PLANNING BOARD

Tuesday, June 9, 2026 at 4:30 PM
City Hall, Room 209, 2nd Floor and Zoom

MEMBERS
Joseph Zamboni, Chair
Kelsey Robertson, Vice Chair
Eric Din
Nicholas Messina
David Silk
Austin Smith
Beverly Uhlenhake

The Planning Board will conduct this meeting in a hybrid format via Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board. Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend live either in person or via Zoom, a recording will be available in the Agenda Center following the meeting. For more information on how to use zoom, please go here: https://content.civicplus.com/api/assets/18148b5d-f26e-472f-8d2c-245db97e5c27

For public comment via Zoom, you will need to use the "raise your hand" feature. To raise your hand via the telephone, please hit *9. You will be un-muted by the host when it is time for public comment. Please note that the placement of items on this agenda are subject to change – please check the agenda center prior to the meeting for the item start time.

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PUBLIC COMMENT INFORMATION

To submit written public comment on an agenda item, email planningboard@portlandmaine.gov. Submissions must be received by 12:00 pm the day before the Planning Board meeting to guarantee their inclusion in the agenda packet. All submissions must include the commenter's name and legal address. To help ensure your comment is submitted for the correct item, please include the name of the agenda item (see below).

AGENDA:

PUBLIC WORKSHOP - 4:30 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON MAY 26, 2026

Public Hearing
1220 Brighton Avenue: Din, Messina, Robertson, Silk, Smith, Uhlenhake, and Zamboni present.
16 Purington Way: Din, Messina, Robertson, Silk, Smith, Uhlenhake, and Zamboni present.
0 Dalton Street: Din, Messina, Robertson, Silk, Smith, Uhlenhake, and Zamboni present.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON MAY 26, 2026

i. Major Site Plan; 16 Purington Way; Main-Land Development Consultants, Inc, Applicant. Robertson motioned and Uhlenhake seconded a motion to table this item to the June 23, 2026, Planning Board meeting.

ii. Major Site Plan; 0 Dalton Street; Main-Land Development Consultants, Inc, Applicant. Robertson motioned and Uhlenhake seconded a motion to table this item to the June 23, 2026, Planning Board meeting.

iii. Map Amendment; 1220 Brighton Avenue; Portland Hotels, Inc., Applicant. Robertson motioned and Uhlenhake seconded a motion to find that the proposed zoning map amendment is consistent with the City of Portland's comprehensive plan and recommended that the City Council adopt the map amendment to rezone parcels 265 A009002 (1220 Brighton Ave), 265 A001001 (1210 Brighton Ave), 265 A008001 (1200 Brighton Ave), and 265 A007001 (1188 Brighton Ave) from TOD-4 to the B-4 zoning district. Vote 7-0.

5. NEW BUSINESS

i. Major Site Plan; 15 & 19 Cedar Street; Avesta Housing Corporation, Appicant. The Planning Board will hold a hybrid public workshop to consider an application for the construction of a five-story, 26,086 square foot multi-family residential building at 15 & 19 Cedar Street. The proposed development includes 30 dwelling units, of which 100% would be deed-restricted affordable dwelling units, along with community space for residents. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandfmaine.gov/) by referencing Plan Number PL-003553-2026.

To:	Chair Zamboni & Members of the Planning Board
From:	Sean King
Date:	June 3, 2026
Re:	15 & 19 Cedar Street
Project ID:	PL-003553-2026
CBL:	026 C015001, 026 C014001
Meeting Date:	June 9, 2026

I. INTRODUCTION

Avesta Housing Corporation has submitted a Major Site Plan application for the construction of a five-story, 26,086 square-foot multi-family residential building at 15 & 19 Cedar Street. The proposed development includes 30 dwelling units, of which 100 percent would be deed-restricted affordable dwelling units, along with community spaces for the residents. The property is located in the RN-4 Residential Neighborhood zone. This application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 13.6.

The Planning and Urban Development Department mailed 193 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the May 27 and 28, 2026 editions of the *Portland Press Herald*.

Applicant: Avesta Housing Development Corporation
Applicant Representatives: Berry Huff McDonald Milligan Inc. (BH2M)

Figure A – Architectural rendering, provided by Invivid Architecture

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Site Plan	Section 13.6
Design Review	RN-4, Appendix 7

III. PROJECT DATA

Existing Zoning	RN-4 Residential Neighborhood
Total Property Size	8,978 square feet
Existing Use	Vacant
Proposed Use	Multi-family residential
Proposed Development Program	Affordable rental units and shared community spaces

	Existing	*Proposed*	*Net Change*
Building Footprint	None	5,225 square feet	5,225 square feet
Building Floor Area	None	26,086 square feet	26,086 square feet
Impervious Surface Area	None	6,778 square feet	6,778 square feet
Parking Spaces	None	None	None
Bicycle Parking Spaces	None	15	15
EV Charging Stations	None	None	None

IV. BACKGROUND

Avesta Housing Corporation has entered into a purchase option agreement and joint development agreement with Boys and Girls Clubs in Southern Maine (BGCSM) for the purpose of providing replacement housing. BGCSM proposes to remove units at 289 and 291 Cumberland Avenue and 7 and 9 Cedar Street as part of their planned clubhouse expansion, displacing 25 units. To facilitate the replacement of this housing, Avesta Housing proposes to construct a 30-unit apartment building at 15 & 19 Cedar Street, within the same census block group as the residential units being demolished. The Planning Board approved the major site application PL-003520-2026 for the BGCSM on May 12, 2026. The application documents and associated materials can be found here.

V. EXISTING CONDITIONS AND SURROUNDING AREA

The development site is located along Cedar Street between Cumberland Avenue and Oxford Street. The site is bounded by single-family homes to the east and to the west, and by a parking area for the BGCSM and a 4-story multifamily building to the north. The existing BGCSM facility is located to the northeast along Cumberland Avenue. The site is currently vacant with the two previous single-family homes razed in 2023.

Within a two-block radius of the development site, the neighborhood contains a mix of single-family and multi-family residential buildings ranging from one to six stories in height.

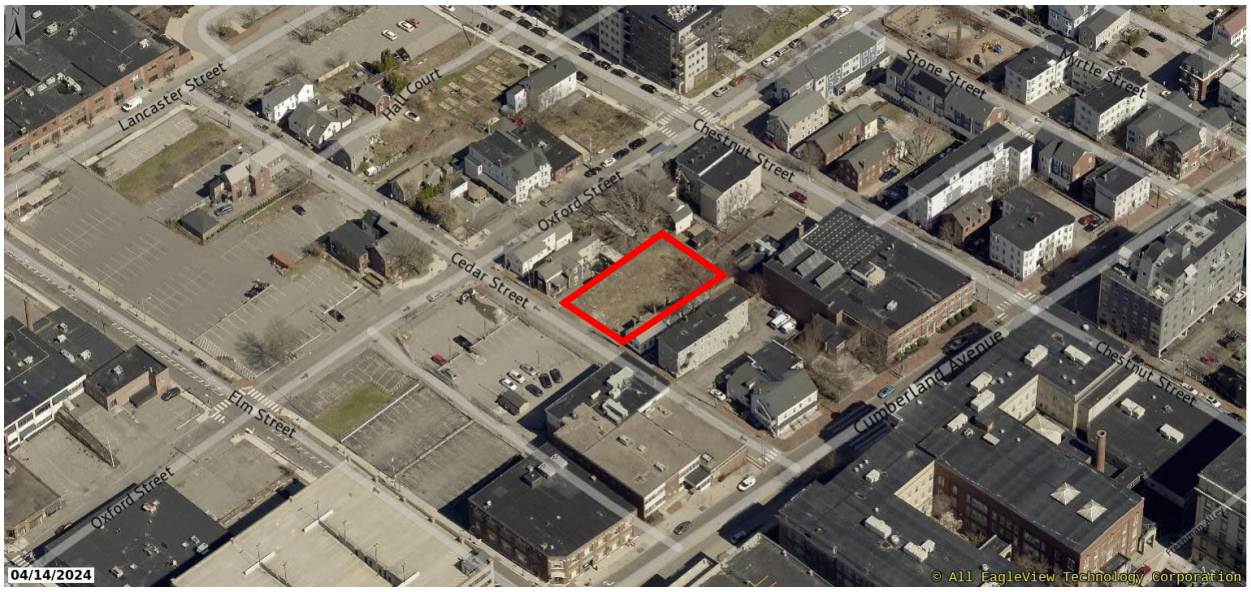


Figure B – Aerial view of surrounding context

VI. PROPOSED DEVELOPMENT

The proposed major site plan application would facilitate the construction of a five-story, multi-family residential building totaling approximately 26,000 square feet with 30 residential units and shared community spaces for residents. All of the proposed residential units would be designated as affordable for rent to a household earning 80% or less than of area median income (AMI). The proposed development would have a maximum structure height of 55 feet, a service driveway with a curb cut at Cedar Street, and dedicated rooms for trash and bike storage.

The proposed development would include two street trees and repair of the brick sidewalk along Cedar Street.

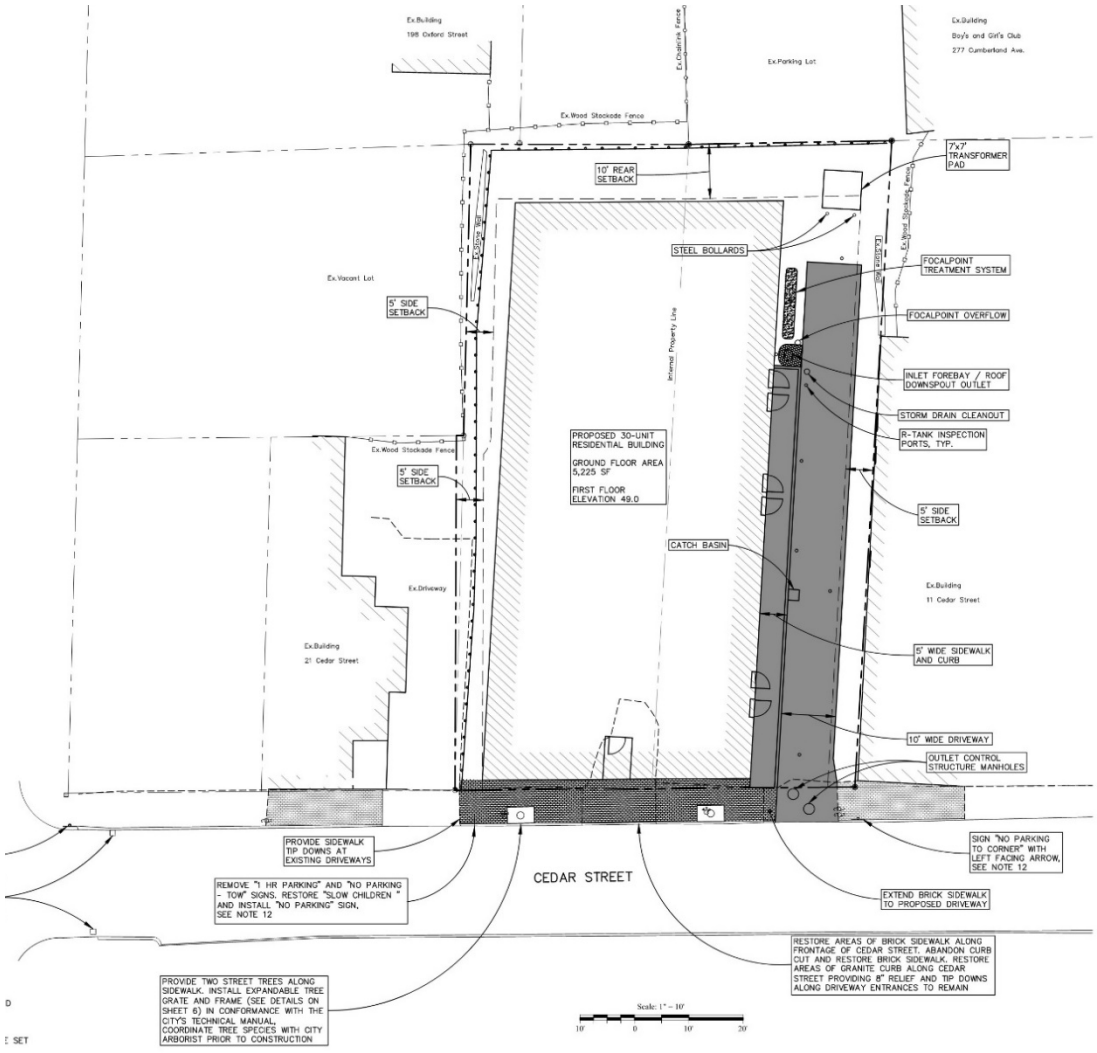


Figure C – Proposed site plan

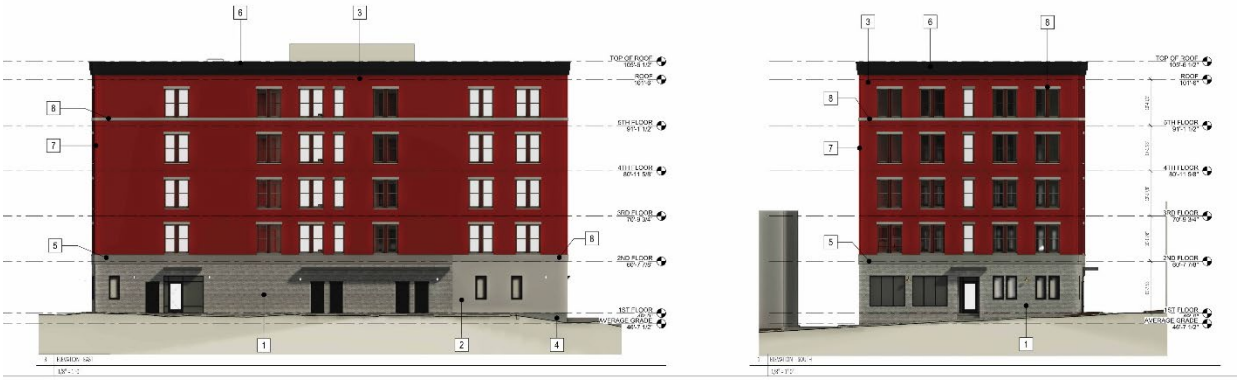


Figure D – Proposed architectural side elevation (left), proposed architectural front elevation (right).

VII. RIGHT, TITLE, & INTEREST

The applicant has demonstrated right, title, and interest through a purchase and sale agreement with the BGCSM. The purchase and sale agreement stipulates that this project shall satisfy all of the requirements of the City's housing replacement ordinance, for not less than 25 residential units being

lost at 7 and 9 Cedar Street, and 289 and 291 Cumberland Avenue. Right, title, and interest documentation is included as attachment D.

VIII. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided a letter from Bangor Savings Bank demonstrating that Avesta Housing has the financial capacity to undertake this project.

The applicant has retained BH2M, a licensed engineering, planning and surveying firm, and Invivid Architecture, a licensed architecture and design firm to provide the technical capacity for this application.

Financial and Technical capacity is included as attachment E & F.

IX. AFFORDABLE HOUSING

Site Plan applications that propose ten or more units are subject to inclusionary zoning requirements as outlined in Section 17.2 of the City of Portland's Land Use Code. This ordinance requires that 25 percent of units meet the definition of workforce housing units for sale or for rent as defined in Article 3 of the Land Use Code. All of the proposed residential units within the development would be affordable to households earning below 80 percent of the AMI, and therefore this application is exempt from inclusionary zoning review per Section 17.2.3.B. The proposed degree of affordability also enables the applicant to utilize the affordable housing density bonus, outlined in Section 17.2.2.D and Table 17-B for the maximum number of units at 2.5 x base.

X. ZONING ANALYSIS

The site is located within the Residential Neighborhood 4 (RN-4) zone. Under the City of Portland's Land Use Code, multi-family dwellings are a permitted use as indicated in Table 6-A. For reference, the RN-4 purpose statement is listed below:

- RN-4: *To provide areas of the city, on the peninsula and in select off-peninsula locations in alignment with major public transportation routes and near service areas, for a residential neighborhood environment of dwellings on lots of at least 2,000 square feet. Townhouse and multi-family dwellings are also permitted, subject to standards encouraging compatibility and context sensitivity to ensure the stability of established residential neighborhoods. Select nonresidential uses may also be permitted in the RN-4 zone.*

Standard	Required	Proposed
Lot Area (Square Feet)	Base RN-4 Zone: 725 square feet / unit Affordable housing density bonus under Section 17.2.2.D.1	725 square feet x 30 units = 21,750 square feet. 290 square feet x 30 units = 8,700 square feet. The development site totals 8,978 square feet.
Street Frontage (Minimum)	40 feet	73 feet
Front setback (Minimum)	5 feet or the average of adjacent front yards minus 5 feet	2 feet, based upon the average front setback of adjacent properties.
Rear setback (Minimum)	10 feet	10.5 feet

Side setback (Minimum)	5 feet	5 feet
Structure height (Maximum)	55 feet per City of Portland Height Map.	55 feet
Building length (Maximum)	70 feet	49 feet
Lot coverage (Maximum)	60 percent	58 percent
Landscape open space ratio (Minimum)	20 percent	25 percent

XI. SITE PLAN REVIEW STANDARDS (Section 13.6)

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's Site Plan Ordinance, Section 13.6. Staff comments are below.

1. Transportation Standards (Section 13.6.1)

A. Impact on surrounding street systems

The proposed development is required to not create or aggravate any significant hazard to safety, and not substantially increase congestion on the surrounding street network. The applicant is proposing to eliminate one existing driveway and relocate one driveway to facilitate the proposed service driveway.

The City's third-party Traffic Engineer has requested that the applicant clarify the type of vehicles that will be servicing the building and provide turning templates for the proposed service driveway.

B. Access and circulation

The proposed development is required to provide safe, reasonable access and internal circulation for all users of the site. The applicant is proposing to replace the existing brick sidewalk and curbing within the public right-of-way for the proposed service driveway and construct internal walkways between main entries and the public sidewalk.

Staff has requested that the applicant provide site details for the driveway apron, brick sidewalk and curbing within the public right-of-way in accordance with the City of Portland's *Technical Manual*.

C. Public transit access

The proposed development is not located along a fixed transit route and is within a quarter-mile radius of an existing transit shelter at Congress Street and Elm Street. Therefore, this standard is not applicable.

D. Parking

Approximately nine existing on-street parking spaces are available along the north side of Cedar Street. The City's Fire Marshall flagged concerns with emergency vehicle access based upon the narrowness of the existing street section and the proposed multifamily residential use. The City's Fire Marshall has recommended the removal of these existing on-street parking spaces between the development's frontage and Oxford Street. To maintain the current number of on-street parking spaces, the Department of Public Works recommends a reconfiguration of on-street parking to the south side of the street to maintain the current number of on-street parking spaces on Cedar Street between Cumberland Avenue and Oxford Street.

Staff continues to coordinate the reconfiguration of on-street parking spaces that maintains the existing amount in response to the proposed development. See section XI.3.B Public Safety and Fire Prevention for more details.

Figure D – Approximately nine existing on-street parking spots shown in red (left); Staff recommends a reconfiguration shown in yellow (right)

The proposed development is required to provide a minimum of one bicycle parking space per two dwelling units, for a total of 15 bicycle parking spaces. The proposed development includes a ground-level bicycle storage room, with space for 15 bicycles.

E. Transportation demand management (TDM)
The proposed development is residential and does not require TDM plan.

2. Environmental Quality Standards (Section 13.6.2)

A. Preservation of significant natural features
The proposed development is required to provide a low-impact development (LID) narrative and scorecard in order to detail the application's compliance with this standard. The applicant has provided a LID scorecard with a noted score of 88 points, exceeding the minimum required score of 80. The site is a now-vacant parcel of land for redevelopment with no significant natural features or existing vegetation. The proposed development incorporates stormwater management into the site with a subsurface detention system to treat runoff and increase time of concentration. In addition, the proposed development would not provide on-site parking and a single service driveway to reduce the amount of proposed impervious areas of the site.

The full LID scoring tool is included as attachment I.

Staff requests that the applicant provide a narrative detailing how the project complies with the LID requirements in accordance with the City of Portland's *Technical Manual*.

B. Landscape preservation
The site does not contain any mature vegetation required to be maintained per this standard.

C. Site landscaping and buffers

The subject property totals approximately 8,980 square feet, and the proposed development is required to provide one shade tree or six plantings, located on the private property, per 5,000 square feet of lot area.

The applicant would provide two street trees, spaced 35 feet apart, within the public right-of-way along the property's frontage in accordance with the landscape standards of the City of Portland's *Technical Manual.*

Staff has requested that the applicant provide additional plant material and landscape buffering along the property's boundary in accordance with the landscape standards of the City of Portland's *Technical Manual.* In addition, Staff has requested that the applicant indicate the proposed non-vehicular hardscaped areas to meet the minimum solar reflective index (SFI) standard.

D. Water quality/storm water management/erosion control

Based upon the amount of new impervious surface being proposed, the development is required to comply with the City's stormwater standards around stormwater detention, quality control, and erosion and sedimentation control, in accordance with the City of Portland's *Technical Manual.* The proposed development would provide stormwater treatment of impervious surfaces with a focal point and subsurface detention system below the proposed service driveway that will not direct stormwater drainage onto adjacent lots. The applicant provided a Stormwater report, attachment N, along with pre and post-development plans, Plans 11 & 12, that evaluate the previously developed condition with two single-family homes.

Staff has requested that the applicant provide additional information related to outlet control structures, pipe sizing details and maintenance of the stormwater treatment systems.

3. Public Infrastructure and Community Safety Standards (Section 13.6.3)

A. Consistency with City Master Plans

The City's comprehensive plan *Portland's Plan 2030* identifies local goals to encourage additional contextually appropriate housing density in and proximate to neighborhood centers, concentration of services, and transit nodes and corridors as a means of supporting complete neighborhoods. The property site is located within the RN-4 zone, which allow multi-family dwellings encouraging compatibility and context sensitivity to ensure the stability of established residential neighborhoods.

B. Public safety and fire prevention

Cedar Street does not comply with the City's minimum local street standard, which requires a minimum paved roadway width of 28 feet.

As a result, the City's Fire Marshall has requested that existing on-street parking spaces along the property frontage to Oxford Street be removed, as detailed under the Parking standard above, to enable adequate emergency vehicle access to the development site.

C. Availability and capacity of public utilities

The proposed development is required to provide adequate utility infrastructure on-site and in connection to surrounding locations and facilities. The applicant would connect to existing public infrastructure within Cedar Street for sewer, water, natural gas, and power. The applicant has

submitted a wastewater capacity application for the proposed connection to the 18-inch combined municipal sewer along Cedar Street.

Staff has requested that the applicant provide additional details for utility pipe sizing, utility pipe connection, paving replacement in compliance with the City of Portland's *Technical Manual.* Staff from the City's Department of Public Works continues to evaluate the proposed connection to the combined municipal sewer system.

4. Site Design Standards (Section 13.6.4)

A. Massing, ventilation, and wind impact

The proposed development is required to provide the bulk, location or height of proposed buildings to not result in health or safety problems from a reduction in ventilation to abutting structures or changes to existing wind climate. The applicant would facilitate the construction of a 5-story building in the RN-4 residential neighborhood with a structure height of 55-feet.

In addition, the proposed development is required to located all heating, ventilation and air conditioning equipment (HVAC) venting mechanisms to direct exhaust away from public spaces and abutting residential properties. The applicant would locate HVAC equipment on the roof with screening from the street and abutting properties.

Staff has requested that the applicant provide additional product specifications for the roofing material in compliance with the SRI standards.

B. Shadows

The proposed building does not exceed 65 feet to require shadow mitigation, and therefore this standard is not applicable.

C. Snow and ice loading

The proposed development is required to prevent significant amounts of accumulated snow and ice from loading or falling onto adjacent properties or public ways. The applicant proposes a flat roof for snow accumulation and removal of snow on site in order to prevent loading onto adjacent properties or public ways.

Staff has requested that the applicant provide a snow removal narrative and maintenance operations for removing snow that accumulates on site.

D. View corridors

The existing property is not located within a designated view corridor.

E. Historic resources

The existing property is not located in a historic district or associated with a historic landmark.

F. Exterior lighting

The proposed development is required to provide site lighting with full cutoff and illumination levels for safety, comfort, and convenience of occupants and users of the site. The applicant provides wall-mounted architectural fixtures adjacent to the public sidewalk on Cedar Street and at building entries.

Staff has requested that the applicant submit a photometric site plan demonstrating the project's compliance with the lighting standards of the City of Portland's *Technical Manual.*

G. Noise and vibration

The proposed development is required to meet applicable state and federal emissions requirements and locate all HVAC equipment to the interior of the site, away from abutting properties. The applicant provides HVAC for residential units that are mounted and screened on the roof.

Staff has requested that the applicant provide HVAC product specifications that comply with applicable local, state and federal standards.

H. Signage and wayfinding

The proposed development is required to provide on-site directional traffic signage to enable users to safely and easily navigate into, around and out of the site. The applicant has provided signage to indicate parking restrictions.

Staff has requested that the applicant update their site plan to include revised on-street parking signage as detailed under the Parking standard above. The applicant has submitted a proposed parking plan for the reconfiguration of on-street parking along Cedar Street, see Plan 10.

I. Zoning-related design standards

The proposed development was reviewed for compliance of the RN-4 residential zone standards, Appendix 7 of the City of Portland's *Design Manual*.

Staff has prepared a design review memo, attachment S4, with comments to provide greater visibility for the recessed entrance at Cedar Street and to specify exterior façade materials onto the architectural elevations.

XII. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held an in-person neighborhood meeting on April 29, 2026 at 409 Cumberland Avenue in Portland. Four members of the public were in attendance, with public comments centered on:

- Available on-street parking, resident parking and parking operations during construction.
- Amenities and distribution of dwelling units in the building.
- Service operation and the proposed driveway.
- Preparation of environmental assessments.
- Buffering at adjacent properties and proposed outdoor spaces.

XIII. NEXT STEPS

Staff will continue to review resubmitted plans and documents for compliance with all applicable standards, and coordinate with the applicant to specifically:

1. Address staff comments for more information needed.
2. Address additional comments from the Planning Board.
3. Prepare final plan submission.
4. Schedule and hold planning board public hearing.

XIV. ATTACHMENTS

Public Comment

Report Attachments

S1. Staff comment letter
S2. Site Plan Worksheet
S3. Zoning worksheet
S4. Design Review Memo

Applicants Submittal

A. Cover letter
B. Site plan checklist
C. Authorization letter
D. Right, title and interest
E. Financial capacity
F. Technical capacity
G. Site plan standards narrative
H. Site plan data form
I. LID scoring tool
J. Utility capacity letters
K. Fire department correspondence
L. Design narrative
M. Photometric plan and lighting fixture specifications
N. Stormwater report
O. Neighborhood meeting invite
P. Neighborhood meeting certification
Q. Neighborhood meeting sign in sheet
R. Neighborhood meeting minutes
S. Wastewater capacity application
T. Applicant comment response letter
U. Vehicle turning template
V. Proposed sidewalk easement
W. Proposed semi-permanent encroachment license
X. Architectural exterior façade material specifications
Y. Stormwater maintenance agreement (draft)
Z. Notice of public meeting certification

Plans

1. Civil plans cover sheet
2. Standard Boundary survey
3. Site plan
4. Grading plan
5. Utility plan
6. Erosion control notes and details
7. Utility details
8. Focalpoint details
9. Subsurface Stormwater details

10. Cedar Street Parking Reconfiguration Plan
11. Pre-development stormwater
12. Post-development stormwater
13. Exterior renderings
14. Exterior renderings
15. Exterior renderings
16. Floor plan – First
17. Floor plan – Second, Third
18. Floor plan – Third, Fourth
19. Roof plan
20. Exterior elevations
21. Exterior elevation in color
22. Exterior elevation in color
23. Exterior elevation in color
24. Exterior details

Site Plan Worksheet | 05/14/2026 | PL-003553-2026 | 15 & 19 Cedar Street
Submission Date: 03/27/2026
Planner: Sean King, Urban Designer – sking@portlandmaine.gov

Dear Applicant,

We have completed our review of your application (PL-003553-2026) proposing to develop a five-story, approximately 5,225-square-foot multi-family residential building to include 30 residential units of which 100% would be deed-restricted affordable rentals at 15 & 19 Cedar Street in the RN-4 zone. This review is based on the application submitted on March 27, 2026. This development triggers a major site plan review, and is subject to the following regulations:

- Site Plan – Article 13.6
- Zoning – Article 6 & 7
- Inclusionary Zoning – Article 17.2

An overview of the City's review can be viewed in the attached project review worksheets and peer review comments.

Next Steps
Please review all feedback and reach out to the assigned planner if you have any questions or would like to discuss this feedback in more detail. In order to proceed, the applicant shall prepare a written response to all feedback, and shall update plans, documents and other materials as necessary to address review comments. The applicant shall notify the planner when a resubmission is uploaded to ProjectDox. Once received, the planner will notify the applicant of their scheduled review timeline for this resubmission.

Sincerely,

Sean King, Urban Designer
sking@portlandmaine.gov, 207-874-8901

Attachments

1. Site Plan Worksheet
2. Zoning Worksheet
3. Design Review Memo

Site Plan Worksheet | 05/14/2026 | PL-003553-2026 | 15 & 19 Cedar Street
Submission Date: 03/27/2026
Planner: Sean King, Urban Designer – sking@portlandmaine.gov

Site Plan Review Standards (Sec. 13.6)

Transportation Standards (Sec. 13.6.1)

Standard		*How the standard is being met*	*Finding*
Impact on Surrounding Street Systems	**13.6.1.A.1** The provisions for vehicular loading and unloading, parking, and vehicular and pedestrian circulation on the site and onto adjacent public streets and ways and the incremental volume of vehicular, bicycle, pedestrian, and transit traffic will not: 1. Create or aggravate any significant hazard to safety on the surrounding street network.	The proposed development maintains vehicular access and on-street parking along Cedar Street as a public roadway. **What still needs to be addressed:** **The applicant should clarify the type of vehicles using the driveway and provide a vehicle turning template depicting access into and out of the driveway.**	More Information Required
	13.6.1.A.2 The provisions for vehicular loading and unloading, parking, and vehicular and pedestrian circulation on the site and onto adjacent public streets and ways and the incremental volume of vehicular, bicycle, pedestrian, and transit traffic will not: 2. Substantially increase congestion on any street without mitigation proportionate to the level of impact.	The proposed development is a low vehicle generator and thus will not have a significant impact on mobility and safety in the area. A Traffic Movement Permit is not required. **What still needs to be addressed:** **The City's Public Works Department requests on-street parking reorganized on the opposite side of Cedar Street to maximize available parking spots that avoid numerous driveway cuts. The applicant is requested to add allowable street parking signage at the opposite side of Cedar Street for approximately nine on-street parking spaces. Shown in orange below.** **The City's Fire Marshall recommends to restrict on-street parking at the property frontage on both sides of the street down to Oxford Street to service the proposed multifamily structure. The applicant is requested to revise the "No Parking" street signage at the property frontage on both sides of the street down to Oxford Street. Shown in red below.** 	More Information Required
Acc ess and Circ	**13.6.1.B.1.a *In General*** All development subject to this article shall provide safe and reasonable access and internal circulation for all users of the site and	The plans include new frontage curbing and a driveway curb cut onto Cedar Street.	More infor matio n

	shall comply with the transportation systems and street design standards of the Technical Manual.	**What still needs to be addressed:** **See Technical Manual Appendix 1A, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian zone. 19 Cedar Street is in the Brick District.**	
	13.6.1.B.1.b ***In General*** Shared circulation, parking, and transportation infrastructure shall be provided to the extent practicable, with utilization of joint curb cuts, walkways, service alleys, bus pull-out areas, and related infrastructure shared with abutting lots and roadways. Easements for access for abutting properties and shared internal access points at property lines shall be provided where possible to facilitate present or future sharing of access and infrastructure.	The proposed development provides a dedicated service driveway for the properties at 15 & 19 Cedar Street. **What still needs to be addressed:** None	Met
	13.6.1.B.1.c ***In General*** Continuous internal walkways shall be provided between existing or planned public sidewalks adjacent to the site, transit stops and street crossings, and building entrances on the site.	The proposed development provides an extension of the brick sidewalk onto the private property with a walkway to access the public sidewalk from the front and side building entrances. **What still needs to be addressed:** None	Met
	13.6.1.B.1.d ***In General*** Where the site abuts or includes an existing or planned publicly accessible trail, a connection to or integration of such trail shall be provided to the extent practicable, including rights of public access.	Not applicable, the proposed development does not abut an existing or planned publicly accessible trail **What still needs to be addressed:** None	Not Applicable
	13.6.1.B.1.e ***In General*** Points of access and egress shall be located to avoid conflicts with turning movements and traffic flows.	The proposed development provides a service driveway with access from Cedar Street. **What still needs to be addressed:** **The applicant shall clarify the type of vehicles using the driveway and provide a vehicle turning template depicting access into and out of the driveway.**	More Information Required
	13.6.1.B.2.a ***Curb and sidewalks*** All development shall provide curb and sidewalks along all frontages, installed to specifications as described in the transportation systems and street design standards of the Technical Manual.	The applicant has indicated new curbing and replace the existing brick sidewalk along the frontage on Cedar Street. **What still needs to be addressed:** None	Met
	13.6.1.B.2.b ***Curb and sidewalks*** Where sidewalks already exist but are in substandard condition, they shall be repaired or replaced in conformance with Chapter 25 of the City of Portland Code of Ordinances and the transportation systems and street design standards of the Technical Manual.	The applicant has indicated new curbing and replace the existing brick sidewalk along the frontage on Cedar Street. **What still needs to be addressed:** None	Met
	13.6.1.B.2.c ***Curb and sidewalks*** An applicant may request a waiver from sidewalk installation	Not applicable, the proposed development requests no waiver from sidewalk requirements	Not applicable

	requirements if they meet two or more applicable waiver criteria as listed below: i. There is no reasonable expectation for pedestrian usage coming from, going to, and traversing the site. ii. There is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of pedestrian-oriented infrastructure. iii. A safe alternative walking route is reasonably available, for example, by way of a sidewalk on the other side of the street that is lightly traveled. iv. The reconstruction of the street is specifically identified and approved in the first or second year of the current Capital Improvement Program (CIP) or has been funded through an earlier CIP or through other sources. v. The street has been constructed or reconstructed without sidewalks within the last 24 months. vi. Strict adherence to the sidewalk requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value.	**What still needs to be addressed:** None	
	13.6.1.B.2.d ***Curb and sidewalks*** An applicant may request a waiver from curb installation requirements if they meet two or more applicable waiver criteria as listed below: i. The cost to construct the curbing, including any applicable street opening fees, is in excess of 5% of the overall project cost. ii. The reconstruction of the street is specifically identified and approved in the first or second year of the current CIP or has been funded through an earlier CIP or through other sources. iii. The street has been rehabilitated without curbing in the last 60 months and the proposed use and design of the site does not necessitate the installation of curbing. iv. Strict adherence to the curb requirement would result in the loss of significant site features related to landscaping or topography that are deemed to be of a greater public value. v. Runoff from the development site or within the street does not require curbing for stormwater management.	Not applicable, the proposed development requests no waiver from sidewalk requirements **What still needs to be addressed:** None	Not applicable
Public Transit Access	**13.6.1.C.1** All residential development consisting of 20 or more dwelling units and all commercial and institutional developments of at least 20,000 square feet gross floor area shall provide a transit shelter	Not applicable, the proposed development is located on Congress Street & Elm Street and is within quarter mile from the site.	Not applicable

	adjacent to or within the public right-of-way along its frontage, or at a nearby high-volume transit stop without a transit shelter, when the following criteria are met: A. The development is proposed along an existing public transit route on a principal or minor arterial roadway, as shown in the Federal Street Classification Map. B. The nearest existing transit shelter on the route is more than ¼ mile from the site, measured along rights-of-way.	**What still needs to be addressed:** None	
	13.6.1.C.2 Transit facilities shall be connected to the public sidewalk system.	The applicant has indicated replacement of public sidewalk along the property frontage to connect to existing transit facilities. **What still needs to be addressed:** None	Met
	13.6.1.C.3 All or some of this standard may be waived if the review authority determines that the development is not anticipated to generate public transit usage due to particular characteristics of the development or proposed use.	Not applicable, the proposed development connects with the existing public transit system. **What still needs to be addressed:** None	Not applicable
Parking	**13.6.1.D.1.a** ***Vehicular parking*** Developments shall comply with the parking standards of Article 18.	Not applicable, the proposed development does not include on-site parking and is within a quarter-mile radius of a fixed transit route. **What still needs to be addressed:** None	Not applicable
	13.6.1.D.1.b ***Vehicular parking*** Where provided, parking spaces and aisles shall not be located in front and corner side yards, unless the applicant can demonstrate that site constraints preclude the location of parking elsewhere on the site.	Not applicable, the proposed development does not include on-site parking and is within a quarter-mile radius of a fixed transit route. **What still needs to be addressed:** None	Not applicable
	13.6.1.D.1.c ***Vehicular parking*** Where provided, parking spaces and aisles shall meet applicable dimensional standards as detailed in the transportation systems and street design standards of the Technical Manual.	Not applicable, the proposed development does not include on-site parking and is within a quarter-mile radius of a fixed transit route. **What still needs to be addressed:** None	Not applicable
	13.6.1.D.2.a ***Bicycle parking*** All development shall provide secure bicycle parking in accordance with the parking requirements of Article 18 and the transportation systems and street design standards of the Technical Manual.	The proposed development provides a total of 15 bicycle parking spaces within a designated room with an access door to meet the requirement for 1 bicycle parking per 2 dwelling units. **What still needs to be addressed:** None	Met
	13.6.1.D.2.b ***Bicycle parking*** The review authority may reduce the required number of bicycle parking spaces if it is determined, based on evidence submitted by the applicant, that the proposed development is expected to generate reduced demand for bicycle parking due to particular site characteristics or proposed uses.	The proposed development provides a total of 15 bicycle parking spaces within a designated room with an access door to meet the requirement for 1 bicycle parking per 2 dwelling units. **What still needs to be addressed:** None	Met
	13.6.1.D.3.a ***Snow storage*** All developments shall include areas for snow storage or provide an acceptable snow removal plan.	The proposed development does not provide sufficient space for snow storage and intends to remove snow from the site.	More information

		What still needs to be addressed: **The applicant shall provide more information on their methods for removing snow.**	
	13.6.1.D.3.b *Snow storage* Snow storage areas may not encroach on adjacent properties, public ways, and pedestrian walkways, and shall not be located where they would adversely impact the functionality of stormwater management systems.	The proposed development does not provide sufficient space for snow storage and will remove snow from the site. **What still needs to be addressed:** **Staff may have additional comments based on the applicant's intent to remove snow from the site.**	More information needed
	13.6.1.D.3.c *Snow storage* Landscaping in designated snow storage areas shall be such that it can withstand the snow pile.	The proposed development does not provide sufficient space for snow storage and will remove snow from the site. **What still needs to be addressed:** **Staff may have additional comments based on the applicant's intent to remove snow from the site.**	More information needed
	13.6.1.D.4 *Electric vehicle (EV) charging* All development shall meet applicable EV standards as provided in Section 1 of the Technical Manual.	Not applicable, the proposed development does not include on-site parking to require EV charging. **What still needs to be addressed:** None	Not applicable
Transportation Demand Management	**13.6.1.E.1** The following types of development shall design and implement a Transportation Demand Management (TDM) plan: A. All commercial, institutional, or mixed-use developments of 50,000 square feet or more in total floor area. B. All commercial or institutional uses designed to accommodate 100 or more employees or, for educational institutions, 100 or more students.	Not applicable, the proposed development is residential and does not require TDM plan. **What still needs to be addressed:** None	Not applicable
	13.6.1.E.2 The TDM Plan shall comply with the standards for transportation studies and plans as contained in the Technical Manual.	Not applicable, the proposed development is residential and does not require TDM plan. **What still needs to be addressed:** None	Not applicable
Environmental Quality Standards (Sec. 13.6.2)			
Standard		***How the standard is being met***	***Finding***
Preservation of Significant Natural Features	**13.6.2.A.1** All development shall preserve and protect significant natural features by incorporating the principles of Low-Impact Development (LID) in accordance with the LID standards of the Technical Manual.	The applicant has provided a LID scorecard with a potential score of 88 to meet the LID standards. The property sites at 15&19 Cedar Street were once occupied by single-family homes and razed in 2023 to facilitate a redevelopment. The property sites do not include existing wetlands, streams, or existing vegetation to require protection. The proposed redevelopment incorporates stormwater management systems into the site to capture runoff and increase time of concentration. **What still needs to be addressed:** This project, as proposed, has met the LID standards.	Met

	13.6.2.A.2 Where complete preservation of significant natural features substantially compromises development of the site as otherwise permitted by zoning, the review authority may reduce the requirement in accordance with the LID standards of the Technical Manual provided that the applicant implements preservation measures to the extent practicable and demonstrates compliance with applicable state and federal regulations.	Not applicable, the property site does not include significant natural features to require preservation. **What still needs to be addressed:** None	Not applicable
	13.6.2.A.3 The site plan shall include adequate measures to protect significant natural features to be preserved from construction impacts, in accordance with the LID standards of the Technical Manual.	Not applicable, the property site does not include significant natural features to require preservation. **What still needs to be addressed:** None	Not applicable
Site Landscaping and Buffers	**13.6.2.B.1.a *On-site landscaping*** All development subject to this article shall provide a minimum of one shade tree consisting of species identified on the City of Portland Recommended Tree list or six plantings, defined as one shrub, one ornamental grass, and/or three perennials, per 5,000 square feet of lot area in accordance with the landscaping standards of the Technical Manual.	The property sites total approximately 8,980 square feet posed development to require one shade tree or six plantings located on the private property per 5,000 square feet of lot area. **What still needs to be addressed:** **The applicant shall provide the addition of plant material in accordance with the landscape standards of the Technical Manual. Staff suggest that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service driveway at the abutting property.**	Not met
	13.6.2.B.1.b *On-site landscaping* Existing vegetation to be preserved on the site may be counted towards this requirement as described in the landscaping and landscape preservation standards of the Technical Manual.	Not applicable, the proposed development does not include existing vegetation to preserve. **What still needs to be addressed:** None	Not applicable
	13.6.2.B.1.c *On-site landscaping* Where site constraints prevent the planting of required shade trees or plantings at the development site, the reviewing authority may approve an alternative as described in the landscaping standards of the Technical Manual.	The proposed development includes lawn areas for non-impervious surfaces. **What still needs to be addressed:** **Staff recommends additional plantings around the perimeter of the building at the side and rear setback areas.**	More information needed
	13.6.2.B.2.a *Buffers and screening* Loading and servicing areas, trash and recycling areas, storage areas, and roof- and ground-mounted utility structures, except for renewable energy systems, shall be screened from view from public sidewalks, streets and adjacent properties by dense evergreen and deciduous landscaping, fencing, architectural screening products, masonry walls, building walls, or a combination thereof.	The proposed development includes a service driveway and electrical transformer pad within the side and rear setback areas. **What still needs to be addressed:** **Staff recommends that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service driveway at the abutting property and at the transformer pad to screen from abutting properties.**	More information needed
	13.6.2.B.2.b *Buffers and screening* Where immediately visible from the right-of-way, surface parking areas shall be screened with dense evergreen and deciduous landscaping, fencing, or masonry wall in accordance with the landscaping standards of the Technical Manual.	The proposed development includes a service driveway along the side setback. **What still needs to be addressed:** **Staff recommends that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service**	More information needed

		driveway at the 11 Cedar Street abutting property.	
	13.6.2.B.2.c *Buffers and screening* For nonresidential development abutting a residential zone, an evergreen, densely landscaped buffer of not less than 10 feet in depth and six feet tall is required along the side abutting the residential zone. In cases where architectural fencing is used, the depth of the landscaped buffer may be reduced, so long as the fencing is at least six feet in height and a mix of evergreen and deciduous trees spaced no further than 20 feet apart is planted abutting the residential zone.	Not applicable, the proposed development is residential **What still needs to be addressed:** None	Not applicable
	13.6.2.B.2.d *Buffers and screening* All residential development shall provide and/or preserve evergreen vegetated buffers where necessary to buffer the development from detrimental impacts of existing surrounding development.	The proposed development does not include existing vegetation to preserve. **What still needs to be addressed:** **Staff recommends additional plantings around the perimeter of the building at the side and rear setback areas.**	More information needed
	13.6.2.B.3.a *Parking and vehicle display lot landscaping* Developments with more than five parking spaces shall include at least one tree for every 750 square feet of uncovered asphalt parking area (including drive aisles), planted in landscaped islands to screen, shade, and break up parking. Trees and shrubs in parking lots may be in informal groups, straight rows, or concentrated in clusters as described in the landscaping standards of the Technical Manual.	Not applicable, the proposed development does not include parking lots. **What still needs to be addressed:** None	Not applicable
	13.6.2.B.3.b *Parking and vehicle display lot landscaping* Landscaped islands shall be distributed so that uninterrupted pavement does not exceed forty parking spaces.	Not applicable, the proposed development does not include parking lots. **What still needs to be addressed:** None	Not applicable
	13.6.2.B.3.c *Parking and vehicle display lot landscaping* Where site constraints prevent implementation of all or a portion of required parking lot landscaping, as determined by the review authority, the reviewing authority may approve an alternative as described in the landscaping standards of the Technical Manual.	Not applicable, the proposed development does not include parking lots. **What still needs to be addressed:** None	Not applicable
	13.6.2.B.4 *Non-vehicular hardscape* All uncovered paving for non-vehicular use, including pathways and patios, must either have a minimum Solar Reflective Index (SRI) of 33 initially and 28 once aged three years or include one tree for every 750 square feet of asphalt paving.	The proposed development provides a new asphalt walkway to connect the public sidewalk to covered building entrances. The typical reflectance of new asphalt is approximately 5-10, which does not meet this standard. **What still needs to be addressed:** **Staff recommends substitution for a brick or concrete walkway to meet the SRI standard.**	Not met
	13.6.2.B.5.a *Street trees* All development shall include one street tree per 25-35 linear feet of frontage along a city right-of-way or private roadway as specified in the landscaping standards of the Technical Manual.	The proposed development provides two street trees within the public right-of-way along the property frontage at 35 linear feet that meet the requirement.	Met

	The provision of measures to enhance tree survival (such as raised planters, irrigation, and structural soils as recommended by the City Arborist) shall be required.	**What still needs to be addressed:** None	
	13.6.2.B.5.b *Street trees* Where the applicant can demonstrate that site constraints prevent the planting of required street trees in the city right-of-way, the review authority may permit an alternative subject to the landscaping standards of the Technical Manual.	The proposed development provides two street trees within the public right-of-way along the property frontage at 35 linear feet that meet the requirement. **What still needs to be addressed:** None	Met
	13.6.2.B.5.c *Street trees* Where the proposed development includes the removal of an existing street tree determined by the City Arborist to be a heritage or feature mature tree, the applicant shall be required to contribute to the Tree Fund at the designated rate in the Technical Manual so that the total replacement cost is significantly higher than planting a new street tree/contributing for a new street tree.	The proposed development provides two street trees within the public right-of-way along the property frontage at 35 linear feet that meet the requirement. **What still needs to be addressed:** None	Met
Water Quality, Stormwater Management and Erosion Control	**13.6.2.C.1.a** All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot. Provisions for stormwater management shall demonstrate the following: a) Any stormwater draining onto or across the lot in its pre-improvement state will not be impeded or redirected so as to create ponding on, or flooding of, adjacent lots.	The proposed redevelopment provides stormwater treatment and collection of rain runoff on impervious surfaces with a focal point and subsurface retention system at the proposed service driveway and will not direct stormwater drainage onto adjacent lots. **What still needs to be addressed:** **The Applicant shall update their post-construction stormwater inspection forms, the forms provided appear to be for a project in Biddeford.** **The applicant shall revise the inspection forms for the FocalPoint and R-tank system, as currently an underdrain stormwater filter is reference, and provide associated outlet control structure and maintenance information within the Stormwater Report.**	More information needed
	13.6.2.C.1.b All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot. Provisions for stormwater management shall demonstrate the following: b) Any increase in volume or rate of stormwater draining from the lot onto an adjacent lot or City property following the improvement can be handled on the adjacent lot or City property 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 or City property.	The proposed redevelopment provides stormwater treatment and collection of rain runoff on impervious surfaces with a focal point and subsurface retention system at the proposed service driveway that will not increase volume or rate of stormwater onto adjacent lots or City property. **What still needs to be addressed:** None	Met
	13.6.2.C.1.c All development shall be designed to minimize total area of impervious surface on the site and both the volume and rate of runoff from the lot.	The proposed redevelopment provides stormwater treatment and collection of rain runoff on impervious surfaces with a focal	More information

	Provisions for stormwater management shall demonstrate the following: c) Any increase in volume or rate of stormwater draining from the lot into the City's storm sewer system can be accommodated in the system without creating downstream problems or exceeding the capacity of the storm sewer system.	point and subsurface retention system at the proposed service driveway that will not increase volume or rate of stormwater into the City's storm sewer system. **What still needs to be addressed:** **The applicant shall provide a wastewater capacity application.** **The Applicant is requested to confirm the pipe size associated with Catch Basin 1 – the plans call for 12", while the HydroCAD model accounts for 8"**	
	13.6.2.C.2 All development shall comply with the stormwater management standards of the Technical Manual.	The proposed redevelopment seeks to minimize impervious areas on the site and limit these to roof area, a service driveway, an internal walkway and a concrete pad for the electrical transformer. The proposed development provides stormwater treatment of impervious surfaces with a subsurface treatment below the service driveway. **What still needs to be addressed:** **The Applicant shall provide a stormwater maintenance agreement and the updated inspection forms.**	More information needed
	13.6.2.C.3 Development shall not pose a risk of groundwater contamination either during or post-construction, as described in the stormwater management and water supply standards of the Technical Manual.	The proposed development does not pose a risk of groundwater contamination and provides connections to the public utilities along Cedar Street. **What still needs to be addressed:** **The applicant shall provide additional details for utility pipe installation, and pavement replacement in conformance with Technical Manual Section 6 within the City ROW.**	More information needed
	13.6.2.C.4 Applicants shall demonstrate that subsurface and/or any adjacent slope conditions are suitable to support the development, and where determined necessary, shall prepare a geotechnical study to demonstrate that the development as designed will not adversely impact the development site or any abutting property. Soil surveys and/or geotechnical studies shall be prepared in accordance with the requirements of the Technical Manual.	The proposed redevelopment seeks to maintain adjacent slope conditions that are suitable to support the proposed structure and site improvements. **What still needs to be addressed:** None	Met
Public Infrastructure and Community Safety Standards (Sec. 13.6.3)			
Standard		***How the standard is being met***	***Finding***
Consistency with City Master Plans	**13.6.3.A.1** All developments shall be designed so as to be consistent with City Council-approved master plans and facilities plans and with off-premises infrastructure.	The proposed development is in compliance with the City's comprehensive plan *Portland's Plan 2030* and is allowed by-right for multifamily in the RN-4 zone. **What still needs to be addressed:** None	Met
	13.6.3.A.2 The site plan shall include suitable easements, rights, and improvements to connect or	The proposed development intends to connect new sewer, water, drainage, gas,	More inf

	continue off-premises public infrastructure as may be required by the review authority.	and electrical to public infrastructure at Cedar Street. **What still needs to be addressed:** **The applicant shall provide a sidewalk easement required for proposed public sidewalk extending outside the existing ROW. The City will need to grant a license agreement for the proposed private outlet control structure located in the City right-of-way underneath the sidewalk. The applicant should contact DPW Engineering to discuss further.**	
Public Safety and Fire Prevention	**13.6.3.B.1.a** All development shall incorporate the following public safety principles for Crime Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: a) Natural surveillance that promotes visibility of public spaces and areas.	The proposed development provides lighting on private property that is mounted to the building and illuminates building entrances and walkways. In addition, storefront windows provide clear visibility into communal spaces for residents **What still needs to be addressed:** None	Met
	13.6.3.B.1.b All development shall incorporate the following public safety principles for Crime Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: b) Access control that promotes authorized and/or appropriate access to the site.	The proposed development provides secured building entrances for residents. **What still needs to be addressed:** None	Met
	13.6.3.B.1.c All development shall incorporate the following public safety principles for Crime Prevention through Environmental Design (CPTED) into site design to enhance the security of public and private spaces and to reduce the potential for crime: c) Territorial reinforcement that promotes a sense of ownership and responsibility through environmental design.	The proposed development provides lighting on private property that is mounted to the building and illuminates building entrances and walkways. In addition, storefront windows provide clear visibility into communal spaces for residents **What still needs to be addressed:** None	Met
	13.6.3.B.2 All developments shall be designed to provide adequate emergency vehicle access to the site and comply with the Public Safety standards of the Technical Manual.	The proposed development will provide emergency vehicle access along Cedar Street. The City's Fire Marshall recommends to restrict on-street parking at the property frontage on both sides of the street down to Oxford Street to service the proposed multifamily structure. Staff recommends shifting the approximate eight existing on-street parking from the southern side of Cedar Street between Cumberland Ave and Oxford Street to the northern side of Cedar Street to provide approximately nine on-street parking spaces. The proposed on-street parking for Cedar Street is shown below in orange and would result in a net increase of one additional on-street parking space.	More information needed

		 **What still needs to be addressed:** **The applicant shall provide "No Parking" on both sides of the property frontage down to Oxford Street to accommodate fire vehicles.**	
Public Utilities	**13.6.3.C.1** The development shall not overburden sanitary sewers and storm drains, water lines or supply, or other public infrastructure and utilities. Development shall provide adequate utility infrastructure on-site and in connection to surrounding locations and facilities.	The proposed development intends to connect new sewer, water, drainage, gas, and electrical to public infrastructure at Cedar Street. **What still needs to be addressed:** **The applicant shall provide a wastewater capacity application.**	More information needed
	13.6.3.C.2 Electrical service shall be underground unless otherwise specified for industrial uses, or if it is determined to be unfeasible due to extreme cost, the need to retrofit properties not owned by the applicant, or complexity of revising existing overhead facilities.	The proposed development is residential and provides overhead electrical service from existing power pole along the property frontage on Cedar Street **What still needs to be addressed:** None	Not applicable
	13.6.3.C.3 All sanitary sewer lines, storm drains, water lines, and other utilities proposed as part of the development shall be designed to conform with the sanitary sewer and storm drain and water supply standards of the Technical Manual.	The proposed development intends to connect new sewer, water, drainage, gas, and electrical to public infrastructure at Cedar Street. **What still needs to be addressed:** **The applicant shall provide additional details for utility pipe installation, and pavement replacement in conformance with Technical Manual Section 6 within the City ROW.** **The applicant is requested to confirm the existing size of the CSO main in the Right of Way and determine if a manhole is required for the 8" stormdrain connection from the site per Section 6 of the City of Portland Technical Manual. The method of connection should be confirmed with Public Works.** **The applicant shall be provide additional information on the detail of the outlet control structure. This structure will be installed within the driveway entrance to the site, within the City Right-of-Way. As**	More information needed

		currently detailed, it is unclear what the structure dimensions are, and how the structure covers will be installed, i.e. typical manhole frame with covers installed flush to pavement grades. The detail should be updated to confirm constructability and acceptability for H-20 vehicle loading.	
	13.6.3.C.4 All development within 200 feet of a public sanitary collection and treatment system shall connect sanitary sewer lines into the nearest available public sewer. If a public sanitary collection and treatment system is not available, a private wastewater system may be used according to the requirements of Chapter 24 of the City Code and the sanitary sewer and storm drain standards of the Technical Manual.	The proposed development intends to connect new sewer that is within 200 feet of Cedar Street along the property frontage. **What still needs to be addressed:** **The applicant shall provide proposed pavement cuts into Cedar Street for utilities on the site plan.** **The Applicant shall provide additional details for utility pipe installation, and for the various pavement, sidewalk, and curbing materials to confirm material and dimensional concurrence with City standards.**	More information
	13.6.3.C.5 All residential development of 20 units or more, commercial development, and industrial development shall provide for the temporary storage and timely removal of all trash and recyclable materials including, at a minimum, paper, corrugated cardboard, plastics, and metals. Storage containers for recyclable materials shall be separated from trash containers. All exterior storage of trash and recyclables shall be screened from view from public sidewalks, streets, and adjacent properties.	The proposed development provides mobile bins for all solid waste and recyclables that stored in a dedicated trash room with an exterior access door and serviced by a designated property management company. **What still needs to be addressed:** None	Met
Site Design Standards (Sec. 13.6.4)			
Standard		***How the standard is being met***	***Finding***
Massing, Ventilation and Wind Impact	**13.6.4.A.1** The bulk, location, or height of proposed buildings and structures shall not result in health or safety problems from a reduction in ventilation to abutting structures or changes to the existing wind climate that would result in unsafe wind conditions for users of the site and/or adjacent public spaces.	The proposed development would facilitate the construction of a 5-story building in the RN-4 residential neighborhood. Under LUC Table 7-A, structural height maximums are otherwise governed by the City of Portland Height Map that allows 55-feet at the property. **What still needs to be addressed:** None	Met
	13.6.4.A.2 Development shall locate all HVAC venting mechanisms to direct exhaust away from public spaces and residential properties directly adjacent to the site.	The proposed development provides HVAC for residential units that are mounted and screened on the roof. In addition, all venting will be provided at the rear of the property. **What still needs to be addressed:** None	Met

	13.6.4.A.3 In proposed buildings or additions with an aggregate roof area greater than 2,000 square feet, measured horizontally, and, for residential projects, greater than nine residential units, a minimum of 75% of the roof area must meet the following "cool roof" Solar Reflective Index (SRI) standards: a) Roofs with a slope less than 2:12: SRI of 82+ (initial)/64+ (3-year aged) b) Roofs with a slope greater than 2:12: SRI of 25+ (initial)/25+ (3-year aged) Roof areas covered by shade structures with an SRI of 39+, including photovoltaic panels that shade the roof, are considered exempt from roof area calculations for the purposes of this standard.	The proposed development indicates that roofing material and treatments meet the City's standard for SRI **What still needs to be addressed:** **Staff requests additional products specifications to confirm compatible standards.**	More information needed
Shadow	**13.6.4.B** All development over 65 feet in height shall be designed to avoid and/or mitigate the adverse impacts of shadows cast by new structures or building additions from falling on publicly accessible open space in accordance with the shadow standards of the Technical Manual.	Not applicable, the proposed building does not exceed 65 feet. **What still needs to be addressed:** None	Not applicable
Snow and Ice Loading	**13.6.4.C** All development shall be designed to prevent significant amounts of accumulated snow and ice from loading or falling onto adjacent properties or public ways.	The proposed development provides a flat roof for snow accumulation and removal of snow on site in order to prevent loading onto adjacent properties or public ways. **What still needs to be addressed:** None	Met
View Corridors	**13.6.4.D** The massing, location, and height of development shall not substantially obstruct public view corridors identified in the City of Portland Design Manual.	Not applicable, the subject property is not located within a designated view corridor. **What still needs to be addressed:** None	Not applicable
Historic Resources	**13.6.4.E.1** When a development affects a designated landmark or lies within a designated historic district or historic landscape district, such development shall be required to obtain historic preservation approval under Article 16.	Not applicable, the existing property is not located in a historic district or associated with a historic landmark. **What still needs to be addressed:** None	Not applicable
	13.6.4.E.2.a All development shall document and protect state or local archaeological resources known to exist or discovered on the site. a) Protection may include leaving archaeological resources untouched beneath a new development through adaptation of foundation design or architectural layout.	Not applicable, the existing property is not located in a historic district or associated with a historic landmark. **What still needs to be addressed:** None	Not applicable
	13.6.4.E.2.b All development shall document and protect state or local archaeological resources known to exist or discovered on the site.	Not applicable, the existing property is not located in a historic district or associated with a historic landmark.	Not applicable

	b) Where the applicant can demonstrate that complete protection is not feasible, the applicant shall excavate and document archeological resources. Such measures shall be conducted in consultation with the City's historic preservation program and Maine Historic Preservation Commission. For resources of state significance, excavation and documentation shall be conducted by a qualified professional, in coordination with Maine Historic Preservation Commission. Local archeological resources may or may not be recognized by the Maine Historic Preservation Commission as significant and shall include the following: i. Original seawall structure located landward of Commercial Street. ii. Inactive historic family cemetery plots. iii. Historic railroad beds including but not limited to the Portland-Lewiston interurban railroad. iv. Original structure and/or landforms associated with the Cumberland and Oxford Canal. v. Buried portions of colonial and post-colonial period structures or built features located on the Portland Peninsula predating the Great Fire of 1866. vi. Pre-colonial occupation sites identified by shell middens or other evidence. vii. Sites listed or eligible for listing on the National Register of Historic Places.	**What still needs to be addressed:** None	
	13.6.4.E.2.c All development shall document and protect state or local archaeological resources known to exist or discovered on the site. c) In order to preserve archeological resources, the review authority may waive standards listed in the City of Portland Technical Manual where necessary if it is determined that such a waiver would not jeopardize the health, safety, or welfare of the development's occupants, the public, or the natural environment.	Not applicable, the existing property is not located in a historic district or associated with a historic landmark. **What still needs to be addressed:** None	Not applicable
Exterior Lighting	**13.6.4.F.1.a** ***Site lighting*** All exterior site lighting shall be full cutoff with no light emitted above the horizontal plane or spilled onto adjacent properties. Illumination levels shall be adequate but not excessive for the safety, comfort, and convenience of occupants and users of the site, and shall conform to the lighting standards of the Technical Manual.	The proposed development provides building-mounted exterior lighting fixtures along all building facades that are full cutoff. **What still needs to be addressed:** **The applicant shall submit a lighting management plan or photometric site plan for review of illumination levels.**	More information needed

	13.6.4.F.1.a *Site lighting* Where light from a proposed development may adversely impact adjacent residential properties, exterior lighting shall employ building-side shielding.	The proposed development provides building-side shields to reduce impacts at adjacent residential properties. **What still needs to be addressed:** None	Met
	13.6.4.F.2.a *Architectural and specialty lighting* Architectural and specialty lighting of such features as architectural details, monuments, public art, or other site features shall be designed to illuminate specific details or attributes only and shall meet the lighting standards of the Technical Manual.	Not applicable, the proposed development does not include specialty lighting. **What still needs to be addressed:** None	Not applicable
	13.6.4.F.2.b *Architectural and specialty lighting* Up-lighting by any method is prohibited except for public buildings and parklands; clock towers and steeples; landscape features; designated historic landmarks; flags of state, federal, or national jurisdictions; and public art. Such light fixtures, brackets, conduits, and all other components shall be designed by a lighting professional and shall be scaled and placed to minimize their visibility and installed in accordance with the lighting standards of the Technical Manual.	Not applicable, the proposed development does not include specialty lighting. **What still needs to be addressed:** None	Not applicable
	13.6.4.F.3 *Street lighting* All development shall provide municipal street lighting adequate for the safety and comfort of pedestrians, bicyclists, and motorists and, where applicable, conforming to specific lighting district requirements as specified in the street lighting standards of the Technical Manual.	The proposed development includes wall-mounted architectural fixtures adjacent to the public sidewalk on Cedar Street. **What still needs to be addressed:** **The applicant shall submit a lighting management plan or photometric site plan for review of illumination levels. If the proposed wall-mounted fixtures do not meet the City's technical manual, section 8 lighting standards, a new municipal street light is required.**	More information needed
Noise and Vibration	**13.6.4.G** All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment shall meet applicable state and federal emissions requirements and shall be located to the interior of the site, away from abutting properties.	The proposed development provides HVAC for residential units that are mounted and screened on the roof. **What still needs to be addressed:** **Staff requests product information to confirm equipment meets local standards.**	More information needed
Signage and Wayfinding	**13.6.4.H.1** On-site directional traffic signage may be provided to enable users to safely and easily navigate into, around and out of the site.	The proposed development will include addressing signage mounted to the building, no on-site directional traffic signage is proposed. **What still needs to be addressed:** None	Met
	13.6.4.H.2 Signage shall not adversely affect visibility at intersections on or off the site.	The proposed development has indicated a replacement of "1 hour parking" with "No Parking" based on responses from the City's Fire Marshall	More information needed

		What still needs to be addressed: **The applicant is requested to revise the "No Parking" street signage at the property frontage on both sides of the street down to Oxford Street. And replace "1 hour parking" signs along the northern side of Cedar Street for "No Parking". On-street parking would be available along the southern side of Cedar Street.**	
Design Standards	**13.6.4.I.1** Development of certain types and/or proposed in certain zones, as specified in the City of Portland Design Manual, shall meet the design standards of the Design Manual in order to ensure that building and site design contribute to and enhance the goals and policies for specific zones within the city. The City of Portland Design Manual is incorporated by reference as part of this Land Use Code.	The proposed development for a 5-story multifamily building is reviewed under the RN-4 residential design standards. The proposed building is located within close proximity to the street to maintain a continuous street wall that is compatible with the neighborhood context. **What still needs to be addressed:** **Staff has provided a design review memo as an attachment with a recommendation for greater visibility for the recessed entrance at Cedar Street and suggests a side window to allow views into the interior community spaces. In addition, Staff requests additional information for the exterior façade material and requests that product specifications be added to the architectural elevations.**	More information needed
	13.6.4.I.2 If the development is located in a historic district or associated with a historic landmark, the standards of Article 16 shall supersede.	Not applicable, the existing property is not located in a historic district or associated with a historic landmark. **What still needs to be addressed:** None	Not applicable

Zoning Use Review (Article 6)

Use Permissions (Table 6-A – Table 6-F)

Proposed Use	***Permitted, Conditional or Accessory Use***	***Zone***	***Use Std***
Multi-Family	***Permitted***	***RN-4***	***6.4.12***

Zoning Performance Standards (Sec. 6.8)

Standard	***Discussion***	***Finding***
6.8.4 Exterior lighting	**Overview:** All exterior lighting shall be designed and installed with full cut-off fixtures to direct illumination onto the site and to prevent illumination from such fixtures on neighboring properties in accordance with the City of Portland Technical Manual. **Updates Requested** None	Staff finds that all exterior fixtures are full cut-off to prevent illumination on neighboring properties.
6.8.6 Noise	**Overview:** HVAC is proposed to be mounted on the building's rooftop. Exhaust for domestic hot water is proposed to be directed towards the side setback at the service driveway and rear setback. **Updates Requested** Applicant to provide HVAC equipment to meet noise standards.	Staff finds that the proposed HVAC equipment is properly screened and setback from the roofline to reduce a nuisance at abutting properties.
6.8.12 Waste disposal	**Overview:** All solid waste disposal shall be only in fully enclosed, covered containers or receptacles. **Updates Requested** None	Staff finds that the proposed receptacles to dispose solid waste are stored in a dedicated interior room with an exterior access door.

Zoning Dimensional Review (Article 7)

Dimensional Standards (Table 7-A – Table 7-H)

Standard	***Requirement 1***	***Requirement 2***	***Proposed***	***Finding***
Lot Area (SF)	***725 sf / unit. 725 sf x 30 units = 21,750 sf***		***8,978 sf***	***The applicant seeks to utilize the affordable housing bonus as outlined in 18.2.4 to meet standard***
Street Frontage (Min.)	***20 ft.***		***73.46 ft.***	***Met***
Front Setback (Min)	***5 ft. or the average of adjacent front yards minus 5 ft.***		***2 ft.***	***The average adjacent front yards include existing buildings located within 1 ft of the front property boundary.***

Rear Setback (Min.)	***10 ft.***		***10.5' ft.***	***Met***
Side Setback (Min.)	***5ft.***		***5 – 19.25' ft.***	***Met***
Structure Height (Max.)	***35 ft., except 45 ft. for buildings with 3 or more dwelling units.***	***Under LUC Table 7-A, structural height maximums are otherwise governed by the City of Portland Height Map that allows 55-feet at the property.***	***54.92'***	***Met***
Building length (Max.)	***70 ft.***		***49.25'***	***Met***
Lot Coverage (Max.)	***60%***		***58%***	***Met***
Landscaped open space ratio (Min.)	***20%***		***25%***	***Met***
Affordable housing incentive density and height bonuses (Sec. 17.2.2.D)				
Bonus Type	***Allowed Under Density Bonus***		***Proposed***	***Finding***
Density bonuses	***30.95 units***		***30 units***	***The applicant has indicated 100% affordable units for rent, eligible projects >75% permit 2.5 x base in Table 17-B***
Height bonuses				***Not applicable in RN-4***
Unit size				***The applicant has indicated 100% affordable units for rent***
Term of affordability				***The applicant has indicated 100% affordable units for rent,***

Design Review
Planning and Urban Development Department

Subject:	15, 19 Cedar Street
Zone:	RN-4
Date of Review:	May 8, 2026
Reviewer(s):	Sean King (Urban Designer), Rowen McAllister (Senior Planner), Eric Freeman (Planner)
Project ID:	PL-003553-2026

I. INTRODUCTION

The project was reviewed against the RN-4 Residential Zone Standards (Appendix 7 of the Design Manual).

SMALL RESIDENTIAL LOT DEVELOPMENT LOCATED IN THE RN-4 ZONE
(1) STANDARDS. Small residential lot development located in the RN-4 zone on lots of ten thousand (10,000) square feet or less shall provide a high degree of architectural quality and compatibility with the surrounding neighborhood as demonstrated by compliance with the principles and standards of the R-6 Infill Development Principles and Standards, promulgated by the Planning Board and contained in Appendix 7 of this manual. Any proposal required to obtain a certificate of appropriateness under Portland's historic preservation ordinance is exempt from the RN-4 design review standard.

II. DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, **red** text denotes standards not met to require resubmission.

PRINCIPLE A - Overall Context - A building design shall contribute to and be compatible with the predominant character-defining architectural features of the neighborhood.

STANDARD A-1 - Scale and Form – Met
The proposed building is located along a narrow residential street in the Bayside neighborhood that include a mix of residential building types ranging from single-family and multi-family of various heights between one to six stories within a two-block radius of the site. Staff finds the proposed five-story multifamily building is compatible with the predominant character-defining architectural features of the neighborhood. Predominant character-defining features includes a symmetrical fenestration pattern, expression of the ground floor with brick and storefront windows and articulation of the main building entries.

STANDARD A-2 - Composition of Principal Facades –Met
The composition of building facades within a two-block radius of the site includes predominant features that include but not limited material articulation at the ground level, a rhythmic fenestrations pattern, and termination of the building with a pronounced cornice that Staff finds is compatible with the predominant character-defining features of the neighborhood.

STANDARD A-3 - Relationship to Street – Met
The building placement within close proximity to the front property line is consistent with the spacing and rhythm of the residential fabric found within a two-block radius of the site.

PRINCIPLE B - Massing – The massing of the building reflects and reinforces the traditional building character of the neighborhood through a well composed form, shape and volume.

STANDARD B-1 - Massing - Met
The proposed building is a five-story multifamily structure that is consistent in scale and height with the massing of existing buildings in a two-block radius. The massing of the building is reduced with a variation of façade materials to distinguish the ground floor with a brick base from the upper floors with siding that Staff finds is harmonious within the surrounding context.

STANDARD B-2 - Roof Forms – Met
The proposed building provides a flat roof form with pronounced cornice that Staff finds to be compatible with the surrounding architectural forms found within a two-block radius of the site to meet this design standard.

STANDARD B-3 - Main Roofs and Subsidiary Roofs – Met
The proposed building's main roof form is flat that Staff finds to be compatible with the surrounding context to meet this design standard.

STANDARD B-4 - Roof Pitch – Not Applicable
The proposed building's flat roof form has no pitch to not require this design standard.

STANDARD B-5 - Façade Articulation – Met
The proposed building design incorporates façade articulations through a recessed entry and projecting canopy that Staff finds is appropriate to meet this design standard.

STANDARD B-6 - Garages – Not applicable
The proposed building design does not include an attached or detached garage.

PRINCIPLE C - Orientation to the Street – The building façade shall reinforce a sense of the public realm of the sidewalk while providing a sense of transition into the private realm of the home.

STANDARD C-1 – Entrances – Met
The proposed building design includes a recessed main entry and a side entry, both with a storefront window system and a projecting metal canopy that Staff finds is clearly articulated and accessible to the public sidewalk.

STANDARD C-2 - Visual Privacy – Not applicable
The proposed visual privacy of occupants at the ground level is not applicable.

STANDARD C-3 - Transition Spaces – Met
The proposed development provides a recessed entry facing Cedar Street that Staff finds is appropriate to create a transition space from the public sidewalk.

PRINCIPLE D - Proportion and Scale – Building proportions must be harmonious and individual building elements shall be human scaled.

STANDARD D-1 – Windows – Met

The majority of windows are vertically and horizontally proportioned throughout the proposed building to meet this design standard.

STANDARD D-2 – Fenestration – Met
Windows and doorways meet at least 12% area of the fenestration of the total façade area to meet this design standard.

STANDARD D-3 – Porches – Not Applicable
The proposed building does not include attached porches to the front facade.

PRINCIPLE E – Balance – The building façade elements must create a sense of balance by employing local or overall symmetry and by appropriate alignment of building forms, features and elements.

STANDARD E-1 - Window and Door Height - Met
The proposed building aligns the window heights that Staff finds appropriate to create a common horizontal datum throughout floor levels to meet this design standard.

STANDARD E-2 - Window and Door Alignment - Met
Staff finds the majority of windows stack to express a vertical alignment to meet this design standard.

STANDARD E-3 – Symmetricality - Met
Staff finds the primary window composition is arranged symmetrically to meet this design standard.

PRINCIPLE F – Articulation – The design of the building is articulated to create a visually interesting and well composed residential façade.

STANDARD F-1 – Articulation - Met
The proposed building design provides articulation trim detailing above and below windows, precast trim to delineate material changes at the ground floor that Staff finds is appropriate to the building's character.

STANDARD F-2 - Window Types – Met
The proposed building design includes a majority of vertically-oriented side by side windows throughout the street-facing facades to provide a clear fenestration pattern and fixed storefront windows at the ground level that Staff finds appropriate.

STANDARD F-3- Visual Cohesion – Met
The proposed building façade includes an arrangement of masonry at the ground level along the highest visible facades visible from the street and siding at the upper floors that Staff finds is appropriate.

STANDARD F-4- Delineation Between Floors – Met
The proposed building design delineates between floors through the alignment of windows for the facades that face the street and a horizontal belt course to delineate the ground and top floors that Staff finds appropriate.

STANDARD F-5 - Porches, etc. – Met

The proposed building design integrates entryways into the overall design to provide a storefront window system around doorways and a projecting metal canopy that Staff finds is appropriate to distinguish the main entries.

STANDARD F-6 - Main Entries –Not Met
The proposed building design includes two primary entries, a recessed entry facing Cedar Street and a side entry along the building's east elevation. Both entries provide an aluminum storefront window system around doorways and a projecting metal canopy that Staff finds appropriate. Staff recommends that the applicant incorporate additional windows along the sidewalls of the recessed entry facing Cedar Street, to promote visibility and natural surveillance for the Open Kitchen and Office.

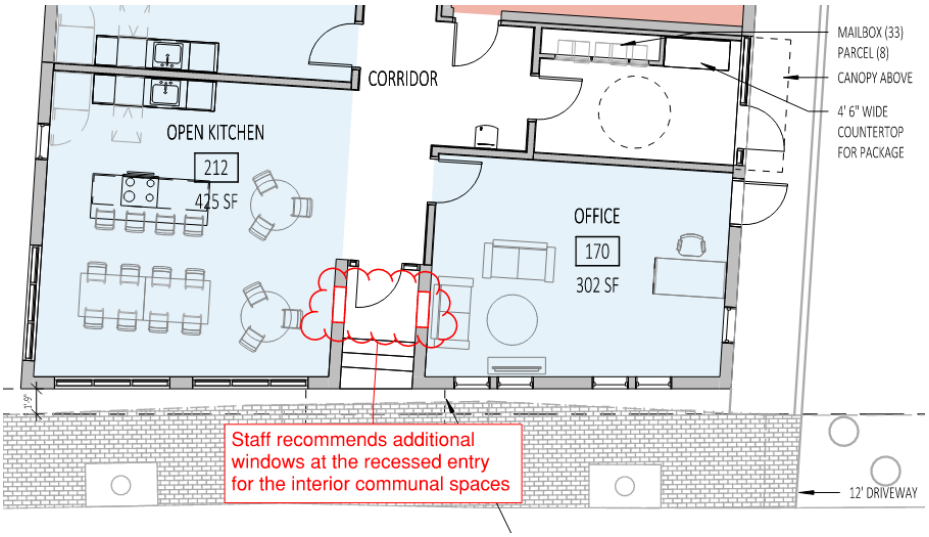


Figure A – First floor plan with Staff comments

STANDARD F-8 - Articulation - Met
The proposed building design includes articulation on all facades facing and adjacent to the street:

- Not applicable, flat roof forms do not include eaves or rakes to require this design standard
- Staff observes exterior façade trim at top and bottom of windows, door and corner board at a minimum of 4 inches. Staff requests additional information for the proposed trim detailing and indicate material type, and color onto the building elevations.
- Staff observes offsets in building faces or roof forms with a minimum of 12 inches.
- Staff observes that pronounced and decorative cornice is provided and incorporated throughout the perimeter of the building's roofline.

Principle G - Materials – Building facades shall utilize appropriate building materials that are harmonious with the character defining materials and architectural features of the neighborhood.

STANDARD G-1 – Materials – Not Met
The proposed building exterior materials include a composition of brick below a siding material. Staff requests additional information for the proposed exterior façade materials to evaluate its relationship with the context, durability, orientation and character.

STANDARD G-2 - Material and Façade Design – Met

The proposed building design provides brick in a charcoal grey tone at the ground-level that transitions to siding along the non-street facing facades. A horizontal precast band segments the siding proposed on the upper floors. And a pronounced cornice provides termination of the building height that Staff finds appropriate.

STANDARD G-3 – Chimneys – Not Applicable
No chimneys are proposed, this design standard does not apply.

STANDARD G-4 - Window Types – Met
The proposed building design includes primarily vertical side-by-side windows on the upper floors and storefront windows along the ground floor at Cedar Street that Staff finds to meet this design standard.

STANDARD G-5 - Patios and Plazas – Not Met
The proposed building design includes paved walkways to the building entries that is accessible to the public sidewalk. Staff recommends a replacement for brick to signify pedestrian use.

City of Portland

Major Site Plan Application

AVESTA HOUSING PROJECT

15 & 19 Cedar Street, Portland, Maine

March 2026

Applicant

Avesta Housing
307 Cumberland Avenue
Portland, ME 04101

Agent

BH2M
380B Main Street
Gorham, Maine 04038

BH2M

Civil Engineering | Surveying

Planning and Urban Development
City of Portland, Maine
389 Congress Street
4'th Floor
Portland, ME 04101

March 26, 2026

Re: Avesta Housing 15 and 19 Cedar Street
Major Site Plan Permit Application

BH2M has been retained by Avesta Housing to provide Engineering, Surveying, and Permitting services for development of a 30-unit affordable housing project proposed at 15 and 19 Cedar Street in Portland. Given that the project is proposing greater than 5 units, this would qualify for a Major Site Plan permit.

Avesta Housing has entered into a Purchase Option Agreement and Joint Development Agreement with Boys and Girls Clubs in Southern Maine (BGCSM) for the purpose of providing Replacement Housing. BGCSM proposes to remove units at 289 and 291 Cumberland Avenue and 7 and 9 Cedar Street as part of their planned Clubhouse Expansion, displacing 24 units. To facilitate these replacement housing units, Avesta Housing proposes to construct the 30-unit apartment building in this neighborhood through these agreements.

Avesta proposes to construct the apartment building, access, sidewalks, stormwater controls and other amenities across 2 existing lots, Map 26 Lot 15 for 15 Cedar Street and Map 26 Lot 14 for 19 Cedar Street. The total land area between the two lots is 8978 sq. ft or 0.21 acres, and the property is located in the City's RN-4 Zoning District. The current conditions of these lots show these are recently vacant parcels that had been previously developed as single family homes. These homes were razed by the current owners, BGCSM, to facilitate future development now being undertaken by Avesta Housing.

The Avesta Housing project proposes to construct low-income apartments for rent, with all proposed units being designated as affordable housing. With this intent, the applicants request that the project be approved for affordable housing bonuses in the City of Portland's Land Use Code, Chapter 14, Section 17.2, including density bonuses and reductions in fees. For fee reductions, as this project would propose to have all units as affordable, the applicants would request a 25% Development Fee reduction, and Cost of Work Fee reduction of $8.25 per $1,000. For density, the RN-4 zone allows 725 sf/unit, and with a 2.5x multiplier density bonus for greater than 75% of the units being affordable, results in a total of 30 unit density for these parcels.

In support of these permit applications, we are including the following attachments:

Attachment 1 - City of Portland Planning & Urban Development Checklist
Attachment 2 - Agent Authorization Letter

Attachment 3 – Title, Right, and Interest (Option Agreement and Joint Development Agreement)
Attachment 4 - Financial Capacity
Attachment 5 - Technical Capacity
Attachment 6 – Site plan Standards Narrative
Attachment 7 – City of Portland Site Plan Data Form
Attachment 8 – Low Impact Development Scoring Tool Spreadsheet
Attachment 9 – Utility Capacity Letters
Attachment 10 – Correspondence with Portland Fire Department
Attachment 11 – Design Narrative
Attachment 12 – Lighting Fixture Specifications
Attachment 13 – Stormwater Report

We trust that this Major Site Plan application provides you with the necessary information to find the application complete and bring the application to the Planning Board for review. If you need any additional information or have any comments on the materials provided, please feel free to contact me directly.

Sincerely,

Christopher MacDonald, P.E.
Civil Engineer

Cc Ryan Fecteau – Avesta Housing
Todd Rothstein – Avesta Housing
Virginie Stanley – Invivid Architecture

ATTACHMENT 1
CITY OF PORTLAND PLANNING & URBAN DEVELOPMENT CHECKLIST

Planning & Urban Development Department

MAJOR AND MINOR SITE PLAN

DOCUMENT CHECKLIST

Please submit each document as a separate PDF file.

Please confirm by electronically checking the boxes in the left-hand column.

General Application Documents

Indicate Below	**Required of All Applications**
☑	Project Description • Cover letter with detailed project description
☑	Completed Checklist (this document)
☑	Evidence of Right, Title, and Interest • Deeds, leases, or purchase and sale agreements
☑	Financial Capacity • Letter or evidence from a financial institution or third-party verifying financial capacity to undertake the project.
☑	Technical Capacity • Evidence of technical capability of applicant and consultants – resume and/or examples of past projects.
☑	Site Plan Standards • Detail how the project complies with the land use code's site plan standards. For each standard, please provide clear evidence by referencing applicable site plan(s), graphics, and other visual materials that demonstrate how the requirement is met. If a standard is not applicable to this specific project, clearly state its inapplicability and provide a brief explanation for why it doesn't apply.
☑	Site Plan Data (the link to the form can be found **here**) • Summary of project data and compliance with use and dimensional standards of land use code.

Indicate Below		**Only if Applicable**
Yes	N/A	
☐	☑	Waiver Requests (the link to the form can be found **here**) • Written request for waiver describing request and compliance with applicable waiver standards.
☐	☑	Summary of Existing or Proposed Easements or Covenants • Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way.
☐	☑	Evidence of State or Federal Approvals • Permits or letters of non-jurisdiction

Additional Documents

Indicate Below Yes	N/A	Only if Applicable
☐	☑	Construction Management Plan, including traffic control plan. • Provide construction management narrative in accordance with the City's Construction Management Template.
☐	☑	Traffic Study and/or other Transportation Plans • Detailed in Sec. 2 of the Technical Manual
☐	☑	Significant Natural Features Narrative • Identify significant natural features, wildlife habitats, fisheries habitats, or archaeological sites as detailed Ch. 14, Article 13, located on or near the project site, and describe protection methods during and after construction.
☑	☐	Stormwater Management Report • Detailed in Sec. 14 of the Technical Manual
☑	☐	City Master Plan Narrative • Detail project's consistency with City adopted Master Plans.
☑	☐	Evidence of Utility Capacity • Provide letter from all utility providers demonstrating capacity to service the project.
☑	☐	Solid Waste Narrative • Detail the amount of solid waste and recyclable material anticipated to be generated by the development, and information on how waste will be collected and removed.
☑	☐	Life/Safety Code Analysis Narrative • Detail how the project complies with NFPA 1 and other Fire Department technical standards.
☑	☐	Design Narrative • Detail how the project complies with any applicable design standards contained within the Land Use Code or City of Portland Design Manual.
☐	☑	HVAC and Manufacturing Equipment Verification • Provide verification from manufacturer that equipment meets applicable state and federal emissions requirements.
☑	☐	Low Impact Development (LID) Analysis • Provide a narrative detailing how the project complies with the low impact development requirements listed in Section 3 of the Technical Manual, along with a completed LID scorecard.

MAJOR AND MINOR SITE PLAN DRAWINGS CHECKLIST

Please upload the following drawings with the listed details into ProjectDox as separate PDFs. All drawings must be submitted in a 24" x 36" inch sheet size.

Boundary Survey (Stamped by a Licensed Surveyor in accordance with Sec. 14 of the Technical Manual)

Site Plan(s) (Stamped by a Maine Licensed Professional Engineer)

Indicate Below	All Sheets – Include a title block with project title and the following information:
☑	Project street address

☑		Name and address of property owner & applicant.
☑		Licensed design professional, including firm that produced plans.
☑		North arrow
☑		Date of preparation and revision history block.
☑		Tax parcel (chart, block, and lot) number
Indicate Below Yes	N/A	**Existing Conditions Plan**
☐	☑	Existing structures, with distance from primary building façade(s) to the property line.
☑	☐	Approximate location of structures on abutting properties
☑	☐	All streets and intersections adjacent to the site
☑	☐	Existing driveways, pedestrian ways, and bicycle infrastructure, including dimensions and materials

☐	☑	Existing public transit infrastructure
☐	☑	Existing vehicle & bicycle parking areas
☐	☑	Existing utilities on site and within adjacent rights-of-way
☑	☐	Existing grades (two-foot contours preferred)
☑	☐	Location of water courses, wetlands, and vegetation, or other significant natural features
☐	☐	Existing soil conditions and locations of test pits and borings
☑	☐	Zoning boundary lines, including overlays
☐	☑	Location of all existing easements and rights-of-way.
Indicate Below Yes	N/A	**Proposed Site Plan**
☑	☐	Proposed structures, including distance from primary building façade(s) to property lines
☑	☐	Ground floor area, and finished floor elevations for all buildings
☑	☐	Any proposed geometric modifications to streets and intersections adjacent to site
☑	☐	Location, dimensions and materials of all proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
☑	☐	Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
☐	☑	Location and dimensions of proposed loading areas, including turning templates
☐	☑	Proposed transit infrastructure with dimensions/ engineering specifications
☑	☐	Location of vehicle and bicycle parking with dimensions and engineering specifications
☐	☑	Location of all snow storage areas
☑	☐	Exterior lighting (please see Technical Manual for photometrics requirements)
☐	☑	Location of fire hydrants
☑	☐	Location of solid waste management receptacles
☑	☐	Location of all proposed HVAC and mechanical equipment, including proposed screening, where applicable
☐	☑	Location of proposed easements and rights-of-way, including dimensions
☐	☑	Please utilize color-coding and/or hatches and shading to delineate changes between the pre and post development condition as needed
Indicate Below Yes	N/A	**Utility Plan**
☑	☐	Proposed electrical infrastructure
☑	☐	Location, sizing and directional flows of all proposed sewer and stormwater infrastructure

☑	☐	Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to the site
Indicate Below		**Grading and Drainage Plan**
Yes	N/A	
☑	☐	Proposed grades
☑	☐	Proposed stormwater management measures meeting Technical Manual standards
☐	☑	Any proposed alteration of a watercourse or wetlands
☐	☑	Any groundwater protection measures
☐	☑	Proposed buffers and preservation measures for wetlands or significant natural features
Indicate Below		**Landscape Plan**
Yes	N/A	
☐	☑	Existing vegetation to be preserved and preservation measures

☑	☐	Proposed landscaping, screening, and street trees, including caliper widths for trees
☑	☐	Planting schedule, including street trees detailing species, quantity of plantings, and size at planting.
Indicate Below		**Architectural Plans and Renderings**
Yes	N/A	
☑	☐	Exterior building elevations, color renderings, illustrations of all sides.
☑	☐	Axonometric and street-level views for structures greater than three stories in height.
☑	☐	Context drawings
☑	☐	Floor plans
Indicate Below		**Construction Management Plan**
Yes	N/A	
☐	☑	Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
☐	☑	Construction management plan and narrative based upon site plan in accordance with the City's construction management template.
Indicate Below		**Other**
Yes	N/A	
☑	☐	Details and cross-sections

ATTACHMENT 2
AGENT AUTHORIZATION LETTER

To Whom It May Consern,

By this letter, the undersigned authorizes Berry Huff McDonald Milligan Inc. (BH2M) to act as the agent for the undersigned, Avesta Housing, in the preparation and submission of all Federal, State, and Local permit applications and relevant documents and correspondence for all necessary permit for the construction of a multiple unit residential development in the City of Portland, Maine, located at 15 & 19 Cedar Street, to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

Signature

Ryan Fecteau, Senior Development Officer
Printed Name and Title

03-12-26
Date

ATTACHMENT 3
RIGHT, TITLE, AND INTEREST

OPTION AGREEMENT

THIS OPTION AGREEMENT (the "Agreement") made and entered into as of the 1st day of December, 2025, by and between **BOYS & GIRLS CLUBS OF SOUTHERN MAINE**, a Maine nonprofit corporation with a mailing address of 277 Cumberland Ave, Portland, ME 04101 ("BGCSM") ("BGCSM"), and **AVESTA HOUSING DEVELOPMENT CORPORATION**, a Maine nonprofit corporation with a place of business in Portland, Maine and mailing address of 307 Cumberland Avenue, Portland, Maine 04101 (the "AHDC").

WITNESSETH:

WHEREAS, BGCSM contemplates expanding the physical size of its Portland, Maine clubhouse located on Cumberland, Avenue in Portland, Maine (the "Clubhouse Expansion Project");

WHEREAS, the Clubhouse Expansion Project will require BGCSM to demolish certain residential housing located at 289 and 291 Cumberland Avenue and 7 and 9 Cedar Streets Portland, Maine (the "Demolition");

WHEREAS, the Demolition will trigger the requirements of the City of Portland, Maine's Housing Preservation and Replacement Ordinance, Chapter 14, Section 17.1 et seq. (the "Housing Replacement Ordinance") requiring BGCSM to replace the residential units being destroyed as part of the Demolition;

WHEREAS, AHDC and BGCSM have agreed to collaborate in the process of developing housing on certain parcels of land owned by BGCSM located at 15 and 19 Cedar Street, Portland, Maine (collectively, the "Replacement Housing Site") in order to allow BGCSM to comply with the Housing Replacement Ordinance;

WHEREAS, AHDC contemplates the development of not less than 25 units of housing on the Replacement Housing Site (the "Avesta Project");

WHEREAS, the City of Portland Planning staff has indicated in a letter dated August 27, 2024 that the completion of the Avesta Project would be deemed by the Planning Staff to satisfy the requirements of the Housing Replacement Ordinance by BGCSM;

WHEREAS, BGCSM intends to commence construction of the Clubhouse Expansion Project on or around April 1, 2026; and

WHEREAS, the date upon which BGCSM actually commences construction of the Clubhouse Expansion Project will be referred to herein as the "Clubhouse Expansion Start Date";

NOW, THEREFORE, in consideration of [redacted] (the "Initial Option Consideration"), the receipt of which is hereby acknowledged by BGCSM, BGCSM and AHDC hereby agree as follows:

1. Grant of Option. BGCSM hereby grants to AHDC, its successors and assigns, the exclusive and irrevocable option (the "Option") to acquire the Replacement Housing Site, which includes two certain parcels of land, with the buildings and improvements thereon, located in Portland, Maine and described as (a) 15 Cedar Street and (b) 19 Cedar Street, both as more particularly described in a deed to BGCSM recorded in the Cumberland County Registry of Deeds in Book 37891, Page 39, including a total of approximately 8,879 square feet of land, together with all appurtenant rights and easements (collectively, the "Property"). AHDC shall not construct anything other than the Avesta Project on the Property.

2. Expiration; Extension. The initial term of this Option shall expire on November 30, 2027, at midnight, Maine time unless exercised by that date and time in accordance with the terms and conditions of this Agreement. AHDC shall have the right to extend said initial term of this Option for one additional period of one (1) year by providing written notice to BGCSM, prior to the expiration date of said initial term, with an additional payment [redacted] (the "Additional Option Consideration", and together with the Initial Option Consideration, the "Option Consideration"). The Option may be exercised at any time after the Clubhouse Expansion Start Date, and BGCSM agrees to provide AHDC with notice once the construction of the Clubhouse Expansion has started.

3. Notice of Exercise; Failure to Exercise. This Option may be exercised only by AHDC giving written notice of election to exercise to BGCSM by Federal Express, or similar overnight express mail, prepaid, to BGCSM at the address set forth at the beginning of this Agreement, or to such other address as BGCSM may designate to AHDC in writing. Said notice shall be deemed to have been duly given when delivered to a Federal Express (or similar overnight delivery service) courier or office at the time indicated on the proof of delivery. In the event that AHDC fails to exercise the Option granted in this Agreement within the time specified in Section 2 above, the Option shall be deemed to be terminated and the Option Consideration shall be retained by BGCSM, and AHDC shall make a payment to BGCSM in the amount set forth in Section 8(d) and shall assist BGCSM with finding alternative replacement housing as provided in Section 8(d).

4. Exercise. In the event that AHDC exercises the Option granted in this Agreement to purchase the Property as provided herein, the following provisions shall be applicable:

(a) Purchase Price. Subject to any adjustments and prorations hereinafter described, the total purchase price (the "Purchase Price") for the Property shall be the sum of [redacted], payable at closing by wire transfer. The Initial Option Consideration and the Additional Option Consideration, if paid, shall not be credited against the Purchase Price at closing.

(b) Title to the Property; Covenant Against Further Encumbrances. At closing, BGCSM shall convey to AHDC good and marketable title to the Property in fee simple,

free and clear of all liens, claims and encumbrances except standard utility easements that do not materially and adversely affect the use and enjoyment of the Property. In the event that title to the Property is not as set forth in the previous sentence, BGCSM shall be given a reasonable period of time, not to exceed thirty (30) days, after receipt of notice from AHDC in which to remedy any title defects. BGCSM shall use reasonable efforts to remedy any title defects, but shall not be obligated to expend more than [redacted] in order to remedy such title defects. In the event that any title defects cannot be corrected or remedied within said time period, then this Agreement shall terminate, whereupon BGCSM shall fully refund to AHDC the Option Consideration. AHDC may elect to close notwithstanding such defects as may exist. BGCSM agrees that it will not further encumber or permit to be encumbered the Property by any liens, mortgages, attachments, covenants, restrictions or easements after the date of this Agreement.

(c) Closing. The closing under this Agreement shall take place not later than sixty (60) days after this Option is exercised (the "Closing Date") at 10:00 AM, local time, at AHDC's counsel's office, or at such other time and place as BGCSM and AHDC shall mutually agree upon in writing. At the closing, BGCSM shall execute a Quitclaim Deed with Covenant to the Property (the "Deed"), underground storage tank certification, a title insurance affidavit regarding mechanic's liens and persons in possession and such other affidavits, documents and instruments as AHDC shall reasonably request and that are customary in commercial real estate transactions in Maine. If requested, BGCSM agrees that the Deed shall also include a conveyance of the Property using a new survey description resulting from BGCSM's boundary survey but such conveyance shall not include any covenants.

(d) Risk of Loss. At all times during the term of this Agreement, all risk of loss to the Property prior to the closing shall be on BGCSM.

(e) Adjustments.

(i) Real property taxes shall be prorated as of the Closing Date based on the latest available tax bill. AHDC shall pay the cost to record the deed and any financing documents executed by AHDC. The parties shall share equally the Maine transfer tax according to law. BGCSM shall be responsible for all costs associated with the Property through the Closing Date, and AHDC shall be responsible for all such costs after the Closing Date.

(ii) The parties agree to the provisions set forth in the Joint Development Agreement dated on or about the date hereof by and between BGCSM and AHDC (the "JDA") and agree that it is deemed to be a part of this Agreement.

(f) Default; Remedies. In the event that AHDC exercises its option but fails to close hereunder for a reason other than the default of BGCSM, as BGCSM's sole remedy, BGCSM shall keep the Option Consideration and AHDC shall make a payment to BGCSM in the amount set forth in Section 8(d) and shall assist BGCSM with finding alternative replacement housing as provided in Section 8(d), whereupon this Agreement will terminate and neither party will be under any further obligation hereunder. In the event BGCSM defaults under this Agreement, AHDC shall have available all remedies at law and in equity, including, without limitation, the right of specific performance.

(g) Possession. BGCSM shall deliver the Property to AHDC at closing free and clear of all leases, tenancies and occupancies by any person.

(h) Conditions Precedent. AHDC's obligation to purchase the Property is subject to AHDC's full and complete satisfaction with all of the following:

(i) There shall have been no material adverse change in the condition of the Property, occurring after the conclusion of AHDC's inspections under Section 5 below, and the Property shall be substantially in the same condition at the Closing Date as it was at the time of the inspections, reasonable wear and tear excepted; and

(ii) Title to the Property shall be good and marketable, and the same shall be conveyed to AHDC free and clear of all liens, claims and encumbrances except as provided in Section 4(b) above.

If either of the conditions described above are not satisfied by the Closing Date, AHDC shall have the option of terminating this Agreement in writing, whereupon the Option Consideration shall be returned to AHDC, and such failure to comply with the Agreement shall be deemed a default under Section 4(f) of this Agreement.

i. Brokers. The parties represent to each other that neither has had any dealings with any real estate broker in connection with this transaction. The parties shall indemnify, defend and hold harmless one another from and against any breach of the foregoing representation.

5. Inspection. At all times upon reasonable prior notice, AHDC and any prospective lender or investor of AHDC's shall have the right to enter the Property and perform, at AHDC's expense, any and all inspections (including without limitation environmental site assessments), tests, surveys or other due diligence inquiries with respect to the Property as AHDC deems necessary or appropriate. AHDC agrees to return the Property as nearly as possible to its original condition after any of such tests and inspections. In the event AHDC is not satisfied for any reason by the results of such due diligence inspections, AHDC shall have the option of terminating this Agreement by written notice to BGCSM. Without limiting the generality of the foregoing and notwithstanding anything to the contrary elsewhere in this Agreement, this Agreement and AHDC's purchase of the Property are subject to a determination by Maine State Housing Authority ("MaineHousing") as to the desirability of the Property for AHDC's intended use as a result of the completion of the environmental review process required by the United States Department of Housing and Urban Development (the "Environmental Review Process"), and if such determination is unsatisfactory, AHDC may terminate this Agreement at any time, whereupon the Option Consideration shall promptly be refunded to AHDC, and neither party shall be under any further obligation hereunder, except as otherwise provided in Section 8(d). Within thirty (30) days of the execution of this Agreement, BGCSM shall deliver to AHDC any and all records of inspections, tests, insurance policies, title insurance, surveys and any other documents relevant to due diligence with respect to the Property.

6. Intentionally deleted.

7. Termination. This Agreement may be terminated by written notice to the other party as follows:

(a) By BGCSM, if:

(i) at any time prior to the Clubhouse Expansion Start Date, it determines that the Clubhouse Expansion Project is not feasible; or

(ii) AHDC breaches any of its obligations hereunder or in the JDA, and such breach is not cured within thirty (30) days of written notice by BGCSM of such default, or in case of a default which cannot with due diligence be cured within said thirty (30) day period, AHDC fails to proceed within said period to commence to cure the same and thereafter to complete such cure with due diligence and within a reasonable period;

(b) By AHDC, if:

(i) BGCSM has not commenced construction of the Clubhouse Expansion Project on or before December 31, 2026, or if BGCSM abandons the Clubhouse Expansion Project at any time;

(ii) BGCSM breaches any of its obligations hereunder or under the JDA, and such breach is not cured within thirty (30) days of written notice by AHDC of such default or in case of a default which cannot with due diligence be cured within said thirty (30) day period, BGCSM fails to proceed within said period to commence to cure the same and thereafter to complete such cure with due diligence and within a reasonable period;

(iii) at any time prior to February 1, 2026, AHDC determines that the Avesta Project is not feasible, in its sole discretion for any reason including without limitation financing issues, permitting or other issues uncovered during its due diligence; or

(iv) at any time after February 1, 2026, if AHDC determines that the Avesta Project is not feasible, in its sole discretion for any reason including without limitation financing issues, permitting or other issues uncovered during its due diligence;

(c) By mutual written agreement of the parties.

Except as provided in Section 8 and as otherwise provided herein, upon termination hereof, this Agreement shall be of no further force and effect, and no party shall have any remaining obligation in connection herewith.

8. Costs and Obligations Upon Termination.

(a) Each of BGCSM and AHDC agrees to bear its own costs related to the construction of the Clubhouse Expansion Project and the Avesta Project, respectively, including without limitation costs related to due diligence including physical inspections, title reviews, permitting and planning costs and fees, and other usual and customary predevelopment costs.

(b) Notwithstanding Section 8(a), in the event that BGCSM terminates the Agreement pursuant to Section 7(a)(i) or AHDC terminates the Agreement pursuant to Section 7(b)(i) or 7(b)(ii), BGCSM shall pay to AHDC the amount of [redacted] to defray AHDC's out of pocket costs related to due diligence and predevelopment planning, to be paid within fifteen (15) days of sending notice of such termination in accordance with Section 7 of this Agreement. In addition, if BGCSM terminates the Agreement pursuant to Section 7(a)(i), BGCSM agrees to negotiate in good faith with AHDC to transfer the Property to AHDC at below market rate. BGCSM recognizes and acknowledges that if BGCSM terminates the Agreement after AHDC has obtained approval from the City of Portland's Planning Board or has made substantial progress towards securing such approval, AHDC will have invested significant efforts and costs in the Avesta Project and BGCSM agrees it will make every effort to reach an agreement with AHDC with respect to the sale of the Property at below market rate so that ADHC may proceed to construct the Avesta Project upon the Property. Any agreement reached between the parties with respect to a sale of the Property shall be memorialized in a separate agreement entered into by the parties.

(c) Notwithstanding Section 8(a), in the event that AHDC terminates the Agreement pursuant to Section 7(b)(iii) or BGSCM terminates the Agreement pursuant to Section 7(a)(ii), AHDC shall pay to BGSCM the amount of [redacted] to defray BGCSM's out of pocket costs related to due diligence and predevelopment planning, to be paid within fifteen (15) days of sending notice of such termination in accordance with Section 7 of this Agreement.

(d) Notwithstanding Section 8(a), in the event that AHDC terminates the Agreement pursuant to Section 7(b)(iv), and ADHC cannot find an Alternative Site (as defined below), AHDC shall pay to BGSCM the amount of [redacted] to defray BGCSM's out of pocket costs related to due diligence and predevelopment planning (the "Termination Fee"). If required to be paid, such payment is to be made within fifteen (15) days of the determination by AHDC that it is unable to find an Alternative Site, but in any event not later than ninety (90) days after such termination.

(e) In addition to the Termination Fee, if it is required to be paid, AHDC agrees to use commercially reasonable efforts, although it shall not be required to expend more than a total of [redacted] of its own funds, to assist BGCSM to find alternative means of complying with the Housing Replacement Ordinance or being exempted from the requirements of the Housing Replacement Ordinance or given an extension of time in which to comply with such requirements, including, without limitation the following:

(i) facilitate the transfer of due diligence documents, design documents and approvals, if secured at the time of the termination and to the extent such documents can be assigned (collectively, the "Project Documents");

(ii) assist BGCSM with drafting a "Request for Proposals" (the "RFP") to be shared with other developers to construct a housing project on the Property, assist with developing a list of recipients of the RFP, and the vetting of RFP responses, including without limitation participating in interviews of respondents, and offering technical advice concerning such responses;

(iii) disclose to BGCSM other projects or potential project sites on which Avesta may be working which may be able to be utilized as a site to satisfy the Housing Replacement Ordinance and engage in good faith negotiations with BGCSM regarding potential joint development agreements relating to such alternative projects or project sites; or

(iv) assist BGCSM in meeting with City of Portland officials, including without limitation members of the Portland City Council, to discuss potentially exempting BGCSM from the Housing Replacement Ordinance or giving BGCSM an extension of time in which to comply with its requirements.

The parties agree to discuss the above-referenced options and mutually decide which should be pursued and how best to do so. The parties acknowledge and agree that if AHDC is able to identify an alternative site upon which AHDC can construct a housing project that will satisfy BGCSM's obligations under the Housing Replacement Ordinance (the "Alternative Site"), none of the other options listed above shall be pursued and the Termination Fee shall not be paid to BGCSM. In addition, AHDC shall not pay BGCSM the Termination Fee if the City of Portland waives BGCSM's requirement to comply with the Housing Replacement Ordinance.

In the event BGCSM wishes to have AHDC assign or transfer any Project Documents to it or to a third party, such party shall pay to AHDC the reasonable costs for the Project Documents, to be paid at the time of the transfer of the documents, unless otherwise agreed by the parties.

Notwithstanding anything to the contrary in this subsection (e), in the event that AHDC terminates the Agreement pursuant to Section 7(b)(iv) as a result of an adverse finding by MaineHousing after the completion of the Environmental Review Process, AHDC shall not be required to pay the Termination Fee to BGCSM. However in such event, AHDC shall assist BGCSM to find alternative means of complying with the Housing Replacement Ordinance as described above.

If the Agreement is terminated by mutual agreement in accordance with Section 7(c), neither party shall be under any further obligation hereunder.

9. Recording of Option. BGCSM and AHDC agree that this Option shall not be recorded. BGCSM agrees upon the request of AHDC to execute and deliver for recording a memorandum summarizing the terms of this Agreement (except the Purchase Price).

10. Notices. Except as provided in Section 3 above, all notices, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given on

the date of service if served personally on the party to whom notice is to be given, or on the first business day after mailing if mailed to the party to whom notice is to be given by first class mail, postage prepaid, registered or certified, return receipt requested, addressed to the recipient at the addresses set forth at the beginning of this Agreement. Either party may change its address for purposes of this Section by giving the other party notice of the new address in the manner described herein.

11. Assignment. Upon written notice to BGCSM, AHDC may assign this Agreement and all its rights and obligations hereunder to an entity affiliated with AHDC. Upon notice of such assignment, BGCSM agrees to look solely to such affiliate for performance of the obligations of AHDC hereunder.

12. Miscellaneous. Time is of the essence hereof. This Agreement and the JDA constitute the entire agreement between BGCSM and AHDC. There are no agreements or understandings between the parties except as set forth herein and in the JDA, and all prior agreements and understandings are superseded by this Agreement and the JDA. This Agreement will inure to the benefit of and bind the respective successors and assigns of BGCSM and AHDC. As used in this Agreement, the singular number shall include the plural, the plural the singular, and the use of one gender shall be deemed applicable to all genders. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same agreement. This Agreement shall be governed by and construed in accordance with the laws of Maine. If any provision of this Agreement is determined to be invalid or unenforceable, it shall not affect the validity or enforcement of the remaining provisions hereof.

IN WITNESS WHEREOF, the parties have executed this Option Agreement as of the date first above written.

WITNESS:

BOYS & GIRLS CLUBS OF SOUTHERN MAINE

_____

By:_____
Name: Colleen Cooper
Its: Chief Executive Officer

AVESTA HOUSING DEVELOPMENT CORPORATION

_____

By:_____
Name: Jennifer Hawkins
Its: President & CEO

JOINT DEVELOPMENT AGREEMENT

This Joint Development Agreement (the "Agreement") is entered into as of the 1st day of December, 2025, by and between **BOYS & GIRLS CLUBS OF SOUTHERN MAINE**, a Maine nonprofit corporation with a mailing address of 277 Cumberland Ave, Portland, ME 04101 ("BGCSM"), and **AVESTA HOUSING DEVELOPMENT CORPORATION**, a Maine nonprofit corporation with a place of business in Portland, Maine and mailing address of 307 Cumberland Avenue, Portland, Maine 04101 ("AHDC"), in connection with the Option Agreement to be entered into by BGCSM and AHDC on or near the date hereof (the "Option"). BGCSM and AHDC agree as follows:

1. Ownership. The Avesta Project shall be owned exclusively by AHDC or one of its affiliated special purpose entities. BGCSM shall have no ownership interest in the Avesta Project. AHDC shall have no ownership interest in the Clubhouse Expansion Project.

2. Community Room. In the event that AHDC exercises the Option, and proceeds to develop the Avesta Project, and if the Avesta Project includes community space for use by residents or community groups, AHDC agrees to negotiate in good faith with BGCSM to provide BGCSM with the right to use any such community space periodically for BGCSM purposes, without cost, on the condition that such use does not adversely affect the residents of the Avesta Project or prevent AHDC from using such community space for its own purposes. Nothing herein shall obligate AHDC to construct a community space within the Avesta Project.

3. Payment From BGCSM.

(a) At the time that AHDC closes on construction financing for the Avesta Project, BGCSM shall pay the amount of [redacted] (the "BGSCM Cash Contribution") to AHDC which AHDC shall use to defer development costs relating to the Avesta Project.

(b) In the event that the number of permitted units in the Avesta Project exceeds 35 units of housing, the BGSCM Cash Contribution shall be modified by reducing the total amount of the BGCSM Cash Contribution by [redacted] for each permitted unit over 35 units in the Avesta Project.

4. Post Closing Agreement. At the time of closing on the sale of the Property to AHDC or its affiliate, the parties shall enter into an agreement pursuant to which AHDC agrees to indemnify BGCSM for any liabilities imposed upon BGCSM by the City of Portland for failure to comply with the Housing Replacement Ordinance which is caused by AHDC's failure to build the Avesta Project (the "Replacement Housing Indemnity"). BGCSM's remedies under such agreement shall include return by AHDC of the BGCSM Cash Contribution to the extent of any damages incurred by BGCSM and reasonable attorney's fees and costs reasonably associated with enforcing the Replacement Housing Indemnity. The form of the Replacement Housing Indemnity shall be reasonably acceptable to both parties.

5. TENANT RELOCATION.

(a) To the extent that the Clubhouse Expansion Project requires the relocation of any tenants, BGCSM shall be solely responsible for all legal and regulatory compliance with such relocation, and with all costs associated therewith.

(b) Notwithstanding the foregoing, upon request by BGCSM AHDC shall offer any such displaced residents the opportunity to meet with staff of AHDC or its affiliates to provide support, counseling and assistance with respect to such relocations. In no event shall AHDC or any of its affiliates be obligated to provide any person with housing or other financial or material benefits other than as set forth in this subsection.

6. COOPERATION. BGCSM agrees to cooperate with AHDC as needed with respect to AHDC's submission of an application to the City of Portland for municipal approval of the Avesta Project, although BGCSM shall not be required to expend any of its own funds.

7. MISCELLANEOUS. This Agreement may be executed in multiple counterparts, each of which will be deemed the original, and all of which together will constitute a single instrument. Unless specifically defined herein, capitalized terms shall have the meaning given to them in the Option. The parties agree that this Agreement is deemed to be a part of the Option. For the avoidance of doubt, if the Option is terminated for any reason, this Agreement is also deemed to be terminated without either party needing to take any additional action.

IN WITNESS WHEREOF, the parties have executed this Option Agreement as of the date first above written.

WITNESS:

_____

_____

BOYS & GIRLS CLUBS OF SOUTHERN MAINE

By:_____
Name: Colleen Cooper
Its: Chief Executive Officer

AVESTA HOUSING DEVELOPMENT CORPORATION

By:_____
Name: Jennifer Hawkins
Its: President & CEO

ATTACHMENT 4
FINANCIAL CAPACITY

Bangor Savings Bank

March 9, 2026

City of Portland
Planning Department
389 Congress Street
Portland, ME 04101

RE: 15-19 Cedar Street, Portland

To Whom It May Concern:

On behalf of Bangor Savings Bank, I am pleased to provide this letter in support of Avesta Housing Development Corporation (AHDC) for the development of a 30-unit affordable housing project to be located at 15-19 Cedar Street in Portland, Maine. Bangor Savings Bank has worked with AHDC on multiple projects of a similar nature. Based on our prior experience working with the organization, we believe that the applicant has the ability to finance the proposed project costs. In addition, they possess the management skill and development expertise to successfully complete the proposed project.

While this letter of support is not a commitment to lend, Bangor Savings Bank would welcome the opportunity to be a resource for project financing. Please feel free to call me at 541-2707 with any questions.

Sincerely,

Shawn McKenna
Vice President
Commercial Banking

ATTACHMENT 5
TECHNICAL CAPACITY

Development Team

Jennifer Hawkins, President & CEO

Jennifer Hawkins has more than 20 years of leadership experience in the housing and community development sector. Having worked in San Francisco, New York City, Boston, and Rhode Island, she has cultivated a deep appreciation for place-based development and the intersection of health and housing, and the importance of addressing the root causes for housing insecurity while tackling the system changes required to remedy the country's housing shortage. Prior to joining Avesta, Jennifer served as president and CEO of One Neighborhood Builders in Providence, R.I., where she led transformative growth, pioneered innovative housing developments, and aligned housing policy with health equity and economic mobility outcomes. Her tenure was also marked by the successful cultivation of high-impact philanthropic partnerships. Jennifer holds a Bachelor of Arts degree from Connecticut College, a Master of Public Administration degree from New York University, and executive leadership certificates from the Harvard Kennedy School and Harvard Business School.

Patrick Hess, Director of Real Estate Development

Patrick Hess started at Avesta Housing in 2017 and was promoted to his current role in 2022. Patrick's development portfolio includes Deering Place (Portland), Unity Village (Portland), and Fox School (South Paris). Prior to Avesta, Patrick worked in a range of real estate, community, and economic development capacities for the City of New York, most recently as Chief of Staff for Development at the New York City Department of Housing Preservation and Development. He also worked on the construction of affordable housing with Habitat for Humanity – New York City as an AmeriCorps volunteer and site supervisor. Patrick earned a Bachelor of Arts in History from Boston College and a Masters of Urban Planning from New York University, Wagner Graduate School of Public Service. He was formerly certified with the American Institute of Certified Planners (AICP).

Todd Rothstein, Director of Construction Services

Todd Rothstein started at Avesta Housing in 2013 as the Director of Construction Services. He is responsible for overseeing design and construction of new developments and major-rehabilitation projects. Todd also works with our Property Management division staff to improve building efficiency to help ensure long-term sustainability of Avesta properties. Todd oversaw construction for River Turn (Conway, NH), Snow School (Fryeburg), and Wessex Woods (Portland). Prior to joining Avesta, Todd worked for a construction management company as Project Manager and Business Development Manager. Todd earned a B.S. in Education from S.U.N.Y. Cortland and ROTC Certificate at Norwich University Military Academy in Northfield, VT. He is a certified Passive House consultant. Todd is a member of Efficiency Maine's Low-Income Advisory Group and Governor Mills' Maine Climate Council.

Ryan Fecteau, Senior Development Officer of Planning and Partnerships

Ryan joined Avesta Housing in 2023. He is primarily focused on securing municipal approvals for proposed developments, fostering partnerships with the private sector, and addressing barriers to housing. He previously served as a policy advisor to Governor Janet Mills in 2023 and Speaker of the Maine House Representatives from 2020 to 2022. He also served as the Maine House Assistant Majority Leader and as Chair of the Committee on Labor, Commerce, Research, and Economic Development during his terms in the Maine Legislature from 2014 to 2022. Ryan earned a Bachelor of Arts degree in Politics from The Catholic University of America in Washington, D.C.

Catherine Elliott, Senior Development Officer

Catherine Elliott joined Avesta Housing in 2016 and was promoted to her current role in 2021. Catherine has managed all stages of renovation and development of multifamily rental housing, from land leads and municipal approvals to applications, contract negotiation, construction management, and closeout. She has experience with both 4% and 9% LIHTC deals and has developed properties in both Maine and New Hampshire, including Blackstone Apartments (Falmouth), Bartlett Woods (Yarmouth), Carleton Street Apartments (Portland), Gauvreau Place (Lewiston), and Porter Station (Portland). Catherine has been leading Avesta's involvement in the Choice Neighborhood scope since Avesta was selected as the development consultant.

Nate Howes, Senior Development Officer

Nate Howes joined Avesta in 2019 as a Development Officer. Nate's development portfolio includes West End I and II (South Portland), Village Commons (Scarborough), and Seavey Street (Westbrook). Prior to Avesta, Nate worked as a multifamily underwriter and low-income housing tax credit administrator for MaineHousing. At MaineHousing he oversaw projects from application to completion ensuring their financial solvency and regulatory compliance. Nate earned a Bachelor of Arts in History from George Washington University and a Master of Science degree in International Affairs: Conflict Studies from the London School of Economics and Political Science. He is also a certified tax credit underwriter under the National Development Council's Rental Housing Development Financial Professional (RHDFP) program.

Patraic Hodgson, Development Officer

Patraic Hodgson joined Avesta in 2021 as a Development Officer. Patraic's development portfolio includes River Turn I and II (Conway, NH), Meadowview II (Gray), and Foxwell Apartments (Kittery). Prior to Avesta, Patraic worked as an Asset Manager for Low Income Housing Corporation, Director of Property Management for Westbrook Housing Authority, Housing First Director for Family Aid Boston, Homeless Case Manager with the Committee on Temporary Shelter, and Affordable Housing Property Manager for the Burlington Housing Authority in Burlington Vermont. Patraic earned a Bachelor of Arts in English from Illinois State University and has over 20-years of affordable housing experience. Patraic's background in various affordable housing roles and practices provides paramount insights and tools for successfully navigating the affordable housing industry.

Heather Latham, Associate Development Officer

Heather Latham rejoined Avesta as an Associate Development Officer in 2024. Her development portfolio includes Edgewater Village (Farmington), Patriot Place (Sanford), and Alewive Park Road (Kennebunk). Previously, Heather was a Compliance Specialist for Westbrook Housing Authority

and a Senior Property Manager for Avesta Housing. She is a Tax Credit Specialist, HOME Compliance Specialist, Certified Occupancy Specialist, and HUD Accredited Compliance Expert. Heather earned a Bachelor of Arts in History from Wellesley College and a Master of Social Work from University of Michigan. She is a member of the NeighborWorks' 2025–26 Advancing Leaders in Real Estate cohort.

Victoria Volent, Associate Development Officer

Victoria Volent joined Avesta Housing as an Associate Development Officer in 2025. Prior to joining Avesta, Victoria supported the development of affordable housing as the Housing Programs Manager for the City of Portland. She is experienced with multifamily financing including the federal HOME program, LIHTC, and Tax Increment Financing. Victoria earned a Master of Public Policy and Management degree from the Muskie School at the University of Southern Maine. She served three terms on the Cape Elizabeth Planning Board, was a member of Housing Diversity Study Committee, and Cape Elizabeth Comprehensive Planning Committee.

Seric Kapp, Construction Services Project Manager

Seric joined Avesta Housing as a Construction Services Project Manager in 2021. In this role, Seric oversees all stages of design development for new construction and renovations, with responsibilities ranging from preconstruction and contractor selection to construction oversight, submittal review, and building start-up. He works closely with the development team and property management to ensure new developments and renovations meet the needs of Avesta staff and residents, as well as funders and municipalities. While at Avesta, Seric has been involved in Porter Station (Portland), Hillside Apartments (Gorham), and the HUD Choice developments, Wedgewood and DeWitt (Lewiston, ME). Prior to Avesta, Seric was a Superintendent at Consigli Construction, where he was responsible for onsite daily coordination, scheduling, safety and self-performing staff onsite. His work with Consigli included academic, healthcare, market rate and affordable housing projects. Seric graduated from Wentworth Institute of Technology in Boston, MA with a B.S. In Construction Management. He is also a PHIUS Certified Builder, OSHA certified, and licensed construction superintendent.

Stephen Estes, Construction Services Project Manager

Stephen Estes has worked at Avesta since January of 2011 and joined the Development Team in 2021. Stephen oversaw construction for Meadowview (Gray), Seavey Crossing (Westbrook), and Village Commons (Scarborough) UAB renovation (Portland) Marblehead Senior & Marblehead North renovations (Windham). Prior to that, Stephen was a Senior Maintenance Technician for Avesta's property management division and oversaw a portfolio of 67 buildings and 14 Maintenance Technicians as well as two Custodians in the Metro Region. As a result, he has invaluable experience from the management perspective, which makes him attentive and diligent to the practical needs in new construction and renovations. As a member of the Construction Services team, Stephen provides critical capacity in project management and oversight to ensure on time, on budget delivery of projects that meet Avesta's high quality and standards. Prior to that Stephen owned and operated a construction and renovation company in southern Maine for over 22 years where he built single family homes from the ground up.

INTRODUCTION TO BH2M

Berry Huff McDonald Milligan Inc. (BH2M) is a locally owned civil engineering, planning and surveying firm, founded in 1978. BH2M is headquartered in Gorham, Maine. Our multifaceted staff of 16 includes engineers, planners, project managers, construction managers, and land surveyors. Over the past 44 years BH2M has provided a broad spectrum of services including:

Surveying

- Boundary Surveys
- Topographic Surveys
- Existing Condition Surveys
- Utility Surveys
- As-Built Surveys
- Construction Stakeout
- Elevation Certificates and Letters of Map Amendment
- ALTA/NSPS Surveys
- Mortgage Loan Inspections

Engineering and Planning

- Municipal Engineering
- Roadway Design
- Pedestrian and Bicycle Enhancement
- Shared Use Paths
- Athletic Facilities
- Vehicular Access and Parking
- Site Planning
- Comprehensive Land Planning
- Construction Cost Estimating
- Environmental and Local Permitting
- Stormwater Management
- Erosion Control
- Wastewater Collection and Pumping Systems
- ADA Accessibility

BH2M is a small firm mostly comprised of staff members that have been with the firm for 20 years or more. Our size, ability to offer a variety of services in-house, and experience working with one another enables us to provide efficient and cost-effective solutions to municipal infrastructure projects.

CAPABILITIES

Surveying

BH2M has the benefit of offering a full-service survey department. Our survey department provides the foundation for each project we undertake. Having the ability to self-perform survey services provides us with a cohesive transition from field reconnaissance to design and then to construction. Typically, our Project Managers will accompany the survey crew early in the process. We've found this be an effective approach that reduces the time needed for field survey and guarantees that designers will have the critical information needed for an accurate design. Our survey staff is highly trained in property line, existing conditions, utility and topographic surveys as well as construction layout.

Civil Engineering

BH2M has provided developers, contractors, and municipalities with civil engineering services since our inception in 1978. Our Staff includes four Maine licensed professional engineers. We have provided civil engineering services for residential, commercial, municipal, institutional, and utility projects. Our Staff is highly skilled in roadway design, utility design, stormwater management design, and erosion & sedimentation control design

BH2M routinely supports developers, contractors, institutions, and municipalities by providing construction documents, contract documents, technical specifications, bidding support, assistance with bid selection, RFI responses, shop drawing reviews, value engineering, construction inspections, and stormwater compliance inspections. Our ability to lead a project from conceptual planning through construction is highly valued by our clients.

Planning and Permitting

Most of our projects require some level of environmental permitting. BH2M has a long history of managing regulatory constraints for municipal projects. Our Staff has a constant dialogue with regulators at the State and Federal Levels. Our environmental and municipal permitting expertise includes:

- Stormwater Management Law
- Site Location of Development (Site Law)
- Maine Construction General Permits
- Natural Resource Protection Act (NRPA)
- Municipal Site Plan, Subdivision, and Conditional Use
- Traffic Movement, Driveway/Entrance, and Utility Location Permits

INVIVID ARCHITECTURE

Architectural Team – Technical Capacity

Invivid Architecture is a Portland, Maine–based architecture and design firm specializing in multifamily housing, mixed-use development, and the rehabilitation of historic structures. The firm is known for delivering thoughtful, high-quality design solutions that balance aesthetics, constructability, sustainability, and cost efficiency.

Founded by architect Virginie Stanley, Invivid Architecture brings extensive experience in the design and execution of housing projects ranging from market-rate and condominium developments to affordable housing and adaptive reuse. The firm's work spans new construction, historic rehabilitation, and urban infill development, with a strong emphasis on creating durable, context-sensitive buildings that contribute positively to their communities.

Invivid Architecture provides comprehensive architectural services from early feasibility and planning through construction administration. The firm works closely with developers, municipalities, consultants, and contractors to guide projects through complex regulatory and funding processes, including zoning approvals, historic review, and affordable housing financing requirements.

Key capabilities include:

- **Multifamily Housing Design:** Market-rate, condominium, and affordable housing developments of varying scales.
- **Adaptive Reuse and Historic Rehabilitation:** Experience navigating historic tax credit requirements and preservation review processes.
- **Urban Infill and Mixed-Use Development:** Projects that integrate residential, commercial, and community uses within dense urban environments.
- **Sustainable Design:** Emphasis on durable materials, energy-efficient building systems, and long-term operational performance.
- **Collaborative Project Delivery:** Close coordination with owners, consultants, and construction teams to ensure projects are delivered on schedule and within budget.

Invivid Architecture's portfolio includes projects across Maine that range from small urban infill condominium developments to large multifamily communities and complex adaptive reuse projects. The firm is recognized for its ability to bring creativity and technical expertise together to deliver well-designed buildings that meet client goals while enhancing the built environment.

ATTACHMENT 6
SITE PLAN STANDARDS NARRATIVE

Attachment 6 - Site Plan Standards Assessment

The project proposes to meet the requirements of the Major Site Plan Review Standards, Section 13.6 of the Land Use Code, detailed below.

Section 13.6.1 Transportation Standards

A 1&2: For impacts on surrounding street systems, this project will have minimal impact on traffic. The project is proposed as a low-income housing project. Given the nature of the typical tenants of these buildings, there is virtually no automobile ownership. Most residents would typically be using public transportation or bicycles, and given this, should not noticeably impact the surrounding streets or substantially increase congestion.

B 1 a-c: The project proposes to have pedestrian access to an on-site sidewalk to the regular entrances on the east side of the building, as well as a main entrance along Cedar Street. For vehicles, the project proposes a minimal driveway, with a 10' width to best accommodate the building and minimize impacts to abutting properties. In discussions with the Portland Fire Department, they have requested that parking along the frontage of the building down to Oxford Street be eliminated to facilitate emergency response. Given the narrow width of Cedar Street, a truck turn into a proposed driveway for the project would not be feasible, and the Fire Department does not intend to use the proposed driveway for emergency calls to the proposed apartments.

B 1 d: There are no public or private trails abutting or traversing the property, and no connections are proposed.

B 1 e: Given that Cedar Street is a one-way street, there will not be any conflicts with turning movements.

B 2 a-d: The project proposes to restore the brick sidewalk along the frontage of the proposed development, as this sidewalk has multiple existing curb cuts and utility services, and will likely need to be disturbed for construction of the building. The project will replace or repair the brick sidewalk and reestablish curb lines as necessary to provide a sidewalk compliant with the City's standards. No waivers are proposed or required.

C 1-3: The project proposes 30 units over a gross floor area of 26,130 sq. ft., qualifying for requiring a transit shelter. Reviewing nearby transit shelters, there is a transit shelter located along Congress Street in front of the Portland Public Library along an approximate 1,100 foot walking path. This meets the requirement for a shelter within ¼ mile of the proposed development.

D 1 a-c: Given the limited on-site areas, there is no on-site parking proposed with this development.

D 2 a&b: For multi-family development, table 18-A of the land use code requires 1 bicycle parking per 2 dwelling units. For the 30 units proposed, the project proposes indoor storage areas to accommodate 15 bicycles, meeting these requirements.

D 3 a&b: Given the limited on-site area available, straight driveway area, and transformer position at the end of the driveway, there is limited space for snow storage on site. There will be some area along the east side of the driveway for limited snow storage, but in general, the snow will have to be removed and disposed of off-site. With Avesta's headquarters and other managed developments located in close proximity to this development, snow removal will be accomplished in conjunction with these other developments. Snow will not be stored within the ROW of Cedar Street, or on- or off-site pedestrian areas.

D 4: There is no on-site parking proposed, and given this, there are no EV charging requirements for this project.

E: As this project is not proposed as commercial, institutional, or mixed use, a TMD plan is not required.

Section 13.6.2 Environmental Quality Standards

A 1-3: The project proposes to meet the Low Impact Development (LID) requirements of the City of Portland. See the LID Scoring Tool included in this submission as Attachment 8 for details.

B 1 a-c: Given the size of the proposed building, width of sidewalks, and proximity of existing abutting development, the project does not provide sufficient room for shade trees. However, the project does propose to construct a Focalpoint high performance modular biofiltration system, and with the construction of this, will propose to install approximately 25 sq. ft. of perennials in compliance with Focalpoint design standards. These plantings appear to meet the requirements of the on-site landscaping standards.

B 2 a-d: No areas of screening are required given the proposed development.

B 3 a-c: No areas of parking are proposed. The driveway areas are for use by service vehicles only, and no long term parking will be permitted.

B 4: The non-vehicular hardscape areas proposed for the project comprise of a sidewalk adjacent to the building, and purpose to have areas of awnings over the exterior doors.

B 5 a-c: The project has approximately 73' of frontage along Cedar Street. Where City code requires trees every 25-35 linear feet, the project proposes 2 street trees along the areas of reconstructed sidewalk. Given the centrally located main entrance, 2 trees work best for layout of the building and service utilities.

C 1-4: The project proposes to meet the applicable water quality, stormwater management, and erosion control requirements of the City of Portland. See the project Stormwater Report included as Attachment 13 for details on stormwater management.

Section 13.6.3 Public Infrastructure and Community Safety Standards

A 1&2: The project is in general conformance with the City's comprehensive plan. As part of the comprehensive plan, one of the stated goals is to promote a more "Livable City" by creating more affordable housing. Given that this project is proposing to develop a project focused on low-income housing, this lowers the barriers to access of decent, safe, and affordable housing.

B 1: Where this project is proposed as a low-income housing development, there are aspects of security that are proposed as part of the project. There will be staff on site to manage some aspects of the tenant's transition to being recently housed. Layout of the site will offer good sight lines for outside areas with a straight driveway and easily accessible entrances into the building.

B 2: For emergency access, we have been in contact with the Fire Department and discussed access to the site for emergency response. Given the narrow road with as existing for Cedar Street, it was determined that a project driveway would not offer appropriate access given the compromised turning radius for fire apparatus. The Fire Department has requested that the on-street parking along Cedar Street from the frontage of the project to the corner of Cedar and Oxford Streets be a no-parking zone to allow for emergency response parking and for deployment of a ladder truck on Cedar Street. We have included our correspondence with the City of Portland Fire Department as Attachment10

C 1: The project proposes to utilize public utilities for Water, Sewer, Drain, Electricity, Communications, Natural Gas and Water. We have been able to coordinate with Portland's Public Works Department and have generally discussed that there is available capacity to service the project for Sewer and Drainage, and have provided a Stormwater Report as Attachment 13 of this submission for their use in final review. We have letters from CMP and from Unitil stating that there is capacity to service the project included as Attachment 9. We have also been in discussion with Portland Water District, and in order to issue an Ability to Service letter, they require fire service calculations that will be conducted as part of final construction level design documents. PWD does have an existing water main along Cedar Street that would generally be available for service connections. For the purposes of finding this application complete, the project would request final coordination with utilities be made a condition of approval prior to construction.

C 2: Electric and Communication services are proposed to be routed underground from an existing pole along Cedar Street and run to a transformer at the rear of the project, then continuing underground to the building.

C 3 & 4: We have been in contact with the City's DPW to discuss impacts to the combined sewer for the project, and in general, found that the combined sewer has capacity to support development of the project. The project proposes two connections to the sewer, one being a 6" sewer service line, and a second being an 8" drain service line. The project proposes to utilize an underground storage array that complies with requirements to retain a volume of water equal to 1" rainfall over the project's impervious areas as well as the daily sewer

volume to help maintain capacity of the combined sewer system. The project also provides storage of stormwater to maintain pre-development run off conditions up to the 25-year storm. Details of this can be found in the Stormwater Report, included as Attachment 13.

C 5: The project proposes to use a trash room integrated into the building design. Trash will be stored inside of the secure room, effectively screened from the public, and will be serviced by Avesta's designated Project Management Company on a regular basis to remove waste and recycling. Facilities will be made available for separate recycling and general waste. This room will be screened from the public, and provide mobile totes or waste receptacles for all solid wastes.

Section 13.6.4 Site Design Standards

A 1&2: For HVAC, the project proposes to utilize heat pumps to provide temperature control of the building. The project will propose natural gas powered domestic hot water systems, and the exhaust for these will likely be directed to the area of the driveway along the east side of the proposed building.

A 3: The project will propose roofing materials and treatments that will meet the City's SRI requirements.

B: The project is proposed to be just under 55' tall, and is not applicable to the shadow standards for projects over 65'.

C: The project does not anticipate any snow and ice loading from roof top areas. The roof on the building is proposed as a flat roof, and should not result in snow and ice sliding off onto adjacent properties or public areas.

D: The project is not located along any view corridors.

E: The project is not located in a historic district.

F 1&2: The project will propose lighting that would be generally limited to illuminating doorways and areas of egress. Lighting is proposed to be full cutoff and in conformance with the Technical Manual standards.

F 3: No street lighting is proposed as part of development of this project.

G: All HVAC and other mechanical components will be industry standard, meeting applicable state and federal emission, vibration, and noise standards. Heat exchangers for HVAC will be mounted on the roof of the building, and away from abutting properties. Exhaust for domestic hot water will be directed towards the driveway and/or rear of the building.

H: No wayfinding signs are proposed as part of this development. The only signs being considered would be along the face of the building for naming of the building and addressing.

I: The project will meet the requirements of the Design Manual, taking into account Appendix 5, RN-4 Development Design Principles & Standards.

ATTACHMENT 7
CITY OF PORTLAND SITE DATA FORM

City of Portland Site Plan Form

Part 1. Project Description & Site Information			
Application type:	Major Site Plan	Submission type:	Initial Submission
	Address:	CBL number:	Lot area (square feet):
Main property:	15 & 19 Cedar Street	Map 26 Lots 14 & 15	8,978
Additional properties (if applicable):			
Project description:	Project proposes to construct a 30 unit low income housing apartment building		

Type(s) of work: (Select which type(s) of work apply from the dropdown list. If not applicable, select N/A.)	
New residential construction or additions	5 or More Dwelling Units
New non-residential construction or additions	
Creation of disturbed area	
Creation of impervious surface	
Construction or paving of parking	
Change of use	

Does this project include State or Federal funding, permits, review, or sponsorship?				▪ Yes	☐ No
If yes, list applicable entities:	Maine Housing, HUD				
Associated applications: (Check all that apply)		☐	Maine DEP- GC Permit	☐	Subdivision
☐	Army Corps of Engineers General Permit	☐	Maine DEP - NRPA	☐	Traffic Movement Permit
☐	Floodplain Development Permit	☐	Site Location of Development	☐	Zoning Amendment
☐	Harbor Commission Construction Permit	☐	Stormwater Quality	☐	Other:

Part 2. Use Information				Total Existing	Total Proposed	Net New
Residential	General	Residential floor area (square feet)			26,130	26,130
		For Group Living uses with no dwelling units, list the number of rooming units				
		Dwelling units			30	30
		Ownership units				
		Rental units			30	30
	Bedrooms	Studio units				
		1-bedroom units			26	26
		2-bedroom units			4	4
		3-bedroom units				
		4+ bedroom units				
	Affordability	Market-rate units				
			% AMI			
			% AMI			
			% AMI			
Non-Residential		Commercial/Service floor area (square feet)				
		Industrial floor area (square feet)				
		Institutional floor area (square feet)				
		Other floor area (square feet)				

Part 3. Inclusionary Zoning			Total Existing	Total Proposed	Net New
Inclusionary Zoning (IZ) dwelling units					
Ownership IZ units		% AMI			
Rental IZ units		% AMI			
Bedrooms	Studio IZ units				
	1-bedroom IZ units				
	2-bedroom IZ units				
	3-bedroom IZ units				
	4-bedroom IZ units				
IZ fee-in-lieu	$ for	of the required	IZ dwelling units		

City of Portland Site Plan Form

Part 4. Building & Site Metrics	Total Existing	Total Proposed	Net New
Number of buildings		1	1
Building floor area (square feet)		5,226	5,226
Building footprint (square feet)		5,226	5,226
Street trees		0	
Automobile parking spaces		0	
ADA-accessible parking spaces			
Compact parking spaces			
Level 2 Electric Vehicle (EV) charging spaces			
Level 3 Electric Vehicle (EV) charging spaces			
Bicycle parking spaces		15	15
Number of water service connections		2	2
Number of sewer service connections		2	2
Impervious area (square feet)		6,778	6,778
New developed area (square feet)		0	
Non-roof redeveloped impervious area (square feet)		1070	
Limits of disturbance (square feet)		8978	
Alteration to wetlands or watercourses (square feet)		0	

Part 5. Zoning (You can use this link to view the zoning for your property)

Base Zone	RN-4		Base Zone #2 (if applicable)		
Local Historic District?		Overlay Zone #1 (if applicable)		Overlay Zone #2 (if applicable)	

Zoning Standards – Project Site	RN-4 Requirements	Proposed	Requirements	Proposed
Lot area (square feet)	725	8978		
Street frontage, Minimum (feet)	20	73		
Lot coverage, Maximum (%)	60.0	58		
Landscaped open space ratio, Minimum (%)	20.0	25		
Build-to Zone (feet)				
Build-to percentage, Minimum (%)				
Blank wall area, Maximum (feet)				
Additional standard:				

Zoning Standards by Building (Use Extra Sheets if >2 Buildings)	Building #1 Zone Requirements	Proposed	Building #2 Zone Requirements	Proposed
Front setback, Minimum/Maximum (feet)	5	2		
Rear setback, Minimum (feet)	10	10.5		
Side setback, Minimum (feet)	5	5		
Structure height, Maximum (feet)	55	54.92		
Additional standard: Units@Zoned Density	12.0	30		

Affordable Housing Density Bonuses (if applicable)	Maximum Allowable with Bonus	Proposed
Density, Maximum (x base)	30.95	30
Height, Maximum (feet)		

If Needed, Explanatory Text Can Be Provided Below

Project proposes all units to be low-income, given 725 sq/unit for multi family construction in RN-4, 8978/725 = 12.4 units x 2.5 = 30.95 units with density bonuses; project proposes 30 units. For building height, while the RN-4 zone states 45', the Portland Maine Height Map shows 55' for this neighborhood.

ATTACHMENT 8
LOW IMPACT DEVELOPMENT SCORING TOOL SPREADSHEET

City of Portland ME: Low-Impact Design Requirements

Owner / applicant name:	Avesta Housing			
Representative name:	BH2M			
Project address:	15/19 Cedar Street			
Project CBL:	Map 26 Lots 14 & 15			
Application ID (if known):				
	Maximum Points	**How to Apply**	**Points Awarded**	**LID Standard / Approach**
CORE METHODS: Wetlands, Streams, & Drainage				
Protect natural drainage paths	Required			
Shoreland Zoning	Required			
Meeting DEP and ACOE standards for stream crossings	Required			
Protect wetlands	**12**	Select one option	**12**	Select a site that does not have wetlands or vernal pools = 12pts
				Project maintains a 50' set-back / no-disturb buffer to all wetlands = 10pts
				Project maintains a 25' set-back / no-disturb buffer to all wetlands = 7pts
				Project does not place structures in wetlands and avoids wetlands impacts from construction and stormwater discharges = 5pts
				Project replicates impacted wetlands elsewhere on site or within watershed = 3pt
				Project pays wetlands impact fee = 0pts
Permanently protect stream (intermittent and perennial) and riparian buffers *(exclusive of approved stream crossings; must include a no-disturb zone with markers installed and deed restriction recorded at registry of deeds)*	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Permanently protect all 100ft shoreline buffers = 10pts
				Permanently protect all 75ft shoreline buffers = 7pts
				Permanently protect all 50ft shoreline buffers (intermittent streams) = 6pts
				Permanently protect all 50ft shoreline buffers (required minimum for perennial streams) = 5pts
				Permanently protect all 25ft shoreline buffers (required minimum for intermittent streams) = 5pts
Stream crossings	**12**	Select one option	**12**	Select a site with no streams = 12pts
				Avoid any stream crossings = 10pts
				All stream crossings use a bridge or open bottom culvert structure sized at 1.2 times the bank full width of the stream = 10pts
				All stream crossings use Maine Stream Smart Principles to preserve natural pre-development drainage pathways = 6pts
CORE METHODS: Natural Areas & Habitat				
Preserve threatened or endangered species habitat	Required (Beginning with Habitat Maps at a minimum)			
Protect 30% of trees over 10" DBH	Required (Tree survey required)			
Protect intact, contiguous forests and native trees over 10" DBH	**8**	Select one option	**8**	All development and land disturbance outside of existing wooded/forested areas (no site clearing in prior 10 years) = 8pts
				Protect 50% of trees over 10" DBH = 6pts
				Protect 40% of trees over 10" DBH = 4pt

CORE METHODS: Soils & Slopes				
USDA Web Soil Survey	Required (provide details how soil limitations will be mitigated)			
Avoid steep slope disturbance	5	Select one option	5	Selecting a site without slopes 15% or greater = 5pts
				Maintain >20' undisturbed vegetated buffer to all slopes 15% or greater = 3pts
				Maintain 10-20' undisturbed vegetated buffer to all slopes 15% or greater = 2pts
				Maintain 1-10' undisturbed vegetated buffer to all slopes 15% or greater = 1pt
				Disturbance of any slope 15% or greater = 0pts
Protect soils	5	Select one option	5	Redevelopment sites = 5pts
				Detailed, site-specific soil survey; preparation of a Soil Management and Protection Plan; protect highly permeable soils = 5pts
Limit site disturbance and earthwork	8	Select one option	8	Redevelopment limits disturbance to existing footprint = 8pts
				New development disturbs less than 50% of existing undeveloped site area = 8pts
				New development disturbs less than 75% of existing undeveloped site area = 6pts
				New development disturbs greater than 75% of existing undeveloped site area = 0pts
Soil preparation & minimizing compaction	6	Select all options that apply		Till soils to a depth of at least 10" prior to revegetation = 3pts
				Organic matter amendments as needed based on soil tests = 3pts
CORE METHODS: Landscaping				
Low-Impact Landscaping	6	Select all options that apply		Redevelopment sites reduce lawn area by 50%, provided no increase in impervious area (lawn becomes landscaping) = 2pt
				New development results in >50% non-impervious developed area is landscaping = 2pt
				Use only native vegetation for landscaped areas = 2pts
				Using only locally-sourced landscape materials = 2pt
CORE METHODS: Impervious Area & SW Management				
Meeting City's stormwater management standards	Required			
Reduce impervious and increase permeable surfaces	10	Select all options that apply, up to a maximum of 10 points		50% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 6pts
			4	Minimize parking impervious area by using only the minimum required number of parking spaces, the minimum required parking lot dimensions, maximizing compact spaces and utilizing low-turnover standard parking space width reductions = 4pt
				25% or more of proposed hard surfaces are permeable (porous pavers, permeable concrete, porous asphalt) = 3pts
			2	Minimize roadway impervious area by developing roadways and driveways at the minimum width and using minimum number of curb cuts = 2pt
			2	Reducing the number of driveways by using a shared driveway design = 2pt
				Providing transportation alternatives (such as bike share, car share, or similar) = 2pt
Use GI / natural stormwater treatment systems	12	Select all options that apply	6	Treatment requirements and conveyance achieved through vegetated systems = 6pts
			3	No more than 1-acre of drainage per treatment system = 3pts
			3	Increase time of concentration on site (1" 25 year storm event) = 3pts
Limit / eliminate salt use	4	Select one option		Detailed winter maintenance agreement, with annual reporting requirement, limiting chloride use (required in UIS watersheds) = 4pts

Bonus Points				
Bonus points are offered for strategies that may go above and beyond typical approaches; may offer particularly innovative site design or engineering ; or may help achieve the larger goal of low-impact development on a regional scale.	10			Utilizing structured parking = 10pts
	10			Utilizing a green roof for at least 50% of a newly developed or redeveloped building roof = 10pts
	10			Restoration of previously disturbed natural resources (minimum 500 square feet of restoration) = 10pts
	10			BMPs designed for known water quality impairment within watershed = 10pts
	10			Connecting to City sewer from a site >200 ft from existing City infrastructure = 10pts
	6			Detention of 1.5 times the required volume = 6pts
	6			Treatment for 1.5 times the required water quality volume = 6pts
	6		6	Innovative LID site design and/or stormwater improvement - 6pts
	10			Establishing a Traffic Demand Management plan for projects under 50,000ft = 10pts
	Total Possible Points **178**		**Total Points Awarded** **88**	**Minimum points required for approval of LID strategies and techniques** **80**

ATTACHMENT 9
UTILITY CAPACITY LETTERS

Chris MacDonald

To: John Tarr
Subject: RE: CMP Three Phase Service Process and Ability to Serve Letter Feb 2026 15 Cedar St Portland

From: HALEY, MASON <mason.haley@cmpco.com>
Sent: Tuesday, February 17, 2026 8:34 AM
To: John Tarr <tarreng@outlook.com>
Cc: COUGH, JAMES <jcough@cmpco.com>
Subject: CMP Three Phase Service Process and Ability to Serve Letter Feb 2026 15 Cedar St Portland

John Tarr

RE: 15 Cedar St Project
15 Cedar St Portland ME, 04101
Letter of Ability to Serve Request

SAP TBD
Project Description:
Avesta proposes to construct a 30-unit low-income apartment project along Cedar Street in Portland. The existing approximate 9000 sq. ft. lot had been previously developed and supported 2 single family homes. The project proposes to redevelop the site to include a single 30-unit apartment building, a driveway and walkway, developed as a typical urban infill project with minimal landscaping and other site improvements. The project proposes 26 single-bedroom and 4 two-bedroom apartments. The project will propose to have an elevator and will require 3-phase power. The proposed mixed residential development is expected to provide 31 units as follows:

- 26 Single-Bedroom Units
- 4 Two-Bedroom Units
- 1 House Meter

CMP has the ability to serve the proposed project in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, please contact CMP at 800-565-3181

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let us know. The underlined links will redirect you to the appropriate site for additional information.

Service Milestones for Three Phase Services and CT Rated Single Phase Services:

- Call 800-750-4000 option 4 to establish a new account (if needed) and an SAP work order. Please provide both of these to me.
- Submit Load information. Please complete the attached EDET (excel file) using load information. Please complete this and email back to me. If the loads are over 500 kw, more in depth load studies may be required with our Distribution Planning and Transmission Planning Departments. Be advised that these may involve more detailed load information, a load study agreement (signed contract), as well as other items. This additional study process may add up to two additional months to completion of the job.

- Submit the easement information worksheet, including where any CMP structures may be on ANY private property (Poles, Wires, Anchors). You are responsible for obtaining all information for all required easements. Please complete this form and either email or fax back to me.
- Submit any electronic drawings (PDF (preferred) or DWG files) of the site layout and proposed electrical connections.
- For Primary Metered installations (including PV), please have the access road in for pole staking.
- Preliminary meetings with CMP Advisor and Engineer to determine details of job (I will need to schedule with your electrician/contractor-please let me know who this is)
- Field planner design appointment scheduled once the preliminary information is complete. This will allow us to cost out the job and develop a CMP Invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- Submit completed W9 so that your bill can be properly processed. This is a new CMP process.
- CMP submits invoice to the customer for payment (typically via email). Payment received from customer.
- Easements (based on easement information worksheet) sent out, signed and originals returned to CMP.
- Job scheduled for completion after payment, easements and the electrical inspection have been received.

There are additional requirements for primary metered Solar Service Installations listed in the Chapter 324 Interconnections section below. Please refer to CMP Installation Checklists for other installations.

This process can take several months, depending upon several factors including transformer or materials delivery, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to bring your project on line.

As you may be aware, there are global supply chain issues impacting the utility industry. CMP is closely monitoring and managing their inventory in order to serve our customers. Larger padmount transformers may not be readily available for the date that you will need to be energized. Please consider this as part of your construction plan. The energy service advisor will continue to work closely with you and let you know as soon as the transformer becomes available. Should you have any questions or concerns throughout this process, please do not hesitate to contact your ESA directly at the number or email provided.

Please complete the attached forms (the specific instructions are on each form). Please email them at your earliest convenience. If you are returning an Easement Form, a 1190 or State Permit please be sure to send those documents to lineclerknewservice@cmpco.com, All W9's should be sent to gettingconnected@cmpco.com. All other forms including the EDET (load sheet) and technical information should be sent to me.

For your convenience, here is a link to the CMP Website which contains our Handbook with details on most service requirements: CMP Handbook of Standard Requirements Additional resources include our CMP Metering Supplement is our Distribution Construction Standards: CMP Distribution Construction Standards CMP Distribution Construction Standards.

You will be responsible for installing the customer connections, conduits, and metering in accordance with the CMP Handbook of Standard Requirements The transformer will be sized based on your submitted load sheets.

Your deposit amount will be typically based on an estimated two month bill, calculated from your completed load sheet unless otherwise determined by CMP.

In addition, we have recently added on an online map that shows single phase and three phase power locations within CMP. Here is that link: CMP ArcGIS Information

Metering:

All metering (including locations) must be preapproved by CMP. If you have any questions, please consult the CMP Handbook of Standard Requirements and our CMP Metering Supplement.

Chapter 324 Interconnections:

Please be advised that if you plan to install solar/wind/hydro generation, you must complete an application under the MPUC mandated Chapter 324 Interconnection Standards. If you go to Chapter 324 Interconnection Standards and follow the instructions for the Small Generator Interconnection Procedures, CMP can do this work in parallel to your service request that will be handled by me. If you project is under 660 KW You will be able to have a Customer Net Energy Billing contract. Information concerning Customer Net Energy Billing can be accessed thru the Chapter 324 website or by clicking here: Net Energy Billing

Reallocation/Line Extensions:

Recently, changes were made to the three-phase construction policy, which require CMP to reallocate construction costs paid by customers. If applicable, those projects identified as "developments" do not qualify for reallocation of funds. Please see this document at our website for details about the reallocation conditions. Any reallocation charges will be specifically denoted on your invoice. The website address for this is: Polyphase Line Extension.

This line extension will be part of Central Maine Power's distribution system. In the event the property served under this Agreement is sold or otherwise conveyed, all rights and obligations of the Agreement shall stay with the property. Please note that if you rent or lease this property to another and you want to receive the reimbursement payments, you must make special arrangements with the Central Maine Power Company. Otherwise, any reimbursement payments will be sent to the "Customer" taking service at the service location.

Electricity Supplier Information:

Central Maine Power Company (CMP) will provide your facility with electric delivery service. If you don't already have a provider, you will need to make arrangements with a competitive electricity provider in order to receive electricity supply for your facility. In the event you fail to choose a competitive electricity provider, you will receive Standard Offer service arranged by the Maine Public Utilities Commission. If you wish to be served by a competitive electricity provider immediately upon establishment of delivery service, you must arrange for this service directly through your chosen competitive electricity provider, who must enroll your account no later than 5 PM on the business day prior initiation of delivery service by CMP. An up-to-date list of competitive suppliers can be found at the:

1. Maine Public Utilities Commission (MPUC) web site- **Maine PUC**
2. By calling the MPUC at (207) 287-3831

Attachments:

Easement Worksheet and Sample Standard Easement
W9
CMP EDET (Load Sheet)

Mason Haley
ESS, Portland
Cell 207-383-5263
Mason.Haley@cmpco.com

In the interest of the environment,
please print only if necessary and recycle.

March 6, 2026

BH2M
380B Main Street
Gorham, Maine 04038

Attn: **Chris McDonald**

Subject/Description of project: - 15-19 Cedar St., Portland apartment building
15-19 Cedar St., Portland - Ability to Serve Request

Re: Natural Gas Ability to Serve Response

Dear Chris,

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

This is to confirm that Unitil has a gas main on Cedar St. in Portland. Once the gas load and number of meters have been determined, please email me back so that we can have engineering to determine if any system improvements are required. Based on what you and I spoke about, I do not expect any issues serving the project.

If you have any further questions or require additional information, please contact me at 207-541-2543 or email at carpenters@unitil.com.

Sincerely,

Scott Carpenter

Scott Carpenter
Senior Business Development Representative
207-541-2543

ME GAS OPERATIONS
376 Riverside Industrial Parkway
Portland, ME 04103

T 866.933.3821 www.unitil.com

ATTACHMENT 10
CORRESPONDENCE WITH PORTLAND FIRE DEPARTMENT

Chris MacDonald

From: Jason Grant <jgrant@portlandmaine.gov>
Sent: Wednesday, January 7, 2026 11:23 AM
To: Chris MacDonald
Cc: Todd Rothstein; Ryan Fecteau; C1 Chad Johnston; Fire Prevention; Life Safety Reviews
Subject: Re: 15 & 19 Cedar Street - Fire Access Sketch Plan

Chris,

The fire department access for the proposed building would all be from Cedar Street. The previously proposed driveway would likely be difficult to turn into from the narrow Cedar Street, even at 20 feet wide, and would be too close to the building to operate in a fire condition. So speaking from a fire department point of view only we do not have any requirements for the driveway width.

Jason Grant CFPS, CFI-2, CFPE
Fire Marshal
Portland Fire Department
Fire Prevention Bureau
fireprevention@portlandmaine.gov
207-874-8400 Option 1

On Mon, Jan 5, 2026 at 2:51 PM Chris MacDonald <cmacdonald@bh2m.com> wrote:

> Good afternoon Jason,
>
> About a year ago we had worked together on initial design discussions for a 30-unit apartment building proposed along Cedar Street. The project had been through a bit of a pause since our last conversation, and we are now working through details and moving the design forward. Wanted to confirm the design requirements as we last left off.
>
> Following up on our correspondence below, it was generally agreed upon that OFF-SITE parking in front of the proposed building to the corner of Oxford Street would need to be eliminated, as well as a full NFPA 13 fire sprinkler for the proposed building. Our plans had also showed a 20' wide driveway along the eastern side of the building. I've included a copy of the last plan provided and your markups. Since that time, we have also started working through the concept layout with real survey data of the property boundaries, and have attached a recently developed Concept Site Plan for this discussion.
>
> As we tune up the details on the property boundary and building placement, I wanted to confirm the Fire department's needs on driveway width for the ON-SITE areas. The project generally proposes to provide

site access for maintenance and parking on the east side of the building, but given the proposed building footprint and property boundaries, the site yields 20' from the edge of proposed building to the eastern property line. We are suggesting a narrower driveway along the east, something wide enough to accommodate parallel parking and access to a dumpster, but likely not the typical 20' wide that the fire department would require for access, given the narrow available property remaining.

Can you please clarify that driveway width for the ON-SITE parking area would not be subject to minimum widths for emergency access needs? Can you also confirm all fire and emergency response needs would be met by the off-site parking changes and sprinklers.

Thank you,

-crm

Christopher MacDonald, P.E.

Civil Engineer

BH2M

380B Main Street

Gorham, Maine 04038

207 839-2771 x 203

www.bh2m.com

From: Jason Grant <jgrant@portlandmaine.gov>
Sent: Monday, February 24, 2025 10:08 AM
To: Chris MacDonald <cmacdonald@bh2m.com>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>; Matt Grooms <mgrooms@portlandmaine.gov>; Todd Rothstein <TRothstein@avestahousing.org>; Ryan Fecteau <RFecteau@avestahousing.org>; Virginie Stanley <virginie@invividarchitecture.com>; Taejoo Jeon <taejoo@invividarchitecture.com>; Joseph Harvey <JHarvey@avestahousing.org>; C1 Chad Johnston <johnstonc@portlandmaine.gov>; Fire Prevention

<fireprevention@portlandmaine.gov>; Life Safety Reviews <Lifesafety@portlandmaine.gov>
Subject: Re: 15 & 19 Cedar Street - Fire Access Sketch Plan

Chris,

We have developed a compromise design that will provide an acceptable level of fire department access and building protection. We propose no parking from the top edge of the property line down to the corner of Oxford Street (see attachment). Additionally, we will require that the building be equipped with a full NFPA 13 sprinkler system rather than a 13R system, which may have been permitted, depending on the building's design. We feel that the no parking area and fire protection provided by the full sprinkler coverage will provide an acceptable level of safety for the project. Please let me know if you have any questions or concerns.

Jason Grant CFI-2, CFPE

Fire Marshal / Fire Prevention Coordinator
Portland Fire Prevention Bureau
fireprevention@portlandmaine.gov

On Tue, Feb 18, 2025 at 11:11 AM Chris MacDonald <cmacdonald@bh2m.com> wrote:

> Good morning Gentlemen,
>
> Following up from our February 5, 2025 Pre-application meeting for Avesta's Cedar Street project, please find the attached sketch plan for fire department access to the proposed 30-unit residential housing project along Cedar Street.
>
> This plan is being provided to the City to follow up on specific concerns that came up during the pre-application meeting. At that meeting, we discussed the current configuration of Cedar Street, with the street being 20' wide curb to curb, one way direction of travel, and parking along the east side of the street. Jason Grant had reiterated a concern that the street is not wide enough to allow for a ladder truck to be deployed given the current on-street parking. There was a concern about the out riggers on

the ladder truck not being able to deploy with cars parked along the street. During that meeting, it was requested that a sketch plan of what is being considered be presented to the City for review.

As you will see in the attached concept, the project proposes to eliminate on-street parking along the frontage of the building. The project is also conceptually proposing a drive and parking isle for limited off-street parking on the project site. While we understand this drive isle may not be applicable to ladder trucks or other larger vehicles, there may be use for smaller vehicles / ambulances to be able to have off street parking to service the building.

We are looking to continue the fire access conversation for this project and get a green light from the City that a project of the density and size being considered is appropriate for these addresses and can be supported by emergency services.

If you could, please let us know if you have any comments or questions on fire department access. We are happy to jump on a group call if you would like to discuss details of what is being proposed, or to discuss what modifications we may be able to make to bring this project into better conformance.

Thank you,

-crm

Christopher MacDonald, P.E.

Civil Engineer

BH2M

380B Main Street

Gorham, Maine 04038

207 839-2771 x 203

www.bh2m.com

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.

ATTACHMENT 11
DESIGN NARRATIVE

Design Narrative

15 Cedar Street Affordable Housing Development

Portland, Maine
RN-4 Design Principles and Standards Narrative
Prepared by INVIVID Architecture

Project Overview

The proposed project at 15 Cedar Street is a five-story, 30-unit affordable housing development located within the City of Portland's RN-4 zoning district. The project replaces underutilized land with a compact urban residential building that supports the City's housing goals by providing a substantial number of affordable housing units within walking distance of downtown Portland, transit routes, and neighborhood services.

The building contains a mix of primarily one-bedroom units with several two-bedroom units, organized around a central corridor with elevator and stair access. Shared amenities including a community room, open kitchen, laundry, bicycle storage, and tenant support spaces are located on the first floor to promote social interaction and resident services.

The project takes advantage of the affordable housing density bonus provisions, allowing approximately 30 units on an 8,879 SF site, while maintaining compliance with RN-4 dimensional requirements including setbacks, height limits, and lot coverage. The design has been developed to reinforce the architectural character of the surrounding neighborhood while contributing to the City's housing supply and urban vitality.

Consistency with RN-4 Development Design Principles

Principle A – Overall Context

The design of the proposed building responds to the architectural context of the surrounding neighborhood within a two-block radius, consistent with the RN-4 Design Principles which emphasize compatibility with predominant neighborhood characteristics.

The Cedar Street area contains a mixture of historic residential buildings and mid-scale urban structures, many of which exhibit:

- Rectilinear massing
- Vertically proportioned window openings
- Masonry or masonry-like base levels

- Wood siding or clapboard upper floors
- Strong street-oriented façades

The proposed building reflects these patterns through:

- A rectangular building form consistent with urban infill development
- A masonry-like base level that visually anchors the building
- Horizontally aligned rows of vertically proportioned windows
- clapboard-style horizontal siding on upper floors
- A clearly defined cornice and roofline

These design decisions reinforce the architectural language commonly found in Portland's historic residential neighborhoods while allowing the building to maintain a contemporary identity.

Principle B – Massing

The building massing has been carefully composed to maintain compatibility with surrounding residential structures.

The project introduces a five-story form, which is consistent with the allowable 55-foot maximum height in the district, with the building measuring approximately 54 feet 11 inches to the roof line.

15 CEDAR ST - PLANS & ELEVATIONS

The building mass is articulated through:

- A strong masonry base at the ground level
- A clear horizontal delineation between floors
- Repetition of window bays that create a consistent rhythm across the façade
- A defined cornice line at the roof

This composition breaks down the perceived scale of the building and reflects the vertical stacking typical of traditional urban residential buildings.

The roof is designed as a flat roof with a pronounced cornice, consistent with RN-4 standards for buildings with flat roof forms.

Principle C – Orientation to the Street

The building is designed to reinforce the pedestrian character of Cedar Street by orienting its primary entrance and façade directly toward the street.

Key features include:

- A clearly articulated main entrance facing Cedar Street
- A covered entry canopy that marks the entrance and provides weather protection
- Active interior uses at the ground level including the community room and shared amenities
- Transparent glazing along portions of the ground floor to provide visual engagement with the street

The building is placed close to the street edge consistent with the rhythm of urban buildings along Cedar Street while maintaining the required setbacks.

The entrance design establishes a clear transition from public sidewalk to private residential space through the use of canopy, recess, and entry detailing.

Principle D – Proportion and Scale

The architectural elements of the building are designed to maintain appropriate proportions relative to the building's overall mass and the surrounding neighborhood.

The façade composition incorporates:

- Vertically proportioned rectangular windows
- Consistent window spacing and alignment
- Fenestration that exceeds the minimum façade transparency required by RN-4 standards
- Window groupings that reflect the internal organization of residential units

Windows are arranged in stacked vertical alignments across floors, reinforcing traditional residential façade patterns and maintaining visual order across the building elevations.

Principle E – Balance

The façade composition achieves visual balance through consistent window spacing, alignment, and proportion.

Key design elements include:

- Vertically stacked windows aligned between floors
- Consistent head heights across window groupings
- Balanced distribution of openings across the primary façade
- Symmetrical rhythm of window bays across the building width

This orderly composition creates a coherent façade while allowing subtle variations reflecting the different unit layouts.

Principle F – Articulation

The building incorporates multiple architectural elements to create visual interest and break down the scale of the façade.

These elements include:

- A masonry-like base material at the ground floor
- Horizontal siding above the base
- A pronounced cornice line at the roof
- Window trim and reveals
- Recessed building entries with protective canopies

The horizontal change in materials between the ground floor and upper floors provides clear articulation and reinforces the building's base-middle-top composition typical of traditional urban architecture.

Principle G – Materials

Exterior materials have been selected to reflect durable materials commonly found within the surrounding neighborhood.

The proposed material palette includes:

- Masonry veneer at the ground level
- Horizontal clapboard-style siding at upper levels
- Precast trim elements
- Painted pvc trim and window surrounds
- Dark cornice and roof edge detailing

The arrangement of materials places the heavier masonry at the base of the building with lighter siding above, reinforcing traditional architectural hierarchy and complying with RN-4 material guidelines.

The overall material composition provides durability while maintaining compatibility with the architectural character of the surrounding neighborhood.

Life Safety, Fire Protection, and Code Compliance

The proposed development at 15 Cedar Street has been designed to comply with the applicable provisions of the Maine Uniform Building and Energy Code (MUBEC), including the International Building Code (IBC) as adopted by the State of Maine, and the National Fire Protection Association (NFPA) standards adopted by the City of Portland, including NFPA 1 – Fire Code, NFPA 13 – Standard for the Installation of Sprinkler Systems, and other applicable Portland Fire Department technical standards.

The building is classified as Group R-2 residential occupancy and will be constructed as Type IIIB construction. The building height, area, and life safety systems are designed in accordance with the allowable limits for a sprinklered Type IIIB residential building under the International Building Code.

Fire Suppression System

The building will be fully protected by an automatic sprinkler system designed in accordance with NFPA 13. The sprinkler system will provide coverage throughout all dwelling units, corridors, common areas, amenity spaces, and mechanical and service areas. The system will be designed and installed in coordination with the Portland Fire Department and reviewed during the building permit process.

Fire Alarm and Detection

A building-wide fire alarm and detection system will be installed in accordance with applicable NFPA standards and local fire department requirements. The system will include:

- Manual pull stations at required locations
- Audible and visual notification appliances throughout the building
- Monitoring and supervisory functions
- Detection devices in required common areas

Each dwelling unit will also be equipped with smoke alarms installed in accordance with code requirements to provide early detection and occupant notification.

Fire-Resistive Construction and Compartmentation

The building incorporates fire-resistive assemblies to protect occupants and limit the spread of fire. These assemblies include:

- Fire-rated stair enclosures providing protected vertical egress
- Fire-rated elevator shaft enclosure
- Fire-rated corridor walls separating dwelling units from common egress paths
- Fire-rated demising walls between dwelling units

These rated assemblies provide effective compartmentation, helping to contain fire within defined areas while protecting exit pathways and allowing occupants safe time to evacuate.

Means of Egress

The building is designed with a code-compliant means of egress system that supports safe evacuation of occupants during emergency conditions. The life safety strategy includes:

- Enclosed exit stairways serving all floors
- A central corridor providing direct access to exit stairs
- Code-compliant exit signage and emergency lighting
- Travel distances and exit separation designed to meet applicable building code requirements

These features ensure that occupants have clear, protected pathways to exit the building safely.

Emergency Power

A standby generator will be provided to supply power to critical life safety systems during a power outage. Emergency power will support required systems such as emergency lighting, fire alarm equipment, and other life safety components in accordance with applicable code requirements.

Accessibility and Resident Safety

The project incorporates accessibility features consistent with applicable accessibility standards and building code requirements. Accessible dwelling units and common areas will include:

- Grab bars at accessible bathrooms
- Accessible routes throughout common spaces
- Elevator access to all residential floors
- Accessible entrances and circulation areas

These features ensure that the building is usable and safe for residents with mobility impairments.

Fire Department Access

The project will comply with Portland Fire Department requirements for apparatus access, hydrant proximity, and fire department connections. Building systems and site design will be coordinated to support emergency response operations, including clearly identifiable fire department connections and adequate access to the building frontage.

Overall Life Safety Strategy

Through the integration of automatic sprinkler protection, fire detection and alarm systems, fire-resistive construction, protected means of egress, emergency power systems, and accessible life safety features, the proposed building provides a high level of life safety protection for residents and emergency responders.

The project has been designed to meet or exceed the requirements of MUBEC, NFPA 1, NFPA 13, and applicable Portland Fire Department standards, ensuring a safe residential environment consistent with current codes and best practices.

Public Benefit

This project provides a significant public benefit by delivering 30 affordable housing units within Portland's urban core.

The development contributes to the City's housing goals by:

- Increasing the supply of affordable housing
- Supporting transit-oriented living
- Providing housing within walking distance of employment and services
- Activating the streetscape with residential uses
- Providing shared community amenities for residents

The compact urban design supports sustainable development patterns while reinforcing the character of the surrounding neighborhood.

Conclusion

The proposed development at 15 Cedar Street has been designed to align with the RN-4 Development Design Principles and Standards by reinforcing the scale, rhythm, materials, and architectural characteristics of the surrounding neighborhood.

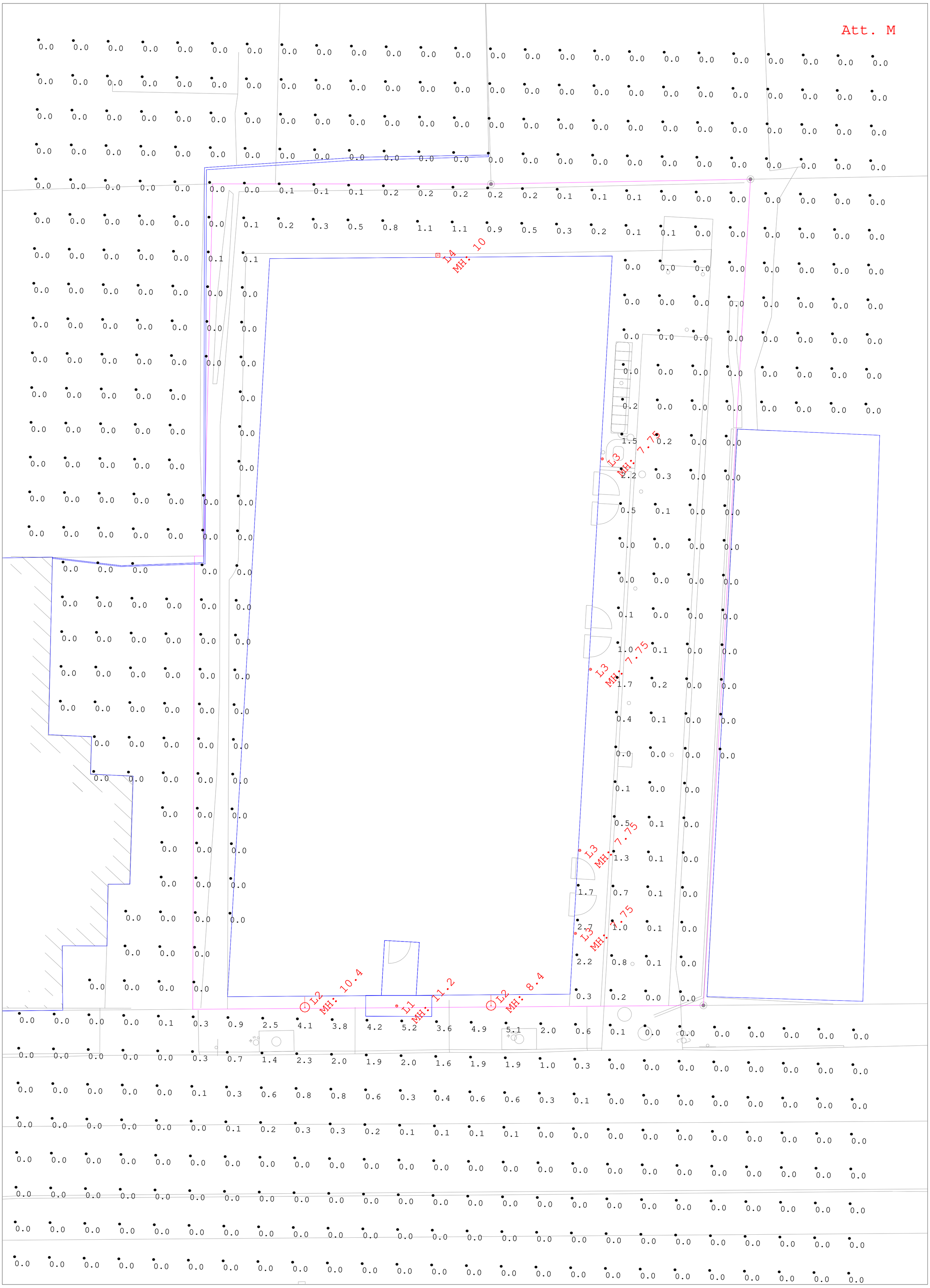
The building contributes to Portland's urban fabric by providing thoughtfully designed affordable housing while maintaining compatibility with nearby residential buildings in terms of massing, façade composition, materials, and relationship to the street.

The project represents an appropriate and contextually responsive infill development that enhances both the neighborhood and the City's housing supply.

Respectfully submitted,

Virginie Stanley, Architect
Principal
INVIVID ARCHITECTURE
Portland, Maine

Att. M



Luminaire Schedule							
Symbol	Qty	Label	Description	LLF	Luminaire Lumens	Luminaire Watts	Mounting Height
	1	L1	HALO: HCDJBL10930D- HCD4TRMB	0.900	647	10	11.2
	2	L2	TMS: 2W-15LED-30K-120-WM-XX-XX	0.900	1351	15	8.4, 10.4
	4	L3	PORTFOLIO: LER4C05D010 EC4C02089030 4LBWB	0.495	547	7.2	7.75
	1	L4	MCGR: GKO-PB1A-830-U-T1	0.900	713	4.8	10

Calculation Summary						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Site	Fc	0.16	5.2	0.0	N.A.	N.A.

REFLEX

Boston, MA
Rocky Hill, CT
Hooksett, NH

15 & 19 CEDAR STREET

Portland, ME

Drawn By: LS
Date:5/22/2026
Specifier:
Salesperson:
Scale: Not to Scale

www.reflexlighting.com

DISCLAIMER: CALCULATIONS SHOULD BE USED AS A GUIDE ONLY.
LIGHT LEVELS ARE SUBJECT TO CONDITIONS IN THE FIELD.

specifications@reflexlighting.com

Page 1 of 1

Project		Catalog #		Type	
Prepared by		Notes		Date	

HALO Commercial

HCD Professional Direct Mount Commercial Downlighting System

4" • Round • Downlight/Wall Wash

The HCD System offers total flexibility as a modular downlighting system built on a series of Factory preset or Selectable (Lumen/CCT) LED Module Kits that easily interchange with a complete fleet of reflectors. Available in both rounds and squares, in multiple sizes and beam distributions. HCD installs-from-below and mounts securely to any retrofit/remodel/new construction ceiling.

Typical Applications Healthcare • Hospitality • Education • Mixed Use • Services • Retail

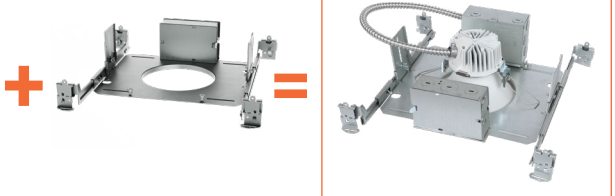
Interactive Menu

Top Product Features

- 4" install-from-below retrofit/remodel or add mounting frames for new construction
- All HCD Module Kits fit all HCD trims - all sizes and shapes
- **Factory preset or Field-Selectable Lumens:** Options from 500 to 5000 lms (nominal)
- **Factory preset or 5-color Field-Selectable CCT:** 2700K, 3000K, 3500K, 4000K, 5000K
- **90 CRI Standard**
- **Distributions:** Precision-formed round reflectors - Medium / Wide / Narrow (match HC Series)
- Field-installed wall wash distribution lens kit available
- **Finishes:** Specular, Haze (Semi-Specular), Matte White (paintable), and Matte Black reflectors
- **Dimming:** 0-10V down to 1% (dim-to-off with WaveLinx) in UNV 120–277V; 347V (Canada)
- Emergency battery backup, WaveLinx Wireless PRO/LITE, and Chicago Plenum options available
- L80 at 60,000 hours (80% lumen maintenance at 60,000 hours)
- 5-year warranty
- Options to meet Buy American and other domestic preference requirements

View Sales Guide

Frameless, Install from below



Mounting Frame Installation

T24 and RoHS are self-tested by Cooper Lighting Solutions. Not a third party certification.

Fixture Order Information *(a complete luminaire consists of 2 or 3 parts)*

	Example Order Numbers:		
	1) Mounting Frame	2) Module Kit	3) Reflector
2 Part Luminaire: **Direct-Mount** (New Construction, Retrofit, or Remodel)	[No Frame]	*HCDQCLS510CSD*	*HCD4TRCWF*
3 Part Luminaire: **New Construction with Frame**	*HCD4MFRQC*	*HCDQCLS510CSD*	*HCD4TRCWF*

Mounting Frames Order Information

Domestic Preferences (2)	New Construction Mounting Frames	
[Blank]=Standard **BAA**=Buy American Act **TAA**=Trade Agreements Act	**Basic New Construction Mounting Frames** **HCD4MFR** = 4" Round mounting frame Ceiling cut-outs: Round 5.00"	**Description:** Basic mounting frame only, no additional junction box for through-wiring. (Thumb screws on frame for securing the Module Kit Driver-Box.) Install frame and LED Module kit together during rough-in phase. Installer supplies wire to Module Kit.
	Junction Box New Construction Mounting Frames **HCD4MFRJB** = 4" Round mounting frame Ceiling cut-outs: Round 5.00"	**Description:** Mounting frame with Trade-Size Junction Box for through-wiring. Thumb screws on frame for securing the Module Kit Driver-Box. Install frame and LED Module kit together during rough-in phase. Installer provides wire to junction box and between junction box and Module Kit.
	Quick Connect New Construction Mounting Frames **HCD4MFRQC** = 4" Round mounting frame Ceiling cut-outs: Round 5.00"	**Description:** Mounting frame with Trade-Size Junction Box for through-wiring and Quick Connect flex. Quick Connect has 5-conductor plug-ins for power and 0-10V dimming. (Thumb screws on frame for securing the Module Kit Driver-Box.) Only frame is required at rough-in. Module Kit and Reflector installed during trim-out phase with Quick Connect. Installer provides wire to mounting frame junction box only.
	Chicago Plenum New Construction Mounting Frames **HCD4MFRCP** = 4" Round mounting frame Ceiling cut-outs: Round 5.00"	**Description:** Chicago Plenum mounting frame with CCEA compliant Trade-Size Juntion box for through-wiring. (Thumb screws on frame for securing the Module Kit Driver-Box.) Install frame and LED Module kit together during rough-in phase. Installer provides wire to junction box and between junction box and Module Kit.

Notes

(2) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analysed under domestic preference requirements.

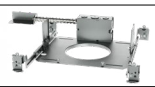
Mounting Frame Notes

- Type-IC with low-lumen module kits 500-750-1000lm
- Type Non-IC with mid-lumen 1500-2000-2500lm
- Type Non-IC, Marked Spacing with mid/high-lumen 3000-3500-4000lm and high-lumen 4000-4500-5000lm module kits (36" center-to-center, 18" center to building member, 0.5" minimum overhead spacing).
- Chicago Plenum (CP) new construction mounting frames are CCEA compliant with pre-installed J-box for mains input, and Type Non-IC rated per CCEA

HCD Module Kit & Mounting Frame Compatibility

HCD Pro System downlights can be installed as retrofit, remodel, direct-mount new construction, or traditional frame new construction.

All HCD Module Kits fit all HCD trims.

			Frameless	Mounting Frames			
			Retrofit, remodel, and new construction direct-mount	Basic	Junction Box	Quick Connect	Chicago Plenum
							
Module Kits	**Junction Box** *(Base)*		✓ 1	✓ 1	✓ 2		
Module Kits	**Quick Connect** *(includes EM & WLX options)*		✓	✓ 3	✓ 4	✓ 5	
Module Kits	**Chicago Plenum**						✓ 2

1. Installer provide mains wiring & connection to Module Kit driver box.
2. Installer provide mains wiring & connection to Frame junction box and/or Module Kit driver box.
3. Frame and mains-half of provided quick connect installed before finished ceiling; module kit and trim installed after finished ceiling.
4. Mains-half of quick connect can be field-installed in frame junction box, or connected directly to mains.
5. Note: Mains-half of quick connect included with module kit will be recycled in this configuration.

LED Module Order Information (All Module Kits fit any HCD Reflector – 4", 6", or 8"; Round or Square)

Domestic Preferences[2]	Module Kit
[Blank]=Standard **BAA**=Buy American Act **TAA**=Trade Agreements Act	**Junction Box Module Kit** **HCDJB** = 4" Junction Box Module Kit: LED Engine & Driver on 20" flex conduit (Input wiring and connectors by installer).
	Quick Connect **Quick Connect Module Kit** **HCDQC** = 4" Quick Connect Module Kit: LED Engine & Driver on 20" flex conduit w/ 5-conductor quick connect on flex conduit & 1/2" snap-fitting for input knock out.
	Quick Connect **Quick Connect Emergency Module Kit** **HCDE** = 4" Emergency Module Kit: LED Engine & Driver with Battery Pack on 20" flex conduit w/ 6-conductor quick connect on flex conduit & 1/2" snap-fitting for input knock out. Emergency battery with test switch is attached to module kit driver box. Add emergency option code to model number: EM06 or EM14 **Note:** IEM reflector must be ordered separately for integral emergency. (IEM not available with HCD41TR 4" shallow reflectors)
	Quick Connect **Quick Connect WaveLinx Wireless Module Kit** **HCDW** = 4" WaveLinx Wireless Module Kit w/ Quick Connect: LED Engine & Driver on 20" flex conduit w/ 5-conductor quick connect on flex conduit & 1/2" snap-fitting for input knock out. Add WaveLinx Wireless option code to model number: **WPN** (WaveLinx PRO) or **WLN** (WaveLinx LITE)
	Chicago Plenum Module Kit[5] **HCDCP** = 4" Chicago Plenum Module Kit: LED Engine & Driver on 18" CCEA compliant FMT and junction box with wiring for power and 0-10V dimming between LED Engine and driver box (Input FMT wiring and connectors to driver box, by others).

Notes

(2) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analysed under domestic preference requirements.

(5) Chicago Plenum (CP) module kits FMT conduit have larger bend radius, requiring deeper plenum height. Minimum plenum height 7.25" (2x8) with 24" grid/framing width for all Chicago Plenum module kits.

Module Kits Notes

- Module Kits are universal for all reflectors.
- For installation from below a finished ceiling, direct-mount through the ceiling opening. The installer must cutout a precise aperture opening for the appropriate reflector size.

Selectable Options[0]			Driver
Lumen Selectable*		**Color Selectable***	**D** = Dimmable, UNV 120-277V, 50/60Hz 0-10V 1%-100% dimming at 120-277V on 0-10V controls. Compatible with WaveLinx Wireless dim-to-off functionality.
LS510 = 500/750/1000lm (Preset 1000lm) Type IC, air permeable insulation contact		**CS** = 90CRI, selectable 2700K-3000K-3500K-4000K-5000K (Preset at 3500K)	
LS1525 = 1500/2000/2500lm (Preset 2500lm) Type Non-IC, insulation 3" spacing			
LS3040 = 3000/3500/4000lm (Preset 4000lm) Type Non-IC, Marked Spacing, see note below***		**Factory Fixed CCT****	**Canada Option**
LS4050 = 4000/4500/5000lm (Preset 5000lm) Type Non-IC, Marked Spacing, see note below***		**927** = 90CRI, 2700K	**D347** = Dimmable 347VAC 50/60Hz 0-10V 1%-100% dimming. Available on HCDQC module kits only. Canada only.[1]
Factory Fixed Lumens**		**930** = 90CRI, 3000K	
L05 = 500 lumen – IC	**L30** = 3000 lumen - Non-IC***	**935** = 90CRI, 3500K	
L07 = 750 lumen – IC	**L35** = 3500 lumen - Non-IC***	**940** = 90CRI, 4000K	
L10 = 1000 lumen - IC	**L40** = 4000 lumen- Non-IC***	**950** = 90CRI, 5000K	
L15 = 1500 lumen - Non-IC	**L41** = 4000 lumen- Non-IC***		
L20 = 2000 lumen - Non-IC	**L45** = 4500 lumen- Non-IC***		
L25 = 2500 lumen - Non-IC	**L50** = 5000 lumen- Non-IC***		

Notes

(0) Selectable Lumen and Selectable CCT must be specified together – Selectable example: LS510, CS

(1) Not available with Chicago Plenum models

Factory Fixed Lumen and CCT must be specified together - example: L05, 935

*Field-selected switch settings by installer accessed in hinged snap-latch cover over selectable switches, protects lumen and CCT settings yet allows for quick changes. **OR**

**Factory preset individual switch settings secured under fixed cover. Torx screw on cover secures presets yet allows for re-set access if needed. Factory label notes preset lumen and CCT.

***3000/3500/4000, 4000/4500/5000lm
Non-IC, Marked Spacing
– Marked Spacing Center to Center of Adjacent Luminaires = 36" / – Center of Luminaire to Building Member = 18" / – Minimum overhead = 0.5"

Factory Options
Emergency Options (Add emergency suffix code option to HCDE emergency module kits only) **EM06** = 6-watt self-test emergency battery with test switch for remote or integral test. Remote switchplate included, back box by others. Integral reflector order separately. Use with "D" driver only. Option only with HCDE module kits.[1][3][4] **EM14** = 14-watt self-test emergency battery with test switch for remote or integral test. Remote switchplate included, back box by others. Integral reflector order separately. Use with "D" driver only. Option only with HCDE module kits.[1][3][4][7]
WaveLinx Options (Add WaveLinx suffix code option to HCDW WaveLinx module kits only) **WPN** = WaveLinx PRO Wireless Node & Power Pack. Add WPN code to HCDW module kits. Option only with HCDW module kits.[3][4] **WLN** = WaveLinx LITE Wireless Node & Power Pack. Add WLN code to HCDW module kits. Option only with HCDW module kits.[3][4]
Emergency Options with WaveLinx (Add emergency with WaveLinx suffix code option to HCDE emergency module kits only)[6] **EM06WPN** = 6-watt emergency with WaveLinx PRO Wireless Node **EM06WLN** = 6-watt emergency with WaveLinx LITE Wireless Node **EM14WPN** = 14-watt emergency with WaveLinx PRO Wireless Node **EM14WLN** = 14-watt emergency with WaveLinx LITE Wireless Node

Notes

(1) Not available with Chicago Plenum models
(3) Not available with D347 (347V models)
(4) Use with "D" driver
(6) For Emergency Options with WaveLinx, order HCDE module kit
(7) EM14 is NOT compatible with the lowest-lumen module (500/750/1000 lumen). Both battery options are compatible with all other modules.

continued on next page

Trim Order Information

Domestic Preferences (2)	Reflectors	Type	Finish	Emergency
[Blank]=Standard **BAA**=Buy American Act **TAA**=Trade Agreements Act	**Medium Reflector** **HCD4T** = 4" Medium 70° Distribution Reflector **Wide (Shallow) Reflector** **HCD41T** = 4" Wide (Shallow) 85° Distribution Reflector **Narrow Reflector** **HCD42T** = 4" Narrow 55° Distribution Reflector*	**R** = Round	**C** = Specular Clear **CWF** = Specular Clear / White Flange **CBF** = Specular Clear/Black Flange **H** = Haze (Semi-specular) **HWF** = Haze (Semi-specular) / White Flange **HBF** = Haze (Semi-Specular)/Black Flange **MW** = Matte White (paintable) **MWBF** = Matte White/Black Flange **MB** = Matte Black	**IEM** = Reflector for use with integral emergency module kits only. Provides access hole for emergency test switch, if integral switch is desired. Use with HCDE emergency module kits.

Notes

(2) Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analysed under domestic preference requirements.

Reflector Notes:
- Reflectors work with all module kits
- Compatible with HCD4MFR* round aperture mounting frames
- Reflectors attach to module kits and install from below the ceiling opening with integral mousetrap springs
- Maximum ceiling thickness 1.5"
- Wall wash kits are accessories for field installation
- Direct-mount requires a precise aperture cutout. 4" Round = 4.75" Retrofit / 5.00" New

Emergency IEM Notes:
- Emergency battery with test switch is attached to module kit.
- Add emergency suffix code to HCDE model number: EM06 or EM14

* IEM reflector ordered separately.
- IEM not available with HCD41TR 4" shallow reflectors

Wall Wash Accessory Kits (Field Installed - Order Separately)
Medium Wall Wash Kit **HCD4TRLWW** = 4" Round Lensed Wall Wash Kit **Wide (Shallow) Wall Wash Kit** **HCD41TRLWW** = 4" Wide (Shallow) Round Lensed Wall Wash Kit **Narrow Wall Wash Kit** **HCD42TRLWW** = 4" Narrow Lensed Wall Wash Kit

Notes
- Wall wash kits are not available for IEM reflectors.
- For BAA/TAA wall wash option, add "WW" to the reflector catalog (example: TAA-HCD4TRCWW).

Accessories Order Information

Oversize Medium "Goof" Ring	Type	Finish	
HCD4G = 4" Goof Ring for Medium Reflectors *Round - 4.75" MIN ceiling opening 6.25" MAX ceiling opening, 7.25" OD*	**R** = Round	**C** = Specular Clear **H** = Haze (Semi-specular)	**MW** = Matte White (paintable) **MB** = Matte Black

Product Specifications

Module Kit & LED Engine
- For use in retrofit, remodel, and new construction mounting types.
- HCD Module Kits fit all 4", 6", and 8" round or square reflectors (order module kits and reflectors separately)
- Module kit LED engines attach to reflectors with three toolless lever clamps.
- Mousetrap springs on reflectors for direct-mount from below a finished ceiling, in retrofit, remodeling or in new construction mounting frames.
- LED engine aluminum heat sinks feature passive conduction of heat away from the LED array for optimal performance and long life
- Module kits include LED engine, driver junction box, and durable metal flex conduit; with quick-connect box on applicable models

Module Kits
- **HCDJB** Basic Junction Box Module Kit with LED Engine & driver box on 20" metal flex. Input wiring and connections to the driver box by installer.
- **HCDQC** Quick Connect Module Kit with LED Engine & driver box on 20" metal flex with 5-conductor quick-connect on a metal flex whip and 1/2" KO snap-fitting for mains terminations by others.
- **HCDE** Emergency Module Kit with LED Engine & driver box and battery pack & test switch on 20" metal flex with 6-conductor quick-connect on a metal flex whip and 1/2" KO snap-fitting for mains terminations by others.
  - Emergency battery pack and remote test switch are attached to module kit.
  - Add emergency suffix code option to catalog number: EM06 or EM14 (see Emergency Backup Options for details)
  - For emergency with WaveLinx Wireless add suffix code option to catalog number of HCDE module kits only: EM06WPN, EM06WLN, EM14WPN, EM14WLN
- **HCDCP** Chicago Plenum Module Kit with LED Engine & driver box on 18" CCEA compliant metal flex. CCEA compliant mains and dimmer wiring to HCDCP module kit driver box by installer.
- **HCDW** WaveLinx Module Kit with LED Engine & driver box on a 20" metal flex with 3-conductor quick-connect on a metal flex whip and 1/2" KO snap-fitting for mains terminations by others.
  - Add WaveLinx Wireless Node suffix code to catalog number: WPN - WaveLinx or WLN - WaveLinx Lite (see WaveLinx Connected Lighting website for details)

Module Kit Driver Box
- Galvanized steel electrical box
- Integral driver
- 18 cubic inch internal volume
- Listed for six #12 AWG 90° C splice conductors, two in, two out plus ground
- (4) 1/2" trade size pry outs
- (3) 4-port push wire nuts for mains voltage with 1-port for fixture connection

New Construction Mounting Frames
- Galvanized steel plaster frame with integral bar hangers
- Available in 4", 6", 8" Round and Square
- Integral 3/8" drywall/plaster collar for ease in position locating and ceiling cut-out
- Round aperture diameter sized for industry standard hole saws HCD4R = 5.00"
- Bar hanger vertical brackets adjust 2" vertically from above & below ceiling
- Bar hangers horizontal adjusting from 10-1/2" to 24-1/2" wide
- Setscrews provide positive horizontal and vertical locking
- Captive nail for use in standard dimensional and engineered framing lumber
- Through-hole in bar bracket ends for additional nail or screw attachment (nail or screw by others)
- Flange lip on bar bracket ends level platform in framing construction
- Integral grid clip attaches directly to T-grid
- All mounting frames have knurled thumb screws for securing module kit driver box, when needed

Mounting Frame Junction Box
- Trade-size galvanized steel junction box
- 25 in^3 internal total volume
- Voltage barrier for 0-10V dimming wires (occupies one 1/2" pry-out space)
- Listed for eight #12 AWG (four in, four out) 90°C conductors and feed-thru branch wiring
- Three 1/2" and two 3/4" trade size pry-outs

Quick Connect Box (available on HCDQC, HCDW, HCDE Module Kits)
- Galvanized steel enclosure on metal flex conduit whip end terminating with 1/2" KO snap-fitting for mains connections by others
- Tool-less access snap cover
- HCDQC (Quick Connect module kits) and HCDW (WaveLinx module kits): Quick connect 5-conductor mains & dimming in/out wiring on 3-conductor line voltage mains & 2-conductor 0-10V connectors
  - HCDW Wavelinx use only the 3-condutor line quick connections
- HCDE (Emergency module kits): Quick connect 6-conductor mains & dimming in/out wiring on 4-conductor line voltage + battery mains & 2-conductor 0-10V connectors

Emergency Battery Backup Options
- Available on HCDE Emergency Module Kits
- Provide 90 minutes of standby egress lighting; consult national Life Safety Code and local code authority for specific requirements

continued on next page

Product Specifications (continued)

- EM06 – 6-Watt self-test emergency battery with test switch
- EM14 – 14-W self-test emergency battery with test switch
- Self-Test (self-diagnostic) standard on models
- Emergency test switch may be installed with included remote switchplate or integral in reflector
  - Electrical box, as required, for remote switchplate by installer
  - IEM reflector ordered separately
- IEM not available on HCD41T 4", Wide (Shallow) round reflectors.
- HCD Module Kits are compatible with the Sure-Lites EBPLED family of Emergency Backup Batteries for field installation. Consult EBPLED specification sheet to determine appropriate Wattage.

LED

- Proximity phosphors over chip on board LEDs provide a uniform source with high efficiency and no pixilation
- LED is 90 CRI minimum, R9 greater than 50
- LED color uniformity & accuracy within 3-step SDCM at 2700K and 50000K and 4-step SDCM at 3000K, 3500K, & 4000K
- Lumen maintenance 80% at 60,000 hours (L80 / 60,000 hours)

Lumen and CCT Color Selection

- Lumen and CCT selection switches are on the module kit driver box.
- Field-select switch settings by installer accessed under galvanized steel hinged snap-latch cover that protects lumen and CCT settings yet allows for quick changes

  OR
- Factory ordered preset individual switch settings secure under galvanized steel fixed cover. Torx screw on cover secures presets yet allows for re-set access if needed. Factory label notes preset lumen and CCT. (See ordering information section for factory preset ordering codes.)
- 500/750/1000, 1500/2000/2500, 3000/3500/4000, 4000/4500/5000 field selectable lumens or factory preset lumen options
- 2700-3000-3500-4000-5000K field selectable CCT or factory preset CCT options
- Selectable lumen and CCT must be specified together, example: "LS510" lumen, "CS" CCT
- Factory preset lumen and CCT must be specified together, example: "L05" lumen, "935" CCT

Electronic Driver

- Integrated in module kit driver box
- 120-277V 50/60 Hz constant current driver
- Continuous dimming from 100% to 1% with 0 -10V analog dimming controls
- Dims to off after 1% level is reached
- Compatible with WaveLinx and WaveLinx Lite Wireless dim-to-off functionality

Canada Electronic Driver Option (Available on HCDQC module kits only)

- 347VAC 50/60Hz constant current driver
- Continuous dimming from 100% to 1%, with 0 -10V analog dimming controls
- Dims to off after 1% level is reached
- 347VAC driver option available on HCDQC quick-connect module kits only
- 347V driver is not currently available with WaveLinx or WaveLinx Lite Wireless.

Reflectors

- Direct-mount feature of HCD4-6-8 series requires a precise ceiling cut-out for secure round & square reflectors for module kit retention. See technical data for ceiling cut-out sizes.
- Three lever clamps and a key-slot for accurate positioning and securing reflector to the LED engine
- Integral mousetrap springs on reflector secure assembly for direct-mount from below the finished ceiling

Medium Distribution Round Reflectors

- 4", 6", 8" round reflectors designed to fit all module kits
- Round spun aluminum
- Available in specular and haze (semi-specular), matte white and matte black painted finishes. Matte white is paintable (overpaint by others)
- Prismatic lensed wall-wash accessory kits for field installation, in round and square reflectors.
- Reflector optical design delivers medium 1.0 spacing criteria and 55 degree cutoff (nominal, field results may vary by aperture and finish)
- Deep regressed LED source for low glare, UGR < 19
- Round accessory goof rings cover ceiling irregularities
- Goof rings for medium reflectors available in specular and haze (semi-specular), matte white and matte black painted finishes. Matte white is paintable (overpaint by others)

Narrow Distribution Round Reflectors

- 4", 6", 8" round reflector designs fit all module kits
- Narrow distribution dimensions equivalent to HALO Commercial HC series 41x-61x-81x reflectors, allowing use of HCD and HC series on the same job for consistent appearance
- Round spun aluminum
- Available in specular and haze (semi-specular), matte white and matte black painted finishes. Matte white is paintable (overpaint by others)
- Deep regressed LED source for low glare, UGR < 19
- Prismatic lensed wall-wash accessory kits for field installation
- Narrow reflector optical design delivers wide 0.7 spacing criteria and 50 degree cutoff (nominal, field results may vary by aperture and finish)

Wide (Shallow) Distribution Round Reflectors

- 4", 6", 8" round shallow reflector designs fit all module kits
- Ultra-shallow for installation in reduced plenum heights
- Wide distribution optical design delivers wide 1.28 spacing criteria and 65º+ cutoff (nominal, field results may vary by aperture and finish)
- Round spun aluminum
- Available in specular and haze (semi-specular), matte white and matte black painted finishes. Matte white is paintable (overpaint by others)
- Shallow regression of LED source, UGR < 23
- Shallow prismatic lensed wall-wash accessory kits 6" and 8" for field installation (shallow wall wash not available in 4")

Compliance

- cULus damp and wet location listed, covered ceilings only and IP65 rated below the ceiling (IP64 with lensed wall wash accessory)
- Airtight per ASTM-E283
- IC listed LS510: 500, 750, 1000 lumen module kit - suitable for direct contact with air permeable insulation. IC models are also suitable for Non-IC installations. (Emergency battery module kits are not IC, Non-IC only)
- Non-IC listed LS1525: 1500-2000-2500 lumen, LS3040: 3000-3500-4000 lumen and LS4050: 4000-4500-5000 module kits. Insulation must be kept 3" from top and sides of luminaire.
- Marked spacing: 3000-3500-4000 lumen and 4000-4500-5000 lumen are Non-IC AND require marked spacing.
  - Center to Center Adjacent Luminaires = 36"
  - Center of Luminaire to Building = 18"
  - Minimum overhead = 0.5"
- Not for use in direct contact with spray foam insulation, consult NEMA LSD57-2013
- Suitable for use in clothes closets when installed in accordance with the NEC 410.16 spacing requirements
- EMI/RFI emissions per FCC CFR Title 47 Part 15 Class A at 277V and Class B at 120V CAN ICES-005(B)/NMB-005(B) at 120VAC and CAN ICES-005(A)/NMB-005(A) at 277VAC
- Contains no mercury or lead and RoHS compliant
- Photometric testing per IES LM-79-08
- Photometric file format per IES LM-63-19
- Lumen maintenance projections per IES LM-80-08 and TM-21-11
- ENERGY STAR® reference Certified Light Fixtures database (not applicable: matte black reflectors, WaveLinx, and 347V module kits)
- 500-750-1000 lumen, ICAT models certified to State of California Title 24, JA8. Refer to MAEDBS Database JA8 High Efficacy LED Lighting
- All models may be used to comply with State of California Title 24 non-residential code as a dimmable LED luminaire
- BAA and TAA - product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to Cooper Lighting Solutions DOMESTIC PREFERENCES website for more information.

WaveLinx Wireless Connected Lighting

- WaveLinx PRO WPN wireless – when used with wireless sensors can provide daylight dimming, PIR motion sensing, scene and zone configuration, automatic commissioning; and optional RLTS - Real Time Location Services.
- WaveLinx LITE WLN wireless - when used with wireless sensors may provide daylight dimming and PIR motion sensing, scene and grouping configuration.
- WPN and WLN wireless include wireless node for communication with WaveLinx wireless sensors and control devices (ordered separately from WaveLinx Controls group). Wireless node with integral power supply is factory installed on the module kit driver box, using one 1/2" KO.
- Refer to WaveLinx PRO and WaveLinx LITE specifications and guides for details.

Warranty

- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

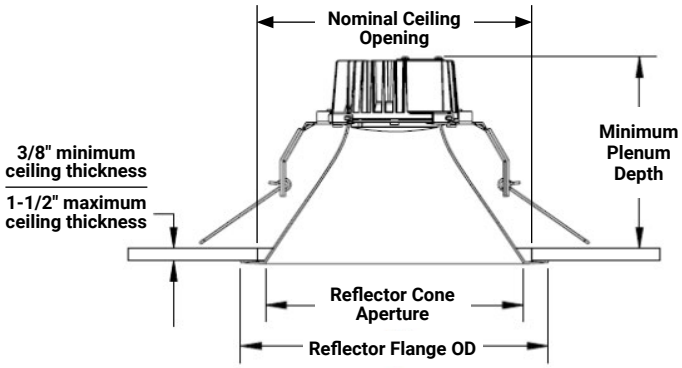
T24 and RoHS are self-tested by Cooper Lighting Solutions. Not a third party certification.

Technical Data

Ceiling Cutout Openings and Reflector Flange/Aperture

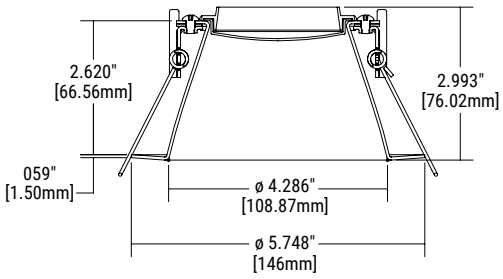
Ceiling Opening		Retrofit / Remodel & New Construction					
Type	Reflectors	Distribution	Nominal Ceiling Opening Remodel / Retrofit	Nominal Ceiling Opening New Construction	Minimum Plenum Depth*	Reflector Flange OD	Reflector Cone Aperture
Round	HCD4TR	Medium	4.75" Standard Hole Saw	5" Standard Hole Saw	5.50"	5.75"	4.29"
	HCD41TR	Wide			4.00"	6.12"	4.41"
	HCD42TR	Narrow			5.50"	6.12"	4.43"

* 12.5" of plenum height required for Chicago Plenum module kits installation.



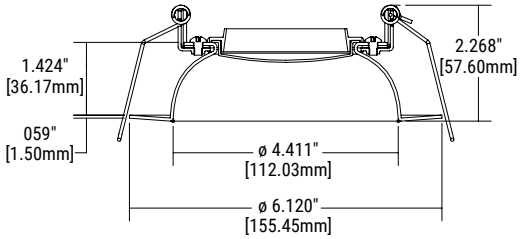
Dimensions - Reflectors

Medium Round Reflectors



HCD4TR
4" Medium Round

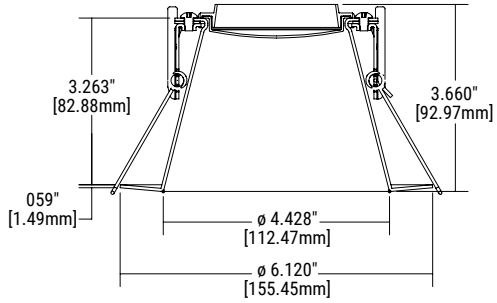
Wide (Shallow) Reflectors



HCD41TR
4" Wide (Shallow) Round

Narrow Reflectors

Flange & optic dimensions match HC Series Round Reflectors (61x)



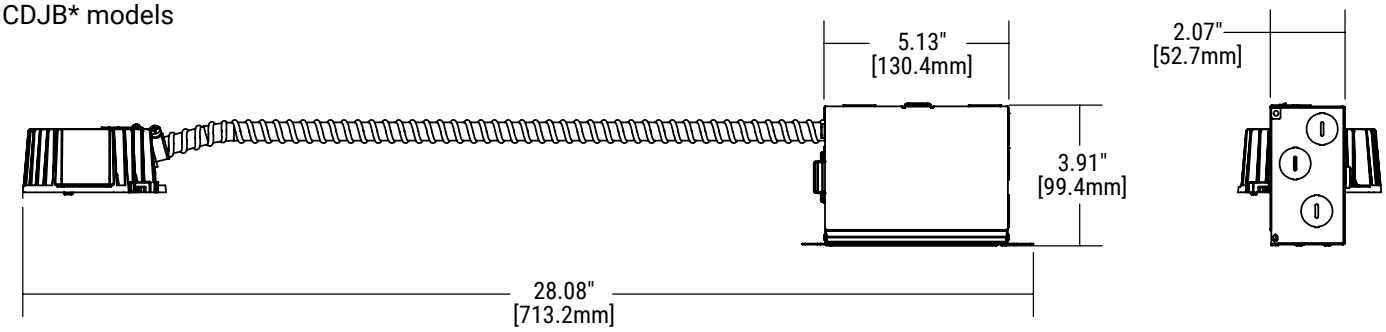
HCD42TR
4" Narrow Round

Note: Refer to IES files for specific tested values & data.

Dimensions - Module Kits

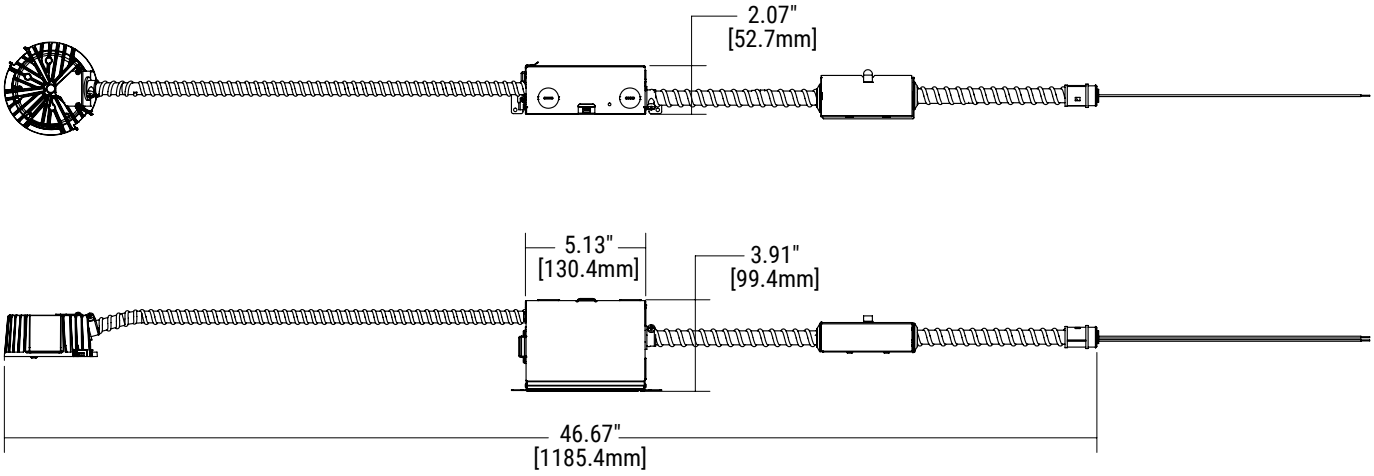
Junction Box Module Kit

HCDJB* models



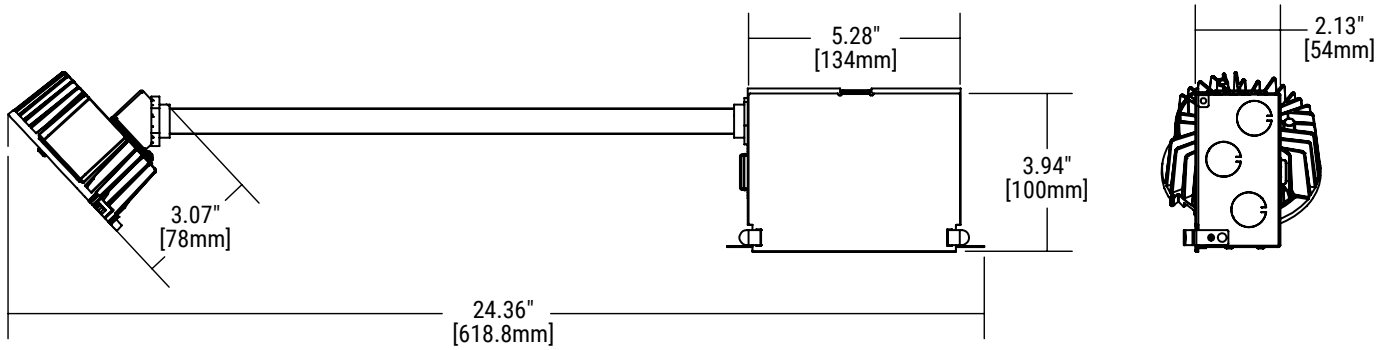
Quick Connect Module Kit

HCDQC* models
HCDQC*347 models (Canada only)



Chicago Plenum Module Kit

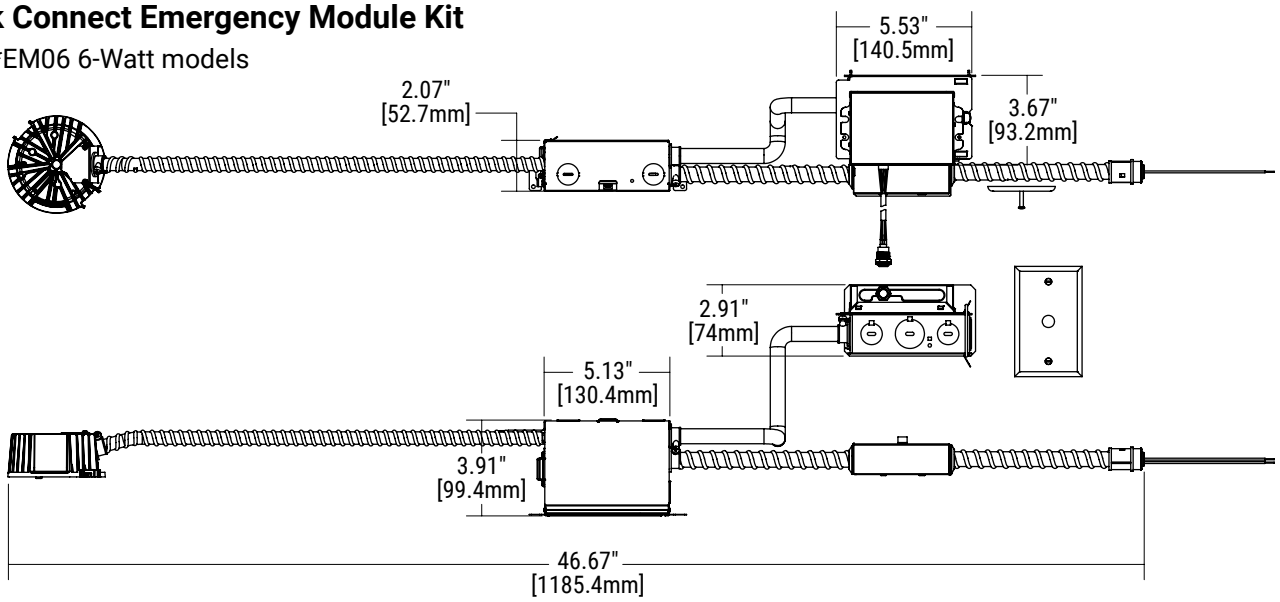
HCDCP* models



Dimensions - Module Kits

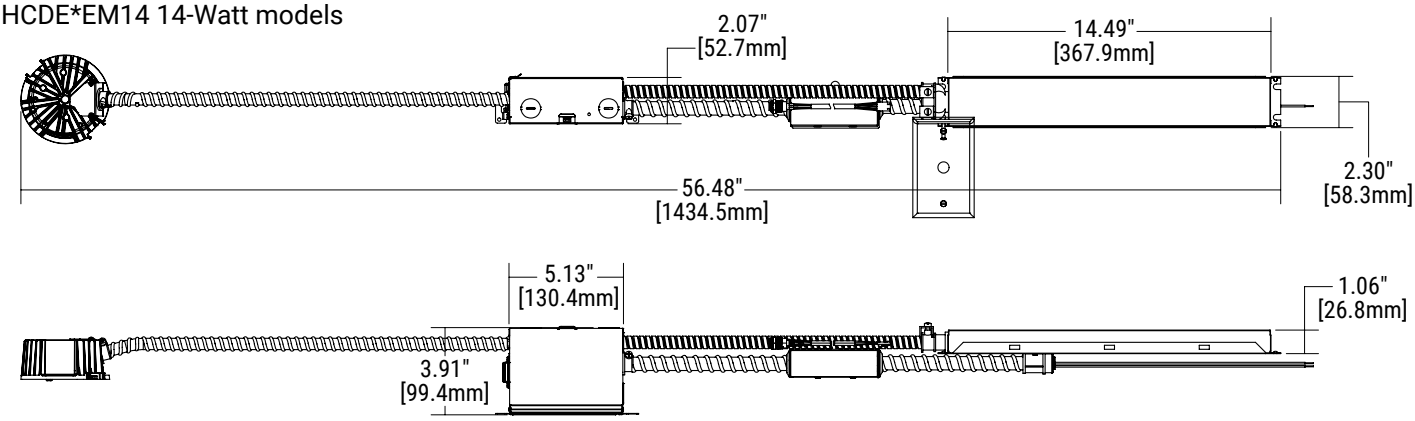
Quick Connect Emergency Module Kit

HCDE*EM06 6-Watt models



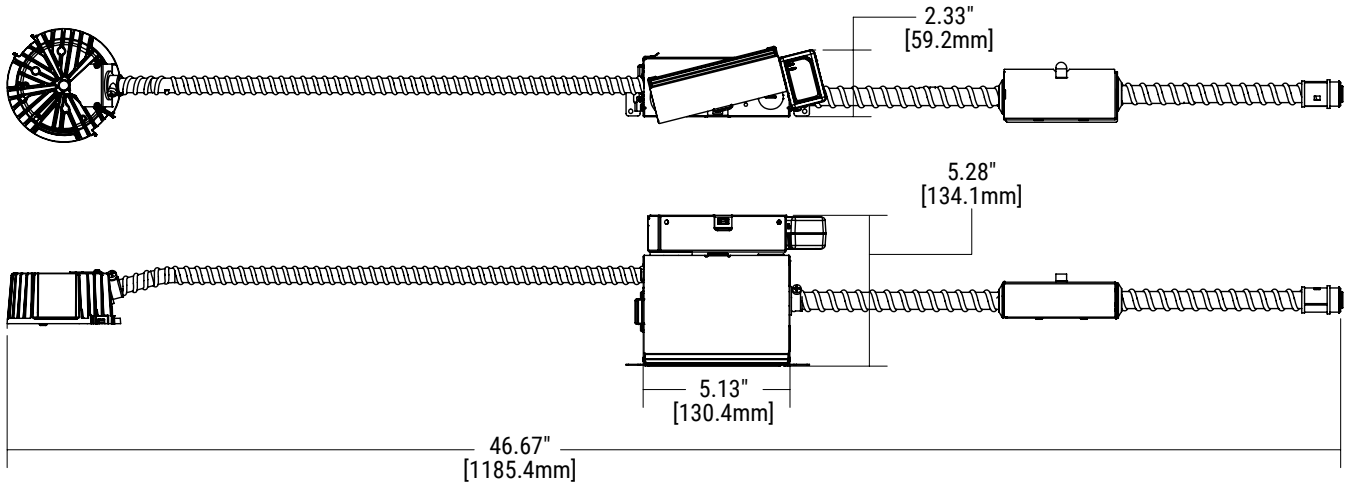
Quick Connect Emergency Module Kit

HCDE*EM14 14-Watt models



Quick Connect WaveLinx Wireless Module Kit

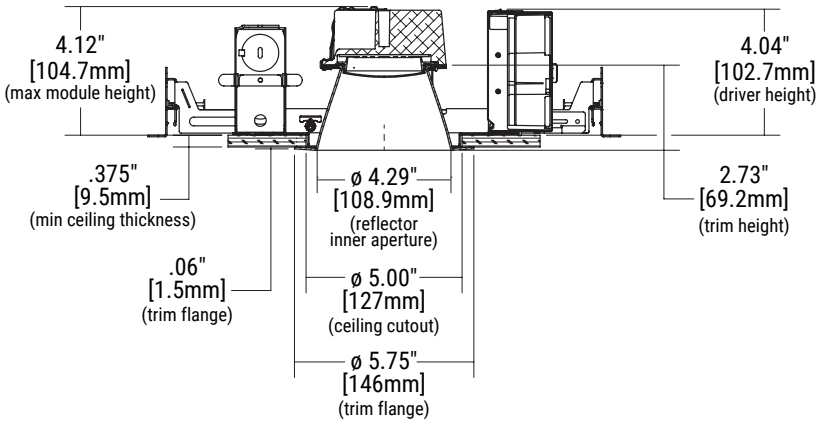
HCDW*WPN WaveLinx PRO models | HCDW*WLN WaveLinx LITE models

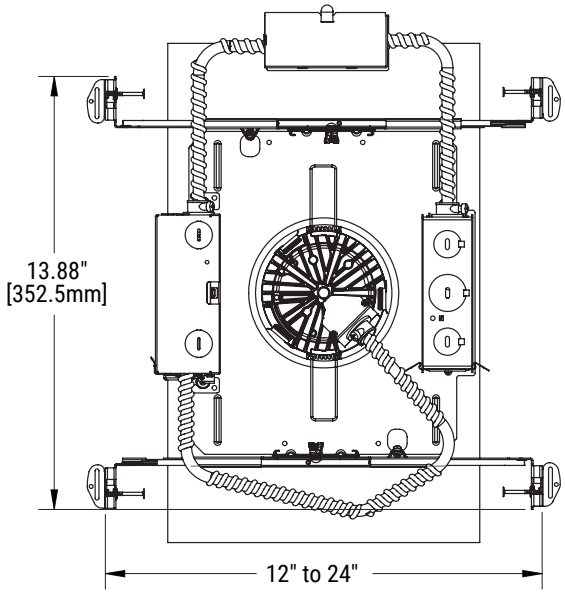


Dimensions - Mounting Frame + Module Kit + Reflector

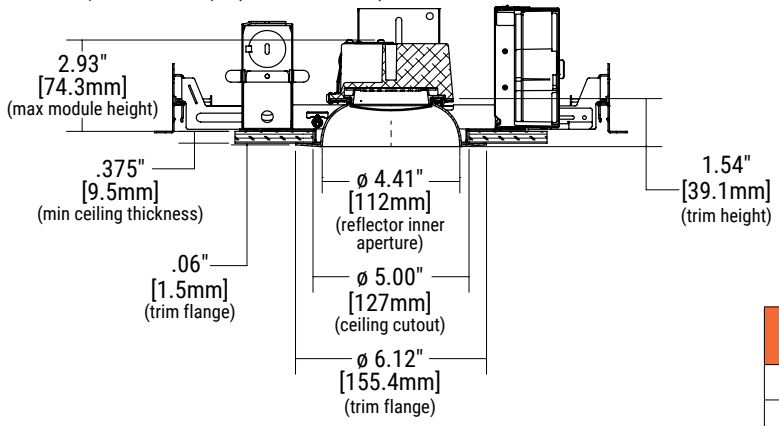
4" New Construction - Round

Medium (HCD4TR*)





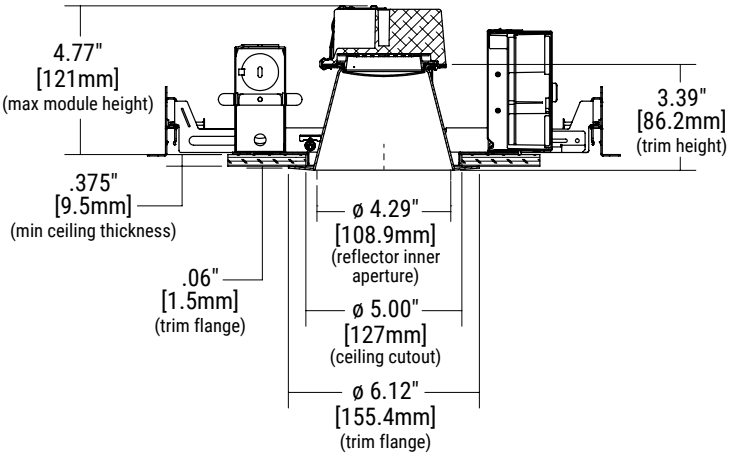
Wide (Shallow) (HCD41TR*)



Model	Distribution	Max. Module Height	Trim Height	Trim Flange
HCD42TR	Narrow	4.77"	3.39"	6.12"
HCD4TR	Medium	4.12"	2.73"	5.75"
HCD41TR	Wide	2.93"	1.54"	6.12"

* Max. height with hanger bar bracket 4.0".

Narrow (HCD42TR*)



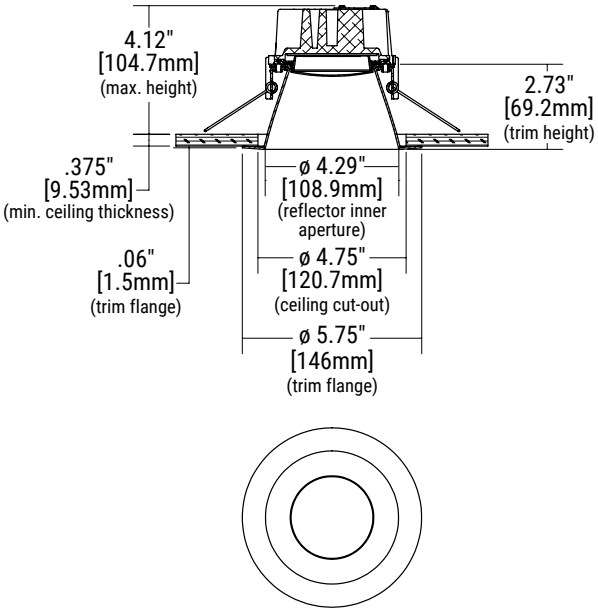
Dimensions - Module Kit + Reflector

4" Retrofit - Medium Round Reflector & Oversized Goof Ring

(Rings designed for optimum fit with medium distribution series reflectors, but may be used with others as noted below)

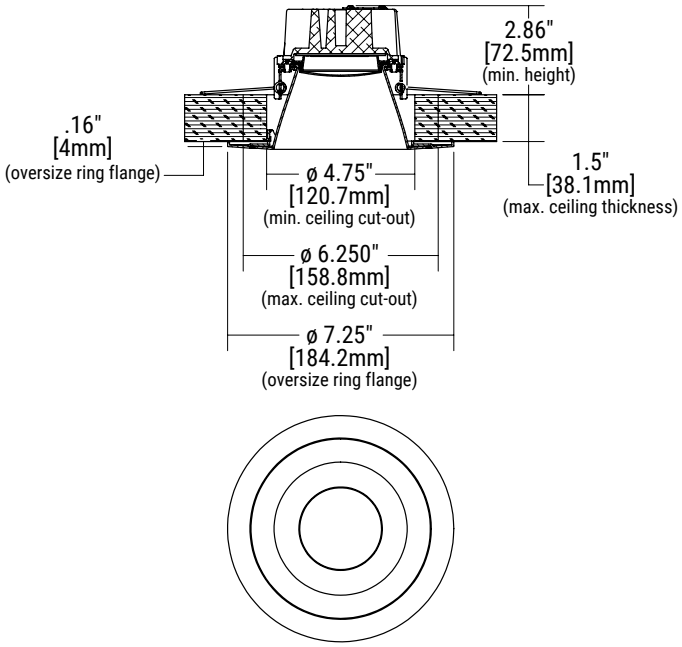
Medium

(HCD4TR*)



Medium + Goof Ring

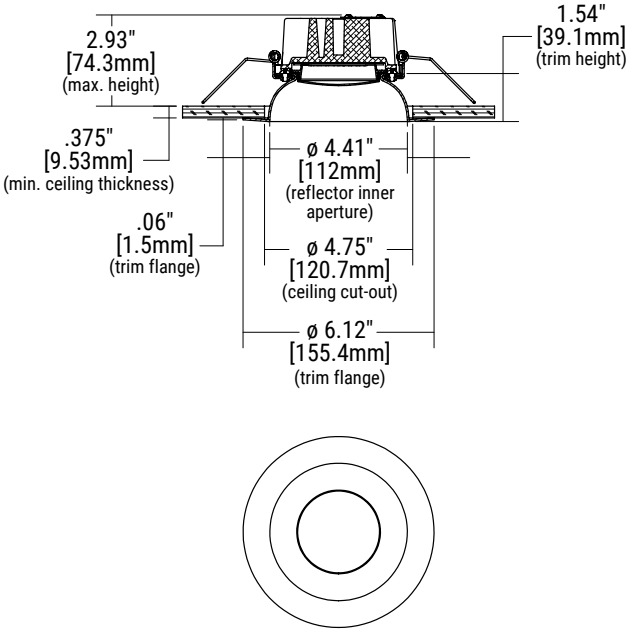
(HCD4TR* + HCD4GR*)



4" Retrofit - Wide (Shallow) Round Reflector & Narrow Round Reflector

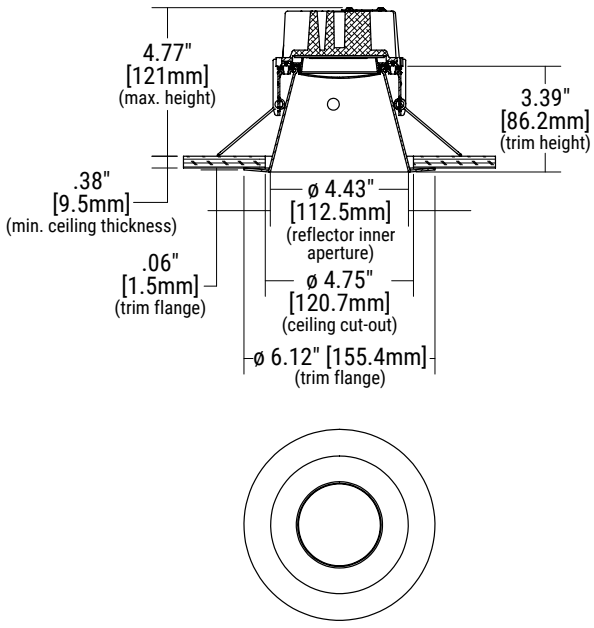
Wide (Shallow)

(HCD41TR*)



Narrow

(HCD42TR*)



Energy Data

10W Energy Data

500 LM	120V	277V	347V
Input Current (A)	0.053A	0.025A	0.018A
Input Power (W)	6.34W	6.47W	5.86W
Inrush (A)	3.7A	9.5A	1.05A
Inrush Duration (ms)	0.015ms	0.011ms	0.050ms

750 LM	120V	277V	347V
Input Current (A)	0.080A	0.036A	0.026A
Input Power (W)	9.61W	9.76W	8.68W
Inrush (A)	3.7A	9.5A	1.05A
Inrush Duration (ms)	0.015ms	0.011ms	0.050ms

1000 LM	120V	277V	347V
Input Current (A)	0.104A	0.046A	0.033A
Input Power (W)	12.54W	12.61W	11.12W
Inrush (A)	3.7A	9.5A	1.05A
Inrush Duration (ms)	0.015ms	0.011ms	0.050ms

25W Energy Data

1500lm	120V	277V	347V
Input Current (A)	0.131A	0.060A	0.048A
Input Power (W)	15.68W	15.84W	15.71W
Inrush (A)	11.5A	22.8A	3.3A
Inrush Duration (ms)	0.004ms	0.003ms	0.034ms

2000lm	120V	277V	347V
Input Current (A)	0.173A	0.077A	0.073A
Input Power (W)	20.77W	20.9W	20.76W
Inrush (A)	11.5A	22.8A	3.3A
Inrush Duration (ms)	0.004ms	0.003ms	0.034ms

2500lm	120V	277V	347V
Input Current (A)	0.216A	0.095A	0.077A
Input Power (W)	25.91W	25.88W	25.82W
Inrush (A)	11.5A	22.8A	3.3A
Inrush Duration (ms)	0.004ms	0.003ms	0.034ms

40W Energy Data

3000lm	120V	277V	347V
Input Current (A)	0.255A	0.116A	0.093A
Input Power (W)	30.5W	30.6W	29.93W
Inrush (A)	12.5A	30A	3.9A
Inrush Duration (ms)	0.005ms	0.004ms	0.065ms

3500lm	120V	277V	347V
Input Current (A)	0.3A	0.135A	0.108A
Input Power (W)	35.9W	36.18W	34.85W
Inrush (A)	12.5A	30A	3.9A
Inrush Duration (ms)	0.005ms	0.004ms	0.065ms

4000lm	120V	277V	347V
Input Current (A)	0.338A	0.151A	0.121A
Input Power (W)	40.45W	40.45W	39.65W
Inrush (A)	12.5A	30A	3.9A
Inrush Duration (ms)	0.005ms	0.004ms	0.065ms

50W Energy Data

4000lm	120V	277V	347V
Input Current (A)	0.336A	0.151A	0.127A
Input Power (W)	40.21W	40.25W	39.83W
Inrush (A)	15.9A	38A	3.7A
Inrush Duration (ms)	0.005ms	0.004ms	0.075ms

4500lm	120V	277V	347V
Input Current (A)	0.382A	0.17A	0.192A
Input Power (W)	45.63W	45.74W	44.93W
Inrush (A)	15.9A	38A	3.7A
Inrush Duration (ms)	0.005ms	0.004ms	0.075ms

5000lm	120V	277V	347V
Input Current (A)	0.431A	0.189A	0.154A
Input Power (W)	50.75W	50.77W	49.64W
Inrush (A)	15.9A	38A	3.7A
Inrush Duration (ms)	0.005ms	0.004ms	0.075ms

Energy Data - All Drivers	
Frequency (Hz)	50/60Hz
THD %	≤20%
PF	≥0.90
Min start temp*	-40°
T Ambient	35°
Sound Rating**	≤22dba

* Emergency Battery packs are rated for Non-Insulated ceiling installation, and have a minimum starting temperature of 0°C.
** Sound rating: Max at 1 ft at any dimming level.

Note: Refer to IES files for specific tested values & data.

Lumen Data - 4-inch HCD4

Values based on medium distribution haze (semi-specular) finish reflector; field results and alternate finishes may vary. (Refer also to finish multipliers in photometry.)

Photometric lab testing per IES LM-79-08; field results may vary.

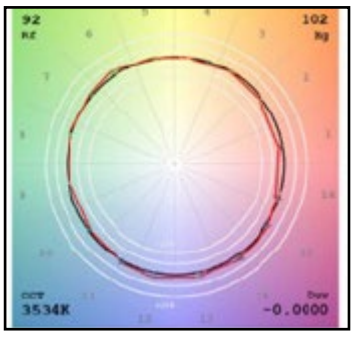
HCD4			2700K		3000K		3500K		4000K		5000K	
Module Kit Lumen Range	Lumen Selected	Wattage	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW
LS510	500	5.0	561	112	572	114	581	116	589	118	597	119
LS510	750	7.5	830	111	846	113	859	115	871	116	884	118
LS510	1000	10.0	1078	108	1099	110	1116	112	1132	113	1148	115
LS1525	1500	15.0	1640	109	1672	111	1698	113	1721	115	1747	116
LS1525	2000	20.0	2144	107	2186	109	2219	111	2250	113	2284	114
LS1525	2500	25.0	2610	104	2661	106	2701	108	2739	110	2780	111
LS3040	3000	28.5	3197	112	3260	114	3310	116	3356	118	3406	120
LS3040	3500	33.5	3679	110	3751	112	3808	114	3862	115	3919	117
LS3040	4000	38.5	4135	107	4217	110	4281	111	4341	113	4405	114
LS4550	4000	38.0	4070	107	4150	109	4213	111	4272	112	4335	114
LS4550	4500	44.0	4501	102	4589	104	4659	106	4725	107	4795	109
LS4550	5000	48.0	4909	102	5005	104	5081	106	5153	107	5229	109

HCD4 WallWash			2700K		3000K		3500K		4000K		5000K	
Module Kit Lumen Range	Lumen Selected	Wattage	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW	Delivered Lumens	LPW
LS510	500	5.0	530	106	540	108	548	110	556	111	564	113
LS510	750	7.5	784	105	799	107	811	108	823	110	835	111
LS510	1000	10.0	1018	102	1038	104	1054	105	1069	107	1084	108
LS1525	1500	15.0	1549	103	1579	105	1603	107	1626	108	1650	110
LS1525	2000	20.0	2024	101	2064	103	2096	105	2125	106	2157	108
LS1525	2500	25.0	2464	99	2513	101	2551	102	2587	103	2625	105
LS3040	3000	28.5	3019	106	3079	108	3126	110	3169	111	3216	113
LS3040	3500	33.5	3474	104	3542	106	3596	107	3647	109	3701	110
LS3040	4000	38.5	3905	101	3982	103	4043	105	4100	106	4160	108
LS4550	4000	38.0	3843	101	3919	103	3978	105	4034	106	4094	108
LS4550	4500	44.0	4250	97	4334	98	4400	100	4462	101	4528	103
LS4550	5000	48.0	4635	97	4727	98	4799	100	4866	101	4938	103

To estimate lumen output in emergency mode, multiply nominal battery wattage by LPW. Example: 6W x 115 LPW = 690 lumens.

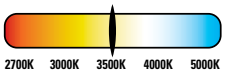
COLOR METRICS - TM-30-15 & CRI/CIE (3500K)

90 CRI Color Metric Summary - 3500K*



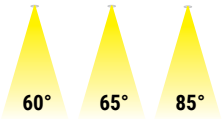
Reference Illuminant — Test Source

TM-30-15	Rf = 92
	Rg = 102
CRI/CIE	Ra = 95.3
	R9 = 77.9



BEAM ANGLES

HCD4



Nominal Beam

* Color values are based on HCD42TRMW reflector, other finishes and field results may vary.

Note: Refer to IES files for specific tested values & data.

Photometric Data

View IES files

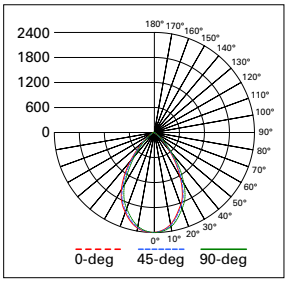
Note: Refer to IES files for specific tested values & data.

4" ROUND - MEDIUM DISTRIBUTION - HAZE FINISH, 2500 LUMEN MODEL, 90 CRI, 3500K

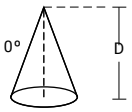
4" ROUND	
Test Number	P775982
Module Kit	HCDJBLS1525CSD
Reflector	HCD4TRH
Lumens	2702 Lm
Efficacy	108.1 Lm/W
SC	0.98
UGR	18

CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



MH	FC	L	W
5.5'	79.3	5.3	5.3
7'	49	6.7	6.8
8'	37.5	7.8	7.8
9'	29.6	8.8	8.8
10'	24	9.7	9.8
12'	16.7	11.7	11.8

CANDELA TABLE

Degrees Vertical	Candela
0	2397
5	2356
15	2070
25	1623
35	936
45	372
55	86
65	14
75	3
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1604	59.4
0-40	2259	83.6
0-60	2682	99.3
0-90	2702	100
90-180	0	0
0-180	2702	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	66172
55	18826
65	4109
75	1459
85	433

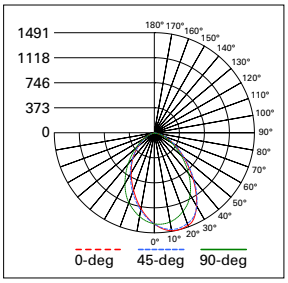
Values are nominal for haze (semi-specular) reflectors, other may vary.
SC = Spacing Criteria
UGR = Unified Glare Rating

4" ROUND - MEDIUM WALL WASH DISTRIBUTION - HAZE FINISH, 2500 LUMEN MODEL, 90 CRI, 3500K

4" ROUND WALL WASH	
Test Number	P775987
Module Kit	HCDJBLS1525CSD
Reflector	HCD4TRH - HCD4TRLWW
Lumens	2551 Lm
Efficacy	102 Lm/W
SC	1.09

CANDLEPOWER DISTRIBUTION

Wall Wash



CANDELA TABLE

Degrees Vertical	Candela
0	1359
5	1437
15	1489
25	1397
35	1076
45	723
55	447
65	244
75	94
85	6
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	981	38.5
0-40	1504	59
0-60	2257	88.5
0-90	2551	100
90-180	0	0
0-180	2551	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	128625
55	98077
65	72541
75	45853
85	8664

Values are nominal for haze (semi-specular) reflectors, other may vary.
SC = Spacing Criteria
UGR = Unified Glare Rating

SINGLE UNIT FOOTCANDLES

	2.5' from wall (distance from fixture along wall)						
1	24.3	16.8	7.3	2.8	1.1	0.5	0.2
2	40.9	30.1	15.3	6.8	3	1.4	0.7
3	37.8	29.6	17.2	8.8	4.4	2.2	1.2
4	28.2	23.4	15.4	8.9	4.9	2.7	1.5
5	19.4	16.9	12.3	7.9	4.8	2.9	1.7
6	13.1	11.9	9.4	6.6	4.4	2.8	1.8
7	8.9	8.3	7	5.3	3.8	2.6	1.8
8	6.3	5.9	5.2	4.2	3.2	2.3	1.6
9	4.6	4.3	3.9	3.3	2.6	2	1.5
10	3.4	3.3	3	2.6	2.2	1.7	1.3

MULTIPLE UNIT FOOTCANDLES

	2.5' from wall (Distance from fixture along wall) 3			2.5' from wall (Distance from fixture along wall) 4		
1	28.3	25.2	27.1	26.1	16.8	25.4
2	49.4	47.3	47.7	44.8	33.4	43.9
3	48.6	49.5	46.6	43.3	37.4	42.2
4	39	41.4	37.1	34.3	33.3	33.1
5	29	31	27.4	25.4	26.4	24.3
6	21	22.4	19.7	18.5	19.8	17.5
7	15.1	16	14.2	13.5	14.6	12.7
8	11	11.5	10.5	10	10.8	9.5
9	8.2	8.5	7.9	7.6	8	7.2
10	6.2	6.4	6	5.9	6.1	5.6

Photometric Multipliers (Nominal Lumen Values)

500 Lumen	750 Lumen	1000 Lumen	1500 Lumen	2000 Lumen	2500 Lumen	3000 Lumen	3500 Lumen	4000 Lumen	4000 Lumen	4500 Lumen	5000 Lumen
0.21	0.32	0.41	0.63	0.82	1.00	1.23	1.41	1.58	1.56	1.72	1.88

Multipliers for relative lumen values with other series models.

Color Finish Multipliers

Finish code	C	H	W/WB	BB
Finish	Specular Clear	Haze (Semi-Specular)	Matte White	Matte Black
Multiplier	1.08	1.00	0.94	0.59

Multipliers for relative lumen values with other color finishes.

CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.97	0.98	1.00	1.01	1.03

Multipliers for relative lumen values with other series color temperatures.

Note: To estimate lumen output in emergency mode, multiply the nominal battery wattage by the LPW of the fixture.

Connected Solutions

WaveLinx LITE Wireless Node - WLN

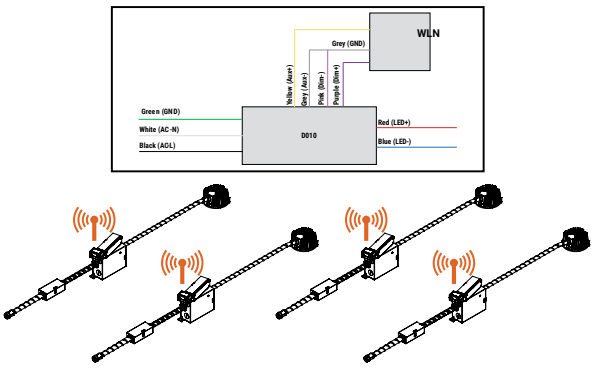
WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Refer to the WaveLinx system specifications for details

WaveLinx mobile app settings

Device Security · Manual Dimmer · Occupancy Sensor · Daylighting Control · Manually Switched ON/OFF · Tuning Control · Lumen Maintenance Control · Scenes

WaveLinx LITE Wireless Node (WLN) Wiring Diagram



WaveLinx LITE Bluetooth Enabled System

WaveLinx PRO Wireless Node - WPN

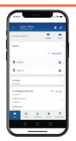
WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with WaveLinx Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations

Downlights with wireless communication
Highly efficient LED fixtures

WaveLinx Area Controller
Provides centralized coordination of multiple area control options

Wireless Wall Station/Receptacle
Provides customized wireless control of each area

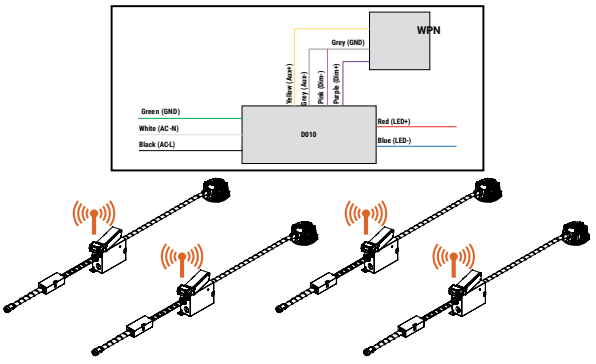


Mobile Applications
Provides personalized, local control from a tablet or smartphone

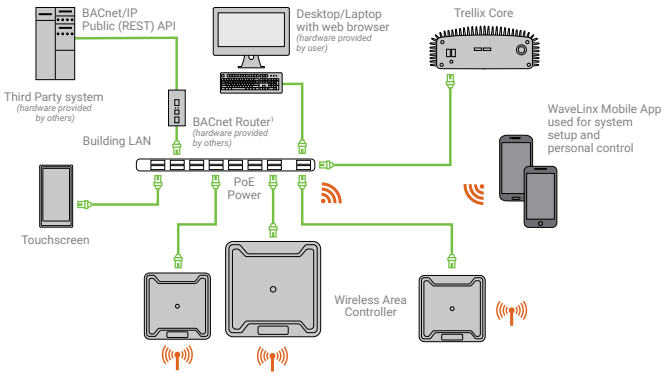
WaveLinx mobile app settings

Manual Dimmer · Occupancy Sensor · Lumen Maintenance Control · Daylighting Control · Receptacle Control · Tuning Control · Scheduling · Manually Switched ON/OFF · Demand Response

WaveLinx PRO Wireless Node (WPN) Wiring Diagram



WaveLinx CORE Building Management Integration



CALVIN™ WALL

PROJECT: _____

TYPE: _____

QUANTITY: _____

PN: 2W

APPLICATION	• WALL MOUNT • INDOOR OR OUTDOOR RATED
DIMENSION	• 16” (41CM)
ILLUMINATION	• DIRECT • LED 90CRI • INCANDESCENT MEDIUM BASE SOCKET • 753 - 1602 LUMENS
ELECTRICAL	• 120V, 277V, AND 347V • 10kA SURGE SUPRESSION STANDARD
DIFFUSERS	• CLEAR OR FROSTED, ELONGATED, GLASS GLOBE • CLEAR, FLAT LENS
DRIVER	• WALL MOUNT (INTEGRAL) • REMOTE MOUNT (INDOOR OR OUTDOOR)
MOUNTING	• WALL, MOUNTED TO A 4”(10CM) J-BOX
CONSTRUCTION	• ALUMINUM
FINISHES	• AVAILABLE ANODIZED, BRUSHED, AND IN SEVERAL TMS POWDER COATED FINISHES • CUSTOM RAL FINISHES AVAILABLE
DIMMING	• 0 - 10V STANDARD DIMMING
WEIGHT	• 7.5 LBS MAXIMUM

DIRECT

CALVIN™ WALL

PROJECT: _____

TYPE: _____

QUANTITY: _____

2W – ---------- – ---------- – ---------- – ---------- – ---------- – ---------- – ---------- – ---------- – ---------- – ----------

1 2 3 4 5 6 7 8 9 10

1.	I	O
APPLICATION	INDOOR	OUTDOOR

2.	ILLUMINATION			
	150IN	15LED	16LED	19LED
LED (W)	150W	15W	16W PAR38 40° E26 MED. BASE, 1400 LUMENS (27/30/35/40/50K) REFER TO PAGE 6	19W
LUMENS	2158	1351	1440	1803

3.	----	30K	35K	40K
LED CCT	NONE	3000K	3500K	4000K

4.	120	277	347
VOLTAGE	120V	277V	347V

5.	----	WM	N1	N4
DRIVER	NONE	WALL MOUNT (INTEGRAL)	REMOTE INDOOR MOUNT (NEMA 1)	REMOTE OUTDOOR MOUNT (NEMA 4)

6.										
FINISH	F04	F05	F15	F16	F09	F31	F18	F06	F07	F08
	MATTE WHITE	GLOSS WHITE	MATTE BLACK	GLOSS BLACK	PEWTER	SILVER METALLIC	SATIN ALUMINUM	CLAY BROWN	ZEUS BROWN	MIDNIGHT BLUE
	F10	F11	F13	F14	F21	F22	F24	F25	F26	F28
	FIRE RED	CITRUS ORANGE	FOREST GREEN	SUNSHINE YELLOW	ARCH. BRONZE	HARVEST GOLD	MELTED PLATINUM	MELTED GOLD	MELTED COPPER	DARK CAMPAGNE
	F32	F33	F38	F39	F40	F41	F42	F43	F44	F45
	BRONZE METALLIC	PYRITE BRONZE	MEADOW GREEN	AQUA BLUE	BUBBLE PINK	ELECTRIC PURPLE	FAUX CHROME	FAUX GOLD	FAUX COPPER	COPPER METALLIC
	RAL	BR	AN							
	CUSTOM (SPECIFY RAL)	BRUSHED ALUMINUM	ANODIZED							

7.	----	DIML
DIMMING	NONE	LED DIMMING (0 - 10V, CURRENT - SINKING)

8.	----	EM	EMC	EMR	EMCR
EMERGENCY[1]	NONE	INTEGRAL	INTEGRAL COLD PACK	REMOTE	REMOTE COLD PACK

9.	----	G1	G2	LNC
GLOBE/LENS	NONE	CLEAR, ELONGATED GLOBE	FROSTED GLOBE	CLEAR LENS

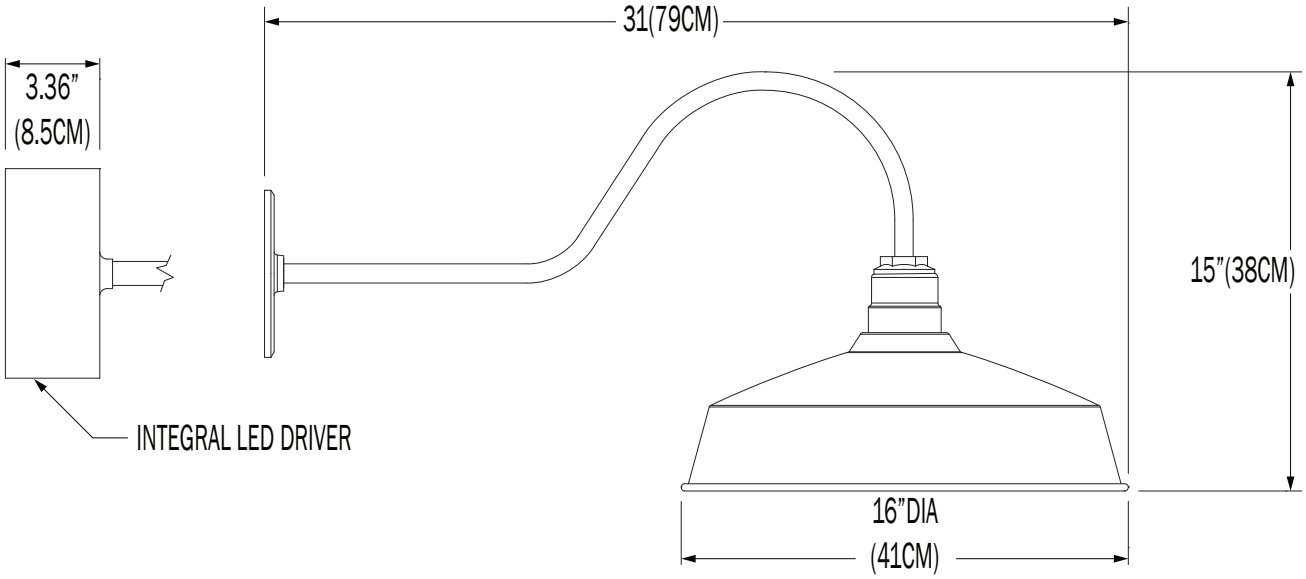
10.	----	W16
WIRE GUARD	NONE	W16" WIRE GUARD

1. 10W AT 90 MINUTES. EMERGENCY OPTION IS ONLY AVAILABLE IN 120 - 277V SYSTEMS

NOTE: SOME OPTIONS MAY NOT BE COMPATIBLE WITH OTHERS. **ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.** CONTACT TMS LIGHTING FOR UPDATED SPECIFICATIONS.

2W

PROFILE



CUSTOM

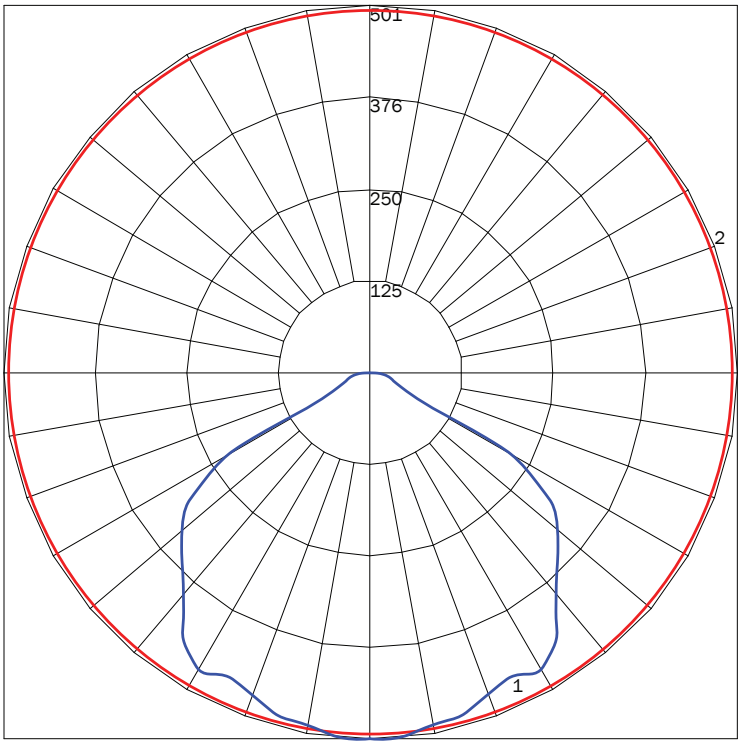
NOTE: THIS FIXTURE CAN BE CUSTOMIZE. DIMENSION, LAMP TYPES, ENCLOSURE, AND COLOR CAN BE MODIFIED TO SUIT YOUR LIGHTING AND ARCHITECTURAL REQUIREMENTS. CONTACT YOUR LOCAL REPRESENTATIVE FOR MORE DETAILS: https://tmslighting.com/sales-agents.html

DIRECT

PN	ILLUMINATION	LUMENS	WATTAGE
2W	15LED	1351	15
	16LED	1440	16
	19LED	1803	19
	150IN	2158	150

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 2W 15LED 35K WM F05.IES

POLAR GRAPH

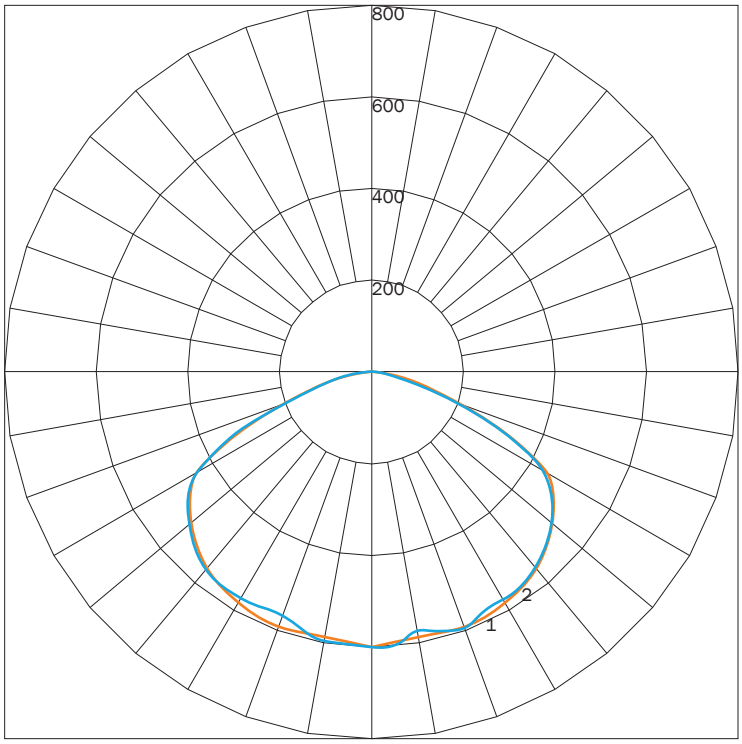


MAXIMUM CANDELA = 500.83 LOCATED AT HORIZONTAL ANGLE = 22.5, VERTICAL ANGLE = 5
1 - VERTICAL PLANE THROUGH HORIZONTAL ANGLES (22.5 - 202.5) (THROUGH MAX. CD.)
2 - HORIZONTAL CONE THROUGH VERTICAL ANGLE (90) (THROUGH MAX. CD.)

LUMINAIRE LUMENS	1351
TOTAL LUMINAIRE EFFICIENCY	95%
LUMINAIRE EFFICACY RATING	90
TOTAL LUMINAIRE WATTS	15

IES INDOOR REPORT
PHOTOMETRIC FILENAME : 2W 150IN.IES

POLAR GRAPH



MAXIMUM CANDELA = 604.377 LOCATED AT HORIZONTAL ANGLE = 0, VERTICAL ANGLE = 5
1 - VERTICAL PLANE THROUGH HORIZONTAL ANGLES (90 - 270)
2 - VERTICAL PLANE THROUGH HORIZONTAL ANGLES (0 - 180)

LUMINAIRE LUMENS	2158
TOTAL LUMINAIRE EFFICIENCY	81%
LUMINAIRE EFFICACY RATING	14
TOTAL LUMINAIRE WATTS	150

FINISHES


F04 MATTE WHITE


F05 GLOSS WHITE


F15 MATTE BLACK


F16 GLOSS BLACK


F09 PEWTER


F31 SILVER METALLIC


F18 SATIN ALUMINUM


F40 BUBBLE PINK


F10 FIRE RED


F41 ELECTRIC PURPLE


F08 MIDNIGHT BLUE


F39 AQUA BLUE


F13 FOREST GREEN


F38 MEADOW GREEN


F45 COPPER METALLIC


F06 CLAY BROWN


F11 CITRUS ORANGE


F28 DARK CHAMPAGNE


F22 HARVEST GOLD


F14 SUNSHINE YELLOW


F33 PYRITE BRONZE

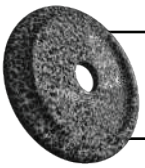

F07 ZEUS BROWN


F32 BRONZE METALLIC


F26 MELTED COPPER


F21 ARCH BRONZE


F25 MELTED GOLD


F24 MELTED PLATINUM


RAL CUSTOM (RAL #)

PREMIUM FINISHES


F43 FAUX GOLD


F42 FAUX CHROME

PREMIUM MATERIALS


BR[1 2] BRUSHED ALUMINUM


AN[1 2] ANODIZED

1: FINISHES IS APPLIED TO THE INTERIOR AND EXTERIOR OF THE FIXTURE.
2: MATERIALS ARE CONSISTENT (INTERIOR & EXTERIOR). STEMS AND CANOPIES WILL BE F16 GLOSS BLACK.
NOTE: ALL FINISHES NOT MARKED WITH NOTATION (1) ARE APPLIED TO THE EXTERIOR ONLY. THE INTERIOR WILL BE F05 GLOSS WHITE.
MATTE FINISHES AVAILABLE. CONSULT FACTORY.
FINISHES ARE SUBJECT TO AVAILABLILITY AND MAY NOT BE APPLICABLE TO ALL FIXTURES OR FOR QUICKSHIP.
DISPLAYED FINISHES DIFFER BETWEEN SCREENS AS WELL AS PRINTERS AND MAY NOT ACCURATELY DEPICT COLOR.

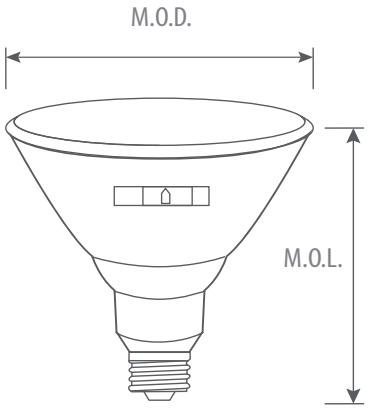
16W LED PAR 38 40° MED BASE

HD-PAR/I90/5CCT

FEATURES & BENEFITS

- **5 FIELD SELECTABLE CCT'S (27/30/35/40/50K)**
- **HIGH CRI (90+)**
- **GLASS LENS**
- **25,000 HRS AVERAGE LIFE**
- **WET LOCATION RATED**
- **DIMMABLE**

DIMENSIONAL DRAWING



MODEL NUMBER	WATTAGE (W)	BASE	VOLTAGE (V)	HOUR RATING	BEAM ANGLE	INITIAL LUMENS(LM)	CCT(K)	CRI	ENCLOSED FIXTURE APPLICATION	WET LOCATION	M.O.D. (INCH)	M.O.L. (INCH)
16W LED	16	E26	120	25,000	40°	1400	27/30/35/40/50	90	NO	YES	4.8	5.31

Project		**Catalog #**		**Type**	
Prepared by		**Notes**		**Date**	

Portfolio

LER4C/LESQ4C Cylinders

4" Round and Square Cylinder
Surface, Ceiling, Wall, Up/Down, Yoke, and Stem Mount

Typical Applications
Office • Education • Healthcare • Hospitality • Retail • Residential

Interactive Menu

damp location · wet location · WaveLinx LITE · WaveLinx PRO · powered by fifthlight

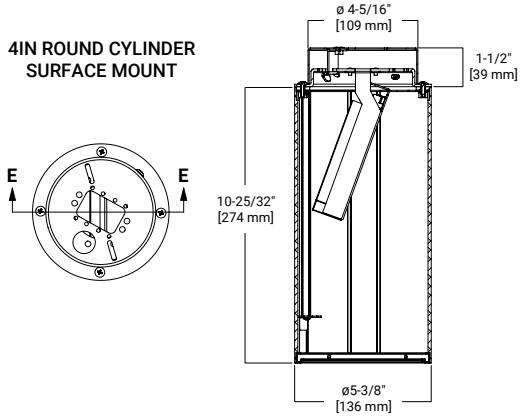
Top Product Features

- 250 to 4,000 lumens; Offered in 90 and 97 CRI; Downlight
- Extruded aluminum housing; Matte Black, White, Bronze and Silver paint finishes
- 6 color temperatures: 2400K, 2700K, 3000K, 3500K, 4000K and 5000K CCT
- Options to meet Trade Agreements Act requirements

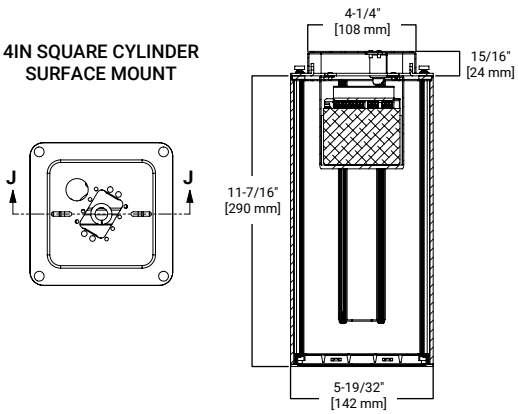
Dimensional and Mounting Details

additional product diagrams

4IN ROUND CYLINDER SURFACE MOUNT



4IN SQUARE CYLINDER SURFACE MOUNT



*T24 and RoHS are self-tested by Cooper Lighting Solutions. Not a third party certification.

Order Information

SAMPLE ORDER NUMBER: **LER4C10D010TRP**

Domestic Preferences [30]	Cylinder	Lumens	Driver	Remote [8]	Finish [10]	Factory Installed Connected Lighting Options
[Blank]=Standard **TAA**= Trade Agreements Act **BAA**=Buy American Act	**Ceiling surface mount** **LER4C**=4-inch round surface mount **LESQ4C**= 4-inch square surface mount square aperture [1] **LESQR4C**= 4-inch square surface mount round aperture [2] **Ceiling surface mount Square with conduit canpoy (for round use Conduit Canopy Kit accessory)** **LESQSM4C** = 4-inch square surface mount square aperture with surface mount conduit canopy [1] **LESQRSM4C** = 4-inch square surface mount, round aperture with surface mount conduit canopy [2] **Wall mount Downlight** **LERWM4C**= 4-inch round wall mount **LESQRWM4C**= 4-inch square wall mount round aperture [2] **LESQWM4C**= 4-inch square wall mount square aperture [1] **Wall mount Up/down** [22] [23] **LERUD4C**= 4-inch round wall mount up/down [4] [36] **LESQUD4C**= 4-inch square wall mount up/down square aperture [3] [36] **LESQRUD4C**= 4-inch square wall mount up/down round aperture [4] [36] **Yoke mount** **LERYM4C** = 4-inch round yoke mount [24] **LESQYM4C** = 4-inch square yoke mount square aperture [1] [24] **LESQRYM4C** = 4-inch square yoke mount round aperture [2] [24]	**02**=250 lumens **05**=500 lumens **08**=800 lumens **10**=1000 lumens **15**=1500 lumens **20**=2000 lumens **25**=2500 lumens **30**=3000 lumens **35**=3500 lumens **40**=4000 lumens	**D010**=0-10V Dimming, 1% to 100%, 120V-277V, 500-4000 **3D010**=0-10V Dimming, 1% to 100%, 347V, 800-3500 Lumens (500, 4000 Lumens requires a Remote Driver) **D010TR**=0-10V (120-277V) or line voltage (120V) dimming, 1-100%; 1 driver: 250 to 3500 / 2 drivers: (Downlight and Remote only): 4000 Lumens **DE010**=0-10V Linear Dimming, 0.1% to 100%, 120V-277V, 500-4000 lumens **D5LT**=Fifth Light® DALI DT6 Logarithmic Dimming, 0.1% to 100%, 120V-277V, 500-4000 lumens **DMX**=DMX/RDM Logarithmic Dimming, 0.1% to 100%, 120V-277V, 800-4000 lumens [6] **DMXC5**=DMX/RDM Logarithmic Dimming, 0.1% to 100%, 120V-277V, with RJ45 connection, 800-4000 lumens [6] **DLE**=Lutron Ecosystem dimming 1% to 100%, 120-277V; 1 driver: 800 to 3500 Lumens / 2 drivers: (Downlight and Remote only): 4000 Lumens **DLV**=Low Voltage System, 800-3000 lumens	**blank**=Integral driver **R**=Remote driver [9]	**P**=White **MB**=Matte Black **SL**=Silver **BZ**=Bronze	**WPN** = WaveLinx PRO Wireless Node without sensor [14] [25] **WLN** = WaveLinx LITE Wireless Node without sensor [29] **IEMBOD6ST** = Bodine® 6W Self Test Emergency Module with Integral Test Switch (requires EM6 trim option) • Limited to 2000 lumens

Power Module **Choose between EC4C downlight or ECA4C adjustable**

SAMPLE ORDER NUMBER: **EC4C10209035**

Domestic Preferences [30]	Power Module	Lumen Levels [15]	Color	
[Blank]=Standard **TAA**= Trade Agreements Act **BAA**=Buy American Act	**EC4C**=4-inch cylinder light engine	**0208**=250, 500, 800 Lumens **1020**=1000, 1500, or 2000 Lumens **2535**=2500, 3000, 3500 Lumens **4000**=4000 Lumens **Two LEDs for cylinders with two drivers** **4075**=4000 lumens (For use with Lutron and D010TR)	**90 CRI** **9024**= 90CRI, 2400K **9027**= 90CRI, 2700K **9030**= 90CRI, 3000K **9035**= 90CRI, 3500K **9040**= 90CRI, 4000K **9050**= 90CRI, 5000K	**97 CRI** **9727**= 97CRI, 2700K **9730**= 97CRI, 3000K

SAMPLE ORDER NUMBER: **ECA4C1020FL9030MW**

Domestic Preferences [30]	Power Module [15]	Distribution	Color		Finish
[Blank]=Standard **TAA**= Trade Agreements Act	**ECA4C0208** =4-inch cylinder adjustable light engine; 250, 500, 800 Lumens **ECA4C1020** =4-inch cylinder adjustable light engine; 1000, 1500, or 2000 Lumens	**NFL**=Narrow Flood **FL**=Flood	**90 CRI** **9024**= 90CRI, 2400K **9027**= 90CRI, 2700K **9030**= 90CRI, 3000K **9035**= 90CRI, 3500K **9040**= 90CRI, 4000K **9050**= 90CRI, 5000K	**97 CRI** **9727**= 97CRI, 2700K **9730**= 97CRI, 3000K	**MW**=Matte White **MB**=Matte Black **MMS**=Matte Metallic Silver

Trim is included with ECA4C adjustable power module. Do not order a separate trim.

SAMPLE ORDER NUMBER: **4LBN3LI**

Domestic Preferences [30]	Trim	Distribution [16]		Flange	Finish	Options
[Blank]=Standard **BAA**=Buy American Act [35]	**4LB**=4" LED	**N**=Narrow (30° Beam), Spun Aluminum **M**=Medium (50° Beam), Spun Aluminum **MD**=45°Cutoff, Medium Beam, Spun Aluminum **W**=Wide (75° Beam), Spun Aluminum **S**=Shallow (75° Beam), Spun Aluminum **HY**=Hyperbolic Medium Beam (Single LED drivers only) **CS**=Cast Shallow (75° Beam), Die Cast Aluminum **BA**=Spun Aluminum Baffle	**SWN**=Single Wall Wash, Spun Aluminum **DWN**=Double Wall Wash, Spun Aluminum **MDSW**=45° Cutoff, Single Wall Wash, Spun Aluminum **MDDW**= 45° Cutoff, Double Wall Wash, Spun Aluminum **LSWW**=Lensed Single Wall Wash, Spun Aluminum **LDWW**=Lensed Double Wall Wash, Spun Aluminum **Square (for use with LESQUDS, LESQS)** **SQ**= Medium Beam, 50° Cutoff Square Anodized Aluminum Downlight **SQW**= Medium Beam, 45° Cutoff Anodized Aluminum Downlight **CSSQ**=Shallow Die Cast Aluminum	**3**=Rimless	**LI**=Specular Clear[17] **H**=Semi-Specular Clear[17] **WMH**=Warm Haze[17] **WH**=Wheat[17] **GPH**=Graphite Haze[17] **B**=Specular Black[17] **MW**=Matte White **MB**=Matte Black[18] **MMS**=Matte Metallic Silver[19]	**EM6**=Integral Emergency Test Switch Hole [7] For use with: • Available with narrow (N), medium (M) and medium 45° (MD), Shallow (S), Square (SQW). • Limited to 2000 lumens

continued on next page

Order Information

REQUIRED if Remote Driver (R) is specified on Cylinder

Domestic Preferences (30)	Remote Drivers(8)	Lumens	Voltage	Driver	Options (31) (33)	Controls
[Blank]=Standard **TAA**= Trade Agreements Act	**RC100**=Remote 100 ft **RC75**= Remote 75 ft **RC50**= Remote 50 ft **RC25**= Remote 25 ft **RC15**= Remote 15 ft **RC5**= Remote 5 ft **RC2**= Remote 2 ft	**02**=250 lumens **05**=500 lumens **08**=800 lumens **10**=1000 lumens **15**=1500 lumens **20**=2000 lumens **25**=2500 lumens **30**=3000 lumens **35**=3500 lumens **40C**=4000 lumens	**blank**=120-277V (250-3500 lumens) (11) **1**=120V (3500 & 4000 lumens only) **2**=277V (3500 & 4000 lumens only) **3**=347V (34)	**D010**=0-10V Dimming, 1% to 100%, 120V-277V, 500-4000 **D010TR**=0-10V (120-277V) or line voltage (120V) dimming, 1100%; 1 driver: 250 to 3500 / 2 drivers: (Downlight only): 4000 Lumens **DE010**=0-10V Linear Dimming, 0.1% to 100%, 120V-277V, 500-4000 lumens **D5LT**=Fifth Light® DALI DT6 Logarithmic Dimming, 0.1% to 100%, 120V-277V, 500-4000 lumens **DMX**=DMX/RDM Logarithmic Dimming, 0.1% to 100%, 120V-277V, 800-4000 lumens (6) **DMXC5**=DMX/RDM Logarithmic Dimming, 0.1% to 100%, 120V-277V, with RJ45 connection, 800-4000 lumens (6) **DLE**=Lutron Ecosystem dimming 1% to 100%, 120-277V; 1 driver: 800 to 3500 Lumens / 2 drivers: (Downlight only): 4000 Lumens (12) **DLV**=Low Voltage System, 800-3000 lumens	**EMBOD**=Bodine® Emergency Module with Remote Test Switch **EMBOD6ST**=Bodine® 6W Self Test Emergency Module with Remote Test Switch **EM7**=7W Emergency Module with Remote Test Switch **EM14**=14W Emergency Module with Remote Test Switch **EMBOD7ST**=Bodine® Self Test Emergency Module **EMV7**=7W Low Voltage Emergency Module with Remote Test Switch (21) **EMV14**=14W Low Voltage Emergency Module with Remote Test Switch (21) **ETRD**=Emergency transfer device (32)	**WPST**=Factory installed WaveLinx PRO Sensor Kit (14) (28) **WLST**=Factory installed WaveLinx LITE Sensor Kit (14) (27) **WPN** = WaveLinx PRO Wireless Node without sensor (14) (25) **WLN** = WaveLinx LITE Wireless Node without sensor (29)

Domestic Preferences (30)	Accessories	Type	Lengths
[Blank]=Standard **TAA**= Trade Agreements Act **BAA**=Buy American Act	**Pendant Kit**(20) (37) **P436P**=White pendant stem kit for suspended mount cylinder **P436BZ**=Bronze pendant stem kit for suspended mount cylinder **P436MB**=Matte black pendant stem kit for suspended mount cylinder **P436SL**=Silver pendant stem kit for suspended mount cylinder	**Blank**=5 conductor for use with 0-10V driver **3C**=3 conductor for use with 120 or 277V **5C**= 5 conductor for use with D5LT drivers **DMX**=No conductors for use with DMX and remote drivers **RM** = for Remote drivers	**Blank**=36" **SP*=*** Specify 6" to 144" in 1" increments
	Conduit pendant kit(26) (37) **PMRCC4P** = Round pendant stem kit with conduit knockout cover, white **PMRCC4MB** = Round pendant stem kit with conduit knockout cover, black **PMRCC4CZ** = Round pendant stem kit with conduit knockout cover, bronze **PMRCC4SL** = Round pendant stem kit with conduit knockout cover, silver **PMSQCC4P** = Square pendant stem kit with conduit knockout cover, white **PMSQCC4MB** = Square pendant stem kit with conduit knockout cover, black **PMSQCC4CZ** = Square pendant stem kit with conduit knockout cover, bronze **PMSQCC4SL** = Square pendant stem kit with conduit knockout cover, silver		**Blank**=36" **SP*=*** Specify 6" to 144" in 1" increments
	Aircraft cable (26) (37) **AC4120P=**120" white aircraft cable kit **AC448P**=48" white aircraft cable kit **AC4120MB=**120" black aircraft cable kit **AC448MB**=48" black aircraft cable kit	**Blank**=5 conductor **DMXC5**=DMX/RDM logarithmic Dimming with RJ45 connection	
[Blank]=Standard **TAA**= Trade Agreements Act	**LNE4RUD**=up/down gasketed lens, wet location, round (22) **LNS4SQUD** = up/down gasketed lens, wet location square (22) **Conduit Kit** (26) **SMRCC4P** = Round conduit canopy for round surface mount, white **SMRCC4MB** = Round conduit canopy for round surface mount, black **SMRCC4CZ** = Round conduit canopy for round surface mount, bronze **SMRCC4SL** = Round conduit canopy for round surface mount, silver **Connected Lighting Systems**(14) **WTA** = Field installed WaveLinx PRO sensor Kit (27) **WTK** = Field installed WaveLinx LITE Sensor Kit(28)		

Notes

(1) Square reflector
(2) Round reflector
(3) Square reflector, requires two reflectors and light engines
(4) Round reflector, requires two reflectors and light engines
(5) 347V integral D010 only. 800-3500 lumens for integral driver. 500, 4000 lumens for remote driver.
(6) DMX fixtures default to full on upon loss of DMX signal
(7) Required for use with EM6. Not offered with remote driver.
(8) Up down surface mount require 2 driver assemblies
(9) Order remote driver separately. See below to order.
(10) Consult factory for custom finishes.
(11) 3000 and below. Up to 3000 lumens does not need voltage specified.
(12) Only available up to 25 ft.
(13) Not available with up/down
(14) Refer to system specifications for additional information, features, and benefits. Order either factory installed option or accessory. WPN is factory installed only. Use with 0-10V driver.
(15) Nominal Lumens will vary depending on selected color, driver and reflector finish.
(16) Beam angles are nominal with LI finish trims.
(17) Not available on CS or BA distributions
(18) Available with BA and CS distributions
(19) Available only on CS distributions
(20) 0-45° slope.
(21) ULus listed only
(22) Up/down lens required for wet location
(23) Lumen specified for up/down is the same for both directions. Ex. 800 lumens will be 800 lumens up & 800 lumens down.
(24) Ceiling mount only
(25) WPN = WaveLinx PRO wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only.
(26) Not for use with remote driver
(27) WLST = WaveLinx LITE tile mount sensor kit for daylight dimming, PIR motion sensing, use with D010 only (Refer to WaveLinx Lite system specifications)
(28) WPST = WaveLinx PRO wireless sensor kit for daylight dimming, PIR motion sensing, and optional RLTS - Real Time Location Services, use with 0-10V only
(29) WLN = WaveLinx LITE wireless node provides luminaire level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with D010 or DE010 drivers only.
(30) To order product that is compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act (TAA), use the online specification configurator to specify BAA or TAA. Please refer to DOMESTIC PREFERENCES LINK for more information. Components shipped separately may be separately analyzed under domestic preference requirements. Accessories sold separately will be separately analyzed under domestic preference requirements.
(31) 120V-277V
(32) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others).
(33) Non-IC
(34) D010 800 to 4000 lumens. 500 and 4000 lumens use step down transformer) All other drivers use step down transformer.
(35) Offered with spun aluminum narrow (N), medium (M) and wide (W) trims.
(36) DMX drivers with shallow trim only.
(37) Order with ceiling mount cylinder.

Product Specifications

Lower Reflector
- Painted die-cast aluminum or spun aluminum lower reflector with a lensed upper optical chamber provides superior lumen output with minimal source brightness
- Square surface mount available with square or round reflectors
- Spun reflectors are available in all Portfolio finishes
- Directional with baffle tilts from 0°-30°

Wall Wash Reflector
- Open Wall Wash - wall wash reflector with gradient kicker offered in single and double with choice of wide or medium beam, providing even vertical illumination with minimal source brightness.
- Rotatable Lensed Wall Wash - Rotatable lensed wall wash reflector offered in single and double wall wash provides even vertical illumination with minimal source brightness.

Trim retention
- Two torsion springs hold flange tightly to the cylinder lip

Cylinder
- Round and soft square extruded aluminum
- Matte white, bronze, silver or matte black. Contact factory for custom finishes.
- Available in standard and shallow heights
- Yoke mount provides +/-45° lockable tilt

Mounting
- Mounting plate installs to mounted junction box
- Cylinder mounts to plate with easy twist and lock hooks for ceiling mount
- For wall mount, mounting arm attaches directly to junction box via a robust mounting plate
- Offered with optional stem and aircraft cable
- Conduit canopy allows for mounting pendant and surface cylinder on hard ceilings provided in painted finish to match the cylinder accommodates ½" or ¾" conduit.

Thermal
- Aluminum heat sink conducts heat away from the LED module for optical performance and longer life

LED System
- Contains a plurality of high brightness white LED's combined with a high reflectance upper reflector and convex transitional lens producing even distribution without pixilation
- Auto resetting, thermally protected, LED's are turned off when safe operating temperatures are exceeded
- Quick disconnect allows for tool-less replacement of LED engine from below ceiling
- 90 and 97 CRI
- 90 & 97CRI: L78 55,000 hours for 1000-2000 lumens, L90 55,000 for all other lumen output
- Color variation within 2-step MacAdam ellipses
- Available in 2400K, 2700K, 3000K, 3500K, 4000K and 5000K correlated color temperature (CCT)

Vividtune and High CRI
- 98 CRI and W2N: L70 55,000 hours
- D2W™ – dim-to-warm shifts CCT from 3000K to 1850K as fixture dims mimicking halogen sources.
- W2N - Tunable white CCT range 2700K to 6500K or 2000K to 5000K, 90 CRI. Standard
- **98 CRI** With a full-spectrum approach using broad-blue chip technology and special phosphor blends, Thrive is able to closely match the spectrum of the sun across all color temperatures. Benefits of the natural spectrum of the sun using Thrive include superior accurate color rendering, reduced eye strain, and a higher sense of emotional well-being.
- See dedicated specification sheet for more details.

Driver
- Standard 120-277V 0-10V dimming driver provides flicker-free dimming from 100% to 1%
- Optional 120V leading edge, <1% 0-10V, Fifth Light, DMX or Lutron®
- Remote driver option up to 100' based on driver selection
- Distributed low voltage power system combines power, lighting, and controls with ease of installation.

Emergency Option
- Provides 90 minutes of standby lighting, meeting most life safety codes for egress lighting
- Available Self-Test (self-diagnostic) with remote charge indicator and test switch
- Emergency Transfer Relay Device bypasses local control during a power outage
- UL 924 listed

Connected Lighting System
Two WaveLinx connected solutions to choose from. Refer to WaveLinx system specifications and application guides for details.

WaveLinx PRO Tilemount Sensor Kit
- WaveLinx PRO WPST tilemount sensor kit offers daylight dimming, PIR motion sensing, scene and zone configuration, automatic commissioning; and optional RLTS - Real Time Location Services available.

WaveLinx PRO Wireless Node
- WaveLinx PRO WPN wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. **Note:** Not compatible with 347V or Chicago plenum.

WaveLinx LITE Tilemount Sensor Kit
- WaveLinx LITE WLST tilemount sensor kit offers daylight dimming and PIR motion sensing, scene and grouping configuration.

WaveLinx LITE Wireless Node
- WaveLinx LITE WLN wireless node provides luminaire level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. **Note:** Not compatible with 347V or Chicago plenum.

WaveLinx Tilemount Sensor Kits Application
- The WPST and WLST tilemount sensor kits include a control module mounted on the luminaire junction box via 1/2" knock-out, and a tilemount sensor on 54-inch whip; for ceiling installation by direct-mount spring clips or via mounting bracket in octagon ceiling boxes.
- The WPST and WLST tilemount sensor kits may be ordered as factory installed on the luminaire, or ordered separately as a field installed accessory kit.
- **Note: WaveLinx PRO devices are only compatible with the WaveLinx PRO system.**
- **Note: WaveLinx LITE devices are only compatible with the WaveLinx LITE system.**

Compliance
- EMI/RFI emissions per FCC 47CFR Part 18 Class B consumer limits
- RoHS compliant
- Photometric testing completed in accordance with IES LM-79
- LED life testing completed in accordance with IES LM-80 standards

Warranty
- Five year warranty www.cooperlighting.com/legal

*T24 and RoHS are self-tested by Cooper Lighting Solutions. Not a third party certification.

Energy and Performance Data

D010 DRIVER ENERGY DATA

Series	250 lumen		500 lumen		800 lumen		1000 lumen		1500 lumen		2000 lumen	
Input Voltage 120-277VAC	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V
Input Current (A)	0.029	0.017	0.061	0.032	0.085	0.041	0.084	0.042	0.135	0.063	0.189	0.084
Input Power (W)	3.45	3.87	7.33	7.78	10.15	10.52	10.04	10.43	16.17	16.56	22.58	22.63
In-rush (A)	2.1	8.5	3.7	8.5	3.6	8.3	3.6	8.4	2.3	9.5	2.1	9.7
Inrush duration (µs)	250	131	190	136	220	135	226	136	230	125	243	132
THDi (%)	7.21	16.92	7.82	10.78	5.57	9.63	7.78	9.24	4.75	9.93	8.03	7.44
PF	≥ 0.98	≥ 0.9	≥ 0.99	≥ 0.93	≥ 0.99	≥ 0.95	≥ 0.99	≥ 0.95	≥ 0.99	≥ 0.94	≥ 0.99	≥ 0.96

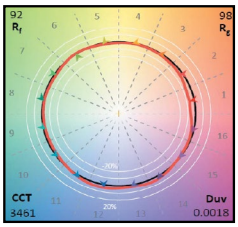
Series	2500 lumen		3000 lumen		3500 lumen		4000 lumen	
Input Voltage 120-277VAC	120V	277V	120V	277V	120V	277V	120V	277V
Input Current (A)	0.276	0.121	0.276	0.041	0.333	0.152	0.404	0.181
Input Power (W)	32.98	32.57	32	10.52	39.83	39.84	48.38	47.94
In-rush (A)	2.5	11.8	3.6	8.3	3.1	14.3	3.1	14.5
Inrush duration (µs)	215	111	220	135	200	94	197	95
THDi (%)	9.86	6.57	5.57	9.63	4.25	10.05	5.02	7.97
PF	≥ 0.99	≥ 0.97	≥ 0.99	≥ 0.95	≥ 0.99	≥ 0.94	≥ 0.99	≥ 0.95

Minimum starting temperature -30°C (-22°F)* (Nominal input 120-277VAC & 100% of rated output power)
Sound Rating: Class A standards

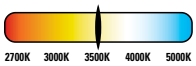
Notes:
Emergency Battery packs are rated for a minimum starting temperature of 0°C.

COLOR METRICS - TM-30-15 & CRI/CIE

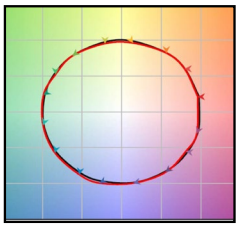
90 CRI Color Metric Summary - 3500K*



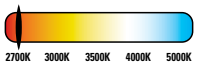
TM-30-15	Rf = 92
	Rg = 98
CRI/CIE	Ra = 92.2
	R9 = 51.4



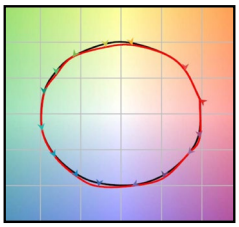
97 CRI Color Metric Summary - 2700K*



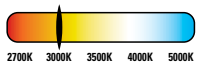
TM-30-15	Rf = 95
	Rg = 99.8
CRI/CIE	Ra = 97.2
	R9 = 95.5



97 CRI Color Metric Summary - 3000K*



TM-30-15	Rf = 93.9
	Rg = 100.2
CRI/CIE	Ra = 98.7
	R9 = 97.2



* Color values are based on haze reflector, other finishes and field results may vary.

Photometric Data

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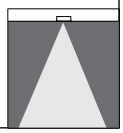
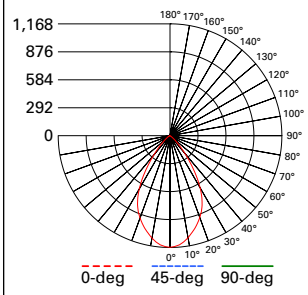
MEDIUM BEAM 50° CUTOFF 65° BEAM (H)

Test Number	P571636
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBMH
Lumens	1178
Efficacy	74.6 Lm/W
SC	0.95
UGR	11.9

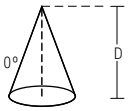


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	73	3.6	3.6
7'	23.8	6.6	6.6
9'	14.4	8.4	8.4
13'	6.9	12.2	12.2
16'	4.6	15	15

CANDELA TABLE

Degrees Vertical	Candela
0	1168
5	1147
15	1006
25	800
35	437
45	135
55	32
65	9
75	2
85	0
90	0

ZONAL LUMEN SUMMARY

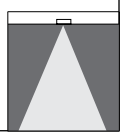
Zone	Lumens	% Fixture
0-30	752	63.8
0-40	1024	87
0-60	1165	98.9
0-90	1178	100
90-180	0	0
0-180	1178	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	55459
45	23472
55	6854
65	2587
75	854
85	0

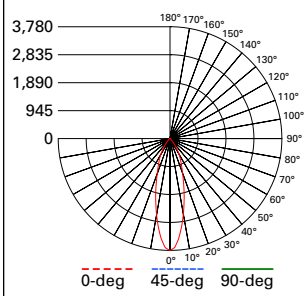
MEDIUM BEAM 50° CUTOFF 45° BEAM (LI)

Test Number	P571637
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBMLI
Lumens	1469
Efficacy	93 Lm/W
SC	0.48
UGR	0

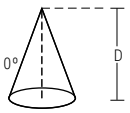


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	236.3	1.8	1.8
7'	77.2	3.2	3.2
9'	46.7	4.2	4.2
13'	22.4	6.2	6.2
16'	14.8	7.6	7.6

CANDELA TABLE

Degrees Vertical	Candela
0	3780
5	3389
15	1844
25	873
35	339
45	38
55	2
65	2
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

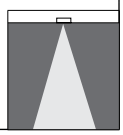
Zone	Lumens	% Fixture
0-30	1213	82.6
0-40	1428	97.2
0-60	1468	99.9
0-90	1469	100
90-180	0	0
0-180	1469	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	38008
45	6672
55	493
65	669
75	0
85	0

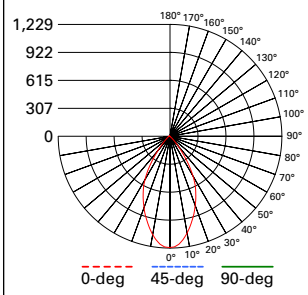
NARROW 55° BEAM (H)

Test Number	P571638
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBNH
Lumens	979
Efficacy	62 Lm/W
SC	0.81
UGR	8.2

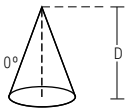


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	76.8	3.2	3.2
7'	25.1	5.6	5.6
9'	15.2	7.2	7.2
13'	7.3	10.4	10.4
16'	4.8	12.8	12.8

CANDELA TABLE

Degrees Vertical	Candela
0	1229
5	1197
15	963
25	685
35	332
45	67
55	16
65	5
75	2
85	0
90	0

ZONAL LUMEN SUMMARY

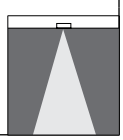
Zone	Lumens	% Fixture
0-30	692	70.7
0-40	899	91.8
0-60	972	99.2
0-90	979	100
90-180	0	0
0-180	979	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	39457
45	11710
55	3406
65	1541
75	854
85	0

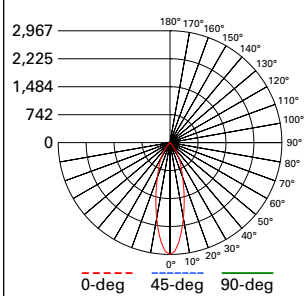
NARROW 30° BEAM (LI)

Test Number	P571639
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBNLI
Lumens	1153
Efficacy	73 Lm/W
SC	0.48
UGR	0

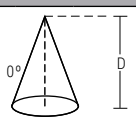


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	185.4	1.8	1.8
7'	60.6	3.2	3.2
9'	36.6	4.2	4.2
13'	17.6	6.2	6.2
16'	11.6	7.6	7.6

CANDELA TABLE

Degrees Vertical	Candela
0	2967
5	2660
15	1447
25	685
35	266
45	30
55	2
65	2
75	0
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	952	82.6
0-40	1121	97.2
0-60	1152	99.9
0-90	1153	100
90-180	0	0
0-180	1153	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	29831
45	5247
55	386
65	523
75	0
85	0

Photometric Data

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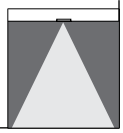
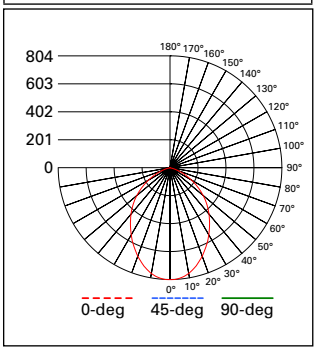
SHALLOW 85° BEAM (H)

Test Number	P571640
Housing	LE*4C15D010
Module	EU4B10209035
Trim	4LBSH
Lumens	1538
Efficacy	97.3 Lm/W
SC	1.06
UGR	26.5

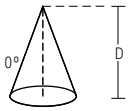


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	50.3	4.2	4.2
7'	16.4	7.4	7.4
9'	9.9	9.4	9.4
13'	4.8	13.6	13.6
16'	3.1	16.8	16.8

CANDELA TABLE

Degrees Vertical	Candela
0	804
5	798
15	730
25	618
35	496
45	376
55	246
65	120
75	29
85	0
90	0

ZONAL LUMEN SUMMARY

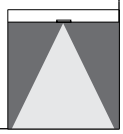
Zone	Lumens	% Fixture
0-30	565	36.7
0-40	875	56.9
0-60	1384	90
0-90	1538	100
90-180	0	0
0-180	1538	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	72577
45	65309
55	52605
65	34942
75	13670
85	0

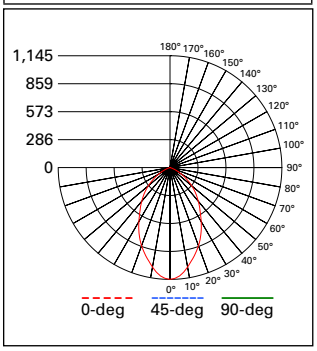
SHALLOW 65° BEAM (LI)

Test Number	P571641
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBSLI
Lumens	1604
Efficacy	101.5 Lm/W
SC	0.91
UGR	23.9

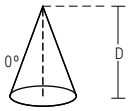


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	71.6	3.6	3.6
7'	23.4	6.2	6.2
9'	14.1	8.2	8.2
13'	6.8	11.8	11.8
16'	4.5	14.4	14.4

CANDELA TABLE

Degrees Vertical	Candela
0	1145
5	1115
15	945
25	749
35	534
45	371
55	208
65	73
75	4
85	0
90	0

ZONAL LUMEN SUMMARY

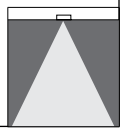
Zone	Lumens	% Fixture
0-30	712	44.4
0-40	1048	65.3
0-60	1520	94.8
0-90	1604	100
90-180	0	0
0-180	1604	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	77201
45	64475
55	44508
65	21163
75	1709
85	0

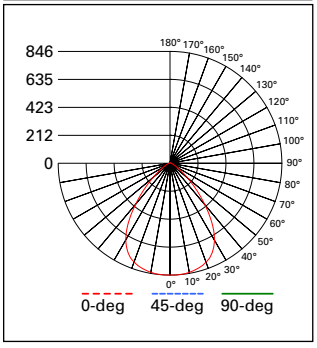
WIDE 80° BEAM (H)

Test Number	P571642
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBWH
Lumens	1309
Efficacy	82.8 Lm/W
SC	1.18
UGR	17.9

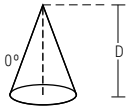


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	52.7	4.6	4.6
7'	17.2	8.2	8.2
9'	10.4	10.4	10.4
13'	5	15.2	15.2
16'	3.3	18.8	18.8

CANDELA TABLE

Degrees Vertical	Candela
0	844
5	844
15	821
25	748
35	547
45	265
55	84
65	23
75	7
85	0
90	0

ZONAL LUMEN SUMMARY

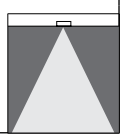
Zone	Lumens	% Fixture
0-30	653	49.9
0-40	991	75.7
0-60	1276	97.5
0-90	1309	100
90-180	0	0
0-180	1309	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	75186
45	45989
55	17885
65	6715
75	3370
85	0

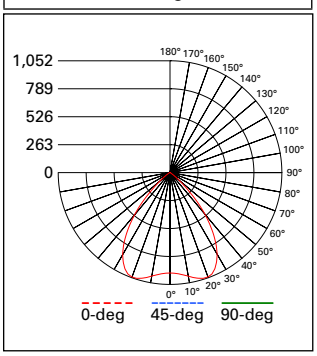
WIDE 80° BEAM (LI)

Test Number	P571643
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBWLI
Lumens	1551
Efficacy	98.2 Lm/W
SC	1.29
UGR	6.9

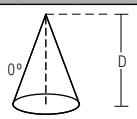


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	59.5	5	5
7'	19.4	9	9
9'	11.8	11.6	11.6
13'	5.6	16.6	16.6
16'	3.7	20.6	20.6

CANDELA TABLE

Degrees Vertical	Candela
0	950
5	963
15	1036
25	1005
35	723
45	279
55	28
65	4
75	2
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	844	54.4
0-40	1289	83.1
0-60	1546	99.7
0-90	1551	100
90-180	0	0
0-180	1551	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	-
45	-
55	-
65	-
75	-
85	-

Photometric Data

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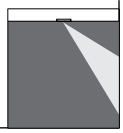
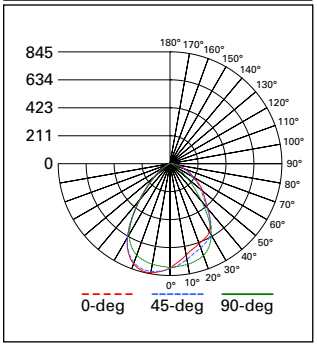
SINGLE WALL WASH (H)

Test Number	P571644
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LCSWH
Lumens	1390
Efficacy	88 Lm/W
SC	1.17
UGR	29.6

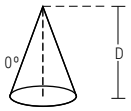


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	51	4.4	4.6
7'	16.6	7.9	8
9'	10.1	10.1	10.2
13'	4.8	14.7	15
16'	3.2	18.1	18.4

CANDELA TABLE

Degrees Vertical	Candela
0	793
5	746
15	669
25	625
35	527
45	371
55	262
65	159
75	74
85	17
90	0

ZONAL LUMEN SUMMARY

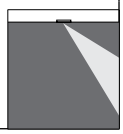
Zone	Lumens	% Fixture
0-30	608	43.8
0-40	928	66.7
0-60	1283	92.3
0-90	1390	100
90-180	0	0
0-180	1390	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	75835
45	64441
55	56032
65	46337
75	34936
85	24527

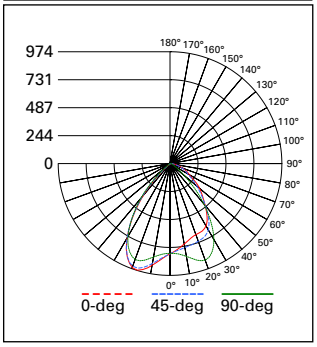
SINGLE WALL WASH (LI)

Test Number	P571645
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LCSWLI
Lumens	1445
Efficacy	91.5 Lm/W
SC	1.3
UGR	28.3

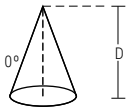


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	54.2	4.5	4.8
7'	17.7	8	8.6
9'	10.7	10.3	11
13'	5.1	14.9	16
16'	3.4	18.4	19.6

CANDELA TABLE

Degrees Vertical	Candela
0	783
5	745
15	673
25	648
35	548
45	384
55	235
65	143
75	57
85	10
90	0

ZONAL LUMEN SUMMARY

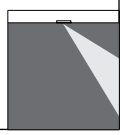
Zone	Lumens	% Fixture
0-30	680	47.1
0-40	1041	72.1
0-60	1362	94.2
0-90	1445	100
90-180	0	0
0-180	1445	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	78745
45	66786
55	50356
65	41599
75	27151
85	14378

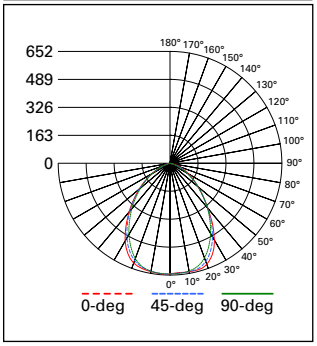
LENSED WALL WASH (LI)

Test Number	P571646
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBLWWLI
Lumens	1246
Efficacy	78.9 Lm/W
SC	1.12
UGR	26.3

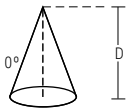


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	40.7	4.6	4.4
7'	13.3	8.2	7.8
9'	8	10.6	10
13'	3.8	15.4	14.4
16'	2.5	19	17.8

CANDELA TABLE

Degrees Vertical	Candela
0	650
5	644
15	647
25	591
35	439
45	278
55	174
65	99
75	42
85	3
90	0

ZONAL LUMEN SUMMARY

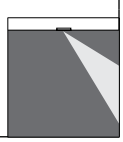
Zone	Lumens	% Fixture
0-30	499	40
0-40	766	61.5
0-60	1139	91.4
0-90	1246	100
90-180	0	0
0-180	1246	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	61806
45	48248
55	37226
65	28866
75	19936
85	4088

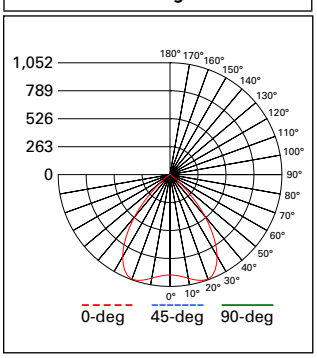
LENSED WALL WASH (H)

Test Number	P571647
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBLWWH
Lumens	1196
Efficacy	75.7 Lm/W
SC	1.09
UGR	26.5

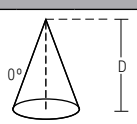


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	39.7	4.5	4.2
7'	13	8	7.6
9'	7.8	10.2	9.8
13'	3.8	14.8	14
16'	2.5	18.3	17.4

CANDELA TABLE

Degrees Vertical	Candela
0	635
5	639
15	639
25	586
35	441
45	280
55	174
65	100
75	43
85	4
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	471	39.4
0-40	724	60.5
0-60	1084	90.6
0-90	1196	100
90-180	0	0
0-180	1196	100

LUMINANCE

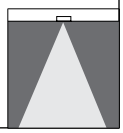
Average Candela Degrees	Average 0° Luminance
37	62135
45	48734
55	37269
65	29099
75	20268
85	5497

Photometric Data

View IES files

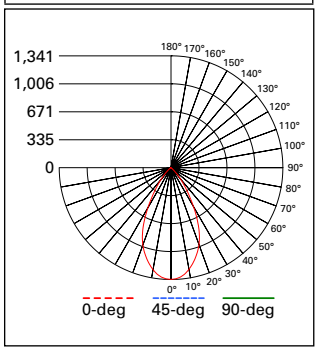
MEDIUM BEAM 45° CUTOFF 55° BEAM (H)

Test Number	P571648
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBMDH
Lumens	1113
Efficacy	70.4 Lm/W
SC	0.86
UGR	9.5

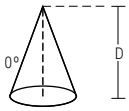


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	83.8	3.4	3.4
7'	27.4	6	6
9'	16.6	7.6	7.6
13'	7.9	11	11
16'	5.2	13.6	13.6

CANDELA TABLE

Degrees Vertical	Candela
0	1341
5	1318
15	1127
25	791
35	337
45	91
55	20
65	7
75	2
85	0
90	0

ZONAL LUMEN SUMMARY

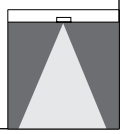
Zone	Lumens	% Fixture
0-30	793	71.3
0-40	1008	90.6
0-60	1103	99.1
0-90	1113	100
90-180	0	0
0-180	1113	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	41780
45	15758
55	4284
65	2064
75	1044
85	423

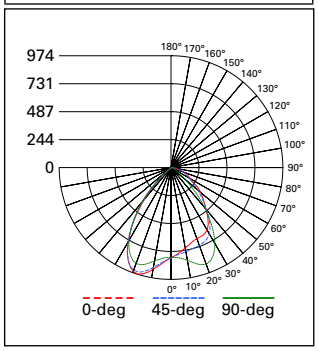
MEDIUM BEAM 45° CUTOFF 50° BEAM (LI)

Test Number	P571649
Housing	LE*4C15D010
Module	EU4C10209035
Trim	4LBMDLI
Lumens	1294
Efficacy	81.9 Lm/W
SC	0.84
UGR	0.4

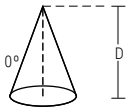


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



D	FC	L	W
4'	108.2	3.2	3.2
7'	35.3	5.6	5.6
9'	21.4	7.4	7.4
13'	10.2	10.6	10.6
16'	6.8	13.2	13.2

CANDELA TABLE

Degrees Vertical	Candela
0	1700
5	1751
15	1545
25	945
35	323
45	47
55	6
65	2
75	1
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1023	79.1
0-40	1243	96
0-60	1291	99.8
0-90	1294	100
90-180	0	0
0-180	1294	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
37	36556
45	8096
55	1199
65	640
75	285
85	0

Photometric Multipliers (Nominal Lumen Values)

250 Lumen	500 Lumen	800 Lumen	1000 Lumen	1500 Lumen	2000 Lumen	2500 Lumen	3000 Lumen	3500 Lumen
0.22	0.42	0.57	0.65	1.00	1.29	1.62	1.90	2.25

4000 Lumen	4500 Lumen	5000 Lumen	5500 Lumen	6000 Lumen	6500 Lumen	7000 Lumen	7500 Lumen
2.61	3.02	3.42	3.82	4.13	4.32	4.54	5.34

Multipliers for relative lumen values with other series models.

CCT Multipliers – 90CRI

2400K	2700K	3000K	3500K	4000K	5000K
0.912	0.949	0.986	1	1.001	1.022

Multipliers for relative lumen values with other series color temperatures.

CCT Multipliers – 97CRI

2700K	3000K	3500K	4000K	5000K
0.889	0.955	1	1.016	1.07

Multipliers for relative lumen values with other series color temperatures.

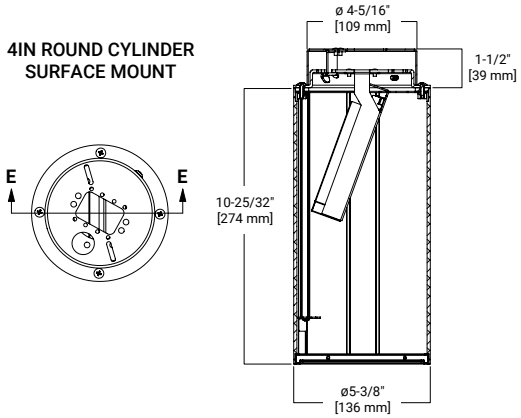
Color Finish Multipliers (*from H = Semi Specular Clear*)

Finish code	LI	H	WMH	WH	GPH	B	MW
Finish	Specular Clear	Semi-Specular Clear	Warm Haze	Wheat	Graphite Haze	Specular Black	Matte White
Multiplier	1.25	1.00	1.02	1.02	0.72	0.55	0.95

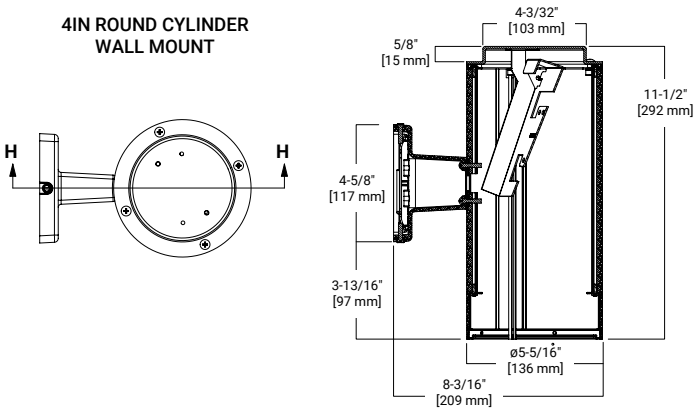
Multipliers for relative lumen values with other color finishes.

Dimensional and Mounting Details

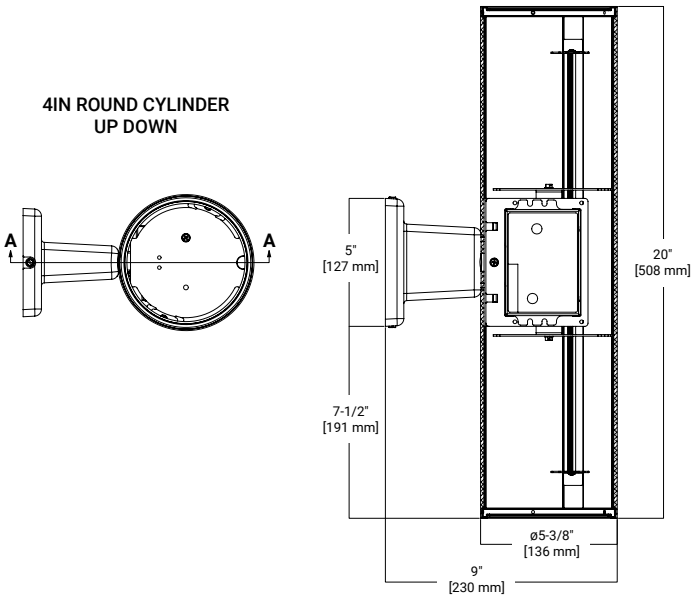
4IN ROUND CYLINDER SURFACE MOUNT



4IN ROUND CYLINDER WALL MOUNT

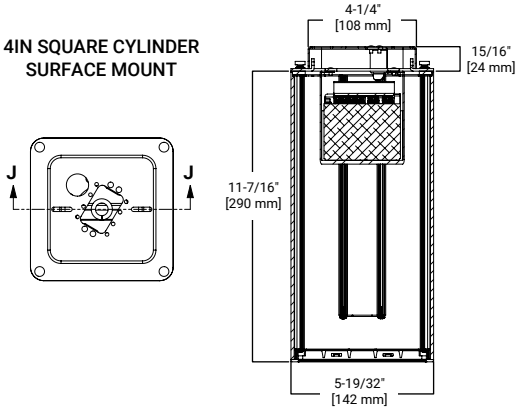


4IN ROUND CYLINDER UP DOWN

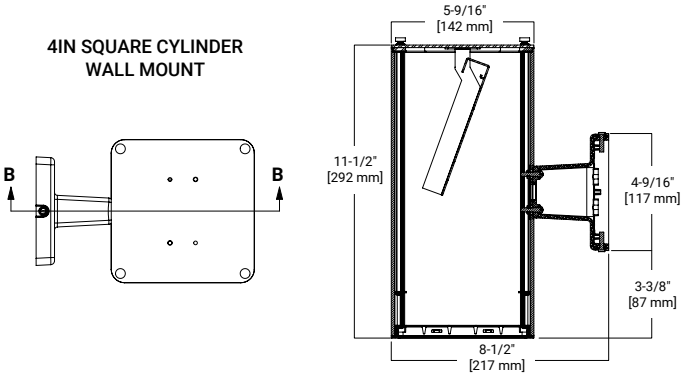


Dimensional and Mounting Details

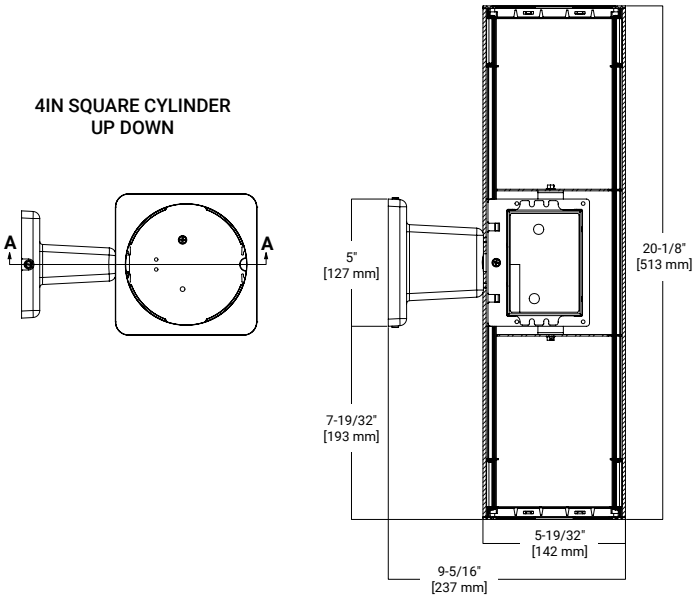
4IN SQUARE CYLINDER
SURFACE MOUNT



4IN SQUARE CYLINDER
WALL MOUNT

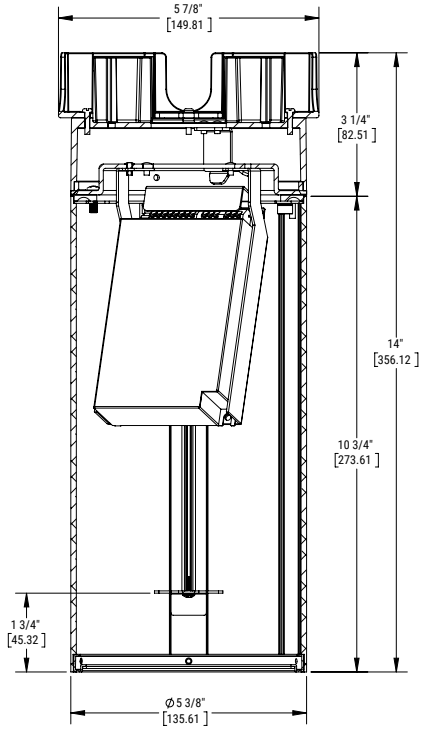


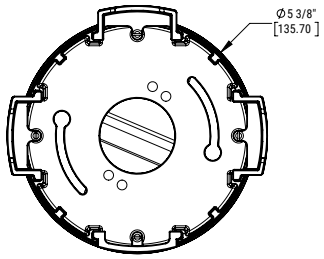
4IN SQUARE CYLINDER
UP DOWN



Dimensional and Mounting Details

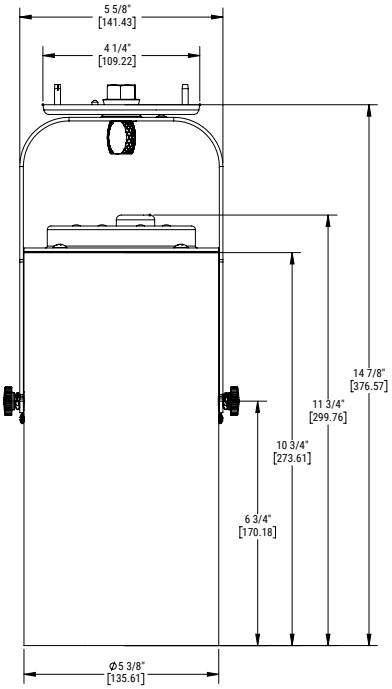
4" ROUND CONDUIT CANOPY



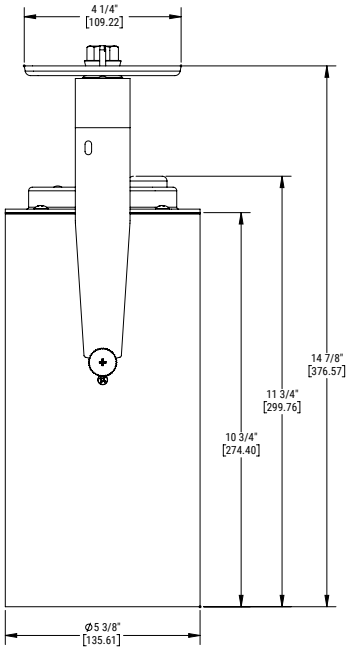


4" ROUND, YOKE MOUNT

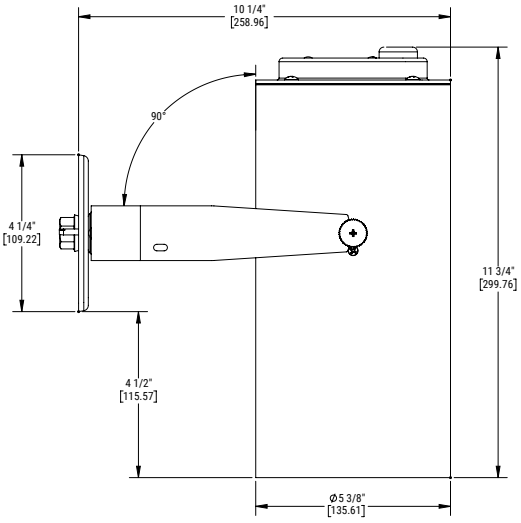
FRONT VIEW



SIDE VIEW @ 0° TILT

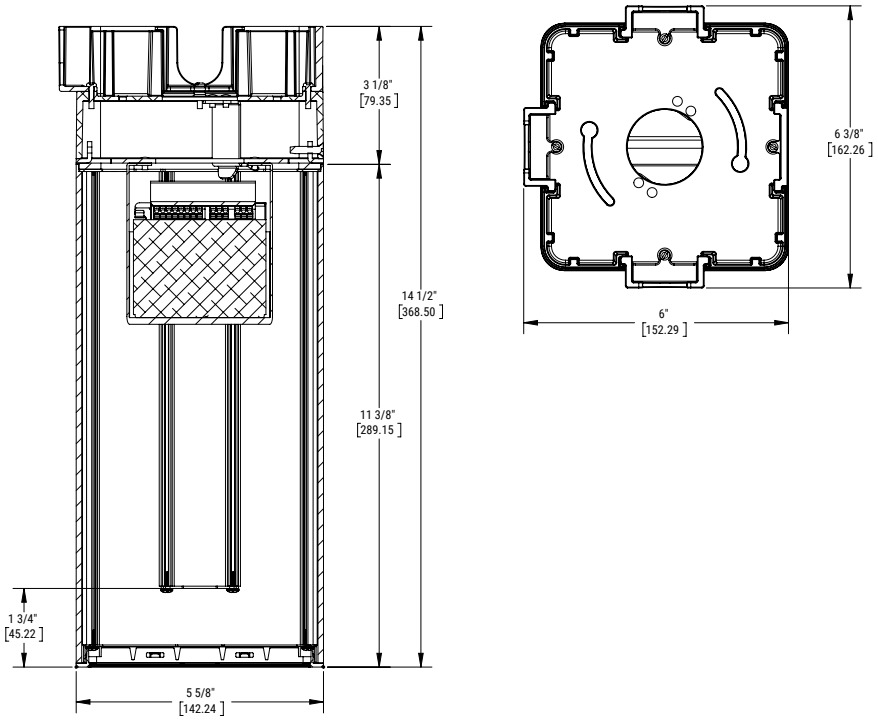


SIDE VIEW FULL TILT



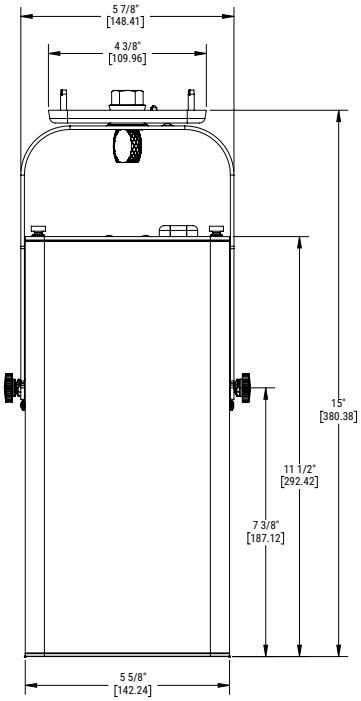
Dimensional and Mounting Details

4" SQUARE CONDUIT CANOPY

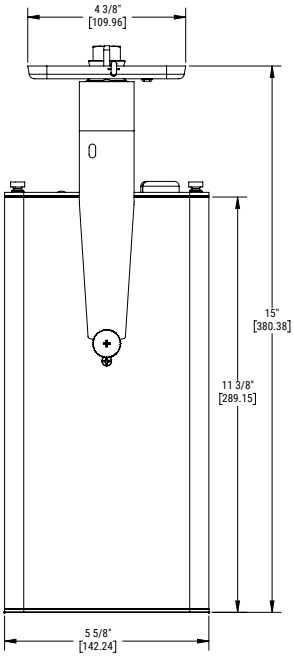


4" SQUARE YOKE MOUNT

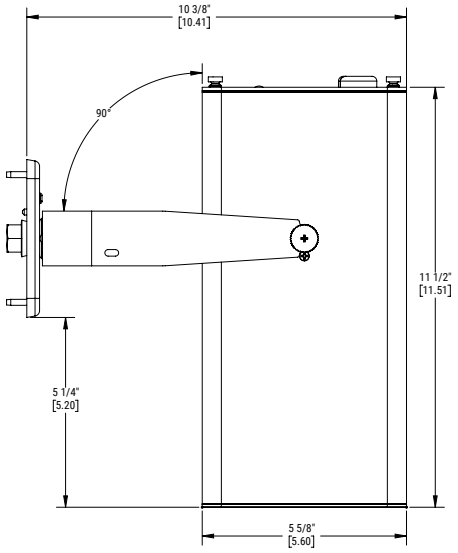
FRONT VIEW



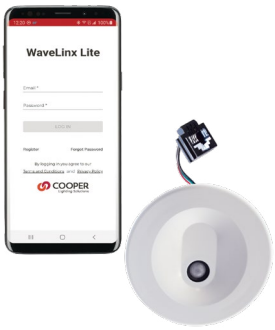
SIDE VIEW @ 0° TILT



SIDE VIEW FULL TILT



Connected Solutions



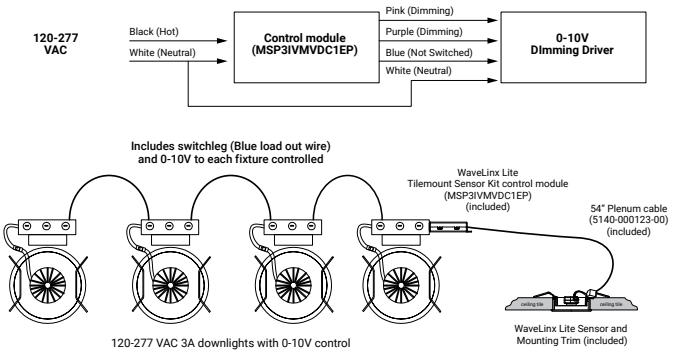
WaveLinx LITE - WLST Tilemount Sensor

WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Automatic occupancy or vacancy, sensor sensitivity, daylight dimming, etc. configurable through the app
- Refer to the WaveLinx system specifications for details

Network Security | Manual Dimmer | Occupancy Sensor | Daylighting Control | Manually Switched ON/OFF | Tuning Control | Lumen Maintenance Control | Scenes

WaveLinx LITE WLST Tilemount Wiring Diagram



WaveLinx LITE Bluetooth Enabled System

WaveLinx PRO Wireless – WPST Tilemount Sensor

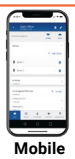
WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx PRO Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with Wireless Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations

Downlights with tilemount sensor wireless communication
Highly efficient LED fixtures

WaveLinx Area Controller
Provides centralized coordination of multiple area control options

Wireless Wall Station/Receptacle
Provides customized wireless control of each area

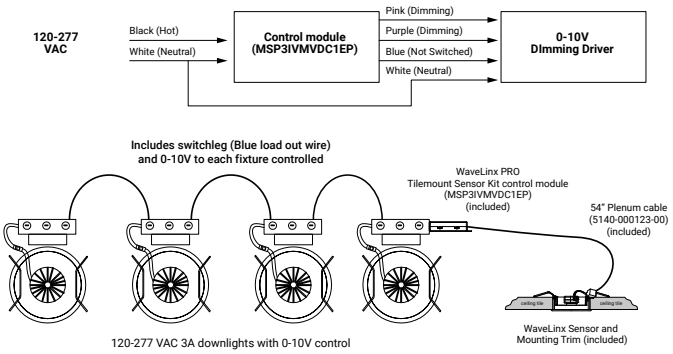


Mobile Applications
Provides personalized, local control from a tablet or smartphone

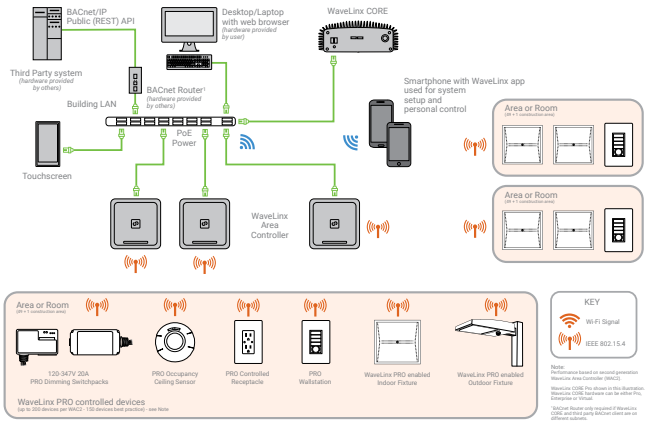
WaveLinx mobile app settings

Manual Dimmer | Occupancy Sensor | Lumen Maintenance Control | Daylighting Control | Receptacle Control | Tuning Control | Scheduling | Manually Switched ON/OFF | Demand Response

WaveLinx PRO WPST Tilemount Wiring Diagram



WaveLinx CORE Building Management Integration



Connected Solutions

WaveLinx LITE Wireless Node - WLN

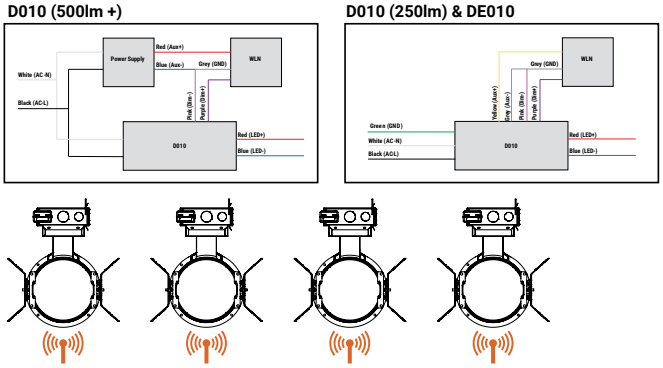
WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Refer to the WaveLinx system specifications for details
- Not available with BioUp or Tunable White

WaveLinx mobile app settings

Network Security · Manual Dimmer · Occupancy Sensor · Daylighting Control · Manually Switched ON/OFF · Tuning Control · Lumen Maintenance Control · Scenes

WaveLinx LITE Wireless Node (WLN) Wiring Diagram



120-277 VAC 3A downlights with 0-10V control

WaveLinx LITE Bluetooth Enabled System

WaveLinx PRO Wireless Node - WPN

WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with WaveLinx Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations

Downlights with wireless communication
Highly efficient LED fixtures

WaveLinx Area Controller
Provides centralized coordination of multiple area control options

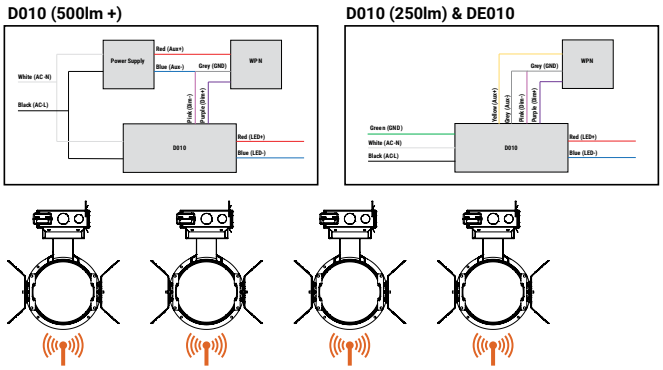
Wireless Wall Station/Receptacle
Provides customized wireless control of each area

Mobile Applications
Provides personalized, local control from a tablet or smartphone

WaveLinx mobile app settings

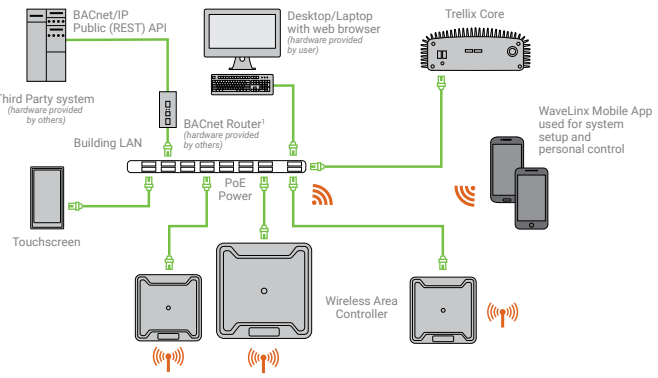
Manual Dimmer · Occupancy Sensor · Lumen Maintenance Control · Daylighting Control · Receptacle Control · Tuning Control · Scheduling · Manually Switched ON/OFF · Demand Response

WaveLinx PRO Wireless Node (WPN) Wiring Diagram

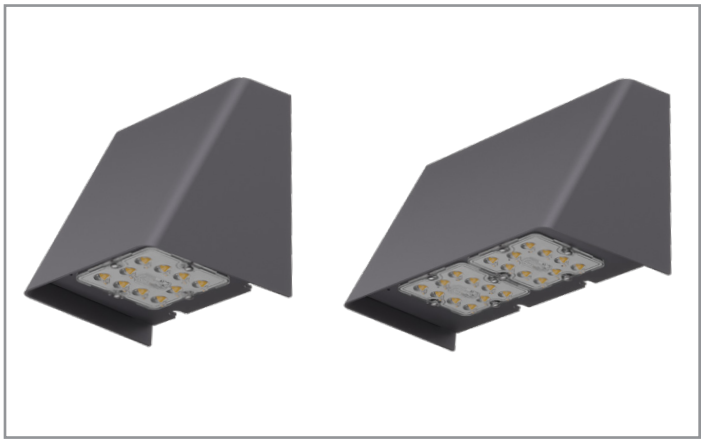


120-277 VAC 3A downlights with 0-10V control

WaveLinx CORE Building Management Integration



Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GKO Gekko

Wall Mount Luminaire

Product Features

Light ARchitect™ FADC

Product Certifications

DLC LISTED [1] DLC LISTED PREMIUM [1] ISTI CERTIFIED UL CERTIFIED FC CLASS A IP66

BAA BUY AMERICAN ACT AVAILABLE TAA TRADE AGREEMENTS ACT AVAILABLE BABA BUILD AMERICA BUY AMERICA AVAILABLE DARKSKY APPROVED [2] 5 YEAR LIMITED WARRANTY RoHS COMPLIANT

Interactive Menu

Quick Facts

- Available in small and medium housing sizes
- Choice of 5 optical distributions
- 11 lumen packages from 750 up to 13,500
- Efficacies up to 169 lumens per watt

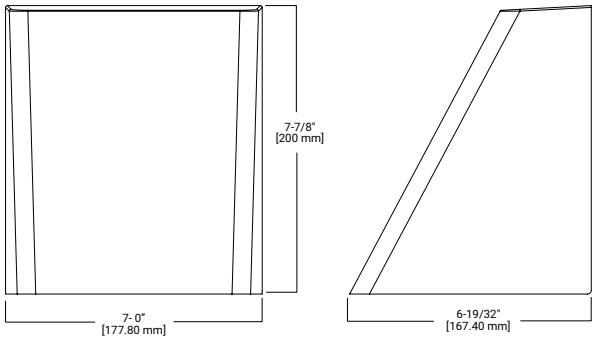
Connected Systems

- WaveLinx PRO Wireless
- WaveLinx LITE Wireless

Dimensional Details

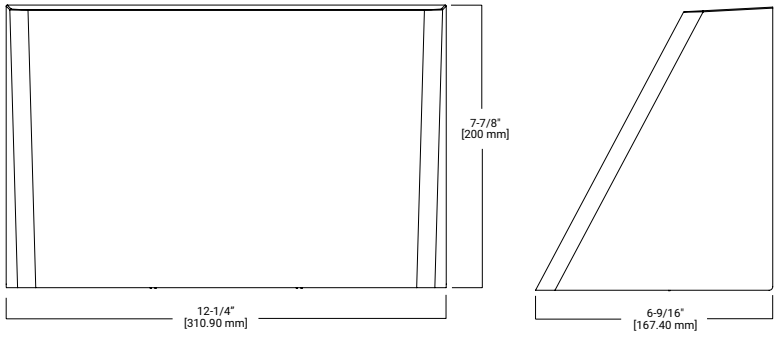
PB1

Net Weight: 6.0 lbs (2.7 kg)



PB2

Net Weight: 10.6 lbs (4.8 kg)



NOTES:
1. Visit https://www.designlights.org/search/ to confirm qualification. Not all product variations are DLC qualified.
2. IDA Certified for 3000K CCT and warmer only.

Ordering Information

SAMPLE NUMBER: **GKO-PB2A-740-U-T3-BK**

Product Family	Light Engine Configuration		Lumen Output	Color Temperature	Voltage	Distribution	Finish
	Light Engine	Size					
GKO=Gekko Wall Luminaire **BAA-GKO**=Gekko Buy American Act Compliant [13] **TAA-GKO**=Gekko Trade Agreements Act Compliant [13] **BABAF-GKO**=Gekko Build America Buy America Act Compliant for FHWA funded projects [14]	**PB**=Mini 10-LED Light Square	**1**=Small, 1 Square **2**=Medium, 2 Squares	**A**=Output Level 1 **B**=Output Level 2 **C**=Output Level 3 **D**=Output Level 4 **E**=Output Level 5 **F**=Output Level 6 [1]	**722**=70 CRI, 2200K CCT **727**=70 CRI, 2700K CCT **730**=70 CRI, 3000K CCT **735**=70 CRI, 3500K CCT **740**=70 CRI, 4000K CCT **750**=70 CRI, 5000K CCT **827**=80 CRI, 2700K CCT **830**=80 CRI, 3000K CCT **835**=80 CRI, 3500K CCT **840**=80 CRI, 4000K CCT **850**=80 CRI, 5000K CCT **AMB**=Amber 590nm [2]	**U**=120-277V **1**=120V **2**=208V **3**=240V **4**=277V **8**=480V [15, 17] **9**=347V [17]	**T1**=Type I **T2R**=Type II Round **T2U**=Type II Urban **T3**=Type III **T4W**=Type IV Wide	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **NW**=New White

Options (Add as Suffix)	Controls and Systems Options (Add as Suffix)	Accessories (Order Separately)
F=Single Fused (120, 277 or 347, Specify Voltage) **FF**=Double Fused (208, 240 or 480, Specify Voltage) **20MSP**=Parallel 20kV MOV Surge Protective Device **20K**=Series 20kV UL1449 Fused Surge Protective Device **2L**=Two Circuits [3] **EBP**=6W Battery Pack **CBP**=6W Battery Pack, Cold Weather Rated [4, 10] **CBP-CEC**=8W Battery Pack, Cold Weather Rated, CEC Compliant [4, 10] **HSS**=Factory Installed House Side Shield **HA**=50C° High Ambient [10] **CC**=Coastal Construction [5]	**BPC**=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) **FADC**=Field Adjustable Dimming Controller [8] **SPB1**=Dimming Occupancy Sensor with Bluetooth Interface, <8' Mounting [6, 7, 8, 11] **SPB2**=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting [6,7,8,11] **MS/DIM-L08**=Motion Sensor for Dimming Operation, <8' Mounting [7, 8, 11, 12] **MS/DIM-L20**=Motion Sensor for Dimming Operation, 8'-20' Mounting [7, 8, 11, 12] **WPS2WH**=WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 7'-15' Mounting [7, 8, 11, 16] **WPS4WH**=WaveLinx Pro, SR Driver, Dimming Motion and Daylight, WAC Programmable, 15'-40' Mounting [7, 8, 11, 16] **WLS2WH**=WaveLinx Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 7'-15' Mounting [7, 8, 11] **WLS4WH**=WaveLinx Lite, SR Driver, Dimming Motion and Daylight, Bluetooth Programmable, 15'-40' Mounting [7, 8, 11]	**PBHSS**=House Side Shield (Single) [9] **PBPFS**=Perimeter Fence Shield Kit (4 Pieces) **FSIR-100**= Wireless Configuration Tool for MS/DIM [12] **MA1252**=10kV Surge Module Replacement **BB/GKO-XX**=Surface mount backbox [19]

NOTES:
1. Output Level 6 not available with PB2
2. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose Output Level 1; supplied at 300mA for PB1, 600mA for PB2. Not available with HA option. Exact luminaire wattage available in IES files.
3. Not available with PB1. Not available with FF option, or controls options at 347V or 480V.
4. Operates at -20°C to +40°C. Not available with PB1 or HA option.
5. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654.
6. Smart device with mobile application required to change system defaults. See controls section for details.
7. Includes integral photosensor.
8. Not available with PB1 at Output Level 1 or 2. Not available with other motion activated control options.
9. One required per PB light square.
10. Combination of CBP and HA not available with PB2 at output level 4 or 5.
11. When motion controls are selected, PB1 uses surface mount sensor in PB2 housing. PB2 uses side-mount motion sensor in PB2 housing.
12. The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Cooper Lighting Solutions for more information.
13. Only product configurations with these designated prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or Trade Agreements Act of 1979 (TAA), respectively. Please refer to DOMESTIC PREFERENCES website for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
14. Only product configurations with these prefixes are built to be compliant with the Buy American Act of 1933 (BAA) or the Build America Buy America Act (BABA). BABA is the minimum Government compliance requirement for the Build America Buy America standards which is part of the Infrastructure and Investment Jobs Act (IIJA). Individual Government Agencies may have more stringent compliance standards. Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements.
15. 480V not to be used with ungrounded or impedance grounded systems.
16. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed.
17. Not available with PB1A and PB1B.
18. Operates at 0°C to +55°C.
19. Replace XX with color designation. Includes 5 gasketed 3/4" conduit entry points.

Product Specifications

Construction
- Available in small (1 square) and medium (2 square) sizes
- Die-cast aluminum housing
- IP66 rated housing
- IK10 impact rated

Optics
- 10-LED square light engine
- 5 optical distributions
- IDA Certified (3000K CCT and warmer only)
- 2 versions of field-installable shielding for superior spill light control
  - Single-piece snap-on square shields (HSS)
  - Multiple-piece configurable vertical perimeter shielding (PFS)

Electrical
- Standard with 0-10V dimming
- Standard with 10kV surge device
- 10kV or 20kV surge protective options with series or parallel configurations
- -40°C to 40°C ambient temperature operating range with optional high ambient (HA) 50°C

Controls
- Luminaire available with the field adjustable dimming controller (FADC) to manually adjust wattage and reduce the total lumen output and light levels. Default setting is the highest position at the lumen output selected

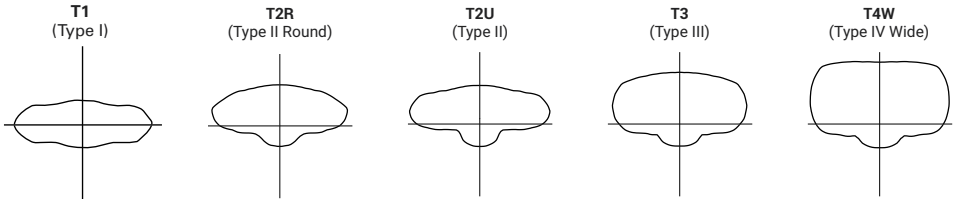
Finish
- Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- 3,000-hours per ASTM B117, with a scribe rating of 7 per ASTM D1654 for standard color finish
- Coastal Construction (CC) option available

Typical Applications
- Exterior wall, walkway

Compliance
- BAA domestic preference option meets BAA requirements. See DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information
- FHWA and FTA agencies are utilizing their BAA rules for BABA compliance. Cooper's products with a BAA designation are manufactured in the US and utilize a BAA COTS exemption rule for compliance. To verify a configured product with specific accessories and options meet BABA Domestic Preference Requirements; submit this catalog number to Cooper Lighting Quotation team for validation by our Engineering and Manufacturing teams.
- Please refer to the DOMESTIC PREFERENCES website or consult the CLS Domestic Preferences team for more information. Components shipped separately may be separately analyzed under domestic preference requirements

Warranty
- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

Optical Distributions



Energy and Performance Data

Lumen Maintenance

Ambient Temperature	25,000 hours*	50,000 hours*	60,000 hours*	100,000 hours*	L70*
25°C	98.1%	96.3%	95.6%	92.8%	>102,000
40°C	98.0%	96.1%	95.3%	92.3%	>102,000
50°C	97.8%	95.6%	94.8%	91.4%	>102,000

Note: * Calculations provided in accordance with IES TM-21-11 using the configuration resulting in highest LED temperature.

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

FADC Settings

FADC Position	Percent of Typical Lumen Output
1	25%
2	48%
3	56%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

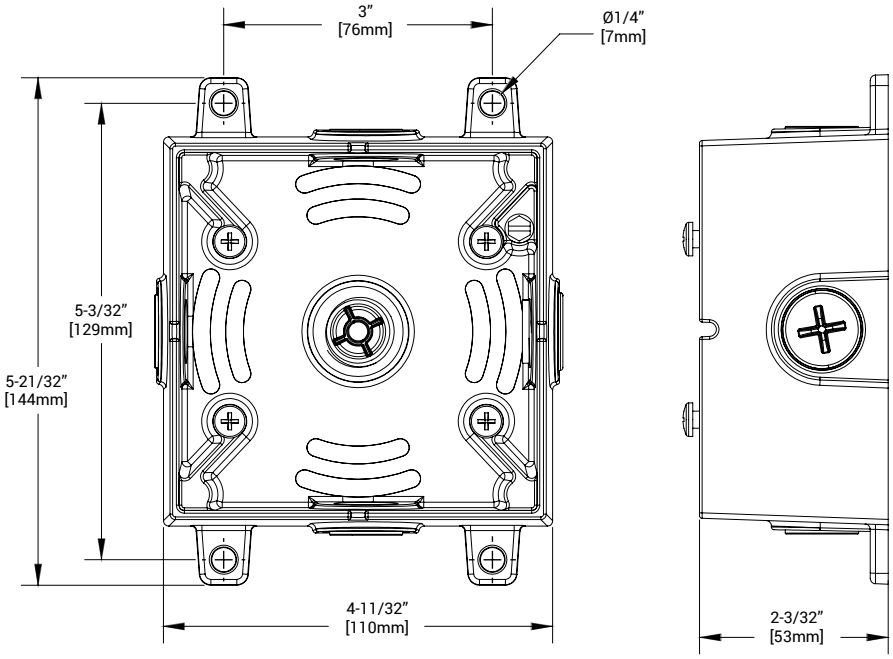
Note: +/-5% typical value

LED Color Multipliers

	CCT				
	2200	2700	3000	4000	5000
CRI	Lumen Multiplier*				
70	0.83	0.92	0.95	1.00	1.00

Note: * Estimates, refer to IES files for accuracy.

Accessories



Energy and Performance Data

View GKO Gekko IES files

Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	Optics		PB1A	PB1B	PB1C	PB1D	PB1E	PB1F	PB2A	PB2B	PB2C	PB2D	PB2E
70 CRI 2200K CCT	T1	Lumens	671	1,307	2,244	3,184	4,504	5,814	3,658	5,547	7,241	9,059	11,179
		Lumens per Watt	140	141	132	124	116	107	138	133	124	119	107
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3
	T2R	Lumens	647	1,259	2,161	3,067	4,338	5,600	3,523	5,342	6,974	8,726	10,767
		Lumens per Watt	135	135	127	120	112	103	133	128	120	115	103
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	640	1,246	2,138	3,034	4,292	5,541	3,486	5,286	6,901	8,634	10,653
		Lumens per Watt	133	134	126	119	111	102	132	126	119	113	102
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T3	Lumens	637	1,241	2,130	3,023	4,276	5,520	3,473	5,266	6,875	8,601	10,613
		Lumens per Watt	133	133	125	118	110	101	131	126	118	113	101
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2
	T4W	Lumens	618	1,203	2,066	2,932	4,147	5,353	3,368	5,107	6,667	8,341	10,293
		Lumens per Watt	129	129	122	115	107	98	127	122	115	109	98
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
70 CRI 2700K CCT	T1	Lumens	744	1,449	2,487	3,529	4,992	6,445	4,055	6,148	8,026	10,042	12,391
		Lumens per Watt	155	156	146	138	129	118	153	147	138	132	118
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	717	1,395	2,395	3,399	4,808	6,207	3,905	5,921	7,731	9,672	11,934
		Lumens per Watt	149	150	141	133	124	114	147	142	133	127	114
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	709	1,381	2,370	3,363	4,757	6,142	3,864	5,859	7,649	9,570	11,808
		Lumens per Watt	148	148	139	131	123	113	146	140	131	126	113
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	707	1,375	2,361	3,350	4,739	6,118	3,849	5,837	7,620	9,533	11,763
		Lumens per Watt	147	148	139	131	122	112	145	140	131	125	112
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	685	1,334	2,290	3,249	4,596	5,934	3,733	5,661	7,390	9,246	11,409
		Lumens per Watt	143	143	135	127	119	109	141	135	127	121	109
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2

Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	Optics		PB1A	PB1B	PB1C	PB1D	PB1E	PB1F	PB2A	PB2B	PB2C	PB2D	PB2E
70 CRI 3000K CCT	T1	Lumens	760	1,480	2,541	3,606	5,100	6,585	4,143	6,282	8,201	10,260	12,660
		Lumens per Watt	158	159	149	141	132	121	156	150	141	135	121
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	732	1,426	2,447	3,473	4,912	6,342	3,990	6,050	7,899	9,882	12,194
		Lumens per Watt	153	153	144	136	127	116	151	145	136	130	116
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	725	1,411	2,422	3,436	4,861	6,275	3,948	5,986	7,815	9,778	12,065
		Lumens per Watt	151	152	142	134	126	115	149	143	134	128	115
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	722	1,405	2,412	3,423	4,842	6,251	3,933	5,964	7,786	9,741	12,019
		Lumens per Watt	150	151	142	134	125	115	148	143	134	128	115
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	700	1,363	2,340	3,320	4,696	6,063	3,814	5,784	7,551	9,447	11,657
		Lumens per Watt	146	147	138	130	121	111	144	138	130	124	111
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
70 CRI 3500K CCT	T1	Lumens	774	1,507	2,587	3,672	5,193	6,705	4,218	6,396	8,350	10,447	12,891
		Lumens per Watt	161	162	152	143	134	123	159	153	143	137	123
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	746	1,452	2,492	3,536	5,002	6,458	4,063	6,160	8,043	10,062	12,416
		Lumens per Watt	155	156	147	138	129	118	153	147	138	132	119
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	738	1,436	2,466	3,499	4,949	6,390	4,020	6,095	7,958	9,956	12,285
		Lumens per Watt	154	154	145	137	128	117	152	146	137	131	117
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	735	1,431	2,456	3,486	4,930	6,365	4,005	6,072	7,928	9,918	12,238
		Lumens per Watt	153	154	144	136	127	117	151	145	136	130	117
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	713	1,388	2,382	3,381	4,782	6,173	3,884	5,889	7,689	9,619	11,869
		Lumens per Watt	149	149	140	132	124	113	147	141	132	126	113
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2

Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	**Optics**		**PB1A**	**PB1B**	**PB1C**	**PB1D**	**PB1E**	**PB1F**	**PB2A**	**PB2B**	**PB2C**	**PB2D**	**PB2E**
70 CRI 4000K 5000K CCT	**T1**	Lumens	809	1,575	2,703	3,836	5,426	7,005	4,407	6,683	8,724	10,915	13,468
		Lumens per Watt	169	169	159	150	140	129	166	160	150	143	129
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	779	1,517	2,604	3,695	5,226	6,747	4,245	6,436	8,403	10,513	12,972
		Lumens per Watt	162	163	153	144	135	124	160	154	144	138	124
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T2U	Lumens	771	1,501	2,576	3,656	5,171	6,676	4,200	6,368	8,314	10,402	12,835
		Lumens per Watt	161	161	152	143	134	122	158	152	143	137	123
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	768	1,495	2,566	3,642	5,151	6,650	4,184	6,344	8,283	10,362	12,786
		Lumens per Watt	160	161	151	142	133	122	158	152	142	136	122
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	745	1,450	2,489	3,532	4,996	6,450	4,058	6,153	8,033	10,050	12,401
		Lumens per Watt	155	156	146	138	129	118	153	147	138	132	118
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2

Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	Optics		PB1A	PB1B	PB1C	PB1D	PB1E	PB1F	PB2A	PB2B	PB2C	PB2D	PB2E
80 CRI 2700K CCT	T1	Lumens	686	1,335	2,292	3,253	4,601	5,940	3,737	5,667	7,398	9,256	11,421
		Lumens per Watt	143	144	135	127	119	109	141	136	127	121	109
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3
	T2R	Lumens	661	1,286	2,208	3,133	4,432	5,721	3,600	5,458	7,126	8,915	11,000
		Lumens per Watt	138	138	130	122	115	105	136	131	122	117	105
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	654	1,273	2,185	3,100	4,385	5,661	3,562	5,400	7,050	8,821	10,884
		Lumens per Watt	136	137	129	121	113	104	134	129	121	116	104
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T3	Lumens	651	1,268	2,176	3,088	4,368	5,640	3,548	5,380	7,024	8,787	10,843
		Lumens per Watt	136	136	128	121	113	103	134	129	121	115	104
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	632	1,230	2,111	2,995	4,237	5,470	3,441	5,218	6,812	8,522	10,516
		Lumens per Watt	132	132	124	117	109	100	130	125	117	112	100
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
80 CRI 3000K CCT	T1	Lumens	713	1,387	2,382	3,380	4,780	6,172	3,883	5,887	7,686	9,616	11,866
		Lumens per Watt	148	149	140	132	124	113	147	141	132	126	113
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3
	T2R	Lumens	686	1,336	2,294	3,255	4,604	5,944	3,740	5,670	7,403	9,262	11,428
		Lumens per Watt	143	144	135	127	119	109	141	136	127	122	109
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	679	1,322	2,270	3,221	4,556	5,881	3,700	5,611	7,325	9,164	11,308
		Lumens per Watt	142	142	134	126	118	108	140	134	126	120	108
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T3	Lumens	677	1,317	2,261	3,208	4,538	5,859	3,686	5,589	7,297	9,129	11,265
		Lumens per Watt	141	142	133	125	117	108	139	134	125	120	108
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	656	1,277	2,193	3,112	4,401	5,682	3,575	5,421	7,077	8,854	10,925
		Lumens per Watt	137	137	129	122	114	104	135	130	122	116	104
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2

Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	Optics		PB1A	PB1B	PB1C	PB1D	PB1E	PB1F	PB2A	PB2B	PB2C	PB2D	PB2E
80 CRI 3500K CCT	T1	Lumens	724	1,409	2,419	3,433	4,856	6,270	3,944	5,981	7,808	9,769	12,054
		Lumens per Watt	151	152	142	134	125	115	149	143	134	128	115
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	697	1,357	2,330	3,307	4,677	6,038	3,799	5,760	7,520	9,409	11,610
		Lumens per Watt	145	146	137	129	121	111	143	138	129	123	111
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	690	1,343	2,306	3,272	4,628	5,975	3,759	5,700	7,441	9,310	11,487
		Lumens per Watt	144	144	136	128	120	110	142	136	128	122	110
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	687	1,338	2,297	3,259	4,610	5,952	3,745	5,678	7,413	9,274	11,444
		Lumens per Watt	143	144	135	127	119	109	141	136	127	122	109
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	667	1,298	2,228	3,161	4,471	5,773	3,632	5,507	7,189	8,995	11,099
		Lumens per Watt	139	140	131	123	116	106	137	132	124	118	106
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
80 CRI 4000K CCT	T1	Lumens	748	1,455	2,498	3,544	5,014	6,473	4,072	6,175	8,061	10,085	12,445
		Lumens per Watt	156	156	147	138	130	119	154	148	139	132	119
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	720	1,401	2,406	3,414	4,829	6,234	3,922	5,947	7,764	9,714	11,986
		Lumens per Watt	150	151	142	133	125	114	148	142	133	127	114
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	712	1,387	2,380	3,378	4,778	6,168	3,881	5,884	7,682	9,611	11,860
		Lumens per Watt	148	149	140	132	123	113	146	141	132	126	113
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	710	1,381	2,371	3,365	4,760	6,145	3,866	5,862	7,653	9,575	11,815
		Lumens per Watt	148	149	139	131	123	113	146	140	131	126	113
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	688	1,340	2,300	3,264	4,616	5,960	3,750	5,685	7,422	9,286	11,458
		Lumens per Watt	143	144	135	127	119	109	141	136	128	122	109
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2

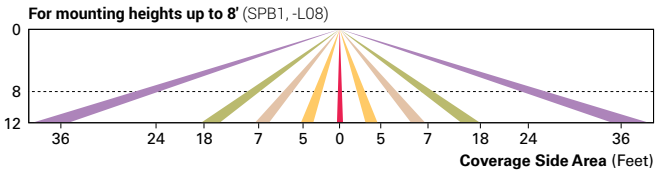
Number of Light Squares			1 Square (PB1)						2 Squares (PB2)				
Output Level			A	B	C	D	E	F	A	B	C	D	E
Drive Current			180mA	300mA	520mA	740mA	1100mA	1500mA	800mA	1250mA	1700mA	1130mA	1500mA
Nominal Power (Watts)			6	9	17	25	38	54	26	41	57	78	107
Input Current @ 120V (A)			0.040	0.079	0.145	0.218	0.328	0.465	0.224	0.353	0.494	0.640	0.875
Input Current @ 208V (A)			0.025	0.048	0.085	0.127	0.189	0.264	0.131	0.203	0.280	0.367	0.498
Input Current @ 240V (A)			0.023	0.044	0.075	0.112	0.165	0.230	0.115	0.176	0.243	0.320	0.432
Input Current @ 277V (A)			0.021	0.041	0.067	0.099	0.144	0.200	0.102	0.154	0.212	0.280	0.375
Input Current @ 347V (A)			n/a	n/a	0.056	0.076	0.112	0.156	0.079	0.121	0.166	0.219	0.300
Input Current @ 480V (A)			n/a	n/a	0.045	0.058	0.083	0.114	0.060	0.089	0.121	0.160	0.217
CCT/ CRI	Optics		PB1A	PB1B	PB1C	PB1D	PB1E	PB1F	PB2A	PB2B	PB2C	PB2D	PB2E
80 CRI 5000K CCT	T1	Lumens	748	1,455	2,498	3,544	5,014	6,473	4,072	6,175	8,061	10,085	12,445
		Lumens per Watt	156	156	147	138	130	119	154	148	139	132	119
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
	T2R	Lumens	720	1,401	2,406	3,414	4,829	6,234	3,922	5,947	7,764	9,714	11,986
		Lumens per Watt	150	151	142	133	125	114	148	142	133	127	114
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2
	T2U	Lumens	712	1,387	2,380	3,378	4,778	6,168	3,881	5,884	7,682	9,611	11,860
		Lumens per Watt	148	149	140	132	123	113	146	141	132	126	113
		BUG Rating	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G2	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3
	T3	Lumens	710	1,381	2,371	3,365	4,760	6,145	3,866	5,862	7,653	9,575	11,815
		Lumens per Watt	148	149	139	131	123	113	146	140	131	126	113
		BUG Rating	B0-U0-G0	B0-U0-G0	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
	T4W	Lumens	688	1,340	2,300	3,264	4,616	5,960	3,750	5,685	7,422	9,286	11,458
		Lumens per Watt	143	144	135	127	119	109	141	136	128	122	109
		BUG Rating	B0-U0-G0	B0-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2

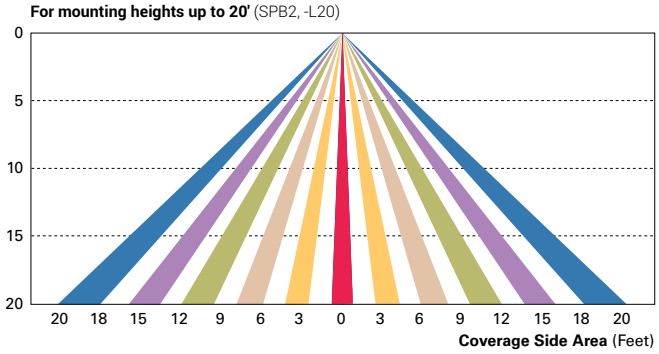
Control Options

0-10V This fixture is offered standard with 0-10V dimming driver(s). Standard with 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (BPC) Optional button-type photocontrol (BPC) provides a flexible solution to enable “dusk-to-dawn” lighting by sensing light levels.

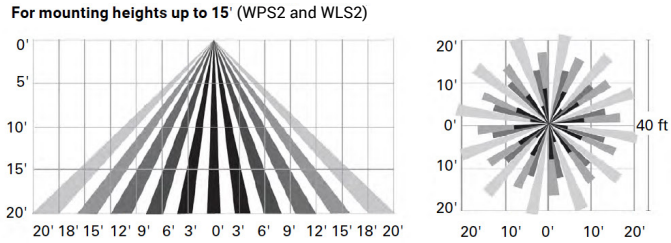
Dimming Occupancy Sensor (SPB, MS/DIM-LXX) These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.

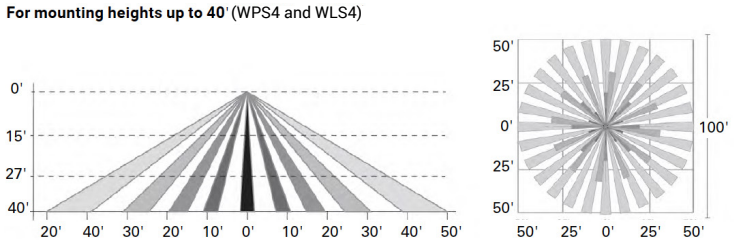




WaveLinx Wireless Control and Monitoring System

Operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. WaveLinx (WPS2 to WPS4) outdoor wireless sensors offer passive infrared (PIR) occupancy and photocell for closed loop daylight harvesting. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mount[1]ing heights of 7′ to 40′. Use the WaveLinx mobile application for set-up and configuration. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets). WaveLinx Lite (WLS4 and WLS2) outdoor wireless sensors provide PIR occupancy and photocell for closed loop daylight harvesting. Sensors are factory preset to dim down to 50% after 15 minutes of no motion detected. Two lens options are available for mounting heights of 7′ to 40′. Use the WaveLinx Lite mobile application for set-up and configuration. WAC not required. The out-of-box functionality is ON at dusk and OFF at dawn.





ATTACHMENT 13
STORMWATER REPORT

STORMWATER MANAGEMENT REPORT

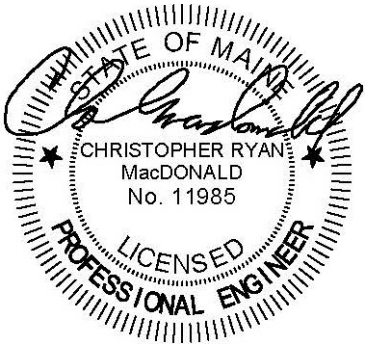
CEDAR STREET APARTMENTS

15/19 Cedar Street
Portland, Maine

Submitted by:

Avesta Housing
307 Cumberland Avenue
Portland, ME

Prepared by:



BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
March 2026

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

Avesta Housing is proposing to permit development of a 30-unit low-income housing project along Cedar Street in Portland. The project proposes to construct the development on two currently vacant lots located at the former addresses of 15 and 19 Cedar Street. The lots have been, up until recently, previously developed as single-family homes. The Boys and Girls Club, a direct abutter to the project, purchased these properties to facilitate construction of a planned expansion of their Cumberland Avenue building. As part of the Cumberland Avenue expansion, existing housing will be displaced, and per Portland's City Code, this housing must be replaced to permit their expansion. Boys and Girls Club has approached Avesta Housing to permit, construct, and operate the proposed project along Cedar Street.

The scope of work for these projects includes but is not limited to:

- Construction of a 5-story 30-unit building
- Installation of on-site stormwater treatment, retention, and conveyance
- Installation of municipal sewer and water services from mains along Cedar Street
- Extension of gas, electricity, and communication services from Cedar Street
- Installation of underground electric and communications conduit and transformer pad
- Construction of walkways and 10' wide driveway for on-site access to the building

The Stormwater Management Plan has been prepared to satisfy the requirements of the Maine Department of Environmental Protections "Stormwater Management Rules" Chapter 500, the most recent version of the "Maine Stormwater Best Management Practices Manual", and the City of Portland's Stormwater Requirements based on Chapter 5 of the Technical Manual.

1.1 OVERVIEW OF MODELING METHODOGY AND SOURCE INFORMATION

Hydrologic Analysis: The pre and post development conditions have been modeled using modeling software (Hydrocad Version 10) which is based upon the methodology contained within the USDA Soil Conservation Service Technical Release 55. Type III 24-hour storm distributions for Cumberland County SE were used for the analysis. The following return periods and 24-hour rainfall depths were used for the analysis:

Return Period	24-Hour Rainfall Depth
2-Year Storm	3.10 inches
10-Year Storm	4.60 inches
25-Year Storm	5.80 inches

Soils: The soils used for the stormwater analysis were digitized from the Natural Resource Conservation Service (NRCS), web soil survey website. The source of the data is the Cumberland County Soil Survey (Class D). Refer to the following for additional documentation regarding the soils used for modelling:

- Appendix A of this Report
- Pre and Post Development Watershed Plans (Sheets A and B)

The onsite soils include:

Soil Map Unit	Unit Description	Hydrologic Soil Group
HlB	Hinkley Loamy Sand, 3-8% slopes	A

Topography: Ground Survey by BH2M

1.2 DESCRIPTION OF POINTS OF ANALYSIS

The watershed model analyzes the discharge of runoff at five Analysis Points as described below:

Analysis Point #1
Description: Run off along northeast property line.
Pre Development Tributary Drainage Areas: 0.142 Acres
Post Development Tributary Drainage Areas: 0.030 Acres

Analysis Point #2
Description: Run off along northwest property line.
Pre Development Tributary Drainage Areas: 0.089 Acres
Post Development Tributary Drainage Areas: 0.018 Acres

Analysis Point #3
Description: Run off along Cedar Street frontage.
Pre Development Tributary Drainage Areas: N/A*
Post Development Tributary Drainage Areas: 0.003 Acres

Analysis Point #4
Description: Outflow to combined sewer system.
Pre Development Tributary Drainage Areas: N/A*
Post Development Tributary Drainage Areas: 0.179 Acres

*Note, Analysis Points 3 and 4 do not exist as part of existing conditions, as the previous development run off appears to have been sheeted towards the southern sides of the lots.

1.3 PRE DEVELOPMENT CONDITIONS

The Existing Conditions are shown on Sheet 1 and Sheet A of the accompanying plans. The project area had been previously fully developed with single family homes, driveways, and lawns. Boys and Girls Club had the buildings razed recently following their purchase of the property. For reviewing pre-development conditions for the proposed 30-unit apartment building, we have assumed that the previously developed condition of 2 single-family homes as being the existing condition.

The watershed that was analyzed for this project is approximately 0.230 acres. The analysis points are described in Section 1.2 of this report. The watershed generally flows southeast to northwest. The project is located in a developed urban area, bounded by Cedar Street to the south, single family development to the east and west, and the Boy's and Girls Club parking lot to the north.

The Pre-Development Watershed Map is included as Sheet A of the accompanying plans and the Calculations are attached as Appendix B.

The Pre-Development Watershed Model predicts the following peak flow rates:

Pre-Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.04	0.16	0.29
AP-2	0.11	0.22	0.33
Total	**0.15**	**0.38**	**0.62**

1.4 POST DEVELOPMENT CONDITIONS

The project seeks to permit a 30-unit 5-story apartment building on the two properties along Cedar Street. The building is being proposed as urban infill, utilizing the majority of the property for the building itself. With the approximately 9000 sq.ft. lot, the project is proposing to have a building footprint of 5,226 sq. ft. With this, there will be very little vegetated and lawn areas to remain. The project proposes to construct a 5' wide sidewalk and a 10' wide driveway along the eastern side of the property to facilitate on-site access, as well as a doorway along Cedar Street. The project will proposed to have a transformer pad on-site. Given the extent of previous and proposed development, we have assume that the entity of the lot will be re-developed.

The details of the developed areas for the Site project are summarized below.

Proposed Impervious Area Roof	=	5,226 sf
Proposed Impervious Area Non-Roof	=	1,552 sf
Proposed Landscaped / Lawn Area	=	2,200 sf
Proposed Developed Area Avesta Site	=	8,978 sf

The project will include a Focalpoint to provide treatment of impervious areas and sub-surface retention comprised of an R-Tank system for attenuation of peak flows.

The Post Development Watershed Map is included as Sheet B of the accompanying plan set and the Calculations are attached as Appendix C.

The Post-Development Watershed Model predicts the following peak flow rates:

Post Development Peak Flows (cu. ft./sec)			
Analysis Point	**2-Year**	**10-Year**	**25-Year**
AP-1	0.00	0.00	0.01
AP-2	0.00	0.00	0.00
AP-3	0.01	0.02	0.02
AP-4	0.01	0.23	0.54
Total	**0.02**	**0.25**	**0.57**

1.5 BASIC STANDARDS

The proposed projects are required to meet the Basic Standards for the Maine DEP. To meet the Basic Standards the project designs must demonstrate that the erosion and sedimentation control, inspection and maintenance, and housekeeping standards specified in Appendices A, B, and C of 06-096 Chapter 500 (Maine DEP) 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.

The proposed projects will provide temporary (during construction) BMP's and post-construction BMP's. Refer to Erosion Control Plans for each project's plan set plans for erosion and sedimentation control narratives and details. The project requirements for inspection and maintenance during construction and post-construction are described in the Erosion and Sedimentation Control - Inspection and Maintenance Plans found in Appendix E of this Report. The housekeeping standards can also be found in the respective Inspection and Maintenance Plans.

1.6 PORTLAND STORMWATER STANDARDS - TREATMENT

The proposed project meets the sizing thresholds for a Major Site Plan application with the City of Portland, and given that this will create greater than 1,000 sq. ft. of new impervious area, must provide a stormwater management plan. To meet requirements of the plan, per Chapter 5 Section 5.2.2.A of the technical manual, the project must provide treatment for 95% of new impervious area, 80% of new developed area, and 95% of all non-roof redeveloped impervious area.

The project proposes to meet these requirements through the use of a Focalpoint high performance modular biofiltration system and a R-Tank subsurface storage array. As detailed in the calculations provided in Appendix D, the stormwater treatment criteria was reviewed, and a minimum area requiring impervious treatment has been found to be 3,994 sq. ft. of combined impervious areas. Areas of developed area were also reviewed, but given that the existing conditions show that the entire property was previously developed, no new developed areas are proposed, and therefore no treatment is required.

Below is a summary of the treatment areas associated with the proposed infrastructure. Refer to Appendix D for detailed calculations.

Stormwater Treatment Summary	
Total Proposed Impervious Area Requiring Treatment	3,994 sf
Total Treated Impervious Area	6,095 sf
Impervious Area Treatment %	**152.6% (95% required)**

As shown in the Table above, the stormwater management systems have been designed to meet the applicable Treatment requirements. As the calculations in Appendix D detail, to meet these requirements, the project will capture the entirety of the proposed areas of on-site roof, some areas of on-site driveway and walkways, as well as capturing run off from a portion of an abutting roof area that drains across the site.

1.7 PORTLAND STORMWATER STANDARDS – RUN OFF AND DETENTION

The proposed project is required to meet the Detention Standards for the City of Portland. To meet the Detention Volume requirements for projects that propose to make a connection to the City's combined sewer, the project design must demonstrate that the stormwater management systems will accomplish the following:

a) Provide on-site detention volume equal to 1" of rainfall over the total impervious area to the project
b) Provide on-site detention volume equal to the increase in average daily sewer flow
c) Retain stormwater on site to a maximum flow rate of 0.1 cfs until the on-site detention system reaches its design capacity (combined volume of a) and b) above).

For stormwater run off, the project must also control the peak 24-hour run off rates resulting from the 2, 10 and 25-year anticipated run off rates. This has been clarified that, for urban infill projects such as being proposed, the sum of the runoff for proposed conditions must be less or equal to the sum of the run off for existing conditions, including run off that is directed to the City's sewer and drainage system.

Stormwater storage and conveyance has been reviewed against these criteria, and the project proposes to meet both the storage requirements and run off rate requirements through the use of a R-Tank subgrade storage array. Per the subsurface storage calculations found in Appendix D, the City's water quality requirements show that 1,078 ft^3 of run off must be detained for this project. Given the storage provided by the proposed R-Tank array, we find that the system can exceed this requirement and retain 1,084 ft^3 of stormwater at an elevation of 45.50'. An outlet control structure at the outlet of the array is proposed, with a low outlet at the invert elevation of 44.07' of the storage array, calculated to be a 3/4" orifice controlling the water to a 0.1 cfs flow rate, and a 1' long weir controlling the outlet of stormwater above elevation 45.50' to meet peak rates. With these

Refer to Appendix B for the Pre-Development model and Appendix C for Post Development model.

Peak Flow Comparison (cu. ft./sec)						
Analysis	**2-Year**		**10-Year**		**25-Year**	
Point	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
AP-1	0.04	0.00	0.16	0.00	0.29	0.01
AP-2	0.11	0.00	0.22	0.00	0.33	0.00
AP-3*	N/A	0.01	N/A	0.02	N/A	0.02
AP-4*	N/A	0.01	N/A	0.23	N/A	0.54
Total	**0.15**	**0.02**	**0.38**	**0.25**	**0.62**	**0.57**

*Note, Analysis Points 3 and 4 do not exist as part of existing conditions, as the previous development run off appears to have been sheeted towards the northern sides of the lots.

As illustrated in the table above, we find that the R-Tank array and outlet control structure control run off rates so that the total sum of post development conditions are less than the total sum of pre development conditions, meeting the requirements of the standard.

1.8 CLOSURE

The proposed stormwater management facilities have been designed to mitigate stormwater impacts associated with development of the proposed to meet the City of Portland's requirements, as well as applicable sections of Maine DEP's Chapter 500.

Appendix A
Soils Reports

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine

Avesta Cedar Street

January 16, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:436 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 5 10 20 30

Feet: 0 20 40 80 120

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 22, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2022—Jul 1, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	0.4	100.0%
Totals for Area of Interest		**0.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

HIB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

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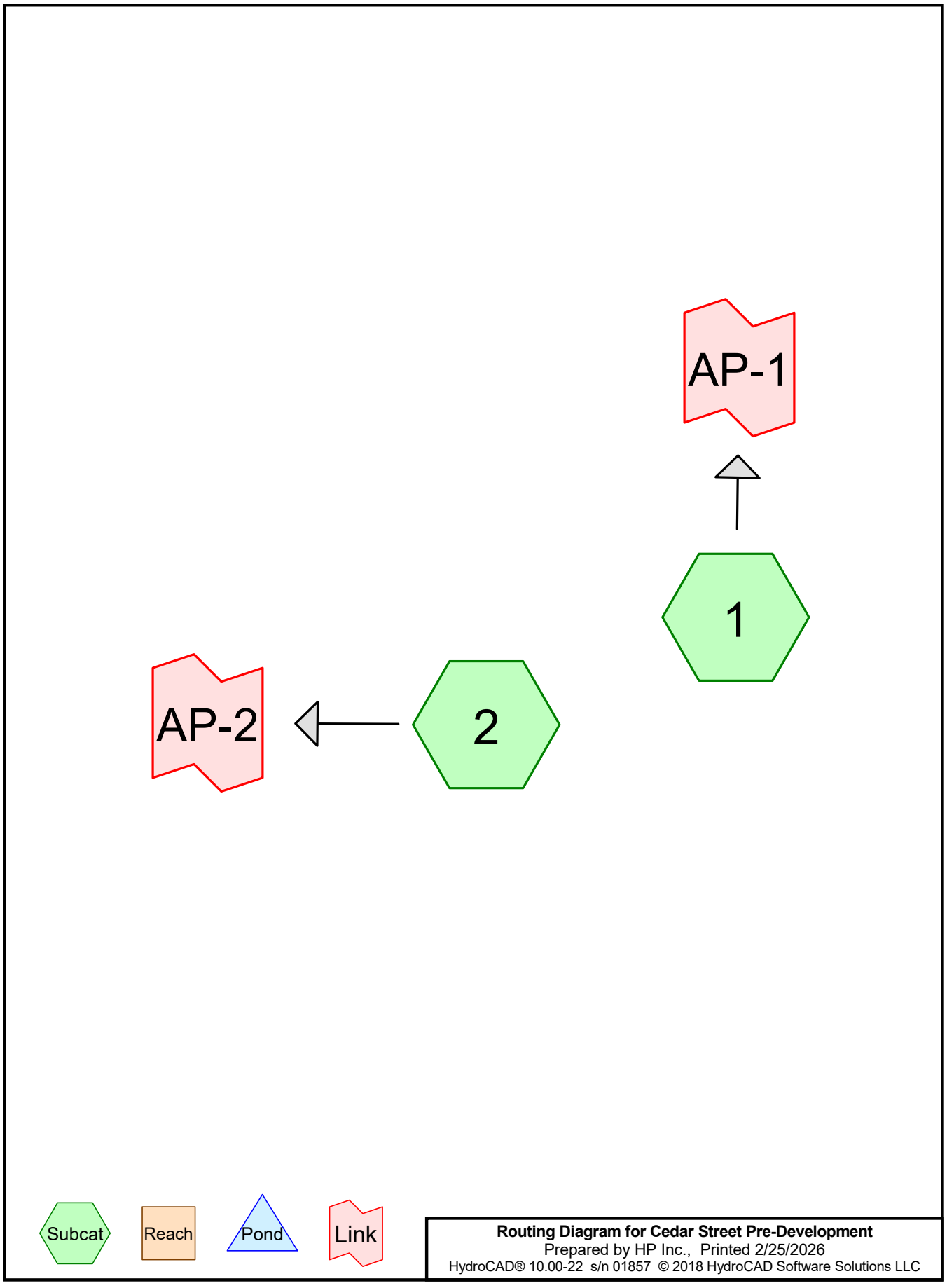
Appendix B
Pre Development Calculations



Routing Diagram for Cedar Street Pre-Development
Prepared by HP Inc., Printed 2/25/2026
HydroCAD® 10.00-22 s/n 01857 © 2018 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 1: Runoff Area=6,171 sf 37.34% Impervious Runoff Depth>1.71"
Flow Length=76' Slope=0.0395 '/' Tc=6.1 min CN=61 Runoff=0.29 cfs 0.020 af

Subcatchment 2: Runoff Area=3,865 sf 62.46% Impervious Runoff Depth>2.99"
Flow Length=48' Slope=0.0468 '/' Tc=6.0 min CN=76 Runoff=0.33 cfs 0.022 af

Link AP-1: Inflow=0.29 cfs 0.020 af
Primary=0.29 cfs 0.020 af

Link AP-2: Inflow=0.33 cfs 0.022 af
Primary=0.33 cfs 0.022 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.042 af Average Runoff Depth = 2.20"
52.99% Pervious = 0.122 ac 47.01% Impervious = 0.108 ac

Summary for Subcatchment 1:

Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.020 af, Depth> 1.71"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	743	98	Off Site Building
*	939	98	On Site Building
*	622	98	On Site Pavement
*	3,552	39	>75% Grass cover, Good, HSG A (On Site)
*	315	39	>75% Grass cover, Good, HSG A (Off Site)
	6,171	61	Weighted Average
	3,867		62.66% Pervious Area
	2,304		37.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	76	0.0395	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Subcatchment 2:

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 2.99"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,845	98	On Site Building
*	569	98	On Site Pavement
*	1,451	39	>75% Grass cover, Good, HSG A (On Site)
	3,865	76	Weighted Average
	1,451		37.54% Pervious Area
	2,414		62.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	48	0.0468	0.20		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.9	48	Total, Increased to minimum Tc = 6.0 min			

Summary for Link AP-1:

Inflow Area = 0.142 ac, 37.34% Impervious, Inflow Depth > 1.71" for 25-year event
Inflow = 0.29 cfs @ 12.10 hrs, Volume= 0.020 af
Primary = 0.29 cfs @ 12.10 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link AP-2:

Inflow Area = 0.089 ac, 62.46% Impervious, Inflow Depth > 2.99" for 25-year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 0.022 af
Primary = 0.33 cfs @ 12.09 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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 1: Runoff Area=6,171 sf 37.34% Impervious Runoff Depth>0.35"
Flow Length=76' Slope=0.0395 '/' Tc=6.1 min CN=61 Runoff=0.04 cfs 0.004 af

Subcatchment 2: Runoff Area=3,865 sf 62.46% Impervious Runoff Depth>0.99"
Flow Length=48' Slope=0.0468 '/' Tc=6.0 min CN=76 Runoff=0.11 cfs 0.007 af

Link AP-1: Inflow=0.04 cfs 0.004 af
Primary=0.04 cfs 0.004 af

Link AP-2: Inflow=0.11 cfs 0.007 af
Primary=0.11 cfs 0.007 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.011 af Average Runoff Depth = 0.60"
52.99% Pervious = 0.122 ac 47.01% Impervious = 0.108 ac

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 1: Runoff Area=6,171 sf 37.34% Impervious Runoff Depth>1.02"
Flow Length=76' Slope=0.0395 '/' Tc=6.1 min CN=61 Runoff=0.16 cfs 0.012 af

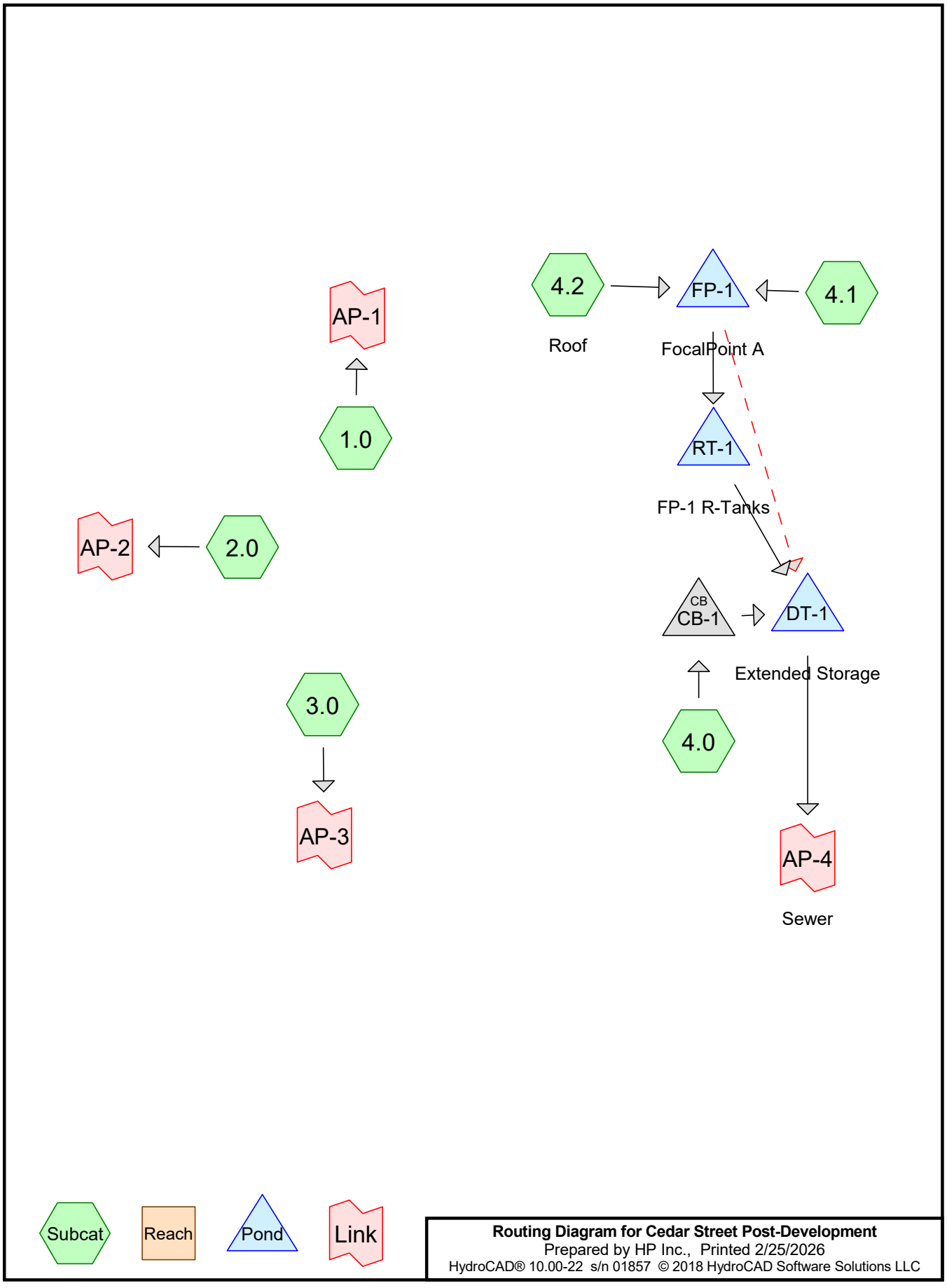
Subcatchment 2: Runoff Area=3,865 sf 62.46% Impervious Runoff Depth>2.05"
Flow Length=48' Slope=0.0468 '/' Tc=6.0 min CN=76 Runoff=0.22 cfs 0.015 af

Link AP-1: Inflow=0.16 cfs 0.012 af
Primary=0.16 cfs 0.012 af

Link AP-2: Inflow=0.22 cfs 0.015 af
Primary=0.22 cfs 0.015 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.027 af Average Runoff Depth = 1.42"
52.99% Pervious = 0.122 ac 47.01% Impervious = 0.108 ac

Appendix C
Post Development Calculations



Routing Diagram for Cedar Street Post-Development
Prepared by HP Inc., Printed 2/25/2026
HydroCAD® 10.00-22 s/n 01857 © 2018 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 1.0: Runoff Area=1,298 sf 3.78% Impervious Runoff Depth>0.42"
Flow Length=68' Tc=6.0 min CN=41 Runoff=0.01 cfs 0.001 af

Subcatchment 2.0: Runoff Area=805 sf 0.00% Impervious Runoff Depth>0.32"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 3.0: Runoff Area=150 sf 100.00% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 4.0: Runoff Area=1,411 sf 82.71% Impervious Runoff Depth>4.19"
Tc=6.0 min CN=88 Runoff=0.16 cfs 0.011 af

Subcatchment 4.1: Runoff Area=1,146 sf 75.83% Impervious Runoff Depth>3.77"
Tc=6.0 min CN=84 Runoff=0.12 cfs 0.008 af

Subcatchment 4.2: Roof Runoff Area=5,226 sf 100.00% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=98 Runoff=0.67 cfs 0.051 af

Pond CB-1: Peak Elev=44.42' Inflow=0.16 cfs 0.011 af
8.0" Round Culvert n=0.013 L=2.0' S=0.0050 '/' Outflow=0.16 cfs 0.011 af

Pond DT-1: Extended Storage Peak Elev=45.83' Storage=1,406 cf Inflow=0.94 cfs 0.071 af
Outflow=0.54 cfs 0.044 af

Pond FP-1: FocalPoint A Peak Elev=48.17' Storage=44 cf Inflow=0.79 cfs 0.060 af
Primary=0.06 cfs 0.037 af Secondary=0.72 cfs 0.023 af Outflow=0.78 cfs 0.060 af

Pond RT-1: FP-1 R-Tanks Peak Elev=44.65' Storage=14 cf Inflow=0.06 cfs 0.037 af
Outflow=0.06 cfs 0.036 af

Link AP-1: Inflow=0.01 cfs 0.001 af
Primary=0.01 cfs 0.001 af

Link AP-2: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP-3: Inflow=0.02 cfs 0.001 af
Primary=0.02 cfs 0.001 af

Link AP-4: Sewer Inflow=0.54 cfs 0.044 af
Primary=0.54 cfs 0.044 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.074 af Average Runoff Depth = 3.86"
25.66% Pervious = 0.059 ac 74.34% Impervious = 0.171 ac

Summary for Subcatchment 1.0:

Runoff = 0.01 cfs @ 12.31 hrs, Volume= 0.001 af, Depth> 0.42"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	49	98	Transformer
*	970	39	>75% Grass cover, Good, HSG A (On Site)
*	279	39	>75% Grass cover, Good, HSG A (Off Site)
	1,298	41	Weighted Average
	1,249		96.22% Pervious Area
	49		3.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	24	0.1000	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	44	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.2	68	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2.0:

Runoff = 0.00 cfs @ 12.37 hrs, Volume= 0.000 af, Depth> 0.32"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	805	39	>75% Grass cover, Good, HSG A (On Site)
	805		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Min 0.1 hour per TR-55**

Summary for Subcatchment 3.0:

Runoff = 0.02 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 5.15"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	150	98	Hardscape
	150		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Min 0.1 hour per TR-55**

Summary for Subcatchment 4.0:

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 4.19"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	451	98	Off-Site Roof
*	716	98	On-Site Walkway / Driveway
	244	39	>75% Grass cover, Good, HSG A
	1,411	88	Weighted Average
	244		17.29% Pervious Area
	1,167		82.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Min 0.1 hour per TR-55**

Summary for Subcatchment 4.1:

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 3.77"

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 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	292	98	Off-Site Roof
*	577	98	On-Site Walkway / Driveway
	277	39	>75% Grass cover, Good, HSG A
	1,146	84	Weighted Average
	277		24.17% Pervious Area
	869		75.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Min 0.1 hour per TR-55**

Summary for Subcatchment 4.2: Roof

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.051 af, Depth> 5.15"

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 25-year Rainfall=5.80"

Area (sf)	CN	Description
5,226	98	Roof
5,226		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Min 0.1 hour per TR-55**

Summary for Pond CB-1:

Inflow Area = 0.032 ac, 82.71% Impervious, Inflow Depth > 4.19" for 25-year event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.011 af
Outflow = 0.16 cfs @ 12.09 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.09 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 44.42' @ 12.09 hrs
Flood Elev= 48.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	44.15'	**8.0" Round Culvert** L= 2.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.15' / 44.14' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.16 cfs @ 12.09 hrs HW=44.42' (Free Discharge)
1=Culvert (Barrel Controls 0.16 cfs @ 1.73 fps)

Summary for Pond DT-1: Extended Storage

Inflow Area = 0.179 ac, 93.31% Impervious, Inflow Depth > 4.75" for 25-year event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.071 af
Outflow = 0.54 cfs @ 12.22 hrs, Volume= 0.044 af, Atten= 42%, Lag= 7.6 min
Primary = 0.54 cfs @ 12.22 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 6
Peak Elev= 45.83' @ 12.22 hrs Surf.Area= 995 sf Storage= 1,406 cf

Plug-Flow detention time= 151.3 min calculated for 0.044 af (62% of inflow)
Center-of-Mass det. time= 75.4 min (822.2 - 746.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	43.82'	417 cf	**11.87'W x 83.76'L x 2.42'H Field A** 2,402 cf Overall - 1,360 cf Embedded = 1,042 cf x 40.0% Voids
#2A	44.07'	1,292 cf	**ACF R-Tank HD 1.5** x 204 Inside #1 Inside= 15.7"W x 26.0"H => 2.70 sf x 2.35'L = 6.3 cf Outside= 15.7"W x 26.0"H => 2.84 sf x 2.35'L = 6.7 cf 6 Rows of 34 Chambers
		1,709 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 4	44.07'	**0.7" Vert. Orifice/Grate** C= 0.600
#2	Device 4	45.50'	**1.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Device 4	46.00'	**5.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Primary	44.07'	**8.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.07' / 44.00' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=0.53 cfs @ 12.22 hrs HW=45.82' (Free Discharge)
└**4=Culvert** (Passes 0.53 cfs of 2.00 cfs potential flow)
  ├**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 6.32 fps)
  ├**2=Broad-Crested Rectangular Weir** (Weir Controls 0.52 cfs @ 1.59 fps)
  └**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond FP-1: FocalPoint A

Inflow Area = 0.146 ac, 95.65% Impervious, Inflow Depth > 4.90" for 25-year event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.78 cfs @ 12.09 hrs, Volume= 0.060 af, Atten= 1%, Lag= 0.2 min
Primary = 0.06 cfs @ 11.20 hrs, Volume= 0.037 af
Secondary = 0.72 cfs @ 12.09 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 48.17' @ 12.09 hrs Surf.Area= 26 sf Storage= 44 cf

Plug-Flow detention time= 2.4 min calculated for 0.059 af (100% of inflow)
Center-of-Mass det. time= 1.9 min (741.6 - 739.6)

Volume	Invert	Avail.Storage	Storage Description
#1	45.25'	12 cf	**2.00'W x 13.00'L x 2.25'H FocalPoint** 59 cf Overall x 20.0% Voids
#2	47.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		72 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	25	0	0
48.00	59	21	21
48.50	97	39	60

Device	Routing	Invert	Outlet Devices
#1	Primary	45.25'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	48.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 11.20 hrs HW=45.48' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Secondary OutFlow Max=0.70 cfs @ 12.09 hrs HW=48.17' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 0.70 cfs @ 1.34 fps)

Summary for Pond RT-1: FP-1 R-Tanks

Inflow Area = 0.146 ac, 95.65% Impervious, Inflow Depth > 3.00" for 25-year event
Inflow = 0.06 cfs @ 11.20 hrs, Volume= 0.037 af
Outflow = 0.06 cfs @ 11.75 hrs, Volume= 0.036 af, Atten= 0%, Lag= 33.0 min
Primary = 0.06 cfs @ 11.75 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 6
Peak Elev= 44.65' @ 11.65 hrs Surf.Area= 66 sf Storage= 14 cf

Plug-Flow detention time= 6.8 min calculated for 0.036 af (99% of inflow)
Center-of-Mass det. time= 3.9 min (754.3 - 750.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	44.22'	18 cf	**15.12'W x 4.35'L x 1.04'H Field A** 68 cf Overall - 24 cf Embedded = 44 cf x 40.0% Voids
#2A	44.47'	23 cf	**ACF R-Tank SD 1** x 10 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 10 Rows of 1 Chambers
		41 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	44.47'	**6.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	44.47'	**6.0" Round Culvert** L= 44.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 44.47' / 44.25' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.06 cfs @ 11.75 hrs HW=44.65' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.06 cfs @ 1.45 fps)
└**1=Orifice/Grate** (Passes 0.06 cfs of 0.09 cfs potential flow)

Summary for Link AP-1:

Inflow Area = 0.030 ac, 3.78% Impervious, Inflow Depth > 0.42" for 25-year event
Inflow = 0.01 cfs @ 12.31 hrs, Volume= 0.001 af
Primary = 0.01 cfs @ 12.31 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link AP-2:

Inflow Area = 0.018 ac, 0.00% Impervious, Inflow Depth > 0.32" for 25-year event
Inflow = 0.00 cfs @ 12.37 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 12.37 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link AP-3:

Inflow Area = 0.003 ac,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.02 cfs @ 12.09 hrs, Volume= 0.001 af
Primary = 0.02 cfs @ 12.09 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link AP-4: Sewer

Inflow Area = 0.179 ac, 93.31% Impervious, Inflow Depth > 2.96" for 25-year event
Inflow = 0.54 cfs @ 12.22 hrs, Volume= 0.044 af
Primary = 0.54 cfs @ 12.22 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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 1.0: Runoff Area=1,298 sf 3.78% Impervious Runoff Depth>0.00"
Flow Length=68' Tc=6.0 min CN=41 Runoff=0.00 cfs 0.000 af

Subcatchment 2.0: Runoff Area=805 sf 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 3.0: Runoff Area=150 sf 100.00% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment 4.0: Runoff Area=1,411 sf 82.71% Impervious Runoff Depth>1.79"
Tc=6.0 min CN=88 Runoff=0.07 cfs 0.005 af

Subcatchment 4.1: Runoff Area=1,146 sf 75.83% Impervious Runoff Depth>1.49"
Tc=6.0 min CN=84 Runoff=0.05 cfs 0.003 af

Subcatchment 4.2: Roof Runoff Area=5,226 sf 100.00% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=98 Runoff=0.35 cfs 0.027 af

Pond CB-1: Peak Elev=44.33' Inflow=0.07 cfs 0.005 af
8.0" Round Culvert n=0.013 L=2.0' S=0.0050 '/' Outflow=0.07 cfs 0.005 af

Pond DT-1: Extended Storage Peak Elev=45.45' Storage=1,126 cf Inflow=0.47 cfs 0.035 af
Outflow=0.01 cfs 0.010 af

Pond FP-1: FocalPoint A Peak Elev=48.10' Storage=39 cf Inflow=0.40 cfs 0.030 af
Primary=0.06 cfs 0.022 af Secondary=0.34 cfs 0.008 af Outflow=0.40 cfs 0.030 af

Pond RT-1: FP-1 R-Tanks Peak Elev=44.65' Storage=14 cf Inflow=0.06 cfs 0.022 af
Outflow=0.06 cfs 0.022 af

Link AP-1: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP-2: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP-3: Inflow=0.01 cfs 0.001 af
Primary=0.01 cfs 0.001 af

Link AP-4: Sewer Inflow=0.01 cfs 0.010 af
Primary=0.01 cfs 0.010 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.036 af Average Runoff Depth = 1.86"
25.66% Pervious = 0.059 ac 74.34% Impervious = 0.171 ac

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 1.0: Runoff Area=1,298 sf 3.78% Impervious Runoff Depth>0.15"
Flow Length=68' Tc=6.0 min CN=41 Runoff=0.00 cfs 0.000 af

Subcatchment 2.0: Runoff Area=805 sf 0.00% Impervious Runoff Depth>0.10"
Tc=6.0 min CN=39 Runoff=0.00 cfs 0.000 af

Subcatchment 3.0: Runoff Area=150 sf 100.00% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 4.0: Runoff Area=1,411 sf 82.71% Impervious Runoff Depth>3.10"
Tc=6.0 min CN=88 Runoff=0.12 cfs 0.008 af

Subcatchment 4.1: Runoff Area=1,146 sf 75.83% Impervious Runoff Depth>2.73"
Tc=6.0 min CN=84 Runoff=0.09 cfs 0.006 af

Subcatchment 4.2: Roof Runoff Area=5,226 sf 100.00% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=98 Runoff=0.53 cfs 0.041 af

Pond CB-1: Peak Elev=44.39' Inflow=0.12 cfs 0.008 af
8.0" Round Culvert n=0.013 L=2.0' S=0.0050 '/' Outflow=0.12 cfs 0.008 af

Pond DT-1: Extended Storage Peak Elev=45.68' Storage=1,297 cf Inflow=0.73 cfs 0.055 af
Outflow=0.23 cfs 0.029 af

Pond FP-1: FocalPoint A Peak Elev=48.14' Storage=42 cf Inflow=0.61 cfs 0.047 af
Primary=0.06 cfs 0.030 af Secondary=0.55 cfs 0.016 af Outflow=0.61 cfs 0.047 af

Pond RT-1: FP-1 R-Tanks Peak Elev=44.65' Storage=14 cf Inflow=0.06 cfs 0.030 af
Outflow=0.06 cfs 0.030 af

Link AP-1: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP-2: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link AP-3: Inflow=0.02 cfs 0.001 af
Primary=0.02 cfs 0.001 af

Link AP-4: Sewer Inflow=0.23 cfs 0.029 af
Primary=0.23 cfs 0.029 af

Total Runoff Area = 0.230 ac Runoff Volume = 0.057 af Average Runoff Depth = 2.95"
25.66% Pervious = 0.059 ac 74.34% Impervious = 0.171 ac

Appendix D
Water Quality Calculations and BMP Sizing

Ferguson Waterworks
94 Pleasant Ave
South Portland, ME 04106

Chris MacDonald, P.E.
Civil Engineer
BH2M
Direct: 207-839-2771 x 203

March 20th, 2026

SUBJECT: Avesta Cedar Street – Portland Maine
Design Review – FocalPoint Biofiltration Systems and SWM Systems

Dear Chris,

Thank you for forwarding Plans and design data for the Avesta Cedar Street project in Portland, Maine to Ferguson Waterworks for review. Our team has reviewed the plans with most recent revision date of March 2026 which shows the following:

- **FocalPoint**– 26 SF footprint w/ 10 R-Tank^{SD} Single Modules and 12" Domed Overflow with Filter Bag
- **R-Tank** – 189 R-Tank^{HD} Single+Mini Modules & 15 R-Tank^{HD} Single+Mini Access Modules

FocalPoint System Review:

- The FocalPoint system is set in a recessed vegetated 'bowl' area providing a temporary ponding volume.
- The FocalPoint filter bed areas are computed correctly according to the sizing criteria approved by MEDEP.
- Runoff flows from the surrounding pavement and developed areas entering the FocalPoint through a stone forebay. We recommend placing decorative riverstone border around the FocalPoint footprint to delineate the FocalPoint mulch bed area and provide additional energy dissipation of incoming runoff.
- The typical FocalPoint section appears to consist of 3" mulch, 18" media, 6" bridging stone and R-Tank^{HD} modular underdrain.
- 12" dia. domed overflow riser with filter inserts is specified to convey larger storm events – essentially as a bypass.
- The FocalPoint specified planting notes including responsible party to procure and install are included on the plans; however the plant species should also be included. Recommended plantings that do well in New England FocalPoint systems include switchgrass, black eyed susans, cone flowers and day lilies. Please ensure FocalPoint plantings are included with bidding contract.

R-Tank System Review:

- R-Tank Detail on sheet 8 shows a 3" stone base (meeting the 3"min for detention), 2 ft stone sides, and a sectional build-up over the system that meets the min cover guidance for R-Tank^{HD} systems designed in traffic loaded locations.
- The cover over the system fits within the allowable cover limits
- The modules are to be wrapped with N080 Non-Woven Geotextile fabric and the excavation (including FocalPoint excavation) is to be wrapped with 30 Mil PVC liner sandwiched between two layers of N080 Non-Woven Geotextile fabric.
- An appropriate number of inspection ports have been provided
- Minimum separation requirements from foundations/footers of nearby buildings to be met as shown in "R-Tank – Minimum Offset Detail" on sheet 4 of 8 of R-Tank layout drawings

Overall, Ferguson takes no exceptions to the location and application of the FocalPoint and R-Tank systems for this project. It appears that the systems have been designed in accordance with the design criteria set forth by Maine DEP in the FocalPoint system approval letter and meet the system specifications. With regard to the installation, Ferguson Waterworks will host a preconstruction meeting with the site contractor and will be on-site during installation to ensure that the installation is being conducted in accordance with our standard installation procedures. Please review and contact me with any questions from your office. We look forward to working with you on this project.

Sincerely,

Brett Keszczyk,
Green Stormwater Infrastructure (GSI) Engineer
Ferguson Waterworks

Cc: Rob Woodman, PE – Director of Engineering & Green Stormwater Infrastructure
Sam Wojichowski – Engineering Services Specialist (New England)

BH2M
380B Main Street
Gorham, Maine 04038

WATER QUALITY CALCULATIONS
Avesta Housing Cedar Street Portland

Subcatchment ID	Roof Impervious Area (sq. ft.)	Non-Roof Impervious Area (sq. ft.)	Vegitated Area (sq. ft.)	Developed Area (sq. ft.)	Treated Roof Impervious Area (sq. ft.)	Treated Non-Roof Impervious Area (sq. ft.)	Treated Developed Area (sq. ft.)	BMP ID
1.0		49	1,249	1,298				Untreated
2.0			805	805				Untreated
3.0		150		150				Untreated
4.0	451	716	244	1,411				Untreated
4.1	292	577	277	1,146	292	577	1,146	Focalpoint
4.2	5,226			5,226	5,226	0	5,226	Focalpoint
Total	**5,969**	**1,492**	**2,575**	**10,036**	**5,518**	**577**	**6,372**	

Per City of Portland Technical manual, section 5.2.2:

a. 95% of new impervous areas require treatment

b. 80% of new developed areas require treatment

c. 95% of non-roof redeveloped impervious areas require treatment

Treatment Summary	
Total Proposed Impervious Area Requiring Treatment (sq. ft.)=	3,994
Total Treated Impervious Area (sq. ft.)=	6,095
Impervious Area Treatment % =	**152.6%**

Note: Given entirety of existing lot was developed, no "new" developed areas are proposed and treatment is not required per Technical Manual Section 5.2.2

Area Requiring Treatment*		
Cover Type	**Area (sq. ft.)**	
Existing Roofs	2,784	
Existing Non-Roof Impervious	1,070	
Existing Vegitated	5,124	
Proposed Roofs	5,226	
Proposed Non-Roof Impervious	1,552	
Proposed Vegitated	2,200	
a. Proposed New Impervious Area	2,924	(All Proposed minus All Existing)
b. New Developed Area**	0	(All Existing Areas Developed**)
c. Non-Roof Redeveloped Impervious Areas	1,070	(Summation of existing non-roof impervious)
Total Impervious Area Requiring 95% Treatment	**3,994**	(a. added to c.)

*On-Site Areas Only

**Given entirety of existing lot was developed, no "new" developed areas are proposed and treatment is not required per Technical Manual Section 5.2.2

Cedar Street Portland - Subsurface Storage

Area	Proposed Impervious Area (ft^2)	WQ Impervious Area Runoff Depth (inches)	WQ Impervious Volume Required (ft^3)
Areas Requiring WQ Volume**	6,778	1.00	**565**

*See Water Quality Calculations, Areas Requireing Treatment

**Per Technical Manual Section 5.2.4 B, requires 1" Over All Impervous Areas

Summary of Underdrain Filter Sizing		
WQ Volume Required* (ft^3)	**1,078**	
WQ Volume Provided (ft^3)	1,084	OK
WQ Surface Elevation	45.50	

*Per Technical Manual Section 5.2.4 B, 1" Over Impervious and Daily Sewer Volume

Storage Volume		
Elevation		**Cumulative Volume (ft^3)**
44.07		0
45		738
45.5		1,084
46		1,429
Water Quality Volume Provided (at Elevation 45.5) =		**1,084**

Water Quality (WQ) Requirements	
Volume Types	**Volume (ft^3)**
1" Rainfall Over All Proposed Impervous Area	565
Anticipated Daily Volume of Sewer	513
Total WQ Required	**1,078**

Sewer Use Calculations*			
Bedrooms	**Number of Units**	**Gallons per Day (GPD) / Use**	**Total GPD / Use**
Single Bedroom Units	26	120	3120
2 Bedroom Units	4	180	720
		Total GPD	3840
		Total ft^3/ Day	**513**

*Per Maine Subsurface Wastewater Disposal Rules Section 4.E.2

Orifice Sizing		
Discharge Coefficient	0.62	
Orifice Size (inches)	0.75	(3/4")
Orifice Size (feet)	0.06	
Orifice Area (ft^2)	0.0031	
Orifice Centerline Elevation	0.031	

Orifice Eqn: $C*A*(2gH)^{\wedge 1/2}$

Q (cfs)*	Stage Elevation
0.1012	44.07
0.1023	45
0.1029	45.5

*Per Technical Manual Section 5.2.4-B-2, Control WQv discharge to 0.1 cfs

FERGUSON WATERWORKS

FOCALPOINT DESIGN SHEET

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM
MAINE CHAPTER 500 PROJECTS

1. **Determine FocalPoint bed area (minimum 174 sf/acre of impervious area - ex: 0.2 acres = 35 sf)**
   See step 2 to determine if minimum size is appropriate.
   - Tributary impervious area: = (6095 sf) .14 ac **(A)**
   - Tributary pervious area: = 0.01 ac **(B)**
   - Minimum FocalPoint bed area required: **= ((A x 1.0) + (B x 0.4)) * 174** = 25 sf
   - FocalPoint bed area provided*: = 26 sf
   - Dimensions of proposed FocalPoint: = 2 ft x 13 ft

2. **A 0.95 in Type III 24-hr rainfall event shall be modelled to demonstrate the entire storm volume is treated prior to activation of the overflow (typically set at 6 - 12 in above the mulch)**
   - Temporary storage depth provided: = 6 in (typically 6 - 12 in)
   - Temporary storage volume provided at above depth: = 21 ft^3
   - Peak ponding depth from 0.95" 24 hr storm event: = 2.16 in

3. **Ratio of the surface area of the filter media (sf) to the temporary ponding volume (cf) shall be no less than 1:5**
   - Ratio of FocalPoint bed area: = 1 : 6.5

4. **Subsurface R-Tank or chamber treatment row must be sized to treat the peak flow from a 1 yr - 24-hr storm event.**
   - 1 yr 24-hr peak flowrate: Total Inlet to Storage Array = .33 cfs
   - Chamber/module selected:
     - Cultec 330 XLHD (1 chamber per 0.227 cfs) ☐
     - Cultec 150 XLHD (1 chamber per 0.185 cfs) ☑
     - R-Tank modules (WHAT TYPE)(1 module per 0.02 cfs) ☐
   - Number of chamber/modules required: = 16.5

5. **Controlled release of the channel protection over ~~24 - 48 hrs~~** → Per Technical Manual Section 5.2.4-B-2, Control WQv discharge to 0.1 cfs
   - Controlled realease of the channel protection volume is being achieved by:
     - Expanded subsurface storage basin with outlet control structure (OCS) ☐
     - Surface detention basin with OCS ☑

6. **A landscape plan for the FocalPoint bed area has been prepared** ☐

7. **Design review and installation oversight by manufacturer's representative**
   - The design has been reviewed by Ferguson ☑
   - Engineer will coordinate installation inspection with Ferguson ☑

Contact Loren Joyce - Stormwater Engineer
Cell: 207.272.9743 | Email: loren.joyce@ferguson.com

FERGUSON WATERWORKS

Summary for Pond FP-1: FocalPoint A

Inflow Area = 0.146 ac, 95.65% Impervious, Inflow Depth > 0.60" for 0.95 in event
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af
Outflow = 0.06 cfs @ 12.05 hrs, Volume= 0.007 af, Atten= 40%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.05 hrs, Volume= 0.007 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 47.68' @ 12.21 hrs Surf.Area= 26 sf Storage= 17 cf

47.68-47.50=0.18' or 2.16"

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.0 min (764.2 - 763.3)

Volume	Invert	Avail.Storage	Storage Description
#1	45.25'	12 cf	**2.00'W x 13.00'L x 2.25'H FocalPoint** 59 cf Overall x 20.0% Voids
#2	47.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		72 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	25	0	0
48.00	59	21	21
48.50	97	39	60

Storage at overflow elevation

Device	Routing	Invert	Outlet Devices
#1	Primary	45.25'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	48.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.05 hrs HW=45.96' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=45.25' (Free Discharge)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP-1: FocalPoint A

Inflow Area = 0.146 ac, 95.65% Impervious, Inflow Depth > 2.02" for 1-year event
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 0.025 af
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 0.025 af, Atten= 1%, Lag= 0.2 min
Primary = 0.06 cfs @ 11.70 hrs, Volume= 0.019 af
Secondary = 0.27 cfs @ 12.09 hrs, Volume= 0.006 af

Basis of Treatment
Row sizing

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 48.09' @ 12.09 hrs Surf.Area= 26 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.0 min (748.8 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	45.25'	12 cf	**2.00'W x 13.00'L x 2.25'H FocalPoint** 59 cf Overall x 20.0% Voids
#2	47.50'	60 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		72 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
47.50	25	0	0
48.00	59	21	21
48.50	97	39	60

Device	Routing	Invert	Outlet Devices	
#1	Primary	45.25'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	48.00'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.06 cfs @ 11.70 hrs HW=45.47' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Secondary OutFlow Max=0.26 cfs @ 12.09 hrs HW=48.09' (Free Discharge)
└**2=Orifice/Grate** (Weir Controls 0.26 cfs @ 0.96 fps)

Appendix E
Inspection and Maintenance Manual

EROSION AND SEDIMENTATION CONTROL

INSPECTION AND MAINTENANCE PLAN

Avesta Housing 30-Unit Apartment Building
15/19 Cedar Street
Portland, Maine

Submitted by:

Avesta Housing
307 Cumberland Avenue
Portland, ME

Prepared by:

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

Date:
February 2026

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 INTRODUCTION

The intent of this plan is to establish inspection and maintenance procedures to be implemented for erosion and sediment control best management practices (BMP's) during construction, as well as for post-construction stormwater BMP's, for a 30-unit affordable housing project for Avesta Housing. This plan has been prepared in conformance with the requirements set forth in 06-096 Chapter 500 – Stormwater Management and the City of Portland, Maine.

1.1 PROJECT DESCRIPTION

The applicant, Avesta Housing, is proposing a 30-unit apartment building at 15 & 19 Cedar Street in Portland. The project is required to obtain a Major Site Plan Permit from the City of Portland.

The scope of work includes but is not limited to:

- Grubbing and subgrade preparation
- Grading of lot and construction of driveway
- Construction of a 30-unit 5 story apartment building
- Construction of public utilities
- Construction of stormwater BMP's

The proposed development will create approximately 0.16 acres of new impervious area.

1.2 REQUIRED PERMITS

The following is a list of Municipal, State, and Federal permits that are required for the Project:

Municipal
City of Portland Major Site Plan Permit

1.3 REFERENCES

This plan has been developed in accordance with the following:

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
  http://legislature.maine.gov/statutes/38/title38sec420-C.html
  http://legislature.maine.gov/statutes/38/title38sec420-D.html

- 06-096 Chapter 500 – Stormwater Management
  http://www.maine.gov/sos/cec/rules/06/096/096c500.docx

- General Permit – Construction Activity
  Maine Pollutant Discharge Elimination System (MPDES)
  https://www.maine.gov/dep/land/stormwater/construction.html

- Maine Erosion and Sediment Control Best Management Practices (BMPs)
  Manual for Designers and Engineers
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf

- Maine Erosion and Sediment Control Practices Field Guide for Contractors
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_field.pdf

- MaineDOT Best Management Practices for Erosion and Sedimentation Control
  https://www.maine.gov/mdot/env/documents/bmp/BMP2008full.pdf

- City of Portland Maine Land Use Ordinance
  https://ecode360.com/BI3074

- City of Portland Maine Technical Manual
  https://ecode360.com/BI3074

1.4 RESPONSIBLE PARTIES

Preparer/Design Engineer:	Christopher MacDonald, PE BH2M 380B Main Street Gorham, ME 04038 (207) 839-2771
Developer/Applicant:	Avesta Housing 307 Cumberland Avenue Portland, ME
Site Contractor:	TBD
Owner:	Boys & Girls Clubs of Southern Maine P.O. Box 7830 Portland, Maine 04112
Post Construction Stormwater Inspector:	Avesta Housing
Stormwater Maintenance	Avesta Housing
During Construction:	Avesta Housing
Post Construction:	Avesta Housing

During construction, the Developer/Applicant or their representatives will be responsible for implementing the erosion and sediment control BMP's as well routine inspections and maintenance of the BMP's.

Post-construction stormwater BMP inspection, maintenance, reporting, and required recertifications will be the responsibility of the property owner.

1.5 INSPECTION AND MAINTENANCE – DURING CONSTRUCTION

Anyone who conducts or directs an activity that involves exposing, filling or displacing soil or other earthen materials should take appropriate measures to prevent erosion and the loss of sediment beyond the project site or into a sensitive resource. Erosion and sediment control measures should be in place before the activity begins and should remain functional until the site is permanently stabilized. All measures should remain effective until all areas are permanently stabilized. Any disturbed area should be regularly inspected until the site is fully stabilized with either 90% grass cover or a permanent impervious surface such as pavement. A person who has the knowledge of erosion and sediment control measures and of stormwater management practices should inspect the site at a minimum once a week, and before and after a storm event. Any failing measure should be repaired or modified to adequately stabilize the site prior to the next storm event or no later than 7 calendar days. The inspection frequency table found in Appendix D shall be used as a guide for inspecting each specific BMP. The inspection form found in Appendix B shall be used to record the inspection, its outcome, and the required maintenance.

Refer to the Plans found in Appendix A for additional erosion and sediment control details and narratives.

General Inspection, Maintenance, and Documentation Requirements

1. Inspection and corrective action: Inspect disturbed and impervious areas, erosion control measures, and material 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, 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.

2. Maintenance: If BMP's 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. All measures must be maintained in effective operating condition until areas are permanently stabilized.

3. Documentation: Maintain a binder with construction inspection forms summarizing the inspections and any corrective action taken. The forms must include the name and qualifications of the person making the inspections, the date of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Refer to Appendix B for the construction inspection form. Major observations must include BMP's that need maintenance, BMP's that failed to

operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection form what corrective action taken and when it was taken. The Owner shall retain a copy of the inspection forms for a period of at least five years from the completion of permanent stabilization.

Site-Specific BMP's

Refer to Appendix D for inspection and maintenance requirements and frequencies of site-specific BMP's. Refer to the Plans found in Appendix A for narratives and details of the site-specific BMP's. The following is a list of the site-specific BMP's that will require routine inspection and maintenance:

- Sedimentation Barriers (Silt Fence or Erosions Control Mix Berm)
- Focalpoint Stormwater Treatment System and Underground Storage

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.

1. 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.

2. Sediment Barriers: All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.

3. Ditches: 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 Maine DEP.

4. 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.

Refer to the Plans contained in Appendix A for additional winter construction erosion and sediment control requirements.

1.6 INSPECTION AND MAINTENANCE – POST-CONSTRUCTION

The long-term operation and maintenance of a stormwater management system is as critical to its performance as its design and construction. Proper operation and maintenance practices ensure that stormwater BMP's continue to improve water quality by removing pollutants effectively over the long-term and decreasing the risk of re-suspending sediment. Without proper maintenance, BMPs are likely to fail and will no longer provide treatment of stormwater. The following includes a summary of the inspection, maintenance, and documentation requirements for post-construction stormwater BMP's.

Refer to the Plans contained in Appendix A for details and locations of site-specific post-construction BMP's.

General Inspection, Maintenance, and Documentation Requirements

1. 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.

    a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after significant rainfall events (1 inch in 24-hour period) to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

    b) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after significant rainfall events (1 inch in 24-hour period) 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 side slopes.

    c) On-site inspection of the Focalpoint stormwater system shall occur shall occur 24 hours after each significant rainfall (0.5" of precipitation over a 24-hour

period) for the first year after construction to ensure the Focalpoint media processes stormwater without clogging, creating sinkholes or uneven settlement. Check water levels in underground storage through observation port to ensure water drains between the first 24 to 48 hours. Thereafter, the Focalpoint shall inspected be twice per year (May 1 and October 1). See Appendix E for Operation and Maintenance Guide. The following shall be accomplished:

- Record date of inspection
- Identify person making the inspection
- Remove debris.
- Ensure an even 3" distribution of mulch on surface
- Mow grassed slopes and/or repair slopes if eroded.
- Contract with approved maintenance provider to perform a full system inspection and maintenance annually

d) 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.

2. Regular maintenance: 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.

3. Documentation: Maintain a binder of inspection forms summarizing inspection, maintenance, and any corrective actions taken. The inspection forms 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. Refer to Appendix C for inspection forms. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed of after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The Owner shall retain a copy of the logs for a period of at least five years from the completion of permanent stabilization.

4. The site-specific post-construction BMP's for the project include the following:

- Focalpoint stormwater treatment system and underground storage
- Storm Drain System (including culverts, storm drains, catch basins, and drain manholes)

1.7 HOUSEKEEPING

The following performance standards shall apply:

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 06-096 Chapter 500 - 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, 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: Take care in sourcing water. 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;
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;
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 06-096 Chapter 500 - 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 A
Plans

Appendix B
Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL						
General Information:						
Site Name:	Date:			Inspected by:		
Owner:						
Retained 3PI:	Last Rain Date:			Amount:		
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint	
Description of disturbed area:						
Photos:						
	YES/NO/NA	**COMMENTS**				
1. Is an Erosion and Sediment Control Plan available?						
ESC plan on-site and followed						
Other:						
2. Are all erosion control practices installed properly, maintained and functioning?						
Disturbed areas stable						
Concentrated flow inlet/outlet protection						
All areas at final grade						
Disturbed dormant areas stabilized						
Access roads and parking						
Hillsides and stockpiles						
Other:						
3. Are all sedimentation control practices installed properly, maintained and functioning?						
Construction entrance						
Sedimentation basins/traps/diversions						
Perimeter controls						
Check dams						
Other:						
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?						
Sedimentation/erosion in ditches						
Tracked Sediment or dust at exits						
Hazardous material storage and spill control practices						
Waste management (concrete, hazardous material, etc.)						
Other:						
5. Violation, Corrective Actions, Recommendations						
Sediment discharged from site?						
Corrective action required?						
Site compliant with all permits?						
Notice of violation or stop work order issued?						
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)						

Appendix C
Post-Construction Inspection Forms

Avesta Housing Biddeford **Post-Construction Inspection Form (Ditches, Swales and Open Stormwater Channels)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Obstructions, sediment or debris noticeable in ditch line?		
Mowing required?		
Woody vegetation apparent in ditches?		
Side slopes stable? Signs of slumping?		
Rip rap stable? Underlying filter fabric visible?		

Additional Comments:

Avesta Housing Biddeford **Post-Construction Inspection Form (Roadway and Parking Areas)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Winter sand accumulation apparent?		
Pavement Sweeping required?		
Gravel shoulders graded appropriately?		
Gravel road grading required?		
Low spots causing puddling?		

Additional Comments:

Avesta Housing Biddeford **Post-Construction Inspection Form (Storm Drain System including culverts)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Accumulated debris or sediment at inlet, outlet, or within culvert/storm drain?		
Flow obstructions present?		
Erosion apparent at culvert inlet/outlet?		

Additional Comments:

Avesta Housing Biddeford **Post-Construction Inspection Form (Underdrain Filter)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
Debris apparent in basin bottom?		
Vegetation established in basin bottom?		
Basin draining within 72 hours?		
Inlet forebay rip rap stable and free of debris?		
Embankment and side slopes stable? Sloughs or unvegetated areas apparent?		
Outlet free of debris? Rip rap stable?		
Valve in operating condition?		
Outlet control structure operational free of debris?		
Orifice free of debris and operational?		

Additional Comments:

Avesta Housing Biddeford **Post-Construction Inspection Form (Vegetated Area)**					
Project name:	Date:		Inspected by:		
Owner name:					
Last rain date:	Amount:				
Reason for inspection:	Rain Event	Monthly	Annually	Maint. Performed	Other (Specify)
General description of BMP condition/recent maintenance performed:					
Photos: (Attach)					

Inspection Details	**Comments**	**Maintenance Required**
All slopes and embankments well vegetated? Signs of sparse growth?		
Rill erosion apparent in vegetated areas?		
Downs slope of level spreaders/ditch turnouts stable?		
Mowing of vegetated areas appropriate?		

Additional Comments:

Appendix D

Inspection Frequency Checklist and Long-Term Inspection & Maintenance Plan

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are graded to drain		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Appendix E
Focalpoint Operations and Maintenance

FocalPoint

BIOFILTRATION SYSTEMS

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS)

Operations & Maintenance

ACF ENVIRONMENTAL
Customer Focused, Environmentally Committed

GENERAL DESCRIPTION

The following general specifications describe the general operations and maintenance requirements for the FocalPoint® High Performance Modular Biofiltration System (HPMBS). The system utilizes physical, chemical and biological mechanisms of a soil, plant and microbe complex to remove pollutants typically found in urban stormwater runoff. The treatment system is a fully equipped, modular, constructed in place system designed to treat contaminated runoff.

Stormwater enters the FocalPoint® HPMBS, is filtered by the High Flow Biofiltration Media and passes through to the underdrain/storage system where the treated water is detained, retained or infiltrated to sub-soils, prior to discharge to the storm sewer system of any remaining flow.

Higher flows bypass the FocalPoint® HPMBS via a downstream inlet or other overflow conveyance. Maintenance is a simple, inexpensive and safe operation that does not require confined space entry, pumping or vacuum equipment, or specialized tools. Properly trained landscape personnel can effectively maintain FocalPoint® HPMBS by following instructions in this manual.

BASIC OPERATIONS

FocalPoint® is a modular, high performance biofiltration system that often works in tandem with other integrated management practices (IMP). Contaminated stormwater runoff enters the biofiltration bed through a conveyance swale, planter box, or directly through a curb cut or false inlet. Energy is dissipated by a rock or vegetative dissipation device and is absorbed by a 3-inch layer of aged, double shredded hardwood mulch, with fines removed, (when specified) on the surface of the biofiltration media.

As the water passes through the mulch layer, most of the larger sediment particles and heavy metals are removed through sedimentation and chemical reactions with the organic material in the mulch. Water passes through the biofiltration media where the finer particles are removed and numerous chemical reactions take place to immobilize and capture pollutants in the soil media.

The cleansed water passes into the underdrain/storage system and remaining flows are directed to a storm sewer system or other appropriate discharge point. Once the pollutants are in the soil, bacteria begin to break down and metabolize the materials and the plants begin to uptake and metabolize the pollutants. Some pollutants such as heavy metals, which are chemically bound to organic particles in the mulch, are released over time as the organic matter decomposes to release the metals to the feeder roots of the plants and the cells of the bacteria in the soil where they remain and are recycled. Other pollutants such as phosphorus are chemically bound to the soil particles and released slowly back to the plants and bacteria and used in their metabolic processes. Nitrogen goes through a variety of very complex biochemical processes where it can ultimately end up in the plant/bacteria biomass, turned to nitrogen gas or dissolves back into the water column as nitrates depending on soil temperature, pH and the availability of oxygen. The pollutants ultimately are retained in the mulch, soil and biomass with some passing out of the system into the air or back into the water.

DESIGN AND INSTALLATION

Each project presents different scopes for the use of FocalPoint® HPMBS. To ensure the safe and specified function of this stormwater BMP, Convergent Water Technologies and/or its Value Added Resellers (VAR) review each application before supply. Information and design assistance is available to the design engineer during the planning process. Correct FocalPoint® sizing is essential to optimum performance. The engineer shall submit calculations for approval by the local jurisdiction when required. The contractor and/or VAR is responsible for the correct installation of FocalPoint® HPMBS units as described in approved plans. A comprehensive installation manual is available at www.convergentwater.com.

MAINTENANCE

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons for maintenance include:

- Avoid legal challenges from your jurisdiction's maintenance enforcement program.
- Prolong the lifespan of your FocalPoint® HPMBS.
- Avoid costly repairs.
- Help reduce pollutant loads leaving your property.

Simple maintenance of the FocalPoint® HPMBS is required to continue effective pollutant removal from stormwater runoff before any discharge into downstream waters. This procedure will also extend the longevity of the living biofiltration system. The unit will recycle and accumulate pollutants within the biomass, but may also subjected to other materials entering the surface of the system. This may include trash, silt and leaves etc. which will be contained above the mulch and/or biofiltration media layer. Too much silt may inhibit the FocalPoint's® HPMBS flow rate, which is a primary reason for system maintenance. Removal of accumulated silt/sediment and/or replacement of the mulch layer (when specified), is an important activity that prevents over accumulation of such silt/sediment.

When to Maintain?

Convergent Water Technologies and/or its VAR includes a 1-year maintenance plan with each system purchased. Annual included maintenance consists of two (2) scheduled maintenance visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated for full operation. Full operation is defined as when the site is appropriately stabilized, the unit is installed and activated (by VAR), i.e., when mulch (if specified) and plantings are added.

Activation should be avoided until the site is fully stabilized (full landscaping, grass cover, final paving and street sweeping completed). Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands. The fall visit helps the system by removing excessive leaf litter.

A first inspection to determine if maintenance is necessary should be performed at least twice annually after storm events of greater than (1) one inch total depth (subject to regional climate). Please refer to the maintenance checklist for specific conditions that indicate if maintenance is necessary.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required. Regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the VAR/Maintenance contractor and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the VAR/Maintenance contractor of any damage to the plant(s), which constitute(s) an integral part of the biofiltration technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance of the FocalPoint® HPMBS to the VAR/Maintenance contractor (i.e. no pruning or fertilizing).

EXCLUSION OF SERVICES

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant(s) in the FocalPoint® HPMBS.

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the VAR/Maintenance contractor maintenance contract. Should a major contamination event occur, the Owner must block off the outlet pipe of the FocalPoint® (where the cleaned runoff drains to, such as drop-inlet) and block off the point where water enters of the FocalPoint® HPMBS. The VAR/Maintenance contractor should be informed immediately.

MAINTENANCE VISIT SUMMARY

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of FocalPoint® HPMBS and surrounding area
2. Removal of debris, trash and mulch
3. Mulch replacement
4. Plant health evaluation (including measurements) and pruning or replacement as necessary
5. Clean area around FocalPoint® HPMBS
6. Complete paperwork, including date stamped photos of the tasks listed above.

MAINTENANCE TOOLS, SAFETY EQUIPMENT AND SUPPLIES

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes.

Inspection of FocalPoint® HPMBS and surrounding area

Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

- Standing Water yes | no
- Is Bypass Inlet Clear? yes | no
- Damage to HPMBS System yes | no
- to Overflow conveyance yes | no

Removal of Silt / Sediment / Clay

Dig out silt (if any) and mulch and remove trash & foreign items.

- Silt / Clay Found? yes | no
- Cups / Bags Found? yes | no
- Leaves? yes | no
- Volume of material removed _____ (volume or weight)

Removal of debris, trash and mulch

After removal of mulch and debris, measure distance from the top of the FocalPoint® HPMBS engineered media soil to the flow line elevation of the adjacent overflow conveyance. If this distance is greater than that specified on the plans (typ. 6" - 12"), add media (not top soil or other) to recharge to the distance specified.

- Distance to media surface to flow line of overflow conveyance (inches) _____
- # of Buckets of Media Added _____

Mulch Replacement

Most maintenance visits require only replacement mulch (if utilized) which must be, aged, double shredded hardwood mulch with fines removed. For smaller projects, one cubic foot of mulch will cover four square feet of biofiltration bed, and for larger projects, one cubic yard of mulch will cover 108 square feet of biofiltration bed. Some visits may require additional FocalPoint® HPMBS engineered soil media available from the VAR/Contractor.

- Add double shredded, aged hardwood mulch which has been screened to remove fines, evenly across the entire biofiltration media bed to a depth of 3".
- Clean accumulated sediment from energy dissipation system at the inlet to the FocalPoint® HPMBS to allow for entry of trash during a storm event.

Plant health evaluation and pruning or replacement as necessary

Examine the plant's health and replace if dead or dying.
Prune as necessary to encourage growth in the correct directions

- Height above Grade (feet) _____
- Width at Widest point (feet) _____
- Health alive | dead
- Damage to Plant yes | no

Clean area around FocalPoint® HPMBS

- Clean area around unit and remove all refuse to be disposed of appropriately.

Complete paperwork

- Deliver Maintenance Report and photographs as appropriate.
- Some jurisdictions may require submission of maintenance reports in accordance with approvals.
- It is the responsibility of the Owner to comply with local regulations.

FocalPoint Warranty

Seller warrants goods sold hereunder against defects in materials and workmanship only, for a period of (1) year from date the Seller activates the system into service. Seller makes no other warranties, express or implied.

Seller's liability hereunder shall be conditioned upon the Buyer's installation, maintenance, and service of the goods in strict compliance with the written instructions and specifications provided by the Seller. Any deviation from Seller's instructions and specifications or any abuse or neglect shall void warranties.

In the event of any claim upon Seller's warranty, the burden shall be upon the Buyer to prove strict compliance with all instructions and specifications provided by the Seller.

Seller's liability hereunder shall be limited only to the cost or replacement of the goods. Buyer agrees that Seller shall not be liable for any consequential losses arising from the purchase, installation, and/or use of the goods.

(p) 800.448.3636 | www.acfenvironmental.com

Maintenance Checklist

Element	Problem	What To Check	Should Exist	Action
Inlet	Excessive sediment or trash accumulation	Accumulation of sediment or trash impair free flow of water into FocalPoint	Inlet free of obstructions allowing free flow into FocalPoint System	Sediments or trash should be removed
Mulch Cover	Trash and floatable debris accumulation	Excessive trash or debris accumulation.	Minimal trash or other debris on mulch cover	Trash and debris should be removed and mulch cover raked level. Ensure that bark nugget
Mulch Cover	Ponding of water on mulch cover	Ponding in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils	Stormwater should drain freely and evenly over mulch cover.	Contact VAR for advice.
Plants	Plants not growing, or in poor condition	Soil/mulch too wet, evidence of spill. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact VAR for advice.
Plants	Plant growth excessive	Plants should be appropriate to the species and location of FocalPoint		Trim/prune plants in accordance with typical landscaping and

BH2M

Civil Engineering | Surveying

April 17, 2026

Dear Neighbor:

On behalf of Avesta Housing, we are pleased to invite you to a neighborhood meeting to discuss the plans for a 30-unit affordable multi-family housing building proposed to be located at 15 and 19 Ceder Street. The project proposes to construct a 5-story apartment building across two currently vacant lots.

The Land Use Code requires that neighboring property owners and residents on an "interested parties list" be invited to participate in this neighborhood meeting. A sign-in sheet will be circulated and a record of the meeting will be taken. Both the sign-in sheet and record will be submitted to the Planning Board.

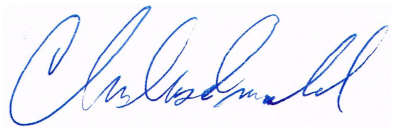
Meeting Location: 409 Cumberland Ave, Community Room

Meeting Date: April 29, 2026

Meeting Time: 5:30 PM

If you have any questions, please call 207-839-2771.

Sincerely,



Christopher MacDonald, PE
Project Manager and Civil Engineer

Note:
Under the City of Portland land use code, an applicant for a major site plan, subdivision of over five lots, or zoning map amendment is required to hold a neighborhood meeting. Should you wish to offer additional comments on this proposed development, you may forward them by e-mail to planning@portlandmaine.gov or by mail to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101.

15 and 19 Cedar Street Multi-Family Development
Neighborhood Meeting Certification

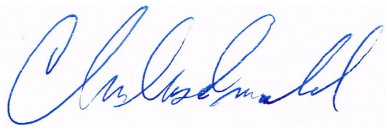
I, Christopher MacDonald, a Civil Engineering Consultant with BH2M and Agent for Avesta Housing, hereby certify that a neighborhood meeting was held on April 29, 2026 at 409 Cumberland Avenue at 5:30 PM for the proposed project located at 15 and 19 Cedar Street in Portland, Maine.

I also certify that on April 17, 2026, notices 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.

2. Residents on the "interested parties" list also provided by the Planning Division.

Signed,



Christopher MacDonald, PE
May 5, 2026

Attachments
1. Copy of the notice sent
2. Sign-in sheets
3. Neighborhood Meeting Minutes

15 and 19 Cedar Street Multi-Family Development

Neighborhood Meeting Sign-In Sheet (Community Members)

Meeting Date: Wednesday, April 29, 2026
Meeting Location: 409 Cumberland Avenue, Community Room, Portland, ME
Project: 15 and 19 Cedar Street Multi-Family Development, Cedar Street, Portland, ME

Community Members in Attendance

Name	Organization	Email
George Rheault	28 Hanover [redacted]	george.rheault@gmail.com
Sarah Michniewicz	47 Cedar St.	SarahMichniewicz@Mac.com
Colleen Cooper	BGCSM	ccooper@bgcmaine.org
DAN HALEY	"	daniel THALEY06@gmail.com

15 and 19 Cedar Street Multi-Family Development

Neighborhood Meeting Sign-In Sheet (Developers and Consultants)

Meeting Date: Wednesday, April 29, 2026
Meeting Location: 409 Cumberland Avenue, Community Room, Portland, ME
Project: 15 and 19 Cedar Street Multi-Family Development, Cedar Street, Portland, ME

Developer and Consultants in Attendance

Name	Organization	Email
Chris MacDonald	BH2M	CMacdonald@bh2m.com
Ryan Fecteau	Aveste Housing	RFECTEAU@avestahousing.org
Julia Curtis	BH2M	JCurtis@BH2M.com
Virginie Stanley	INVIVID ARCHITECTURE	VIRGINIE@INVIVIDARCHITECTURE
JOHN EGAN	Aveste	jegan@aveste.org
Taejoo Jeon	Invivid Architecture	tajeon@invividarchitecture.com

BH2M
Civil Engineering | Surveying

15 and 19 Cedar Street Multi-Family Development
Neighborhood Meeting Minutes

April 29th, 2026 / 5:30 PM
409 Cumberland Avenue, Community Room, Portland, ME

Project Team Attendees:

- Ryan Fecteau: Developer / Presenter (Avesta Housing)
- John Egan: Developer (Avesta Housing)
- Chris MacDonald: Civil Engineer Consultant / Presenter (BH2M)
- Julia Curtis: Civil Engineer Consultant (BH2M)
- Virginie Stanley: Architecture Consultant / Presenter (Invivid Architecture)
- Taejoo Jeon: Architecture Consultant (Invivid Architecture)

The meeting started at approximately 5:35 PM

Presentation:

- Ryan Fecteau (Avesta)
  - Welcomed attendees to the meeting.
  - Introduced the project and project team

- Chris MacDonald (BH2M)
  - Introduced self and thanked attendees for attending
    - Slide 1, Aerial Map / Overview
  - Explained the project's location and immediate vicinity
    - Slide 2, Existing Conditions Plan
  - Explained BH2M's involvement in Survey, Engineering, and Permitting, and further detailed the project's location and the subject property's history of having existing buildings removed, and detailed boundary.
  - Explained the current conditions of the subject property, currently vacant, and abutting properties.
    - Slide 3, Proposed Site Plan
  - Summarized the proposed development; including:
    - General location of proposed building on project site;

        - Discussed the proposed construction, introduced the general location of the proposed building along with supporting infrastructure of a sidewalk and driveway along eastern side, as well as subsurface stormwater management
        - Explained that the project also intends reconstruct the Cedar Street sidewalk along the frontage of the parcel to restore areas of sidewalk along now abandoned curb cuts, and also planned landscaping along the sidewalk with tree wells for street trees
    - Discussed the pre-application guidance that the project has received from the City of Portland Fire Department, where they have requested that parking be removed along Cedar Street from the along the frontage of the proposed building to the intersection with Oxford Street. Explained that the requested removal of off-street parking is due to emergency vehicle access requirements and outrigger needs for the ladder truck.
    - Explained that the City of Portland is currently reviewing this request from the Fire Department, along with other parking goals for this neighborhood in general, and that the project will likely have more interaction with the City on parking requirements as the project is reviewed by Planning.

- Virginie ("Ginny") Stanley (Invivid)
    - Introduced Self and Invivid Architecture

        - Slide 4, Floor Plan – 1'st Floor
    - Explained the projects floorplans and how many units will be available for future tenants.
    - Discussed the structures amenities such as a laundry room and community areas; as well as, that the goal of the layout of the structure being such as promote a sense of community and to be facilitative to communal activities

        - Slide 5, Floor Plan – Upper Floors
    - Explained the floor plan of the 2nd through 5th floors; as well as providing an overview of the typical layout of the residential units. Showed where the two-bedroom units will be in relation to the other units

        - Slide 6 and Slide 7, Exterior Renderings
    - Discussed the exterior design of the building including colors and materials, design choices, and the goal of making the structure feel like a prototypical Portland's surrounding architectural themes.
    - Discussed project's compliance with accessibility and regulatory requirements and safety features (e.g. buildings safety features & ADA)

        - Slide 8, Exterior Elevations
    - Showed buildings elevations and the face of the structure from each aspect

        - Slide 9, Contact Information
    - Showed a slide providing contact information
        - Planning Project Manager: Sean King – Urban Designer; Phone 207-874-8901; email: sking@portlandmaine.gov

The Meeting was opened for questions at approximately 5:45 PM

Comments, Questions & Answers:

Please note: The following questions and answers were not recorded verbatim and aim to represent and summarize the actual questions, answers and discussion that took place at the meeting.

Neighbor: *Currently there is not enough parking in the area. How will worker parking be handled during construction activities and tenant parking after construction activities? Will the residents be able to use the public parking garage?*

- Ryan Fecteau: The current on-street parking plan is based on initial communications with the Fire Department. Off-street parking has been developed as required by the City Code, which currently requires no on-site parking for a project as is currently proposed. Currently, based on our other properties we expect that approximately 30 to 50% of tenants will have vehicles. Tenants will potentially be able to use the public parking garage.

Neighbor : *How many units will be available for tenants*

- Ryan Fecteau: 26-Single bedroom and 4-Two bedroom units will be available. The currently planned 30-units is the maximum allowed for the lot, including density bonuses given these are proposed as low-income housing. The structure is planned to have a similar layout to this (referring to 409 Cumberland Avenue, the meeting location) structure's layout

Neighbor: *Will there be non-residential spaces such as office spaces? What is the size of the smallest unit, and what is the ratio of Low Income Housing Tax Credit ("LIHTC") housing to be available?*

- Ryan Fecteau: Yes, there will be non-residential spaces included as part of the structure.
- Ginny Stanley: The one bed-room units will be approximately 550-Square Feet ("SF")
- Ryan Fecteau: The smallest unit is 502 SF. We are planning for 50% area median income for 18 units, and 60% area median income for 12 units for the LIHTC program.

Neighbor: *Will the units be air conditioned?*

- Ryan Fecteau: Yes, all units will have mini split heat pumps.

Neighbor: *How big is the proposed driveway, is the driveway counted as an open space, will the driveway be used for parking, and what is the purpose of the driveway?*

- Ryan Fecteau: The driveway will be 10-ft wide to the rear of the project
- Chris MacDonald: The driveway is not counted as open space and will not be used for long term parking. The driveway is proposed as an access for maintenance, for use by CMP to access the transformer at the rear of the project, and for use in deliveries. Given the narrow width of Cedar Street, there is not appropriate area to maneuver a dumpster or fire truck and

make turn into the drive regardless of driveway width, hence why the Fire Department has requested that parking be eliminated along Cedar Street; to provide an area for emergency response.

- Ryan Fecteau: Other purposes of the driveway include loading and unloading vehicles, and picking up or dropping off tenants. The most used entrance is likely to be located along the east side of the building will be ADA accessible from proposed sidewalk, with an additional access along the frontage with Cedar as an access with stairs.

Neighbor: *Will the access from Cedar Street be recessed? If so, that may be a nuisance for loitering in the covered space.*

- Ryan Fecteau: The main entrance to the structure is a recessed entryway facing the sidewalk, necessary given the existing grades of Cedar Street. We will review possible alternatives that could bring the door closer to the front plane of the building.

Neighbor: *Has the project team coordinated with 11 Cedar Street?*

- Ryan Fecteau: We've attempted coordinate with them, but we have not received any responses. *(Note: Colleen Cooper from Boys and Girls Clubs of Southern Maine, was in attendance as a neighbor, and interjected with an offer that she can help put Avesta in contact with the owners of 11 Cedar Street.)*

Neighbor: *The site has a "grove" of knotweed. How does your team plan to handle the brownfields and/or remediation of the site? Historically the site has likely had coal ash dumped; will the Maine Department of Environmental Protection ("DEP") be involved; and will the site participate in the Voluntary Response Action Program ("VRAP")?*

- Ryan Fecteau: We've performed a Phase I Environmental Site Assessment ("ESA") and are likely to perform a Phase II ESA. Currently the DEP is not anticipated to be involved, and we believe participation in the VRAP will not be required.

Neighbor: *This site is historical and an archeologist may need to search for artifacts. Do you know if the cellars are still present?*

- Chris MacDonald: We are not aware if foundations were removed. (*Note: Dan Haley from Boys and Girls Clubs of Southern Maine, was in attendance as a neighbor, and interjected that Yes, they are still there and were backfilled as part of razing the existing buildings.)*

Neighbor: *For Avesta's management of this building, how are children being incorporated; can a single mother and child share a 1-bedroom? Are couples allowed to share a 1-bedroom; or will this unit just be occupied primarily by single adults.*

- Ryan Fecteau: There are no restrictions on the age of occupants, but children are not intended for the single-unit apartments. The 2-unit apartments could support families in one unit.

Neighbor: *Is anyone that is being kicked out by the boys & girls club up the street being given priority to these units?*

- Ryan Fecteau: Due to federal laws we can't guarantee units for anyone; however potential tenants from the old structure would be allowed to apply for housing at this project, and be given consideration just like any applicant. Avesta has been involved with helping current tenants find alternative housing, with most tenants already placed.

Neighbor : H*ave the existing residents of boys & girls been informed of that?*

- *Note: Colleen Cooper from Boys and Girls Clubs of Southern Maine, was in attendance as a neighbor, and interjected that they have been formally informed they have a right to apply for alternative housing.*

Neighbor: *Does Maine housing have any issues with the lack of outdoor space?*

- Ryan Fecteau: There are no plans for outdoor spaces; though there is unallocated space in the rear area of the lot.
- Chris MacDonald: Due to the rear area behind the structure being relatively steep, access is a concern, and there is not much that can be done with it from a grading perspective given the limited area to abutting properties.
- *Note: A Neighbor interjected that as one of the rear abutters they did not want any outdoor spaces back there as there is already a problem with congregating in inappropriate outdoor spaces, loitering, etc.*

Neighbor: *What are the existing grades like at the back of property for public space? Would it not be feasible to install a patio or deck?*

- Chris MacDonald: From the rear edge of the building to the fence is approximately 6 to 8 feet of elevation gain. Due to the City's requirements such as building setbacks, as well as it being cost prohibitive, a patio is not begin considered along the back of the project.
- Ryan Fecteau: One alternative being considered is placing seating along the driveway for outdoor space on site.

Neighbor: *Are there any plans for fencing along the parcel's boundaries, or fencing to enclose the rear of the property? Suggest that fences be connected to building face to prevent entry*

- Chris MacDonald: Currently the northwestern half of the lot is fenced. Silt fencing is planned during construction activities; though otherwise no additional fencing was initially planned; this is a good suggestion and one we should consider incorporating into the final design.

Neighbor: *Are there any considerations for expansion or development of other properties between this property and Oxford Street?*

- John Egan: Not at this time, but are aware of other properties that are on the market in this block. Any development additional development would be stand alone from this proposal.

Neighbor: *What is the phasing/schedule of this project like? Would this happen before Boys and Girls clubs planned expansion?*

- Ryan Fecteau: Currently we plan on applying to Maine Housing in September. Assuming financing is approved the project is anticipated to start circa Fall 2027 and then completed 14 to 16 months later. This project would likely be constructed after Boys and Girls Clubs expansion.

Neighbor: *Do you have planning board workshop scheduled?*

  - Ryan Fecteau: Not at the moment, but plan to be on the next available agenda based on Planning review timeframes and schedule.

Neighbor: *Has a right, title and interest option agreement been submitted?*

- Ryan Fecteau: Yes, the option agreement has been submitted along with our initial application to the City.

Neighbor 3: *Is the 1871 Forest Ave. or 197 Oxford Street Projects going to be competing with this project during this submission cycle?*

- Ryan Fecteau: 1871 Forest Ave will not be competing with this project for Maine Housing funding, but 197 Oxford Street very likely will be. Avesta is optimistic that both projects can be considered for approval, as Portland has historically seen multiple grants be provided for Portland in a single cycle.

Neighbor: *How many other Avesta projects in the area are going to be on this same funding cycle? Will there be other Avesta projects in Portland competing with this one?*

- Ryan Fecteau: As far as I'm aware the only other project is 197 Oxford.

Neighbor: *What sort of exterior treatments and finishes are expected? Where are exterior HVAC proposed to be located?*

- Ginny Stanley: The property will have masonry finish on the first floor along the frontage with Cedar Street, and insulated vinyl siding on the rear and upper floors. Mechanical equipment is proposed to be located on the roof, and a generator is also proposed on the roof, but the project is currently exploring the option of a generator to be shared with Boys and Girls Clubs located on the abutting parcel.

Neighbor 1: *Does the current sewer infrastructure within the project's vicinity have adequate capacity?*

- Chris MacDonald: We've been consulting with city engineering, and yes; there is adequate capacity. The project proposes to construct a subsurface stormwater storage array, and per

City requirements, this has been sized to store stormwater meeting the 1-inch run off along with the daily sewer outflow volume to help maintain capacity of the system.

The neighborhood meeting concluded at approximately 6:33 PM. A slide was projected that provided attendees with the email address for the City Planner in case they had further questions that arose after the meeting.

The abovementioned material was interpreted and recorded from notes taken during the meeting. Please note and relay any discrepancies or disputed information in the recorded minutes to the below address so that it can be reviewed, revised and resubmitted as necessary.

Recorded by,

Julia Renee Curtis
Civil Designer, BH2M
jcurtis@bh2m.com

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
212 Canco Road
Portland, Maine 04103

Date: May 22, 2026

Bradley Roland, P.E.
Water Resources Division
Department of Public Works
212 Canco Road
Portland, ME 04103

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 15 and 19 Cedar Street

Chart Block Lot Number: Map 24 Lots 14 & 15

Proposed Use: Multi-Unit Residential
Previous Use: Residential / Vacant
Existing Sanitary Flows: Unknown GPD
Existing Process Flows: N/A GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Project proposes to connect to the 18" municipal sewer along Cedar Street at the frontage of the property

Site Category		
	Commercial *(see part 4 below)*	
	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: Sean King Phone: (207) 874-8901
Owner/Developer Name: Avesta Housing (Ryan Fecteau)
Owner/Developer Address: 307 Cumberland Avenue, Portland, Maine 04101
Phone: (207) 245-3305 Fax: E-mail: rfecteau@avestahousing.org
Engineering Consultant Name: BH2M (Christopher MacDonald, PE)
Engineering Consultant Address: 380B Main Street, Gorham, Maine 04038
Phone: (207) 839-2771 Fax: E-mail: cmacdonald@bh2m.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: 3840 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)*
Maine Subsurface Wastewater Disposal Rules Section 4.E.2

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, or attached, as a separate sheet.

BH2M
Engineering • Surveying • Environmental Solutions

May 28, 2026

Sean King
Urban Designer
sking@portlandmaine.gov

Re: PL-003553-2026 - Avesta Housing – Dashaway Commons -15 and 19 Cedar Street
Initial Site Plan Review Worksheet - Response to Comments

Dear Sean;

We have reviewed the comments from the Project Review Memos dated May 14 2026 and have prepared the following responses. We have addressed comments provided in the Site Plan Worksheet by referencing Code Sections, provided a synopsis of comments to be addressed in *italics,* and provided a response in **bold**. Invivid Architecture has prepared responses to the City's Design Review Memo, and these are included as an attachment to these reesponces. As an additional note for the project, a name has been selected for the project of "Dashaway Commons" in recognition of The Dashaway Club, an earlier iteration of the Boy's and Girls Club of America. You will find that some updated documents now include this name, and we intend to reference this name for the project moving forward.

SITE PLAN

13.3.1.A.1 & 13.6.1.B.1.e
The applicant should clarify the type of vehicles using the driveway and provide a vehicle turning template depicting access into and out of the driveway.
Response: The project assumes that heavy duty truck service vehicles (Ford F-250 or similar) would be the largest vehicle that would use the project driveway. As provided with these comment responses, we have provided a heavy duty truck turning template to demonstrate access to the driveway. This shows that an existing utility pole will likely be in conflict with the turning maneuver, and a replacement pole is proposed across the street.

13.6.1.A.2

The City's Public Works Department requests on-street parking reorganized on the opposite side of Cedar Street to maximize available parking spots that avoid numerous driveway cuts. The applicant is requested to add allowable street parking signage at the opposite side of Cedar Street for approximately nine on-street parking spaces

The City's Fire Marshall recommends to restrict on-street parking at the property frontage on both sides of the street down to Oxford Street to service the proposed multifamily structure. The applicant is requested to revise the "No Parking" street signage at the property frontage on both sides of the street down to Oxford Street. Shown in red below.
Response: The project will accommodate this recommendation. We have provided an new plan, Sheet 9, showing more of the existents of Cedar Street with details on the recommended parking signs to be installed as part of the construction of the project. This generally relocates parking to the opposite side of the street, and will remove parking from the frontage of the project to Oxford Street along both sides of the street.

13.6.1.B.1.a
See Technical Manual Appendix 1A, all driveway aprons shall be constructed of the designated sidewalk material within the pedestrian zone. 19 Cedar Street is in the Brick District.
Response: The driveway entrance has been updated to include brick as a final condition, and the plan set has been updated to include detail I-9C of the Technical Manual to bring this into conformance with City Code.

13.6.1.D.3.a, 13.6.1.D.3.b &13.6.1.D.3.c

The applicant shall provide more information on their methods for removing snow. Staff may have additional comments based on the applicant's intent to remove snow from the site.
Response: Given the limited available space on site, snow is proposed to be hauled off site for most events. Minor storms are proposed to allow snow to be stored at the end of the driveway's paved area beyond the inlet to the Focalpoint unit. Once accumulated snow reaches the inlet to the focal point, plowed snow will be removed and hauled off site so that stormwater conveyance can be maintained.

<u>Environmental Quality Standards</u>

13.6.2.B.1.a & 13.6.2.B.1.c
The applicant shall provide the addition of plant material in accordance with the landscape standards of the Technical Manual. Staff suggest that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service driveway at the abutting property.
Response: For screening suggested along the service driveway, the existing conditions show that the abutting building was constructed essentially on the property line. Given the proposed conditions of a subsurface stormwater storage system, underground utilities, and an underdrain along the existing foundation being proposed, there is no practical space to be able to provide screening along the east side of the project.

However, as far as on site landscaping, we understand that 1 shade tree, or 6 plantings is required per 5000 sf of developed area, and where the project is proposing 8980 sf of developed area, that would yield 10.8 plantings required. To meet this requirement, the project proposes a mix perennials and shrubs.

A Focalpoint Biofiltration system is proposed along the west side of the driveway. As part of these Focalpoint systems, plantings are required in the area of the filtration media, and in the 25 square foot area the project, there should be sufficient space to be able to include 15 perennials. Given that 3 perennials meet the requirement for 1 planting, these 15 perennials provide 5 of the required plantings. The project is also now proposing to include 6 shrubs around the north and eastern sides of the transformer to meet screening requirements, and with these, the project proposes 11 plantings, meeting the City's requirements for on-site landscaping. The project also proposes to include shrub plantings along the western side of the building, exceeding the required amount.

13.6.2.B.2.a

Staff recommends that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service driveway at the abutting property and at the transformer pad to screen from abutting properties.

Response: As discussed in responses to sections 13.6.2.B.1.a & 13.6.2.B.1.c above, there is not sufficient space to be able to provide plantings along the eastern side of the driveway. However, the project is now proposing screening shrubs along the north and east sides of the transformer to meet on site landscaping requirements.

13.6.2.B.2.b

Staff recommends that the applicant provide a dense evergreen or deciduous screening shrub along the proposed service driveway at the 11 Cedar Street abutting property.

Response: As the project does not propose parking on site, this section does not appear to apply to the project. Please also note responses to 13.6.2.B.1.a & 13.6.2.B.1.c above, there is not sufficient space to be able to provide plantings along the eastern side of the driveway

13.6.2.B.2.d

Staff recommends additional plantings around the perimeter of the building at the side and rear setback areas.

Response: The project site currently has tall stockade style fences around the western and northern property lines. Given the narrow area and likely limited natural light for these areas between the building and fences, it is unlikely that plantings will have adequate area for growth and germination. Maintenance of these areas would be better facilitated by mowable grassed surfaces. The project will incorporate shrubs along the western side of the building along the abutting driveway to 21 Cedar Street, in the area without an abutting stockade fence.

13.6.2.B.4

Staff recommends substitution for a brick or concrete walkway to meet the SRI standard.

Response: Based on this comment as well as notes included in the Design Review Memo, the internal sidewalk along the service driveway is now proposed to be brick, see updated plans.

13.6.2.C.1.a

The Applicant shall update their post-construction stormwater inspection forms, the forms provided appear to be for a project in Biddeford.

The applicant shall revise the inspection forms for the FocalPoint and R-tank system, as currently an underdrain stormwater filter is reference, and provide associated outlet control structure and maintenance information within the Stormwater Report.
Response: The stormwater inspection forms have been revised to address this typo, and a revised stormwater report has been uploaded to the portal.

13.6.2.C.1.c
The applicant shall provide a wastewater capacity application.

The Applicant is requested to confirm the pipe size associated with Catch Basin 1 – the plans call for 12", while the HydroCAD model accounts for 8"
Response: A wastewater capacity application has been prepared and provided to Justin Pellerin as well as provided on the project portal. The hydrocad model has been updated to show a 12" stormdrain outlet to the R-Tank array to be consistent with the plans.

13.6.2.C.2
The Applicant shall provide a stormwater maintenance agreement and the updated inspection forms.
Response: The maintenance forms have been updated to reflect the Cedar Street project. A Draft Stormwater Maintenance Agreement has been uploaded to the portal.

13.6.2.C.3
The applicant shall provide additional details for utility pipe installation, and pavement replacement in conformance with Technical Manual Section 6 within the City ROW.
Response: The utility connections to the municipal systems are proposed to be accomplished with inserta-tee connections, which were recommended in discussion with the City Engineering department. A detail for trench repairs has been provided in the updated plan set.

<u>Public Infrastructure and Community Safety Standards</u>

13.6.3.A.2
The applicant shall provide a sidewalk easement required for proposed public sidewalk extending outside the existing ROW. The City will need to grant a license agreement for the proposed private outlet control structure located in the City right-of-way underneath the sidewalk. The applicant should contact DPW Engineering to discuss further.
Response: Speaking with Kris DeVolder, who is with the ROW section of DPW, a copy of the sidewalk easement and license agreement templates have been provided, and draft copies of these have been uploaded to the project portal for initial review. These documents will be updated with approved plans and descriptions of the easements being proposed based on the approved plans.

13.6.3.B.2
The applicant shall provide "No Parking" on both sides of the property frontage down to Oxford Street to accommodate fire vehicles.

Response: The applicant proposes to install the new and updated signage along Cedar Street based on the sketch plan provided in the review memo. A plan has been uploaded to the project portal showing the changes along Cedar Street.

13.6.3.C.1
The applicant shall provide a wastewater capacity application.
Response: A wastewater capacity application has been prepared and provided to Justin Pellerin. A copy of this document has been uploaded to the project portal.

13.6.3.C.3
The applicant shall provide additional details for utility pipe installation, and pavement replacement in conformance with Technical Manual Section 6 within the City ROW.

The applicant is requested to confirm the existing size of the CSO main in the Right of Way and determine if a manhole is required for the 8" stormdrain connection from the site per Section 6 of the City of Portland Technical Manual. The method of connection should be confirmed with Public Works.

The applicant shall be provide additional information on the detail of the outlet control structure. This structure will be installed within the driveway entrance to the site, within the City Right-of-Way. As currently detailed, it is unclear what the structure dimensions are, and how the structure covers will be installed, i.e. typical manhole frame with covers installed flush to pavement grades. The detail should be updated to confirm constructability and acceptability for H-20 vehicle loading.
Response: A detail has been provided for trench repairs along Cedar Street for installation of utilities. We have been actively working with Engineering and DPW on service connections to the sewer, and they have confirmed that the sewer along Cedar Street is an 18" brick sewer. We have also discussed the service connection sizing, and given that the pipes are less than half the diameter of the sewer, an inserta-tee connector was deemed to be appropriate means of connection, and an intercepting structure would not be necessary. Additional notes and detail have been provided for the outlet control structure showing that this is intended on being a 6' diameter concrete manhole meeting loading requirements. Updated plans have been uploaded to the project portal.

13.6.3.C.4
The applicant shall provide proposed pavement cuts into Cedar Street for utilities on the site plan.

The Applicant shall provide additional details for utility pipe installation, and for the various pavement, sidewalk, and curbing materials to confirm material and dimensional concurrence with City standards.
Response: Details for trench repairs has been provided in the updated plan set.

<u>Site Design Standards</u>

13.6.4.A.3
Staff requests additional products specifications to confirm compatible standards.
Response: Additional Details of the roof finishes have been provided in the updated architectural plans, as well as material specifications for roof and siding.

13.6.4.F.1.a
The applicant shall submit a lighting management plan or photometric site plan for review of illumination levels.
Response: A photometric plan has been created for the project and can be found on the project portal under the drawings directory, and lighting fixture specifications have been uploaded to the documents directory.

13.6.4.F.3
The applicant shall submit a lighting management plan or photometric site plan for review of illumination levels. If the proposed wall-mounted fixtures do not meet the City's technical manual, section 8 lighting standards, a new municipal street light is required.
Response: A photometric plan and fixture specifications have been uploaded to the project portal. The photometric analysis of the proposed lights for the project show that along the frontage of the street, we expect to meet the 0.4 fc along the frontage of the project. We also note that there are additional lights in the vicinity with the adjacent parking lot having light poles and a municipal cobra head light southeast along Cedar Street. With these existing lights and proposed lights, the project meets the 0.4 fc lighting requirements for a local/minor street.

13.6.4.G
Staff requests product information to confirm equipment meets local standards.
Response: The applicant requests that the request in this comment be made a condition of approval before building permits be issued. The HVAC equipment for projects of this nature, affordable housing meeting Maine Housing funding requirements, are determined during the procurement phase of the project. Given Maine Housing's shifting requirements on these, and the fact that state of the art HVAC equipment is evolving, specific equipment has not yet been selected given that construction is a year out at a minimum.

13.6.4.H.2
The applicant is requested to revise the "No Parking" street signage at the property frontage on both sides of the street down to Oxford Street. And replace "1 hour parking" signs along the northern side of Cedar Street for "No Parking". On-street parking would be available along the southern side of Cedar Street.
Response: The project proposes to replace and update the parking signage as requested. See updated project plan set, Sheet 9, on the project portal for additional details on sign changes.

<u>Design Standards</u>

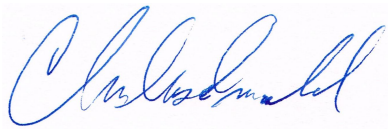
13.6.4.I.1
Staff has provided a design review memo as an attachment with a recommendation for greater visibility for the recessed entrance at Cedar Street and suggests a side window to allow views into the interior community spaces. In addition, Staff requests additional information for the exterior façade material and requests that product specifications be added to the architectural elevations.
Response: The architectural plans for the project have been updated to reflect these comments and to address comments in the Design Review Memo.

ZONING USE REVIEW

6.8.6 Noise
Applicant to provide HVAC equipment to meet noise standards.
Response: The applicant requests that the request in this comment be made a condition of approval before building permits be issued. The HVAC equipment for projects of this nature, affordable housing meeting Maine Housing funding requirements, are determined during the procurement phase of the project. Given Maine Housing's shifting requirements on these, and the fact that state of the art HVAC equipment is evolving, specific equipment has not yet been selected given that construction is a year out at a minimum.

We trust that these responses to comments and additional information will provide resolution to City Staff's questions about the project. We are happy to provide any additional clarification on this project, and look forward to the initial presentation at the Planning Board Workshop.

Sincerely,



Christopher MacDonald, PE

Cc Ryan Fecteau – Avesta Housing
Todd Rothstein – Avesta Housing
Virginie Stanley – Invivid Architecture

INVIVID ARCHITECTURE RESPONSES

City Comments

STANDARD F-6 - Main Entries –Not Met
The proposed building design includes two primary entries, a recessed entry facing Cedar Street and a side entry along the building's east elevation. Both entries provide an aluminum storefront window system around doorways and a projecting metal canopy that Staff finds appropriate. Staff recommends that the applicant incorporate additional windows along the sidewalls of the recessed entry facing Cedar Street, to promote visibility and natural surveillance for the Open Kitchen and Office.

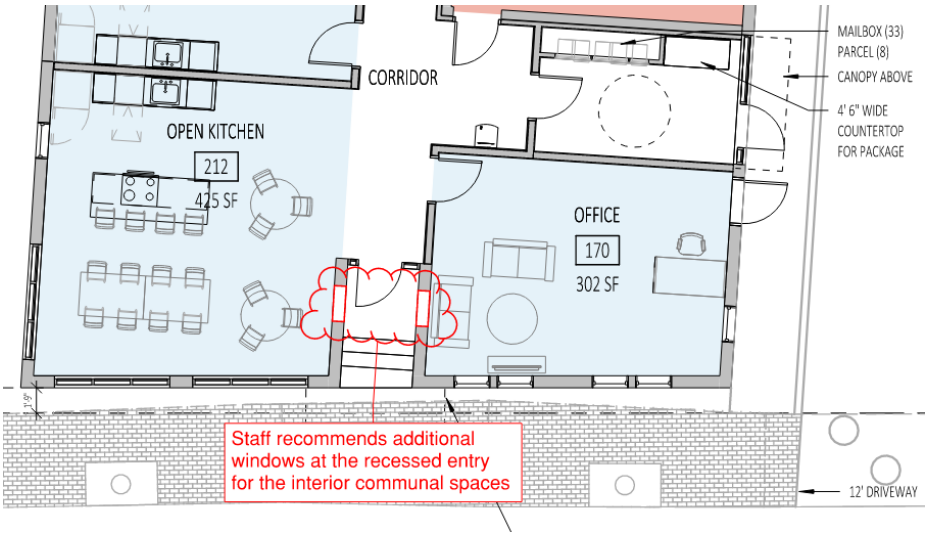
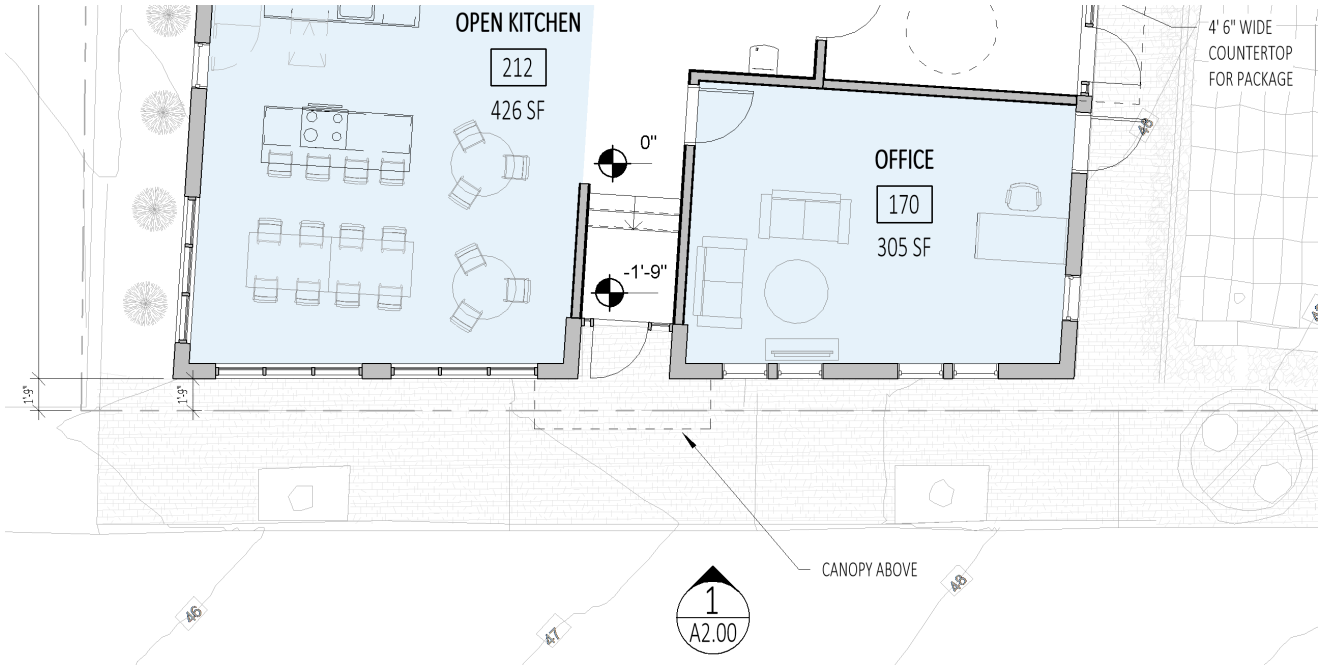


Figure A – First floor plan with Staff comments

INVIVID ARCHITECTURE (IA) RESPONSE:

The front storefront has been repositioned closer to the property line, and the stair has been relocated indoors, significantly reducing the depth of the recessed entry and limiting opportunities for additional sidewall glazing. We felt that the deeper alcoves with limited visibility was creating conditions conducive to loitering, concealed activity, or other undesirable use. The proposed entry design now prioritizes clear visibility and natural surveillance through the full glazed aluminum storefront, allowing direct views between the street and the building.



City Comments

STANDARD F-8 - Articulation - Met

The proposed building design includes articulation on all facades facing and adjacent to the street:

- Not applicable, flat roof forms do not include eaves or rakes to require this design standard
- Staff observes exterior façade trim at top and bottom of windows, door and corner board at a minimum of 4 inches. Staff requests additional information for the proposed trim detailing and indicate material type, and color onto the building elevations.
- Staff observes offsets in building faces or roof forms with a minimum of 12 inches.
- Staff observes that pronounced and decorative cornice is provided and incorporated throughout the perimeter of the building's roofline.

INVIVID ARCHITECTURE (IA) RESPONSE:

The requested details have been added to Sheet A5.00. These include vertical window sill, head, and roof cornice details, as well as a horizontal detail addressing the corner trim condition.

City Comments

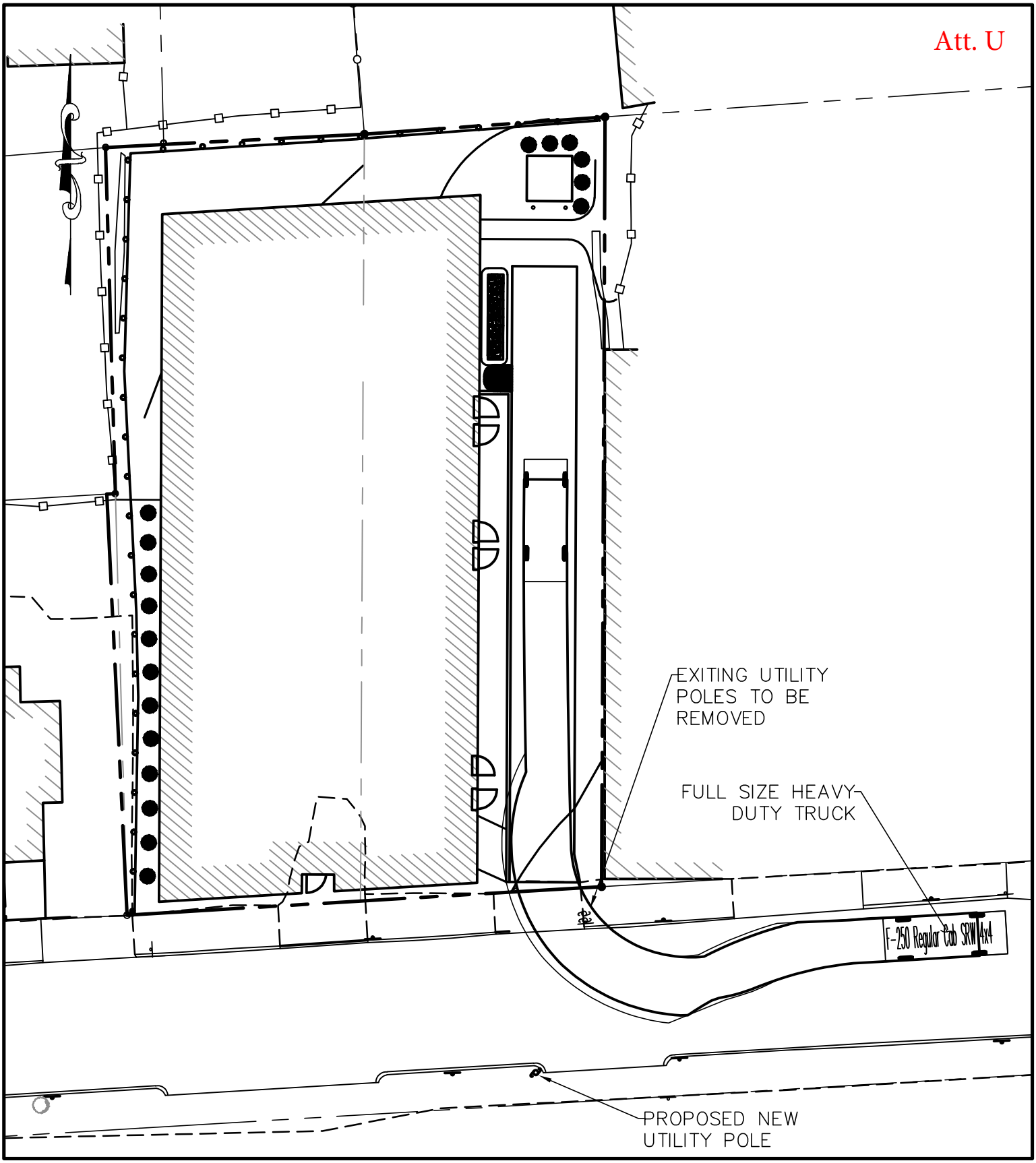
STANDARD G-1 – Materials – Not Met

The proposed building exterior materials include a composition of brick below a siding material. Staff requests additional information for the proposed exterior façade materials to evaluate its relationship with the context, durability, orientation and character.

INVIVID ARCHITECTURE (IA) RESPONSE:

The material cut sheets have been included in the submission and now cover both the brick and siding products.

Att. U



DASHAWAY COMMONS
VEHICLE TURNING TEMPLATE

Scale: 1" = 10'

10' 0 10' 20'

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

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SIDEWALK EASEMENT

KNOW ALL PERSONS BY THESE PRESENTS, **Avesta Housing**, a Maine **non profit organization** with a with a place of business in Portland, Maine and mailing address of 307 Cumberland Avenue (the "Grantor"), FOR CONSIDERATION PAID, hereby GRANTS to the **CITY OF PORTLAND**, a Maine body corporate and politic, with a mailing address of City Hall, 389 Congress Street, Portland, Maine 04101 (the "Grantee" or the "City"), a perpetual easement for the purpose described below, over portions of Grantor's land at or near 15 and 19 Cedar Street in Portland, Maine, more particularly described in **Exhibit A** attached hereto and as depicted in the drawings attached hereto as **Exhibit B** and made a part hereof (collectively, the "Easement Area").

The purpose of the easements granted herein is to grant public pedestrian access in, on, under, and over the Easement Areas, which shall function as ADA compliant sidewalks for pedestrian, bicycle and similar non-motorized pedestrian uses of the sidewalks located within the Easement Area, subject, however, to such rules or ordinances that Grantee may adopt from time to time in the interests of public safety. Notwithstanding the foregoing, wheelchair and emergency vehicles as well as snow removal equipment shall be permitted in accordance with applicable federal and/or state laws regulating accessibility for such devices, vehicles or equipment. The City shall have the right, but not the obligation, to install, maintain, replace and repair the sidewalks for public use and enjoyment on and over the Easement Area. It shall be the responsibility of the Grantor to remove snow and ice from said sidewalk and to otherwise comply with all laws, rules, regulations, and ordinances governing the removal of snow and ice. Notwithstanding the foregoing, City shall have the right but not the obligation to repair or maintain the Easement Area when City, in its sole discretion, deems such repairs or maintenance necessary to ensure public safety.

The Easement Area shall, as provided and permitted herein, be maintained as a sidewalk for the uses set forth and described herein and Grantor shall not use or permit any use, condition or state of disrepair that would be contrary to or otherwise inhibit such uses except on a temporary basis in furtherance of the construction or maintenance of the Grantor's property and any buildings or appurtenances now or hereafter located thereon.

The Grantor covenants that it is vested of the premises in fee, and has the right to convey the same in fee simple. The covenants agreed to and the terms, conditions, and restrictions imposed herein shall be binding upon the Grantor, its agents, tenants, successors and assigns and shall continue as a servitude running with the land.

This easement is given for pedestrian recreational use and the Grantor and City claim the rights and protections against liability in accordance with Title 14 MRS §159-A and Title 14 MRS chapter 741 to the maximum extent permitted by law.

TO HAVE AND TO HOLD the aforegranted and bargained public access easements, with all privileges and appurtenances thereof, to the Grantee, its successors and assigns, to its and their use and behoof, forever.

IN WITNESS WHEREOF, Grantor has caused this instrument to be executed by _____, its President, thereunto duly authorized, this ____ day of _____202__.

WITNESS: [GRANTOR]

_____ By:_____
Print Name:

STATE OF MAINE CUMBERLAND,
ss. _____, 202___

Personally appeared the above named _____, as aforesaid and acknowledged the foregoing instrument to be their free act and deed in said capacity and the free act and deed of said _____.

Before me,

_____
Attorney-at-Law/Notary Public
Printed Name:_____
Commission expires:_____

EXHIBIT A
EASEMENT AREA DESCRIPTIONS

Sidewalk Easement Area Description

EXHIBIT B
EASEMENT AREA DEPICTION

ENCROACHMENT LICENSE

This Encroachment License (hereinafter "License") is made and entered into by and between the City of Portland (hereinafter, "City"), a Maine body corporate and politic, with a mailing address of 389 Congress Street, Portland, Maine 04101 and Avesta Housing a Maine non profit organization, with a mailing address of 307 Cumberland Avenue, Portland, Maine, (hereinafter, "Licensee"), owner of the real property located at 15 and 19 Cedar Street, Portland, Maine ("Property")

RECITALS

WHEREAS, Licensee is the owner of the Property, which is more particularly described in the legal description attached as Exhibit A, hereto; and

WHEREAS, Licensee desires to maintain certain improvements consisting of a drain manhole / outlet control structure (the "Encroachment") which will encroach into/over/under real property owned by the City, as depicted on the plan entitled "Utility Plan Dashaway Commons", prepared by BH2M, dated May 2026, a copy of which is attached hereto as Exhibit B and incorporated herein by reference (the "Plan");; and

WHEREAS, the area occupied by said Encroachment is referred to herein as the "Licensed Area"; and

WHEREAS, the City will, in consideration of the payment of $_____, the receipt whereof the City does acknowledge, allow the Encroachment to encroach into the Licensed Area under the terms and conditions set forth in this License until the License is terminated under Paragraph 10 below.

NOW, THEREFORE, the City and Licensee agree as follows:

1. Licensee is hereby permitted to maintain the Encroachment upon the Licensed Area and to use areas adjacent thereto for workers, materials and machinery necessary to maintain the Encroachment over the Licensed Area as shown on the Plan.

2. Licensee is hereby permitted to occupy the Licensed Area only for the purpose of carrying out the maintenance of the Encroachment pursuant to the terms of this License and in accordance with the Plan. Such work shall not substantially interfere with the adjacent property.

3. All work performed upon the Encroachment and use of the Licensed Area for the purposes set forth herein shall be at Licensee's sole cost and expense (unless otherwise agreed in writing), the parties acknowledging that there may be

temporary interruptions in enjoyment of the City's property adjacent to the Licensed Areas related to the conduct of any work related to this License. Licensee agrees at its sole expense to restore any portion of the Licensed Areas and adjacent City property affected by work conducted by Licensee under this License to substantially the same condition that it was in prior to such work or as close to that condition as is reasonably practicable. Licensee, its successors and assigns, shall defend, indemnify and hold the City, its officers, agents, and employees harmless from any and all claims, including but not limited to claims for damage to City property and reasonable attorney's fees, which arise out of Licensee's use, or the use of Licensee's contractors, of the City's property as described above during the term of the License. The Licensee's obligation to defend, indemnify and hold the City harmless shall survive termination or revocation of this License. Nothing herein shall be deemed to waive the protections afforded to the City of Portland by the Maine Tort Claims Act, including the limitation on damages contained in 14 MRSA §8105.

4. Licensee shall be responsible for the proper maintenance of the Encroachment. In the event of damage to the Encroachment and/or the Licensed Area, Licensee shall promptly repair/restore the same. Prior to such repair/restoration, Licensee shall obtain all necessary permits and approvals and notify the City (in writing and by telephone) at least forty-eight hours before it plans to conduct such repair or restoration. Licensee shall coordinate with City staff on the closure, if needed, of any City streets in the vicinity of the property in order to conduct such repair/restoration.

5. Upon prior written notice to Licensee, except in the case of an emergency, Licensee agrees that City may enter and utilize the Licensed Area at any time for the purpose of installing, repairing, replacing, or maintaining improvements to its public facilities or utilities necessary for the health, safety and welfare of the public or for any other public purpose. City shall bear no responsibility or liability for any damage or disruption or other adverse consequences resulting from the Encroachment installed by Licensee, but City will make reasonable efforts to minimize such damage. In the event that any installation, reinstallation, relocation or repair of any existing or future utility or improvements owned by, constructed by or on behalf of the public or at public expense is made costlier by virtue of the construction, maintenance or existence of the Encroachment and use, Licensee shall pay to City an amount equal to such additional cost as reasonably determined by the Director of Public Works or said Director's duly authorized representatives.

6. Licensee agrees, binds and obligates itself, its successors and assigns to procure and maintain throughout the term of this License comprehensive general liability insurance in the minimum amount of Four Hundred Thousand Dollars ($400,000) (or the amount stated in the Maine Tort Claims Act, as may be amended from time

to time) per occurrence for bodily injury, death, or property damage covering its activities hereunder and naming the City as an additional insured thereon to the extent of its exposure under the Maine Tort Claims Act and no more. In addition, Licensee shall provide evidence of Workers' Compensation insurance in the statutory amount to the extent it may be required by law. Certificates evidencing such policies shall be delivered to the City and shall provide the City with no less than thirty (30) days prior notice of cancellation or non-renewal. All insurance coverage required herein shall include coverage of all Licensees' contractors and subcontractors.

7. Licensee, by execution of this License, hereby agrees to assume and hereby does assume responsibility for any and all claims and/or damage to persons or property arising out of or in any way related to Licensee's exercise of the rights granted by this License, and does hereby forever waive, release, relinquish, remise, indemnify and discharge the City, its agents, employees, successors and assigns from and against any and all losses, costs or expenses (including reasonable attorneys' fees), damages, demands, liabilities, claims, actions, causes of action, suits, or judgments (collectively, "Claims") whatsoever of every name and nature, in law and in equity, including without limitation those related in any manner to any accident or injury to, or death of, any person, or any damage to property occurring on, in or in the vicinity of the area covered by this License, arising out of the presence in and use by the Licensee of the area covered by this License.

8. This License is assignable to any subsequent owners of the property depicted on the Plan and shall be deemed so assigned in any deed transferring the property (and Licensed Area) to a third party. In the event of such assignment, Licensee shall notify the City of such assignment and arrange that the transferee provides the City with the insurance Certificate required by this Agreement at the time of such transfer.

9. This License, and all of the rights and obligations herein, shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

10. The City may revoke this License six (6) months after receipt by the Licensee of written notice that an Event of Revocation (as defined below) has occurred, identifying such Event of Revocation, provided that such Event of Revocation is not cured within six (6) months after Licensee's receipt of such notice, except as set forth in subsection (d) below. "Event of Revocation" shall mean:

    a) Licensee's non-compliance with any of the terms of this Agreement;

b) the building shown on the Plan fails to be constructed substantially in accordance with the Plan or any amendments thereto;

c) the Encroachment is destroyed, removed or otherwise thereafter ceases to exist on Licensee's property; or

d) failure to maintain insurance as required under Section 6 above, and such failure is not remedied within thirty (30) days after written notice thereof.

11. Any notice of an Event of Revocation delivered pursuant to Section 10 of this License must be sent by certified mail, return receipt requested to the Licensee at the address first set forth above, or at such other address as the Licensee may provide to the City in writing from time to time.

12. Notwithstanding any other provision herein, in the event that a notice of an Event of Revocation is delivered to Licensee, any mortgagee of Licensee's property shall be entitled to cure the matter set forth in such notice within the time frames set forth in Section 10 hereof, and the City agrees to accept such performance by any such mortgagee of Licensee's obligations hereunder.

IN WITNESS WHEREOF, the City of Portland has caused this License to be executed by Brendan O'Connell, its Finance Director thereunto duly authorized, and _____has caused this License to be executed by _____in his/her/their duly authorized capacities, as of the day and year first written above.

[SIGNATURES ON FOLLOWING PAGE]

CITY OF PORTLAND

_____
By: Brendan O'Connell
Its Finance Director

LICENSEE

_____
By:

_____
By:

STATE OF MAINE
CUMBERLAND, ss.

_____, 2026

Then personally appeared the above-named Brendan O'Connell, Finance Director of the City of Portland, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said City of Portland.

_____
Notary Public/Attorney at Law

STATE OF MAINE
_____ COUNTY, ss

_____, 2026

Then personally appeared the above-named _____ as aforesaid, and acknowledged the foregoing to be his/her/their free act and deed in his/her/their said capacity, and the free act and deed of said _____.

_____
Attorney-at-Law/Notary Public

EXHIBIT A

(Legal Description of Licensee's Property)

EXHIBIT B

(Attach Plan Depicting the Licensed Area and Encroachment)

Att. X

ASCEND
COMPOSITE CLADDING SYSTEM

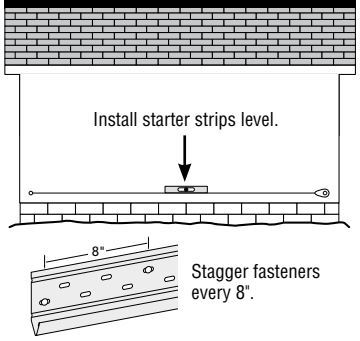
QUICK START INSTALLATION GUIDE

IMPORTANT: Failure to follow Alside written installation instructions and comply with applicable building codes may violate laws and affect siding performance and warranty coverage.

ASCEND serves as a supplemental rain screen, not a weather-resistant barrier. ASCEND must be installed over a weather-resistant barrier system in accordance with local building code.

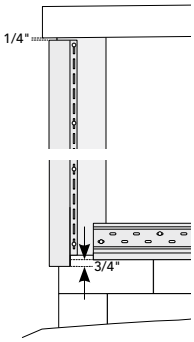
For complete installation instructions, visit **ASCENDCompositeCladding.com**.

STARTER STRIP



Stagger fasteners every 8".

OUTSIDE CORNER POST



Leave 1/4" between soffit and corner post.

Place fastener in the uppermost part of top slot.

Place remaining fasteners in center of slots every 8"-12".

Extend corner post 3/4" below starter strip.

TOOLS AND BLADES

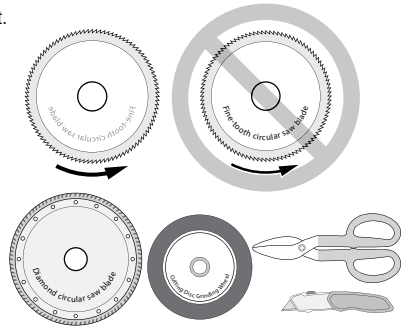
VERTICAL CUTS [IMPORTANT]: Must be straight. Circular saw with a diamond blade or fine tooth (plywood) blade installed backward.

Tin snips; avoid closing blade completely at end of each stroke for a cleaner cut.

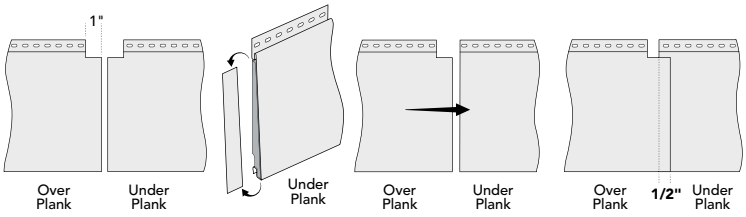
HORIZONTAL CUTS
Angle grinder with grinder blade.

Utility knife or scoring tool; score across and through the face of plank, into foam backing, and snap in half.

ANGLE CUTS
Saws, snips and grinder blades are acceptable.



PLANK OVERLAP



End cut required on Under Plank for proper overlap.

Remove end of Under Plank not adhered to foam.

Overlap Over Plank on top of Under Plank.

Slightly lift the Under Plank while sliding the Over Plank 1/2" in front of the Under Plank.

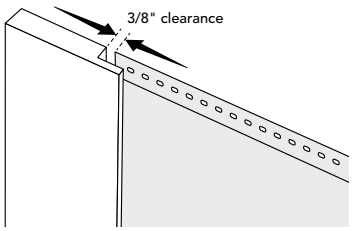
Maintain 1/2" overlap from cut of Under Plank.

CLEARANCE BETWEEN PLANK AND RECEIVING CHANNELS

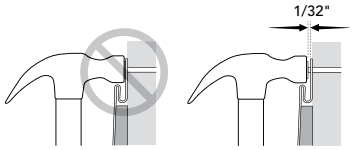
Allow gap between planks and channeled accessories:

Ensure 3/8" gap between planks and all channeled accessories or obstacles.

Remove end of plank not adhered to foam before inserting into channel.

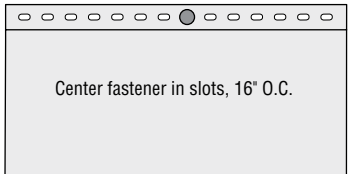


FASTENING

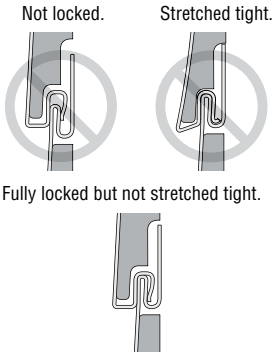


Do not hard nail.

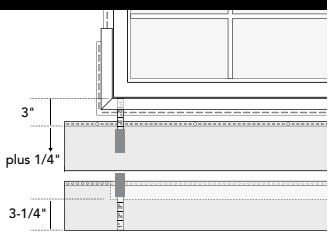
Leave 1/32" between fastener and nail hem.



STACK LOCK ENGAGEMENT



PLANK RIP CUTS BELOW OBSTACLES



Place tape measure into the backside of the receiving channel, measure to the top of the plank face of previously installed plank (past nail hem). Transfer measurement plus 1/4" to the siding plank, pull tape from bottom of plank, mark and cut.

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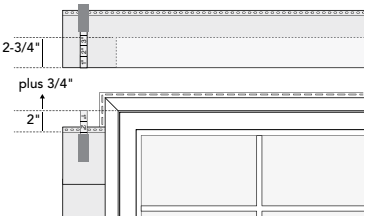

FINISH TRIM – SECURING PLANK RIP CUTS

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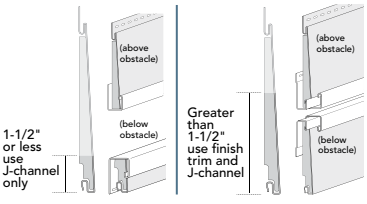
Insert into the sill and header receiving channel.

Receiving channel is installed prior to finish trim and measurements for plank cuts.



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1-800-922-6009 *www.alside.com*

CUSTOM-CRAFTED IN AMERICA

Please recycle

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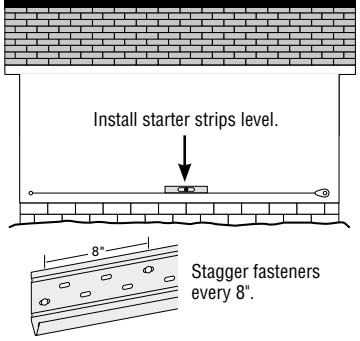
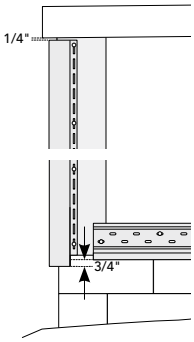


Stagger fasteners every 8".

OUTSIDE CORNER POST



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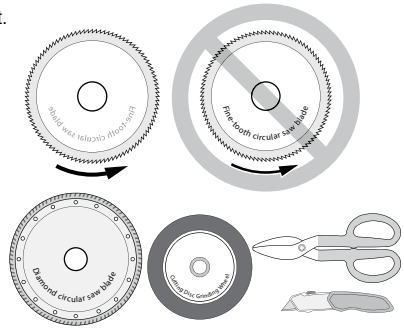

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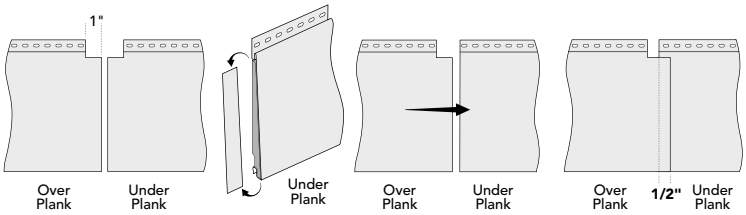

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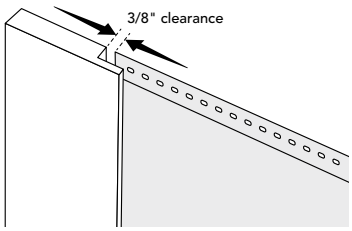

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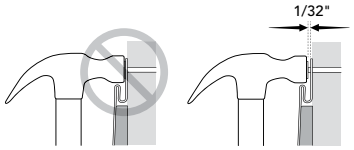

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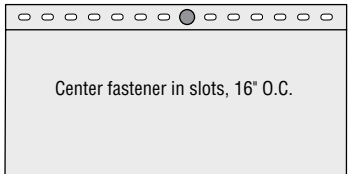
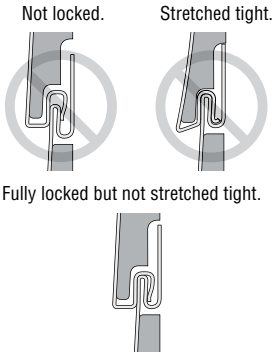


STACK LOCK ENGAGEMENT



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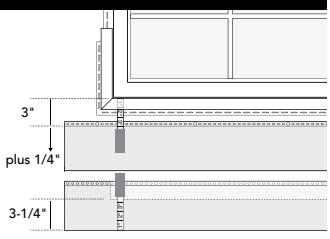

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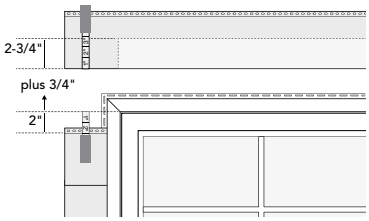

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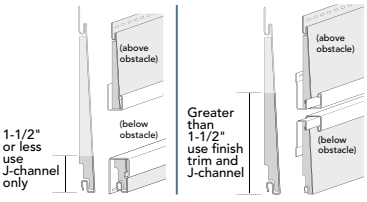

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Architectural Linear Series Brick

This long, elegant brick, with rugged appeal features a weathered finish that is ideal for modern designs. Adding to the unique look of this brick, the lengths are random, with the longest bricks extending to 23-5/8”

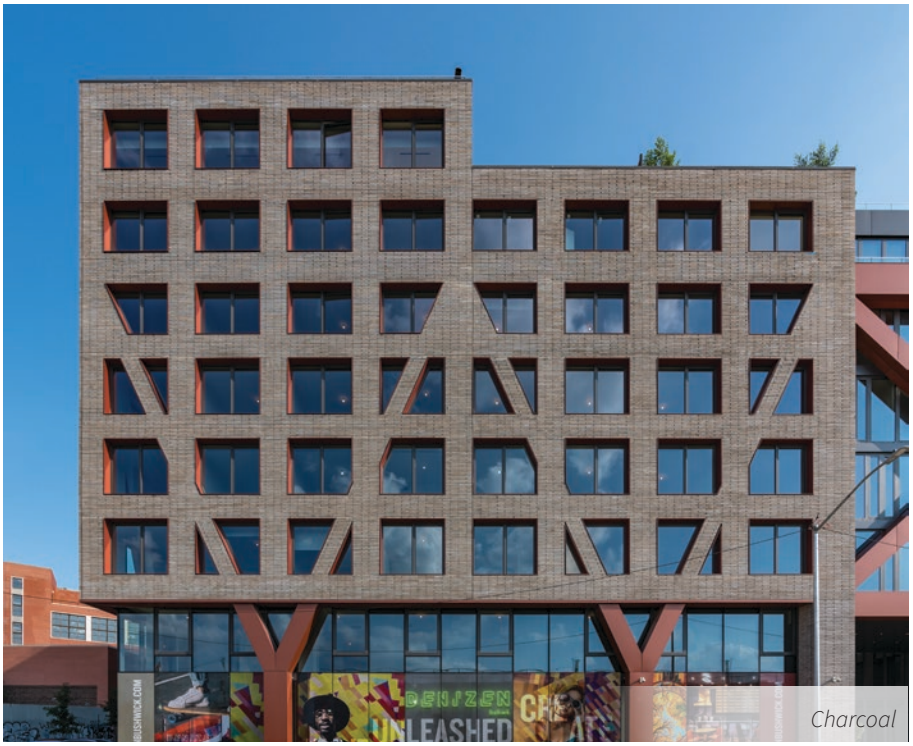
Opal


Opal


Opal

Midnight Grey

Midnight Grey



Charcoal

Charcoal

Architectural Linear Series Brick

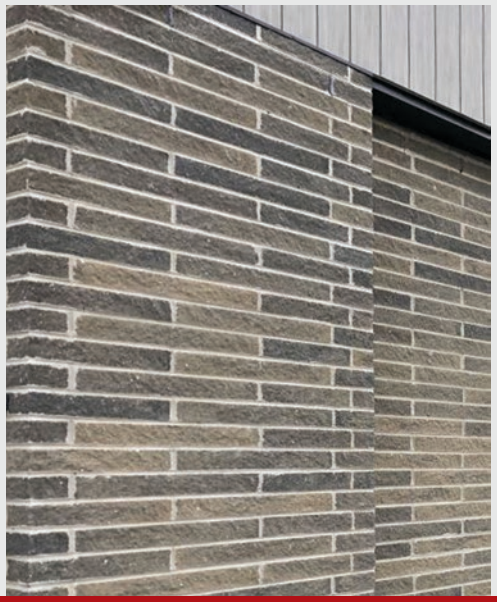
Cambridge, Ontario Plant

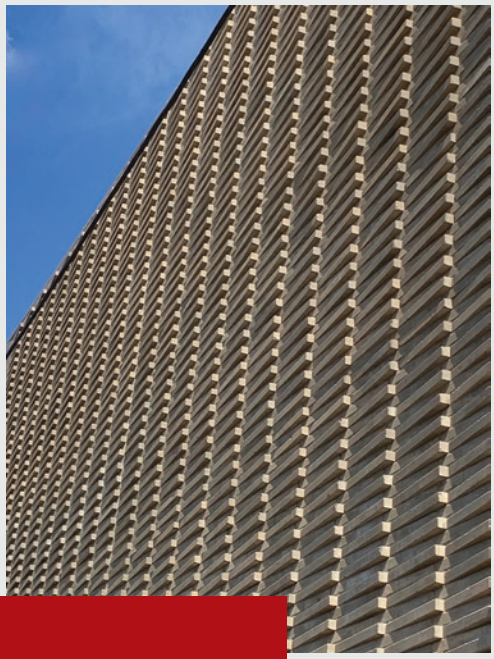
The unique weathered appearance of Architectural Linear Series Brick is complemented by four distinctive colors: Charcoal, Midnight Grey, Obsidian and Opal.

LS22	*2-1/4" H x Random (up to 23-5/8") L x 3-3/4"D*

Obsidian

Obsidian



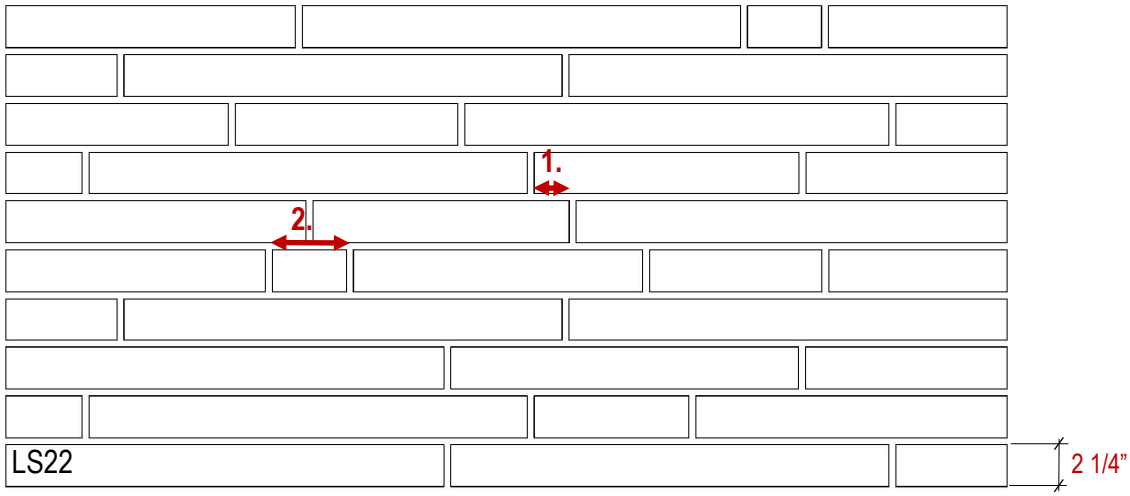


PRO TIP:

Change things up by reversing all or some of the bricks in the wall. Or get more creative and add dramatic new effects by adding unique designs. As simple or as intricate as you want, Architectural Linear Series Brick offers the flexibility you need.

Architectural Linear Series Brick

Typical Elevation • Random Length Coursed Bond • 3/8” Mortar Joints



Guidelines for Installation:

1. Minimum 2” overlap of vertical joints.
2. Minimum length of 4”.
3. To maintain consistency of appearance in the wall, mix shorter units from skid with longer units.
4. Units are naturally fractured to shorter lengths on the skid, in some cases it may require the mason to clean up the edge.
5. Guillotine split ends are acceptable for random units.
6. Random installation should consist of approximately 70% full length units.

Avoid:

1. Vertical joints aligning from course to course.
2. Taking all full length units from the skid and putting them directly into the wall without splitting a few to maintain the 30% random appearance.

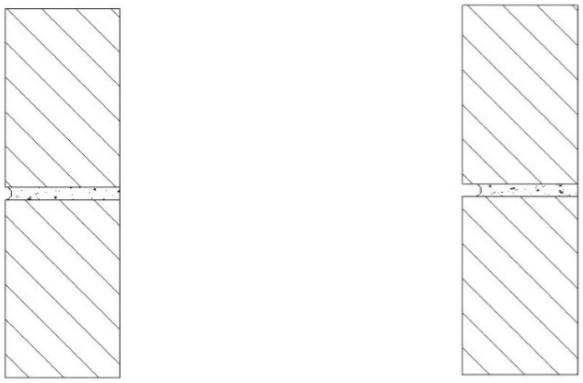
Size	Pieces* per 32 sq.ft.	Nominal Length of one piece
LS22	73	24”

*One piece is based on a 23-5/8” length and may be comprised of 2 or more individual stones.

General Installation Guidelines

- Arriscraft recommends the use of a Portland cement-lime mortar, proportioned to a 1:1:6 ratio.
- Masonry units should be laid with full head and bed joints except where they are used for weep holes or ventilation.
- Bevel mortar from rear face to prevent protrusion into cavity.
- Prevent excessive mortar droppings by cutting off excess mortar with trowel as the units are laid.
- Butter head joints of unit being placed in wall.
- Place unit to tightly compress mortar.
- Do not re-adjust unit once it has been set in place.
- Tool joints when mortar is thumbprint hard.This timing will depend on the mortar properties and weather conditions.
- Tool joints to a tightly compressed surface to achieve the most weather resistance. Concave tooled joints provide the best resistance to moisture penetration.
- After tooling, any excess mortar and dust should be brushed from the masonry surface using a soft bristle brush. Avoid rubbing or pressing the mortar into the units.
- Refer to additional guidelines on the BASIC CARE sheet.

Joint Profile:



Concave Recessed

September 2022

Arriscraft
Building Stone · Brick · Limestone

Obsidian

Architectural Linear Series Brick

Sample shown has been washed. For details please see our Arriscraft Care, Cleaning and Maintenance Instructions.

SECTION 07 5423

THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. **Mechanically Fastened thermoplastic polyolefin (TPO) roofing system.**
   2. Vapor retarder.
   3. Roof insulation.
   4. Cover board.
   5. Walkways.

B. Related Requirements:
   1. Section 01 3113.23 “Air Barrier System Coordination” for administrative and procedural requirements for coordination between the trades, and for the proper scheduling and sequencing of the work to produce an airtight building enclosure.
   2. Section 06 1000 "Rough Carpentry" for wood nailers, curbs, and blocking.
   3. Section 06 1600 "Sheathing" for wood-based, structural-use roof deck panels.
   4. Section 07 2100 "Thermal Insulation" for insulation beneath the roof deck.
   5. Section 07 6200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
   6. Section 07 9200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.
   7. Division 22 Sections "Plumbing" for roof drains.

1.2 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to Work of this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.
   1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
   2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
   3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
   5. Review structural loading limitations of roof deck during and after roofing.
   6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
   7. Review governing regulations and requirements for insurance and certificates if applicable.
   8. Review temporary protection requirements for roofing system during and after installation.

9. Review roof observation and repair procedures after roofing installation.

1.4 ACTION SUBMITTALS

A. Make Submittals in accordance with Section 01 3300 “Submittal Procedures.”

B. Product Data: For each type of product.
1. For insulation and roof system component fasteners, include copy of SPRI's Directory of Roof Assemblies listing.

C. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:
1. Layout and thickness of insulation.
2. Base flashings and membrane termination details.
3. Flashing details at penetrations.
4. Tapered insulation layout, thickness, and slopes.
5. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
6. Tie-in with adjoining air barrier.

D. Samples for Verification: For the following products:
1. Roof membrane and flashings, of color required.
2. Walkway pads or rolls, of color required.

E. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates:
1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
a. Submit evidence of compliance with performance requirements.
2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

C. Product Test Reports: For roof membrane and insulation, for tests performed by a qualified testing agency, indicating compliance with specified requirements.

D. Evaluation Reports: For components of roofing system, from ICC-ES.

E. Field Test Reports:
1. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.

F. Sample Warranties: For manufacturer's special warranties.

G. BABA (Build America Buy America) Compliance Certification.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is listed in SPRI's Directory of Roof Assemblies for roofing system identical to that used for this Project.

B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
   1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.10 WARRANTY

A. Special No-Dollar Limit Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
   1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, vapor retarder, and other components of roofing system.
   2. Wind-Speed Warranty: Membrane roofing system will resist blow-off or damage caused by wind speeds up to 72 mph measured at 10 meters above grade.
   3. Warranty Period: 20 years from date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, vapor retarders, and walkway products, for the following warranty period:
   1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.
   1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
   2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897:
   1. Ultimate Wind Speed (ASCE7-2010 and Chapter 16 of the 2015 IBC): 126 mph.
   2. Surface Roughness Exposure: Exposure Category B.
   3. Mean Roof Height: As indicated on Drawings.

D. SPRI's Directory of Roof Assemblies Listing: Roof membrane, base flashings, and component materials shall comply with requirements in FM Approvals 4450 or FM Approvals 4470 as part of a roofing system, and shall be listed in SPRI's Directory of Roof Assemblies for roof assembly identical for that specified for this Project.
   1. Wind Uplift Load Capacity: 75 psf.

E. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

F. ENERGY STAR Listing: Roofing system to be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

G. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

H. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.2 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. TPO Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, TPO sheet.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Carlisle SynTec Incorporated.
      b. Firestone Building Products.
      c. Johns Manville; a Berkshire Hathaway company.
      d. Versico Roofing Systems.
   2. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

3. Thickness: 60 mils, nominal.
4. Exposed Face Color: White.
5. Roofs with a slope less than 2:12: SRI of 82+ (initial)/ 64+ (3-year aged)

2.3 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's standard unreinforced TPO sheet flashing, 55 mils thick, minimum, of same color as TPO sheet.

C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.

D. Bonding Adhesive: Manufacturer's standard.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.

G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 VAPOR RETARDER

A. Polyethylene Film: ASTM D4397, 6 mils thick, minimum, with maximum permeance rating of 0.13 perm.
1. Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

2.5 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by TPO roof membrane manufacturer, approved for use in SPRI's Directory of Roof Assemblies listed roof assemblies.

B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 2, Grade 2, felt or glass-fiber mat facer on both major surfaces.
1. Compressive Strength: 20 psi.
2. Size: 48 by 48 inches.
3. Thickness:
a. Base Layer: 1.50 inches.
b. Upper Layer: 3.80 inches.
4. Thermal Resistance: Minimum LTTR-30 for 5.3 inch thickness.

C. Tapered Insulation: Provide factory-tapered insulation boards.
1. Material: Match roof insulation.
2. Minimum Thickness: 1/4 inch.
3. Slope:
a. Roof Field: 1/4 inch per foot unless otherwise indicated on Drawings.

b. Saddles and Crickets: 1/2 inch per foot unless otherwise indicated on Drawings.

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.

B. Fasteners: Factory-coated steel fasteners with metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:
1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.

D. Polyisocyanurate Insulation Cover Board: ASTM C1289 Type II, Class 4, Grade 1, 1/2 inch thick, with a minimum compressive strength of 80 psi.

2.7 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick and acceptable to roofing system manufacturer.
1. Size: Approximately 36 by 60 inches.
2. Color: Contrasting with roof membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.
1. Submit test result within 24 hours after performing tests.
a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions, SPRI's Directory of Roof Assemblies listed roof assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

C. Coordinate installation and transition of roofing system component serving as an air barrier with air barrier specified under Section 07 2715 "Nonbituminous Self-Adhering Sheet Air Barriers."

3.4 INSTALLATION OF VAPOR RETARDER

A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches, respectively.
   1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
   2. Seal laps by rolling.

B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system. Overlap and seal roof vaper retarder to adjoining exterior wall air barrier.

3.5 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and roof insulation manufacturer's written instructions for installing roof insulation.

C. Installation Over Wood Panel Decking:
   1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows.
      a. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
      b. Make joints between adjacent insulation boards not more than 1/4 inch in width.
      c. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
         1) Trim insulation so that water flow is unrestricted.
      d. Fill gaps exceeding 1/4 inch with insulation.
      e. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
   2. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to wood panel decks.
      a. Fasten insulation according to requirements in SPRI's Directory of Roof Assemblies for specified Wind Uplift Load Capacity.
      b. Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
   3. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
b. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
c. Make joints between adjacent insulation boards not more than 1/4 inch in width.
d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
    1) Trim insulation so that water flow is unrestricted.
    2) At internal roof drains, provide a minimum of 3 inches of insualtion.
e. Fill gaps exceeding 1/4 inch with insulation.
f. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
g. Adhere each layer of insulation to substrate using adhesive according to SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    1) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.6 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.
    a. Trim cover board so that water flow is unrestricted.
3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Adhere cover board to substrate using adhesive according to SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:
    a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
    b. Use a weighted roller for full adhesion and maintain weight per manufacturer's instructions.

3.7 INSTALLATION OF MECHANICALLY FASTENED ROOF MEMBRANE

A. Sure-Weld TPO membranes shall be mechanically attached to the structural deck with specified Carlisle Fasteners and designated Plates, for fastening densities and numbers of perimeter sheets refer to Warranty Tables, Paragraph 1.05.

B. TPO to be installed using the RhinoBond Induction Welding System and installed per MFR specifications and requirements.

3.8 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate, and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.9 INSTALLATION OF WALKWAYS

A. Flexible Walkways: Install walkway products according to manufacturer's written instructions. Provide manufacturer’s inspection before walkway pad layout or keep walkway pads off laps or seams.
   1. Install flexible walkways at the following locations:
      a. Perimeter of each rooftop unit.
      b. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.
      c. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
      d. Top and bottom of each roof access ladder.
      e. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
      f. Locations indicated on Drawings.
      g. As required by roof membrane manufacturer's warranty requirements.
   2. Provide 6-inch clearance between adjoining pads.
   3. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.10 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.

B. Perform the following tests:
   1. Infrared Thermography: Testing agency surveys entire roof area using infrared color thermography according to ASTM C1153.
      a. Perform tests before overlying construction is placed.
      b. After infrared scan, locate specific areas of leaks by electrical capacitance/impedance testing or nuclear hydrogen detection tests.
      c. After testing, repair leaks, repeat tests, and make further repairs until roofing and flashing installations are watertight.
         1) Cost of retesting is Contractor's responsibility.
      d. Testing agency to prepare survey report of initial scan indicating locations of entrapped moisture, if any.

C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.

D. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.11 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. All membrane areas shall be cleaned with manufacturer approved membrane cleaner

3.12 ROOFING INSTALLER'S WARRANTY

A. WHEREAS _____ of _____, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
1. Owner: Avesta Housing.
2. Owner Address:
3. Building Name/Type: 15 Cedar street.
4. Building Address: 15 Cedar street, Portland, Maine 04101.
5. Area of Work: Roofing.
6. Acceptance Date: _____.
7. Warranty Period: 2 years.
8. Expiration Date: _____.

B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,

C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period Roofing Installer will, at Roofing Installer's own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:
1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
   a. lightning;
   b. peak gust wind speed exceeding 115 mph;
   c. fire;
   d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
   e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
   f. vapor condensation on bottom of roofing; and
   g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.

3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this _____ day of _____, _____.

1. Authorized Signature: _____.
2. Name: _____.
3. Title: _____.

END OF SECTION

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT

For 15 and 19 Cedar Street

IN CONSIDERATION OF the site plan approval granted by the Planning Board/Planning Authority of the City of Portland ("City") to the proposed Avesta 15 and 19 Cedar Street Apartments PL-003553-2026 ("Premises") , and the associated Erosion and Sedimentation Control Inspection and Maintenance Plan (Exhibit A) submitted by Avesta Housing, prepared by BH2M (*engineer/agent*) of 380B Main Street, Gorham, Maine dated May 2026, and pursuant to a condition thereof, Avesta Housing (*owner*) a Maine non profit organization with a principal place of business in Portland, Maine, and having a mailing address of 307 Cumberland Avenue, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

The Owner, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the Focalpoint biofiltration System, R-Tank Underground Stormwater Storage Gallery, Outlet Control Structure, and Catch Basin (hereinafter collectively referred to as the "stormwater system"), as shown in the Avesta Cedar Street Plan Set Included in Appendix A of Exhibit A Exhibit A and in strict compliance with the approved Erosion and Sedimentation Control Inspection and Maintenance Plan prepared for the Owner by BH2M and the annual inspections, maintenance and reporting requirements outlined in Chapter 32, Article III of the Portland City Code.

Owner further agrees, at its own cost, to keep a Stormwater Maintenance Log. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

This agreement is for the benefit of the City and all persons in lawful possession of the Premises and abutters thereto; further, that the said City and said persons in lawful possession 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 and a stated time to perform, the City, by its authorized agents or representatives, may, but is not obligated to, enter upon said Premises to maintain, repair, or replace said stormwater system in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the City 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 also not be construed to allow any change or deviation from the requirements of the site plan most recently and formally approved by the Planning Board/Planning Authority of the City.

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.

The Owner agrees to record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any Condominium Association or management company, and 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 and the successor or assign will obtain and forward to the City's Department of Public Services and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" means the current owner of record of the Premises and any person or entity who is a successor or assign and has a legal interest in part, or all, of the Premises or any building thereon. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the Premises" 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 the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the Premises has more than one owner on the 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_____, 2026.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named_____(*name and title*), and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,
_____
Notary Public/Attorney at Law
Print name: _____

Exhibit A: Approved Erosion and Sedimentation Control Inspection and Maintenance Plan

Dashaway Commons – 15 and 19 Cedar Street - Planning Board Workshop Signage Certification

I, Christopher MacDonald representing Avesta Housing, hereby certify that a notice of a neighborhood meeting sign was posted on May 29, 2026, prior to the Public Workshop to be held on June 9, 2026, with the intention of having posted until June 12, 2026 for the proposed project PL-003553-2026 located at 15 and 19 Cedar Street in Portland.

Photo documentation of the sign in situ:

The sign will be removed after the stipulated 3 days following the date of the meeting.

Sincerely,

Christopher MacDonald, PE 11985

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

FOR

AVESTA HOUSING

PLAN INDEX

BH2M

Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors

380B Main Street *Tel. (207) 839-2771*
Gorham, Maine 04038 *Fax (207) 839-8250*

GRID NORTH

N/F
54 Chesnut Street
Portland, LLC
Book 35348, Page 290
Map 26, Block C, Lot 5

N/F
Portland Boys' Club Association
Book 1327, Page 122
Book 2606, Page 141
Book 2874, Page 61
Map 26, Block C, Lot 8

N/F
198 Oxford Street
Portland, LLC
Book 40427, Page 344
Map 26, Block C, Lot 3

N/F
200 Oxford Street Portland, LLC
Book 40427, Page 346
Map 26, Block C, Lot 2

LAND OF
BOYS & GIRLS CLUBS
OF SOUTHERN MAINE
Book 37891, Page 39
Map 26, Block C, Lots 14 & 15

N/F
Rebecca E. Brooks &
Adolphus B. Clinton
Book 35295, Page 78
Map 26, Block C, Lot 16

N/F
21 Cedar Street
Portland, LLC
Book 39893, Page 58
Map 26, Block C, Lot 13

N44°50'27"W 70.98' (Plan Ref. A 71.07')
9.01' (Plan Ref. A 8.93')
CIRF (PLS #2282) 0.2' A.G. (0.23' Off Corner)
CIRF (PLS #2282) 0.2' A.G. (Held)
S42°57'32"E 40.02' (Deed 37'±)
31.01' (Deed 22'±)
37.33' (Deed 37'4")
N44°04'05"W 112.63' (Held Plan Ref. B)
75.31' (Plan B 75.04')
PKNF (PLS #2273) (0.09' Off Corner)
N48°23'27"E 53.53' (Plan Ref. A 53.42')
S50°24'41"W 56.00'
N43°31'14"W 70.93' (Plan Ref. A 71.00')
35.50'
34.10'
CIRF (PLS #2282) 0.8' A.G. (Held)
1.33'
Fence Encroaches By 2'±
Triangular "Strip" See Deed Book 285, Page 149
Boundary Line Per Plan Ref. A
Pavement Encroaches By 3'±
N47°13'18"E 65.16' (Deed 65')
(Interior Lot Line) S50°16'42"W 118.57' (Plan B 118.45')
S50°15'42"W 118.98' (Plan B 118.87')
S44°04'14"E 18.50'
PKNF (PLS #2273) (Held)
S45°55'46"W 1.00'
S44°04'14"E 81.43' To CIRF (PLS #2273) 0.3' B.G. (Held)
SMF "M" In Cover (Held)
35.50' (Held Deed)
35.58' (Deed 35.5')
36.13' (Deed 36'±)
37.33' (Deed 37'4")
CIRF (PLS #2282) 0.8' A.G. (Held) Used For Side Lines (0.15' Into R.O.W.)
N43°26'09"W 319.33'
174.85' To SMF "M" In Cover (Held)

← To Oxford Street

CEDAR STREET (33' R.O.W. Per Plan Ref. C)

To Cumberland Avenue →

WV WV WV

Scale: 1" = 10'
10' 0 10' 20'

LEGEND

SYMBOL	DESCRIPTION
⊡ SMF	STONE MONUMENT FOUND
○ IPF/IRF	IRON PIPE/IRON ROD FOUND
○ CIRF	CAPPED IRON ROD FOUND
◉	5/8" IRON ROD W/ CAP TO BE SET
◑ PKNF	PK NAIL FOUND
○	UTILITY POLE
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	EDGE OF PAVEMENT
	EXISTING STOCKADE FENCE
	EXISTING CHAINLINK FENCE
A.G./B.G.	ABOVE GROUND/BELOW GROUND
N/F	NOW OR FORMERLY

NOTES:

1. OWNER: BOYS AND GIRLS CLUBS OF SOUTHERN MAINE PO BOX 7830 PORTLAND, MAINE 04112
2. SURVEYOR: ROBERT C. LIBBY JR. PLS #2190 BH2M 380B MAIN STREET GORHAM, MAINE 04038
3. DEED REFERENCE: BOOK 37891, PAGE 39
4. TAX MAP REFERENCE: MAP 26, LOTS 14 & 15
5. AREA OF PARCEL: 8,978 S.F. (0.206 ACRES)
6. PLAN REFERENCES:
   A. "PLAN SHOWING EXISTING CONDITIONS SURVEY LAND OF 200 OXFORD STREET, LLC", DATED 10-31-2023, BY MAIN-LAND DEVELOPMENT CONSULTANTS, LLC, UNRECORDED.
   B. "PLAN OF BOUNDARY AND EXISTING CONDITIONS SURVEY 15 & 19 CEDAR ST & 277 CUMBERLAND AVENUE", DATED 01/11/2022. FOR BOYS AND GIRLS CLUB OF SOUTHERN MAINE, BY TITCOMB ASSOCIATES, UNRECORDED.
   C. CITY BLUE PRINTS "OXFORD STREET" SHEET NO. 2, PROVIDED BY THE CITY OF PORTLAND ENGINEERING ARCHIVES.

I CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS TECHNICAL STANDARDS OF PRACTICE FOR A STANDARD BOUNDARY SURVEY WITH THE FOLLOWING EXCEPTIONS:

1. NO SURVEYORS REPORT

STATE OF MAINE ROBERT C. LIBBY JR. 2190 REGISTERED LAND SURVEYOR

ROBERT C. LIBBY JR. PLS #2190

REVISION		
NO.	DATE	DESCRIPTION
1	5/28/26	Revised to Include Additional Curb Detail Along Cedar St.

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street Tel. (207) 839-2771
Gorham, Maine 04038 Fax (207) 839-8250

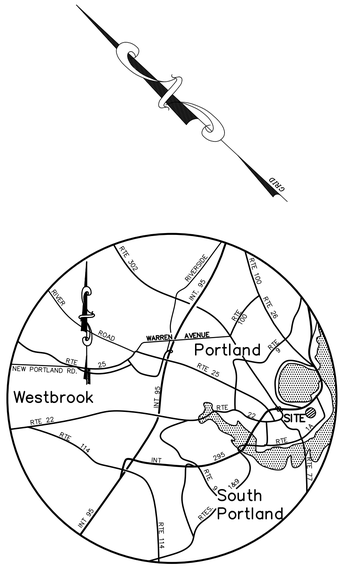
FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

STANDARD BOUNDARY SURVEY PLAN

LAND OF
BOYS AND GIRLS CLUB OF SOUTHERN MAINE
15 & 19 CEDAR STREET
PORTLAND, MAINE 04101

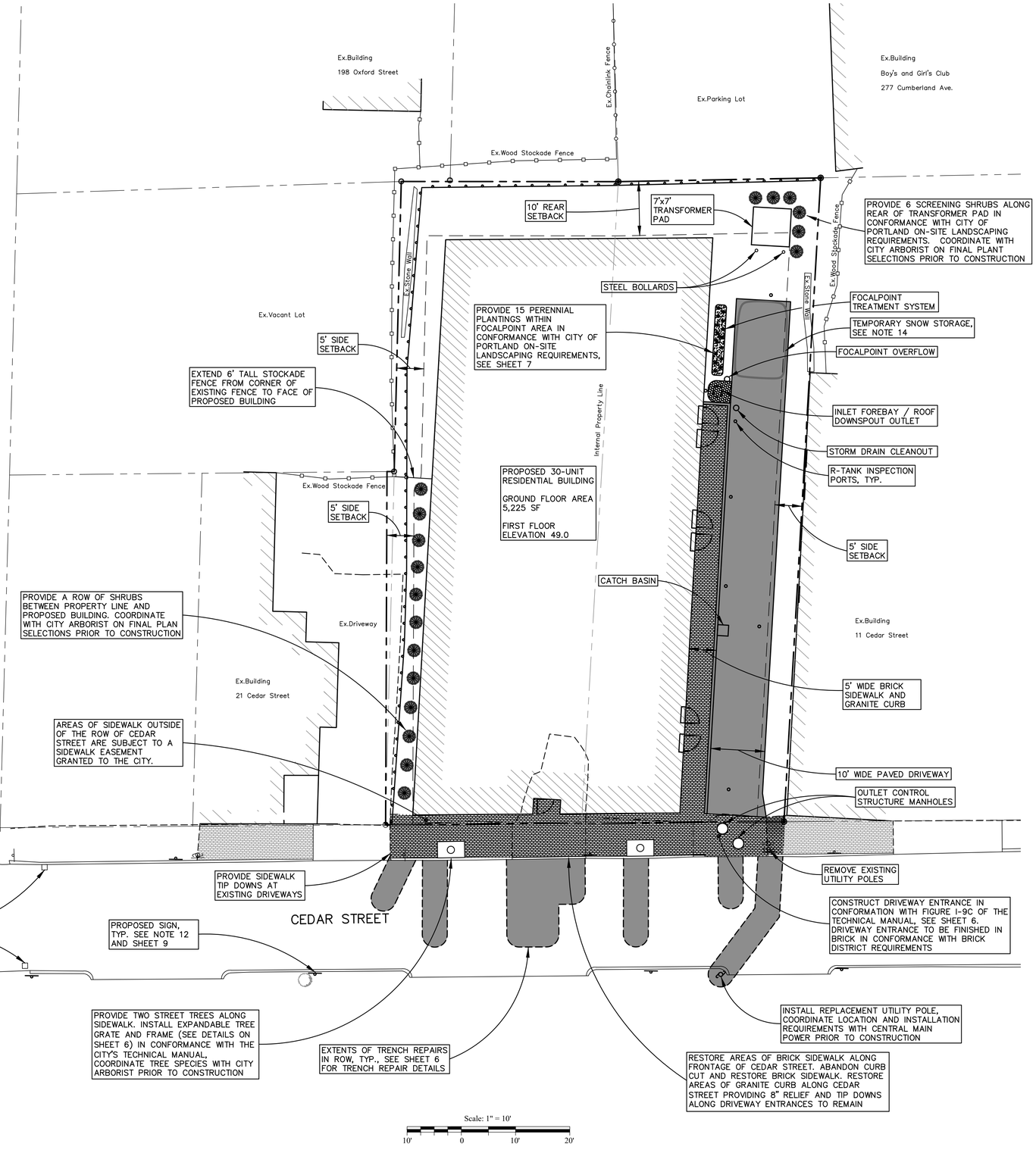
DESIGNED	DATE
I. Schleh	March 2026
DRAWN	SCALE
I. Schleh	1" = 10'
CHECKED	JOB. NO.
R. Libby, Jr.	24245

SHEET
1



LOCATION MAP

SCALE: 1" = 2 MILES



LEGEND

SYMBOL	DESCRIPTION
N/F	NOW OR FORMERLY
A.G./B.G.	ABOVE GROUND/BELOW GROUND
SMF	STONE MONUMENT FOUND
IPF/IRF	IRON PIPE/IRON ROD FOUND
CIRF	CAPPED IRON ROD FOUND
	5/8" IRON ROD W/ CAP TO BE SET
PKNF	PK NAIL FOUND
	UTILITY POLE
	EXISTING SIGN
	PROPOSED SIGN
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	EDGE OF PAVEMENT
	EXISTING STOCKADE FENCE
	EXISTING CHAINLINK FENCE
	SETBACKS

NOTES:

1. OWNER: BOYS AND GIRLS CLUBS OF SOUTHERN MAINE, PO BOX 7830, PORTLAND, MAINE
2. APPLICANT: AVESTA HOUSING, 307 CUMBERLAND AVENUE, PORTLAND, MAINE
3. ENGINEER: CHRISTOPHER R. MacDONALD., PE #11985, BH2M, 380B MAIN STREET, GORHAM, MAINE
4. SURVEYOR: ROBERT C. LIBBY JR., PLS #2190, BH2M
5. DEED REFERENCE: BOOK 37891, PAGE 39
6. TAX MAP REFERENCE: MAP 26, LOTS 14 & 15
7. TOTAL PARCEL AREA: 8,978 S.F. (0.206 ACRES)
8. ZONING: NEIGHBORHOOD RESIDENTIAL (RN-4)
9. ZONING REQUIREMENTS: MIN. LOT AREA MULTI FAMILY - 725 SF/UNIT
   AFFORDABLE HOUSING DENSITY BONUS - 2.5X
   BASE ZONE UNITS - 12.4 UNITS
   2.5 x DENSITY - 30.9 UNITS ALLOWABLE
   30 UNITS PROPOSED

   MIN. FRONTAGE - 20'
   FRONTAGE PROPOSED - 73.46'

   MIN. FRONT SETBACK - AVERAGE OF ADJACENT YARDS MINUS 5' (EXISTING BUILDING ON ROW, ZERO SETBACK)
   FRONT SETBACK PROPOSED - 1.75'

   MIN. SIDE SETBACK - 5'
   PROPOSED MIN. SIDE SETBACK - 5'

   MIN. REAR SETBACK - 10'
   PROPOSED MIN. REAR SETBACK - 10.67'

   MAX BUILDING HEIGHT - 55' PER "PORTLAND, ME HEIGHT MAP" CITY CODE CHAPTER 14 SECTION 7
   PROPOSED BUILDING HEIGHT - 54.92'

   MAX. LOT COVERAGE - 60%
   PROPOSED LOT COVERAGE - 58%

   MIN. LANDSCAPE OPEN SPACE RATIO - 20%
   PROPOSED LANDSCAPE OPEN SPACE - 25%
10. PLAN REFERENCE: A) "EXISTING CONDITIONS BOUNDARY SURVEY, LAND OF BOYS AND GIRLS CLUB OF SOUTHERN MAINE, 19 CEDAR STREET, PORTLAND, MAINE 04101", FOR AVESTA HOUSING, BY BH2M, DATED MARCH 2026.
11. EXISTING PUBLIC AND PRIVATE UTILITY AND UNDERGROUND LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE, AND ALL UTILITIES AND PIPES ARE NOT NECESSARILY SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING IN FIELD THE LOCATIONS OF UTILITIES SHOWN, AND FOR INVESTIGATING AND IDENTIFYING THE EXISTENCE AND LOCATIONS OF ANY ADDITIONAL PUBLIC AND PRIVATE UTILITIES NOT SHOWN ON THE PLANS, BEFORE COMMENCING ANY EXCAVATIONS, AND SHALL BE RESPONSIBLE FOR REPAIRING ALL UTILITIES AND PIPES, BOTH PUBLIC AND PRIVATE, WHETHER SHOWN ON PLANS OR NOT, THAT ARE DISTURBED DURING CONSTRUCTION. ALL COSTS INCURRED IN INVESTIGATING AND REPAIRING SAID UTILITIES SHALL BE BORNE BY THE CONTRACTOR, AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE WORK PAID FOR UNDER THE APPLICABLE LUMP SUM AND UNIT PRICES IN THE CONTRACT. UTILITIES INCLUDE BUT ARE NOT LIMITED TO ELECTRIC, TELEPHONE, NATURAL GAS, WATER, SEWER AND STORM DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING DIG SAFE.
12. PER DISCUSSIONS WITH CITY OF PORTLAND, ON-STREET PARKING TO BE RECONFIGURED IN CONJUNCTION WITH DEVELOPMENT OF THIS PROJECT. THE CITY HAS REQUESTED THAT, GENERALLY, ON-STREET PARKING BE RECONFIGURED TO BE ALONG THE SOUTH SIDE OF THE STREET, AND PARKING TO BE ELIMINATED ALONG BOTH SIDES OF THE STREET FROM ALONG THE PROJECT FRONTAGE TO OXFORD STREET. SEE SHEET 9 FOR DETAILS OF PARKING SIGN RECONFIGURATION.
13. A CONSTRUCTION MANAGEMENT PLAN MUST BE DEVELOPED BY THE CONTRACTOR IN COMPLIANCE WITH THE CITY'S CONSTRUCTION MANAGEMENT TEMPLATE AND APPROVED BY THE CITY OF PORTLAND PRIOR TO CONSTRUCTION. THE MANAGEMENT PLAN SHALL INCLUDE PEDESTRIAN AND TRAFFIC MANAGEMENT, STOCKPILE AND STAGING LOCATIONS, CONTRACTOR PARKING, CONSTRUCTION SCHEDULE, AND OTHER REQUIREMENTS OF THE CITY OF PORTLAND.
14. AN AREA OF TEMPORARY SNOW STORAGE IS PROPOSED AT THE END OF THE DRIVEWAY. THIS AREA WILL ALLOW FOR PLOWED SNOW TO BE STAGED FOR REMOVAL AND HAULED OFF SITE. SNOW IS PROPOSED TO BE STORED IN AN AREA APPROXIMATELY 15' FROM THE END OF THE DRIVEWAY UP TO THE INLET TO THE FOCALPOINT UNIT. ONCE ACCUMULATED SNOW HAS REACHED THE FOCALPOINT INLET, IT WILL BE REMOVED TO MAINTAIN STORMWATER CONVEYANCE FOR THE PROJECT.

REVISION DESCRIPTION		
NO.	DATE	
1	3/26/26	Initial City of Portland Major Site Plan Application
2	5/28/26	Revised to Address Comments from City of Portland

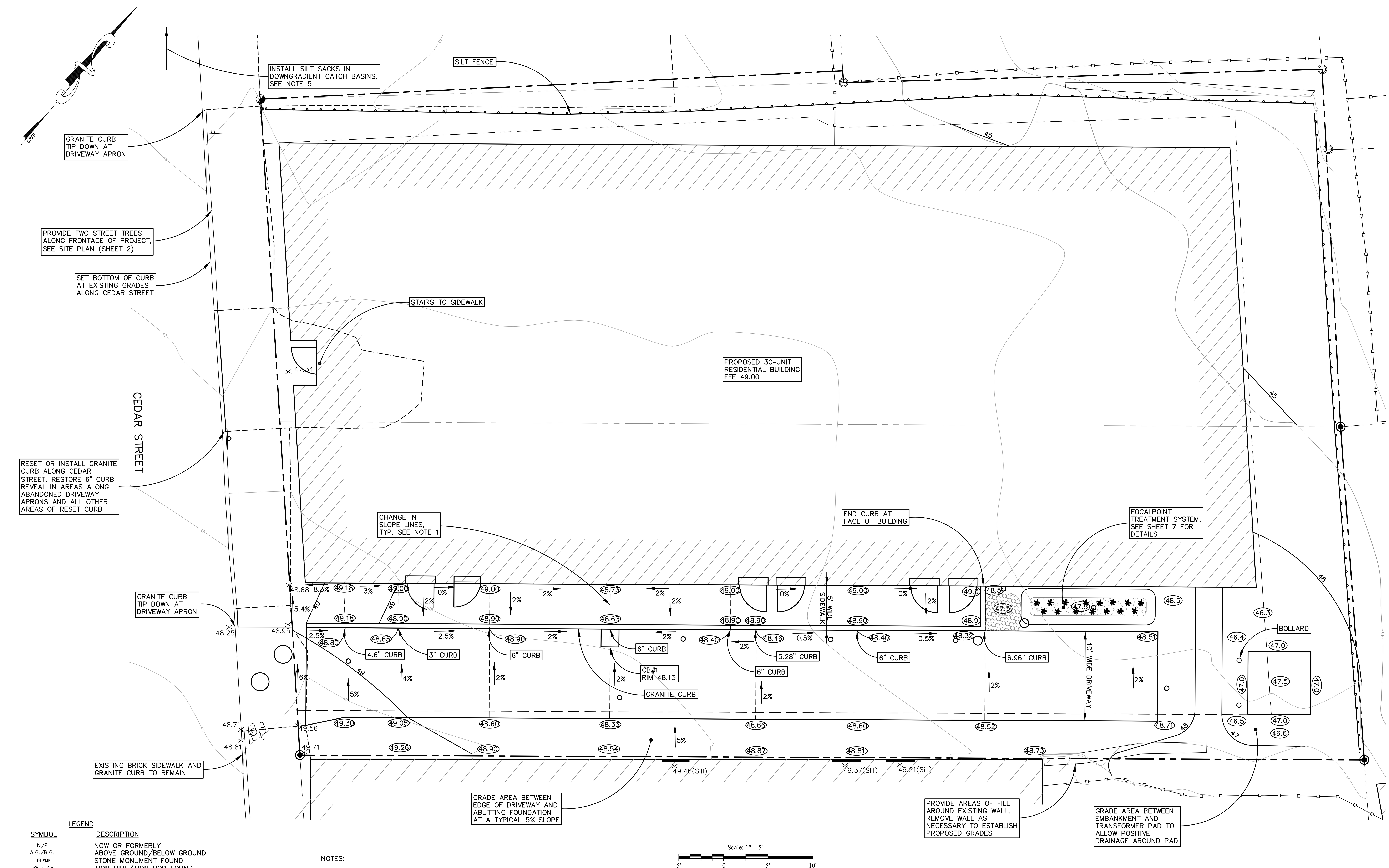
BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

SITE PLAN
DASHAWAY COMMONS
15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	January 2026
DRAWN	SCALE
Dept.	1" = 10'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
2



LEGEND

SYMBOL	DESCRIPTION
N/F	NOW OR FORMERLY
A.G./B.G.	ABOVE GROUND/BELOW GROUND
SMF	STONE MONUMENT FOUND
IPF/IRF	IRON PIPE/IRON ROD FOUND
CIRF	CAPPED IRON ROD FOUND
	5/8" IRON ROD W/ CAP TO BE SET
PKNF	PK NAIL FOUND
	UTILITY POLE
25.5×	EXISTING SPOT ELEVATION
(25.5)	PROPOSED SPOT ELEVATION
154	EXISTING CONTOUR
154	PROPOSED CONTOUR
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	EDGE OF PAVEMENT
	EXISTING STOCKADE FENCE
	EXISTING CHAINLINK FENCE
	SETBACKS

NOTES:

1. CHANGE IN SLOPE LINES PROVIDED TO CLARIFY WHERE CHANGES IN RUNNING LONGITUDINAL SLOPE ARE PROPOSED ALONG SIDEWALK.
2. VARIABLE CURB REVEAL PROPOSED ALONG SIDEWALK TO FACILITATE GRADING FOR DRAINAGE ALONG DRIVEWAY, SEE CURB DEPTH NOTES FOR GUIDANCE ON CURB REVEAL HEIGHTS.
3. CONTRACTOR TO PREPARE A CONSTRUCTION MANAGEMENT PLAN PRIOR TO CONSTRUCTION, SEE NOTE 13 ON SHEET 2.
4. RESTORE ALL DISTURBED AREAS AS LOAM AND SEED LAWN AREAS UNLESS OTHERWISE PROPOSED AS LANDSCAPING OR PAVED SURFACES.
5. INSTALL SILT SACKS IN DOWNGRADIENT CATCH BASINS PRIOR TO CONSTRUCTION, MAINTAIN SACKS AND REMOVE ACCUMULATED SEDIMENT UNTIL PROJECT REACHES FINAL STABILIZATION.

REVISION

NO.	DATE	DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
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FOR
Avesta Housing
307 Cumberland Avenue
Portland, Miane 04101

GRADING PLAN

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	March 2026
DRAWN	SCALE
Dept.	1" = 5'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
3

CONNECT SEWER SERVICE TO MAIN UTILIZING AN INSERTA-TEE ABOVE PIPE CENTERLINE, INV. ±39.2 PROVIDE TEST PIT PRIOR TO CONSTRUCTION TO CONFIRM INVERT OF EXISTING SEWER

EXTENTS OF TRENCH REPAIRS IN ROW, TYP., SEE SHEET 6 FOR TRENCH REPAIR DETAILS

6" SEWER SERVICE (ESTIMATED, SEE NOTE 1)

REMOVE EXISTING ABANDONED WATER SERVICES TO CORE STOPS ALONG THE MAIN AND REMOVE WATER SHUT OFF VALVES

2" DOMESTIC WATER SERVICE (ESTIMATED, SEE NOTE 1)

10' CLEARANCE FROM TREE GRATES TO WATER SERVICES

6" FIRE WATER SERVICE (ESTIMATED, SEE NOTE 1)

CEDAR STREET

1" GAS SERVICE (ESTIMATED, SEE NOTE 1)

PROPOSED 30-UNIT RESIDENTIAL BUILDING

INLET FOREBAY/ROOF DOWNSPOUT OUTLET

REMOVE EXISTING ABANDONED WATER SERVICES TO CORPORATION STOPS ALONG THE MAIN AND REMOVE WATER SHUT OFF VALVES ALONG SIDEWALKS

AREA OF R-TANKS/EXTENDED SUBSURFACE DETENTION, SEE SHEET 8 FOR DETAILS

OCS#1
TOP OF WEIR INV. 46.00
1' WIDE NOTCH INV. 45.50
0.75' ORIFICE INV. 44.07
4" UNDERDRAIN INV. IN 44.07
8" INV. IN 44.07
8" INV. OUT 44.07
SEE SHEET 8 FOR DETAILS, AND NOTE 4 BELOW.

CB#1
RIM 48.13
12" INV. OUT 44.07 (E)
12" INV. OUT 45.10 (S)

12" SD, L=4', S=0.00'/FT OUTLET TO ISOLATOR ROW

ISOLATOR ROW, SEE DETAILS ON SHEET 8

FOCALPOINT OVERFLOW
12" INLET INV. 48.00
4" UNDERDRAIN INLET INV. IN 44.74
8" INV. OUT 44.32

FOCALPOINT TREATMENT SYSTEM, SEE SHEET 7 FOR DETAILS

CONNECT STORMDRAIN TO SEWER MAIN UTILIZING AN INSERTA-TEE ABOVE PIPE CENTERLINE, INV. +/- 44.0 PROVIDE TEST PIT PRIOR TO CONSTRUCTION TO CONFIRM INVERT OF EXISTING SEWER

8" SD, L=7', S=0.01'/FT

REPLACEMENT UTILITY POLE, SEE NOTE 5

BOLLARD

REMOVE EXISTING UTILITY POLES

4" UNDERDRAIN

8" SD, L=3', S=0.00'/FT

12" SD, L=3', S=0.00'/FT OVERFLOW

UNDERDRAIN FOR EXISTING BUILDING, PROVIDE WATERPROOFING AGAINST EXISTING FOUNDATION, INV. 44.07±

UNDERGROUND ELECTRIC AND COMMUNICATIONS CONDUITS

TRANSFORMER PAD

8" SD, L=5', S=0.13'/FT

STORM DRAIN CLEANOUT
8" INV. IN 44.07
12" INV. OUT 44.07

Scale: 1" = 5'
5' 0 5' 10'

LEGEND

SYMBOL	DESCRIPTION
N/F	NOW OR FORMERLY
A.G./B.G.	ABOVE GROUND/BELOW GROUND
⊡ SMF	STONE MONUMENT FOUND
○ IPF/IRF	IRON PIPE/IRON ROD FOUND
○ CIRF	CAPPED IRON ROD FOUND
◉	5/8" IRON ROD W/ CAP TO BE SET
◑ PKNF	PK NAIL FOUND
	UTILITY POLE
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	EDGE OF PAVEMENT
	EXISTING STOCKADE FENCE
	EXISTING CHAINLINK FENCE
	SETBACKS

NOTES:

1. SERVICE CONNECTIONS SHOWN ARE PROPOSED PENDING FINAL COORDINATION WITH UTILITY PROVIDERS. COORDINATE WITH PORTLAND WATER DISTRICT, THE CITY OF PORTLAND DPW, AND UNITIL PRIOR TO CONSTRUCTION ON SERVICE SIZES AND FINAL CONNECTION REQUIREMENTS.
2. ALL SEWER PIPE SHALL BE SDR 35 OR EQUIVALENT.
3. ALL STORM DRAIN PIPE SHALL BE HIGH PERFORMANCE POLYPROPYLENE DUAL WALL STORM DRAIN PIPE (ADS HP STORM OR EQUAL).
4. THE OUTLET CONTROL STRUCTURE IS LOCATED INSIDE THE ROW OF CEDAR STREET AND IS SUBJECT TO A LICENCE AGREEMENT WITH THE CITY OF PORTLAND.
5. FOR REPLACEMENT UTILITY POLE, COORDINATE LOCATION AND INSTALLATION REQUIREMENTS WITH CENTRAL MAIN POWER PRIOR TO CONSTRUCTION

REVISION NO.	DATE	DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
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FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

UTILITY PLAN

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	February 2026
DRAWN	SCALE
Dept.	1" = 5'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
4

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EROSION AND SEDIMENT CONTROL PLAN

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS AS CONTAINED IN THE LATEST REVISION OF TO THE 2016 MAINE EROSION AND SEDIMENT CONTROL BMP'S MANUAL FOR DESIGNERS AND ENGINEERS, AND THE LATEST REVISION TO THE 2014 MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS. SEE MANUALS FOR ADDITIONAL INFORMATION AND DETAILS. A WRITTEN INSPECTION AND MAINTENANCE MANUAL HAS BEEN PREPARED FOR THIS SITE. PLEASE REFER TO THIS FOR ADDITIONAL REPORTS AND INSPECTION REQUIREMENTS FOR BOTH DURING AND AFTER CONSTRUCTION.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.

1. ALL CONSTRUCTION INSPECTIONS SHALL BE CONDUCTED BY SOMEONE WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING STANDARDS AND PERMIT CONDITIONS. CONSTRUCTION INSPECTIONS SHALL BE PERFORMED AT LEAST ONCE A WEEK, AND PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT (0.5 INCHES OR MORE IN A 24 HOUR PERIOD). CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 5 YEARS.
2. THE SCOPE OF CONSTRUCTION INSPECTIONS INCLUDE THE EROSION AND SEDIMENTATION CONTROL MEASURES AS WELL AS DISTURBED AREAS, MATERIAL STORAGE AREAS, AND LOCATIONS WHERE VEHICLES ENTER AND EXIT THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S", DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.
4. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN AN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 7 DAYS OF INITIAL DISTURBANCE OF THE SOIL. IF THE DISTURBANCE IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE AREA SHALL BE STABILIZED WITHIN 2 DAYS OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
5. EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 10 ACRES OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
6. EXPOSED AREA SHOULD BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.
7. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO MORE THAN ONE ACRE OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION.
8. SEDIMENT BARRIERS (EROSION CONTROL MIX, STONE CHECK DAMS, STABILIZED CONSTRUCTION ENTRANCE, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
9. INSTALL EROSION CONTROL MIX AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE E.C. MIX DETAIL FOR PROPER INSTALLATION. EROSION CONTROL MIX WILL REMAIN IN PLACE PER NOTE #7. THE USE OF AN EROSION CONTROL MIX BERM IS PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER.
10. ALL ERSOION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED, AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY BEFORE AND FOLLOWING ANY SIGNIFICANT RAINFALL (0.5 INCH OR MORE IN A 24-HOUR PERIOD) OR SNOW MELT OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY TURF. EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS 90% GRASS CATCH IN VEGETATED AREAS.
11. NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN ONE AND ONE HALF TO ONE (1.5 TO 1).
12. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST, USE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
13. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED BY AUG. 15 OR 45 DAYS PRIOR TO THE FIRST KILLING FROST (OCT. 1) TO PROTECT FROM SPRING RUNOFF PROBLEMS.
14. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
15. REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND PREPARED FOR FINAL SEEDING AS FOLLOWS:
    a. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P205-K20) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 LB PER 1,000 SQ. FT.).
    b. HAY MULCH AT THE RATE OF 70-90 LBS PER 1000 SQUARE FEET FOR OVER 75% COVERAGE. FOR UNPROTECTED OR WINDY AREAS, ANCHOR MULCH WITH PEG AND TWINE (1 SQ. YD./BLOCK). HYDRAULIC MULCHES MAY ALSO BE USED, APPLIED AT A RATE OF 5 LBS PER 1000 SQUARE FEET FOR PAPER MULCH OR 40 LBS PER 1000 SQUARE FEET OR AS DIRECTED BY THE MANUFACTURER. ON SLOPES GREATER THAN 3:1 EROSION CONTROL MIX MAY BE USED, SEE EROSION CONTROL MIX NOTES BELOW.
    c. FOR DISTURBED AREAS TO BE MAINTAINED IN POST-CONSTRUCTION AS A MEADOW BUFFER, APPLY A 50-50 MIX OF ERNST FUZZ N' BUZZ PREMIUM AND NATIVE CLOVER MIX AT SUPPLIERS RECOMMENDED APPLICATION RATES.
16. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS ONCE THE SITE IS STABILIZED WITH 90% GRASS CATCH IN VEGETATED AREAS. TEMPORARY EROSION AND SEDIMENT CONTROL BLANKET SHALL BE USED IN ALL DITCHES AND SWALES AS SHOWN IN DETAILS.
17. WETLANDS WILL BE PROTECTED WITH EROSION CONTROL MIX OR SILT FENCE INSTALLED AT THE EDGE FOR THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS DURING WINTER CONSTRUCTION.
18. ALL STORMWATER WILL BE PREVENTED FROM RUNNING ONTO STOCKPILES. SEDIMENT BARRIERS WILL BE INSTALLED DOWNGRADIENT OF ALL STOCKPILES.
19. PERMANENT POST-CONSTRUCTION BMP'S (VEGETATED SWALES, WET PONDS, ETC.) WILL NOT BE USED TO MANAGE FLOWS DURING CONSTRUCTION WITHOUT SPECIAL PROTECTION AND/OR RESTORATION.

ADDITIONAL TEMPORARY SEED MIXTURE (FOR PERIODS LESS THAN 12 MONTHS):

SEED	RATE
ERNST WINTER RYEGRASS	112 LBS/ACRE

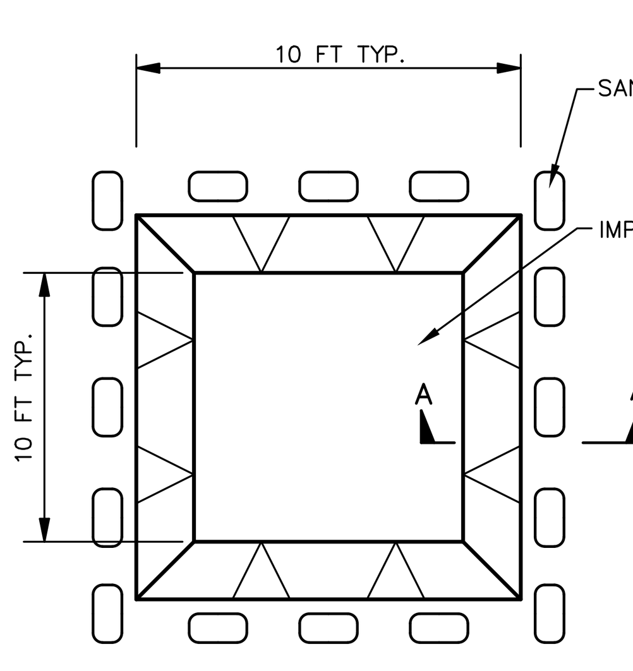
EROSION CONTROL MIX

EROSION CONTROL MIX (ECM) SHALL MEET THE REQUIREMENTS PROVIDED IN THE LATEST REVISION OF MAINE DEP'S EROSION AND SEDIMENTATION CONTROL BMP MANUAL. ECM IS ACCEPTABLE FOR USE ON SLOPES OF GREATER THAN 3:1 BUT LESS THAN 1:1. ECM SHALL CONSIST OF WELL-GRADED ORGANIC COMPONENT 50 – 100% OF DRY WEIGHT, AND COMPRISED OF FIBROUS AND ELONGATED FRAGMENTS. ECM SHALL BE FREE FROM REFUSE, MATERIAL TOXIC TO PLANT GROWTH OR CONSTRUCTION DEBRIS. ECM SHALL BE EVENLY DISTRIBUTED AND APPLIED AT A THICKNESS OF 2" ON 3:1 SLOPES, WITH AN ADDITIONAL 1/2" PER 20' OF SLOPE FOR A MAXIMUM OF 100' IN LENGTH. SLOPES GREATER THAN 3:1, ECM SHALL BE APPLIED AT THICKNESS OF 4" OR 5" FOR SLOPES GREATER THAN 60' IN LENGTH.

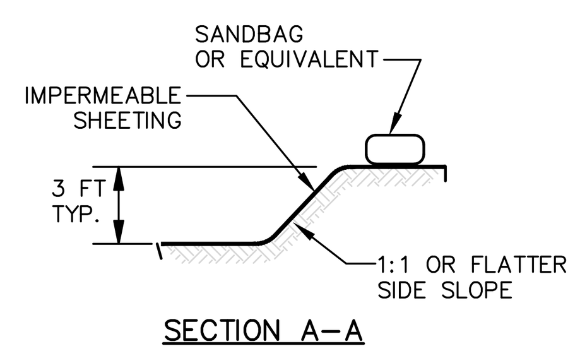
SLOPES GREATER THAN 3:1 MAY ALSO REQUIRE ADDITIONAL SLOPE STABILIZATION DEPENDING ON UPGRADIENT RUNOFF AND OTHER SITE SPECIFIC CONDITIONS. SEE SLOPE STABILIZATION DETAIL FOR ADDITIONAL INFORMATION.

DOCUMENTATION DURING CONSTRUCTION

MAINTAIN A BINDER WITH CONSTRUCTION INSPECTION FORMS SUMMARIZING THE INSPECTIONS AND ANY CORRECTIVE ACTION TAKEN. THE FORMS MUST INCLUDE THE NAME AND QUALIFICATIONS OF THE PERSON MAKING THE INSPECTIONS, THE DATE OF THE INSPECTIONS, AND MAJOR OBSERVATIONS ABOUT THE OPERATIONS AND THE MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS, MATERIALS STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE PARCEL. REFER TO APPENDIX B OF THE WRITTEN INSPECTION AND MAINTENANCE MANUAL FOR THE CONSTRUCTION INSPECTION FORM. MAJOR OBSERVATIONS MUST INCLUDE BMP'S THAT NEED MAINTENANCE, BMP'S THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE INSPECTION FORM WHAT CORRECTIVE ACTION TAKEN AND WHEN IT WAS TAKEN. THE OWNER SHALL RETAIN A COPY OF THE INSPECTION FORMS FOR A PERIOD OF AT LEAST FIVE YEARS FROM THE COMPLETION OF PERMANENT STABILIZATION.



PLAN



SECTION A–A

CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

CONCRETE WASHOUT STRUCTURE

N.T.S.

EROSION CONTROL DURING CONSTRUCTION

WINTER CONSTRUCTION

1. WINTER CONSTRUCTION PERIOD: NOVEMBER 1 THROUGH APRIL 15
2. OVERWINTER STABILIZATION OF DITCHES AND CHANNELS:
ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL GRASS LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY SEPTEMBER 1. IF A DITCH OR CHANNEL IS NOT GRASS-LINED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.
    A. INSTALL A SOD LINING IN THE DITCH:
    A DITCH MUST BE LINED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES: PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING SOD AT THE BASE OF THE DITCH WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD FROM SLOUGHING DURING FLOW CONDITIONS. SEE THE PERMANENT VEGETATION BMP SECTION.
    B. INSTALL A STONE LINING IN THE DITCH:
    A DITCH MUST BE LINED WITH STONE RIPRAP BY NOVEMBER 15. A REGISTERED PROFESSIONAL ENGINEER MUST BE HIRED TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.
3. OVERWINTER STABILIZATION OF DISTURBED SLOPES:
ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS. BY OCTOBER 1 THE DISTURBED SLOPE MUST BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET 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% OF THE SLOPE BY NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP AS DESCRIBED IN THE FOLLOWING STANDARDS.
    A. STABILIZE THE SOIL WITH SOD:
    THE DISTURBED SLOPE MUST BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1. 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 WILL NOT USE LATE SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
    B. STABILIZE THE SOIL WITH EROSION CONTROL MIX:
    EROSION CONTROL MIX MUST BE PROPERLY INSTALLED BY NOVEMBER 15. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE. SEE THE EROSION CONTROL MIX NOTES FOR ADDITIONAL CRITERIA.
    C. STABILIZE THE SOIL WITH STONE RIPRAP:
    PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.
4. OVERWINTER STABILIZATION OF DISTURBED SOILS:
BY SEPTEMBER 15, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% MUST BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS MUST BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
    A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION:
    BY OCTOBER 1, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 90% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED BELOW.
    B. STABILIZE THE SOIL WITH SOD:
    STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLINIG THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
    C. STABILIZE THE SOIL WITH MULCH:
    BY NOVEMBER 15, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL. PROVIDE NETTING ON ALL SLOPES GREATER THAN 8%.
5. MAINTENANCE:
IF AN INSPECTION DETERMINES THAT A CORRECTIVE ACTION IS REQUIRED, THE ACTION OR REPAIR SHALL BE STARTED BY THE END OF THE NEXT WORKDAY AND COMPLETED WITHIN SEVEN DAYS OR BEFORE THE NEXT STORM EVENT. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. ONCE A WEEK AND BEFORE AND 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 DAMAGES AND/OR BARE SPOTS. AN ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85 TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

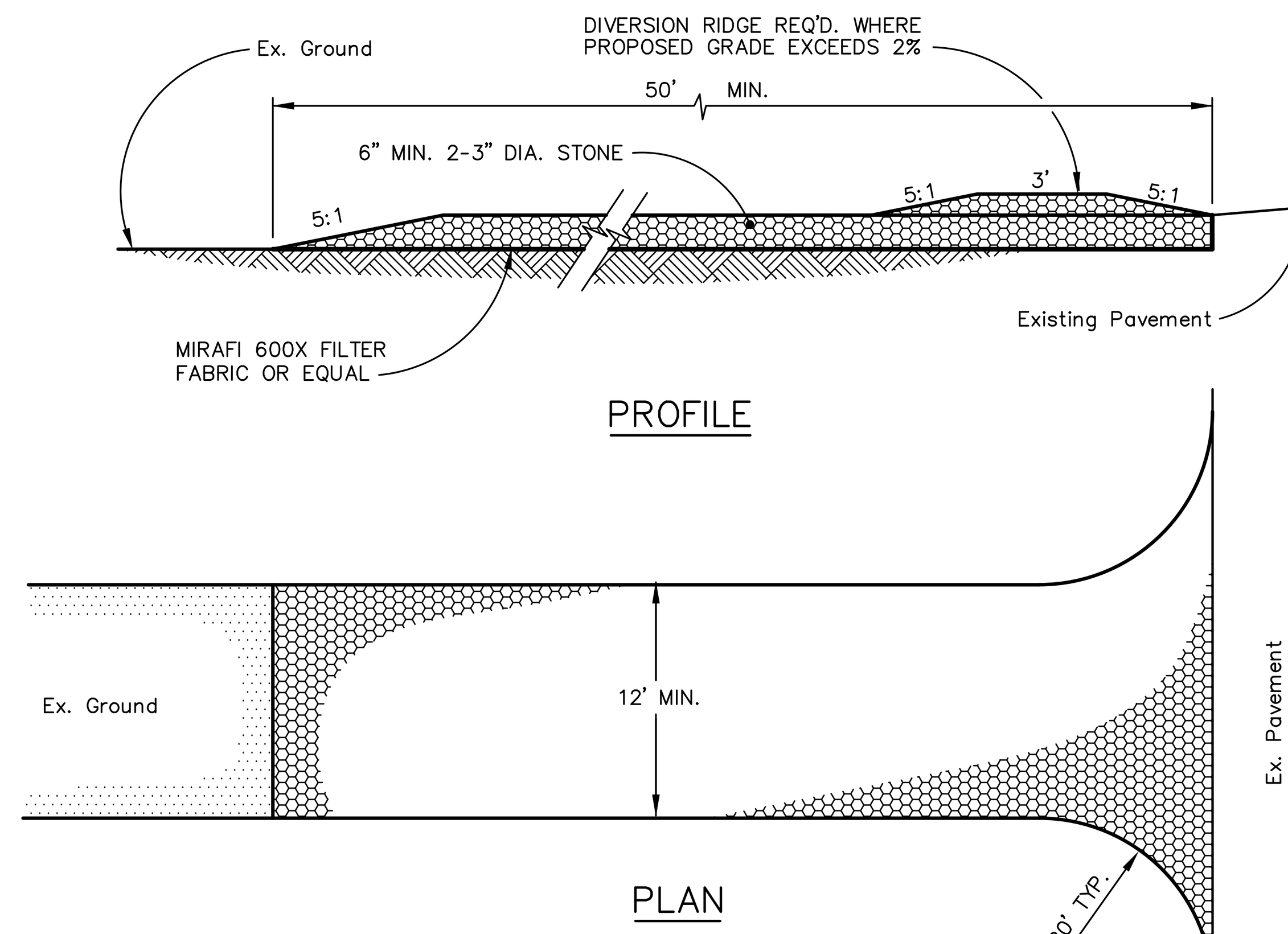
STABILIZATION SCHEDULE BEFORE WINTER:

SEPTEMBER 15	ALL DISTURBED AREAS MUST BE SEEDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDED AND MULCHED. ALL GRASS LINED DITCHES AND CHANNELS MUST BE STABILIZED WITH MULCH OR AN EROSION CONTROL BLANKET
OCTOBER 1	IF THE SLOPE IS STABILIZED WITH AN EROSION CONTROL BLANKET AND SEEDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDED AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND MULCHED.
NOVEMBER 15	ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.

6. DURING WINTER CONSTRUCTION PERIOD ALL SNOW SHALL BE REMOVED FROM AREAS OF SEEDING AND MULCHING PRIOR TO PLACEMENT.
7. AREAS WITHIN 75 FEET OF STREAMS, WETLANDS, AND OTHER PROTECTED NATURAL RESOURCES THAT ARE NOT STABILIZED WITH VEGETATION BY DEC. 1 SHALL BE MULCHED AND ANCHORED WITH NETTING. IF WORK CONTINUES IN THIS AREA DURING THE WINTER, A DOUBLE LINE OF SEDIMENT BARRIERS MUST BE USED.

HOUSEKEEPING

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS 1. ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
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.
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 MY NOT BE USED FOR DUST CONTROL. ANY OFFSITE TRACKING OF MUD OR SEDIMENT SHALL BE VACUUMED IMMEDIATELY AND PRIOR TO THE NEXT SIGNIFICANT STORM EVENT.
4. DEBRIS AND OTHER MATERIALS: LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. TRENCH OR FOUNDATION DE-WATERING: TRENCH 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 SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
6. 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:
    - DISCHARGES FROM FIREFIGHTING ACTIVITY;
    - FIRE HYDRANT FLUSHINGS;
    - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
    - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3) OF MAINE DEP 06-096 CHAPTER 500;
    - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
    - 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;
    - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
    - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
    - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
    - UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5) MAINE DEP 06-096 CHAPTER 500);
    - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
    - 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) MAINE DEP 06-096 CHAPTER 500. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
    - WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
    - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
    - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
    - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. ADDITIONAL REQUIREMENTS: ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.



NOTES:

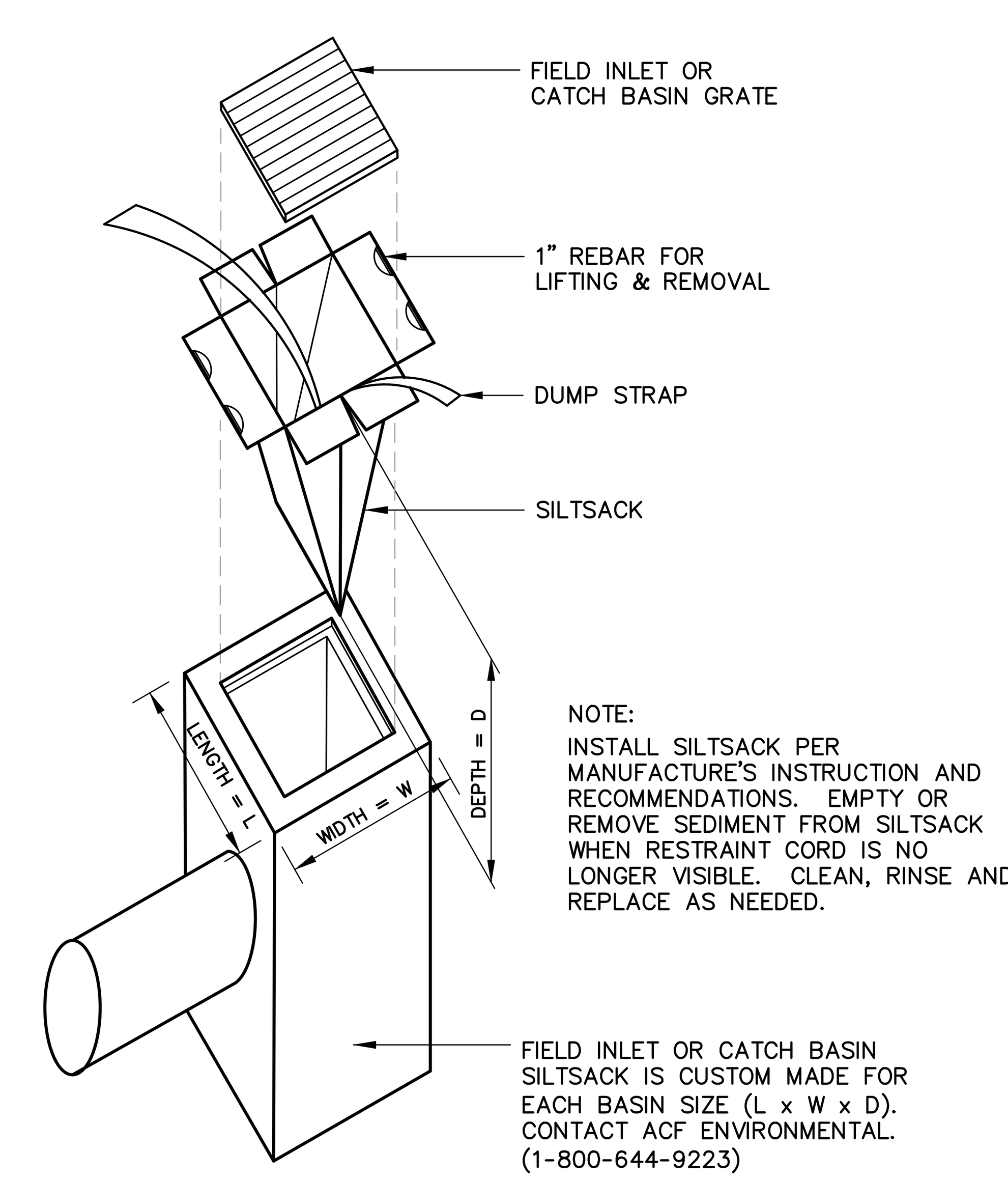
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY.

WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

NTS



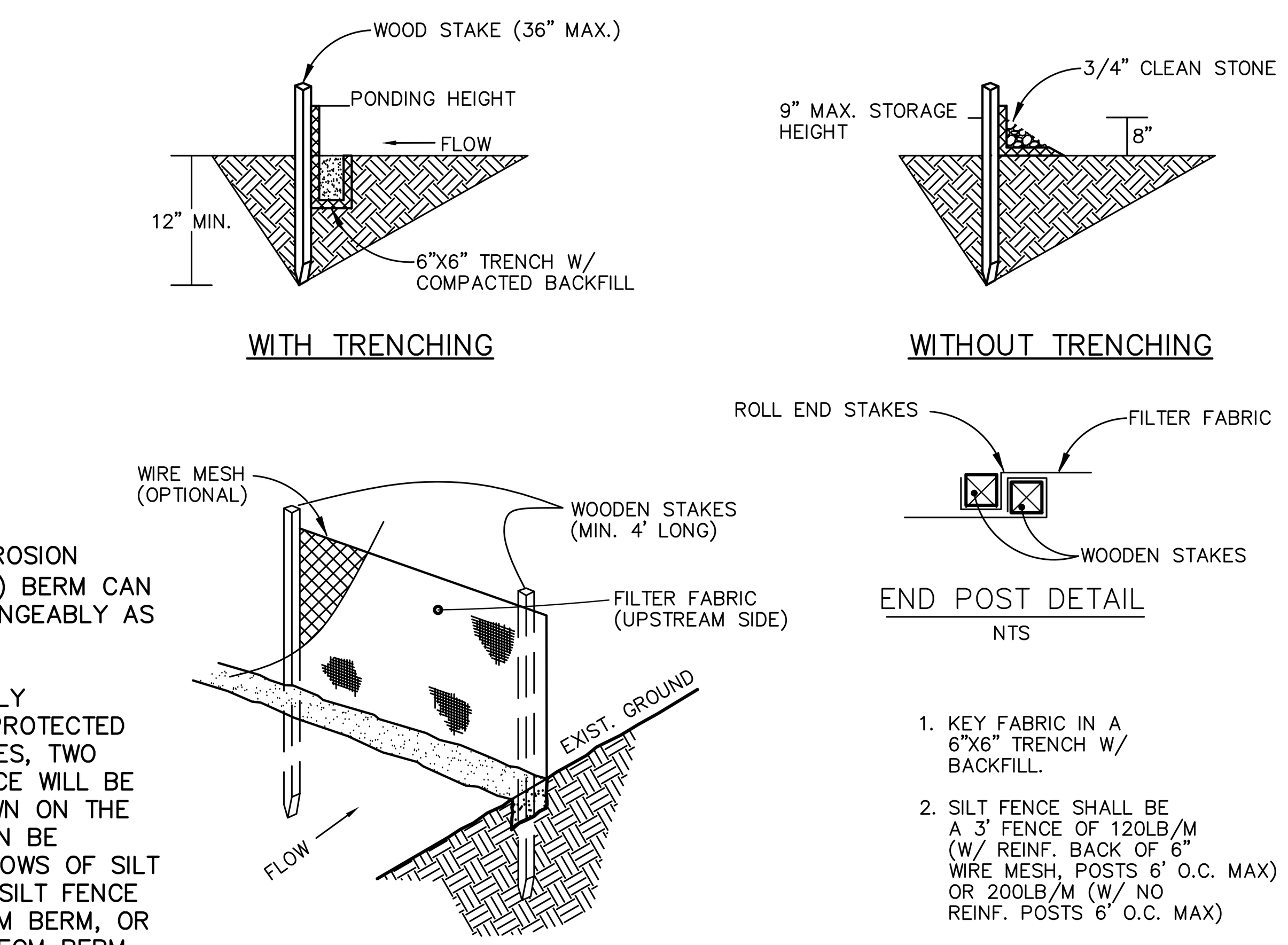
NOTE:
INSTALL SILTSACK PER MANUFACTURE'S INSTRUCTION AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE AND REPLACE AS NEEDED.

SILTSACK INLET SEDIMENT CONTROL DEVICE

NTS

SILT BARRIER NOTES:

1. SILT FENCE AND EROSION CONTROL MIX (ECM) BERM CAN BE USED INTERCHANGEABLY AS SILT BARRIERS.
2. FOR AREAS DIRECTLY UP-GRADIENT OF PROTECTED NATURAL RESOURCES, TWO ROWS OF SILT FENCE WILL BE REQUIRED AS SHOWN ON THE PLANS. THESE CAN BE COMPRISED OF 2 ROWS OF SILT FENCE, A ROW OF SILT FENCE AND A ROW OF ECM BERM, OR A SINGLE ROW OF ECM BERM CONSTRUCTED TO TWICE THE DIMENSION (24" TALL, 48" WIDE)



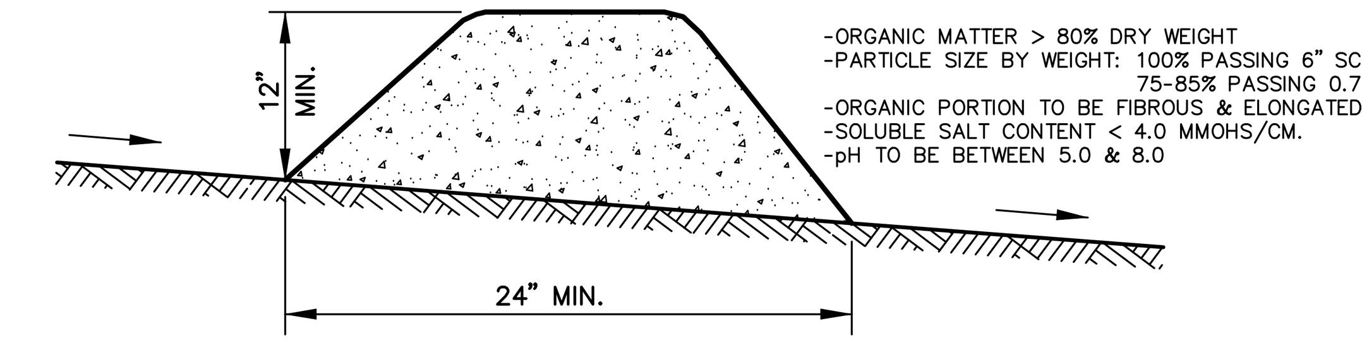
1. KEY FABRIC IN A 6"X6" TRENCH W/ BACKFILL.
2. SILT FENCE SHALL BE A 3' FENCE OF 120LB/M (W/ REINF. BACK OF 6" WIRE MESH, POSTS 6' O.C. MAX) OR 200LB/M (W/ NO REINF. POSTS 6' O.C. MAX)

SILT FENCE DETAIL

N.T.S.

PLACE BARRIER ALONG RELATIVELY LEVEL CONTOUR.
ECM BERM PROHIBITED AT THE BASE OF SLOPES > 8% OR WHERE THERE IS FLOWING WATER.
SEE MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS FOR INSTALLATION INSTRUCTIONS.

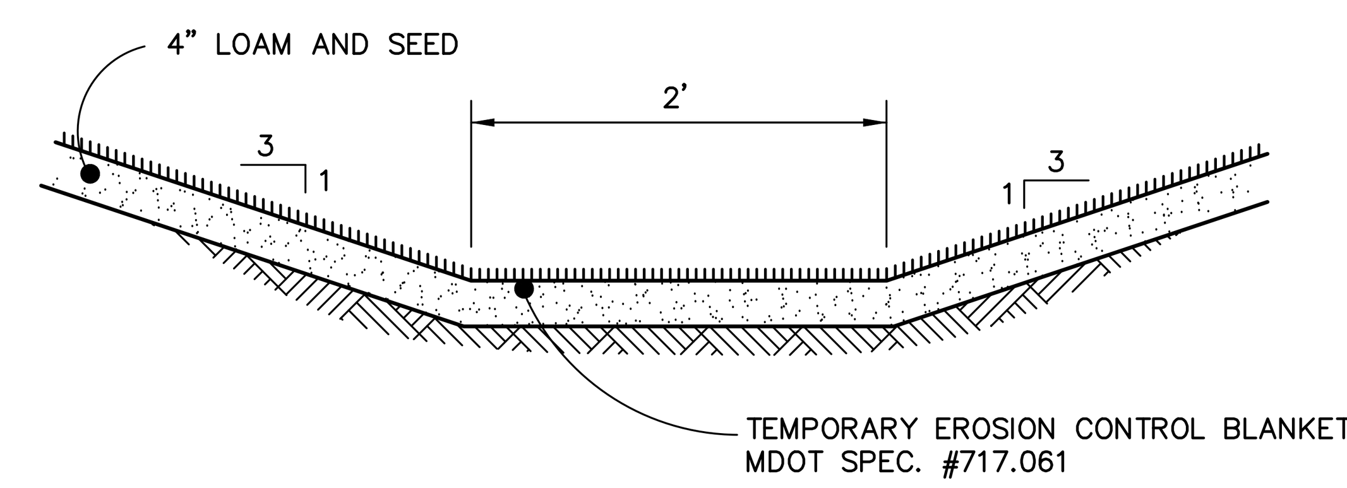
EROSION CONTROL MIX SHOULD CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. ECM SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINATES, AND MATERIAL TOXIC TO PLANT GROWTH.



- ORGANIC MATTER > 80% DRY WEIGHT
- PARTICLE SIZE BY WEIGHT: 100% PASSING 6" SCREEN
  75-85% PASSING 0.75" SCREEN
- ORGANIC PORTION TO BE FIBROUS & ELONGATED
- SOLUBLE SALT CONTENT < 4.0 MMOHS/CM.
- pH TO BE BETWEEN 5.0 & 8.0

EROSION CONTROL MIX BERM

NTS

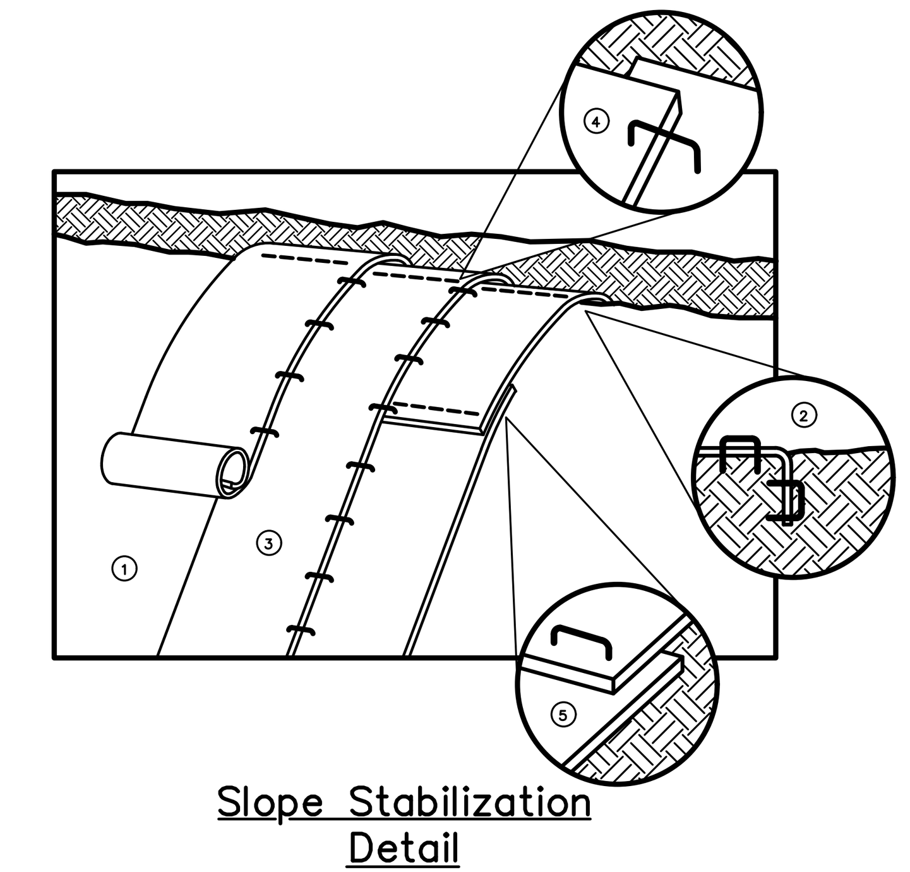


VEGETATED DITCH DETAIL

NTS

1. Prepare soil before installing blankets, including lime, fertilzer & seed.
2. Begin at top of slope by anchoring blanket in 6" x 6" trench. Backfill & compact trench after stapling.
3. Roll blankets down or horizontally across slope.
4. The edges of parallel blankets must be stapled with approx. 2" overlap.
5. When blankets must be spliced down the slope, place blankets end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart.

Slope Stabilization:
Erosion Control Blanket shall be in accordance with M.D.O.T. standard specifications, Section 6.13, Temporary Erosion Control Blankets and Extended Use Erosion Control Blankets.



Slope Stabilization Detail

N.T.S.

REVISION		
NO.	DATE	DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
2	5/28/26	Revised to Address Comments from City of Portland

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine

EROSION CONTROL DETAILS

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	March 2026
DRAWN	SCALE
Dept.	As Noted
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
5

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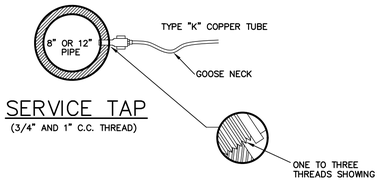
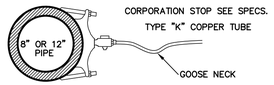
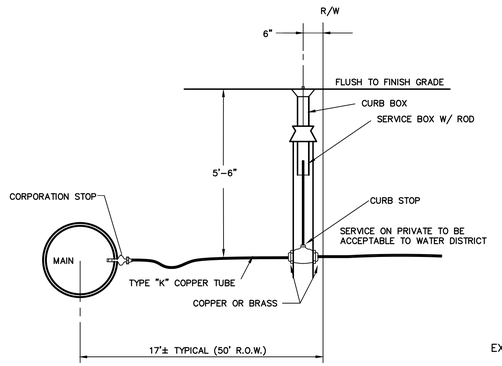


SERVICE TAP
(3/4" AND 1" C.C. THREAD)



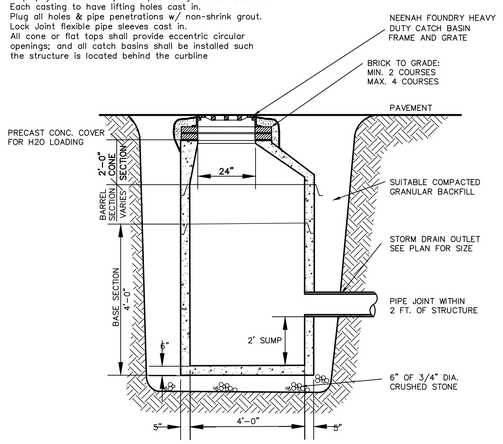
SERVICE SADDLE
(1-1/2" & 2" C.C. OR IRON PIPE THREAD)

NOTE: SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR "GOOSENECK" IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND "GIVE" TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSON AND/OR CONTRACTION (SEE DETAILS).

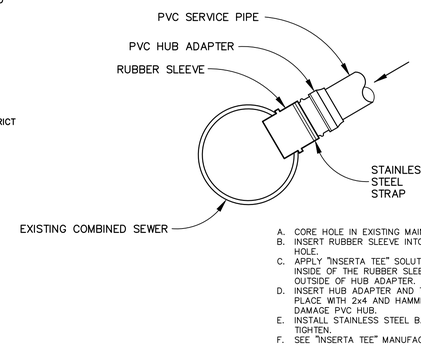


TYPICAL SERVICE CONNECTION
N.T.S.

Manhole shall conform to ASTM C478.
Concrete: 4,000 PSI after 28 days.
Reinforcing: H20 loading.
Shiplap joints sealed w/ 1 strip of Butyl Rubber Sealant.
Each casting to have lifting holes cast in.
Plug all holes & pipe penetrations w/ non-shrink grout.
Lock joint flexible pipe sleeves cast in.
All cone or flat tops shall provide eccentric circular openings; and all catch basins shall be installed such the structure is located behind the curbline

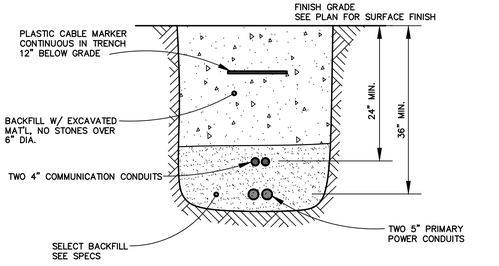


PRECAST CONCRETE CATCH BASIN DETAIL
N.T.S.



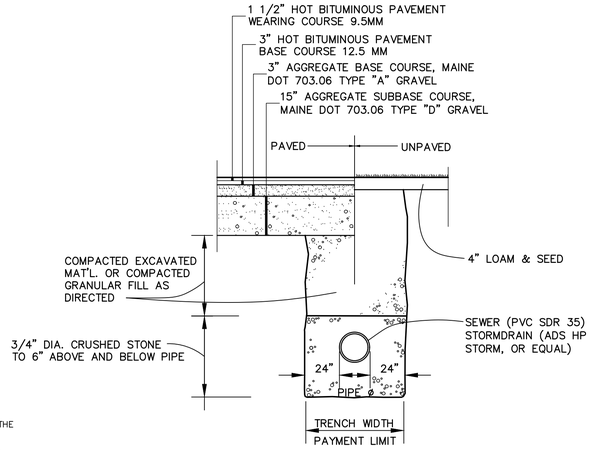
A. CORE HOLE IN EXISTING MAIN.
B. INSERT RUBBER SLEEVE INTO CORED HOLE.
C. APPLY "INSERTA TEE" SOLUTION TO THE INSIDE OF THE RUBBER SLEEVE AND OUTSIDE OF HUB ADAPTER.
D. INSERT HUB ADAPTER AND TAP INTO PLACE WITH 2x4 AND HAMMER TO NOT DAMAGE PVC HUB.
E. INSTALL STAINLESS STEEL BAND AND TIGHTEN.
F. SEE "INSERTA TEE" MANUFACTURER SPECS.

INSERTA-TEE CONNECTION
NTS



NOTE:
CONCRETE ENCASEMENT FOR PRIMARY POWER REQUIRED FOR ANY PAVEMENT CROSSINGS

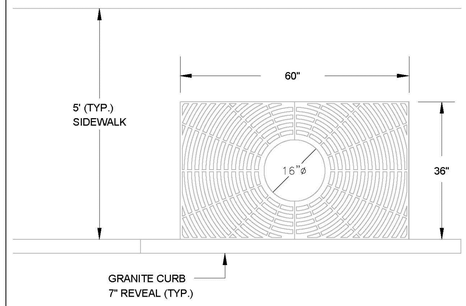
UNDERGROUND CABLE TRENCH
NTS



NOTES:
1. Trench width shown is payment width for rock excavation & replacement of unsuitable material.
2. Do not mechanically compact directly over flexible pipe (e.g. PVC, Poltyethylene)
3. Concrete pipe shall have sand bedding.
4. Pay limits for all trench excavation shall include pipe diameter and 24" either side. Wider necessary trench widths shall be considered incidental.

SEWER AND DRAIN TRENCH DETAIL

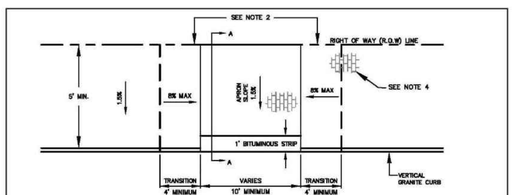
NOTES:
1. 16"Ø EXPANDABLE TREE OPENING. 0.25" SLOT OPENINGS.
2. ALL TREE GRATES SHALL COMPLY WITH CITY TECHNICAL STANDARDS AND MUST BE APPROVED BY THE CITY ARBORIST.
3. FINAL PLACEMENT LOCATION OF TREE GRATES SHALL BE APPROVED BY DPW AND SHALL CONSIDER SIDEWALK WIDTH AND ADA COMPLIANCE, ON-STREET PARKING CONFIGURATIONS, ABOVE AND BELOW GROUND UTILITIES AND OTHER OBSTRUCTIONS.
4. SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY. SEE SIDEWALK CONSTRUCTION DETAILS IN SECTION 1 OF THE TECHNICAL MANUAL.
5. WHEN THE TREE GRATE IS INSTALLED IN A CONCRETE SIDEWALK, A NOTCH MUST BE INSTALLED ALONG THE EDGE TO HOLD THE GRATE. WHEN INSTALLED IN A BRICK SIDEWALK IT REQUIRES A FRAME TO BE INSTALLED TO HOLD THE GRATE IN PLACE.



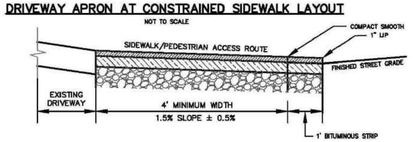
PLAN VIEW

EXPANDABLE TREE GRATE WITH FRAME
NEENAH MODEL R-8810
NOT TO SCALE
http://www.nfco.com/literature/TreeGrateCatalog22/Avenue.pdf

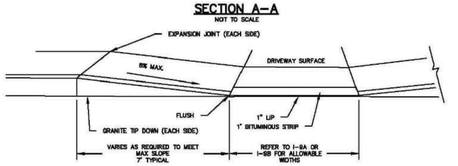
DATE: NOV. 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	LANDSCAPE AND LANDSCAPING PRESERVATION EXISTING VEGETATION STANDARDS - SECTION IV	FIGURE:
REVISED:	EXPANDABLE TREE GRATE WITH FRAME FOR NARROW RESIDENTIAL URBAN STREETS		IV-4A



DRIVEWAY APRON AT CONSTRAINED SIDEWALK LAYOUT
NOT TO SCALE

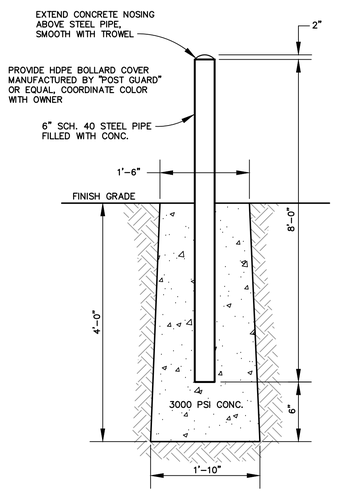


SECTION A-A
NOT TO SCALE

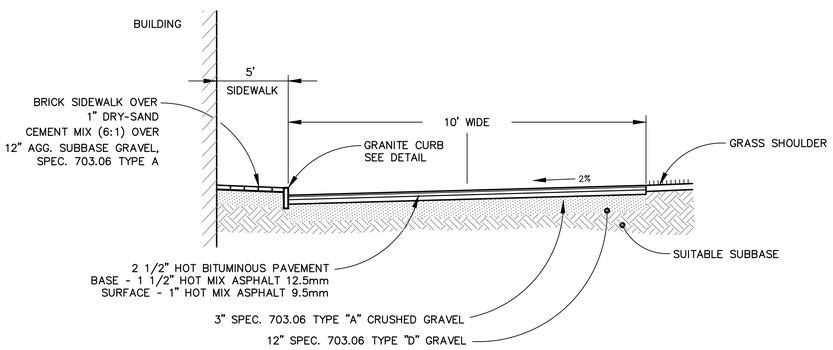


NOTES:
1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. SIDEWALK TRANSITION SLOPE SHALL NOT EXCEED 8.33% RAMP LENGTH SHALL ACCOMMODATE THIS CONSTRAINT UP TO 15 FOOT RAMP LENGTH OR AS OTHERWISE REQUIRED BY ADA STANDARDS.
3. MOUNTABLE CURB (SEE DETAIL I-15) OR INCREASE IF BITUMINOUS LIP IS PREFERRED TO MAINTAIN SIDEWALK GRADE THROUGH APRON.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.

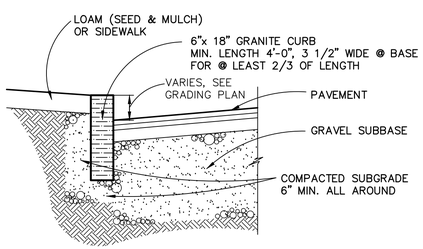
DATE: NOV. 2022	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	TRANSPORTATION DESIGN STANDARDS SECTION I	FIGURE:
REVISED:	DRIVEWAY APRON AT CONSTRAINED SIDEWALKS		I-9C



STEEL BOLLARD DETAIL
NTS



TYPICAL DRIVEWAY SECTION
NTS



VERTICAL GRANITE CURB DETAIL
N.T.S.

NO.	DATE	REVISION DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
2	5/28/26	Revised to Address Comments from City of Portland

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Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

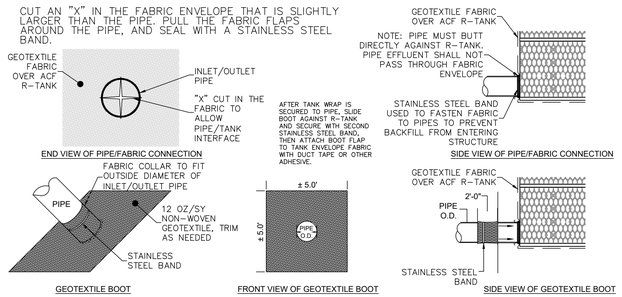
FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine

DETAILS

DASHAWAY COMMONS
15 & 19 CEDAR STREET
PORTLAND, MAINE

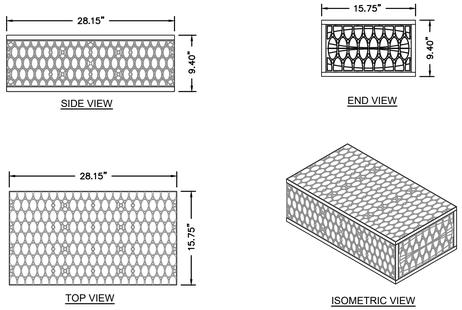
DESIGNED	DATE
C. MacDonald	March 2026
DRAWN	SCALE
Dept.	As Noted
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
6



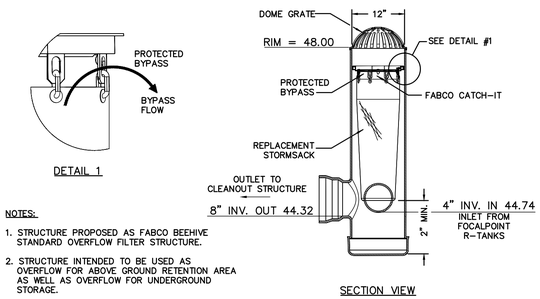
PIPE BOOT DETAIL

NTS



R-TANK^{SD} SINGLE CHAMBER

NTS

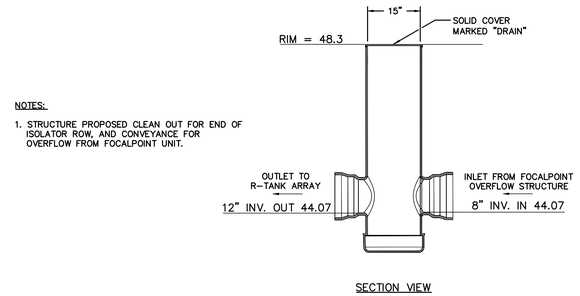


NOTES:

1. STRUCTURE PROPOSED AS FABCO BEEHIVE STANDARD OVERFLOW FILTER STRUCTURE.
2. STRUCTURE INTENDED TO BE USED AS OVERFLOW FOR ABOVE GROUND RETENTION AREA AS WELL AS OVERFLOW FOR UNDERGROUND STORAGE.

OVERFLOW STRUCTURE

NTS

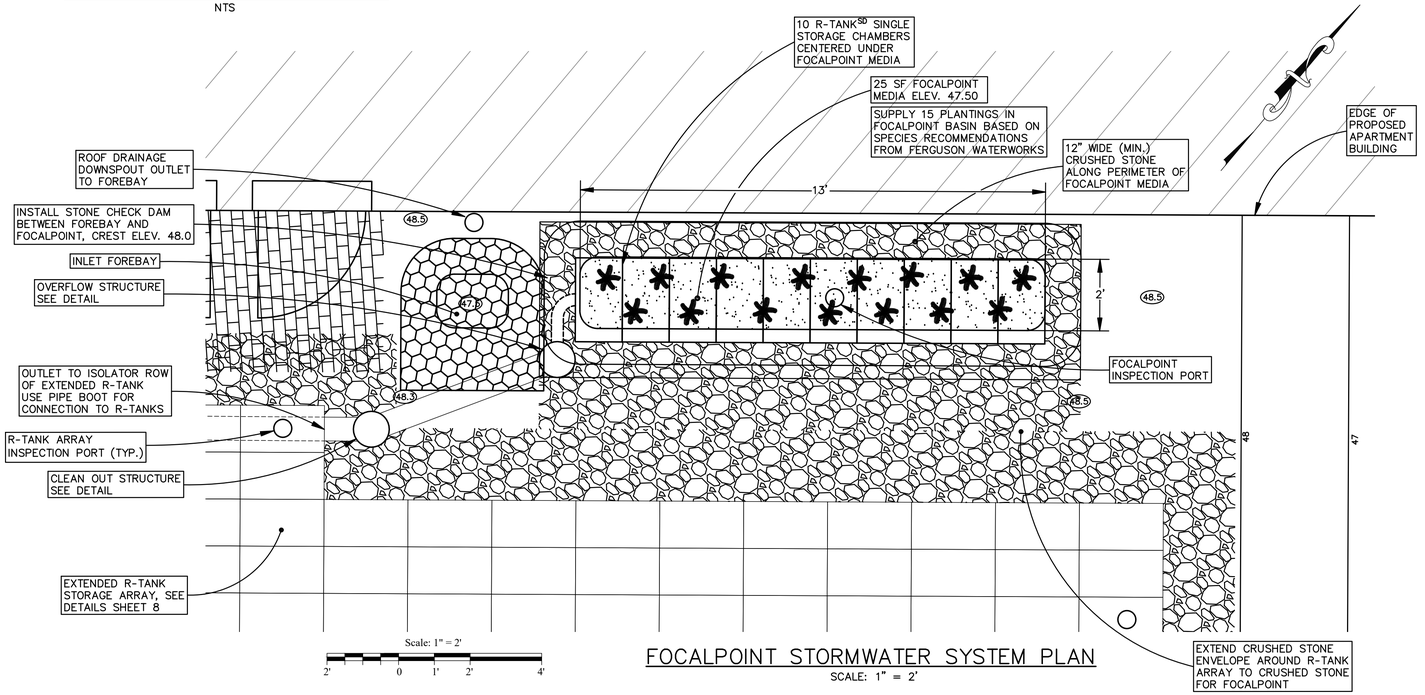


NOTES:

1. STRUCTURE PROPOSED CLEAN OUT FOR END OF ISOLATOR ROW, AND CONVEYANCE FOR OVERFLOW FROM FOCALPOINT UNIT.

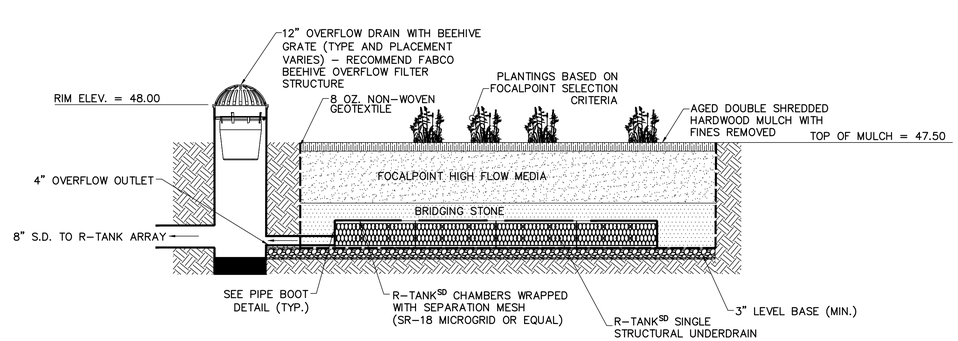
CLEANOUT STRUCTURE

NTS



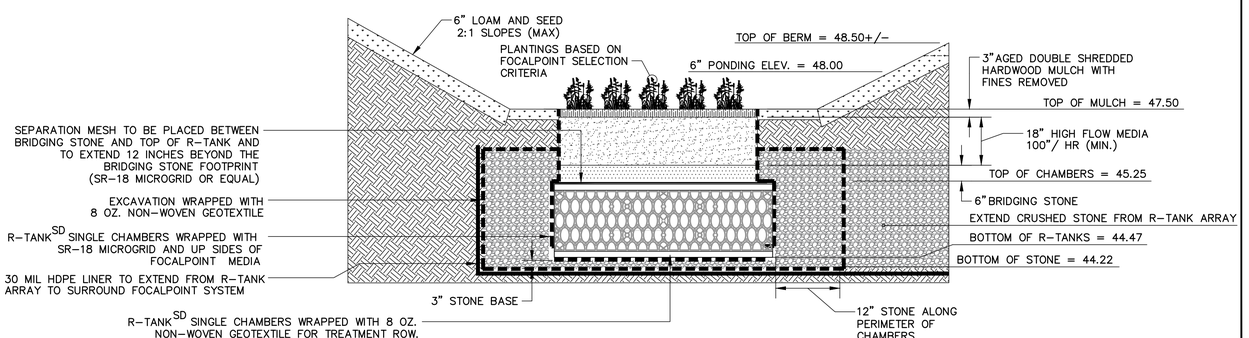
FOCALPOINT STORMWATER SYSTEM PLAN

SCALE: 1" = 2'



FOCALPOINT TYPICAL OVERFLOW SECTION

NTS



FOCALPOINT MEDIA TYPICAL SECTION

NTS

NO.	DATE	REVISION DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
2	5/28/26	Revised to Address Comments from City of Portland

BH2M
Berry, Huff, McDonald, Milligan Inc.
Engineers, Surveyors
380B Main Street
Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

FOCALPOINT DETAILS

DASHAWAY COMMONS

15/19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	March 2026
DRAWN	SCALE
Staff	As Noted
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
7

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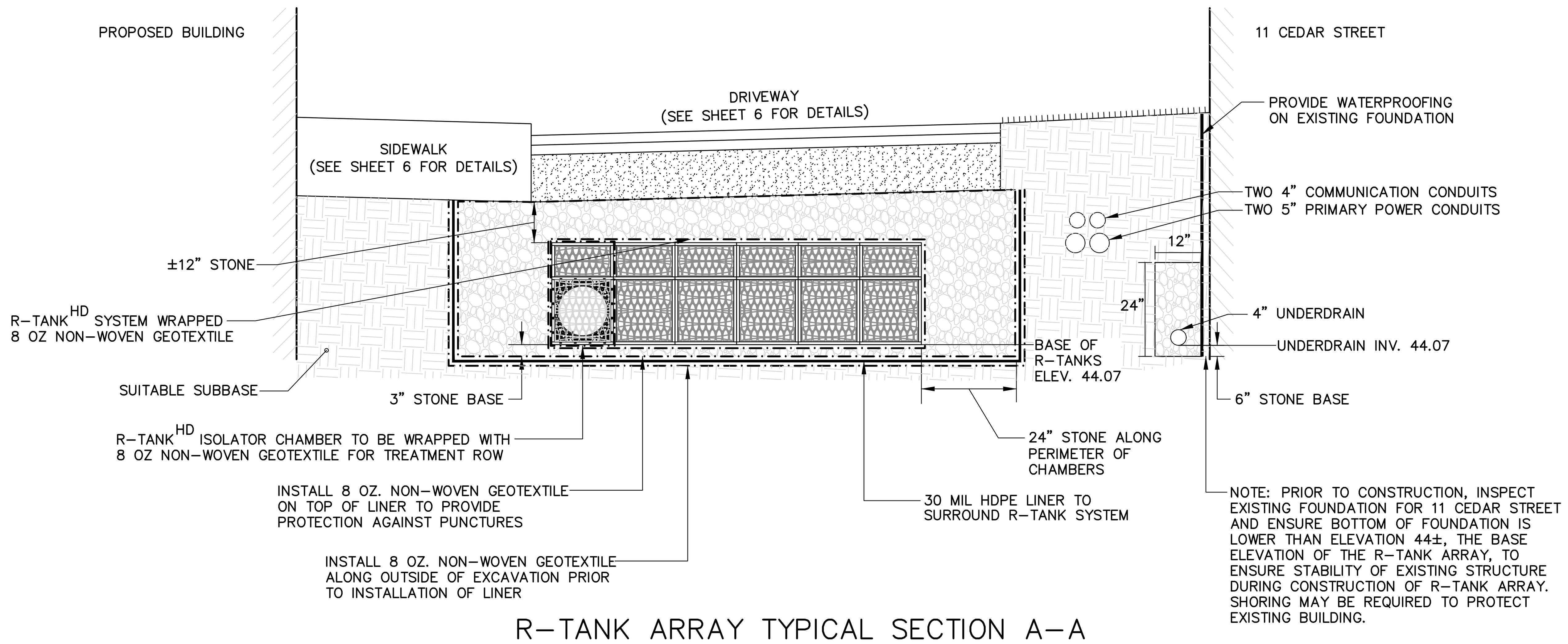
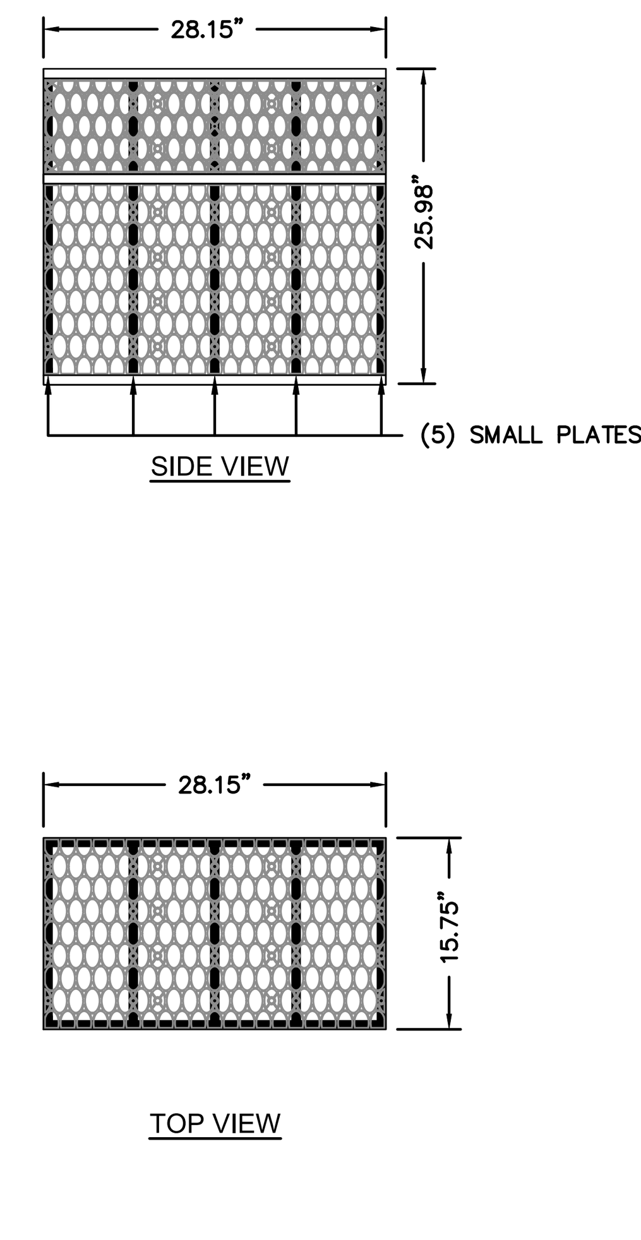


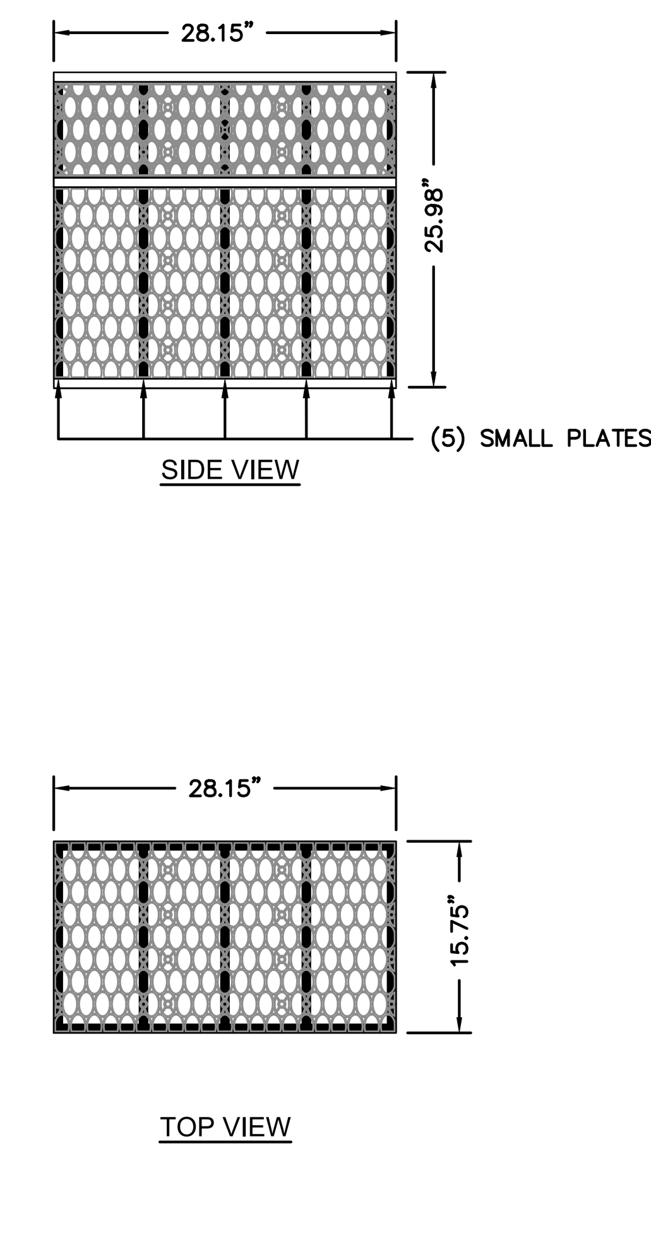
R-TANK ARRAY TYPICAL SECTION A–A

1" = 2'



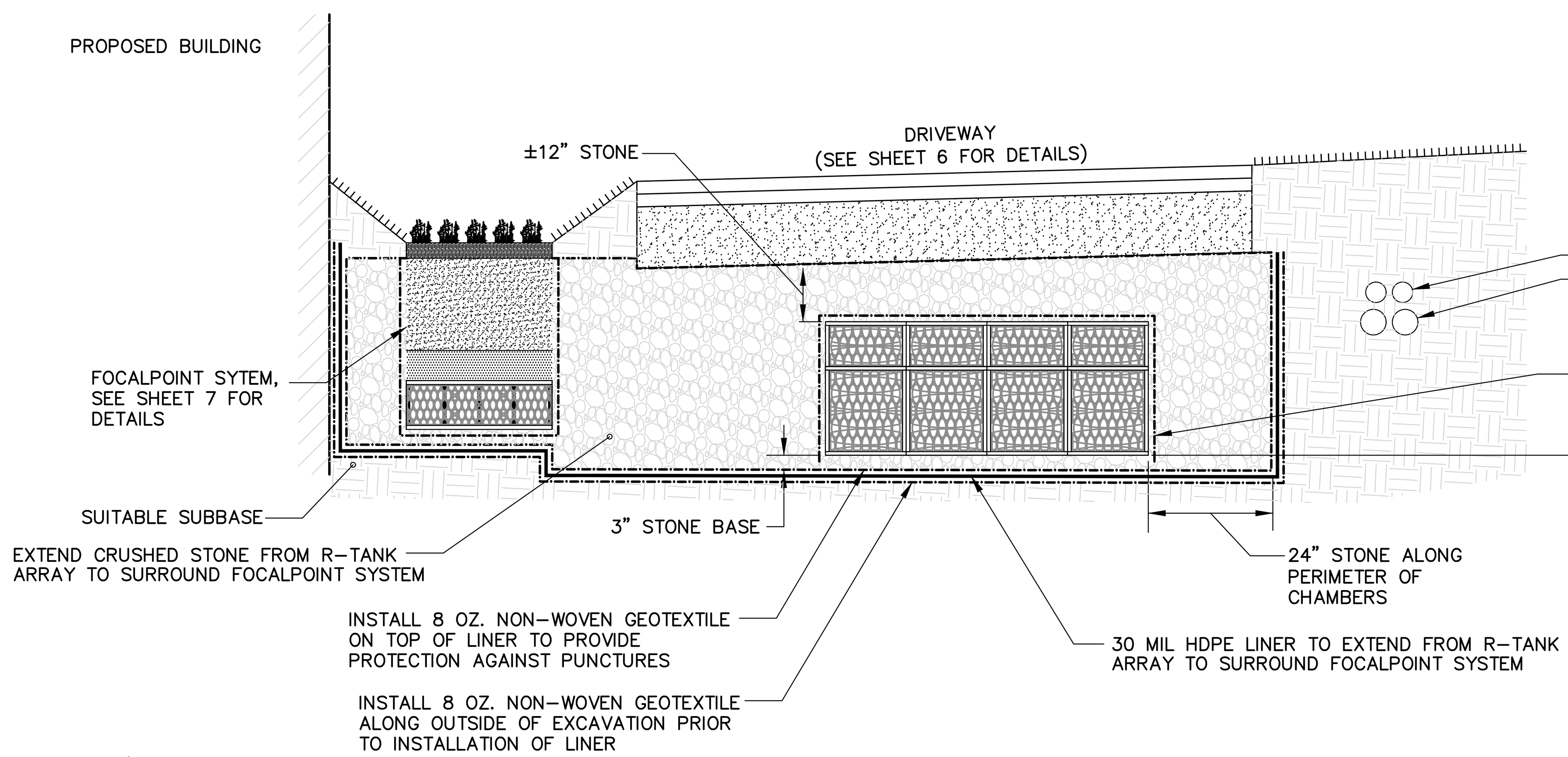
R-TANK^{HD} SINGLE+MINI MODULE

NTS



R-TANK^{HD} ISOLATOR ROW MODULE

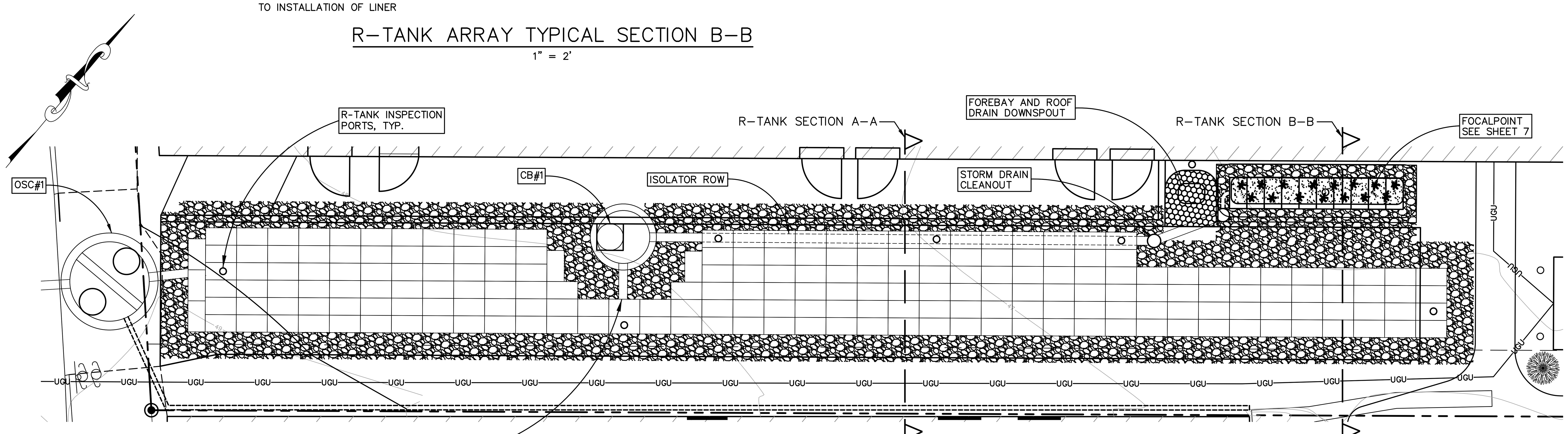
NTS



R-TANK ARRAY TYPICAL SECTION B–B

1" = 2'

POND DT-1
2 YEAR STORM - 45.45
10 YEAR STORM - 45.68
25 YEAR STORM - 45.83



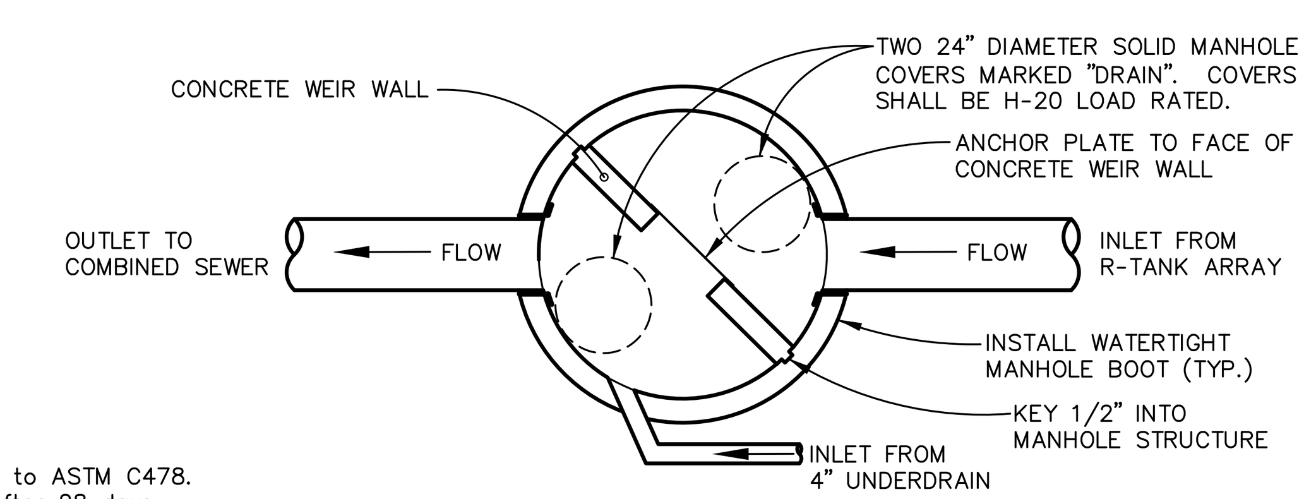
R-TANK ARRAY PLAN VIEW

Scale: 1" = 5'

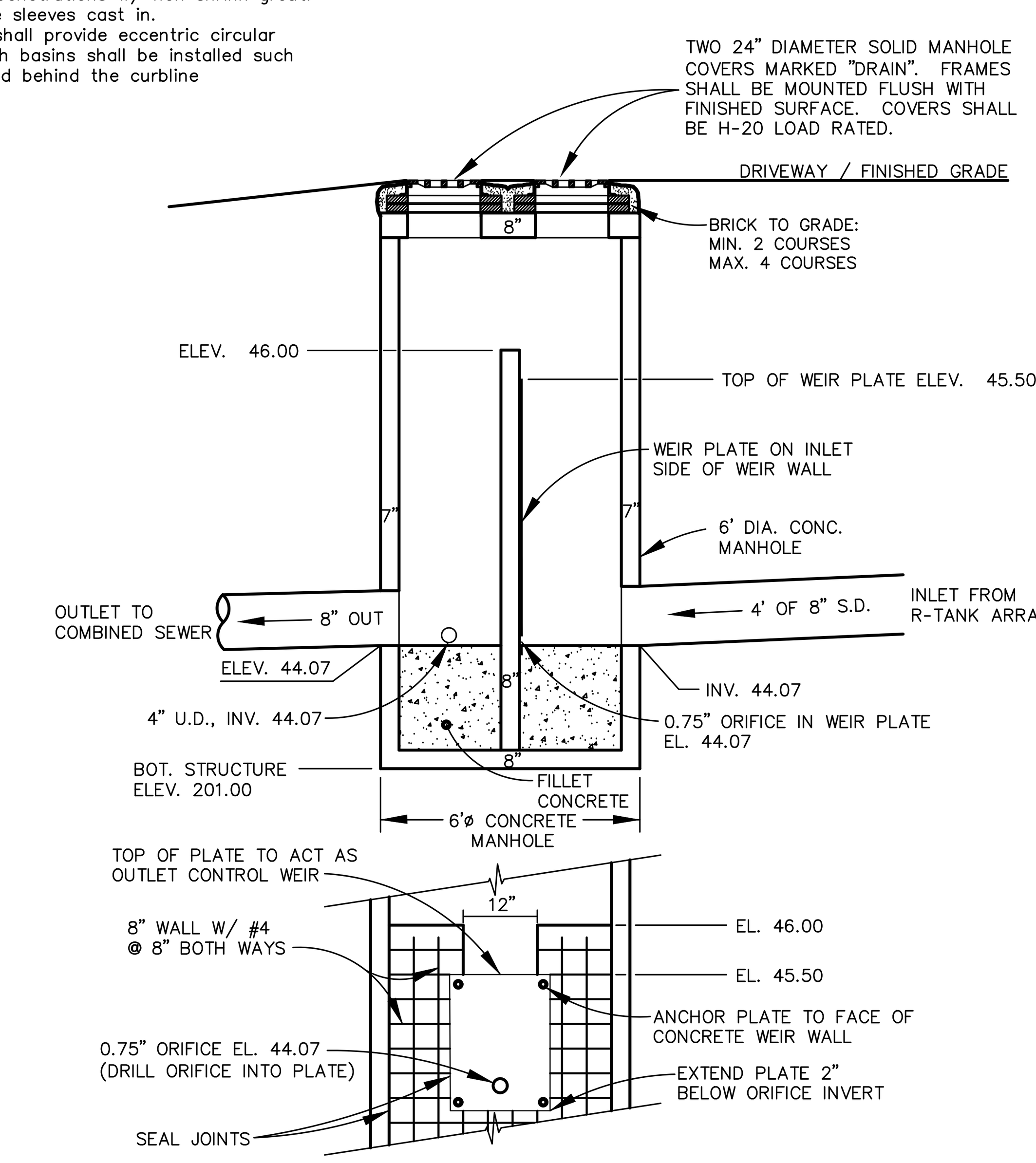
5' 0 5' 10'

NOTE:

1. SEE UTILITY PLAN, SHEET 4 FOR DETAILS ON STORM DRAIN CONNECTIONS INCLUDING PIPE SIZES AND INVERTS



Manhole shall conform to ASTM C478.
Concrete: 4,000 PSI after 28 days.
Reinforcing: H20 loading.
Shiplap joints sealed w/ 1 strip of Butyl Rubber Sealant.
Each casting to have lifting holes cast in.
Plug all holes & pipe penetrations w/ non-shrink grout.
Lock Joint flexible pipe sleeves cast in.
All cone or flat tops shall provide eccentric circular openings; and all catch basins shall be installed such the structure is located behind the curbline



OUTLET CONTROL STRUCTURE

NTS

NO.	DATE	REVISION DESCRIPTION
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Engineers, Surveyors
380B Main Street
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Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine

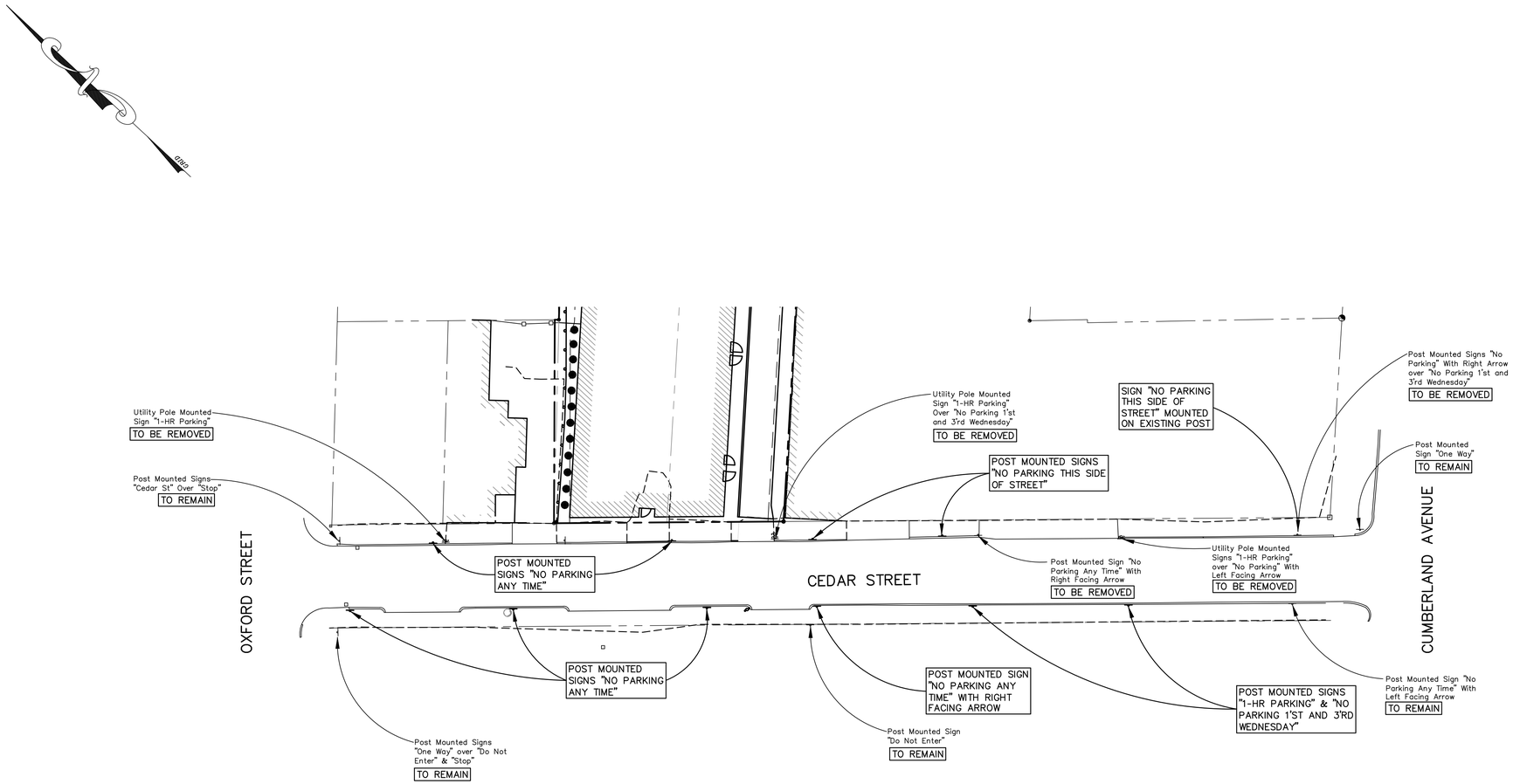
SUBSURFACE STORMWATER DETAILS

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	March 2026
DRAWN	SCALE
Dept.	As Noted
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
8



Scale: 1" = 20'

20' 0 20' 40'

NOTES

1. COORDINATE WITH CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS ON SPECIFIC SIGN CONTENTS AND LATEST STANDARDS.

LEGEND

SYMBOL	DESCRIPTION
	EXISTING SIGN
	PROPOSED SIGN
	UTILITY POLE
	PROPERTY LINE
	ABUTTER PROPERTY LINE
	EDGE OF PAVEMENT / BACK OF SIDEWALK
	CURB LINES
	EXISTING STOCKADE FENCE

REVISION NO.	DATE	DESCRIPTION
2	5/28/26	Created to Address Comments from City of Portland

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Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine 04101

CEDAR STREET PARKING RECONFIGURATION PLAN

DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	May 2026
DRAWN	SCALE
Dept.	1" = 20'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
9

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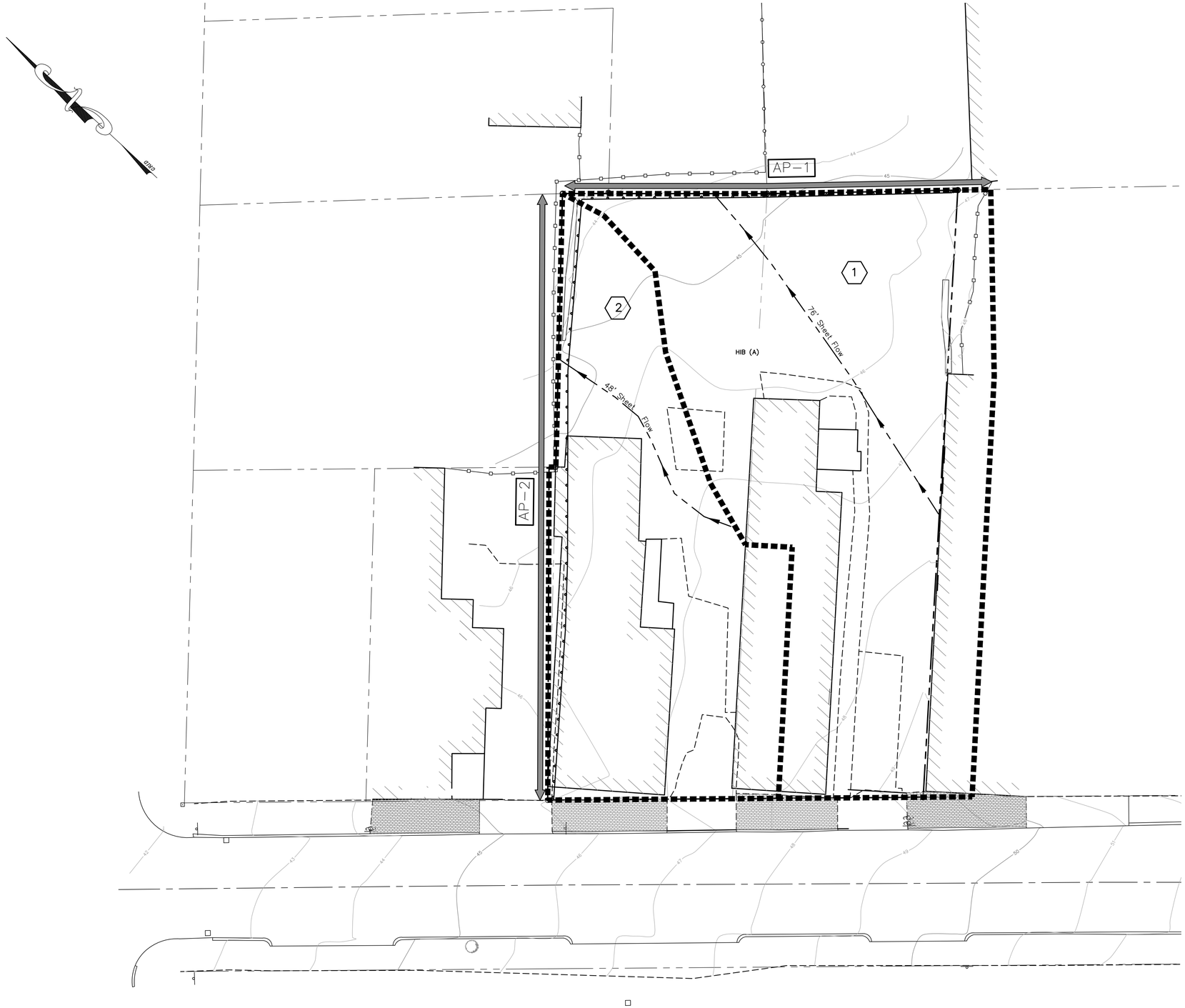

LEGEND

SYMBOL	DESCRIPTION
(2)	DRAINAGE SUB AREA
	DRAINAGE AREA BOUNDARY
64	TIME OF CONCENTRATION ROUTE EXISTING CONTOUR

PRE DEVELOPMENT FLOWS

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1	0.04 CFS	0.16 CFS	0.29 CFS
AP-2	0.11 CFS	0.22 CFS	0.33 CFS
SUM OF OFF-SITE RUNOFF	0.15 CFS	0.38 CFS	0.62 CFS

SOIL DESIGNATION

AdB(A)
- SLOPE DESIGNATION
- HYDROLOGIC SOIL GROUP
- HYDROLOGIC SOIL

HYDROLOGIC SOIL GROUP	
SOIL	GROUP
HINCKLEY (HIB)	A

Scale: 1" = 10'
10' 0 10' 20'

NO.	DATE	REVISION DESCRIPTION
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Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine

PRE-DEVELOPMENT STORMWATER
AVESTA CEDAR STREET
15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	February 2025
DRAWN	SCALE
Staff	1" = 10'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
A

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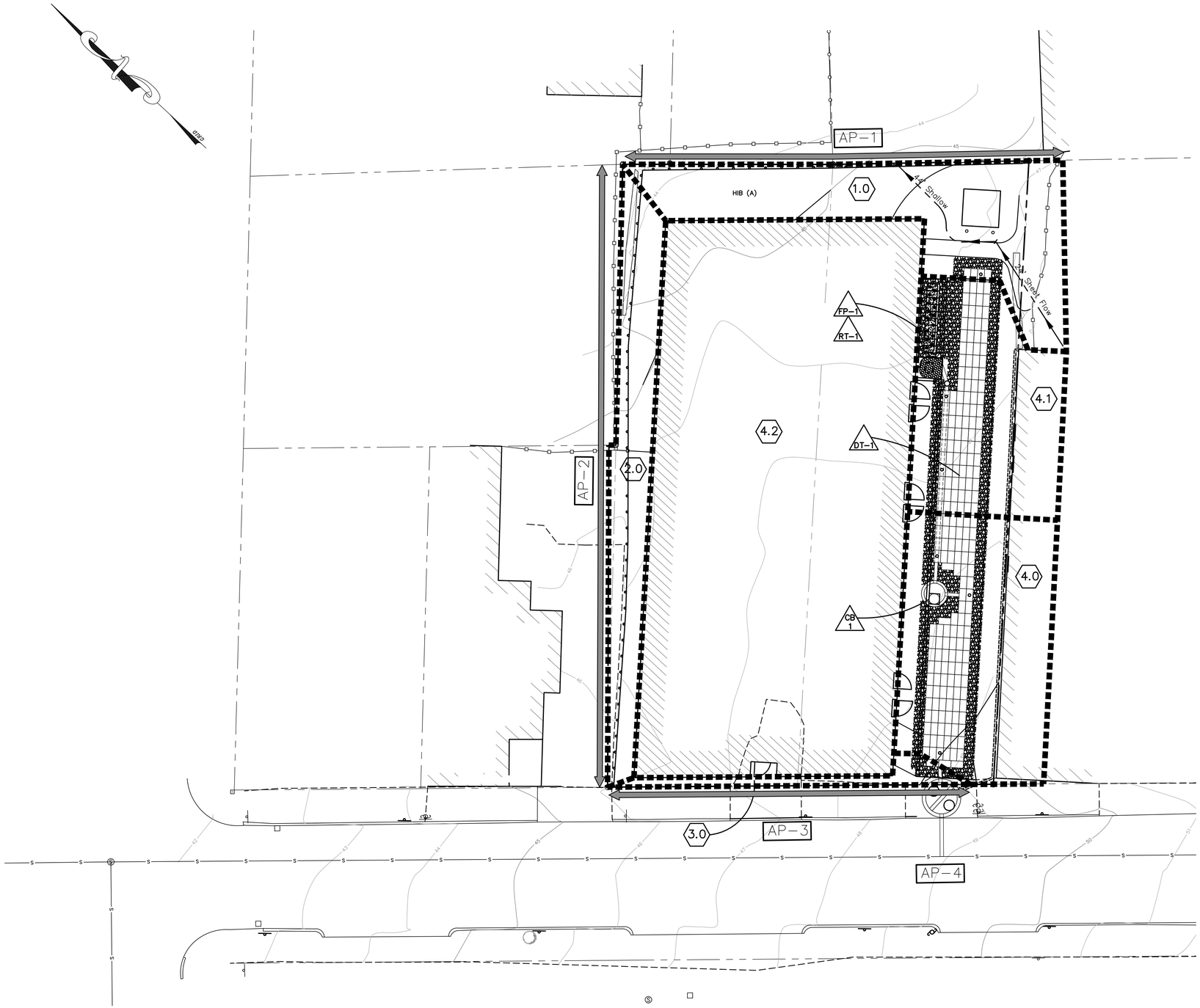

LEGEND

SYMBOL	DESCRIPTION
12	POND
12	DRAINAGE SUB AREA
	DRAINAGE AREA BOUNDARY
	TIME OF CONCENTRATION ROUTE
64	EXISTING CONTOUR
64	PROPOSED CONTOUR

POST DEVELOPMENT FLOWS

ANALYSIS POINT	2 YR. STORM	10 YR. STORM	25 YR. STORM
AP-1	0.00 CFS	0.00 CFS	0.01 CFS
AP-2	0.00 CFS	0.00 CFS	0.00 CFS
AP-3	0.01 CFS	0.02 CFS	0.02 CFS
AP-4	0.01 CFS	0.23 CFS	0.54 CFS
SUM OF OFF-SITE RUNOFF	0.02 CFS	0.25 CFS	0.57 CFS

SOIL DESIGNATION

AdB(A)
- SLOPE DESIGNATION
- HYDROLOGIC SOIL GROUP
- HYDROLOGIC SOIL

HYDROLOGIC SOIL GROUP

SOIL	GROUP
HINCKLEY (HIB)	A

Scale: 1" = 10'
10' 0 10' 20'

NO.	DATE	REVISION DESCRIPTION
1	3/26/26	Initial City of Portland Major Site Plan Application
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Gorham, Maine 04038
Tel. (207) 839-2771
www.bh2m.com

FOR
Avesta Housing
307 Cumberland Avenue
Portland, Maine

POST-DEVELOPMENT STORMWATER
DASHAWAY COMMONS

15 & 19 CEDAR STREET
PORTLAND, MAINE

DESIGNED	DATE
C. MacDonald	February 2025
DRAWN	SCALE
Staff	1" = 10'
CHECKED	JOB. NO.
C. MacDonald	24245

SHEET
B

G:\2024\24245\Post Stormwater dwg, 5/28/2026 4:27:19 PM

architecture invivid
631 Stevens Ave Ste #200
Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

Revisions:

EXTERIOR RENDERING

Scale:

05/28/2026

A0.03

architecture invivid
631 Stevens Ave Ste #200
Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

Revisions:

EXTERIOR RENDERING

Scale:

05/28/2026

A0.01

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Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

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Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

Revisions:

EXTERIOR RENDERING

Scale:

05/28/2026

A0.02

Zoning : RN4
Land Area: 8,879 sf
Lot area per dwelling unit (MIN 725 sf): 8,879 / 725 = 12 Units allowed

Using the density bonuses listed in table 17-B we should be allowed:

10-19% low-income or workforce units (1.1 X base): 13 units
20-29% low-income or workforce units (1.25 X base): 15 units
30-49% low-income or workforce units (1.3 X base): 15 Units
50-74% low-income or workforce units (2.5 X base): 30 Units
>75% low-income or workforce units (2.5 X base): 30 units

Setback

Front: Average of adjacent front yards minus 5 ft	(1' 8"	Provided)
Right Side: 5 ft	(20' 0"	Provided)
Left Side: 5 ft	(5' 1"	Provided)
Rear: 10 ft	(10' 1"	Provided)

Structure Height: 55 ft MAX (Overlay Map)	(54' 11"	Provided)
Lot Coverage: 60% = 5,226 sf	(59%: 5,226 gsf	Provided)
Landscaped open space ratio : 20% = 1775.79 sf		

GROSS BUILDING AREA	
LEVEL	GSF
1ST FLOOR	5158 SF
2ND FLOOR	5226 SF
3RD FLOOR	5226 SF
4TH FLOOR	5226 SF
5TH FLOOR	5226 SF
TOTAL	26061 SF

UNIT COUNT	
UNIT	COUNT
1 BED	26
2 BED	4
TOTAL	30

architecture invivid
631 Stevens Ave Ste #200
Portland, ME 04103
207 - 939 - 7602

Project:
DASHWAY COMMONS
15 & 19 CEDAR STREET, PORTLAND, ME 04101

Owner/Client:
AVESTA HOUSING

Stamp:
NOT FOR CONSTRUCTION

Consultant:

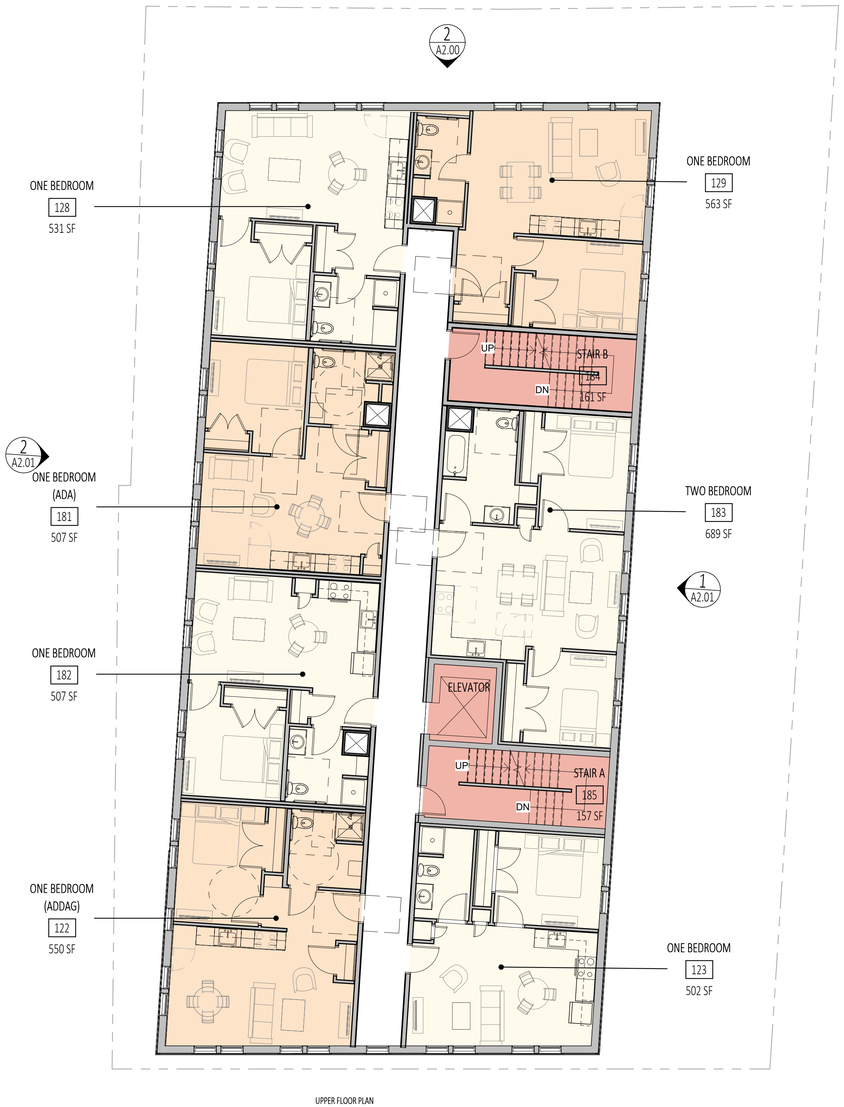
Issuance:
PB SUBMISSION

Revisions:

FLOOR PLAN - 1ST

Scale: 1/8" = 1'-0"
05/28/2026

A1.00

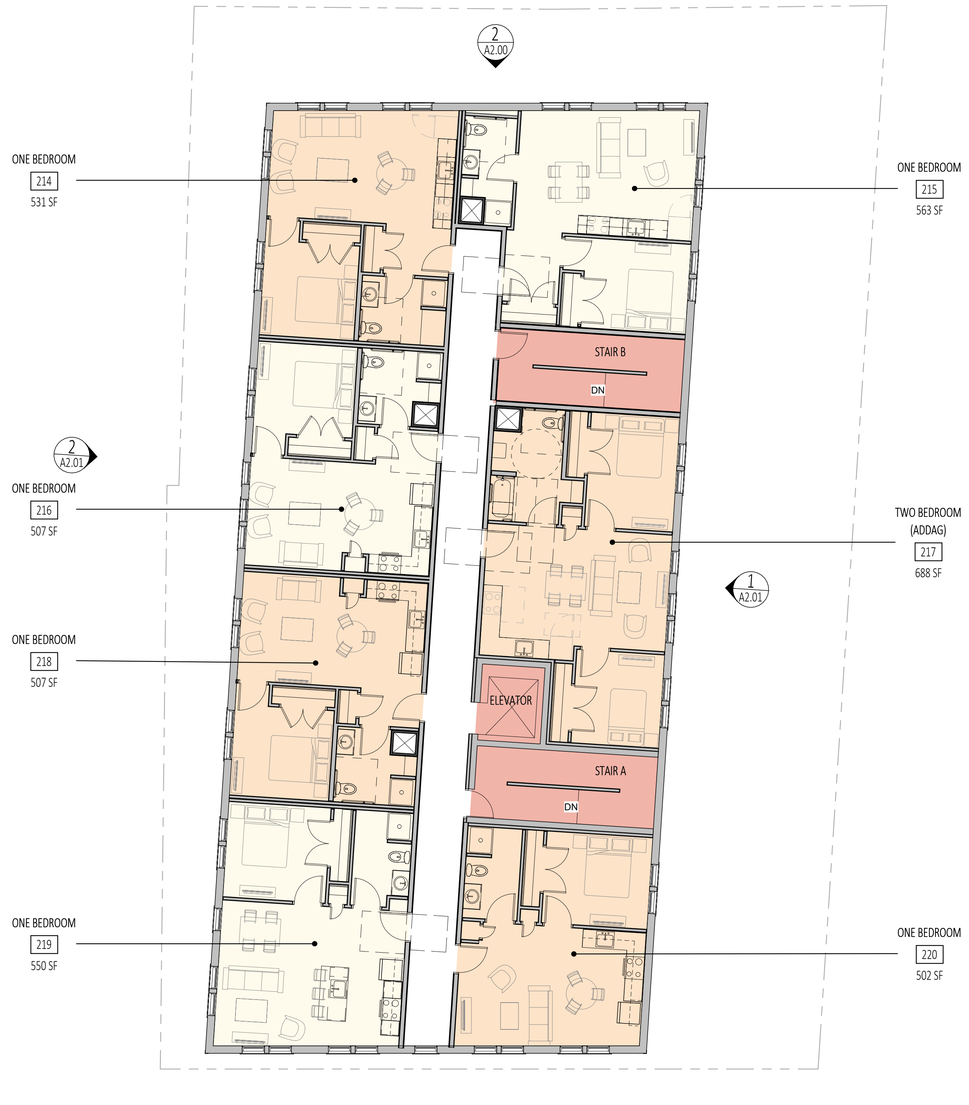


UPPER FLOOR PLAN

1
A2.00

1 | 2ND FLOOR

1/8" = 1'-0"



1
A2.00

2 | 3RD FLOOR

1/8" = 1'-0"

architecture invivid
631 Stevens Ave Ste #200
Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

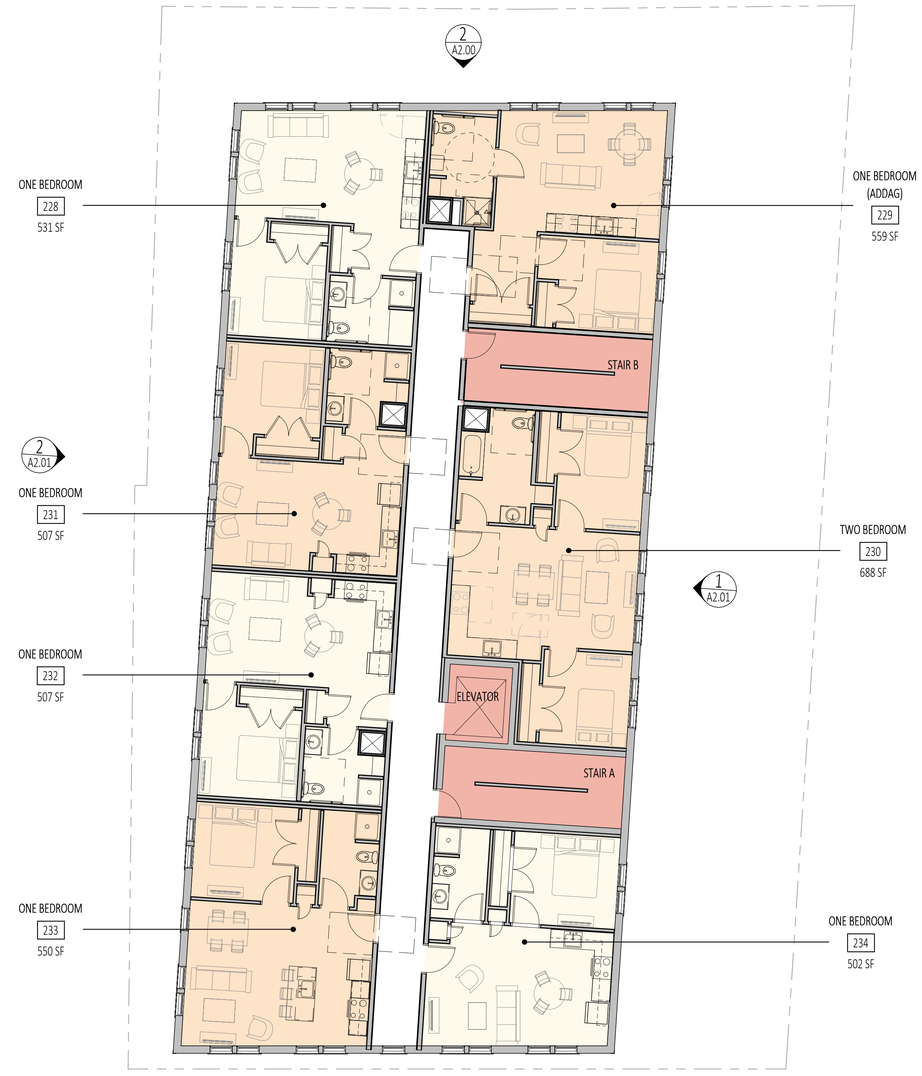
Revisions:

FLOOR PLAN - 2ND & 3RD

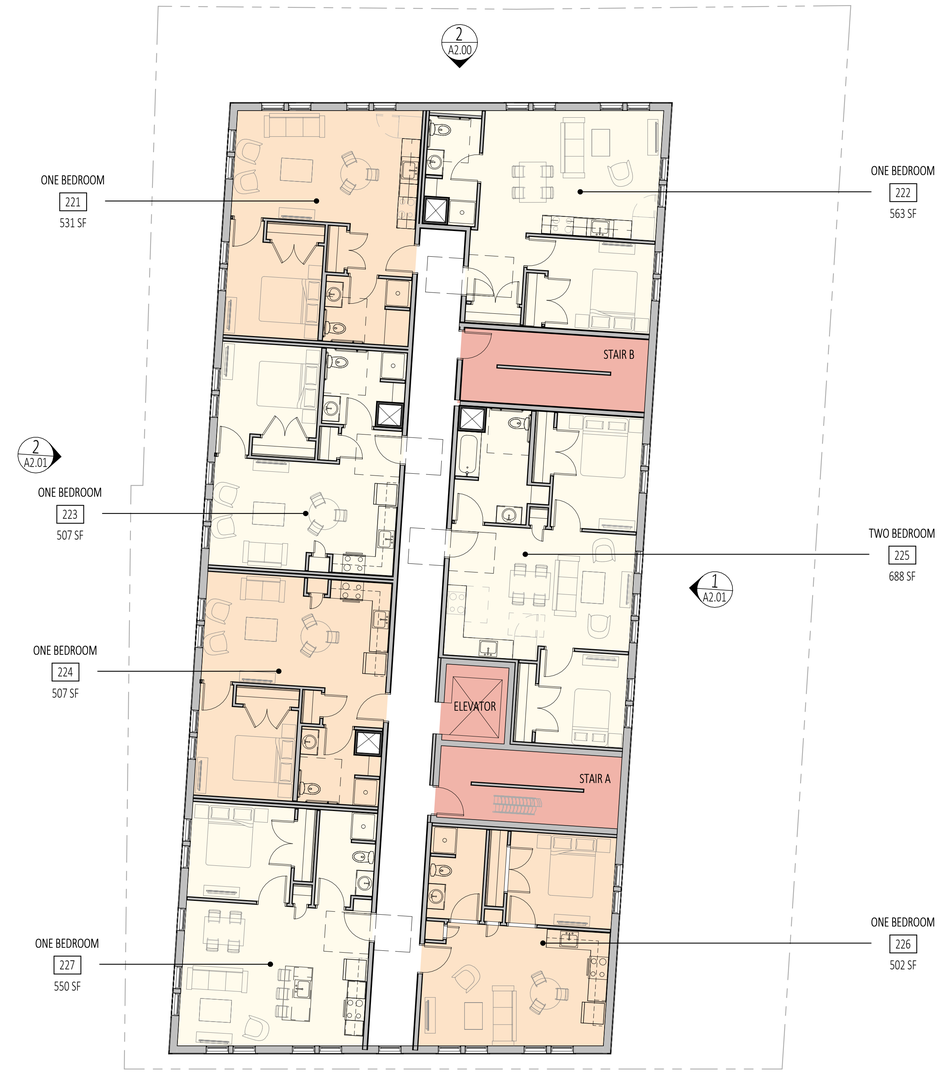
Scale: 1/8" = 1'-0"

05/28/2026

A1.01



1 | 4TH FLOOR
1/8" = 1'-0"



2 | 5TH FLOOR
1/8" = 1'-0"

architecture invivid
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Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

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Consultant:

Issuance:

PB SUBMISSION

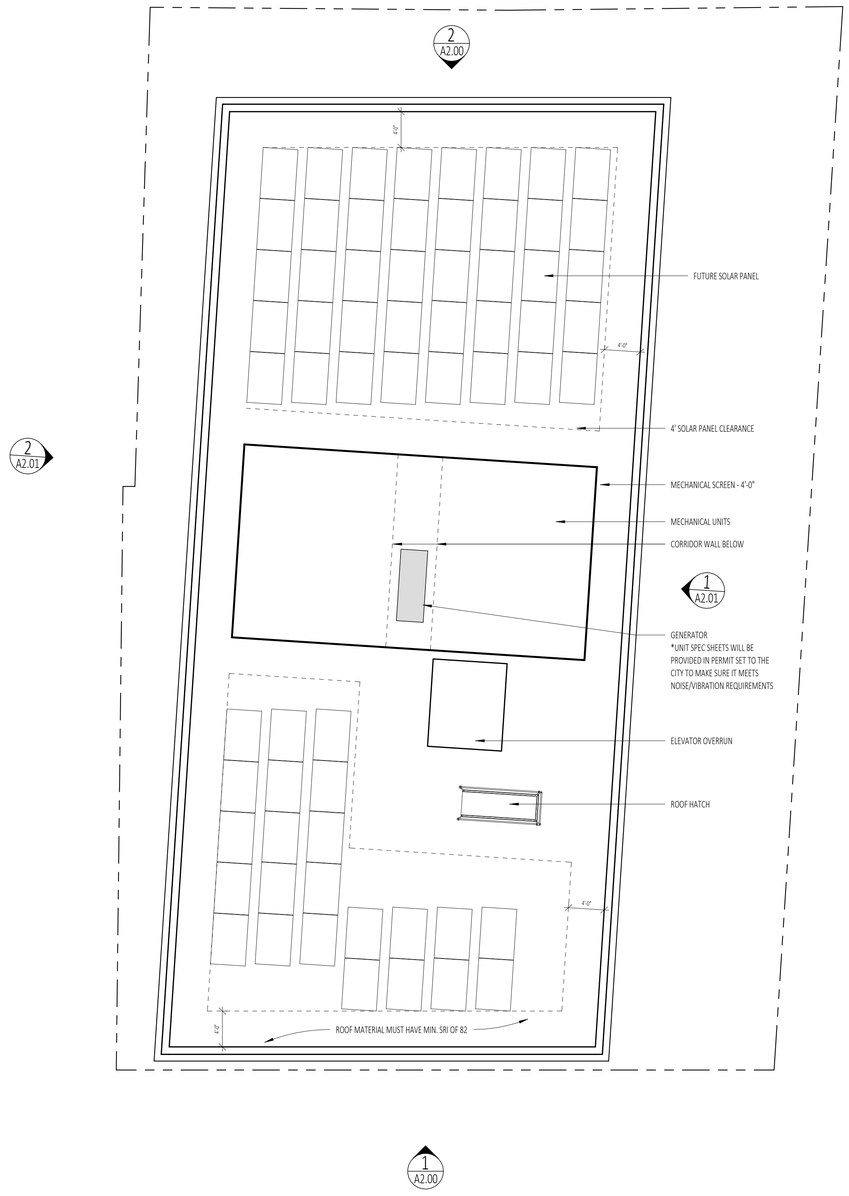
Revisions:

FLOOR PLAN - 4TH & 5TH

Scale: 1/8" = 1'-0"

05/28/2026

A1.02



1 ROOF
1/8" = 1'-0"

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Portland, ME 04103
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Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

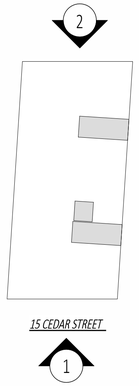
Revisions:

ROOF PLAN

Scale: 1/8" = 1'-0"

05/28/2026

A1.03



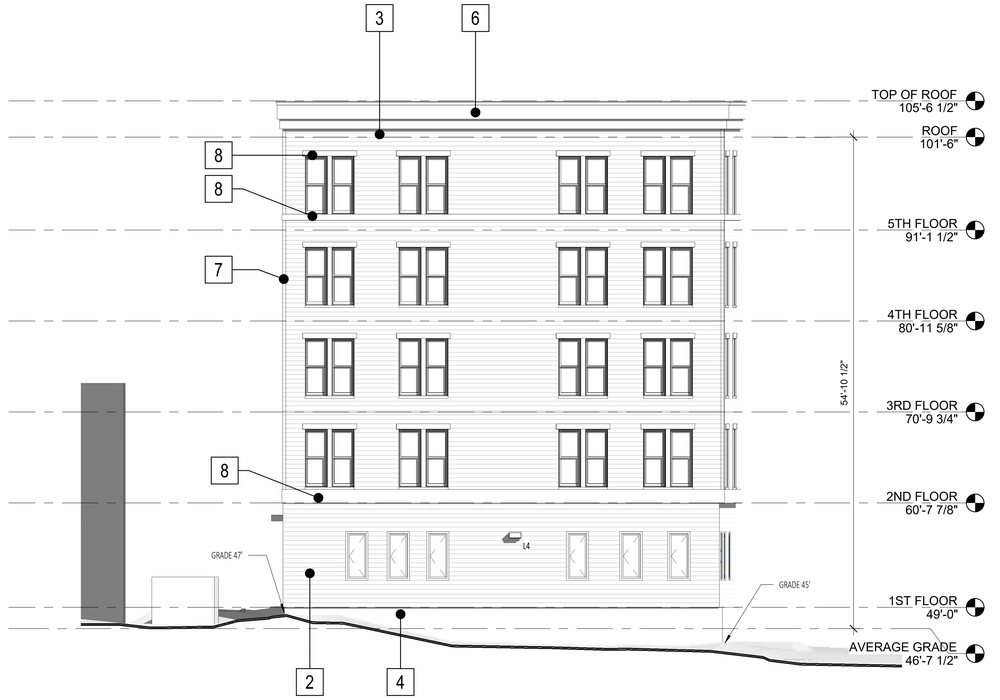
GENERAL NOTES

1. AVERAGE GRADE BY DEFINITION: GRADE TAKEN AT THE FOUR (4) BUILDING CORNERS DIVIDED BY FOUR (4) - REAR RIGHT 47' + REAR LEFT 45' + FRONT RIGHT 48'-6" + FRONT LEFT 0.0'= 46' /4 = **46'-7 1/2" AVG. GRADE**

2. BUILDING HEIGHT: THE VERTICAL MEASUREMENT FROM AVERAGE GRADE TO HIGHEST POINT OF THE ROOF BEAMS = **54'-11"**

MATERIAL SCHEDULE					
TAG/TYPE	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR	REMARKS
1	BRICK	ARRISCARFT	ARCHITECTURAL LINEAR SERIES BRICK	GREY	
2	SIDING	ASCEND	7" COMPOSITE PLANK	CHARCOAL SMOKE	
3	SIDING	ASCEND	7" COMPOSITE PLANK	FIRED BRICK	
4	CONCRETE FOUNDATION				
5	PRECAST				
6	BORAL TRIM			BLACK	PAINTED
7	BORAL TRIM			RED	PAINTED
8	BORAL TRIM			GREY	PAINTED

LIGHTING FIXTURE SCHEDULE - BASE							
TYPE MARK	IMAGE	DESCRIPTION	MANUFACTURER	PRODUCT	FINISH	LAMPING	COMMENTS
L1		RECESSED DOWNLIGHT	HALO COMMERCIAL	4" ROUND DOWNLIGHT	BLACK		
L2		BARN LIGHT OUTDOOR WALL MOUNT	TMS LIGHTING	PN: 2W, WALL MOUNT	BLACK		
L3		CYLINDER WALL MOUNT	COOPER LIGHTING SOLUTIONS	4" ROUND CYLINDER WALL MOUNT	BLACK		
L4		INDUSTRIAL STYLE WALL MOUNT	COOPER LIGHTING SOLUTIONS	MCGRAW-EDISON, GKO GEKKO, PB2	BLACK		



2 ELEVATION - NORTH
1/8" = 1'-0"

1 ELEVATION - SOUTH
1/8" = 1'-0"

architecture invivid
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Portland, ME 04103
207 - 939 - 7602

Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

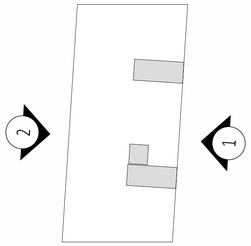
Revisions:

EXTERIOR ELEVATIONS - SOUTH & NORTH

Scale: As indicated

05/28/2026

A2.00



15 CEDAR STREET

GENERAL NOTES

1. AVERAGE GRADE BY DEFINITION: GRADE TAKEN AT THE FOUR (4) BUILDING CORNERS DIVIDED BY FOUR (4) - REAR RIGHT 47' + REAR LEFT 45' + FRONT RIGHT 48'-6" + FRONT LEFT 0.0'= 46' /4 = **46'-7 1/2" AVG. GRADE**

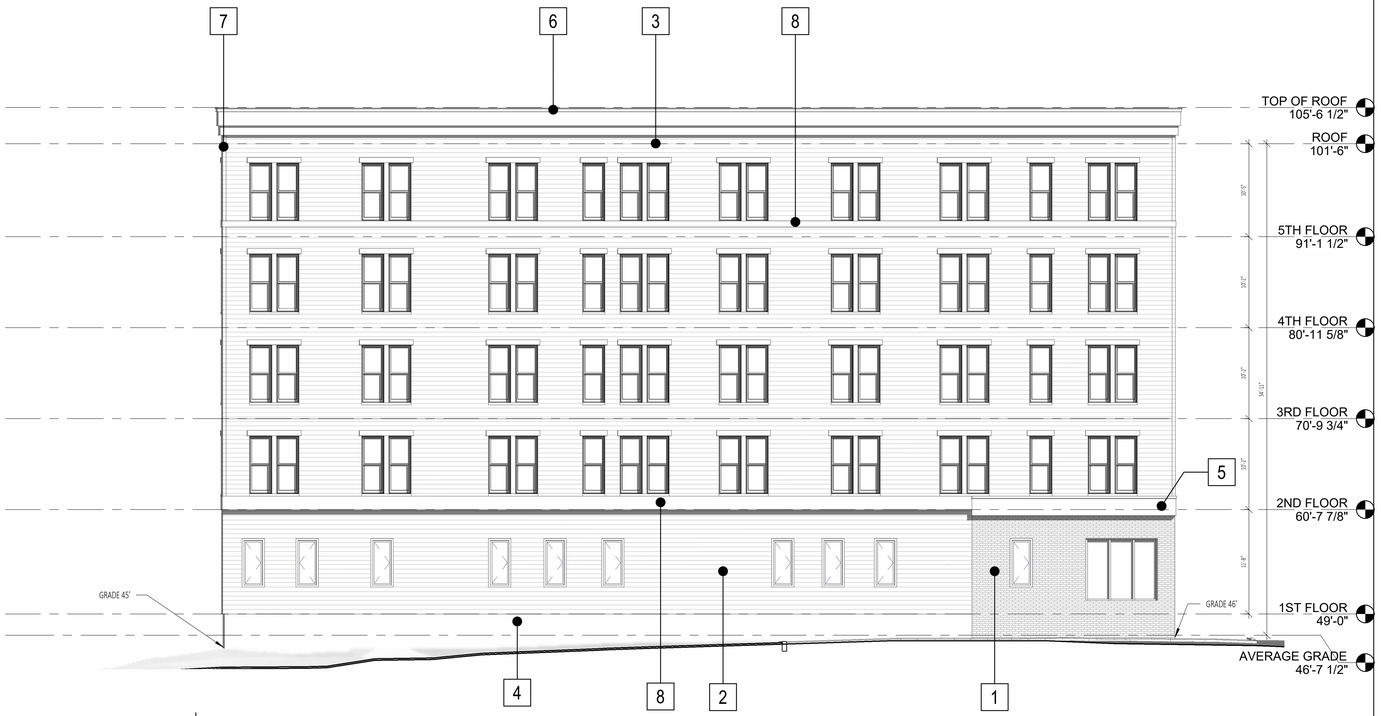
2. BUILDING HEIGHT: THE VERTICAL MEASUREMENT FROM AVERAGE GRADE TO HIGHEST POINT OF THE ROOF BEAMS = **54'-11"**

MATERIAL SCHEDULE

TAG/TYPE	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR	REMARKS
1	BRICK	ARRISCARFT	ARCHITECTURAL LINEAR SERIES BRICK	GREY	
2	SIDING	ASCEND	7" COMPOSITE PLANK	CHARCOAL SMOKE	
3	SIDING	ASCEND	7" COMPOSITE PLANK	FIRED BRICK	
4	CONCRETE FOUNDATION				
5	PRECAST				
6	BORAL TRIM			BLACK	PAINTED
7	BORAL TRIM			RED	PAINTED
8	BORAL TRIM			GREY	PAINTED

LIGHTING FIXTURE SCHEDULE - BASE

TYPE MARK	IMAGE	DESCRIPTION	MANUFACTURER	PRODUCT	FINISH	LAMPING	COMMENTS
L1		RECESSED DOWNLIGHT	HALO COMMERCIAL	4" ROUND DOWNLIGHT	BLACK		
L2		BARN LIGHT OUTDOOR WALL MOUNT	TMS LIGHTING	PN: 2W, WALL MOUNT	BLACK		
L3		CYLINDER WALL MOUNT	COOPER LIGHTING SOLUTIONS	4" ROUND CYLINDER WALL MOUNT	BLACK		
L4		INDUSTRIAL STYLE WALL MOUNT	COOPER LIGHTING SOLUTIONS	MCGRAW-EDISON, GKO GEKKO, PB2	BLACK		



2 ELEVATION - WEST

1/8" = 1'-0"

1 ELEVATION - EAST

1/8" = 1'-0"

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Portland, ME 04103
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Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
PORTLAND, ME 04101

Owner/Client:

AVESTA HOUSING

Stamp:

NOT FOR CONSTRUCTION

Consultant:

Issuance:

PB SUBMISSION

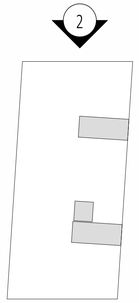
Revisions:

EXTERIOR ELEVATIONS - EAST & WEST

Scale: As indicated

05/28/2026

A2.01



GENERAL NOTES

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2. BUILDING HEIGHT: THE VERTICAL MEASUREMENT FROM AVERAGE GRADE TO HIGHEST POINT OF THE ROOF BEAMS = 54'-11"

MATERIAL SCHEDULE					
TAG/TYPE	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR	REMARKS
1	BRICK	ARRISCARFT	ARCHITECTURAL LINEAR SERIES BRICK	GREY	
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4	CONCRETE FOUNDATION				
5	PRECAST				
6	BORAL TRIM			BLACK	PAINTED
7	BORAL TRIM			RED	PAINTED
8	BORAL TRIM			GREY	PAINTED

LIGHTING FIXTURE SCHEDULE - BASE							
TYPE MARK	IMAGE	DESCRIPTION	MANUFACTURER	PRODUCT	FINISH	LAMPING	COMMENTS
L1		RECESSED DOWNLIGHT	HALO COMMERCIAL	4" ROUND DOWNLIGHT	BLACK		
L2		BARN LIGHT OUTDOOR WALL MOUNT	TMS LIGHTING	PN: 2W, WALL MOUNT	BLACK		
L3		CYLINDER WALL MOUNT	COOPER LIGHTING SOLUTIONS	4" ROUND CYLINDER WALL MOUNT	BLACK		
L4		INDUSTRIAL STYLE WALL MOUNT	COOPER LIGHTING SOLUTIONS	MCGRAW-EDISON, GKO GEKKO, PB2	BLACK		

2 ELEVATION - NORTH

1/8" = 1'-0"

1 ELEVATION - SOUTH

1/8" = 1'-0"

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207 - 939 - 7602

Project:

DASHWAY COMMONS

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Owner/Client:

AVESTA HOUSING

Stamp:

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Consultant:

Issuance:

PB SUBMISSION

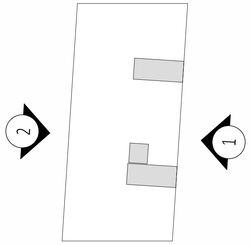
Revisions:

EXTERIOR ELEVATIONS - SOUTH & NORTH - COLOR

Scale: As indicated

05/28/2026

A2.05



15 CEDAR STREET

GENERAL NOTES

1. AVERAGE GRADE BY DEFINITION: GRADE TAKEN AT THE FOUR (4) BUILDING CORNERS DIVIDED BY FOUR (4) - REAR RIGHT 47' + REAR LEFT 45' + FRONT RIGHT 48'-6" + FRONT LEFT 0.0'= 46' /4 = **46'-7 1/2" AVG. GRADE**

2. BUILDING HEIGHT: THE VERTICAL MEASUREMENT FROM AVERAGE GRADE TO HIGHEST POINT OF THE ROOF BEAMS = **54'-11"**

MATERIAL SCHEDULE					
TAG/TYPE	DESCRIPTION	MANUFACTURER	PRODUCT	COLOR	REMARKS
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2	SIDING	ASCEND	7" COMPOSITE PLANK	CHARCOAL SMOKE	
3	SIDING	ASCEND	7" COMPOSITE PLANK	FIRED BRICK	
4	CONCRETE FOUNDATION				
5	PRECAST				
6	BORAL TRIM			BLACK	PAINTED
7	BORAL TRIM			RED	PAINTED
8	BORAL TRIM			GREY	PAINTED

LIGHTING FIXTURE SCHEDULE - BASE							
TYPE MARK	IMAGE	DESCRIPTION	MANUFACTURER	PRODUCT	FINISH	LAMPING	COMMENTS
L1		RECESSED DOWNLIGHT	HALO COMMERCIAL	4" ROUND DOWNLIGHT	BLACK		
L2		BARN LIGHT OUTDOOR WALL MOUNT	TMS LIGHTING	PN- 2W, WALL MOUNT	BLACK		
L3		CYLINDER WALL MOUNT	COOPER LIGHTING SOLUTIONS	4" ROUND CYLINDER WALL MOUNT	BLACK		
L4		INDUSTRIAL STYLE WALL MOUNT	COOPER LIGHTING SOLUTIONS	MCGRAW-EDISON, GKO GEKKO, PB2	BLACK		

2 ELEVATION COLOR - WEST

1/8" = 1'-0"

1 ELEVATION - EAST

1/8" = 1'-0"

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631 Stevens Ave Ste #200
Portland, ME 04103
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Project:

DASHWAY COMMONS

15 & 19 CEDAR STREET,
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Issuance:

PB SUBMISSION

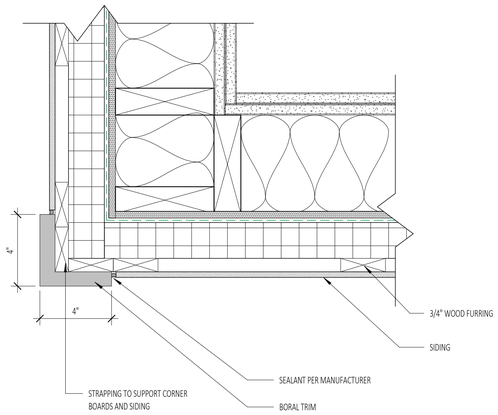
Revisions:

EXTERIOR ELEVATIONS - EAST & WEST - COLOR

Scale: As indicated

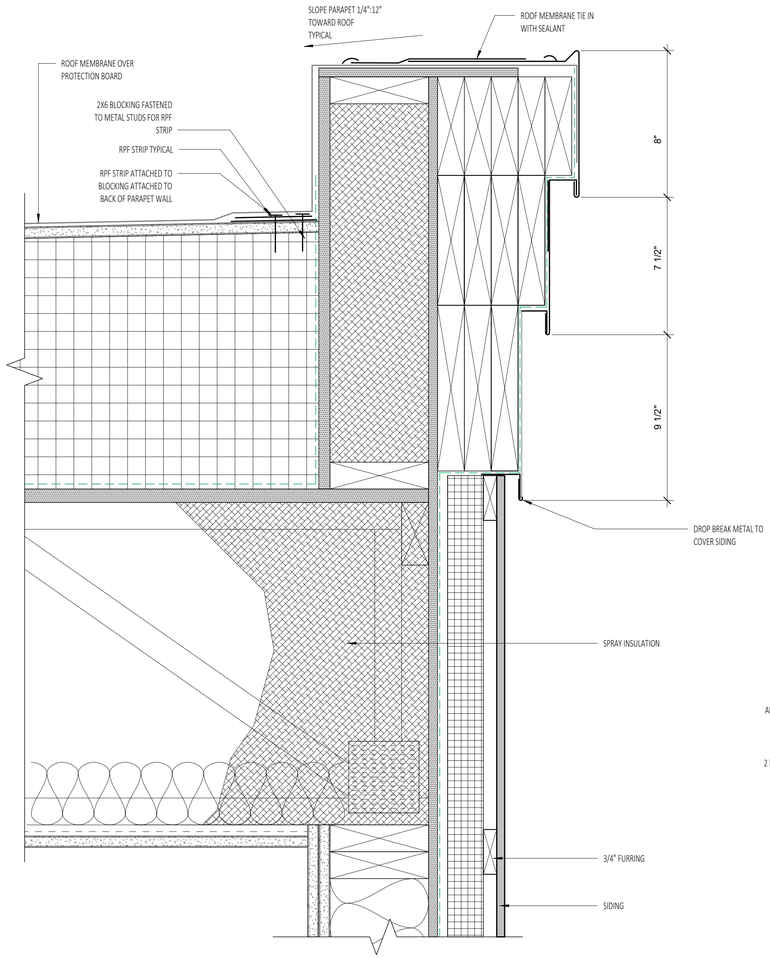
05/28/2026

A2.06



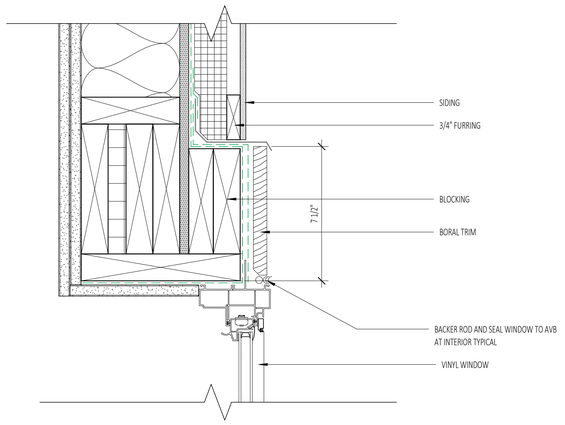
6 EXTERIOR OUTSIDE CORNER TRIM

3" = 1'-0"



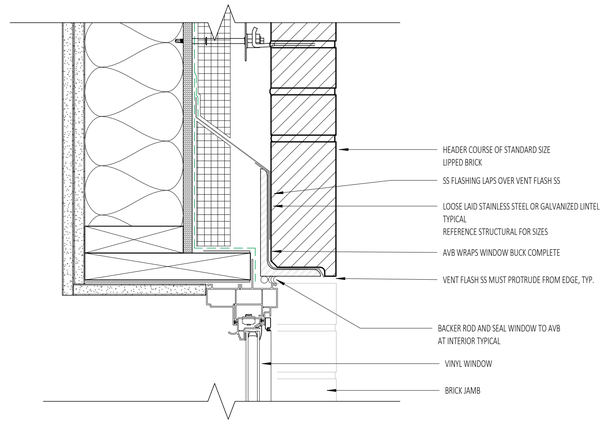
5 ROOF CORNICE DETAIL

3" = 1'-0"



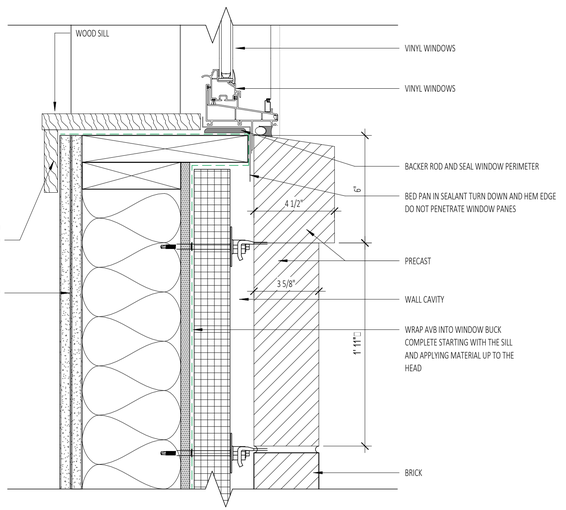
4 TYP. WINDOW HEAD DETAIL AT SIDING

3" = 1'-0"



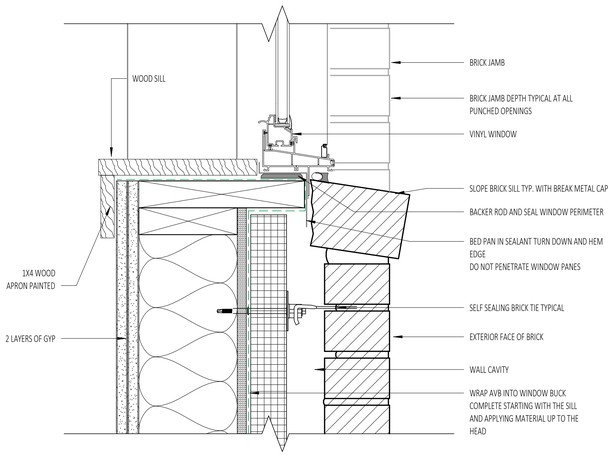
2 TYP. WINDOW HEAD DETAIL AT BRICK

3" = 1'-0"



3 WINDOW SILL DETAIL AT SECOND FLOOR WITH PRECAST SILL

3" = 1'-0"



1 TYP. WINDOW SILL DETAIL AT BRICK

3" = 1'-0"

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Consultant:

Issuance:

PB SUBMISSION

Revisions:

EXTERIOR DETAILS

Scale: 3" = 1'-0"

05/28/2026

A5.00