii) Priority for treatment must be given to areas with the highest pollutant ranking to the maximum extent practicable.

(iii) The developed area of the redevelopment project must be treated to the level required based on the pollutant impact ranking in accordance with Table 3. If the Department determines that it is not practicable to meet the general standards for redevelopment

on site, the Department may allow equivalent treatment or mitigation on an off-site parcel within the same watershed as an alternative for stormwater treatment.

(iv) If a redevelopment project is located in geographically separate watersheds, treatment requirements must be calculated for each separate watershed.

(3) **Types of treatment measures allowed**

(a) **Wetpond**. A stormwater management system using a wetpond must detain, above a wetpond's permanent pool, a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area. If located within the direct watershed of a stream, the pond must be designed to release this stored volume over a period of 24 to 48 hours through an underdrained gravel outlet. A wetpond must have a storage volume below the permanent pool elevation at least equal to 2.0 inches times the subcatchment's impervious area plus 0.8 inch times the subcatchment's non-impervious developed area, plus any required treatment for upgradient runoff in accordance with Section 4(C)(2)(b) above, and must have a mean depth of at least three feet, and a length to width ratio of 3:1 or greater. If the permanent pool volume is relatively evenly distributed (within 25% of each other) between separate wetponds in series, the required permanent pool volume may be reduced by 20%; if the permanent pool volume is relatively evenly distributed (within 25% of each other) between three separate wetponds in series, the required permanent pool volume may be reduced by 40%.

(b) **Vegetated soil filter**. A stormwater management system using a vegetated soil filter to control runoff must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's other landscaped area plus any required treatment for upgradient runoff in accordance with Section 4(C)(2)(b), above. The system must be designed in accordance with Section 4(C) of Appendix E of this Chapter.

Discharges to groundwater from vegetated soil filters as described in Appendix E, Section 4(B) of this Chapter are considered *de minimis* discharges for the purposes of the Waste Discharge Licensing Program, and do not require a waste discharge license.

(c) **Infiltration**. A stormwater management system using infiltration to control runoff must retain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's developed area that is landscaped, plus any required treatment for upgradient runoff in accordance with Section 4(C)(2)(b) above, and infiltrate this volume into the ground. The system must be designed in accordance with Appendix D of this Chapter. An infiltration system serving a development regulated under the Site Law may be required to meet additional standards in accordance with 06-096 CMR 375(7).

Infiltration from a stormwater infiltration system is considered *de minimis* for purposes of the Waste Discharge Licensing Program and does not require an individual waste discharge license if the standards in Appendix D to this Chapter are met.

NOTE: Drywells and subsurface fluid distribution systems may need to be registered with and meet other requirements of the Department's Underground Injection Control Program.

(d) **Buffers**. A stormwater management system using buffers to control runoff must meet the design and sizing requirements described in Appendix F to this Chapter.

(e) **Innovative treatment measures**. The Department may, on a case-by-case basis, approve alternative treatment measures to those described in Subsections 4(C)(3)(a) through 4(C)(3)(d) above. Innovative treatment measures may be either proprietary or non-proprietary, and must provide at least as much pollutant removal as the treatment measures listed above and as much channel protection and temperature control, unless the Department determines that channel protection and/or temperature control are unneeded due to the nature of the resource. Any person proposing the use of an innovative treatment measure may be required to provide reports or studies, subject to Department review and approval, demonstrating the control efficiency of the measure. The use of an innovative treatment measure does not preclude the need to meet other required Stormwater Management Law standards.

(4) **Low impact development credit**. Low impact development strategies can reduce stormwater storage volume requirements through the use of non-structural stormwater management techniques that minimize impervious cover, thereby reducing both the size and cost of stormwater management structures. The use of low impact development strategies is optional and voluntary for all projects, but projects using this credit are eligible to reduce the portion of the project's impervious or developed acreage that must be treated.

(a) Projects incorporating low impact development strategies under this Section must be reviewed and approved by the Department on a case-by-case basis, and must:

(i) Protect as much undisturbed land as possible to maintain pre-development hydrology and allow rainfall infiltration;

(ii) Protect natural drainage systems such as wetlands, watercourses, ponds and vernal pools to the maximum extent practicable;

(iii) Minimize land disturbance including clearing and drainage to the extent practicable;

(iv) Minimize the decrease in the time of concentration from pre-construction to post-construction to the extent practicable;

(v) Minimize soil compaction to the extent practicable;

(vi) Utilize low-maintenance landscaping that encourages the retention and planting of native vegetation, and minimizes the use of lawns, fertilizers and pesticides;

(vii) Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces to the extent practicable;

(viii) Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and

(ix) Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff.

(b) In order to qualify for low impact development credit, applicants must treat at least 50 percent of the runoff volume from developed areas with low impact development strategies. Low impact development credits, which reduce the amount of developed area that must be treated, will be awarded based on the percentage of developed area treated with low impact development strategies, and shall be pro-rated from between 10 percent and 20 percent, as follows:

Percentage of Developed Area Treated With Low Impact Development Measures	**Low Impact Development Credit**
50%	10%
75%	15%
100%	20%

(5) **Exceptions from the general standards**. This Section describes exceptions from the general standards.

(a) **Pretreatment measures**. A project that includes measures to pretreat runoff to a filter or infiltration system in a Department-approved, flow-through sedimentation device may reduce the runoff volume to each treatment measure described in Section 4(B)(3)(b) and (c) by 25%. The pre-treatment credit does not apply to subsurface underdrained filter structures using chambers.

(b) **Discharge from a wetpond**. A project using a wetpond for stormwater treatment that does not discharge to the direct watershed of a stream other than a major river segment is not required to incorporate channel protection storage above the wetpond's permanent pool or to install an underdrain. The underdrain may also be omitted from a wetpond when discharging to a wetland if the Department determines that filtering and temperature reduction, normally provided by an underdrain, are not necessary for maintaining the functions of the wetland.

(c) **Linear portion of a project**. For a linear portion of a project, treatment may be reduced to no less than 75% of the linear portion's impervious area and no less than 50% of the linear portion's developed area. This exception does not apply to a linear portion of a project subject to the urban impaired stream standard.

(d) **A utility corridor or portion of a utility corridor**. A utility corridor or portion of a utility corridor that meets the following criteria is not required to meet the general standards:

(i) The project or portion of the project does not include impervious area;

(ii) Disturbed areas are restored to pre-construction contours and revegetated within one month in the growing season following construction;

(iii) Mowing of the revegetated right-of-way occurs no more than once during any twelve month period; and

(iv) A vegetation management plan for the project has been reviewed and approved by the Department.

(e) **Wetland road crossing**. That portion of a road crossing a wetland is not required to meet the general standards if the design provides for passage of flows through a culvert(s), bridge span, or use of a permeable base material that will allow flow under the road.

(f) **Roofs**. Runoff from sloped, non-asphalt roofs of non-industrial facilities need to be treated for thermal impact and for channel protection only.

(g) **Treatment requirement for certain developed area approved or constructed prior to January 1, 2006 and not being redeveloped**. A project requiring a Site Law permit is not required to meet the general standards for runoff from developed area constructed and operated in accordance with a Stormwater Management Law permit issued prior to January 1, 2006, provided the area is not being redeveloped. If a project requiring a Site Law permit includes a developed area constructed prior to that date that did not require a Stormwater Management Law permit, then the project must provide treatment of runoff in accordance with the general standards from at least 50% of that developed area. Priority for treatment must be given to areas with the highest pollutant ranking to the maximum extent practicable, using the ranking system in Table 2 of this Chapter.

This Subsection does not apply to developed areas located within the direct watershed of an urban impaired stream or other waterbody that is impaired due to urban runoff or developed area proposed to be redeveloped.

D. Phosphorus standard. The phosphorus standard applies as described below in addition to the basic standards described in Section 4(B) of this Chapter.

(1) When the phosphorus standard must be met. If a project is located in a lake watershed, the phosphorous standard must be met as follows:

(a) When the project is located in the direct watershed of a lake most-at-risk. A development with 20,000 square feet or more of impervious area, or 5 acres or more of developed area in the direct watershed of a lake most-at risk must meet the phosphorous standard. The general standards may be used if the lake is not severely blooming and if the project results in less than 3 acres of impervious area and less than 5 acres of developed area. Severe blooming lakes are a subset of lakes most-at-risk as listed in 06-096 CMR 502; or

(b) When the project is located in any other lake watershed. A development with one acre or more of impervious area or 5 acres or more of developed area in any other lake watershed may use the general standards if the project results in less than 3 acres of impervious area and less than 5 acres of developed area.

(2) **Description of phosphorus standard**. An allowable per-acre phosphorus allocation for each lake will be determined by the Department. The Department’s determination is based upon current water quality, potential for internal recycling of phosphorus, potential as a cold-water fishery, volume and flushing rate, and projected growth in the watershed. This allocation will be used to determine phosphorus allocations for a project unless the applicant proposes an alternative per-acre phosphorus allocation that is approved by the Department. If the project is a road in a subdivision, only 50% of the parcel's allocation may be applied to the road unless phosphorus export from both the road and the lots is subject to this Chapter, in which

case the entire allocation for the parcel may be applied. If the allocation is exceeded by a proposed project, the applicant must demonstrate that the phosphorus export using the Department's methodology will be reduced to meet the phosphorus allocation. Compensation may also be allowed in accordance with 06-096 CMR 501.

NOTE: Volume II of the Maine Stormwater Management BMP manual provides examples for calculating per-acre phosphorus allocations and determining if stormwater phosphorus export from a project meets or exceeds the parcel's allocation.

(3) **Exception to the Department's phosphorus export standard**. If an applicant can demonstrate that the standard calculations for determining phosphorus export are not appropriate due to unusual circumstances, such as the location and/or nature of the development proposal, and the phosphorus export will meet the project site's allocation, then the Department may make a determination that the phosphorus standard has been met.

E. Urban impaired stream standard. The urban impaired stream standard applies as described below.

(1) **When the urban impaired stream standard must be met**. A project must meet the urban impaired stream standard if the project is located in the direct watershed of urban impaired stream and requires a Site Law permit or permit modification.

(2) **Description of the urban impaired stream standard**. To meet the urban impaired stream standard, the applicant must either pay a compensation fee or mitigate project impacts by reducing or eliminating an off-site or on-site pre-development impervious stormwater source as described in 06-096 CMR 501.

(3) **Exception where impervious area is replaced**. Any portion of a project in which impervious area that pre-dates the Stormwater Management Law is replaced is not required to meet the urban impaired stream standard for that area provided the Department determines that the new use of the untreated area is not likely to increase stormwater impacts in the proposed project's stormwater runoff beyond the levels already present in the runoff in accordance with Table 2 of this Chapter.

(4) Where there is a Department-approved management and monitoring plan in place, and monitoring demonstrates that a stressor in the watershed, which may be either a pollutant or a failure to meet a water quality standard, is contributing to the impairment of the urban impaired stream, the Department may require the applicant to use alternative, or additional stormwater treatment measures to address the identified stressor.

F. Flooding standard. The flooding standard applies as described below.

(1) When the flooding standard must be met. A project must meet the flooding standard if the project:

(a) Results in three acres or more of impervious area or 20 acres or more of developed area; or

(b) Requires a Site Law permit or permit modification.

(2) **Description of the flooding standard**. To meet the flooding standard, the applicant must demonstrate that a project's stormwater management systems will meet the following:

(a) The system must detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project;

(b) The design of piped or open channel systems must be based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits;

(c) The areas expected to be flooded by runoff from a 10-year or 25-year, 24-hour storm must be designated in the application, and no buildings or other similar facilities may be planned within such areas. This does not preclude the use of parking areas, recreation areas, or similar areas from use for the detention of storms greater than the 10-year, 24-hour storm. The applicant shall secure drainage easements from any downstream property owners across whose property may be flooded by runoff pursuant to Section 4(G)(2)(a);

(d) Runoff from the project may not flood the primary access road to the project and any public road~~s~~ bordering the project as a result of a 25-year, 24-hour storm; and

(e) If a wetpond is utilized for stormwater quality treatment under Section 4(C)(3)(a) of this Chapter, detention to meet the flooding standard must be provided above the permanent pool.

NOTE: Please see Appendix H for 24-Hour Duration Rainfalls for Various Return Periods in Maine.

3) **Waiver of the flooding standard**. A project is eligible for a waiver from the flooding standard as follows.

(a) Discharge to a coastal wetland, a great pond, or a major river segment. A waiver is available for a project in the watershed of a coastal wetland, a great pond, or a major river segment provided the applicant demonstrates that the project conveys stormwater exclusively in sheet flow, in a manmade open channel, or in a piped system directly into one of these resources.

In addition, the Department may allow a waiver for a project discharging directly into a river that is not a major river segment if the Department determines that the increase in peak flow from the site will not significantly affect the peak flow of the river or result in unreasonable adverse impact on any wetlands.

Prior to requesting a waiver as part of an application, the applicant shall secure drainage easements from any downstream property owners across whose property the runoff must flow to reach the ocean, great pond, or river. The applicant shall also demonstrate that any piped or open-channel system in which the runoff will flow has adequate capacity and stability to receive the project's runoff plus any off-site runoff also passing through the system.

(b) Insignificant increases in peak flow rates from a project site. A waiver is available for a project resulting in only an insignificant increase in peak flow rates from a project site. The applicant shall demonstrate that the proposed increases in peak flow rates cannot be avoided by reasonable changes in project layout, density, and stormwater management design. The applicant shall also demonstrate that the proposed increases are insignificant because they will not unreasonably increase the extent, frequency, or duration of flooding at downstream flow controls and conveyance structures or have an unreasonable adverse effect on protected natural resources. In making its determination to allow a waiver from the flooding standard due to insignificant increases in peak flow rates, the Department shall consider cumulative impacts. If additional information is required to make a determination concerning increased flow, the Department may only consider a waiver after the applicant agrees, pursuant to 38 M.R.S. §344-B(3)(B), that the review period may be extended as necessary by the Department.

(4) **Additional design standards**. The municipality, the Maine Department of Transportation, or the Maine Turnpike Authority may require a project to meet additional design standards. The applicant shall contact the appropriate entity when proposing a project that may cause flooding of a primary access road or public road and receive all necessary approvals prior to beginning construction.

G. Easements and deed restrictions standard. The easements and deed restrictions standard applies as described below.

(1) **When the easements and deed restrictions standard must be met**. A project must meet the easements and deed restrictions standard if the project requires specific off-site areas for the control, disposal, or treatment of stormwater runoff.

(2) **Description of the easements and deed restrictions standard**

(a) **When an easement is required**. The applicant must secure easements from affected property owners when the project results in any of the following on off-site property not owned by the applicant:

(i) The flow type changes (for example, converting from sheet flow to channelized flow);

(ii) The flow channel changes; or

(iii) The flow causes or increases flooding.

The Department may determine that the expected change in flow, channel or impact is so insignificant as to not require an easement under this Chapter. The Department may require the applicant to provide evidence that such impacts will not occur or, if they will occur, provide evidence of the extent of the impact and evidence that suitable easements have been obtained.

NOTE: The Department's decision to issue a stormwater permit, to require or not require an easement, or to specify the location or width of an easement is not intended to affect other federal, state or local requirements for easements or the availability of legal or equitable remedies for impacts due to stormwater runoff.

(b) **Easement specifications and restrictions**. The following specifications and restrictions apply to all easements established under this standard.

(i) **Land use restrictions**. Suitable land-use restrictions must be included in the easements to prevent any activity that might affect drainage to, across, or from the area affected by the easement.

(ii) **Drainage easements**. Drainage easements must include all off-site channels constructed to receive flows from the project and any off-site channels receiving increased peak flow rates from the project. Drainage easements must extend up to, but not include, the channel of any stream accepting flow from the project. Drainage easements must conform with the center line of the drainageway or pipe and must have a minimum width of 30 feet, or 10 feet on each side of the channel or pipe required to accommodate the flow from a 25-year, 24-hour storm, whichever is greater. A reduction in the minimum width may be approved by the Department if the full width is not available because of unavoidable physical limitations of the site. However, the minimum width allowed must still be sufficient to avoid an adverse impact on existing uses and to allow access for maintenance and repair.

(iii) **Flooding easements**. Flooding easements must include all off-site areas flooded due to the project. These areas include, but are not limited to, those flooded due to the project overloading storm sewers, culverts, stormwater basins, and equivalent utilities with increased runoff; filling existing areas of runoff storage; diverting flows onto off-site properties; and impeding runoff from the project parcel or off-site areas. Flooding easements must conform to the greatest extent of inundation due to the increased runoff from a 25-year, 24-hour storm.

(iv) **Erosive flows**. The flow through the easement or flooding within the easement may not cause erosion of soil or sedimentation.

(c) **Buffers**. Buffers used for stormwater control must be protected from alteration through deed restrictions.

NOTE: The Department has prepared suggested templates for deed restrictions that can be found in Appendix G of this Chapter.

H. Redistribution of stormwater discharges standard. The redistribution of stormwater discharges standard applies as described below.

(1) **When the redistribution of stormwater discharges standard must be met**. A project must meet the redistribution of stormwater discharges standard if the project discharges concentrated stormwater runoff through an open-channel or pipe to any point that is not an open channel, an inlet to a storm drain system, or a natural or man-made impoundment.

(2) **Description of redistribution of stormwater discharges standard**. To meet the redistribution of stormwater discharges standard, the applicant must demonstrate that the project's concentrated flow will be converted to sheet flow to prevent erosion of the downstream receiving area. The conversion of concentrated flow to sheet flow must be done using properly designed level spreaders meeting the criteria below.

(a) **Discharge to a level spreader**. The peak stormwater flow rate to a level spreader due to runoff from a 10-year, 24-hour storm must be less than 0.25 cubic feet per second (0.25 cfs) per foot length of level spreader lip.

(b) **Siting of level spreader**. The level spreader must be sited so that flow from the level spreader will remain in sheet flow until entering a natural or man-made receiving channel.

(3) This standard is not applicable for level spreaders discharging runoff to vegetated buffers used to meet the general standards. Requirements for these level spreaders can be found in Appendix F of this Chapter.

I. Discharge to wetlands standard. The discharge to wetlands standard applies as described below.

(1) **When the discharge to wetlands standard must be met**. A project must meet the discharge to wetlands standard if the project discharges stormwater a wetland, unless the affected area of wetland qualifies for an exemption pursuant to the *Natural Resources Protection Act*, 38 M.R.S. §480-Q(17), or unless the Department determines that the change in stormwater flow will not cause a loss of wetland functions and values.

(2) **Description of discharge to wetlands standard**. To meet the discharge to wetlands standard, the applicant must demonstrate that the project's discharges into wetlands will not significantly alter the flow of stormwater to the wetland from that which occurred. In general, new or increased stormwater discharges into wetlands must be put into sheet flow using level spreaders designed to meet the requirements in Section 4(H), above. The Department may allow alternate stormwater treatment measures if those measures will not unreasonably adversely affect the wetland.

The discharge of runoff to a wetland due to a 2-year storm may not increase the mean storage depth within a wetland more than two inches above pre-development levels for more than 24 hours from the end of the storm event, unless otherwise approved by the Department. The Department may consider cumulative impacts due to runoff from other projects when applying this standard to any wetland.

J. Discharges to public storm sewer systems standard. The discharges to public storm sewer systems standard applies as described below.

(1) **When the discharges to public storm sewer systems standard must be met**. A project must meet the discharges to public storm sewer systems standard if runoff from the project site will flow to a publicly-owned storm sewer system.

(2) **Description of discharges to public storm sewer systems standard**. The applicant must obtain authorization from the system's owner to discharge into the system. At its discretion, the Department may require the applicant to demonstrate that the system has adequate capacity for any increases in peak flow rates and volumes to the system and to provide photo documentation that the outfall of the public storm sewer system is being properly maintained.

NOTE: Title 12 M.R.S.A. §7755-A, which prohibits state agencies from issuing a permit that will significantly alter the habitat of any species designated as threatened or endangered species or violate protection guidelines may also apply.

5. **Additional controls.** If the Department determines that additional controls are necessary to avoid an unreasonable impact on any wetland or waterbody due to pollutants that are not adequately addressed by the standards described in Section~~s~~ 4, a stormwater project subject to this Chapter that results in three acres or more of impervious area or 20 acres or more of developed area, or requires a Site Law permit or permit modification may be required to use additional controls. This is a case-by-case determination based upon factors such as the size, nature and intensity of the development, characteristics of the affected natural resource, topography and soils.

6. **Stormwater permit by rule (PBR)**

   A. **When a project qualifies for a stormwater PBR.** A project needing a Stormwater Management Law permit qualifies for a stormwater PBR if it does not require a Site Law permit or permit modification and results in:

      (1) **Direct watershed of a lake most at risk or urban impaired stream**. Less than 20,000 square feet of impervious area and less than 5 acres of developed area in the direct watershed of a lake most at risk or urban impaired stream; or

      (2) **Any other watershed**. Less than one acre of impervious area and less than five acres of developed area in any other watershed.

   B. **Notification.** An applicant must file notice of the project with the Department and to the municipal clerk of the municipality where the project is located, prior to beginning work on the project. The applicant shall use the notification form provided by the Department and must include the required submissions. The applicant must keep a copy to serve as the permit. The notification information must be sent to the Department by certified mail (return receipt requested), or hand delivered to the Department and date stamped by the Department.

   C. **Effective period.** The stormwater PBR becomes effective 14 calendar days after the Department receives the notification form, unless the Department accepts or rejects the notification prior to that date. Within this 14 calendar day period, the Department may notify the applicant in writing, including by e-mail, or through verbal communication that the notification is rejected because the notification is deficient, the project is ineligible for stormwater PBR, additional information or further review is needed, or an individual stormwater permit must be obtained pursuant to Section 6(G) of this Chapter. The stormwater PBR is effective on, and valid for two years from the date the PBR is accepted.

      By signing the notification form, the applicant is representing that the activity will meet the applicability requirements and standards of this Section. In addition, by signing the notification form the applicant represents that the applicant has sufficient title, right, or interest in the property where the proposed activity is to take place.

   D. **Standards.** Projects eligible for permit by rule must meet the erosion and sedimentation control standards found in Appendix A and inspection and maintenance requirements found in Section 1 of Appendix B of this Chapter, except that any PBR project proposing to use infiltration to control runoff must either meet the license by rule standards in Appendix D of this Chapter, or obtain a waste discharge license under the Waste Discharge Law.

E. Submissions. An applicant for a stormwater PBR must submit the notification form, fee and other information for the Department's review and approval. This information includes a location map, site plan, erosion and sedimentation control plan, and photographs of the area to be developed. Also, if the project is located in Essential Habitat, approval from the Maine Department of Inland Fisheries and Wildlife will need to be submitted. Specific submission requirements are described below.

(1) **Plan preparation**. An erosion and sedimentation control plan accompanying a stormwater PBR must be designed by a professional who is registered, licensed, or certified in a related land-use field, or by education, training, or experience is knowledgeable in erosion and sedimentation control, or has received specific training in erosion and sedimentation control at a Department-sponsored erosion and sedimentation control workshop.

NOTE: Erosion and sedimentation control practices are described in the "Citizen's Guide to Best Management Practices for Use with Maine Construction General Permit" or in "Maine Erosion and Sediment Control BMPs," Maine Department of Environmental Protection.

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(2) **Location map**. The notification form must be accompanied by a photocopy of a portion of a 7.5 minute USGS topographic map or other atlas showing the site's location and approximate property boundaries, if the size of the parcel and scale of the map allows it. A USGS topographic map can be useful for showing the general contour and topography of the project site

(3) **Site plan**. Submit a scaled plan showing, at a minimum, the locations of structures and roads, the extent of disturbed land, pre-construction site topography, post-construction site topography, on-site and adjacent surface waterbodies, and all erosion and sedimentation control measures to be used on the site. Such measures include, but are not limited to, sedimentation barriers, ditch lining, rip rap, and culvert inlet and outlet designs.

An applicant may substitute the following information for surveyed pre-development and post-development site topography on the location plans:

(a) The locations of high points on the site;

(b) The locations of any ponds or other runoff storage depressions on the site;

(c) The locations and flow direction of any drainage ditches, brooks, or streams;

(d) The locations of any catch basin inlets or culvert inlets; and

(e) Arrows showing the general direction(s) of overland drainage for the site.

(4) **Erosion and sedimentation control plan**. In addition to a site plan, an erosion and sedimentation control plan must be included that contains, at a minimum, permanent stabilization measures to be taken (e.g., paving or planting vegetation), installation details of the erosion control measures proposed, seeding and mulching rates, and a construction schedule with the proposed construction dates and timeframe for major earth moving and construction events. This plan and its details may be included on the site plan instead of being a separate submission.

NOTE: Other or additional standards may apply under the *Natural Resources Protection Act* to a project located in or adjacent to a protected natural resource. For example, a person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials may need to take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S. §480-B.

(5) **Photos**. Photographs of the project site that show the existing character and topography of the area proposed for development must be included with the PBR notification.

F. Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the Department prior to implementation. Any variation undertaken without approval of the Department is in violation of 38 M.R.S. §420-D(8) and is subject to penalties under 38 M.R.S. §349.

G. Discretionary authority. Notwithstanding compliance with the PBR requirements and standards set forth in this Section, the Department may require that an individual stormwater permit be obtained in any case where the Department determines that the activity:

(1) May violate the standards of the Stormwater Management Law or this Chapter;

(2) Could lead to significant environmental impacts, including cumulative impacts; or

(3) Could have an unreasonable adverse impact on a protected natural resource.

7. Submissions and pre-application meetings. This Section applies to Stormwater Management Law projects that do not qualify for a stormwater PBR. It also applies to Site Law projects. The applicant shall use the application form provided by the Department and include evidence that affirmatively demonstrates that the standards will be met, including information such as described in this Section.

A. Pre-application meetings. A pre-application meeting is required for a Stormwater Management Law project that does not qualify for a stormwater PBR, unless the requirement for such a meeting is waived by the Department based on an initial review of project plans and scope. A pre-application meeting between the applicant and the Department is an opportunity for the applicant to determine the statutory and regulatory requirements that apply to a specific project, and to identify the Department staff person who will serve as project manager for the application. A written request for a stormwater pre-application meeting must include two copies of a preliminary site plan, brief project description, and a regional map with the site marked.

B. Design requirements. A design for a stormwater management system that includes any form of conveyance structure must be prepared under the supervision of, and dated, signed and sealed by, a professional engineer registered in the State of Maine, or a landscape architect licensed in the State of Maine, who by education, training, or experience is knowledgeable in stormwater management. Soil test data must be provided by a certified soil scientist, unless otherwise approved by the Department.

C. Basic standards submissions. An erosion and sedimentation control plan or an inspection and maintenance plan for a project that does not qualify for a stormwater PBR must be prepared by a

professional engineer registered in the State of Maine, landscape architect licensed in the State of Maine, or a Certified Professional in Erosion and Sedimentation Control.

(1) **Erosion and sedimentation control plan**. Submit a plan showing designs for temporary and permanent stabilization measures for all disturbed areas within the project site and for all proposed stormwater management structures. Erosion and sedimentation control plan requirements are described in Appendix A of this Chapter. At a minimum, the erosion and sedimentation control plan must include the following:

(a) **Location plan**. Submit a plan sheet or set of plans showing, at a minimum, the location of structures, disturbed land, pre-construction site topography, post-construction site topography, on-site or adjacent water resources, and all erosion and sediment control measures;

(b) **Site details**. Submit a plan sheet showing the following:

(i) **Erosion and sedimentation control notes**. Erosion and sedimentation control notes, must include, but not limited to, permanent stabilization measures, seeding and mulching rates, and a construction schedule with the proposed construction dates and timeframe for major earth moving and construction events; and

(ii) **Construction and installation details**. Construction and installation details for erosion and sedimentation control measure must include, but are not limited to, sedimentation barriers, ditch lining, rip rap, and culvert inlet and outlet designs.

NOTE: The Department has prepared protocols for the control of erosion and sedimentation. See "Maine Erosion and Sediment Control BMPs Maine Department of Environmental Protection."

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(2) **Inspection and maintenance plan**. Submit a plan for the inspection and maintenance of the temporary and permanent erosion and sedimentation control measures for the project site as described in Appendices A and B of this Chapter:

(a) **List of measures**. Submit a list of the erosion control measure and stormwater management measures to be inspected and maintained (e.g., “parking lot catch basins”);

(b) **Inspection and maintenance tasks**. Submit a list of inspection and maintenance tasks specific to each erosion control measure or stormwater management measure (e.g., “remove accumulated sediments in basin sumps”). Submit the specific qualifications of the person performing each task (e.g., “a professional engineer registered in the State of Maine will inspect the retention pond embankment”);

(c) **Task frequency**. Indicate the required frequency of each inspection and maintenance task (e.g., “accumulated sediments will be removed from all catch basins annually in early spring”);

(d) **Responsible parties**. Submit the name, job title, employer, employer address, phone number, and current email contact information for the person responsible for ensuring that inspection and maintenance tasks are completed. Submit the names, job titles, employer addresses, phone number, and any current email contact information of the

engineers or other design professionals who designed the erosion control measures and stormwater management measures for the site. Include suppliers of proprietary erosion control measures or proprietary stormwater management measures used on the site;

(e) **Maintenance plan for detention basins or retention ponds**. For each stormwater management pond or basin submit, at a minimum, an inspection and maintenance plan for the pond's embankments, outlet structure, and emergency spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the pond and the control of woody vegetation on the pond's embankments;

(f) **Maintenance plan for infiltration structures**. For each infiltration structure, submit, at a minimum, an inspection and maintenance plan for the structure's pretreatment measures, embankments, surface lining, and overflow spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the structure and for the rehabilitation of clogged surface linings;

(g) **Maintenance plan for underdrained filters**. For each underdrained filter, submit, at a minimum, an inspection and maintenance plan for the filter embankments, vegetation, underdrain piping, and overflow spillway. Include as part of this plan provisions for the removal and disposal of accumulated sediments in the structure, the rehabilitation of clogged surface linings, and the flushing of underdrain piping;

(h) **Maintenance plan for stormwater buffers**. At a minimum, submit a plan for inspecting and maintaining the integrity and function of the project's stormwater buffers. As part of this plan, include provisions for the inspection, maintenance, and, if necessary, reconstruction of any level spreaders or ditch turnouts used to spread runoff into the buffers. Include as part of this plan provisions for the frequent removal and disposal of accumulated sediments and debris in the level spreader and turnout bays, provisions for the inspection and repair of any eroded areas within the buffer, and provisions for the reestablishment of buffer vegetation destroyed by post-construction activities;

(i) **Maintenance plan for manufactured stormwater treatment systems**. For each manufactured system installed on the site, submit an inspection and maintenance plan for the system's inlet, treatment chamber(s), and outlet. The plan shall conform to the inspection and maintenance guidelines recommended by the manufacturer based on the estimated runoff and pollutant load expected to the system from the project. As part of this plan, include provisions for the frequent removal of accumulated sediments, debris, and contaminated waters from the system and, if applicable, provisions for the removal, disposal, and replacement of any clogged or spent filter media; and

(j) **Maintenance plan for ditches, culverts, and storm drains**. Provide an inspection and maintenance plan for all stormwater conveyances to be built or installed on the site – including, but not limited to, ditches, swales, culverts, catch basins, and storm drain piping. As part of this plan, include provisions for the repair of eroded areas at the inlet, within, and at the outlet of each conveyance and include provisions for the frequent removal and disposal of accumulated sediments and debris at the inlet, within, and at the outlet of each conveyance.

(3) **Housekeeping**. Submit a plan to address spill prevention, groundwater protection, fugitive sediment and dust, debris and other materials, trench or foundation de-watering, or non-stormwater charges, as applicable to the specific site. Housekeeping requirements are described in Appendix C of this Chapter.

D. General and phosphorus standards submissions. A project required to meet the general standards or phosphorus standard must provide the following information and design specifications:

(1) **Narrative**. A narrative describing site layout, and on-site and off-site watershed hydrology, including all new and existing buildings and facilities, which may be affected by the site runoff. Provide the total amount of disturbed area, impervious area, and developed area created by the project;

(2) **Drainage Plans**. All topographic features, such as buildings and other facilities, drainageways, cover type, roads, drainage easements and subcatchment boundaries for pre-construction and post-construction conditions must be shown on a plan. Show all hydrologic flow lines and hydrologic soil groups boundaries on a plan and identify each subcatchment, reach, and pond. For post-construction conditions, show all new stormwater management structures and changes to the hydrologic drainage patterns;

NOTE: Computer generated plans are recommended as hand-drawn plans can extend review time and delay approval.

(3) **Calculations**. The stormwater runoff calculations for measures designed to meet the general standards or phosphorus standard must be in accordance with acceptable engineering practice, including the following.

(a) **Water volume**. The calculations used to determine the water volume needed to be filtered, infiltrated, or detained based on the proposed project must be provided;

(b) **Buffer sizing**. Buffers used for runoff control must be sized according to requirements described in Appendix F of this Chapter; and

(c) **Calculation table and subcatchment plan**. A table must be provided to show the sizing required and provided for each subcatchment area and treatment measure. A water quality plan must clearly show each treatment measure and subcatchment.

(4) **Submit a detailed log of at least one excavation or boring in the area of each proposed treatment measure**. These excavations must extend to a depth of at least three feet below the lowest component (not lowest finished elevation) of the proposed structure and logs must include detailed information describing soil and overburden stratification, composition, texture, and other relevant characteristics, and elevation of seasonal high groundwater and bedrock, if encountered.

(5) **Details, designs, and specifications**. The applicant must submit designs, construction details, and technical specifications for each stormwater management measure that will be constructed, installed, or managed on the site.

(a) **Wet Ponds**. Submit a site plan and detail sheets having the following details and specifications for each stormwater management pond: a topographic plan view of the pond, a cross section of the pond embankment, a cross section and profile of the overflow spillway, soil test data, and specifications for constructing and stabilizing the pond's embankment. The peak storage depth required to meet the general standards must be shown on a cross section for each pond embankment. Submit a cross section of the gravel underdrain used to meet the standards. This cross section must specify the width and elevation of the pond bench, the thickness and gradation for the gravel drainage fill, and the diameter and material for the perforated underdrain pipe.

(b) **Vegetated soil filters**. Submit a site plan and detail sheets having the following details and specifications for each vegetated soil filter bed: soil test data, a plan view of the filter area, a cross section of the embankment for the filter area at the overflow spillway, a cross section and profile of the overflow spillway, a cross section of the underdrain filter, the thickness and composition of the soil filter media, the thickness and gradation of the gravel drainage fill, the layout for the perforated underdrain pipe and the stabilization of the filter bed.

(c) **Infiltration**. Submit a site plan and detail sheets having the following details and specifications for each infiltration measure: soil test data, a plan view of the infiltration structure, a cross section of the infiltration measure's runoff storage area, a cross section and profile of the structure's overflow spillway, and details and specifications for permanently stabilizing the infiltration area. The following information must be included, if required, as described below:

(i) Locations of any monitoring wells necessary for assessing the infiltration measure's performance or stormwater infiltration impacts on groundwater, surface irrigation sites, or subsurface wastewater disposal systems must be shown on the site plan;

(ii) Location of any existing or proposed surface irrigation site, waste disposal site, subsurface wastewater disposal system, or other facility that could be impacted by operation of the infiltration system must be shown on the site plan;

(iii) Location of any soil borings, test pits, or other explorations used to determine depth to groundwater, separation from bedrock, or other design information must be shown on the site plan;

(iv) Location of any water supply wells on-site or within 300 feet of the infiltration areas, zones of contribution for public water supply wells must be shown on the plan sheet;

(v) Location of storage for any petroleum products, pesticides, fertilizers, road salt, hazardous materials, or other materials with the potential to contaminate groundwater must be shown on the site plan;

(vi) Plans for management of any potential contaminants and soil sample analyses, such as a spill prevention, control, and countermeasure plan, must be submitted with appropriate supporting information; and

(vii) Depth to the seasonal high groundwater table, depth to bedrock, and the thickness and composition of any liner used for restricting infiltration rates must be shown on the cross section view of the infiltration structure.

(d) **Buffers**. Submit a topographic site plan showing the location of each buffer on the site, showing the layout of any berm level spreaders used to spread flows into each buffer, soil test data, and cover type within each buffer, and showing the land use and impervious and developed area draining to each buffer area. Provide a typical cross section for the berm level spreaders showing the geometry of the berm, the geometry of the upstream storage area, and the specifications for the berm material. Submit information demonstrating that the in slope fill material will have slopes no steeper than 3:1. Submit documentation, in the form of draft covenants and restrictions, demonstrating that buffer area(s) will be maintained as buffer.

(6) **Phosphorus export calculations**. An application for a project using the phosphorus standard~~s~~ must include phosphorus export calculations.

NOTE: The Department has prepared a protocol for determining phosphorous export. See "Phosphorus Control in Lake Watersheds," Maine Department of Environmental Protection.

(7) **Maintenance contract**. Submit evidence demonstrating the ability to carry out inspection and maintenance of all stormwater treatment system structures, including any proprietary devices, or a signed contract with a qualified third-party to carry out inspection and maintenance requirements in accordance with plan requirements in Appendix B of this Chapter.

E. Flooding standard submissions.

(1) **Control of peak flows**. If a project must meet the flooding standard, the project must be designed to control the peak flows from the 2-, 10- and 25-year, 24-hour storms.

(2) **Details, designs, and specifications**. The applicant must provide runoff curve number computations and time of concentration calculations for each subcatchment. Areas may qualify as subcatchments based on the characteristics of the site or the model used. The Department will review all methods of determining subcatchments on a case-by-case basis. The applicant must provide a reach description and reach routing analysis for each drainage structure and provide pond descriptions and storage routing calculation for any stormwater management structure, detention pond and culvert backwater areas. A natural or man-made waterbody is not considered an impervious area, but is treated as an immediate runoff surface in curve number calculations.

Acceptable stormwater methodologies and models include, but are not limited to, “TR-20 - Computer Program for Project Formulation - Hydrology,” Second Edition, U.S. Department of Agriculture, Soil Conservation Service (March 1986); and “TR-55 - Urban Hydrology for Small Watersheds,” Second Edition, U.S. Department of Agriculture, Soil Conservation Service (June 1986); “WIN TR-55 2003.00.24 Microcomputer Program,” (January 12, 2003); and “HEC-HMS Flood Hydrology Package,” U.S. Army Corps of Engineers (January 2001). Any methodology or model other than those listed must have prior approval from the Department.

8. Municipal or quasi-municipal stormwater management programs. The Department may allow a municipality or a quasi-municipal organization, such as a watershed management district, to substitute a management system for stormwater for the stormwater permit requirement pursuant to 38 M.R.S. §420-D(2). The management system may apply to an entire watershed, or a portion of a

watershed and may include multiple watersheds within the jurisdiction of the municipality or quasi-municipal organization. A project located within the area served by a management system approved by the Department is exempt from the stormwater permit requirements contained in this Chapter. For Site Law redevelopment projects only, and for the purposes of meeting the stormwater standard of 38 M.R.S. §484(4-A), the standards for stormwater management in Section 420-D are met if the proposed development is located in a designated area served by a Department-approved management system for stormwater as described in Section 420-D(2), as long as the owner or operator of the parcel upon which the proposed development will be located enters into or obtains and remains in compliance with all agreements, permits and approvals necessary for the proposed development to be served by such management system for stormwater.

The municipality or quasi-municipality may elect to have the substitution take effect at the time the system is approved by the Department, or at the time the system is completed as provided in the implementation schedule provided by the Department.

A stormwater management system may not substitute for an aspect of a project that is required to meet the infiltration standards described in Appendix D of this Chapter or required to obtain a waste discharge permit.

A. Stormwater management system approval criteria. The Department may review and approve a stormwater management system submitted by a municipality or a quasi-municipal organization, such as a watershed management district, to meet this exemption, provided that the municipality or quasi-municipal organization demonstrates that the following criteria are met.

(1) **Relationship to water quality**. The municipality or quasi-municipal organization shall have a stormwater treatment system that, upon implementation, will result in the collective treatment of stormwater from new and existing sources within the watershed and will result in water quality in the receiving water that is as good, or better, than would be achieved with stormwater permits issued by the Department for individual projects. The stormwater system may apply to an entire watershed, or a portion of a watershed and may include multiple watersheds within the jurisdiction of the municipality or quasi-municipal organization.

(2) **Funding and implementation**. The stormwater management system must include funding provisions and an implementation schedule that provides that the treatment system for new and existing sources will be in place and functioning within five years unless a longer time period, not to exceed 10 years, is approved by the Department.

(3) **Annual reporting**. The stormwater management system must also include a provision for annual reporting by the municipality or quasi-municipal organization to the Department on progress toward implementation and a listing of the new developed area within the jurisdiction of the stormwater management system.

B. Reinstatement of permit requirement. The Department may reinstate the stormwater permit requirement if it finds that the implementation schedule is not being met, or that either the stormwater management system or associated stormwater treatment system is not achieving the plan's objectives.

9. Conditions of approval for Stormwater Management Law permits. The following conditions of approval apply to an individual permit required pursuant to the Stormwater Management Law. For standard conditions of approval for a Site Law project, see 38 M.R.S. §372 (12) and Section 10 of this Chapter.

A. Standard conditions of approval. Unless otherwise specifically stated in the approval, a Department approval is subject to the following standard conditions.

(1) **Approval of variations from plans**. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the permittee. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the Department prior to implementation. Any variation undertaken without approval of the Department is in violation of 38 M.R.S.§420-D(8) and is subject to penalties under 38 M.R.S. §349.

(2) **Compliance with all terms and conditions of approval**. The permittee shall submit all reports and information requested by the Department demonstrating that the permittee has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

(3) **Advertising**. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

(4) **Transfer of project**. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the Department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the Department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.

(5) **Time frame for approvals**. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

(6) **Certification**. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this approval with the conditions by the permittee, and the permittee and each contractor and subcontractor has certified, on a form provided by the Department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the Department.

(7) **Maintenance**. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the Department. If maintenance responsibility is to be transferred from the permittee to another

entity, a transfer request must be filed with the Department which includes the name and contact information for the person or entity responsible for this maintenance. The form must be signed by the responsible person or agent of the responsible entity.

(8) **Recertification requirement**. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the Department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.

(c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.

(d) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.

(e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

(9) **Transfer of property subject to the license**. If any portion of the property subject to the license containing areas of flow or areas that are flooded are transferred to a new property owner, restrictive covenants protecting these areas must be included in any deeds or leases, and recorded at the appropriate county registry of deeds. Also, in all transfers of such areas and areas containing parts of the stormwater management system, deed restrictions must be included making the property transfer subject to all applicable terms and conditions of the permit. These terms and conditions must be incorporated by specific and prominent reference to the permit in the deed. All transfers must include in the restrictions the requirement that any subsequent transfer must specifically include the same restrictions unless their removal or modification is approved by the Department. These restrictions must be written to be enforceable by the Department, and must reference the permit number.

(10) **Severability**. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

B. Special conditions. The Department may, as a term or condition of approval, establish any reasonable requirement, including the requirement that a Department- approved inspector must be obtained to oversee construction projects in the watershed of a lake most at risk or an urban impaired stream, to ensure that the proposed project will comply with the Stormwater

Management Law and rules. However, terms and conditions relating to compliance with the Stormwater Management Law may not substitute for or reduce the burden of proof of the applicant to affirmatively demonstrate to the Department that each of the standards of the Stormwater Management Law and rules has been met.

10. Conditions of approval for Site Law permits. The following standard conditions of approval apply to a Site Law permit in addition to those specified in 06-096 CMR 372.

A. Approved inspector. The Department may require the Permittee to retain the services of a Department-approved inspector to oversee construction projects in the watershed of a lake most at risk or an urban impaired stream. The inspector must carry out and document inspections of erosion and sedimentation control measures and stormwater treatment measures at least weekly while construction is ongoing. The inspector must make recommendations of any needed maintenance of the measures, as well as of any other needed changes to ensure that stormwater runoff will not impact downstream waters. Any recommendations made must be submitted to the Department and followed by the permittee.

B. Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the Department.

(1) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(2) All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

(3) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

(4) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.

(5) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

11. Recording of order. The Department shall record each order approving or modifying a permit pursuant to Chapters 500 and 502 in the appropriate registry of deeds.

12. Severability. Should any provision of this Chapter be declared invalid or ineffective by court decision, the decision shall not invalidate any other provision of this Chapter.

13. Transition and jurisdictional threshold for Stormwater Management Law projects. For purposes of the Stormwater Management Law only, a stormwater permit is required if a person constructs, or causes to be constructed, a project that includes one acre or more of disturbed area on or after September 17, 2005.

A. If a person has a project that required approval under the Stormwater Management Law prior to September 17, 2005, the project and subsequent modifications to it continue to require approval on and after September 17, 2005.

B. If a person has a project that did not require approval under the Stormwater Management Law prior to September 17, 2005, and the person proposes to construct or cause to be constructed a project that includes one or more acres of disturbed area on or after September 17, 2005, then a stormwater permit is required. Only the construction on or after September 17, 2005 requires a Stormwater Management Law permit.

C. A disturbed area of less than one acre continues to be counted toward the one-acre permit threshold under the Stormwater Management Law following permanent stabilization to the extent it is considered developed area as defined in this Chapter.

14. Permit shield. If a stormwater best management practice is approved by the Department and, although adequately and appropriately constructed and maintained by the permittee, as determined by the Department, it fails to meet an applicable standard provided in Section 4 or 5 of this Chapter, the permittee is not in violation for failing to comply with that standard.

A. This Section does not apply to the requirements of Appendix D of this Chapter.

B. This Section does not apply to the need for a license pursuant to 38 M.R.S. §413, the Waste Discharge Law. A wastewater discharge license is required for any stormwater discharge that the Department determines will contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the State. See 06-096 CMR 521(9)(a)(1)(v). For the permit shield provision applicable to the Waste Discharge Law, see 38 M.R.S. §414(8) "Effect of license".

C. Nothing in this Section alters or affects the liability of the permittee if a violation has occurred prior to permit issuance.

15. Permit shield for innovative measures. The Department may, on a case-by-case basis, approve a best management practice or stormwater treatment measure pursuant to Section 4(C)(3)(e) of this Chapter when requested by an applicant. The Department may require the applicant to collect and submit sufficient information on the performance of the best management practice or stormwater treatment measure to allow evaluation. If the best management practice or stormwater treatment measure does not perform at least as well as would have been expected from otherwise available best management practices or stormwater treatment measures, the Department may require the permittee to replace or otherwise redesign the system.

The Department may only approve an experimental system on a site where it would be possible to replace or redesign the experimental system if necessary.

16. Modification. If a project has required a permit pursuant to the Stormwater Management Law or Site Law, all subsequent changes to the project that could affect the project's stormwater quality or quantity and require a modification of the project's license are also required to meet the stormwater

standards of Section 4. When the applicable standard depends upon an area threshold, the area of the entire licensed project, including the proposed project changes is included.

17. Effect of 2014 Rule Amendments on Existing Permits. A permittee who obtained a permit under the Stormwater Management Law or the Site Law prior to the effective date of the 2014 amendments to this Chapter shall continue to be subject to the terms of the prior permit with respect to any developed area constructed under the prior permit.

STATUTORY AUTHORITY: 38 M.R.S.A. §§ 341-D, 413, 420-D, 484

EFFECTIVE DATE:
December 31, 1997

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APPENDICES -- BASIC PERFORMANCE STANDARDS

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APPENDIX A. Erosion and sedimentation control

This appendix applies to all projects.

A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S. §480-B. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken.

NOTE: Other requirements may apply, including, but not limited to the *Natural Resources Protection Act* 38 M.R.S. §480-B.

NOTE: The Department has prepared protocols for the control of erosion and sedimentation. See "Maine Erosion and Sediment Control BMPs Maine Department of Environmental Protection."

1. **Pollution prevention.** Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable. Control stormwater volume and velocity within the site to minimize soil erosion. Minimize the disturbance of steep slopes. Control stormwater discharges, including both peak flow rates and volume, to minimize erosion at outlets. The discharge may not result in erosion of any open drainage channels, swales, stream channels or stream banks, upland, or coastal or freshwater wetlands off the project site.

   Whenever practicable, no disturbance activities should take place within 50 feet of any protected natural resource. If disturbance activities take place between 30 feet and 50 feet of any protected natural resource, and stormwater discharges through the disturbed areas toward the protected natural resource, perimeter erosion controls must be doubled. If disturbance activities take place less than 30 feet from any protected natural resource, and stormwater discharges through the disturbed areas toward the protected natural resource, perimeter erosion controls must be doubled and disturbed areas must be temporarily or permanently stabilized within 7 days.

   NOTE: Buffers improve water quality by helping to filter pollutants in run-off both during and after construction. Minimizing disturbed areas through phasing limits the amount of exposed soil on the site through retention of natural cover and by retiring areas as permanently stabilized. Less exposed soil results in fewer erosion controls to install and maintain. If work within an area is not anticipated to begin within two weeks' time, consider leaving the area in its naturally existing cover.

   NOTE: Many construction activities within 75 feet of a protected natural resource require a permit under the *Natural Resources Protection Act* prior to initiation. For more information regarding the applicability of the NRPA to your project, you can visit the Department's website at http://www.maine.gov/dep/land/nrpa/index.html or contact staff of the Division of Land Resource Regulation at the nearest regional office.

2. **Sediment barriers.** Prior to construction, properly install sediment barriers at the downgradient edge of any area to be disturbed and adjacent to any drainage channels within the disturbed area. Sediment barriers should be installed downgradient of soil or sediment stockpiles and stormwater prevented from running onto the stockpile. Maintain the sediment barriers by removing accumulated sediment, or removing and replacing the barrier, until the disturbed area is permanently stabilized. Where a

discharge to a storm drain inlet occurs, if the storm drain carries water directly to a surface water and you have authority to access the storm drain inlet, you must install and maintain protection measures that remove sediment from the discharge.

3. **Stabilized construction entrance.** Prior to construction, properly install a stabilized construction entrance (SCE) at all points of egress from the site. The SCE is a stabilized pad of aggregate, underlain by a geotextile filter fabric, used to prevent traffic from tracking material away from the site onto public ROWs. Maintain the SCE until all disturbed areas are stabilized.

4. **Temporary stabilization.** Within 7 days of the cessation of construction activities in an area that will not be worked for more than 7 days, stabilize any exposed soil with mulch, or other non-erodible cover. Stabilize areas within 75 feet of a wetland or waterbody within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first.

5. **Removal of temporary measures.** Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

NOTE: It is recommended that silt fences be removed by cutting the fence materials at ground level to avoid additional soil disturbance.

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6. **Permanent stabilization.** If the area will not be worked for more than one year or has been brought to final grade, then permanently stabilize the area within 7 days by planting vegetation, seeding, sod, or through the use of permanent mulch, or riprap, or road sub-base. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions; amend areas of disturbed subsoils with topsoil, compost, or fertilizers; protect seeded areas with mulch or, if necessary, erosion control blankets; and schedule sodding, planting, and seeding so to avoid die-off from summer drought and fall frosts. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established with 90% cover by healthy vegetation. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. One or more of the following may apply to a particular site.

   (a) **Seeded areas**. For seeded areas, permanent stabilization means a 90% cover of the disturbed area with mature, healthy plants with no evidence of washing or rilling of the topsoil.

   (b) **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.

   (c) **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 the approved application rates and limitations.

   (d) **Riprap.** For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

(e) **Agricultural use**. For construction projects on land used for agricultural purposes (e.g., pipelines across crop land), permanent stabilization may be accomplished by returning the disturbed land to agricultural use.

(f) **Paved areas**. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed, provided it is free of fine materials that may runoff with a rain event

(g) **Ditches, channels, and swales**. For open channels, permanent stabilization means the channel is stabilized with a 90% cover of healthy vegetation, with a well-graded riprap lining, turf reinforcement mat, or with another non-erosive lining such as concrete or asphalt pavement. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

7. Winter Construction. "Winter construction" is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.

(a) **Site Stabilization**. For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.

(b) **Sediment Barriers**. All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.

(c) **Ditch**. All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the Department.

(d) **Slopes**. Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

NOTE: The Department has prepared protocols for the control of erosion and sedimentation during the winter months. See "Maine Erosion and Sediment Control BMPs Maine Department of Environmental Protection."

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8. Stormwater channels. Ditches, swales, and other open stormwater channels must be designed, constructed, and stabilized using measures that achieve long-term erosion control. Ditches, swales and other open stormwater channels must be sized to handle, at a minimum, the expected volume run-off. Each channel should be constructed in sections so that the section's grading, shaping, and installation of the permanent lining can be completed the same day. If a channel's final grading or lining installation must be delayed, then diversion berms must be used to divert stormwater away from the channel, properly-spaced check dams must be installed in the channel to slow the water velocity, and a temporary lining installed along the channel to prevent scouring. Permanent stabilization for channels is addressed under Appendix A(5)(g) above.

(a) The channel should receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

(b) When the watershed draining to a ditch or swale is less than 1 acre of total drainage and less than ¼ acre of impervious area, diversion of runoff to adjacent wooded or otherwise vegetated buffer areas is encouraged where the opportunity exists.

9. Sediment basins. Sediment basins must be designed to provide storage for either the calculated runoff from a 2-year, 24-hour storm or provide for 3,600 cubic feet of capacity per acre draining to the basin. Outlet structures must discharge water from the surface of the basin whenever possible. Erosion controls and velocity dissipation devices must be used if the discharging waters are likely to create erosion. Accumulated sediment must be removed as needed from the basin to maintain at least ½ of the design capacity of the basin.

The use of cationic treatment chemicals, such as polymers, flocculants, or other chemicals that contain an overall positive charge designed to reduce turbidity in stormwater must receive prior approval from the Department. When requesting approval to use cationic treatment chemicals, you must describe appropriate controls and implementation procedures to ensure the use will not lead to a violation of water quality standards. In addition, you must specify the type(s) of soil likely to be treated on the site, chemicals to be used and how they are to be applied and in what quantity, any manufacturer's recommendations, and any training had by personnel who will handle and apply the chemicals.

10. Roads. Gravel and paved roads must be designed and constructed with crowns or other measures, such as water bars, to ensure that stormwater is delivered immediately to adjacent stable ditches, vegetated buffer areas, catch basin inlets, or street gutters.

NOTE: (1) Gravel and paved roads should be maintained so that they continue to conform to this standard in order to prevent erosion problems. (2) The Department recommends that impervious surfaces, including roads, be designed and constructed so that stormwater is distributed in sheet flow to natural vegetated buffer areas wherever such areas are available. Road ditches should be designed so that stormwater is frequently (at least every 100 to 200 feet) discharged via ditch turnouts in sheet flow to adjacent natural buffer areas wherever possible.

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11. Culverts. Culverts must be sized to avoid unintended flooding of upstream areas or frequent overtopping of roadways. Culvert inlets must be protected with appropriate materials for the expected entrance velocity, and protection must extend at least as high as the expected maximum elevation of storage behind the culvert. Culvert outlet design must incorporate measures, such as aprons, to prevent scour of the stream channel. Outlet protection measures must be designed to stay within the channel limits. The design must take account of tailwater depth.

12. Parking areas. Parking areas must be constructed to ensure runoff is delivered to adjacent swales, catch basins, curb gutters, or buffer areas without eroding areas downslope. The parking area's subbase compaction and grading must be done to ensure runoff is evenly distributed to adjacent buffers or side slopes. Catch basins must be located and set to provide enough storage depth at the inlet to allow inflow of peak runoff rates without by-pass of runoff to other areas.

13. Additional requirements. Additional requirements may be applied on a site-specific basis**.**

APPENDIX B. Inspection and maintenance

This appendix applies to all projects, except that a project that is eligible for stormwater PBR need only meet the standards in Section 1.

See Appendix D(5) for additional maintenance requirements related to infiltration of stormwater.

1. During construction. The following standards must be met during construction.

(a) **Inspection and corrective action**. Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

(b) **Maintenance**. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

(c) **Documentation**. Keep a log (report) summarizing the inspections and any corrective action taken. 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, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) 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 Department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

2. Post-construction. The following standards must be met after construction.

(a) **Plan**. Carry out an approved inspection and maintenance plan that is consistent with the minimum requirements of this section. The plan must address inspection and maintenance of the project's permanent erosion control measures and stormwater management system. This plan may be combined with the plan listed in Section 2(a) of this appendix. See Section 7(C)(2) for submission requirements.

(b) **Inspection and maintenance**. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site. Inspection or maintenance tasks other than those discussed below must be included in the maintenance plan developed for a specific site.

NOTE: Expanded and more-detailed descriptions for specific maintenance tasks may be found in the Maine DEP's "Stormwater Management for Maine: Best Management Practices."

(i) 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. See permanent stabilization standards in Appendix A(5).

(ii) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

(iii) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.

(iv) Inspect and clean out catch basins. Clean-out must include the removal and legal disposal of any 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).

(v) Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turn-outs for erosion. If erosion is present, adjust or modify the spreader's or turnout's lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the spreader bays or turn-out pools.

(vi) Inspect at least once per year, each stormwater management pond or basin, including the pond's embankments, outlet structure, and emergency spillway. Remove and dispose of accumulated sediments in the pond. Control woody vegetation on the pond's embankments.

(vii) Inspect at least one per year, each underdrained filter, including the filter embankments, vegetation, underdrain piping, and overflow spillway. Remove and dispose of accumulated sediments in the filter. If needed, rehabilitate any clogged surface linings, and flush underdrain piping.

(viii) Inspect each manufactured system installed on the site, including the system's inlet, treatment chamber(s), and outlet at least once per year, or in accordance with the maintenance

guidelines recommended by the manufacturer based on the estimated runoff and pollutant load expected to the system from the project. Remove and dispose of accumulated sediments, debris, and contaminated waters from the system and, if applicable, remove and replace any clogged or spent filter media.

(c) **Regular maintenance**

(i) 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. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.

(ii) Manage each buffer's vegetation consistently with the requirements in any deed restrictions for the buffer. Wooded buffers must remain fully wooded and have no disturbance to the duff layer. Vegetation in non-wooded buffers may not be cut more than three times per year, and may not be cut shorter than six inches.

NOTE: Contact the Department's Division of Watershed Management (Maine DEP) for assistance developing inspection and maintenance requirements for other drainage control and runoff treatment measures installed on the site. The maintenance needs for most measures may be found in the Maine DEP's "Stormwater Management for Maine: Best Management Practices."

(d) **Documentation**. Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

3. Re-certification. Submit a certification of the following to the Department within three months of the expiration of each five-year interval from the date of issuance of the permit.

(a) **Identification and repair of erosion problems**. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) **Inspection and repair of stormwater control system**. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

(c) **Maintenance**. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) Program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES Program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

4. Duration of maintenance. Perform maintenance as described and required in the permit unless and until the system is formally accepted by the 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. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the Department stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with Department standards. Upon such assumption of responsibility, and approval by the Department, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

5. Additional requirements. Additional requirements may be applied on a site-specific basis.

APPENDIX C. Housekeeping

These performance standards apply to all projects except for stormwater PBR projects.

1. **Spill prevention.** Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

   NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at : http://www.maine.gov/dep/spills/emergspillresp/

2. **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. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

   See Appendix D for license by rule standards for infiltration of stormwater.

   NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. **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.

   NOTE: Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. **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.

   NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable

provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. **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.

NOTE: Dewatering controls are discussed in the "Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection."

6. **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.

7. 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.

(8) Additional requirements. Additional requirements may be applied on a site-specific basis.

APPENDIX D. Infiltration basins, dry wells, and subsurface fluid distribution systems

Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area. Pre-treatment systems provide for removal of a portion of pollutant load before the runoff enters the infiltration area. The infiltration area must minimize discharge of soluble pollutants to groundwater, and must be maintained to assure that its capacity for infiltration and pollutant removal is unimpaired. The Department will determine the adequacy of a pre-treatment system or treatment system based on its assessment of factors including but not limited to: nature of activities with exposure to stormwater within the drainage area of the infiltration system; area to be treated; proximity of drinking water wells; and site conditions, including soils, depth to high groundwater table and depth to bedrock. All drywells and subsurface fluid distribution systems must be registered with and meet all other requirements of the department's Underground Injection Control Program.

Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S. §465-C(1). Many pollutants found in stormwater accumulate in the soils in infiltration areas and are released due to chemical changes that occur in the infiltration area over time. Consequently, runoff quality often underestimates the long-term adverse effects on groundwater quality due to these contaminants, and cannot be used as a direct indicator of anticipated adverse effects. Maintenance of the infiltration area may be required to prevent clogging, development of anaerobic conditions, or other conditions that could impair the functioning of the area or increase the risk of pollutant discharge from the infiltration area.

Provided that the standards in this appendix are met, a discharge to groundwater from a stormwater infiltration system will not have a significant effect on the quality or classification of waters of the state and is considered a *de minimis* discharge that is exempt from the waste discharge licensing requirement of the Waste Discharge Licensing Program pursuant to 38 M.R.S. §413(1-A). However, nothing in this Chapter may be construed to limit the Department's licensing or enforcement authority under 38 M.R.S. Articles 4-A or 6. The Department may make a site-specific determination that discharges from a site will be *de minimis* in certain cases where the separation from bedrock and seasonal high water table cannot be met and potential discharges of pollutants to groundwater are absent or minimal. All other requirements of this Appendix must be met, and this *de minimis* finding does not constitute a permit shield or other exemption from the requirements of 38 M.R.S. Articles 4-A and 6. Regardless of this determination, the Department may require monitoring of water levels or water quality to demonstrate compliance with applicable requirements of 38 M.R.S. Articles 4-A and 6, and other requirements of this Chapter.

NOTE: Stormwater infiltration systems not meeting the standards described in Appendix D may require a waste discharge permit. An infiltration system serving a development regulated under the *Site Location of Development Act* may be required to meet additional standards. For definitions and provisions associated with the Waste Discharge program, see 38 M.R.S.A. §§ 413 *et seq.*, and Department Rules chapters 520 *et seq*.

1. **Definitions.** As used in this appendix, the following terms have the following meanings.

   (a) **Drywell**. A well or other facility deeper than it is wide, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.

(b) **Infiltration basin**. A structure wider than it is deep and designed to hold runoff without any means of discharge other than evapotranspiration, infiltration, or emergency bypass.

(c) **Non-stormwater discharges**. Any discharge to a stormwater management system that is not composed entirely of stormwater, other than discharges directly resulting from fire-fighting at the facility. Non-stormwater discharges can originate from direct connections to industrial, commercial, or residential facilities, or indirectly as surface or subsurface discharges to the stormwater collection system.

(d) **Public water supply**. Any publicly or privately-owned water-supply system that serves at least 25 people or 15 service connections for at least 60 days per year.

(e) **Subsurface fluid distribution system**. Any system designed to dispose of stormwater beneath the surface of the earth, including, but not limited to, wells, settling tanks, disposal fields, pretreatment filters, pipes, or any other fixture, mechanism, or apparatus used for this purpose.

(f) **Zone of contribution or delineated contributing area**. The area that contributes water to a water supply well, generally represented as the projection of the three-dimensional volume of water flowing to a discharging well onto a two-dimensional map view.

2. Limitations on the use of infiltration for stormwater treatment

(a) **Storage or handling of petroleum products, pesticides, fertilizers, and hazardous substances**. Infiltration of runoff from a draining area on which petroleum products, pesticides, fertilizers, hazardous substances, or other materials with the potential to contaminate groundwater are stored or handled, is not allowed unless containment structures are used to isolate these materials from precipitation and provided that they are operated in accordance with a spill prevention, control, and countermeasure plan; operation and maintenance plan; or equivalent document as required by Section 7(D)(5)(c)(vi) of this Chapter. This restriction does not apply to storage of heating oil in a tank or tanks with a total volume of 550 gallons or less and serving a single consumptive residential or commercial user.

(b) **Storage or handling of road salt or similar materials**. Infiltration of runoff from an area on which road salt or similar materials are stored or handled in bulk is not allowed.

(c) **Containment structures**. Storage and handling areas for petroleum products, road salt, and other potential groundwater contaminants may be isolated within containment structures, buildings, or other enclosures to effectively remove those areas from exposure to stormwater so that infiltration structures may be constructed to serve the remaining drainage area~~s~~, provided that the facility is operated in accordance with a spill prevention, control, and countermeasures plan; operation and maintenance plan; or equivalent document as required by Section (7)(D)(5)(c)(vi) of this Chapter.

(d) **Infiltration of runoff from asphalt or concrete paving or equivalent material**. Infiltration of runoff from a total of one acre or more of asphalt or concrete paving or equivalent material at a given project is not allowed except by means of infiltration basins located, designed, operated, and maintained in accordance with this appendix. This limitation does not apply to roads entirely within subdivisions consisting of lots for single-family detached residential housing or to use of pavement alternatives approved by the Department. Use of pavement alternatives is limited by sections 2(a) and 2(b) of this Appendix, and other requirements of this Chapter.

(e) **Infiltration of runoff from lawn areas, vegetated areas, and roofs**. Infiltration of runoff from lawn areas and other vegetated areas, playing fields, and roofs of residential and commercial structures where no manufacturing or processing occurs, other than for home-based industries, is allowed, provided that any application of fertilizers, pesticides, and similar turf-management chemicals, is in accordance with a Department-approved management plan and no part of the areas used for infiltration is in the delineated contributing area of a well that is part of a public water supply system. Lawn areas on individual lots that are sold or developed as part of a residential subdivision consisting of lots for single-family detached residential housing are exempt from this requirement.

(f) **Non-stormwater discharges, and stormwater from off-site drainage systems**. Non-stormwater discharges and stormwater from off-site drainage systems may not be discharged to an infiltration system, unless the Department determines the additional discharge will not have a negative impact on groundwater quality.

(g) **Industrial and vehicle maintenance facilities**. Infiltration of runoff from industrial facilities where materials are stored or processed in areas exposed to precipitation and vehicle maintenance facilities where maintenance or storage of equipment occurs in areas exposed to precipitation is not permitted, unless the Department determines the additional discharge will not have a negative impact on groundwater quality.

(h) **Certain commercial facilities**. Infiltration of runoff from facilities with high use parking lots, drive-up windows, or similar sources of elevated hydrocarbon pollution, is not permitted, unless the Department determines the additional discharge will not have a negative impact on groundwater quality.

(i) **Use of vegetated soil filter beds**. Discharges to groundwater from infiltrating soil filters as described in Appendix E, subsection 4(c)(ii) are considered *de minimis* discharges for the purposes of the Waste Discharge Licensing Program, and do not require a waste discharge license.

3. Location

(a) **Drinking water supply wells**. Unless specifically approved by the Department in consultation with the Department of Health and Human Services' Drinking Water Program, infiltration systems must be located no less than 300 feet from any private drinking water supply well, must not be located within the delineated contributing area of a public drinking water supply well, and must be located as far downgradient of any drinking water supply well as practical. Department approval of a reduced setback will be subsequent to Department review and approval of a study by a Maine Certified Geologist demonstrating that discharges from the infiltration system will not result in an unreasonable adverse impact on the quality or quantity of water provided by the well or wells. The Department may require a groundwater monitoring program or place other requirements on the design and operation of the infiltration system or infiltrating soil filter for the protection of the water supply well or wells.

(b) **Subsurface wastewater disposal systems**. Infiltration systems must be located to meet or exceed the minimum setback distances from existing and proposed subsurface wastewater disposal systems provided in Table 7B of the Maine Subsurface Wastewater Disposal Rules, 144A CMR 241. Setback distances may be required by the Department, the local plumbing inspector, or the Department of Health and Human Services' Division of Environmental Health. An infiltration

system is considered a major watercourse for the purposes of Table 700.2 determining applicable setback requirements of the Maine Subsurface Wastewater Disposal Rules, 144A CMR 241.

Allowance for lesser setbacks for onsite disposal systems or other disposal systems owned or controlled by the applicant may be requested from the Department, the Department of Health and Human Services, and the local plumbing inspector, but must be approved as part of the Department permit. Infiltration systems must be located as far downgradient of any component of a subsurface wastewater disposal system as practical.

(c) **Protected natural resources**. Infiltration systems must be located no less than 25 feet from any protected natural resources as defined at 38 M.R.S. §480-B, other than fragile mountain areas, and must be located as far upgradient of any such resources as practical.

(d) **Surface grade**. The pre-construction surface grade must be 20% or less at the location of the proposed infiltration system.

(e) **Separation from bedrock**. Infiltration systems serving one acre or more of impervious area must be located in areas with more than five feet of saturated overburden above the bedrock surface, as measured during the seasonal low water table. This restriction does not apply to runoff from areas of non-asphalt roofing on a building or other facility in which no manufacturing or processing occurs, other than for home-based industries. Separation from bedrock and depth to the water table may be demonstrated by means of test pits, borings, or similar invasive explorations, or by non-invasive geophysical methods such as seismic surveys. Thickness of blast rock or similar disturbed or artificially placed material is not counted toward the required thickness of overburden; blast rock or similar material is not considered as bedrock. Demonstration of a continuous in-situ layer, at least five feet in thickness, of unfractured basal till or marine, estuarine, or lacustrine clay between bedrock and the infiltration structure may substitute for this requirement, at the discretion of the Department.

4. Design and operation

(a) **Soil permeability**. The permeability of the soil at the depth of the base of the proposed infiltration system must be no greater than 2.41 inches per hour, unless a medium with equivalent pollutant removal properties is approved by the Department. Infiltration basins must be lined with a suitable soil filter material, which must be installed over the base and sides of the proposed infiltration system. The soil filter material must be fine enough to filter fine sediments and provide effective absorption of pollutants, but coarse enough to slowly drain the stored stormwater within a 24 to 48 hour period. The soil filter material must be well blended and graded and must contain sufficient organic matter to facilitate the removal and treatment of hydrocarbons. Unless otherwise approved by the Department on a case-by-case basis, the soil filter must be at least 18 inches thick, and the surface area of the filter must be no less than 5% of the contributing impervious drainage area. The Department may consider alternative lining materials, such as materials with higher organic content, provided that the applicant can demonstrate that contact time, pollutant removal, and other relevant features of the liner are at least as protective of groundwater quality. The Department may require monitoring of groundwater quality to determine the effectiveness of any treatment.

(b) **Vegetation of infiltration basins**. All areas of the basin not covered by stone or other non-vegetative covers must be maintained as grass.

(c) **Separation from seasonal high water table**. The bottom of the infiltration system, including any stone layer or other material below the depth of any manufactured components of the system, must be at least three feet above the elevation of the seasonal high water table.

(d) **Time for drainage**. The infiltration system, including the full thickness of the soil filter bed, must be designed to drain completely within 24 to 48 hours following the runoff event. The applicant must provide information on the permeability of the native soils at the depth of the proposed basin, such as in-place well or parameter testing, analyses of soil gradation, or other means acceptable to the Department, indicating that the permeability of the native soils is suitable to allow such drainage, and the Department may require an analysis demonstrating that the level of water table mounding under the system will be below the bottom of the soil filter within 48 hours after the end of the storm event.

(e) **Impact on depth to groundwater**. Infiltration of stormwater may not increase the elevation to the seasonal high water table beneath a surface-irrigation site, land-disposal area for septage or other waste, or other waste management or wastewater management facility, without specific approval by the Department and, if applicable, the Department of Health and Human Services.

(f) **Impact on groundwater flow**. Stormwater infiltration may not affect the direction of groundwater flows so as to impair any groundwater monitoring programs or cause the migration of existing contaminated groundwater that would result in unreasonable adverse impact on the quality of surface water, groundwater, or drinking water supplies, or to impair any groundwater monitoring programs.

(g) **Mounding and seepage**. Groundwater mounding due to stormwater infiltration, especially on clay, bedrock, or other low-permeability surfaces, or stormwater discharges to highly permeable materials such as gravel or blast rock, may not cause seepage, high pore-pressures, or other effects that will adversely affect the stability of slopes or conditions of existing infrastructure in the vicinity of the activity. A qualified professional shall assess the potential for seepage and reduction in slope stability, and submit a report of findings, including logs of test borings or other subsurface explorations, modeling, or other means of analysis as determined to be necessary and applicable.

(h) **Conveyance of overflow**. Infiltration systems must include measures to convey overflow to a stable discharge location.

(i) **Control of access**. Access to any infiltration area must be controlled during and after construction to prevent compaction of the soil.

(j) **Sediment discharge to infiltration structures**. Grassed swales, underdrained swales, sediment traps, or similar practices must be incorporated in the design to minimize discharge of sediment to the infiltration system.

(k) **Devices to trap petroleum products**. Dry wells or subsurface fluid distribution systems receiving runoff from areas of asphalt or concrete paving not prohibited from using infiltration under Section 2 must include sump skimmers, sorbent booms, or similar devices to remove petroleum products from runoff. These devices must provide enough sorptive capacity to trap petroleum products for at least six months after construction and after any resurfacing, repaving reconstruction, or similar activity.

5. Maintenance

(a) **Snow storage prohibited**. Snow removed from any on-site or off-site areas may not be stored over an infiltration area.

(b) **Groundwater monitoring**. Groundwater quality monitoring may be required by the Department if necessary to demonstrate that the infiltration system will operate in compliance with the Water Classification Program. Groundwater quality monitoring will generally be required for activities infiltrating water from areas of heavy turf-chemical use, such as golf courses and certain athletic fields, and large connected impervious areas, such as parking lots and runways. Groundwater quality monitoring will generally not be required for activities infiltrating water from lawn areas and other vegetated areas, residential developments except for those with large parking areas, playing fields, low-use roads such as residential subdivision roads, and roofs of residential and commercial structures.

(c) **Pollution-control devices**. Pollution-control devices such as oil–water separators, skimmers, and booms must be inspected regularly to determine if they need to be cleaned or replaced.

(d) **Observation wells, measure of sediment accumulation, and points of access for sediment removal**. Observation wells to determine the system's performance and access points to allow for the removal of accumulated sediment must be included in the design of subsurface fluid distribution systems. Dry wells and infiltration basins must have staff gauges, marked rods, or similar instrumentation to measure the accumulation of sediment and determine how quickly the system drains after a storm. The maintenance plan for the infiltration system prepared in accordance with Appendix B, Section 2 must indicate the expected rate of drainage of the infiltration system and provide for removal of sediment from the infiltration system.

(e) **Sediment removal and maintenance of system performance**. Sediment must be removed from the system to prevent deterioration of system performance. The system must be rehabilitated or replaced if its performance is degraded to the point that applicable stormwater standards are not met.

6. Additional requirements. Additional requirements may be applied on a site-specific basis.

APPENDIX E. Stormwater basins, ponds and underdrained vegetated soil filter beds

This appendix applies to all projects using stormwater basins, ponds or underdrained, vegetated soil filters, and outlines the criteria for siting, designing, and constructing detention basins and ponds used for meeting the Department's stormwater management rules. The Department may require additional measures to address geotechnical, hydrologic, structural, hydraulic, and construction concerns. For example, the Department may require that the designer assess the impoundment's hazard potential for determining the appropriate design storm for the impoundment because the design storm may have a greater rainfall depth and larger recurrence interval than the 25-year, 24-hour storm used for the Department's stormwater management program.

1. **Basin and pond types.** A variety of stormwater management basins and ponds are used to control runoff quantity and improve runoff quality from developments. All need professional siting and design to avoid unreasonable impacts to wetlands, surface waters, and groundwater and to ensure long-term stability, pollutant removal performance, and control of peak flow rates. General restrictions and requirements for all basins and ponds are provided below.

NOTE: Examples of siting and design criteria for each type of stormwater management structure can be found in the Department's manual "Stormwater Management for Maine: Best Management Practices."

2. **Siting restrictions.** The Department has placed the following general restrictions on the siting of stormwater basins and ponds. Additional restrictions may be required based on drainage, geotechnical, wildlife, and safety concerns.

   (a) **Rivers, streams and brooks**. A basin or pond may not be located in or within 75 feet, measured horizontally, of the normal high water line of a river, stream, or brook (intermittent or perennial) unless approved by the Department pursuant to, or exempted from, the *Natural Resources Protection Act* (NRPA).

   (b) **Wetlands**. A basin or pond may not be constructed in or adjacent to a wetland and no dam, wall, berm, or embankment may be placed within or adjacent to a wetland as part of a stormwater management system, unless approved by the Department pursuant to the NRPA. The use of natural wetlands for runoff detention or retention storage to meet the standards in this chapter is prohibited unless the flooding standards in Section 4(H) are met and a *Natural Resources Protection Act* permit is obtained if required.

   (c) **Discharge of flows**. When detention is used on a site, the pre-construction flow condition to off-site areas, whether sheet or concentrated, must be maintained in the post-construction condition unless drainage easements are obtained from affected property owners.

   (d) **Underground detention**. Where underground detention is required because of limited space or other restrictions, runoff must at a minimum receive treatment to remove sediment and debris prior to discharge to the underground storage facility. The Department may require treatment to remove other pollutants if it determines that underground storage poses a threat to groundwater quality in which case all requirements in Appendix D must be met. The outlet control structure and the storage chambers for the underground detention structure must be accessible from the surface for maintenance, debris removal, and, if necessary, future modification.

3. Pond and basin design requirements

(a) **Principal spillways**. Basins and ponds designed to control flows so as to meet the flooding standard must have principal spillways capable of controlling runoff from 24-hour storms of the 2-year, 10-year, and 25-year frequencies. Basins and ponds designed to provide channel protection detention must have principal spillways capable of providing extended detention of twelve hours for runoff from a 24-hour storm of a one-year frequency. In both cases, the principal spillway must control the maximum flows from the design storm(s) without activating the emergency spillway.

(i) **Trash racks**. Any pipe, orifice, or culvert serving as a basin or pond outlet must have a trash rack to control clogging by debris and to provide safety to the public. The surface area of each rack must be at least four times the outlet opening it is protecting. A significantly larger trash rack ratio may be required for openings less than twenty-four inches in diameter. The spacing between rack bars must be no more than six inches or one-half the dimension of the smallest outlet opening behind it, whichever is less. If possible, trash racks should be inclined so to be self-cleaning.

(ii) **Seepage controls**. All smooth outlet pipes greater than eight inches and all corrugated outlet pipes greater than 12 inches must have seepage controls to prevent the piping of soil along the outside of the pipe. This standard applies to both dry detention basins and ponds with permanent pools.

(iii) **Anti-floatation design**. All outlets employing a riser structure must be designed to prevent the riser from floating.

(b) **Emergency spillways**. Each stormwater basin and pond must have an emergency spillway designed to independently convey the routed runoff from at least the 25-year, 24-hour storm (as described under Section 3(c)(i) (crest elevation) of this Appendix. All spillways must meet the following criteria.

(i) **Location**. Emergency spillways must be located on undisturbed, non-fill soil wherever possible. If the spillway must be located on fill soils, then the spillway must be horizontally offset at least 20 feet from the principal outlet and be designed with a riprap lining, reinforced-turf lining, or a non-flexible lining.

(ii) **Exit channel grade**. The maximum grade of the spillway's exit channel may not exceed 20% unless a non-flexible lining is used to control erosion within the channel. Vegetation, reinforced turf, riprap, and modular blocks are considered flexible linings. All linings must be evaluated for stability at the channel grade chosen.

(iii) **Flow depth**. The design flow depth in the exit channel may not exceed one-half the d50 stone size for channels lined with riprap. The design flow depth in the exit channel may not exceed three inches for channels lined with un-reinforced vegetation.

(c) **Embankments**. Basin and pond embankments must be designed by a professional engineer registered in the State of Maine. The design must include an investigation of the subsurface conditions at the proposed embankment location to evaluate settlement potential, groundwater impacts, and the need for seepage controls. The Department will require the submittal of a geotechnical report from a geotechnical engineer for any embankment over 10 feet in effective

height or which the Department determines poses a significant threat to downstream property or life.

(i) **Crest elevation**. The minimum elevation of the top of the settled embankment must be at least one foot above the peak water surface in the basin with the emergency spillway flowing at design depth for the design storm routed through just the emergency spillway.

(ii) **Crest width**. The minimum crest width for any embankment must be as shown in Table 4:

Table 4
Effective Height of Embankment Based on Crest Width

Effective height of embankment (feet)	Crest Width (feet)
less than 10	6
10 - 15	8
15 - 20	10
20 25	12
25 – 35	14
more than 35	15

(iii) **Construction**. The selection of fill materials must be subject to approval of the design engineer or inspecting engineer. Fill must be free of frozen soil, rocks over six inches, and sod, brush, stumps, tree roots, wood, or other perishable materials. Embankment fills less than 10 feet in fill height must be compacted using compaction methods that would reasonably guarantee that the fill density is at least 90% of the maximum density as determined by standard proctor (ASTM-698). All embankment fills more than 10 feet in fill height must be compacted to at least 90% of the maximum density as determined by standard proctor (ASTM-698) and must have their density verified by field density testing.

(iv) **Slopes**. The embankment's slopes may not be steeper than 3 horizontal to one vertical.

(d) **Gravel outlet with an underdrain**. The outlet of wetponds discharging directly to a stream must be designed to meet the general standards for channel protection pursuant to Section 4(c)(2) of this Chapter and must be fitted with a gravel outlet with an underdrain.

(i) **Pond bench**. The bed of the gravel outlet must be built on a pond bench having a width of at least eight feet and a length that equivalent to 3 feet per 1000 cubic feet of volume for channel protection. The bench elevation must be set at the permanent pool elevation such that the channel protection volume will be stored between the bench surface elevation and the elevation of the principal spillway's lowest control outlet. The bench must be located at or near the end of the pond furthest from the principal inflow.

(ii) **Underdrain pipe**. The underdrain pipe must be installed down the centerline of the gravel trench. The pipe may be either perforated PVC pipe or corrugated, polyethylene drainage tubing. The slope of the installed underdrain pipe must be 1% or greater.

(iii) **Gravel trench**. A gravel filled trench with a minimum width of 4 feet and a minimum depth of 3 feet must be installed in the pond bench at least 2 feet from the pond side edge of the bench. The underdrain pipe must be bedded in clean, well-graded gravel (MDOT specification 703.22 Type B) extending 24 inches over the top of the drainage pipe, with at least six inches to the sides of the pipe, and six inches below the pipe.

(iv) **Underdrain outlet**. The underdrain outlet must discharge to an area capable of withstanding concentrated flows and saturated conditions without eroding.

4. Vegetated Soil Filter Bed Design Requirements. Soil filters are designed to provide pollutant removal and channel protection as they provide the slow release of runoff. The filter also provides cooling of the discharge reducing thermal

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NOTE: Examples of specific design criteria for each type of filter bed structure and design can be found in the Department's BMP manual "Stormwater Management for Maine."

(a) Soil filter beds designed to meet the general standards for soil filters must be designed to meet the following criteria.

(i) **Volume stored and treated**. The soil filter basin must store and filter at least 1.0 inch of stormwater runoff from the impervious area draining to it, and 0.4 inches of stormwater runoff from the landscaped area draining to it. A stable overflow outlet must be provided for stormwater in excess of the volume to be stored for treatment.

(ii) **Soil filter**. The soil filter basin must consist of depressional surface storage over a densely vegetated soil filter that is underlain with underdrain bedding and drained by perforated underdrain pipe. The soil filter material must be fine enough to filter fine sediments and provide effective adsorption of pollutants, but coarse enough to drain the stored volume over a period of no less than 24 hours and no greater than 48 hours. The soil filter material must be well blended and graded and must contain sufficient organic matter to facilitate the removal and treatment of hydrocarbons. Unless otherwise approved by the Department on a case-by-case basis, the soil filter must be at least 18 inches thick and the surface area of the filter must be no less than 5% of the contributing impervious drainage area.

(iii) **Basin design**. The soil filter must be constructed with an underdrain system and with a liner to prevent infiltration into the in-situ soil unless all the conditions for either (b) or (c) below are met, and must be designed to discharge its stored volume in one of the following two ways. Otherwise, the requirements from Appendix D must be met.

(b) If located over soil in hydrologic group C or D, unless the soil material consists of ablation till, stratified drift or aeolian sand soils, the soil filter may be constructed with an underdrain system and without a liner to prevent infiltration into the in-situ soil if the following conditions are met.

(i) There is a separation in in-situ soils of at least 18 inches between the bottom of the underdrain bedding material and bedrock, and

(ii) The bottom of the filter media is no lower than the elevation of the seasonal high water table; or

(c) If located over highly permeable soils, such as those derived from ablation till, stratified drift, aeolian sand, or other highly permeable overburden, the soil filter may be constructed without a liner to prevent infiltration into the in-situ soil if it has been constructed with an underdrain system and the following requirements are met:

(i) The filter drains no greater than one acre of asphalt or concrete paving or equivalent material, and no greater than 2 acres of developed land area;

(ii) There is a separation in in-situ soils of at least 18 inches between the bottom of the underdrain bedding material and both the high seasonal water table and bedrock;

(iii) The stored runoff volume is stored to a depth no greater than 18 inches;

(iv) The area draining to the filter does not include any:

a. public roads;

b. fuel service facilities;

c. high use parking lots and drive through lanes;

d. any storage or handling areas for petroleum products, road salt or other potential groundwater contaminants unless those areas are isolated within containment structures that are operated and maintained in accordance with a spill prevention, control and countermeasures plan; operation and maintenance plan; or equivalent document approved by the Department;

e. industrial facilities where facilities are stored and processed in areas exposed to precipitation;

f. vehicle maintenance facilities where maintenance or storage of equipment occurs in areas exposed to precipitation; and

g. lawns not on individual residential lots, unless all application of fertilizers, pesticides and similar turf-management chemicals are performed in accordance with a Department-approved management plan; and

(v) The filter is located no less than 300 feet from any private drinking water supply well, is not located within the delineated contributing area of or closer than 300 feet from any public drinking water supply well, and is located as far down gradient of any drinking water supply well as practicable. The filter must also be set back from any subsurface wastewater disposal system at least the distance required in the Maine Subsurface Water Disposal Rules, 144A CMR 241, for setbacks from watercourses;

(d) If the above requirements and the following additional requirements are met, the filter may be constructed without an underdrain system and may drain in less than 24 hours;

(i) The permeability of the in-situ soils at the elevation of the bottom of the soil filter is greater than the minimum permeability of the soil filter media; and

(ii) An analysis is performed demonstrating that the level of water table mounding under the system will be below the bottom of the soil filter 48 hours after the end of the storm event.

(e) **Underdrain pipe bedding**. The interface between the underdrain bedding material and the soil filter material must be designed to minimize the risk of clogging at the interface while preventing significant loss of fine soil material from the soil filter layer. The underdrain bedding material must be sufficiently coarse to allow flow of treated water to the underdrain pipe.

(f) **Underdrain outlet**. The underdrain system and the overflow must discharge to areas capable of withstanding concentrated flows and saturated conditions without eroding.

(g) **Non-stormwater discharges, and stormwater from outside drainage systems**. Non-stormwater discharges and stormwater from drainage systems outside the project area may not be discharged to the soil filter bed, unless the Department determines the additional discharge will not have a negative impact on groundwater quality.

5. Additional requirements. Additional requirements may be applied on a site-specific basis.

APPENDIX F. Vegetated buffers

This appendix applies to all projects using vegetated buffers for stormwater control. A buffer is a natural vegetated, non-lawn area or areas located down gradient from a project that serves to store and remove pollutants from stormwater runoff flowing from a project. Buffers must not be interrupted by intermittent or perennial stream channels or other drainageways and must have a relatively uniform slope so that stormwater does not concentrate in channels. This appendix describes the design and sizing requirements for vegetated buffers designed to meet the general standards. Requirements are described for four different types of buffers, each of which is appropriate for specific situations.

1. Types of vegetated buffers. The applicability of each of the four types of vegetated buffers is as follows.

(a) **Vegetated buffer with stone bermed level lip spreaders**. A vegetated buffer with stone bermed level lip spreaders must be used when treating stormwater runoff from any of the following:

(i) An impervious area greater than one acre;

(ii) Impervious areas where the flow path across the impervious area exceeds 150 feet; or

(iii) Developed areas, including lawns and impervious surfaces, where runoff is concentrated, intentionally or unintentionally, so that it does not run off in well-distributed sheet flow when it enters the upper end of a buffer, except that road ditch runoff may be treated using a ditch turn-out buffer.

(b) **Buffer adjacent to the downhill side of a road**. A buffer located along the downhill side of a road may only be used when the runoff from the road surface and shoulder sheets immediately into a buffer. In no instance may runoff from areas other than the adjacent road surface and shoulder be directed to these buffers.

(c) **Ditch turn-out buffer**. A ditch turn-out buffer may only be used when runoff from a road ditch is diverted to a 20-foot stone bermed level lip spreader that distributes runoff into a buffer. No areas other than the road surface, road shoulder and road ditch may be directed into a buffer. No more than 400 feet of road and ditch may be treated in any ditch turn-out buffer, and no more than 250 feet may be treated if more than one travel lane is draining to the ditch.

(d) **Buffer adjacent to residential, largely pervious or small impervious areas**. A buffer adjacent to a residential, largely pervious or small impervious area that does not require that runoff be distributed by means of a level spreader may only be used when:

(i) A buffer is located immediately downhill of the developed area; and

(ii) Runoff from the developed area is not concentrated and enters a buffer in well distributed sheet flow.

Only runoff from the following areas may be treated using this type buffer:

(iii) A single family residential lot;

(iv) A developed area that is less than 10% impervious where the flow path over the portion of the developed area for which treatment is being credited does not exceed 150 feet; or

(v) An impervious area of less than one acre, where the flow path across the impervious area does not exceed 100 feet.

2. Design requirements for all buffer types. The following design requirements apply to all types of buffers.

(a) **Topography.** The topography of a buffer area must be such that stormwater runoff will not concentrate as it flows across a buffer, but will remain well-distributed. Flow paths of runoff through a buffer must not converge, but must be essentially parallel or diverging.

(b) **Vegetative cover**. The vegetative cover type of a buffer must be either forest or meadow. In most instances the sizing of a buffer varies depending on vegetative cover type.

(i) **Forest buffer**. A forest buffer must have a well distributed stand of trees with essentially complete canopy cover, and must be maintained as such. A forested buffer must also have an undisturbed layer of duff covering the mineral soil. Activities that may result in disturbance of the duff layer are prohibited in a buffer.

(ii) **Meadow buffer**. A meadow buffer must have a dense cover of grasses, or a combination of grasses and shrubs or trees. A buffer must be maintained as a meadow with a generally tall stand of grass, not as a lawn. It must not be mown more than twice per calendar year. If a buffer is not located on natural soils, but is constructed on fill or reshaped slopes, a buffer surface must either be isolated from stormwater discharge until a dense sod is established, or must be protected by a three inch layer of erosion control mix or other woodwaste material approved by the Department before stormwater is directed to it, with vegetation must be established using an appropriate seed mix.

(iii) **Mixed meadow and forest buffer**. If a buffer is part meadow and part forest, the required sizing of a buffer must be determined as a weighted average, based on the percent of a buffer in meadow and the percent in forest, of the required sizing for meadow and forest buffers.

(c) **Deed restrictions and covenants**. Areas designated as vegetated buffers must be clearly identified on site plans and protected from disturbance by deed restrictions and covenants.

3. Design specifications and sizing tables for a vegetated buffer with stone bermed level lip spreaders. Stormwater runoff must be delivered to a vegetated buffer with stone bermed level lip spreaders in either sheet or concentrated flow. These design specifications direct runoff behind a stone berm constructed along the contour at the upper margin of a buffer area. As a result of restriction of flow through the berm, the runoff then spreads out behind the berm so that it seeps through the entire length of the berm and is evenly distributed across the top of a buffer. The stone must be coarse enough that it will not clog with sediment. The berm must be well-graded and contain some small stone and gravel so that flow through the berm will be restricted enough to cause it to spread out behind the berm.

(a) **Stone berm specifications**. The stone berm must be at least 1.5 feet high and 2.0 feet across the top with 2:1 side slopes constructed along the contour and closed at the ends. Unless otherwise approved by the Department, the design must include a shallow, 6-inch deep trapezoidal trough with a minimum bottom width of three feet, and with a level downhill edge excavated along the

contour on the uphill edge of the stone berm. Stone for stone bermed level lip spreaders must consist of sound durable rock that will not disintegrate by exposure to water or weather. Fieldstone, rough quarried stone, blasted ledge rock or tailings may be used. The rock must be well-graded within the limits of Table 5, or as otherwise approved by the Department.

Table 5
Percent of Rock Required to Pass Through Square Mesh Sieves

Sieve Designation (Metric)	Sieve Designation (US Customary)	Percent by Weight passing Square Mesh Sieves
300 mm	12 in	100
150 mm	6 in	84-100
75 mm	3 in	68-83
25.4 mm	1 in	42-55
4.75 mm	No. 4	8-12

(b) **Buffer sizing**. The required size of a buffer area below the stone-bermed level lip spreader varies with the size and imperviousness of the developed area draining to a buffer, the type of soil in a buffer area, the slope of a buffer, and the vegetative cover type. The following table indicates the required berm length per acre of impervious area and lawn draining to a buffer for a given length of flow path through a buffer. Required berm length varies by the Hydrologic Soil Group of the soils in a buffer and by the length of flow path through a buffer. If more than one soil type is found in a buffer, the required sizing of a buffer must be determined as weighted average, based on the percent of a buffer in each soil type, of the required sizing for each soil type buffer. Alternative sizing may be allowed if it is determined by a site-specific hydrologic buffer design model approved by the Department. A buffer meeting this standard is not allowed on Hydrologic Soil Group D soils that are identified as wetland soils, unless measures are taken to improve infiltrative capacity, as approved by the Department. A buffer meeting this standard is not allowed on natural slopes in excess of 15% unless a buffer has been evaluated using a site-specific hydrologic buffer design model approved by the Department, and measures have been included to ensure that runoff remains well-distributed as it passes through a buffer.

Table 6 below applies to a buffer with slopes ranging from 0 to 8%. For a buffer with slopes between 9% and 15%, the indicated berm length must be increased by 20%.

NOTE: The following tables were developed using a 1.25 inch, 24 hour storm of type III distribution, giving a maximum unit flow rate of less than 0.009 cfs per foot.

Table 6
Sizing Requirements for buffer with 0–8% slope and stone bermed level lip spreader

Hydrologic Soil Group	Length of flow path through buffer (feet)	Berm length for a forested buffer (feet)		Berm length for a meadow buffer (feet)	
		Per acre of impervious area	Per acre of lawn	Per acre of impervious area	Per acre of lawn
Soil Group A	75	75	25	125	35
	100	65	20	75	25
	150	50	15	60	20
Soil Group B	75	100	30	150	45
	100	80	25	100	30
	150	65	20	75	25
Soil Group C sandy loam or loamy sand	75	125	35	150	45
	100	100	30	125	35
	150	75	25	100	30
Soil Group C silt loam, clay loam or silty clay loam	100	150	45	200	60
	150	100	30	150	45
Soil Group D non-wetland	150	150	45	200	60

4. **Design specifications and sizing tables for a buffer adjacent to the downhill side of a road.** A buffer adjacent to a disturbed area of less than one acre that continues to be a road may only be used when a buffer is located such that the runoff from the road surface and shoulder sheets immediately into a buffer. Required buffer design and sizing for this type of buffer does not vary with soil type or slope, except that a buffer meeting this standard is not allowed on soils identified as wetland soils or on natural slopes in excess of 20%, unless the Department finds that the buffer will have adequate adsorptive capacity, and measures have been included to ensure that runoff remains well-distributed as it passes through the buffer. Sizing depends on the vegetative cover type of a buffer and the number of travel lanes draining to a buffer as indicated in Table 7.

Table 7
Required Flow Path Length of a Buffer Receiving Road Runoff

	Length of flow path for a forested buffer (feet)	Length of flow path for a meadow buffer (feet)
One travel lane draining to buffer	35	50
Two travel lanes draining to buffer	55	80

The inslope of the road bed may be included as part of a meadow buffer only if it is designed and constructed to allow infiltration. Design and construction to allow infiltration includes, but is not limited to, the inslope fill material having slopes no steeper than 3:1; loaming and seeding to meadow grasses; and maintaining a buffer area as a meadow buffer.

5. **Design specifications and sizing tables for a ditch turn-out buffer.** A ditch turn-out buffer may only be used when runoff from a road ditch is diverted to a 20-foot stone bermed level lip spreader that distributes runoff into a buffer. No areas other than the road surface, road shoulder, road ditch, and ditch back slopes may be directed to the stone bermed level lip spreader.

   (a) **Stone berm specifications**. The stone berm to which the ditch turn-out delivers the runoff must be at least 20 feet in length and must be constructed along the contour. It must be at least one-foot high and two feet across the top with 2:1 side slopes. Stone for the berm must consist of sound durable rock that will not disintegrate by exposure to water or weather. Fieldstone, rough quarried stone, blasted ledge rock or tailings may be used. The rock must be well-graded with a median size of approximately 3 inches and a maximum size of 6 inches.

   (b) **Buffer sizing**. The required size of a buffer area below the stone bermed level lip spreader varies with the type of soil in a buffer area, the slope of a buffer, the length of road ditch draining to a buffer and the vegetative cover type within a buffer. A buffer meeting this standard is not allowed on Hydrologic Soil Group D soils, unless measures are taken to improve infiltrative capacity, as approved by the Department. A buffer meeting this standard is not allowed on slopes in excess of 15%, unless the Department finds that the buffer will have adequate adsorptive capacity, and measures have been included to ensure that runoff remains well-distributed as it passes through the buffer. Table 8 indicates the required length of the flow path through a buffer for various vegetative covers and ditch lengths. The tables below apply to a buffer with slopes ranging from 0 to 8%. For a buffer with slopes between 9% and 15%, the indicated length of flow path should be increased by 20%. If two travel lanes drain to the ditch, as in the case of a super elevated road, the length of flow path indicated for 400 feet of road must be used, but no more than 250 feet of ditch may drain to each turn-out.

Table 8
Sizing Requirements for Buffer Based on Length of Road or Ditch

Hydrologic soil group of soil in buffer	Length of road or ditch draining to a buffer (feet)	Length of flow path for a forested buffer (feet)	Length of flow path for a meadow buffer (feet)
A	200	50	70
	300	50	85
	400	60	100
B	200	50	70
	300	50	85
	400	60	100
C Loamy Sand or Sandy Loam	200	60	100
	300	75	120
	400	100	Not applicable
C Silt Loam, Clay Loam, or Silty Clay Loam	200	75	120
	300	100	Not applicable
D Non-wetland	200	100	150

6. **Design specifications and sizing tables for a buffer adjacent to a residential lot; developed area that is less than 10% impervious, where the flow path over the portion of the developed area for which treatment is being credited does not exceed 150 feet; or an impervious area where the flow path across the impervious area does not exceed 100 feet.** The design specifications and sizing tables below may only be used when a buffer is located immediately adjacent to the downhill side of a developed area, and where the topography and buildings and other facilities within the developed area do not cause any significant concentration of runoff.

   This design is appropriate for residential lots and other mostly pervious areas with relatively uniform topography and for small impervious areas. This design is not appropriate for treating large impervious areas because, even if pavement is graded evenly, it is likely that some concentration of runoff will occur as the stormwater travels across large areas of pavement. For large areas of pavement where the average path of flow across the pavement exceeds 100 feet, or where runoff will not be evenly distributed across the downhill edge of the pavement, a stone bermed level lip spreader must be used and the berm and buffer must be sized according to the specifications in Section 3 above.

   Table 9 below indicates the required minimum length of the flow path through a buffer for various soil types and vegetative cover types. Unless otherwise approved by the Department, the following apply:

   (a) Length of flow paths defined in this table apply to buffers with slopes between 0 and 8%.

   (b) For buffers with slopes between 9% and 15%, the indicated length of flow path must be increased by 20%.

(c) A buffer meeting this standard is not allowed on slopes in excess of 15% or Hydrologic Soil Group D soils except that a forested buffer is allowed if the D soils in a buffer are not wetland soils.

(d) Buffers described by this section must be located downhill of the entire developed area for which it is providing stormwater treatment, such that all runoff from the entire developed area has a flow path through a buffer at least as long as the required length of flow path.

Table 9
Buffer Size Requirements Based on Soil and Vegetative Cover Types

Hydrologic soil group of soil in buffer	Length of flow path for a forested buffer (feet)	Length of flow path for a meadow buffer (feet)
A	45	75
B	60	85
C **Loamy Sand or Sandy Loam**	75	100
C **Silt Loam, Clay Loam, or Silty Clay Loam**	100	150
D **Non-wetland**	150	Not applicable

7. Alternative buffer design for residential subdivision lots. This buffer design may be used as a Department approved alternative treatment measure to meet either the general standards at Section 4(B) or the phosphorus standard using compensation as provided in 06-096 CMR 501, but only under the conditions described below. This design applies only to buffers adjacent to subdivision projects in which all lots are for single or two-family detached, residential housing, common areas or open space where: 1) the buffer is located immediately downhill of the developed area; 2) runoff enters the buffer as sheet flow without a level spreader; and 3) the flow path over the portion of the developed area being treated by the buffer does not exceed 150 feet.

(a) **Slope**: To meet this alternative design, a buffer is not allowed on natural slopes in excess of 15%.

(b) **Soil restrictions**: Such a buffer is allowed on Hydrologic Soil Group D soils only if it is forested and non-wetland unless measures are taken to improve infiltrative capacity, as approved by the Department.

(c) **Buffer sizing**: Table 10 below indicates the required buffer flow path length based on soil types and vegetative cover types. Buffers must be located downhill of the entire developed area for which they are providing stormwater treatment; and with no converging contour, such that all runoff from the developed area passes in sheet flow through the buffer for a distance at least as long as the required length of flow path.

(d) **Minimum sizing for phosphorus standard**. If this buffer standard is being used in a mitigation project to meet the phosphorus standard and its size is being adjusted to provide a specific treatment factor, the minimum sizing for this type of buffer is a flow path of 35 feet.

Table 10
Alternative Buffer Size Requirements for Residential Subdivisions

Required minimum length of flow path through the buffer Based on a slope no greater than 15%		
Hydrologic soil	**For a forested buffer (feet)**	**For a meadow buffer (feet)**
A	35	50
B	45	60
C Loamy sand or sandy loam	50	70
C Silt loam, clay loam or Silty clay loam	70	100
D	100	Not Applicable

APPENDIX G. Suggested templates for deed restrictions and conservation easements for use under the Stormwater Management Law

1. Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___, by _____ , _____,
(name) (street address)
_____, _____County, Maine, _____, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near _____,_____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from_____ to _____dated
(name) (name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

   a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

   b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

      (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.
Point System for Determining an Evenly Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

      Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

      (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

   c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors, or fence;

   d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____
(NAME)

STATE OF MAINE_____ County, _____, 20__.
(County) (date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

_____

2. Forested buffer, no disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, No Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____ , 20___,
by _____, _____ ,
(name) (street address)
_____, _____County, Maine, _____ , (herein referred to as the
(city or town) (county) (zip code)
"Declarant", pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near
_____, _____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from _____to _____, dated
(name) (name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions

and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

    a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor shall the topography of the area be altered or manipulated in any way;

    b. No trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

    c. No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

    d. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors;

    e. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

    f. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

    Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____

(NAME)

STATE OF MAINE, _____County, dated _____, 20__.
(County)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

_____

3. Meadow buffer

DECLARATION OF RESTRICTIONS (Non-Wooded Meadow Buffer)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___, by
_____, _____
(name) (street address)
_____, _____County, Maine,_____, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near
_____, _____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from _____ to _____, dated
(name) (name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

   a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil of the area be altered or manipulated in any way;

   b. A dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.

   c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors;

   d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area, except for vehicles used in mowing;

   e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

   Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____
(NAME)

STATE OF MAINE, _____, County, dated _____, 20__ .
(County)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

_____

APPENDIX H. 24-hour duration rainfalls for various return periods

COUNTY	Storm Type	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR
ANDROSCOGGIN	III	2.5	3.0	3.7	4.3	5.4	6.4	7.6	11.1
AROOSTOOK C (Presque Isle Area)	II	1.9	2.3	2.8	3.2	3.9	4.6	5.3	7.6
AROOSTOOK N (Fort Kent Area)	II	1.9	2.2	2.7	3.1	3.7	4.3	5.0	7.0
AROOSTOOK S (Houlton Area)	II	2.1	2.5	3.0	3.4	4.1	4.7	5.4	7.5
CUMBERLAND NW (Bridgton Area)	III	2.5	3.0	3.7	4.3	5.4	6.3	7.5	10.9
CUMBERLAND SE (N Windham Area)	III	2.6	3.1	3.9	4.6	5.8	6.9	8.1	12.1
FRANKLIN	II	2.0	2.4	2.9	3.4	4.2	4.9	5.7	8.2
HANCOCK	III	2.5	2.9	3.6	4.2	5.2	6.1	7.2	10.5
KENNEBEC	III	2.4	2.8	3.5	4.2	5.2	6.1	7.2	10.6
KNOX	III	2.6	3.2	3.9	4.6	5.7	6.7	7.9	11.5
LINCOLN	III	2.5	3.1	3.8	4.5	5.5	6.5	7.6	11.1
OXFORD E (Rumford Area)	II[1]	2.3	2.7	3.3	3.9	4.8	5.7	6.7	9.7
OXFORD W (Gilead Area)	II	2.2	2.7	3.4	4.0	4.9	5.8	6.9	10.1
PENOBSCOT N (Millinocket Area)	II	2.2	2.6	3.2	3.8	4.7	5.6	6.5	9.5
PENOBSCOT S (Hudson Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.7
PISCATAQUIS N (Chesuncook Area)	II	2.0	2.4	2.9	3.4	4.2	5.0	5.8	8.5
PISCATAQUIS S (Monson Area)	II	2.2	2.7	3.3	3.9	4.8	5.7	6.8	10.0
SAGADAHOC	III	2.6	3.2	3.9	4.6	5.7	6.7	7.8	11.4
SOMERSET N (Pittston Farm Area)	II	2.0	2.3	2.8	3.3	4.0	4.7	5.4	7.8
SOMERSET S (Solon Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.8
WALDO	III	2.4	2.9	3.6	4.2	5.2	6.1	7.2	10.5
WASHINGTON	III	2.5	2.8	3.4	3.9	4.8	5.5	6.4	9.0
YORK	III	2.6	3.3	4.1	4.9	6.2	7.3	8.7	13.2

1 Use Type III rainfall for the towns of Brownfield, Buckfield, Denmark, Hartford, Hebron, Hiram, Oxford, and Porter.

Source: Data extracted by the Maine Department of Environmental Protection from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu), Extreme Precipitation Tables. Data from this website was obtained from the National Oceanic and Atmospheric Administration's Regional Climate Center Program.
June 2014

Memorandum
Planning and Urban Development Department
Planning Division

To:	Elizabeth Boepple, Chair, and Members of the Portland Planning Board
From:	Nell Donaldson, Planner
Date:	July 21, 2016
Re:	Medical and General Office Development, 1945 Congress Street
Project #:	2016-075 **CBLs:** 216-A-6, 217-A-1
Meeting Date:	July 26, 2016

I. INTRODUCTION

Northland Enterprises, LLC appears before the board for a second preliminary workshop for the development of an Office Park Planned Unit Development (OPPUD) on a 6.99 acre site at 1945 Congress Street. Under the proposal, the site, which is currently occupied by an Elks Lodge, would be redeveloped with two new buildings, a 15,000 SF medical office and a 25,300 SF general office. The Elks Lodge would remain. The site was recently rezoned to Office Park (O-P).

Office Park Planned Unit Developments are subject to review under several provisions of the land use code: the dimensional requirements and development standards of the O-P zoning, the subdivision ordinance, and the site plan ordinance. As such, OPPUD proposals must include a master plan addressing the O-P development standards, all of the city's subdivision submittal requirements, as well as documentation required for site plan review.

In their initial submittal from April of this year, the applicant provided the master plan component of the application, on the premise that basic, conceptual elements of the master plan should be resolved prior to delving into site plan- and subdivision-level details. This master plan was the focus of the Board's first workshop on this proposal. At that workshop, the Board engaged in substantial discussion on the basic site layout, landscaping, parking, and building design as presented in the master plan.

In the wake of the workshop and in response to feedback from the Board, staff, and neighbors, the applicant developed a full set of civil and landscape plans, revised their design drawings, developed a stormwater management plan, generated a memo explaining their parking strategy, and submitted these materials to staff. The purpose of this workshop is to review these submittals.

A total of 160 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on July 18 and 19, 2016.

II. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
None at this time	

Review	***Applicable Standards***
O-P Zone Development Standards	*Section 14-230.13*
Site Plan	*Section 14-526*
Subdivision	*Section 14-497*

Figure 1: 1945 Congress Street in context.

III. PROJECT DATA

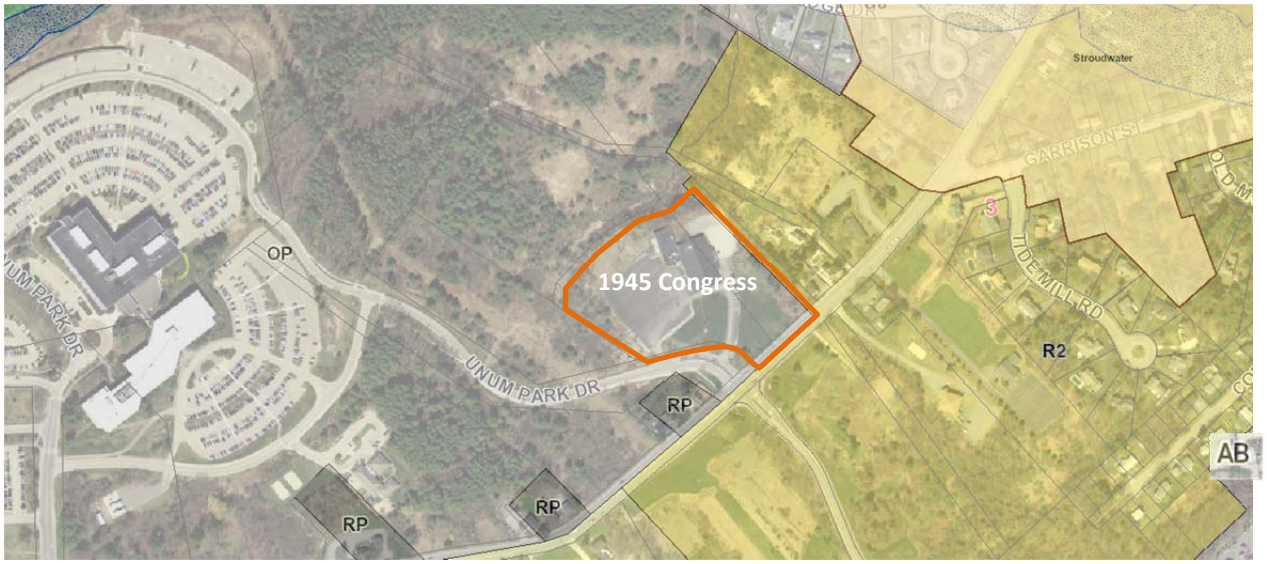
Existing Zoning	O-P (Office Park)
Existing Use	Elks Lodge #188 (Place of assembly)
Proposed Use	Mixed – Place of assembly, medical office, general office)
Proposed Development Program	15,000 SF medical office 25,300 SF general office 13,500 SF renovated Elks Lodge
Parcel Size	6.99 acres

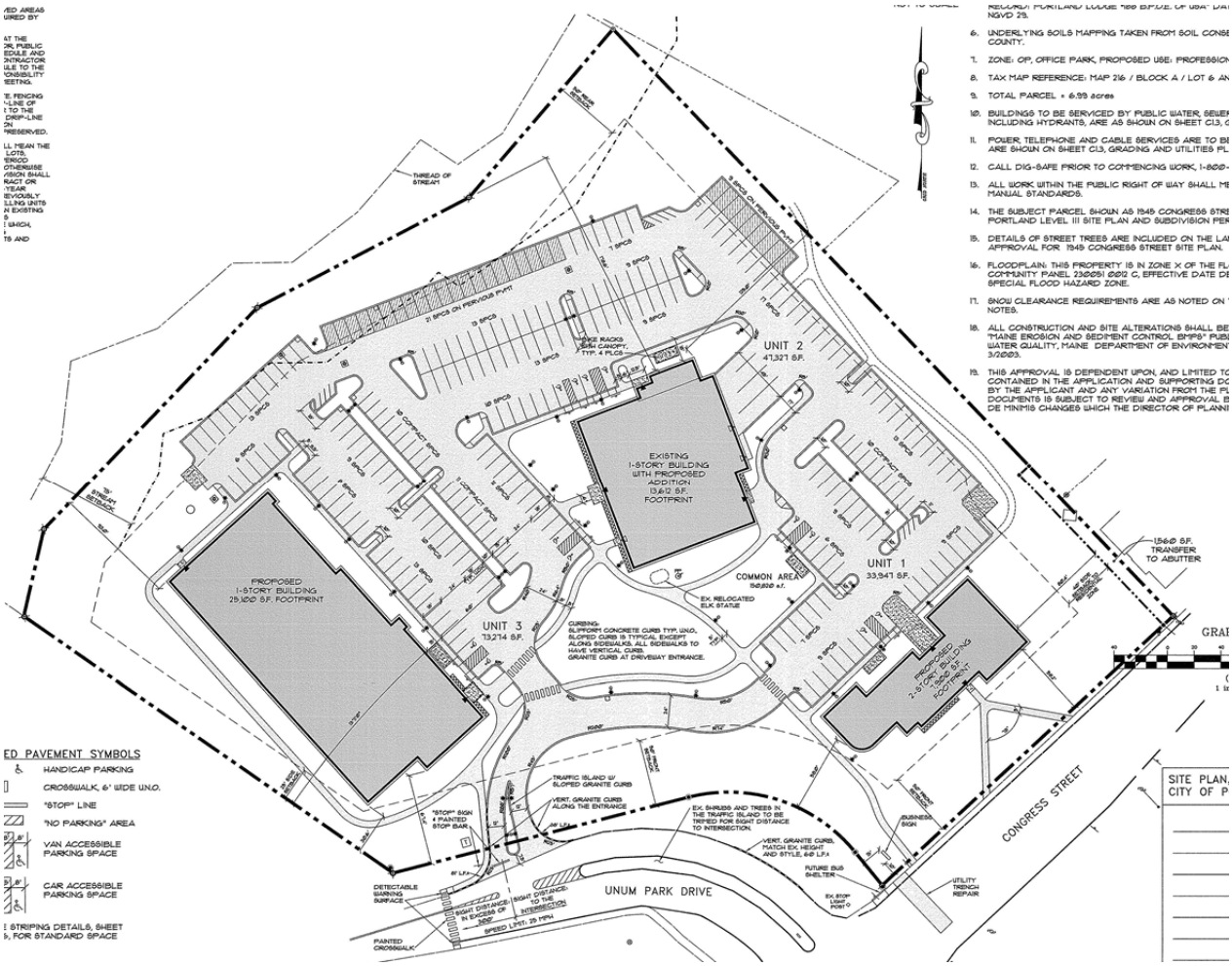
	Existing	*Proposed*	*Net Change*
Building Footprint	23,090 SF	46,612 SF	23,088 SF
Building Floor Area	23,090 SF	54,512 SF	31,422 SF
Impervious Surface Area	133,241 SF	156,329 SF	27,493 SF
Parking Spaces (on site)	254 +/-	263 (182 required)	9 +/-
Bicycle Parking Spaces	0	40	40
Estimated Cost of Project	$6,600,000		
Note: Figures to be confirmed at time of final plan review			

IV. BACKGROUND & EXISTING CONDITIONS

The site at 1945 Congress Street is approximately 7 acres in size and currently houses Lodge #188 of the Benevolent and Protective Order of Elks, their 254 parking spaces, and an expansive lawn area. Although the site has frontage on Congress Street, access is via a loop driveway from UNUM Park Drive. The site slopes down at the rear to an existing brook and wetland on the northern property line. There is some natural vegetation in this area, as well as along the eastern property boundary. Street trees line both the Congress Street and the UNUM Park Drive frontages.

Residential uses abut the site both to the northeast and southwest. UNUM lies directly to the west, the Jetport lies due south, and several places of assembly sit across Congress Street to the east. The site was recently zoned to Office Park (O-P).





Figures 2 and 3: 1945 Congress Street, existing zoning (top) and preliminary site plan (bottom)

V. PROPOSED DEVELOPMENT

The applicant is proposing to develop the site as an Office Park Planned Unit Development (OPPUD) under the provisions of the O-P zone. The site will remain one lot, with two new buildings and the Elks to remain. Each of these buildings and their associated parking would ultimately constitute a separate condominium unit. The driveway, some site parking, landscaping, and circulation would be held in common.

Under the land use code, OPPUDs are required to develop a master plan of the office park as a precursor to buildout under site plan and subdivision review. In their initial submittal, the applicant submitted this master plan, which outlined a series of goals for the site: to preserve a portion of the existing Elks building, design with sensitivity to the surrounding neighborhood, protect existing wetlands and mature vegetation, unify the grounds and landscape character and buffering neighboring uses, and develop design guidelines that integrate the buildings with their surroundings. Ultimately, this master plan forms the foundation for the preliminary site and subdivision plans presented here.

The preliminary plan includes a new 25,300 SF general office building, to house Clark Insurance, on the site's western property line, a 15,000 SF medical office building on the site's Congress Street frontage, and a renovated and downsized Elks Lodge in its existing location at the center of the site. These three basic site elements are proposed with a single point of access from UNUM Park Drive and 263 car, 4 bus, and 12 motorcycle parking spaces connected with a continuous circulation system. The applicant has proposed a broad landscaped area on the Congress Street frontage, including some evergreen species, and significant buffering on the eastern property line. The proposed landscaping plan also includes a green space central to the three buildings and preserves existing vegetation at the rear of the site. Stormwater treatment is proposed with a storage and filter system.

VI. PUBLIC COMMENT

Staff has received numerous public comments on both the master plan and the preliminary site plan and subdivision submittals *(Attachments PC-1-9)*. These have raised concerns about the extent to which the conceptual plan creates a campus-like setting as prescribed by the O-P zone, integration with the surrounding built and natural context, the amount of parking proposed on the site, and traffic impacts. Most recently, and directly responding to the site plan and subdivision submittal under preliminary consideration here, staff received comments from neighbors, including the Stroudwater Village Association, expressing strong dissatisfaction with the applicant's basic site layout and design direction. Neighbors have continued to argue that the plans do not achieve the fundamental purpose of the O-P zone, to create a "park- or campus-like setting….compatible with their natural surroundings" *(Section 14-230)*. Neighbors have further argued that the current architectural design is incompatible with the context, and in particular the nearby Stroudwater Historic District. These neighbors have suggested more extensive use of gables; the elimination of stone cladding in favor of brick, shingle, or clapboard; efforts to minimize contemporary building elements; and the use of and trim details that echo the historic architecture of the context to the site's east. Neighbors have also expressed some concern regarding the adequacy of screening from the abutting residential zone and Congress Street, as well as potential traffic impacts of the proposal.

The applicant held their neighborhood meeting on Thursday, May 5. The minutes from this meeting show that neighbors raised concerns about the Congress Street landscaping, sidewalk access from Congress Street, trail connections, and the basic built elements of the plan *(Attachment M)*.

It should be noted that, over the course of the zone change review which preceded this application, the Planning Board received a significant number of public comments on the proposal for the site. Many of these raised questions about potential traffic impacts of the development; pedestrian safety in the area; building design, parking, and siting with respect to the O-P development standards; buffering from adjacent residential properties; and the effects on what many perceive as an important gateway with valuable natural resource and open space attributes.

VII. RIGHT, TITLE, & INTEREST

The applicant has provided a purchase and sale agreement as evidence of right, title, and interest *(Attachment C).* It should be noted that there is an existing Portland Water District easement on the property, and the applicant's site plan depicts some parking and clearing within this area. The applicant is currently negotiating a release of this easement, as it currently contains no infrastructure *(Attachment C).* The execution of this release will be required prior to the issuance of a building permit.

Similarly, the preliminary plans show grading on adjacent property owned by Portland Water District to the north. The applicant has provided a purchase and sale agreement documenting their intent to purchase this property, which would eventually increase the area of the site by 7,000 SF. The final plans should show this area as part of the site.

VIII. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided a letter from Bangor Savings Bank indicating their intent to consider financing for the project *(Attachment D).* Staff also has evidence of the technical capacity of all consulting firms involved in the proposal.

IX. OFFICE PARK ZONING ANALYSIS

1. Dimensional Analysis

Staff has reviewed the preliminary site plan for conformance with the dimensional requirements of the O-P zone. The site plan shows the proposed office buildings setback 58.2 feet from the Congress Street property line, 80 feet from the property line on the east side, and 30 feet from the property line on the west side, meeting the setback requirements of the zone. Height calculations based on average grade should be provided on the proposed building elevations at the time of final review. The zoning analysis on the subdivision plat should also be verified, and the pavement setback should be clearly noted on the site plan.

2. Development Standards

Staff previously conducted a review of the master plan submitted under the O-P development standards. Outstanding findings of this review are discussed below.

a. Master plan: *Development proposals shall include a master plan of the office park. The master plan shall include…[t]the location of the building(s) on the site; infrastructure of the site; identification of common areas; traffic circulation, architectural character and treatment of the building(s); proposed building envelopes; phasing and timing of the development; private development restrictions; and such other information necessary and sufficient to ensure compliance with the standards in this section…* The applicant has submitted a master plan which includes the basic elements required under the O-P development standards *(Attachment E).* It should be noted that this master plan is subject to review under the master plan standards of the O-P zone only, and not the master development plan standards of the site plan ordinance.

b. Design relationship to site: *Development proposals shall demonstrate a reasonably unified design of the site, including the architecture, the layout of the buildings, pedestrian and vehicular circulation plan, open space, drainage, and the topography, soil conditions, vegetation and other natural features of the site. Integration of open spaces and natural features shall be achieved by incorporation of outdoor amenities for the benefit of users of the site, such as jogging and walking trails, gardens and benches.* The master plan prescribes the use of common elements which are meant to create coherence between disparate uses on site, including consistent furniture (e.g. benches, bike racks, trash receptacles, and picnic pavilions), signs, lighting, architectural features, landscaping, and walkways and trails *(Attachment E).* The applicant has focused on maintaining deep setbacks and landscaped buffers on the eastern property line and along Congress Street in an effort to address issues raised by neighbors. However, there continue to be some concerns regarding basic site design, particularly the plan's success in creating a "park- or campus-like setting which are of the highest quality, are well designed and

maintained, and are compatible with their natural surroundings" in the spirit of the O-P zone *(Section 14-230).* Staff have continued to question whether the parking, in particular, might be minimized and better integrated with existing and proposed landscaping to relieve its impacts both visually and environmentally. This is further discussed below.

c. Landscaping: *Development proposals shall include a landscape program. All land areas not covered by structures, parking areas or circulation facilities shall be landscaped and maintained. In order to soften the visual impact of large expanses of pavement in parking lots, vegetation shall be planted or retained in islands or planting strips where required by article IV (subdivisions) and article V (site plan).*
The master plan includes a landscaping program which shows that all land areas not covered by structures, parking, or circulation are proposed either as landscaped or to be left in their natural vegetated state. The plan demonstrates the applicant's intent to buffer the properties to the east of the site with evergreen and deciduous vegetation and a fence, as needed. The plans also include buffering on the Congress Street façade, where slightly raised, landscaped berms are proposed.

d. Impervious surface ratio: *Development proposals may have an impervious surface ratio of up to sixty (60) percent and shall meet the following criteria:*

1. *No pavement may be located closer than fifteen (15) feet from the property line and from a public street right-of-way, excepting approved entrance drives;*
2. *Parking may not be located in the required front yard setback. If parking is provided in the area between the building and minimum setback line, the parking area must be adequately screened with landscaping materials and permanently maintained.*

Per the applicant's most recent submittal, the impervious surface ratio proposed on site is between 51.3% and 55%, depending on the impervious figure cited. Final impervious calculations should be internally consistent in the final submittal.

In the preliminary site plan, the applicant has shown pervious pavement at the rear of the site, which appears to be located close to 15 feet from the property line. This measurement should be confirmed and depicted on the final plan set. No parking is proposed in the area between the medical office building and Congress Street.

e. Sidewalks: *Development proposals shall include internal sidewalks, illustrating the manner in which the developer will provide this amenity to take advantage of the topography and natural features of the site.*
The master plan includes sidewalks from Congress Street to the medical office building, UNUM Park Drive to the general office building, and from these points to other buildings on site. This sidewalk network also includes "future" links to the Portland Trails and UNUM trail systems to the north and east.

f. Buffers and screens: *Development proposals shall include buffering yard areas abutting a residential zone or residential use and to screen parking lots and driveways from public view, identifying the location, composition and maintenance of the buffer. The buffer and screening shall be of a dense and continuous nature and shall incorporate trees, shrubs, fencing, berms and related elements deemed necessary.*
The master plan identifies buffering as a goal and, as noted above, includes buffers on both the eastern and southern property lines, where the project will abut existing residential uses and Congress Street respectively. The buffer on the residential boundary is proposed with evergreen and deciduous trees and shrubs, a fence "where needed," and a gentle slope to shield headlight glare. No lighting is proposed within or proximate to the buffer area. The Congress Street buffer is suggested with shallow raised berms, planted with shrubs. In their most recent submittal, the applicant has provided draft condominium documents which note that the condominium association will be responsible for maintenance of the buffer areas. Additional detail on the maintenance of buffer areas will be required in the final condominium documents.

g. Preservation of natural features: *Development proposals shall identify the extent to which the developer shall preserve natural features including, but not limited to, existing vegetation, flood plains, rock outcroppings, surface water bodies, drainage swales and courses, and wetlands; provided any such program shall consider and be sensitive to the need to preserve such natural features*
The master plan identifies existing natural resources on site, including wet areas, steep slopes, drainage courses, and mature vegetation, and the plan is generally sensitive to the need for preservation in these areas. The plan retains natural vegetation on the northern edge of the property, the eastern edge of the property, and existing mature plantings on Congress Street and UNUM Park Drive.

h. Traffic: *Development proposals shall identify all proposed traffic controls, parking areas, interior traffic circulation, and demonstrate that additional traffic generated by the project itself can be reasonably accommodated on existing public streets.*
The master plan narrative includes a broad discussion of traffic, parking, and internal circulation. The plan shows the closure of one curb cut and thus only one point of access from UNUM Park Drive, located at the second of the Elks' two existing access points. The internal circulation provides multiple means of traversing the site. The applicant has provided required documentation for a Traffic Movement Permit, which is discussed in more detail under site plan review below. In the master plan, the applicant has included a lengthy explanation of the parking proposed on site. Parking is also discussed in detail under site plan review.

i. Architectural design: *All buildings shall be designed or approved by a registered architect in the State of Maine and shall be in conformance with the proposed master plan. The scale, texture, color and massing of the buildings shall be coordinated. The full range of high-quality, permanent, and traditional or contemporary building materials and technology may be incorporated in a manner so that the development as a whole embodies distinguishing attributes that achieve the developer's desired degree of excellence and are in conformance with the architectural guidelines provided in the private development restrictions. Particular emphasis shall be placed on the appearance of building facades from public streets, from driveway and parking areas, and from other nearby buildings. Building elevation drawings shall be submitted which indicate architectural style, exterior finishes and color, building height and scale, and location and scale of window and door openings. Samples of exterior building materials shall also be submitted.*
The master plan includes design guidelines intended to create a relationship between the three buildings proposed on site. These guidelines specify simple forms, "contemporary New England in style, and designed so that they share a common material on part, or all, of the building facades" *(Attachment E)* The guidelines also suggest common entrance treatments, details, materials, and "natural colors." Building design is discussed in more detail under site plan review below.

j. Lighting: *Development proposals shall identify the location and style of lighting to be used in the development. All light fixtures shall be hooded or shielded so that the light shines downward.*
The master plan includes a narrative and plan showing proposed lighting for the site, with the goal of minimizing lighting to the extent possible "to reflect the context, and the adjoining residential uses" *(Attachment E).* Site lighting is discussed in more detail under site plan review below.

k. Signs: *Development proposals shall identify all proposed signage. Signs shall be designed in proportion and character with the building facades. All signs shall be constructed of permanent materials and shall be coordinated with the building and landscaping design through the use of appropriate materials and finishes.*
The master plan also includes a sign plan proposing property identification signs, business identification signs, and wayfinding signs. Staff has requested that the applicant document that the number and placement of signs meets the provisions of the sign ordinance. Staff has also emphasized that building signs are to be designed in proportion and character with building facades. This is of particular concern on the medical office building, where multiple possible tenants are proposed with individual signs.

X. SUBDIVISION PLAT AND RECORDING PLAT REQUIREMENTS *(Section 14-496)*

Per the city's land use ordinance, the applicant's plat should be revised to meet all requirements of *Section 14-496.* The plat should depict tree save areas and/or clearing limits, clearly delineate common elements, accurately reflect the plan's conformance with the O-P dimensional requirements, and depict current property boundaries. Bill Clark, the city's surveyor, has also provided comments on the plat *(Attachment 1)* and notes,

1. *[There are] conflicts with text versus hatching and lines. Plans will not scan well at the Registry of Deeds and information such as bearings and distances will not be legible.*
2. *Property line is thin. Suggest same thickness as the Existing Conditions Survey from May 2016.*
3. *Property corners need to be set.*
4. *Need chord bearing and distance along the Unum Park Drive curve.*
5. *North arrow is Grid and not Magnetic.*
6. *Vertical Datum?*
7. *Reference to Survey Plan from Maine Survey Consultants May 2016.*
8. *Professional Land Surveyor Seal is required.*
9. *Building Setback Distances are not shown.*

XI. SUBDIVISION REVIEW *(14-497(a). Review Criteria)*

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's subdivision ordinance. Staff comments are below.

1. Water, Air Pollution

Lauren Swett, consulting civil engineer, has reviewed the plans relating to stormwater runoff and water quality *(Attachment 2)*. Her comments are discussed in detail under site plan review below. No detrimental water or air quality impacts are anticipated at this time.

2 & 3. Adequacy of Water Supply

The plans show domestic and fire water service from an existing 12" main in Congress Street. Evidence of water capacity will be required at the time of final review.

4. Soil Erosion

No unreasonable soil erosion or reduction in the capacity of the land to hold water is anticipated.

5. Impacts on Existing or Proposed Highways and Public Roads

The applicant has provided a Traffic Movement Permit application in their preliminary submittal. Tom Errico, the city's consulting traffic engineer, has reviewed this application. His comments on traffic impacts are discussed in detail under site plan review below.

6. Sanitary Sewer/Stormwater Disposal

Sewer service is proposed via 6" gravity feeds from each building to an existing pump station on site, which would outlet to an existing force main. The applicant has submitted a wastewater capacity application to the Department of Public Services *(Attachment H)*. Verification of capacity will be required at the time of final plan review. A preliminary stormwater management plan has been provided. Ms. Swett's comments on the proposed plan are discussed in detail under site plan review below.

7. Solid Waste

In their most recent submittal, the applicant has indicated that each building will maintain its own dumpster, and that each building owner will hire a private waste company to service these dumpsters. No unreasonable burden on solid waste services is anticipated.

8. Scenic Beauty
This proposal is not deemed to have an adverse impact on the scenic beauty of the area.

9. Comprehensive Plan
The applicant provided an analysis of consistency with the comprehensive plan under the zone change review that preceded this proposal. In this analysis, they argued that the development achieves numerous goals of the comprehensive plan, including "promot[ing] new office park development of high quality in outlying areas for development seeking a suburban-style setting," creating a variety of job opportunities, and "strengthen[ing] and diversify[ing] the tax base."

10. Financial and Technical Capacity
The applicant has provided evidence of financial capacity *(Attachment D).*

11. Wetland/Water Body Impacts
A brook and associated wetlands can be found at the rear of the site. Potential impacts to these wetlands are discussed in detail under site plan review below.

12. Groundwater Impacts
There are no anticipated impacts to groundwater supplies.

13. Flood-Prone Area
Per the city's existing flood maps, the site is not located in a flood zone.

XII. SITE PLAN SUBMISSION REQUIREMENTS *(Section 14-527)* and

In the final plan submittal, the application should provide all final plan submittal requirements as noted in *Sections 14-527(e) and (f)*, including:

- Evidence of state and/or federal approvals, including a NRPA permit for work adjacent to a stream and a Maine Construction General Permit, as the project will disturb more than one acre;
- A written request for waivers, as applicable.

XIII. 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 applicant has provided a Traffic Movement Permit application in their preliminary submittal *(Attachment I)*. This application projects a total trip generation of 109 trips during the site's AM peak hour and 119 trips during the site's PM peak hour. Per the applicant's analysis, this trip generation is projected to result in minimal impact in operations at the Congress Street/UNUM Park Drive intersection during the AM peak hour and a slightly greater impact during the PM peak hour, when level of service is projected to drop from C to D. At Mr. Errico's request, the applicant has modeled level of service at this intersection under the lane configuration proposed in the Outer Congress Street Streetscape Study, where the eastbound merge on Congress Street is converted from the existing left-lane drop to an alternate merge. This improves the projected level of service at the Congress Street/UNUM Park Drive instersection to C. Mr. Errico has reviewed the trip generation and capacity analysis and writes,

> *The proposed project is adding 88 new peak hour vehicles to Congress Street east of the site during both the AM and PM peak hours. The City is in the process of implementing pedestrian/transit/bicycle safety improvements in conjunction with the adopted Outer Congress Street Streetscape Study. Given project impacts it is recommended that the*

> *project make a monetary contribution towards implementation of improvements at both Garrison Street and Westbrook Street. Based upon the increased traffic levels the contribution shall be $11,200.00.*

It should be noted that the applicant has agreed to make a contribution of $25,000 towards implementation of the Outer Congress Street Streetscape Study. The $280,000 project is currently out to bid, and a funding shortfall has been identified.

The applicant also conducted a capacity analysis at the driveway to the site, where the post-development level of service B is projected for the AM peak hour and C is projected for the PM peak hour. A queue analysis was conducted to measure potential impacts of downstream operations at this location. This analysis found that southbound left/through lane at Congress Street/UNUM Park Drive could queue to 250 feet, or beyond the driveway entrance to the development, particularly in instances where special events at the Elks Lodge occur in the PM peak hour. Of this, Mr. Errico writes,

> *The analysis did indicate that the vehicle queueing on UNUM Drive from Congress Street will block the proposed driveway. The applicant noted that the blockage is not expected to be a frequent event, and I agree with this conclusion. My recommendation is that the applicant develop a traffic signal timing plan that optimizes the efficiency of signal operations. In conjunction with this effort the applicant shall install hardwire interconnect cable between the subject intersection and the traffic signal at Congress Street/Westbrook Street for coordination purposes. The applicant shall implement the traffic signal upgrades prior to occupancy.*

Last, the applicant conducted a sight distance analysis and found that low-growing varieties of plants would improve sight distance at the site entrance and that an existing 25 mph speed limit sign should be relocated to the east of the site driveway on UNUM Park Drive. Daylilies are proposed at the site entrance and staff has requested that the relocated speed limit sign be shown on the site plan.

b. Access and Circulation

The site plan shows one point of vehicular access from UNUM Park Drive, approximately 250 feet from its intersection with Congress Street. From this driveway, the vehicular network encircles the Elks building and provides access to parking spaces which line the vehicular ways on both sides.

Pedestrian access is proposed from the existing sidewalk on Congress Street directly to the medical office building and from Congress Street to the center of the site. The plans also show a sidewalk connection directly from the existing walkway on the south side of UNUM Park Drive to the Clark Insurance building. The details of this connection will be reviewed prior to final plan submittal.

c. Public Transit Access

There is a bus shelter located across Congress Street from the site for inbound METRO passengers. However, the applicant is required to provide a transit facility on their frontage for passengers traveling in the opposite direction. A bus shelter is depicted on the site plan; however, this shelter is shown in the sidewalk. The final location of this facility should be resolved prior to final review. Coordination with METRO will be required.

d. Parking

Division 20 of the land use ordinance requires parking for office uses at a ratio of 1 space/400 SF. At this rate, the 25,300 SF general office building would require 63 parking spaces and the 15,300 SF medical office building would require 38 spaces. Places of assembly are required to provide parking at a ratio of 1 space/125 SF used for assembly purposes. At this ratio, the Elks Lodge, at

approximately 10,000 SF of assembly space, would be required to provide 81 parking spaces. In sum, 182 parking spaces are required on site. In their preliminary site plan, the applicant continues to show many more parking spaces than are technically required, 263 vehicular spaces and 12 motorcycle spaces.

Because the applicant proposes to exceed the parking required under the land use code by over 10%, they are technically required to demonstrate that the proposed parking supply is justified. The applicant has provided a parking analysis which documents the rationale behind the proposed parking supply, including the applicant's efforts to pursue alternatives beyond surface parking, and transportation demand management strategies which may be employed to minimize parking demand on the site *(Attachment J)*. Given the timing of this submittal, it was not fully reviewed by Mr. Errico or staff prior to the writing of this memo. However, he has provided some initial response. He writes,

> *The applicant has provided an estimate of parking needs for the project - generally based upon individual needs for each on-site business use. The applicant should specifically document possible parking management strategies that reduce the overall parking supply and why implementation is not feasible. Strategies should, at a minimum include: time-of-day and day-of-week business work/event hour adjustments for shared parking use; and use of off-site parking areas for peak parking events. A detailed response has not been provided. Many of the items I note above should be considered in the TDM Plan with specific actions items.*
>
> *Given that the proposed tenants currently operate businesses in the area, actual parking demand surveys are suggested to help quantify the parking supply requirements. The applicant's June 20, 2016 Parking Letter does not address this comment.*

As noted above, staff has also continued to raise concerns around the design of the parking areas as presented, particularly in the large expanses of parking proposed between the Elks and Clark Insurance. Mr. Errico writes,

> *Although specific details on parking lot dimensions are not provided, I would suggest the applicant consider compact parking spaces and investigate other dimensional reductions. The demand for the full parking supply will only occur for a few hours one day a week and having less pavement may be beneficial.*
>
> *The applicant is proposing 31 compact parking spaces. This correlates to 12% of the total parking supply. The City's ordinance permits up to 20% compact parking spaces and thus the project could increase the number of compact parking spaces. The applicant has included some impervious parking spaces. I would suggest that the entire perimeter of parking be impervious. Also the applicant should note how the tandem parking will be managed*

The plans show forty bicycle parking spaces, well more than the 18 required under the site plan ordinance.

e. Transportation Demand Management

Since the project is planned for over 100 employees, a transportation demand management plan is required. The applicant speaks to transportation demand management strategies, including carpooling, public transportation, shuttling, and flexible work schedules, in their parking narrative,

and notes that the plan will be codified in the condominium documents *(Attachment J)*. A fully developed TDM plan will be required at the time of final review. Mr. Errico writes,

> *It is my understanding that a Transportation Demand Management Plan will be provide by the applicant for review and comment. The applicant covers many possible TDM strategies in their June 20, 2016 Parking Letter that I believe may help to reduce parking and traffic generation. The TDM Plan should include specific action items, trip reduction targets and annual monitoring.*

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

There are a brook and existing wetlands at the rear of the site. Lauren Swett, the city's consulting civil engineer, has reviewed the plans and notes,

> *The Master Plan Overview refers to existing wetland areas that will be preserved. Based on the Site Analysis Figure (Exhibit 5 – Regulatory Restrictions), it does not appear that any wetland impacts are proposed at this time. The Applicant should note that a wetland delineation report should be provided as part of the Site Plan Application.*
>
> *The Parking lots are shown within the area identified as the 75-foot stream setback. It is anticipated that at least a Maine DEP NRPA Permit By Rule submission will be required, but the Applicant should coordinate with the Maine DEP to confirm permit requirements.*

It should be noted that, if the parking is reduced or reconfigured to include additional compact spaces, the applicant may be able to avoid the 75 foot stream setback altogether.

b. Landscaping and Landscape Preservation

The applicant has submitted a preliminary landscaping plan *(Plan 15)*. This plan shows extensive evergreen planting, witch hazel, chokeberries, red maples, and white oaks on a raised berm on the eastern property line in order to screen the site from adjacent neighbors. Similarly, the plans show significant plantings, including some evergreens, white oaks, red oaks, fringetrees, cherry trees, lilacs, and hydrangeas on shallow berms along the Congress Street frontage to screen the view from that vantage point. The applicant has provided renderings which attempt to simulate this screening from Congress Street *(Figures 4 and 5)*. It should be noted that the renderings do not capture the entirety of the evergreen buffering proposed on the eastern property line.

Figure 4: Rendering from Congress Street/UNUM Park Drive

Figure 5: Rendering from Congress Street east of 1945 Congress Street

As noted above, dumpsters are proposed on site. These should be screened with wooden fencing or evergreen landscaping in the final plan. Final comments from Jeff Tarling, the city's arborist, will be available at the time of final review. Preliminarily, it appears that his comments have been addressed.

c. *Water Quality/Storm Water Management/Erosion Control*

The applicant has proposed to increase the impervious surface area on site, and is thus required to manage and treat stormwater. Under the proposed plans, the majority of runoff from the site would be captured in a storm drain system which would outlet to the northerly portion of the site. The stormwater management plan states that this stormwater would be stored in a system of 48" pipes and treated with a jellyfish filter system prior to discharge. Ms. Swett has reviewed the design of this system and the stormwater management and erosion control plans more broadly and provided the following comments,

> *The Erosion Control Plan should include provisions for catch basin protection within Congress Street.*
>
> *The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing a proprietary Jellyfish filter system to provide stormwater treatment. The following comments should be addressed:*

- *The Applicant's project data form notes that the proposed project will result in an increase in impervious area of 23,088 SF; however, the Stormwater Management Report notes that the increase in impervious area is 48,944 SF. The impervious area listed on the stormwater calculation sheet also differs from other areas in the report. The Applicant should clarify.*
- *The Applicant should provide calculations demonstrating compliance with the redevelopment provisions of Chapter 500, which include Pollutant Impact Rankings to determine the percentage of developed area that must be treated, and the areas for which priority for treatment must be given. Additionally, per Chapter 500 Redevelopment Standards, if a redevelopment project is located in geographically separate watersheds, treatment requirements must be calculated for each separate watershed; it appears that there are two geographically separate watersheds: off-site to the north, and south towards a closed storm drain system.*
- *The Applicant should provide calculations and evidence demonstrating compliance with the requirements specified in the MaineDEP Jellyfish Approval Letter dated January 21, 2015, which includes evidence of review and approval by the manufacturer.*
- *The Applicant has proposed Low Impact Development measures, such as pervious pavement. We encourage the Applicant to review the City's Stormwater Service Charge Credit Manual (available online) to evaluate whether these stormwater quality treatment measures qualify for a Stormwater Service Charge credit and note the specific design and submission requirements for obtaining such credits. We recommend that the Applicant consider the expansion of the proposed LID measures.*

It should be noted that given the nature and extent of the proposed application of pervious pavement depicted in the site plan, staff has raised concerns about the probability of successful maintenance, and therefore utility, in the future.

The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant is proposing subsurface storage pipe to provide peak flow control. The Applicant has provided evidence demonstrating that the peak rate of runoff from the proposed site will not exceed the peak rate of runoff from the existing site; however, the following comments should be addressed:

- *The HydroCAD model should utilize the most recent rainfall data provided in Appendix H ofMaineDEP Chapter 500 Rules.*
- *The HydroCAD model of the post-development site appears to include an area that is approximately 33,000 SF smaller than the HydroCAD model area of the pre-development site.*
- *It appears from the drainage figures that the sloped areas located to the north of the site near Point of Analysis 2 were not included in the post-development model. The models should encompass the same area.*
- *Inconsistent methods have been utilized to calculate the Time of Concentration for existing and proposed subcatchment areas within HydroCAD, including Direct Entry ranging from four to seven minutes, and manual entries for subcatchments of similar size and surface cover.*
- *Additionally, a minimum time of concentration of 15 minutes has been utilized. These practices are not typical. The Applicant should clarify and revise the model to use consistent methods and a minimum time of concentration that is consistent with standard engineering practices.*
- *It appears that the HydroCAD model accounts for storage within catch basins; this is not typical.The Applicant should clarify.*
- *It appears that the storage modeled for the subsurface storage pipe (Pond 17P) is larger than what is indicated on the drawings. The Applicant should clarify.*

- *The outlet devices modeled for CB 8 in HydroCAD (Pond 17P) do not appear to match what is proposed on the drawings. The Applicant should clarify.*

The Applicant should verify the condition of the existing storm drain system associated with their stormwater models Point of Analysis #1.

Adequate inlet and outlet protection (i.e. rip rap or turf reinforcement matting) should be provided for all daylighting culverts.

The stormwater inspection and maintenance plan should provide reference to Chapter 32 of the City of Portland Code of Ordinances

The Applicant should provide a detail for proposed Riprap Protection and DripStrip with Underdrain.

Staff has requested that the applicant provide verification that Site Location of Development Law does not apply for the purposes of this project.

The grading plan shows a 90' rock and boulder retaining wall at the bottom of a regraded slope at the rear of the site. Ms. Swett notes,

The Applicant has proposed a rock and boulder retaining wall that is over three feet in height in some sections. A geotechnical evaluation of the proposed project was not submitted with the application. Has a geotechnical evaluation been performed, or are the subsurface soil types and soil bearing capacities assumed in the design of the slope stabilization / wall system? If assumed, we recommend noting those assumptions on the plans and we recommend requiring verification of those assumptions and associated calculations by the contractor and design engineer during construction.

3. Public Infrastructure and Community Safety Standards

a. Consistency with Related Master Plans
As noted above, the project is generally deemed consistent with related master plans.

b. Public Safety and Fire Prevention
There are no public safety concerns at this time. Likewise, Assistant Fire Chief Keith Gautreau has reviewed the preliminary plans and has raised no concerns regarding fire safety *(Attachment 5).*

c. Availability and Capacity of Public Utilities
The applicant has proposed to bring water to the site via three separate lines from the existing 12" main in Congress Street. Sewer is proposed to collect at an existing pump station and from there outlet to an existing separated line in Congress Street. Underground electric would run to the medical office building and Elks Lodge from a new pole on Congress Street at the eastern property line and to the general office building from an existing pole on UNUM Park Drive. Ms. Swett has reviewed the utility plan and writes,

The Applicant should provide a detail for the pavement repair associated with the utility trench repair work in Congress Street per the City of Portland Technical Standards for work within the Right-of-Way.

4. Site Design Standards

a. Massing, Ventilation, and Wind Impact

The bulk, location, or height of the buildings are not likely to result in health or safety problems from a reduction in ventilation to abutting structures.The applicant has provided information on the location of HVAC systems which indicate that these systems will be roof-mounted, except in the case of the Elks Lodge, where the HVAC unit will be located on the ground. This unit should be depicted in the revised plans.

b. Shadows

The buildings will not cast shadows on publicly accessible open spaces.

c. Snow and Ice Loading

The project is not likely to result in snow or ice loading impacts. Ms. Swett has noted,

> *The general notes on sheet C1.1 Site plan reference snow clearing notes, however those notes have not been provided on the sheet. The notes are listed on the Subdivision Plat. No snow storage areas have been identified on either plan.*

d. View Corridors

The project does not lie on a protected view corridor.

e. Historic Resources

Historic preservation review is required for projects within 100 feet of a historic district or landmark. The Stroudwater Historic District lies 500 feet to the east of the site. As such, this project is not subject to historic preservation review.

f. Exterior Lighting

The applicant has provided a photometric plan and lighting cut sheets which meet the city's technical standards *(Plan 16 and Attachment N)*. A combination of 8' and 25' foot poles are proposed. The master plan indicates that lights will be dimmed after 8 p.m. and have an auto shutoff mode with a motion detection override between 11 p.m. and 6 a.m. The condominium documents should be written to codify this lighting management plan.

g. Noise and Vibration

As noted above, staff has requested information on the location of the Elks Lodge HVAC equipment. Otherwise, no noise and vibration impacts are anticipated.

h. Signage and Wayfinding

The applicant has indicated that they intend to submit a sign plan in the final plan set. This plan should document that the number and placement of signs meet the provisions of the sign ordinance. Staff has also advised the applicant that building signs are required to be designed in proportion and character with building facades.

i. Zoning-Related Design Standards

The design of the proposed buildings is subject to review under the development standards of the O-P zone, as well as the guidelines of the applicant's master plan for the site. The applicant has submitted renderings depicting the current design approach for the three buildings proposed on site, based largely on comments received from the design review of the master plan submittal *(Plans 17-28 and Figures 6-8)*. These renderings show a revised medical office building, clad in clapboard and stone, with a door facing Congress Street. The Elks building has been revised to show clapboard

Figures 6, 7, and 8: Renderings of the general office building (top; medical office building (center), and renovated Elks Lodge (bottom)

siding and additional windows, and the Clark building has been modified entirely to show a flat roof with a gabled corner, playing off themes used in the medical office building, with stone and clapboard siding and extensive use of glass. All three buildings are proposed with common canopy features.

Caitlin Cameron, the city's urban designer, has provided design review comments *(Attachment 6)*. These comments are generally positive regarding the design, raising only one question with respect to consistency in window treatment between the two office buildings.

XIV. NEXT STEPS

1. Applicant to address staff comments and additional comments of the Planning Board;
2. Applicant to prepare complete subdivision and site plan submission, including requirements as included in *14-496(a)* and *(b)* and *14-527(e)* and *(f)*, for review by the Planning Authority and Planning Board; and
3. Planning Board to hold final hearing.

XV. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. City surveyor review (memo from Bill Clark, 7/12/16)
2. Civil Engineer review (memo from Lauren Swett, 7/13/16)
3. Traffic Engineer review (memo from Thomas Errico, 7/20/16)
4. City Arborist review (memo from Jeff Tarling, 7/12/16)
5. Fire Prevention Bureau review (memo from Keith Gautreau, 7/11/16)
6. Urban Design review (memo from Caitlin Cameron, 7/20/16)
7. Planning review (memo from Nell Donaldson)

APPLICANT'S SUBMITTALS

A. Cover Letter
B. Level III Development Review Application
C. Right, Title, and Interest
D. Financial Capacity Letter
E. Master Plan
F. Evidence of Federal & State Permits
G. Zoning Overview
H. Evidence of Utility Capacity
I. Traffic Movement Permit
J. Parking Narrative
K. Condo Overview
L. Stormwater Management Report
M. Neighborhood Meeting
N. Site Furnishings
O. Cover Letter (from Tom Greer, 6/17/16)
P. Response to William Clark Memo
Q. Response to Planning Memo

PLANS

Plan 1. Boundary Survey
Plan 2. Subdivision Plat
Plan 3. Site Plan
Plan 4. Existing Conditions and Demolition Plan
Plan 5. Utilities Plan
Plan 6. Grading Plan

Plan 7. Erosion Control Plan
Plan 8. Details
Plan 9. Details
Plan 10. Details
Plan 11. Details
Plan 12. Details
Plan 13. Details
Plan 14. Drainage Analysis
Plan 15. Planting Plan
Plan 16. Photometric Plan
Plan 17. Clark Insurance Floor Plan
Plan 18. Clark Insurance Roof Plan
Plan 19. Elks Floor Plan
Plan 20. Medical Office Floor Plan
Plan 21. Medical Office Roof Plan
Plan 22. Medical Office Elevation
Plan 23. Medical Office Elevation
Plan 24. Elks Rendering
Plan 25. Clark Insurance Rendering
Plan 26. Clark Insurance Rendering
Plan 27. Medical Office Rendering
Plan 28. Medical Office Rendering
Plan 29. Elks Site Views Key
Plan 30. Congress Street View
Plan 31. Airport View

PUBLIC COMMENT

PC-1. Email from Bill Linnell, 5/2/16
PC-2. Letter from Eugenia O'Brien, 5/4/16
PC-3. Email from Roger Hinchcliffe, 5/9/16
PC-4. Email from David Silk, 5/9/16
PC-5. Email from Bill Linnell, 5/9/16
PC-6. Email from the Stroudwater Village Association, 5/10/16
PC-7. Email from the Stroudwater Village Association, 7/20/16
PC-8. Email from Bill Linnell, 7/20/16
PC-9. Email from David Silk, 7/21/16

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

another subdivision plat

William Clark <wbc@portlandmaine.gov> Tue, Jul 12, 2016 at 1:30 PM
To: Helen Donaldson <hcd@portlandmaine.gov>
Cc: Lauren Swett <lswett@woodardcurran.com>, Katherine Earley <kas@portlandmaine.gov>, Charles Wordell <cww@portlandmaine.gov>

Hi Nell,

Please see attached review of the 1945 Congress St Elks Lodge Subdivision Plat dated 7 11 2016.

Items of note.

1. Conflicts with text versus hatching and lines. Plans will not scan well at the Registry of Deeds and information such as bearings and distances will not be legible.

2. Property line is thin. Suggest same thickness as the Existing Conditions Survey from May 2016.

3. Property corners need to be set.

4. Need chord bearing and distance along the Unum Park Drive curve.

5. North arrow is Grid and not Magnetic.

6. Vertical Datum?

7. Reference to Survey Plan from Maine Survey Consultants May 2016.

8. Professional Land Surveyor Seal is required.

9. Building Setback Distances are not shown.

Thanks,

Bill
[Quoted text hidden]

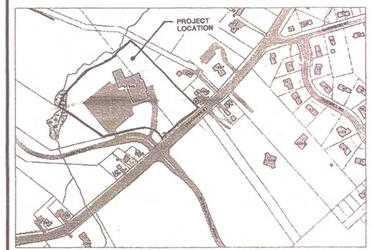
1245 Congress St Subdivision Plat 7 11 2016 Survey Review 7 12 2016.PDF
1700K

CITY OF PORTLAND SITE PLAN AND SUBDIVISION 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.
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.
10. SUBDIVISION AT THE TIME OF APPROVAL IS DEFINED AS "SUBDIVISION SHALL MEAN THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING LOTS OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OR STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD AND THE DIVISION OF AN EXISTING STRUCTURE OR STRUCTURES PREVIOUSLY USED FOR COMMERCIAL OR INDUSTRIAL USE INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSE OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE ANY PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTIFAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS."

PARKING INFORMATION

	REQUIRED		PROVIDED
	PROFESSIONAL OFFICES	ASSEMBLY	
	1 PER 400 SQ. FT.	1 PER 125 SQ. FT.	
AUTOMOBILE	103	108	263
BICYCLE			40
2-WHEELED MOTORIZED			12



LOCATION PLAN

NOT TO SCALE

SNOW CLEARANCE NOTES

1. SNOW IS TO BE STORED WITHIN THE SNOW STORAGE AREAS.
2. SNOW MAY BE PHYSICALLY REMOVED AND TRANSPORTED OFFSITE IF NECCESSARY.
3. SNOW TRANSPORTED OFFSITE SHALL BE BROUGHT TO A MAINE DEP APPROVED "SNOW DUMP" OR MEET THE EXEMPTION REQUIREMENTS SPECIFIED WITHIN CHAPTER 573 WHEN THE ABOVE REQUIREMENTS CANNOT BE MET DUE TO AN ABUNDANCE OF SNOW.
4. THE SNOW CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO VEGETATION, LANDSCAPING, CURBING, LIGHTING, FENCING ETC. RESULTING FROM THEIR ACTIVITIES.
5. THE SNOW CONTRACTOR SHALL USE SALT OR CHLORIDE SUBSTITUTE TO DEICE THE PARKING LOT.
6. THE OWNER IS RESPONSIBLE FOR SNOW REMOVAL BEING UNDERTAKEN IN A TIMELY FASHION.

SURVEY PLAN REFERENCES

1. STANDARD BOUNDARY SURVEY OF PORTLAND LODGE NO. 188 FOR UNUM CORP. DATED THROUGH 08-18-98 SURVEY BY SEBAGO TECHNICS RECORDED IN CCRD PB 198, PG 365.
2. STANDARD BOUNDARY AND TOPOGRAPHIC SURVEY OF B.P.O.E. PARCEL MADE FOR UNUM LIFE INSURANCE CO. DATED APRIL 1995 SURVEY BY OWEN HASKELL, INC.
3. PLAN OF PROPERTY MADE FOR PORTLAND WATER DISTRICT DATED 12-22-1980 BY H.I. & E.C. JORDAN.
4. DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP DATED APRIL 1983 D.O.T. FILE NO. 3-403.
5. CITY OF PORTLAND MAINE PUBLIC WORKS GARRISON & CONGRESS STREET SEWER DATED 04-25-84.
6. PLAN & PROFILE UNUM HO-3 OFFSITE TRAFFIC IMPROVEMENT DATED 4-24-98 PREPARED BY SEBAGO TECHNICS.

SURVEY NOTES

1. ELEVATIONS REFER TO NGVD 29 VERTICAL DATUM.

ZONE INFORMATION

ZONE: O-P, OFFICE PARK
PERMITTED USE: PROFESSIONAL BUILDINGS
GRANDFATHERED USE: ASSEMBLY

SPACE STANDARDS	REQUIRED	PROVIDED
MINIMUM LOT SIZE	1.5 ACRES	6.99 ACRES
MINIMUM STREET FRONTAGE	100 FEET	296 FEET
MINIMUM FRONT YARD	50 FEET	53 FEET
MINIMUM REAR YARD	50 FEET	100 & 184 FEET
MINIMUM SIDE YARD	25 FEET ①	90, 122 & 30 FEET
MAXIMUM BUILDING HEIGHT	55 FEET	30 FEET±

① EXCEPT WHERE A SIDE YARD ABUTS A RESIDENTIAL ZONE OR USE, IN WHICH CASE IT SHALL BE 40 FEET.

IMPERVIOUS INFORMATION

EXISTING IMPERVIOUS	118,451 SQ. FT.
PROPOSED IMPERVIOUS	167,395 SQ. FT.
NET IMPERVIOUS	+ 48,944 SQ. FT.

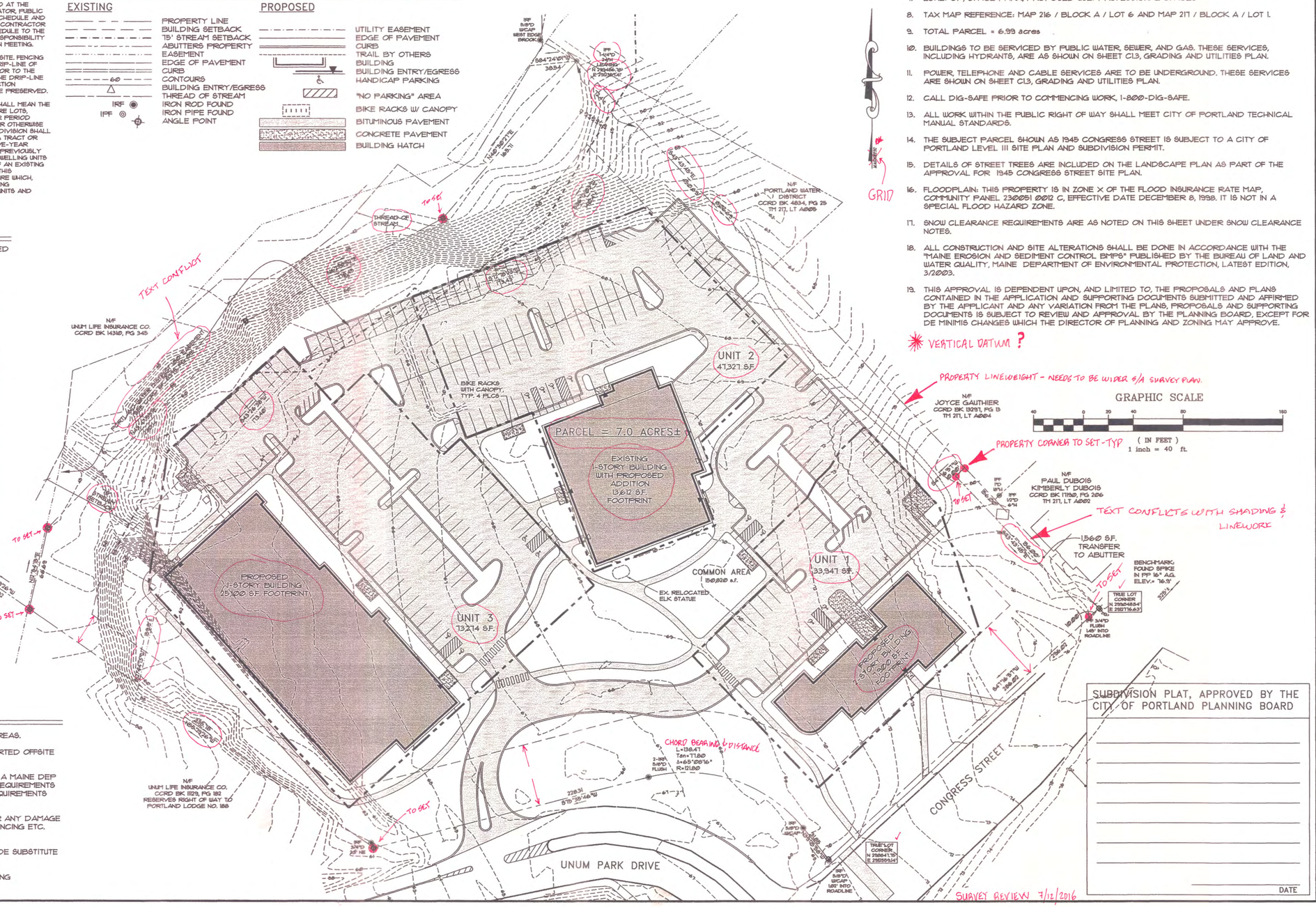
LEGEND

EXISTING

- PROPERTY LINE
- BUILDING SETBACK
- 75' STREAM SETBACK
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- CURB
- 60 CONTOURS
- BUILDING ENTRY/EGRESS
- THREAD OF STREAM
- IRF IRON ROD FOUND
- IPF IRON PIPE FOUND
- ANGLE POINT

PROPOSED

- UTILITY EASEMENT
- EDGE OF PAVEMENT
- CURB
- TRAIL BY OTHERS
- BUILDING
- BUILDING ENTRY/EGRESS
- HANDICAP PARKING
- "NO PARKING" AREA
- BIKE RACKS W/ CANOPY
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BUILDING HATCH



VERTICAL DATUM ?

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

GENERAL NOTES

1. OWNER: PORTLAND LODGE #188 BENEVOLENT AND PROTECTIVE ORDER OF ELKS OF UNITED STATES OF AMERICA, 1945 CONGRESS STREET, PORTLAND MAINE. DEED RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS BK. 3615?, PG. 37, DATE 4/28/1983.
2. DEVELOPER: NORTHLAND ENTERPRISES, LLC, 17 SOUTH STREET, PORTLAND MAINE, 04101
3. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
4. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
5. TOPOGRAPHIC AND BOUNDARY INFORMATION PROVIDED BY MAINE SURVEY CONSULTANTS, INC., P.O. BOX 485, HARRISON, MAINE. REFERENCE IS MADE TO "BOUNDARY PLAN & TOPOGRAPHIC SURVEY FOR PINKHAM & GREER ENGINEERS 28 VANNAH AVE. PORTLAND, MAINE 04103 OWNER OF RECORD: PORTLAND LODGE #188 B.P.O.E. OF USA" DATED DECEMBER 2014.
   REFERENCE TO MAINE SURVEY CONSULTANTS EXISTING CONDITIONS PLAN ... DATED MAY 2016
6. UNDERLYING SOILS MAPPING TAKEN FROM SOIL CONSERVATION STUDY OF CUMBERLAND COUNTY.
7. ZONE: OP, OFFICE PARK. PROPOSED USE: PROFESSIONAL OFFICES
8. TAX MAP REFERENCE: MAP 216 / BLOCK A / LOT 6 AND MAP 217 / BLOCK A / LOT 1.
9. TOTAL PARCEL = 6.99 acres
10. BUILDINGS TO BE SERVICED BY PUBLIC WATER, SEWER, AND GAS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND. THESE SERVICES ARE SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
12. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 1-800-DIG-SAFE.
13. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
14. THE SUBJECT PARCEL SHOWN AS 1945 CONGRESS STREET IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
15. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR 1945 CONGRESS STREET SITE PLAN.
16. FLOODPLAIN: THIS PROPERTY IS IN ZONE X OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0012 C, EFFECTIVE DATE DECEMBER 8, 1998. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
17. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON THIS SHEET UNDER SNOW CLEARANCE NOTES.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, 3/2003.
19. THIS APPROVAL IS DEPENDENT UPON, AND LIMITED TO, THE PROPOSALS AND PLANS CONTAINED IN THE APPLICATION AND SUPPORTING DOCUMENTS SUBMITTED AND AFFIRMED BY THE APPLICANT AND ANY VARIATION FROM THE PLANS, PROPOSALS AND SUPPORTING DOCUMENTS IS SUBJECT TO REVIEW AND APPROVAL BY THE PLANNING BOARD, EXCEPT FOR DE MINIMIS CHANGES WHICH THE DIRECTOR OF PLANNING AND ZONING MAY APPROVE.

SUBDIVISION PLAT, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
TEL: 207.781.5242 FAX: 207.781.4265

STATE OF MAINE THOMAS S. GREER No. 4268 LICENSED PROFESSIONAL ENGINEER

7/10/16

PLS SEAL
Delmore A. Maxfield, Jr.

REV.	DATE	DESCRIPTION
3	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS
2	6/17/16	PRELIMINARY SITE PLAN REVIEW
1	4/21/16	ADDED TRANSFER TO ABUTTER

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: APRIL 14, 2016
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

SUBDIVISION PLAT

C1.0

MAP/LOT 216-A-6 & 217-A-1

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

Att. 2

MEMORANDUM

TO: Nell Donaldson, Planner
FROM: Lauren Swett, PE
DATE: July 13, 2016
RE: 1945 Congress Street, Level III Site Plan Application

Woodard & Curran has reviewed the Level III Site Plan Application for the proposed redevelopment of the Elks Lodge Site located at 1945 Congress Street in Portland, Maine. The project involves the renovation of the Elks building and the addition of medical building and a general office building.

Documents Reviewed by Woodard & Curran

- Stormwater Management Report, dated July 11, 2016, prepared by Pinkham & Greer Civil Engineers, on behalf of Northland Enterprises, LLC.
- Updated project plans, dated July 11, 2016, prepared by Pinkham & Greer Civil Engineers, on behalf of Northland Enterprises, LLC.

Comments (*Comments in italics from previous memorandum*)

1) *The proposed project will disturb more than one acre. The Applicant should note that a Maine Construction General Permit will be required from the MaineDEP, and that copies of all permits should be provided to the City upon receipt.*
2) *The Master Plan Overview refers to existing wetland areas that will be preserved. Based on the Site Analysis Figure (Exhibit 5 – Regulatory Restrictions), it does not appear that any wetland impacts are proposed at this time. The Applicant should note that a wetland delineation report should be provided as part of the Site Plan Application.* The Parking lots are shown within the area identified as the 75-foot stream setback. It is anticipated that at least a Maine DEP NRPA Permit By Rule submission will be required, but the Applicant should coordinate with the Maine DEP to confirm permit requirements.
3) *The Applicant has submitted a City of Portland Wastewater Capacity Application. The Applicant should note that they will be required to provide evidence of capacity to serve and approval of the proposed design from the Portland Water District as part of the Site Plan Application.*
4) 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 Erosion Control Plan should include provisions for catch basin protection within Congress Street.
   b) General Standard: The project is required to include stormwater management features for stormwater quality control. The Applicant is proposing a proprietary Jellyfish filter system to provide stormwater treatment. The following comments should be addressed:
      - The Applicant's project data form notes that the proposed project will result in an increase in impervious area of 23,088 SF; however, the Stormwater Management Report notes that the increase in impervious area is 48,944 SF. The impervious area listed on the stormwater calculation sheet also differs from other areas in the report. The Applicant should clarify.
      - The Applicant should provide calculations demonstrating compliance with the redevelopment provisions of Chapter 500, which include Pollutant Impact Rankings to determine the percentage of developed area that must be treated, and the areas for which priority for treatment must be given. Additionally, per Chapter 500 Redevelopment Standards, if a redevelopment project is located in geographically separate watersheds, treatment requirements must be calculated for each separate watershed; it appears that there are two geographically separate watersheds: off-site to the north, and south towards a closed storm drain system.

- The Applicant should provide calculations and evidence demonstrating compliance with the requirements specified in the MaineDEP Jellyfish Approval Letter dated January 21, 2015, which includes evidence of review and approval by the manufacturer.
- The Applicant has proposed Low Impact Development measures, such as pervious pavement. We encourage the Applicant to review the City's Stormwater Service Charge Credit Manual (available online) to evaluate whether these stormwater quality treatment measures qualify for a Stormwater Service Charge credit and note the specific design and submission requirements for obtaining such credits. We recommend that the Applicant consider the expansion of the proposed LID measures.

c) Flooding Standard: The project is required to include stormwater management features to control the rate or quantity of stormwater runoff from the site. The Applicant is proposing subsurface storage pipe to provide peak flow control. The Applicant has provided evidence demonstrating that the peak rate of runoff from the proposed site will not exceed the peak rate of runoff from the existing site; however, the following comments should be addressed:
   - The HydroCAD model should utilize the most recent rainfall data provided in Appendix H of MaineDEP Chapter 500 Rules.
   - The HydroCAD model of the post-development site appears to include an area that is approximately 33,000 SF smaller than the HydroCAD model area of the pre-development site. It appears from the drainage figures that the sloped areas located to the north of the site near Point of Analysis 2 were not included in the post-development model. The models should encompass the same area.
   - Inconsistent methods have been utilized to calculate the Time of Concentration for existing and proposed subcatchment areas within HydroCAD, including Direct Entry ranging from four to seven minutes, and manual entries for subcatchments of similar size and surface cover. Additionally, a minimum time of concentration of 15 minutes has been utilized. These practices are not typical. The Applicant should clarify and revise the model to use consistent methods and a minimum time of concentration that is consistent with standard engineering practices.
   - It appears that the HydroCAD model accounts for storage within catch basins; this is not typical. The Applicant should clarify.
   - It appears that the storage modeled for the subsurface storage pipe (Pond 17P) is larger than what is indicated on the drawings. The Applicant should clarify.
   - The outlet devices modeled for CB 8 in HydroCAD (Pond 17P) do not appear to match what is proposed on the drawings. The Applicant should clarify.

5) The Applicant should verify the condition of the existing storm drain system associated with their stormwater models Point of Analysis #1.
6) Adequate inlet and outlet protection (i.e. rip rap or turf reinforcement matting) should be provided for all daylighting culverts.
7) The stormwater inspection and maintenance plan should provide reference to Chapter 32 of the City of Portland Code of Ordinances.
8) The Applicant should provide cut sheets demonstrating that proposed lighting fixtures will be cut-off fixtures.
9) The Applicant should provide a detail for the pavement repair associated with the utility trench repair work in Congress Street per the City of Portland Technical Standards for work within the Right-of-Way.
10) The Applicant should provide a detail for proposed Riprap Protection and DripStrip with Underdrain.
11) The Applicant has proposed a rock and boulder retaining wall that is over three feet in height in some sections. A geotechnical evaluation of the proposed project was not submitted with the application. Has a geotechnical evaluation been performed, or are the subsurface soil types and soil bearing capacities assumed in the design of the slope stabilization / wall system? If assumed, we recommend noting those assumptions on the plans and we recommend requiring verification of those assumptions and associated calculations by the contractor and design engineer during construction.

12) The general notes on sheet C1.1 Site plan reference snow clearing notes, however those notes have not been provided on the sheet. The notes are listed on the Subdivision Plat. No snow storage areas have been identified on either plan.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

1945 Congress Street - Updated Traffic Comments

1 message

Tom Errico <thomas.errico@tylin.com> Wed, Jul 20, 2016 at 3:51 PM
To: Helen Donaldson <HCD@portlandmaine.gov>
Cc: Katherine Earley <kas@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>, Jeff Tarling <jst@portlandmaine.gov>, "Swett, Lauren" <lswett@woodardcurran.com>

Hi Nell – I have reviewed the application materials and offer the following traffic comments.

- **In conjunction with the Traffic Movement Permit scoping meeting, the applicant prepared a traffic study dated June 8, 2016. I have reviewed the analysis and find the methods to be acceptable. I would note the following conditions of approval for the Traffic Movement Permit:**
    - **The analysis did indicate that the vehicle queueing on UNUM Drive from Congress Street will block the proposed driveway. The applicant noted that the blockage is not expected to be a frequent event, and I agree with this conclusion. My recommendation is that the applicant develop a traffic signal timing plan that optimizes the efficiency of signal operations. In conjunction with this effort the applicant shall install hardwire interconnect cable between the subject intersection and the traffic signal at Congress Street/Westbrook Street for coordination purposes. The applicant shall implement the traffic signal upgrades prior to occupancy.**
    - **The proposed project is adding 88 new peak hour vehicles to Congress Street east of the site during both the AM and PM peak hours. The City is in the process of implementing pedestrian/transit/bicycle safety improvements in conjunction with the adopted Outer Congress Street Streetscape Study. Given project impacts it is recommended that the project make a monetary contribution towards implementation of improvements at both Garrison Street and Westbrook Street. Based upon the increased traffic levels the contribution shall be $11,200.00.**

- **It is my understanding that a Transportation Demand Management Plan will be provide by the applicant for review and comment. The applicant covers many possible TDM strategies in their June 20, 2016 Parking Letter that I believe may help to reduce parking and traffic generation. The TDM Plan should include specific action items, trip reduction targets and annual monitoring.**

- The following preliminary comments were provided with a status update:

    - The applicant has provided an estimate of parking needs for the project - generally based upon individual needs for each on-site business use. The applicant should specifically document possible parking management strategies that reduce the overall parking supply and why implementation is not feasible. Strategies should, at a minimum include: time-of-day and day-of-week business work/event hour adjustments for shared parking use; and use of off-site parking areas for peak parking events.

    Status: A detailed response has not been provided. Many of the items I note above should be considered in the TDM Plan with specific actions items.

    - Given that the proposed tenants currently operate businesses in the area, actual parking demand surveys are suggested to help quantify the parking supply requirements.

    Status: The applicant's June 20, 2016 Parking Letter does not address this comment.

▪ Although specific details on parking lot dimensions are not provided, I would suggest the applicant consider compact parking spaces and investigate other dimensional reductions. The demand for the full parking supply will only occur for a few hours one day a week and having less pavement may be beneficial.

Status: The applicant is proposing 31 compact parking spaces. This correlates to 12% of the total parking supply. The City's ordinance permits up to 20% compact parking spaces and thus the project could increase the number of compact parking spaces.

▪ The applicant may want to consider providing a portion of the parking area with a grass/structured surface. The demand for the full parking supply will only occur for a few hours one day a week and having a non-bituminous surface may be beneficial.

Status: The applicant has included 30 impervious parking spaces. I would suggest that the entire perimeter of parking be impervious. Also the applicant should note how the tandem parking will be managed

▪ The applicant shall investigate the feasibility of providing a crosswalk and sidewalk connecting into the site at the driveway on UNUM Drive.

Status: The applicant submitted a revised plan today with the suggested sidewalk connection. I will review specific details and provide feedback in the future

Please contact me if you have any questions.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T.Y. Lin International

12 Northbrook Drive

Falmouth, ME 04105

207.781.4721 (main)

207.347.4354 (direct)

207.400.0719 (mobile)

207.781.4753 (fax)

thomas.errico@tylin.com

Visit us online at www.tylin.com

Twitter | Facebook | LinkedIn | YouTube

"One Vision, One Company"

Please consider the environment before printing.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

1945 Congress Street Landscape Review

1 message

Jeff Tarling <jst@portlandmaine.gov> Tue, Jul 12, 2016 at 9:34 AM
To: Helen Donaldson <hcd@portlandmaine.gov>

Nel -

The improved landscape plan for the proposed 1945 Congress Street project looks good as shown with the exception of changing one tree species type.

Due to pending 'Emerald Ash Borer' (EAB) invasive species threat we are no longer excepting Ash trees in landscape planting. Alternate tree types Red Maple, Swamp White Oak,

Overall the plan looks much improved

Thanks

Jeff Tarling
Portland Parks & Recreation - City Arborist
55 Portland Street
Portland, ME. 04101
(207) 874.8820
jst@portlandmaine.gov

Att. 5

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

23 Ocean Avenue (2016-150) and 1945 Congress (2016-075)

Keith Gautreau <kng@portlandmaine.gov> Mon, Jul 11, 2016 at 2:48 PM
To: Helen Donaldson <hcd@portlandmaine.gov>

All set!

On Mon, Jul 11, 2016 at 9:23 AM, Helen Donaldson <hcd@portlandmaine.gov> wrote:
[Quoted text hidden]

--
Keith Gautreau, Assistant Fire Chief
Fire Prevention Bureau
Community Outreach Branch
Portland Fire Department
380 Congress Street
Portland, ME 04101
(207)874-8409
kng@portlandmaine.gov

Planning and Urban Development Department
Planning Division

Subject: OP Design Review – 1945 Congress Street

Written by: Caitlin Cameron, Urban Designer

Date of Review: Wednesday, July 20, 2016

The proposed project at 1945 Congress Street, including the new construction of two commercial office buildings and the renovation of the Elks Lodge, was reviewed according to the design-related Development Standards of the Office Park zone and the design standards of the *Office Park Master Plan for 1945 Congress Street*. The project was reviewed by Caitlin Cameron, Urban Designer, Nell Donaldson, Planner, and Barbara Barhydt, Development Review Manager.

APPLICABLE STANDARDS

The OP zoning standards apply. Of particular concern:

- **14-230.10 Purpose**: The purpose of the O-P zone is to provide substantial areas for integrated development of professional offices in a park of campus-like setting which are of the highest quality, and are well-designed and maintained and are compatible with their natural surroundings.
- **14-230.13 Development standards. (b) Design relationship to site**: Development proposals shall demonstrate a reasonable unified design of the site, including the architecture, the layout of the buildings, pedestrian and vehicular circulation plan, open space, drainage, and the topography, soil conditions, vegetation and other natural features of the site.
- **14-230.13 Development standards. (i) Architectural design**: . . . The scale, texture, color and massing of the buildings shall be coordinated. The full range of high-quality, permanent, and traditional or contemporary building materials and technology may be incorporated in a manner so that the development as a whole embodies distinguishing attributes that achieve the developer's desired degree of excellence and are in conformance with the architectural guidelines provided in the private development restrictions. Particular emphasis shall be placed on the appearance of building facades from public streets, from driveway and parking areas, and from other nearby buildings. Building elevation drawings shall be submitted which indicate architectural style, exterior finishes and color, building height and scale, and location and scale of window and door openings.

The Property Master Plan Overview expresses the following goals related to design for new development projects:

- **A2.** Design a project that is sensitive to the neighborhood concerns regarding context and compatibility;

- **A6.** Develop comprehensive design guidelines for the treatment of the existing Elks Lodge building to be retained, and the new structures to be built on the parcel based upon building locations and relationship to the site features.
- **B5.** Create guidelines for the architectural character, including restrictions to ensure compatibility of the new buildings with each other, for the two (2) new buildings with respect to compatible materials, colors and forms, treatment strategies for the Elks building, similarly detailed building entrances, and utilization of common site elements for the exterior of the buildings;

FINDINGS OF THE DESIGN REVIEW:
During the course of project review, several revisions were made to the design in response to staff and planning board comment:

Context Compatibility
The context for this project is outer Congress Street and the site is more than 100 feet away from the historic district exempting it from historic preservation review.

Material – Materials were revised to use primarily clapboard with stone accents to be more consistent with the surrounding context. Previously materials included brick and EIFS - there is very little brick in surrounding context for any type of buildings – residential or otherwise.

Unified Design Character
Overall Design – The review panel asked for the two new building design to have more cohesiveness and common characteristics. The Congress Street building was considered the more successful in meeting the Master Plan design guidelines and it was suggested the second building adopt more of the language and elements of the Congress Street building whether roof forms, entrance design, fenestration pattern, scale, and proportion. The materials are now also common throughout the property and bring cohesiveness among all three buildings.

Roofs – The roof forms of the two new buildings now share common gable form to accentuate building entries.

Entrances – The Master Plan design guidelines stipulate that all three structures shall have common entrance treatments to emphasize main entry points. The entry designs were revised to have a consistent canopy design for all buildings on the campus.

Trim and Detailing – There is a consensus that the details could be made more unified and contemporary. For example, at the Elks building, the use of the pilasters at the building corners and the "Doric" columns at the entry seem out of character with the era and style of the building – is there a more contemporary detail that could be used?

Quality
Elks Lodge – The Master Plan design guidelines state that the Elks Lodge material and trim shall be different from the new construction.

- Material – EIFS was replace with a more contextual and durable clapboard.
- Window details – Window and architectural details were revised to be more contemporary. More windows were added per comments.

- Entrances – One building entrance now identified as main entrance with the canopy design that is consistent throughout the campus.

Congress Street Building – The review panel supported the general design direction of this building:

- Material – Brick was replace with a more contextual clapboard and stone.
- Window details – Window details were revised to be more contemporary.
- Entrances – Both building entrances are now emphasized with a canopy design that is consistent throughout the campus.

Clark Insurance Building – This building was revised to have a more similar character with the Congress Street Medical Building:

- Material – Brick was replace with a more contextual clapboard and stone.
- Window details – Window details were revised to be more contemporary. Please revise window at gable end to match that of the Congress Street building.
- Entrances – Building entrance now emphasized with a canopy design that is consistent throughout the campus.

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

O-P DEVELOPMENT STANDARDS (14-230.13) (OP Planned Unit Development): 2nd Round Review Comments	
Master Plan	•
Design relationship to site	•
Landscaping	•
Impervious surface ratio	• Please document that impervious surface ratio standard is being met
Sidewalks	•
Buffers and screens	• Note that buffer maintenance should be written into condominium documents •
Preservation of natural features	•

Traffic	• Dominance of parking in site design continues to be a concern, particularly the large expanses between the Elks and Clark Insurance, especially as parking supply seems to be built around a very short peak demand.
	  • Programmatically, has every option short of building additional spaces been explored? Need more background on efforts to use parking demand management strategies to offset (i.e. using a shuttle for Bingo, locating Bingo off-site, changing Bingo time).
	  • Is there a way to integrate parking with naturalized landscaping at rear of the site?

Architectural design	• See latest comments via email to David Lloyd
Lighting	•
Signs	•

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

LEVEL II/III REVIEW (14-526): 2nd Round Review Comments		
In final submittal, provide narrative relating to site plan standards and all required documentation from application checklist		
Transportation	a. Impact on Surrounding Street Systems	•
	b. Access and Circulation	• Provide a sidewalk connection from UNUM Park Drive
	c. Public Transit Access	• As a commercial development over 20KSF, required to provide a transit facility. Bus shelter should be shown on the plan (not simply noted) with public access easement delineated (as necessary). Include note stating that location is to be coordinated with METRO.
	d. Parking	• See comments above re parking demand management and design of parking supply. Ordinance requires applicants to justify parking supply if exceeding requirement. Need to document that other options for managing supply are not workable. • Bike parking standard: Commercial – 2 spaces/10 vehicle spaces required = 18 spaces. Plans show 16 (?) Either clarify or provide additional spaces. • Bike parking should be located proximate to doors, as possible (see Clark, Elks) • Snow storage should be denoted on plan
	e. Transportation Demand Management (TDM)	• Since planning for over 100 employees, a transportation demand management plan is required in final submittal.
Environmental Quality	a. Preservation of Significant Natural Features	•
	b. Landscaping and Landscape Preservation	• Landscape plan should show limit of clearance, as should demo plan • Showing maple trees in sidewalk on island behind Elks
	c. Water Quality, Stormwater Management and Erosion Control	•
Public Infrastructure and Community Safety	a. Consistency with Master Plans	•
	b. Public Safety and Fire Prevention	•
	c. Availability and Adequate Capacity of Public Utilities	• Electrical should be underground from property line • In final submittal, will need capacity letters
Site Design	a. Massing, Ventilation and Wind Impact	• Where are HVAC venting mechanisms located?
	b. Shadows	•
	c. Snow and Ice Loading	•
	d. View Corridors	•
	e. Historic Resources	•
	f. Exterior Lighting	• Are two scales of lights still proposed? It appears that all lights on the plan are the same height, based on photometric plan
	g. Noise and Vibration	• Need documentation on that HVAC equipment meeting emissions standards
	h. Signage and Wayfinding	• Document that number and placement of signs meet the provisions of the sign ordinance. • Note that, per ordinance, building signs shall be designed

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

		in proportion and character with building facades.
	i. Zoning Related Design Standards	• See latest comments via email to David Lloyd

SUBDIVISION REVIEW (14-497) : 2nd Round Review Comments	
As with site plan review, in next submittal, provide narrative relating to the subdivision review standards and all submission requirements per ordinance	
1. Water/Air Pollution	•
2. & 3. Water Supply	• Need water capacity letter
4. Erosion	•
5. Transportation Impacts	•
6. Sanitary Sewer/Stormwater	•
7. Solid Waste	• Provide description of solid waste management plan
8. Scenic Beauty	•
9. Comprehensive Plan	•
10. Financial and Technical Capacity	• Need proof of financial capacity
11. Wetland Impacts	•
12. Groundwater Impacts	•
13. Flood-Prone Area?	
14. & 15. ID Wetlands & Rivers	

Additional Submittals Required

Evidence of state and/or federal approvals/permits required

Written assessment of compliance with zoning

Written request for waivers

Evidence of financial & technical capacity

Site plan:

- See shading at rear entry to Elks – layers are misaligned
- Denote dumpsters and indicate that they will be enclosed within wooden fence (with reference to detail)
- Identify differing lights on plan, including building-mounted lights
- Have picnic areas been eliminated?
- Show HVAC locations (and screening, if visible to street or adjacent sites)
- TMP application suggests moving speed limit sign on UNUM Park Drive. Please show this on plan.

Details:

- Include bench detail, trash can detail
- Include light details or notes re lighting types

Plat (see also original review comments attached):

- Show tree saves/limit of clearance
- Clearly delineate common areas
- Show all proposed/existing easements

Condo Docs addressing shared parking, TDM, treatment of common areas, design, landscaping, etc.

Zoning

Need elevations to verify building height

Easements

In final submittal, provide descriptions of any easements encumbering the site. It appears that the parking areas may encroach on the PWD easement, and some clearing may be completed in this easement area. Confirm that this is permissible under the terms of the easement.

Both permanent grading and temporary construction easements will be required for grading over property line to north.

Utility easement will be required from DuBois

Att. A

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

File: 13151

April 5, 2016

Ms. Helen Donaldson, Planning Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

RE: MASTER PLAN, 1945 CONGRESS STREET

Dear Nell,

Attached is the Master Plan prepared by Mohr & Seredin. It does an excellent job at portraying the existing site relative to the neighbor and puts it in context with the city. It goes on to show the on site development that we are proposing. This includes the 15,000 sq. ft. medical building and the 25,300 sq. office building.

Attached is a preliminary traffic report by Maine Traffic Resources. A full traffic study will be completed as part of the site plan review process.

We will be using a combination of underdrained soil filters and proprietary filtration systems to comply with Chapter 500 of the DEP's stormwater regulations. This project will meet the redevelopment standards in those regulations.

Also attached is a topographic and boundary survey form Maine Survey Consultants.

We have preliminary drawings of the buildings included in the package. We anticipate those will change based on review comments from the City.

This project has public water and public sewer available. We believe those will be adequate for the servicing of the development.

At this time we have no firm commitment to public easements. We are developing trail connections that will be accessible to the public.

PINKHAM & GREER
CIVIL ENGINEERS

We will hold a public informational meeting once the application is accepted.

Please review the Master Plan and let me know if you need anything else.

Sincerely,

PINKHAM & GREER,
CIVIL ENGINEERS

Thomas S. Greer, P.E.

Enclosures

cc: Northland, Mohr & Seredin, File

TSG/rjs

Att. B

PROJECT NAME: 1945 Congress Street

PROPOSED DEVELOPMENT ADDRESS:

1945 Congress Street

PROJECT DESCRIPTION:

The project renovates the Elks building and adds a 7,900 sq. ft.medical building and a 25,100 sq. ft. general office building.

CHART/BLOCK/LOT: 216-A-6 & 217-A-1

PRELIMINARY PLAN _____ (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Josh Benthien & Rex Bell Business Name, if applicable: Northland Enterprises, LLC Address: 17 South Street City/State : Portland, ME Zip Code: 04101	**Applicant Contact Information** Work # 207.780.0223 Home# Cell # Fax# e-mail: josh@northlandus.com rex@northlandus.com
Owner – (if different from Applicant) Name: Portland Lodge #1888 PBOE of USA Address: 1945 Congress Street City/State : Portland, ME Zip Code: 04101	**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 Cell # e-mail: tgreer@pinkhamandgreer.com
Billing Information Name: Same as Applicant Address: City/State : Zip Code:	**Billing Information** Work # Cell # Fax# e-mail:

Updated: October 6, 2015

Engineer Pinkham & Greer, Civil Engineers Name: Thomas S. Greer Address: 28 Vannah Avenue City/State : Portland, ME Zip Code: 04103	**Engineer Contact Information** Work # 207.781.5242 Cell # Fax# 207.781.4245 e-mail: tgreer@pinkhamandgreer.com
Surveyor Maine Survey Consultants, Inc. Name: Del Maxfield Address: PO Box 485 City/State : Harrison, ME Zip Code: 04040	**Surveyor Contact Information** Work # 207.583.6159 Cell # Fax# e-mail: dmaxfield@mainesurveyconsultants.com
Architect Archetype Architects Name: David Lloyd Address: 48 Union Wharf City/State : Portland, ME Zip Code: 04101	**Architect Contact Information** Work # 207.772.6022 Cell # Fax# e-mail: lloyd@archetypepa.com
Attorney Murray, Plumb & Murray Name: Drew Anderson Address: PO Box 9785 City/State : Portland, ME Zip Code: 04104	**Attorney Contact Information** Work # 207.773.5651 Cell # Fax# e-mail: DAA@mpmlaw.com

APPLICATION FEES:

Check all reviews that apply. (Payment may be made by Credit Card, Cash or Check payable to the City of Portland.)

Level III Development (check applicable reviews)

_X_ Less than 50,000 sq. ft. ($500.00)
___ 50,000 - 100,000 sq. ft. ($1,000)
___ 100,000 – 200,000 sq. ft. ($2,000)
___ 200,000 – 300,000 sq. ft. ($3,000)
___ over 300,00 sq. ft. ($5,000)
___ Parking lots over 11 spaces ($1,000)
___ After-the-fact Review ($1,000.00 plus applicable application fee)

Plan Amendments (check applicable reviews)

___ Planning Staff Review ($250)
___ Planning Board Review ($500)

The City invoices separately for the following:

- Notices ($.75 each)
- Legal Ad (% of total Ad)
- Planning Review ($40.00 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.

Other Reviews (check applicable reviews)

___ Traffic Movement ($1,000)
___ Stormwater Quality ($250)
_X_ Subdivisions ($500 + $25/lot)
# of Lots _3_ x $25/lot = **$575.00**
___ Site Location ($3,000, except for residential projects which shall be $200/lot)
# of Lots ___ x $200/lot = _____
___ Other _____
___ Change of Use
___ Flood Plain
___ Shoreland
___ Design Review
___ Housing Replacement
___ Historic Preservation

Updated: October 6, 2015

APPLICATION SUBMISSION:

1. All site plans and written application materials must be submitted electronically on a CD or thumb drive with each plan and each document submitted as separate files. Naming conventions for the individual files can be found on the **Electronic Plan and Document Submittal** page of the City's website at http://me-portland.civicplus.com/764/Electronic-Plan-and-Document-Submittal

2. **In addition, one (1) paper set of the plans (full size), one (1) paper set of plans (11 x 17), paper copy of written materials, and the application fee must be submitted to the Building Inspections Office to start the review process.**

The application must be complete, including but not limited to the contact information, project data, application checklists, wastewater capacity, plan for fire department review, and applicant signature. The submissions shall include one (1) paper packet with folded plans containing the following materials:

1. **One (1) full size site plans** that must be **folded.**
2. One (1) copy of all written materials or as follows, unless otherwise noted:
   a. Application form that is completed and signed.
   b. Cover letter stating the nature of the project.
   c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
3. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 50 feet.
4. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
5. One (1) set of plans reduced to 11 x 17.

Please refer to the application checklist (attached) for a detailed list of submission requirements.

APPLICANT SIGNATURE:

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 S[illegible]	7/20/10

PROJECT DATA

The following information is required where applicable, in order to complete the application.

Total Area of Site	304,207sq. ft.
Proposed Total Disturbed Area of the Site	260,000 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)	120,293 sq. ft.
Impervious Area (Total Proposed)	160,625sq. ft.
Building Ground Floor Area and Total Floor Area	
Building Footprint (Total Existing)	23,090 sq. ft.
Building Footprint (Total Proposed)	46,612 sq. ft.
Building Floor Area (Total Existing)	23,090 sq. ft.
Building Floor Area (Total Proposed)	54,512 sq. ft.
Zoning	
Existing	OP
Proposed, if applicable	OP
Land Use	
Existing	Assembly
Proposed	Office Professional / 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)	254 +/-
# of Parking Spaces (Total Proposed)	263 cars & 12 2-wheeled
# of Handicapped Spaces (Total Proposed)	12
Bicycle Parking Spaces	
# of Bicycle Spaces (Total Existing)	0
# of Bicycle Spaces (Total Proposed)	40
Estimated Cost of Project	6,600,000.00

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
x		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
x		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;	
		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)**
		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;
			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;
			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);
			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;
			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;
		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;
		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.

REAL ESTATE PURCHASE AND SALE AGREEMENT

This Agreement, dated the 11th day of June, 2014 (the "Contract Date"), is between Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America ("Seller"), having a place of business at 1945 Congress Street, Portland, Maine, and Dr. Michael Bedecs having a place of business at 1375 Congress Street, Portland, ME and Northland Enterprises, LLC, or its permitted assignee (collectively, "Purchaser"), having a place of business at 17 South Street, 3rd floor, Portland, Maine 04101. The parties agree as follows:

1. Purchase and Sale of Property; Condominium Conversion.

(a) Subject to the terms and conditions set forth herein, Seller agrees to sell to Purchaser, and Purchaser agrees to purchase from Seller, the following described property owned by Seller (collectively, the "Property"):

(i) That certain lot or parcel of real property known as 1945 Congress Street, Portland, Maine, being a portion of the property described in a deed from Elks Home, Portland, Maine, Lodge No. 188 Benevolent and Protective order of Elks to Seller, and recorded in the Cumberland County Registry of Deeds at Book 6157, Page 37, provided that the conveyance shall not include the retained portion of the Seller's building (being approximately 13,000 square feet of the total usable footprint of such building including the storage area) (the "Seller's Retained Building"). The property to be conveyed is generally identified on the Concept Plan attached to and made a part hereof as Exhibit A.

(ii) A portion of the existing building on the real property shall be removed and demolished by Buyer and a new interior and exterior wall installed, with all of the foregoing in a manner acceptable to the parties as set forth in Section 5.1, and the configuration of the Seller's Retained Building to be as shown on the sketch plan attached to and made a part hereof as Exhibit B. All fixtures and improvements situated on the real property owned by Seller are to be retained by Seller and shall be part of Seller's Retained Building.

(iii) For sake of clarity, Seller is retaining the Seller's Retained Building, an Elk statue and flag and flagpole as well as an Elks sign (such statue, flagpole and sign to be limited common elements under the condominium documents) to be located near Congress Street entrance at the general location designated on Exhibit C (such location to be subject to requirements that may be set out in any permits and approvals for the property and state and local sign ordinances), together with a pro rata

interest in the parking areas and common areas of the real property, all to be set forth in the condominium documents (more fully described below) to be prepared and recorded immediately following recording of the Deed (defined below). Purchaser agrees to cause a Maine Licensed Professional Surveyor to prepare and provide to Seller a metes and bounds description of the Property (including the property to be conveyed by Seller and the property to be retained) within ninety (90) days after the date the Lodge Approvals are obtained.

(b) Contemporaneously with the delivery and recording of the Deed, Purchaser shall cause to be recorded a Declaration of Condominium whereby the Property is converted to condominium ownership. The Condominium documents shall be prepared at Purchaser's cost and expense, shall be delivered in complete form to Seller on or before thirty (30) days after the Zoning Contingency expiration date and shall be subject to Seller's approval, not to be unreasonably withheld, delayed or conditioned. The Condominium documents shall, among other things, create a separate unit for the Seller's Retained Building ("Seller's Unit"), which shall include as limited common elements at a minimum the required number of parking spaces for Seller's Unit to satisfy all applicable zoning requirements, but at a minimum five (5) parking spaces per 1,000 square feet (Purchaser acknowledges, however, Seller's need for additional parking spaces on certain days and on weekends), and a pro-rata share of the common elements of the condominium, as well as provide a budget including anticipated condominium fees that will be due to the Condominium Association. Purchaser shall, as soon as practicable after the Closing and in consultation with Seller as to the schedule of work, perform the work necessary to reduce the size of the Seller's existing building to the Seller's Retained Building and erect a code-compliant exterior wall in form and substance acceptable to Seller as part of Seller's Unit. Purchaser shall also construct a new façade on all sides of Seller's Unit building and separate the utilities so that Seller's Unit is a separate and distinct Unit. Purchaser's work, the new building configuration and the location of the wall shall be more specifically identified in scope and cost as set forth in this Purchase and Sale Agreement (detail attached as Addendum #1).

Purchaser shall submit plans and specifications to Seller with respect to the foregoing work prior to submission to the City of Portland or its lender, which plans and specifications shall be subject to Seller's approval, not to be unreasonably withheld, delayed or conditioned. Purchaser will construct the improvements to Seller's Unit in accordance with the plans and specifications. Purchaser shall conduct such work in such a manner as to minimize as much as possible any disruption to Seller's use and enjoyment of Seller's Unit, in particular at times when any banquets, weddings, or similar revenue producing events are taking place. Work shall be conducted between the hours of 7:00 AM and 5:00 PM, Monday through Friday. Purchaser shall minimize any weekend or night construction activities, and if work is required during those times, Purchaser will notify Seller and to help minimize the impact to Seller's business, Seller's approval shall

be required prior to the performance of any such work. Without limiting the general nature of the foregoing, no blasting, pile driving or similarly loud work shall be performed on Tuesdays between 10:00 am and 4:30 pm [when bingo operates] or on weekends from Friday at 5:00 pm until Monday morning at 7:00 am.

c) Seller shall give Purchaser a right of first refusal to purchase Seller's Unit at Purchaser's option if at any time Seller decides to sell the Seller's Unit. Purchaser shall pay the amount set forth in any written offer made in a purchase and sale agreement Seller receives from a bona fide arms-length third party, minus a credit equal to an amount to be determined (either a dollar amount or a manner for calculating a dollar amount) by the parties in accordance with Section 5.1 of this Agreement ("Purchaser's Improvement Credit"). Without limiting the foregoing, Purchaser's Improvement Credit shall be calculated based upon the costs that Purchaser anticipates it shall pay for work on the common area infrastructure and other common area improvements to the Property, together with the cost of renovations to Seller's Retained Building including erection of new exterior wall and re-skinning of Seller's Retained Building, pro-rated based on the ownership interests allocated to Seller's Unit under the condominium documents. The dollar amount of Purchaser's Improvement Credit shall be reduced by equal 10% increments upon each anniversary of the date Purchaser's renovations to Seller's Retained Building are completed, with the manner of establishing such date to be determined by the parties in accordance with Section 5.1 of this Agreement (such date, the "Completion Date"), such that Purchaser's Improvement Credit shall be reduced to zero upon the tenth anniversary of the Completion Date. Seller and Purchaser agree to enter into a Right of First Refusal Agreement at the Closing in recordable form, containing terms and conditions reasonably satisfactory to the parties.

2. Purchase Price. The agreed purchase price for the Property is One Million Two Hundred Fifty Thousand Dollars ($1,250,000.00) (the "Purchase Price"), payable as follows:

(a)(1) Fifty Thousand Dollars ($50,000) has been paid into escrow prior to the date hereof, and an additional Fifty Thousand Dollars ($50,000), for a total deposit of One Hundred Thousand Dollars ($100,000.00) shall be paid within two (2) business days of the later to occur of (i) the Additional Contingencies Expiration Date (as defined in Paragraph 5.1) or (ii) the date the Lodge Approvals (as defined in Section 8(a)) are obtained, which amount shall be held by Malone Commercial Brokers ("Escrow Agent") as earnest money deposit hereunder and shall be applied as part payment of the purchase price (the "Deposit"). Purchaser may terminate this Agreement only based upon the grounds set forth below in paragraphs 5, 5.1 and 8, and only prior to the Zoning Contingency Expiration Date (defined below). Upon a timely, valid termination, the refundable portion of the Deposit shall be promptly returned to Purchaser. Nothing herein shall be deemed to limit Purchaser's right to terminate this Agreement pursuant to paragraph 6.

(a)(2)(i) Sixty (60) days after both the Lodge Approvals and UNUM Release as set forth in Paragraph 8 have been obtained (provided this Agreement has not been terminated in accordance with its terms by either party prior thereto), Five Thousand Dollars ($5,000.00) of the Deposit shall become non-refundable notwithstanding anything in this Agreement to the contrary.

(ii) The remainder of the Deposit shall become non-refundable upon the Zoning Contingency Expiration Date (as defined below) provided this Agreement has not been terminated in accordance with its terms by either party prior thereto, and except for Seller's default under this Agreement or Seller's inability to convey title in accordance with Paragraph 4 of this Agreement; and

(b) The balance of the Purchase Price of $1,150,000.00 shall be paid at the time of delivery of the deed in good certified or bank check(s), or by wire transfer.

The Deposit shall be placed in a non-interest-bearing escrow account.

3. Adjustments. Real estate taxes for the then current tax period shall be apportioned as of the day of closing under this Agreement and the net amount thereof shall be added to or deducted from, as the case may be, the purchase price payable by the Purchaser at the time of delivery of the Deed.

4. Conveyance: Title.

(a) Seller shall convey the Property to Purchaser by good and sufficient quitclaim deed with covenant (the "Deed"). Title to the Property shall be good and marketable and shall be free and clear of all liens and encumbrances except (i) zoning restrictions, building laws and land use matters, provided same do not prevent or unreasonably interfere with Purchaser's intended use and development of the Property; (ii) easements and restrictions of record; (iii) current taxes and assessments; (iv) any liens for municipal betterments assessed after the date of the Closing under this Agreement; and (v) any "Defects of Title" (defined below) as accepted or waived by Purchaser pursuant to Section 4(b).

(b) Purchaser shall notify Seller of any and all defects in title which are of record, or which would otherwise make Seller unable to give title to the Property as herein stipulated, including, without limitation as provided in Section 4(a) (any of which is called herein a "Defect of Title") within forty-five (45) days of the later to occur of the receipt of the Lodge Approvals or UNUM Release. With respect to the existence of any Defect of Title that does not exist on the date of this Agreement, but which arises prior to Closing, Purchaser shall notify Seller of any such Defect of Title which arises six (6) or more days prior to closing, at least five (5) days prior to closing, and any other defects

arising thereafter, on or prior to the Closing. If Purchaser notifies Seller of any Defects in Title, then the Seller shall use diligent efforts to remove any such Defects in Title (but shall not be required to expend in excess of $10,000 to remove any such defect which shall be exclusive of any mortgages or liens which may be discharged by the payment of money only), in which event the time for performance hereof shall be extended for a period of time reasonably sufficient to permit the Seller to perform hereunder, not to exceed sixty (60) days in any event. Seller may also elect to use funds from the Closing under this Agreement to remove any Defects in Title, which shall be sufficient to correct such defects and satisfy its obligations under this paragraph. If such Defects of Title are not corrected or remedied as provided herein within such additional 60-day period, then Purchaser shall elect, either (i) to accept title to the Property subject to the uncured Defects of Title, or (ii) to terminate this Agreement, whereupon, notwithstanding Paragraph 2(a)(2)(ii) the entire Deposit, except for the $5,000 described in Section 2(a)(2)(i) shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

5. ~~Due Diligence Period, Materials Delivered by Seller, Inspections and Right to Terminate~~.

(a) Seller shall provide to Purchaser copies of such surveys and plans, and engineering reports (including environmental reports, studies or evaluations) of the Property that Seller may have in its control or possession within seven (7) business days of the Contract Date.

(b) Purchaser and others whom Purchaser may designate may, at Purchaser's option and at its sole risk and expense, retain a person or persons to examine the Property and prepare mechanical, structural, environmental or physical reports of the Property, including without limitation surveying, conducting test borings, wetlands analysis, groundwater sampling, and in general conducting all other tests, analysis and studies of the Property which Purchaser deems prudent in connection with Purchaser's intended use and development of the Property. Purchaser and such designees shall have the right to enter the Property at all reasonable times during normal business hours with at least twenty four (24) hours prior notice to Seller to conduct such tests, studies and investigations. Purchaser shall not interrupt nor unreasonably interfere with Seller's business. Purchaser shall at its own expense restore the Property to its present condition, and agrees to hold Seller harmless and indemnify Seller from any loss or liability resulting from or arising out of the entrance by Purchaser, its agents, members, managers, officers, agents, subcontractors or employees upon the Property for the purposes set forth herein or for any other purpose, including, without limitation, any of their acts or omissions while on or about the Property, and this indemnity provision shall survive the Closing hereunder, or if the Closing does not occur, the termination of this Agreement.

All such inspections shall be done by qualified inspectors chosen and paid for by Purchaser.

(c) At any time on or prior to the date that is 30 days after the Contract Date (the "Due Diligence Period Expiration Date"), Purchaser shall have the right to terminate this Agreement if Purchaser determines, in its sole discretion, that it is not satisfied with (i) the material delivered to Purchaser pursuant to subsection (a) hereof; or (ii) any of the inspections set forth in subsection (b) above, by giving written notice to Seller on or before the end of the Due Diligence Expiration Date. If Purchaser timely gives notice of such dissatisfaction, then the Deposit shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement. If Purchaser fails to give such written notice on or before the end of the Due Diligence Expiration Date, Purchaser shall be deemed to have waived its right to terminate this Agreement pursuant to this Section.

(d) Purchaser agrees that all information made available to Purchaser (all of which is referred to herein as "Confidential Information"), will be kept confidential and will be disclosed only to professional advisors engaged in connection with the proposed transaction. Purchaser agrees that it is Purchaser's responsibility to ensure that such advisors shall agree to and shall keep such information confidential. Any provisions herein to the contrary notwithstanding, the provisions of this Section 5(d) shall survive the Closing of this Agreement or if the Closing does not take place, the termination of this Agreement.

(e) For the purposes of this Section 5, the term "Property" shall be deemed to include Seller's Retained Building.

5.1 Seller and Purchaser Additional Contingencies. Seller and Purchaser agree that to expedite the execution of this Agreement, there are certain matters upon which the parties shall work to reach agreement within sixty (60) days of the Contract Date (the "Additional Contingencies Expiration Date") and if the parties are unable to reach such agreement, then either Purchaser or Seller may terminate this Agreement by notice in writing to the other party on or before the Additional Contingencies Expiration Date.

The matters which are to be agreed upon prior to the Additional Contingencies Expiration Date are:

1. The specifications of, and the work to be performed with respect to, the code compliant exterior wall and façade listed in Section 1(b) of the Agreement as well as the specific configuration of the Seller's Retained Building, including the location of the end of Seller's Retained Building;

2. The primary components of the condominium documents described in Section 1(b) of this Agreement, including, without limitation, the composition of ownership, voting and expenses (including the allocation of and responsibility for expenses with respect to buildings, the parking lot, common areas and limited common elements);

3. Purchaser's work schedule and limits on the same to accommodate Seller's business and event schedule;

4. The Right of First Refusal requested by Purchaser, including without limitation agreement on what a "bona fide arms-length third party" means and a mechanism to resolve any dispute over whether a party is a "bona fide arms-length party"; either a dollar amount or a manner for calculating the dollar amount of Purchaser's Improvement Credit; and the manner in which the Completion Date is to be established; and

5. The number of parking spaces to be allocated to Seller, or to which Seller has right to use, under the condominium documents or otherwise and their location.

6. The future retail uses of the Property.

6. Zoning and Land Use Contingency. Except to the extent expressly provided herein, including, without limitation, with respect to the non-refundable character of some of the Deposit as set forth in Section 2 of this Agreement, Purchaser's obligations under this Agreement are subject and conditioned upon the Purchaser's ability to obtain all required local, state and federal permits and approvals, including without limitation FAA approval if required (including expiration of all applicable appeal periods with no appeal having been made) to construct an additional 55,000 square feet (or more if zoning and permitting allow) of commercial space (including but not limited to office, retail (subject to agreement of the parties in accordance with Section 5.1) and medical office space) on the Property (in one or more newly constructed buildings), such approvals to be satisfactory to Purchaser in its sole discretion, within 180 days after the date the Lodge Approvals have been obtained (the "Zoning Contingency Expiration Date"). Such approvals shall include a change in zoning classification to an office park or "O-P" classification. All costs associated with permitting and approvals to be at Purchaser's sole expense. Seller agrees to cooperate and participate in the approval process by attending meetings or causing its legal counsel or other representatives to attend such meetings as shall be reasonably requested by Purchaser, at Seller's reasonable cost and expense (Seller recognizing that all such permits and approvals are to Seller' s benefit as well). Seller shall not be required to incur any costs other than those associated with attending such meetings. Purchaser agrees to provide Seller with copies of its development plans and any concept plans, as they may be amended or revised during the permitting process, for Seller's review and approval, such approval not to be unreasonably withheld, delayed or conditioned. Seller's approval to any such development plans shall be deemed granted if Seller has not responded to a request for approval within twenty (20) business days from the date of Purchaser's submission to

Seller. In the event this permit and approval condition is not satisfied by the Zoning Contingency Expiration Date, and provided Purchaser is using diligent good faith efforts to satisfy same, Purchaser shall have the right to extend that deadline by up to an additional ninety (90) days by written notice of extension to Seller, in which event the Zoning Contingency Expiration Date shall be extended to include such 90 day period. If Purchaser for any reason has not obtained all required local, state and federal permits and approvals, including, without limitation site plan approval, and expiration of all applicable appeal periods with no appeal having been made, by the Zoning Contingency Expiration Date, then Purchaser may terminate this Agreement by written notice to Seller within such period (as it may be extended), whereupon the refundable portion of the Deposit shall returned to Purchaser and this Agreement shall be of no further force and effect.

7. Purchaser's Financial Capacity. Purchaser shall provide to Seller by on or before fifteen (15) days after the Contract Date with documentation reasonably satisfactory to Seller regarding Purchaser's financial capability to pay the Purchase Price and fund the cost of construction as contemplated in this Agreement. If Seller is not reasonably satisfied with Purchaser's evidence of financial capability, then Seller shall have the right to terminate this Agreement, whereupon the Deposit shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

8. Seller's Authority to Convey; Release of Right of First Refusal.

(a). Seller's obligations under this Agreement are subject and conditioned upon Seller (i) obtaining the consent and approval of the transaction described herein from the members of its Lodge (the "Members' Approval"), and (ii) the Elks Club's Grand Lodge ("the Grand Lodge Approval") (collectively the "Lodge Approvals"). Seller agrees to seek to obtain the Members' Approval within sixty (60) days from the Contract Date and agrees to seek to obtain Grand Lodge Approval within ninety (90) days from Contract Date, provided however that Seller shall have the option by notice to Purchaser to extend each of the Lodge Approval deadlines by up to thirty (30) additional days if it determines such extension to be necessary. If both Lodge Approvals are not obtained within ninety (90) days from the Contract Date (or within such longer period as Seller shall elect as set forth above), Seller and Purchaser shall have the right at any time thereafter to terminate this Agreement, whereupon the Deposit shall be immediately returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

(b). Seller's obligations under this Agreement are also subject to and conditioned upon Seller obtaining from UNUM a release of its Right of First Refusal (the "UNUM

Release") within sixty (60) days from the Contract Date. If such Release of the Right of First Refusal is not obtained within such 60 day period, Seller and Purchaser shall have the right at any time thereafter to terminate this Agreement, whereupon the Deposit shall be immediately returned to Purchase and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

(c). Intentionally Omitted.

9. Time for Performance; Delivery of Deed. The transfer of title (the "Closing") shall take place on a date that is thirty (30) days after the Zoning Contingency Expiration Date at ten a.m. at the offices of Murray, Plumb & Murray or at such other place as shall be mutually agreed to by Purchaser and Seller, unless extended as provided herein. TIME IS OF THE ESSENCE.

10. Use of Purchase Money to Clear Title. To enable the Seller to make conveyance as herein provided, the Seller may at the time of delivery of the Deed, use the purchase money or any portion thereof to clear the title of any or all encumbrances or interests, provided that all instruments so procured are recorded simultaneously with the delivery of the Deed.

11. Possession and Condition of Property. Full possession of the Property (subject to Seller's retained ownership and rights set forth herein, including, without limitation, under any condominium documents) free of all tenants and occupants (except for Seller and its members, employees, affiliates and the like) is to be delivered at Closing.

12. Representations.

(a) Seller represents, covenants and warrants to and agrees with Purchaser as follows:

(1) Seller is the current owner of the Property, and except for the approvals and releases that must be obtained as provided herein (including, without limitation, member approval) and to which its obligations hereunder are subject, has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Seller of its obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Seller is a party or by which it is bound.

(2) There are no tenancies, occupancies or licenses affecting the Property, except as set forth explicitly in this Agreement.

(3) Intentionally Omitted.

(4) No work has been done on the Property which could give rise to any liens on the Property, except those for which Seller intends to pay in the ordinary course of business and no contracts are outstanding or in effect with respect to the doing of any such work except those for which Seller intends to pay in the ordinary course of business.

(5) To the best of Seller's knowledge there is no notice, suit, order, decree, claim, writ, injunction, or judgment relating to material violations of any laws, ordinances, codes, regulations or other requirements with respect to the Property (or any portion thereof) in, of or by any court or governmental authority having jurisdiction.

(6) To the best of Seller's knowledge there is no condemnation proceeding pending or threatened against any portion of the Property.

(7) During the period of Seller's ownership and to the best of Seller's knowledge prior to its ownership of the Property, there has been no leakage, seepage or other release or discharge of any hazardous waste or matter, toxic substance, pesticide or petroleum product or derivative on the Property. The Property has not been used during Seller's ownership, or to Seller's knowledge during any prior period of ownership, for the storage, collection or depositing, whether intentional or unintentional, of any hazardous waste, toxic substance, pesticide or petroleum product or derivative, except for an underground storage tank or to the extent oil or gas products have been stored for heating, cooking or other use by Seller. There are no underground storage tanks located at the Property that have not been removed or filled and Seller is not aware of any underground storage tanks at the Property placed there by Seller or anyone else that have not been removed or filled. If the existing underground storage tank(s) must be removed for any reason, Purchaser shall remove the tank at its cost and expense, but the cost of such removal shall be included in Purchaser's Improvement Credit.

(b) Purchaser represents, covenants and warrants to and agrees with Seller that Purchaser has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Purchaser of its obligations hereunder (i) have been duly authorized by all requisite organizational action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of

organization of Purchaser or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Purchaser is a party or by which it is bound.

13. Affirmative Covenants of Seller. Seller agrees, pending closing, that:

(a) Unless disputed by Seller, Seller shall pay, when due, all taxes and assessments of every type or nature levied or assessed against the Property of which Seller has actual notice, and unless disputed by Seller, any claim, lien or encumbrance of which Seller has actual notice against the Property that might materially affect Seller's ability to fulfill its obligations hereunder. To the extent Seller disputes such a tax, assessment, claim, lien or encumbrance, Seller agrees to take reasonable steps to contest the same.

(b) Seller (i) shall not commit or suffer waste and (ii) shall comply with all laws, ordinances, regulations, covenants, conditions and restrictions affecting the Property and will not suffer or permit any violation thereof.

14. Broker's Commissions. If this transaction closes, Seller shall be responsible for the payment of a brokerage commission to Malone Commercial Brokers. Seller shall have no obligation to make any payment to the The Boulos Company which Purchaser agrees shall obtain any commission which it may claim solely from Malone Commercial Brokers. If either Seller or Purchaser have employed or engaged any other broker or agent in connection with this transaction or have incurred any other obligation, contingent or otherwise, for a broker's or finder's fee with respect to the matters provided for in this Agreement, the party incurring any such obligation shall be solely responsible therefor. Each party agrees to indemnify and hold the other party harmless from and against any and all costs, expenses, claims, losses or damages, including reasonable attorneys and paralegal fees, resulting from a violation of the representations, warranties and covenants set forth in this Section and this agreement to indemnify and hold harmless shall survive the Closing hereunder, or if the Closing does not occur, the termination of this Agreement.

15. Default.

(a) If Purchaser fails to perform its obligations as set forth in this Agreement, then Seller as its sole remedy at law or in equity shall be entitled to retain the Deposit as liquidated damages as a result of such failure to perform and this Agreement shall be deemed terminated. Purchaser acknowledges that Seller's damages because of Purchaser's failure to perform are difficult to ascertain and agree that the amount of the Deposit represents a reasonable estimate of the minimum amount of Seller's damages as a result thereof.

(b) If Seller fails to perform its obligations as set forth in this Agreement, Purchaser shall, in addition to its remedies in equity to which it is otherwise limited (including the right to specific performance), be entitled to receive the Deposit together with reimbursement for expenses incurred by Purchaser in obtaining the reports referred to in Paragraph 5 which shall not exceed $5,000. Except for such reimbursement for expenses which shall not exceed $5,000, Purchaser shall not be entitled to any damages of any kind whatsoever.

(c) In the event either Purchaser or Seller is alleged to have failed to perform its obligations hereunder, the party so claiming shall give notice in writing to the allegedly breaching party and the party shall have ten (10) days following the receipt of such notice in which to cure the alleged breach.

16. Purchaser's Conditions. The obligation of Purchaser to close under this Agreement is subject to the following conditions precedent:

(a) The representations and warranties of Seller shall be materially true in all respects, and Seller shall so certify, unless an event has occurred which makes such representation untrue, in which case Seller shall give notice of the same to Purchaser prior to closing.

(b) Seller shall have performed and complied with all the terms and conditions required by this Agreement to be performed and complied with by Seller at or prior to Closing.

17. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. Copies of all notices to Purchaser shall be sent to Murray, Plumb & Murray, 75 Pearl Street, Portland, Maine 04101, Attention: Drew A. Anderson, Esq. Copies of all notices to Seller shall be sent to Exalted Ruler Timothy Smith, Elk's Lodge, Portland Lodge 188, 1945 Congress Street, Portland, Maine 04103, with a copy to counsel, William H. Leete, Jr., Esq., Leete & Lemieux, P.A., P.O. Box 7740, Portland, Maine 04112. All notices shall be effective upon hand delivery, receipt or two (2) business days after date of mailing, whichever first occurs. The respective attorneys for the parties are authorized to give and receive notices with the same effect as if given or received by the parties hereto.

18. Further Assurances. The parties agree that up to and after the date of Closing, they shall do such things and execute, acknowledge and deliver any and all

additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

19. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be cancelled, modified or amended only by a written instrument executed by both the Seller and Purchaser. If two or more persons are named herein as Purchaser and Seller their obligations hereunder shall be joint and several. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it. This Agreement may not be recorded by Purchaser, and any such recording shall be deemed to automatically terminate this Agreement.

20. Risk of Loss. The risk of loss shall remain on Seller at all times until closing except for loss or damage to the extent either caused by or arising from the act or omission of Purchaser, its members, managers, officers, agents, subcontractors or employees.

21. Miscellaneous:

(a) Seller and Purchaser shall each pay their portion of the Maine State Transfer Tax.

(b) Seller hereby certifies that Seller is a resident of the State of Maine. Seller hereby acknowledges Purchaser's requirement to withhold 2½% of the purchase price pursuant to 36 M.R.S.A. §5250-A if Seller is not a resident of the State of Maine, unless Seller presents to Purchaser at closing a Certificate of Exemption or Certificate of Reduction from the State of Maine Bureau of Taxation.

(c) By signing this Contract, Purchaser acknowledges that Purchaser has been notified of the State of Maine's withholding tax requirement pursuant to 36 M.R.S.A. §5250-A.

(d) Seller hereby certifies that Seller is a resident of the United States of America and is not subject to the 10% withholding tax imposed upon "foreign persons" by Section 1445(a) of the Internal Revenue Code of 1954.

(e) This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, personal representatives, successors in interest and assigns. Purchaser shall be entitled to assign its right, title and interest herein to any limited liability company, partnership or other entity, whether now existing or hereafter

formed, controlled by, controlling or under common control with Purchaser or its principals. Any assignee shall expressly assume all of Purchaser's duties, obligations and liabilities hereunder. No such assignment shall release the named Purchaser from its obligations hereunder.

(f) It is understood and agreed that all understandings, agreements, warranties or representations, either oral or in writing, including without limitation any letters of intent or prior agreements, heretofore between the parties hereto are merged in and superseded by this Agreement, which document alone fully and completely expresses the parties' agreement with respect to the transactions covered hereby. This Agreement may not be modified in any manner except by a subsequent instrument in writing signed by Seller and Purchaser.

(g) This Agreement may be simultaneously executed in any number of counterparts, each of which when so executed and delivered shall be an original; but such counterparts shall constitute but one and the same instrument.

(h) If the date for performance of any obligation hereunder, or the giving of any notice hereunder, falls on a Saturday, Sunday or a legal holiday in the State of Maine, the period for such performance, or the giving of any notice hereunder, shall be extended to the next business day.

(i) This Agreement shall be construed and enforced in accordance with and governed by the laws of the State of Maine.

[Signatures on following page]

IN WITNESS WHEREOF, the parties have executed this Agreement as a sealed instrument as of the date set forth below their respective signatures, to be effective as of the Contract Date.

SELLER:
Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America

Dated: June 9, 2014

By: Exalted Ruler
Trustee Chair
_____, _____

PURCHASER:
Northland Enterprises, LLC

Dated: June 11th 2014

By: _____
JOH BENTHLER, MANAGER

Dr. Michael Bedecs

ACKNOWLEDGEMENT

The undersigned acknowledges receipt of the $100,000.00 Deposit and a copy of this Agreement and agrees to hold, account for and deliver the Deposit in accordance with the terms of this Agreement.

Malone Commercial Brokers

By: _____
_____, _____

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TENTH AMENDMENT TO REAL ESTATE PURCHASE AND SALE AGREEMENT

This Amendment to Purchase and Sale Agreement ("Tenth Amendment") is dated as of April __, 2015, by and between Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America (collectively "Seller"), having a place of business at 1945 Congress Street, Portland, Maine and Dr. Michael Bedecs, having a place of business at 1375 Congress Street, Portland, Maine and Northland Enterprises, LLC, and/or its assigns, having a place of business at 17 South Street, 3rd floor, Portland, Maine (collectively "Buyer").

RECITALS

WHEREAS, Seller and Buyer entered into a certain Purchase and Sale Agreement dated as of June 11, 2014, as amended by that certain First Amendment dated August 5, 2014, that certain Second Amendment dated September 22, 2014, Third Amendment dated November 7, 2014, Fourth Amendment dated November 24, 2014, Fifth Amendment dated December 4, 2014, Sixth Amendment dated December 18, 2014, Seventh Amendment dated January 8, 2015, Eighth Amendment dated January 20, 2015, and Ninth Amendment dated January 30, 2015 (hereinafter the "Purchase Agreement"); and

WHEREAS, Seller and Buyer acknowledge and agree that there are certain outstanding contingencies with respect to title, and the zoning and land use contingency set forth in Section 6 of the Purchase Agreement, and certain of the Seller and Purchaser Additional Contingencies set forth in Section 5.1 of the Purchase Agreement as further described in this Amendment; and

WHEREAS, Seller and Buyer wish to confirm Buyer's exercise of it right to extend the Zoning Contingency Expiration Date by 90 days as provided in Section 6 of the Purchase Agreement;

WHEREAS, Seller and Buyer have agreed upon certain of the Seller and Purchaser Additional Contingencies as set forth in Section 5.1(2), (3), (4) and (6) as set forth herein.

WHEREAS, Seller and Buyer wish to extend the date upon which the Seller and Purchaser Additional Contingencies set forth in Section 5.1 (1) and (5) and related matters shall be satisfied and make the Additional Contingencies Expiration Date with respect to those contingencies contemporaneous with the Zoning Contingency Expiration Date;

WHEREAS, Pursuant to paragraph 5.1 of the Purchase Agreement, "Seller and Purchaser Additional Contingencies", the parties have agreed upon extending certain of the Additional Contingencies, and wish to memorialize those agreements in this Amendment; and

WHEREAS, Seller and Buyer acknowledge and agree that all contingency provisions and time periods set forth in the Purchase Agreement other than those set forth above or otherwise preserved under this agreement have expired and that neither Seller nor Buyer have any rights to terminate the Purchase Agreement pursuant thereto.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Attached to and made a part of this Amendment are certain additional agreements of Buyer and Seller as follows:

a. Schedule A – Primary Components of Condominium Documents.
b. Schedule B – Work Schedule and Property Use.
c. Schedule C – Form of Right of First Refusal.

Seller and Buyer hereby acknowledge and agree that Schedules A, B and C need not be separately executed, that Buyer and Seller agree to their terms, and further that the signatures of Seller and Buyer on this Tenth Amendment are intended to be and shall be deemed to be effective as though Seller's and Buyer's signatures each appeared upon Schedules A, B and C, and further that such schedules shall be incorporated into this Tenth Amendment as though fully set forth.

Buyer and Seller further agree that Schedules A, B and C satisfy the Additional Contingencies set forth in subparagraphs 2, 3, 4 and 6 of Paragraph 5.1 of the Purchase Agreement and represent the agreement of the parties with respect to such Additional Contingencies.

2. Seller and Buyer confirm Buyer's election to extend the Zoning Contingency Expiration Date by ninety (90) days as provided in Section 6 of the Purchase Agreement, which Zoning Contingency Expiration Date is now June 22, 2015.

3. Seller and Buyer acknowledge and agree that the Seller and Purchaser Additional Contingencies set forth in Section 5.1 (1) (specifications and work to be performed on Seller's Retained Building) and (5) (number of parking spaces to be allocated to Seller) are very likely to be determined only in connection with, and as a part of, Buyer's zoning, permitting and approval process set forth in Section 6 of the Purchase Agreement. Therefore, the parties hereby amend the Purchase Agreement so that the Additional Contingencies Expiration Date with respect to the Section 5.1 (1) and (5) matters (the "Remaining 5.1 Matters") shall be the same as the Zoning Contingency Expiration Date, as extended and modified pursuant to this Amendment.

4. Seller and Buyer further agree that the "Remaining 5.1 Matters" shall be interpreted broadly as follows:

a) The matters to be agreed upon under Section 5.1(1) shall include all work to be performed with respect to the Elks' Building together with all work to be performed relating to the Building and the area surrounding the Building, including, without limitation the form and location of any sewer, water, or other utility connections in addition to the matters expressly set forth in 5.1(1) and other matters set forth in the Purchase Agreement.

b) The matters to be agreed upon under Section 5.1(5) shall include the total number, configuration, size, ownership, location, appearance and maintenance of parking spaces, in addition to the matters expressly set forth in 5.1(5) and other matters set forth in the Purchase Agreement.

Nothing in this paragraph is intended to, nor shall be deemed to, terminate or waive any rights either Seller or Buyer have to terminate the Purchase Agreement pursuant to Section 5.1.

5. Buyer agrees to keep Seller apprised of the process of obtaining approvals and shall promptly notify Seller's counsel of any filings with the City of Portland, with any municipal agency or any court filing or appeal.

6. The Purchase Agreement shall remain in full force and effect, except as expressly amended hereby. Without limiting the general nature of the foregoing, any paragraphs of the Purchase Agreement amended by this Tenth Amendment, shall remain unchanged, except for the expressly stated amendments contained herein. Any capitalized terms not defined in this Amendment shall have the meaning given them in the Purchase Agreement.

IN WITNESS WHEREOF, Seller and Buyer have executed this Amendment as of the date first set forth above.

SELLER:

Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America

By: _____
Name: Timothy Smith
Title: Exalted Ruler

BUYER:

Northland Enterprises, LLC

By: _____
Name: Rex Bell
Title: Managing Member

_____
Dr. Michael Bedecs

ELKS PROJECT – 1945 CONGRESS STREET

PORTLAND WATER DISTRICT PROPERTY ADJACENT TO PROJECT

The Portland Water District currently owns an unimproved parcel of land that is adjacent to the project. This property is approximately 7,906 square feet in size, and is described in the deed to the Portland Water District dated August 10, 1981, and recorded in the Cumberland County Registry of Deeds at Book 4834, Page 25. The property is known as 1903-05 Congress Street, with a tax map and lot number designation of 217-A-5 (rear). Applicant has this property under contract, with the closing scheduled for the earlier of three days after the date final Master Plan Approval is granted or November 1, 2016. A copy of the contract of sale is attached hereto. Upon acquisition, this property will become part of the Condominium property. Because of this purchase, it is not necessary for the Applicant to acquire over this property for the benefit of the project an easement for temporary construction or a permanent easement for grading.

PORTLAND WATER DISTRICT EASEMENT OVER ELKS PROPERTY

The Portland Water District currently has an easement for a sewer line over a portion of the project parcel, by virtue of an easement from the Elks dated December 28, 1983, and recorded in the Cumberland County Registry of Deeds at Book 6397, Page 91. According to Norm Twaddel at the Portland Water District, the sewer line was never constructed in this easement area, and the properties in the area are serviced by a sewer line along Garrison Street. The District Trustees have approved the release of this easement back to the respective owners. The Applicant has been in contact with the Portland Water District, and have an agreement in principle to obtain a release of the easement area in exchange for the payment of $2,400. The Applicant has prepared the attached Easement Release Agreement for the District's review. Upon closing on the grant of the release of the easement from the Portland Water District, that portion of the project property will become unencumbered and it will therefore not be necessary for the Applicant to seek the District's permission to clear, encroach or develop any portion of that area.

PURCHASE AND SALE AGREEMENT

THIS PURCHASE AND SALE AGREEMENT ("Agreement"), made and entered into as of this 23rd day of June, 2016 (the "Effective Date"), is by and between **PORTLAND WATER DISTRICT,** a municipal corporation organized under the laws of the state of Maine having an address at 2225 Douglass Street, P.O. Box 3553, Portland, Maine 04104-3533 (hereinafter referred to as "Seller"), and **NORTHLAND ENTERPRISES, LLC,** a Maine limited liability company having an address at 17 South Street, 3rd floor, Portland, Maine 04101, or its assigns (hereinafter referred to as "Buyer").

WITNESSETH

WHEREAS, Seller is the record owner of fee simple title to certain real property situated in Portland, Maine known as 1903 Congress Street, Portland, Maine, in the form of an approximately 7,906 square feet vacant lot, as more specifically described in a deed from Harold J. Newsham to Seller dated August 10, 1981, recorded in the Cumberland County Registry of Deeds at Book 4834, Page 25 (the "Property"); and

WHEREAS, the Seller wishes to sell and convey said Property to Buyer and Buyer wishes to purchase the same from Seller.

NOW THEREFORE, for and in consideration of the foregoing, the sums of money to be paid hereunder, the mutual covenants herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto do covenant, stipulate and agree as follows:

1. Agreement to Sell and Purchase. Seller hereby agrees to sell and convey the Property to Buyer, upon the terms and subject to the conditions set forth in this Agreement. Buyer hereby agrees to purchase and accept the Property from Seller, upon the terms and subject to the conditions set forth in this Agreement.

2. Title; Deed. The Property is to be conveyed by a good and sufficient Warranty Deed running to the Buyer, or to any nominee designated by the Buyer, and said deed shall convey title that is insurable by a reputable title company authorized to business in the State of Maine, free from encumbrances, except:

(a) provisions of existing building and zoning laws;

(b) such real estate taxes for the then current tax period as are not due and payable on the date of the delivery of such deed; and

(c) any matters of record which in Buyer's opinion do not interfere with Buyer's plans to develop or use the property.

Buyer shall satisfy itself with respect to matters of title within sixty (60) days of the date hereof; otherwise this provision shall be deemed waived except for matters arising subsequent thereto.

3. Purchase Price. The agreed purchase price for the Property is Five Thousand Dollars ($7,500), of which:

$1,000 has been paid as a deposit as of the date of this Agreement, receipt of which is acknowledged by the Seller; and

$6,500 is to be paid at the time of delivery of the deed by wire transfer, in cash, or by certified, bank, or cashiers check.

4. Contingency on Master Plan Approval. Buyer's obligations pursuant to this Agreement are contingent upon Buyer's obtaining a non-appealable approval from the City of Portland of its Master Site Plan for the adjacent property known as 1945 Congress Street, Portland, Maine (the "Master Plan Approval") on or before November 1, 2016. If Buyer has not received the Master Plan Approval on or before November 1, 2016, Buyer shall have the right, but not the obligation, to terminate this Agreement by written notice to Seller, whereupon the Deposit shall be returned to Buyer and the parties shall be relieved of any further liability or obligation hereunder, except with respect to any provision hereof that expressly survives the termination of this Agreement. If Buyer fails to terminate this Agreement by November 1, 2016, this Agreement cannot be terminated by Buyer for failure to receive its Master Plan Approval.

5. Time for Performance; Delivery of Deed. The deed and any other materials to be delivered pursuant to this Agreement shall be delivered at the offices of Murray, Plumb & Murray, 75 Pearl Street, Portland, Maine, on the date that is the earlier of (i) three (3) business days after Buyer's receipt of the Master Plan Approval or (ii) November 1, 2016 (the "Closing Date").

6. Possession and Condition of Premises. Full possession of the Property free of all tenants and occupants shall be delivered at the time of the delivery of the deed.

7. Extension to Perfect Title or Make Premises Conform. If the Seller shall be unable to give title or to make conveyance, or to deliver possession of the Property, all as herein stipulated, or if at the time of the delivery of the deed the Property does not conform with the provisions hereof, then the Seller shall use reasonable efforts to remove any defects in title, or to delivery possession as provided herein, or to make the Property conform with the provisions hereof, as the case may be, in which event the time for performance hereof shall be extended for a period of time reasonably sufficient to permit the Seller to perform hereunder, not to exceed sixty (60) days in any event.

8. Failure to Perfect Title or Make Premises Conform. Except as provided in Paragraph 9 hereof to the contrary, if at the expiration of the extended time, the Seller shall have failed so to remove any defects in title, deliver possession, or make the Property conform, as the case may be, all as herein agreed, then, at the Buyer's option, any payments made under this Agreement shall then be forthwith refunded and all other obligations of all parties hereto shall cease and this Agreement shall be void and without recourse to the parties hereto.

9. Buyer's Election to Accept Title. The Buyer shall have the election, at either the original or any extended time for performance, to accept such title as the Seller can deliver to the Property in its then condition and to pay therefor the purchase price without deduction, in which case the Seller shall convey such title.

10. Representations.

(a) Seller represents, covenants and warrants to and agrees with Buyer as follows:

(i) Seller is the current owner of the Property, and has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Seller of its obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Seller is a party or by which it is bound.

(ii) No work has been done on the Property which could give rise to any liens on the premises, and no contracts are outstanding or in effect with respect to the doing of any such work.

(iii) To the best of Seller's knowledge there is no notice, suit, order, decree, claim, writ, injunction, or judgment relating to material violations of any laws, ordinances, codes, regulations or other requirements with respect to the Property (or any portion thereof) in, of or by any court or governmental authority having jurisdiction.

(iv) To the best of Seller's knowledge, there are no suits, actions or proceedings pending or threatened against Seller materially affecting the Property or Seller's right or power to consummate the transaction contemplated by this Agreement before any court or administrative agency or officer.

(v) To the best of Seller's knowledge there is no condemnation proceeding pending or threatened against any portion of the Property.

(b) Buyer represents, covenants and warrants to Seller that Buyer has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Buyer of its obligations hereunder: (i) have been duly authorized by all requisite corporate action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the operating agreement or articles of organization of Buyer or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Buyer is a party or by which it is bound.

11. Use of Purchase Money to Clear Title. To enable the Seller to make conveyance as herein provided, the Seller may at the time of delivery of the deed, use the purchase money or any portion thereof to clear the title of any or all encumbrances or interests, provided that all instruments so procured are recorded simultaneously with the delivery of said deed.

12. Adjustments. Real estate taxes for the then current tax period shall be apportioned as of the day of performance of this Agreement and the net amount thereof shall be added to or deducted from, as the case may be, the purchase price payable by the Buyer at the time of delivery of the deed.

13. No Broker's Commissions. Each of Seller and Buyer represents that it has not dealt with any real estate broker in connection with this transaction.

14. Deposit. The Deposit made hereunder shall be held by Seller.

15. Default.

(a) Buyer Default. In the event of any material default on the part of Buyer under this Contract, the Seller shall be entitled, as its sole remedy hereunder, to retain the Deposit as consideration for its execution of this Contract and in full settlement of, and as liquidated damages for, any and all claims for damages occasioned by Buyer's default, and this Contract shall terminate, expire, cease and become null and void and, thereafter, all parties hereto shall be relieved of any and all further obligations and liabilities to each other under this Contract, other than as to those obligations which specifically survive the termination of this Contract.

(b) Seller Default. In the event of any default on the part of Seller under this Contract, the Buyer, as its sole remedy hereunder, may elect any of the following: (i) enforce specific performance of Seller's obligations under this Contract if the nature of Seller's default has not rendered specific performance unavailable; or (ii) terminate this Agreement, whereupon neither party hereto shall have any further rights or obligations hereunder (except as expressly set forth herein as surviving termination), and Seller shall deliver the entire Deposit to Buyer.

16. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. All notices shall be effective upon hand delivery or mailing, whichever first occurs.

17. Further Assurances. The parties agree that up to and after the date of Closing, they shall do such things and execute, acknowledge and deliver any and all additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

18. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs,

devisees, executors, administrators, successors and assigns, and may be cancelled, modified or amended only by a written instrument executed by both the Seller and Buyer. If two or more persons are named herein as Buyer and Seller their obligations hereunder shall be joint and several. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it.

19. Risk of Loss. The risk of loss shall remain on Seller at all times until closing.

IN WITNESS WHEREOF, the parties have caused these presents to be executed as of the day and year first above written.

"SELLER"

Portland Water District

By: _____
Name: RONALD MILLER
Its: GEN'L MGR

"BUYER"

Northland Enterprises, LLC

By. _____
Name. Rex S. Bell
Its: Manager

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EASEMENT RELEASE AGREEMENT

This Easement Release Agreement, made this ___ day of _____, 2016, is by and between the PORTLAND WATER DISTRICT, a quasi-municipal corporation organized and existing under the laws of the State of Maine ("PWD"), and NORTHLAND ENTERPRISES, LLC, a Maine limited liability company, or its assigns ("Northland").

WHEREAS, PWD holds title to an easement by virtue of a deed dated December 28, 1983, and recorded in the Cumberland County Registry of Deeds at Book 6397, Page 91 (the "Easement"); and

WHEREAS, the Easement encumbers a portion of the property of Portland Lodge No. 188 of the Benevolent and Protective Order of Elks of the United States of America (the "Elks") known as 1945 Congress Street, Portland, Maine (the "Elks Property"); and

WHEREAS, Northland has the right to purchase the Elks Property pursuant to a Real Estate Purchase and Sale Agreement dated June 1, 2014, as amended; and

WHEREAS, Northland wishes to obtain a release of the Easement in connection with its purchase of the Elks Property, and PWD is willing to release the Easement on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which is acknowledged by the parties, the parties agree as follows:

1. Northland agrees to pay PWD Two Thousand Four Hundred and no/00 ($2,400.00) Dollars in exchange for PWD's release to either Northland or the Elks as Northland may direct in writing to PWD.

2. PWD agrees to release the Easement to either Northland or the Elks upon receipt of said $2,400 by execution and delivery of a Release Deed in form and substance mutually acceptable to PWD and Northland.

3. Northland's obligations pursuant to this Agreement are contingent upon Northland obtaining a non-appealable approval from the City of Portland of its Master Site Plan for the Elks Property (the "Master Plan Approval") on or before November 1, 2016. If Northland has not received the Master Plan Approval on or before November 1, 2016, Northland shall have the right, but not the obligation, to terminate this Agreement by written notice to PWD whereupon the parties shall be relieved of any further liability or obligation hereunder. If Northland fails to terminate this Agreement by November 1, 2016, this Agreement cannot be terminated by Northland for failure to receive its Master Plan Approval.

4. The deed and any other materials to be delivered pursuant to this Agreement shall be delivered at the offices of Murray, Plumb & Murray, 75 Pearl Street, Portland, Maine, on the date that is the earlier of (i) three (3) business days after Buyer's receipt of the Master Plan Approval or (ii) November 1, 2016 (the "Closing Date").

5. The parties agree that up to and after the date of Closing, they shall do such things and execute, acknowledge and deliver any and all additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

6. This instrument is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be cancelled, modified or amended only by a written instrument executed by both parties.

IN WITNESS WHEREOF, the parties have caused these presents to be executed as of the day and year first above written.

"SELLER"

Portland Water District

By: _____

Name: _____

Its: _____

"BUYER"

Northland Enterprises, LLC

By. _____

Name. Rex S. Bell

Its: Manager

Att. D

July 20, 2016

Mr. Tuck O'Brien
City Planning Director
City of Portland Planning and Urban Development Department
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Northland Enterprises – Elks Project, 1945 Congress Street, Portland, Maine

Dear Mr. O'Brien,

The Bank is currently in discussions with the developer concerning a proposed commercial development project at 1945 Congress Street in Portland. Although no application for financing has yet been submitted to the Bank and no commitment letter issued by the Bank, we have a high degree of interest in providing financing for this project.

The Bank has worked with the project developer, Northland Enterprises, on several successful construction projects, including two in the City of Portland. Based on the developer's financial capacity, development experience, and a preliminary review of the project's preliminary scope of construction and cash flow projections, we believe that the project and sponsor have the necessary components to develop and operate the project successfully.

Please feel free to contact me with any additional questions.

Very truly yours,

Michael P. O'Reilly
Senior Vice President
Commercial Banking

Office Park Master Plan
1945 Congress Street

March 21, 2016

I. BACKGROUND

1945 Congress Street is a seven (7) acre site currently owned and used by the Elks Lodge #188. The property abuts the UNUM Campus and is accessed from UNUM Park Drive. In 2016 a zone change was secured for Office Park (OP) zoning to allow new office uses to be located on the parcel, reflecting the City's interest in encouraging economic vitality in this area of Portland. The development plan is to retain the Elks Lodge and construct new facilities for two businesses currently in Portland that want to relocate to this parcel. The purpose of this master plan and the related design guidelines are to create a set of standards that ensure that the development at 1945 Congress Street has a cohesive character appropriate for the site and for the setting in Stroudwater. The development is designed to have a unified campus character although the individual uses now, and may in the future, be quite different. The proposed development will enhance the gateway experience by those using the Jetport access road; it will be welcoming as viewed from Congress Street; the buildings will be complementary in their relationships and appearance, and the project will be integrated with the site to create a campus setting for all of the structures and improvements.

Refer to: *Exhibit 1- City Context Plan*
Exhibit 2- Neighborhood Context Plan
Exhibit 3- Project Site Aerial

II. PLANNING PROGRESS

The Office Park Master Plan is created in response to the Elks Lodge needing to develop its property to its potential in order to preserve the Portland chapter. Two tenants have entered into an agreement with Northland Enterprises, LLC to develop their own buildings on the site with shared infrastructure. One building will house a collection of medical practices, while the second will be for an insurance office. The goal is to create a site plan that allows the Elks Lodge, and two new structures, to be compatible with each other and the surrounding neighborhood, and for the development's character to appear unified by those viewing the site as they travel on Congress Street and from within the development.

The design team approached the planning of the property through a traditional design process, beginning with an analysis of the site context, studying the property's opportunities and constraints, preparing organizational diagrams, and then developing site planning options for the three buildings and their related components. With that information in place, the design team then developed this Master Plan, the Design Guidelines, and the project recommendations.

Refer to: *Exhibits 4 through 7 - Site Analysis*
Exhibits 8 through 15 - Development Options
Exhibits 17 through 27 - Recommendations

III. PROPERTY MASTER PLAN OVERVIEW

As set forth in the City's Codes of Ordinances, an Office Park Planned Unit Development (OPPUD) must be designed as an integrated, cohesive project guided by a Master Plan. The structure siting and facilities layout has to be thoughtful and appropriate to the context and environmental conditions of the parcel; there needs to be a consistent and considered architectural treatment; the traffic management, parking and circulation plans must be fully integrated with the uses and adjoining public ways; and the site improvements and landscape treatment need to be designed for the entire property, not on a piecemeal, building by building basis.

A. Goals:

Based upon guidance from the City staff and Planning Board, the program from Northland Enterprises, LLC, and input from the future tenants and the design team, the goals for the redevelopment of 1945 Congress were established, and include the following:

1. Preserve the original portion of the Elks structure and appropriate parking for the Lodge's use;

2. Design a project that is sensitive to the neighborhood concerns regarding context and compatibility;

3. Create two (2) new building envelopes and associated site improvements, designed to meet the specific needs of Clark Insurance and Dr. Bedecs's Medical Group;

4. Preserve existing wetlands, steep slopes and the mature vegetation on the property;

5. Prepare a design response for the site that unifies the grounds and landscape character and appropriately buffers neighboring uses;

6. Develop comprehensive design guidelines for the treatment of the existing Elks Lodge building to be retained, and the new structures to be built on the parcel based upon building locations and relationships to the site features.

B. <u>The components of the Master Plan include the following:</u>

1. Identify defined building windows for three (3) structures; including one around the Elks building sized for a future replacement building which would likely be office use;

2. Plan for the required infrastructure for the entire parcel including: drainage and stormwater treatment systems, utilities, drives and parking, walks, lighting, signage/wayfinding, amenities, and gathering spaces;

3. Prepare design guidelines for the common areas that will include outdoor buffer areas, greenspaces/gathering spaces, and connections to trails/paths;

4. Define the circulation systems including site access and egress, internal vehicular circulation, pedestrian systems, loading areas, and parking appropriately sized for the uses;

5. Create guidelines for the architectural character, including restrictions to ensure compatibility of the new buildings with each other, for the two (2) new buildings with respect to compatible materials, colors and forms, treatment strategies for the Elks building, similarly detailed building entrances, and utilization of common site elements for the exterior of the buildings;

6. Create private development restrictions through an Association formed for joint maintenance which will review and enforce conformance with design guidelines for any future changes to building or site. These will include all structures, lighting, and planting.

Refer to: Exhibit 7 - Site Analysis: Development Considerations

IV. DESIGN, PLANNING, AND DETAILS

A. Design relationship to site:

The proposed project is planned to be developed to leave the original, circa 1964 portion of the Elks building in place. With that as a point of beginning for organizing the development on the property, the following were identified as critical for establishing a sound relationship on this site:

- Preserve a significant amount of greenspace on Congress Street;
- Create visual and acoustic buffers for the adjacent residential uses;
- Retain the mature planting on UNUM Drive;
- Protect the steep slopes on the north side of the lot.

These factors combine to define the buildable area on this parcel.

Refer to: *Exhibit 4 - Site Analysis: Existing Conditions*
Exhibit 6 - Site Analysis

B. Preservation of Natural Features:

The existing site is developed with a building, parking for approximately 253 vehicles, and lawns which cover approximately 4.3 of the 7.0 acres. There is a wetland and ravine on the adjoining UNUM lot with natural vegetation defining the northern edge of the property which will be preserved. There is a limited amount of existing deciduous and evergreen vegetation to the east adjacent to the existing residences, along with a substantial stand of invasive Japanese knotweed. The on-site knotweed will be eradicated, and the mature trees will be preserved. There are street plantings along Congress Street and the UNUM access road, the majority of which will be retained. Removals and pruning will take place for the proposed entrance driveway as well as for visibility and safety.

Refer to: *Exhibit 4 - Site Analysis: Existing Conditions*
Exhibit 6 - Site Analysis
Exhibit 7 - Site Analysis: Development Considerations
Exhibit 18 - Conceptual Site Plan

C. Building Design:

As noted elsewhere in this Master Plan, a portion of the Elks Lodge structure will be retained, and the building exterior renovated. The types of materials and trim details to be used on that structure will be different than those used on the other two building given the scale, massing, and location of the Elks structure in the lot. The exterior of the Elks Lodge will be covered with an EIFS-type surface (i.e. Dryvit) and treated with an appropriately scaled trim and details.
For new construction on the site, the building forms should be simple, contemporary New England in style, and designed so that they share a common material on part, or all, of the building facades (e.g. brick). Natural colors are desired with simple, clean, modern fenestration and detailing.

The building closest to Congress Street must be two stories in height, with an entrance facing Congress Street as well as into the property. This structure can have a flat or a sloped roof, but if it is sloped, the pitch should be in the New England vernacular with a minimum pitch of 10 in 12. The building is sited on the Master Plan to be 58 feet away from the right of way (at its closest point), and 70 feet off the east lot line to create an appropriate green space around the structure and to help block direct sight lines to the Elks Lodge Structure from Congress Street.

The new building closer to UNUM Drive, and any future structures, can be one or two stories, with the main entrances facing into the site. The structures can have flat or sloped roofs, but the roof pitch, if sloped, should be 10 in 12 or greater. As with the building on Congress Street, these structures need to be simple, and well-conceived in their massing, with thoughtful detailing.

Within the site, all three structures shall have common entrance treatments to emphasize the main entry points of all of the buildings. These can take the form of canopies, free standing trellises, or applied overhangs. The detailing, materials, and colors should be similar for all three (3) uses to create visual coherence within the development.

Refer to: *Exhibit 7 - Site Analysis: Development Considerations*
Exhibit 18 - Conceptual Site Plan
Exhibit 23 - Design Guidelines: Site Improvements

D. Landscaping:

In general, the existing rear and side yard vegetation to be preserved is quite naturalized in character, and it is recommended that the on-site landscape treatment be naturalized in character to the north and east, and become more formal in appearance closer to Congress Street and UNUM Drive. As previously noted, invasive species shall be removed, and the planting and tree preservation shall follow the standards set forth in the City's Technical Manual.

Well developed buffers and screening of side yard areas adjacent to the residential uses will separate the on-site parking lots and driveways from public and abutter views. To improve the separation from the adjacent residential uses, there will be a dense deciduous and evergreen edge created with trees, shrubs, and fencing. The landscape treatment plan will retain the mature vegetation where it exists; remove invasive species, and create a minimum 35' deep buffer adjacent to the two residences. Integral with the planting will be a 4' to 6' high, solid board fence. On Congress Street and on the project edge against UNUM Drive, there shall be new plantings including evergreens, ornamental deciduous trees, and shrubs.

Refer to: *Exhibit 18 - Conceptual Site Plan*
Exhibit 19 - Section At Buffer
Exhibit 20 - Section at Congress Street

E. Traffic and Parking:

The access and egress to the property will continue to be from the UNUM access road, but the existing separated driveways will be combined at the location of the existing exit driveway. This change will enlarge the greenspace at the project entrance and addresses issues noted by the City of Portland's Traffic Engineer including creating a longer vehicular stacking length between the driveway entrance and Congress Street for incoming vehicles. The interior vehicular circulation allows for several opportunities to loop internally, and avoids long dead end parking areas. Bus parking for four (4) buses will be provided on-site.

Based upon research by Mohr & Seredin and Pinkham & Greer, the parking requirements vary for each building's occupants. Clark Associates, an insurance business, has 82 employees (with plans for an additional 12) who work regular business hours. They also have a number of business training events per week that receive six (6) to twenty plus (20+) attendees, and several board meetings per year that receive ten (10) to thirty-eight (38) attendees. Clark Associates' present office has one hundred seven (107) spaces which isn't sufficient for their events, and

forces them to hold their training events off-site. The proposed site plan allocates one hundred two (102) parking spaces and twenty (20) shared spaces to be used by Clark Associates.

The Elks Lodge at present has approximately two hundred fifty-four (254) parking spaces. The Lodge has agreed to reduce their parking spaces to eighty-one (81), plus having access to twenty (20) shared spaces on the parcel. This will suffice for the majority of their needs during business hours and for public events. During weekends and evening, if necessary, their parking can overflow into the spaces not being used by the insurance or medical offices.

The medical offices are currently planned to include five (5) separate practices with approximately fourteen (14) providers and twenty-four (24) support staff. The new building will include thirty-two (32) to thirty-six (36) exam rooms (about 2.5 exam rooms per provider). Typical maximum occupants of the building at any one time is estimated to be eighty-eight (88) (38 employees + 36 patients in exam rooms + 14 in waiting room). The site plan allocates sixty (60) parking spaces for this use, and plans for use of the twenty (20) shared spaces, with short term overflow into the adjacent spaces if needed.

The site plan proposes a total of two hundred sixty-three (263) spaces for cars, of which twenty (20) will be shared by the three uses on the lot. There will also be four (4) spaces for buses, eleven (11) spaces for motorcycles and four (4) bike racks. The sidewalk connections to Congress Street will provide access for pedestrians, and for the METRO bus uses coming from the terminal stop on the Jetport Access Drive.

Northland Enterprises, LLC will work with the three (3) building occupants on the parcel to develop a parking management plan which will accommodate on-site tenants, meetings, and functions. This will assure that the proposed parking is appropriately utilized, and parking demand will be managed with practices such as car pooling, staggered, and off-hours use, and utilization of alternative means of transportation.

Refer to: *Exhibit 16 - Site Analysis: Parking*
Exhibit 26 - Parking Table
Exhibit 27 – Parking Plan

F. Lighting Design:

A comprehensive lighting plan has been developed for the project to assure appropriate lighting levels and uniform character. The lighting plan includes LED light fixtures for the parking lots at 20 foot heights, and a separate light system for the walkways. There will be LED accent lighting at the building entrances.

The lighting shall be designed in general conformance with the City's Technical Standards. The proposed average lighting level will be 1.1 to 1.25 foot candles which is lower than the required 1.5 foot candles. This is being done to reflect the context, and the adjoining residential uses.

All of the light fixtures will be installed with backlight shields, and will be dark sky compliant. The site lights will be controlled by a management system which will dim the lights after 8:00pm, and have an auto-shut-off mode with a motion detection override between the hours of 11:00pm and 6:00am.

Refer to: *Exhibit 21 - Lighting Concept*
Exhibit 22 - Design Guidelines: Lighting

G. Stormwater Treatment and Management:

The existing stormwater runoff on the lot is managed through sheet drainage, with flows directed to the north or to the west into established, stable drainage ways. The proposed storm drainage will need to be sheet flows directed to the north or west to avoid concentrating runoff in an enclosed system. To achieve the necessary runoff treatment, it is recommended that underdrained soil filters, tree well treatment systems, advanced infiltration systems (e.g. Filtera), or some combination of these strategies be used on the northern edge of the proposed parking areas.

H. Signage:

An integrated signage plan is proposed which coordinates the sign types proposed for the project on Congress Street. The signage will include:

1. Property Identification Sign will be a joint identification sign. (on the corner of Congress Street and UNUM Drive): Shall be sited in the same general area as the existing Elks Club sign so as to be visible from both directions on Congress Street and from Jetport Boulevard, and a smaller sign placed at the new drive intersection within UNUM Drive. It shall be similar to other signs in the Stroudwater neighborhood in size and scale, and shall contain the address on the top with the list of businesses below in a smaller font and color. The sign will be lit from above or from below and shall not be internally lit.

2. Business Identification Signs: Each business will have building mounted signage that is visible from the public way and from the parking areas as needed. The signs may be individualized and contain the business logos as appropriate. If the medical building contains more than one medical practice, each individual tenant will be allowed a sign per ordinance that is visible from the public way.

3. Wayfinding Signs: There shall be intermediate scaled signs located where necessary to direct people to the entry / exit driveway, parking areas, and individual buildings.

4. Regulatory Signs: Will be uniformly sized and mounted on identical painted metal posts. These signs shall confirm to the Standards of the City's Technical Manual.

Refer to: *Exhibit 18 - Conceptual Site Plan*
Exhibit 24 - Design Guidelines: Site Improvements
Exhibit 25 – Signage Diagram

V. SITE IMPROVEMENTS

An integrated system of site improvements will be used throughout the development to achieve a cohesive appearance and grounds aesthetics. The site improvements should be high quality, and durable with a simple design that compliments the building's character. They will be selected to belong to the same design family with common materials and colors and shall include:

1. Benches: At building entrances, gathering spaces, and walkway nodes; preferably metal.

2. Bike Racks: At building entrances. They should be metal and painted to coordinate with the buildings and other site improvements.

3. Pavilions: Covered seating or picnic tables to serve as outdoor lunch/break places for employees and as resting places for trail users. They should be placed close to buildings adjacent to landscape areas, or at the connection to Portland Trails.

4. Trash Receptacles: If used, they should be adjacent to the seating areas and should have similar materials and detailing as the benches.

5. Placement of the Elk Sculpture: Located in the greenspace in front of the Elks structure.

Refer to: *Exhibit 18 - Conceptual Site Plan*
Exhibit 23 - Design Guidelines: Site Improvements
Exhibit 24 - Design Guidelines: Site Improvements

VI. LIST OF EXHIBITS

1. City Context Plan
2. Neighborhood Context Plan
3. Project Site Aerial
4. Site Analysis: Existing Conditions
5. Site Analysis: Regulatory Restrictions
6. Site Analysis
7. Site Analysis: Development Considerations
8. Site Organization Option A
9. Site Organization Option B
10. Site Organization Option C
11. Site Plan Option A
12. Site Plan Option B
13. Site Plan Option C
14. Site Plan Option D
15. Site Plan Option E
16. Site Analysis: Parking
17. Site Development Diagram
18. Conceptual Site Plan
19. Section at Buffer
20. Section at Congress Street
21. Lighting Concept
22. Design Guidelines: Lighting
23. Design Guidelines: Site Improvements
24. Design Guidelines: Site Improvements
25. Signage Diagram
26. Parking Table
27. Parking Plan

Att. F

DEPARTMENT OF ENVIRONMENTAL PROTECTION
NRPA PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act–Permit by Rule Standards, Chapter 305)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY*

Name of Applicant: (owner)	Northland Enterprises, LLC	**Name of Agent:**	Thomas S. Greer, P.E.
Applicant Mailing Address:	17 South Street	**Agent Phone # (include area code):**	207.781.5242
Town/City:	Portland	**PROJECT Information Name of Town/City:**	Portland
State and Zip code:	ME. 04101	**Name of Wetland or Waterbody:**	Unnamed Stream
Daytime Phone # (include area code):	207.780.0223	**Map #:** 216 & 217	**Lot #:** A-6 & A-1

Detailed Directions to Site: From I95 N (Maine Turnpike) towards Portland, take exit 46 towards ME-22/ ME-9/Jetport/Congress Street. Turn right onto Skyway Drive, 1st left onto Johnson Rd/ME-9. Site is .58 miles on left.

UTM Northing: (if known) | **UTM Easting: (if known)**

Description of Project: Renovation of existing building, and the addition of two buildings, (1) 7,900 sq. ft. medical building, and (1) 25,100 sq. ft. general office building.

Part of a larger project? (check one)➔ ☐ Yes ■ No | **After the Fact? (check one)➔** ☐ Yes ■ No | **Check one➔** This project ☐ does (or) ■ does not involve work below mean low water (average low water).

NRPA PERMIT BY RULE (PBR) SECTIONS: (Check at least one)

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, **have read** and will comply with all of the standards in the Sections checked below.

- ■ **Sec. (2) Act. Adj. to Protected Natural Res.**
- ☐ **Sec. (3) Intake Pipes**
- ☐ **Sec. (4) Replacement of Structures**
- ☐ **Sec. (5) REPEALED**
- ☐ **Sec. (6) Movement of Rocks or Vegetation**
- ☐ **Sec. (7) Outfall Pipes**
- ☐ **Sec. (8) Shoreline stabilization**
- ☐ **Sec. (9) Utility Crossing**
- ☐ **Sec. (10) Stream Crossing**
- ☐ **Sec. (11) State Transportation Facil.**
- ☐ **Sec. (12) Restoration of Natural Areas**
- ☐ **Sec. (13) F&W Creation/Enhance/Water Quality Improvement**
- ☐ **Sec. (14) REPEALED**
- ☐ **Sec. (15) Public Boat Ramps**
- ☐ **Sec. (16) Coastal Sand Dune Projects**
- ☐ **Sec. (17) Transfers/Permit Extension**
- ☐ **Sec. (18) Maintenance Dredging**
- ☐ **Sec. (19) Activities in/on/over significant vernal pool habitat**
- ☐ **Sec. (20) Activities located in/on/over high or moderate value inland water-fowl & wading bird habitat or shore-bird feeding & roosting areas**

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:

- ■ ***Attach* a check for the correct fee, payable to: "Treasurer, State of Maine". The current fee for NRPA PBR Notifications can be found at the Department's website: http://www.maine.gov/dep/feesched.pdf**
- ■ ***Attach* a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.**
- ■ ***Attach* Proof of Legal Name if applicant is a corporation, LLC, or other legal entity.** Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are **not** required to provide any proof of identity,
- ■ ***Attach* photos of the proposed site where activity will take place as required in PBR Sections checked above.**
- ■ ***Attach* all other required submissions as outlined in the PBR Sections checked above.**

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that ***this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.***

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant:	Thomas Greer	**Date:**	7/20/16

Keep a copy as a record of permit. Send the form with attachments via certified mail or hand deliver to the Maine Dept. of Environmental Protection **at the appropriate regional office listed below**. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP	PORTLAND DEP	BANGOR DEP	PRESQUE ISLE DEP
17 STATE HOUSE STATION	312 CANCO ROAD	106 HOGAN ROAD	1235 CENTRAL DRIVE
AUGUSTA, ME 04333-0017	PORTLAND, ME 04103	BANGOR, ME 04401	PRESQUE ISLE, ME 04769
(207)287-3901	(207)822-6300	(207)941-4570	(207)764-0477

OFFICE USE ONLY	Ck.#		Staff	Staff	
PBR #	FP	Date	Acc. Date	Def. Date	After Photos

ELKS PROJECT – 1945 CONGRESS STREET

ZONING

The property has recently been re-zoned as O-P Office park. Allowed uses in the O-P zone include professional offices and office complexes. The proposed use by the Applicant for the two (2) new buildings to be erected (Clark Insurance and medical offices) are allowed uses in this zone. The ongoing use of the existing owner, the Elks Club fraternal organization, would be grandfathered. The project remains subject to site plan and subdivision approval.

July 19, 2016

S:\N\NTHL26\Docs for July 2016 City Submission\Zoning overview for City submiission.docx

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Department of Public Services,
55 Portland Street,
Portland, Maine 04101-2991

Date: April 4, 2016

Mr. Frank J. Brancely,
Senior Engineering Technician,
Phone #: (207) 874-8832,
Fax #: (207) 874-8852,
E-mail:fjb@portlandmaine.gov

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 1945 Congress Street

Chart Block Lot Number: _____

Proposed Use: Office, Medical

Previous Use: Assembly

Existing Sanitary Flows: 500 GPD

Existing Process Flows: 0 GPD

Description and location of City sewer that is to receive the proposed building sewer lateral.

Same location as currently exists.

Site Category
- Commercial *(see part 4 below)* ☐
- 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: Helen Donaldson Phone: 207.874.8723

Owner/Developer Name: Northland Enterprises, LLC

Owner/Developer Address: 17 South St. Portland, ME 04101

Phone: 207.780.0223 Fax: E-mail: josh@northlandus.com

Engineering Consultant Name: Pinkham & Greer, Civil Engineers

Engineering Consultant Address: 28 Vannah Ave., Portland, ME 04103

Phone: 207.781.5242 Fax: 207.781.4245 E-mail: tgreer@pinkhamandgreer.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: 500 existing 3,735 new GPD

Peaking Factor/ Peak Times: 7:30-8:30, Lunch, & 4:30-5:30

Specify the source of design guidelines: *(i.e.__"Handbook of Subsurface Wastewater Disposal in Maine," __ "Plumbers and Pipe Fitters Calculation Manual," __ Portland Water District Records, __ Other (specify)*

See Attached based on Plumbing Code

(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: _____

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: _____ 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 below, or attached, as a separate sheet)

Notes, Comments or Calculation

PINKHAM & GREER
CIVIL ENGINEERS

28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

JOB 1945 GORHAM ESS
SHEET NO. _____ OF _____
CALCULATED BY TSC DATE 4/4/16
CHECKED BY _____ DATE _____
SCALE _____

FLOW ESTIMATE
PLUMBING CODE.

MEDICAL OFFICE

80 gpd/Dr.	7	=	560
5/ PATIENT	200	=	1000
15/ EMPLOYEE	5	=	75
		TOTAL	1,635

OFFICE

35,000 SQFT/200 = 175 x 12 gpd = 2,100 gpd
NEW - 3,735

ELKS @ 500 gpd EX 500

TOTAL 4,235 gpd

Att. I

PROPOSED OFFICE DEVELOPMENT
PORTLAND, MAINE

TRAFFIC MOVEMENT PERMIT APPLICATION
SECTIONS 1 – 6

Submitted to:

CITY OF PORTLAND
DEPARTMENT OF PLANNING & URBAN DEVELOPMENT

May 2016

Applicant:

Northland Enterprises, LLC.
17 South Street, 3rd Floor
Portland, Maine 04101

Prepared by:

Maine Traffic Resources
25 Vine Street Gardiner, ME 04345
(207) 582-5252 FAX (207) 582-1677
mainetrafficresources.com

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 1/2001
ID #:

Total Fees:
Date: Received

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A.§ 704 -A

Please type or print:
This application is for (check all that applies): Traffic 100-200 PCE's X
Traffic 200+ PCE's _____

Name of Applicant: Northland Enterprises, LLC. Attn: Rex Bell and Josh Benthien

Address: 17 South Street, 3rd Floor, Portland, ME 04101 Telephone: (207) -780-0223

Name of local contact or agent: Diane W. Morabito, P.E. PTOE Maine Traffic Resources

Address: 25 Vine Street, Gardiner, ME 04345 Telephone: (207) 582-5252

Name and type of development: Proposed new 15,000 S.F. medical office building and new 35,000 S.F. general office building. The existing 23,090 S.F. Elks Lodge will be reduced to 13,500 S.F.

Location of development: Northerly side of Unum Park Drive, northwest of Congress Street, on the existing Elks Lodge site

City/Town/Plantation: Portland County: Cumberland Tax Map # 216 & 217 Lot # A-6 & A-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 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 _____

Is 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?

Existing DEP or MDOT permit number (if applicable): _____

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: _____

1/2000

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the application for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: Diane W. Morabito Re/Cert/Lic No.: Maine PE # 5077
PTOE # 571

Name(print): Diane W. Morabito

Date: 5/6/16

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."

for Northland ENTERPRISES 5/6/16

Signature of Applicant Date

FORM C 7/97

STATE OF MAINE
DIANE W.
MORABITO
No. 5077
LICENSED
PROFESSIONAL ENGINEER

Maine Traffic Resources
25 Vine Street Gardiner, ME 04345
(207) 582-5252 FAX (207) 582-1677
mainetrafficresources.com

NOTICE OF INTENT TO FILE

Please take notice that Northland Enterprises, LLC. Attn: Rex Bell and Josh Benthien, 17 South Street, 3rd Floor, Portland, Maine 04101, (207) 780-0223 is intending to file a Traffic Movement Permit application with the City of Portland Department of Planning and Urban Development pursuant to the provisions of 23 M.R.S.A. § 704-A on or about May 9, 2016.

The application is for a new office development in Portland on the existing Elks Lodge site. The proposed offices will include 15,000 square feet (S.F.) of medical office space and 35,000 S.F. of general office space. The existing Elks Lodge building will be reduced from 23,090 S.F. to 13,500 S.F. Construction is expected to be completed for occupancy in late 2017. The offices are expected to generate approximately 109 one-way trips during the weekday AM peak hour and 119 trips during the PM peak hour. The site is located at 1945 Congress Street in Portland.

A request for a public hearing must be received by The City of Portland, in writing, no later than 20 days after the application is found by the 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 Department of Planning and Urban Development, which is located Portland City Hall, 389 Congress Street, Portland, Maine 04101, during normal working hours. A copy of the application may also be seen at the Maine Department of Transportation Southern Region 1 Office, 51 Pleasant Hill Road, Scarborough, ME 04070-0358.

Written public comments may be sent to the Department of Planning and Urban Development, City of Portland, 389 Congress Street, Portland, Maine 04101.

Diane W. Morabito

Diane W. Morabito, P.E. PTOE

Portland Office Development

List of Abutters

216/A16 216/A2 216/A5
UNUM CORP
2211 CONGRESS ST
PORTLAND ME 04102

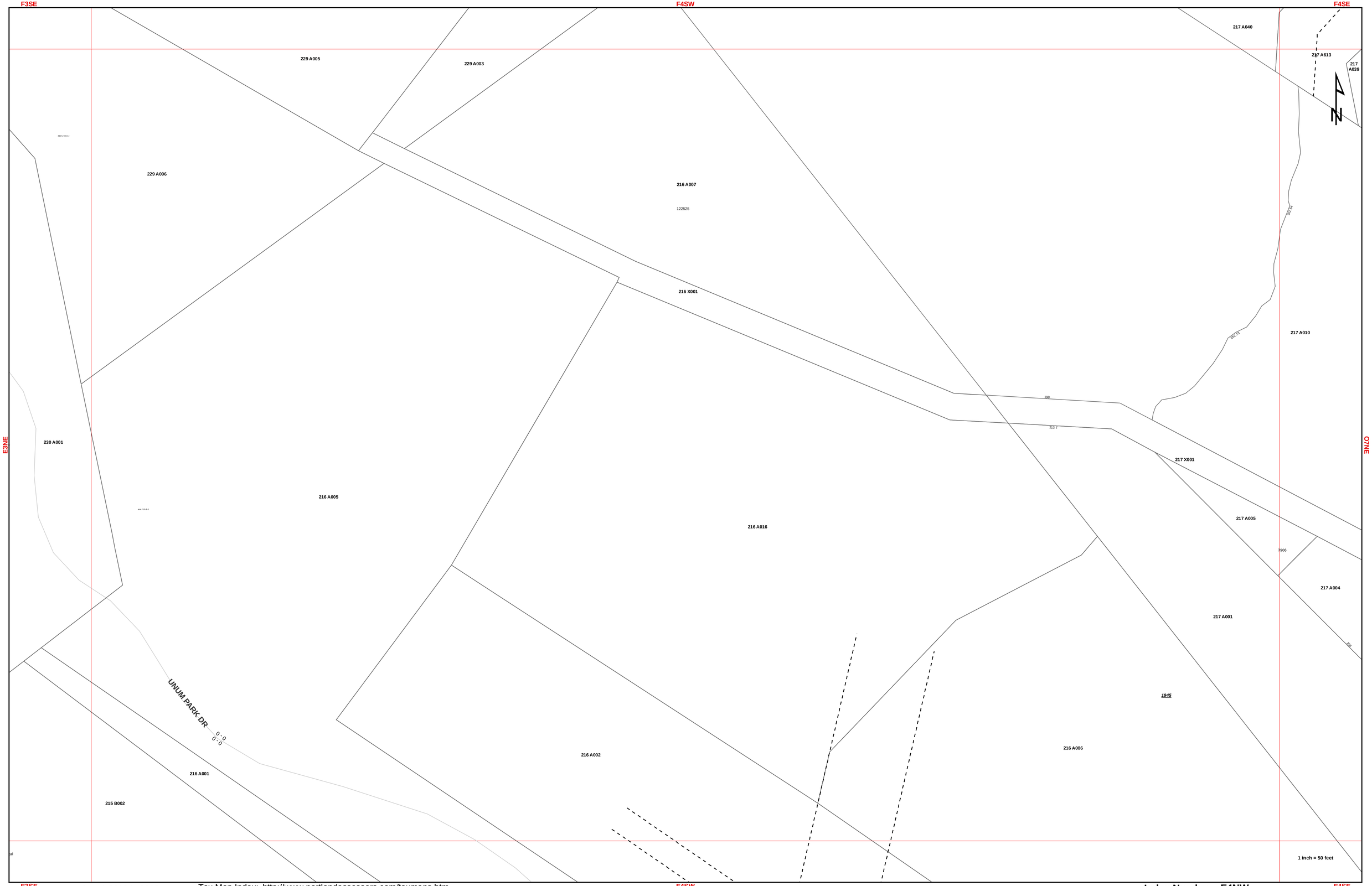
217/A5
PORTLAND WATER DISTRICT
225 DOUGLASS ST
PORTLAND ME 04102

217/A4
JOYCE GAUTHIER
1905 CONGRESS ST
PORTLAND ME 04102

217/A2
DUBOIS PAUL A &
KIMBERLY A DUBOIS JTS
1915 CONGRESS ST
PORTLAND ME 04102

211/B5 212/A20
FAITH TEMPLE
1914 CONGRESS ST
PORTLAND ME 04102

211/B3
CITY OF PORTLAND
389 CONGRESS ST
PORTLAND ME 04101


F3SE
F4SW
F4SE
E3NE
O7NE
229 A005
229 A003
217 A040
217 A613
217 A039
229 A006
216 A007
122525
216 X001
217 A010
230 A001
217 X001
216 A005
216 A016
217 A005
217 A004
217 A001
1945
UNUM PARK DR
216 A002
216 A006
216 A001
215 B002
1 inch = 50 feet
E3SE
E4SW
E4SE

INTRODUCTION

The purpose of this application is to summarize the information required by the Maine Department of Transportation (MaineDOT) and City of Portland in a Traffic Movement Permit application to request a Scoping Meeting for proposed office buildings off Unum Park Drive on the site of the existing Elks Lodge in Portland, Maine. Trip generation, performed using the Institute of Transportation Engineers (ITE) report, indicates that the project will generate in excess of 100 new peak hour trips. As a result, the project requires a Traffic Movement Permit (TMP). Since the City of Portland has delegated review authority for MaineDOT this application will be filed with and processed by the City of Portland.

SITE DESCRIPTION - SECTION 1A

The site is located on the northerly side of Unum Park Drive, west of Congress Street, in Portland, Maine. The overall site is approximately 7.0 acres in size. The existing terrain is fairly flat, gently sloping from the easterly edge of the site downwards towards the west.

EXISTING AND PROPOSED USES - SECTION 1B

The site is currently occupied by the Elks Lodge, which is currently 23,090 square feet (S.F.) in size. It is understood that a portion of the Elks Lodge will be removed during a renovation to reduce it to 13,500 S.F. The proposed development includes a new 15,000 S.F. medical office building and a new 35,000 S.F. general office building.

SITE VICINITY - SECTION 1C

The site location and vicinity are shown on the map in Figure 1.

OTHER DEVELOPMENT - SECTION 1D

Other pending developments that are expected to impact traffic volumes in the vicinity need to be considered in the traffic analysis. No other pending developments were identified in the preliminary meeting with the City Peer Traffic Reviewer and City Staff, which would be expected to impact traffic volumes in the Congress Street study area.

TRIP GENERATION - SECTION 1E

The number of trips to be generated by the office buildings was estimated using the Institute of Transportation Engineers (ITE) "Trip Generation, 7th Edition", the edition currently being used by the Maine Department of Transportation (MaineDOT) for traffic permitting purposes. In addition, the newer 9th Edition report was also utilized. It the 9th edition report had a higher trip rate it was used for the following analysis. If the newer 9th Edition had lesser rates the older, higher rates were used.

Initial trip generation was performed on the basis of both projected employees and building square footages. Given that the square footage basis resulted in significantly higher trip generation, the City Traffic Reviewer requested that trip generation be performed on the basis of square footage to be conservative. The trips were estimated using LUC 720 – Medical-Dental Office Building on the basis of 15,000 S.F. and 710 – General Office Building on the basis of 35,000 S.F. The results are summarized below:

	ITE Projected Trip Generation (one-way trip ends)		
Time Period	Med. Office	General Office	Total
Weekday	542	386	928
AM Peak Hour - Adj. Street	37	55	92
Entering	29	48	77
Exiting	8	7	15
AM Peak Hour - Generator	54	55	109
Entering	36	48	84
Exiting	18	7	25
PM Peak Hour - Adj. Street	56	52	108
Entering	15	9	24
Exiting	41	43	84
PM Peak Hour – Generator	67	52	119
Entering	27	9	36
Exiting	40	43	83

As can be seen above, the two proposed office buildings are expected to generate a total of 109 one-way trips during their weekday AM peak hour and 119 trips during their PM peak hour. Given that new trip generation exceeds the 100-trip threshold during both peak hours, the City of Portland requested both AM and PM peak hour analysis. All of the office trips are assumed to be primary, or new, trips.

While the existing Elks Lodge is being reduced in size as part of this project, no significant reduction is expected in the weekday peak hour trips since the bar area and bingo hall spaces are not expected to be reduced in terms of patrons. Also, no significant reduction would be expected during the AM peak hour since few trips are generated by the Elks Lodge during that period. As a result, no credit is being taken for reduced trips to the Elks Lodge for the reduction in building size.

TRIP DISTRIBUTION AND ASSIGNMENT - SECTION 1F & G

The trip assignments were based upon the traffic patterns recorded during turning movement/classification counts conducted by Maine Traffic Resources at the intersection of Congress Street, International Parkway and Unum Park Drive. The AM count was conducted on April 27, 2016 from 7:00 – 9:00 AM. The PM count was conducted on April 21, 2016 from 4:00 – 6:00 PM. The count records are included in this application. The peak hours for the intersection occurred from 7:30 – 8:30 AM and from 4:15 – 5:15 PM. The counts were factored to 30th highest hour volumes using published MaineDOT group mean factors. The results are expected to be representative of peak summer volumes in late July or early August. The existing 2016 volumes for both the AM and PM peak hour are shown in Figure 2. The trip assignments for the AM and PM peak hours are shown in Figure 3.

Figure 1

Site Location Map

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

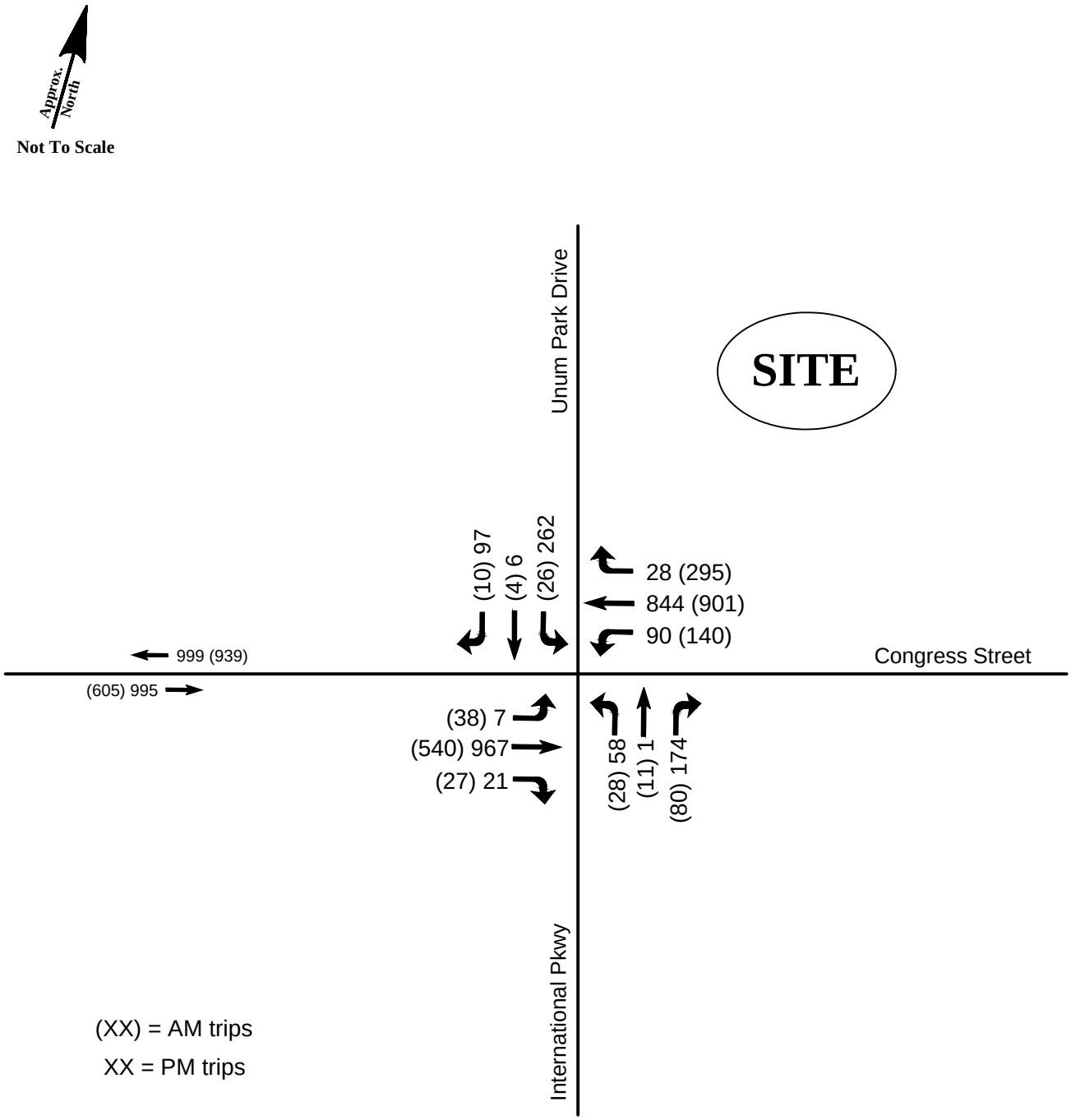


Figure 2

2016 Existing Peak Hour Volumes

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

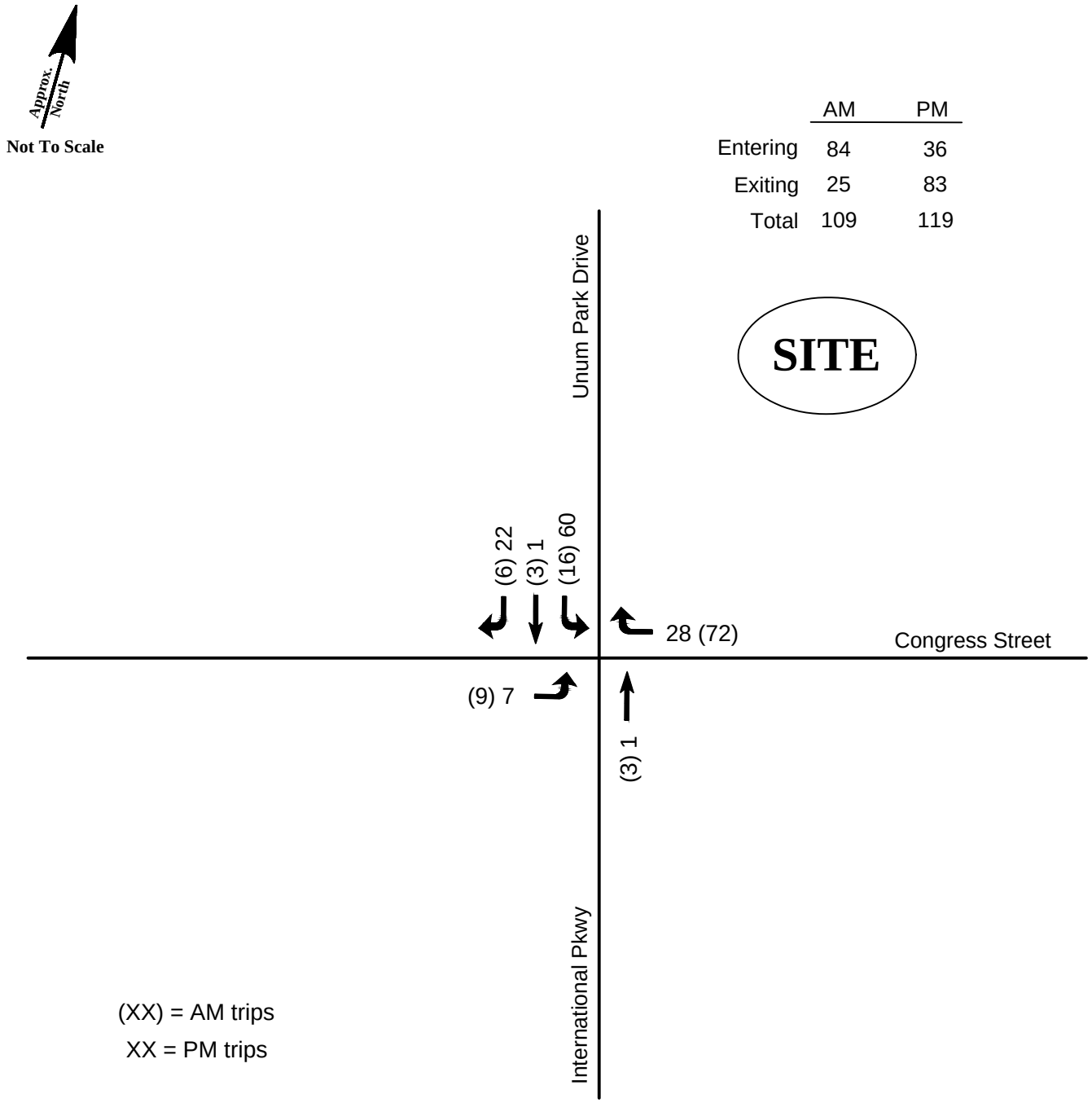


Figure 3

Peak Hour Trip Assignments

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

Maine Traffic Resources
25 Vine Street
Gardiner, ME 04345
mainetrafficresources.com

Title: Unum Dr, Int'l Pkwy, Cong. St AM
Town: Portland, Maine
Counter: NLS
Weather: Clear

File Name : PortlandCongressUnumAM
Site Code : 00000001
Start Date : 4/27/2016
Page No : 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Unum Park Drive From North					Congress Street From East					International Parkway From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	1	1	3	0	5	53	116	16	1	186	14	1	3	0	18	4	112	7	0	123	332
07:15 AM	4	1	4	0	9	61	173	35	1	270	11	4	9	0	24	3	156	6	0	165	468
07:30 AM	2	2	5	3	12	68	210	26	2	306	16	4	8	0	28	5	131	8	0	144	490
07:45 AM	3	0	5	0	8	72	258	37	0	367	28	5	6	0	39	8	139	9	0	156	570
Total	10	4	17	3	34	254	757	114	4	1129	69	14	26	0	109	20	538	30	0	588	1860
08:00 AM	4	0	8	2	14	89	212	41	1	343	20	2	3	0	25	7	114	13	0	134	516
08:15 AM	1	2	8	0	11	66	191	36	0	293	16	0	11	0	27	7	138	8	0	153	484
08:30 AM	2	1	2	0	5	58	156	25	0	239	11	1	12	0	24	6	173	8	0	187	455
08:45 AM	1	0	6	0	7	34	169	33	0	236	18	1	7	0	26	4	160	11	0	175	444
Total	8	3	24	2	37	247	728	135	1	1111	65	4	33	0	102	24	585	40	0	649	1899
Grand Total	18	7	41	5	71	501	1485	249	5	2240	134	18	59	0	211	44	1123	70	0	1237	3759
Apprch %	25.4	9.9	57.7	7.0		22.4	66.3	11.1	0.2		63.5	8.5	28.0	0.0		3.6	90.8	5.7	0.0		
Total %	0.5	0.2	1.1	0.1	1.9	13.3	39.5	6.6	0.1	59.6	3.6	0.5	1.6	0.0	5.6	1.2	29.9	1.9	0.0	32.9	

	Unum Park Drive From North					Congress Street From East					International Parkway From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	10	4	26	5	45	295	871	140	3	1309	80	11	28	0	119	27	522	38	0	587	2060
Percent	22.2	8.9	57.8	11.1		22.5	66.5	10.7	0.2		67.2	9.2	23.5	0.0		4.6	88.9	6.5	0.0		
07:45 Volume	3	0	5	0	8	72	258	37	0	367	28	5	6	0	39	8	139	9	0	156	570
Peak Factor																					0.904
High Int.	08:00 AM					07:45 AM					07:45 AM					07:45 AM					
Volume	4	0	8	2	14	72	258	37	0	367	28	5	6	0	39	8	139	9	0	156	
Peak Factor					0.804					0.892					0.763					0.941	

901

540

Congress Street
Group I = 0.92 / 0.89 = 1.034

Maine Traffic Resources
25 Vine Street
Gardiner, ME 04345
mainetrafficresources.com

Title :Unum Dr, Int'l Pkwy, Congr. St PM
Town: Portland, Maine
Counter: NLS
Weather: Sunny

File Name : PortlandCongressUnumPM
Site Code : 00000001
Start Date : 4/21/2016
Page No : 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Unum Park Drive From North					Congress Street From East					International Parkway From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:00 PM	28	1	59	0	88	10	198	40	0	248	31	0	14	0	45	4	196	3	0	203	584
04:15 PM	21	0	62	0	83	5	202	29	0	236	28	0	10	0	38	3	225	4	0	232	589
04:30 PM	31	2	70	0	103	8	174	24	0	206	58	0	11	0	69	5	219	1	0	225	603
04:45 PM	18	2	63	2	85	8	220	21	0	249	36	1	19	1	57	8	194	2	0	204	595
Total	98	5	254	2	359	31	794	114	0	939	153	1	54	1	209	20	834	10	0	864	2371
05:00 PM	27	2	67	1	97	7	186	16	0	209	52	0	18	2	72	5	258	0	1	264	642
05:15 PM	12	0	43	0	55	7	182	25	4	218	34	1	16	1	52	3	216	1	0	220	545
05:30 PM	9	1	30	0	40	4	155	19	0	178	37	1	12	1	51	2	214	0	0	216	485
05:45 PM	7	0	17	0	24	2	120	18	0	140	34	0	10	0	44	4	156	3	0	163	371
Total	55	3	157	1	216	20	643	78	4	745	157	2	56	4	219	14	844	4	1	863	2043
Grand Total	153	8	411	3	575	51	1437	192	4	1684	310	3	110	5	428	34	1678	14	1	1727	4414
Apprch %	26.6	1.4	71.5	0.5		3.0	85.3	11.4	0.2		72.4	0.7	25.7	1.2		2.0	97.2	0.8	0.1		
Total %	3.5	0.2	9.3	0.1	13.0	1.2	32.6	4.3	0.1	38.2	7.0	0.1	2.5	0.1	9.7	0.8	38.0	0.3	0.0	39.1	

	Unum Park Drive From North					Congress Street From East					International Parkway From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	97	6	262	3	368	28	782	90	0	900	174	1	58	3	236	21	896	7	1	925	2429
Percent	26.4	1.6	71.2	0.8		3.1	86.9	10.0	0.0		73.7	0.4	24.6	1.3		2.3	96.9	0.8	0.1		
05:00 Volume	27	2	67	1	97	7	186	16	0	209	52	0	18	2	72	5	258	0	1	264	642
Peak Factor																					0.946
High Int.	04:30 PM					04:45 PM					05:00 PM					05:00 PM					
Volume	31	2	70	0	103	8	220	21	0	249	52	0	18	2	72	5	258	0	1	264	
Peak Factor					0.893					0.904					0.819					0.876	

844

967

Congress Street
Group I = 0.96/0.89 = 1.079

ACCIDENT REVIEW - SECTION 2

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher than expected accident rate. The expected rate is calculated as a statewide average of similar facilities.

The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location. The CRF and number of accidents are summarized by location for the most recent three-year period, 2013 to 2015, below:

Congress Street Location Description	# of Acc.	CRF
Intersection of Westerly Unum Park Drive	2	0.11
Between Westerly Unum Park Drive and Johnson Street	3	0.31
Intersection of Route 9 (Johnson Street)	11	0.40
Between Johnson Street and International Pkwy/Unum Park Drive	14	0.87
Intersection of Easterly End of Unum Park Drive	1	0.66
Intersection of International Pkwy/Unum Park Drive	17	0.53
Between Unum Park Drive and Garrison Street	**12**	**0.70**
Intersection of Garrison Street	1	0.14
Between Garrison Street and Westbrook Street	**19**	**0.94**
Intersection of Westbrook Street	30	0.92

As can be seen in the above table, there are no high crash locations within the vicinity of the site. However, there are two locations that are approaching the high crash location criteria, highlighted in bold print, which are located on Congress Street to the northeast of the site, in the vicinity of the existing lane drop on Congress Street. As a result, collision diagrams were prepared for both links to see if there are any accident patterns or concerns associated with the lane drop. The City Traffic Reviewer wanted to determine if there were any safety or accident concerns or issues with the existing lane drop since the City is considering options for this area of Congress Street, which may include another lane drop. The collision diagrams are included in the appendix and evaluated as follows:

Congress Street between Garrison Street and Westbrook Street

The link between Garrison Street and Westbrook Street had reported 19 accidents and a CRF of 0.94. It was determined in review that two accidents had been miscoded since they occurred off link. One occurred outside the study area north of Westbrook Street while one was moved to the link between Garrison Street and Unum Park Drive. As a result, there were 17 accidents on this link.

Nine of the accidents were rear-end collisions, all between vehicles traveling northeast on Congress Street, and mostly attributed to traffic. Five of the accidents were sideswipe type collisions, typical of multi-lane facilities. The remaining three accidents were single vehicle loss of control type; two going off road and one being a motorcycle that got stuck in first gear. There is a pattern of rear-end collisions in the northeast direction on Congress Street. Most were attributed to being stopped or slowed in traffic, which is to be expected on a roadway like Congress Street with high volumes and stop and go traffic. Because of this there are no apparent safety deficiencies or corrections that can be made to reduce the rear-end collisions.

Congress Street between Unum Park Drive and Garrison Street

The link between Unum Park Drive and Garrison Street had a CRF of 0.70 with 12 reported accidents. One additional accident was added to this link as previously discussed for a total of 13. Five of the accidents were rear-end collisions, four northbound and one southbound on Congress Street. Three sideswipe type accidents occurred in the area of the existing lane drop from two lanes to one in the northeast direction. Two accidents were single vehicle loss of control type; one attempting to avoid an oncoming vehicle and the other hitting a snow bank. One collision occurred between a vehicle and a bicyclist when the bicycle turned into the vehicle. One accident occurred when a deer ran into the roadway hitting one vehicle and then another in the opposing lane. The last accident occurred when a Congress Street motorist attempted to take a right into a drive from the left travel lane, failing to yield to the vehicle in the right travel lane. There is no apparent pattern of accidents along this link which would indicate a correctable roadway deficiency. It is noted that the vast majority of the accidents occurred during the PM commuting period from 3:00 – 5:00 PM and may be attributed to general high volumes and stop and go traffic.

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

Congress St.

REPORT PARAMETERS

Year 2013, Start Month 1 through Year 2015 End Month: 12

Route: 0022X	Start Node: 13048	Start Offset: 0	☐ Exclude First Node
	End Node: 10097	End Offset: 0	☐ Exclude Last Node
Route: 3201952	Start Node: 19910	Start Offset: 0	☐ Exclude First Node
	End Node: 65299	End Offset: 0	☐ Exclude Last Node
Route: 0022S	Start Node: 19900	Start Offset: 0	☑ Exclude First Node
	End Node: 19901	End Offset: 0	☐ Exclude Last Node

Crash Summary I

Nodes

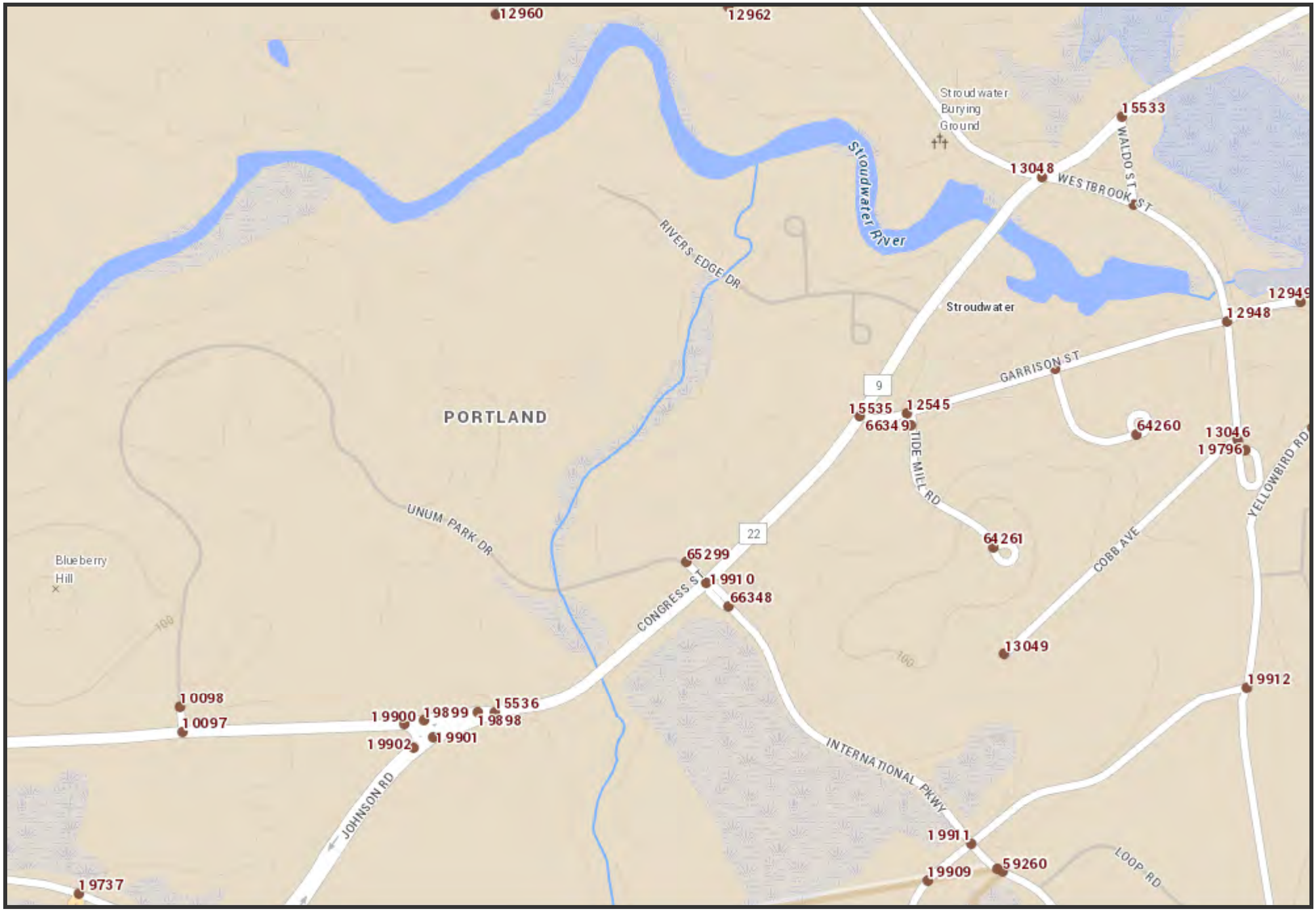
Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
13048	0022X - 2.37	Int of CONGRESS ST WESTBROOK ST	9	30	0	0	0	6	24	20.0	10.521	0.95	1.03	0.92
												Statewide Crash Rate:	0.67	
15535	0022X - 2.62	Int of CONGRESS ST GARRISON ST	2	1	0	0	0	0	1	0.0	8.932	0.04	0.29	0.14
												Statewide Crash Rate:	0.13	
19910	0022X - 2.81	Int of CONGRESS ST INTERNATIONAL PKWY UNUM PARI	9	17	0	0	1	8	8	52.9	10.278	0.55	1.03	0.53
												Statewide Crash Rate:	0.67	
A15536	0022X - 3.02	Int of CONGRESS ST, JOHNSON ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.13	
A19898	0022X - 3.03	Int of CONGRESS ST JOHNSON ST WB	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.13	
A19899	0022X - 3.08	Int of CONGRESS ST CUT 9X TO 22X	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.13	
A19900	0022X - 3.10	Int of CONGRESS ST CUT 22X TO 9W ROUTE 22 SB	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.13	
10097	0022X - 3.28	Int of CONGRESS ST, ENT TO UNMUTUAL	9	2	0	0	0	2	0	100.0	5.220	0.13	1.17	0.11
												Statewide Crash Rate:	0.67	
19910	3201952 - 0	Int of CONGRESS ST INTERNATIONAL PKWY UNUM PARI	9	17	0	0	1	8	8	52.9	10.278	0.55	1.03	0.53
												Statewide Crash Rate:	0.67	
65299	3201952 - 0.01	End of UNUM PARK Z RD	2	1	0	0	0	0	1	0.0	0.963	0.35	0.53	0.66
												Statewide Crash Rate:	0.14	
P19901	0022S - 0.19	Int of CUT 9X TO 22X JOHNSON ST JOHNSON ST WB RO	9	11	0	0	0	4	7	36.4	8.558	0.43	1.07	0.40
												Statewide Crash Rate:	0.67	
Study Years:	3.00	NODE TOTALS:		79	0	0	2	28	49	38.0	54.750	0.48	0.72	0.67

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
13048	15535	3119199	0 - 0.25	0022X - 2.37	0.25	2	19	0	0	1	6	12	36.8	0.02133	296.86	316.78	0.94
Int of CONGRESS ST WESTBROOK ST				ST RTE 22											Statewide Crash Rate: 185.80		
15535	19910	3116028	0 - 0.19	0022X - 2.62	0.19	2	12	0	0	1	3	8	33.3	0.01744	229.30	329.74	0.70
Int of CONGRESS ST GARRISON ST				ST RTE 22											Statewide Crash Rate: 185.80		
15536	19910	3120694	0 - 0.21	0022X - 2.81	0.21	2	14	0	0	1	4	9	35.7	0.01604	290.90	335.47	0.87
Int of CONGRESS ST, JOHNSON ST				ST RTE 22											Statewide Crash Rate: 185.80		
15536	19898	3130193	0 - 0.01	0022X - 3.02	0.01	2	0	0	0	0	0	0	0.0	0.00038	0.00	833.95	0.00
Int of CONGRESS ST, JOHNSON ST				ST RTE 22											Statewide Crash Rate: 198.35		
19898	19899	3106937	0 - 0.05	0022X - 3.03	0.05	2	1	0	0	0	0	1	0.0	0.00090	369.96	711.18	0.52
Int of CONGRESS ST JOHNSON ST WB				ST RTE 22											Statewide Crash Rate: 198.35		
19899	19900	3118715	0 - 0.02	0022X - 3.08	0.02	2	0	0	0	0	0	0	0.0	0.00044	0.00	818.25	0.00
Int of CONGRESS ST CUT 9X TO 22X				ST RTE 22											Statewide Crash Rate: 198.35		
10097	19900	3105102	0 - 0.18	0022X - 3.10	0.18	2	3	0	0	0	1	2	33.3	0.00769	129.96	415.47	0.31
Int of CONGRESS ST, ENT TO UNMUTUAL				ST RTE 22											Statewide Crash Rate: 198.35		
19910	65299	2785374	0 - 0.01	3201952 - 0	0.01	2	0	0	0	0	0	0	0.0	0.00019	0.00	1617.80	0.00
Int of CONGRESS ST INTERNATIONAL PKWY UNUM PARK Z RD				RD INV 3201952											Statewide Crash Rate: 383.79		
19900	19901	3118716	0 - 0.03	0022S - 0.16	0.03	2	0	0	0	0	0	0	0.0	0.00055	0.00	789.51	0.00
Int of CONGRESS ST CUT 22X TO 9W ROUTE 22 SB				ST RTE 22S											Statewide Crash Rate: 198.35		
Study Years: 3.00				Section Totals:	0.95		49	0	0	3	14	32	34.7	0.06498	251.38	265.81	0.95
				Grand Totals:	0.95		128	0	0	5	42	81	36.7	0.06498	656.65	380.12	1.73

PORTLAND



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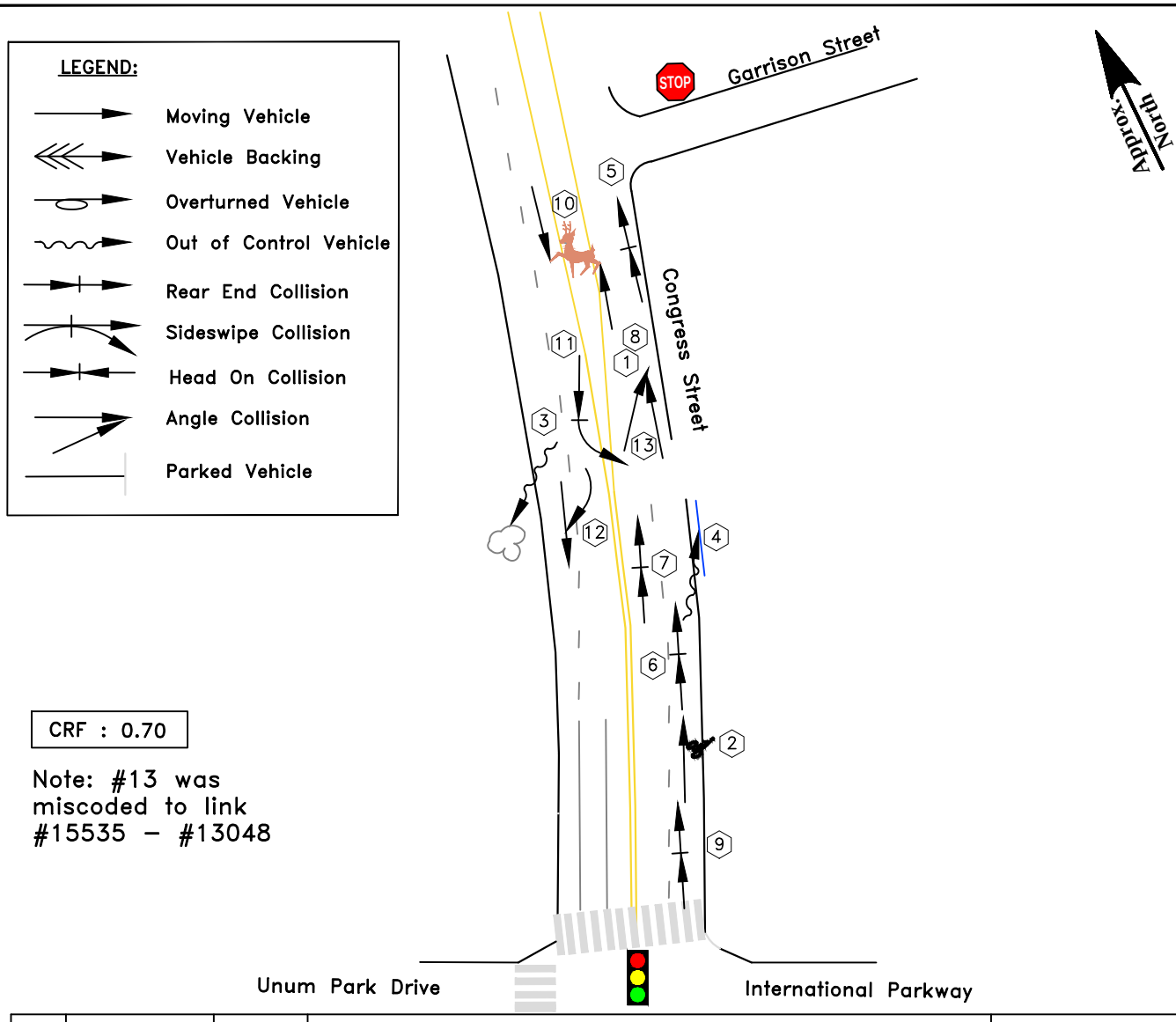
0.2 Miles

1 inch = 0.14 miles

Date: 4/6/2016
Time: 1:10:21 PM



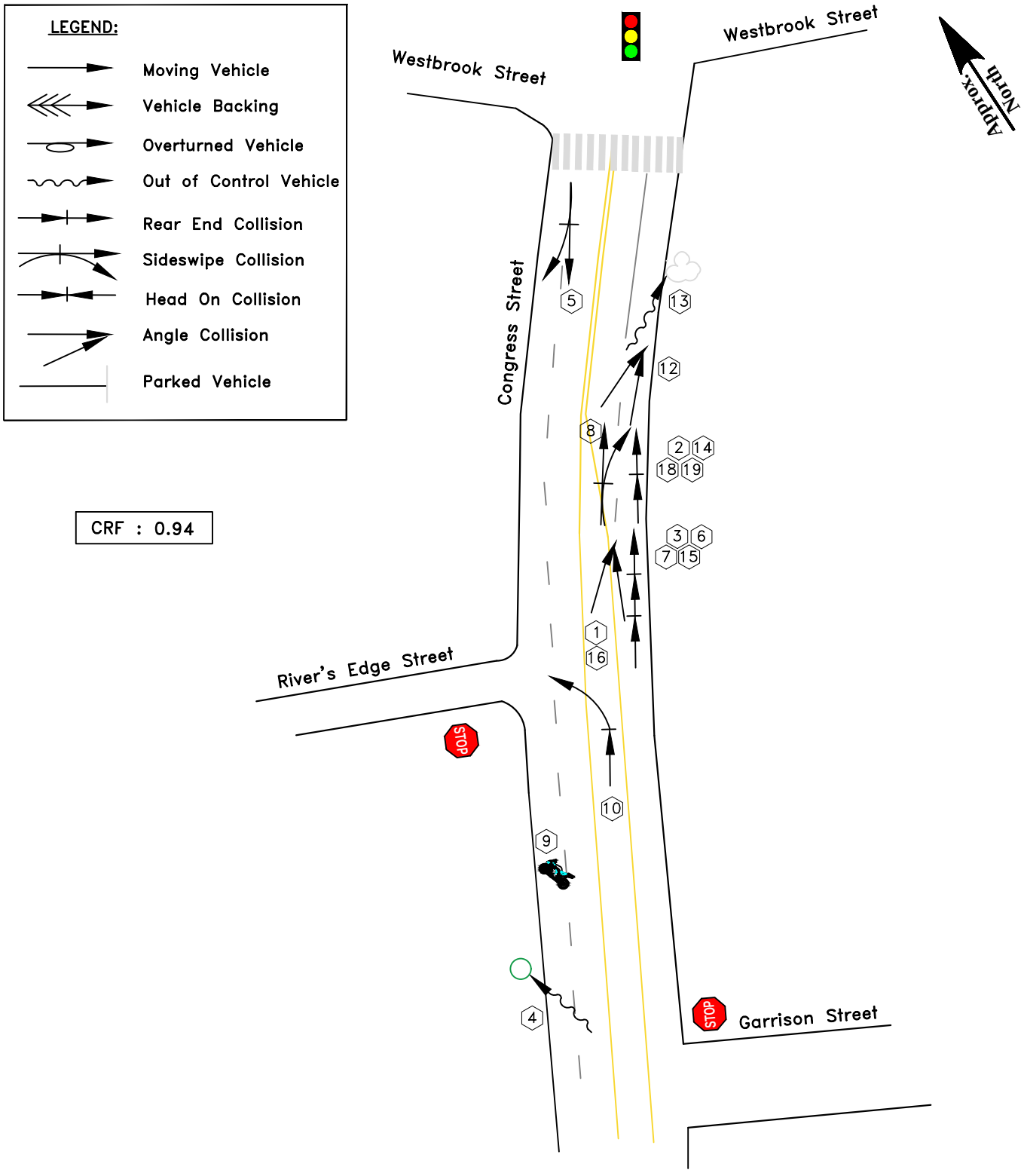
CRF : 0.70

Note: #13 was miscoded to link #15535 – #13048

#	DATE	TIME	CONTRIBUTING FACTOR	MDOT REPORT #
1	01/30/13	11:10	IMPROPER MERGE AT LANE DROP– SIDESWIPE	13–369
2	08/01/13	15:32	BICYCLE TURNED INTO WITH VEHICLE	13–2170
3	02/16/14	00:58	LEFT ROADWAY/HIT SNOWBANK/SNOWY – OUI	14–000601
4	02/22/14	07:00	AVOIDING ONCOMING VEHICLE/ICY – HIT GUARDRAIL	14–000748
5	07/11/14	16:42	REAR END – FOLLOWING TOO CLOSELY	14–002020
6	09/24/14	16:53	REAR END – IN TRAFFIC	14–002823
7	03/11/15	15:01	REAR END – INATTENTION	15–001147
8	06/04/15	17:17	IMPROPER MERGE AT LANE DROP	15–001959
9	08/13/15	16:30	REAR END – SLOWING IN TRAFFIC	15–002708
10	10/26/15	20:47	COLLISION WITH DEER INVOLVING TWO VEHICLES	15–003599
11	12/03/15	15:47	REAR END – IMPROPER LANE CHANGE/PASSING VEHICLE	15–004029
12	12/29/15	14:15	RIGHT–TURN ACROSS TWO LANES – FAILED TO YIELD	15–004361
13	08/28/15	17:30	REAR END – IMPROPER MERGE – IN TRAFFIC	15–002924

Portland, Maine
Collision Diagram: 2013-2015
MDOT Link # 19910 - # 15535

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677



Portland, Maine
Collision Diagram: 2013-2015
MDOT Link # 15535 - # 13048

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

#	DATE	TIME	CONTRIBUTING FACTOR	MDOT REPORT #
1	02/27/13	15:30	IMPROPER MERGE – SIDESWIPE	13–000732
2	05/20/13	14:52	REAR END – IN TRAFFIC	13–1461
3	06/19/13	18:11	REAR END – SLOWING IN TRAFFIC	13–001746
4	07/31/13	10:38	SINGLE VEHICLE OFF ROAD – MEDICAL EVENT	13–2142
5	01/08/14	11:39	FAILED TO STAY IN LANE – POSSIBLE ICY CONDITIONS	14–000127
6	01/17/14	16:54	REAR END – IN TRAFFIC	14–000244
7	06/06/14	15:23	REAR END – INTERNAL DISTRACTION	14–001668
8	06/25/14	08:45	SIDESWIPE	14–001829
9	07/29/14	08:17	MOTORCYCLE LOST CONTROL – STUCK IN 1ST GEAR	14–002199
10	08/05/14	09:44	REAR ENDED LEFT–TURNING VEHICLE	14–002276
11	10/16/14	17:37	REAR END – INTERNAL DISTRACTION **	14–003056
12	12/23/14	13:12	SIDESWIPE – LANE CHANGE	14–003790
13	02/08/15	12:31	OFF ROAD/HIT SNOW BANK– SLIPPERY CONDITIONS	15–000629
14	03/18/15	15:27	REAR END – FOLLOWING TOO CLOSELY	15–001220
15	04/09/15	13:01	REAR END – EXTERNAL DISTRACTION	15–001422
16	05/22/15	17:31	AVOIDING OPPOSING VEHICLE IN TWTL – SIDESWIPE	15–001824
17	08/28/15	16:50	REAR END – IMPROPER MERGE – IN TRAFFIC **	15–002924
18	09/24/15	12:05	REAR END – IN TRAFFIC	15–003208
19	12/17/15	17:30	REAR END – FOOT SLIPPED OFF BRAKE	15–004220

**Note: #11 and #17 were miscoded and removed from this diagram. #17 was moved to the collision diagram of link #19910 – #15535 and is labeled as #13

Portland, Maine

Collision Diagram: 2013-2015

MDOT Link # 15535 - # 13048

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

ENTRANCES AND EXITS - SECTION 3

Access to the site is proposed to be provided by the existing exit drive to Unum Park Drive, which will become a full movement drive. The existing entrance only will be removed. The drive gives access to the signalized intersection at Congress Street.

Sight distance was measured from the proposed office development site drive. Sight distance to the left was approximately 250 feet to the intersection of Unum Park Drive and Congress Street. Sight distance to the right is in excess of 300 feet. Although sight distance was found to be adequate during the period checked (April), landscaping in the island (shrubs), once fully leafed out, will potentially restrict sight distance to the left to approximately 165 feet. Because of this MTR recommends this landscaping be replaced with shorter plantings that will not affect sightlines. It is also important to note that no landscaping or signage shall be located within the sight triangle along the property frontage which could obscure the sight distances in the future.

Additionally, the existing speed limit sign for Unum Park Drive is located west of the proposed office development driveway. It is recommended that this speed limit sign either be relocated to the beginning of Unum Drive, prior to the proposed site drive, or an additional sign be installed at this location so that the 25 mph speed limit is apparent and enforceable along the entire length of Unum Park Drive.

TITLE, RIGHT OR INTEREST - SECTION 4

The Purchase and Sale Agreement as well as the current amendment (14th) are included in this application package.

REAL ESTATE PURCHASE AND SALE AGREEMENT

This Agreement, dated the 11th day of June, 2014 (the "Contract Date"), is between Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America ("Seller"), having a place of business at 1945 Congress Street, Portland, Maine, and Dr. Michael Bedecs having a place of business at 1375 Congress Street, Portland, ME and Northland Enterprises, LLC, or its permitted assignee (collectively, "Purchaser"), having a place of business at 17 South Street, 3rd floor, Portland, Maine 04101. The parties agree as follows:

1. Purchase and Sale of Property; Condominium Conversion.

(a) Subject to the terms and conditions set forth herein, Seller agrees to sell to Purchaser, and Purchaser agrees to purchase from Seller, the following described property owned by Seller (collectively, the "Property"):

(i) That certain lot or parcel of real property known as 1945 Congress Street, Portland, Maine, being a portion of the property described in a deed from Elks Home, Portland, Maine, Lodge No. 188 Benevolent and Protective order of Elks to Seller, and recorded in the Cumberland County Registry of Deeds at Book 6157, Page 37, provided that the conveyance shall not include the retained portion of the Seller's building (being approximately 13,000 square feet of the total usable footprint of such building including the storage area) (the "Seller's Retained Building"). The property to be conveyed is generally identified on the Concept Plan attached to and made a part hereof as Exhibit A.

(ii) A portion of the existing building on the real property shall be removed and demolished by Buyer and a new interior and exterior wall installed, with all of the foregoing in a manner acceptable to the parties as set forth in Section 5.1, and the configuration of the Seller's Retained Building to be as shown on the sketch plan attached to and made a part hereof as Exhibit B. All fixtures and improvements situated on the real property owned by Seller are to be retained by Seller and shall be part of Seller's Retained Building.

(iii) For sake of clarity, Seller is retaining the Seller's Retained Building, an Elk statue and flag and flagpole as well as an Elks sign (such statue, flagpole and sign to be limited common elements under the condominium documents) to be located near Congress Street entrance at the general location designated on Exhibit C (such location to be subject to requirements that may be set out in any permits and approvals for the property and state and local sign ordinances), together with a pro rata

interest in the parking areas and common areas of the real property, all to be set forth in the condominium documents (more fully described below) to be prepared and recorded immediately following recording of the Deed (defined below). Purchaser agrees to cause a Maine Licensed Professional Surveyor to prepare and provide to Seller a metes and bounds description of the Property (including the property to be conveyed by Seller and the property to be retained) within ninety (90) days after the date the Lodge Approvals are obtained.

(b) Contemporaneously with the delivery and recording of the Deed, Purchaser shall cause to be recorded a Declaration of Condominium whereby the Property is converted to condominium ownership. The Condominium documents shall be prepared at Purchaser's cost and expense, shall be delivered in complete form to Seller on or before thirty (30) days after the Zoning Contingency expiration date and shall be subject to Seller's approval, not to be unreasonably withheld, delayed or conditioned. The Condominium documents shall, among other things, create a separate unit for the Seller's Retained Building ("Seller's Unit"), which shall include as limited common elements at a minimum the required number of parking spaces for Seller's Unit to satisfy all applicable zoning requirements, but at a minimum five (5) parking spaces per 1,000 square feet (Purchaser acknowledges, however, Seller's need for additional parking spaces on certain days and on weekends), and a pro-rata share of the common elements of the condominium, as well as provide a budget including anticipated condominium fees that will be due to the Condominium Association. Purchaser shall, as soon as practicable after the Closing and in consultation with Seller as to the schedule of work, perform the work necessary to reduce the size of the Seller's existing building to the Seller's Retained Building and erect a code-compliant exterior wall in form and substance acceptable to Seller as part of Seller's Unit. Purchaser shall also construct a new façade on all sides of Seller's Unit building and separate the utilities so that Seller's Unit is a separate and distinct Unit. Purchaser's work, the new building configuration and the location of the wall shall be more specifically identified in scope and cost as set forth in this Purchase and Sale Agreement (detail attached as Addendum #1).

Purchaser shall submit plans and specifications to Seller with respect to the foregoing work prior to submission to the City of Portland or its lender, which plans and specifications shall be subject to Seller's approval, not to be unreasonably withheld, delayed or conditioned. Purchaser will construct the improvements to Seller's Unit in accordance with the plans and specifications. Purchaser shall conduct such work in such a manner as to minimize as much as possible any disruption to Seller's use and enjoyment of Seller's Unit, in particular at times when any banquets, weddings, or similar revenue producing events are taking place. Work shall be conducted between the hours of 7:00 AM and 5:00 PM, Monday through Friday. Purchaser shall minimize any weekend or night construction activities, and if work is required during those times, Purchaser will notify Seller and to help minimize the impact to Seller's business, Seller's approval shall

be required prior to the performance of any such work. Without limiting the general nature of the foregoing, no blasting, pile driving or similarly loud work shall be performed on Tuesdays between 10:00 am and 4:30 pm [when bingo operates] or on weekends from Friday at 5:00 pm until Monday morning at 7:00 am.

c) Seller shall give Purchaser a right of first refusal to purchase Seller's Unit at Purchaser's option if at any time Seller decides to sell the Seller's Unit. Purchaser shall pay the amount set forth in any written offer made in a purchase and sale agreement Seller receives from a bona fide arms-length third party, minus a credit equal to an amount to be determined (either a dollar amount or a manner for calculating a dollar amount) by the parties in accordance with Section 5.1 of this Agreement ("Purchaser's Improvement Credit"). Without limiting the foregoing, Purchaser's Improvement Credit shall be calculated based upon the costs that Purchaser anticipates it shall pay for work on the common area infrastructure and other common area improvements to the Property, together with the cost of renovations to Seller's Retained Building including erection of new exterior wall and re-skinning of Seller's Retained Building, pro-rated based on the ownership interests allocated to Seller's Unit under the condominium documents. The dollar amount of Purchaser's Improvement Credit shall be reduced by equal 10% increments upon each anniversary of the date Purchaser's renovations to Seller's Retained Building are completed, with the manner of establishing such date to be determined by the parties in accordance with Section 5.1 of this Agreement (such date, the "Completion Date"), such that Purchaser's Improvement Credit shall be reduced to zero upon the tenth anniversary of the Completion Date. Seller and Purchaser agree to enter into a Right of First Refusal Agreement at the Closing in recordable form, containing terms and conditions reasonably satisfactory to the parties.

2. Purchase Price. The agreed purchase price for the Property is One Million Two Hundred Fifty Thousand Dollars ($1,250,000.00) (the "Purchase Price"), payable as follows:

(a)(1) Fifty Thousand Dollars ($50,000) has been paid into escrow prior to the date hereof, and an additional Fifty Thousand Dollars ($50,000), for a total deposit of One Hundred Thousand Dollars ($100,000.00) shall be paid within two (2) business days of the later to occur of (i) the Additional Contingencies Expiration Date (as defined in Paragraph 5.1) or (ii) the date the Lodge Approvals (as defined in Section 8(a)) are obtained, which amount shall be held by Malone Commercial Brokers ("Escrow Agent") as earnest money deposit hereunder and shall be applied as part payment of the purchase price (the "Deposit"). Purchaser may terminate this Agreement only based upon the grounds set forth below in paragraphs 5, 5.1 and 8, and only prior to the Zoning Contingency Expiration Date (defined below). Upon a timely, valid termination, the refundable portion of the Deposit shall be promptly returned to Purchaser. Nothing herein shall be deemed to limit Purchaser's right to terminate this Agreement pursuant to paragraph 6.

(a)(2)(i) Sixty (60) days after both the Lodge Approvals and UNUM Release as set forth in Paragraph 8 have been obtained (provided this Agreement has not been terminated in accordance with its terms by either party prior thereto), Five Thousand Dollars ($5,000.00) of the Deposit shall become non-refundable notwithstanding anything in this Agreement to the contrary.

(ii) The remainder of the Deposit shall become non-refundable upon the Zoning Contingency Expiration Date (as defined below) provided this Agreement has not been terminated in accordance with its terms by either party prior thereto, and except for Seller's default under this Agreement or Seller's inability to convey title in accordance with Paragraph 4 of this Agreement; and

(b) The balance of the Purchase Price of $1,150,000.00 shall be paid at the time of delivery of the deed in good certified or bank check(s), or by wire transfer.

The Deposit shall be placed in a non-interest-bearing escrow account.

3. Adjustments. Real estate taxes for the then current tax period shall be apportioned as of the day of closing under this Agreement and the net amount thereof shall be added to or deducted from, as the case may be, the purchase price payable by the Purchaser at the time of delivery of the Deed.

4. Conveyance: Title.

(a) Seller shall convey the Property to Purchaser by good and sufficient quitclaim deed with covenant (the "Deed"). Title to the Property shall be good and marketable and shall be free and clear of all liens and encumbrances except (i) zoning restrictions, building laws and land use matters, provided same do not prevent or unreasonably interfere with Purchaser's intended use and development of the Property; (ii) easements and restrictions of record; (iii) current taxes and assessments; (iv) any liens for municipal betterments assessed after the date of the Closing under this Agreement; and (v) any "Defects of Title" (defined below) as accepted or waived by Purchaser pursuant to Section 4(b).

(b) Purchaser shall notify Seller of any and all defects in title which are of record, or which would otherwise make Seller unable to give title to the Property as herein stipulated, including, without limitation as provided in Section 4(a) (any of which is called herein a "Defect of Title") within forty-five (45) days of the later to occur of the receipt of the Lodge Approvals or UNUM Release. With respect to the existence of any Defect of Title that does not exist on the date of this Agreement, but which arises prior to Closing, Purchaser shall notify Seller of any such Defect of Title which arises six (6) or more days prior to closing, at least five (5) days prior to closing, and any other defects

arising thereafter, on or prior to the Closing. If Purchaser notifies Seller of any Defects in Title, then the Seller shall use diligent efforts to remove any such Defects in Title (but shall not be required to expend in excess of $10,000 to remove any such defect which shall be exclusive of any mortgages or liens which may be discharged by the payment of money only), in which event the time for performance hereof shall be extended for a period of time reasonably sufficient to permit the Seller to perform hereunder, not to exceed sixty (60) days in any event. Seller may also elect to use funds from the Closing under this Agreement to remove any Defects in Title, which shall be sufficient to correct such defects and satisfy its obligations under this paragraph. If such Defects of Title are not corrected or remedied as provided herein within such additional 60-day period, then Purchaser shall elect, either (i) to accept title to the Property subject to the uncured Defects of Title, or (ii) to terminate this Agreement, whereupon, notwithstanding Paragraph 2(a)(2)(ii) the entire Deposit, except for the $5,000 described in Section 2(a)(2)(i) shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

5. ~~Due Diligence Period, Materials Delivered by Seller, Inspections and Right to Terminate~~.

(a) Seller shall provide to Purchaser copies of such surveys and plans, and engineering reports (including environmental reports, studies or evaluations) of the Property that Seller may have in its control or possession within seven (7) business days of the Contract Date.

(b) Purchaser and others whom Purchaser may designate may, at Purchaser's option and at its sole risk and expense, retain a person or persons to examine the Property and prepare mechanical, structural, environmental or physical reports of the Property, including without limitation surveying, conducting test borings, wetlands analysis, groundwater sampling, and in general conducting all other tests, analysis and studies of the Property which Purchaser deems prudent in connection with Purchaser's intended use and development of the Property. Purchaser and such designees shall have the right to enter the Property at all reasonable times during normal business hours with at least twenty four (24) hours prior notice to Seller to conduct such tests, studies and investigations. Purchaser shall not interrupt nor unreasonably interfere with Seller's business. Purchaser shall at its own expense restore the Property to its present condition, and agrees to hold Seller harmless and indemnify Seller from any loss or liability resulting from or arising out of the entrance by Purchaser, its agents, members, managers, officers, agents, subcontractors or employees upon the Property for the purposes set forth herein or for any other purpose, including, without limitation, any of their acts or omissions while on or about the Property, and this indemnity provision shall survive the Closing hereunder, or if the Closing does not occur, the termination of this Agreement.

All such inspections shall be done by qualified inspectors chosen and paid for by Purchaser.

(c) At any time on or prior to the date that is 30 days after the Contract Date (the "Due Diligence Period Expiration Date"), Purchaser shall have the right to terminate this Agreement if Purchaser determines, in its sole discretion, that it is not satisfied with (i) the material delivered to Purchaser pursuant to subsection (a) hereof; or (ii) any of the inspections set forth in subsection (b) above, by giving written notice to Seller on or before the end of the Due Diligence Expiration Date. If Purchaser timely gives notice of such dissatisfaction, then the Deposit shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement. If Purchaser fails to give such written notice on or before the end of the Due Diligence Expiration Date, Purchaser shall be deemed to have waived its right to terminate this Agreement pursuant to this Section.

(d) Purchaser agrees that all information made available to Purchaser (all of which is referred to herein as "Confidential Information"), will be kept confidential and will be disclosed only to professional advisors engaged in connection with the proposed transaction. Purchaser agrees that it is Purchaser's responsibility to ensure that such advisors shall agree to and shall keep such information confidential. Any provisions herein to the contrary notwithstanding, the provisions of this Section 5(d) shall survive the Closing of this Agreement or if the Closing does not take place, the termination of this Agreement.

(e) For the purposes of this Section 5, the term "Property" shall be deemed to include Seller's Retained Building.

5.1 Seller and Purchaser Additional Contingencies. Seller and Purchaser agree that to expedite the execution of this Agreement, there are certain matters upon which the parties shall work to reach agreement within sixty (60) days of the Contract Date (the "Additional Contingencies Expiration Date") and if the parties are unable to reach such agreement, then either Purchaser or Seller may terminate this Agreement by notice in writing to the other party on or before the Additional Contingencies Expiration Date.

The matters which are to be agreed upon prior to the Additional Contingencies Expiration Date are:

1. The specifications of, and the work to be performed with respect to, the code compliant exterior wall and façade listed in Section 1(b) of the Agreement as well as the specific configuration of the Seller's Retained Building, including the location of the end of Seller's Retained Building;

2. The primary components of the condominium documents described in Section 1(b) of this Agreement, including, without limitation, the composition of ownership, voting and expenses (including the allocation of and responsibility for expenses with respect to buildings, the parking lot, common areas and limited common elements);

3. Purchaser's work schedule and limits on the same to accommodate Seller's business and event schedule;

4. The Right of First Refusal requested by Purchaser, including without limitation agreement on what a "bona fide arms-length third party" means and a mechanism to resolve any dispute over whether a party is a "bona fide arms-length party"; either a dollar amount or a manner for calculating the dollar amount of Purchaser's Improvement Credit; and the manner in which the Completion Date is to be established; and

5. The number of parking spaces to be allocated to Seller, or to which Seller has right to use, under the condominium documents or otherwise and their location.

6. The future retail uses of the Property.

6. Zoning and Land Use Contingency. Except to the extent expressly provided herein, including, without limitation, with respect to the non-refundable character of some of the Deposit as set forth in Section 2 of this Agreement, Purchaser's obligations under this Agreement are subject and conditioned upon the Purchaser's ability to obtain all required local, state and federal permits and approvals, including without limitation FAA approval if required (including expiration of all applicable appeal periods with no appeal having been made) to construct an additional 55,000 square feet (or more if zoning and permitting allow) of commercial space (including but not limited to office, retail (subject to agreement of the parties in accordance with Section 5.1) and medical office space) on the Property (in one or more newly constructed buildings), such approvals to be satisfactory to Purchaser in its sole discretion, within 180 days after the date the Lodge Approvals have been obtained (the "Zoning Contingency Expiration Date"). Such approvals shall include a change in zoning classification to an office park or "O-P" classification. All costs associated with permitting and approvals to be at Purchaser's sole expense. Seller agrees to cooperate and participate in the approval process by attending meetings or causing its legal counsel or other representatives to attend such meetings as shall be reasonably requested by Purchaser, at Seller's reasonable cost and expense (Seller recognizing that all such permits and approvals are to Seller' s benefit as well). Seller shall not be required to incur any costs other than those associated with attending such meetings. Purchaser agrees to provide Seller with copies of its development plans and any concept plans, as they may be amended or revised during the permitting process, for Seller's review and approval, such approval not to be unreasonably withheld, delayed or conditioned. Seller's approval to any such development plans shall be deemed granted if Seller has not responded to a request for approval within twenty (20) business days from the date of Purchaser's submission to

Seller. In the event this permit and approval condition is not satisfied by the Zoning Contingency Expiration Date, and provided Purchaser is using diligent good faith efforts to satisfy same, Purchaser shall have the right to extend that deadline by up to an additional ninety (90) days by written notice of extension to Seller, in which event the Zoning Contingency Expiration Date shall be extended to include such 90 day period. If Purchaser for any reason has not obtained all required local, state and federal permits and approvals, including, without limitation site plan approval, and expiration of all applicable appeal periods with no appeal having been made, by the Zoning Contingency Expiration Date, then Purchaser may terminate this Agreement by written notice to Seller within such period (as it may be extended), whereupon the refundable portion of the Deposit shall returned to Purchaser and this Agreement shall be of no further force and effect.

7. Purchaser's Financial Capacity. Purchaser shall provide to Seller by on or before fifteen (15) days after the Contract Date with documentation reasonably satisfactory to Seller regarding Purchaser's financial capability to pay the Purchase Price and fund the cost of construction as contemplated in this Agreement. If Seller is not reasonably satisfied with Purchaser's evidence of financial capability, then Seller shall have the right to terminate this Agreement, whereupon the Deposit shall be returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

8. Seller's Authority to Convey; Release of Right of First Refusal.

(a). Seller's obligations under this Agreement are subject and conditioned upon Seller (i) obtaining the consent and approval of the transaction described herein from the members of its Lodge (the "Members' Approval"), and (ii) the Elks Club's Grand Lodge ("the Grand Lodge Approval") (collectively the "Lodge Approvals"). Seller agrees to seek to obtain the Members' Approval within sixty (60) days from the Contract Date and agrees to seek to obtain Grand Lodge Approval within ninety (90) days from Contract Date, provided however that Seller shall have the option by notice to Purchaser to extend each of the Lodge Approval deadlines by up to thirty (30) additional days if it determines such extension to be necessary. If both Lodge Approvals are not obtained within ninety (90) days from the Contract Date (or within such longer period as Seller shall elect as set forth above), Seller and Purchaser shall have the right at any time thereafter to terminate this Agreement, whereupon the Deposit shall be immediately returned to Purchaser and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

(b). Seller's obligations under this Agreement are also subject to and conditioned upon Seller obtaining from UNUM a release of its Right of First Refusal (the "UNUM

Release") within sixty (60) days from the Contract Date. If such Right of First Refusal is not obtained within such 60 day period, Seller and Purchaser shall have the right at any time thereafter to terminate this Agreement, whereupon the Deposit shall be immediately returned to Purchase and all obligations of the parties hereunder shall cease and neither party shall have any claim against the other by reason of this Agreement, except with respect to any provision hereof that expressly survives the termination of this Agreement.

(c). Intentionally Omitted.

9. Time for Performance; Delivery of Deed. The transfer of title (the "Closing") shall take place on a date that is thirty (30) days after the Zoning Contingency Expiration Date at ten a.m. at the offices of Murray, Plumb & Murray or at such other place as shall be mutually agreed to by Purchaser and Seller, unless extended as provided herein. TIME IS OF THE ESSENCE.

10. Use of Purchase Money to Clear Title. To enable the Seller to make conveyance as herein provided, the Seller may at the time of delivery of the Deed, use the purchase money or any portion thereof to clear the title of any or all encumbrances or interests, provided that all instruments so procured are recorded simultaneously with the delivery of the Deed.

11. Possession and Condition of Property. Full possession of the Property (subject to Seller's retained ownership and rights set forth herein, including, without limitation, under any condominium documents) free of all tenants and occupants (except for Seller and its members, employees, affiliates and the like) is to be delivered at Closing.

12. Representations.

(a) Seller represents, covenants and warrants to and agrees with Purchaser as follows:

(1) Seller is the current owner of the Property, and except for the approvals and releases that must be obtained as provided herein (including, without limitation, member approval) and to which its obligations hereunder are subject, has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Seller of its obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which Seller is a party or by which it is bound.

(2) There are no tenancies, occupancies or licenses affecting the Property, except as set forth explicitly in this Agreement.

(3) Intentionally Omitted.

(4) No work has been done on the Property which could give rise to any liens on the Property, except those for which Seller intends to pay in the ordinary course of business and no contracts are outstanding or in effect with respect to the doing of any such work except those for which Seller intends to pay in the ordinary course of business.

(5) To the best of Seller's knowledge there is no notice, suit, order, decree, claim, writ, injunction, or judgment relating to material violations of any laws, ordinances, codes, regulations or other requirements with respect to the Property (or any portion thereof) in, of or by any court or governmental authority having jurisdiction.

(6) To the best of Seller's knowledge there is no condemnation proceeding pending or threatened against any portion of the Property.

(7) During the period of Seller's ownership and to the best of Seller's knowledge prior to its ownership of the Property, there has been no leakage, seepage or other release or discharge of any hazardous waste or matter, toxic substance, pesticide or petroleum product or derivative on the Property. The Property has not been used during Seller's ownership, or to Seller's knowledge during any prior period of ownership, for the storage, collection or depositing, whether intentional or unintentional, of any hazardous waste, toxic substance, pesticide or petroleum product or derivative, except for an underground storage tank or to the extent oil or gas products have been stored for heating, cooking or other use by Seller. There are no underground storage tanks located at the Property that have not been removed or filled and Seller is not aware of any underground storage tanks at the Property placed there by Seller or anyone else that have not been removed or filled. If the existing underground storage tank(s) must be removed for any reason, Purchaser shall remove the tank at its cost and expense, but the cost of such removal shall be included in Purchaser's Improvement Credit.

(b) Purchaser represents, covenants and warrants to and agrees with Seller that Purchaser has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by Purchaser of its obligations hereunder (i) have been duly authorized by all requisite organizational action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of

organization of Purchaser or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which Purchaser is a party or by which it is bound.

13. Affirmative Covenants of Seller. Seller agrees, pending closing, that:

(a) Unless disputed by Seller, Seller shall pay, when due, all taxes and assessments of every type or nature levied or assessed against the Property of which Seller has actual notice, and unless disputed by Seller, any claim, lien or encumbrance of which Seller has actual notice against the Property that might materially affect Seller's ability to fulfill its obligations hereunder. To the extent Seller disputes such a tax, assessment, claim, lien or encumbrance, Seller agrees to take reasonable steps to contest the same.

(b) Seller (i) shall not commit or suffer waste and (ii) shall comply with all laws, ordinances, regulations, covenants, conditions and restrictions affecting the Property and will not suffer or permit any violation thereof.

14. Broker's Commissions. If this transaction closes, Seller shall be responsible for the payment of a brokerage commission to Malone Commercial Brokers. Seller shall have no obligation to make any payment to the The Boulos Company which Purchaser agrees shall obtain any commission which it may claim solely from Malone Commercial Brokers. If either Seller or Purchaser have employed or engaged any other broker or agent in connection with this transaction or have incurred any other obligation, contingent or otherwise, for a broker's or finder's fee with respect to the matters provided for in this Agreement, the party incurring any such obligation shall be solely responsible therefor. Each party agrees to indemnify and hold the other party harmless from and against any and all costs, expenses, claims, losses or damages, including reasonable attorneys and paralegal fees, resulting from a violation of the representations, warranties and covenants set forth in this Section and this agreement to indemnify and hold harmless shall survive the Closing hereunder, or if the Closing does not occur, the termination of this Agreement.

15. Default.

(a) If Purchaser fails to perform its obligations as set forth in this Agreement, then Seller as its sole remedy at law or in equity shall be entitled to retain the Deposit as liquidated damages as a result of such failure to perform and this Agreement shall be deemed terminated. Purchaser acknowledges that Seller's damages because of Purchaser's failure to perform are difficult to ascertain and agree that the amount of the Deposit represents a reasonable estimate of the minimum amount of Seller's damages as a result thereof.

(b) If Seller fails to perform its obligations as set forth in this Agreement, Purchaser shall, in addition to its remedies in equity to which it is otherwise limited (including the right to specific performance), be entitled to receive the Deposit together with reimbursement for expenses incurred by Purchaser in obtaining the reports referred to in Paragraph 5 which shall not exceed $5,000. Except for such reimbursement for expenses which shall not exceed $5,000, Purchaser shall not be entitled to any damages of any kind whatsoever.

(c) In the event either Purchaser or Seller is alleged to have failed to perform its obligations hereunder, the party so claiming shall give notice in writing to the allegedly breaching party and the party shall have ten (10) days following the receipt of such notice in which to cure the alleged breach.

16. Purchaser's Conditions. The obligation of Purchaser to close under this Agreement is subject to the following conditions precedent:

(a) The representations and warranties of Seller shall be materially true in all respects, and Seller shall so certify, unless an event has occurred which makes such representation untrue, in which case Seller shall give notice of the same to Purchaser prior to closing.

(b) Seller shall have performed and complied with all the terms and conditions required by this Agreement to be performed and complied with by Seller at or prior to Closing.

17. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. Copies of all notices to Purchaser shall be sent to Murray, Plumb & Murray, 75 Pearl Street, Portland, Maine 04101, Attention: Drew A. Anderson, Esq. Copies of all notices to Seller shall be sent to Exalted Ruler Timothy Smith, Elk's Lodge, Portland Lodge 188, 1945 Congress Street, Portland, Maine 04103, with a copy to counsel, William H. Leete, Jr., Esq., Leete & Lemieux, P.A., P.O. Box 7740, Portland, Maine 04112. All notices shall be effective upon hand delivery, receipt or two (2) business days after date of mailing, whichever first occurs. The respective attorneys for the parties are authorized to give and receive notices with the same effect as if given or received by the parties hereto.

18. Further Assurances. The parties agree that up to and after the date of Closing, they shall do such things and execute, acknowledge and deliver any and all

additional instruments, documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

19. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be cancelled, modified or amended only by a written instrument executed by both the Seller and Purchaser. If two or more persons are named herein as Purchaser and Seller their obligations hereunder shall be joint and several. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it. This Agreement may not be recorded by Purchaser, and any such recording shall be deemed to automatically terminate this Agreement.

20. Risk of Loss. The risk of loss shall remain on Seller at all times until closing except for loss or damage to the extent either caused by or arising from the act or omission of Purchaser, its members, managers, officers, agents, subcontractors or employees.

21. Miscellaneous

(a) Seller and Purchaser shall each pay their portion of the Maine State Transfer Tax.

(b) Seller hereby certifies that Seller is a resident of the State of Maine. Seller hereby acknowledges Purchaser's requirement to withhold 2½% of the purchase price pursuant to 36 M.R.S.A. §5250-A if Seller is not a resident of the State of Maine, unless Seller presents to Purchaser at closing a Certificate of Exemption or Certificate of Reduction from the State of Maine Bureau of Taxation.

(c) By signing this Contract, Purchaser acknowledges that Purchaser has been notified of the State of Maine's withholding tax requirement pursuant to 36 M.R.S.A. §5250-A.

(d) Seller hereby certifies that Seller is a resident of the United States of America and is not subject to the 10% withholding tax imposed upon "foreign persons" by Section 1445(a) of the Internal Revenue Code of 1954.

(e) This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, personal representatives, successors in interest and assigns. Purchaser shall be entitled to assign its right, title and interest herein to any limited liability company, partnership or other entity, whether now existing or hereafter

formed, controlled by, controlling or under common control with Purchaser or its principals. Any assignee shall expressly assume all of Purchaser's duties, obligations and liabilities hereunder. No such assignment shall release the named Purchaser from its obligations hereunder.

(f) It is understood and agreed that all understandings, agreements, warranties or representations, either oral or in writing, including without limitation any letters of intent or prior agreements, heretofore between the parties hereto are merged in and superseded by this Agreement, which document alone fully and completely expresses the parties' agreement with respect to the transactions covered hereby. This Agreement may not be modified in any manner except by a subsequent instrument in writing signed by Seller and Purchaser.

(g) This Agreement may be simultaneously executed in any number of counterparts, each of which when so executed and delivered shall be an original; but such counterparts shall constitute but one and the same instrument.

(h) If the date for performance of any obligation hereunder, or the giving of any notice hereunder, falls on a Saturday, Sunday or a legal holiday in the State of Maine, the period for such performance, or the giving of any notice hereunder, shall be extended to the next business day.

(i) This Agreement shall be construed and enforced in accordance with and governed by the laws of the State of Maine.

[Signatures on following page]

IN WITNESS WHEREOF, the parties have executed this Agreement as a sealed instrument as of the date set forth below their respective signatures, to be effective as of the Contract Date.

SELLER:
Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America

Dated: June 9, 2014

By: Exaulted Ruler
Trustee Chair
_____, _____

PURCHASER:
Northland Enterprises, LLC

Dated: June 11th 2014

By: _____
JOH BENTHIEN, MANAGER

Dr. Michael Bedecs

ACKNOWLEDGEMENT

The undersigned acknowledges receipt of the $100,000.00 Deposit and a copy of this Agreement and agrees to hold, account for and deliver the Deposit in accordance with the terms of this Agreement.

Malone Commercial Brokers

By: _____
_____, _____

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FOURTEENTH AMENDMENT TO REAL ESTATE PURCHASE AND SALE AGREEMENT

This Fourteenth Amendment to Purchase and Sale Agreement ("Fourteenth Amendment") is dated as of September 29, 2015, by and between Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America (collectively "Seller"), having a place of business at 1945 Congress Street, Portland, Maine and Dr. Michael Bedecs, having a place of business at 1375 Congress Street, Portland, Maine and Northland Enterprises, LLC, and/or its assigns, having a place of business at 17 South Street, 3rd floor, Portland, Maine (collectively "Buyer").

RECITALS

WHEREAS, Seller and Buyer entered into a certain Purchase and Sale Agreement dated as of June 11, 2014, as amended by that certain First Amendment dated August 5, 2014, that certain Second Amendment dated September 22, 2014, that certain Third Amendment dated November 7, 2014, that certain Fourth Amendment dated November 24, 2014, that certain Fifth Amendment dated December 4, 2014, that certain Sixth Amendment dated December 18, 2014, that certain Seventh Amendment dated January 8, 2015, that certain Eighth Amendment dated January 20, 2015, that certain Ninth Amendment dated January 30, 2015, that certain Tenth Amendment (the "Tenth Amendment") dated April 10, 2015, that certain Eleventh Amendment dated June 19, 2015, that certain Twelfth Amendment dated July 2, 2015 and that certain Thirteenth Amendment dated September 15, 2015 (hereinafter collectively the "Purchase Agreement").

WHEREAS, the parties wish to further extend the date for certain contingencies under the Purchase Agreement to permit adequate time to complete them.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto, intending to be legally bound, hereby agree as follows:

1. Paragraph 5.1 of the Purchase Agreement "Seller and Purchaser Additional Contingencies" is hereby amended so that the "Additional Contingencies Expiration Date" is hereby extended, up to and including October 7, 2015 and Buyer and Seller shall have until October 7, 2015 to agree upon all matters listed in Paragraph 5.1 Subsections (1) and (5) and described as the "Remaining 5.1 Matters" in the Tenth Amendment or to exercise their right to terminate the Purchase Agreement as set forth more fully in Paragraph 5.1. The Remaining 5.1 Matters shall continue to be interpreted broadly as set forth in the Tenth Amendment.

2. Paragraph 6 of the Purchase Agreement, "Zoning and Land Use Contingency" is hereby amended so that the "Zoning Contingency Expiration Date" is hereby extended, up to and including October 7, 2015.

3. Buyer and Seller have authorized extensions of deadlines contained in the Purchase Agreement, including, without limitation, with respect to the "Additional Contingencies

Expiration Date," and the "Zoning Contingency Expiration Date" to be agreed upon by the attorneys for the parties (Drew Anderson for Buyer, William H. Leete, Jr. for Seller) by electronic mail, and accordingly this Fourteenth Amendment has been agreed upon and shall be executed by the attorneys for Buyer and Seller pursuant to such authorization.

4. The Purchase Agreement shall remain in full force and effect, except as expressly amended hereby. Without limiting the general nature of the foregoing, any paragraphs of the Purchase Agreement amended by this Fourteenth Amendment, shall remain unchanged, except for the expressly stated amendments contained herein.

IN WITNESS WHEREOF, Seller and Buyer have executed this Amendment as of the date first set forth above.

SELLER:

Portland Lodge No. 188, of the Benevolent and Protective Order of Elks of the United States of America

By: _____
Name: William H. Leete, Jr., Esq.
Title: Its Attorney

BUYER:

Northland Enterprises, LLC and Dr. Michael Bedecs

By: _____
Name: Drew A. Anderson, Esq.
Title: Its Attorney

PUBLIC OR PRIVATE RIGHTS-OF-WAY - SECTION 5

No new public or private right-of-ways are proposed for this project.

SCHEDULE - SECTION 6

The proposed office buildings are projected to be constructed and ready for occupancy by December 2017. To be conservative, 2018 will be used as the analysis year.

PROPOSED OFFICE DEVELOPMENT
PORTLAND, MAINE

SECTION 7 – TRAFFIC STUDY
TRAFFIC MOVEMENT PERMIT APPLICATION

Submitted to:

CITY OF PORTLAND
DEPARTMENT OF PLANNING & URBAN DEVELOPMENT

June 8, 2016

Applicant:

Northland Enterprises, LLC.
17 South Street, 3rd Floor
Portland, Maine 04101

STATE OF MAINE
DIANE W. MORABITO
No. 5077
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Maine Traffic Resources

25 Vine Street Gardiner, ME 04345
(207) 582-5252 FAX (207) 582-1677
mainetrafficresources.com

SECTION 7

Introduction

The purpose of this report is to summarize the traffic study components requested by the City of Portland during the Scoping Meeting for a Traffic Movement Permit for the proposed new general and medical office buildings off Unum Park Drive at the existing Elks Lodge site in Portland, Maine. The Scoping Meeting was held on Thursday, May 26 at 3:00 PM in the 4th floor planning conference room at Portland City Hall.

A. Study Preparation

This study was prepared by Diane W. Morabito, Maine P.E. 5077 and PTOE 571.

B. Study Horizon

The proposed office buildings are projected to be constructed and ready for occupancy by December 2017. To be conservative, 2018 was used as the study year for traffic analysis purposes.

C. Site and Traffic Information

The site is located on the northerly side of Unum Park Drive, west of Congress Street, in Portland, Maine, as shown in Figure 1. The site is currently occupied by the Elks Lodge, which is currently 23,090 square feet (S.F.) in size. It is understood that a portion of the Elks Lodge will be removed during a renovation to reduce it to 13,500 S.F. The proposed development includes a new 15,000 S.F. medical office building and a new 25,000 to 35,000 S.F. general office building. The general office building is currently planned to be 25,000 S.F. but this study was done for 35,000 S.F. to allow for a later possible second floor partial addition.

The number of trips which will be generated by the new office buildings was estimated using the Institute of Transportation Engineers (ITE) "Trip Generation, 7th Edition", the edition currently being used by the Maine Department of Transportation (MaineDOT) for traffic permitting purposes. In addition, the newer 9th Edition report was also utilized. If the 9th Edition report had a higher trip rate it was used for the analysis to be conservative. If the newer 9th Edition had lesser rates the older, higher rates were used.

Initial trip generation was performed on the basis of both projected employees and building square footages. Given that the square footage basis resulted in significantly higher trip generation, the City Traffic Reviewer requested that trip generation be performed on the basis of square footage to represent "worst case". The trips were estimated using LUC 720 – Medical-Dental Office Building on the basis of 15,000 S.F. and 710 – General Office Building on the basis of the higher 35,000 S.F. The results are summarized below:

	ITE Projected Trip Generation (one-way trip ends)		
Time Period	Med. Office	General Office	Total
Weekday	542	386	928
AM Peak Hour - Adj. Street	37	55	92
Entering	29	48	77
Exiting	8	7	15
AM Peak Hour - Generator	54	55	109
Entering	36	48	84
Exiting	18	7	25
PM Peak Hour - Adj. Street	56	52	108
Entering	15	9	24
Exiting	41	43	84
PM Peak Hour – Generator	67	52	119
Entering	27	9	36
Exiting	40	43	83

As can be seen above, the two new office buildings are expected to generate a total of 109 one-way trips during their weekday AM peak hour and 119 trips during their PM peak hour. Given that new trip generation exceeds the 100-trip threshold during both peak hours, the City of Portland requested both AM and PM peak hour analysis. All of the office trips are assumed to be primary, or new, trips.

While the existing Elks Lodge is being reduced in size as part of this project, no significant reduction is expected in the weekday peak hour trips since the bar area and bingo hall spaces are not expected to be reduced in terms of program components or expected patrons. Also, no significant reduction would be expected during the AM peak hour since few trips are generated by the Elks Lodge during that period. As a result, no credit is being taken for reduced trips to the Elks Lodge for the reduction in building size.

D. Trip Assignment

The trip assignments were based upon the traffic patterns recorded during turning movement/classification counts conducted by Maine Traffic Resources (MTR) at the intersection of Congress Street, International Parkway and Unum Park Drive. The AM count was conducted on April 27, 2016 from 7:00 – 9:00 AM. The PM count was conducted on April 21, 2016 from 4:00 – 6:00 PM. The count records are included in the appendix. The peak hours for the intersection occurred from 7:30 – 8:30 AM and from 4:15 – 5:15 PM. The counts were factored to 30th highest hour volumes using published MaineDOT group mean factors. The results are expected to be representative of peak summer volumes in late July or early August. The existing 2016 volumes for both the AM and PM peak hours are shown in Figure 2.

In addition, MTR conducted a count of the existing Elks Lodge Bingo on Tuesday, December 2, 2014. The peak hour occurred from 3:15 – 4:15 PM with a volume of 110 vehicles, 11 entering and 99 exiting. Although this does not coincide with the peak hour analyzed, these trips were added to the PM peak hour existing volumes to provide for the most conservative approach for analysis and allows for the Bingo hours to be modified. The resulting trip assignments for the AM and PM peak hours are shown in Figure 3.

Based on the trip assignments, the study area for analysis purposes includes the site drive intersection with Unum Park Drive and the intersection of Congress Street, Unum Park Drive and International Parkway, as determined at the Scoping Meeting. The office development will generate a maximum of 36 new lane hour trips during the AM peak hour and 30 new lane hour trips in the PM peak hour. Typically, according to standard Maine practice, a study area only extends to where a development will generate 35 or more trips in a lane in an hour. Generally, there is no significant impact off-site when a project generates fewer than 35 lane hour trips. The percent increase in volumes on Congress Street east of the site (towards Westbrook Street) due to the project is fairly minimal at 4 % in the AM and PM peak hours, based upon the "worst case" trip generation analysis. This minimal addition to overall volumes was the reasoning used by the City of Portland not to expand the study area to the east. Most importantly the next major intersection to the east on Congress Street is Westbrook Street. There is an improvement project planned and funded to address this intersection eliminating the need for any additional study of this intersection.

E. Traffic Volumes

As previously stated, turning movement counts were conducted at the signalized intersection of Congress Street, Unum Park Drive and International Parkway during both the weekday AM and PM peak hours. Existing average annual daily traffic (AADT) data for the area was obtained from "Traffic Volume Counts, 2014, 2006, 2006 Annual Reports", published by MaineDOT. The daily traffic data is summarized in the following table:

	Average Annual Daily Traffic						
Location	2002	2005	2006	2007	2008	2010	2013
Congress Street, NE/O Int'l Pkwy	24,050	23,770	---	22,370	---	24,080	23,690
Congress Street, E/O Johnson Street	20,940	---	---	18,870	---	---	----
Congress Street, W/O Johnson Street	11,240	11,140	11,900	---	10,100	10,700	11,030
Congress Street, NE/O Waldo Street	26,400	26,820	---	25,550	---	26,010	---

As can be seen in the preceding table, traffic volumes have declined during the short-term period from 2010 to 2013, and over the long term 2002 to 2013 period, northeast of International Parkway, in the immediate vicinity of the site. There was some slight growth, 1%, southwest of the site on Congress Street in the short term with the long-term remaining steady. To be conservative, a 1% growth rate was used to project the existing 2016 volumes to 2018 volumes. It should be noted that all Unum Park Drive movements were also factored by 1% to allow for growth by Unum.

The City of Portland identified two other development projects at the Scoping Meeting which are expected to impact traffic volumes in the study area and need to be considered in the traffic analysis. The Town of Westbrook is reviewing a large development, the Dirgo Plaza mixed-use commercial development. Trip assignments were obtained from the Traffic Impact Study completed by Vanasse & Associates, Inc. dated February 2016 and ammended May 2016. Based on the TIS, the development is projected to send approximately 2 % of their total trips to and from Congress Street. To be conservative, all of these trips were assigned to the study area intersecion, 13 trips westbound and 11 trips eastbound. Trip assignments for the AM peak hour were not provided so MTR applied the same 2 % and assigned them similarly to the study intersection.

The Portland International Jetport has a Traffic Movement Permit to continue expansion in terms of enplanments. Data provided by the City of Portland Traffic Peer Reviewer indictaed that the jetport projects enplanements to grow at an annual rate of 2.2 %. Therefore, all trips to and from the jetport were factored by that percentage annually to obtain 2018 study year volumes. It is expected that the analysis will again be somewhat conservative since all trips to and from the Jeptport were factored while in reality not all of the trips are jetport associated. Much of the recent growth in volumes on this intersction leg seems to be attributed to the new Maine Department of Human Services office building.

The other development trips for Dirigo Plaza and the Jetport are shown in Figure 4 for the AM and PM peak hours. The projected 2018 no-build volumes, allowing for both 1 % annual traffic growth and the other development volumes are shown in Figure 5. The projected 2018 build volumes, with the new office buildings fully occupied, are shown in Figure 6 for the AM and PM peak hours.

F. Capacity Analyses

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for signalized intersections is based upon the average control or signal delay per vehicle. These criteria are defined in the following table excerpted from the 2010 "Highway Capacity Manual":

Signalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 20.0
C	> 20.0 and <= 35.0
D	> 35.0 and <= 55.0
E	> 55.0 and <= 80.0
F	> 80.0

The level of service for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement, as defined below:

Unsignalized Intersection Level of Service

LOS	Delay Range
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

Signalized Intersection Analysis

The level of service was calculated using Synchro 7 for the signalized intersection of Congress Street, Unum Park Drive and International Parkway for existing 2016 and projected 2018 conditions, with and without the proposed office development. The City of Portland Traffic Peer Reviewer also requested an alternate build scenario be analyzed. The City of Portland is planning to modify eastbound Congress Street, to the east of Unum Park Drive, from the existing lane drop (left lane ends) to an alternate merge configuration further west. Under the current

configuration, the left lane is dropped, causing vehicles in the left through lane to merge into the other through lane after traveling through the intersection. Generally, when a lane drop occurs after an intersection, drivers tend to stay in the lane that is not being dropped in order to avoid having to merge. Ultimately, this creates an imbalance in lane volumes because drivers favor one lane opposed to the other, in this case the right through lane having a higher volume.

To determine existing operations and model the altered scenario in Synchro, traffic counts were conducted for the eastbound Congress Street through lanes during the AM and PM peak hours to determine the volume of vehicles currently in each lane through lane. These count results are included in the appendix. A lane utilization factor, or the ratio of the average volume per lane to the average volume in the heaviest used lane, was calculated for each peak hour. A lane utilization factor of 0.72 was calculated for the AM peak hour and a factor of 0.87 for the PM peak hour. The closer the factor is to 1.00, the more balanced volumes are between the lanes. The determined lane utilization factors were applied in the Synchro models for existing, no-build and build scenarios. The alternate build scenario, shifting from a left lane drop to an alternate merge, utilizes a factor closer to 1.00 because drivers will not feel inclined to stay in the right through lane to avoid merging, ultimately balancing the volumes between the lanes. The results are provided in the appendix and are summarized in the tables with the level of service followed by the delay, in seconds, in parentheses:

Congress St., Unum Park Dr. and Int'l Parkway
AM Peak Hour Levels of Service

Approach/Movement	2016 Existing	2018 No-Build	2018 Build	2018 Build - Alt
EB Congress Street Lefts	C (34.1)	C (34.7)	D (42.0)	D (41.4)
EB Congress Street Throughs/Rights	B (13.1)	B (13.4)	B (13.5)	B (12.5)
Eastbound Congress Street Overall	B (14.4)	B (14.7)	B (15.7)	B (14.7)
WB Congress Drive Lefts	C (25.3)	C (25.6)	C (26.7)	C (26.3)
WB Congress Drive Throughs/Rights	A (9.6)	A (9.8)	B (10.2)	B (10.2)
Westbound Congress Street Overall	B (11.3)	B (11.5)	B (11.9)	B (11.8)
NB Int'l Pkway Through/Lefts	C (28.4)	C (28.8)	C (30.3)	C (30.1)
NB Int'l Pkway Rights	C (26.5)	C (26.8)	C (28.0)	C (27.9)
Northbound Int'l Pkway Overall	C (27.2)	C (27.5)	C (28.8)	C (28.6)
SB Unum Park Dr. Through/Lefts	C (27.6)	C (27.9)	C (30.4)	C (30.3)
SB Unum Park Dr. Rights	C (26.2)	C (26.4)	C (27.6)	C (27.5)
Southbound Unum Park Dr. Overall	C (27.2)	C (27.6)	C (29.7)	C (29.6)
Overall Intersection	**B (13.6)**	**B (13.8)**	**B (14.6)**	**B (14.3)**

As can be seen in the preceding table, the signalized intersection currently operates at LOS "B" overall during the AM peak hour, with all movements at a LOS "C" or better. Similar levels of service are expected for both 2018 no-build and build volumes with all movements at LOS "C" excepting left-turns from Congress Street to Unum Park Drive which will operate at an acceptable LOS "D". The results show that overall delay will increase by less than 1.0 second from no-build to build conditions, an insignificant increase, demonstrating that the proposed office development will not have any significant impact on operations at this signalized intersection, or hence, off-site. The alternate build scenario, with the alternate merge as opposed to the left-lane drop, will have the same level of service but will have slightly lesser delays, particularly for eastbound Congress Street, as would be expected given better lane utilization.

Congress St., Unum Park Dr. and Int'l Parkway
PM Peak Hour Levels of Service

Approach/Movement	2016 Existing	2018 No-Build	2018 Build	2018 Build - Alt
EB Congress Street Lefts	D (44.6)	D (44.7)	D (48.7)	D (49.5)
EB Congress Street Throughs/Rights	C (32.1)	D (35.8)	D (47.5)	C (31.6)
Eastbound Congress Street Overall	C (32.2)	D (35.9)	D (47.6)	C (31.9)
WB Congress Drive Lefts	D (50.4)	D (53.5)	D (51.6)	D (54.0)
WB Congress Drive Throughs/Rights	B (18.0)	B (18.6)	C (21.0)	C (21.2)
Westbound Congress Street Overall	C (21.0)	C (21.8)	C (23.8)	C (24.2)
NB Int'l Pkway Through/Lefts	B (18.9)	B (19.1)	B (18.3)	B (18.3)
NB Int'l Pkway Rights	B (18.0)	B (18.0)	B (17.0)	B (17.0)
Northbound Int'l Pkway Overall	B (18.2)	B (18.2)	B (17.4)	B (17.3)
SB Unum Drive Through/Lefts	D (37.9)	D (39.7)	D (50.6)	D (52.8)
SB Unum Drive Rights	B (17.6)	B (17.5)	B (16.7)	B (16.7)
Southbound Unum Drive Overall	C (32.5)	C (33.8)	D (41.5)	D (43.2)
Overall Intersection	**C (26.9)**	**C (28.7)**	**D (35.0)**	**C (29.9)**

As shown above, the signalized intersection currently operates at LOS "C" overall during the PM peak hour, with all through movements at LOS "C" or better. Left-turns off Congress Street to Unum Park Drive and to International Parkway and lefts from Unum Park Drive operate at a lesser level "D". This is desirable to maintain the higher LOS for the Congress Street through vehicles. Similar levels of service are expected for 2018 no-build conditions. Under build conditions all movements still operate at an acceptable LOS "D" or better. The overall level of service drops from "C" to "D" during the summer PM peak hour due to a 6 second increase in delay. It is again important to point out that the analysis is conservative since it assumes Bingo trips will overlap with the PM peak hour of the office development as well as Unum.

Under the alternate merge configuration planned by the City of Portland east of the intersection the LOS returns to a "C" overall for the PM peak hour under peak summer conditions. It is understood that the project will contribute a small impact fee towards the funding of the second phase of the Congress Street improvement project to mitigate their minimal impact on this intersection.

Unsignalized Intersection Analysis

The level of service was also calculated using Synchro 7 for the unsignalized intersection of Unum Park Drive and the office development site drive. LOS calculations for 2018 build volumes were completed for the AM peak hour and the PM peak hour. It is important to note that the PM peak hour includes the Elks Lodge Bingo trips. The results for both analyses are provided in the appendix and shown below with the level of service followed by the delay, in seconds, in parentheses:

Unum Park Drive and Office Development Site Drive
2018 Build Peak Hour Levels of Service

Approach/Movement	AM Peak	PM Peak
WB Site Drive Lefts	B (12.6)	C (15.7)

As demonstrated above, there are no capacity concerns at the unsignalized intersection of Unum Park Drive and the office development site drive under 2018 build conditions. Left-turns from the site drive will operate at LOS "B" during the AM peak hour and at LOS "C" during the PM peak hour with concurrent Bingo trips.

Queue Analysis

The City of Portland Traffic Peer Reviewer also requested queue analysis for the Unum Park Drive approach to Congress Street to assure that queues from Unum Park Drive at the signal would not block the site drive for the proposed offices. The drive is approximately 225 feet from the signalized intersection. SimTraffic was utilized to project the expected queue lengths. Note that SimTraffic was not used for the capacity analysis since it generally provides better results and does not properly model the lane utilization factor analysis requested by the City. The Synchro 95th percentile and 50th percentile (average) queue results are summarized below:

95th Percentile Queue Length - Build Conditions

Approach/Movement	AM	PM	PM – w/o Bingo
SB Unum Park Drive Lefts/Throughs	71'	250'	218'
SB Unum Park Drive Rights	34'	151'	124'

	50th Percentile Queue Length - Build Conditions		
Approach/Movement	AM	PM	PM – w/o Bingo
SB Unum Park Drive Lefts/Throughs	37’	170’	142’
SB Unum Park Drive Rights	10’	65’	51’

As shown above, there are no queuing concerns during the AM period. The PM period demonstrated a 95th percentile queue of 250 feet and an average queue of 170 feet for the left and through lane. These results are expected to be very conservative since the analysis includes the Elks Lodge Bingo Trips. As mentioned prior, the Bingo trips occurred during a different peak hour (3:15 – 4:15 PM) and are not expected to overlap the peak hour of the intersection (4:15 – 5:15 PM) with the new office trips. For this reason, MTR also analyzed the queues for Unum Park Drive without the Bingo trips, demonstrating a 95th percentile queue of 218 feet and a 50th percentile queue of 142 feet. With the proposed office drive being 225 feet from the intersection, these results show that on average the drive will not be blocked. The drive would be blocked occasionally, based upon the 95th percentile queue results, during the PM peak hour if the Elks Bingo trips happened to coincide with office trips. On an average day, without any Bingo trips, no blockage of the drive is expected.

G. Traffic Signal Warrant Analysis

No traffic signal warrant analysis was requested at the Scoping Meeting.

H. Sight Distance Analysis

No additional sight distance analysis was requested at the Scoping Meeting. As reported in Sections 1 – 6, tall landscaping in the median island on Unum Park Drive has the potential to block sight distance from the office site drive. The landscaping in the island should be replaced by low landscaping as to not block sight distances towards Congress Street. In addition, the existing 25 mph speed limit posting on Unum Park Drive is located beyond the site drive. It is recommended that either this sign be relocated prior to the site drive or that an additional speed limit sign be installed prior to the site drive on Unum Park Drive so drivers are aware of the speed limit.

I. Traffic Accidents

No additional accident analysis was requested at the Scoping Meeting since accident analysis and evaluation was included in Sections 1 – 6.

J. Recommendations

In terms of capacity, since no deficiencies were identified for either the AM or PM peak hour, there are no recommendations for improvements. It is expected that the project will pay a small fee towards the Congress Street improvement project, which will mitigate their offsite impact. In terms of safety, re-landscaping the center island on Unum Park Drive to assure clear sightlines to Congress Street year-round is recommended. In addition, a speed limit sign should be posted prior to the office drive on Unum Drive. Either the existing 25 mph speed limit sign should be relocated or a new additional speed limit sign should be installed.

K. Conclusion

Safe and efficient traffic movement should be provided by the existing roadway system with the recommended sight distance improvements. No operational deficiencies were identified so no physical roadway or signal improvements are necessary to accommodate the proposed medical and general offices. The project is expected to pay a small impact fee to the Congress Street improvement project, east of the site, to mitigate their minimal off-site impact.

Figure 1

Site Location Map
Office Development
Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

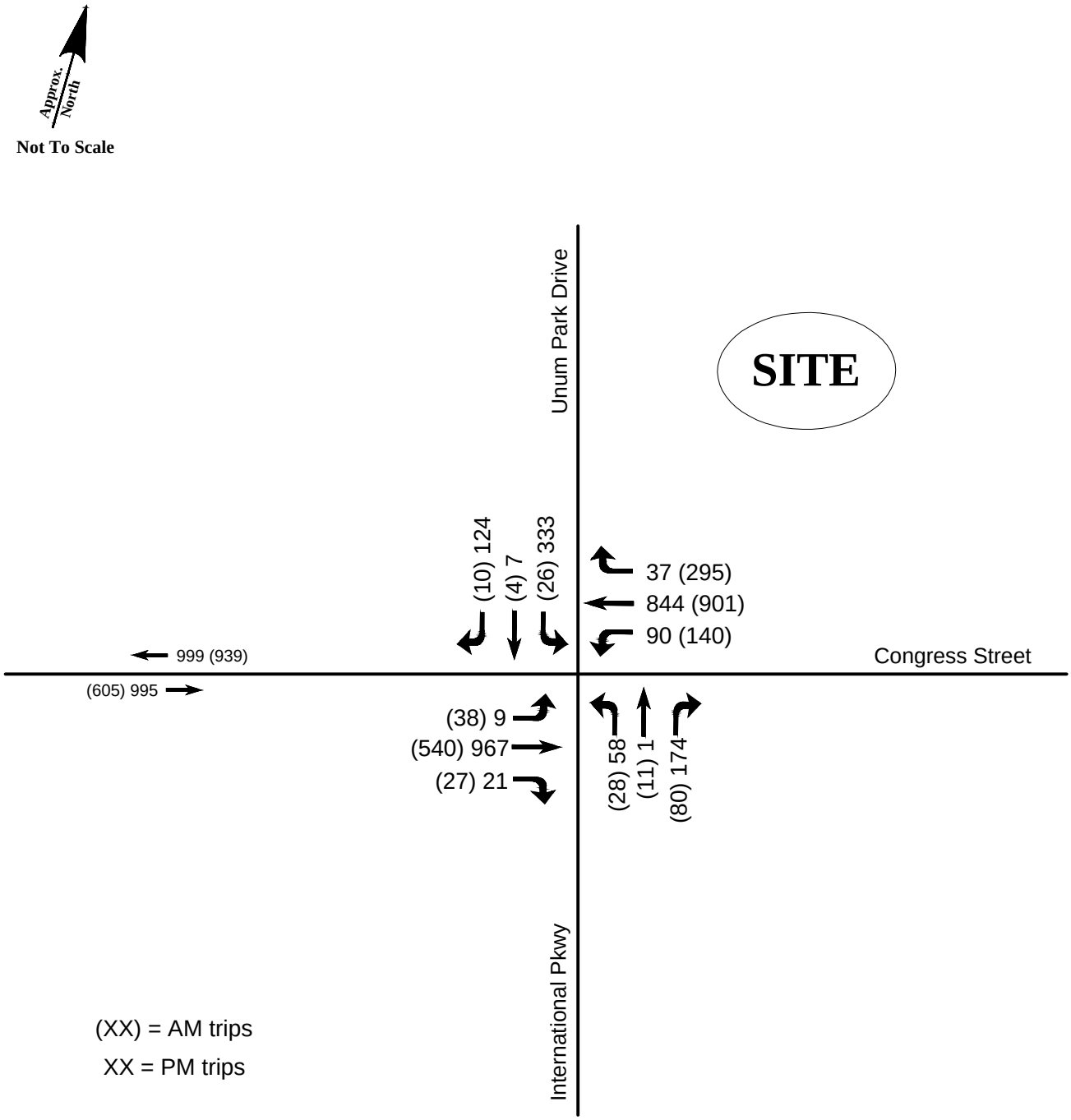


Figure 2

2016 Existing Peak Hour Volumes

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

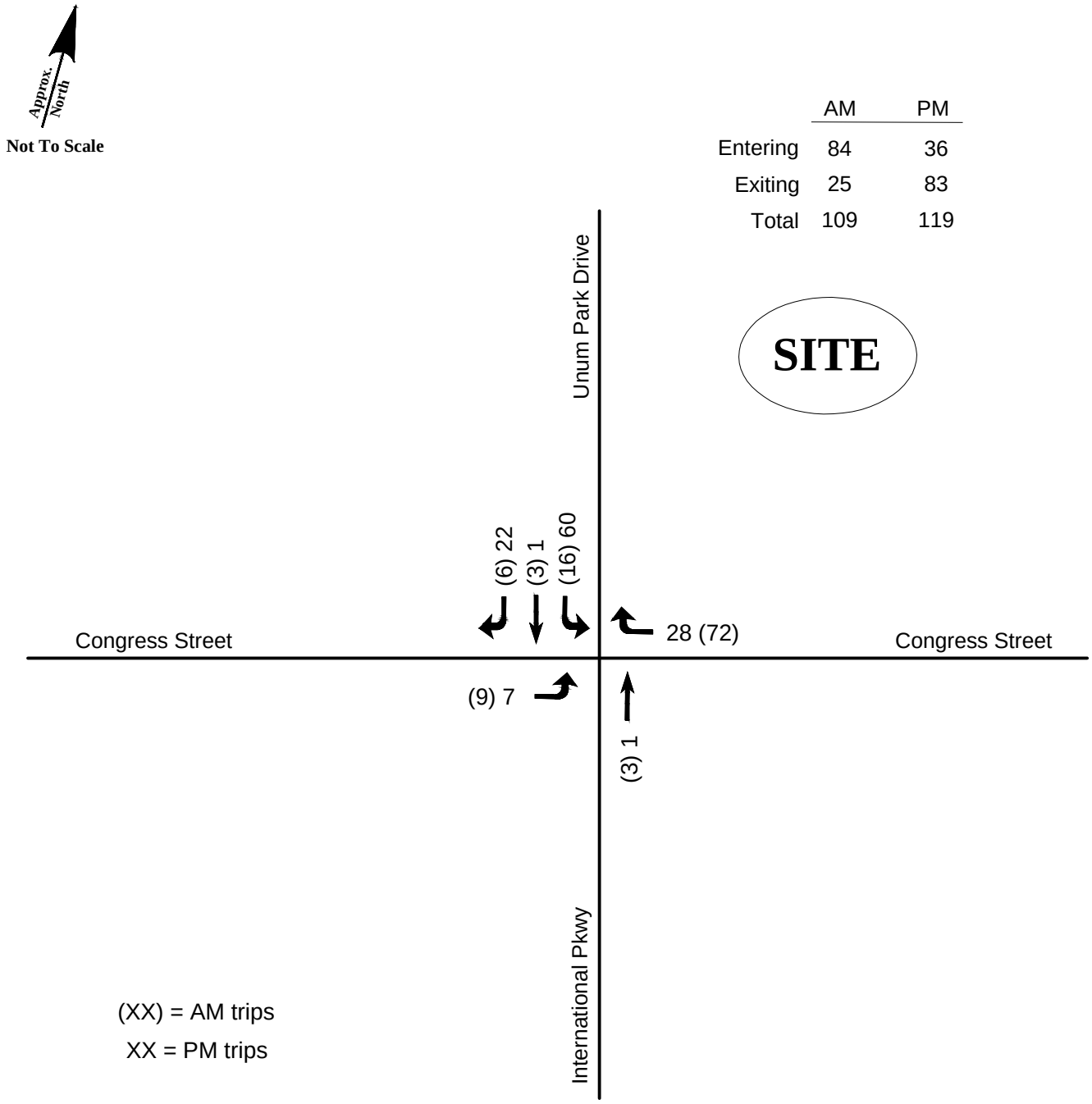


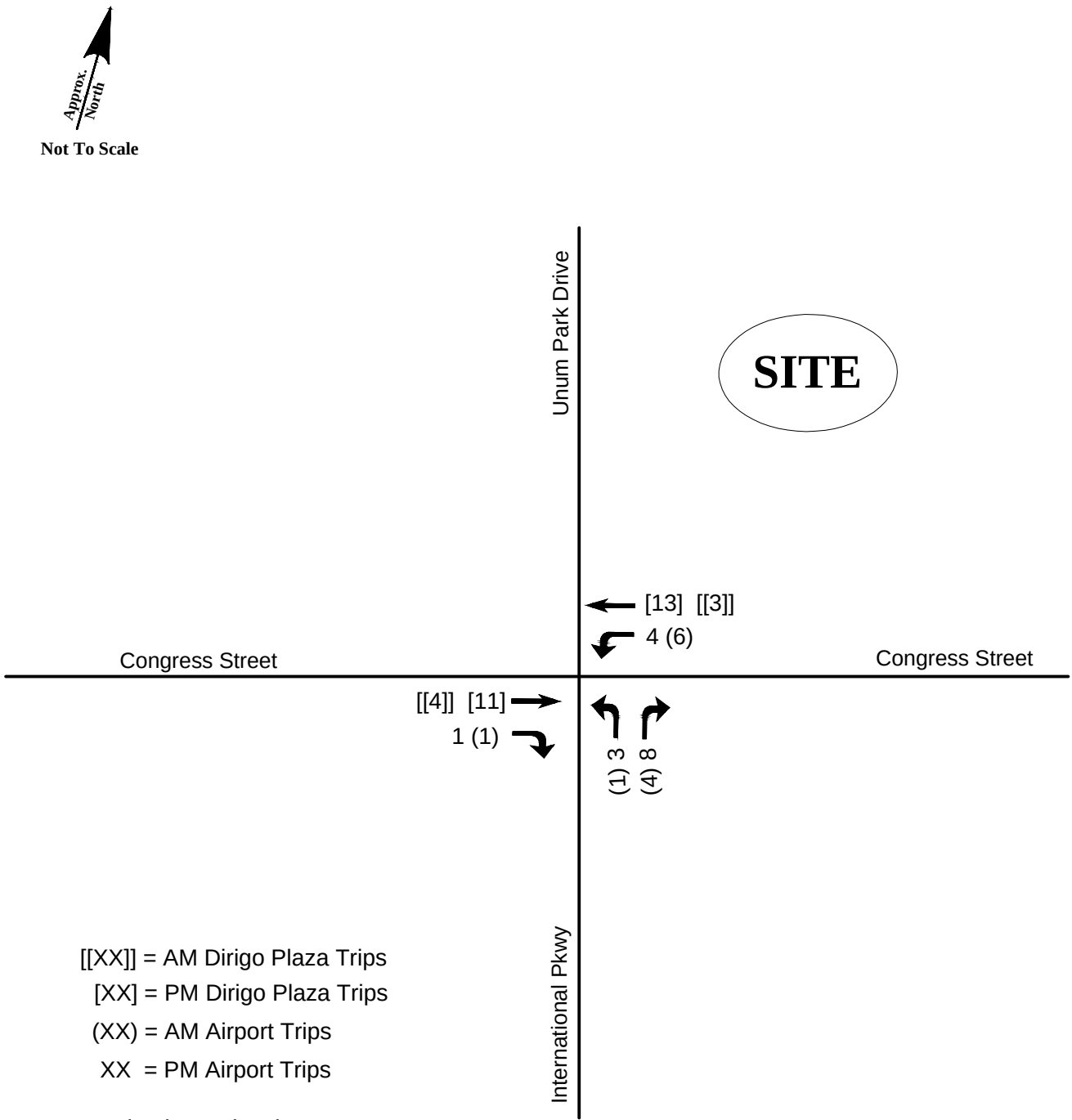
Figure 3

Peak Hour Trip Assignments

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677



[[XX]] = AM Dirigo Plaza Trips
[XX] = PM Dirigo Plaza Trips
(XX) = AM Airport Trips
XX = PM Airport Trips

**Portland Intentional Jetport
Trips Factored by 2.2% Annually

Figure 4

Other Development Peak Hour Volumes

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

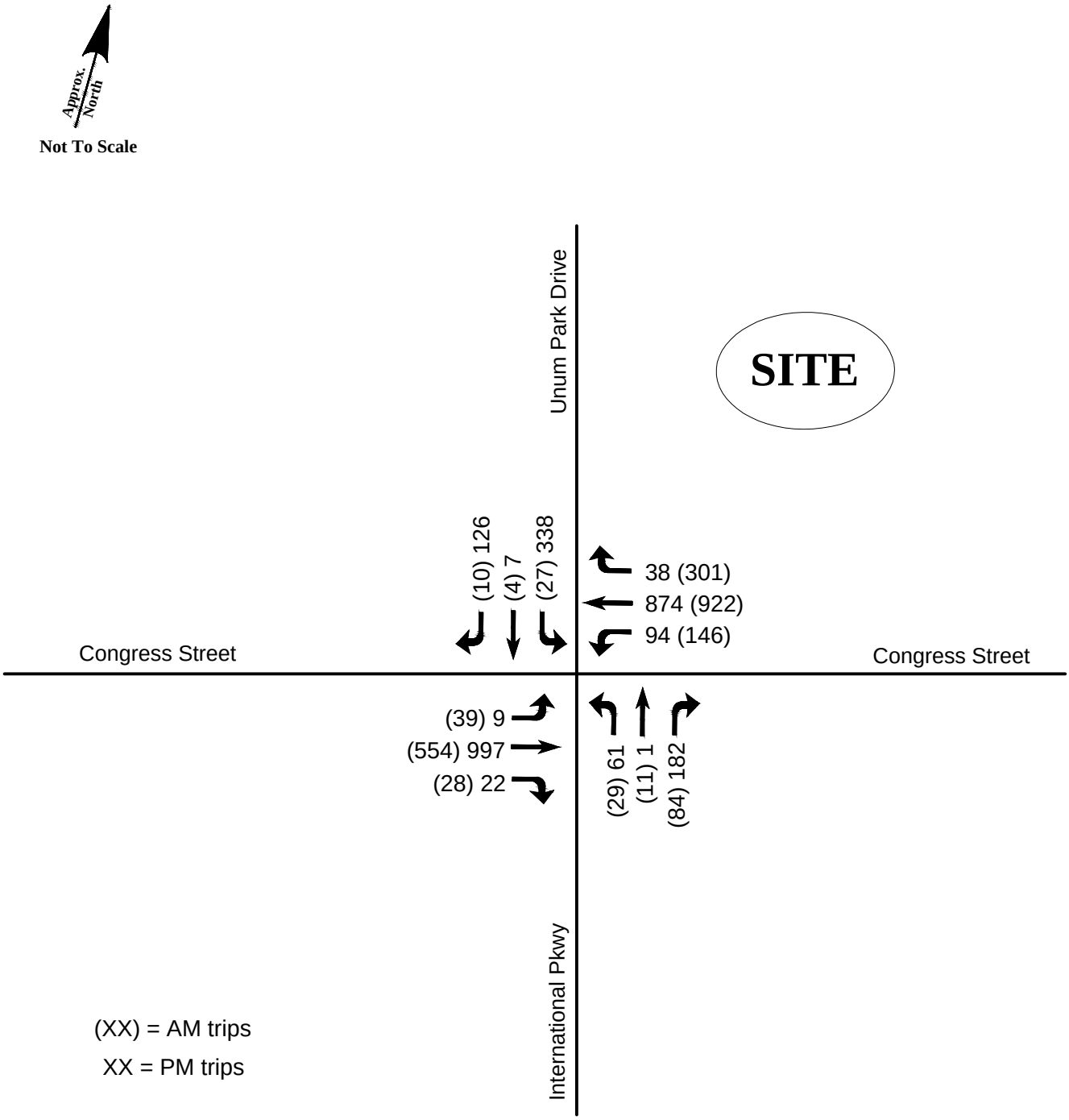


Figure 5

2018 No-Build Peak Hour Volumes

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

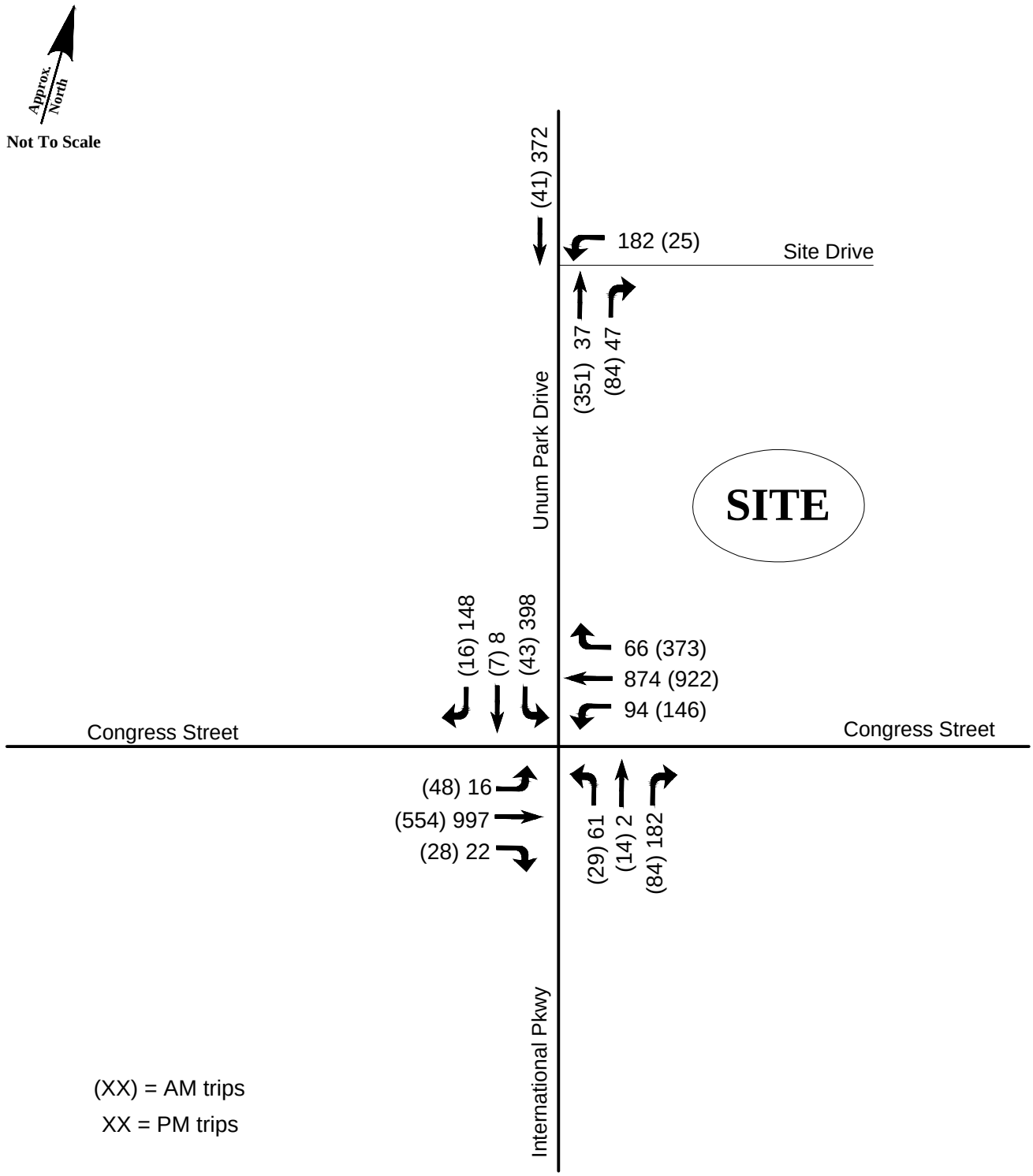


Figure 6

2018 Build Peak Hour Volumes

Office Development

Portland, Maine

Maine Traffic Resources
25 Vine Street
Gardiner, ME
04345
tel: (207) 582-5252
fax: (207) 582-1677

APPENDIX

Lane Utilization Traffic Counts

Capacity Analyses

Queue Analyses

Maine Traffic Resources
25 Vine Street
Gardiner, ME 04345
mainetrafficresources.com

Title: Eastbound Congress @ Unum Park
Town: Portland
Counter: NLS
Weather: Sunny

File Name : PortlandEBCongressThroughsAM
Site Code : 00000001
Start Date : 6/2/2016
Page No : 1

Groups Printed- Passenger Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:30 AM	94	0	40	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134
07:45 AM	87	0	40	0	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	127
Total	181	0	80	0	261	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
08:00 AM	69	0	40	0	109	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	109
08:15 AM	88	0	39	0	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	127
Grand Total	338	0	159	0	497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	497
Apprch %	68.0	0.0	32.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	68.0	0.0	32.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	338	0	159	0	497	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	497
Percent	68.0	0.0	32.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
07:30 Volume	94	0	40	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134
Peak Factor																					0.927
High Int.	07:30 AM					7:15:00 AM					7:15:00 AM					7:15:00 AM					
Volume	94	0	40	0	134																
Peak Factor					0.927																

Right = Right + Through Lane → 338 + 27 = 365
Left = Through Only

Maine Traffic Resources
25 Vine Street
Gardiner, ME 04345
mainetrafficresources.com

Title: Eastbound Congress @ Unum Park
Town: Portland
Counter: NLS
Weather: Sunny

File Name : PortlandEBCongressThroughsPM
Site Code : 00000001
Start Date : 6/1/2016
Page No : 1

Groups Printed- Passenger Vehicles

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
04:15 PM	124	0	75	0	199	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
04:30 PM	119	0	103	0	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222
04:45 PM	145	0	130	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	275
Total	388	0	308	0	696	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	696
05:00 PM	149	0	103	0	252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
Grand Total	537	0	411	0	948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	948
Apprch %	56.6	0.0	43.4	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	56.6	0.0	43.4	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

	From North					From East					From South					From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1																					
Intersection	04:15 PM																				
Volume	537	0	411	0	948	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	948
Percent	56.6	0.0	43.4	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
04:45 Volume	145	0	130	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	275
Peak Factor																					0.862
High Int.	04:45 PM					4:00:00 PM					4:00:00 PM					4:00:00 PM					
Volume	145	0	130	0	275																
Peak Factor					0.862																

Right = Right + Through Lane → 537 + 21 rights = 558
Left = Through Only

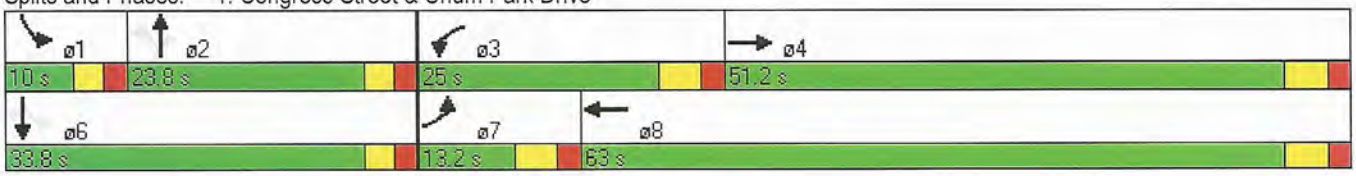
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	540	27	140	901	295	28	11	80	26	4	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		150
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.72	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.963				0.850			0.850
Flt Protected	0.950			0.950				0.966			0.959	
Satd. Flow (prot)	1703	2563	0	1770	3408	0	0	1669	1468	0	1822	1615
Flt Permitted	0.950			0.950				0.765			0.718	
Satd. Flow (perm)	1703	2563	0	1770	3408	0	0	1321	1468	0	1364	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			61				107			12
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Adj. Flow (vph)	40	568	28	156	1001	328	37	15	107	32	5	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	596	0	156	1329	0	0	52	107	0	37	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		10.0	10.0	10.0	10.0	29.5	29.5
Total Split (s)	13.2	51.2	0.0	25.0	63.0	0.0	23.8	23.8	23.8	10.0	33.8	33.8
Total Split (%)	12.0%	46.5%	0.0%	22.7%	57.3%	0.0%	21.6%	21.6%	21.6%	9.1%	30.7%	30.7%
Maximum Green (s)	7.7	45.7		19.5	57.5		19.3	19.3	19.3	5.5	29.3	29.3
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	7.8	27.1		12.8	42.6			10.5	10.5		10.5	10.5
Actuated g/C Ratio	0.12	0.42		0.20	0.66			0.16	0.16		0.16	0.16
v/c Ratio	0.20	0.55		0.44	0.59			0.24	0.33		0.17	0.04
Control Delay	38.9	17.4		33.7	11.6			32.6	10.0		31.5	16.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	38.9	17.4		33.7	11.6			32.6	10.0		31.5	16.2
LOS	D	B		C	B			C	B		C	B
Approach Delay		18.8			13.9			17.4			27.8	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 64.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 15.8 Intersection LOS: B
Intersection Capacity Utilization 59.4% ICU Level of Service B
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	540	27	140	901	295	28	11	80	26	4	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.72		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.96	1.00
Satd. Flow (prot)	1703	2563		1770	3408			1668	1468		1821	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.77	1.00		0.72	1.00
Satd. Flow (perm)	1703	2563		1770	3408			1322	1468		1364	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Adj. Flow (vph)	40	568	28	156	1001	328	37	15	107	32	5	12
RTOR Reduction (vph)	0	2	0	0	25	0	0	0	94	0	0	11
Lane Group Flow (vph)	40	594	0	156	1304	0	0	52	13	0	37	1
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	31.1		12.8	40.2			8.1	8.1		8.1	8.1
Effective Green, g (s)	3.7	31.1		12.8	40.2			8.1	8.1		8.1	8.1
Actuated g/C Ratio	0.05	0.46		0.19	0.60			0.12	0.12		0.12	0.12
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	93	1181		336	2030			159	176		164	194
v/s Ratio Prot	0.02	0.23		c0.09	c0.38							
v/s Ratio Perm								c0.04	0.01		0.03	0.00
v/c Ratio	0.43	0.50		0.46	0.64			0.33	0.07		0.23	0.01
Uniform Delay, d1	30.9	12.8		24.3	8.9			27.2	26.4		26.9	26.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	3.2	0.3		1.0	0.7			1.2	0.2		0.7	0.0
Delay (s)	34.1	13.1		25.3	9.6			28.4	26.5		27.6	26.2
Level of Service	C	B		C	A			C	C		C	C
Approach Delay (s)		14.4			11.3			27.2			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
1: Congress Street & Unum Park Drive

6/6/2016

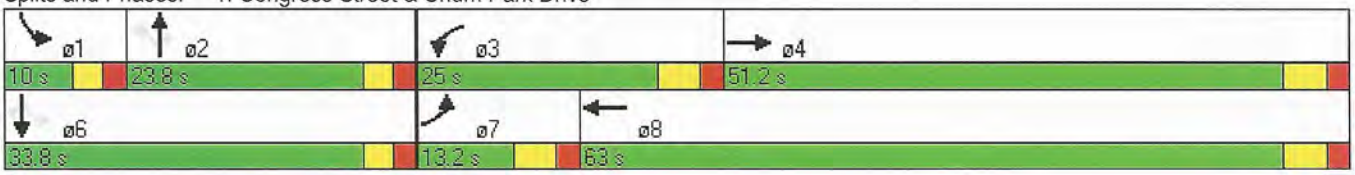
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	554	28	146	922	301	29	11	84	27	4	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		150
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.72	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.963				0.850			0.850
Flt Protected	0.950			0.950				0.965			0.958	
Satd. Flow (prot)	1703	2563	0	1770	3408	0	0	1667	1468	0	1820	1615
Flt Permitted	0.950			0.950				0.761			0.715	
Satd. Flow (perm)	1703	2563	0	1770	3408	0	0	1314	1468	0	1358	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			60				112			12
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Adj. Flow (vph)	41	583	29	162	1024	334	39	15	112	34	5	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	612	0	162	1358	0	0	54	112	0	39	12
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		10.0	10.0	10.0	10.0	29.5	29.5
Total Split (s)	13.2	51.2	0.0	25.0	63.0	0.0	23.8	23.8	23.8	10.0	33.8	33.8
Total Split (%)	12.0%	46.5%	0.0%	22.7%	57.3%	0.0%	21.6%	21.6%	21.6%	9.1%	30.7%	30.7%
Maximum Green (s)	7.7	45.7		19.5	57.5		19.3	19.3	19.3	5.5	29.3	29.3
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	7.8	27.6		13.1	43.3			10.6	10.6		10.6	10.6
Actuated g/C Ratio	0.12	0.42		0.20	0.66			0.16	0.16		0.16	0.16
v/c Ratio	0.20	0.57		0.46	0.60			0.25	0.34		0.18	0.04
Control Delay	39.3	17.8		34.1	11.8			33.0	10.0		31.8	16.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	39.3	17.8		34.1	11.8			33.0	10.0		31.8	16.1
LOS	D	B		C	B			C	A		C	B
Approach Delay		19.1			14.2			17.5			28.1	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 65.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 60.2% ICU Level of Service B
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	554	28	146	922	301	29	11	84	27	4	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.72		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.96	1.00
Satd. Flow (prot)	1703	2563		1770	3409			1667	1468		1821	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.76	1.00		0.72	1.00
Satd. Flow (perm)	1703	2563		1770	3409			1315	1468		1359	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Adj. Flow (vph)	41	583	29	162	1024	334	39	15	112	34	5	12
RTOR Reduction (vph)	0	2	0	0	24	0	0	0	99	0	0	11
Lane Group Flow (vph)	41	610	0	162	1334	0	0	54	13	0	39	1
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	31.4		13.1	40.8			8.2	8.2		8.2	8.2
Effective Green, g (s)	3.7	31.4		13.1	40.8			8.2	8.2		8.2	8.2
Actuated g/C Ratio	0.05	0.46		0.19	0.60			0.12	0.12		0.12	0.12
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	92	1180		340	2039			158	177		163	194
v/s Ratio Prot	0.02	0.24		c0.09	c0.39							
v/s Ratio Perm								c0.04	0.01		0.03	0.00
v/c Ratio	0.45	0.52		0.48	0.65			0.34	0.08		0.24	0.01
Uniform Delay, d1	31.3	13.0		24.5	9.0			27.5	26.6		27.2	26.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	3.4	0.4		1.1	0.8			1.3	0.2		0.8	0.0
Delay (s)	34.7	13.4		25.6	9.8			28.8	26.8		27.9	26.4
Level of Service	C	B		C	A			C	C		C	C
Approach Delay (s)		14.7			11.5			27.5			27.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	15.5
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

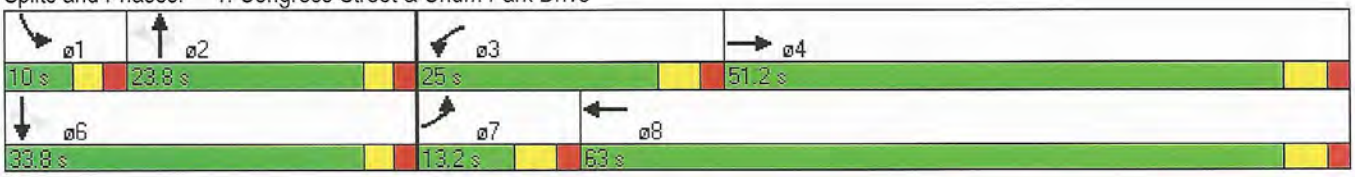
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	554	28	146	922	373	29	14	84	43	7	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		150
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.72	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.957				0.850			0.850
Flt Protected	0.950			0.950				0.967			0.959	
Satd. Flow (prot)	1703	2563	0	1770	3387	0	0	1670	1468	0	1822	1615
Flt Permitted	0.950			0.950				0.759			0.716	
Satd. Flow (perm)	1703	2563	0	1770	3387	0	0	1311	1468	0	1360	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			83				112			20
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Adj. Flow (vph)	51	583	29	162	1024	414	39	19	112	54	9	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	612	0	162	1438	0	0	58	112	0	63	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		10.0	10.0	10.0	10.0	29.5	29.5
Total Split (s)	13.2	51.2	0.0	25.0	63.0	0.0	23.8	23.8	23.8	10.0	33.8	33.8
Total Split (%)	12.0%	46.5%	0.0%	22.7%	57.3%	0.0%	21.6%	21.6%	21.6%	9.1%	30.7%	30.7%
Maximum Green (s)	7.7	45.7		19.5	57.5		19.3	19.3	19.3	5.5	29.3	29.3
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	8.0	29.6		13.7	46.0			11.0	11.0		11.1	11.1
Actuated g/C Ratio	0.12	0.43		0.20	0.67			0.16	0.16		0.16	0.16
v/c Ratio	0.26	0.55		0.46	0.62			0.27	0.34		0.29	0.07
Control Delay	41.3	17.5		35.5	12.1			34.7	10.1		34.8	14.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	41.3	17.5		35.5	12.1			34.7	10.1		34.8	14.9
LOS	D	B		D	B			C	B		C	B
Approach Delay		19.4			14.5			18.5			30.0	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 68.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	554	28	146	922	373	29	14	84	43	7	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.72		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.96	1.00
Satd. Flow (prot)	1703	2563		1770	3386			1671	1468		1822	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.76	1.00		0.72	1.00
Satd. Flow (perm)	1703	2563		1770	3386			1312	1468		1360	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Adj. Flow (vph)	51	583	29	162	1024	414	39	19	112	54	9	20
RTOR Reduction (vph)	0	2	0	0	32	0	0	0	98	0	0	18
Lane Group Flow (vph)	51	610	0	162	1406	0	0	58	14	0	63	2
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	33.5		13.7	43.5			8.6	8.6		8.6	8.6
Effective Green, g (s)	3.7	33.5		13.7	43.5			8.6	8.6		8.6	8.6
Actuated g/C Ratio	0.05	0.47		0.19	0.61			0.12	0.12		0.12	0.12
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	88	1204		340	2066			158	177		164	195
v/s Ratio Prot	0.03	0.24		c0.09	c0.42							
v/s Ratio Perm								0.04	0.01		c0.05	0.00
v/c Ratio	0.58	0.51		0.48	0.68			0.37	0.08		0.38	0.01
Uniform Delay, d1	33.0	13.1		25.6	9.3			28.8	27.8		28.9	27.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	8.9	0.3		1.1	0.9			1.4	0.2		1.5	0.0
Delay (s)	42.0	13.5		26.7	10.2			30.3	28.0		30.4	27.6
Level of Service	D	B		C	B			C	C		C	C
Approach Delay (s)		15.7			11.9			28.8			29.7	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

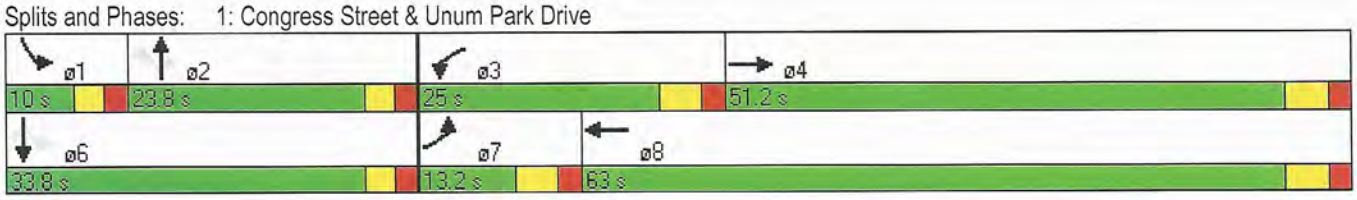
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	554	28	146	922	373	29	14	84	43	7	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		150
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993			0.957				0.850			0.850
Flt Protected	0.950			0.950				0.967			0.959	
Satd. Flow (prot)	1703	3382	0	1770	3387	0	0	1670	1468	0	1822	1615
Flt Permitted	0.950			0.950				0.759			0.716	
Satd. Flow (perm)	1703	3382	0	1770	3387	0	0	1311	1468	0	1360	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			83				112			20
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			772			405			250	
Travel Time (s)		27.7			17.5			9.2			5.7	
Peak Hour Factor	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Adj. Flow (vph)	51	583	29	162	1024	414	39	19	112	54	9	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	51	612	0	162	1438	0	0	58	112	0	63	20
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		10.0	10.0	10.0	10.0	29.5	29.5
Total Split (s)	13.2	51.2	0.0	25.0	63.0	0.0	23.8	23.8	23.8	10.0	33.8	33.8
Total Split (%)	12.0%	46.5%	0.0%	22.7%	57.3%	0.0%	21.6%	21.6%	21.6%	9.1%	30.7%	30.7%
Maximum Green (s)	7.7	45.7		19.5	57.5		19.3	19.3	19.3	5.5	29.3	29.3
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	8.1	29.0		13.8	45.8			11.2	11.2		11.2	11.2
Actuated g/C Ratio	0.12	0.43		0.20	0.67			0.16	0.16		0.16	0.16
v/c Ratio	0.25	0.42		0.45	0.62			0.27	0.34		0.28	0.07
Control Delay	41.2	15.2		35.3	12.1			34.6	10.0		34.7	14.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	41.2	15.2		35.3	12.1			34.6	10.0		34.7	14.9
LOS	D	B		D	B			C	B		C	B
Approach Delay		17.2			14.4			18.4			29.9	
Approach LOS		B			B			B			C	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 68.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 63.1% ICU Level of Service B
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	554	28	146	922	373	29	14	84	43	7	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.96	1.00
Satd. Flow (prot)	1703	3381		1770	3386			1671	1468		1822	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.76	1.00		0.72	1.00
Satd. Flow (perm)	1703	3381		1770	3386			1312	1468		1360	1615
Peak-hour factor, PHF	0.95	0.95	0.95	0.90	0.90	0.90	0.75	0.75	0.75	0.80	0.80	0.80
Adj. Flow (vph)	51	583	29	162	1024	414	39	19	112	54	9	20
RTOR Reduction (vph)	0	3	0	0	32	0	0	0	99	0	0	18
Lane Group Flow (vph)	51	609	0	162	1406	0	0	58	13	0	63	2
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	10%	10%	10%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	3.7	33.0		13.8	43.1			8.5	8.5		8.5	8.5
Effective Green, g (s)	3.7	33.0		13.8	43.1			8.5	8.5		8.5	8.5
Actuated g/C Ratio	0.05	0.47		0.19	0.61			0.12	0.12		0.12	0.12
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	89	1576		345	2061			158	176		163	194
v/s Ratio Prot	0.03	0.18		c0.09	c0.42							
v/s Ratio Perm								0.04	0.01		c0.05	0.00
v/c Ratio	0.57	0.39		0.47	0.68			0.37	0.08		0.39	0.01
Uniform Delay, d1	32.8	12.3		25.3	9.3			28.7	27.7		28.7	27.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	8.6	0.2		1.0	0.9			1.4	0.2		1.5	0.0
Delay (s)	41.4	12.5		26.3	10.2			30.1	27.9		30.3	27.5
Level of Service	D	B		C	B			C	C		C	C
Approach Delay (s)		14.7			11.8			28.6			29.6	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

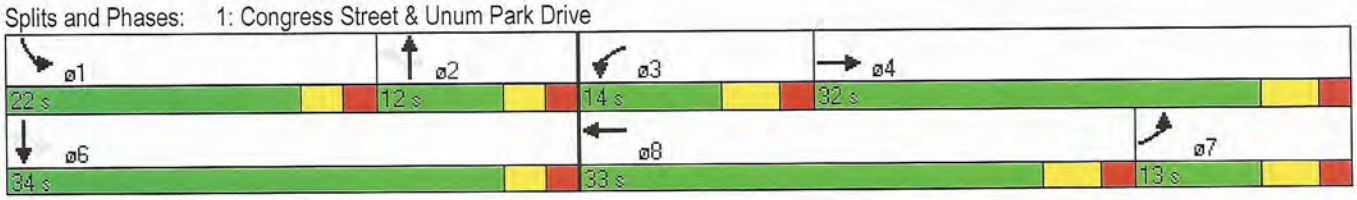
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	967	21	90	844	37	58	1	174	333	7	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		300
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.87	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.994				0.850			0.850
Flt Protected	0.950			0.950				0.953			0.953	
Satd. Flow (prot)	1770	3231	0	1770	3518	0	0	1775	1583	0	1811	1615
Flt Permitted	0.950			0.950				0.480			0.677	
Satd. Flow (perm)	1770	3231	0	1770	3518	0	0	894	1583	0	1286	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6				218			138
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	10	1074	23	100	938	41	72	1	218	370	8	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1097	0	100	979	0	0	73	218	0	378	138
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		9.5	9.5	9.5	9.5	29.5	29.5
Total Split (s)	13.0	32.0	0.0	14.0	33.0	0.0	12.0	12.0	12.0	22.0	34.0	34.0
Total Split (%)	16.3%	40.0%	0.0%	17.5%	41.3%	0.0%	15.0%	15.0%	15.0%	27.5%	42.5%	42.5%
Maximum Green (s)	7.5	26.5		8.5	27.5		7.5	7.5	7.5	17.5	29.5	29.5
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		0			0						0	0
Act Effct Green (s)	6.2	27.0		7.9	35.1			27.6	27.6		27.6	27.6
Actuated g/C Ratio	0.08	0.36		0.10	0.47			0.37	0.37		0.37	0.37
v/c Ratio	0.07	0.95		0.54	0.60			0.22	0.30		0.80	0.20
Control Delay	34.8	43.3		45.3	18.1			19.7	4.0		37.4	4.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	34.8	43.3		45.3	18.1			19.7	4.0		37.4	4.2
LOS	C	D		D	B			B	A		D	A
Approach Delay		43.3			20.6			7.9			28.5	
Approach LOS		D			C			A			C	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 75.3
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 70.8% ICU Level of Service C
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	967	21	90	844	37	58	1	174	333	7	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.87		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3231		1770	3517			1775	1583		1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.48	1.00		0.68	1.00
Satd. Flow (perm)	1770	3231		1770	3517			895	1583		1287	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	10	1074	23	100	938	41	72	1	218	370	8	138
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	142	0	0	90
Lane Group Flow (vph)	10	1095	0	100	976	0	0	73	76	0	378	48
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	1.4	30.1		6.4	35.1			27.6	27.6		27.6	27.6
Effective Green, g (s)	1.4	30.1		6.4	35.1			27.6	27.6		27.6	27.6
Actuated g/C Ratio	0.02	0.38		0.08	0.44			0.35	0.35		0.35	0.35
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	31	1222		142	1551			310	549		446	560
v/s Ratio Prot	0.01	c0.34		0.06	c0.28							
v/s Ratio Perm								0.08	0.05		c0.29	0.03
v/c Ratio	0.32	0.90		0.70	0.63			0.24	0.14		0.85	0.09
Uniform Delay, d1	38.6	23.3		35.7	17.2			18.5	17.8		24.1	17.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	6.0	8.8		14.7	0.8			0.4	0.1		13.9	0.1
Delay (s)	44.6	32.1		50.4	18.0			18.9	18.0		37.9	17.6
Level of Service	D	C		D	B			B	B		D	B
Approach Delay (s)		32.2			21.0			18.2			32.5	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM Average Control Delay	26.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	15.5
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
1: Congress Street & Unum Park Drive

6/6/2016

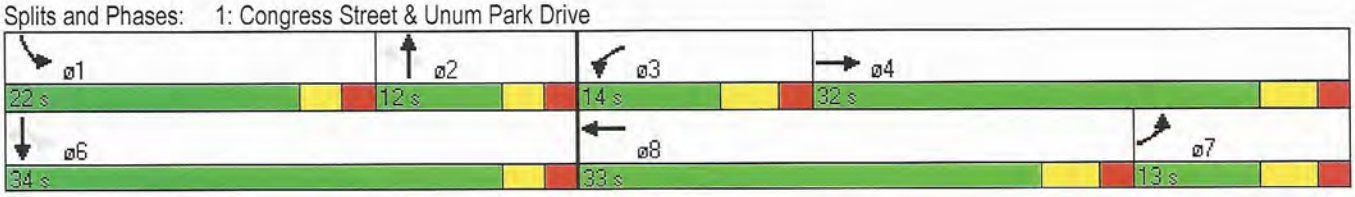
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	997	22	94	874	38	61	1	182	338	7	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		150
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.87	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.994				0.850			0.850
Flt Protected	0.950			0.950				0.953			0.953	
Satd. Flow (prot)	1770	3231	0	1770	3518	0	0	1775	1583	0	1811	1615
Flt Permitted	0.950			0.950				0.463			0.674	
Satd. Flow (perm)	1770	3231	0	1770	3518	0	0	862	1583	0	1281	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6				228			140
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	10	1108	24	104	971	42	76	1	228	376	8	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1132	0	104	1013	0	0	77	228	0	384	140
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		10.5	29.5		9.5	9.5	9.5	9.5	29.5	29.5
Total Split (s)	13.0	32.0	0.0	14.0	33.0	0.0	12.0	12.0	12.0	22.0	34.0	34.0
Total Split (%)	16.3%	40.0%	0.0%	17.5%	41.3%	0.0%	15.0%	15.0%	15.0%	27.5%	42.5%	42.5%
Maximum Green (s)	7.5	26.5		8.5	27.5		7.5	7.5	7.5	17.5	29.5	29.5
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	6.2	27.0		8.0	35.1			27.8	27.8		27.8	27.8
Actuated g/C Ratio	0.08	0.36		0.11	0.46			0.37	0.37		0.37	0.37
v/c Ratio	0.07	0.98		0.56	0.62			0.24	0.31		0.82	0.20
Control Delay	34.8	49.8		46.2	18.6			20.2	4.0		38.6	4.2
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	34.8	49.8		46.2	18.6			20.2	4.0		38.6	4.2
LOS	C	D		D	B			C	A		D	A
Approach Delay		49.6			21.2			8.1			29.4	
Approach LOS		D			C			A			C	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 75.5
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	997	22	94	874	38	61	1	182	338	7	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.87		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3231		1770	3517			1775	1583		1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.46	1.00		0.67	1.00
Satd. Flow (perm)	1770	3231		1770	3517			862	1583		1281	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	10	1108	24	104	971	42	76	1	228	376	8	140
RTOR Reduction (vph)	0	2	0	0	3	0	0	0	149	0	0	91
Lane Group Flow (vph)	10	1130	0	104	1010	0	0	77	79	0	384	49
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	1.4	30.1		6.4	35.1			27.8	27.8		27.8	27.8
Effective Green, g (s)	1.4	30.1		6.4	35.1			27.8	27.8		27.8	27.8
Actuated g/C Ratio	0.02	0.38		0.08	0.44			0.35	0.35		0.35	0.35
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	31	1219		142	1547			300	551		446	563
v/s Ratio Prot	0.01	c0.35		0.06	c0.29							
v/s Ratio Perm								0.09	0.05		c0.30	0.03
v/c Ratio	0.32	0.93		0.73	0.65			0.26	0.14		0.86	0.09
Uniform Delay, d1	38.7	23.8		35.9	17.6			18.6	17.8		24.2	17.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	6.0	12.0		17.6	1.0			0.5	0.1		15.5	0.1
Delay (s)	44.7	35.8		53.5	18.6			19.1	18.0		39.7	17.5
Level of Service	D	D		D	B			B	B		D	B
Approach Delay (s)		35.9			21.8			18.2			33.8	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	15.5
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

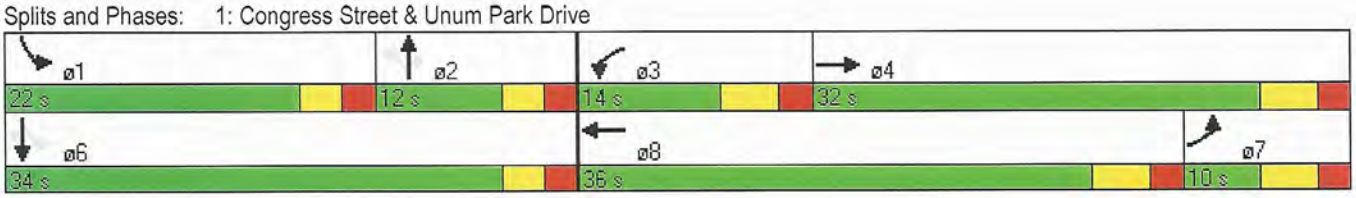
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	997	22	94	874	66	61	2	182	398	8	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		300
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.87	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990				0.850			0.850
Flt Protected	0.950			0.950				0.954			0.953	
Satd. Flow (prot)	1770	3231	0	1770	3504	0	0	1777	1583	0	1811	1615
Flt Permitted	0.950			0.950				0.427			0.674	
Satd. Flow (perm)	1770	3231	0	1770	3504	0	0	795	1583	0	1281	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			11				228			161
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			1307			405			647	
Travel Time (s)		27.7			29.7			9.2			14.7	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	18	1108	24	104	971	73	76	2	228	433	9	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	1132	0	104	1044	0	0	78	228	0	442	161
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		10.5	29.5		9.5	9.5	9.5	9.5	29.5	29.5
Total Split (s)	10.0	32.0	0.0	14.0	36.0	0.0	12.0	12.0	12.0	22.0	34.0	34.0
Total Split (%)	12.5%	40.0%	0.0%	17.5%	45.0%	0.0%	15.0%	15.0%	15.0%	27.5%	42.5%	42.5%
Maximum Green (s)	4.5	26.5		8.5	30.5		7.5	7.5	7.5	17.5	29.5	29.5
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	4.5	26.7		8.0	33.6			29.7	29.7		29.7	29.7
Actuated g/C Ratio	0.06	0.35		0.10	0.44			0.38	0.38		0.38	0.38
v/c Ratio	0.17	1.01		0.57	0.68			0.26	0.30		0.90	0.22
Control Delay	40.0	58.2		46.9	20.9			20.6	3.9		48.1	4.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	40.0	58.2		46.9	20.9			20.6	3.9		48.1	4.0
LOS	D	E		D	C			C	A		D	A
Approach Delay		58.0			23.2			8.1			36.3	
Approach LOS		E			C			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 77.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 36.7 Intersection LOS: D
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	997	22	94	874	66	61	2	182	398	8	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.87		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3231		1770	3502			1776	1583		1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.43	1.00		0.67	1.00
Satd. Flow (perm)	1770	3231		1770	3502			796	1583		1280	1615
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.80	0.80	0.80	0.92	0.92	0.92
Adj. Flow (vph)	18	1108	24	104	971	73	76	2	228	433	9	161
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	144	0	0	102
Lane Group Flow (vph)	18	1130	0	104	1038	0	0	78	84	0	442	59
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	1.7	28.7		6.6	33.6			29.7	29.7		29.7	29.7
Effective Green, g (s)	1.7	28.7		6.6	33.6			29.7	29.7		29.7	29.7
Actuated g/C Ratio	0.02	0.36		0.08	0.42			0.37	0.37		0.37	0.37
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	37	1152		145	1462			294	584		472	596
v/s Ratio Prot	0.01	c0.35		0.06	c0.30							
v/s Ratio Perm								0.10	0.05		c0.35	0.04
v/c Ratio	0.49	0.98		0.72	0.71			0.27	0.14		0.94	0.10
Uniform Delay, d1	39.0	25.6		36.0	19.4			17.8	16.9		24.5	16.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	9.7	21.9		15.5	1.6			0.5	0.1		26.1	0.1
Delay (s)	48.7	47.5		51.6	21.0			18.3	17.0		50.6	16.7
Level of Service	D	D		D	C			B	B		D	B
Approach Delay (s)		47.6			23.8			17.4			41.5	
Approach LOS		D			C			B			D	

Intersection Summary			
HCM Average Control Delay	35.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
1: Congress Street & Unum Park Drive

6/6/2016

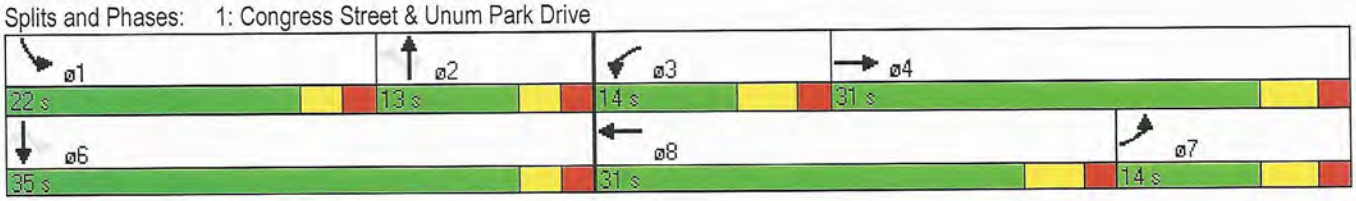
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	997	22	94	874	66	61	2	182	398	8	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	0		0	0		300
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	*0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990				0.850			0.850
Flt Protected	0.950			0.950				0.954			0.953	
Satd. Flow (prot)	1770	3529	0	1770	3504	0	0	1777	1583	0	1811	1615
Flt Permitted	0.950			0.950				0.421			0.674	
Satd. Flow (perm)	1770	3529	0	1770	3504	0	0	784	1583	0	1281	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			10				228			164
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1220			772			405			250	
Travel Time (s)		27.7			17.5			9.2			5.7	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	17	1084	24	104	971	73	76	2	228	442	9	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	17	1108	0	104	1044	0	0	78	228	0	451	164
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	20
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4		3	8		2	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.5	29.5		9.5	29.5		9.5	9.5	9.5	9.5	29.5	29.5
Total Split (s)	14.0	31.0	0.0	14.0	31.0	0.0	13.0	13.0	13.0	22.0	35.0	35.0
Total Split (%)	17.5%	38.8%	0.0%	17.5%	38.8%	0.0%	16.3%	16.3%	16.3%	27.5%	43.8%	43.8%
Maximum Green (s)	8.5	25.5		8.5	25.5		8.5	8.5	8.5	17.5	30.5	30.5
Yellow Time (s)	3.5	3.5		3.5	3.5		2.5	2.5	2.5	2.5	2.5	2.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5	4.0	5.5	5.5	4.0	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag		Lead	Lead		Lag	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		None	None	None	None	None	None
Walk Time (s)		4.0			4.0						4.0	4.0
Flash Dont Walk (s)		20.0			20.0						20.0	20.0
Pedestrian Calls (#/hr)		2			2						1	1
Act Effct Green (s)	6.5	25.7		8.0	33.8			30.1	30.1		30.1	30.1
Actuated g/C Ratio	0.08	0.34		0.10	0.44			0.39	0.39		0.39	0.39
v/c Ratio	0.11	0.93		0.57	0.67			0.25	0.30		0.90	0.22
Control Delay	35.1	41.7		46.7	21.2			19.9	3.7		46.8	3.8
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	35.1	41.7		46.7	21.2			19.9	3.7		46.8	3.8
LOS	D	D		D	C			B	A		D	A
Approach Delay		41.6			23.5			7.8			35.3	
Approach LOS		D			C			A			D	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 76.7
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 30.7 Intersection LOS: C
Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15
* User Entered Value

Splits and Phases: 1: Congress Street & Unum Park Drive



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	997	22	94	874	66	61	2	182	398	8	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	*0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	3528		1770	3502			1776	1583		1811	1615
Flt Permitted	0.95	1.00		0.95	1.00			0.42	1.00		0.67	1.00
Satd. Flow (perm)	1770	3528		1770	3502			784	1583		1280	1615
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90
Adj. Flow (vph)	17	1084	24	104	971	73	76	2	228	442	9	164
RTOR Reduction (vph)	0	2	0	0	6	0	0	0	143	0	0	103
Lane Group Flow (vph)	17	1106	0	104	1038	0	0	78	85	0	451	61
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%
Turn Type	Prot			Prot			Perm		Perm	pm+pt		Perm
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases							2		2	6		6
Actuated Green, G (s)	1.6	28.9		6.5	33.8			30.1	30.1		30.1	30.1
Effective Green, g (s)	1.6	28.9		6.5	33.8			30.1	30.1		30.1	30.1
Actuated g/C Ratio	0.02	0.36		0.08	0.42			0.37	0.37		0.37	0.37
Clearance Time (s)	5.5	5.5		5.5	5.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	35	1259		142	1461			291	588		476	600
v/s Ratio Prot	0.01	c0.31		0.06	c0.30							
v/s Ratio Perm								0.10	0.05		c0.35	0.04
v/c Ratio	0.49	0.88		0.73	0.71			0.27	0.14		0.95	0.10
Uniform Delay, d1	39.3	24.4		36.4	19.5			17.8	16.9		24.7	16.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	7.2		17.6	1.7			0.5	0.1		28.1	0.1
Delay (s)	49.5	31.6		54.0	21.2			18.3	17.0		52.8	16.7
Level of Service	D	C		D	C			B	B		D	B
Approach Delay (s)		31.9			24.2			17.3			43.2	
Approach LOS		C			C			B			D	

Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	15.5
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	25	0	351	84	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.974			
Flt Protected	0.950					
Satd. Flow (prot)	1805	0	1851	0	0	1900
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	1851	0	0	1900
Link Speed (mph)	30		30			30
Link Distance (ft)	289		250			400
Travel Time (s)	6.6		5.7			9.1
Peak Hour Factor	0.85	0.85	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	29	0	439	105	0	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	544	0	0	51
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 33.6% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	25	0	351	84	0	41
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	29	0	439	105	0	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			250			
pX, platoon unblocked						
vC, conflicting volume	542	491			544	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	542	491			544	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	100			100	
cM capacity (veh/h)	505	581			1035	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	544	51
Volume Left	29	0	0
Volume Right	0	105	0
cSH	505	1700	1035
Volume to Capacity	0.06	0.32	0.00
Queue Length 95th (ft)	5	0	0
Control Delay (s)	12.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	12.6	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	182	0	37	47	0	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.925			
Flt Protected	0.950					
Satd. Flow (prot)	1805	0	1723	0	0	1863
Flt Permitted	0.950					
Satd. Flow (perm)	1805	0	1723	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	364		250			362
Travel Time (s)	8.3		5.7			8.2
Peak Hour Factor	0.85	0.85	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	2%	2%	2%	2%
Adj. Flow (vph)	214	0	41	52	0	413
Shared Lane Traffic (%)						
Lane Group Flow (vph)	214	0	93	0	0	413
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		0			0
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 36.3% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	182	0	37	47	0	372
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	214	0	41	52	0	413
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			250			
pX, platoon unblocked						
vC, conflicting volume	481	67			93	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	481	67			93	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	61	100			100	
cM capacity (veh/h)	548	1002			1501	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	214	93	413
Volume Left	214	0	0
Volume Right	0	52	0
cSH	548	1700	1501
Volume to Capacity	0.39	0.05	0.00
Queue Length 95th (ft)	46	0	0
Control Delay (s)	15.7	0.0	0.0
Lane LOS	C		
Approach Delay (s)	15.7	0.0	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:27	7:27	7:27	7:27	7:27	7:27
End Time	8:30	8:30	8:30	8:30	8:30	8:30
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1
Vehs Entered	2200	2276	2314	2168	2239	2240
Vehs Exited	2188	2274	2314	2166	2253	2238
Starting Vehs	40	40	39	38	46	39
Ending Vehs	52	42	39	40	32	39
Denied Entry Before	1	0	0	0	0	0
Denied Entry After	0	1	0	0	3	0
Travel Distance (mi)	946	984	996	942	964	966
Travel Time (hr)	41.7	43.8	44.5	41.4	42.9	42.9
Total Delay (hr)	8.5	9.4	9.7	8.5	9.0	9.0
Total Stops	980	1008	998	923	975	976
Fuel Used (gal)	32.8	34.2	34.5	32.5	33.5	33.5

Interval #0 Information Seeding

Start Time	7:27
End Time	7:30
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:30
End Time	8:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2200	2276	2314	2168	2239	2240
Vehs Exited	2188	2274	2314	2166	2253	2238
Starting Vehs	40	40	39	38	46	39
Ending Vehs	52	42	39	40	32	39
Denied Entry Before	1	0	0	0	0	0
Denied Entry After	0	1	0	0	3	0
Travel Distance (mi)	946	984	996	942	964	966
Travel Time (hr)	41.7	43.8	44.5	41.4	42.9	42.9
Total Delay (hr)	8.5	9.4	9.7	8.5	9.0	9.0
Total Stops	980	1008	998	923	975	976
Fuel Used (gal)	32.8	34.2	34.5	32.5	33.5	33.5

Intersection: 1: Congress Street & Unum Park Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	96	178	180	174	266	331	100	78	82	31
Average Queue (ft)	31	62	82	82	103	146	35	37	37	10
95th Queue (ft)	71	132	144	148	214	274	76	66	71	34
Link Distance (ft)		1180	1180		1267	1267	359	359	601	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			150						300
Storage Blk Time (%)		0		1	1					
Queuing Penalty (veh)		0		4	2					

Network Summary

Network wide Queuing Penalty: 5

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:12	4:12	4:12	4:12	4:12	4:12
End Time	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1
Vehs Entered	2882	2918	2875	2864	2900	2888
Vehs Exited	2897	2915	2878	2854	2876	2884
Starting Vehs	66	62	61	57	52	59
Ending Vehs	51	65	58	67	76	62
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1245	1253	1243	1237	1252	1246
Travel Time (hr)	63.7	64.9	61.4	61.9	61.7	62.8
Total Delay (hr)	19.9	20.8	17.9	18.4	17.7	19.0
Total Stops	2231	2314	2107	2117	2100	2175
Fuel Used (gal)	46.5	47.3	46.1	45.9	45.6	46.3

Interval #0 Information Seeding

Start Time	4:12
End Time	4:15
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	5:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2882	2918	2875	2864	2900	2888
Vehs Exited	2897	2915	2878	2854	2876	2884
Starting Vehs	66	62	61	57	52	59
Ending Vehs	51	65	58	67	76	62
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1245	1253	1243	1237	1252	1246
Travel Time (hr)	63.7	64.9	61.4	61.9	61.7	62.8
Total Delay (hr)	19.9	20.8	17.9	18.4	17.7	19.0
Total Stops	2231	2314	2107	2117	2100	2175
Fuel Used (gal)	46.5	47.3	46.1	45.9	45.6	46.3

Intersection: 1: Congress Street & Unum Park Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	118	331	366	140	273	301	77	133	234	214
Average Queue (ft)	18	183	206	57	127	159	34	57	170	65
95th Queue (ft)	74	294	325	107	225	256	70	101	250	151
Link Distance (ft)		1180	1180		1267	1267	359	359	225	
Upstream Blk Time (%)									4	0
Queuing Penalty (veh)									22	0
Storage Bay Dist (ft)	200			150						300
Storage Blk Time (%)		5		0	4				4	0
Queuing Penalty (veh)		1		0	3				6	0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:12	4:12	4:12	4:12	4:12	4:12
End Time	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intvls	1	1	1	1	1	1
Vehs Entered	2782	2781	2788	2793	2748	2778
Vehs Exited	2787	2785	2783	2777	2752	2776
Starting Vehs	55	58	56	50	63	55
Ending Vehs	50	54	61	66	59	58
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1203	1203	1211	1214	1194	1205
Travel Time (hr)	58.8	58.9	57.0	58.2	57.2	58.0
Total Delay (hr)	16.7	16.8	14.7	15.8	15.5	15.9
Total Stops	1951	1956	1777	1871	1831	1877
Fuel Used (gal)	43.8	44.2	43.7	44.2	43.0	43.8

Interval #0 Information Seeding

Start Time	4:12
End Time	4:15
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	5:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	2782	2781	2788	2793	2748	2778
Vehs Exited	2787	2785	2783	2777	2752	2776
Starting Vehs	55	58	56	50	63	55
Ending Vehs	50	54	61	66	59	58
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0
Travel Distance (mi)	1203	1203	1211	1214	1194	1205
Travel Time (hr)	58.8	58.9	57.0	58.2	57.2	58.0
Total Delay (hr)	16.7	16.8	14.7	15.8	15.5	15.9
Total Stops	1951	1956	1777	1871	1831	1877
Fuel Used (gal)	43.8	44.2	43.7	44.2	43.0	43.8

Intersection: 1: Congress Street & Unum Park Drive

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LT	R
Maximum Queue (ft)	43	329	347	166	287	289	90	127	230	187
Average Queue (ft)	13	166	186	56	122	149	36	57	142	51
95th Queue (ft)	36	269	293	113	226	249	71	100	218	124
Link Distance (ft)		1180	1180		1267	1267	359	359	225	
Upstream Blk Time (%)									1	0
Queuing Penalty (veh)									5	0
Storage Bay Dist (ft)	200			150						300
Storage Blk Time (%)		3		0	2				1	0
Queuing Penalty (veh)		0		0	2				1	0

NORTHLAND

July 20, 2016

Via email

Helen Donaldson
City of Portland Planning Division
389 Congress Street
Portland, Maine 04101

RE: Background on requested parking count and history of parking mitigation during our planning process.

Nell,

Per your request, the intent of this letter is to provide a thorough explanation of our efforts to creatively reduce the amount of parking at our planned development at 1945 Congress. We realize that our most recent submission shows a level of parking in excess of what the code requires, but at the same time, we feel that we are requesting a level of parking that is justifiable by the types of users who will be calling the Elks site home for the next decade or more. This letter will highlight the following:

1. Our efforts to reduce parking through traditional means over the last two years of conceptual project design.
2. Creative ways to mitigate parking following final determination of building size and tenant selection and Traffic Demand Management Plan ideas
3. Background on how current efficient use of office space requires a higher parking ratio per 1,000sf than is contemplated in current code.
4. Precedent for UNUM parking ratio (OP zone).

Part 1. Ways we reconsidered the project design to reduce the parking requirement:

As you know, we began working on this project in November of 2013 when we partnered with Dr. Bedecs when his offer to purchase the property was accepted by the Elks. He was chosen as the buyer because he had suggested a structure that would allow the Elks to stay in place, not because he had offered the highest price. His offer was to buy the land around the Elks' building and take on the costs to reduce the size of their building to roughly 13,000sf, and then re-skin the entire building. He would then be left with land to build a 15,000 sf medical office building, as well as a second commercial office structure of unknown size.

When we began working with Dr. Bedecs, our intent was to take on the responsibilities of building that third building with Clark insurance in mind. The economics of the project dictated that we likely needed a 40,000sf building in addition to Dr. Bedecs' building to support the acquisition/site/elks demo costs.

In December of 2013, our first plan was developed and shared with the neighbors and planning staff showing the following without parking numbers identified, but with market dictating that we would likely need close to 350 spaces, an increase of the site's current 254 parking spaces (see **Attachment #1**):

Building:	**Building size:**	**Typical Parking Requirement:**
• Elks lodge:	16,000sf	100 Spaces (6.5/ 1,000sf)
• Dr. Bedecs:	14,000sf	75 Spaces (5/1,000sf)
• Building Three:	41,600sf	166 Spaces (4/1,000sf)
Site Totals:	***71,600 sf***	***341 Spaces***

As we official began the zone change process, and as we started more in-depth conversations with Planning Staff, and neighbors, we realized that parking and traffic were major concerns. Internally, we were struggling to provide sufficient parking to each Condo contemplated on our initial plan based on the feedback we had received (as additional background, the Elks were able to receive approval from their Grand Lodge to sell the land, but only under the condition that there would be 100 spaces for their use). Dr. Bedecs' long history of operating several medical practices has informed his opinion that he would need a minimum of 75 spaces (5 per 1,000sf), and while some of those could be shared, his concern was that if all tenants were utilizing their entire allocation, it would affect his ability to operating.

At that point, we began reducing the size of building three, as it was the easiest way to reduce our overall parking need. Our initial revision in May of 2014 was to reduce the size of building three to 35,000sf, and to reduce the Elks to 13,000sf, and we were proposing a total of 306 parking spaces (a reduction of 35 spaces), see **Attachment #2** for this site plan.

In the two years that have since passed, we have continued to receive feedback from Staff that the volume of proposed parking on the site was a problem. As I will describe below, we feel that we have explored every creative alternative that we have been able to uncover, but are still faced with the reality that the Doctor has a high need, the Elks have a high need (although we have been able to negotiate a lower than 100 spot allocation), and the modern design of the Clark building means that more people will fit comfortably into a smaller space than has historically been possible.

In March of this year, as we submitted for the Site Plan/Master Plan process, our conceptual plan represented a total of 263 spaces even after we were able to push Dr. Bedecs' building further back from Congress Street and institute a higher than required side setback, two things that were done in order to be sensitive to neighbor concerns (See **Attachment #3.1**).

Following our May 10th Planning Board meeting, we heard loud and clear that there was still more parking shown that the Board or the Staff wanted to see. We took further steps to reduce the permanent parking load by incorporating two sections of pervious pavers, one which would be for tandem parking. We also identified compact parking spaces, and increased green space. At this point, any further reduction in parking will jeopardize our ability to close because tenant concerns over their ability to do business and serve their employees or customers (see **Attachment #3.2** for our most recent design).

As of June 2016:

Traditional spaces on asphalt:	203 spaces
Compact spaces on asphalt:	30 spaces
Tandem spaces (pervious):	9 spaces
Non-Tandem (pervious):	21 spaces
Total Parking:	263 Spaces
Reduction from orig. plan	*78 Spaces*

One struggle we have had is that the three different user types on the site are not ideally suited for reliable shared parking due to their similar peak times of use. The Office peak is 9am-4pm, the Medical offices will be 10am – 3pm, and the elks will peak from 12:45pm to 3:45pm. Therefore, while we have designed the site with some shared spaces in mind, we cannot say that a significant proportion should be shared given the overlapping peak demand schedules.

Part 2. – Other options for parking mitigation that were pursued:

Specifically, we have explored the following parking alternatives, and why we either decided to pursue them, or in most cases, ruled them out as solutions to our need for parking in an amount higher than would be required by code:

- **Structured Parking:**
    - Early-on in our project's concept phase, we explored the possibility of structured parking for the site's users. Given that the industry standard is that a structured parking spot costs somewhere between $15,000-$20,000 per spot, the financial costs of structured parking would only be justified if we maximized the buildable area allowed under the OP zone, and even then, the costs may not be feasible.

      As our discussions with the neighborhood progressed, we heard loud and clear from that those who were open to the project, that they did not want large Unum-like buildings and were concerned about the volume of cars and added congestion to the neighborhood if we were to propose such a development.

      We came to the conclusion that we could not justify expensive structured parking unless we were to max out the buildable square

footage on the site, and in an effort to be sensitive to all of our neighbors we decided to pursue a smaller scale development that would rely on surface parking shielded by the landscaping and the buildings.

In May of 2016, after our most recent planning board meeting, we reinvestigated the possibility of structured parking under the Clark building. Due to the grade change at that part of the site, we were able to design under-building parking that could be built at a somewhat reduced cost, but were only able to fit +-40 spaces at an added cost of close to $400,000 (so closer to $10,000 per spot). However, even at that price point we would need to add additional square footage to the Clark building for another tenant to be able to offset that cost. Such additional square footage would require more parking, so we'd likely be back to where we are today in terms of surface parking, yet we'd have 15-20,000 sf more of users which would translate to a higher traffic impact to the neighborhood.

2.1 Travel Demand Management Plan Strategies:

Within the project's Condo documents, we will place an emphasis on travel demand management strategies, but since we are not the ultimate end user, and the current end users are not currently utilizing these alternative strategies, and this is an off-peninsula site reducing the viability of some of the alternative travel options (walking, biking) the timeframe for the users to adopt these strategies is not easily forecasted. We will suggest the following

- **Car Pooling:**
    - Currently the project's users are not ideal end users for car-pooling, given that the doctor's office's volume is generated primarily from the patient volume, Clark's 83 current employees come from 29 different towns in Maine, and the Elks' volume is generated by either bingo or other banquet hall users who have unique visitors each week. That said, perhaps over time, the Clark users might be able to adopt some use of car-pooling strategies, but such a program is not currently in place, because many of the employees need their own vehicle to do client meetings off site. Should workplace behavior evolve so that that need is diminished, car-pooling might become a more attractive option.
- **Bike-racks**
    - Our revised plan shows four racks totally 40 spots for bike parking. This will most likely be utilized by Clark employees over time as more employees live in the Portland Metro area, and their need for cars to conduct business is diminished. The timeframe for this transition is difficult to forecast.
- **Off-Site Shuttles:**

- We did explore the possibility of off-site shuttle service for uses such as the bingo events held on Tuesdays, but we were not able to convince Unum, the closest and the most logical spot for such a shuttle to park cars and have shuttle pick-up, to let us use one of their lots for parking overflow due to concerns over liability, security and their own parking needs. We never got very far with this option after Unum said no, but even if they were to allow us to use their lot, a frequent shuttle would be costly and frankly not very convenient for the Elks' elderly clientele. This alternative is not ideal for Medical office users or Clark employees at the present time.

- **Reliance on Public Transportation**:

  - Using the metro bus line could theoretically be a way for the users to reduce the parking load on the site. Unfortunately, the three different Tenants/owners will have users that are not currently ideal candidates to utilize the public transportation for travel to the site for several different reasons:
    - Elks – The parking load for the Elks is based on the use of their facility as a banquet hall and therefore the requirement that people attending a function to use public transportation would make their facility functionally difficult to use. Weddings, daily banquets/functions, and bingo games all have disparate users, many of whom are elderly, therefore it would not be easy to forecast the number of their patrons who will use the metro at this time.
    - Doctor's office – The load for Dr. Bedecs' building is based on historic client volume and actual turnover frequency for those clients. Because his clientele have appointments throughout the day, the ability for them to be close to a metro, and for the timing of the metro to be such that they can make a specific appointment is an unrealistic expectation to make, therefore it is not reasonable to assume that many of his clients will utilize the metro to make their trips to medical building.
    - Clark – Clark currently has 83 employees based in Maine who will use this office on a daily basis, and another 17 who will travel to this office several times per month for a total employee load (without visitors) of 100 (*note that per parking ordinance they should have 64 spaces)*. The Maine based employees currently live in 29 different southern Maine towns and cities. Seventeen employees currently live in Portland, but none reliably use Metro route #5 that currently serves their office building. Of the other 66 employees, who do not have an ability to use the Metro their only reliable option is using their car to travel to the office.

  The metro may be a viable way for some of the Doctor's staff to commute, as well as Clark employees who live within the metro

service area once their need for cars is diminished. At this time, both users are currently located within close proximity of metro stops, and neither have employees who consistently use metro for a variety of reasons. The more widespread adoption of the metro line will be encouraged in the Condominium documents, but behaviors will take time to change, and some needs may be difficult to meet using the Metro as a sole means of transportation (parents with young children who need to be picked up, employees who need to make calls outside the office, or those who want to be able to get lunch or do errands during the day. Anecdotally, my wife and I have both used public transportation earlier in our careers, but can personally relate to these specific issues, and therefore don't personally see Metro as a solution to our transportation needs at this point.

- **Flexible Work Schedules:**
    - Through our condo documents, we will encourage the users to explore flexible work schedules, but the adoption of this will take time and changes to industry norms, so the immediate effect is impossible to forecast.

Part 3. Research on modern use of office space and its relation to parking requirements:

While it is true that our parking needs are still in excess of the parking required by code, based on in depth conversations with our design team, and our users, and research into industry changes in how space is designed, it has come to our attention that the discrepancy between code and user need is due largely to the out-dated square footage of office space required for each employee that is implicit in the parking code.

Based on the research, modern office space users in particular have reduced the square foot per employee from a long standing historic figure of 300 sf per employee to what is projected to be 151 square feet per employee in 2017 (see **Attachment #4**). According to a 2012 study buy CoreNet Global, the world's leading association for corporate real estate professionals and economic developers, that ratio was 1 employee per 250 square feet in 2010. This is in conflict with section 14-332 of the Land Use ordinance, where the City of Portland requires 1 space per 400 square feet of floor area. Granted a higher reliance on alternative transportation can address some of this discrepancy, particularly for on-peninsula offices, off peninsula office spaces are not easily reached by bike, bus or foot.

That would translate into an increased parking need (not including sharing or accounting for schedules) to 6.66 spots per 1,000sf of office space. This represents a large increase over the current city code of 2.5 spaces or even the 2010 industry standard of 3.3 spots per 1,000sf. The good news is that these modern designs can accommodate more users in less square feet than ever before via a reliance on open, collaborative and shared workspaces. This means a smaller footprint to heat and cool, and a reduced impervious surface area for often untreated storm water runoff from roof systems. This also means that more office space should open up over time

for growing companies, or companies who proactively design their space, can grow employees without increasing their footprint and occupancy cost (see **Attachment #5**).

The "downside" to this more efficient use of space, depending on how you feel about parking and traffic, is that there is an increased focus on being able to provide ways for these employees to park their cars if that is how they commute to work.

Part 4. Precedent set by UNUM site within OP Zone:

Throughout our zone change and master planning process our project has been compared to the Unum Campus. Given that Unum was the one project who had been built out under the OP zoning regulations, and we requested the same zoning designation, that comparison felt fair.

As the discussion about parking evolved, we asked Unum how many spaces that they currently had on their site, and how much buildable square footage they had on site. The answer from their real estate team represented a ratio consistent with our current request, namely that they have 3,302 parking stalls for 660,400 square feet, or a ratio of 5 spots per 1,000 of office space.

Our current plan shows under 5:1,000 ratio (actual ratio of 4.96:1,000sf) even taking into account the higher use for events that is required by the Elks and is contemplated under the code for their use. We have utilized shared parking to address days where the Elks will exceed the 81 spaces required by Code, but any further reduction in overall parking would jeopardize the site's viability as an office park with the tenants who have expressed interest in moving to the site.

It is our hope that over time, through the adoption of our Transportation Management Plan, some of the alternatives to on-site parking may become more viable. However, it is likely that the user's change in transportation habits would result in a less than significant reduction in overall parking demand, and therefore it is hard for us as developers, and the end users/owners of the site to move forward with a project that is underserved by parking from the outset of the project, given that the land is available to support parking, we've gone to great lengths to shield the parking from view, and the proposed parking count is a less than 5% increase over what is currently on the site despite increasing the square footage by more than 25,000sf.

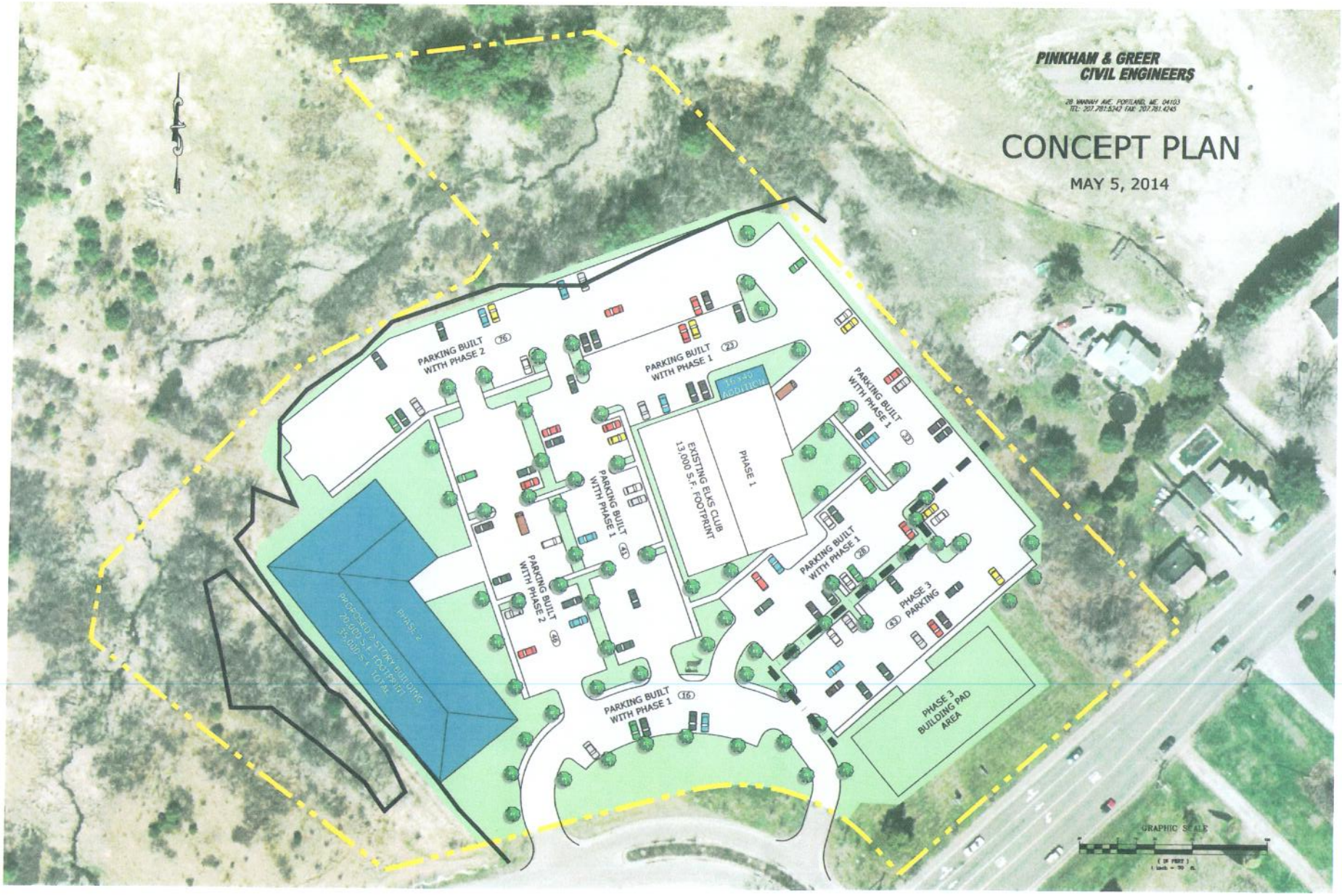
We thank you for your time and thorough consideration of our request.

Josh Benthien
Partner
Northland Enterprises

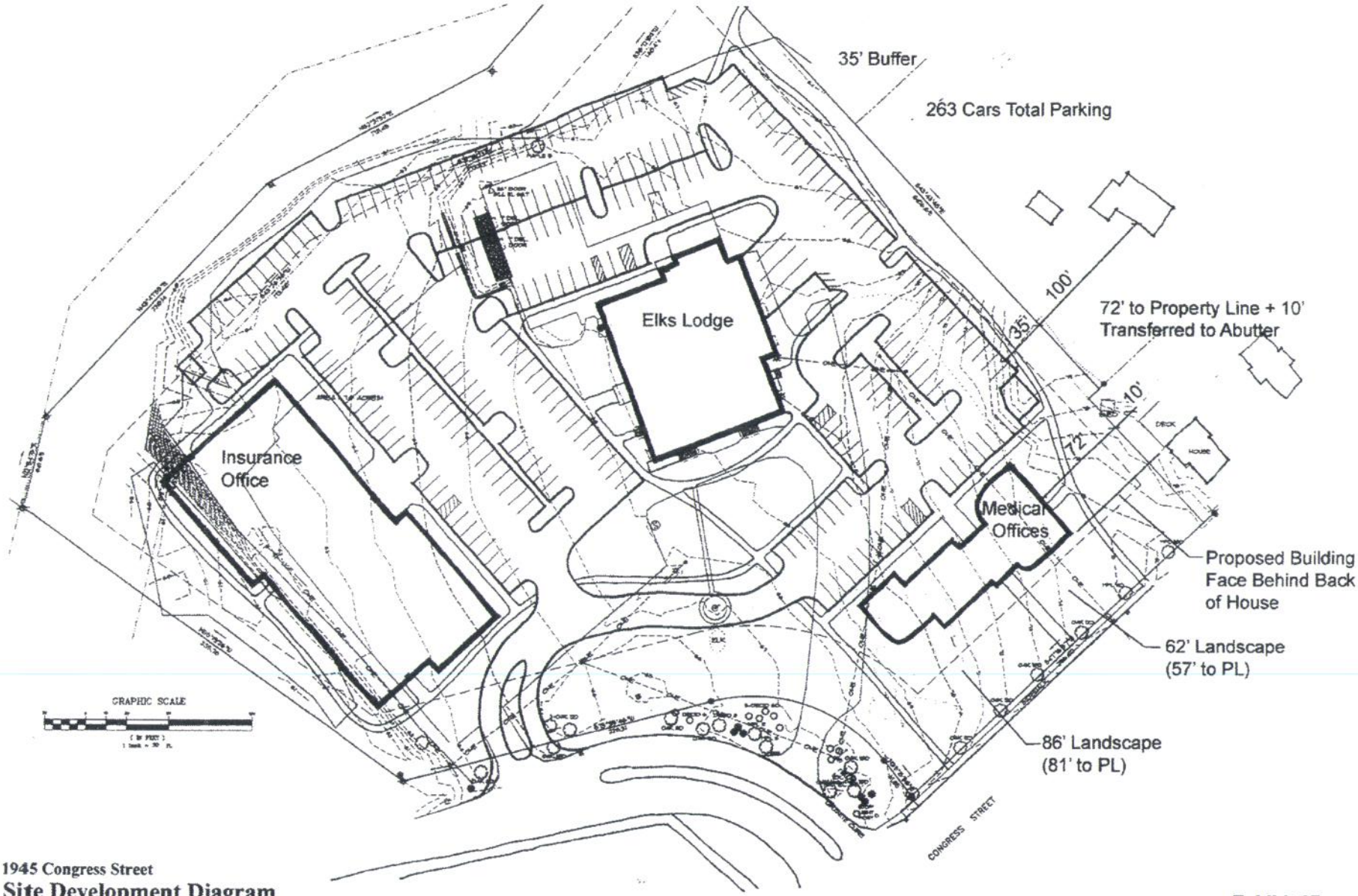
ATTACHMENT #1 - ORIG BUILDING SIZES WHICH WOULD REQUIRE 341 SPACES

ATTACHMENT #2

306 SPACES



ATTACHMENT #3.1 - MARCH 2016 263 SPACES



1945 Congress Street

Site Development Diagram

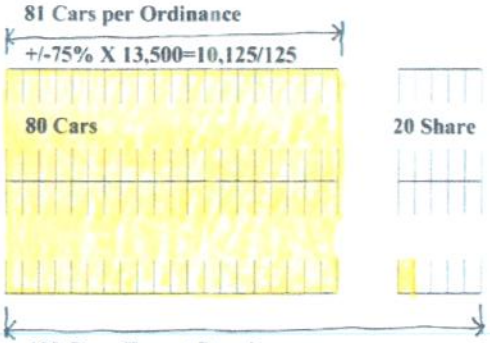
Northland Enterprises, LLC

Exhibit 17
March, 2016

ATTACHMENT 3.2 - JUNE 2016 (263 SPACES INCLUDING 30 ON PERVIOUS PAVERS)

ELKS LODGE

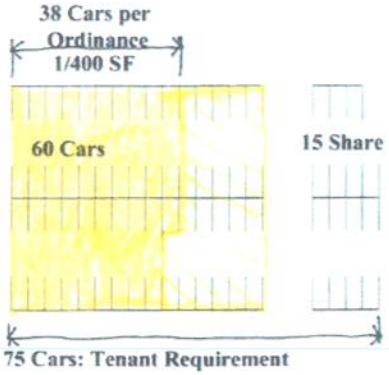
Existing Building



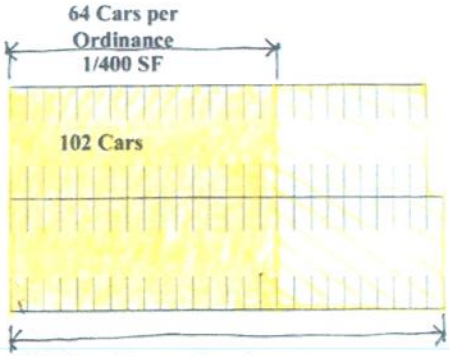
4 Bus Parking

MEDICAL OFFICE

Requires Visibility
From Congress St.



INSURANCE OFFICE



1945 Congress Street
Site Analysis: Parking
Northland Enterprises, LLC

Exhibit 16
March, 2016

ATTACHMENT #4

PR Newswire a CISION company (http://www.prnewswire.com/)

PRINT THIS

Office Space Per Worker Will Drop to 100 Square Feet or Below for Many Companies Within Five Years, According to New Research From CoreNet Global

Feb 28, 2012, 09:00 ET from CoreNet Global (http://www.prnewswire.com/news/corenet+global)

ATLANTA, Feb. 28, 2012 /PRNewswire/ -- New data released today from CoreNet Global show for the first time that for many companies, the average allocation of office space per person in North America will fall to 100 square feet or below within the next five years.

By 2017, at least 40% of the companies responding indicated they will reach this all-time low benchmark of individual space utilization, which has been the case in Europe for the past several years but is now heading for the Americas.

The average for all companies for square feet per worker in 2017 will be 151 square feet, compared to 176 square feet today, and 225 square feet in 2010.

"The main reason for the declines," said Richard Kadzis, CoreNet Global's Vice President of Strategic Communications, "is the huge increase in collaborative and team-oriented space inside a growing number of companies that are stressing 'smaller but smarter' workplaces against the backdrop of continuing economic uncertainty and cost containment."

CoreNet Global, which conducted the survey, is the worldwide association for corporate real estate and workplace professionals.

Today, just 24 percent of the respondents reported that the average space per office worker is 100 square feet or less; however, 40 percent reported that within five years, the average space per office worker would be 100 square feet or less.

It is clear that the amount of space dedicated solely to specific employees is steadily shrinking. A majority of the respondents, 55 percent, reported that square feet per worker has already decreased between 5 and 25 percent over the last five years.

"There are number of additional factors contributing to the decline in the amount of space per worker," said Kadzis. "More companies are adopting open floor plans in which employees do not have any permanently designated space at all; rather they use unassigned space when they are in the office, settings that often change daily. This trend is enabled by technology and by cost measures, as they require smaller foot prints."

CoreNet Global will continue to track this downward pressure on designated office space per worker over time.

The CoreNet Global benchmark survey was conducted in February 2012. More than 465 global managers of corporate real estate responded.

CoreNet Global is the world's leading association for corporate real estate (CRE) and workplace professionals, service providers, and economic developers. Our more than 7,000 members, who include 70% of the top 100 U.S. companies and nearly half of the Global 2000, meet locally, globally and virtually to develop networks, share knowledge, learn and thrive professionally.

CoreNet Global itself reduced its total office space and space per person by nearly 20% last year in a transformation of its downtown Atlanta headquarters.

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ATTACHMENT # 5

CCIM In: SEARCH
Commercial Real Estate's
Global Standard for Professional Achievement

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MEMBERS ONLY EDUCATION BECOMING A CCIM EVENTS

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OFFICE LEASING

How Much Space Do We Need?

Will shrinking footprints slow the office recovery?

By Norman G. Miller and Roger J. Brown, CCIM | May.Jun.13

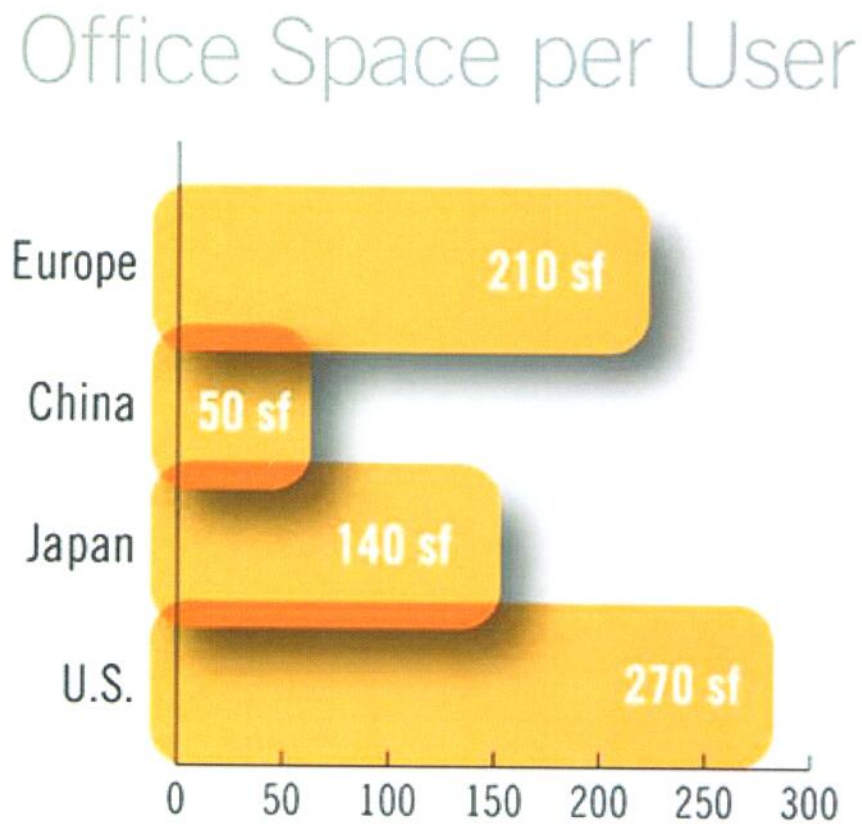
No company ever seems to have the right amount of office space. Firms grow and shrink throughout the years for many reasons; however, they must contract for space over a set lease term of five, 15, or even 20 years. Typically this situation results in about 20 percent to 25 percent more space per worker than the stated goals of space planners. So firms with a goal of 200 square feet per worker will likely

end up closer to 250 sf per worker.

Yet, in last year's CoreNet Global survey, corporate executives indicated they expect to reduce the amount of space they lease in the next five years to less than 100 sf of dedicated space per worker. Since the current average rentable building area in the U.S. is about 300 sf per worker, does this mean we have three times as much office space as needed?

Current Space Trends

Looking at square feet per worker on new leases, the U.S. national average in late 2012 was 185 sf per worker, according to CoStar lease data. This number reflects new leases in major markets and a fairly tight economic environment. Company executives do not want to lease too much excess space even though they may find current rental rates are attractive. Comparing utilized space by industry (see chart) reveals consistent differences that are reflective of an industry's compensation level and need for work space.



Source: World Business Council for Sustainable Development

As of 2013, on leases close to expiration, the average space per worker is often double the estimate for new leases. This makes sense, since companies can't downsize until leases expire. In soft economies we expect a fair amount of shadow space that is leased but not occupied. Since labor costs matter much more than occupancy costs, most tenants are able to honor their leases until they expire, so they pay for more space than they actually need. The extra space also provides a convenient option to expand and hire more workers without the need to move. So we expect to observe significant extra space in weaker economies, when rents seem to be bargains.

Future Space Needs

A survey conducted by the author suggests that everyone wants to use less space. Large firms, representing about a third of all office space

users, have increasingly moved toward more-standardized shared, or nondedicated, office space. Based on input from CoreNet Global members and CBRE tenants, tenants with footprints greater than 75,000 sf are working harder to use space more efficiently. This group tends to encourage digital storage on centralized cloud-based servers and use nondedicated standardized space for all but the most senior of managers. This group represents 1.8 percent of all U.S. tenants by count and 27.9 percent of all office space.

Those using more than 50,000 sf represent 36 percent of the total office stock. If, using some of the space-sharing strategies described above, 36 percent of the firms reduce their primary leased office footprint by 50 percent, moving from 250 sf to 125 sf, this would be the equivalent of 540 million sf out of some 12.25 billion office sf as of 2013. Historically this is equivalent to 3.6 years of average U.S. deliveries of net new office space to the market, which has averaged close to 150 million sf per year since 1983. At the same time we recognize that little space has been added from 2009 through 2012 and the office stock has actually shrunk due to increasing obsolescence. Absorption has been positive for the two years prior to the end of 2012.

Along with companies' higher space utilization rates, other factors are affecting future office space demand. The lack of new construction inhibits space use efficiency. Newer buildings allow for more-efficient use of space, especially when built for a particular tenant. But as the lease ages, the amount of space leased and the number of workers in the space generally changes, resulting in increased space per worker. As second-generation tenants replace first-generation tenants, it is often more difficult to use the space as efficiently. This is generally the case for most small firms that cannot, on their own, drive new supply in the market.

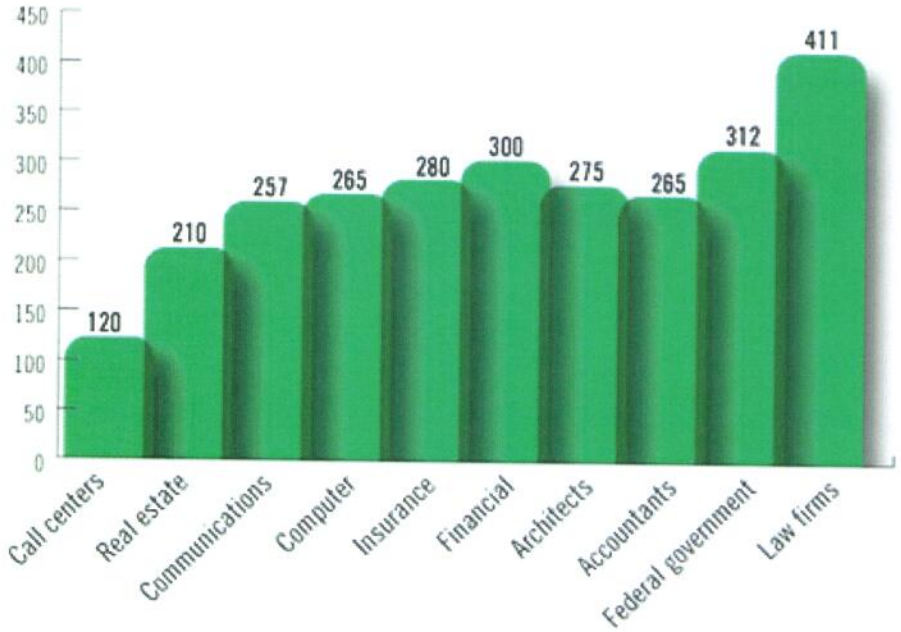
Looking at the global market, office space per worker is much less in Europe and Asia than in the U.S., suggesting some of U.S. demand is culturally based. Thus, as the U.S. companies are influenced by companies and employees from other countries, office configurations and work space allocations per worker may change. In addition, the increasing mobility of U.S. office workers who may work full or part-time from other locations, is causing companies to reconsider the need for dedicated office space for every employee.

Companies are also increasing the proportion of collaboration and team space in offices, along with more space devoted to amenities. These flexible spaces are offsetting some of the square footage lost to smaller dedicated work spaces. We are also witnessing an increasing trend toward greener office space with more natural light, better natural ventilation, and better temperature controls, all of which may add to the comfort and productivity of office workers.

Over a longer term, the average size of space leased has fallen by 21 percent during the past 10 years, according to a Property Portfolio Research September 2012 report. PPR also notes that green, transit-friendly space is increasingly in demand, suggesting that much of the existing space is obsolete and needs retrofitting. Those buildings that are able to bring in more natural light without extraordinary costs seem to offer the best opportunities for retrofitting.

Office Space per Worker by U.S. Industry

Median sf, mid-2012



Source: CoStar

Decreases in total office consumption based on more-flexible work location patterns and higher utilization rates are underway, but they take time. The total demand for space will grow at a slower pace for the next few decades, as firms decrease space allocated per employee, but there will be substantial demand for better interiors more adapted to the newer style of working.

Over the next several years we will likely see a large spread in the space required per worker from the most efficient space users to traditional space users, so estimating the average sf per worker will be a challenge. The most reasonable estimates presume a continual but slow reduction in space per worker. For now, 200 sf to 250 sf per worker is still a reasonable estimate for most traditional firms, but at the same time, 100 to 150 sf is closer to what some of the larger public

firms are now achieving.

Moving forward, we will see some firms achieve less than 100 sf per worker, but given the cultural impediments and the challenges of predicting growth rates, we are more likely to see figures average 150 sf to 185 sf per worker phasing slowly toward even lower figures at the end of the decade. This is a significant reduction is space per worker, but it parallels a need to retrofit much of the existing space to provide more collaborative team space and healthier, more productive environments.

At the end of the day, landlords are not selling space but rather productivity. More productive environments with better natural light, temperature and air controls, cleaner air and controllable noise are more productive and will command rental premiums.

Norman G. Miller is a professor at the Burnham-Moores Center for Real Estate at the University of San Diego. Contact him at nmiller@sandiego.edu. **Roger J. Brown, CCIM**, is executive scholar at the Burnham-Moores Center for Real Estate at the University of San Diego. Contact him at Rjb21@cox.net. The article is adapted from a longer paper, "Changing Trends in Office Space Requirements: Implication for Future Office Demand." Read the complete article along with other papers from the American Real Estate Society, or ARES, at the CCIM Foundation Library.

Space Utilization Factors

Hoteling. Not surprisingly, any firm that moves to an office hoteling strategy with standardized space for most workers will dramatically shrink its footprint and space per worker while increasing utilization rates — the percent of all work spaces occupied on average. Such a move can reduce space required by 35 percent or more and result in utilization rates of 90 percent or more versus the more typical 50

percent.

Turnover. Firms with low turnover rates — under 10 percent — have far higher utilization rates than firms with high churn rates around 35 percent. Time to fill a position also matters but less so than turnover. Only firms with a very stable workforce with little turnover and little need to expand or contract over the course of a lease term will ever hit space per worker or utilization rate targets.

Employee Age. Worker age matters with respect to the type of space required to attract and retain workers. Older workers are more likely to believe that office size matters and dedicated space is a signal of rank and success. Younger workers seem more willing to accept less dedicated space in exchange for a host of amenities and better working environments.

Parking. Higher utilization rates significantly increases the demand for parking space. Firms with high office utilization rates require as much as 100 percent more parking per 1,000 sf as traditional dedicated office space, unless they happen to be located at transit stops in a city with good public transport options.

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MALONE
Commercial and Investment Real Estate

Malone Commercial Brokers, Inc.
5 Moulton Street • Portland, ME 04101

Ph (207) 772-2422 • Fax (207) 774-5114
www.malonecb.com

July 14, 2016

Joseph Porta
CBRE|The Boulos Company
One Canal Plaza
Portland, ME 04101

RE: Letter of Intent to Lease - 622 Congress St., Portland, Maine

Dear Joe:

This Letter of Intent sets forth the terms and conditions under which Energy Circle (hereinafter referred to as "Tenant") is willing to enter into a lease agreement with Wayne Enterprises, LLC (hereinafter referred to as "Landlord") for space at the below-referenced building. This is not a complete statement of all terms and conditions of the proposed transaction but provides a basis for further negotiations. The terms being offered are as follows:

TENANT:	Energy Circle, LLC
LANDLORD:	Wayne Enterprises, LLC
PROPERTY:	622 Congress St., 3rd Floor (Exhibit A)
DEMISED PREMISES:	The demised premises shall be deemed to contain 4,820± RSF, consisting of the entire 3rd floor. In addition to the lease on the demised premises, the Landlord agrees to provide the Tenant an option to lease the remaining 2,094+/- SF on 2nd floor, adjacent to Puelle Design (as shown on Exhibit B), for 6 months after taking occupancy to the 3rd floor space. If, after the 6 months, the Tenant is undecided on taking the additional space, the Landlord will extend the option to lease the remaining 2nd floor space, for additional months 6 months. In exchange for the additional 6 month option, the Tenant shall pay the Landlord the pro-rata share of Real Estate taxes and CAMs for the 2,094+/- SF space, along with any utilities.
LEASE TERM AND RENEWAL OPTION(S):	Five (5) year initial term, with 1 (five), 5-year renewal option with a 6 month prior written notification.

RENT: NNN rent shall be as outlined below.

YEAR	ANNUAL	MONTHLY	PSF
1-5	$48,200.00	$4,016.67	$10.00
***6-10**	$57,840.00 *Option term	$4,820.00	$11.00

LEASE OCCUPANCY: October 1, 2016

RENT COMMENCEMENT: November 1, 2016

REAL ESTATE TAXES: Tenant is responsible for paying its pro-rata share of all real estate taxes.

COMMON AREA MAINTENANCE CHARGES (CAM): CAM charges to include but not necessarily limited to: Water and Sewer, Building, Maintenance and Cleaning, Snow Removal, Grounds Maintenance, Real Estate Insurance, Common Area Utilities and Property Management Fees.

Tenant is responsible for paying its pro-rata share of all CAM charges. Landlord to present Tenant with an acceptable and detailed CAM budget prior to Lease signing.

ELECTRICITY: Tenant shall pay electricity costs for lights and outlets directly to utility company.

CLEANING: Tenant responsible for its interior space. Common areas are Landlord's responsibility.

SIGNAGE: Landlord shall make space available for Tenant signage on building exterior, building directory, suite). Tenant shall be responsible for all costs associated with exterior signage.

All of Tenant's signage shall be subject to Landlord's written approval, which shall not be unreasonably withheld or delayed. Tenant shall be responsible for ensuring all proposed signage is in accordance with all local and state ordinances.

PARKING: 20 spaces are to be allocated between Puelle Design and Energy Circle between the hours of 7 am to 6 pm Monday –Friday and up to 5 spaces between 7am and 6 pm on the weekends

TOO MUCH

MALONE

USE: The demised premises shall be used for general office.

TENANT'S RESPONSIBILITY: Any and all plans or modifications to the building by Tenant or Tenant's contractor must be submitted to Landlord for its approval, which shall not be unreasonably withheld or delayed. Landlord shall be deemed to own all leasehold improvements upon termination of the Lease. At the end of the Lease term, Tenant shall remove all trade fixtures.

LANDLORD'S RESPONSIBILITY: Landlord renovations shall generally include a "creative office" buildout, in a layout as generally shown on Exhibit "A." Said buildout shall be of quality commercial grade finishes, with the understanding exact fit and finish to be mutually agreed upon with the goal of providing a unique and creative office space while collaborating to keep costs within a budget. Generally the work shall include:

1) Floors: Commercial carpet in office and vinyl in kitchen and baths. Refinish hardwood floors where practical.
2) Walls: Sheetrock, primed and painted with up to 3 paint colors, of the Tenant's choice. Some offices/rooms to include glass openings. Meeting/Conference rooms to include areas of whiteboard and homasote (TBD).
3) Kitchenette: Natural Birch cabinets. Sink with disposal and refrigerator.
4) Ceilings: Open exposed ceilings and reuse of the existing tin ceilings (painted white), where possible. Acoustic tile ceilings to be used where needed to keep costs down and/or to hide defects or equipment.
5) Lighting: LED Troughers where acoustic ceilings and LED Lanyard hung fixtures in open ceiling areas.
6) HVAC: Spiral ducted central HVAC or ductless system depending on specification.
7) Doors: Solid Core with clear light and Natural Birch finish and commercial hardware.
8) New windows: where possible, new exterior windows to be added.
9) Life safety compliance

The above description and attached Exhibits are only a

general representation of the scope of Landlord work. The Landlord and Tenant shall work together, with the Landlord's Architect, to arrive at a mutually acceptable final plan and specification prior to Lease signing.

SUBLEASE AND ASSIGNMENT: Tenant shall be permitted to assign or sublease premises with prior written approval from Landlord, which shall not be unreasonably withheld. Detail

REPAIRS: Landlord will repair and maintain the roof, structure and mechanical systems put in place by the Landlord.

CREDIT CHECK: The execution of this Letter of Intent by Landlord is subject to Landlord's review and approval of Tenant's credit references and financial statements.

ZONING: It is the responsibility of Tenant to determine all zoning information and secure all necessary or required permits and approvals for its proposed use of the subject premises. Landlord and Malone Commercial Brokers make no representations or warranties as to the suitability of, or the ability to obtain regulatory approval for, the subject premises for Tenant's intended use.

BROKERAGE COMMISSIONS: Malone Commercial Brokers shall be paid a leasing commission from Landlord for this transaction in the amount of 5% of the total NNN rent. Payment shall be made to Malone Commercial Brokers at the time of lease execution. 2.5%

BINDING EFFECT: This Letter is intended to be confirmation of interest between the parties in pursuing negotiations for a definitive agreement based on the terms hereof and, shall not constitute a binding agreement between the parties hereto. No agreement shall be binding unless and until each party has reviewed and approved (in its sole discretion) a definitive written agreement incorporating all the terms, conditions, and obligations of the parties, and has duly executed and delivered such agreement.

DEFINITIVE AGREEMENT: Upon execution of this Letter of Intent, Landlord will cause its counsel to prepare the initial draft of a definitive lease agreement and the parties will then attempt to negotiate and execute a binding agreement within fourteen (14) days of Tenant's execution of this Letter of

Intent. Neither party has an obligation to negotiate or conclude the business arrangement of this Letter. Each party acknowledges that it will not take any action or refrain from taking action in reliance on this Letter, and any such reliance would be at its own risk.

MISCELLANEOUS:

1) This lease is contingent upon a concurrent lease signing with Puelle Design within the building.
2) Landlord agrees to work with Tenant on a short term lease for available space on the 1st floor or basement, during tenant build out, at mutually agreeable lease rate TBD.

OFFER EXPIRATION: This Letter of Intent will expire on July 15, 2016 at 5:00 p.m. if not executed by Landlord and Tenant prior to then.

Sincerely,

Mark Malone, CCIM
Broker
Malone Commercial Brokers

SEEN AND AGREED TO BY:

_____(LANDLORD)
BY:
ITS:

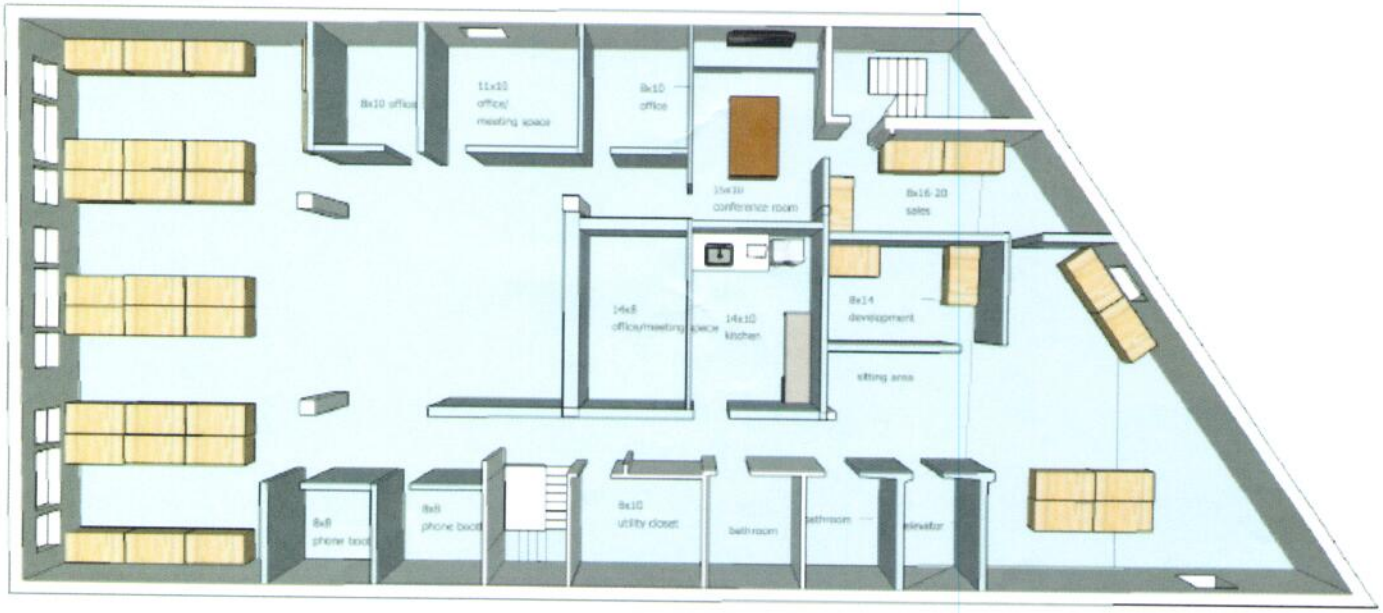
_____
Date

_____(TENANT)
BY:
ITS:

_____
Date

MALONE

Exhibit A



MALONE

Exhibit B

MALONE

OVERVIEW OF ELKS DEVELOPMENT CONDOMINIUM DOCUMENTS

'GATEWAY BUSINESS PARK CONDOMINIUM'

The Condominium will have three (3) units, one each for the Elks lot, the medical building lot, and the general office building lot (Clark Insurance). Each unit is comprised of the plot of land on which the existing building (Elks) or buildings to be constructed will be situated, as will be identified on the Condo Plat. The rest of the property will be common space (including limited common element parking spaces). Each unit owner will have the right to construct and maintain a building on its lot. The respective unit owners shall have the entire responsibility for any building existing or to be constructed on a lot, including payment of real estate taxes, building and casualty insurance, and maintenance of the building (including exterior and structural) on the lot.

Each unit shall have a pro-rata share of parking spaces allocated to it as a limited common element. The number and location of the limited common parking spaces for each unit is still to be determined. It is anticipated that there will be some parking spaces available in common on a first come, first served basis.

The Condominium Association will be governed by a three (3) member Executive Board, each representing one of the 3 units. The Executive Board shall have all powers necessary for administration of Condominium business and enforcement of the Declaration provisions and Condominium rules and regulations. The Condominium Association is responsible for care and maintenance of the common areas of the property. The common areas will include the buffer zones required by the City of Portland bordering the neighboring property. Common expenses of the condominium shall be limited to upkeep and maintenance and landscaping of the common areas, including the buffer zones; common area insurance; maintenance of the parking lot; common area lighting; storm water management and common area signage. The Association is not responsible for any building or improvement located within the unit lots, although the Executive Board must approve the location and design of all buildings and improvements to be constructed on a lot.

July 19, 2016

S:\N\NTHL26\Docs for July 2016 City Submission\Condo overview for City submiission.docx

Att. L

Stormwater Management Report
1945 Congress Street
Portland, Maine

July 11, 2016

Prepared By:

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

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PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

STORMWATER MANAGEMENT REPORT
1945 CONGRESS STREET
PORTLAND, MAINE

July 11, 2016

Project Description:

This project is the redevelopment of the Elks Club site. The site development will include the construction of two new buildings, and renovation of the existing Elks Club building. The existing impervious area is 118,451sq. ft. and with the new configuration; the developed area will be 167,395 sq. ft. on the 6.99 acre parcel.

Topography and Soils:

This site slopes from the south along Congress Street down to a small stream on the northerly border, elevation 76 to elevation 45. Much of the drop is along the back edge of the existing developed site, elevations 65 to 45. Much of the site is developed with slopes in the 2% to 3% range.

The soils on site have been reworked with the development of the Elk's building and would be considered manmade. The back of the site has been filled.

Alteration of Land Cover:

The site will be altered. The overall grading will remain much the same as the existing building will be renovated. The front of the site will have a new building along Congress Street and the west side of the site will have some fill for the construction of the office building. The same general flow of surface water will occur.

Alteration of Drainage Ways:

Currently the site sheet drains to the west and north discharging to the UNUM boundary lines. A small section of drainage along Congress Street is captured in a storm drain system and discharged westerly. This will remain.

The majority of the drainage from the developed site will be captured in a storm drain system and conveyed to the northerly end of the site. Overall, the drainage will remain similar to the existing drainage.

Methodology:

This stormwater analysis was performed using HydroCad Software based on TR-55 modeling conditions. This model requires assumptions as to the land cover, slopes and soils. These are enhanced by the topography mapping, soils mapping, and on-site observations. The flows were determined using a Type III coastal storm and rainfall totals for the 24 hour period for a 1 year storm, 2.5", for a 2 year storm, 3.0", for a 10 year storm, 4.7", and for a 25 year storm, 5.5". These data are published in the manual for Stormwater Management for Maine: Best Management Practices, published by the Maine Department of Environmental Protection.

Stormwater Quantity:

The increase in impervious area from 118,451 sq. ft. to 167,395 sq. ft. will increase peak flows. To mitigate the increase a storage system of 48" diameter pipes will be installed under the pavement. The volume of the pipes will hold the water quality volume for the site and reduce peak flows.

Below is a chart showing the existing peak flows and the projected peak flows.

Peak Flows Cubic Feet Per Second (cfs)					
		1 Year	2 Year	10 Year	25 Year
POA #1	Existing	1.18	1.76	3.95	5.06
	Developed	1.08	1.50	3.06	3.85
POA #2	Existing	5.20	6.93	13.01	15.92
	Developed	1.04	4.03	12.37	14.59

As can be seen in the chart, the storage system makes a bigger impact on the smaller storms which occur more frequently.

Stormwater Quality:

The site will use a Jellyfish System to filter the stormwater before it discharges. The system is sized to treat the runoff from the majority of the site The pipe storage system will capture the first 1" of runoff from the building roofs and paved areas and filter through the system in 24 to 48 hours. The rate of filtration is approximately 0.15 cfs. This meets the DEP Standards in Chapter 500.

Flows in excess of the 1 year storm will be discharged to the level spreader at the back of the site.

Conclusion:

In my opinion, this project, developed as proposed, will not negatively impact surface water quantity and quality.

The Jellyfish System will meet the treatment standards of Chapter 500 creating an environmentally sound site.

STATE OF MAINE
THOMAS S.
GREER
No. 4205
LICENSED
PROFESSIONAL ENGINEER

Thomas S. Greer, P.E.
7/11/16

GENERAL STANDARD CALCULATIONS

1945 Congress Street, Portland, ME

July 11, 2016

TABLE 1: AREAS TREATED FOR COMPLIANCE WITH THE GENERAL STANDARDS

Subcatchment	*Treated Landscape Area (SF)*	*Untreated Landscape Area (SF)*	*Treated Impervious Area (SF)*	*Untreated Impervious Area (SF)*	*Undisturbed Area (SF)*	*Stormwater Treatment Device*
10S	3,384		29,213			JELLYFISH
11S	9,566		26,257			JELLYFISH
12S	2,006		11,287			JELLYFISH
13S	4,165		11,304			JELLYFISH
14S	13,179		11,441			JELLYFISH
15S	2,734		7,063			JELLYFISH
16S	5,138		17,991			JELLYFISH
17S	810		7,542			JELLYFISH
20S		43,294		1,512		
21S			7,882			JELLYFISH
30S				23,669		
31S		350		4,297		
Outside Analysis				2,537		
Total Area	40,982	43,644	129,980	32,015	0	

TABLE 2: TOTAL AREAS TREATED

Total Developed Area:	246,621 SF	
Total Treated Area:	170,962 SF =	**69.3%**

TABLE 3: IMPERVIOUS TREATED

Treatment Required:	60% of Impervious Area	
Total Impervious Area:	161,995 SF	
Impervious Area Treated:	129,980 SF =	**80.2%**

APPENDIX A

PRECIPITATION VALUES, ROUGHNESS COEFFICIENTS

Table 2-1
24 Hour Duration Rainfalls for Various Return Periods
Natural Resources Conservation Service County Rainfall Data

County	Storm Type	Return Interval or Frequency 1-Yr	2-Yr	5-Yr	10-Yr	25-Yr	100-Yr	500-Yr	Annual	
Androscoggin		2.5	3.0	3.9	4.6	5.4	6.5	7.8	45.3	
Aroostook C		2.1	2.1	3.2	3.6	4.2	5.0	5.9	36.1	(Presque Isle Area)
Aroostook N	S	2.0	2.3	3.0	3.5	4.0	4.8	5.7	36.1	(Fort Kent Area)
Aroostook S	E	2.2	2.5	3.3	3.8	4.4	5.3	6.4	39.0	(Houlton Area)
Cumberland NW	E	2.8	3.3	4.3	5.0	5.8	6.9	8.3	43.4	(NW of St. Route 11)
Cumberland SE		2.5	3.0	4.0	4.7	5.5	6.7	8.1	44.4	(SE of St. Route 11)
Franklin	N	2.4	2.9	3.7	4.2	4.9	5.9	7.0	45.6	
Hancock	O	2.4	2.7	3.6	4.2	4.9	6.0	7.2	45.2	
Kennebec	T	2.4	3.0	3.8	4.4	5.1	6.1	7.2	41.7	
Knox-Lincoln	E	2.5	2.9	3.8	4.4	5.1	6.2	7.4	46.1	
Oxford E	S	2.5	3.0	4.0	4.6	5.3	6.4	7.6	43.0	(E of St. Route 26)
Oxford W		3.0	3.5	4.5	5.2	6.0	7.1	8.4	43.8	(W of St. Route 26)
Penobscot N	1	2.2	2.5	3.3	3.8	4.4	5.4	6.4	41.5	(N of Can. -Atl. Rwy)
Penobscot S		2.4	2.7	3.5	4.1	4.8	5.8	6.9	39.5	(S of Can. -Atl. Rwy)
Piscataquis N		2.2	2.5	3.3	3.8	4.4	5.3	6.3	38.5	(N of Can. - Atl. Rwy)
Piscataquis S	A	2.3	2.6	3.4	4.0	4.6	5.5	6.6	41.0	(S of Can. - Atl. Rwy)
Sagadahoc	N	2.5	3.0	3.9	4.6	5.4	6.5	7.8	45.3	
Somerset N	D	2.2	2.5	3.3	3.8	4.4	5.3	6.3	37.3	(N of Can. - Atl. Rwy)
Somerset S		2.4	2.7	3.5	4.1	4.7	5.7	6.8	39.5	(S of Can. - Atl. Rwy)
Waldo	2	2.5	2.8	3.7	4.3	4.9	6.0	7.1	47.2	
Washington		2.4	2.5	3.4	4.0	4.8	5.9	7.1	44.2	
York		2.5	3.0	4.0	4.6	5.4	6.6	7.8	46.7	

NOTES: REVISED 4/10/92 Lew P. Crosby
24-HR DURATION RAINFALL

SOURCES: 24-HR. DATA - TP 40
ANNUAL DATA - CDAN

Note 1: [1]Use *Type II* for Oxford County (with the exception of towns listed below) and Penobscot County (with the exception of towns listed below) and all Main counties not listed below)

Note 2: [2]Use *Type III* for York, Cumberland, Androscoggin, Sagadahoc, Kennebec, Waldo, Knox, Piscataquis, Somerset, Franklin, Aroostook, Lincoln, Hancock, Washington Counties; the following Oxford County Towns: Porter, Brownfield, Hiram, Denmark, Oxford, Hebron, Buckfield and Hartford; and the following Penobscot County Towns: Dixmont, Newburgh, Hampden, Bangor, Veazie, Orono, Bradley, Clifton, Eddington, Holden, Brewer, Orrington, Plymouth, Etna, Carmel, Hermon, Glenburn, Old Town, Milford and Greenfield.

VALUES OF THE ROUGHNESS COEFFICIENT n
(Boldface figures are values generally recommended in design)

Type of channel and description	Minimum	Normal	Maximum
A. CLOSED CONDUITS FLOWING PARTLY FULL			
A-1. Metal			
a. Brass, smooth	0.009	0.010	0.013
b. Steel			
1. Lockbar and welded	0.010	0.012	0.014
2. Riveted and spiral	0.013	0.016	0.017
c. Cast iron			
1. Coated	0.010	0.013	0.014
2. Uncoated	0.011	0.014	0.016
d. Wrought iron			
1. Black	0.012	0.014	0.015
2. Galvanized	0.013	0.016	0.017
e. Corrugated metal			
1. Subdrain	0.017	0.019	0.021
2. Storm drain	0.021	0.024	0.030
A-2. Nonmetal			
a. Lucite	0.008	0.009	0.010
b. Glass	0.009	0.010	0.013
c. Cement			
1. Neat, surface	0.010	0.011	0.013
2. Mortar	0.011	0.013	0.015
d. Concrete			
1. Culvert, straight and free of debris	0.010	0.011	0.013
2. Culvert with bends, connections, and some debris	0.011	0.013	0.014
3. Finished	0.011	0.012	0.014
4. Sewer with manholes, inlet, etc., straight	0.013	0.015	0.017
5. Unfinished, steel form	0.012	0.013	0.014
6. Unfinished, smooth wood form	0.012	0.014	0.016
7. Unfinished, rough wood form	0.015	0.017	0.020
e. Wood			
1. Stave	0.010	0.012	0.014
2. Laminated, treated	0.015	0.017	0.020
f. Clay			
1. Common drainage tile	0.011	0.013	0.017
2. Vitrified sewer	0.011	0.014	0.017
3. Vitrified sewer with manholes, inlet, etc.	0.013	0.015	0.017
4. Vitrified subdrain with open joint	0.014	0.016	0.018
g. Brickwork			
1. Glazed	0.011	0.013	0.015
2. Lined with cement mortar	0.012	0.015	0.017
h. Sanitary sewers coated with sewage slimes, with bends and connections	0.012	0.013	0.016
i. Paved invert, sewer, smooth bottom	0.016	0.019	0.020
j. Rubble masonry, cemented	0.018	0.025	0.030

VALUES OF THE ROUGHNESS COEFFICIENT n (*continued*)

Type of channel and description	Minimum	Normal	Maximum
B. LINED OR BUILT-UP CHANNELS			
B-1. Metal			
a. Smooth steel surface			
1. Unpainted	0.011	0.012	0.014
2. Painted	0.012	0.013	0.017
b. Corrugated	0.021	0.025	0.030
B-2. Nonmetal			
a. Cement			
1. Neat, surface	0.010	0.011	0.013
2. Mortar	0.011	0.013	0.015
b. Wood			
1. Planed, untreated	0.010	0.012	0.014
2. Planed, creosoted	0.011	0.012	0.015
3. Unplaned	0.011	0.013	0.015
4. Plank with battens	0.012	0.015	0.018
5. Lined with roofing paper	0.010	0.014	0.017
c. Concrete			
1. Trowel finish	0.011	0.013	0.015
2. Float finish	0.013	0.015	0.016
3. Finished, with gravel on bottom	0.015	0.017	0.020
4. Unfinished	0.014	0.017	0.020
5. Gunite, good section	0.016	0.019	0.023
6. Gunite, wavy section	0.018	0.022	0.025
7. On good excavated rock	0.017	0.020	
8. On irregular excavated rock	0.022	0.027	
d. Concrete bottom float finished with sides of			
1. Dressed stone in mortar	0.015	0.017	0.020
2. Random stone in mortar	0.017	0.020	0.024
3. Cement rubble masonry, plastered	0.016	0.020	0.024
4. Cement rubble masonry	0.020	0.025	0.030
5. Dry rubble or riprap	0.020	0.030	0.035
e. Gravel bottom with sides of			
1. Formed concrete	0.017	0.020	0.025
2. Random stone in mortar	0.020	0.023	0.026
3. Dry rubble or riprap	0.023	0.033	0.036
f. Brick			
1. Glazed	0.011	0.013	0.015
2. In cement mortar	0.012	0.015	0.018
g. Masonry			
1. Cemented rubble	0.017	0.025	0.030
2. Dry rubble	0.023	0.032	0.035
h. Dressed ashlar	0.013	0.015	0.017
i. Asphalt			
1. Smooth	0.013	0.013	
2. Rough	0.016	0.016	
j. Vegetal lining	0.030	.....	0.500

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VALUES OF THE ROUGHNESS COEFFICIENT n (*continued*)

Type of channel and description	Minimum	Normal	Maximum
C. EXCAVATED OR DREDGED			
a. Earth, straight and uniform			
1. Clean, recently completed	0.016	0.018	0.020
2. Clean, after weathering	0.018	0.022	0.025
3. Gravel, uniform section, clean	0.022	0.025	0.030
4. With short grass, few weeds	0.022	0.027	0.033
b. Earth, winding and sluggish			
1. No vegetation	0.023	0.025	0.030
2. Grass, some weeds	0.025	0.030	0.033
3. Dense weeds or aquatic plants in deep channels	0.030	0.035	0.040
4. Earth bottom and rubble sides	0.028	0.030	0.035
5. Stony bottom and weedy banks	0.025	0.035	0.040
6. Cobble bottom and clean sides	0.030	0.040	0.050
c. Dragline-excavated or dredged			
1. No vegetation	0.025	0.028	0.033
2. Light brush on banks	0.035	0.050	0.060
d. Rock cuts			
1. Smooth and uniform	0.025	0.035	0.040
2. Jagged and irregular	0.035	0.040	0.050
e. Channels not maintained, weeds and brush uncut			
1. Dense weeds, high as flow depth	0.050	0.080	0.120
2. Clean bottom, brush on sides	0.040	0.050	0.080
3. Same, highest stage of flow	0.045	0.070	0.110
4. Dense brush, high stage	0.080	0.100	0.140
D. NATURAL STREAMS			
D-1. Minor streams (top width at flood stage <100 ft)			
a. Streams on plain			
1. Clean, straight, full stage, no rifts or deep pools	0.025	0.030	0.033
2. Same as above, but more stones and weeds	0.030	0.035	0.040
3. Clean, winding, some pools and shoals	0.033	0.040	0.045
4. Same as above, but some weeds and stones	0.035	0.045	0.050
5. Same as above, lower stages, more ineffective slopes and sections	0.040	0.048	0.055
6. Same as 4, but more stones	0.045	0.050	0.060
7. Sluggish reaches, weedy, deep pools	0.050	0.070	0.080
8. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.075	0.100	0.150

VALUES OF THE ROUGHNESS COEFFICIENT n (*continued*)

Type of channel and description	Minimum	Normal	Maximum
b. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages			
1. Bottom: gravels, cobbles, and few boulders	0.030	0.040	0.050
2. Bottom: cobbles with large boulders	0.040	0.050	0.070
D-2. Flood plains			
a. Pasture, no brush			
1. Short grass	0.025	0.030	0.035
2. High grass	0.030	0.035	0.050
b. Cultivated areas			
1. No crop	0.020	0.030	0.040
2. Mature row crops	0.025	0.035	0.045
3. Mature field crops	0.030	0.040	0.050
c. Brush			
1. Scattered brush, heavy weeds	0.035	0.050	0.070
2. Light brush and trees, in winter	0.035	0.050	0.060
3. Light brush and trees, in summer	0.040	0.060	0.080
4. Medium to dense brush, in winter	0.045	0.070	0.110
5. Medium to dense brush, in summer	0.070	0.100	0.160
d. Trees			
1. Dense willows, summer, straight	0.110	0.150	0.200
2. Cleared land with tree stumps, no sprouts	0.030	0.040	0.050
3. Same as above, but with heavy growth of sprouts	0.050	0.060	0.080
4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches	0.080	0.100	0.120
5. Same as above, but with flood stage reaching branches	0.100	0.120	0.160
D-3. Major streams (top width at flood stage >100 ft). The n value is less than that for minor streams of similar description, because banks offer less effective resistance.			
a. Regular section with no boulders or brush	0.025	.....	0.060
b. Irregular and rough section	0.035	.....	0.100

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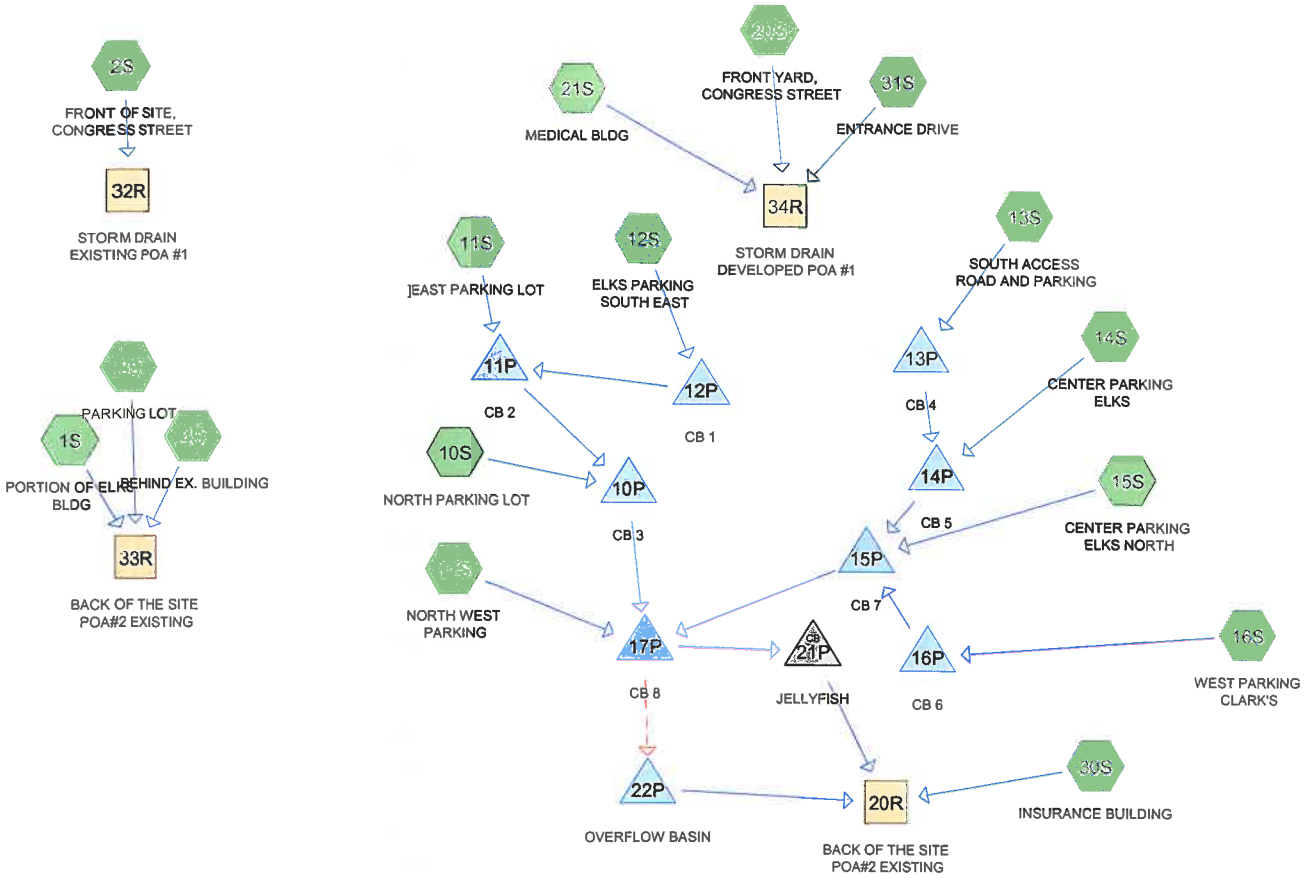
APPENDIX B

HYDROCAD CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for 13151 ELKS CLUB
Prepared by Hewlett-Packard Company, Printed 7/11/2016
HydroCAD® 10.00-16 s/n 01454 © 2015 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PORTION OF ELKS Runoff Area=10,103 sf 100.00% Impervious Runoff Depth>2.13"
Tc=15.0 min CN=98 Runoff=0.42 cfs 1,792 cf

Subcatchment 2S: FRONT OF SITE, Runoff Area=79,313 sf 15.15% Impervious Runoff Depth>0.71"
Tc=15.0 min CN=78 Runoff=1.19 cfs 4,724 cf

Subcatchment 3S: PARKING LOT Runoff Area=119,698 sf 58.59% Impervious Runoff Depth>1.28"
Tc=15.0 min CN=88 Runoff=3.35 cfs 12,809 cf

Subcatchment 4S: BEHIND EX. BUILDING Runoff Area=72,465 sf 13.62% Impervious Runoff Depth>0.91"
Tc=15.0 min CN=82 Runoff=1.43 cfs 5,525 cf

Subcatchment 10S: NORTH PARKING LOT Runoff Area=32,597 sf 89.62% Impervious Runoff Depth>1.94"
Flow Length=125' Slope=0.0250 '/' Tc=15.0 min CN=96 Runoff=1.30 cfs 5,281 cf

Subcatchment 11S:]EAST PARKING LOT Runoff Area=41,223 sf 76.79% Impervious Runoff Depth>1.67"
Tc=15.0 min CN=93 Runoff=1.47 cfs 5,744 cf

Subcatchment 12S: ELKS PARKING Runoff Area=13,293 sf 84.91% Impervious Runoff Depth>1.85"
Tc=15.0 min CN=95 Runoff=0.51 cfs 2,051 cf

Subcatchment 13S: SOUTH ACCESS Runoff Area=15,469 sf 73.08% Impervious Runoff Depth>1.59"
Tc=15.0 min CN=92 Runoff=0.53 cfs 2,047 cf

Subcatchment 14S: CENTER PARKING Runoff Area=24,620 sf 46.47% Impervious Runoff Depth>1.15"
Tc=15.0 min CN=86 Runoff=0.62 cfs 2,361 cf

Subcatchment 15S: CENTER PARKING Runoff Area=9,797 sf 72.09% Impervious Runoff Depth>1.59"
Tc=15.0 min CN=92 Runoff=0.33 cfs 1,296 cf

Subcatchment 16S: WEST PARKING Runoff Area=23,129 sf 77.79% Impervious Runoff Depth>1.67"
Tc=15.0 min CN=93 Runoff=0.82 cfs 3,223 cf

Subcatchment 17S: NORTH WEST PARKING Runoff Area=8,352 sf 90.30% Impervious Runoff Depth>1.94"
Tc=15.0 min CN=96 Runoff=0.33 cfs 1,353 cf

Subcatchment 20S: FRONT YARD, Runoff Area=44,806 sf 3.37% Impervious Runoff Depth>0.63"
Tc=15.0 min CN=76 Runoff=0.57 cfs 2,339 cf

Subcatchment 21S: MEDICAL BLDG Runoff Area=7,882 sf 100.00% Impervious Runoff Depth>2.13"
Tc=15.0 min CN=98 Runoff=0.33 cfs 1,398 cf

Subcatchment 30S: INSURANCE Runoff Area=23,669 sf 100.00% Impervious Runoff Depth>2.13"
Tc=15.0 min CN=98 Runoff=0.99 cfs 4,198 cf

Subcatchment 31S: ENTRANCE DRIVE Runoff Area=4,647 sf 92.47% Impervious Runoff Depth>1.94"
Tc=15.0 min CN=96 Runoff=0.19 cfs 753 cf

Reach 20R: BACK OF THE SITE POA#2 Avg. Flow Depth=0.10' Max Vel=0.88 fps Inflow=1.04 cfs 12,183 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=1.04 cfs 12,177 cf

Reach 32R: STORM DRAIN EXISTING Avg. Flow Depth=0.32' Max Vel=5.53 fps Inflow=1.19 cfs 4,724 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.18 cfs 4,724 cf

Reach 33R: BACK OF THE SITE POA#2 Avg. Flow Depth=0.25' Max Vel=1.62 fps Inflow=5.21 cfs 20,127 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=5.20 cfs 20,122 cf

Reach 34R: STORM DRAIN Avg. Flow Depth=0.30' Max Vel=5.40 fps Inflow=1.08 cfs 4,490 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.08 cfs 4,489 cf

Pond 10P: CB 3 Peak Elev=61.81' Storage=13 cf Inflow=3.28 cfs 13,075 cf
18.0" Round Culvert n=0.010 L=60.0' S=0.0033 '/' Outflow=3.28 cfs 13,074 cf

Pond 11P: CB 2 Peak Elev=64.58' Storage=10 cf Inflow=1.98 cfs 7,795 cf
12.0" Round Culvert n=0.010 L=250.0' S=0.0100 '/' Outflow=1.98 cfs 7,794 cf

Pond 12P: CB 1 Peak Elev=66.09' Storage=0 cf Inflow=0.51 cfs 2,051 cf
12.0" Round Culvert n=0.010 L=166.0' S=0.0100 '/' Outflow=0.51 cfs 2,051 cf

Pond 13P: CB 4 Peak Elev=64.44' Storage=5 cf Inflow=0.53 cfs 2,047 cf
12.0" Round Culvert n=0.010 L=200.0' S=0.0100 '/' Outflow=0.53 cfs 2,046 cf

Pond 14P: CB 5 Peak Elev=62.54' Storage=7 cf Inflow=1.15 cfs 4,407 cf
12.0" Round Culvert n=0.010 L=86.0' S=0.0158 '/' Outflow=1.15 cfs 4,406 cf

Pond 15P: CB 7 Peak Elev=61.49' Storage=11 cf Inflow=2.30 cfs 8,924 cf
12.0" Round Culvert n=0.010 L=56.0' S=0.0200 '/' Outflow=2.30 cfs 8,923 cf

Pond 16P: CB 6 Peak Elev=61.74' Storage=7 cf Inflow=0.82 cfs 3,223 cf
12.0" Round Culvert n=0.010 L=10.0' S=0.0100 '/' Outflow=0.82 cfs 3,222 cf

Pond 17P: CB 8 Peak Elev=62.46' Storage=15,349 cf Inflow=5.91 cfs 23,350 cf
Primary=0.11 cfs 3,069 cf Secondary=1.21 cfs 4,936 cf Outflow=1.33 cfs 8,005 cf

Pond 21P: JELLYFISH Peak Elev=66.61' Inflow=0.11 cfs 3,069 cf
Outflow=0.11 cfs 3,069 cf

Pond 22P: OVERFLOW BASIN Peak Elev=58.35' Storage=215 cf Inflow=1.21 cfs 4,936 cf
18.0" Round Culvert n=0.010 L=100.0' S=0.1300 '/' Outflow=0.63 cfs 4,915 cf

Total Runoff Area = 531,063 sf Runoff Volume = 56,895 cf Average Runoff Depth = 1.29"
49.73% Pervious = 264,090 sf 50.27% Impervious = 266,973 sf

Summary for Subcatchment 1S: PORTION OF ELKS BLDG

Runoff = 0.42 cfs @ 12.20 hrs, Volume= 1,792 cf, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	10,103	98	BUILDING
	10,103		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**
5.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 2S: FRONT OF SITE, CONGRESS STREET

Runoff = 1.19 cfs @ 12.22 hrs, Volume= 4,724 cf, Depth> 0.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	12,013	98	IMPERVIOUS
*	67,300	75	LANDSCAPE
	79,313	78	Weighted Average
	67,300		84.85% Pervious Area
	12,013		15.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0					**Direct Entry, DIRECT**
7.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 3S: PARKING LOT

Runoff = 3.35 cfs @ 12.21 hrs, Volume= 12,809 cf, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	63,954	98	IMPERVIOUS
*	6,174	98	BUILDING
*	49,570	75	LANDSCAPE
	119,698	88	Weighted Average
	49,570		41.41% Pervious Area
	70,128		58.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 4S: BEHIND EX. BUILDING

Runoff = 1.43 cfs @ 12.22 hrs, Volume= 5,525 cf, Depth> 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	3,354	98	IMPERVIOUS
*	6,517	98	BUILDING
*	46,258	75	LANDSCAPE
*	16,336	92	GRAVEL
	72,465	82	Weighted Average
	62,594		86.38% Pervious Area
	9,871		13.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 10S: NORTH PARKING LOT

Runoff = 1.30 cfs @ 12.20 hrs, Volume= 5,281 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	28,446	98	IMPERVIOUS
*	767	98	BUILDING
*	3,384	75	LANDSCAPED
	32,597	96	Weighted Average
	3,384		10.38% Pervious Area
	29,213		89.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	125	0.0250	1.52		**Sheet Flow, sheet** Smooth surfaces n= 0.011 P2= 3.00"
1.4	125	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 11S:]EAST PARKING LOT

Runoff = 1.47 cfs @ 12.20 hrs, Volume= 5,744 cf, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	22,284	98	IMPERVIOUS
*	9,373	98	BUILDING
*	9,566	75	LANDSCAPED
	41,223	93	Weighted Average
	9,566		23.21% Pervious Area
	31,657		76.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**
5.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 12S: ELKS PARKING SOUTH EAST

Runoff = 0.51 cfs @ 12.20 hrs, Volume= 2,051 cf, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	8,595	98	IMPERVIOUS
*	2,692	98	BUILDING
*	2,006	75	LANDSCAPED
	13,293	95	Weighted Average
	2,006		15.09% Pervious Area
	11,287		84.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**
5.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 13S: SOUTH ACCESS ROAD AND PARKING

Runoff = 0.53 cfs @ 12.20 hrs, Volume= 2,047 cf, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	11,304	98	IMPERVIOUS
*	4,165	75	LANDSCAPED
	15,469	92	Weighted Average
	4,165		26.92% Pervious Area
	11,304		73.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 14S: CENTER PARKING ELKS

Runoff = 0.62 cfs @ 12.21 hrs, Volume= 2,361 cf, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	7,888	98	IMPERVIOUS
*	3,553	98	BUILDING
*	13,179	75	LANDSCAPED
	24,620	86	Weighted Average
	13,179		53.53% Pervious Area
	11,441		46.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 15S: CENTER PARKING ELKS NORTH

Runoff = 0.33 cfs @ 12.20 hrs, Volume= 1,296 cf, Depth> 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	4,502	98	IMPERVIOUS
*	2,561	98	BUILDING
*	2,734	75	LANDSCAPED
	9,797	92	Weighted Average
	2,734		27.91% Pervious Area
	7,063		72.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry, DIRECT**
4.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 16S: WEST PARKING CLARK'S

Runoff = 0.82 cfs @ 12.20 hrs, Volume= 3,223 cf, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	17,263	98	IMPERVIOUS
*	728	98	BUILDING
*	5,138	75	LANDSCAPED
	23,129	93	Weighted Average
	5,138		22.21% Pervious Area
	17,991		77.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 17S: NORTH WEST PARKING

Runoff = 0.33 cfs @ 12.20 hrs, Volume= 1,353 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	7,542	98	IMPERVIOUS
*	810	75	LANDSCAPED
	8,352	96	Weighted Average
	810		9.70% Pervious Area
	7,542		90.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry, DIRECT**
4.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 20S: FRONT YARD, CONGRESS STREET

Runoff = 0.57 cfs @ 12.23 hrs, Volume= 2,339 cf, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	1,512	98	IMPERVIOUS
*	43,294	75	LANDSCAPED
	44,806	76	Weighted Average
	43,294		96.63% Pervious Area
	1,512		3.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**
5.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 21S: MEDICAL BLDG

Runoff = 0.33 cfs @ 12.20 hrs, Volume= 1,398 cf, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	7,882	98	BUILDING
	7,882		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry, DIRECT**
4.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 30S: INSURANCE BUILDING

Runoff = 0.99 cfs @ 12.20 hrs, Volume= 4,198 cf, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	23,669	98	BUILDING
	23,669		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Subcatchment 31S: ENTRANCE DRIVE

Runoff = 0.19 cfs @ 12.20 hrs, Volume= 753 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1 YEAR Rainfall=2.50"

	Area (sf)	CN	Description
*	4,297	98	IMPERVIOUS
*	350	75	LANDSCAPED
	4,647	96	Weighted Average
	350		7.53% Pervious Area
	4,297		92.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry, DIRECT**
4.0	0	Total, Increased to minimum Tc = 15.0 min			

Summary for Reach 20R: BACK OF THE SITE POA#2 EXISTING

Inflow Area = 192,149 sf, 78.67% Impervious, Inflow Depth > 0.76" for 1 YEAR event
Inflow = 1.04 cfs @ 12.20 hrs, Volume= 12,183 cf
Outflow = 1.04 cfs @ 12.21 hrs, Volume= 12,177 cf, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.88 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 0.3 min

Peak Storage= 12 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 3.00' Flow Area= 63.0 sf, Capacity= 429.39 cfs

12.00' x 3.00' deep channel, n= 0.035
Side Slope Z-value= 3.0 '/' Top Width= 30.00'
Length= 10.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.10'

‡

Summary for Reach 32R: STORM DRAIN EXISTING POA #1

Inflow Area = 79,313 sf, 15.15% Impervious, Inflow Depth > 0.71" for 1 YEAR event
Inflow = 1.19 cfs @ 12.22 hrs, Volume= 4,724 cf
Outflow = 1.18 cfs @ 12.23 hrs, Volume= 4,724 cf, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.53 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 15.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -0.30'

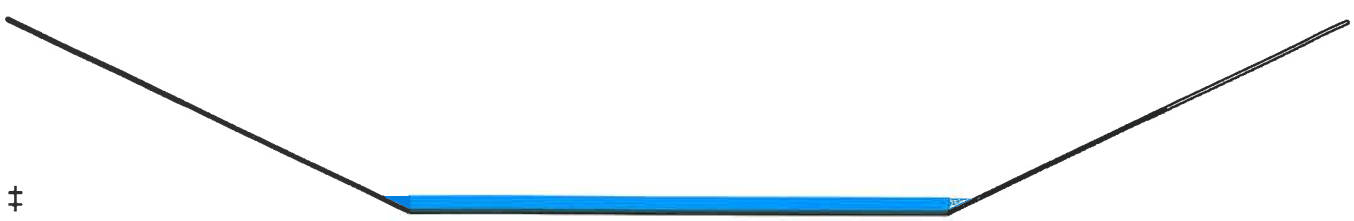
Summary for Reach 33R: BACK OF THE SITE POA#2 EXISTING

Inflow Area = 202,266 sf, 44.55% Impervious, Inflow Depth > 1.19" for 1 YEAR event
Inflow = 5.21 cfs @ 12.21 hrs, Volume= 20,127 cf
Outflow = 5.20 cfs @ 12.21 hrs, Volume= 20,122 cf, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.62 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 0.3 min

Peak Storage= 32 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 3.00' Flow Area= 63.0 sf, Capacity= 429.39 cfs

12.00' x 3.00' deep channel, n= 0.035
Side Slope Z-value= 3.0 '/' Top Width= 30.00'
Length= 10.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -0.10'



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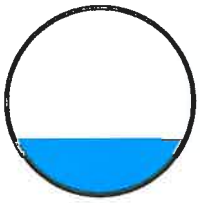
Summary for Reach 34R: STORM DRAIN DEVELOPED POA #1

Inflow Area = 57,335 sf, 23.88% Impervious, Inflow Depth > 0.94" for 1 YEAR event
Inflow = 1.08 cfs @ 12.22 hrs, Volume= 4,490 cf
Outflow = 1.08 cfs @ 12.22 hrs, Volume= 4,489 cf, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.40 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.14 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 5.46 cfs

12.0" Round Pipe
n= 0.012
Length= 15.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -0.30'



Summary for Pond 10P: CB 3

Inflow Area = 87,113 sf, 82.83% Impervious, Inflow Depth > 1.80" for 1 YEAR event
Inflow = 3.28 cfs @ 12.20 hrs, Volume= 13,075 cf
Outflow = 3.28 cfs @ 12.20 hrs, Volume= 13,074 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.28 cfs @ 12.20 hrs, Volume= 13,074 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 61.81' @ 12.20 hrs Surf.Area= 13 sf Storage= 13 cf

Plug-Flow detention time= 0.2 min calculated for 13,073 cf (100% of inflow)
Center-of-Mass det. time= 0.1 min (769.1 - 769.0)

Volume	Invert	Avail.Storage	Storage Description
#1	60.80'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	60.80'	**18.0" Round Culvert** L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 60.80' / 60.60' S= 0.0033 '/' Cc= 0.900 n= 0.010, Flow Area= 1.77 sf

Primary OutFlow Max=3.26 cfs @ 12.20 hrs HW=61.80' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.26 cfs @ 3.68 fps)

Summary for Pond 11P: CB 2

Inflow Area = 54,516 sf, 78.77% Impervious, Inflow Depth > 1.72" for 1 YEAR event
Inflow = 1.98 cfs @ 12.20 hrs, Volume= 7,795 cf
Outflow = 1.98 cfs @ 12.20 hrs, Volume= 7,794 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.98 cfs @ 12.20 hrs, Volume= 7,794 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 64.58' @ 12.20 hrs Surf.Area= 13 sf Storage= 10 cf

Plug-Flow detention time= 0.2 min calculated for 7,794 cf (100% of inflow)
Center-of-Mass det. time= 0.1 min (774.5 - 774.4)

Volume	Invert	Avail.Storage	Storage Description
#1	63.80'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	63.80'	**12.0" Round Culvert** L= 250.0' Ke= 0.500 Inlet / Outlet Invert= 63.80' / 61.30' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=1.97 cfs @ 12.20 hrs HW=64.58' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.97 cfs @ 3.00 fps)

Summary for Pond 12P: CB 1

Inflow Area = 13,293 sf, 84.91% Impervious, Inflow Depth > 1.85" for 1 YEAR event
Inflow = 0.51 cfs @ 12.20 hrs, Volume= 2,051 cf
Outflow = 0.51 cfs @ 12.20 hrs, Volume= 2,051 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.20 hrs, Volume= 2,051 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 66.09' @ 12.20 hrs Surf.Area= 13 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 2,044 cf (100% of inflow)
Center-of-Mass det. time= 0.0 min (766.5 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1	66.06'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	65.56'	**12.0" Round Culvert** L= 166.0' Ke= 0.500 Inlet / Outlet Invert= 65.56' / 63.90' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=1.04 cfs @ 12.20 hrs HW=66.09' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.04 cfs @ 2.47 fps)

Summary for Pond 13P: CB 4

Inflow Area = 15,469 sf, 73.08% Impervious, Inflow Depth > 1.59" for 1 YEAR event
Inflow = 0.53 cfs @ 12.20 hrs, Volume= 2,047 cf
Outflow = 0.53 cfs @ 12.21 hrs, Volume= 2,046 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.53 cfs @ 12.21 hrs, Volume= 2,046 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 64.44' @ 12.21 hrs Surf.Area= 13 sf Storage= 5 cf

Plug-Flow detention time= 0.4 min calculated for 2,046 cf (100% of inflow)
Center-of-Mass det. time= 0.3 min (782.1 - 781.8)

Volume	Invert	Avail.Storage	Storage Description
#1	64.08'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	64.08'	**12.0" Round Culvert** L= 200.0' Ke= 0.500 Inlet / Outlet Invert= 64.08' / 62.08' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=0.52 cfs @ 12.21 hrs HW=64.44' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.52 cfs @ 2.05 fps)

Summary for Pond 14P: CB 5

Inflow Area = 40,089 sf, 56.74% Impervious, Inflow Depth > 1.32" for 1 YEAR event
Inflow = 1.15 cfs @ 12.21 hrs, Volume= 4,407 cf
Outflow = 1.15 cfs @ 12.21 hrs, Volume= 4,406 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.15 cfs @ 12.21 hrs, Volume= 4,406 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 62.54' @ 12.21 hrs Surf.Area= 13 sf Storage= 7 cf

Plug-Flow detention time= 0.3 min calculated for 4,406 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (793.8 - 793.7)

Volume	Invert	Avail.Storage	Storage Description
#1	61.98'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	61.98'	**12.0" Round Culvert** L= 86.0' Ke= 0.500 Inlet / Outlet Invert= 61.98' / 60.62' S= 0.0158 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=1.13 cfs @ 12.21 hrs HW=62.53' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.13 cfs @ 2.54 fps)

Summary for Pond 15P: CB 7

Inflow Area =	73,015 sf, 65.46% Impervious, Inflow Depth > 1.47" for 1 YEAR event				
Inflow =	2.30 cfs @ 12.21 hrs, Volume=	8,924 cf			
Outflow =	2.30 cfs @ 12.21 hrs, Volume=	8,923 cf, Atten= 0%, Lag= 0.1 min			
Primary =	2.30 cfs @ 12.21 hrs, Volume=	8,923 cf			

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 61.49' @ 12.21 hrs Surf.Area= 13 sf Storage= 11 cf

Plug-Flow detention time= 0.2 min calculated for 8,893 cf (100% of inflow)
Center-of-Mass det. time= 0.1 min (786.3 - 786.2)

Volume	Invert	Avail.Storage	Storage Description
#1	60.62'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	60.62'	**12.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 60.62' / 59.50' S= 0.0200 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=2.28 cfs @ 12.21 hrs HW=61.48' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.28 cfs @ 3.17 fps)

Summary for Pond 16P: CB 6

Inflow Area =	23,129 sf, 77.79% Impervious, Inflow Depth > 1.67" for 1 YEAR event				
Inflow =	0.82 cfs @ 12.20 hrs, Volume=	3,223 cf			
Outflow =	0.82 cfs @ 12.21 hrs, Volume=	3,222 cf, Atten= 0%, Lag= 0.1 min			
Primary =	0.82 cfs @ 12.21 hrs, Volume=	3,222 cf			

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 61.74' @ 12.21 hrs Surf.Area= 13 sf Storage= 7 cf

Plug-Flow detention time= 0.3 min calculated for 3,222 cf (100% of inflow)
Center-of-Mass det. time= 0.2 min (777.4 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	61.22'	75 cf	**4.00'D x 6.00'H Vertical Cone/Cylinder**

Device	Routing	Invert	Outlet Devices
#1	Primary	61.22'	**12.0" Round Culvert** L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 61.22' / 61.12' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 12.21 hrs HW=61.74' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.82 cfs @ 2.91 fps)

Summary for Pond 17P: CB 8

Inflow Area =	168,480 sf,	75.68% Impervious,	Inflow Depth >	1.66"	for 1 YEAR event
Inflow =	5.91 cfs @	12.21 hrs, Volume=	23,350 cf		
Outflow =	1.33 cfs @	12.95 hrs, Volume=	8,005 cf,	Atten= 78%,	Lag= 44.9 min
Primary =	0.11 cfs @	12.95 hrs, Volume=	3,069 cf		
Secondary =	1.21 cfs @	12.95 hrs, Volume=	4,936 cf		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 62.46' @ 12.96 hrs Surf.Area= 13 sf Storage= 15,349 cf

Plug-Flow detention time= 231.9 min calculated for 7,978 cf (34% of inflow)
Center-of-Mass det. time= 127.1 min (902.3 - 775.2)

Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	15,344 cf	**48.0" Round Pipe Storage** L= 1,221.0'
#2	62.00'	63 cf	**4.00'D x 5.00'H Vertical Cone/Cylinder**
		15,406 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Secondary	62.00'	**24.0" Round Culvert** L= 216.0' Ke= 0.500 Inlet / Outlet Invert= 62.00' / 43.00' S= 0.0880 '/' Cc= 0.900 n= 0.010, Flow Area= 3.14 sf
#2	Primary	58.00'	**1.0" Vert. Orifice/Grate** X 6 rows with 24.0" cc spacing C= 0.600

Primary OutFlow Max=0.11 cfs @ 12.95 hrs HW=62.45' (Free Discharge)
└**2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 6.88 fps)

Secondary OutFlow Max=1.11 cfs @ 12.95 hrs HW=62.43' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.11 cfs @ 2.23 fps)

Summary for Pond 21P: JELLYFISH

Inflow Area =	168,480 sf,	75.68% Impervious,	Inflow Depth >	0.22"	for 1 YEAR event
Inflow =	0.11 cfs @	12.95 hrs, Volume=	3,069 cf		
Outflow =	0.11 cfs @	12.95 hrs, Volume=	3,069 cf,	Atten= 0%,	Lag= 0.0 min
Primary =	0.11 cfs @	12.95 hrs, Volume=	3,069 cf		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 66.61' @ 12.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**0.5" Vert. Orifice/Grate** X 6 rows with 2.0" cc spacing C= 0.600

Primary OutFlow Max=0.11 cfs @ 12.95 hrs HW=66.61' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 13.76 fps)

Summary for Pond 22P: OVERFLOW BASIN

Inflow	=	1.21 cfs @	12.95 hrs,	Volume=	4,936 cf
Outflow	=	0.63 cfs @	13.12 hrs,	Volume=	4,915 cf, Atten= 48%, Lag= 9.8 min
Primary	=	0.63 cfs @	13.12 hrs,	Volume=	4,915 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 58.35' @ 13.12 hrs Surf.Area= 905 sf Storage= 215 cf

Plug-Flow detention time= 7.0 min calculated for 4,899 cf (99% of inflow)
Center-of-Mass det. time= 5.7 min (893.5 - 887.7)

Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	5,027 cf	**48.0" Round Pipe Storage** L= 400.0'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**18.0" Round Culvert** L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 58.00' / 45.00' S= 0.1300 '/' Cc= 0.900 n= 0.010, Flow Area= 1.77 sf

Primary OutFlow Max=0.63 cfs @ 13.12 hrs HW=58.35' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.63 cfs @ 2.01 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PORTION OF ELKS Runoff Area=10,103 sf 100.00% Impervious Runoff Depth>2.59"
Tc=15.0 min CN=98 Runoff=0.51 cfs 2,179 cf

Subcatchment 2S: FRONT OF SITE, Runoff Area=79,313 sf 15.15% Impervious Runoff Depth>1.03"
Tc=15.0 min CN=78 Runoff=1.76 cfs 6,822 cf

Subcatchment 3S: PARKING LOT Runoff Area=119,698 sf 58.59% Impervious Runoff Depth>1.70"
Tc=15.0 min CN=88 Runoff=4.41 cfs 16,925 cf

Subcatchment 4S: BEHIND EX. BUILDING Runoff Area=72,465 sf 13.62% Impervious Runoff Depth>1.27"
Tc=15.0 min CN=82 Runoff=2.01 cfs 7,681 cf

Subcatchment 10S: NORTH PARKING LOT Runoff Area=32,597 sf 89.62% Impervious Runoff Depth>2.41"
Flow Length=125' Slope=0.0250 '/' Tc=15.0 min CN=96 Runoff=1.59 cfs 6,534 cf

Subcatchment 11S:]EAST PARKING LOT Runoff Area=41,223 sf 76.79% Impervious Runoff Depth>2.12"
Tc=15.0 min CN=93 Runoff=1.84 cfs 7,293 cf

Subcatchment 12S: ELKS PARKING Runoff Area=13,293 sf 84.91% Impervious Runoff Depth>2.31"
Tc=15.0 min CN=95 Runoff=0.63 cfs 2,559 cf

Subcatchment 13S: SOUTH ACCESS Runoff Area=15,469 sf 73.08% Impervious Runoff Depth>2.03"
Tc=15.0 min CN=92 Runoff=0.67 cfs 2,619 cf

Subcatchment 14S: CENTER PARKING Runoff Area=24,620 sf 46.47% Impervious Runoff Depth>1.55"
Tc=15.0 min CN=86 Runoff=0.83 cfs 3,171 cf

Subcatchment 15S: CENTER PARKING Runoff Area=9,797 sf 72.09% Impervious Runoff Depth>2.03"
Tc=15.0 min CN=92 Runoff=0.42 cfs 1,659 cf

Subcatchment 16S: WEST PARKING Runoff Area=23,129 sf 77.79% Impervious Runoff Depth>2.12"
Tc=15.0 min CN=93 Runoff=1.03 cfs 4,092 cf

Subcatchment 17S: NORTH WEST PARKING Runoff Area=8,352 sf 90.30% Impervious Runoff Depth>2.41"
Tc=15.0 min CN=96 Runoff=0.41 cfs 1,674 cf

Subcatchment 20S: FRONT YARD, Runoff Area=44,806 sf 3.37% Impervious Runoff Depth>0.92"
Tc=15.0 min CN=76 Runoff=0.88 cfs 3,449 cf

Subcatchment 21S: MEDICAL BLDG Runoff Area=7,882 sf 100.00% Impervious Runoff Depth>2.59"
Tc=15.0 min CN=98 Runoff=0.40 cfs 1,700 cf

Subcatchment 30S: INSURANCE Runoff Area=23,669 sf 100.00% Impervious Runoff Depth>2.59"
Tc=15.0 min CN=98 Runoff=1.20 cfs 5,105 cf

Subcatchment 31S: ENTRANCE DRIVE Runoff Area=4,647 sf 92.47% Impervious Runoff Depth>2.41"
Tc=15.0 min CN=96 Runoff=0.23 cfs 931 cf

Reach 20R: BACK OF THE SITE POA#2 Avg. Flow Depth=0.22' Max Vel=1.47 fps Inflow=3.99 cfs 19,322 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=4.03 cfs 19,315 cf

Reach 32R: STORM DRAIN EXISTING Avg. Flow Depth=0.39' Max Vel=6.18 fps Inflow=1.76 cfs 6,822 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.76 cfs 6,822 cf

Reach 33R: BACK OF THE SITE POA#2 Avg. Flow Depth=0.30' Max Vel=1.80 fps Inflow=6.93 cfs 26,785 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=6.92 cfs 26,779 cf

Reach 34R: STORM DRAIN Avg. Flow Depth=0.36' Max Vel=5.92 fps Inflow=1.50 cfs 6,081 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=1.50 cfs 6,080 cf

Pond 10P: CB 3 Peak Elev=61.95' Storage=14 cf Inflow=4.06 cfs 16,385 cf
18.0" Round Culvert n=0.010 L=60.0' S=0.0033 '/' Outflow=4.06 cfs 16,383 cf

Pond 11P: CB 2 Peak Elev=64.72' Storage=12 cf Inflow=2.47 cfs 9,852 cf
12.0" Round Culvert n=0.010 L=250.0' S=0.0100 '/' Outflow=2.47 cfs 9,851 cf

Pond 12P: CB 1 Peak Elev=66.09' Storage=0 cf Inflow=0.63 cfs 2,559 cf
12.0" Round Culvert n=0.010 L=166.0' S=0.0100 '/' Outflow=0.63 cfs 2,559 cf

Pond 13P: CB 4 Peak Elev=64.49' Storage=5 cf Inflow=0.67 cfs 2,619 cf
12.0" Round Culvert n=0.010 L=200.0' S=0.0100 '/' Outflow=0.67 cfs 2,619 cf

Pond 14P: CB 5 Peak Elev=62.63' Storage=8 cf Inflow=1.50 cfs 5,790 cf
12.0" Round Culvert n=0.010 L=86.0' S=0.0158 '/' Outflow=1.50 cfs 5,789 cf

Pond 15P: CB 7 Peak Elev=61.73' Storage=14 cf Inflow=2.95 cfs 11,538 cf
12.0" Round Culvert n=0.010 L=56.0' S=0.0200 '/' Outflow=2.95 cfs 11,537 cf

Pond 16P: CB 6 Peak Elev=61.81' Storage=7 cf Inflow=1.03 cfs 4,092 cf
12.0" Round Culvert n=0.010 L=10.0' S=0.0100 '/' Outflow=1.03 cfs 4,091 cf

Pond 17P: CB 8 Peak Elev=63.16' Storage=15,358 cf Inflow=7.42 cfs 29,594 cf
Primary=0.13 cfs 3,259 cf Secondary=6.94 cfs 10,991 cf Outflow=7.08 cfs 14,250 cf

Pond 21P: JELLYFISH Peak Elev=69.95' Inflow=0.13 cfs 3,259 cf
Outflow=0.13 cfs 3,259 cf

Pond 22P: OVERFLOW BASIN Peak Elev=58.87' Storage=804 cf Inflow=6.94 cfs 10,991 cf
18.0" Round Culvert n=0.010 L=100.0' S=0.1300 '/' Outflow=3.36 cfs 10,957 cf

Total Runoff Area = 531,063 sf Runoff Volume = 74,394 cf Average Runoff Depth = 1.68"
49.73% Pervious = 264,090 sf 50.27% Impervious = 266,973 sf

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PORTION OF ELKS Runoff Area=10,103 sf 100.00% Impervious Runoff Depth>4.14"
Tc=15.0 min CN=98 Runoff=0.81 cfs 3,489 cf

Subcatchment 2S: FRONT OF SITE, Runoff Area=79,313 sf 15.15% Impervious Runoff Depth>2.28"
Tc=15.0 min CN=78 Runoff=3.95 cfs 15,073 cf

Subcatchment 3S: PARKING LOT Runoff Area=119,698 sf 58.59% Impervious Runoff Depth>3.18"
Tc=15.0 min CN=88 Runoff=8.09 cfs 31,742 cf

Subcatchment 4S: BEHIND EX. BUILDING Runoff Area=72,465 sf 13.62% Impervious Runoff Depth>2.62"
Tc=15.0 min CN=82 Runoff=4.13 cfs 15,840 cf

Subcatchment 10S: NORTH PARKING LOT Runoff Area=32,597 sf 89.62% Impervious Runoff Depth>3.97"
Flow Length=125' Slope=0.0250 '/' Tc=15.0 min CN=96 Runoff=2.56 cfs 10,794 cf

Subcatchment 11S:]EAST PARKING LOT Runoff Area=41,223 sf 76.79% Impervious Runoff Depth>3.68"
Tc=15.0 min CN=93 Runoff=3.10 cfs 12,647 cf

Subcatchment 12S: ELKS PARKING Runoff Area=13,293 sf 84.91% Impervious Runoff Depth>3.88"
Tc=15.0 min CN=95 Runoff=1.03 cfs 4,297 cf

Subcatchment 13S: SOUTH ACCESS Runoff Area=15,469 sf 73.08% Impervious Runoff Depth>3.58"
Tc=15.0 min CN=92 Runoff=1.14 cfs 4,617 cf

Subcatchment 14S: CENTER PARKING Runoff Area=24,620 sf 46.47% Impervious Runoff Depth>2.99"
Tc=15.0 min CN=86 Runoff=1.58 cfs 6,133 cf

Subcatchment 15S: CENTER PARKING Runoff Area=9,797 sf 72.09% Impervious Runoff Depth>3.58"
Tc=15.0 min CN=92 Runoff=0.72 cfs 2,924 cf

Subcatchment 16S: WEST PARKING Runoff Area=23,129 sf 77.79% Impervious Runoff Depth>3.68"
Tc=15.0 min CN=93 Runoff=1.74 cfs 7,096 cf

Subcatchment 17S: NORTH WEST PARKING Runoff Area=8,352 sf 90.30% Impervious Runoff Depth>3.97"
Tc=15.0 min CN=96 Runoff=0.66 cfs 2,766 cf

Subcatchment 20S: FRONT YARD, Runoff Area=44,806 sf 3.37% Impervious Runoff Depth>2.12"
Tc=15.0 min CN=76 Runoff=2.07 cfs 7,908 cf

Subcatchment 21S: MEDICAL BLDG Runoff Area=7,882 sf 100.00% Impervious Runoff Depth>4.14"
Tc=15.0 min CN=98 Runoff=0.63 cfs 2,722 cf

Subcatchment 30S: INSURANCE Runoff Area=23,669 sf 100.00% Impervious Runoff Depth>4.14"
Tc=15.0 min CN=98 Runoff=1.90 cfs 8,173 cf

Subcatchment 31S: ENTRANCE DRIVE Runoff Area=4,647 sf 92.47% Impervious Runoff Depth>3.97"
Tc=15.0 min CN=96 Runoff=0.37 cfs 1,539 cf

Reach 20R: BACK OF THE SITE Avg. Flow Depth=0.42' Max Vel=2.22 fps Inflow=12.29 cfs 44,024 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=12.37 cfs 44,016 cf

Reach 32R: STORM DRAIN EXISTING Avg. Flow Depth=0.63' Max Vel=7.57 fps Inflow=3.95 cfs 15,073 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=3.95 cfs 15,072 cf

Reach 33R: BACK OF THE SITE Avg. Flow Depth=0.43' Max Vel=2.27 fps Inflow=13.03 cfs 51,070 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=13.01 cfs 51,063 cf

Reach 34R: STORM DRAIN Avg. Flow Depth=0.54' Max Vel=7.15 fps Inflow=3.07 cfs 12,168 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=3.06 cfs 12,167 cf

Pond 10P: CB 3 Peak Elev=62.41' Storage=20 cf Inflow=6.70 cfs 27,737 cf
18.0" Round Culvert n=0.010 L=60.0' S=0.0033 '/' Outflow=6.70 cfs 27,735 cf

Pond 11P: CB 2 Peak Elev=65.49' Storage=21 cf Inflow=4.13 cfs 16,944 cf
12.0" Round Culvert n=0.010 L=250.0' S=0.0100 '/' Outflow=4.13 cfs 16,943 cf

Pond 12P: CB 1 Peak Elev=66.11' Storage=1 cf Inflow=1.03 cfs 4,297 cf
12.0" Round Culvert n=0.010 L=166.0' S=0.0100 '/' Outflow=1.03 cfs 4,297 cf

Pond 13P: CB 4 Peak Elev=64.64' Storage=7 cf Inflow=1.14 cfs 4,617 cf
12.0" Round Culvert n=0.010 L=200.0' S=0.0100 '/' Outflow=1.14 cfs 4,616 cf

Pond 14P: CB 5 Peak Elev=63.00' Storage=13 cf Inflow=2.72 cfs 10,749 cf
12.0" Round Culvert n=0.010 L=86.0' S=0.0158 '/' Outflow=2.72 cfs 10,748 cf

Pond 15P: CB 7 Peak Elev=63.00' Storage=30 cf Inflow=5.18 cfs 20,767 cf
12.0" Round Culvert n=0.010 L=56.0' S=0.0200 '/' Outflow=5.19 cfs 20,765 cf

Pond 16P: CB 6 Peak Elev=62.04' Storage=10 cf Inflow=1.74 cfs 7,096 cf
12.0" Round Culvert n=0.010 L=10.0' S=0.0100 '/' Outflow=1.74 cfs 7,095 cf

Pond 17P: CB 8 Peak Elev=64.45' Storage=15,374 cf Inflow=12.54 cfs 51,265 cf
Primary=0.18 cfs 3,681 cf Secondary=18.19 cfs 32,239 cf Outflow=18.37 cfs 35,920 cf

Pond 21P: JELLYFISH Peak Elev=79.08' Inflow=0.18 cfs 3,681 cf
Outflow=0.18 cfs 3,681 cf

Pond 22P: OVERFLOW BASIN Peak Elev=60.28' Storage=2,957 cf Inflow=18.19 cfs 32,239 cf
18.0" Round Culvert n=0.010 L=100.0' S=0.1300 '/' Outflow=10.52 cfs 32,171 cf

Total Runoff Area = 531,063 sf Runoff Volume = 137,758 cf Average Runoff Depth = 3.11"
49.73% Pervious = 264,090 sf 50.27% Impervious = 266,973 sf

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PORTION OF ELKS Runoff Area=10,103 sf 100.00% Impervious Runoff Depth>4.87"
Tc=15.0 min CN=98 Runoff=0.95 cfs 4,102 cf

Subcatchment 2S: FRONT OF SITE, Runoff Area=79,313 sf 15.15% Impervious Runoff Depth>2.92"
Tc=15.0 min CN=78 Runoff=5.06 cfs 19,325 cf

Subcatchment 3S: PARKING LOT Runoff Area=119,698 sf 58.59% Impervious Runoff Depth>3.91"
Tc=15.0 min CN=88 Runoff=9.82 cfs 38,953 cf

Subcatchment 4S: BEHIND EX. BUILDING Runoff Area=72,465 sf 13.62% Impervious Runoff Depth>3.30"
Tc=15.0 min CN=82 Runoff=5.17 cfs 19,941 cf

Subcatchment 10S: NORTH PARKING LOT Runoff Area=32,597 sf 89.62% Impervious Runoff Depth>4.71"
Flow Length=125' Slope=0.0250 '/' Tc=15.0 min CN=96 Runoff=3.02 cfs 12,794 cf

Subcatchment 11S:]EAST PARKING LOT Runoff Area=41,223 sf 76.79% Impervious Runoff Depth>4.42"
Tc=15.0 min CN=93 Runoff=3.69 cfs 15,183 cf

Subcatchment 12S: ELKS PARKING Runoff Area=13,293 sf 84.91% Impervious Runoff Depth>4.62"
Tc=15.0 min CN=95 Runoff=1.22 cfs 5,114 cf

Subcatchment 13S: SOUTH ACCESS Runoff Area=15,469 sf 73.08% Impervious Runoff Depth>4.32"
Tc=15.0 min CN=92 Runoff=1.36 cfs 5,566 cf

Subcatchment 14S: CENTER PARKING Runoff Area=24,620 sf 46.47% Impervious Runoff Depth>3.70"
Tc=15.0 min CN=86 Runoff=1.94 cfs 7,590 cf

Subcatchment 15S: CENTER PARKING Runoff Area=9,797 sf 72.09% Impervious Runoff Depth>4.32"
Tc=15.0 min CN=92 Runoff=0.86 cfs 3,525 cf

Subcatchment 16S: WEST PARKING Runoff Area=23,129 sf 77.79% Impervious Runoff Depth>4.42"
Tc=15.0 min CN=93 Runoff=2.07 cfs 8,519 cf

Subcatchment 17S: NORTH WEST PARKING Runoff Area=8,352 sf 90.30% Impervious Runoff Depth>4.71"
Tc=15.0 min CN=96 Runoff=0.77 cfs 3,278 cf

Subcatchment 20S: FRONT YARD, Runoff Area=44,806 sf 3.37% Impervious Runoff Depth>2.74"
Tc=15.0 min CN=76 Runoff=2.68 cfs 10,237 cf

Subcatchment 21S: MEDICAL BLDG Runoff Area=7,882 sf 100.00% Impervious Runoff Depth>4.87"
Tc=15.0 min CN=98 Runoff=0.74 cfs 3,201 cf

Subcatchment 30S: INSURANCE Runoff Area=23,669 sf 100.00% Impervious Runoff Depth>4.87"
Tc=15.0 min CN=98 Runoff=2.22 cfs 9,611 cf

Subcatchment 31S: ENTRANCE DRIVE Runoff Area=4,647 sf 92.47% Impervious Runoff Depth>4.71"
Tc=15.0 min CN=96 Runoff=0.43 cfs 1,824 cf

Reach 20R: BACK OF THE SITE Avg. Flow Depth=0.46' Max Vel=2.36 fps Inflow=14.56 cfs 55,742 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=14.59 cfs 55,732 cf

Reach 32R: STORM DRAIN EXISTING Avg. Flow Depth=0.76' Max Vel=7.89 fps Inflow=5.06 cfs 19,325 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=5.05 cfs 19,324 cf

Reach 33R: BACK OF THE SITE Avg. Flow Depth=0.49' Max Vel=2.43 fps Inflow=15.94 cfs 62,997 cf
n=0.035 L=10.0' S=0.0100 '/' Capacity=429.39 cfs Outflow=15.92 cfs 62,988 cf

Reach 34R: STORM DRAIN Avg. Flow Depth=0.62' Max Vel=7.53 fps Inflow=3.85 cfs 15,261 cf
12.0" Round Pipe n=0.012 L=15.0' S=0.0200 '/' Capacity=5.46 cfs Outflow=3.85 cfs 15,259 cf

Pond 10P: CB 3 Peak Elev=62.68' Storage=24 cf Inflow=7.92 cfs 33,089 cf
18.0" Round Culvert n=0.010 L=60.0' S=0.0033 '/' Outflow=7.92 cfs 33,087 cf

Pond 11P: CB 2 Peak Elev=66.02' Storage=28 cf Inflow=4.91 cfs 20,297 cf
12.0" Round Culvert n=0.010 L=250.0' S=0.0100 '/' Outflow=4.90 cfs 20,295 cf

Pond 12P: CB 1 Peak Elev=66.14' Storage=1 cf Inflow=1.22 cfs 5,114 cf
12.0" Round Culvert n=0.010 L=166.0' S=0.0100 '/' Outflow=1.22 cfs 5,114 cf

Pond 13P: CB 4 Peak Elev=64.70' Storage=8 cf Inflow=1.36 cfs 5,566 cf
12.0" Round Culvert n=0.010 L=200.0' S=0.0100 '/' Outflow=1.36 cfs 5,565 cf

Pond 14P: CB 5 Peak Elev=63.24' Storage=16 cf Inflow=3.30 cfs 13,156 cf
12.0" Round Culvert n=0.010 L=86.0' S=0.0158 '/' Outflow=3.30 cfs 13,154 cf

Pond 15P: CB 7 Peak Elev=63.84' Storage=40 cf Inflow=6.24 cfs 25,197 cf
12.0" Round Culvert n=0.010 L=56.0' S=0.0200 '/' Outflow=6.23 cfs 25,195 cf

Pond 16P: CB 6 Peak Elev=62.14' Storage=12 cf Inflow=2.07 cfs 8,519 cf
12.0" Round Culvert n=0.010 L=10.0' S=0.0100 '/' Outflow=2.07 cfs 8,517 cf

Pond 17P: CB 8 Peak Elev=64.38' Storage=15,373 cf Inflow=14.93 cfs 61,560 cf
Primary=0.18 cfs 3,868 cf Secondary=17.74 cfs 42,346 cf Outflow=17.92 cfs 46,214 cf

Pond 21P: JELLYFISH Peak Elev=78.41' Inflow=0.18 cfs 3,868 cf
Outflow=0.18 cfs 3,868 cf

Pond 22P: OVERFLOW BASIN Peak Elev=60.92' Storage=3,928 cf Inflow=17.74 cfs 42,346 cf
18.0" Round Culvert n=0.010 L=100.0' S=0.1300 '/' Outflow=12.53 cfs 42,263 cf

Total Runoff Area = 531,063 sf Runoff Volume = 168,764 cf Average Runoff Depth = 3.81"
49.73% Pervious = 264,090 sf 50.27% Impervious = 266,973 sf

APPENDIX C

INSPECTION & MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

1945 CONGRESS STREET
PORTLAND, MAINE
July 11, 2016

INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

The owner, 1945 Condo Association, will be responsible for the inspection and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book as described herein. At a minimum, the appropriate and relevant activities for each of the stormwater management facilities should be performed on the prescribed schedule. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion and remove pollutants from stormwater runoff. Once the units are sold, the maintenance of the systems will transfer to the condominium association. They will be maintained in accordance with the report and the "Declaration of 1945 Condo Association".

SWALES, DITCHES, CURBS AND PAVED SURFACES:

Swales, ditches, curbs and paved areas are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events such as thunder showers and periods of heavy or extended rainfall and during periods of significant snowmelt. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged curb or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved areas should be visually inspected monthly during the winter. The inspector should pay particular attention to the build up of sand around catch basin grates and remove accumulations that block the free flow of surface runoff to the catch basins. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made and the approximate volume of sand that was removed.

CATCH BASINS, FIELD INLETS AND DRAIN MANHOLES:

Catch Basins and field inlets are precast concrete structures with sumps and cast iron grates used to collect stormwater and trap heavy sediments. Drain Manholes are similar structures constructed with a channel instead of a sump and a solid cast iron cover instead of a grate. Drain Manholes exist at changes in direction and/or size of storm drain pipe. Catch Basins, field inlets and drain manholes provide access to the closed storm drain system for inspection and maintenance.

Throughout the winter / spring sanding period, inspect catch basins and field inlets monthly and after every significant rainfall event or period of heavy snowmelt. Clean catch basin and field inlet sumps when sediment level is within 3 inches of the outlet pipe invert. Record dates of inspections, observations and maintenance measures implemented (if any) on the forms provided and initial the entry.

Confined space entry safety procedures should be practiced when entering these structures.

DRAIN PIPES:

Drain pipes are road culverts and pipes connecting drain manholes. Inspect drain pipes when inspecting other stormwater maintenance facilities. At least annually make a visual inspection of the pipe. During the daylight you should be able to see light through most pipes as they have been laid to a straight line and grade. In some cases (e.g. pipe runs to a drain manhole, or is blocked) you will need a light to inspect pipes.

Clean pipes as necessary. Record inspections on the forms provided noting condition of pipe and any maintenance procedures implemented.

JELLYFISH FILTER MANHOLE:

See Attached Manufacturer Inspection and Maintenance Manual

LEVEL SPREADERS:

Level Spreaders are shallow basins or ditches constructed at the ends of ditches or pipe outlets to disperse or "spread" concentrated flow thinly over a receiving area. Level Spreaders are constructed along the natural contour of the land to create a level "lip" on the outlet side. The integrity of the level lip is critical to the proper performance of this device.

There is one (1) Level Spreader on the site located as shown in Figure 1. Inspect the Level Spreader at least once each season and following significant rainfall events (1 inch or more of rain in 12 hours). Record inspections on the forms provided noting your observations and any corrective action taken. Minor regrading, releveling of the stone “lip,” and reseeding of the level lip on an annual basis should be anticipated. Mow level lips at least twice during the growing season. Maintenance may also include removal of sediment buildup especially on the inlet end.

1945 CONGRESS STREET PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, CURBS AND PAVED SURFACES			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
8/27/15	RST	I, C	EXAMPLE: removed sand around CB's 1, 2 and 3. Heavy rain over the weekend.

1945 CONGRESS STREET PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
CATCH BASIN, FIELD INLETS & DRAIN MANHOLES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
8/27/15	JKL	I, C	EXAMPLE: Called ACME to clean catch basins, cleaned debris from culvert inlets along access road.

1945 CONGRESS STREET PORTLAND, MAINE			
INSPECTION / MAINTENANCE LOG			
DRAIN PIPES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
8/27/15	JKL	I, C	EXAMPLE: Called ACME to clean catch basins, cleaned debris from culvert inlets along access road.

1945 CONGRESS STREET PORTLAND, MAINE				
INSPECTION / MAINTENANCE LOG				
JELLYFISH FILTER				
I: INSPECTED - C: CLEANED - R: REPAIRED				
DATE	**INITIALS**	**UDSF**	**ACTION**	**COMMENT**
8/27/15	TUV	1	I, C	EXAMPLE: Units cleaned by ACME, 2 truckloads to Pike.

1945 CONGRESS STREET PORTLAND, MAINE				
INSPECTION / MAINTENANCE LOG				
LEVEL SPREADER				
I: INSPECTED - C: CLEANED - R: REPAIRED				
DATE	**INITIALS**	**UDSF**	**ACTION**	**COMMENT**
8/27/15	TUV	1	I, C	EXAMPLE: Units cleaned by ACME, 2 truckloads to Pike.

STORMWATER MANAGEMENT SYSTEM MAINTENANCE PROGRAM SUMMARY CHECKLIST					
		Frequency			
Item	**Commentary**	**Month**	**Semi-Annual**	**Annual**	**Long-Term**
side slopes	Inspect slopes for sloughing, erosion or undesirable tree growth. Mow slopes to control vegetation, repair any structure flaws identified	**X** **Mow Summer**		**X**	
Pond Sediment Removal	Remove sediment when it occupies 15% of volume.				**X** **5 Years**
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	**X** **Mow**		**X**	
Pavement	Review for damage and buildup of debris and sand.	**X**	**X** **Sweep**		
Catchbasin and Drain Manholes	Inspect grates to assure optimum water flows into the structures. Inspect sump and casco traps for blockage and sediment accumulation. Clean out sumps.	**X** **Inspect**		**X** **Sediment removal**	
Outlet Control Structures	Inspect inlet device, sump and control plates. Remove any blocking material. Clean sump.	**X**		**X** **Sediment removal**	
Pipelines	Inspect for sediment build-up in pipe. Flush and remove as required.			**X**	

Jellyfish® Filter Manhole Installations
Inspection and Maintenance Manual

CONTECH Engineered Solutions
1-800-548-4667

Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Maintenance activities may be required in the event of an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW)

Maintenance activities typically include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed.

It is recommended that Jellyfish Filter inspection and maintenance be performed by professionally trained individuals, with experience in stormwater maintenance and disposal services. Maintenance procedures may require manned entry into the Jellyfish structure. Only professional maintenance service providers trained in confined space entry procedures should enter the vessel. Procedures, safety and damage prevention precautions, and other information, included in these guidelines, should be reviewed and observed prior to all inspection and maintenance activities.

Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

- Post-construction inspection is required prior to putting the Jellyfish Filter into service. All construction debris or construction-related sediment within the device must be removed, and any damage to system components repaired.
- A minimum of two inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
- Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
- Inspection is recommended after each major storm event.
- Immediately after an upstream oil, fuel or other chemical spill.

Inspection Tools and Equipment

The following equipment and tools are typically required when performing a Jellyfish Filter inspection:

- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hat, safety shoes, safety glasses, and chemical-resistant gloves

Inspection Procedure

The following procedure is recommended when performing inspections:

- Provide traffic control measures as necessary.
- Inspect the MAW for floatable pollutants such as trash, debris, and oil sheen.
- Measure oil and sediment depth by lowering a sediment probe through the MAW opening until contact is made with the floor of the structure. Retrieve the probe, record sediment depth, and presences of any oil layers and repeat in multiple locations within the MAW opening. *Sediment depth of 12 inches or greater indicates maintenance is required.*
- Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
- Inspect the MAW, cartridge deck, and backwash pool weir, for cracks or broken components. If damaged, repair is required.
- **Dry weather inspections:** inspect the cartridge deck for standing water.
    - No standing water under normal operating condition.
    - Standing water **inside** the backwash pool, but not outside the backwash pool, this condition indicates that the filter cartridges need to be rinsed.
    - Standing water **outside** the backwash pool may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- **Wet weather inspections:** observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW.
    - **Less than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
    - **Greater than 6 inches**, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
    - **18 inches or greater** and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges are occluded with sediment and need to be rinsed.

Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

- Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.

- Floatable trash, debris, and oil must be removal.
- Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
- Replace filter cartridge if rinsing does not remove accumulated sediment from the tentacles, or if tentacles are damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
- Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
- The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged by the spill.

Maintenance Tools and Equipment

The following equipment and tools are typically required when performing Jellyfish Filter maintenance:

- Vacuum truck
- Ladder
- Garden hose and low pressure sprayer
- Rope or cord to lift filter cartridges from the cartridge deck to the surface
- Adjustable pliers for removing filter cartridge tentacles from cartridge head plate
- Plastic tub or garbage can for collecting effluent from rinsed filter cartridge tentacles
- Access cover lifting tool
- Sediment probe (clear hollow tube with check valve)
- Tape measure
- Flashlight
- Camera
- Inspection and maintenance log documentation
- Safety cones and caution tape
- Hard hats, safety shoes, safety glasses, chemical-resistant gloves, and hearing protection for service providers
- Proper safety equipment for confined space entry
- Replacement filter cartridge tentacles if required

Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

- Provide traffic control measures as necessary.
- Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
- **Caution:** Dropping objects onto the cartridge deck may cause damage.
- Perform **Inspection Procedure** prior to maintenance activity.
- To access the cartridge deck for filter cartridge service, descend the ladder and step directly onto the deck. **Caution:** Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
- **Filter Cartridge Rinsing Procedure**
    - Remove a cartridge lid.
    - Remove the cartridge from the receptacle using the lifting loops in the cartridge head plate. **Caution:** Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Rotate the cartridge with a slight sideways motion to clear the snag and continue removing the cartridge.

- Thread a rope or cord through the lifting loops and lift the filter cartridge from the cartridge deck to the top surface outside the structure.
- **Caution:** Immediately replace and secure the lid on the exposed empty receptacle as a safety precaution. Never expose more than one empty cartridge receptacle.
- Repeat the filter cartridge removal procedure until all of the cartridges are located at the top surface outside the structure.
- Disassemble the tentacles from each filter cartridge by rotating counter-clockwise. Remove the tentacles from the cartridge head plate.
- Position a receptacle in a plastic tub or garbage can such that the rinse water is captured. Using a low-pressure garden hose sprayer, direct a wide-angle water spray at a downward 45° angle onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution:** Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.
- Remove rinse water from rinse tub or garbage can using a vacuum hose as needed.
- Slip the O-ring over the pipe nipple on the top end of the tentacle and reassemble onto the cartridge head plate; hand tighten.
- If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.
- Lower a rinsed filter cartridge to the cartridge deck. Remove the cartridge lid on a receptacle and carefully lower the filter cartridge into the receptacle until the head plate gasket is seated squarely on the lip of the receptacle. **Caution:** Should a snag occur when lowering the cartridge into the receptacle, do not force the cartridge downward; damage may occur. Rotate the cartridge with a slight sideways motion to clear the snag and complete the installation.
- Replace the cartridge lid on the exposed receptacle. Check the fit before completing rotation to a firm hand-tight attachment. Rinse away any accumulated grit from the receptacle threads if needed to get a proper fit.
- Repeat cartridge installation until all cartridges are installed.

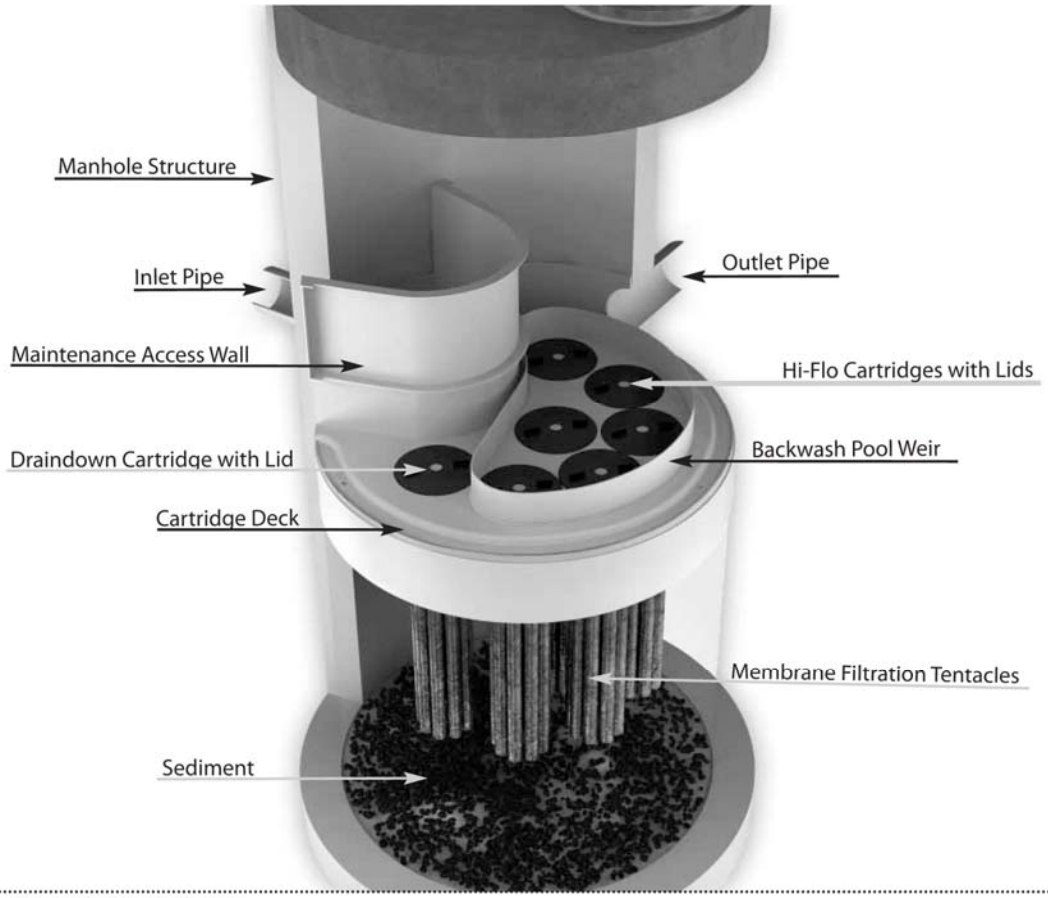
- **Vacuum Cleaning Procedure**
  - **Caution:** Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning **only through the maintenance access wall (MAW) opening**, being careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck. The separator skirt surrounds the filter cartridge zone, and could be torn if contacted by the wand. **Do not lower the vacuum wand through a cartridge receptacle**, as damage to the receptacle will result.
  - To remove floatable trash, debris, and oil, lower the vacuum hose into the MAW opening and vacuum floatable pollutants off the surface of the water. Alternatively, floatable solids may be removed by a net or skimmer.
  - Using a vacuum hose, remove the water from the lower chamber to the sanitary sewer, if permitted by the local regulating authority, or into a separate containment tank.
  - Remove the sediment from the bottom of the unit through the MAW opening.
  - For larger diameter Jellyfish Filter manholes (8-ft, 10-ft, 12-ft diameter), complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle..
  - After the unit is clean, re-fill the lower chamber with water if required by the local jurisdiction, and re-install filter cartridges.
  - Dispose of sediment, floatable trash and debris, oil, spent tentacles, and water according to local regulatory requirements.

- **Chemical Spills**
    - **<u>Caution:</u>** If a chemical spill has been captured by the Jellyfish Filter, do not attempt maintenance. Immediately contact the local hazard response agency, and contact Contech Engineered Services.

Below is a cut-away schematic of the Jellyfish Filter manhole with key components identified (6-ft diameter manhole is depicted).

FIGURE 1

Jellyfish Filter and Components



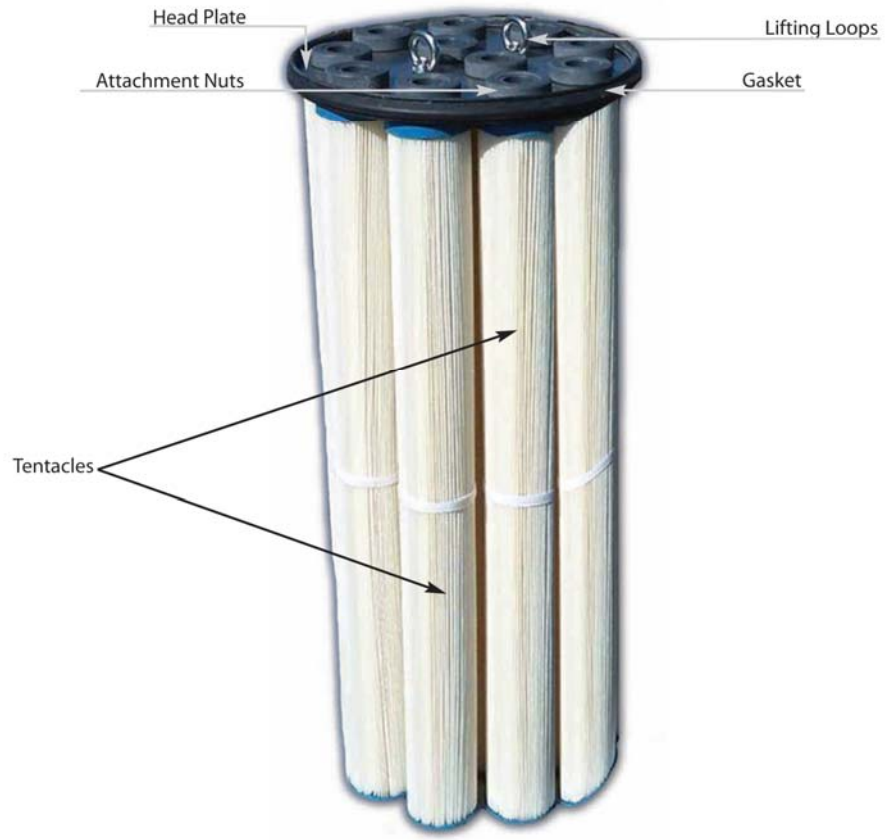
Note: Separator Skirt Not Shown

The Jellyfish Filter has no moving parts to wear out and therefore maintenance activities are generally focused on pollutant removal and filter cartridge service.

Below is a schematic of a Jellyfish Filter membrane filtration cartridge. Tentacles can be easily removed from the head plate and rinsed or replaced as needed.

FIGURE 2

Jellyfish Membrane Filtration Cartridge



The depth of sediment and oil can be measured from the surface by using a sediment probe or dipstick tube equipped with a ball check valve and inserted through the Jellyfish Filter's maintenance access wall opening. The large opening provides convenient access for inspection and vacuum removal of water and pollutants.

A maintenance worker stationed on the surface uses a vacuum hose to evacuate water, sediment, and floatables from the Jellyfish Filter by inserting the vacuum wand through the maintenance access wall opening.

A view of a Jellyfish Filter cartridge deck from the surface showing all the cartridge lids intact and no standing water on the deck (left image), and inspection of the flexible separator skirt from inside the maintenance access wall opening (right image).

Assembly of a Jellyfish Filter cartridge (left) and installation of a filter cartridge into a cartridge receptacle in the deck (right).

Rinsing of dirty filter cartridge tentacles with a low-pressure garden hose sprayer, and using a plastic garbage container to capture rinse water.

The benefits of regular inspection and maintenance are many – from ensuring maximum operation efficiency, to keeping maintenance costs low, to the continued protection of natural waterways – and provide the key to the Jellyfish Filter's long and effective service life.

Ordering Replacement Parts

Jellyfish Filter cartridges, replacement tentacles, cartridge lids, and other system components can be ordered by contacting: **Contech Engineered Solutions, 1-800-548-4667**

APPENDIX D

HOUSEKEEPING

HOUSEKEEPNG REPORT

1945 CONGRESS STREET
PORTLAND, MAINE
July 11, 2016

Housekeeping:

This project is located in a stream watershed. Protection of the groundwater quality is ensured by having good housekeeping practices and maintenance of the stormwater systems. Spill prevention must be incorporated into the plan. The business 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 lots should include the sweeping of the parking lots and 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 aquifer. 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 require dewatering of trenches. During construction, monitor stormwater runoff from the equipment and ground areas to minimize contamination of groundwater.

APPENDIX E

DRAWING

D1.0 - DRAINAGE ANALYSIS-EXISTING & DEVELOPED CONDITIONS

Att. M

NEIGHBORHOOD MEETING ATTENDEE LIST
1945 Congress Street
May 5, 2016

Name & Address	Name & Address
Thomas S. Greer Pinkham & Greer Civil Engineers 28 Vannah Avenue Portland, ME 04103	
Paul + Kimberly Dubois 1915 Congress St Portland 04102	
PHILIP J. HASKELL 16 CAPTAINS LANDING PORTLAND	
Joe Henry 1832 Congress St Portland 04102	
DAN KOLOSKI 1296 WESTBROOK ST PORTLAND ME 04102	
Roger Hinchliffe 1221 Westbrook St P. 04102	
David P. Silk 1187 Westbrook Portland ME 04102-1928	
Bill Linnell 1905 Congress St. Portland 04102	
Terri Flaherty 139 Rivers Edge Dr Portland ME 04102	

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Neighborhood Meeting Certification

I, Thomas S. Greer, P.E., Pinkham & Greer, Civil Engineers hereby certify that a neighborhood meeting was held on May 5, 2016 at 1729 Congress Street (Stroudwater Baptist Church) at 6:00 pm.

I also certify that on April 25, 2016 and resent on April 26, 2016 with the revised location, 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 to be forwarded to those on the interested citizen list who receive e-mail notices.

Thomas S. Greer, P.E. 5/6/16
(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

You are Invited to a Neighborhood Meeting

April 26, 2016

Dear Neighbor:

The team at Northland Enterprises, LLC is working with the Elks' to create a new look and use of the site. The Elks' building will be downsized and renovated to give it a fresh look and become more functional for their use.

The additions to the site will include a 15,000 sq. ft. medical building along Congress Street and a 25,300 sq. ft. building along the UNUM side of the site. These changes will allow the site to be brought up to current environmental standards.

This meeting is for a Subdivision review of the property.

Meeting Location: (Revised Location)
1729 Congress Street, (Stroudwater Baptist Church)
Meeting Date: Thursday, May 5, 2016
Meeting Time: 6:00 pm

The City code requires that property owners within 500 feet of the proposed development and residents on the "interested parties list" be invited to participate in the neighborhood meeting. A sign in sheet will be circulated and minutes of the meeting will be taken. Both the sign up sheet and minutes will be submitted to the Planning Board.

If you have any questions, please call Tom Greer @ 207-781-5242.

Sincerely,

PINKHAM & GREER
CIVIL ENGINEERS

FOR TSG
Thomas S. Greer

Applicant: Northland Enterprises, LLC (Josh Benthien & Rex Bell)
17 South Street
Portland, ME 04101

Owner: Portland Logde #188 BPOE of USA
1945 Congress Street
Portland, ME 04102

1945 Congress Street

Conceptual Site Plan

Northland Enterprises, LLC

Exhibit 18
March, 2016

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

Neighborhood Meeting Summary
1945 Congress Street
May 5, 2016

The meeting was held at 1729 Congress Street (Stroudwater Baptist Church). It started at 6:05pm and ended at 7:20pm. 9 people attended, and the development team; consisting of Rex Bell and Josh Benthien of Northland, Doctor Bedecs, Stephen Mohr and Scott Strynar of Mohr & Seredin and Tom Greer of Pinkham & Greer.

Stephen Mohr presented the Master Plan using a power point presentation for approximately ½ hour. After which, the neighbors asked a series of questions. These included:

- Can you move the Elks building west?

  Response: No, it is a fixed element in the site plan. Budget is a major issue.
- Who maintains the exterior components of the campus?

  Response: Clarke Insurance is very concerned with the look and condition of the site. Northland will have a professional management company doing the on-site maintenance.
- Are there any outside generators?

  Response: No
- What is the impervious cover on the lot?

  Response: Approximately 58%, just below the maximum allowed.
- Comments of the landscaping along the Congress consumed a fair amount of time. Several people wanted more screening with evergreens.
- The fence along the Linnell property may not be necessary. Good size evergreens would be preferred.
- The sidewalk entrance from Congress Street to the front building was a point of contention. The neighbors seemed to want that removed. This is not part of the neighborhood.
- The building designs were not presented. Those are being modified in response to City Staff comments.
- Trail connections were discussed and it was noted a fair amount of people use them now.
- A question was asked; can we move the front building easterly?

  Response: No, it was studied and the impact on neighbors and its connection to the internal campus have it located correctly.

- A brief discussion on stormwater treatment concluded the meeting.

Respectfully Submitted

Thomas S. Greer, P.E.

Att N

PARKING LIGHTS

1 OF 3

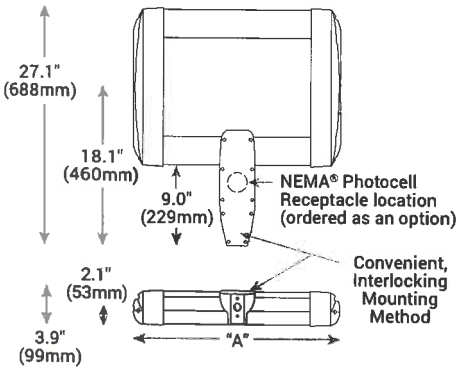
Cree Edge™ Series

LED Area/Flood Luminaire

Product Description

The Cree Edge™ Series has a slim, low profile design. Its rugged cast aluminum housing minimizes wind load requirements and features an integral, weathertight LED driver compartment and high performance aluminum heat sinks. Various mounting choices: Adjustable Arm, Direct Arm, Direct Arm Long, or Side Arm (details on page 2). Includes a leaf/debris guard.
Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

DA Mount



Performance Summary

Patented NanoOptic® Product Technology

Made in the U.S.A. of U.S. and imported parts

CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard

Limited Warranty†: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

† See www.cree.com/lighting/products/warranty for warranty terms

Accessories

Field-Installed	
Bird Spikes XA-BRDSPK	**Backlight Control Shields** XA-20BLS-4 - Four-pack - Unpainted stainless steel
Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required	

LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	21 lbs. (10kg)
04	12.1" (306mm)	24 lbs. (11kg)
06	14.1" (357mm)	27 lbs. (12kg)
08	16.1" (408mm)	28 lbs. (13kg)
10	18.1" (459mm)	32 lbs. (15kg)
12	20.1" (510mm)	34 lbs. (15kg)
14	22.1" (560mm)	37 lbs. (17kg)
16	24.1" (611mm)	41 lbs. (19kg)

AA/DL/SA Mount - see page 22 for weight & dimensions

Ordering Information

Example: ARE-EDG-2M-AA-12-E-UL-SV-350

Product	Optic			Mounting*	LED Count (x10)	E Series	Voltage	Color Options	Drive Current	Options
ARE-EDG	**2M** Type II Medium **2MB** Type II Medium w/BLS **2MP** Type II Medium w/ Partial BLS **3M** Type III Medium	**3MB** Type III Medium w/BLS **3MP** Type III Medium w/Partial BLS **4M** Type IV Medium **4MB** Type IV Medium w/BLS	**4MP** Type IV Medium w/Partial BLS **5M** Type V Medium **5S** Type V Short	**AA** Adjustable Arm **DA** Direct Arm **DL** Direct Long Arm **SA** Side Arm - Available with 20-60 LEDs	**02** **04** **06** **08** **10** **12** **14** **16**	**E**	**UL** Universal 120-277V **UH** Universal 347-480V	**BK** Black **BZ** Bronze **SV** Silver **WH** White	**350** 350mA **525** 525mA **700** 700mA - Available with 20-60 LEDs	**DIM 0-10V Dimming** - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current **F Fuse** - Refer to ML spec sheet for availability with ML options - Available with UL voltage only - When code dictates fusing, use time delay fuse **HL Hi/Low (Dual Circuit Input)** - Refer to HL spec sheet for details - Sensor not included **ML Multi-Level** - Refer to ML spec sheet for details - Intended for downlight applications at 0° tilt **P Photocell** - Refer to ML spec sheet for availability with ML options - Available with UL voltage only **PML Programmable Multi-Level, 20-40' Mounting Height** - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt **PML2 Programmable Multi-Level, 10-30' Mounting Height** - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt **R NEMA® Photocell Receptacle** - Intended for downlight applications with maximum 45° tilt - Photocell by others - Refer to ML spec sheet for availability with ML options **40K 4000K Color Temperature** - Minimum 70 CRI - Color temperature per luminaire
FLD-EDG	**25** 25° Flood **40** 40° Flood	**70** 70° Flood **SN** Sign	**N6** NEMA® 6							

* Reference EPA and pole configuration suitability data beginning on page 19
NOTE: Price adder may apply depending on configuration

Rev. Date: V3 10/15/2015

US: www.cree.com/lighting T (800) 236-6800 F (262) 504-5415

Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507

Product Specifications

CONSTRUCTION & MATERIALS

- **Slim, low profile, minimizing wind load requirements**
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance heat sinks
- DA and DL mount utilizes convenient interlocking mounting method. Mounting is rugged die cast aluminum, mounts to 3-6" (76-152mm) square or round pole and secures to pole with 5/16-18 UNC bolts spaced on 2" (51mm) centers
- AA and SA mounts are rugged die cast aluminum and mount to 2" (51mm) IP, 2.375" (60mm) O.D. tenons
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver, and white are available
- **Weight:** See Dimensions and Weight Charts on pages 1 and 22

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- DA and DL mounts designed with integral weathertight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- **Maximium 10V Source Current:** 20 LED (350mA): 10mA; 20 LED (525 & 700mA) and 40-80 LED: 0.15mA; 100-160 LED: 0.30mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- **Consult factory for CE Certified products**
- **Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards when ordered with AA, DA and DL mounts**
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15 standards for conducted and radiated emissions
- **Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117**
- **DLC qualified. Exceptions apply when ordered with full backlight control or 3MP** optic with 20 LEDs. Please refer to www.designlights.org/QPL for most current information
- Meets Buy American requirements within ARRA

Electrical Data*

LED Count (x10)	System Watts 120-480V	Total Current 120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
14	158	1.32	0.77	0.68	0.62	0.47	0.35
16	179	1.49	0.87	0.77	0.68	0.53	0.39
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
10	171	1.43	0.83	0.74	0.66	0.50	0.38
12	202	1.69	0.98	0.86	0.77	0.59	0.44
14	232	1.94	1.12	0.98	0.87	0.68	0.50
16	263	2.21	1.27	1.11	0.97	0.77	0.56
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/- 10%

Recommended Cree Edge™ Series Lumen Maintenance Factors (LMF)[1]

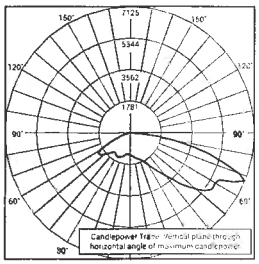
Ambient	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Calculated[3] LMF	100K hr Calculated[3] LMF
5°C (41°F)	1.04	0.99	0.97	0.95	0.93
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.91
20°C (68°F)	1.01	0.96	0.94	0.92	0.90
25°C (77°F)	1.00	0.95	0.93	0.91	0.89

[1] Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)
[3] In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

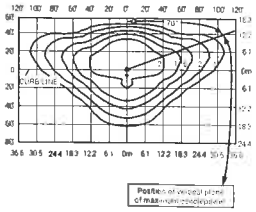
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool

2M



CSA Test Report #: 6371
ARE-EDG-2M--06-E-UL-700-40K**
Initial Delivered Lumens: 10,985



ARE-EDG-2M-**-12-E-UL-525-40K
Mounting **Height**: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 17,710
Initial FC at grade

Type II Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,138	B1 U0 G1	2,220	B1 U0 G1
04	4,276	B1 U0 G1	4,440	B1 U0 G1
06	6,340	B2 U0 G1	6,584	B2 U0 G2
08	8,454	B2 U0 G2	8,779	B2 U0 G2
10	10,542	B2 U0 G2	10,947	B2 U0 G2
12	12,650	B2 U0 G2	13,137	B3 U0 G3
14	14,665	B3 U0 G3	15,229	B3 U0 G3
16	16,760	B3 U0 G3	17,405	B3 U0 G3
525mA				
02	2,993	B1 U0 G1	3,108	B1 U0 G1
04	5,986	B2 U0 G1	6,216	B2 U0 G1
06	8,876	B2 U0 G2	9,218	B2 U0 G2
08	11,835	B2 U0 G2	12,290	B2 U0 G2
10	14,759	B3 U0 G3	15,326	B3 U0 G3
12	17,710	B3 U0 G3	18,391	B3 U0 G3
14	20,531	B3 U0 G3	21,321	B3 U0 G3
16	23,464	B3 U0 G3	24,367	B3 U0 G3
700mA				
02	3,656	B1 U0 G1	3,796	B1 U0 G1
04	7,311	B2 U0 G2	7,593	B2 U0 G2
06	10,842	B2 U0 G2	11,259	B2 U0 G2

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
Valid with no tilt

PATH LIGHTS
1 OF 3

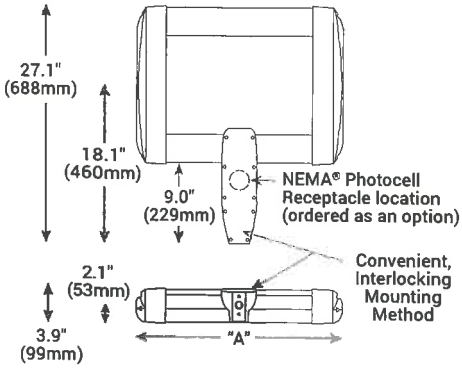
Cree Edge™ Series

LED Area/Flood Luminaire

Product Description

The Cree Edge™ Series has a slim, low profile design. Its rugged cast aluminum housing minimizes wind load requirements and features an integral, weathertight LED driver compartment and high performance aluminum heat sinks. Various mounting choices: Adjustable Arm, Direct Arm, Direct Arm Long, or Side Arm (details on page 2). Includes a leaf/debris guard.
Applications: Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

DA Mount



Performance Summary

Patented NanoOptic® Product Technology

Made in the U.S.A. of U.S. and imported parts

CRI: Minimum 70 CRI

CCT: 4000K (+/- 300K), 5700K (+/- 500K) standard

Limited Warranty†: 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

† See www.cree.com/lighting/products/warranty for warranty terms

Accessories

Field-Installed	
Bird Spikes XA-BRDSPK **Hand-Held Remote** XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required	**Backlight Control Shields** XA-20BLS-4 - Four-pack - Unpainted stainless steel

LED Count (x10)	Dim. "A"	Weight
02	12.1" (306mm)	21 lbs. (10kg)
04	12.1" (306mm)	24 lbs. (11kg)
06	14.1" (357mm)	27 lbs. (12kg)
08	16.1" (408mm)	28 lbs. (13kg)
10	18.1" (459mm)	32 lbs. (15kg)
12	20.1" (510mm)	34 lbs. (15kg)
14	22.1" (560mm)	37 lbs. (17kg)
16	24.1" (611mm)	41 lbs. (19kg)

AA/DL/SA Mount - see page 22 for weight & dimensions

Ordering Information

Example: ARE-EDG-2M-AA-12-E-UL-SV-350

Product	Optic			Mounting*	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options
ARE-EDG	**2M** Type II Medium **2MB** Type II Medium w/BLS **2MP** Type II Medium w/ Partial BLS **3M** Type III Medium	**3MB** Type III Medium w/BLS **3MP** Type III Medium w/Partial BLS **4M** Type IV Medium **4MB** Type IV Medium w/BLS	**4MP** Type IV Medium w/Partial BLS **5M** Type V Medium **5S** Type V Short	**AA** Adjustable Arm **DA** Direct Arm **DL** Direct Long Arm **SA** Side Arm - Available with 20-60 LEDs	**02** **04** **06** **08** **10** **12** **14** **16**	**E**	**UL** Universal 120-277V **UH** Universal 347-480V	**BK** Black **BZ** Bronze **SV** Silver **WH** White	**350** 350mA **525** 525mA **700** 700mA - Available with 20-60 LEDs	**DIM** 0-10V Dimming - Control by others - Refer to Dimming spec sheet for details - Can't exceed specified drive current **F** Fuse - Refer to ML spec sheet for availability with ML options - Available with UL voltage only - When code dictates fusing, use time delay fuse **HL** Hi/Low (Dual Circuit Input) - Refer to HL spec sheet for details - Sensor not included **ML** Multi-Level - Refer to ML spec sheet for details - Intended for downlight applications at 0° tilt **P** Photocell - Refer to ML spec sheet for availability with ML options - Available with UL voltage only **PML** Programmable Multi-Level, 20-40' Mounting Height - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt **PML2** Programmable Multi-Level, 10-30' Mounting Height - Refer to PML spec sheet for details - Intended for downlight applications at 0° tilt **R** NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - Photocell by others - Refer to ML spec sheet for availability with ML options **40K** 4000K Color Temperature - Minimum 70 CRI - Color temperature per luminaire
FLD-EDG	**25** 25° Flood **40** 40° Flood	**70** 70° Flood **SN** Sign	**N6** NEMA® 6							

* Reference EPA and pole configuration suitability data beginning on page 19
NOTE: Price adder may apply depending on configuration

2 OF 3

Product Specifications

CONSTRUCTION & MATERIALS

- Slim, low profile, minimizing wind load requirements
- Luminaire sides are rugged die cast aluminum with integral, weathertight LED driver compartment and high performance heat sinks
- DA and DL mount utilizes convenient interlocking mounting method. Mounting is rugged die cast aluminum, mounts to 3-6" (76-152mm) square or round pole and secures to pole with 5/16-18 UNC bolts spaced on 2" (51mm) centers
- AA and SA mounts are rugged die cast aluminum and mount to 2" (51mm) IP, 2.375" (60mm) O.D. tenons
- Includes leaf/debris guard
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver, and white are available
- **Weight:** See Dimensions and Weight Charts on pages 1 and 22

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- DA and DL mounts designed with integral weathertight electrical box with terminal strips (12Ga–20Ga) for easy power hookup
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- **Maximium 10V Source Current:** 20 LED (350mA): 10mA; 20 LED (525 & 700mA) and 40-80 LED: 0.15mA; 100-160 LED: 0.30mA

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without P or R options
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards when ordered with AA, DA and DL mounts
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15 standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- DLC qualified. Exceptions apply when ordered with full backlight control or 3MP optic with 20 LEDs. Please refer to www.designlights.org/QPL for most current information
- Meets Buy American requirements within ARRA

Electrical Data*

LED Count (x10)	System Watts 120-480V	Total Current 120V	208V	240V	277V	347V	480V
350mA							
02	25	0.21	0.13	0.11	0.10	0.08	0.07
04	46	0.36	0.23	0.21	0.20	0.15	0.12
06	66	0.52	0.31	0.28	0.26	0.20	0.15
08	90	0.75	0.44	0.38	0.34	0.26	0.20
10	110	0.92	0.53	0.47	0.41	0.32	0.24
12	130	1.10	0.63	0.55	0.48	0.38	0.28
14	158	1.32	0.77	0.68	0.62	0.47	0.35
16	179	1.49	0.87	0.77	0.68	0.53	0.39
525mA							
02	37	0.30	0.19	0.17	0.16	0.12	0.10
04	70	0.58	0.34	0.31	0.28	0.21	0.16
06	101	0.84	0.49	0.43	0.38	0.30	0.22
08	133	1.13	0.66	0.58	0.51	0.39	0.28
10	171	1.43	0.83	0.74	0.66	0.50	0.38
12	202	1.69	0.98	0.86	0.77	0.59	0.44
14	232	1.94	1.12	0.98	0.87	0.68	0.50
16	263	2.21	1.27	1.11	0.97	0.77	0.56
700mA							
02	50	0.41	0.25	0.22	0.20	0.15	0.12
04	93	0.78	0.46	0.40	0.36	0.27	0.20
06	134	1.14	0.65	0.57	0.50	0.39	0.29

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/- 10%

Recommended Cree Edge™ Series Lumen Maintenance Factors (LMF)[1]

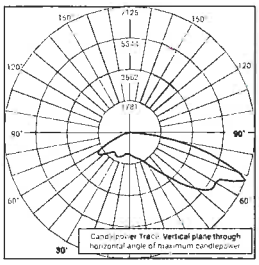
Ambient	Initial LMF	25K hr Projected[2] LMF	50K hr Projected[2] LMF	75K hr Calculated[3] LMF	100K hr Calculated[3] LMF
5°C (41°F)	1.04	0.99	0.97	0.95	0.93
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.91
20°C (68°F)	1.01	0.96	0.94	0.92	0.90
25°C (77°F)	1.00	0.95	0.93	0.91	0.89

[1] Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing
[2] In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e the packaged LED chip)
[3] In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

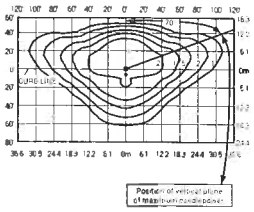
Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: www.cree.com/Lighting/Tools-and-Support/Exterior-IES-Configuration-Tool

2M



CSA Test Report #: 6371
ARE-EDG-2M-**-06-E-UL-700-40K
Initial Delivered Lumens: 10,985



ARE-EDG-2M-**-12-E-UL-525-40K
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 17,710
Initial FC at grade

Type II Medium Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
350mA				
02	2,138	B1 U0 G1	2,220	B1 U0 G1
04	4,276	B1 U0 G1	4,440	B1 U0 G1
06	6,340	B2 U0 G1	6,584	B2 U0 G2
08	8,454	B2 U0 G2	8,779	B2 U0 G2
10	10,542	B2 U0 G2	10,947	B2 U0 G2
12	12,650	B2 U0 G2	13,137	B3 U0 G3
14	14,665	B3 U0 G3	15,229	B3 U0 G3
16	16,760	B3 U0 G3	17,405	B3 U0 G3
525mA				
02	2,993	B1 U0 G1	3,108	B1 U0 G1
04	5,986	B2 U0 G1	6,216	B2 U0 G1
06	8,876	B2 U0 G2	9,218	B2 U0 G2
08	11,835	B2 U0 G2	12,290	B2 U0 G2
10	14,759	B3 U0 G3	15,326	B3 U0 G3
12	17,710	B3 U0 G3	18,391	B3 U0 G3
14	20,531	B3 U0 G3	21,321	B3 U0 G3
16	23,464	B3 U0 G3	24,367	B3 U0 G3
700mA				
02	3,656	B1 U0 G1	3,796	B1 U0 G1
04	7,311	B2 U0 G2	7,593	B2 U0 G2
06	10,842	B2 U0 G2	11,259	B2 U0 G2

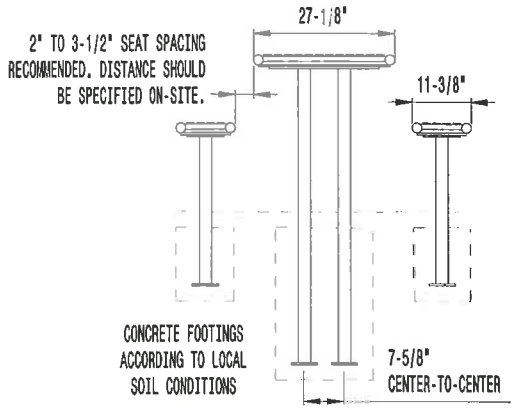
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf
Valid with no tilt

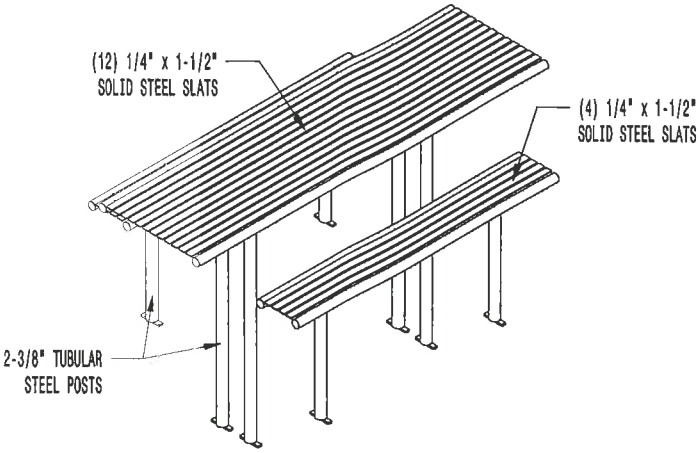
VICTOR STANLEY, INC.®
-Manufacturers of Quality Site Furnishings since 1962-

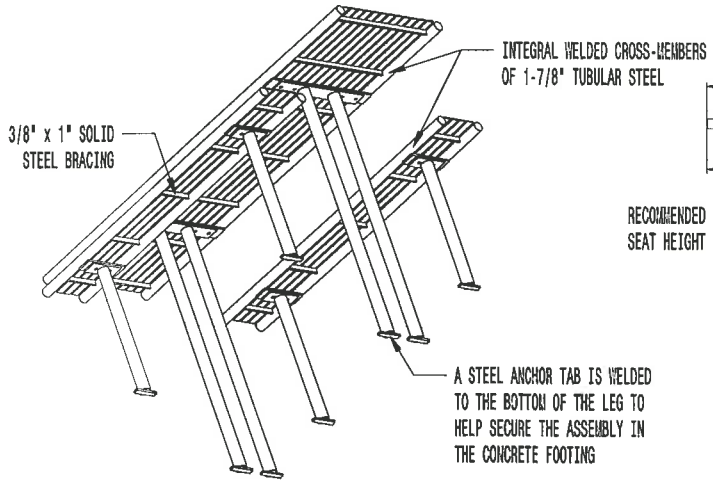
P.O. DRAWER 330 - DUNKIRK, MD 20754 USA
TOLL FREE: (800) 368-2573 (USA & CANADA)
TEL (301) 855-8300 - FAX (410) 257-7579
WEB SITE: HTTP://WWW.VICTORSTANLEY.COM

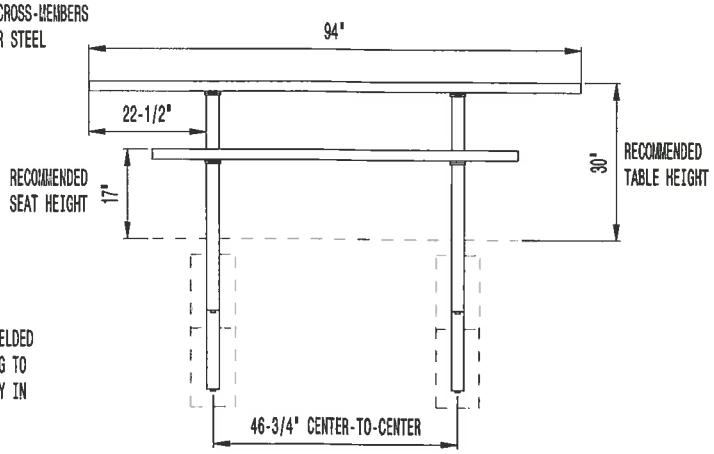
* ALL DIMENSIONS ARE IN INCHES *

THIS PRODUCT IS COVERED BY THE FOLLOWING US PATENTS: D578,783 S, D581,173 S, D581,188 S; CANADIAN PATENTS: 126319, 126320, 126321









AVAILABLE OPTIONS:
- POWDER COATING
  - 12 STANDARD COLORS, CUSTOM COLORS (INCLUDING THE RAL RANGE)
- MOUNTING
  - STANDARD SURFACE AND IN-GROUND
  - AVAILABLE WITH ADA COMPLIANT LEG POSITIONING
  - (ADA COMPLIANT TABLE/BENCH CONFIGURATION: 8' TABLE WITH 6' BENCHES)

LENGTHS
- STANDARD 6'
- STANDARD 8' LENGTH SHOWN

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED IN THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. FOR HIGH SALT ABUSIVE CLIMATES, HOT DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. SEE WRITTEN SPECIFICATIONS FOR DETAILS.
5. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
6. THIS PRODUCT IS SHIPPED PARTIALLY UNASSEMBLED.

FBF-56

STREETSITES SERIES™

STANDARD ALL STEEL TABLE
SHOWN: STANDARD 8-FOOT LENGTH (ADA COMPLIANT)
STANDARD IN-GROUND MOUNT

Standard Color: BLACK
( ) Required

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REV. 9/14/10 DRAWN R.J.C. 2010-383

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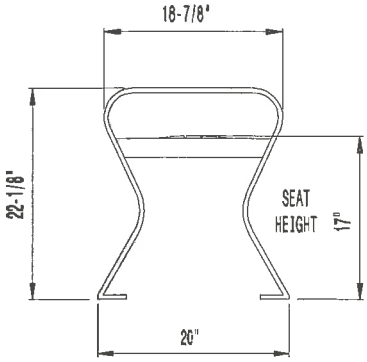

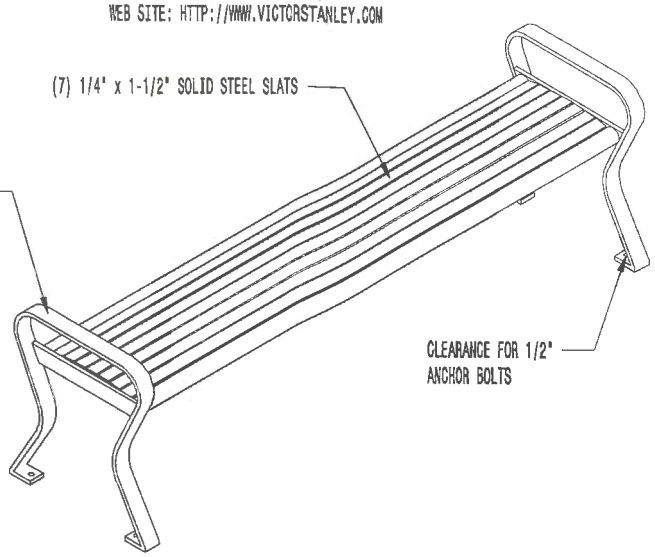

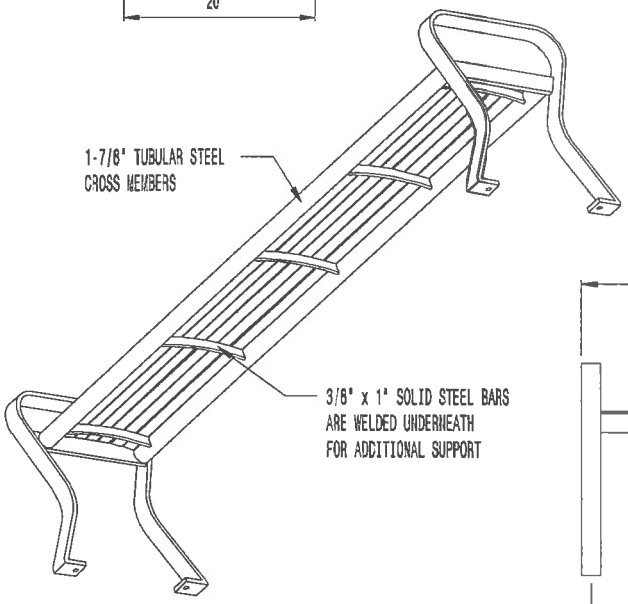

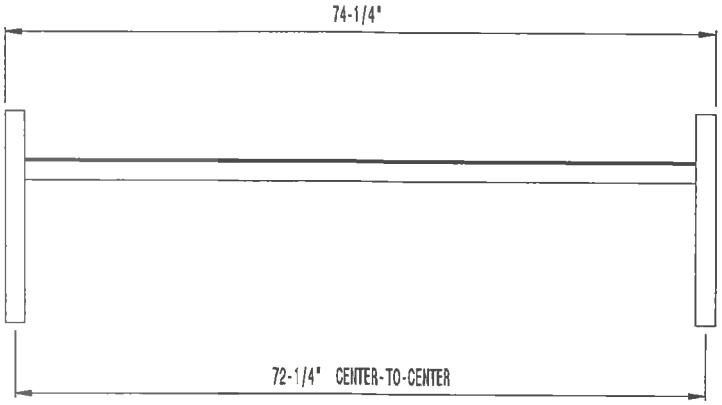

AVAILABLE OPTIONS:

POWDER COATING
- 10 STANDARD COLORS, CUSTOM COLORS (INCLUDING THE RAL RANGE)

INTERMEDIATE & CENTER ARMRESTS
- 4', 6', & 8' AVAILABLE WITH OPTIONAL ARMREST
- CENTER SUPPORT LEG (STANDARD FOR 8' LENGTHS)

LENGTHS
- STANDARD 4'
- STANDARD 6' LENGTH SHOWN
- STANDARD 8'

NOTES:
1. DRAWING NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH COAT AVERAGES 8-10 MILS (200-250 MICRONS).
3. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL BENCH IS IN PLACE. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. ANCHOR BOLTS NOT PROVIDED BY VICTOR STANLEY, INC.
5. FOR HIGH SALT ABUSIVE CLIMATES, HOT DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. SEE WRITTEN SPECIFICATIONS FOR DETAILS.
6. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
7. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

RBF-12

STEELSITES™ RB SERIES

STANDARD ALL STEEL BACKLESS BENCH
SHOWN: STANDARD 6-FOOT LENGTH

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REV. 08/09/07 DRAWN L.D.L. 2007-324

SECURE SITE DESIGN™ L.L.C.
(a VICTOR STANLEY, INC.® affiliate)

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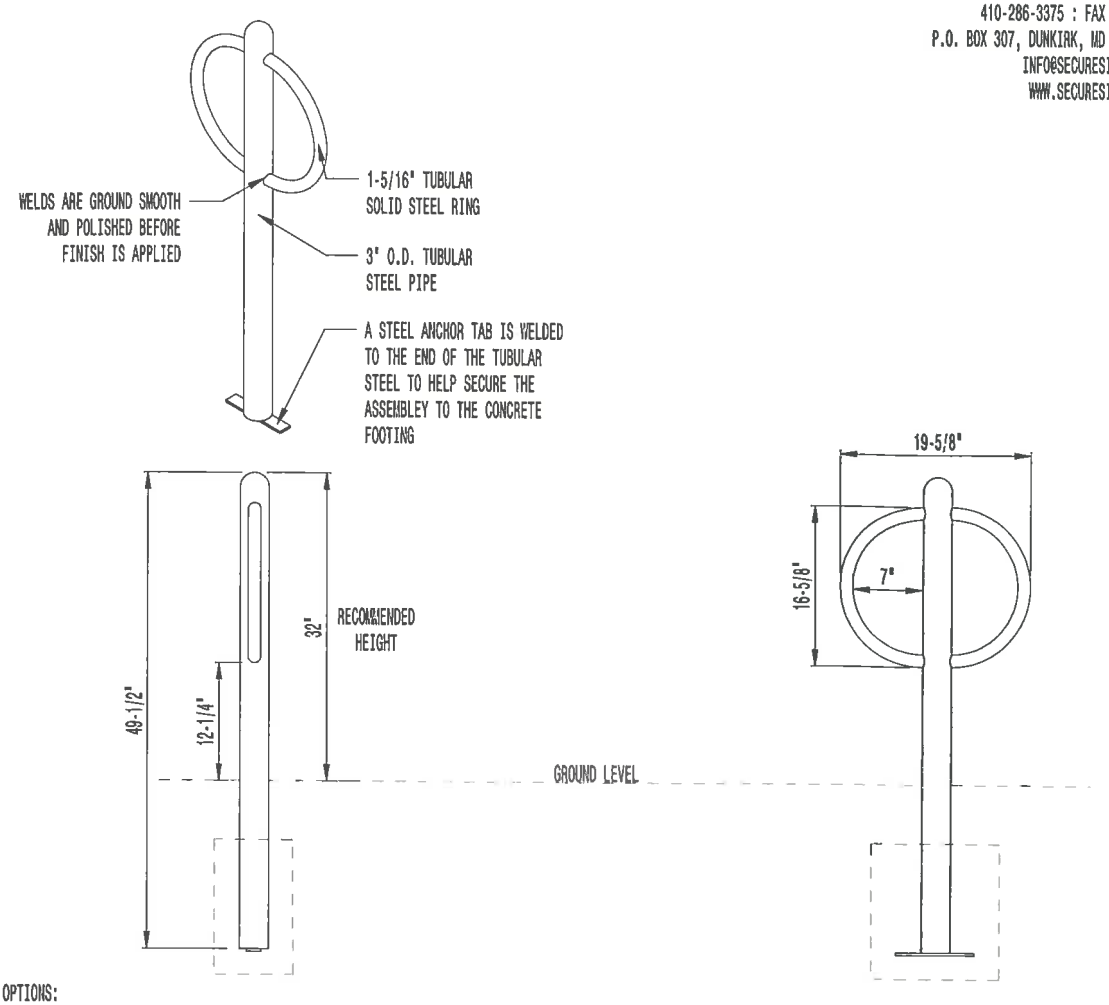
P.O. BOX 307, DUNKIRK, MD 20754 U.S.A.
INFO@SECURESITEDESIGN.COM
WWW.SECURESITEDESIGN.COM

* ALL DIMENSIONS ARE IN INCHES *



AVAILABLE OPTIONS:

POWDER COATING

10 AVAILABLE COLORS, 2 OPTIONAL METALLIC
CUSTOM COLORS (INCLUDING THE RAL RANGE AT AN ADDITIONAL COST)
(ALL POWDER COAT FINISHES ARE DONE AT VICTOR STANLEY, INC. (VSI) TO MATCH THE VSI PRODUCT LINE)
OTHER FINISHES: GALVANIZED (SPECIAL QUOTE NEEDED)

MOUNTING

STANDARD IN-GROUND (AS SHOWN) AND SURFACE

NOTES:

1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PREHEATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. THIS SECURE SITE DESIGN, LLC. PRODUCT MUST BE PERMANENTLY AFFIXED IN THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
5. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

BRBS-103

CYCLE SENTRY™ SERIES

BIKE RACK
SHOWN: STANDARD IN-GROUND MOUNT

Standard Color: Black
(20) Required

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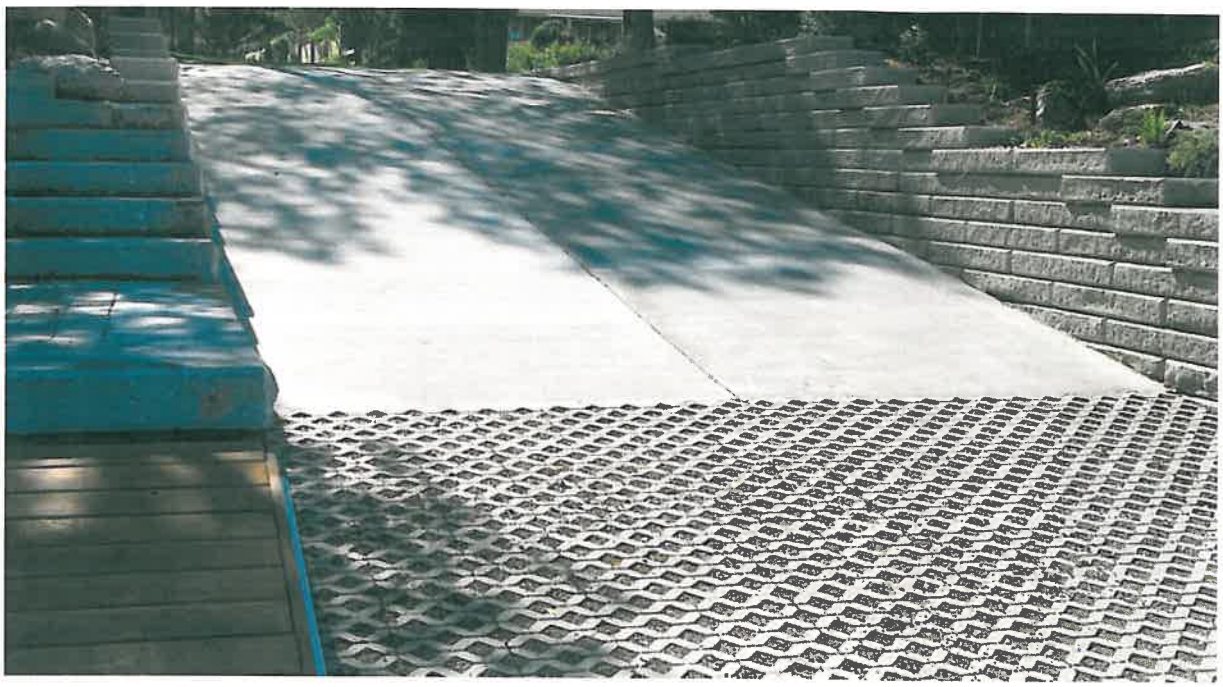
REV. 8/8/13 DRAWN C.R.K 2013-882

1945 Congress Street, Portland, Maine

Turfstone™

For erosion control and supported turf.

Turfstone has long been a favorite of landscape architects and engineers for areas requiring a supported turf. Its filigree design makes it an attractive and permanent solution for emergency access areas, embankments, spillways, and environmentally sensitive parking areas. Turfstone has the option of being filled with grass or aggregates depending on the project's drainage requirements.



Colors

Natural

Shapes & Sizes

Standard
60 cm x 40 cm x 8 cm

23.5" x 15.75" x 3.25"

Features

Applications

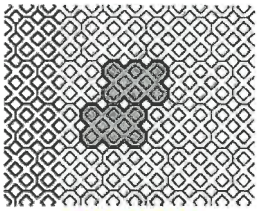
Commercial Vehicular

Residential Vehicular

Surface Texture

Standard

Patterns



Turfstone A

standard (100%)

Packaging

	Unit Thickness	Sq. Ft. Bndl.	Units Sq. Ft.	Lbs Bndl.	Units Bndl.
Standard	8	72	0.39	1748	28

Additional Turfstone™ Information

Sold in full bundles only. Product is shipped on refundable skids. Turfstone 10cm is not a stock item. Contact your territory manager for lead time.

Important Information

Turfstone has long been a favorite of landscape architects and engineers for areas requiring a supported turf. Its filigree designmakes it an attractive and permanent solution for emergency access areas, embankments, spillways, and environmentally sensitive parking areas. Voids are filled with grass or colored aggregates.

Base Requirement & Bedding Course – standard paver base specification.

Handling and Installation – Do not compact with a large compactor. Care must be taken to avoid tossing stones so that they bang against each other. Damage to the surface appearance can happen if handled too rough.

Jointing Material and Joint Stabilization

- Soil and grass seed.

All measurements are nominal

Colors, product data, and availability are subject to change without notice. Please confirm all details with your local Unilock Dealer or call 1-800-UNILOCK (1-800-864-5625) for availability in your area. The colors shown should only be used as a guide. Final color selections should always be made from actual samples.

PINKHAM & GREER
CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
Tel: 207.781.5242 Fax: 207.781.4245

File: 13151

June 17, 2016

Ms. Helen Donaldson, Planning Department
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

RE: SITE PLAN APPLICATION, 1945 CONGRESS STREET

Dear Nell,

Over the last month we have been investigating many options to address the concerns of the Board. Attached are revised building elevations that coordinate all three buildings for the campus look that the Board noted. Mohr and Seredin has prepared a Landscape Plan that also address the campus feel and minimizes the views of the parking and the overall pavement. We have also been working with the Staff to get the traffic issues addressed and the Traffic Report has been submitted and is being reviewed by Tom Errico. Clearly this project is much more refined then our previous submittal. Below are some of the specifics of the project.

1. More green space has been included by using compact spaces, including tandem parking spaces, and including spaces with pervious pavers. The locations of the spaces have been adjusted to increase the additional green space between the three buildings, and between the road and the Elks Club, and thereby reduces the visibility of the cars from the road. The compact spaces have allowed there to be a wider landscaped island between Elks and Clark.
2. The Planting Plan has been revised to provide a more informal look. This is in keeping with the Master Plan of the site. It also allows the groups of trees and shrubs to be placed to minimize views from Congress Street and across the site.
3. There is an open curving green approximately 150' x 50' between the three buildings with benches that will serve as an outdoor gathering space for the three building's users. The use of all similar pieces provides the campus feel.
4. We are showing a stormwater system that addresses the City's requirements. It will have a storage system of 4 foot diameter pipe that will hold the water quality volume and a proprietary Jellyfish filter system that will remove contaminates from the stormwater.

Architectural Changes:

Attached are the latest renderings, please note the following changes incorporated based upon staff comments. Please incorporate comments in your submission. Please note that the board did ask for new street views of the project. We have not produced to date as they will take some time and we still have not received a new site plan. If the team wants these we could always make our submission and submit these ASAP.

1: Medical office building
- A: We included a door facing Congress Street.
- B: Secondary material is clapboard

PINKHAM & GREER
CIVIL ENGINEERS

C: We have reduced the amount of stone
D: We have designed a new canopy entry feature which is now incorporated on all three buildings

2: Elks building
A: siding changed to clapboard
B: windows added
C: we have designed a new canopy entry feature which is now incorporated on all three buildings

3: Clark building
A: We have changed the flat roof building at stone section to a parapet wall.
B: Roof interplay gable to flat has been revised.
C: Fenestration has been revised to match medical office building.
D: We have removed one vertical glass tower element on the elevations. These are introduced to the building to create open, well lite, spaces for group gathering spaces in the building and provide interest to the exterior elevations
E: We have designed a new canopy entry feature which is now incorporated on all three buildings

The drawings have been developed to a point that staff can review them for the intent of compliance. The board can make a positive finding on the compliance with the Master Plan sections of the Zoning and hopefully move this project forward.

Thank you very much for your guidance and efforts on this project.

Sincerely,

PINKHAM & GREER,
CIVIL ENGINEERS

Thomas S. Greer, P.E. /JPC

Enclosures

cc: Northland, Mohr & Seredin, File

TSG/rjs

PINKHAM & GREER
CIVIL ENGINEERS

We have also responded to William Clark's memo dated July 12, 2016

Items 1 thru 7 and 9 have been addressed.

Item 8 has not. The Professional Land Surveyor Sealed drawing will be signed and sealed when the drawings have been approved.

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

O-P DEVELOPMENT STANDARDS (14-230.13) (OP Planned Unit Development): 2nd Round Review Comments		**Developer Notes as of 7/20/16**
Master Plan	•	•
Design relationship to site	•	•
Landscaping	•	•
Impervious surface ratio	• Please document that impervious surface ratio standard is being met	• The impervious ratio is 52.7% below the 60% maximum.
Sidewalks	•	•
Buffers and screens	• Note that buffer maintenance should be written into condominium documents •	• Will be noted in the final condo documents. See attached document on condo documents.
Preservation of natural features	•	•

Traffic	• Dominance of parking in site design continues to be a concern, particularly the large expanses between the Elks and Clark Insurance, especially as parking supply seems to be built around a very short peak demand.
	  • Programmatically, has every option short of building additional spaces been explored? Need more background on efforts to use parking demand management strategies to offset (i.e. using a shuttle for Bingo, locating Bingo off-site, changing Bingo time).
	  • Is there a way to integrate parking with naturalized landscaping at rear of the site?
		• See parking analysis by Josh Benthien, Northland Enterprises.

Architectural design	• See latest comments via email to David Lloyd	• To be provided by David Lloyd.
Lighting	•	•
Signs	•	•

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

LEVEL II/III REVIEW (14-526): 2nd Round Review Comments			Developer Notes as of 7/20/16
In final submittal, provide narrative relating to site plan standards and all required documentation from application checklist			
Transportation	a. Impact on Surrounding Street Systems	•	•
	b. Access and Circulation	• Provide a sidewalk connection from UNUM Park Drive	• The sidewalk connection has been added to the site plan.
	c. Public Transit Access	• As a commercial development over 20KSF, required to provide a transit facility. Bus shelter should be shown on the plan (not simply noted) with public access easement delineated (as necessary). Include note stating that location is to be coordinated with METRO.	• We have shown a bus shelter at the Congress Street entrance to UNUM. We will be coordinating with Metro to see if this location is acceptable.
	d. Parking	• See comments above re parking demand management and design of parking supply. Ordinance requires applicants to justify parking supply if exceeding requirement. Need to document that other options for managing supply are not workable. • Bike parking standard: Commercial – 2 spaces/10 vehicle spaces required = 18 spaces. Plans show 16 (?) Either clarify or provide additional spaces. • Bike parking should be located proximate to doors, as possible (see Clark, Elks) • Snow storage should be denoted on plan	• Attached is a letter from Josh Benthien justifying the parking needs. • Bike parking has been relocated on the plans. 40 spaces are provided on the exterior of the buildings. • Snow storage areas have been added to the site plan.
	e. Transportation Demand Management (TDM)	• Since planning for over 100 employees, a transportation demand management plan is required in final submittal.	• Diane Morabito of Maine Traffic Resources have developed a TDM plan as is noted in Josh Benthien's letter.
Environmental Quality	a. Preservation of Significant Natural Features	•	•
	b. Landscaping and Landscape Preservation	• Landscape plan should show limit of clearance, as should demo plan • Showing maple trees in sidewalk on island behind Elks	• The limit of clearing has been added to the plans and the landscape plan has been revised.
	c. Water Quality, Stormwater Management and	•	•

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

	Erosion Control		
Public Infrastructure and Community Safety	a. Consistency with Master Plans	•	•
	b. Public Safety and Fire Prevention	•	•
	c. Availability and Adequate Capacity of Public Utilities	• Electrical should be underground from property line • In final submittal, will need capacity letters	• The overhead lines have been terminated at Congress Street and will run underground to each building.
Site Design	a. Massing, Ventilation and Wind Impact	• Where are HVAC venting mechanisms located?	• The HVAC units will be roof top units for the two new buildings. The existing building's HVAC systems will be ground mounted units along the side of the building. Location TBD. The specifications for the units will be part of the building permit package. If necessary, please make this a condition of approval.
	b. Shadows	•	•
	c. Snow and Ice Loading	•	•
	d. View Corridors	•	•
	e. Historic Resources	•	•
	f. Exterior Lighting	• Are two scales of lights still proposed? It appears that all lights on the plan are the same height, based on photometric plan	• The Photometric Plan gives pole heights in the legend. There are 20 foot and 25 foot tall fixtures. See Photometric Plan.
	g. Noise and Vibration	• Need documentation on that HVAC equipment meeting emissions standards	• Please see above for HVAC systems.
	h. Signage and Wayfinding	• Document that number and placement of signs meet the provisions of the sign ordinance. • Note that, per ordinance, building signs shall be designed in proportion and character with building facades.	• Northland Enterprises, to submit signage proposal with final submittal.
	i. Zoning Related Design Standards	• See latest comments via email to David Lloyd	• Response to be provided by David Lloyd.

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

SUBDIVISION REVIEW (14-497) : 2nd Round Review Comments		Developer Notes as of 7/20/16
As with site plan review, in next submittal, provide narrative relating to the subdivision review standards and all submission requirements per ordinance		
1. Water/Air Pollution	•	•
2. & 3. Water Supply	• Need water capacity letter	• We have requested an Ability to Serve Letter in early June 2016. The PWD has not provided the Ability to Serve letter as of 7/20/16. To be submitted upon receipt.
4. Erosion	•	•
5. Transportation Impacts	•	•
6. Sanitary Sewer/Stormwater	•	•
7. Solid Waste	• Provide description of solid waste management plan	• Solid Waste Plan. We have shown dumpsters for each building. Each building owner will hire a private waste hauler to remove waste from the site. • During construction the waste will be separated and as much as practicable, will be recycled.
8. Scenic Beauty	•	•
9. Comprehensive Plan	•	•
10. Financial and Technical Capacity	• Need proof of financial capacity	• Attached is a letter on Financial capability of Northland Enterprises to complete the project.
11. Wetland Impacts	•	•
12. Groundwater Impacts	•	•
13. Flood-Prone Area?		
14. & 15. ID Wetlands & Rivers		

1945 CONGRESS (25,300 SF general office, 15,000 SF medical office, 13,500 ELKS) - PLANNING COMMENTS

Developer Notes as of 7/20/16 in bold

Additional Submittals Required

Evidence of state and/or federal approvals/permits required

The site requires an NRPA Permit for work adjacent the stream. Attached is a copy of that application. The project also needs to file a Notice of Intent to Comply, which is part of that application.

Written assessment of compliance with zoning

Attached is a written assessment of the zoning prepared by Drew Anderson of Murray Plumb and Murray.

Written request for waivers. **The Developer is unaware of any waivers required.**

Evidence of financial & technical capacity

Attached is a letter on the financial capability of Northland Enterprises to complete the project from Bangor Savings Bank.

Site plan:

- *See shading at rear entry to Elks – layers are misaligned*
- *Denote dumpsters and indicate that they will be enclosed within wooden fence (with reference to detail)*
- *Identify differing lights on plan, including building-mounted lights*
- *Have picnic areas been eliminated?*
- *Show HVAC locations (and screening, if visible to street or adjacent sites)*
- *TMP application suggests moving speed limit sign on UNUM Park Drive. Please show this on plan.*

Details:

- *Include bench detail, trash can detail*
- *Include light details or notes re lighting types*

Plat (see also original review comments attached):

- *Show tree saves/limit of clearance*
- *Clearly delineate common areas*
- *Show all proposed/existing easements*

The site plans have been revised to show the dumpsters, picnic locations and the like. These are still under review by the tenants and subject to change.
We show moving the speed limit sign on UNUM Drive.
Attached is a submittal by Mohr & Seredin showing the site furnishings.

Condo Docs addressing shared parking, TDM, treatment of common areas, design, landscaping, etc.

Attached is a document from the Developer addressing the Condo documents

Zoning

Need elevations to verify building height

The Elks Building is 19'-9 3/4" high, the Clark Building will be 32'-2" high, and the Medical Building will be 37'-2 1/2" high. These are well below 55' high, the maximum allowed.

Easements

In final submittal, provide descriptions of any easements encumbering the site. It appears that the parking areas may encroach on the PWD easement, and some clearing may be completed in this easement area. Confirm that this is permissible under the terms of the easement.

The Developer is purchasing the PWD land prior to the acquisition of the Elks property. See attached P&S agreement.

Both permanent grading and temporary construction easements will be required for grading over property line to north.

The Developer is purchasing the PWD land prior to the acquisition of the Elks property. See attached P&S agreement.

Utility easement will be required from DuBois

The location of the electrical utility lines have been relocated and will not require an easement. The electrical line will run underground from Congress Street.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

1945 Congress Street - Planning Board Workshop, 5/10/16

William Linnell <captlinnell@yahoo.com> Mon, May 2, 2016 at 12:34 PM
To: Helen Donaldson <hcd@portlandmaine.gov>, David Silk <dsilk@curtisthaxter.com>, Stroudwater Village Association Board of Trustees <stroudwatervillageassociation@gmail.com>, Roger Hinchliffe <roger@amanofhiswords.com>

Hi Nell,

Thank you for the notices of the upcoming meetings.

Now that the zone change has been approved, I would like to see how the Planning Board will apply the Office Park zone rules to the Elks plan.

Specifically, I am concerned as I see the current proposal as more of an "Office/ Parking Lot" than an "Office Park."

The zone calls for a park or campus- like setting. The proposed plan is hardly a park or a campus-like setting, due to its ambitious density of buildings and parking.

My first question--On what basis would or would not the Planning Staff recommend approval of a project zoned Office Park, with respect to density and traffic?

-- It seems that the Unum property is a genuine example of the spirit of the zone- set back from the road and with enough green space to truly embody a campus or park-like setting.

Second and third questions: What, if any, guidelines does the Planning Staff have regarding the allowed density of the Office Park Zone? Is there a limit to how many square feet of buildings and parking lot may be in an Office Park, relative to the open or green space on the lot?

Best,

Bill Linnell

Sent from Yahoo Mail on Android

From:"Helen Donaldson" <hcd@portlandmaine.gov>
Date:Mon, May 2, 2016 at 8:46 AM
Subject:1945 Congress Street - Planning Board Workshop, 5/10/16

[Quoted text hidden]

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.

May 3, 2016

Portland Planning Division - 4th Floor
City Hall
389 Congress Street
Portland, ME 04101

Re: 1945 Congress Street

Dear Planning Board Members,

Thank you for welcoming public comment. Both the 7-acre parcel at 1945 Congress Street and the 40-acre parcel associated with Camelot Farm on Stroudwater Street offer great opportunities. Hearing from those who reside here really might allow a better outcome for Portland.

I am not against the proposed development of the 1945 Congress Street project, yet feel compelled to comment on the placement of the buildings upon the lot. Making it a little less visually prominent is more in keeping with the surrounding area - which remains largely residential. Keeping in touch with the texture of the surrounding homes and historic values would be greatly appreciated. This is not a downtown area that will garner walk-in traffic for the medical building being built and there is a way this can be approached that can win broad support. Additionally, trees will diminish both the light pollution and the increased noise from additional vehicular traffic.

As increased traffic will no doubt have an impact, and knowing that safe streets remains part of the Stroudwater Village Association's Mission, it is imperative that any changes to traffic flow be approached carefully. A Garrison Street traffic light or a school bus stop could be quite hazardous in the afternoon when coming up that hill into the setting sun during the winter months - vision is terrible and an accident with serious consequences is a real concern.

As a resident of Stroudwater, I have watched many projects that have had an immediate impact on our historic village and its surroundings: Mr. Scark's promised barn-like structure for his aviation pursuits did not turn out as promised; the dyslexia center for the Mason's did not follow Planning Board approvals and the installed vinyl siding had to be removed after a fuss; windows are cracked in houses as heavy trucks roar by on Stroudwater Road/Westbrook Street. Speed limits are not adhered to and traffic studies have been flawed in their calculations due to backed up traffic and cars entering from side roads and driveways.

Please be mindful of what Stroudwater remains to the city of Portland. We are the last rural bastion and a gateway of pastures, salt and fresh water rivers, birds and wildlife, and historic homes.

Thank you - Eugenia O'Brien, 1376 Westbrook St., Portland 04102 (207) 773-5610

Hi Nell, (and Hi Dave and Ethan and SVA),

Thanks for your call. To summarize our conversation concerning the May 5 Stroudwater-Northland meeting:

1. Present site plans of the medical building along Congress St include a paved walkway from the street into the rear midsection of the building. It would have little to no practical function, as all the doctor's clients will, of course, drive into the parking area opposite the main entrance facing the parking lot. Northland includes this paved walkway in its plan only because the City requires such a walkway be in place. They have no objection whatsoever to eliminating this walkway altogether, and there is another planned (and narrow) walkway opposite the western end of the building which provides pedestrian access from Congress St.. We strongly urge the Planning Board to allow this patch of green along Congress to remain green in the future.

2. Present plans for trees along Congress St between the street and the medical building allow for two groups of four deciduous trees opposite each end of the building, with a large gaping hole in the middle for the redundant walkway described above. These trees will be bare from October thru June and therefore do not begin to satisfy our strong desire for a green buffer along Congress. Therefore we strongly urge the City and Northland to plant a hedge of thick, tall mature evergreens along this stretch of Congress which would at least attempt to honor the latest Planning Board priorities as very clearly expressed by Jeff Levine's recent memo (pts 3, 5 &6)

*3."... **Preserve a greenscape along Congress Street in the vicinity of the airport road** to soften the transition to commercial areas to the south and west and the residential areas to the east. The city should continue to encourage planting and landscape preservation in this area. **Sites along Congress Street should be carefully designed to help enhance this transition".***

*5. "...Continue to mitigate the airport's impacts on the surrounding neighborhood by **preserving a vegetated buffer around the airport itself**... The undeveloped areas which currently border the airport...should be maintained to the greenest extent possible..."* *and*

*6. "Emphasize context-sensitive site planning...and high quality design to minimize development impacts... The city should focus **upon preserving and encouraging the elements of outer** Congress Street that make it a desirable place to live."*

Please forward this letter to the Planning Board today, as we will surely discuss this at the meeting tomorrow. Thank you for your help.

Sincerely,

Roger Hinchliffe
207 775 7501

PS: I'd be grateful if you could contact me (email and/or phone) once you receive this letter, which I include as an attachment as well.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

1945 Congress Street PB workshop on Master Plan

2 messages

David Silk <DSilk@curtisthaxter.com> Mon, May 9, 2016 at 11:00 AM
To: "Helen Donaldson (HCD@portlandmaine.gov)" <HCD@portlandmaine.gov>
Cc: "Stroudwater Village Association Board of Trustees (stroudwatervillageassociation@gmail.com)" <stroudwatervillageassociation@gmail.com>

Hi Nell: One of the results of the neighborhood meeting last week on the proposed Master Plan for the 1945 redevelopment was the elimination of a walkway from the midpoint of the proposed medical office building to Congress Street. I understand there is no operational need for the walkway but the developer has been told that the City wants the walkway. I think that is ill advised. Keeping in mind the goal is to create a campus like setting, inserting a walkway that is not needed is inconsistent with that goal. No walkway exists from Congress Street to the midpoint of the UNUM campus. The medical office buildings at the corners of Frost and Congress also do not have a walkway from the midpoint of the buildings to Congress Street. The neighborhood sees no need for the walkway and would rather see the area between the building and Congress Street covered by green space with landscaping. This is needed to lessen the impact of a building that but for site constraints (driven by the need to preserve the present Elks building at its present location) would be located much further away from Congress Street as that would be consistent with the UNUM campus which abuts this parcel. The neighborhood wants to have the medical building be somewhat innocuous for someone walking or driving along Congress Street so as to minimize its impact on the abutting residences and historic district.

Also while not yet at site plan, the developers mentioned they will be seeking a waiver of the lighting standards in order to lower the lighting fixtures and also have timers. Everyone at the meeting strongly supported this request. Also the neighbors did not want any lit signage on the medical office building given its close proximity to Congress Street.

Finally of the design options presented, the one final draft proposal seems to work best for the site and for the area as it provides for landscaped buffering and attempts to minimize the visual impact of the development from Congress Street.

We also look forward to hearing more about trail interconnectivity with the network on the UNUM property. I also suggested the developer look at setting up several charging stalls as part of parking area. Also snow removal/storage needs to made clear.

Can you add these comments to the comments to be provided to the Board for the workshop session.

Thanks.

David Silk

1187 Westbrook St

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

Elks Planning Board Meeting 5.10.16

William Linnell <captlinnell@yahoo.com> Mon, May 9, 2016 at 4:15 PM
To: Helen Donaldson <hcd@portlandmaine.gov>
Cc: David Silk <dsilk@curtisthaxter.com>, Roger Hinchliffe <roger@amanofhiswords.com>, Stroudwater Village Association Board of Trustees <stroudwatervillageassociation@gmail.com>

Hi Nell,

A concern that I asked the applicant to address in their next revision is year-round screening of the project. The plan view we have been looking at would show a lot of green when viewed from the air from about June through September. However, the project needs a significant amount of evergreens to screen it from the street, and from our property. We ask that they be abundant, and mature enough to be effective immediately.

Best,

Bill Linnell
1905 Congress St.

Sent from Yahoo Mail on Android

STATEMENT from the Stroudwater Village Association regarding the proposed Master Plan for 1945 Congress Street (Elks Club Property), May, 2016. stroudwatervillageassociation@gmail.com

The SVA and many area residents have reviewed with interest the Master Plan proposals submitted by Northland Enterprises, LLC for the 1945 Congress Street parcel, which is now part of the adjacent O-P Office Park Zone. We understand the May 10th workshop is not a voting event, and as such are going to simply share some of the feedback we have heard from residents and SVA Trustees.

First and foremost, it is worth noting that it is clear that Northland is attempting to listen and respond to to resident feedback, and that is very much appreciated. We look forward to open, ongoing discussions.

As it relates to what we have seen in the proposal so far, a major area of interest for residents continues to be the visible Congress Street exposure. As such, resident suggestions have included:

- Elimination of the proposed, but operationally-unnecessary pedestrian entrance walkway from Congress Street to the medical building, and replacing the walkway's open sight lines to the medical building with trees and landscape.
- Adding evergreen trees alongside the proposed deciduous trees along Congress Street and along the residential border with for year-round shielding. Trees should be mature enough to be effective immediately.
- Elimination of lighted "billboard" signage on buildings.

Another area of interest is the operational impact of the proposed development. As such, residents have requested:

- A clear plan for snow removal/storage.
- Aggressive stormwater treatment measures during construction and operation to prevent runoff into the Stroudwater River.
- A picture of how site traffic fits into and impacts Outer Congress Street Phase II Traffic calming improvements, especially those in the area of Garrison Street

Some items in the current proposal that residents have reacted favorably to:

- Use of shorter, less strong lighting with timers to minimize light pollution onto area residences.
- Use of berms and lower-elevation parking to minimize light pollution from car headlights onto residences and Congress Street itself.
- Relocation of entranceway farther up UNUM Park Drive.
- Design elements that align with residential housing, and that are used consistently across buildings to reinforce a campus feel.
- Linkages, where possible, to existing trail networks.

This list is not meant to be comprehensive, but reflects some of the feedback we have heard so far, as well as what we believe fit most appropriately both with the neighborhood and the intent of the O-P zone. We look forward to the ongoing discussions.

TO: Helen Donaldson
Planner, City of Portland
City of Portland, Maine

Statement from Stroudwater Village Association regarding 1945 Congress Street, Site Plan and Subdivision Application for Office Park, July 2016

The Trustees of the Stroudwater Village Association ("SVA") have reviewed the applicant's latest submission for Site Plan and Subdivision approval for an office park development at 1945 Congress Street. We understand the Planning Board is holding a workshop on this application on July 26th. Here are our comments and concerns.

First and most concerning, we believe that the latest proposal represents a meaningful step in the wrong direction in terms of conformance with the Historic District. We remind all concerned that 1945 Congress Street is located the in very close proximity (less than 500 feet) to the entrance on Congress Street to the Stroudwater National Historical District. See attached City map. The District came into existence in 1973 and seeks to preserve and protect an area that includes historical structures and features created from the late 1600s to the 1850s, a time when Stroudwater was a major ship building center.

The City describes the District as follows:

> The Stroudwater Historic District is significant as an early village which still conveys a coherent sense of a place, as well as its distinctive history. The fact that Stroudwater is now part of the City of Portland, where comparable eighteenth and early nineteenth century settlement has been considerably obliterated by fires and later development, makes this historic district even more important to the city. Moreover, Stroudwater is a good example of the planning of a New England village, not according to rigid plans and stereotypical central commons, but in terms of the natural topography that both respected the landscape and exploited it for economic advantage. For instance, the streets on which the historic structures now stand follow the high ground and were originally the roads used to haul masts to the Fore River. For these reasons the historic district is of inestimable educational value, requiring special protection to preserve it from the intrusion of twentieth century urbanism.

http://www.portlandmaine.gov/1614/Stroudwater-Historic-District

We have reviewed the revised submittals, including elevations and renderings. From our perspective, the buildings and the materials proposed do not recognize and are not compatible with the fact that the site is in close proximity to the Historic District. The canopy open lobby feature of both buildings, predominantly flat roofs, one story add-ons, and the stone like primary siding in our view are in our view not compatible at all. It appears that, in an effort to create a common theme among buildings, the applicant has chosen to emphasize design characteristics following the "lowest common denominator" (existing Elks Club building, with its flat roof)

rather than a more appropriate design theme. This is an unacceptable approach for a site in such proximity to the Historic District.

History shows us that compatible design is certainly possible. For example, when a medical office building was built at 1577 Congress Street (corner of Congress & Frost Street, currently occupied by Maine Medical Partners) at roughly the same distance from the District boundary as the proposed Office Park, that building was designed and sited with the District in mind, including design features such as angled rooflines, brick and trim that echoes Colonial and Greek Revival architecture present in the District. Similarly, buildings such as Stroudwater Crossing make use of clapboard siding and ensure that modern facades (glass entrances) are not immediately visible from the street. See the photos that follow. These buildings are very functional but incorporate materials and features most would view as in keeping with a building located on the edge of the largest historical district in Portland on the Congress Street corridor.

Second, the SVA Trustees are concerned by the lack of open space. Other than setbacks form the street to be used in part for storm water treatment there is no open space. The OP standards (Sec. 14-230.13(b), says "integration of open spaces and natural features *shall* be achieved by incorporation for outdoor amenities for the benefits of the users of the site, such as jogging and walking trails, gardens and benches." In our mind that is something more than walkways to and from buildings to the parking areas and a few picnic tables. We do not see yet this standard being met. With three buildings as proposed we see this as a very hard standard to meet as there appears to be no room to allow for the required integration.

Third, we remain concerned whether there is adequate buffering and screening of the abutting residential zone (as well of the parking lots from public view), per OP standard Section 14-130.13(f). From our review of the landscaping plan, it seems more mature and well developed vegetation should be planted than proposed and a longer guaranty should be in place to ensure the buffering comes into fruition.

Outside of design characteristics, the SVA needs to see the impact of implementation of the Outer Congress Street Phase II improvements before we and the City can understand whether the additional traffic generated by the project itself "can reasonably be accommodated on existing public streets." It is our understanding that this project is currently out to bid and is to be completed in the near future. It's important that the 1945 project not exacerbate the existing challenges with rush hour traffic on Congress and Westbrook Streets. Finally, we are interested in learning more about the signage plan and snow storage plan.

Thank you for the opportunity for us to present these initial comments.

Stroudwater Village Association Trustees

Appendix: Compatible commercial Buildings Near the Historic District

1577 Congress Street (corner of Congress & Frost Street, currently occupied by Maine Medical Partners). Features angled rooflines, brick and trim that echoes architecture of the Historic District.

1685 Congress Street (Stroudwater Crossing). Features angled rooflines, clapboard and trim that echoes architecture of the Historic District. Note the modern glass entryway is not part of the street facade.

Portland Maine Yes. Google's good here.

Helen Donaldson <hcd@portlandmaine.gov>

Comment on Elks Club recent plans

2 messages

William Linnell <captlinnell@yahoo.com> Wed, Jul 20, 2016 at 12:23 PM
Reply-To: William Linnell <captlinnell@yahoo.com>
To: Helen Donaldson <hcd@portlandmaine.gov>
Cc: Stroudwater Village Association Board of Trustees <stroudwatervillageassociation@gmail.com>, David Silk <dsilk@curtisthaxter.com>, Roger Hinchliffe <roger@amanofhiswords.com>

Hi Nell, please forward, with our thanks, to the Planning Board et al:

William S. Linnell

1905 Congress Street

Portland, Maine USA 04102

CaptLinnell@yahoo.com

207-409-0100

Portland Planning Board July 20, 2016

City of Portland, Maine

Re: Elks Club, 1945 Congress Street.

Greetings:

In response to the latest proposal by the developers of the Elks Club property, we offer these remarks:

We remind the Planning Board of the frequent refrain during the zone change approval process that the Office Park designation was a good thing because “Office Park gives the Planning Board the most control over the project.”

-The zone change was approved, and we have yet to see a plan that affords us the protection that the Office Park Zone is supposed to provide. At this point, we are looking at South Beach styled buildings, and a parking lot shoe-horned some ten feet from our property, and proposed juvenile plantings, without the fully integrated unified campus, the real open spaces, real walking trails, and real gardens that the standard calls for.

-The plan calls for keeping the Elks Building and adding two others. This seems forced. The presence and

location of the Elks building are making it virtually impossible to create a “unified”, “campus-like” setting as the OP standard calls for. If the Elks building remains, the project is compromised from the start and destined to fail to meet the OP standard to create a campus-like setting. What is presented are three office buildings with lots of parking. It is not a campus-like setting.

-The present plan does not adequately address the need for a graceful transition from the airport to the Historic neighborhood. The medical building design, in particular, does not belong anywhere near the historic New England buildings in Stroudwater. The design belongs in South Beach, Miami. We would ask that the siding not be the type currently depicted. We would rather see shingles and/or clapboards, and where the building has a curved face, either shingles, clapboards, brick, or fieldstone, instead of the Miami beach house stone that is proposed. The roof lines look like modern prisons or factories. New England roofs are historically steeply pitched to shed snow. Even the Westgate shopping center, recently remodeled, has a better facade on the roofs there.

-The same goes for the insurance building. Traditional New England roof lines and siding would fit better on the edge of the historic neighborhood. We point out that the adjacent Masonic building was required to have a pitched roof and clapboard siding in the approval process.

-The developer had mentioned something before about placing some of the parking lot lighting on dimmers. We are interested to know if that has been carried forward.

In sum, with the three buildings all now designed to reflect the “style” of the metal sided Elks building, and with none of the features demanded by the OP standards, we hope the Board will advise the developer that if it is intent on cramming three buildings on the site, it is highly likely that the Board will find that the project does not meet the OP standards mentioned above. There is nothing in the OP standards that entitles the developer to three buildings on the site.

Thanks for listening.

William S. Linnell

Joyce Gauthier

Helen Donaldson <hcd@portlandmaine.gov> Wed, Jul 20, 2016 at 1:10 PM
To: William Linnell <captlinnell@yahoo.com>

Bill,

Consider it done.

Nell
[Quoted text hidden]
--
Nell Donaldson
Planner, City of Portland
874-8723
hcd@portlandmaine.gov

PC9

7/21/16

David P. Silk
1187 Westbrook St
Portland, ME 04102

Helen Donaldson
Planner, City of Portland
City of Portland, Maine

Re: *1945 Congress Street, Site Plan and Subdivision Application for Office Park*

Dear Nell:

I have reviewed the applicant's latest submission for Site Plan and Subdivision approval for development at 1945 Congress Street located in the OP zone. Can you share my comments with the Planning Board prior to the board's evening workshop on this application on July 25th. Note, I have seen the comments submitted by the Stroudwater Village Trustees. I am one of the Trustees and fully join in those comments. I will not repeat them here. Here are my additional comments.

The threshold concern I have is whether the proposed plan meets the OP standards. The plan fits the three buildings on the site and apparently that is necessary to making the proposal viable. But I would rather see the proposal developed without the constraints of (a) fitting three buildings on the site; (b) designing the two new buildings to be compatible with the existing one-story, flat roof, unappealing building; and (c) attempting to integrate the buildings while having to live with the location of the existing building. These constraints at the end of the day appear to prevent the developer from proposing a plan that meets the OP standards.

OP development is to be a "park- or campus-like setting," be of the "highest quality," be "well designed" and be "compatible with their natural surroundings." Sec. 14-230.10. The standards (Sec. 14-230.13(b)) go on to say "integration of open spaces and natural features *shall* be achieved by incorporation of outdoor amenities for the benefits of the users of the site, such as jogging and walking trails, gardens and benches."

Looking at the present plan I have difficulty seeing this standard being achieved due to the constraints being self-imposed on the development of the site. What is depicted is no different from an office building being located in a business zone. Like the recent JB Brown developed building on Washington Ave that houses Martins Point (see attached pictures of front and back of that building with drainage swale in front and parking on sides and rear). But the OP standards call for something qualitatively different and better than office buildings in a B2 zone. I realize the developer is working hard to come up with a nice configuration that works with the location of the site. But after much thought, for me, I just do not see, based on the present proposal, how the OP standards can be achieved.

While board members may not need to be refreshed as to what a park-like or campus-like setting is, here are some pictures of the USM and UNE campuses. Instructive to me are the USM and UNE campuses as viewed from the main thoroughfare, clearly show open space that creates a

park-like and/or campus-like feel. That is not the case here. Yet that is what the OP standards require.

With less buildings and/or parking on this site than proposed, a development can occur consistent with the OP standards. The developer should be encouraged to take a step back and rethink the necessity of three buildings and amount of parking and to come back with a plan that is in keeping with the park-like or campus-like open space requirement for OP development.

Sincerely,

David P. Silk

Martin Point 19B Brown Washington ~~B2~~ B2

UNE - Portland Campus

USM Campus

--- Forwarded message ---
From: **Justin Walsh** <justincwalsh@gmail.com>
Date: Fri, Jul 22, 2016 at 1:32 PM
Subject: 1945 Congress
To: hcd@portlandmaine.gov

Dear Nell,

I am a Stroudwater resident and I'm writing to you to express my support for the planned development at 1945 congress street. I am unable to attend the meeting on Tuesday, so please accept this letter.

The designs that Northland original submitted was a vast improvement over the existing building. I also understand that they have agreed to additional revisions. these revisions were original accepted and now they have changed their minds.The Elks lodge is not a historic building and is not part or our neighborhood, however the SVA wants to treat it as such. It might geographical be located in Stroudwater. However standing in front or the building and any sense that you are in a neighborhood is gone. Putting a different roof or adding some more grass isn't going to change that.

I attend the committee meeting held at the elks lodge in December. During the meeting it was revealed that one of the big opponents of this project tried to sell their property to Northland. They expressed their opposition after the astronomical price of $100,000 over fair market value was rejected. Please keep this in mind when the SVA expresses their displeasure. Someone speaking on Tuesday thinks concern for historic Stroudwater and the city of Portland is only important if you can't profit first.

Thank You,

Justin Walsh
28 Garrison St

--
Nell Donaldson
Planner, City of Portland
874-8723
hcd@portlandmaine.gov

PLAN REFERENCES

1) STANDARD BOUNDARY SURVEY OF PORTLAND LODGE NO. 188 FOR UNUM CORP. DATED THROUGH 08-18-98 SURVEY BY SEBAGO TECHNICS RECORDED IN CCRD PB 198, PG 365.

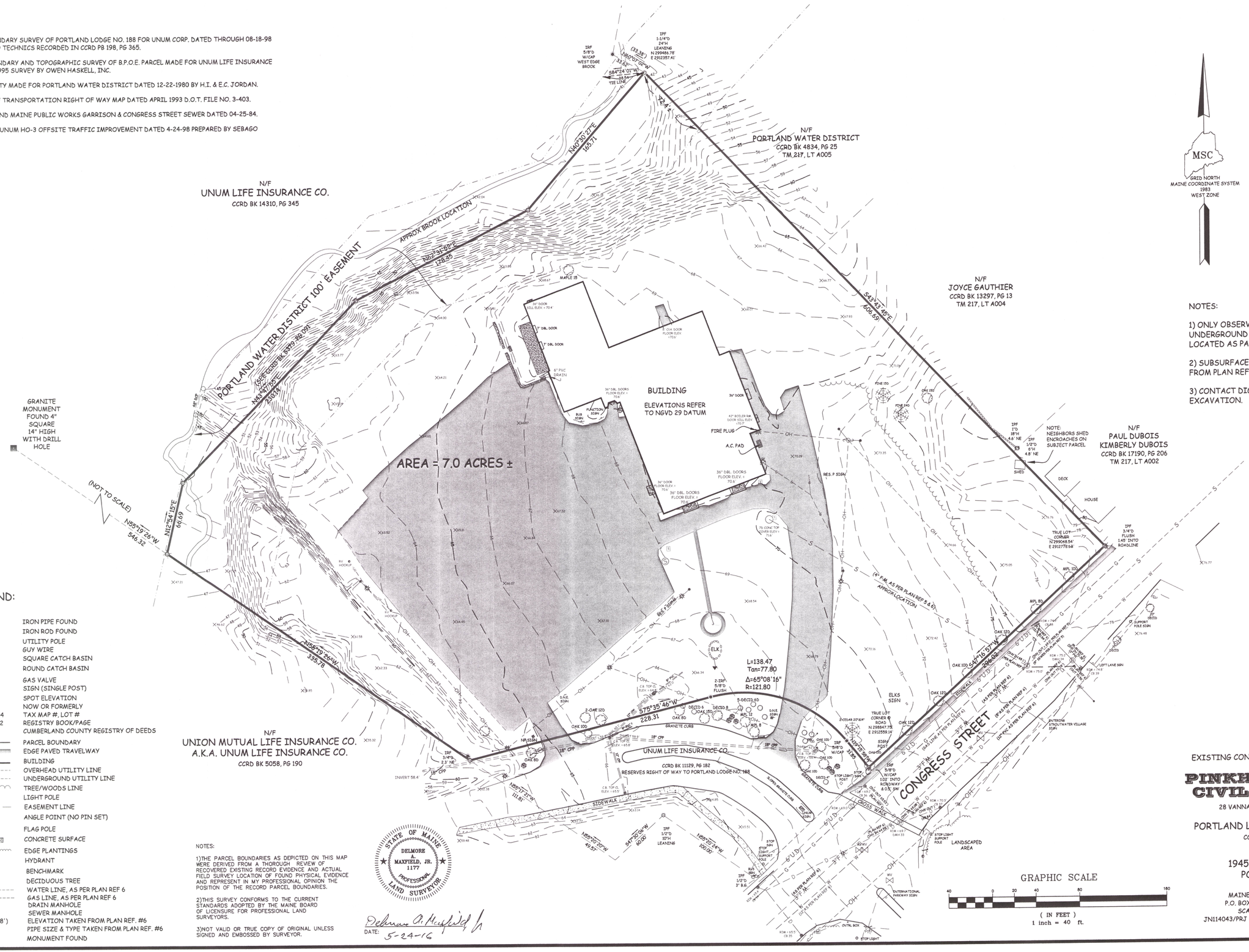
2) STANDARD BOUNDARY AND TOPOGRAPHIC SURVEY OF B.P.O.E. PARCEL MADE FOR UNUM LIFE INSURANCE CO. DATED APRIL 1995 SURVEY BY OWEN HASKELL, INC.

3) PLAN OF PROPERTY MADE FOR PORTLAND WATER DISTRICT DATED 12-22-1980 BY H.I. & E.C. JORDAN.

4) DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP DATED APRIL 1993 D.O.T. FILE NO. 3-403.

5) CITY OF PORTLAND MAINE PUBLIC WORKS GARRISON & CONGRESS STREET SEWER DATED 04-25-84.

6) PLAN & PROFILE UNUM HO-3 OFFSITE TRAFFIC IMPROVEMENT DATED 4-24-98 PREPARED BY SEBAGO TECHNICS.



NOTES:

1) ONLY OBSERVED SURFACE EVIDENCE OF UNDERGROUND UTILITIES HAS BEEN FIELD LOCATED AS PART OF THIS SURVEY.

2) SUBSURFACE EVIDENCE HAS BEE DERIVED FROM PLAN REFERENCES 5 & 6.

3) CONTACT DIG SAFE PRIOR TO ANY SITE EXCAVATION.

LEGEND:

	IRON PIPE FOUND
	IRON ROD FOUND
	UTILITY POLE
	GUY WIRE
	SQUARE CATCH BASIN
	ROUND CATCH BASIN
GV	GAS VALVE
	SIGN (SINGLE POST)
X 200.00	SPOT ELEVATION
N/F	NOW OR FORMERLY
TM 217, LT A004	TAX MAP #, LOT #
BK 11290, PG 182	REGISTRY BOOK/PAGE
C.C.R.D.	CUMBERLAND COUNTY REGISTRY OF DEEDS
	PARCEL BOUNDARY
	EDGE PAVED TRAVELWAY
	BUILDING
OH	OVERHEAD UTILITY LINE
UG	UNDERGROUND UTILITY LINE
	TREE/WOODS LINE
	LIGHT POLE
	EASEMENT LINE
	ANGLE POINT (NO PIN SET)
	FLAG POLE
	CONCRETE SURFACE
	EDGE PLANTINGS
	HYDRANT
	BENCHMARK
	DECIDUOUS TREE
W	WATER LINE, AS PER PLAN REF 6
G	GAS LINE, AS PER PLAN REF 6
	DRAIN MANHOLE
	SEWER MANHOLE
(INVERT 70.38')	ELEVATION TAKEN FROM PLAN REF. #6
(12" PVC)	PIPE SIZE & TYPE TAKEN FROM PLAN REF. #6
	MONUMENT FOUND

NOTES:

1)THE PARCEL BOUNDARIES AS DEPICTED ON THIS MAP WERE DERIVED FROM A THOROUGH REVIEW OF RECOVERED EXISTING RECORD EVIDENCE AND ACTUAL FIELD SURVEY LOCATION OF FOUND PHYSICAL EVIDENCE AND REPRESENT IN MY PROFESSIONAL OPINION THE POSITION OF THE RECORD PARCEL BOUNDARIES.

2)THIS SURVEY CONFORMS TO THE CURRENT STANDARDS ADOPTED BY THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS.

3)NOT VALID OR TRUE COPY OF ORIGINAL UNLESS SIGNED AND EMBOSSED BY SURVEYOR.

STATE OF MAINE
DELMORE A. MAXFIELD, JR.
1177
PROFESSIONAL LAND SURVEYOR

Delmore A. Maxfield Jr.
DATE: 5-24-16

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

EXISTING CONDITIONS PLAN OF B.P.O.E. LAND
MADE FOR

PINKHAM & GREER
CIVIL ENGINEERS

28 VANNAH AVE, PORTLAND, MAINE 04103

OWNER OF RECORD:
PORTLAND LODGE #188 B.P.O.E. OF USA
CCRD BOOK 6157, PAGE 037
PARCEL #217A001
LOCATED AT:
1945 CONGRESS STREET
PORTLAND, MAINE

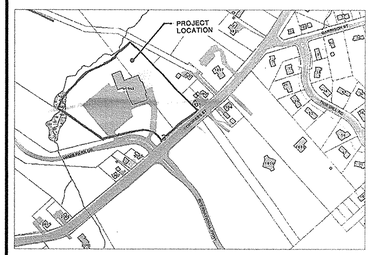
PREPARED BY:
MAINE SURVEY CONSULTANTS, INC.
P.O. BOX 485 HARRISON, MAINE 04040
SCALE: 1"=40' DATE: MAY 2016
JN114043/PRJ 114043A/DWG BASE114043A FB 137.091

CITY OF PORTLAND SITE PLAN AND SUBDIVISION 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.
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.
10. SUBDIVISION AT THE TIME OF APPROVAL IS DEFINED AS "SUBDIVISION SHALL MEAN THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING LOTS OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A MRSA SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OR STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD AND THE DIVISION OF AN EXISTING STRUCTURE OR STRUCTURES PREVIOUSLY USED FOR COMMERCIAL OR INDUSTRIAL USE INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSE OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE ANY PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTIFAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS."

PARKING INFORMATION

	REQUIRED PROFESSIONAL OFFICES 1 PER 400 SQ. FT.	REQUIRED ASSEMBLY 1 PER 125 SQ. FT.	PROVIDED
AUTOMOBILE	103	108	263
BICYCLE			40
2-WHEELED MOTORIZED			12



LOCATION PLAN

NOT TO SCALE

SNOW CLEARANCE NOTES

1. SNOW IS TO BE STORED WITHIN THE SNOW STORAGE AREAS.
2. SNOW MAY BE PHYSICALLY REMOVED AND TRANSPORTED OFFSITE IF NECCESSARY.
3. SNOW TRANSPORTED OFFSITE SHALL BE BROUGHT TO A MAINE DEP APPROVED "SNOW DUMP" OR MEET THE EXEMPTION REQUIREMENTS SPECIFIED WITHIN CHAPTER 573 WHEN THE ABOVE REQUIREMENTS CANNOT BE MET DUE TO AN ABUNDANCE OF SNOW.
4. THE SNOW CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO VEGETATION, LANDSCAPING, CURBING, LIGHTING, FENCING ETC. RESULTING FROM THEIR ACTIVITIES.
5. THE SNOW CONTRACTOR SHALL USE SALT OR CHLORIDE SUBSTITUTE TO DEICE THE PARKING LOT.
6. THE OWNER IS RESPONSIBLE FOR SNOW REMOVAL BEING UNDERTAKEN IN A TIMELY FASHION.

SURVEY PLAN REFERENCES

1. STANDARD BOUNDARY SURVEY OF PORTLAND LODGE NO. 188 FOR UNUM CORP. DATED THROUGH 08-18-98 SURVEY BY SEBAGO TECHNICS RECORDED IN CCRD PB 198, PG 365.
2. STANDARD BOUNDARY AND TOPOGRAPHIC SURVEY OF B.P.O.E. PARCEL MADE FOR UNUM LIFE INSURANCE CO. DATED APRIL 1995 SURVEY BY OWEN HASKELL, INC.
3. PLAN OF PROPERTY MADE FOR PORTLAND WATER DISTRICT DATED 12-22-1980 BY H.L & E.C. JORDAN.
4. DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP DATED APRIL 1933 D.O.T. FILE NO. 3-403.
5. CITY OF PORTLAND MAINE PUBLIC WORKS GARRISON & CONGRESS STREET SEWER DATED 04-29-84.
6. PLAN & PROFILE UNUM HO-3 OFFSITE TRAFFIC IMPROVEMENT DATED 4-24-98 PREPARED BY SEBAGO TECHNICS.

SURVEY NOTES

1. ELEVATIONS REFER TO NGVD 29 VERTICAL DATUM.

ZONE INFORMATION

ZONE: O-P, OFFICE PARK
PERMITTED USE: PROFESSIONAL BUILDINGS
GRANDFATHERED USE: ASSEMBLY

SPACE STANDARDS	REQUIRED	PROVIDED
MINIMUM LOT SIZE	1.5 ACRES	6.99 ACRES
MINIMUM STREET FRONTAGE	100 FEET	296 FEET
MINIMUM FRONT YARD	50 FEET	53 FEET
MINIMUM REAR YARD	50 FEET	100 & 184 FEET
MINIMUM SIDE YARD	25 FEET ①	90, 122 & 30 FEET
MAXIMUM BUILDING HEIGHT	55 FEET	30 FEET±

① EXCEPT WHERE A SIDE YARD ABUTS A RESIDENTIAL ZONE OR USE, IN WHICH CASE IT SHALL BE 40 FEET.

IMPERVIOUS INFORMATION

EXISTING IMPERVIOUS	120,293 SQ. FT.
PROPOSED IMPERVIOUS	160,625 SQ. FT.
NET IMPERVIOUS	+ 40,332 SQ. FT.

GENERAL NOTES

1. OWNER: PORTLAND LODGE #188 BENEVOLENT AND PROTECTIVE ORDER OF ELKS OF UNITED STATES OF AMERICA, 1945 CONGRESS STREET, PORTLAND MAINE. DEED RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS BK. 3615?, PG. 37, DATE 4/28/1983.
2. DEVELOPER: NORTHLAND ENTERPRISES, LLC, 17 SOUTH STREET, PORTLAND MAINE, 04101
3. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
4. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
5. TOPOGRAPHIC AND BOUNDARY INFORMATION PROVIDED BY MAINE SURVEY CONSULTANTS, INC., P.O. BOX 485, HARRISON, MAINE. REFERENCE IS MADE TO "BOUNDARY PLAN & TOPOGRAPHIC SURVEY FOR PINKHAM & GREER CIVIL ENGINEERS 28 VANNAH AVE. PORTLAND, MAINE 04103 OWNER OF RECORD: PORTLAND LODGE #188 B.P.O.E. OF USA" DATED DECEMBER 2014 AND "EXISTING CONDITIONS PLAN OF B.P.O.E. LAND MADE FOR PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVE. PORTLAND, MAINE 04103 OWNER OF RECORD: PORTLAND LODGE #188 B.P.O.E. OF USA" DATED: MAY 2016. VERTICAL DATUM: NGVD 29.
6. UNDERLYING SOILS MAPPING TAKEN FROM SOIL CONSERVATION STUDY OF CUMBERLAND COUNTY.
7. ZONE: OP, OFFICE PARK, PROPOSED USE: PROFESSIONAL OFFICES
8. TAX MAP REFERENCE: MAP 216 / BLOCK A / LOT 6 AND MAP 217 / BLOCK A / LOT 1.
9. TOTAL PARCEL = 6.99 acres
10. BUILDINGS TO BE SERVICED BY PUBLIC WATER, SEWER, AND GAS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND. THESE SERVICES ARE SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
12. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 1-800-DIG-SAFE.
13. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
14. THE SUBJECT PARCEL SHOWN AS 1945 CONGRESS STREET IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
15. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR 1945 CONGRESS STREET SITE PLAN.
16. FLOODPLAIN: THIS PROPERTY IS IN ZONE X OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0012 C, EFFECTIVE DATE DECEMBER 8, 1998. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
17. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON THIS SHEET UNDER SNOW CLEARANCE NOTES.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, 3/2003.
19. THIS APPROVAL IS DEPENDENT UPON, AND LIMITED TO, THE PROPOSALS AND PLANS CONTAINED IN THE APPLICATION AND SUPPORTING DOCUMENTS SUBMITTED AND AFFIRMED BY THE APPLICANT AND ANY VARIATION FROM THE PLANS, PROPOSALS AND SUPPORTING DOCUMENTS IS SUBJECT TO REVIEW AND APPROVAL BY THE PLANNING BOARD, EXCEPT FOR DE MINIMIS CHANGES WHICH THE DIRECTOR OF PLANNING AND ZONING MAY APPROVE.

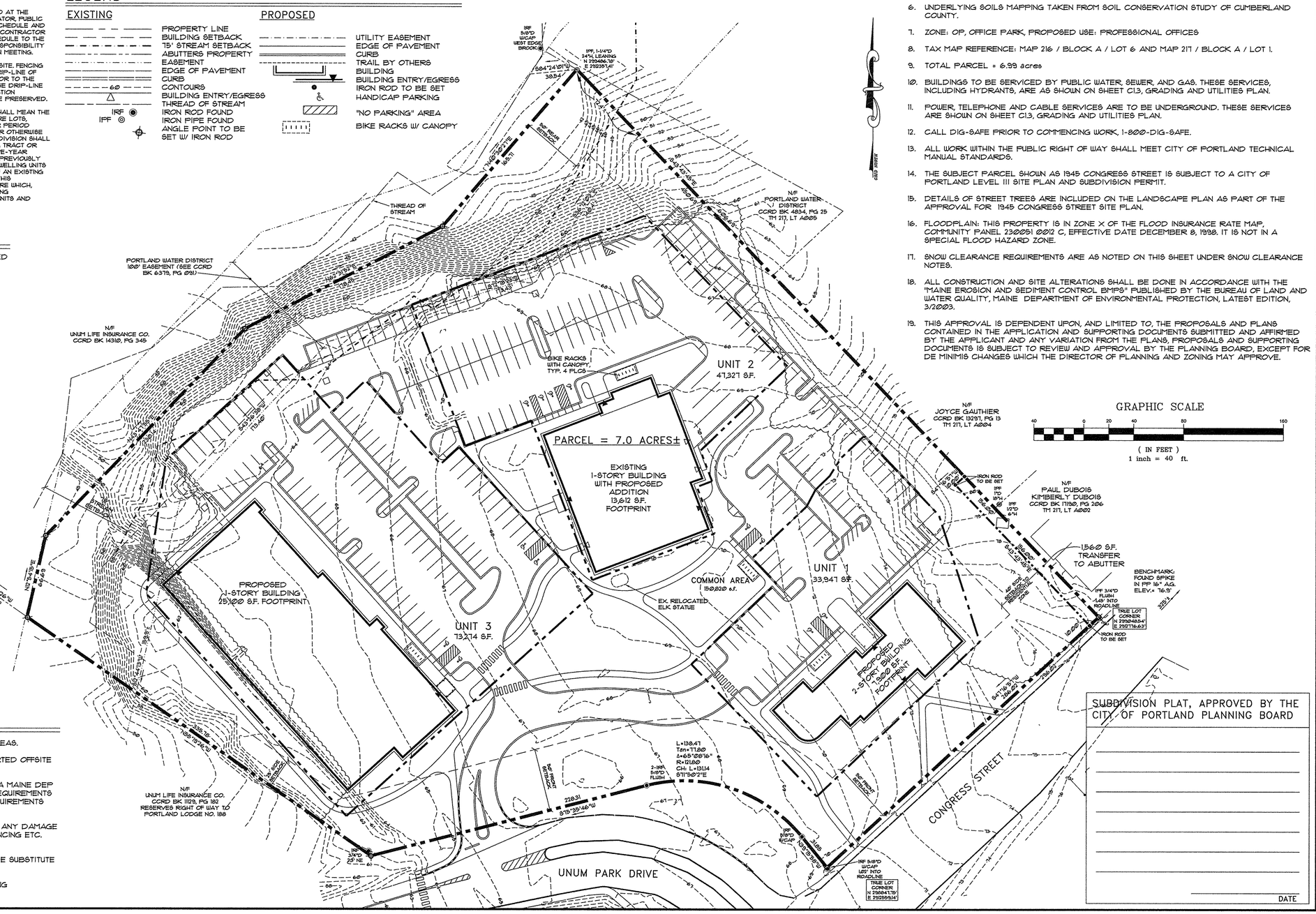
LEGEND

EXISTING

- PROPERTY LINE
- BUILDING SETBACK
- 75' STREAM SETBACK
- ABUTTERS PROPERTY
- EASEMENT
- EDGE OF PAVEMENT
- CURB
- 60 CONTOURS
- BUILDING ENTRY/EGRESS
- THREAD OF STREAM
- IRF IRON ROD FOUND
- IPF IRON PIPE FOUND
- ANGLE POINT TO BE SET W/ IRON ROD

PROPOSED

- UTILITY EASEMENT
- EDGE OF PAVEMENT
- CURB
- TRAIL BY OTHERS
- BUILDING
- BUILDING ENTRY/EGRESS
- IRON ROD TO BE SET
- HANDICAP PARKING
- "NO PARKING" AREA
- BIKE RACKS W/ CANOPY



SUBDIVISION PLAT, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE. PORTLAND, ME. 04103
TEL: 207.781.3242 FAX: 207.781.4245

STATE OF MAINE THOMAS S. GREER No. 12635 LICENSED PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION
4	7/20/16	REV'D PER CITY REVIEW COMMENTS
3	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS
2	6/17/16	PRELIMINARY SITE PLAN REVIEW
1	4/21/16	ADDED TRANSFER TO ABUTTER

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: APRIL 14, 2016
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

SUBDIVISION PLAT

C1.0

MAP/LOT 216-A-6 & 217-A-1

CITY OF PORTLAND SITE PLAN AND SUBDIVISION NOTES

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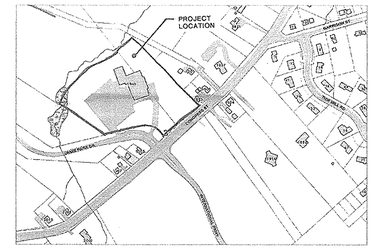
7. ALL DISTURBED AREAS ON THE SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED OR OTHER METHODS AS REQUIRED BY BEST MANAGEMENT PRACTICES (SEE ABOVE).
8. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, DEVELOPMENT REVIEW COORDINATOR, PUBLIC WORKS 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.
10. SUBDIVISION AT THE TIME OF APPROVAL IS DEFINED AS "SUBDIVISION SHALL MEAN THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING LOTS OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OR STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD AND THE DIVISION OF AN EXISTING STRUCTURE OR STRUCTURES PREVIOUSLY USED FOR COMMERCIAL OR INDUSTRIAL USE INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSE OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE ANY PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTIFAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS."

PARKING INFORMATION

	REQUIRED		PROVIDED
	PROFESSIONAL OFFICES	ASSEMBLY	
	1 PER 400 SQ. FT.	1 PER 125 SQ. FT.	
AUTOMOBILE	103	108	263
BICYCLE			40
2-WHEELED MOTORIZED			12

PROJECT SITE DRAWINGS

C1.0	SUBDIVISION PLAT
C1.1	SITE PLAN
C1.2	EXISTING CONDITIONS AND DEMOLITION PLAN
C1.3	UTILITIES PLAN
C1.4	GRADING PLAN
C1.5	EROSION CONTROL PLAN
C2.1	DETAILS
C2.2	DETAILS
C2.3	DETAILS
C2.4	DETAILS
C2.5	DETAILS
C2.6	DETAILS
D1.0	DRAINAGE ANALYSIS
L1.0	PLANTING PLAN
PH-1	PHOTOMETRIC PLAN
EXISTING CONDITIONS PLAN	
BOUNDARY PLAN & TOPOGRAPHIC SURVEY	

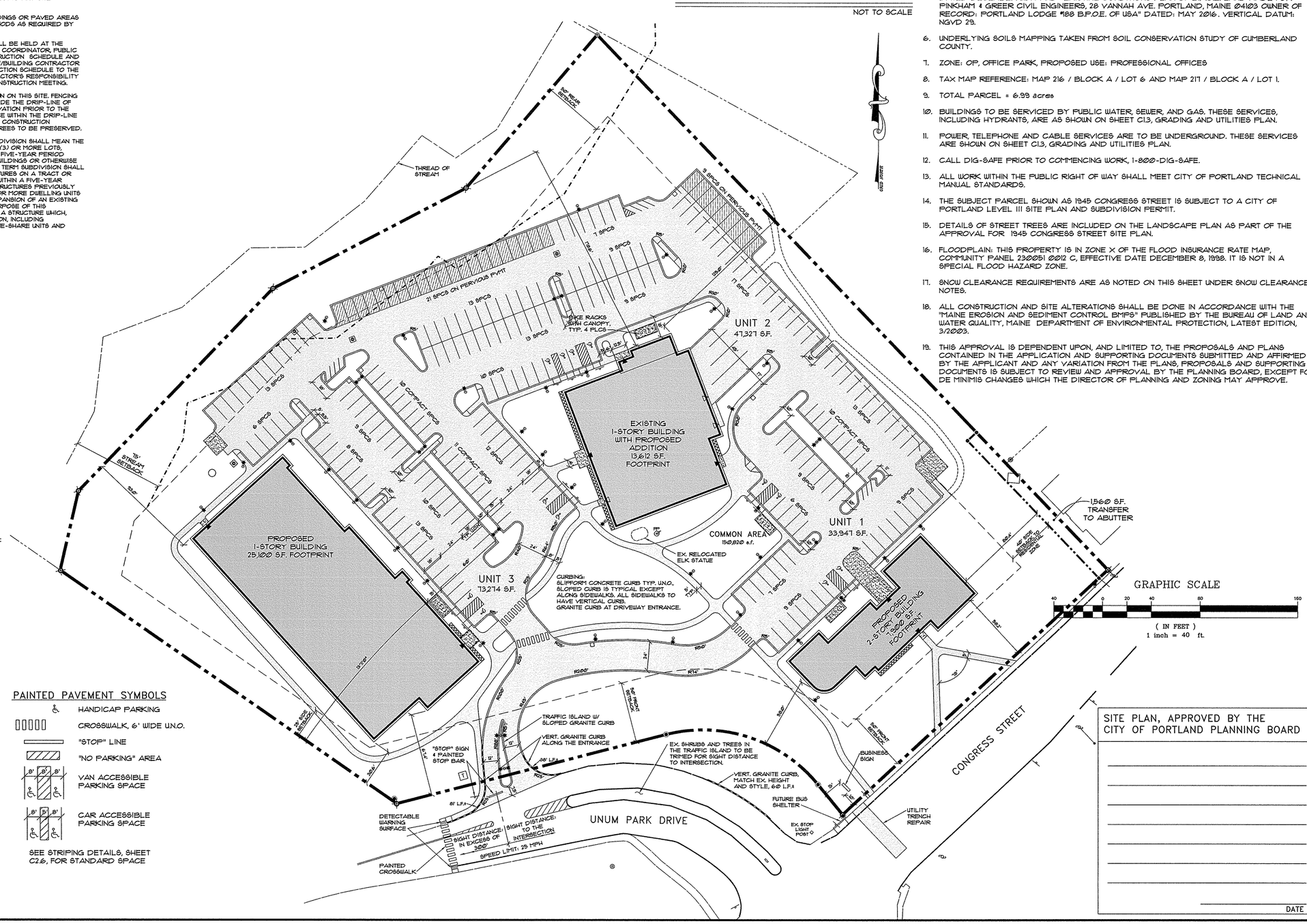


LOCATION PLAN

NOT TO SCALE

GENERAL NOTES

1. OWNER: PORTLAND LODGE #188 BENEVOLENT AND PROTECTIVE ORDER OF ELKS OF UNITED STATES OF AMERICA, 1945 CONGRESS STREET, PORTLAND MAINE. DEED RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS BK. 3615?, PG. 37, DATE 4/28/1983.
2. DEVELOPER: NORTHLAND ENTERPRISES, LLC, 17 SOUTH STREET, PORTLAND MAINE, 04101
3. ENGINEER: PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVENUE, PORTLAND, MAINE, 04103.
4. ARCHITECT: ARCHETYPE ARCHITECTS, 48 UNION WHARF, PORTLAND, MAINE 04101.
5. TOPOGRAPHIC AND BOUNDARY INFORMATION PROVIDED BY MAINE SURVEY CONSULTANTS, INC., P.O. BOX 485, HARRISON, MAINE. REFERENCE IS MADE TO "BOUNDARY PLAN & TOPOGRAPHIC SURVEY FOR PINKHAM & GREER CIVIL ENGINEERS 28 VANNAH AVE. PORTLAND, MAINE 04103 OWNER OF RECORD: PORTLAND LODGE #188 B.P.O.E. OF U.S.A." DATED DECEMBER 2014 AND "EXISTING CONDITIONS PLAN OF B.P.O.E. LAND MADE FOR PINKHAM & GREER CIVIL ENGINEERS, 28 VANNAH AVE. PORTLAND, MAINE 04103 OWNER OF RECORD: PORTLAND LODGE #188 B.P.O.E. OF USA" DATED: MAY 2016. VERTICAL DATUM: NGVD 29.
6. UNDERLYING SOILS MAPPING TAKEN FROM SOIL CONSERVATION STUDY OF CUMBERLAND COUNTY.
7. ZONE: OP, OFFICE PARK, PROPOSED USE: PROFESSIONAL OFFICES
8. TAX MAP REFERENCE: MAP 216 / BLOCK A / LOT 6 AND MAP 217 / BLOCK A / LOT 1.
9. TOTAL PARCEL = 6.99 acres
10. BUILDINGS TO BE SERVICED BY PUBLIC WATER, SEWER, AND GAS. THESE SERVICES, INCLUDING HYDRANTS, ARE AS SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
11. POWER, TELEPHONE AND CABLE SERVICES ARE TO BE UNDERGROUND. THESE SERVICES ARE SHOWN ON SHEET C1.3, GRADING AND UTILITIES PLAN.
12. CALL DIG-SAFE PRIOR TO COMMENCING WORK, 1-800-DIG-SAFE.
13. ALL WORK WITHIN THE PUBLIC RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
14. THE SUBJECT PARCEL SHOWN AS 1945 CONGRESS STREET IS SUBJECT TO A CITY OF PORTLAND LEVEL III SITE PLAN AND SUBDIVISION PERMIT.
15. DETAILS OF STREET TREES ARE INCLUDED ON THE LANDSCAPE PLAN AS PART OF THE APPROVAL FOR 1945 CONGRESS STREET SITE PLAN.
16. FLOODPLAIN: THIS PROPERTY IS IN ZONE X OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL 230051 0012 C, EFFECTIVE DATE DECEMBER 8, 1998. IT IS NOT IN A SPECIAL FLOOD HAZARD ZONE.
17. SNOW CLEARANCE REQUIREMENTS ARE AS NOTED ON THIS SHEET UNDER SNOW CLEARANCE NOTES.
18. ALL CONSTRUCTION AND SITE ALTERATIONS SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION, 3/2003.
19. THIS APPROVAL IS DEPENDENT UPON, AND LIMITED TO, THE PROPOSALS AND PLANS CONTAINED IN THE APPLICATION AND SUPPORTING DOCUMENTS SUBMITTED AND AFFIRMED BY THE APPLICANT AND ANY VARIATION FROM THE PLANS, PROPOSALS AND SUPPORTING DOCUMENTS IS SUBJECT TO REVIEW AND APPROVAL BY THE PLANNING BOARD, EXCEPT FOR DE MINIMIS CHANGES WHICH THE DIRECTOR OF PLANNING AND ZONING MAY APPROVE.



LEGEND

EXISTING

- PROPERTY LINE
- BUILDING SETBACK
- 75' STREAM SETBACK
- ABUTTERS PROPERTY
- EDGE OF PAVEMENT
- CURB
- BUILDING ENTRY/EGRESS
- THREAD OF STREAM
- SIGN
- UTILITY POLE
- UTILITY POLE W/ GUY WIRE
- IRF — IRON ROD FOUND
- IPF — IRON PIPE FOUND
- ANGLE POINT

PROPOSED

- UTILITY EASEMENT
- EDGE OF PAVEMENT
- CURB
- TRAIL BY OTHERS
- BUILDING
- BUILDING ENTRY/EGRESS
- CATCH BASIN
- TRANSFORMER
- LIGHT POLE
- UTILITY POLE
- FP — FLAGPOLE
- SIGN
- HANDICAP PARKING
- "NO PARKING" AREA
- BIKE RACKS W/ CANOPY
- BITUMINOUS PAVEMENT
- PERVIOUS PAVEMENT
- CONCRETE PAVEMENT
- BUILDING HATCH

PAINTED PAVEMENT SYMBOLS

- HANDICAP PARKING
- CROSSWALK, 6' WIDE U.N.O.
- "STOP" LINE
- "NO PARKING" AREA
- VAN ACCESSIBLE PARKING SPACE
- CAR ACCESSIBLE PARKING SPACE

SEE STRIPING DETAILS, SHEET C2.6, FOR STANDARD SPACE

SITE PLAN, APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

DATE

PINKHAM & GREER CIVIL ENGINEERS
28 VANNAH AVE., PORTLAND, ME. 04103
TEL: 207.781.4042 FAX: 207.781.4265

STATE OF MAINE — THOMAS GREER No. 4206 — LICENSED PROFESSIONAL ENGINEER

7/20/16

REV.	DATE	DESCRIPTION
2	7/20/16	REV'D PER CITY REVIEW COMMENTS
1	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

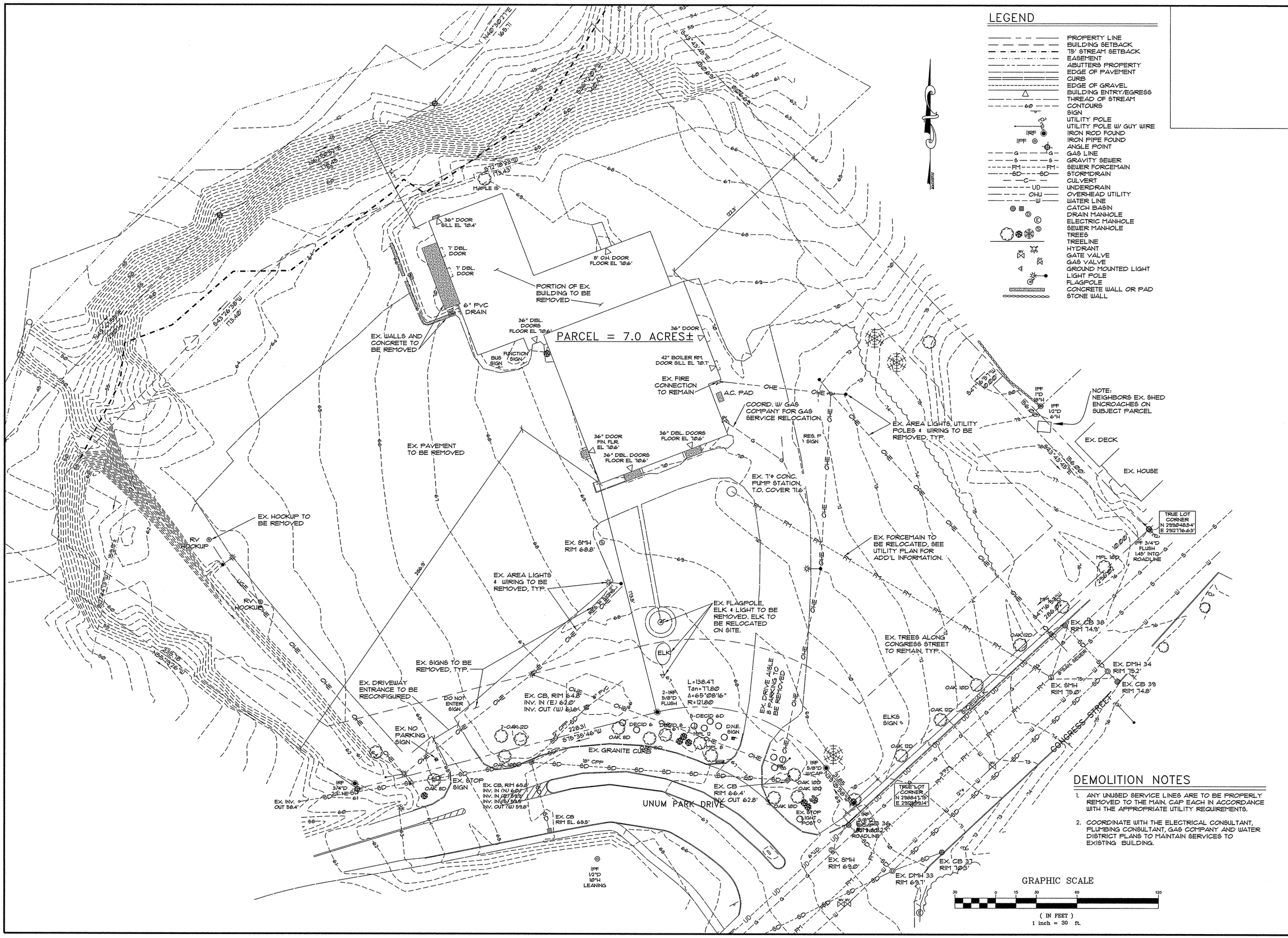
SCALE: AS SHOWN — DRN BY: JDC
DATE: MAY 4, 2016 — DESG BY: TSG
PROJECT: 13151 — CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

SITE PLAN

C1.1

MAP/LOT 216-A-6 & 217-A-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. COORDINATE WITH THE ELECTRICAL CONSULTANT, PLUMBING CONSULTANT, GAS COMPANY AND WATER DISTRICT PLANS TO MAINTAIN SERVICES TO EXISTING BUILDING.

PINKHAM & GREER
CIVIL ENGINEERS
28 WMHAM AVE, PORTLAND, ME 04102
TEL: 207.761.5242 FAX: 207.761.4245

STATE OF MAINE
THOMAS S. GREER
No. 4206
PROFESSIONAL ENGINEER
LICENSED

7/11/16

REV.	DATE	DESCRIPTION
1	7/11/16	REVD DRAINAGE SYSTEM, REVD PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

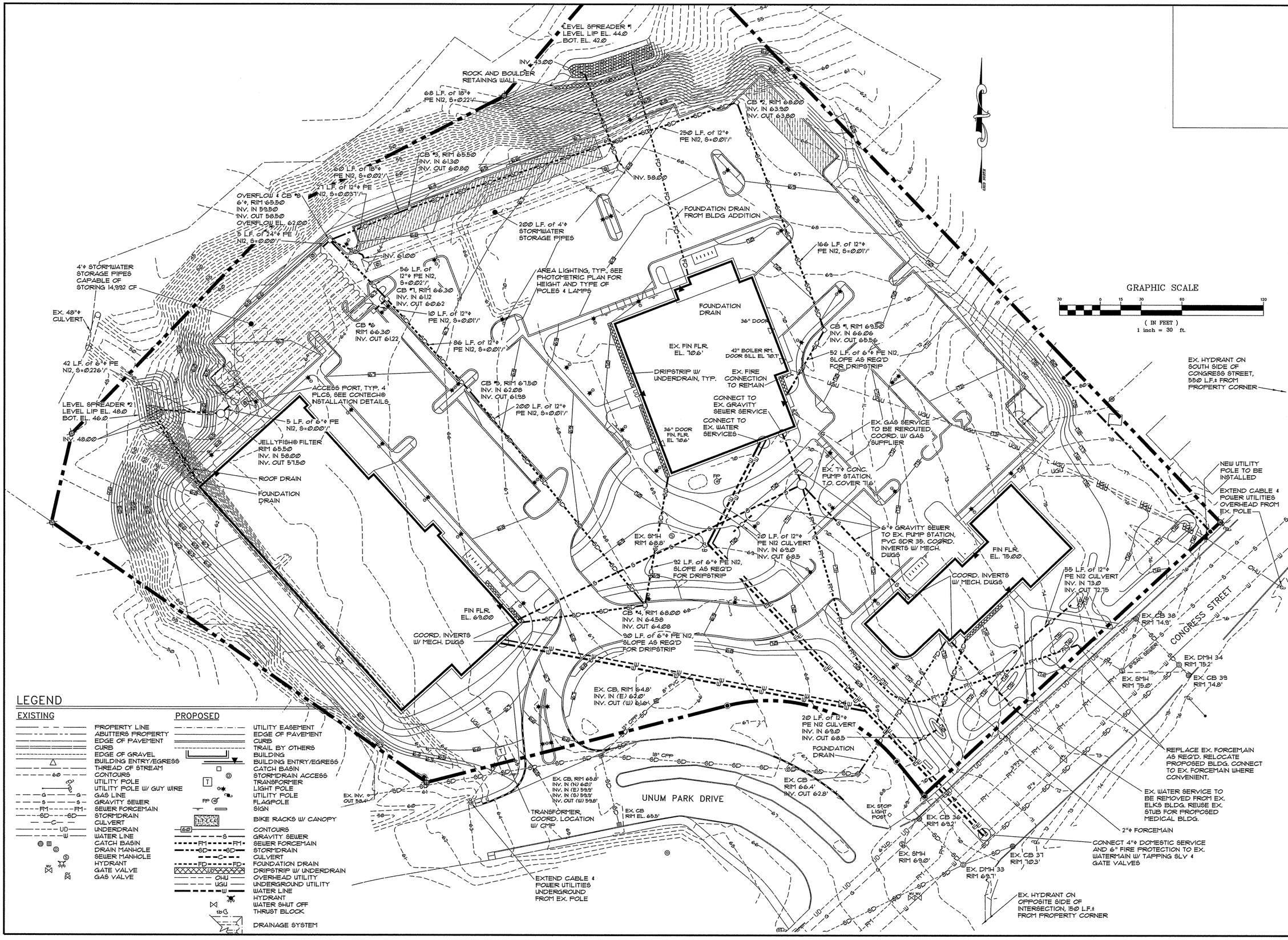
SCALE: AS SHOWN
DATE: APRIL 14, 2016
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

EXISTING CONDITIONS AND DEMOLITION PLAN

C1.2

MAP/LOT 216-A-6 & 217-A-1



PINKHAM & GREER
CIVIL ENGINEERS
28 WARREN AVE., PORTLAND, ME. 04103
TEL: 207.761.5242 FAX: 207.761.4245

STATE OF MAINE
THOMAS E. GREER
No. 4206
LICENSED
PROFESSIONAL ENGINEER

7/20/16

REV.	DATE	DESCRIPTION
2	7/20/16	REV'D PER CITY REVIEW COMMENTS
1	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: APRIL 14, 2016
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

UTILITIES PLAN

C1.3

MAP/LOT 216-A-6 & 217-A-1

PINKHAM & GREER
CIVIL ENGINEERS
28 WANWAH AVE. PORTLAND, ME. 04103
TEL: 207.781.3242 FAX: 207.781.4295

STATE OF MAINE
THOMAS S. GREER
No. 4236
LICENSED
PROFESSIONAL ENGINEER

REV.	DATE	DESCRIPTION
2	7/20/16	REV'D PER CITY REVIEW COMMENTS
1	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: APRIL 14, 2016
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

GRADING PLAN

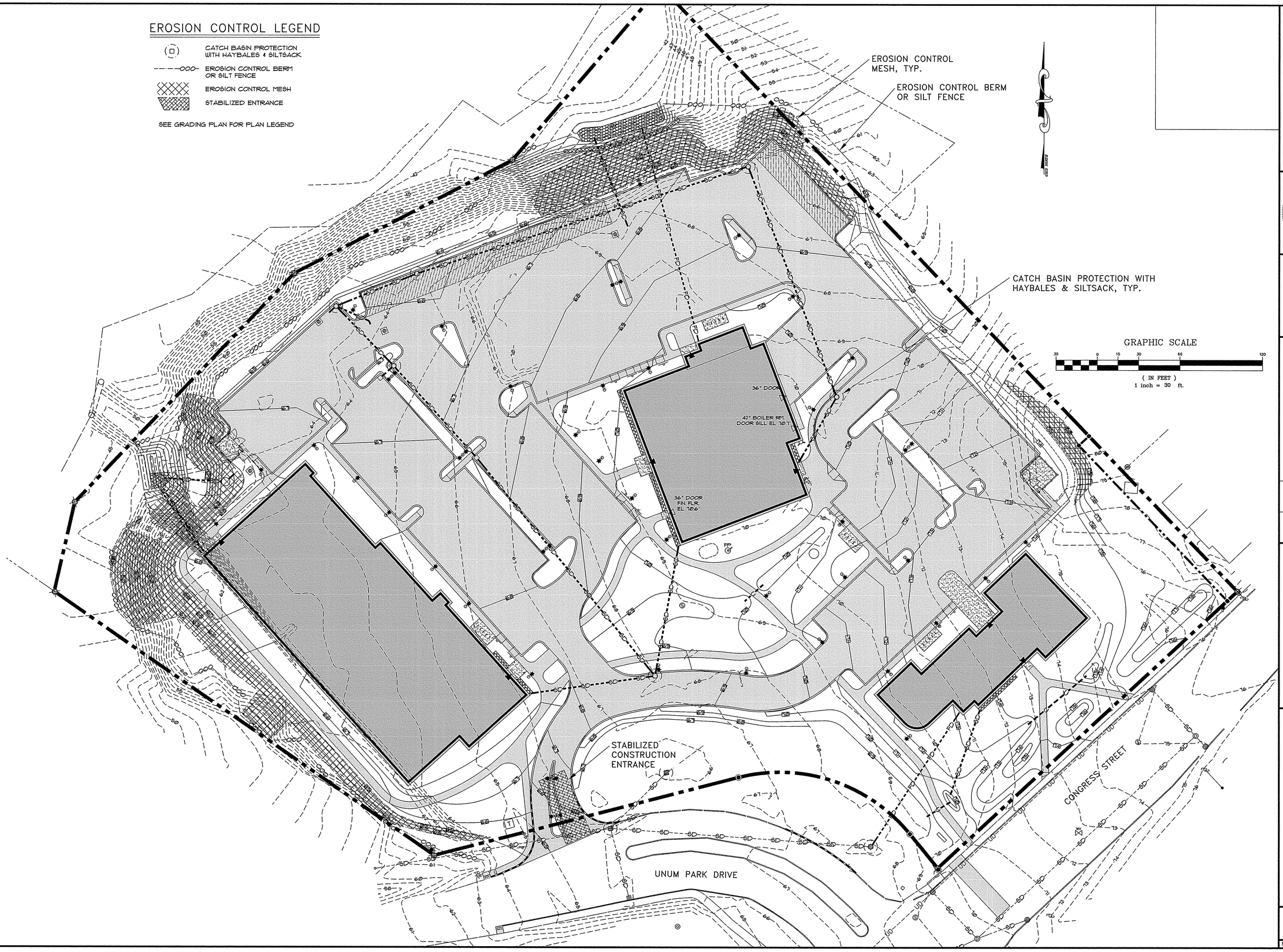
C1.4

MAP/LOT 216-A-6 & 217-A-1

EROSION CONTROL LEGEND

- CATCH BASIN PROTECTION WITH HAYBALES & SILTSACK
- EROSION CONTROL BERM OR SILT FENCE
- EROSION CONTROL MESH
- STABILIZED ENTRANCE

SEE GRADING PLAN FOR PLAN LEGEND



PINKHAM & GREER
CIVIL ENGINEERS
28 WMAR AVE. PORTLAND, ME 04103
TEL 207/772-2892 FAX 207/772-7245

STATE OF MAINE
THOMAS S. GREER
No. 4206
LICENSED
PROFESSIONAL ENGINEER

7/20/16

REV.	DATE	DESCRIPTION
2	7/20/16	REV'D PER CITY REVIEW COMMENTS
1	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN DRN BY: JDC
DATE: APRIL 14, 2016 DESG BY: TSG
PROJECT: 13151 CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

EROSION CONTROL PLAN

C1.5

MAP/LOT 216-A-6 & 217-A-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 WATERBODIES 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 100 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. INSTALL EROSION CONTROL MESH IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. MESH TO BE EQUAL TO NORTH AMERICAN GREEN PRODUCT C125BN.

10. 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.

11. 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.

12. ALL CULVERT OR PIPE OUTFALL PROTECTION MUST BE INSTALLED WITHIN 48 HOURS OF INSTALLING NEW PIPE OR CULVERT.

13. DITCHES AND CHANNELS DESIGNATED TO BE LINED WITH RIPRAP AND/OR EROSION CONTROL MESH MUST BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR CHANNEL.

14. ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT SACKS DURING CONSTRUCTION.

15. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

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 717.09 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:

LIMING AND FERTILIZER RATES WILL BE BASED ON FIELD SOIL TESTING OF ON-SITE TOPSOILS BY A CERTIFIED LABORATORY. SUBMIT TEST RESULTS TO THE ENGINEER.

MULCH:

STRAW OR HAY (ANCHORED)	70 - 90 LBS	PROTECTED AREAS
STRAW OR HAY (ANCHORED)	185 - 215 LBS	WINDY AREAS
SHREDDED OR CHOPPED	185 - 215 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

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 ALL PERIMETER SILT FENCE AND CATCH BASIN PROTECTION.
2. INSTALL SILTATION BASINS. (PRIOR TO ANY STRIPPING OF TOPSOIL OR OTHER EARTHWORK)
3. CLEAR AND GRUB WORK AREAS. TEMPORARILY SEED AREAS NOT TO BE WORKED ON WITHIN 14 DAYS.
4. STRIP AND STOCKPILE ON-SITE TOPSOIL. SEED STOCKPILES WITH TEMPORARY SEED MIX.
5. BEGIN EARTHWORK FOR ROAD, PARKING AND BUILDING FOUNDATIONS.
6. STABILIZE AREAS DRAINING TO STORMWATER TREATMENT AREA.
7. CONSTRUCT STORMWATER TREATMENT AREA FILTER AND STORM DRAIN SYSTEM.
8. INSTALL AND PROTECT STORM DRAINAGE SYSTEM.
9. BEGIN BUILDING CONSTRUCTION.
10. ROUGH GRADE ROAD, PARKING AREAS, AND ROADWAY SIDE SLOPES.
11. FINE GRADE ALL PARKING LOTS AND DRIVEWAY SIDE SLOPES AND ROUGH GRADE REMAINDER OF SITE.
12. RESEED OR TEMPORARILY SEED ANY AREA WHICH WILL BE LEFT UNDISTURBED FOR MORE THAN 14 DAYS.
13. COMPLETE FINE GRADING AND PAVING OF ROADS, WALKS AND PARKING AREAS.
14. CLEAN SILTATION BASINS, LEVEL SPREADERS AND STORM DRAIN SYSTEM OF CONSTRUCTION SEDIMENTATION.
15. FINE GRADE, LOAM SEED AND FERTILIZE REMAINDER OF SITE.
16. REMOVE TEMPORARY SOIL EROSION MEASURES.

WINTER CONSTRUCTION:

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIP RAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT VEGETATION, MULCHING, EROSION CONTROL MATS, RIP RAP OR GRAVEL BASE ON A ROAD. 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 AREA 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. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.
THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE 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.

1. SOIL STOCKPILES
   STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER-WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS./1,000 S.F. (3 TONS/ACRE) OR WITH A FOUR INCH LAYER OF EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND WILL BE REESTABLISHED 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.

2. NATURAL RESOURCES PROTECTION
   ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% 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.

3. SEDIMENT BARRIERS
   DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF EROSION CONTROL MIX SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING
   ALL AREA SHALL BE CONSIDERED TO BE DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LBS./1,000 SF. OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75 LBS./1,000 SF. 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 A 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 MULCHED WITH STRAW OR HAY AT A RATE OF 150 LBS./1,000 SF. (3 TONS/ACRE) AND ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

   BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT.
   AFTER NOVEMBER 1, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORK DAY.

5. MULCHING ON SLOPES AND DITCHES
   SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS.
   MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 SF. ON ALL SLOPES GREATER THAN 8%.
   MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAT 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%.
   EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPE GREATER THAN 8%.
   EROSION CONTROL MIX CAN BE USED AS A SUBSTITUTE FOR EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING
   BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, 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. AFTER NOVEMBER 1 IF THE EXPOSED AREA HAS BEEN LOAMED AND 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 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 BE SEEDED AT AN APPLICATION RATE OF 5 LBS/1000 SF. ALL AREAS SEEDED DURING THE WINTER WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75 % CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH.
   IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL AREAS DISTURBED IN THE WINTER SHALL BE VEGETATED IN THE SPRING.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION
   WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

8. INSPECTION AND MONITORING
   MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGED AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85 TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

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STATE OF MAINE
THOMAS S. GREER
No. 4206
LICENSED PROFESSIONAL ENGINEER
JUNE 17, 2016

REV.	DATE	DESCRIPTION

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

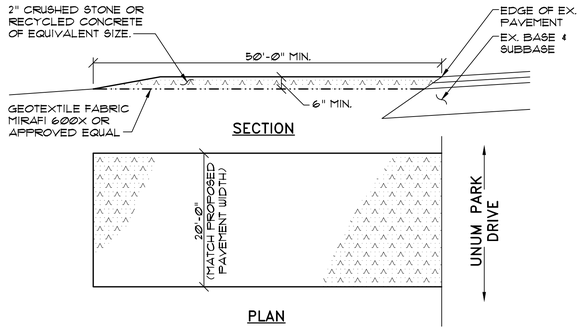
SCALE: AS SHOWN
DATE: JUNE 17, 2016
PROJECT: 13151
DRN BY: RJS
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

DETAILS

C2.1

MAP/LOT 216-A-6 & 217-A-1

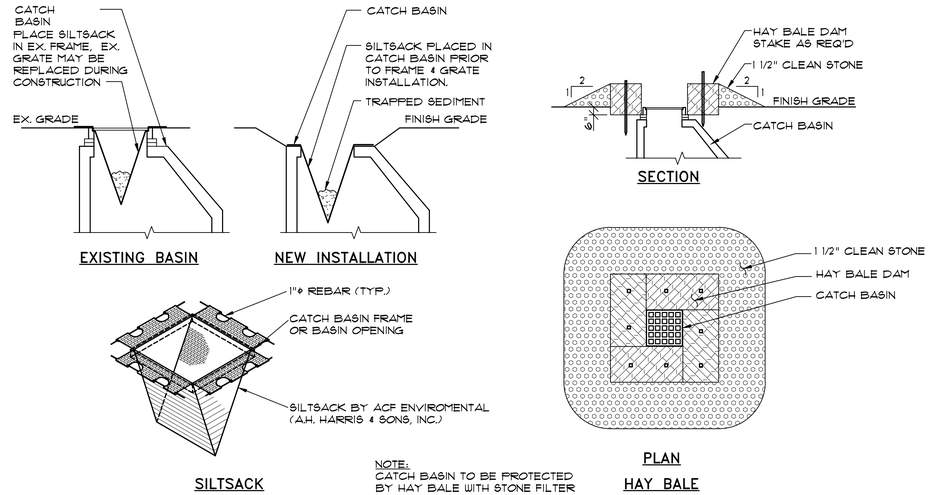


NOTES:

1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

3 STABILIZED CONSTRUCTION ENTRANCE DETAIL

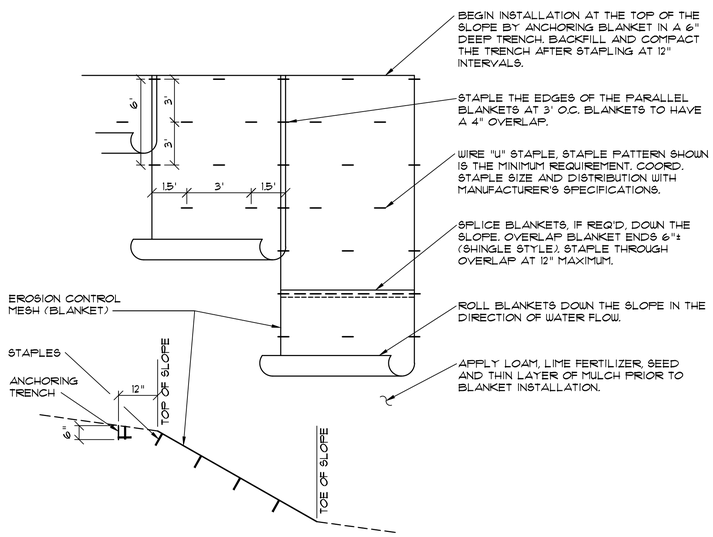
NOT TO SCALE



NOTE:
CATCH BASIN TO BE PROTECTED BY HAY BALE WITH STONE FILTER AND SILTSACK.

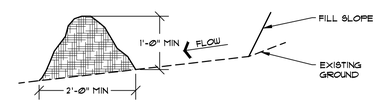
1 CATCH BASIN PROTECTION

NOT TO SCALE



4 EROSION CONTROL MESH INSTALLATION DETAIL

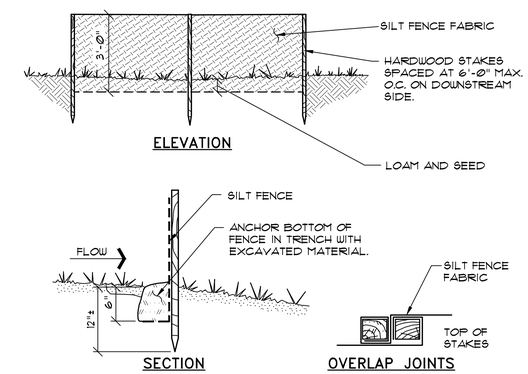
NOT TO SCALE



NOTES:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS.
   WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
   EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER.
   EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.
   THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
   A. ORGANIC MATERIAL: BETWEEN 20% - 100% (DRY WEIGHT BASIS)
   B. PARTICLE SIZE: BY WEIGHT, 100% PASSING 6" SCREEN, 70-85% PASSING 0.75" SCREEN
   C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
   D. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
   E. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 4.0 MMHOS/CM.
   F. PH: 3.0 - 8.0
2. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES 2:1 OR LESS UP TO 20 FEET LONG, THE BARRIER MUST CONFORM TO THE ABOVE DIMENSIONS. ON THE LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL FLOW.
3. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL ELEVATION. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
4. LOCATIONS WHERE OTHER BMP'S SHOULD BE USED:
   A. AT LOW POINTS OF CONCENTRATED FLOW
   B. BELOW CULVERT OUTLET APRONS
   C. WHERE A PREVIOUS STAND-ALONE EROSION CONTROL MIX APPLICATION HAS FAILED
   D. AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (LARGE UPGRADIENT WATERSHED)
   E. AROUND CATCH BASINS AND CLOSED STORM DRAIN SYSTEMS.
5. THE EROSION CONTROL MIX BARRIERS SHOULD BE INSPECTED REGULARLY AND AFTER EACH LARGE RAINFALL. REPAIR ALL DAMAGED SECTIONS OF BERM IMMEDIATELY BY REPLACING OR ADDING ADDITIONAL MATERIAL PLACED ON THE BERM TO THE DESIRED HEIGHT AND WIDTH.
6. IT MAY BE NECESSARY TO REINFORCE THE BARRIER WITH SILT FENCE OR STONE CHECK DAMS IF THERE ARE SIGNS OF UNDERCUTTING OR THE IMPOUNDMENT OF LARGE VOLUMES OF WATER.
7. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
8. REPLACE SECTIONS OF BERM THAT DECOMPOSE, BECOME CLOGGED WITH SEDIMENT OR OTHERWISE BECOME INEFFECTIVE. THE BARRIER SHOULD BE RESHAPED AS NEEDED.
9. EROSION CONTROL MIX BARRIERS CAN BE LEFT IN PLACE AFTER CONSTRUCTION. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER BARRIER IS NO LONGER REQUIRED SHOULD BE SPREAD TO CONFORM TO THE EXISTING GRADE AND BE SEEDED AND MULCHED. WOODY VEGETATION CAN BE PLANTED INTO THE BARRIERS, OR THEY CAN BE OVER-SEEDED WITH LEGUMES. IF THE BARRIER NEEDS TO BE REMOVED, IT CAN BE SPREAD OUT INTO THE LANDSCAPE.

EROSION CONTROL MIX SEDIMENT BARRIER



NOTE:
CONTRACTORS OPTION TO USE SEDIMENT BARRIER OR SILT FENCE FOR SLOPE PROTECTION.

2 SURFACE DRAINAGE SEDIMENT CONTROL

NOT TO SCALE

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STATE OF MAINE
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No. 4206
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JUNE 17, 2016

REV.	DATE	DESCRIPTION

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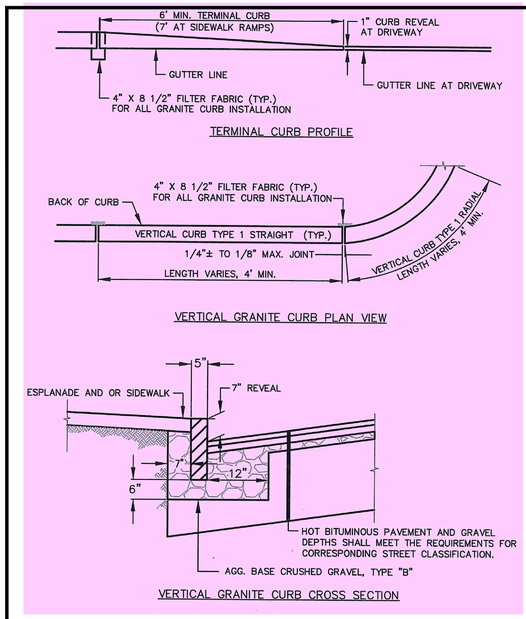
PROJECT: 13151
DRN BY: RJS
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

DETAILS

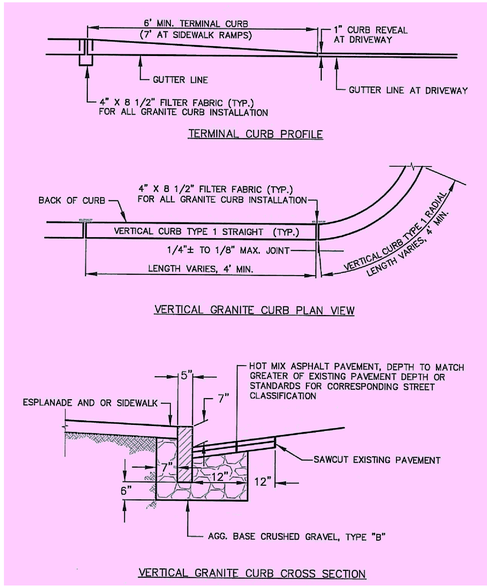
C2.2

MAP/LOT 216-A-6 & 217-A-1



6 VERTICAL GRANITE CURB FULL DEPTH STREET CONSTRUCTION (I-16)

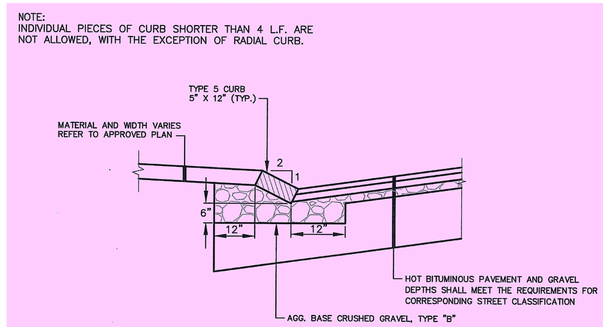
NOT TO SCALE



5 VERTICAL GRANITE CURB INSTALLATION IN EXISTING STREET (I-17)

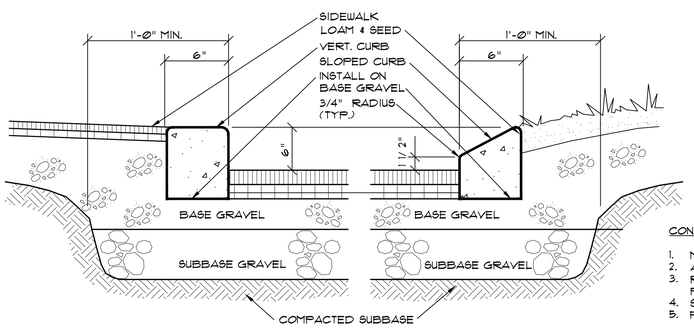
NOT TO SCALE

NOTE:
INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.



4 SLOPED GRANITE CURB-FULL DEPTH STREET CONSTRUCITON (I-18)

NOT TO SCALE

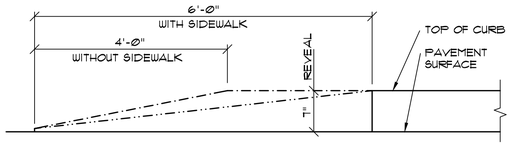


CONCRETE NOTES:

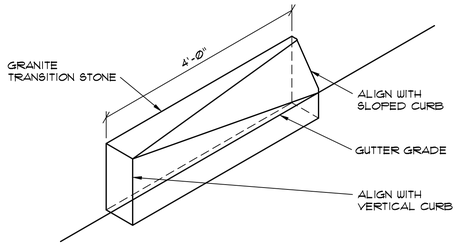
1. MIN. 28 DAY COMPRESSIVE STRENGTH: 4,000 PSI
2. AIR ENTRAINMENT: 4% TO 6%
3. REINFORCING: FIBERMESH OR EQUIVALENT GRACE PRODUCT. STRAND LENGTH 1 1/2", 1" TO 1 1/2 LB/CUBIC YARD.
4. SLUMP: 1" TO 1 1/2"
5. FINISH: VERTICAL AND TOP FACES: SMOOTH SLIFFORM
   SLOPED FACES: BROOM
6. JOINTS: SAWCUT 10' O.C. 3" DEEP THE DAY AFTER PLACING.
7. SEALER: SALTGUARD OR EQUAL WATER BASED SEALER.

7 SLIPFORM CONCRETE CURB DETAILS

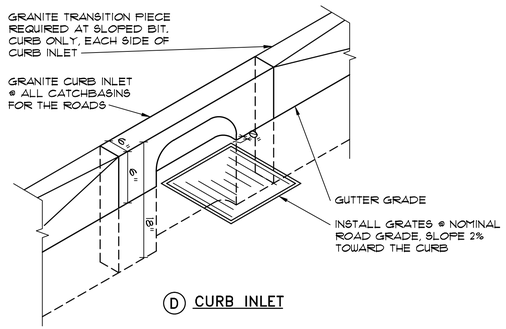
NOT TO SCALE



TIP-DOWN & TERMINAL END DIMENSIONS



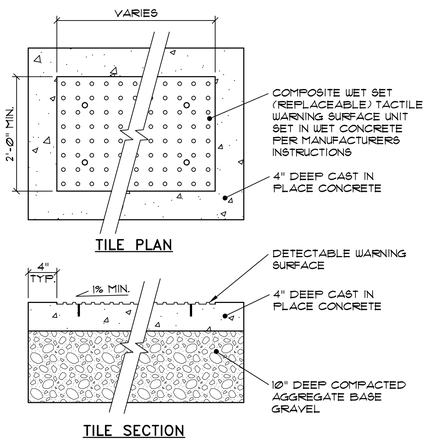
GRANITE VERTICAL TO SLOPED TRANSITION PIECE

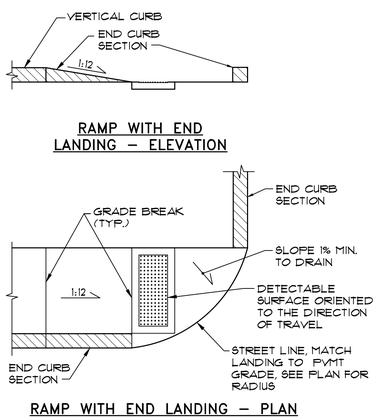


D CURB INLET

2 CURB TERMINATION & TRANSITIONS

NOT TO SCALE

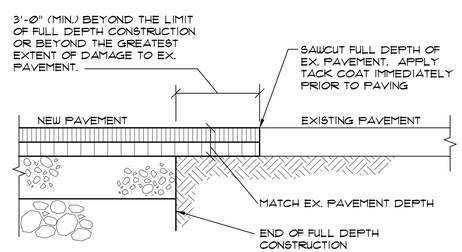




NOTE: DETECTABLE WARNING TILE REQUIRED AT ALL SIDEWALK RAMPS.

8 DETECTABLE WARNING SECTIONS

NOT TO SCALE



3 PAVEMENT CUTTING & MATCHING SECTION

NOT TO SCALE

CONSTRUCTION	USE
1 1/4" HMA MDOT 9.5mm 2 1/4" HMA MDOT 19.0mm 4" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A 15" COMPACTED AGGREGATE SUBBASE, MDOT 703.06(b) TYPE D COMPACTED SUBGRADE	BITUMINOUS PAVEMENT ACCESS ROAD PARKING LOT
PAVER, 3 1/8 MIN. THICKNESS SEE NOTE 3 SOD PLUGS OR GRASS SEED TOPSOIL IN OPENINGS FILL 1 1/2" BELOW SURFACE 1" TO 1 1/2" BEDDING SAND 15" COMPACTED AGGREGATE SUBBASE, MDOT 703.06(b) TYPE D GEOTEXTILE, TURN UP AT SIDES COMPACTED SUBGRADE	PERVIOUS PAVEMENT PARKING
2 - 1" LAYERS OF HMA MDOT 9.5mm 12" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A COMPACTED SUBGRADE	BITUMINOUS SIDEWALKS
4" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A 15" COMPACTED AGGREGATE SUBBASE, MDOT 703.06(b) TYPE D COMPACTED SUBGRADE	GRAVEL TRAIL
7" CONC. SLAB W/ 6x6 W2.9xW2.9 WWF @ MIDHEIGHT OF SLAB THICKENED SLAB 2 - #4 CONT. 12" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A COMPACTED SUBGRADE	CONCRETE PLAZA AREAS
EXTEND BASE 4" MIN. CONCRETE PAVERS W/ STABILIZED SAND FILL EDGING WITH STEEL SPIKES ALONG NON-PAVEMENT EDGES 4" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A COMPACTED SUBGRADE	CONCRETE PAVERS PLAZA AREAS
8" CONC. SLAB W/ #4 @ 12" E.W. @ MIDHEIGHT OF SLAB THICKENED SLAB 2 - #4 CONT. 12" COMPACTED AGGREGATE BASE, MDOT 703.06(a) TYPE A COMPACTED SUBGRADE	CONCRETE EQUIPMENT & BIKE RACK PADS
4" TOPSOIL, NO STONES OVER 3/4" DIA. GRANULAR MATERIAL IN FILL AREAS COMPACTED SUBGRADE	GRASS ALL DISTURBED AREAS
3" BARKMULCH PREPARED SUBGRADE	PLANT BED BARKMULCH

NOTES:

1. HMA = HOT MIX ASPHALT.
   MDOT = MAINE DEPARTMENT OF TRANSPORTATION.
2. ALL COURSE THICKNESS AFTER FINAL COMPACTION.
3. GRASSBLOCK BY GRASSCRETE OR TURFSTONE GRID PAVERS BY IDEAL OR APPROVED EQUAL.

1 SCHEDULE OF SURFACE FINISHES

NOT TO SCALE

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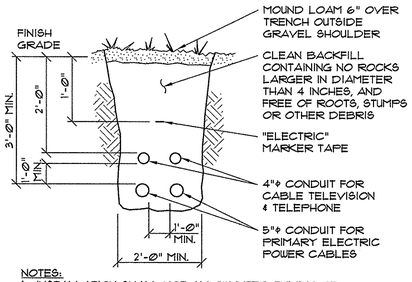
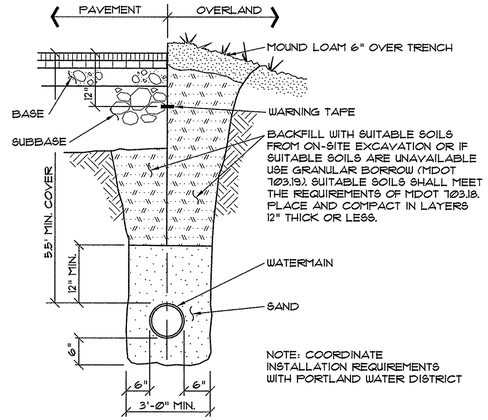


NOTES:
1. INSTALLATION SHALL NOT ALLOW INTER-TWINING OF CABLES.
2. DIRECT BURY ELECTRICAL CABLES MAY BE USED IF ALLOWED BY CENTRAL MAINE POWER.
3. CONFIRM CONDUIT SIZES WITH INDIVIDUAL UTILITY COMPANIES PRIOR TO INTALLATION.
4. COORDINATE FINAL LAYOUT WITH INDIVIDUAL UTILITY COMPANIES.

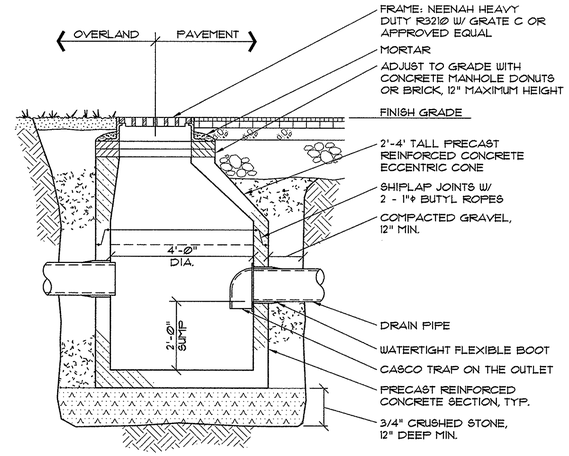
6 CABLE TRENCH SECTION

NOT TO SCALE



5 TYPICAL WATER MAIN SECTION

NOT TO SCALE



4 TYPICAL CATCH BASIN SECTION

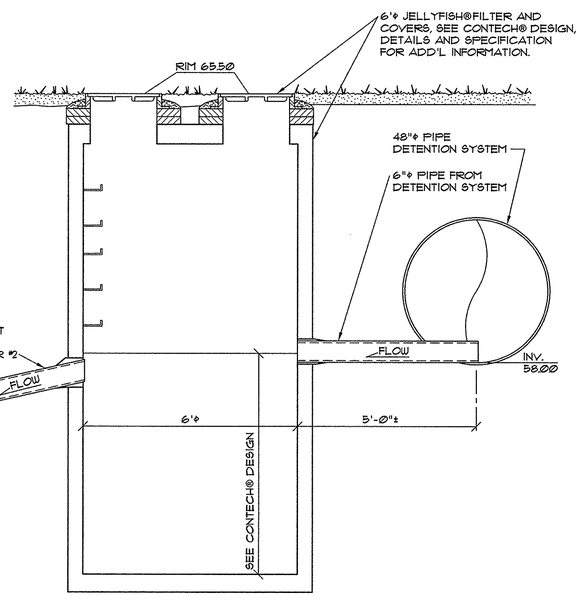
NOT TO SCALE

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.

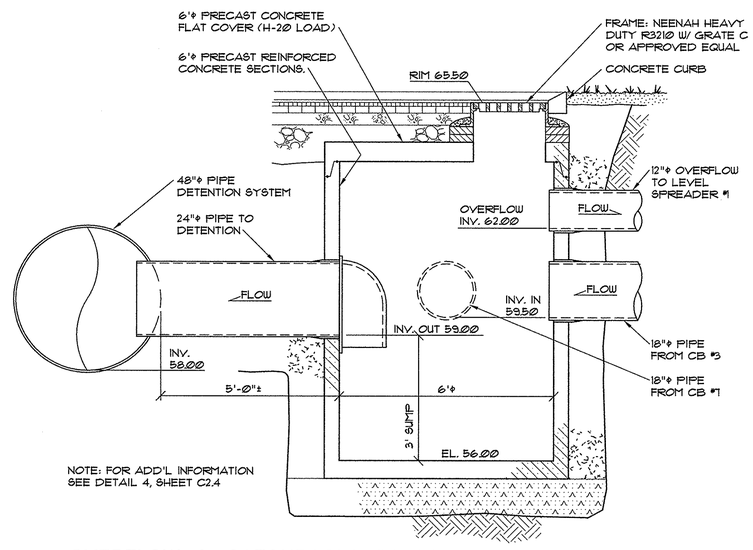
1 GENERAL NOTES FOR MANHOLES & CATCH BASINS (II-4)

NOT TO SCALE



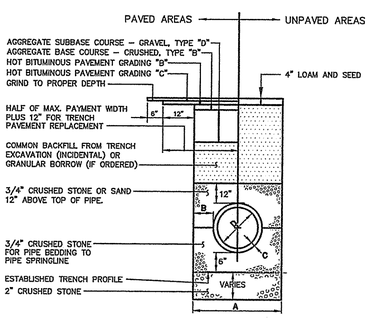
8 JELLYFISH® FILTER DETAILS

NOT TO SCALE



7 OVERFLOW & CATCHBASIN #8 DETAIL

NOT TO SCALE

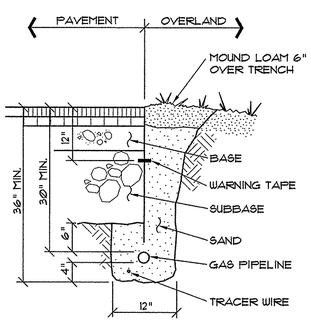


NOTES:
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL 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

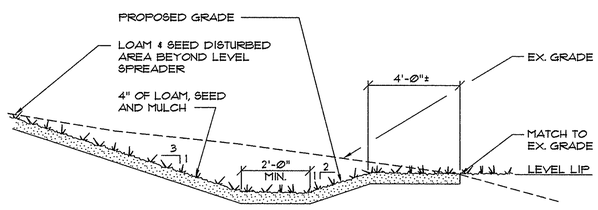
2 TYPICAL PIPE TRENCH INSTALLATION (II-12) IN CONGRESS STREET

NOT TO SCALE



11 GAS PIPING TRENCH SECTION

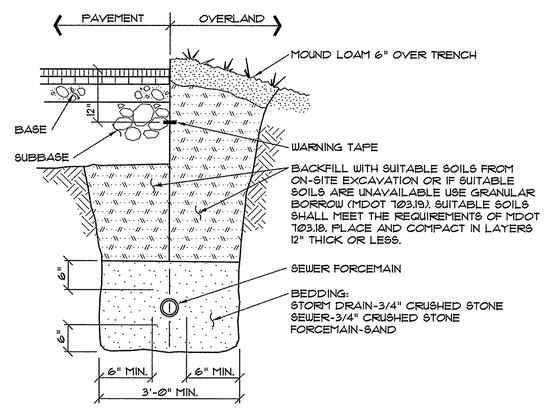
NOT TO SCALE



NOTES:
1. CONSTRUCT LEVEL LIP AND SPREADER ON ZERO PERCENT GRADE.
2. DO NOT CONSTRUCT LEVEL SPREADER ON FILL.
3. STORM RUNOFF CONVERTED TO SHEET FLOW SHALL OUTLET ONTO STABILIZED AREA. WATER SHALL NOT BE CHANNELIZED IMMEDIATELY BELOW POINT OF DISCHARGE.

10 LEVEL SPREADER SECTION

NOT TO SCALE

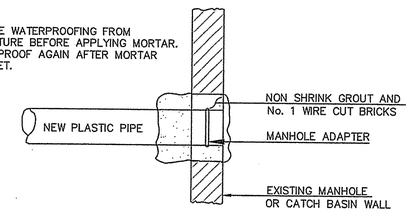


9 TYPICAL TRENCH SECTION – ON SITE

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

3 PLASTIC PIPE CONNECTION METHODS (II-14)

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 WARREN AVE, PORTLAND, ME 04102
TEL: 207.781.5242 FAX: 207.781.4295

STATE OF MAINE
THOMAS S. GREER
No. 4288
LICENSED
PROFESSIONAL ENGINEER
SEAL
7/11/16

REV	DATE	DESCRIPTION
1	7/11/16	REV'D DRAINAGE SYSTEM, REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

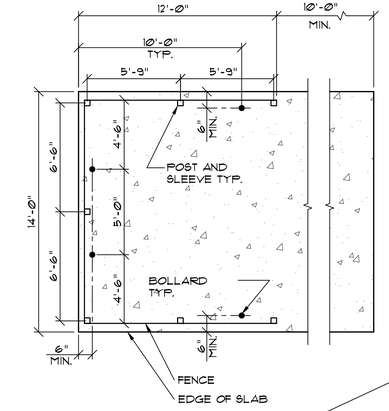
SCALE: AS SHOWN
DATE: JUNE 17, 2016
PROJECT: 13151
DRN BY: RJS
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

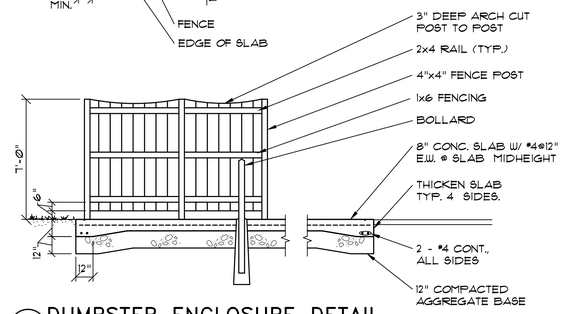
DETAILS

C2.4

MAP/LOT 216-A-6 & 217-A-1

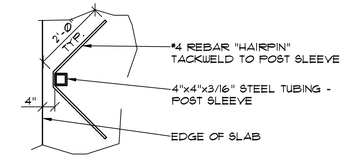


WOOD NOTES:
1. ALL WOOD TO BE PRESSURE TREATED TO A MIN. NET OF .40 lbs. CCA PER CUBIC FOOT OF WOOD AND EACH PIECE SHALL BEAR THE AMERICAN WOOD PRESERVER'S ASSOCIATES QUALITY MARK LP-22 "GROUND CONTACT USE."
2. ALL NAILS AND SCREWS TO BE GALVANIZED.

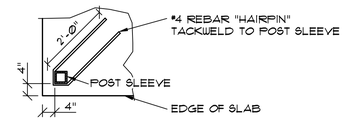


1 DUMPSTER ENCLOSURE DETAIL

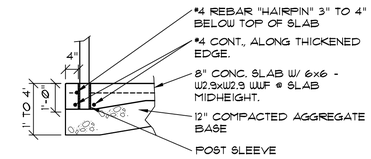
NOT TO SCALE



PLAN VIEW – INTERMEDIATE POST SLEEVE

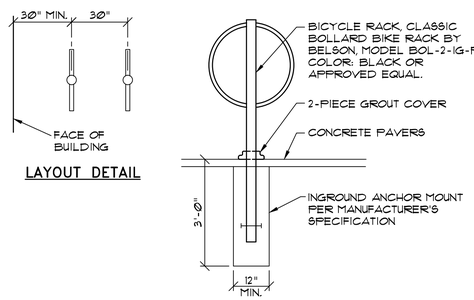


PLAN VIEW – CORNER POST SLEEVE



SECTION

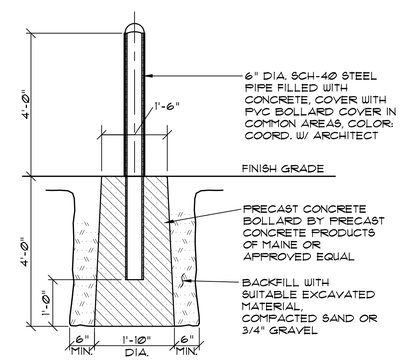
POST SLEEVE DETAIL



LAYOUT DETAIL

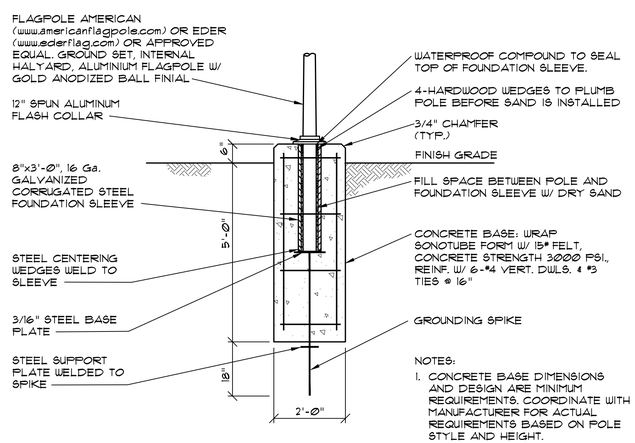
4 BIKE RACK DETAIL

NOT TO SCALE



2 STEEL BOLLARD DETAIL

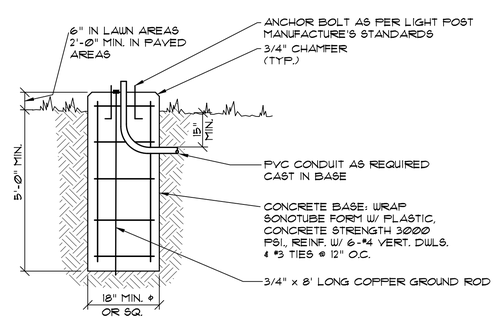
NOT TO SCALE



NOTES:
1. CONCRETE BASE DIMENSIONS AND DESIGN ARE MINIMUM REQUIREMENTS. COORDINATE WITH MANUFACTURER FOR ACTUAL REQUIREMENTS BASED ON POLE STYLE AND HEIGHT.

5 FLAGPOLE BASE DETAIL

NOT TO SCALE



3 LIGHT POLE BASE DETAIL

NOT TO SCALE

UTILITY NOTES

1. ALL INSTALLATION AND TESTING SHALL BE IN ACCORDANCE WITH THE AFFECTED UTILITY'S STANDARDS.
2. CATCHBASINS AT THE EDGE OF PAVEMENT OR FACE OF CURB, ROTATE ECCENTRIC CONE OR FLAT COVER AS REQUIRED FOR BEST FIT.
3. INSTALL AND TEST SEWER AND STORM DRAIN SYSTEMS IN ACCORDANCE WITH THE CITY'S ORDINANCES. TESTING SANITARY SEWER PIPE AND MANHOLES IS REQUIRED.
   PIPE: LOW PRESSURE AIR (5PSIG) FOR 5 MINUTES.
   STRUCTURES: VACUUM TEST, XX MM LTG FOR XX MINUTES PRIOR TO BUILDING INVERT OR CHIMNEY.
4. INSTALL ALL PIPES WITH THE BELLS UPGRADIENT.
5. INVERTS FOR TIE-INS FROM FOUNDATION DRAINS ARE NOT SHOWN. MAINTAIN A POSITIVE SLOPE TO CONNECTION OR OUTLET. COMPLY WITH LOCAL ORDINANCES OR STANDARDS WITH RESPECT TO CONNECTING FOUNDATION DRAINS TO STORM DRAIN SYSTEM.
6. WATER MAIN TO HAVE A MINIMUM 5.5' OF COVER. WHERE THE WATER MAIN CROSSES OTHER UTILITIES IT MAY NEED TO BE DEEPER.
7. INSULATION FOR SEWER AND CULVERT CROSSINGS:
   A. INSULATION TO BE STYROFOAM SM INSULATION AS MANUFACTURED BY DOW CHEMICAL CO., OR APPROVED EQUAL, 2" MIN. THICKNESS.
   B. INSTALL BETWEEN SEWER OR FORCEMAIN PIPE AND CULVERTS WHERE THEY ARE WITHIN 18" OF EACH OTHER VERTICALLY: 2" THICK x 4' WIDE, EXTEND INSULATION 6' EACH SIDE OF THE CULVERT ALONG THE CROSSING PIPE.
   C. INSTALL OVER SEWER OR FORCEMAIN PIPE WHERE THERE IS LESS THAN 4' OF COVER BETWEEN THE TOP OF PIPE AND FINISH GRADE: 2" THICK x 4' WIDE CENTERED ON THE PIPE, 6" ABOVE THE PIPE.
   D. FOR DUAL PIPES EXTEND INSULATION AT LEAST 2 FEET BEYOND THE OUTER EDGES OF PIPES.
8. PRECAST CATCH BASIN COMPONENTS TO COMPLY WITH ASTM C478.
9. LIMIT OF ROCK PAYMENT:

   PRECAST CONCRETE STRUCTURES:
   DEPTH: 12" BELOW STRUCTURE,
   WIDTH: STRUCTURE O.D. + 2'

   TRENCHES:
   DEPTH: 6" BELOW PIPE OR CABLE INVERT,
   WIDTH: PIPE O.D. OR CABLE + 12", MIN. 3' WIDE

   LIGHTPOLE BASE:
   LIMIT OF CONCRETE BASE

   PAVED SURFACES:
   BOTTOM OF SUBBASE RELATIVE TO FINISH SURFACE
10. 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
11. MATERIALS: SEE PLANS FOR SIZES

    STORM DRAIN:
    TYPICAL: PE N12, SMOOTH WALL
    WITHIN R.O.W. OF STATE ROAD: REINFORCED CONCRETE PIPE

    UNDERDRAIN: PERFORATED PE N12
    MEETING AASHTO H-20 LOADING

    SANITARY SEWER: PVC, SDR 35
    MEETING ASTM D3034 W/ A REMOVABLE GASKET MEETING ASTM D3212

    FORCEMAIN: PVC, SDR 11

    WATER MAIN: CEMENT LINED DUCTILE IRON CLASS 52

    WATER SERVICE: CTS 200 PSI, PE

    FOUNDATION DRAIN: PERFORATED PE N12
    MEETING AASHTO H-20 LOADING
    COORD. WITH STRUCTURAL FOR CONNECTION WITHIN 8' OF FOUNDATION

PINKHAM & GREER
CIVIL ENGINEERS
28 WMAY AVE PORTLAND, ME 04103
TEL 207.781.5242 FAX 207.781.4245

STATE OF MAINE
THOMAS S. GREER
No. 4206
LICENSED
PROFESSIONAL ENGINEER
JUNE 17, 2016

REV.	DATE	DESCRIPTION

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: JUNE 17, 2016
PROJECT: 13151
DRN BY: RJS
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

DETAILS

C2.5

MAP/LOT 216-A-6 & 217-A-1

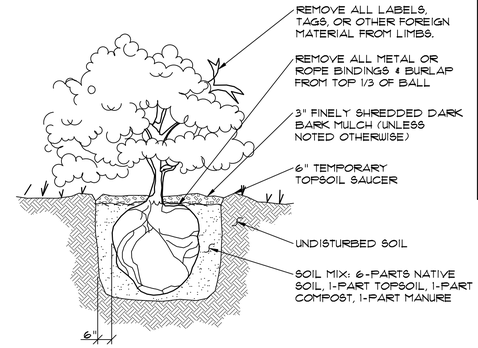
LANDSCAPE NOTES

GENERAL:

1. SAVE EXISTING TREES AS SHOWN. DO NOT CUT OR CLEAR ANY VEGETATION BEYOND THE IMPACT LIMIT LINE.
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 THELANDSCAPE 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 DISTURBED AREAS TO BE LOAMED AND SEEDED.

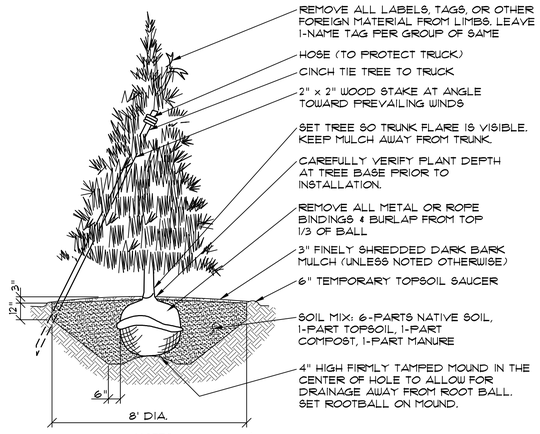
MAINTENANCE:

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.



1 SHRUB PLANTING DETAIL

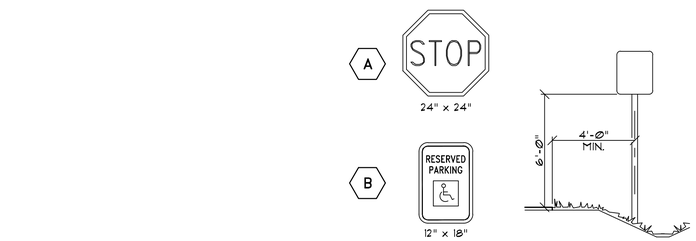
NOT TO SCALE



NOTES:
1. PRUNE ALL DEAD AND BROKEN BRANCHES. RETAIN NATURAL SHAPE, NEVER CUT LEADER.
2. IN LEDGE CONDITIONS, BLASTING SHALL BE 10' DIA AND 4' BELOW TREE HOLE BOTTOM GRADE.

2 CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

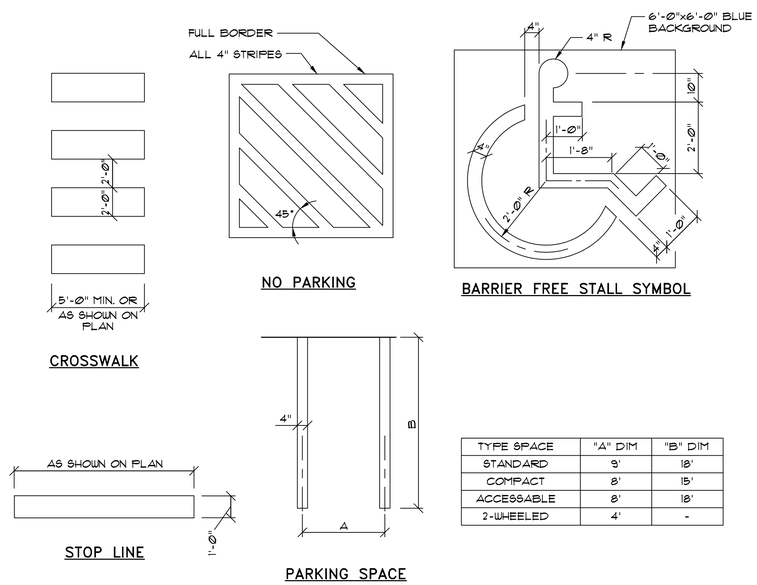


NOTES:

1. SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, HIGHWAYS AND BRIDGES REVISION OF DECEMBER 2002, SECTION 645.
2. ALL PERMANENT SIGNS ON THIS PROJECT ARE CLASSIFIED UNDER SECTION 645.03(b) TYPE I REGULATORY WARNING AND ROUTE MARKER ASSEMBLY SIGNS.
3. SIGN MATERIAL SHALL BE AS SPECIFIED IN SECTION 719 OF THE MDOT STANDARD SPECIFICATIONS.
4. POSTS SHALL BE METAL CHANNELS AS SPECIFIED IN SECTION 720.08. ALTERNATE POSTS MAY BE 4"x6" WOOD AS SPECIFIED IN SECTION 720.12, AS APPROVED BY ENGINEER.
5. POSTS IN THE PUBLIC RIGHT-OF-WAY TO BE ON BREAKAWAY POSTS AS SPECIFIED IN SECTION 720 OF THE MDOT STANDARD SPECIFICATIONS.

5 ROAD SIGN LEGEND

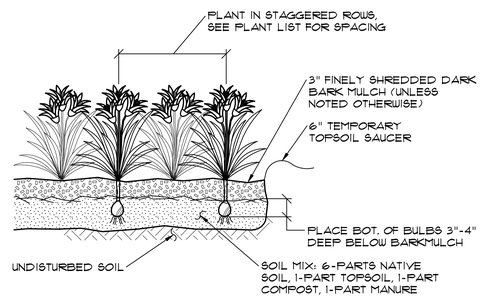
NOT TO SCALE



TYPE SPACE	"A" DIM	"B" DIM
STANDARD	9'	18'
COMPACT	8'	15'
ACCESSABLE	8'	18'
2-WHEELED	4'	-

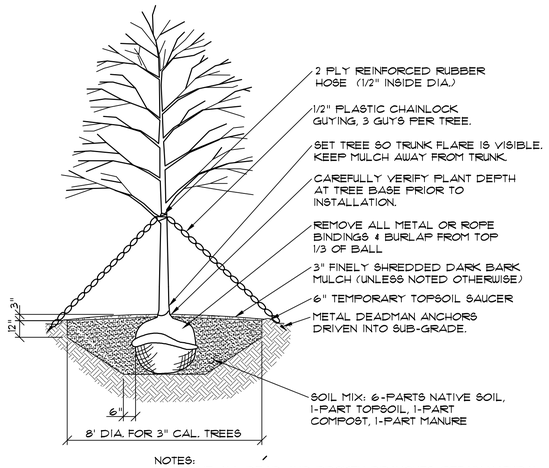
6 STRIPING DETAILS

NOT TO SCALE



4 DAYLILY PLANTING DETAIL

NOT TO SCALE



NOTES:
1. PRUNE ALL DEAD AND BROKEN BRANCHES. RETAIN NATURAL SHAPE, NEVER CUT LEADER.
2. IN LEDGE CONDITIONS, BLASTING SHALL BE 10' DIA AND 4' BELOW TREE HOLE BOTTOM GRADE.

3 DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

PINKHAM & GREER
CIVIL ENGINEERS
28 WARREN AVE PORTLAND, ME 04103
TEL 207.781.5242 FAX 207.781.4245

STATE OF MAINE
THOMAS S. GREER
No. 4206
LICENSED
PROFESSIONAL ENGINEER
JUNE 17, 2016

REV.	DATE	DESCRIPTION

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

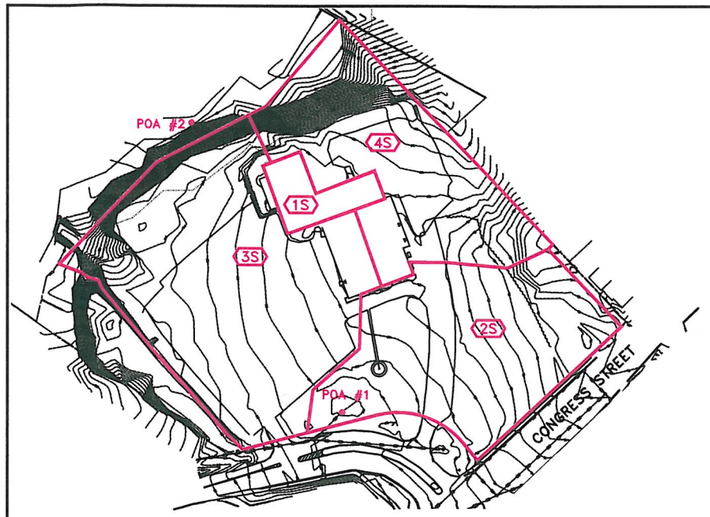
SCALE: AS SHOWN
DATE: JUNE 17, 2016
PROJECT: 13151
DRN BY: RJS
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

DETAILS

C2.6

MAP/LOT 216-A-6 & 217-A-1



DRAINAGE ANALYSIS – EXISTING CONDITIONS

SCALE: 1"=100'

COMPLIANCE TABLE

TABLE 1: AREAS TREATED FOR COMPLIANCE WITH THE GENERAL STANDARDS

Subcatchment	Treated Landscape Area (SF)	Untreated Landscape Area (SF)	Treated Impervious Area (SF)	Untreated Impervious Area (SF)	Undisturbed Area (SF)	Stormwater Treatment Device
10S	3,384		28,213			JELLYFISH
11S	9,566		26,257			JELLYFISH
12S	2,006		11,287			JELLYFISH
13S	4,165		11,304			JELLYFISH
14S	13,179		11,441			JELLYFISH
15S	2,734		7,063			JELLYFISH
16S	5,138		17,991			JELLYFISH
17S	810		7,542			JELLYFISH
20S		43,294		1,512		
21S			7,882			JELLYFISH
30S				23,669		
31S		350		4,297		
Outside Analysis				2,537		
Total Area	40,982	43,644	129,980	32,015	0	

TABLE 2: TOTAL AREAS TREATED

Total Developed Area:	246,621 SF	
Total Treated Area:	170,962 SF =	69.3%

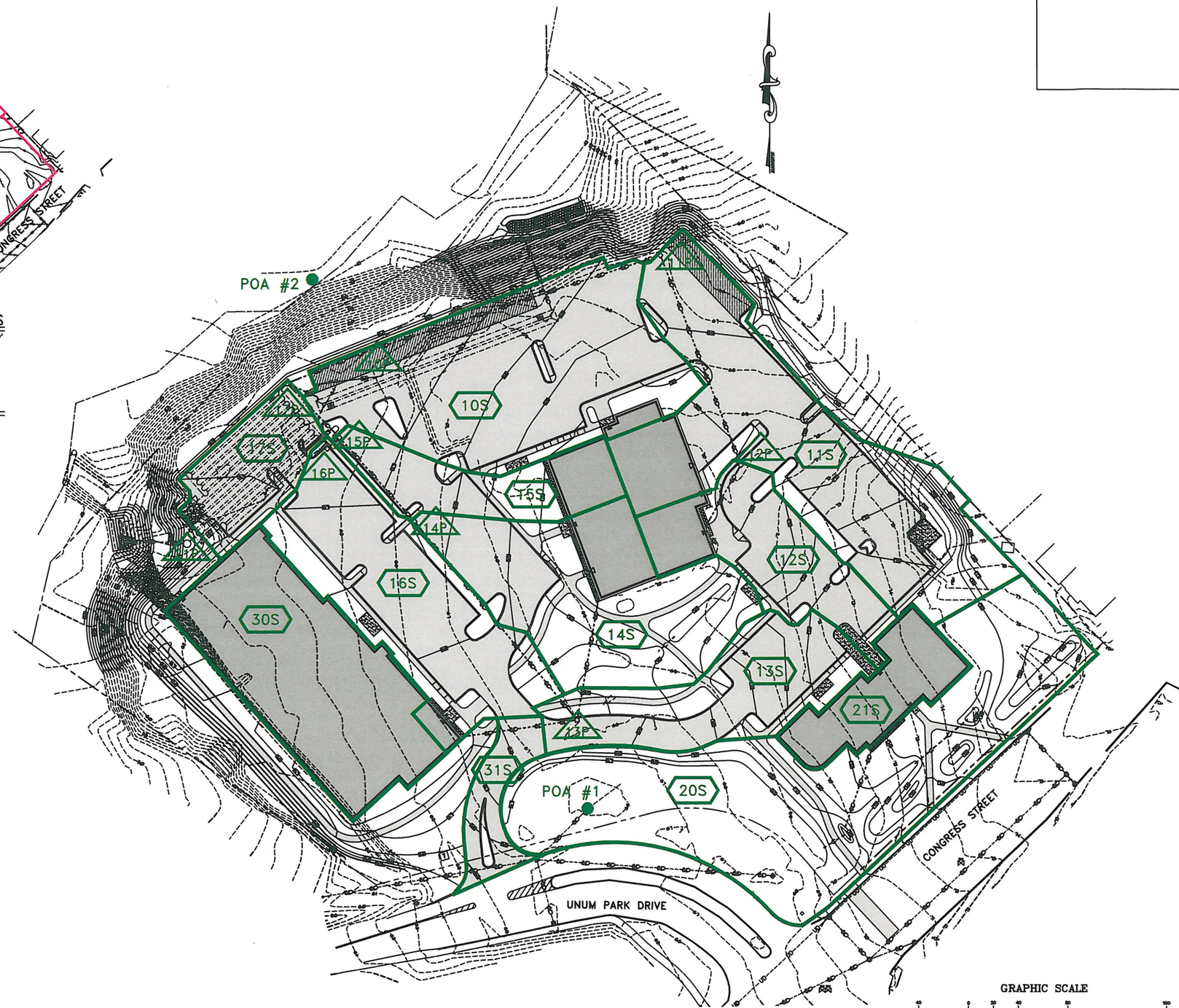
TABLE 3: IMPERVIOUS TREATED

Treatment Required:	60% of Impervious Area	
Total Impervious Area:	161,995 SF	
Impervious Area Treated:	129,980 SF =	80.2%

DRAINAGE LEGEND

- SUBCATCHMENT PERIMETER
- 1S / 10S — SUBCATCHMENT NUMBER
- 10P — POND
- POA #1 — POINT OF ANALYSIS

SEE GRADING PLAN FOR PLAN LEGEND



DRAINAGE ANALYSIS – DEVELOPED CONDITIONS

SCALE: 1"=40'

PINKHAM & GREER
CIVIL ENGINEERS
29 WARREN AVE. PORTLAND, ME. 04103
TEL. 207.797.5242 FAX. 207.797.4240

STATE OF MAINE
THOMAS S. GREER
No. 4206
LICENSED
PROFESSIONAL ENGINEER

7/11/16

REV	DATE	DESCRIPTION
1	7/11/16	REV'D DRAINAGE SYSTEM. REV'D PER REVIEW COMMENTS

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

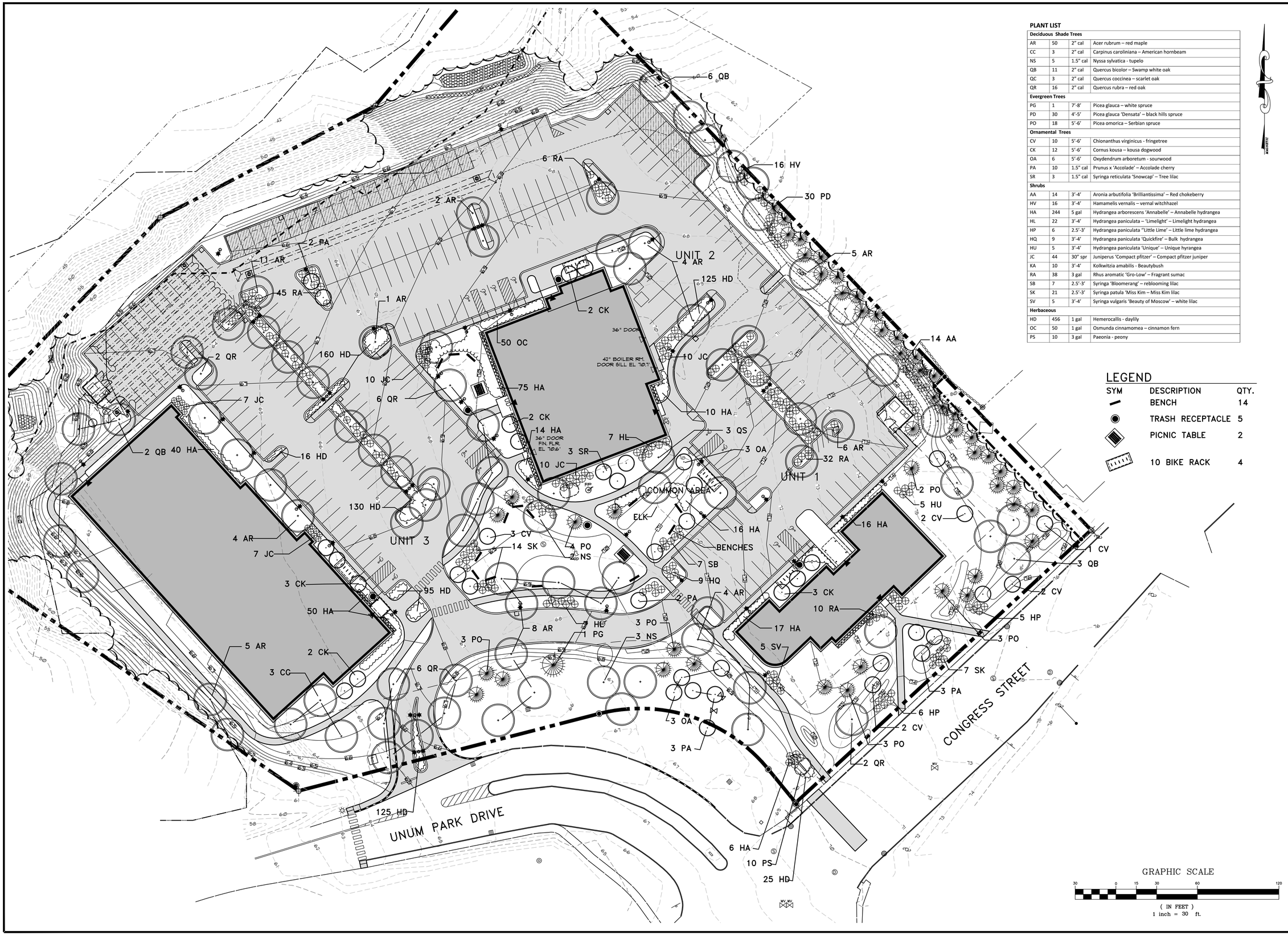
SCALE: AS SHOWN
DATE:
PROJECT: 13151
DRN BY: JDC
DESG BY: TSG
CHK BY: TSG

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

DRAINAGE ANALYSIS

D1.0

MAP/LOT 216-A-6 & 217-A-1



PLANT LIST

Deciduous Shade Trees			
AR	50	2" cal	Acer rubrum – red maple
CC	3	2" cal	Carpinus caroliniana – American hornbeam
NS	5	1.5" cal	Nyssa sylvatica - tupelo
QB	11	2" cal	Quercus bicolor – Swamp white oak
QC	3	2" cal	Quercus coccinea – scarlet oak
QR	16	2" cal	Quercus rubra – red oak
Evergreen Trees			
PG	1	7'-8'	Picea glauca – white spruce
PD	30	4'-5'	Picea glauca 'Densata' – black hills spruce
PO	18	5'-6'	Picea omorica – Serbian spruce
Ornamental Trees			
CV	10	5'-6'	Chionanthus virginicus - fringetree
CK	12	5'-6'	Cornus kousa – kousa dogwood
OA	6	5'-6'	Oxydendrum arboretum - sourwood
PA	10	1.5" cal	Prunus x 'Accolade' – Accolade cherry
SR	3	1.5" cal	Syringa reticulata 'Snowcap' – Tree lilac
Shrubs			
AA	14	3'-4'	Aronia arbutifolia 'Brilliantissima' – Red chokeberry
HV	16	3'-4'	Hamamelis vernalis – vernal witchhazel
HA	244	5 gal	Hydrangea arborescens 'Annabelle' – Annabelle hydrangea
HL	22	3'-4'	Hydrangea paniculata – 'Limelight' – Limelight hydrangea
HP	6	2.5'-3'	Hydrangea paniculata "Little Lime' – Little lime hydrangea
HQ	9	3'-4'	Hydrangea paniculata 'Quickfire' – Bulk hydrangea
HU	5	3'-4'	Hydrangea paniculata 'Unique' – Unique hyrangea
JC	44	30" spr	Juniperus 'Compact pfitzer' – Compact pfitzer juniper
KA	10	3'-4'	Kolkwitzia amabilis - Beautybush
RA	38	3 gal	Rhus aromatic 'Gro-Low' – Fragrant sumac
SB	7	2.5'-3'	Syringa 'Bloomerang' – reblooming lilac
SK	21	2.5'-3'	Syringa patula 'Miss Kim – Miss Kim lilac
SV	5	3'-4'	Syringa vulgaris 'Beauty of Moscow' – white lilac
Herbaceous			
HD	456	1 gal	Hemerocallis - daylily
OC	50	1 gal	Osmunda cinnamomea – cinnamon fern
PS	10	3 gal	Paeonia - peony

LEGEND

SYM	DESCRIPTION	QTY.
	BENCH	14
	TRASH RECEPTACLE	5
	PICNIC TABLE	2
	10 BIKE RACK	4

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PINKHAM & GREER
CIVIL ENGINEERS
28 WMAY AVE, PORTLAND, ME 04103
TEL 207.781.5242 FAX 207.781.4262

MOSER ANDERSON
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
Tel. 1.207.871.1419
Fax 1.207.871.1439

LICENSED LANDSCAPE ARCHITECT
SCOTT M. SEVIGNY
NO. 3148

REV.	DATE	DESCRIPTION

NORTHLAND ENTERPRISES, LLC
17 SOUTH STREET
PORTLAND, MAINE 04101

SCALE: AS SHOWN
DATE: JUNE 17, 2016
PROJECT: 13151
DRN BY: TS/SS
DESG BY: TS
CHK BY: TS

1945 CONGRESS STREET
ELKS LODGE, PORTLAND, MAINE

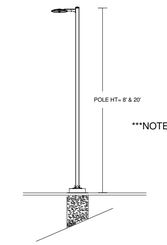
PLANTING PLAN

L1.0

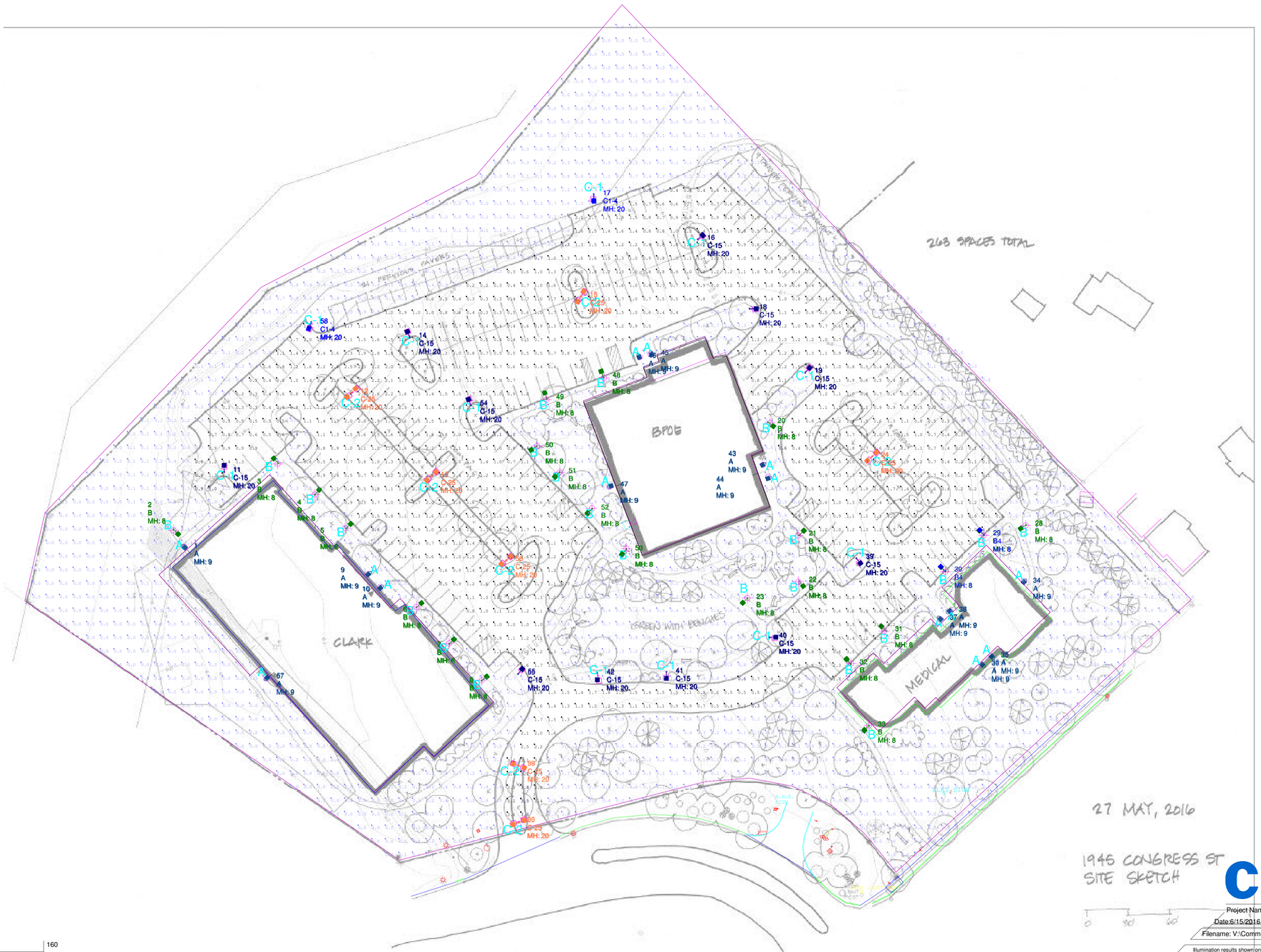
MAP/LOT 216-A-6 & 217-A-1

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Lumens/Lamp	LLF	Total Watts	Description	Lum. Watts
	14	A	SINGLE	5053	0.970	644	CAN-EDG-1S-DM-04-E-UL-WH-350-DIM-40K 40 LED 525mA	46
	21	B	SINGLE	2138	0.970	525	ARE-EDG-2M-DA-02-E-UL-BK-350-DIM-40K 20 LED 350mA	25
	11	C-15	SINGLE	6297	0.970	770	ARE-EDG-5M-DA-04-E-UL-BK-525-DIM-40K 40 LED 525mA	70
	7	C-25	BACK-BACK	6297	0.970	980	ARE-EDG-5M-DA-04-E-UL-BK-525-DIM-40K 40 LED 525mA	70
	2	C1-4	SINGLE	5896	0.970	140	ARE-EDG-4M-DA-04-E-UL-BK-525-DIM-40K 40 LED 525mA	70
	2	B4	SINGLE	2138	0.970	50	ARE-EDG-4M-DA-02-E-UL-BK-350-DIM-40K 20 LED 350mA	25

Footcandles calculated using predicted lumen values after 50K hours of operation					
Label	Avg	Max	Min	Avg/Min	Max/Min
EXTENDED CALC POINTS	0.71	14.7	0.0	N.A.	N.A.
PARKING LOT DRIVE	1.20	4.9	0.1	12.00	49.00



NOTE: EXISTING POLES



PHOTOMETRIC PLAN

PH-1

CREE™

1200 92nd Street - Sturtevant, WI 53177
www.cree.com - (800) 236-6800

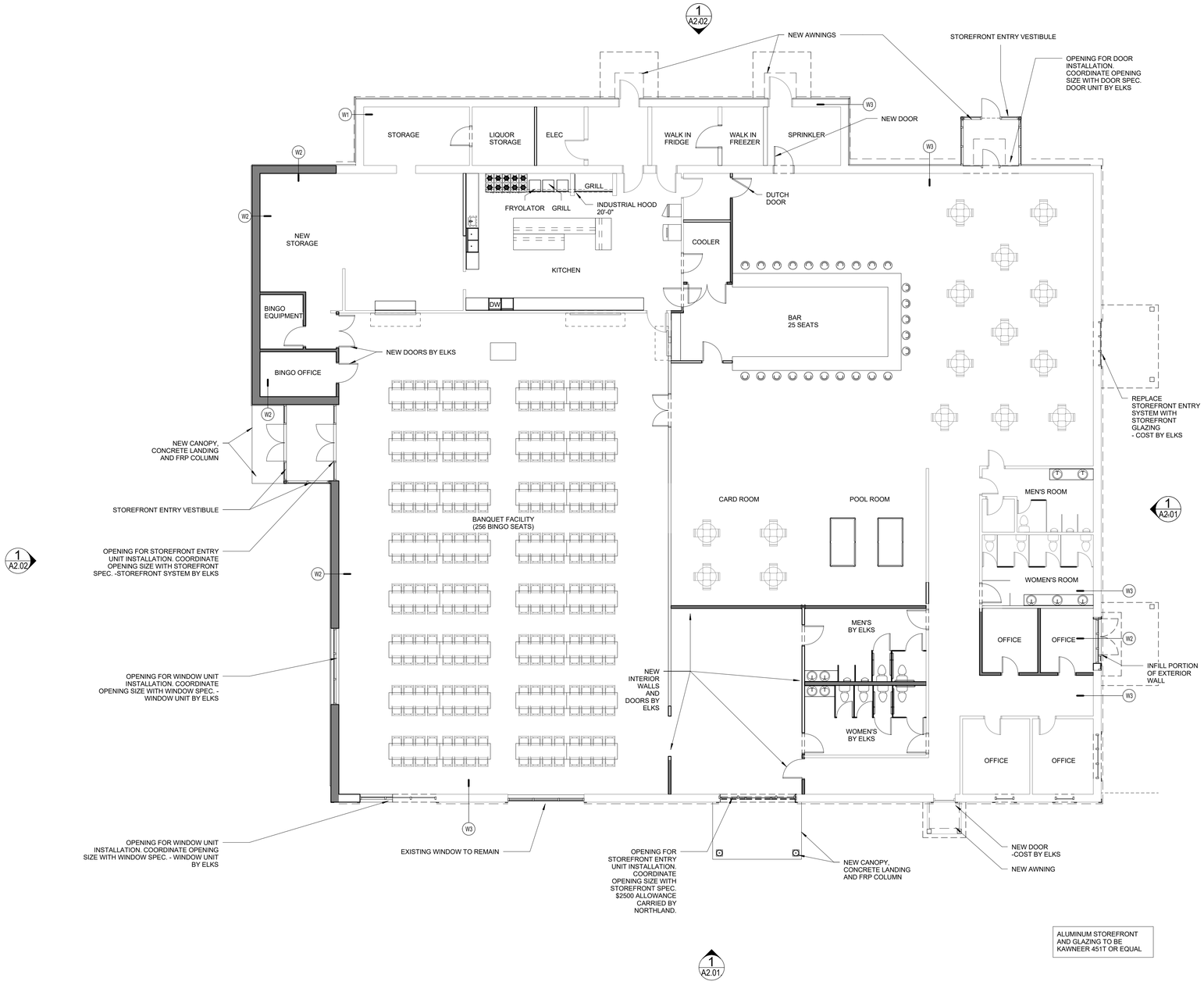
Project Name: 1945 CONGRESS STREET PORTLAND, ME | SR-12867

Date:6/15/2016 | Scale: 1"=40' | Footcandles calculated at grade

Filename: V:\Common\AppEng\OUT\160304CW1LJSR1.AGI | Layout by: LINDA SCHALLER

Illumination results shown on this lighting design are based on project parameters provided to Cree, Inc. used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying dimensional accuracy along with compliance with any applicable electrical, lighting, or energy code.

0 80 160



1 | 1ST FLOOR PLAN
1/8" = 1'-0"

Prepared For:
The Elks
1945 Congress Street
Portland, Maine

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
Elks Lodge
Portland, Maine

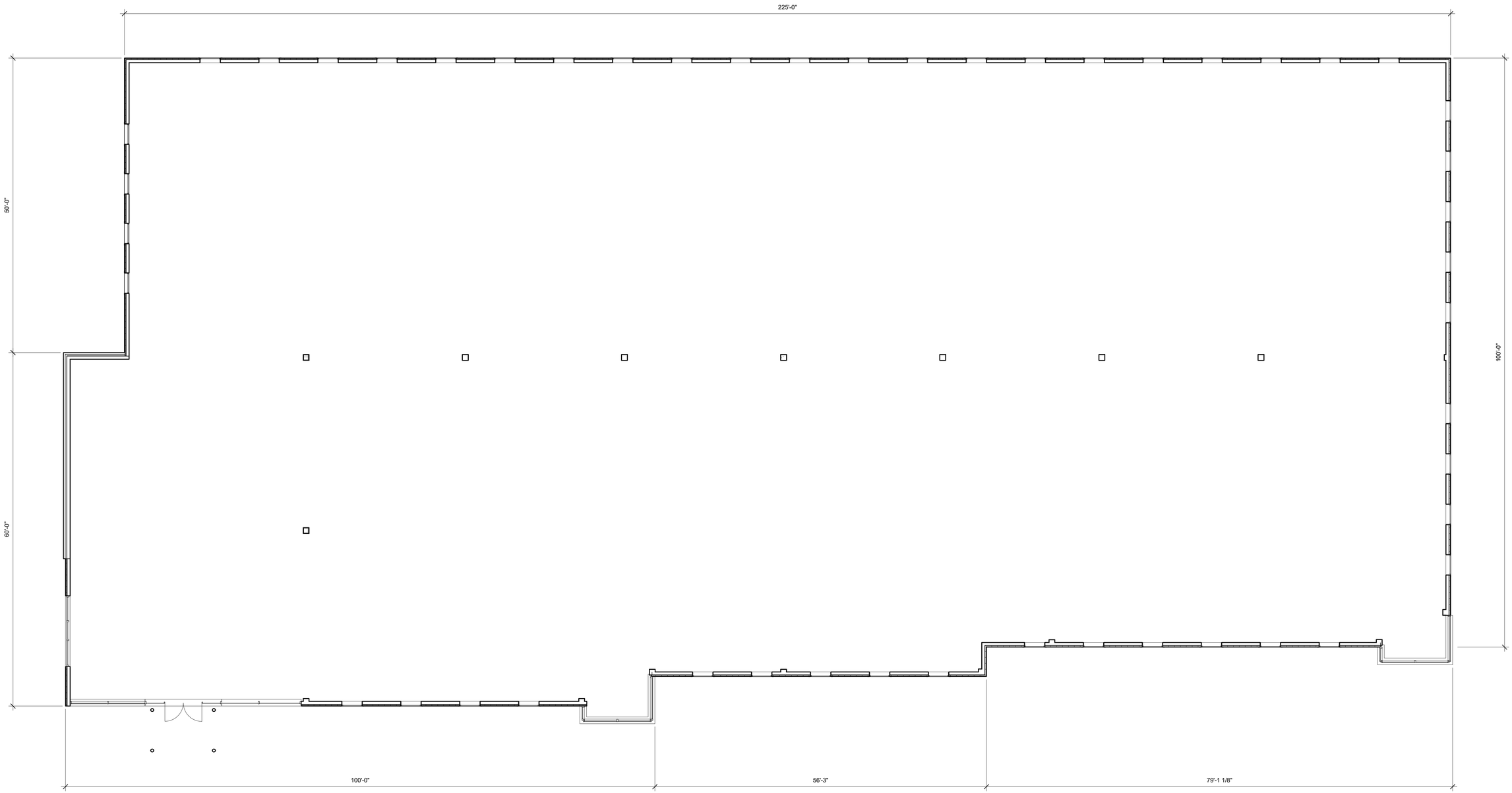
Revisions:

Scale: As indicated

Date: 5/9/2016

FIRST FLOOR

A1.01



1 | 1ST FLOOR - NEW
1/8" = 1'-0"

Prepared For:
Owner

Consultant:

Architect:
ARCHETYPE
architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
CLARK INSURANCE

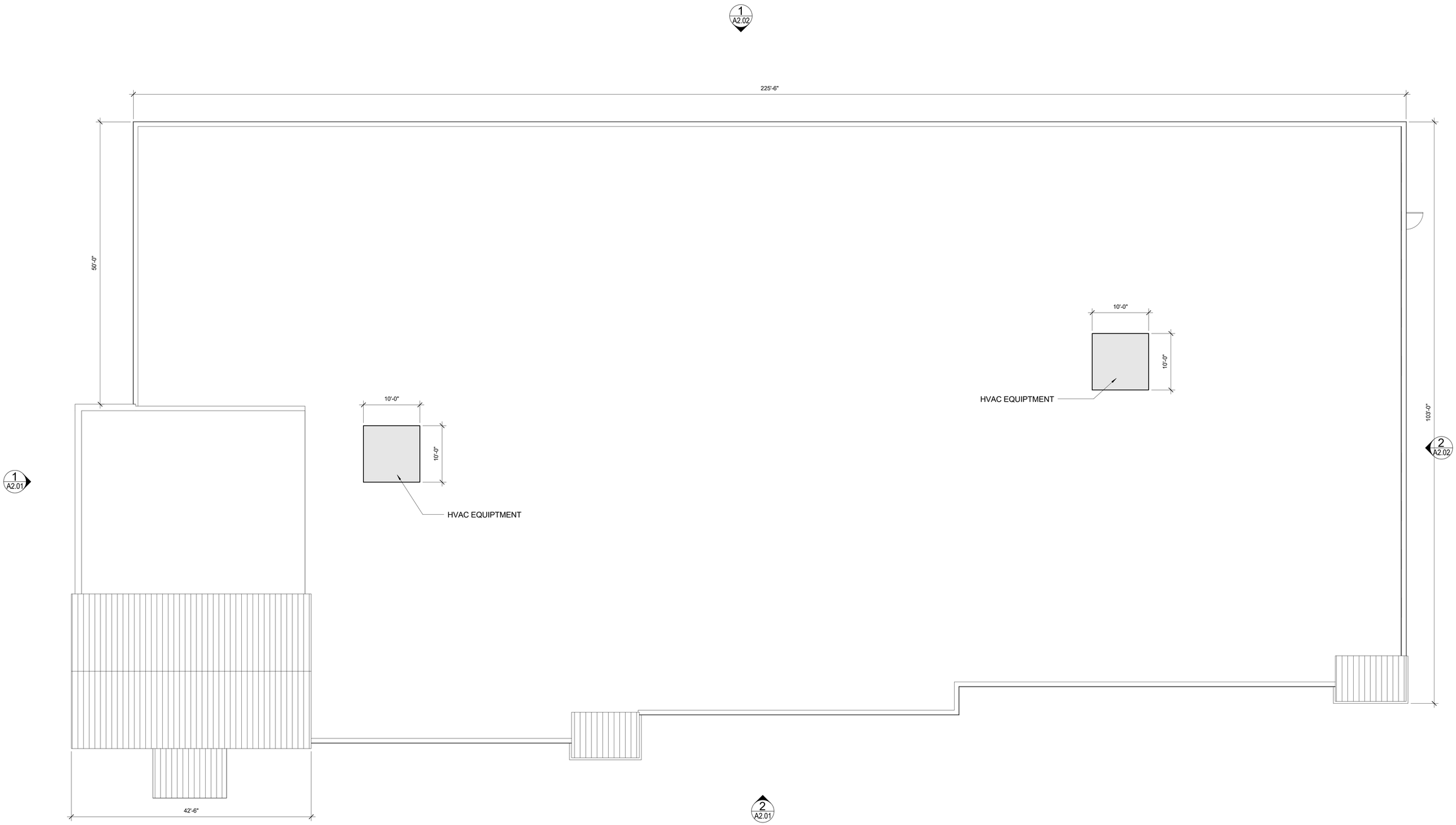
Revisions:

Scale:
1/8" = 1'-0"

Date:
3 JUN 2016

FIRST FLOOR PLAN

A1.01



1 ROOF
1/8" = 1'-0"

Prepared For:
Owner
Address
City, State

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
CLARK INSURANCE

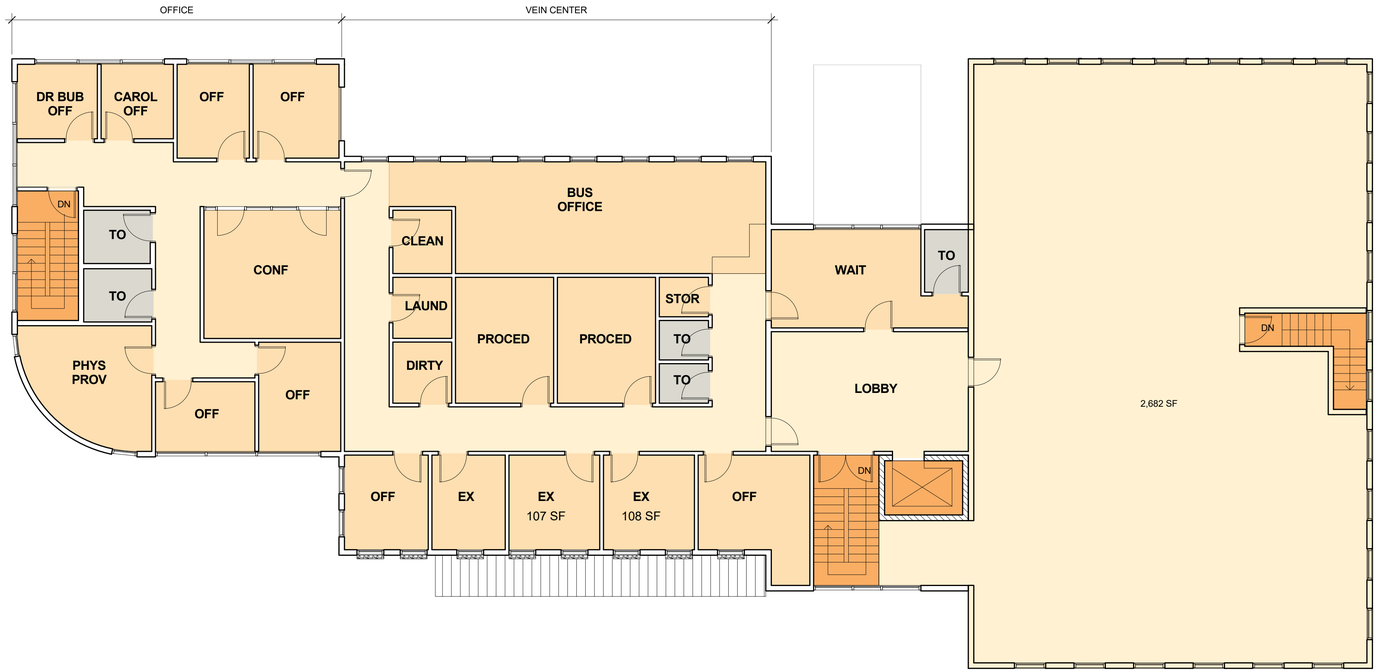
Revisions:

Scale:
1/8" = 1'-0"

Date:
15 JULY 2016

ROOF PLAN

A1.02



2 | 2ND FLOOR
1/8" = 1'-0"

1 | 1ST FLOOR
1/8" = 1'-0"

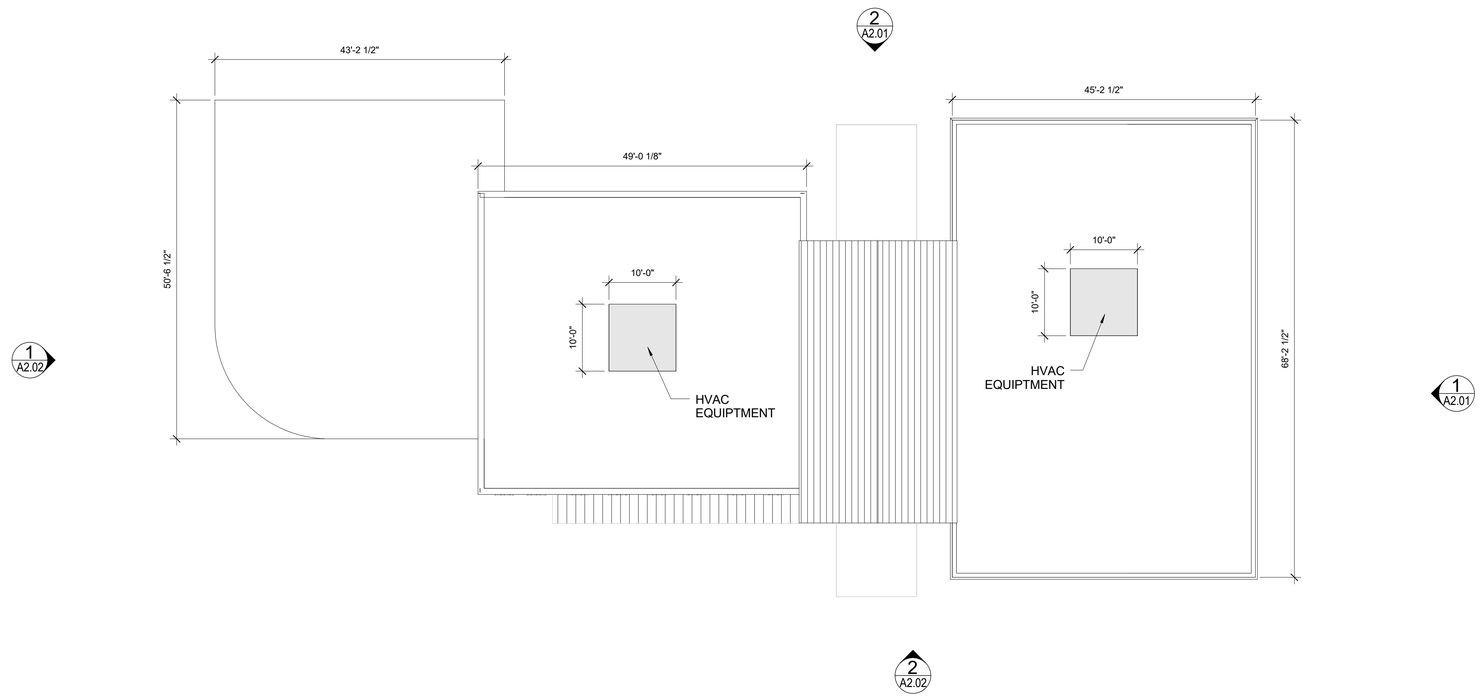
MEDICAL OFFICES

1945 CONGRESS STREET, PORTLAND MAINE

Date:
MAY. 3, 2016

FLOOR PLAN

A1.1



1 ROOF
3/32" = 1'-0"

Architect:
ARCHETYPE
architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Consultant:

Prepared For:
Owner
Address
City, State

Project:
MEDICAL OFFICES
1945 CONGRESS STREET,
PORTLAND MAINE

Revisions:

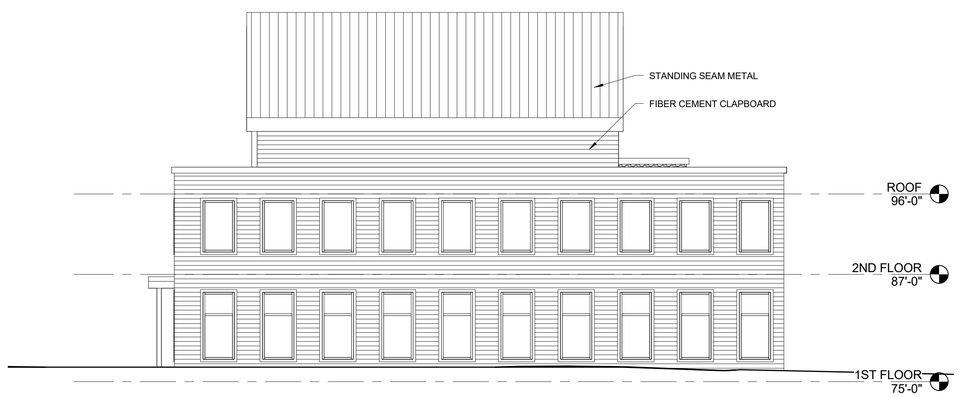
Date:
JULY. 15, 2016

Scale:
3/32" = 1'-0"

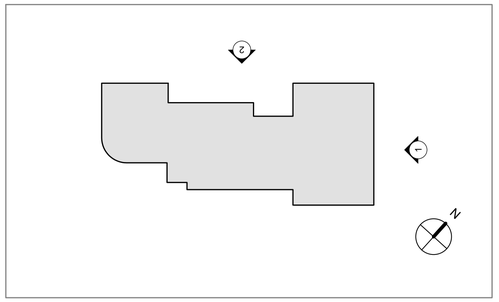
ROOF PLAN

A1.02

2 NORTH ELEVATION
1/8" = 1'-0"



1 EAST ELEVATION
1/8" = 1'-0"



Prepared For:
Owner
Address
City, State

Consultant:

Architect:
ARCHETYPE architects
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(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
MEDICAL OFFICES
1945 CONGRESS STREET, PORTLAND MAINE

Revisions:

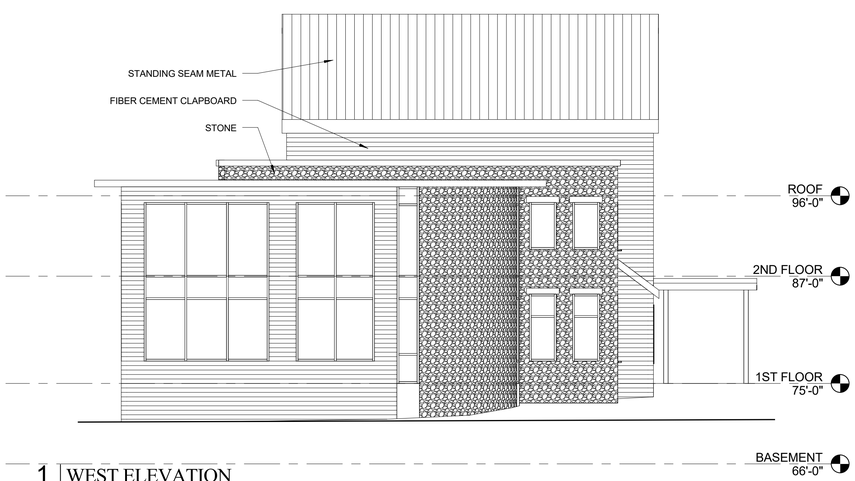
Scale: As indicated

Date: JULY. 15, 2016

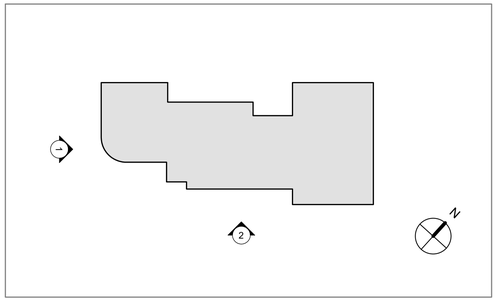
BUILDING ELEVATIONS

A2.01

2 SOUTH ELEVATION
1/8" = 1'-0"



1 WEST ELEVATION
1/8" = 1'-0"



Prepared For:
Owner

Consultant:

Architect:
ARCHETYPE architects
48 Union Wharf Portland, Maine 04101
(207) 772-6022 ARCHETYPE@ARCHETYPEPA.COM

Project:
MEDICAL OFFICES
1945 CONGRESS STREET, PORTLAND MAINE

Revisions:

Scale:
As indicated

Date:
JULY. 15, 2016

BUILDING ELEVATIONS

A2.02

ARCHETYPE
architects

CLARK
INSURANCE
ARCHETYPE
architects

CLARK
INSURANCE
ARCHETYPE
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STREET VIEW KEY

ARCHETYPE
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