



City of Biddeford Planning Board

June 18, 2025 at 6:00 PM
City Hall Council Chambers & Zoom

[Join Zoom Meeting Online](#)

Or call in by phone: +1 312 626 6799

Meeting ID: 915 6195 3106

Passcode: 867944

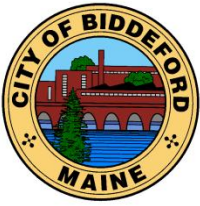
1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
3. Adjustment(s) to Agenda
4. Planner's Business
 - 4.a Westbrook Development Corporation-change to housing ratio
5. Consent Agenda
 - 5.a Approval of Meeting Minutes from May 21, 2025 & June 9, 2025
6. Unfinished Business
7. New Business
 - 7.a 2025.11 The Biddeford Planning Board will review an amended Sketch Plan Request for Bedard Homes LLC. The proposal is to create 36 single-family home lots at 268 Pool Street (Tax Map 8, Lot 52-1) in the SR1 Zone.
 - 7.b 2025.09 The Biddeford Planning Board will continue to review the request from Bateman Partners for Preliminary approval for the Subdivision & Site Plan at 641 Main Street/1 Park View Court (Tax Map 32, Lot 1) in the R-3 Zone. This proposal is that the applicant will construct (2), thirty (30) unit buildings with associated parking for residents. The buildings will utilize the existing development entrance and have their own primary access via Park View Court. New buildings will have associated parking and utility infrastructure. This project was tabled on May 21, 2025, by the Planning Board.
 - 7.c 2024.34 The Biddeford Planning Board will hold a Public Meeting and take comments to continue to review a Shoreland & Site Plan Review Application for University of New England. The proposed use is to build a marine research pier. The property is located at 11 Hills Beach Road (Tax Map 52, Lot 4) in the IN Zone.

7.d 2025.23 The Biddeford Planning Board will review an after-the-fact subdivision request for Richard Potvin at 17 Wadlin Road (Tax Map 1, Lots 137-5 & 6).

8. Other Business

9. Adjourn

The Board reserves the right to halt official business at 9:30 p.m. Items not heard at tonight's meeting shall be rescheduled to the next meeting of the Board. All materials pertaining to items on the agenda are available for public review at the Biddeford Planning Department, second floor, Biddeford City Hall during normal business hours.



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
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PLANNING BOARD MEMORANDUM

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Deputy Director/City Planner

DATE: June 10, 2025

RE: **PLANNER'S BUSINESS: 2024.63 Westbrook Development Corporation (WDC) & 3 Lincoln, LLC. / 15 Pearl Street, Lots 1, 1B & 1C (Tax Map 71, Lot 2) in the MSRD 3 zone / Minor Development Change.**

MEETING DATE: June 10, 2025, at 6:00 PM

1. INTRODUCTION

As the Board may recall, on February 19, 2025, the Planning Board granted Site Plan and Subdivision approval of Case #2024.63 for Westbrook Development Corporation (WDC). The project included the construction of two (2) buildings (shown below) to be constructed on Lots 1B and 1C with affordable senior housing, with approximately 45 units each building/lot (90-units total), located at 15 Pearl Street (Tax Map 71, Lot 2).



I recently received an email from Tyler Norad, Development Director of WDC. Tyler's email stated, "In order to make our agreement on the long-term lease for parking in the garage work we had to make 5 units in each building (10 out of 90 total units) market rate. The FOF notes that 100% of the units will be affordable. I don't believe there are any zoning impacts by changing the affordability mix so I was hoping that this tweak could be a de minimis change. That said, I am happy to go back before the Planning Board if that is the preferred approach. This is another one of those items that we will need to have match what we submit in our funding applications".

2024.63 Westbrook Development Corporation (WDC) & 3 Lincoln, LLC. / 15 Pearl Street, Lots 1, 1B & 1C (Tax Map 71, Lot 2) in the MSRD 3 zone / Minor Development Change.

Planning Board Meeting Date: June 18, 2025

As the Board is aware, multi-housing development projects are required to provide either 10% of the housing to be designated for Moderate/Low Income (LMI) housing or pay \$100,000. Per unit of required LMI housing not being provided. This project was approved with all 90-units to be designated as senior (55+ years) housing LMI-units, or 100% of the units approved.

As Tyler's email explains, WDC is paying for all of their parking within the adjacent parking garage up front, so to cover these costs they propose to change 5-units (10 total) per building from LMI-units to "market rate" to make the project financially feasible. My assessment of this proposed change is:

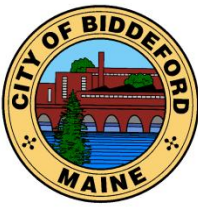
1. A 90-unit housing project of this nature would be required to provide a total of 9-units of LMI housing. This 90-unit housing project is providing 80-units of LMI senior housing, which is well beyond the 10% required. Despite the removal of 10 LMI-units the project is still providing 89% of the units will remain LMI-apartments.
2. Normally if a project was proposing to remove required LMI units from their development, they would be charged an impact fee of \$100,000. per unit, in exchange for the modification. As this project will still be providing well over (89%) the required 10% LMI units. Therefore, the proposed change would NOT require payment for the conversion of the 10 non-LMI units.

Tyler's email further explained the proposed unit "reclassification", below:

FYI, even though these will need to be labelled as "Market Rate" for our Maine Housing application, the units will have the exact same size/finishes/amenities as the other affordable units and will be evenly distributed across the building (i.e., not all penthouse corner units). As such, they will be much more affordably priced than other new construction and will likely fill the gap with residents who otherwise would want to move into our building but simply earn a little too much. The way the rules are written, if you earn even a dollar more than the allowed income restriction, you cannot lease an affordable apartment from us. As you can imagine, our income limits are fairly low for an area gentrifying as fast as Biddeford. As a result, the folks being served by our "market rate" units are unlikely to have many other options that they can afford, and these will end up renting for significantly less than other market rate units in the area.

2. RECOMMENDATION / DETERMINATION:

Due to the reasoning listed above, I would like to process this project amendment as a "de minimis change", not requiring Planning Board re-review or approval. This matter was raised with Chair Plotkin who requested I provide an overview to the entire planning Board for the Board's determination. Tyler Norad will be in attendance at the June 18, 2025, Planning Board meeting to answer any questions the Board may have.



CITY OF BIDDEFORD

Planning and Development Department

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FINDINGS OF FACT AND CONCLUSIONS OF LAW
2024.63 Final Plan Review; Site Plan, Subdivision
Westbrook Development Corporation (WDC)
Construction of two (2) 45-unit affordable housing buildings
15 Pearl Street (Tax Map 71, Lot 2), in the MSRD-3 Zone.

RE: 2024.63 Final Plan Review; Site Plan, and Subdivision for Westbrook Development Corporation (WDC) / Proposed Construction of two (2) 45-unit affordable housing buildings at 15 Pearl Street (Tax Map 71, Lot 2), in the MSRD-3 Zone.

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning Board makes the following Findings of Fact and Conclusions of Law:

1. PROJECT DATA/INFORMATION

1.	Applicant:	Westbrook Development Corporation 30 Liza Harmon Drive Westbrook, ME 04092
2.	Owner of Property:	City of Biddeford
3.	Agent:	Acorn Engineering PO Box 3372 Portland, ME 04103
4.	Surveyor:	Acorn Engineering & Owen Haskell, Inc.
5.	Project Location:	15 Pearl Street
6.	Project Tax Map #/Lot #:	Tax Map 71, Lot 2
7.	Lot Size:	8.4 Acres
8.	Base Zoning:	MSRD-3
9.	Overlay Zoning:	N/A
10.	Existing Use:	Vacant Lot
11.	Proposed Use:	Affordable Housing
12.	Approvals Required:	Site Plan and Subdivision Review
13.	Uses in the Vicinity:	Mixed use
14.	Waivers Needed:	None
15.	Waivers Granted:	None

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Westbrook Development Corporation (WDC)
2024.63 Final Plan Review; Site Plan, Subdivision
90-unit affordable housing development
15 Pearl Street (Tax Map 71, Lot 2), in the MSRD-3 Zone.

CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and

FINDINGS OF FACT AND CONCLUSIONS OF LAW
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historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;

12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

APPROVAL GRANTED:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report and pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has approved the application # 2024.63 for Final Site Plan Review; and Final Subdivision for Westbrook Development Corporation (WDC) for the proposed construction of 90-unit affordable housing development at 15 Pearl Street (Tax Map 71, Lot 2), in the MSRD-3 Zone with the recommended Findings of Fact (FOF) with the following Conditions of Approval (COA):

1. The material provided for the proposed project has been reviewed only for general conformance to the City technical requirements. The applicant(s) and/or their technical consultant shall be responsible for the actual design details and completeness of their work. It is incumbent upon the applicant(s) to ensure that the project is in conformance and complies with all City Codes, ordinances and regulations as well as with all state regulations, including, but not limited to, space

FINDINGS OF FACT AND CONCLUSIONS OF LAW
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and bulk standards, performance standards, use standards and other zoning type requirements.

2. Standard Conditions of Approval apply.
3. When possible, vehicle maneuvering, loading and unloading should occur on-site and not illegally park on Lincoln Street or Pearl Street for loading / unloading and shall avoid backing into / out of the property.
4. Modifications to Approved Development Plans: The project shall be constructed in accordance with the approved development plans. No deviations to the approved development plans shall be made without prior written authorization by the City Planner. Should the Applicants desire a modification from approved plans, they shall be required to submit a formal letter requesting a “minor modification” to the approved development plans. The narrative shall be submitted outlining the request, the reasoning for the request (justification) and shall include plans illustrating the approved plans and proposed modifications. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board. It should be noted that review fees for any proposed changes may be assessed to the Applicant, for Staff or Peer Review time spent evaluating the request.
5. A Letter of Credit or other surety acceptable to the City of Biddeford shall be submitted prior to the issuance of permits or site work being initiated. The financial guarantee shall be established for 150% of the cost of the following improvements:
 - a. Landscaping
 - b. Paving
 - c. Work within ROW (existing or proposed)
 - d. Stormwater Drainage
 - e. Loam & seed
 - f. Sediment & erosion control
 - g. As-Built Plans
 - h. Property Monuments
4. Prior to any ground disturbance, the applicant shall establish a construction inspection account equal to: \$2,500.00.
5. Prior to any ground disturbance, a pre-construction meeting with the owner/applicant, contractor, and City is required. Contact the Engineering Department to schedule this meeting.
6. Contact the Department of Public Works for driveway location permits, curb cut permits and/or street opening permits prior to the start of construction.
7. An as-built plan must be provided to the City of Biddeford Engineering Office at the end of the project electronically, which can be read by the City of Biddeford’s Geographic Information System software. Note: Any modifications to the Planning

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Board approved development plans shall be reviewed and approved by the City Planner prior to being made, including any "field changes".

8. The applicant shall incorporate appropriate erosion control measures into this project to reduce erosion effects from the work. All disturbed areas must be re-vegetated and/or otherwise stabilized at the appropriate stage of the work per Maine DEP standards in the Best Management Practice (BMP) manual.
9. That the Article VI Performance Standards requirements regarding Dust, Fumes, Vapors & Gases (sect 25), Explosive Materials (sect 28), Glare (sect 37), Noise (sect 48) be followed.
10. The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc. prior to commencing business.
11. At the completion of the project the owner/applicant shall request a final inspection. This request shall be directed to the Engineering Department. Performance guarantees and remaining escrow accounts shall not be released until the Planning Office certifies that the project has been completed and is in compliance with the approval and all applicable City Ordinances.
12. The applicant shall submit approved plans for signature of the City's Planning Board, which shall be recorded in the York County Registry of Deeds. An electronic copy of the recorded plan shall be sent to the Planning Office.
13. Parking Garage: In addition to the 10 "on-site parking" stalls being provided, the Applicants are proposing to lease 61-parking stalls within the municipal parking garage located on Pearl Street. Copies of the executed long-term parking lease agreements (31-parking stalls for Lot 1B and 30 parking stalls for Lot 1C) shall be provided to the City's Planning Department prior to the issuance of each Occupancy Permit.
14. Curb-Opening Permit Fee: Prior to the issuance of a Building Permit the Applicant shall pay the associated driveway / curb-opening fee.
15. Fire Department Requirements:
 - A. The courtyard includes a dedicated fire lane which shall be constructed to support the City's largest emergency vehicle.
 - B. All drive aisles, dedicated fire lanes and sidewalks shall be maintained cleared of snow.
 - C. Pedestrian access behind the buildings shall be maintained, year-round, at the rear of the buildings to allow for Fire Department emergency ladder access behind the building.

FINDINGS OF FACT AND CONCLUSIONS OF LAW
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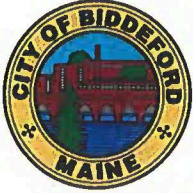
- D. The landscaping within the courtyard shall be trimmed when necessary to provide Fire Department ladder truck access and maneuverability.
 - E. Snow shall be stored in designated "snow storage areas" and/or hauled off site.
16. Except to the extent necessary to construction the access drive depicted on the Site Plan on Pearl Street, all construction traffic shall utilize the Lincoln Street curb-cut and is hereby restricted from using Pearl Street.
17. Sewer Connection Fees: Sewer connection fees for the project total \$259,080 which shall be paid in the following manner:
- A. Lot 1B a 45-Unit Building: The sewer connection fee for the 45-unit building on Lot 1B is \$129,540. This fee shall be paid prior to an Occupancy Permit being issued for this structure.
 - B. Lot 1C 45-Unit Building: The sewer connection fee for the 45-unit building on Lot 1C is \$129,540. This fee shall be paid prior to an Occupancy Permit being issued for this structure.
18. The Applicant shall provide the City with a copy of the approved MaineDEP Stormwater Amendment for the project, upon receipt.
19. This project is contemplated to be constructed in two (2) phases, which may be constructed on separate timelines as the projects require Maine State funding. The proposal includes the construction of two (2) multi-story buildings with a total of 90-units with *100% of the proposed units to be reserved as affordable housing, with funding sources managed by Maine Housing. As such, the approval timeline shall be as follows:*
- A. *Phase One (Lot 1B): The first phase (Building 1 / Lot 1B) approval is valid through February 19, 2027. Building permits shall be issued and construction begun within this stipulated time, or the approval becomes invalid. The City Planner and/or the Planning Board may grant an extension to the stated deadline, providing a written request for the extension, outlining the need for the extension, is received prior to February 19, 2027.*
 - B. *Phase Two (Lot 1C): The second phase (Building 2 / Lot 1C), if funding is not appropriated as part of Phase 1, the approval shall remain valid until February 19, 2029. Building permits shall be issued and construction begun within this stipulated time, or the approval becomes invalid. The City Planner and/or the Planning Board may grant an extension to the stated deadline, providing a written request for the extension, outlining the need for the extension, is received prior to February 19, 2029.*

FINDINGS OF FACT AND CONCLUSIONS OF LAW

**Westbrook Development Corporation (WDC)
2024.63 Final Plan Review; Site Plan, Subdivision
90-unit affordable housing development
15 Pearl Street (Tax Map 71, Lot 2), in the MSRD-3 Zone.**

Alexa Plotkin Planning Board Chair

Date



CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
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(207) 284-9115

Planning Board Meeting Meeting Minutes **DRAFT**

Date: May 21, 2025
Time: 6:00 PM
Location: Council Chambers & Zoom

1. Pledge of Allegiance 6:00 PM
2. Declaration of Quorum/Voting Members
Quorum Present: Alexa Plotkin, Chair, Larry Patoine, Sue Deschambault, Roch Angers, & Matt Dubois
Staff Present: David Galbraith, Adi Iriqat, Nan Whitten & Harry Center, City Attorney
3. Adjustments to the Agenda-N/A
4. Planner's Business-N/A
5. Consent Agenda
5.A. Review for approval Meeting Minutes for May 7, 2025
MOTIONS: 6:01 PM
Motion- Dubois-Motion to approve Consent Agenda
Second- Deschambault
Vote-Unanimous
6. Unfinished Business-N/A
7. New Business
7.a 2025.15 The Biddeford Planning Board will review a request for a Shoreland Zoning Permit for Karen Tarves. This proposal is to rebuild the existing structure to avoid damage from future storms. This proposal will make the non-conforming structure more conforming, and the applicant would like to install a new septic system, making it code-compliant. The location of this project is 12 Fortunes Rocks Road, also known as Tax Map 63, Lot 42-1 in the CR zone.
 - Iriqat introduced the project and talked about the 6 criteria
 - Ms. Tarves represented herself
 - NO PUBLIC COMMENTS
 - Angers confirmed that the structure is staying in the same area
 - Patoine asked about the storm damage. There was no storm damage to the structure but damage to the property. There will be a new foundation with flood vents so that the water goes through the foundation.
 - Patoine noticed that there is a scrivener error on the plan with the map & lot. The applicant will have that corrected.MOTIONS 6:12 PM

Motion-Angers-A. Motion to Approve Case #2025.15 A Greatest Practical Extent Determination for Karen Tarves (Tax Map 63, Lot 42-1) in the Coastal Residential Zoning District with the following Conditions of Approval.

- 1. The razed building shall not be relocated closer to any of the existing property lines as noted on the approved plan**
- 2. The Code Enforcement Officer shall review and approve conformance to Section 15 of the Shoreland Zoning Ordinance**
- 3. Obtain all required permits from the Maine Department of Environmental Protection and the Biddeford Code Enforcement Office**
- 4. This approval shall expire one year from the date below if a substantial start is not made in construction. If a substantial start (30% of project completion, i.e., framing and foundation) is made within one year of the date below, the applicant shall have one additional year to complete the project thereafter; this approval shall expire**

**Second-Patoine
Vote-Unanimous**

7.b. 2025.17 The Biddeford Planning Board will review a request for Preliminary approval for Subdivision & Site Plan. This proposal is that the applicant will construct (2), thirty (30) unit buildings with associated parking for residents. The buildings will utilize the existing development entrance and have their own primary access via Park View Court. New buildings will have associated parking and utility infrastructure. The location of this project is 1 Park View Court (641 Main St) also known as tax map 32, lot 1 in the R3 zone.

- Galbraith introduced the project informing the Board that there is insufficient sewer in the area to accommodate the additional residential units**
- Andrew Kurmin from Gorill Palmer represented the applicant**

PUBLIC COMMENTS

- Mike Eon 39 Boom Road, Saco (owns several pieces of property in Biddeford)**
- BOARD**
- Angers-he is leaning towards tabling the item until the sewer conditions have been corrected, he read the following:**

The primary design element that needs resolution is the sewer capacity issue. The proposed sewer line would ultimately connect to the existing sewer pump station located approximately 1,500 feet from the proposal to the pump station. The pump station is currently near or at capacity and pump station upgrades will be required to accept the effluent from the proposed development. The upgrades required are expected to cost approximately \$1,000,000. The City does not currently have funds appropriated for the required system upgrades. This project cannot advance to Final Plan Review until either the Applicant covers the upgrade costs, or Council approves appropriate funding allocation, or a combination of the two.

- Patoine agrees with Angers, there is so much work to be done and this needs to be settled first**

MOTION: 6:25 PM

Motion-Deschambault- Motion to Table: I motion to TABLE Case # 2025.09 a Preliminary Plan Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District, until the sewer issue has been settled.

Second-Patoine

Vote-Motion passed unanimously

7.c. 2024.34 The Biddeford Planning Board will hold a Public Meeting and take comments to review a Shoreland & Site Plan Review Application for the University of New England. The proposed use is to build a marine research pier. The property is located at 11 Hills Beach Road (Tax Map 52, Lot 4) in the IN Zone.

- Chair Plotkin gave the audience a run down of the rules and procedures.
- Public comments will be limited to 5 minutes
- Alan Thibeault from UNE represented the application along with Dan Banyon of GEI, Tom Saucier of Site Design, and UNE Attorney Ron Schneider
- Thibeau talked about the history of the project and the 9 options that were explored.
- Thibeault presented all the criteria UNE is looking at for their new pier and explained that site 7 met all of their needs.
- The school has approvals from SRCC, Army Corp of Engineers and the DEP.
- The school is looking for site plan approval with this application.
- The proposed pier is out of the navigational channel
- Utilities will be underground and there is no parking needed.
- UNE will be adding 1 8' x 10' shed
- UNE requested from the City a moorings map which is required but does not exist.
- Thibeault acknowledged that some moorings will have to be moved, and UNE will work with the City on moving the moorings at the school's expense.

PUBLIC COMMENTS:

Michael Swanton-110 Old Pool Road

Kyle Noble-56 Hills Beach Road

Dan Chadbourne for Saco Harbor Master

Shawn Tibbets-Mooring #26

Walter Alexander-31 Bridge Road

Matt Haas-36 Meeting House Road

Joe Emmons-23 Sokokis Road

Mike Ramunno-2 Fieldcrest Drive

Robert Brackett-Mooring #150

John Schafer-24 Sky Harbor Drive

John Henedy-118 Mile Stretch Road

Peter Mourmourais-30 Saco Ave, OOB

Ed McKaskett-Mooring #72

Rob Morin-Saco ME Mooring owner

Carole Alexander-31 Bridge Road

BOARD

- Plotkin-she explained to the audience that the Board has just gotten their information on the project and needs to take time to go through it and learn. She would like a copy of the analysis documentation.
 - Patoine-Would like a site walk both on land and sea
 - Deschambault explained that it is the job of the Board to protect everyone's rights
 - Angers would like a site walk on land and sea. He explained that the Board will not be able to please everyone. He feels UNE should meet with the people in the audience and others opposed to the project to come to some agreement.
 - Dubois also wants a site walk at low tide. He pointed out something in the Staff Report that needs to be corrected. He wants proof that the Native American tribes did sign off on this project. He would like more information on the waivers UNE is requesting and would like clarification on the role the Harbor Master plays in the Peer Review and their role in the review process.
 - Patoine would like a copy of the MIST Report
 - Plotkin explained that it is the Board's job to stay in their own lane and only deal with what is in their purview. She explained the Code of Conduct to the audience.
 - Dubois explained to the audience that the Board's role is to treat everyone fairly and that it is not the Board's position to propose and determine the location of the pier.
 - Patoine asked staff to get the information to the Board sooner.
 - Attorney Center spoke to the Board about civil & due process. He reminded the Board that they only make decisions on the information provided. Any decision made have substantial evidence on the record. Decisions made prior to hearing about the project is going to be a problem. The ordinance does not mention depth, current or moorings.
 - Plotkin would like to see the approval by the Harbor Master.
 - Galbraith will send out section 74-35 to the Board.
 - There are no decisions to be made tonight as this is only a Sketch Plan.
 - Members of the audience had handouts that are attached as part of the record.
8. Other Business-N/A
9. Adjourn 8:40 PM

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.

Somebody's not telling the truth

Your own eyes:
"Plenty of water"

Both harbormasters:
"Plenty of water"

NOAA chart:
"Plenty of water"

Paid consultant GEL:
"Plenty of water, don't need it"

UNE:

"Makes no sense --- not enough water"

Letter of Notice

To the Biddeford City Planning Board
Wednesday, May 21, 2025

We The Undersigned are mooring owners on the Biddeford side of the lower Saco River, either directly on, or in very close proximity to, the physical site proposed by the University of New England (UNE) for their new marine sciences research pier. We are joined in this Letter of Notice by the former Harbormaster of Saco, Maine, who holds a Master's License from the United States Coast Guard. We are in solidarity with each other in regard to this obvious conclusion:

UNE has proposed a location for its pier that is unavailable. And therefore the Planning Board's hands are tied --- you are unable to approve their application.

Explanation

Several of us have already written to regulatory authorities stating quite plainly that we have no intention of moving our moorings. Those moorings are personal property. Commercial moorings can even be assigned in estate documents to our heirs. As long as we pay our mooring fees and operate responsibly on the river, our property cannot be seized.

The Harbormaster is no longer part of Biddeford's review of the UNE application. Therefore, only the Planning Board and the Biddeford City Council have any remaining authority. For the Planning Board to approve UNE's application, it would first need to know that the location UNE has proposed for its pier is available. That requires the Council to consider and pass a motion that directs the Harbormaster to seize the personal property of the Undersigned. Or perhaps vote to begin eminent domain proceedings.

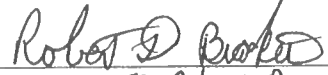
If the City orders the Harbormaster to seize our property, we believe the Harbormaster may refuse the order. If the City moves to fire the Harbormaster because he refuses such an order, litigation is possible. If the Council directs City Staff to somehow bypass the Harbormaster and try to seize any mooring, litigation is certain. If UNE sues Biddeford, seeking to force the City to seize the personal property of the Undersigned, a complex and multi-year legal saga will begin.

Biddeford cannot afford the expense of a tortuous, years-long legal battle with mooring holders that it's very likely to lose. Nor has UNE explained to the Planning Board how it plans to forcibly remove the current mooring owners.

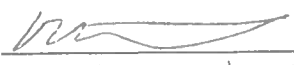
In its application UNE merely writes, "To address impacts to moorings, GEI and UNE are prepared to work with City staff as necessary to allow for mooring adjustments to accommodate the proposed pier." That sentence is meaningless. UNE has no signed agreement with mooring owners. It's not going to get a signed agreement with mooring owners. To repeat, we're not moving. Therefore, UNE has proposed building a pier in a location that is unavailable. Their application is incomplete.

Through no fault of its own, the Biddeford Planning Board is unable to approve UNE's application as currently submitted.


Mooring #: 12 THOMAS J. HATCH

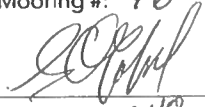

Mooring #: 150 Robert Brackett


Mooring #: 138 Gregg McPherson

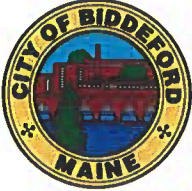

Mooring #: 48 William Mitchell


Mooring #: 126 CAPT SHAWN TIBBITT


Mooring #: 46 Michael Raymond


Mooring #: 248 Steven L. Gobeil


Dan Chadbourne
Former Harbormaster, Saco, ME



CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board
Site Walk
University of New England
Meeting Minutes
DRAFT

Date: June 9, 2025
Time: 5:00 PM
Location: 11 Hills Beach Road

Declaration of Quorum/Voting Members

Quorum Present: Alexa Plotkin, Chair, Larry Patoine, Sue Deschambault, & Matt Dubois

Board Members Absent: Roch Angers, Steve Beaudette, & Kayla Lewis

Staff Present: David Galbraith, & Nan Whitten

Adjustments to the Agenda-N/A

1. Planner's Business

- Galbraith explained the procedure and decorum for the Site Walk. He told the public that this is a workshop for the Planning Board Members and to send questions into the Planning Office to be addressed by the applicant.

2. New Business

- Site Walk for proposed Marine Science Pier for the University of New England.
- Attachments: Site Walk Sign in sheets, Boring Location Plan, & Email from Roch Angers to the Planning Board dated June 5, 2025.

3. Adjourn 5:50 PM

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.

SITE WALK SIGN-UP / SIGN-IN SHEET

University of New England: Marine Science Pier

DATE: June 9, 2025- Please write legibly

PRINT NAME	EMAIL ADDRESS	TELEPHONE	RELATIONSHIP TO PROJECT
nan Whitten			Planning Dept
DAVID Galbraith			" "
LP			Planning Dept
Sharon Robbins			Concerned Citizen regarding UNE
Peter Robbins			Conservation Commission
Tom Hatch			Interested party
PATRICIA Boston			
Christina Shine			NOB
Kevin McNamee			Interested
Judith Bryce			Interested
Janet Moran			Interested
Brenda Hunter			Neighbor

SITE WALK SIGN-UP / SIGN-IN SHEET

University of New England: Marine Science Pier

DATE: June 9, 2025- Please write legibly

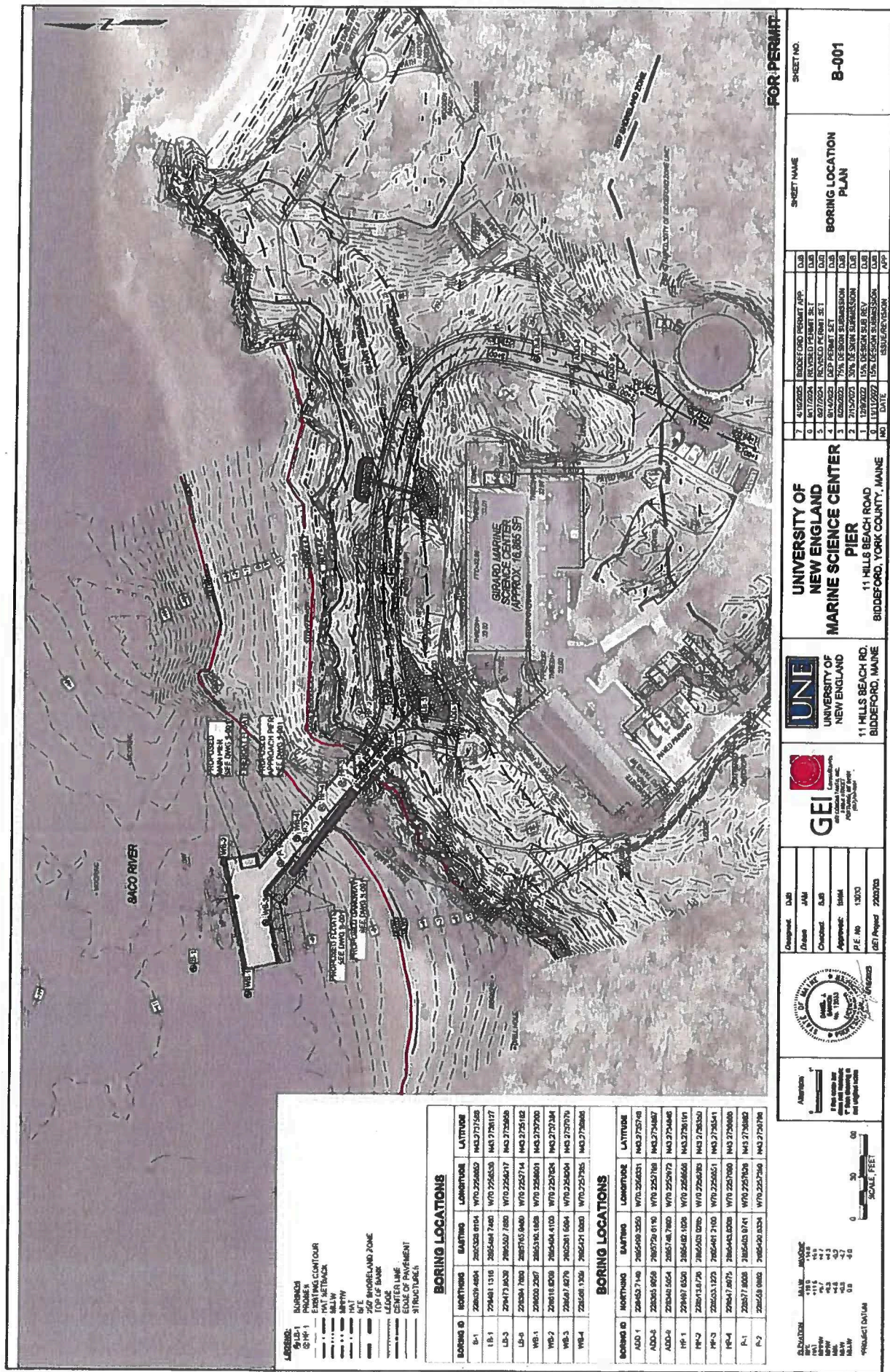
PRINT NAME	EMAIL ADDRESS	TELEPHONE	RELATIONSHIP TO PROJECT
Diane Noble			Interested HB neighbor
Bonnie Ken Buech			Neighbor
NORM LARSEN			INTERESTED PARTY
CHRIS MCGILLIVRA			NEIGHBORHOOD
Greg Boaman			neighbor
Susan Deschambault			member Planning Bd
Alexa Plotkin			Planning Board
Matthew Dubois			Planning Board
J SCHAFER			NEIGHBOR
Skip Irving			Biddeford Resident
Walter Alexander			Neighbor
Alan Turbeant			

SITE WALK SIGN-UP / SIGN-IN SHEET

University of New England: Marine Science Pier

DATE: June 9, 2025- Please write legibly

PRINT NAME	EMAIL ADDRESS	TELEPHONE	RELATIONSHIP TO PROJECT
JIM SAUCIER			12 KENT
SHAWN TIBBEN			MOORING HOLDER
ROBERT T BRACKETT			MOORING
SAM WEEMENCHUK AIG			3 Abbutten
ED McCaskey			Mooring Holder #72
KEVIN ROCHE			SACO COASTAL RESIDENT
Jim Irwin			UNE Employee
Kevin Donovan			UNE grad/Asst Hills beach house
Don Bannan			Consultant
ANDREW PHILLIPS			DIRECTOR FOR Campus Planning



Whitten, Nan

From: Angers, Roch
Sent: Tuesday, June 17, 2025 2:08 PM
To: Whitten, Nan
Subject: Fw: University of New England Pier Project

Get [Outlook for iOS](#)

From: Angers, Roch <Roch.Angers@biddefordmaine.org>
Sent: Thursday, June 5, 2025 5:57 PM
To: Galbraith, David <David.Galbraith@biddefordmaine.org>; Plotkin, Alexa <Alexa.Plotkin@biddefordmaine.org>; Patoine, Larry <Larry.Patoine@biddefordmaine.org>; Deschambault, Susan <Susan.Deschambault@biddefordmaine.org>; Susan Deschambault <susan.deschambault@gmail.com>; Beaudette, Stephen <Stephen.Beaudette@biddefordmaine.org>; Dubois, Matthew <Matthew.Dubois@biddefordmaine.org>; Lewis, Kayla <kayla.lewis@biddefordmaine.org>; Center, Harry <hcenter@woodedlaw.com>
Subject: University of New England Pier Project

I would like to take a moment to express my feelings on the date of the site-walk that is going to happen on Monday, June 9, 2025. We received a memo on May 27, 2025 that there was going to be a site-walk at UNE At 5 o'clock in the afternoon. The press was notified and also the abutters by mail. I wrote to David Galbraith On May 29, 2025 that I could not make the meeting and asked to reschedule with the planning board.

I was told by our planner that he would look into it and get back to us. I did send out my email to all parties concerned on the planning board. Lo and behold We were given three dates that the board members received in their emails. None of those dates seem to work out. Because of tides and meetings of the planning board. I can understand that!!!

I find myself asking what is the rush, this project has been going on for a long time by the university and it is a very complicated matter to be looked at. We seem to be rushing and I do not think that is a good thing. I will not be there at the site-walk, I claim to have a very legitimate reason. My grandson is more important to me than being at a planning board meeting at the site-walk. I am the first person on the board to suggest that we should have a site-walk in one of my emails, but I am frustrated that I will not be there and please do not tell me that I could go see it on my own with our planner. I may ask questions that you may not have thought of. I will not be able to hear some of the responses that you may all have on questions and concerns with the pier. This gives me a grave disadvantage as I will not know what is being said, and what you may be looking at.

Dave did mention to me that maybe they could do a video of the meeting. I disagree with that as I will not be with you as all of you move around and the camera will not be able to detect all of you. This is not like a planning board meeting at City Hall where you can sit down At home and watch it.

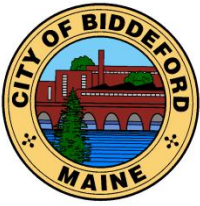
Also, I am not going to be privy to the comments and questions that are going to be asked on Monday, June 9 at 5 PM. I plead with you that we have this meeting at another date and time. This is a very important issue to me and to the board and I definitely want to be part Of the decision making. I also do not agree with the planner and our chair with Une discussing this about another meeting time because of the tides and things being agreed upon without all the board members. Who are we in all of this. Tides come and go!! Meetings can be set up when there is another low tide in June , July, August or any other month. I understand that Une wants us to see the site at low tide but we (The Planning Board & the Planner) should control the time and the date with the tides coming in and the date of the meeting.

I understand about the tides but that should not be the sole reason for not rescheduling of this site-walk. On another note I would like to stress that minutes be taken and a head count of the planning board who are present at this site-walk and those who are absent as well.

In closing we all have our own opinions regarding this matter and ask that this site-walk be cancelled to give me the opportunity of being part of the decision making of this pier with all planning board members.

Thank you for your time regarding the matter at hand

Roch Angers



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, City Planner & Deputy Director of the Planning & Development Dept.

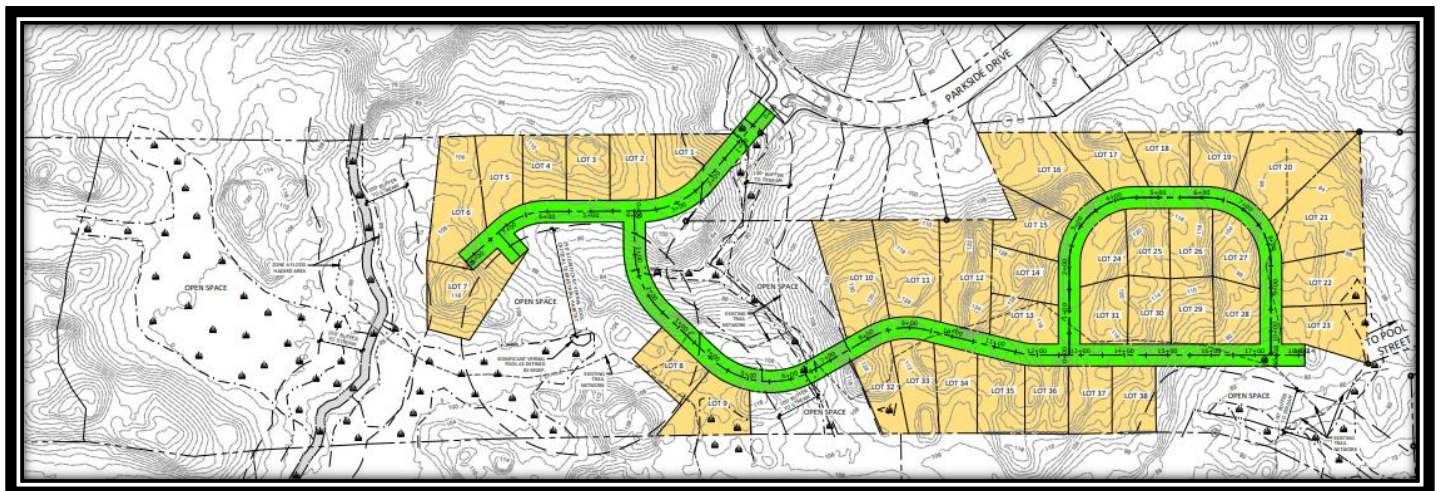
DATE: June 8, 2025

RE: **2025.11 Sketch Plan Review for Bedard Homes, LLC for a proposed 38-lot single-family subdivision off Parkside Drive and 268 Pool Street (Tax Map 8, Lot 52-1) in the Suburban Residential 1 (SR1) Zoning District and a portion within the Stream Protection Shoreland Overlay District.**

MEETING DATE: June 18, 2025, 6:00 PM

1. INTRODUCTION

This project was last before the Planning Board on April 2, 2025, for "Sketch Plan" review. The application is being presented by Jason Haskell, P.E. of DM Roma Consulting Engineers, and Agent for Bedard Homes, LLC., referred to as "Applicant or Applicants". At the April 2, 2025, meeting the Applicant proposed a 38-lot single-family subdivision development of a currently vacant 46.5-acre property located at 268 Pool Street, as shown below:



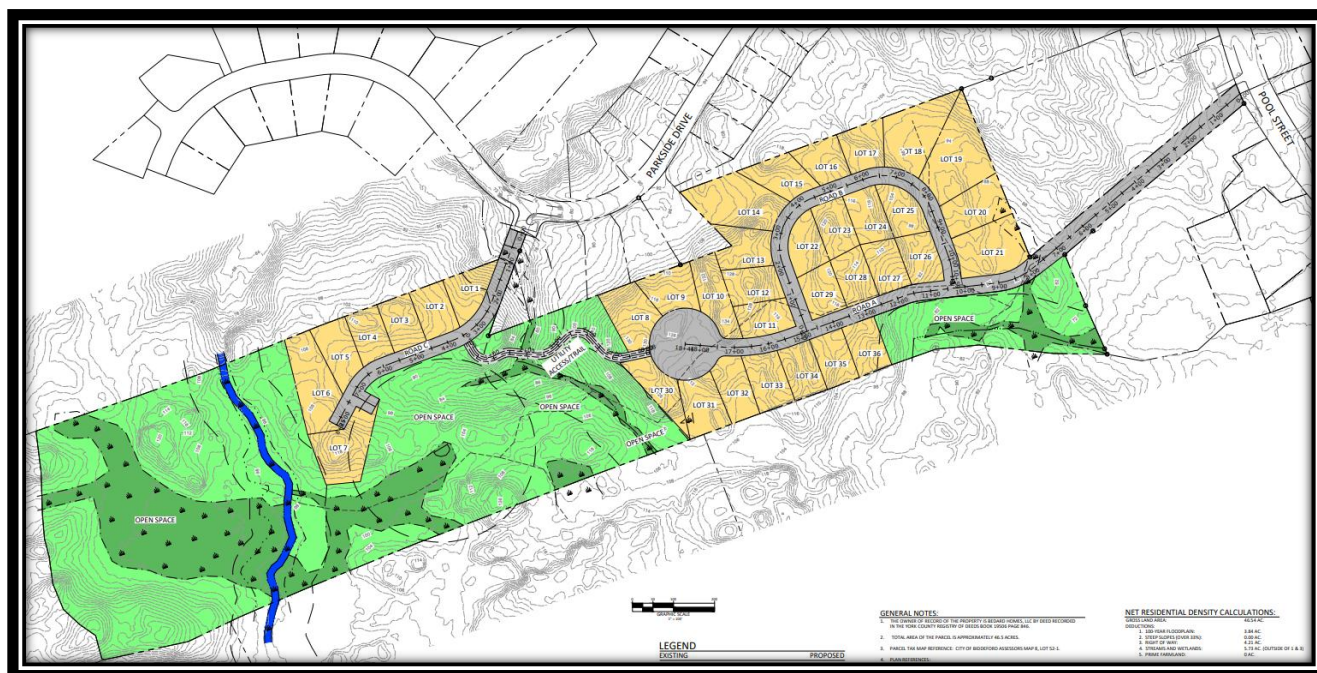
Proposed 38-lot Single-Family Subdivision off Parkside Drive and Pool Street

The Board asked the applicant to look at an alternative site plan that would limit the amount of traffic utilizing Parkside Drive as the initial application proposed for all of the proposed lots to be accessed off Parkside Drive. Since that time, the Applicant has reviewed the Board's request and has amended their proposal from a 38-unit subdivision into a 36-lot subdivision where lots #1-7 would continue to access Parkside Drive and lots # 8-36 would have direct access to Pool Street, thus significantly

RE: 2025.11 Sketch / Preliminary Plan Review for Bedard Homes, LLC for a proposed 38-lot single-family subdivision off Parkside Drive and 268 Pool Street (Tax Map 8, Lot 52-1) in the Suburban Residential 1 (SR1) Zoning District and a portion within the Stream Protection Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

reducing the traffic impacts to Parkside. This revised site plan also provides additional open-space that the Applicant is proposing to dedicate to the City to connect to Clifford Park. Should the City Council decide to not accept this proposed land dedication, the Applicant will offer it to a land trust. This land dedication proposal is scheduled to be discussed with the City Council at their June 17, 2025, meeting, and I anticipate that the Council will be more than enthusiastic to accept this environmentally sensitive land for open-space / recreation. A copy of their amended plan is shown below, which incorporates the design elements discussed with the Board.



AMENDED Subdivision / 36-lot Single-Family Subdivision off Parkside Drive and Pool Street



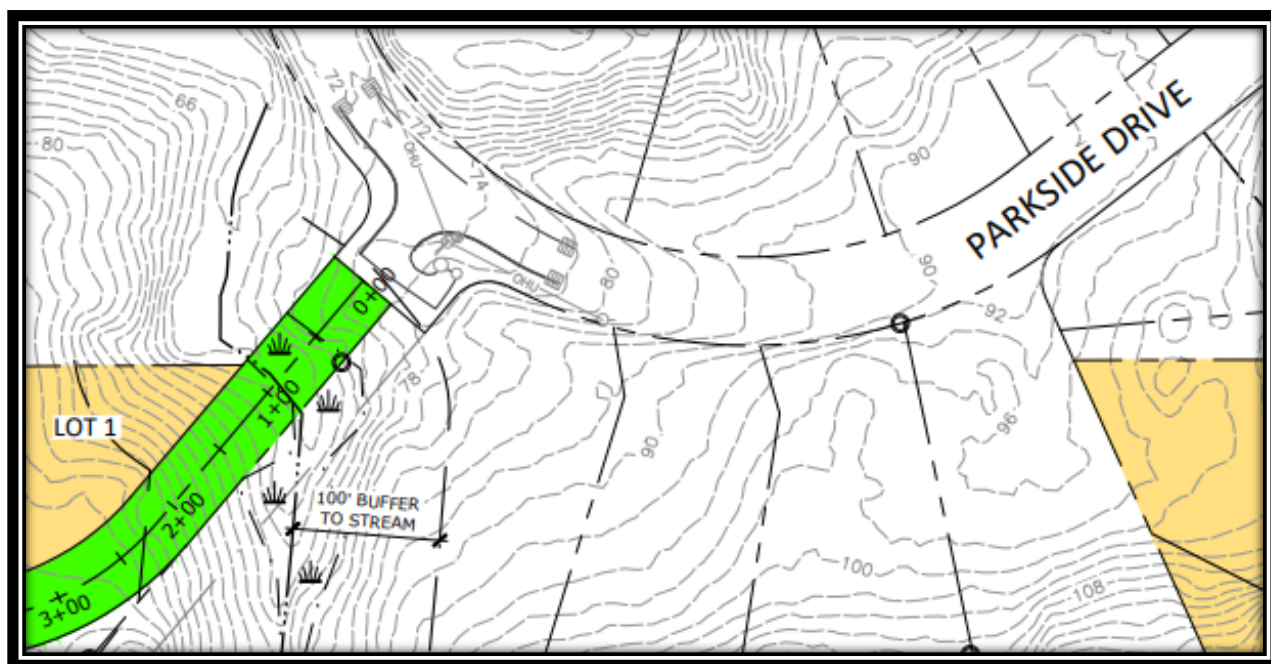
38-lot single-family subdivision / 268 Pool Street / SR1 Zoning District

RE: 2025.11 Sketch / Preliminary Plan Review for Bedard Homes, LLC for a proposed 38-lot single-family subdivision off Parkside Drive and 268 Pool Street (Tax Map 8, Lot 52-1) in the Suburban Residential 1 (SR1) Zoning District and a portion within the Stream Protection Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

The proposed subdivision has direct street frontage on Pool Street and Parkside Drive. The revised plans propose seven (7) house lots being accessed via Parkside Drive and lots # 8-36 being accessed via Pool Street. This modification was made due to the Parkside Drive neighborhood's concerns with increased traffic. It should be noted that there remain three (3) parcels off Parkside Drive that are currently vacant but the future developments only have frontage on Parkside Drive so their future traffic will need to utilize Parkside Drive. The Applicant does not own or control these lots so has no control what will be proposed at this location

As illustrated below, Lots # 1 through 7 via Parkside Drive via the roadway stub that was designed and constructed when Parkside by the Falls Subdivision was initially constructed.

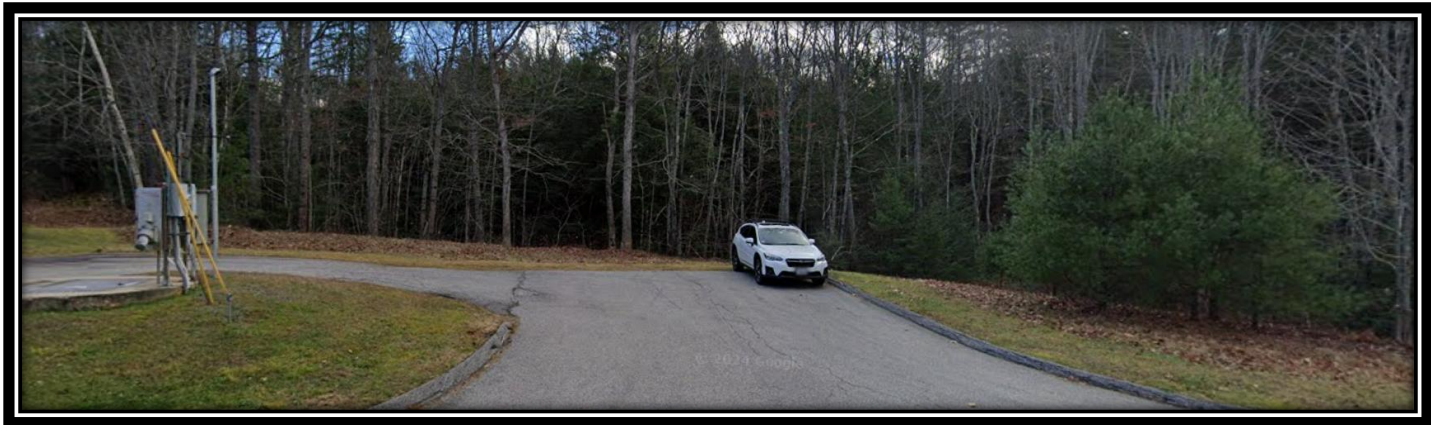


Proposed Subdivision Connection (Lots # 1-7) to Parkside Drive

When the proposed subdivision's entrance was designed off Parkside Drive, a 100' right-of-way was approved although only 50' is required for a public right-of-way (ROW). Below is an image of the proposed "future entrance" to the proposed development.

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MEETING DATE: June 18, 2025, at 6:00 PM



Future access point for the proposed Lots # 1-7 for single-family homes

The proposed subdivision includes approximately 3,600 linear feet of proposed new roadway designed to City street standards for future acceptance to the City. The proposed design is seeking to maximize the number of house lots being created while minimizing impacts on the natural environment. Although the property is 46.5-acres in area, the Applicant's are proposing to keep over 25-acres as dedicated open space, *"including a larger stream segment and associated Zone A Flood Hazard Area that bisects the site flowing to the northwest"*.

The lots are proposed to be served by public sewer and water extensions from Parkside Drive, and utilities will be provided underground. As outlined in their project narrative, *"stormwater treatment and flooding control is anticipated to be provided via a closed drainage system and under drained filter basins designed throughout the site"*. The Applicants have been working with the City's Public Works, Engineering Department and the Maine Water Company on the water and sewer extensions *"and will incorporate their recommendations and requirements in future design submissions"*. These designs are currently being finalized and plans drafted to the City's satisfaction. The City has sewer capacity to accept this development and issue a "Ability to Serve" letter.

2. PROJECT DATA/INFORMATION

1.		Applicant:	Bedard Homes, LLC PO Box 481 Biddeford, ME 04005
2.		Owner of Property:	Bedard Homes, LLC PO Box 481 Biddeford, ME 04005
3.		Agent:	Jason Haskell, P.E. D.M. Roma Consulting Engineers PO Box 1116 Windham, ME 04062
4.		Surveyor:	Survey, Inc. PO Box 210 Windham, Maine 04062

RE: 2025.11 Sketch / Preliminary Plan Review for Bedard Homes, LLC for a proposed 38-lot single-family subdivision off Parkside Drive and 268 Pool Street (Tax Map 8, Lot 52-1) in the Suburban Residential 1 (SR1) Zoning District and a portion within the Stream Protection Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

5.		Project Location:	268 Pool Street, Biddeford, ME
6.		Project Tax Map #/Lot #:	Tax Map 8, Lot 52-1
7.		Lot Size:	46.5-acres
8.		Base Zoning:	Suburban Residential 1 (SR-1)
9.		Overlay Zoning:	Stream Protection Shoreland Overlay District
10.		Existing Use:	Vacant
11.		Proposed Use:	38-unit single-family homes
12.		Approvals Required:	Subdivision/Site Plan
13.		Uses in the Vicinity:	Residential / openspace
14.		Waivers Needed:	a. None
15.		Waivers Granted:	a. None
16.		Other Non-City Permits Required:	a. None
17.		LDR Attachment A: Fees Paid	Sketch Plan Fees Paid
18.		Planning Board Review History:	Sketch Plan- April 2, 2025 Sketch Plan Review 2 – June 18, 2025.

3. REVIEW PROCESS

Per City ordinance, this application is subject to Subdivision Review (Chapter 66 – Subdivisions) and site plan approval by the Planning Board. This process involves Sketch Plan review, followed by Preliminary Plan Review, and ultimately Final Plan review / approval. The project will also require the following:

- A. Site Location of Development Act review under the City's delegated review status.
- B. A Chapter 500 Stormwater Permit issued by the Maine Department of Environmental Protection (MDEP).

4. GENERAL REVIEW COMMENTS:

- **APPLICATION COMPLETENESS:** This application is also being submitted for Sketch Plan review, so the Applicant can discuss the modifications to the subdivision plan and verify that the Board is supportive of the proposed plan prior to completing and submitting their Preliminary Application. The purpose of this report is to re-introduce the project to the Board, with the desire to formalize the concept plan presented, to identify items the Board believes are important and necessary for the continued review of this plan / project. Staff remain confident that this project will continue to move ahead with full Staff support. Due to the modifications to the concept plan, the Applicant will likely request that the Planning Board approve their Preliminary and Final Subdivision Plan at the same time at their next scheduled meeting.
- **ZONING:** The subject property is zoned Suburban Residential 1 (SR-1) and single-family dwellings are a permitted use within the district.
- **REVIEW STANDARDS:**

Staff found the sketch plan application to satisfy City subdivision requirements.

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MEETING DATE: June 18, 2025, at 6:00 PM

- **WAIVERS:** None

5. STAFF REVIEW COMMENTS:

A. Planning Department Comments:

- 1) Final plan sets shall include a survey of the entire property including the proposed “open-space”.
- 2) The formal submittal of Preliminary Plans shall include an environmental assessment for endangered / threatened plant and animal species. The below map, created by the City’s Conservation Commission, illustrates “undeveloped blocks” of land illustrated in mint green. The dark brown areas represent “Deer wintering Areas (DWA).

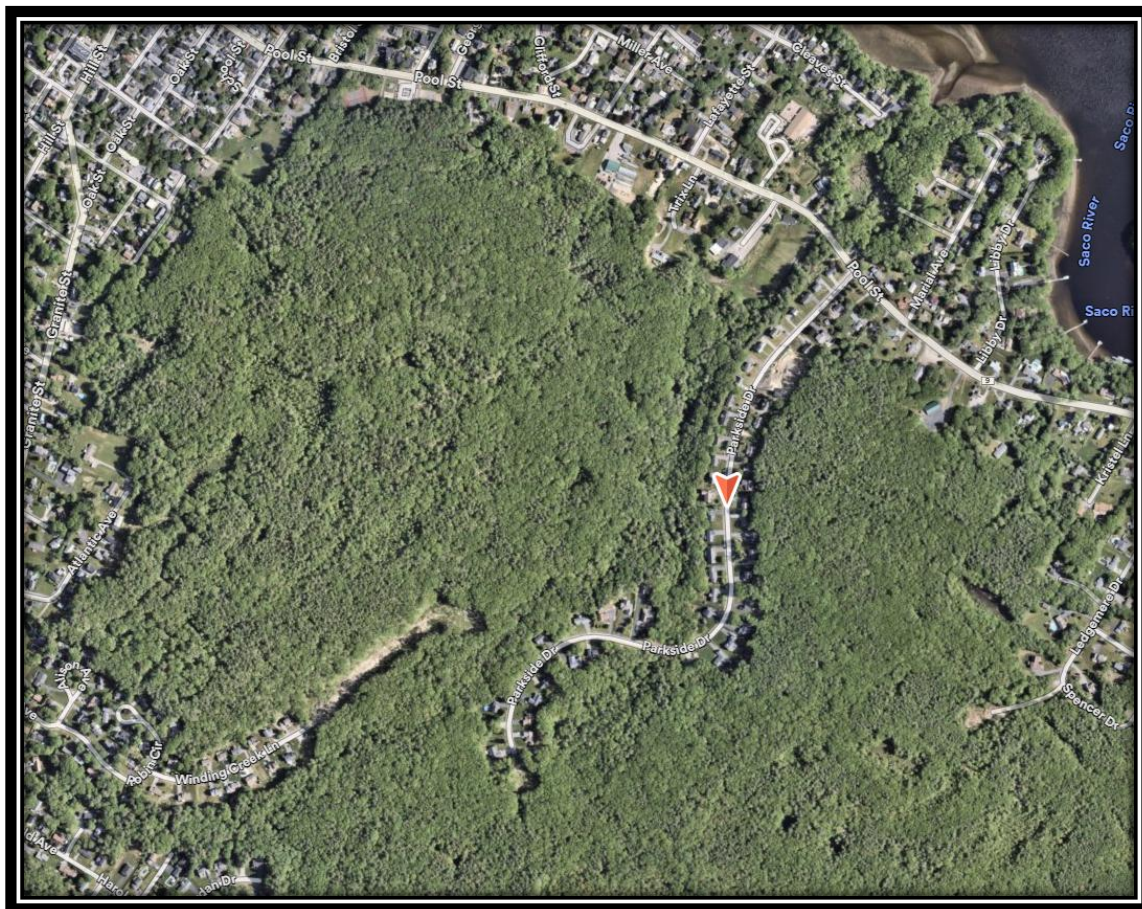


- 3) The Applicants are proposing to keep approximately 24.5-acres as dedicated open space, *“including a larger stream segment and associated Zone A Flood Hazard Area that bisects the site flowing to the northwest”*. It has not yet been determined who will be the future owner of the open space provided (conservation or open space), but it may be offered to a land trust, the City, or it may remain with the homeowner’s association. Due to the close proximity of Clifford Park to the development, it appears that this proposed openspace could remain protected permanently

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and connect to other undisturbed habitats and allow for species migration between the protected areas. Staff will be presenting this open space dedication to the City Council on June 17, 2025, with a recommendation to the City Council to accept the proposed land dedication and connect it to Clifford Park so that the land may be protected in perpetuity.



Dedicated openspace of 24+/- acres to help maintain migration corridors

B. Code Enforcement Comments:

- 1) The Army Corp. of Engineers maybe an additional permitting authority.

C. Engineering Department Comments:

- 1) The City has a gravity sewer and a pump station on Parkside. That all pumps to Lafayette pump station. That then pumps to the Treatment plant. I will have Alex (*Buecher, Wastewater Superintendent*) research the flows. The City is aware that Lafayette is an issue for us during rain events. That is a licensed Combined Sewer Overflow (CSO).

RE: 2025.11 Sketch / Preliminary Plan Review for Bedard Homes, LLC for a proposed 38-lot single-family subdivision off Parkside Drive and 268 Pool Street (Tax Map 8, Lot 52-1) in the Suburban Residential 1 (SR1) Zoning District and a portion within the Stream Protection Shoreland Overlay District.

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- 2) We have issues at Lafayette pumping station and the Syphon on Cleaves Street that needs to be looked at before we add any flow of them volumes. Again, that is a licensed D.E.P outfall directly to the Saco River.

6. STAFF RECOMMENDATION

Since the Board first heard this Subdivision Application, Staff have been working diligently with the Applicant to regarding the design of the now amended subdivision plan, have been working through the sewer and water upgrades and the future land dedication for preservation. The Applicants have been very responsive to Staff's comments. The Application before the Board this evening is for Subdivision "sketch plan review" so no formal Planning Board action is required. However, the Board should take this opportunity to review the proposed plans and identify any items the Board may wish to review or modify as part of this application.

Members of the Biddeford Conservation Commission-

[illegible]

Figure 1. Map indicating proposed developments in the West Brook Habitat Block associated with the Clifford Park land swap that will adversely impact wildlife habitat and isolate Clifford Park from the rest of the habitat block.

The ecological significance of the Biddeford-Kennebunkport Vernal Pool Complex focus area derives from its high concentration of vernal pools and pocket wetlands set in a relatively undeveloped landscape. The focus area provides habitat to a number of rare species, most notably to Blanding's and spotted turtles, two state-listed species whose distributions are primarily limited to southernmost Maine, where unfragmented landscapes have become increasingly rare. Unfortunately, the West Brook Habitat Block is the only portion of the Vernal

Pool Complex focus area within Biddeford that is zoned as SR-1 (Suburban Residential). All other portions of the focus area in the City are zoned as RF (Rural Farm), which suggests that other areas are valued more for their rural character and by association are more amenable to the protection of wildlife habitat. However, the Conservation Commission has strong evidence to suggest that the West Brook Habitat Block might be the most ecologically significant habitat block in the City. Working to reconsider the SR-1 zoning designation for the unfragmented section of the West Brook Habitat Block, would likely elevate the level to which wildlife concerns might be addressed through the planning process.

The following comments are primarily directed to local documentation and habitat requirements of the two rare turtle species, not only because they are rare in Maine, but also because ***successful protection of rare turtle habitat in the West Brook Habitat Block would likely serve as an umbrella that benefits a wide variety of other plant and wildlife species.***

According to records within the Conservation Commission's own compiled database these rare turtle species have been documented at number of wetland locations within the West Brook Habitat Block (Fig. 2). Information documenting the presence of both rare turtle species (Fig 3) was also provided to the City of Biddeford by the Maine Department of Inland Fisheries and Wildlife (MDIFW) in a 2021 Biodiversity Research Institute (BRI) report¹. Unfortunately, the 2021 BRI report failed to include documentation of a spotted turtle in Clifford Park in April 2020 by Grace Glynn that was reported to the Biddeford Conservation Commission² and to MDIFW. Working on behalf of the Biddeford Conservation Commission, I subsequently documented an adult female spotted turtle in Clifford Park in May 2023 (Fig 4) and reported the results to the Commission and to MDIFW³. The recent Clifford Park observations (Fig 2) suggest that ***a subpopulation of spotted turtles persists in Clifford Park.*** In the past, individuals from this subpopulation likely moved freely between the wetlands of Clifford Park and the many documented rare turtle wetlands to the east in the West Brook Habitat Block. Turtles may continue to move between these locations, or attempt to do so, despite the increased fragmentation in the interior of the habitat block.

Both Blanding's and spotted turtles are long-lived species (estimated ages of 60-100+ years) that are slow to reach maturity and have small annual clutch sizes. What this means is that ***adult survivorship is critical to the persistence of both turtle species.*** Adults must reproduce over a large number of years to maintain stable populations. Populations are therefore particularly susceptible to even small numbers of adult losses.

Both Blanding's and spotted turtles are considered semi-aquatic species, which means that in addition to their use of a variety of wetland habitats they also ***make extensive use of uplands*** over the course of their active season from April to October. A 2007 study, that included turtles

¹ Biodiversity Research Institute. 2021. Clifford Park Habitat Connectivity Report. A Report to the City of Biddeford. 18pp. + appendices.

² Glynn, G. 2020. An Ecological Assessment of Clifford Park, Biddeford, Maine. A Report to the Biddeford Conservation Commission & Heart of Biddeford. 14 pp. + appendices.

³ Ward, M. 2023. Results of Vernal Pool Habitat Assessments and Spotted Turtle Overwintering Habitat at Select Wetlands in Clifford Park, Biddeford, 2023.

in Biddeford, found that on average *Blanding's turtles use more than six different wetlands per year and spotted turtles use more than three different wetlands per year*⁴. Both species overwinter in permanent wetlands and move in spring to vernal pools in which large numbers of wood frog egg masses are present as springtime foraging sites.



Figure 2. Map of the West Brook Habitat Block showing the approximate boundaries of the proposed parcel (white polygon), wetlands in which rare Blanding's or spotted turtles have been observed (yellow and white pins), and vernal pool habitats that are biologically significant for amphibians based on egg mass counts (Source: Biddeford Conservation Commission). Yellow highlighted polygons are conserved lands showing the Clifford Park boundaries prior to the land swap. (Source: Maine Lands Conservation Database)

To utilize different wetlands, *Blanding's turtles make on average eight movements through uplands and spotted turtles make four movements through uplands per year*. The median distances of these inter-wetland movements were 827ft (252m) for Blanding's and 604ft (184m) for spotted turtles. In other words, *it is not uncommon for these rare turtles to traverse lengthy stretches of upland habitat to move from one wetland to another*. In addition, *females of both species seek upland sites to lay eggs* during the month of June. And *spotted turtles may spend considerable time on land during the hottest months of the year in July and August in estivation* (a type of summertime dormancy). Both species therefore use a variety of different wetland and upland habitats to fulfill seasonal ecological needs over the course of the active season. To complicate matters further, a given individual of either species may not use the exact same set of wetlands (or upland habitat) from one year to the next. This makes protecting habitat for these species especially challenging and is why *both species tend to persist only in relatively large unfragmented areas that contain both a variety of wetland types and intact uplands*.

⁴ Beaudry et al. 2007. A Study of Movement, Habitat Selection and Population Viability of Spotted and Blanding's Turtles in Southern Maine. A Report to the US Fish & Wildlife Service. 36pp.

Among the greatest threats to these species are habitat loss, habitat fragmentation, and road mortality. Direct upland habitat loss associated with this project poses a potential threat to both species. More insidious, further fragmentation of the West Brook Habitat Block as a result of this project, and others that may follow, will gradually restrict habitat suitability for these turtles and increase the likelihood of road crossing in an attempt to fulfill annual cycles. Fragmentation will subject turtles to a greater likelihood of road mortality or unwanted encounters with humans or dogs that may result in harm or their removal. The resultant loss of even a few reproductive-aged females could have devastating consequences for populations of these long-lived species.

Turtle trapping effort by MDIFW in the West Brook Habitat Block in 2017 and 2018 suggested that the less abundant & more wide-ranging Blanding's turtle population may have already experienced a localized decline, while the spotted turtle population, at that time, was thought to be fairly robust.⁵ But habitat connectivity between the subset of spotted turtles in Clifford Park and those farther east in the West Brook Habitat Block has already eroded since that time.

From an ecological standpoint, a combination of limiting road access to a single entry point off of Pool Street along with a meaningful shrinkage of the plan footprint by clustering housing units as close as possible to Pool Street would significantly limit road penetration into the interior portion of the habitat block and minimize the impact of this development. The revised version of the subdivision plan includes direct road access from Pool Street (Road A) but also includes road access from Parkside Drive (Road C) to proposed Lots 1-7 which penetrate into the interior of the habitat block.

By limiting the project to the footprint area associated with proposed Lots 8-31 and the single access road off of Pool Street, this project would be much less impactful on wildlife as it would significantly minimize fragmentation of the existing contiguous habitat block and preserve existing natural connectivity between Clifford Park and rest of the West Brook Habitat Block. From an ecological standpoint, the most problematic are proposed Lots 6 and 7. These lots, if developed, will have the greatest adverse impact on habitat connectivity between Clifford Park and the rest of the West Brook Habitat Block. Moreover, Lot 7, as proposed, falls within Significant Wildlife Habitat associated with a documented Significant Vernal Pool. If developed, Lot 7 would likely have an adverse impact on upland habitat for vernal pool breeding amphibians (and therefore likely alter potential rare turtle foraging habitat provided by this significant vernal pool).

I hope that the Conservation Commission will take these suggestions under consideration as you work to sustain wildlife habitat for future generations. Please don't hesitate to contact me if you have any questions.

Sincerely,

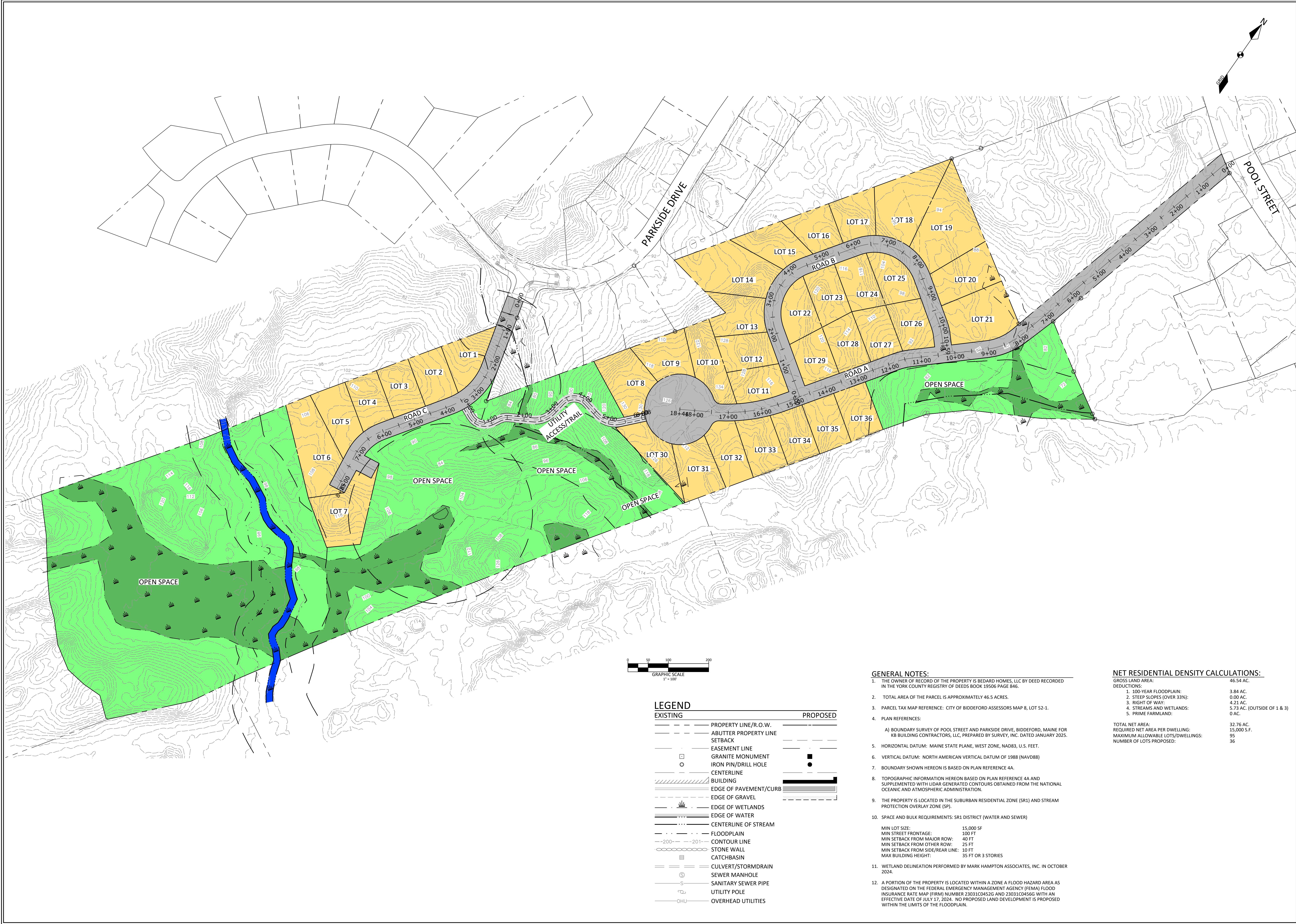
Mark Ward

Ecological Consultant, 28 Poor Farm Road,
Bristol, ME 04539, 207-350-6537,
akamward@gmail.com

⁵ Yorks, Derek. Wildlife Biologist, MDIFW.
Personal Communication. June 2021.



Figure 4. An adult female spotted turtle that was observed in Clifford Park in May 2023 attesting to the persistence of a subset of individuals in the western part of the West Brook Habitat Block.



LEGEND	
EXISTING	PROPOSED
	PROPERTY LINE/R.O.W.
	ABUTTER PROPERTY LINE
	SETBACK
	EASEMENT LINE
	GRANITE MONUMENT
	IRON PIN/DRILL HOLE
	CENTERLINE
	BUILDING
	EDGE OF PAVEMENT/CURB
	EDGE OF GRAVEL
	EDGE OF WETLANDS
	EDGE OF WATER
	CENTERLINE OF STREAM
	FLOODPLAIN
	CONTOUR LINE
	STONE WALL
	CATCHBASIN
	CULVERT/STORMDRAIN
	SEWER MANHOLE
	SANITARY SEWER PIPE
	UTILITY POLE
	OVERHEAD UTILITIES

GENERAL NOTES:

- THE OWNER OF RECORD OF THE PROPERTY IS BEDARD HOMES, LLC BY DEED RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS BOOK 19506 PAGE 846.
- TOTAL AREA OF THE PARCEL IS APPROXIMATELY 46.5 ACRES.
- PARCEL TAX MAP REFERENCE: CITY OF BIDDEFORD ASSESSORS MAP 8, LOT 52-1.
- PLAN REFERENCES:
A) BOUNDARY SURVEY OF POOL STREET AND PARKSIDE DRIVE, BIDDEFORD, MAINE FOR KB BUILDING CONTRACTORS, LLC, PREPARED BY SURVEY, INC. DATED JANUARY 2025.
- HORIZONTAL DATUM: MAINE STATE PLANE, WEST ZONE, NAD83, U.S. FEET.
- VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
- BOUNDARY SHOWN HEREON IS BASED ON PLAN REFERENCE 4A.
- TOPOGRAPHIC INFORMATION HEREON BASED ON PLAN REFERENCE 4A AND SUPPLEMENTED WITH LIDAR GENERATED CONTOURS OBTAINED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.
- THE PROPERTY IS LOCATED IN THE SUBURBAN RESIDENTIAL ZONE (SR1) AND STREAM PROTECTION OVERLAY ZONE (SP).
- SPACE AND BULK REQUIREMENTS: SR1 DISTRICT (WATER AND SEWER)
MIN LOT SIZE: 15,000 SF
MIN STREET FRONTAGE: 100 FT
MIN SETBACK FROM MAJOR ROW: 40 FT
MIN SETBACK FROM OTHER ROW: 25 FT
MIN SETBACK FROM SIDE/REAR LINE: 10 FT
MAX BUILDING HEIGHT: 35 FT OR 3 STORIES
- WETLAND DELINEATION PERFORMED BY MARK HAMPTON ASSOCIATES, INC. IN OCTOBER 2024.
- A PORTION OF THE PROPERTY IS LOCATED WITHIN A ZONE A FLOOD HAZARD AREA AS DESIGNATED ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM) NUMBER 23031C04526 AND 23031C0456G WITH AN EFFECTIVE DATE OF JULY 17, 2024. NO PROPOSED LAND DEVELOPMENT IS PROPOSED WITHIN THE LIMITS OF THE FLOODPLAIN.

NET RESIDENTIAL DENSITY CALCULATIONS:	
GROSS LAND AREA:	46.54 AC.
DEDUCTIONS:	
1. 100-YEAR FLOODPLAIN:	3.84 AC.
2. STEEP SLOPES (OVER 33%):	0.00 AC.
3. RIGHT OF WAY:	4.21 AC.
4. STREAMS AND WETLANDS:	5.73 AC. (OUTSIDE OF 1 & 3)
5. PRIME FARMLAND:	0 AC.
TOTAL NET AREA:	32.76 AC.
REQUIRED NET AREA PER DWELLING:	15,000 S.F.
MAXIMUM ALLOWABLE LOTS/DWELLINGS:	95
NUMBER OF LOTS PROPOSED:	36

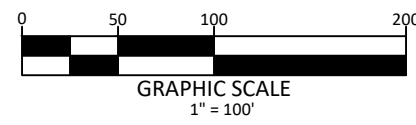
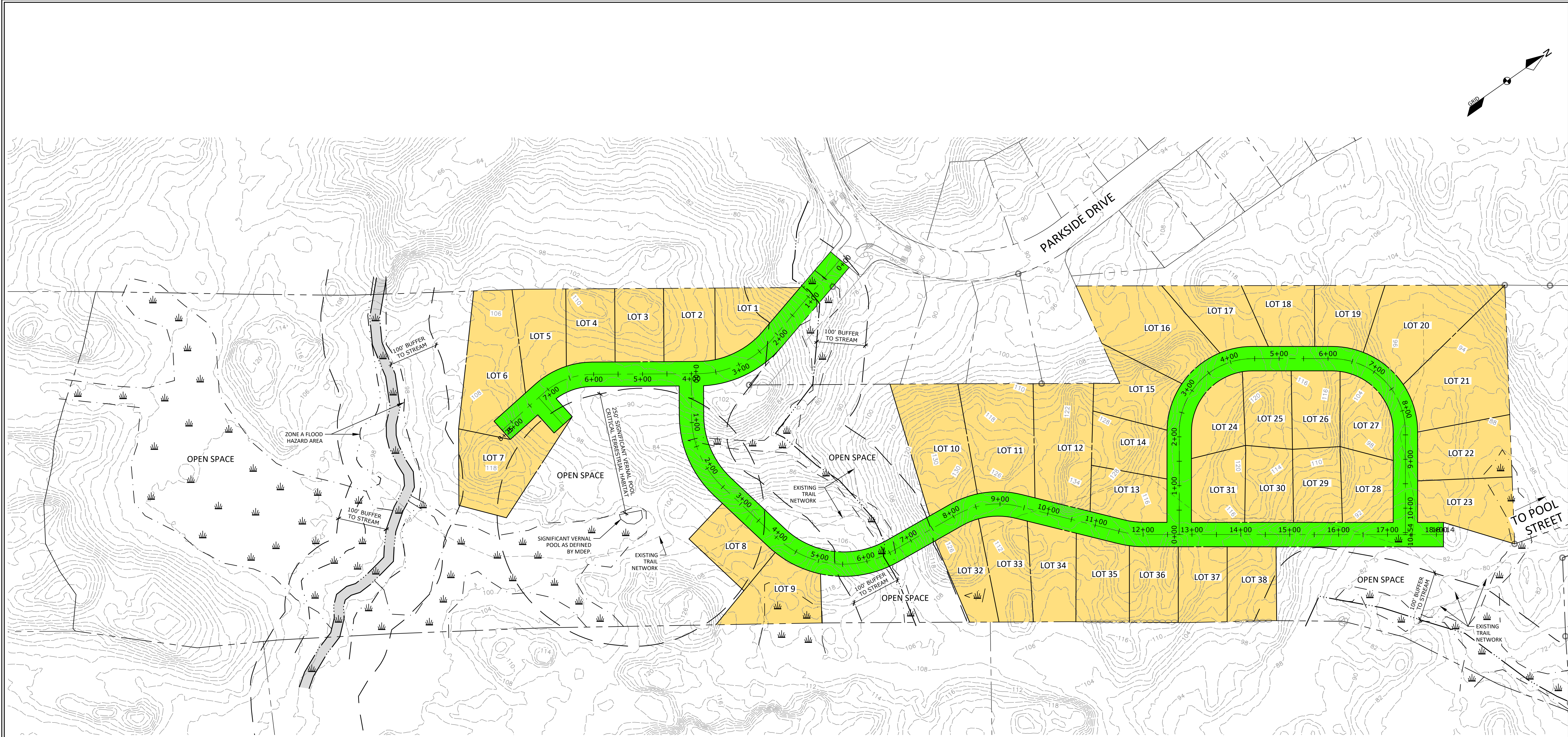
PRELIMINARY
NOT FOR
CONSTRUCTION

DM ROMA
CONSULTING ENGINEERS
P.O. BOX 1116
WINDHAM, ME 04062
(207) 591-5055

REV	DATE	BY	DESCRIPTION
A	2-12-25	JRH	ISSUED TO CITY FOR SKETCH PLAN REVIEW

SKETCH PLAN
POOL STREET RESIDENTIAL SUBDIVISION
POOL STREET AND PARKSIDE DRIVE
BIDDEFORD, MAINE
FOR RECORD OWNER:
BEDARD HOMES, LLC
PO BOX 483
BIDDEFORD, MAINE 04005

24036
JOB NUMBER:
1" = 100'
SCALE:
2-12-2025
DATE:
SHEET 1 OF 1
SK-1



LEGEND	
EXISTING	PROPOSED
	PROPERTY LINE/R.O.W.
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	CENTERLINE
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	EDGE OF GRAVEL
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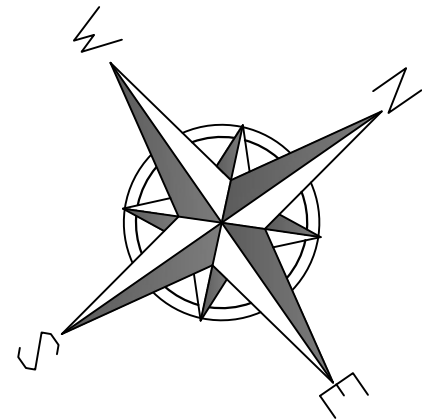
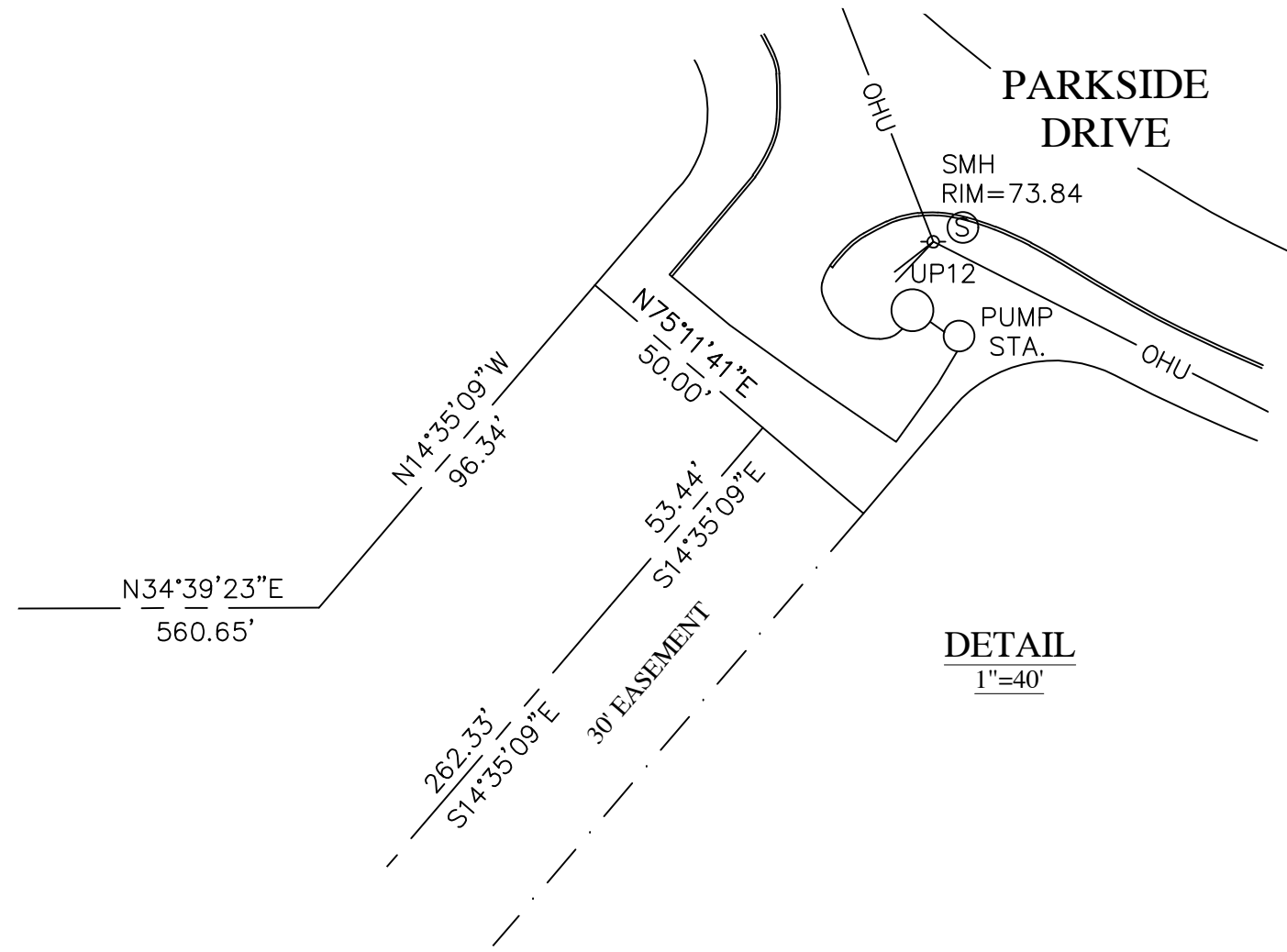
PRELIMINARY
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DM ROMA
CONSULTING ENGINEERS
P.O. BOX 1116
WINDHAM, ME 04062
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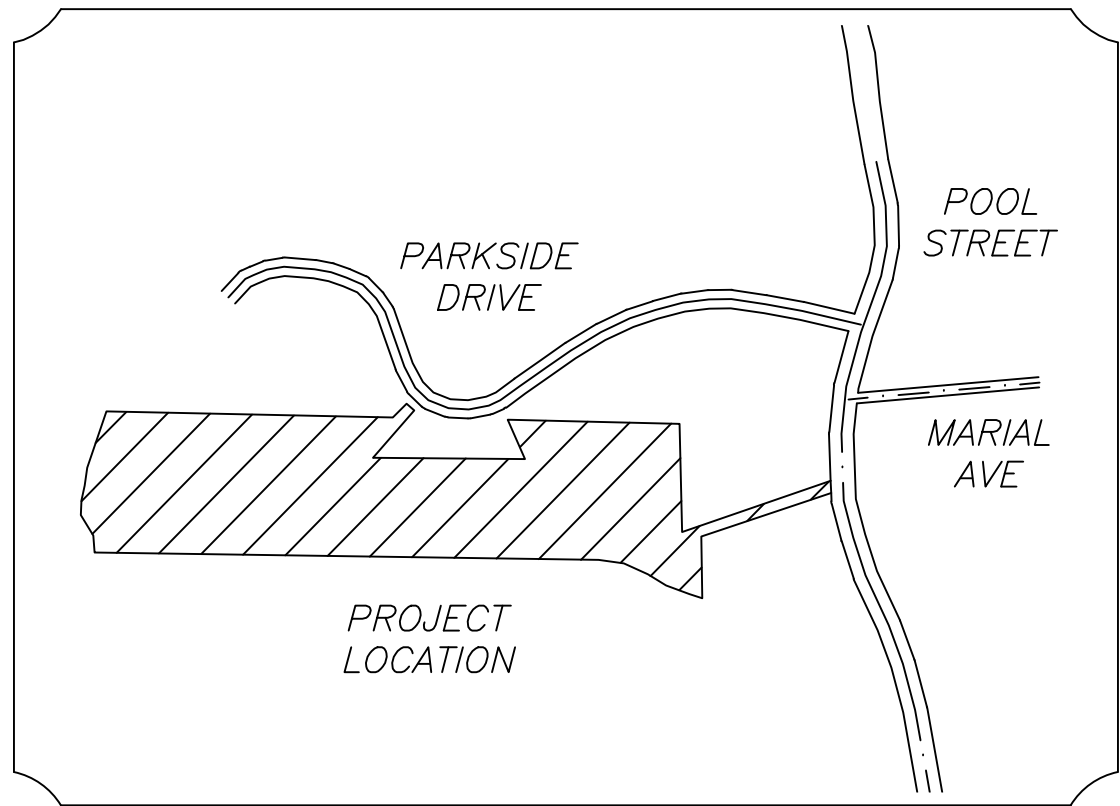
REV	DATE	BY	DESCRIPTION
A	2-12-25	JRH	ISSUED TO CITY FOR SKETCH PLAN REVIEW

SKETCH PLAN
POOL STREET RESIDENTIAL SUBDIVISION
POOL STREET AND PARKSIDE DRIVE
BIDDEFORD, MAINE
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PO BOX 483
BIDDEFORD, MAINE 04005

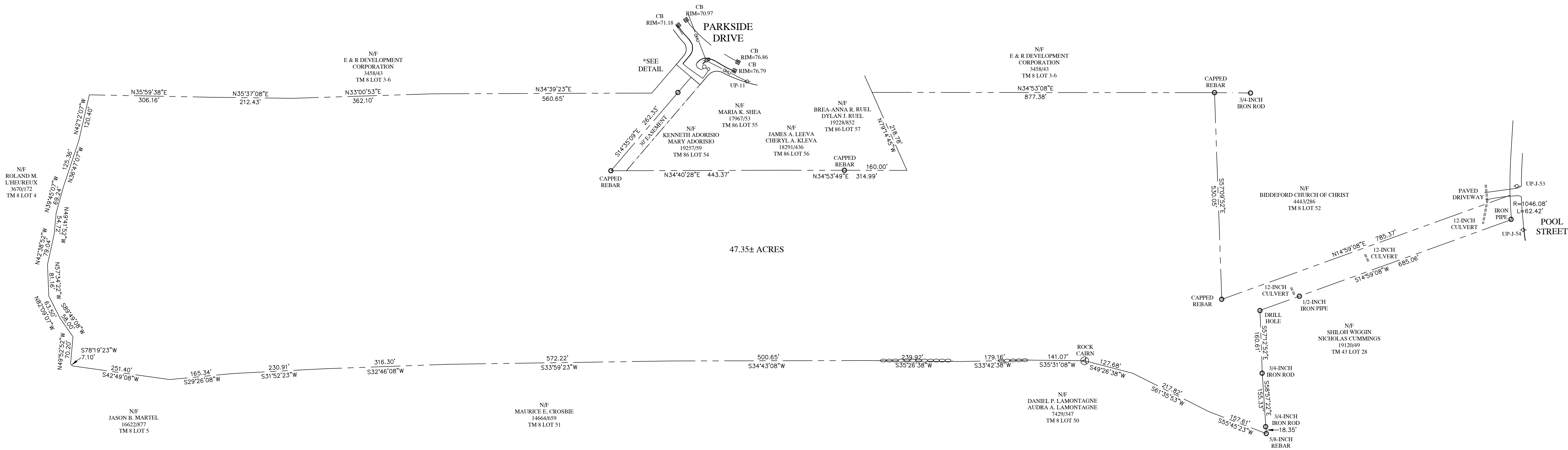
24036
JOB NUMBER:
1" = 100'
SCALE:
2-12-2025
DATE:
SHEET 1 OF 1
SK-1



GRID NORTH
MAINE STATE PLANE
NAD 83, 1802 - MAINE WEST



LOCATION MAP
(NOT TO SCALE)



PLAN REFERENCES:

- (1) PLAN SHOWING A STANDARD BOUNDARY SURVEY MADE FOR RAYMOND DERYCK BIDDEFORD, MAINE DATED DECEMBER 16, 1987 BY DOW & COULOMBE.
- (2) WEST WOODS PHASE III BIDDEFORD, MAINE FOR CONRAD A. BELANGER DATED JUNE 1982 BY ROGER GOBEIL RLS RECORDED IN PLAN BOOK 118 PAGE 24 IN THE YORK COUNTY REGISTRY OF DEEDS.
- (3) PLAN SHOWING LAND SURVEYED FOR IRENE COTE BIDDEFORD, MAINE DATED MAY 6, 1975 REVISED THROUGH AUGUST V2, 1979 BY DOW & COULOMBE RECORDED IN PLAN BOOK 99 PAGE 28 IN THE YORK COUNTY REGISTRY OF DEEDS.
- (4) MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP STATE AID HIGHWAY NO. 2 BIDDEFORD YORK COUNTY DATED JANUARY 1957 SHC FILE NO. 16-116.
- (5) PARKSIDE ADDITION TO PHASE I FINAL SUBDIVISION PLAN PARKSIDE DRIVE BIDDEFORD, MAINE FOR E & R DEVELOPMENT CORP DATED NOV. 2012 REVISED THROUGH 3-1-13 BY BH2M RECORDED IN PLAN BOOK 359 PAGE 47 IN THE YORK COUNTY REGISTRY OF DEEDS.
- (6) AMENDED SUBDIVISION PLAN SECTION B PARKSIDE BY THE FALLS PHASE I POOL STREET BIDDEFORD, MAINE FOR E & R DEVELOPMENT CORP DATED JAN. 2000 REVISED THROUGH 3-1-00 BY BH2M RECORDED IN PLAN BOOK 254 PAGE 31 IN THE YORK COUNTY REGISTRY OF DEEDS.

SURVEY NOTES:

- (1) THE OWNER OF RECORD IS RAYMOND DERYCK AS DESCRIBED IN DEEDS RECORDED IN BOOK 4443 PAGE 288 AND BOOK 16554 PAGE 570 IN THE YORK COUNTY REGISTRY OF DEEDS.
- (2) THE PARCEL IS DEPICTED AS LOT 52-1 ON THE CITY OF BIDDEFORD ASSESSORS MAP 8.
- (3) BEARINGS ARE GRID NORTH MAINE STATE PLANE 1802 WEST ZONE
- (4) VERTICAL DATUM- NAVD 88
- (5) BOUNDARIES HEREON REPRESENT A RETRACEMENT OF PLAN REFERENCE 1.

CERTIFICATION:

I CERTIFY THAT THIS SURVEY CONFORMS TO THE STANDARDS OF THE MAINE BOARD OF LICENSING FOR PROFESSIONAL LAND SURVEYORS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

WILLIAM C. SHIPPEY P.L.S. 2118

BOUNDARY SURVEY
POOL STREET AND PARKSIDE DRIVE
BIDDEFORD, MAINE

FOR:

**KB BUILDING
CONTRACTORS LLC**
PO BOX 481
BIDDEFORD, MAINE 04005
(CLIENT)

SURVEY BY:

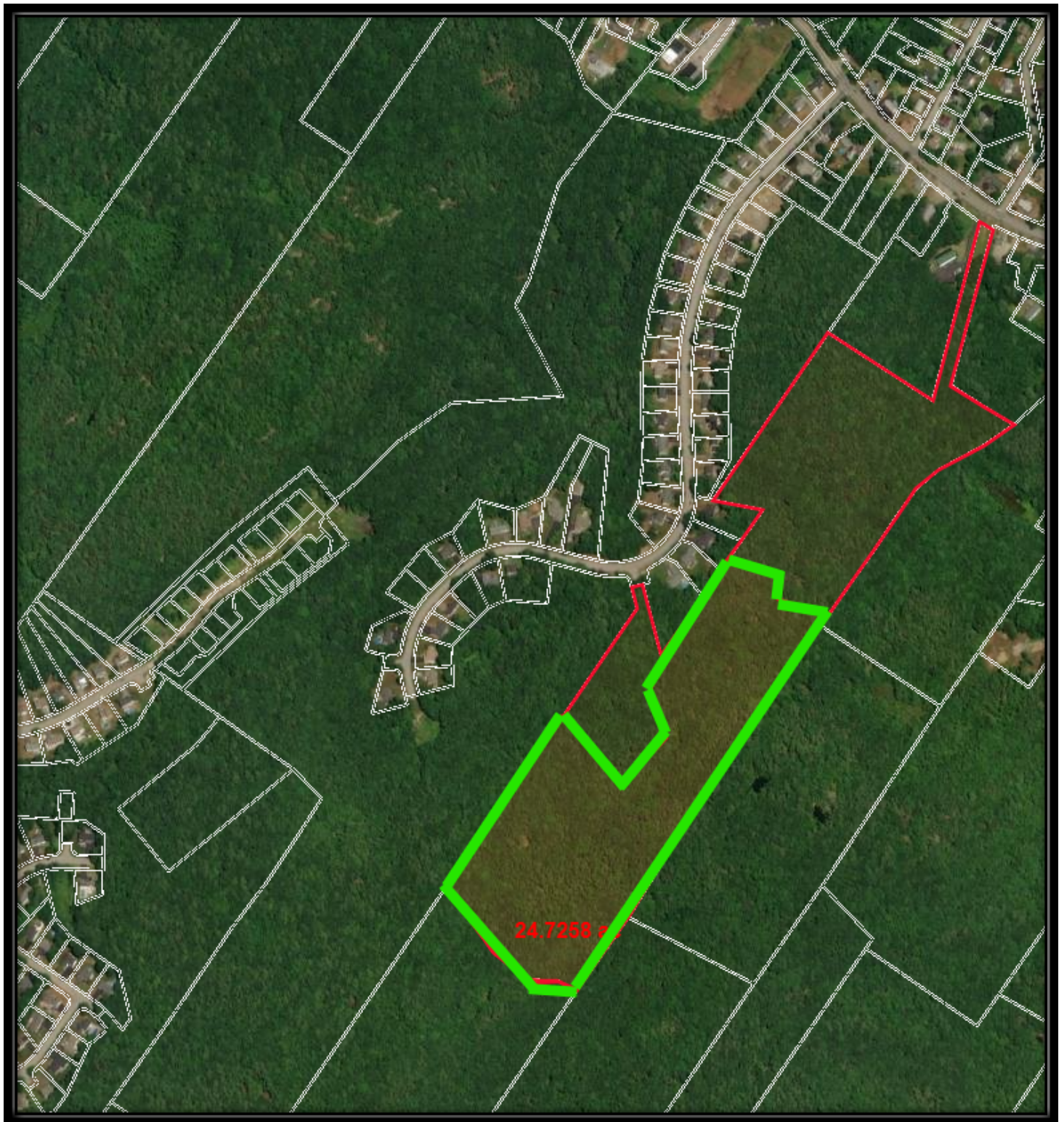
SURVEY, INC.
P.O. BOX 210
WINDHAM, ME 04062
(207) 892-2556
INFO@SURVEYINCORPORATED.COM

DWN:DRR
DATE: JANUARY 2025

CHK:WCS
JOB NO. 24-229

PRELIMINARY

Bedard Homes, LLC.
Bedard Subdivision
Proposed Land Dedication – Subdivision outlined in RED &
Proposed Land Conservation Donation in GREEN (25 +/- acres)

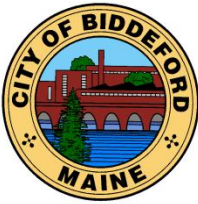


Existing Clifford Park Boundary

West Brook Subdivision

Bedard's Future
Subdivision

Future Development



CITY OF BIDDEFORD

Planning and Development Department

David Galbraith
City Planner & Deputy Director of Planning &
Development
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
David.galbraith@biddefordmaine.org

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Bateman Partners LLC.

Preliminary & Final Site Plan & Subdivision Application

641 Maine Street, (Tax Map 32, Lot 1) in the Mixed Residential (R3) Zoning District.

June 18, 2025

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Chapter 66 (Subdivisions), the Biddeford Planning Board has considered the application of Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning Board makes the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT:

1.	Applicant:	Bateman Partners, LLC 470 Fore Street, Suite 400 Portland, Maine 04101
2.	Owner of Property:	Forest Green Associates LP 470 Fore Street, Suite 400 Portland, Maine 04101
3.	Agent:	Doug Renolds, P.E. Gorrill Palmer Consulting Engineers 300 Southborough Drive, Suite 200 South Portland, Maine 04106
4.	Surveyor:	Doug Renolds, P.E. Gorrill Palmer Consulting Engineers 300 Southborough Drive, Suite 200 South Portland, Maine 04106
5.	Project Location:	641 Main Street, Biddeford, ME
6.	Project Tax Map #/Lot #:	Tax Map 32, Lot 1
7.	Lot Size:	10.15-acres
8.	Base Zoning:	Mixed Residential (R3)
9.	Overlay Zoning:	Shoreland Overlay District – General Development
10.	Existing Use:	Residential development with 5 existing buildings totaling 40 units with associated parking, accessways, and utility infrastructure.
11.	Proposed Use:	60-unit, senior LMI housing
12.	Approvals Required:	Subdivision/Site Plan
13.	Uses in the Vicinity:	Mixed Use / Residential / Rotary Park
14.	Waivers Needed:	a. None
15.	Waivers Granted:	a. None
16.	Other Non-City Permits Required:	a. See below section # 3
17.	A: Fees Paid:	Fees Paid
18.	Planning Board Review History: Planning Board Review History: Sketch Plan- April 2, 2025;	

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Bateman Partners LLC.
Preliminary & Final Site Plan & Subdivision Application
641 Maine Street, (Tax Map 32, Lot 1) in the Mixed Residential (R3) Zoning District.
June 18, 2025

Preliminary Plan (Tabled) May 7, 2025; Preliminary and Final Review 6-18-25.
--

CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;

FINDINGS OF FACT AND CONCLUSIONS OF LAW
Bateman Partners LLC.
Preliminary & Final Site Plan & Subdivision Application
641 Maine Street, (Tax Map 32, Lot 1) in the Mixed Residential (R3) Zoning District.
June 18, 2025

14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

APPROVAL GRANTED – CONDITIONS OF APPROVAL (COA):

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report and pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Subdivision Review, and hereby approves Case # 2025.09 for **Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income** located at 641 Main Street (Tax Map 32, Lots 1) with the following Conditions of Approval (COA):

1. Standard Conditions of Approval apply.
2. All vehicle maneuvering, loading and unloading must occur on-site and may not utilize Main Street for loading or backing into / out of the property.
3. The Applicant shall provide interior storm and sanitary plumbing plans, confirming both gravity systems are separated and have separated downstream connections within the City's infrastructure. If the interior storm and sanitary piping are not separated or do not outfall into separated systems, the Applicant shall provide formal separation plans, including disconnection of roof drains / downspouts. If the building's interior pipe routing is unclear, CCTV footage shall be provided. The submitted plans shall be reviewed and approved by the City's Director of Engineering prior to the issuance of any building or plumbing permits.
4. Prior to the scheduling of the required Pre-construction meeting the Applicant shall make all required changes to the project Civil Plans for the review and approval of the Director of Engineering.
5. Bonding and Inspection Fees: **Bonding and inspection fees shall be established prior to scheduling of the required Pre-construction meeting.**

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Bateman Partners LLC.

Preliminary & Final Site Plan & Subdivision Application

641 Maine Street, (Tax Map 32, Lot 1) in the Mixed Residential (R3) Zoning District.

June 18, 2025

6. Modifications to Approved Development Plans: The project shall be constructed in accordance with the approved development plans. **No deviations to the approved development plans shall be made without prior written authorization by the City Planner.** Should the Applicants desire a modification from approved plans, they shall be required to submit a formal letter requesting a "minor modification" to the approved development plans. The narrative shall be submitted outlining the request, the reasoning for the request (justification) and shall include plans illustrating the approved plans and proposed modifications. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board. It should be noted that review fees for any proposed changes may be assessed to the Applicant, for Staff or Peer Review time spent evaluating the request.
7. Once stamped and signed "As-Built drawings" are submitted to the Planning and Engineering Departments (clearly identifying what approved deviations and variances were installed based on the approved permit drawings), the City Engineering Department will conduct an inspection. The "as Built Checklist" shall be submitted for review and approval, for any performance guarantee release.
8. As-Built Drawings and CAD Files need to be submitted to the Planning & Engineering Departments **prior to a 'Site Punch list Inspection' and any bond release.**
9. York County Recorded Drawings: Applicant must submit recorded copies of York County Registry of Deed drawings to Planning & Engineering Department **prior to Building Permit Issuance.**
10. The Plan Set shall be revised, prior to Planning Board signature, the following items to the satisfaction of the Fire Chief:
 - A. The entire length of the proposed fire lanes, providing emergency vehicle around the sides of the building, shall be a minimum of twenty (20') feet in width and be structurally engineered to support a minimum of 78,000 lbs (the weight of the City's heaviest apparatus). The plans shall provide certification for the compaction of the surface to support 78,000 lbs.
 - B. The emergency access isles at the sides of the building/s shall project beyond the rear of the building for adequate fire coverage.
 - C. The building's fire connections and sprinkler room/s shall be located / accessed on the front of the building/s for easy emergency access.
 - D. The fire lanes, as approved by the Fire Chief, shall be maintained to provide year-round 20' wide emergency access, including snow removal, the entire length of the fire lanes. Submit a Snow Removal plan to maintain the 20' width beginning to end during winter months.
11. Sewer Infrastructure Contribution:

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Bateman Partners LLC.

Preliminary & Final Site Plan & Subdivision Application

641 Maine Street, (Tax Map 32, Lot 1) in the Mixed Residential (R3) Zoning District.

June 18, 2025

The developer and the City have entered into an agreement where Bateman Partners shall contribute \$1,000,000 to the City of Biddeford. This amount includes the required sewer impact fee (\$201,600) and a voluntary cash donation in the amount of \$798,400., paid as TIF Credit. As such payments to the City from the developer shall:

A. Sewer Impact Fees: Prior to the issuance of the 1st building permit Bateman Partners shall pay their sewer impact fee of \$201,600. As agreed, these funds will be utilized by the City to upgrade the Main Street pump station with the monetary contribution/credit listed below in item "B".

B. Main Street Pump Station Sewer Upgrades: A monetary contribution of \$798,400 shall be paid by FG prior to the required Preconstruction Meeting is scheduled. These funds shall be allocated explicitly toward the upgrade of the Main Street pump station. This contribution is a prerequisite for the issuance of an "Ability to Serve" letter by the city. The Applicant's commitment enables the City to move forward with necessary infrastructure improvements to increase sewer capacity within the service area.

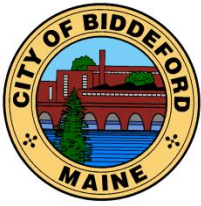
NOTE: these funds are dependent on Forest Green receiving Maine State affordable housing grant funds this Fall; Bateman Partners would not pull building permits until May 2026 (i.e. the City would need to wait until then to begin construction). If Bateman Partners doesn't receive funding, the City will require alternative funding.

C. Required Inspections:

- i. Erosion & Sediment Control Inspections
 - 1. Needs to be completed by a City-approved 3rd Party Inspector and paid by the Applicant via the inspection fee escrow being held by the City.
 - 2. Initial, monthly, and final inspections
 - 3. The City's Engineering Department, at minimum, shall be notified for an initial E&S inspection prior to breaking ground.
- ii. Copies of all inspection reports need to be submitted to the Engineering Department upon the completion of each inspection.
- iii. Stormwater BMP Installation Inspections
 - 1. Needs to be completed by the design engineer
 - 2. Confirming stormwater facilities installed correctly per design
 - 3. Inspection reports need to be submitted to the Engineering Department

Alexa Plotkin, Planning Board Chair

Date



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, City Planner & Deputy Director of the Planning & Development Dept.

DATE: May 14, 2025

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

MEETING DATE: June 18, 2025, 6:00 PM

1. INTRODUCTION

This application was first reviewed by the Planning Board as a Sketch Plan on April 2, 2025. On May 7, 2025, the project was brought before the Planning Board for "Preliminary Plan" review but was "Tabled" by the Board due to their concerns with the City not being able to provide an "Ability to Serve" the project due to the Main Street pump station being close to capacity. Over the past few weeks Staff has been working diligently with the Applicant's development team, and a solution to the sewer capacity upgrades to serve this development and additional future developments, utilizing this sewer shed has been provided.

In simple terms, Bateman Partners have offered the City \$1,000,000. In up-front utilizing their sewer impact fee of approximately \$183,000. and paying the balance (approximately \$817,000.) in cash. The City would use this money towards upgrades of the Main Street pump station. The Public Works and Engineering Department have worked out two possible scenarios. 1) The first option is to utilize the funds to upgrade the existing pump station, which will be able to accept additional development within the sewer-shed. This option will allow this development to connect (and be given an "Ability to Serve" letter but additional planned upgrades would need to be made in the future (approximately 5 years); 2) The second option would be approximately \$350,000. more expensive but would completely upgrade the existing pump station and related sewer lines. City Staff is scheduled to discuss this funding with the City Council at their 6-17-25 meeting as we are recommending utilizing \$350,00. of the City's funds to upgrade the entire system at this time. Regardless of which option the City Council chooses, with the proposed contribution from Bateman Partners, the City will be able to accept the sewer from this development and future developments within the area. Staff is completely supportive of the proposed "solution" offered by Bateman, and the Public Works Department will issue a "Ability to Serve" contingent upon the agreed upon monetary donation being paid prior to the issuance of the first building permit for the project.

The application is being presented by Doug Renolds, P.E. and Project Manager for Gorrill Palmer Engineers, and Agent for Bateman Partners, LLC., referred to as "Applicant or Applicants". The application is seeking to develop two (2) new apartment block buildings, connected with a shared

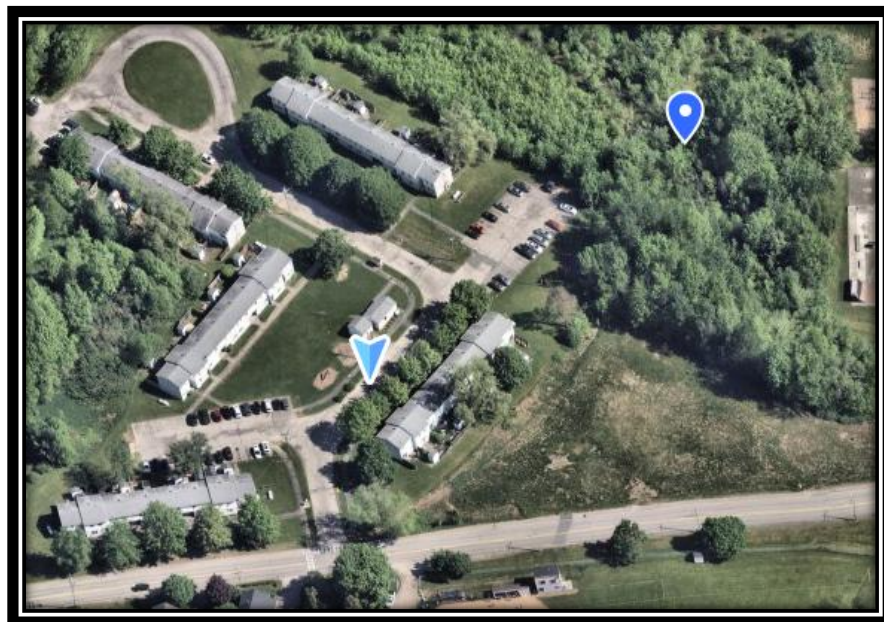
RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

entrance, each with 30 new, senior housing low/moderate income apartments for a total of 60 new apartments. This project requires Site and Subdivision Plan review and approval.



Forest Green Apartments – Existing Conditions



Project Location marker top right corner of above image

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

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The project scope is outlined within the development application and states (shown in *italics*):

The unit breakdown will incorporate forty-two (42) two-bedroom units and eighteen (18) one-bedrooms. The buildings have a footprint of approximately 9,800 SF each, connected by an 800 SF shared entry that will contain an elevator for accessibility to the upper floors of both buildings. The applicant received a districting change from the Saco River Corridor Commission (SRCC) changing from the Limited Residential to the General Development district for areas outside of the 250' Saco River buffer. The site is identified as a portion of Lot 1 on the Biddeford Tax Map 32. The property is bounded to the north by the Saco River, and to the south with direct frontage along Main Street. This property was originally developed in 1975, with 5 residential buildings consisting of 40 units with associated parking and access ways. Park View Court is a public road which runs through the center of the site and provides access to the existing apartment buildings. The buildings will utilize the existing development entrance and have their own primary access via Park View Court. The existing development footprint is currently approximately 6 acres and will be increased to approximately 7.5 acres. The amount of impervious area onsite would increase by approximately 38,100 square feet (0.87 acres).



Forest Green Apartments – Front Building Elevation – Partial



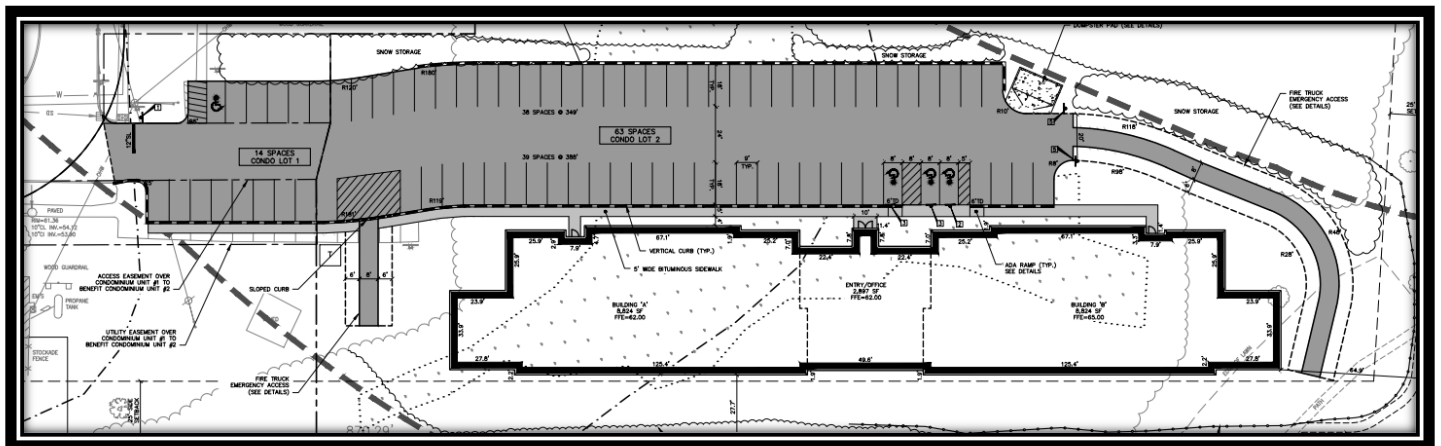
Forest Green Apartments – Front Building Elevation – Full

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

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Forest Green Apartments – First Floor Plan



2 Proposed Buildings with 60-units (total) of LMI senior housing and associated parking

The application narrative continued stating:

The proposed development requires a parking ratio of 1 space per unit if designed exclusively for, and occupancy is restricted to affordable housing. The Applicant is proposing 63 parking spaces to support the new LMI apartment building, which complies with the City of Biddeford's off-street parking requirements. Within the new parking lot, 14 spaces will be dedicated to the existing development for a total of 77 new parking spaces. Traffic generated by the proposed development is not anticipated to adversely impact the surrounding roadway network given the residential nature of the project. A traffic Evaluation is included in Attachment 4 which includes an analysis of the trip generation, access conditions, and safety. The proposed development is anticipated to be served by public water, sewer, and three-phase power which is available onsite. The site is anticipated to be served by a private solid waste hauler who has not been determined at this time.

The Forest Green Apartments are located off Main Street via Park View Court, which will be the internal connection to the proposed development.

2. PROJECT DATA/INFORMATION

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

1.		Applicant:	Bateman Partners, LLC 470 Fore Street, Suite 400 Portland, Maine 04101
2.		Owner of Property:	Forest Green Associates LP 470 Fore Street, Suite 400 Portland, Maine 04101
3.		Agent:	Doug Renolds, P.E. Gorrill Palmer Consulting Engineers 300 Southborough Drive, Suite 200 South Portland, Maine 04106
4.		Surveyor:	Doug Renolds, P.E. Gorrill Palmer Consulting Engineers 300 Southborough Drive, Suite 200 South Portland, Maine 04106
5.		Project Location:	641 Main Street, Biddeford, ME
6.		Project Tax Map #/Lot #:	Tax Map 32, Lot 1
7.		Lot Size:	10.15-acres
8.		Base Zoning:	Mixed Residential (R3)
9.		Overlay Zoning:	Shoreland Overlay District – General Development
10.		Existing Use:	Residential development with 5 existing buildings totaling 40 units with associated parking, accessways, and utility infrastructure.
11.		Proposed Use:	60-unit, senior LMI housing
12.		Approvals Required:	Subdivision/Site Plan
13.		Uses in the Vicinity:	Mixed Use / Residential / Rotary Park
14.		Waivers Needed:	a. None
15.		Waivers Granted:	a. None
16.		Other Non-City Permits Required:	a. See below section # 3
17.		A: Fees Paid:	Sketch Plan Fees Paid
18.		Planning Board Review History: Sketch Plan- April 2, 2025; Preliminary Plan (Tabled) May 7, 2025; Preliminary and Final Review 6-18-25.	

3. REVIEW PROCESS

Per City Ordinance, this application is subject to Site Plan Review (City of Biddeford, Code of Ordinances, Part III - Land Development Regulations, Article XI – Site Plan Review). The review process for this project involves Sketch Plan review, followed by Preliminary Plan Review, and ultimately Final Plan review / approval. It is also anticipated that the project will also require the following:

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

Reviewing Authority	Required Approval
Town of Biddeford	Site Plan Review Permit
Town of Biddeford	Subdivision Amendment Permit
Saco River Corridor Commission	Saco River Corridor Commission Permit Application
MaineDEP	Natural Resource Protection Act Permit Tier II
MaineDEP	Stormwater Law Permit-By-Rule

4. GENERAL REVIEW COMMENTS:

- **APPLICATION COMPLETENESS:** This application is for site plan sketch plan review, so the purpose of this memorandum introduces the project/s to the Board, with the desire to identify items the Board believes are important and necessary for the continued review of this plan / project.
- **ZONING:** The subject property is zoned Mixed Residential (R-3) and multi-family dwellings are permitted use within the district. The property is also located within the Shoreland Overlay District. It should be noted that the Saco River Corridor Commission (SRCC) recently approved a reclassification of the property which has now been placed within the General Development 1 (GD!) Overlay Zone. The proposal currently complies with all space, bulk and parking regulations within the zoning district.
- **REVIEW STANDARDS:**

Staff found the Preliminary Plan Application to satisfy City site plan requirements.
- **WAIVERS:** No waiver requests are being sought, currently.

5. STAFF REVIEW COMMENTS:

- 1) This major issue (in red underline below) has been worked out between the Applicant and City Staff. The Applicant has agreed to pay the City \$1,000,000. (sewer impact fee and cash donation) to upgrade the Main Street pump station. This contribution will allow the City to issue a "Ability to Serve" letter. City Staff has also requested that the Council allocate necessary funding to completely upgrade this sewer-shed that would provide additional capacity that can be utilized beyond our lifetimes. This was THE major issue "we" needed to overcome, and regardless which funding option the Council decides, this project may be approved. The Batemans stepped up and offered the City their solution, which in turn allowed Staff to re-evaluate the pump station and build out options. This was truly a great collaboration between the Applicants and the City.

ORIGINAL STAFF COMMENT FROM 5-7-25 REVIEW: The primary design element that needs resolution is the sewer capacity issue. The proposed sewer line would ultimately connect to the existing sewer pump station located approximately 1,500 feet from the proposal to the pump station. The pump station is currently near or at capacity and pump station upgrades will be required to accept the effluent from the proposed development. The upgrades required are expected to cost approximately \$1,000,000. The City does not currently have funds appropriated for the required system upgrades. This project can not advance to Final Plan Review until either

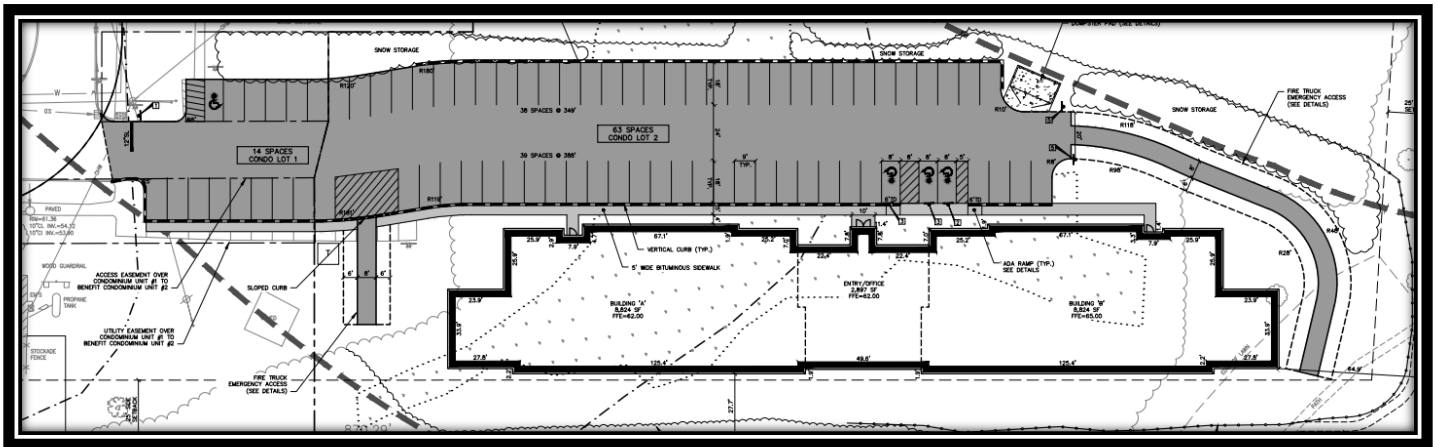
RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

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the Applicant covers the upgrade costs, or Council approves appropriate funding allocation, or a combination of the two.

- 2) ***Prior Sketch Plan Comment:*** *The Fire Department will require emergency vehicle access around 50-75% of the proposed building/s. Deputy Fire Chief Dexter mentioned that the proposed building/s could be shifted to the south and fire access drives at both ends of the building/s.*

Since the Sketch Plan Review the Applicant has met with the Fire Department and have revised their plans to provide emergency access on three sides of the building, as shown below. The below plans are being slightly modified at the Fire Department's request, and the proposed Conditions of Approval include Chief Best's recommendations. These minor changes will be incorporated into the plans provided to the Planning Board for signature and recording.



Amended Site Plan Illustrating Emergency Access on Three Sides of the Proposed Buildings

Below are Fire Department's recommended Conditions of Approval (COA). The above plan shows the locations of the two (2) fire access lanes, one located on each side of the building. Although the locations of the proposed fire access lanes are acceptable to the Fire Department, the pavement with is dimensioned at eight (8') feet in width. Fire lanes are required to meet the following standards:

- A. *Fire lanes shall be a minimum of twenty (20') feet in width and constructed to support the weight of the City's heaviest apparatus.*
- B. *The emergency access isles at the sides of the building/s shall project beyond the rear of the building for adequate fire coverage.*
- C. *The Fire Department will require the building's fire connections and sprinkler room/s shall be located / accessed on the front of the building/s for easy emergency access.*

6. STAFF RECOMMENDATION

Staff is thrilled that we were able to overcome the sewer issues and WILL be able to provide the Applicant an "Ability to Serve" letter. Although a couple of minor site changes are required, Staff is

RE: 2025.09 Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

MEETING DATE: June 18, 2025, at 6:00 PM

supportive of this development project and recommends the Planning Board Approve this application for Preliminary and Final review. .

Planning Board Sample Motions:

- A. Motion to Approve: I motion to APPROVE Case # 2025.09 a Preliminary and Final Site Plan and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District.

- B. Motion to Deny I motion to DENY Case # 2025.09 a Preliminary and Final Site Plan Review and Subdivision review for Bateman Partners LLC. for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District, for the following reasons:
 - 1) _____.
 - 2) _____.
 - 3) _____.

- C. Motion to Table: I motion to TABLE Case # 2025.09 a Preliminary and Final Site Plan Approval and Subdivision Review for Bateman Partners, LLC for two (2) new buildings containing 60-unit low/moderate income (LMI) apartments within the Forest Green Apartments located at 641 Main Street (Map 32, Lot 1) in the Mixed Residential (R3) Zoning District and within the Shoreland Overlay District, for the following reasons:
 - 1) _____.
 - 2) _____.
 - 3) _____.



2 | 1ST FLOOR
3/32" = 1'-0"



1 | FRONT ELEVATION
3/32" = 1'-0"

PARKVIEW APARTMENTS

BIDDEFORD, MAINE

May 12, 2025

Mr. David Galbraith, City Planner

City of Biddeford
205 Main Street
Biddeford, ME 04005

Subject: Forest Green Expansion
Preliminary Site Plan & Subdivision Application
Applicant: Bateman Partners, LLC

Dear Mr. Galbraith:

On behalf of **Bateman Partners, LLC**, Gorrill Palmer is pleased to make this preliminary application submission for their proposed expansion of the Forest Green development located at 1 Park View Court, Biddeford, Gorrill Palmer has been retained and authorized by the Applicant to perform all work necessary to submit this application. As required by the City of Biddeford's Land Use Ordinance, we have included site specific information below for review by the Planning Board. The applicant has coordinated with City Staff to determine the fees associated with this project as listed below:

- Sketch Plan - \$12,180.20 (Paid)
- Preliminary Site Plan - \$6,375.00 (to be delivered)
- Final Site Plan - \$825.00 (to be paid with Final Application Submission)

PROJECT DESCRIPTION

Bateman Partners, LLC is proposing to construct a new low/moderate income (LMI) apartment building for senior residents. The building would include a total of 60 total units and would be located within a portion of a property that is currently part of the Forest Green Apartments at 1 Park View Court. The applicant is not proposing any expansions to the existing buildings and associated infrastructure. The project will consist of one 60-unit building with associated parking for residents. The unit breakdown is anticipated to include forty-two (42) two-bedroom units and eighteen (18) one-bedrooms. The building has a footprint of approximately 20,545 SF. The applicant received a districting change from the Saco River Corridor Commission (SRCC) changing from the Limited Residential to the General Development district for areas outside of the 250' Saco River buffer.

The site is identified as a portion of Lot 1 on the Biddeford Tax Map 32. The property is bounded to the north by the Saco River, and to the south with direct frontage along Main Street. This property was originally developed in 1975, with 5 residential buildings consisting of 40 units with associated parking and access ways. Park View Court is a public road which runs through the center of the site and provides access to the existing apartment buildings. The building will utilize the existing development entrance and have its own primary access via Park View Court. The existing development footprint is currently approximately 6.0 acres and will be increased to approximately 7.8 acres. The amount of impervious area onsite would increase by approximately 42,500 square feet (0.98 acres).



STRUCTURAL



FALL PROTECTION
SAFETY



TRANSPORTATION



SITE DESIGN



SURVEY



WATER
RESOURCES



TECHNOLOGY

PROPOSED IMPROVEMENTS

The development is to be accessed via Park View Court off Main Street. The accessway will include associated parking, sidewalk, and two 20 foot wide fire lanes to provide fire truck access to the building. The sidewalk leading up to the building from the parking lot will be in compliance with ADA standards. The proposed development requires a parking ratio of 1 space per unit if designed exclusively for, and occupancy is restricted to affordable housing. The Applicant is proposing 63 parking spaces to support the new LMI apartment building, which complies with the City of Biddeford's off-street parking requirements. Within the new parking lot, 14 spaces will be dedicated to the existing development for a total of 77 new parking spaces.

Given the residential nature of the project, traffic generated by the proposed development is not anticipated to adversely impact the surrounding roadway network. A traffic Evaluation is included in Attachment 7 which includes an analysis of the trip generation, access conditions, and safety.

The proposed development is anticipated to be served by public water, sewer, and three-phase power which is available onsite. The site will also be served by a private solid waste hauler for refuse collection.

ANTICIPATED WAIVERS

No waivers are being requested at this time.

ANTICIPATED PERMITS

The following table summarizes the approvals relating to site permitting that are anticipated to be required prior to the start of construction. Applications for these permits would be submitted if the redistricting petition is approved by the commission.

Reviewing Authority	Required Approval
Town of Biddeford	Site Plan Review Permit
Town of Biddeford	Subdivision Amendment Permit
Saco River Corridor Commission	Saco River Corridor Commission Permit Application
MaineDEP	Natural Resource Protection Act Permit Tier II
MaineDEP	Stormwater Law Permit-By-Rule

The proposed development received redistricting approval from the SRCC on February 26, 2025, the applicant has submitted a Site Plan Permit Application to the SRCC for the proposed development.

As currently designed, the proposed development would impact approximately 22,160 SF of wetland area. As such, a Natural Resource Protection Act Tier II Permit Application will be submitted to the MaineDEP for wetland impacts between 15,000 SF to 43,560 SF.

A Site Location of Development Act Permit was obtained from the MaineDEP for the original development in 1974. Based on discussions with the MaineDEP, all conditions of this permit have been satisfied and since the City of Biddeford has the capacity to review projects subject to Site Law, no additional Site Law permitting with the MaineDEP is required. However, the project will require a Stormwater Law Permit-By-Rule from the MaineDEP for the disturbance of over 1 acre of land area.

STORMWATER

Since the project disturbs over 1 acre of land area but creates less than 1 acre of new impervious area, the project will be required to obtain a MaineDEP Stormwater Law Permit-By-Rule. Based on the new impervious/developed areas anticipated for the project, the only MaineDEP Chapter 500 standards that apply to this project would be the Basic Standards for Erosion and Sedimentation Control. The proposed development would not be required to meet the general standard (treatment) or flooding standard (peak flows) in accordance with MaineDEP requirements.

However, the proposed development is required to ensure that the rate of stormwater runoff does not exceed pre-development rates for the 25-year 24-hour storm to meet the requirements of the City of Biddeford. Runoff from the site is ultimately tributary to the Saco River which has a watershed area that spans throughout multiple states. Through inspection of the portion of the watershed between the Skelton Dam in Buxton to the project site, it will be demonstrated that the Flooding Standard is met by the development's proximity to the Saco River and the vastness of the upstream watershed (almost 25,000 acres with a Time of Concentration of about 17.7 hours). The increase in impervious area for the development is insignificant compared to the overall watershed and will reach the Saco River well before the peak of the overall watershed and therefore will not lead to increases in peak discharge above the predevelopment levels.

The proposed development will also be utilizing a level lip spreader to improve the distribution of flows onsite and prevent erosion in accordance with MaineDEP requirements.

DIMENSIONAL REQUIREMENTS

The Zoning Ordinance, Section 3.6.1.2.(3).(d) indicates that residential uses are permitted within the Mixed Residential (R3) Zone and General Development 1 (GD1) Overlay Zone. The Space and Bulk Table is provided below, which demonstrates the continued compliance of the project plans to meet the ordinance.

Table 1 – Space and Bulk Regulation – Mixed Residential (R3)		
Space and Bulk Regulation	Required	Provided
Minimum Lot Size	15,000 S.F. 1 st 2 units, then 6,000 S.F. / unit	10.15 Acres
Minimum Lot Frontage	150'	377'
Minimum Yards:		
Front	40'	>40'
Side	25'	>25'
Rear	25'	>25'
Maximum Building Height	3 Stories/ 35'	3 Stories

NET RESIDENTIAL CALCULATIONS

The Zoning Ordinance, Article VI, Section 44 indicates the factors that shall be used for determining the net developable area of a parcel as well as the resulting number of residential lots and/ or units that can be created. The Net Residential Calculations Table is provided below, which demonstrates the maximum number of future units allowable for the proposed parcel.

Table 1 – Net Residential Calculations			
	Existing	Proposed	
	LR District	LR District	General Development (R3)
Total Acreage	10.15 AC.	4.22 AC.	5.93 AC.
Less Unusable Land (Per Section 44 of Town Zoning Ordinance):	-	-	-
Lack of Access	0 AC.	0 AC.	0 AC.
Floodway (Within 100 YR Flood Boundary)	0.39 AC.	0.39 AC.	0 AC.
*Wetland Area	0.74 AC.	0.14 AC.	0.60 AC.
Sustained Slopes Greater than 25%	0 AC.	0 AC.	0 AC.
Right of Way	0 AC.	0 AC.	0 AC.
Stormwater Facilities	0 AC.	0 AC.	0 AC.
Unusable Land Subtotal	1.13 AC.	0.53 AC.	0.60 AC.
Subtotal Net Residential Acreage	9.02 AC.	3.69 AC.	5.33 AC.
Less 15,000 S.F. for First 2 Units	N/A	N/A	-0.35 AC.
Remaining Net Residential Acreage	9.02 AC.	3.69 AC.	4.98 AC.
Net Residential Density Factor	40,000 S.F./UNIT	40,000 S.F./UNIT	6,000 S.F./UNIT
# of Dwelling Units	9 UNITS	3 UNITS	36.1 UNITS
First 2 Units	N/A	N/A	2 UNITS
Max. Units in R-3 Zone	N/A	N/A	38.1 UNITS
** Density Bonus (Affordable Housing)	N/A	N/A	2.5X
Max. # of Units w/ Bonus	N/A	N/A	95.3 UNITS
Less Current Units	-40 UNITS	-7 UNITS	-33 UNITS
*** Max. # of Future Units	0 UNITS	0 UNITS	62.3 UNITS
*Wetland areas based on a wetland survey conducted by Flycatcher, LLC on October 22, 2024. The survey area does not include the entire area within the 250' river buffer (LR District) as no development is planned in this area at this time. **Refer to note B(3) of the Biddeford Land Use Code, Article V, Table B (Attachment 2) "Vacant land development for lots located within the R-3 zoning district, utilizing the density bonus standards within section B for low-/moderate income (LMI) housing developments may increase base density by up to a multiple of 2.5 times the particular zoning district where the lot is located." ***The development does not conform to the current zoning ordinances for lot area per dwelling unit as such. The units located in the limited residential district have been grandfathered. No expansions are proposed within the limited residential district.			

SITE PLAN REVIEW REQUIREMENTS

In accordance with § XI of the City of Biddeford's Land Development Regulations the following information is provided.

Site Design Criteria § XI-II.-5B

1. Drainage

- a. The rate of post-development runoff shall not exceed that of predevelopment. Details of catch basins, drainage pipes and retention/detention ponds shall be provided as needed with the application. All detail sheets shall bear the seal and signature of a professional engineer, licensed in the State of Maine.*

As discussed earlier, runoff from the site will not lead to increases in peak discharge above the predevelopment levels, further information is included in the Stormwater Memorandum included in Attachment 5. Detail sheets included in the project plans bear the seal and signature of a professional engineer, licensed in the State of Maine.

- b. A written engineering report describing the impacted watershed area, projected runoff, and any projected downstream impact shall be required.*

A stormwater engineering report is included in the Stormwater Memorandum included in Attachment 5.

- c. Drainage easements shall be established for any concentrated off-site drainage. Such easement shall state who has the responsibility to maintain the easement. Easement documents shall be reviewed, at applicant expense, by the Director of Public Works, City Engineer, and the City Solicitor, as to exactness of content. Plans shall include the location of easements.*

No new drainage easements are proposed as part of this effort.

- d. Where it is determined by the City Engineer or consultant hired by the Board, that the additional runoff incident to the development of the projected site will overload an existing downstream drainage facility, the Board may require the provision of water-retarding facilities or other improvements to alleviate said problem.*

Runoff from the proposed development is tributary to the Saco River and will not enter the municipal system.

- e. Development in specific areas of concern shall provide detailed information and address specific issues in relation to drainage:*
 - 1. Parcels situated within the federally designated flood hazard zone, as per Flood Hazard Boundary Map H01-18, dated May, 1984, as amended, shall comply with all applicable federal regulations relating thereto.*
 - 2. One-hundred-year flood elevation line shall be included where applicable.*

3. *No slope shall be created which results in a slope of more than two feet horizontal to one foot vertical unless proper retaining walls are proposed.*

The project is not located within a 100-year floodplain. A FEMA FIRMette map is attached to this application in Attachment 3 of this submission. Locations of the floodplains are depicted on plans.

- f. *Drainage improvements shall be scheduled to be constructed as part of the first portion of any project where drainage improvements are proposed.*

This requirement is understood by the Applicant. Please see Erosion & Sedimentation Control report in Attachment 6 of this submission, which includes erosion control measures and implementation schedule.

- g. *Special bonding of 1 1/2 times the anticipated cost of said improvements shall be incorporated by the developer to insure that improvements are placed and that they function as planned. No portion of this special bond may be released until the project, or that portion of the project for which the drainage improvement is proposed has been constructed, and until so released by the Planning Board, with the recommendation from the Director of Public Works and the City Engineer.*

The Applicant acknowledges the above standard.

2. Utilities

- a. *All utilities, including electric, gas, water/sewer, shall be shown on the plat, and separate detail sheets as needed.*

The existing nearby utilities, proposed utility services, and details are shown on the project plans included with this submission.

- b. *Accessways, storage, and parking areas shall be graded and improved with pavements, curbs, gutters, sidewalks, storm drainage facilities, outdoor lighting, etc.*

Materials for accessways and parking areas, as well as site improvements are depicted on the plan set included with this submission. The proposed accessway will be constructed of bituminous pavement and will include curbing along the proposed sidewalk.

- c. *All accessways/drives and service ways shall be of sufficient width and configuration to accommodate the prospective traffic and to afford satisfactory access to police, firefighting and other such services.*

The proposed driveway and parking drive aisles are 24' wide which satisfies the requirement for travel lane width depicted in Table A – Minimum Construction Standards of Chapter 62 in the City of Biddeford Code of Ordinances. A fire truck turning plan is included in Attachment 8 of this submission.

- d. *Any proposal within 200 feet of a public water or sewer line(s) must connect to system(s). Applicant must supply copies of letters from the environmental specialist of the City of Biddeford for sewer, and water company shall confirm details of connection and/or concerns.*

The proposed project will utilize the public water and sewer services which are located at the project frontage. The applicant has been working closely with the Public Works and Engineering departments and the Wastewater Superintendent to ensure the sanitary system has been adequately designed prior to construction. The applicant understands the impact fees and has agreed to pay these fees prior to construction. Maine Water Company has indicated their ability to serve the proposed development as evidenced by the attached ability to serve letter (see Attachment 4).

- e. *Whether or not a municipal water system is proposed, the following items must be specified in application narrative and on plat:*
1. *Rated normal capacity and gallons per minute at prime use time.*
 2. *Rated maximum capacity and gallons per minute at prime use time.*
 3. *Residual pressure of proposed tap line.*

Maine Water Company has indicated their ability to serve the proposed development as evidenced by the attached ability to serve letter (see Attachment 4). The static pressure of the proposed tap line is expected to be approximately 55 psi per the Ability to Serve Letter provided for this project. The Applicant will continue to work with Maine Water Company to ensure pressure requirements are met.

- f. *Where nondomestic sanitary discharge (any discharge into the public sewer system containing other than normal household wastes) is anticipated, such effluent shall be identified and comply with any and all federal, state, and local laws, ordinances, rules, and regulations. Where any such laws, ordinances, rules and regulations may overlap or may be inconsistent, the more stringent shall apply.*

The applicant has been working closely with the Public Works and Engineering departments and the Wastewater Superintendent to ensure the system has been adequately designed prior to construction.

- g. *Where public sanitary service is available, or where developers must extend such service, applicants must apply for and receive a discharge permit from the City Council of the City of Biddeford prior to approval by the Planning Board.*

The Applicant is proposing a sewer extension from the main located within Parkview Court. The Applicant will continue to coordinate with the City of Biddeford Wastewater Division as required.

- h. *Where practicable, all electrical and telephone utilities shall be placed underground.*

All electrical and telephone/communications/fiber services will extend to the proposed building underground. Existing utility poles are present within the site, and underground connections from an existing pole to a pad mount transformer located near the building as shown on the utility plan (Sheet C103).

3. Parking

- a. A parking plan shall delineate the number of parking and delivery or loading spaces and the physical arrangement. Details of parking plan shall conform to the provisions of the off-street parking section of Article VI of this Zoning Ordinance.*

The proposed parking spaces are shown on the project plans and comply with the typical parking stall and ADA parking stall dimensions. The proposed development requires a parking ratio of 1 space per unit since it is designed exclusively for, and occupancy is restricted to low income/ affordable housing. The ordinance was confirmed by the City of Biddeford during an initial meeting. Additionally, the Applicant recognizes the City of Biddeford standard requiring multifamily project to incorporate an additional 5% of parking spaces for visitor spaces. The Applicant currently is proposing a total of 77 spaces between the existing and proposed development meeting the City of Biddeford off-street parking standards.

- b. No on-street parking, delivery or loading is permitted, except where specifically allowed by the Planning Board.*

No on-street parking is proposed as part of this project.

- c. Whenever a use existing on the effective date of these regulations is changed thereafter to a new use, parking facilities and access shall be provided as required herein for such new uses.*

The project will create new parking spaces applicable to the proposed residential uses.

- d. In the case of multifamily projects the number of required parking spaces should be increased 5% to allow for visitor parking.*

The Applicant has incorporated the additional 5% of required parking spaces for visitor parking on the Site Plan on Sheet C101 included with this submission.

- e. Parking lots shall be landscaped and/or screened to provide for a pleasing visual effect and blending in with the surrounding area.*

A landscaping plan is included in the plan set on sheet L100. The landscaping plan has been designed in accordance with Section 43 of the City of Biddeford's performance standards to provide a pleasing visual effect and blending in with the surrounding area. The existing wooded area surrounding the parking area will be protected to the greatest extent practicable to provide screening for the surrounding properties.

- f. Lots shall be illuminated for security purposes. The lighting shall be designed in such a way that off-site glare is minimized.*

Lighting for the proposed development is anticipated to be through the use of building mounted fixtures. These fixtures will be dark sky compliant shielded fixtures and designed in accordance with local requirements. Additional details can be provided upon request.

- g. Adequate space shall be allowed for the accumulation of snow during the winter plowing months.*

Snow storage areas are shown on the Site and Utility Plan on Sheet C101 of the attached plan set.

4. Structural Layout and Design

- a. Design of buildings.*

- 1. Buildings shall be designed to blend harmoniously with the surrounding structures in the neighborhood. New structures should be designed so as to complement the style of the abutting older structures. A photograph, architectural rendering or other representation of the proposed structure must accompany the application for site review.*

Elevations/renderings of the proposed structure will be provided under a separate cover prior to the final application submission.

- 2. In the I-3 Zone structures shall have a facade sheath in brick or other masonry finish. Other facade finishes may be used when it can be clearly shown to the board that such facing material will advance the City's intent to make the I-3 area a more attractive gateway to the City.*

The site is not located within the I-3 Zone, therefore this section does not apply.

- b. Setbacks. Proposed structures shall be set back from roadways, in conformance with requirements for the particular zone; and shall be set in such a way as to blend in harmoniously with buildings on abutting properties, and to allow for adequate landscaping of the front yard.*

The proposed development is in conformance with a 40' front and 25' side/rear setback which blends in with the surrounding neighborhood. This allows for sufficient landscaping in the front yard and perimeter areas. These setbacks are shown on the project plans.

- c. Fire protection.*

- 1. All proposed structures and additions to existing buildings must be designed to meet existing fire protection standards.*

Both structures will be designed per the latest local and state fire protection requirements.

- 2. Fire hydrants and fire escapes must be clearly presented on plats.*

The building will be designed with multiple entrance/exit points around the building to meet the applicable local requirements. A fire hydrant currently exists approximately 290' west of the building as depicted on the plans.

- 3. Clear ways around buildings must be maintained to provide for 360° access to structures.*

The Applicant has been coordinating with the fire department who has conceptually approved the layout

of the proposed fire truck access shown on the project plans in accordance with the above requirement.

4. *Areas in front of structures must be kept clear of parking spaces to allow for emergency access.*

Sufficient clear space is provided in front of structures to provide emergency vehicle access. Turning movement figures can be found in Attachment 8 of this submission.

5. *Buildings should be designed with internal sprinkler systems. This is particularly the case in terms of multifamily and industrial/warehousing structures, and structures that will be located in areas that are far or difficult to reach from fire stations.*

The proposed building will be constructed with a sprinkler system as required by code.

6. *In residential developments of 24 units or more, or buildings of 5,000 square feet or more, a central alarm system to the central fire station shall be installed, unless a negative recommendation, in writing, is received from the Fire Marshal.*

The Applicant will coordinate with the Fire Department to confirm the applicability of a central alarm system.

7. *In residential developments of 24 dwelling units or more, or office buildings with more than two separate establishments or places of business, a "knock box" shall be provided and indicated on plat. This box shall be in accordance with the specifications and standards as prescribed by the Fire Department of the City of Biddeford.*

A knock box will be provided for the proposed building, the applicant will coordinate with the Fire Department to determine the location of the knock box.

8. *Whenever gas, either natural or propane or other type, is proposed to be used on-site, a separate external shutoff valve shall be provided for each building on the site. The valve location shall be indicated on the plat and approved in writing by the fire chief/fire marshal.*

The applicant is not proposing the use of natural gas or propane for the proposed development, therefore this section does not apply.

d. *Landscaping.*

1. *All sites must be landscaped with vegetation that will act to:*
 - (a) *Reduce the impact of lighting, vehicular and structural, on abutting properties;*
 - (b) *Reduce the impact of proposed structures on the privacy of abutters;*
 - (c) *Make the site more attractive to the average viewer.*

The planting plan provides sufficient screening for the parking area and to abutting properties. Perimeter tree plantings will address the scale of the building and soften the view from the public way. A landscaping plan is included in the plan set on Sheet L100.

2. *Landscaping measures will be indicated on the plat by drawings and narrative note. The use of trees and shrubs for fencing and shading is strongly encouraged. Care must be taken to ensure that tree, etc., are placed in such a fashion that in time they will cause minimum impact on abutting properties and public roadways and travelways, particularly as they grow.*

The proposed detailed landscaping plan includes the installation of trees to enhance the site while minimizing impacts to abutting properties, public roadways, and travel ways.

3. *Whenever possible existing vegetation shall be preserved and incorporated into the landscaping scheme of the project.*

Where possible, existing vegetation will be preserved and is incorporated into the landscaping scheme of the project. The proposed trees are intended to screen the proposed development from abutting properties to the east.

4. *Each proposal will include a detailed landscaping plan. This plan will include the location, type and size of existing mature trees (those trees over eight inches in diameter).*

A thoughtful planting approach has been taken to offsetting visual impacts of the new structures which are included on Sheet L100 of the plan set included with this submission.

5. *Particular attention should be paid to offsetting the visual impact of new structures in areas where there may be a stark contrast with the existing design trend of the neighborhood.*

The buffer/screening areas including the front yard area and around the perimeter of the parking area have been planted to provide sufficient screening. This is shown on the Sheet L100 provided in the plan included with this submission.

e. Service, storage and utility areas.

1. *All service, storage, and utility areas shall be designed to the side or rear yard of a proposed or existing building or structure, and such areas shall be appropriately screened/buffered by walls, fences, earth berms, or vegetation.*

The project accessway will contain underground utilities. A pad mount transformer is located to the side of the proposed building. These utilities will be screened as much as possible while allowing sufficient access for servicing/use. Water and electrical meters will be located interior to the building and not visible from the outside.

2. *Proposed utility elements shall be adequately screened; and, if producing sound, baffled upon Planning Board request.*

See response above. Additionally, given the nature of the proposed development, the project is not anticipated to generate a significant amount of noise.

3. *Trash receptacles, dumpsters, storage sheds, etc., shall be shown on plat.*

A dumpster pad is included on Sheet C101 – Site Plan, and a detail of the dumpster pad and enclosure can be found on Sheet C401 – Site Details of the project plans.

f. Paving, parking, and storage areas.

1. *No paving, parking, or storage shall be permitted within the required setback of any side or rear property line;*

No paving, parking, or storage is proposed within the required setback of any side or property line.

2. *No paving, parking, or storage (except for entrances/exits) shall be permitted within 25 feet of any front property line. These unpaved nonparking or nonstorage areas shall be maintained as landscaped areas or open spaces.*

No paving, parking, or structure is located within 25 feet of the front property line. See Sheet C101 of the project plans for additional information.

g. Handicapped accessibility.

1. *Pedestrian walkways, entrances and exits designed for use by the handicapped shall be provided as required by any and all federal, state, or local laws, ordinances, rules and regulations or as requested by the Planning Board.*

The project includes 3 accessible parking spaces for the proposed building. Sufficient access is provided from the parking areas into the main entrance of the building along the designated ADA route.

2. *Handicapped parking spaces and accessways shall be indicated on plat whenever they are to be employed.*

The accessible parking spaces discussed above are shown on the project plans and Site Plan on Sheet C101 included with this submission.

h. Loading facilities.

1. *Loading facilities for new structures shall be designed to the rear or side of any and all proposed or existing building or structure.*

Not applicable as no loading facilities are proposed for the residential building.

2. *Loading facilities shall be designed in accordance with the applicable federal, state, or local laws, ordinances, codes, rules and regulations and shall be off-street or accessible via a public street.*

Not applicable.

i. Parking, loading, and protective buffers.

- 1. All parking, loading and protective buffers shall be situated on the same tract or parcel of land as the primary use building or structure.*

All parking is located on the same parcel of land as the proposed primary structures. There are no loading areas or protective buffers proposed for the project.

- 2. The maximum nonvegetated area of the land area being developed and reviewed shall be 75%.*

The proposed nonvegetated area is approximately 23% of the total lot area.

- 3. Any parking or paving, including all access ways, egress ways, entrances and exits on streets for both pedestrian and vehicular use, shall not cover or occupy more than 30% of the land area being developed and reviewed and shall be included with the maximum nonvegetated area.*

The proposed parking/pavement area for the project total is 12% of the total lot area.

- 4. In all applications, a minimum of 25% of the land area being developed and reviewed shall remain in its natural state or shall be maintained as an appropriately landscaped area.*

The existing land area not to be disturbed is 35% of the total lot area.

- 5. All buildings or structures shall be sited in conformance with established setbacks of the particular zone. No building or structure may be built within the required side yard setback. The Planning Board may require greater setbacks in areas such as turnpikes, water bodies, railroads, etc.*

The proposed building is located outside the applicable setbacks of the Residential 3 (R3) Zone as depicted on the plans.

- 6. All buffered or screened areas shall be densely planted with shrubs or trees which are respectively at least two or three feet high at the time of planting and are of a type which may be expected to form a year-round dense screen of at least five feet high within three years, provided that such screening shall not obstruct the view of oncoming traffic when entering or exiting the site. An additional cash bond to cover the cost of replacement of these plantings may be required. The term of the bond shall be equal to three years from the time of planting. At the end of the three years any unused portion of this security will be returned to the applicant along with accrued interest.*

The buffer/screening areas including the front yard area and around the perimeter of the parking area have been planted to provide sufficient screening as requested. This is shown on the landscape plan provided in the project plans.

j. *Open space.*

1. *In new residential developments: Open space shall be provided in the ratio of 1,000 square feet for each dwelling unit. This open space shall be identified as either a "green space" or as "recreational space."*

Based on the proposed unit density, 60 units would require 60,000SF of open space area. The Applicant has acknowledged this standard and approximately 153,330 S.F. of space remains undeveloped on the property.

2. *Whenever practicable, open space in a residential development shall include a mixture of active and passive recreational opportunities to benefit the various residents of the project. Such opportunities would include, but are not limited to, ball and other playing fields, tennis courts, etc.*

Please refer to the answer in the next requirement located below.

3. *In large-scale projects hiking trails or nature paths are encouraged.*

It is of the Applicant's opinion that a hiking or nature path is not necessary for this proposed development. As part of this project a portion of an existing trail running through the southeast portion of the proposed project area will be relocated to avoid impacts with the proposed development. The trail connects to the neighboring City of Biddeford Rotary Park which features walking trails and recreational activities that should suffice with this requirement. The Saco River Corridor Commission also requested that no trails or manmade structures be constructed within the 250' Saco River buffer.

4. *In projects that abut rivers or streams a public easement is encouraged, to provide access to a limited natural resource.*

As discussed during the sketch plan meeting, a public easement is not required for this development.

5 The plan shall reflect the natural capabilities of the site to support development. Buildings, lots, and support facilities will be clustered in those portions of the site that have the most suitable conditions for development. Environmentally sensitive areas, including but not limited to wetlands, steep slopes, floodplains, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers will be maintained and preserved to the maximum extent. The development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

The Applicant has explored several site layouts during the design phase of the project. The site layout shown on Sheet C101 – Site Plan depicts the layout of the site that resulted in the least wetland impacts. Side slopes are being tied in as quickly as possible within maximum 2:1 slopes to reduce impacts. As mentioned throughout this narrative the proposed project is not located within any 100-yr floodplain, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers.

k. External lighting.

- 1. All existing/proposed external lighting must be included on plat. Lighting will be described as needed.*
- 2. Lighting shall be designed to provide adequate illumination on-site, especially in parking areas, walkways and structural entrances, and site entrance from roadways. At the same time all illumination will be designed to mitigate adverse impact on abutting properties and structures, and traffic.*

Lighting for the proposed development is anticipated to be through the use of building mounted fixtures. These fixtures will be dark sky compliant shielded fixtures and designed in accordance with local requirements. Additional details can be provided upon request. Lighting fixtures will be identified on the final plans.

l. Signs.

- 1. All proposed signs shall meet standards provided in Article VI of the Zoning Ordinance of the City of Biddeford.*
- 2. Signs shall be indicated on plat.*
- 3. A detail of sign design shall be submitted as part of the application for site review.*

The applicant will coordinate with the City as required if any new signs are proposed at a later date.

- m. Historic and archaeological resources. If any portion of the site has been identified as containing historic or archaeological resources, the development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of construction.*

The Maine Historic Preservation Commission (MHPC) was contacted initially on December 04, 2024, and informed of the proposed development. The response from the MHPC with no concern for historic properties to be affected by the proposed development is provided within Attachment 10.

SUBDIVISION REVIEW REQUIREMENTS

In accordance with § 66-39 *Board action on approval of preliminary plan* of the City of Biddeford's Code of Ordinances, the following information is provided.

Required Information § 66-35(d)

- (d) In addition to the above plat information, the subdivider shall provide the following documents;*

(1) Valid deed or option indicating an interest held by the subdivider in the parcel of land (this shall be kept current during the review process).

A copy of the deed for the subject parcel is provided in Attachment 2.

(2) Completed application form.

The completed application form is provided in Attachment 1.

(3) Narrative of the proposed project briefly describing the general nature of the project, i.e., type of project; residential or commercial; number of lots intended to create.

A narrative describing the project is provided at the beginning of this application letter.

(4) Draft covenants and deeds for each lot proposed.

The proposed development will not include the sale of lots. Condominium agreements will be provided under a separate cover as applicable.

(5) Easement documents for proposed rights-of-way for utilities, drainageways, roadways and other travelways or public amenities.

The applicant is proposing two existing to benefit the proposed development. There is an access and utility easement over condominium unit 1 to benefit condominium unit 2. Easement documents will be provided prior to the start of construction.

(6) Statement of financial capability of subdivider to undertake the proposed project.

The Applicant, Bateman Partners, LLC, has developed numerous residential buildings throughout the state. Bateman Partners will be seeking financing for this project through Maine State Housing Authorities (MSHA) annual Qualified Application Process (QAP). Bateman Partners has used this program numerous times for other low income housing projects. In order to secure financing from MSHA through the QAP the project must have all local and state approvals in hand prior to submission. Bateman Partners plans on submitting there application to finance with MSHA in August of this year once all local and state approvals are obtained.

(7) Statement identifying principals involved in the project.

- Project Architect – Archetype Architects
- Michael Coyne
- Project Engineer – Gorrill Palmer
- Doug Reynolds, PE

(8) Statement demonstrating that the subdividers have the technical capability to complete the proposed project as presented.

The Applicant, Bateman Partners, LLC, has developed numerous multifamily residential buildings throughout the state. Gorrill Palmer and their subconsultants have the technical ability to prepare the construction documents and oversee construction of the project in compliance with applicable regulations.

(9) Copies of such covenants or deed restrictions as are intended to all or part of the tract.

There are no known covenants or deed restrictions within the project area.

(10) Review by water company, power company and City Engineering, police, and fire department.

The applicant reached out to the Maine Water Company, Central Maine Power Company, City Engineering, and police and fire departments for review. Confirmation of capacity to serve has been received from Maine Water Company and Central Maine Power Company (see Attachment 4). The applicant will continue to work with City Engineering, police and fire department as required for final approval.

Conditions and Requirements § 66-39(b)

(b) The Board shall base its decision on the plans meeting the conditions and requirements outlined in this chapter; and that the plan meets in a positive fashion, the following:

(1) The project will not result in undue water or air pollution. In making this determination the Board shall consider:

- a. The elevation land, and its relation to the floodplains;*
- b. The nature of the soils and the subsoils;*
- c. The ability to adequately support waste disposal;*
- d. The slope of the land and its effects on effluents;*
- e. The availability of streams for the disposal of effluents; and*
- f. The applicable state and local health and water resources regulations.*

The project is not located within the FEMA flood boundary, floodway, or flood insurance maps. A FEMA FIRMet map is attached to this application in Attachment 3. The applicant has been working closely with the Public Works and Engineering departments and the Wastewater Superintendent to ensure the system has been adequately designed prior to construction.

The proposed development has been designed to limit the overall development footprint to minimize disturbances to the surrounding areas and will not result in undue water or air pollution in accordance with local and state requirements. The project does not intend to dispose of effluents to any nearby stream or river.

(2) The project has sufficient water available for the reasonably foreseeable needs of the subdivision;

The project will be served by public water which is stubbed onto the property from Park View Court. Domestic and fire services will be extended to the building. Maine Water Company has indicated their ability to serve the project as evidenced by the letter included in Attachment 4.

(3) The project will not cause an unreasonable burden on an existing water supply, if one is utilized;

The Maine Water Company has confirmed sufficient capacity to serve the proposed 60-unit residential development. The Ability to Serve letter is provided in Attachment 4 of this submission.

(4) The project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy, condition may result;

The proposed site improvements will include a new building, pavement, and landscaped area which will remain stabilized post-construction. No unreasonable soil erosion or dangerous conditions will be created because of this project.

(5) The project will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highways or public roads existing or proposed;

The project is proposed to create 25 peak hour trip ends which is not anticipated to cause unsafe traffic conditions on Main Street and the adjacent street systems. A traffic memorandum is provided in Attachment 7 which demonstrates the trip generation.

(6) The project will provide for adequate sewage waste disposal.

The project will utilize the public sewer system. As discussed earlier, the applicant has been working closely with the Public Works and Engineering departments and the Wastewater Superintendent to ensure the system has been adequately designed prior to construction. The applicant understands the impact fees and has agreed to pay these fees prior to construction.

(7) The project will not cause unreasonable burden on the ability of the municipality to disposal of solid waste and sewage if municipal services are to be utilized;

The development will utilize a private trash collection vendor to handle solid waste generated. The development will not cause an unreasonable burden on the municipality to provide sewage treatment as discussed above.

(8) The project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas or public rights for physical or visual access to the shoreline. Further, the plan shall reflect the natural capabilities of the site to support development. Buildings, lots, and support facilities will be clustered in those portions of the site that have the most suitable conditions for development. Environmentally sensitive areas, including but not limited to wetlands, steep slopes, floodplains, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers will be maintained and preserved to

the maximum extent. The development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of excavation;

The project will not have an undue effect on the scenic character of the area. The project will utilize a similar color scheme as the surrounding building in the development and locate the proposed building set back from Main Street to provide buffering in the front yard area and around the perimeter of the development.

(9) The project is in conformance with a duly adopted subdivision regulation or ordinance, Comprehensive Plan, development plan, or land use plan, if any. In making this determination the Board is authorized to interpret these ordinances and plans;

The project is in line with the recent Comprehensive Plan which was completed in 2023. That plan outlined the rising cost of housing and the need for additional housing within the community.

(10) The subdivider has adequate financial and technical capacity to meet the above stated standards;

The Applicant, Bateman Partners, LLC, has developed numerous multifamily residential buildings throughout the state. Gorrill Palmer and their subconsultants have the technical ability to prepare the construction documents and oversee construction of the project in compliance with applicable regulations. Forest Green Associates, LP through its development agent Bateman Partners, LLC is in the process of seeking approvals for 60 new affordable rental housing units at Park View Court in Biddeford Maine. Bateman Partners is an experienced Developer of low income housing units in the State of Maine. The existing 40 units at Forest Green are also Low income housing units. Bateman Partners will be seeking financing for this project through Maine State Housing Authorities (MSHA) annual Qualified Application Process (QAP). Bateman Partners has used this program numerous times for other low income housing projects. In order to secure financing from MSHA through the QAP the project must have all local and state approvals in hand prior to submission. Bateman Partners plans on submitting there application to finance with MSHA in August of this year once all local and state approvals are obtained.

(11) Whenever situated, in whole or in part, within 250 feet of any lake, pond, river or tidal waters, the project will not adversely affect the quality of that body of water, or unreasonably affect the shoreline of that body of water, as indicated on the City of Biddeford, Official Zoning Map and referenced in the City's Comprehensive Plan;

The property parcel abuts the Saco River, however the proposed development footprint is not located within 250 feet of the Saco River. Minor impacts to the 250' buffer are proposed to facilitate drainage around the proposed development.

(12) The project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of ground water.

The project is not anticipated to have an adverse impact on the quantity or quality of groundwater.

(13) The subdivider will provide information, based on FEMA flood boundary, floodway, and flood insurance maps, whether or not the project is in a flood prone area;

The project is not located within the FEMA flood boundary, floodway, or flood insurance maps. A FEMA FIRMette map is attached to this application in Attachment 3.

(14) The project will not unreasonably obstruct abutting properties or structures access to direct sunlight;

The project will not obstruct abutting properties access to sunlight as it is separated a sufficient distance from the nearest structure with natural buffering in between.

(15) If any portion of the site has been identified as containing historic or archaeological resources, the development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of construction.

The Maine Historic Preservation Commission (MHPC) was contacted initially on December 04, 2024, and informed of the proposed development. The response from the MHPC with no concern for historic properties to be affected by the proposed development is provided within Attachment 10.

CLOSURE

As discussed with the Code Enforcement Office, this package has been submitted digitally for your consideration and distribution, hard copies can be provided upon request. We have provided the following attachments and supplemental materials to assist in your review:

ATTACHMENT	DESCRIPTION
Attachment 1	Completed Application Form
Attachment 2	Deed and Agent Authorizations
Attachment 3	Project Maps
Attachment 4	Utility Correspondence
Attachment 5	Stormwater Memorandum
Attachment 6	Erosion Control Report
Attachment 7	Traffic Report
Attachment 8	Truck Turning Movement Figures
Attachment 9	Wetland Delineation Report
Attachment 10	Agency Correspondence
Attachment 11	Performance Guarantee
	Plan Set

We look forward to reviewing this project with you and the Planning Board at the next available meeting. If you have any questions about the information being submitted, please contact our office.

Sincerely,

GORRILL-PALMER



Doug Reynolds, PE

Project Manager

Phone 207-329-5584

DReynolds@GorrillPalmer.com

copy: Nathan Bateman, Bateman Partners, LLC

ATTACHMENT 1
APPLICATION FORM



City of Biddeford – Planning Department
Planning Board Application
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:

☐ Shoreland Zoning Permit ☒ Site Plan Review (Please include checklist) ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision (Please include Checklist) ☐ Private Way
☐ Other: _____

Applicant Information:

Name: Bateman Partners, LLC
Mailing Address: 470 Fore Street, Suite 400, Portland ME 04101
Telephone: (207) 772 - 2992
Email: nathan@batemanpartnersllc.com

What is your legal interest in the property?

☒ Owner ☐ Potential Buyer with Contract ☐ Lease/Rental Agreement

Owner's Information:

Name: Forest Green Associates LP
Mailing Address: 470 Fore Street, Suite 400, Portland ME 04101
Telephone: (207) 772 - 2992
Email: nathan@batemanpartnersllc.com

Agent's Information:

Name: Doug Reynolds
Mailing Address: 300 Southborough Drive, Suite 200 South Portland, ME 04106
Telephone: (207) 772 - 2515
Email: dreynolds@gorrillpalmer.com

Engineer/Surveyor's Information:

Name: Doug Reynolds
Mailing Address: 300 Southborough, Suite 200 South Portland, ME 04106
Telephone: (207) 772 - 2515
Email: dreynolds@gorrillpalmer.com

Project Location and Lot Information:

Street Address: 1 Parkview Court, Biddeford 04005 Watershed: Saco River
Tax Map: 32 Lot: 1
Current Zoning: Mixed Residential (R3) Shoreland Zoning: General Development
Size of Lot: 10.15 (X) acres () s.f. Lot Frontage: 374 Feet
Existing Use of Property: Residential development with 5 existing buildings totaling 40 units with associated parking, accessways, and utility infrastructure.

Property currently serviced by:

☒ City Road ☒ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road ☐ Septic System ☐ Private Well ☒ Private Hauler

Slope Conditions in Area of Construction (if applicable):

☐ Flat (0-3% slope) ☒ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ☒ (Yes) ☐ (No) if yes attach information

Is the project within the 100-year floodplain? ☐ (Yes) ☒ (No) if yes attach information

Do you plan to bring fill onto the lot? ☒ (Yes) ☐ (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use: The project will consist of (2), thirty (30) unit buildings with associated parking for residents. The buildings will utilize the existing development entrance and have their own primary access via Park View Court. New buildings will have associated parking, utility infrastructure.

Property to be Serviced by:

☒ City Road ☒ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road ☐ Septic System ☐ Private Well ☒ Private Hauler

Limits of Disturbance: 1.55 (X) acres () s.f.

Net change in impervious cover: 42,472 () acres (X) s.f.

Is this project part of a larger project? ☐ (Yes) ☒ (No)

Is the project proposing a new Private or Public Road? ☐ (Yes, Private) ☐ (Yes, Public) ☒ (No)

Is this project within the Urbanized Area/MS4 (see [City Drainage Map](#)) ☒ (Yes) ☐ (No)

Is the project proposing any Stormwater facilities/BMPs? ☐ (Yes) ☒ (No)

Will a Traffic Movement Permit (TMP) be required?: ☐ (Yes) ☒ (No)

X If in a Shoreland Zone:

Percent of residential lot coverage (Max 20%): 0%

Percent of structure expansion (Max 30%): 0%

X If Subdivision Review, number of lots proposed: 60 UNITS

If a Private Way is proposed, number of lots served: _____

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: 20,545

Total new square feet paving/parking: 21,927

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

A. Letters of Approval

☐ Fire Department – Contact Chief or Deputy Chief – 282-9986

☒ Ability to Serve for Water Service – Maine Water – 282-1543

☐ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118

☐ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127

☒ Ability to Serve for Electrical Service-CMP-1-866-225-4200

☒ Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.

B. Photographs of Site.

C. Architectural renderings/drawings of proposed buildings, as required.

D. Engineering Plans, as required.

E. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- \$75 Nonrefundable Administration Fee is required for every application.
- Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance? X (Yes) ___ (No)

- If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of Applicant: _____

Date 5/12/25

Signature of Property Owner: _____

Date 5/12/25

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

- A) PDF OF SIGNED APPLICATION
- B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

- A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)
 - Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVIDUAL DRAWING NAME.pdf'
- B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.
- C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)
 - All drawings & CAD reference files must be to-scale and within the following coordinate systems:
 - MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE
- B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

ATTACHMENT 2

DEED & AGENT AUTHORIZATION

WARRANTY DEED

BIDDEFORD ASSOCIATES LP, a Maine limited partnership with an address of 23781 Hwy 27 #316, Lake Wales, FL 33859, for consideration paid, grant to FOREST GREEN ASSOCIATES LIMITED PARTNERSHIP, a Maine limited partnership with an address of P. O. Box 3572, Portland, Maine 04104, with Warranty Covenants, the following described real property known as 1-6 Park View Court, Biddeford, Maine:

A certain lot or parcel of land, together with the buildings and improvements thereon, located on the northerly side of Main Street, in the City of Biddeford, County of York and State of Maine, being more particularly bounded and described as follows:

Beginning at a 1-1/4" iron pipe on the northerly right-of-way line of Main Street at the southwesterly corner of land now or formerly of the City of Biddeford, hereinafter known as "Rotary Park";

Thence N 82° 02' 00" W along the northerly right-of-way line of Main Street 423.63' to a #5 rebar being the southeasterly corner of land now or formerly of Richard J. and Sharon J. Rousselle as recorded in Deed Book 3631, Page 310, York County Registry of Deeds (YCRD);

Thence N 47° 22' 11" E along the southeasterly line of said Rousselle 447.35' to a 3/4" iron pipe at the most easterly corner of said Rousselle;

Thence N 37° 43' 49" W along the northeasterly line of said Rousselle 290.15' to a #5 rebar w/cap stamped "NCS, INC PLS 1314" on the southeasterly line of land now or formerly of Riverbend Housing Associates, LP as recorded in Deed Book 8499, Page 223 (YCRD);

Thence N 40° 35' 11" E along the southeasterly line of said Riverbend Housing Associates, LP 190.51' to a #5 rebar w/cap stamped "NCS, INC PLS 1314";

Thence continuing N 40° 35' 11" E along the southeasterly line of said Riverbend Housing Associates, LP 85' more or less to the southerly edge of the Saco River;

Thence in a generally easterly direction along the southerly edge of the Saco River 560' more or less to a point at the westerly corner of said Rotary Park;

Thence S 35° 07' 20" E along a southwesterly line of said Rotary Park 25' more or less to a #5 rebar w/cap stamped "NCS, INC PLS 1314". This rebar bears on a tie course of N 80° 47' 24" E 626.05' from the last stated rebar;

Thence continuing S 35° 07' 20" E along a southwesterly line of said Rotary Park 357.85' to a #5 rebar w/cap stamped "NCS, INC PLS 1314" set in a gravel road;

Thence S 51° 22' 00" W along a northwesterly line of said Rotary Park 870.29' to the point of beginning.

The above described parcel contains 11.6 acres more or less.

Meaning and intending to describe the same parcel conveyed to Biddeford Associates by Mitchell A. Hyder by deed dated June 11, 1974 and recorded in Deed Book 2052, Page 423.

The basis of bearing for the above described parcel is Magnetic North, 1973.

In Witness Whereof, Biddeford Associates LP has caused this instrument to be executed this 14th day of April, 2010.

WITNESS

Joann Collins
LeeAnn Collins

BIDDEFORD ASSOCIATES LP

By: [Signature]
Richard W. Jenney
Its General Partner

State of FLA.
County of Polk.

April 14, 2010

Personally appeared before me the above named Richard W. Jenney, General Partner of Biddeford Associates LP and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of Biddeford Associates LP.

[Signature]
Notary Public

Print Name Lisa L. Franklin.

My Commission Expires 12-21-2010

LISA L. FRANKLIN
Notary Public, State of Florida
My comm. expires Dec. 21, 2010
Comm. No. DD 624515

Forest Green Associates, LP
470 Fore Street, Suite 400
Portland, ME 04101

4/15/25

City of Biddeford
Attn: David Galbraith
205 Main Street
Biddeford, ME 04005

Dear David,

Please be advised that the undersigned Forest Green Associates Limited Partnership, which owns the real property known as 1 Parkview Court in Biddeford Maine by virtue of a deed recorded at Book 15854, Page 978 of the York County Registry of Deeds (the "Property"), has engaged Bateman Partners, LLC as its agent for the purposes of pursuing a redevelopment of the Property. As our agent for this project, Bateman Partners, LLC has the full authority to act on behalf of the said partnership in connection with the application submitted to the City of Biddeford in connection with the project.

Forest Green Associates Limited Partnership

By: Bateman Investments, LLC, its general partner

By: 

Name: *Nathan Bateman*

Its: *Member*

December 23, 2024

Re: **Agent Authorization**
Forest Green Expansion Project
Biddeford, Maine

To Whom It May Concern:

Bateman Partners, LLC ("Developer") is in the process of developing a site (the "Site") in the state of Maine, York County, located on Main Street, in Biddeford. On behalf of the Developer, I hereby authorize Gorrill Palmer, (the "Engineer") to assist as agent for the purpose of obtaining permits and approvals related to the development of the Site. This authorization is effective as of the date of this correspondence, and will remain valid until revoked in writing.

If you have any questions or if I can be of any further assistance, please contact me.

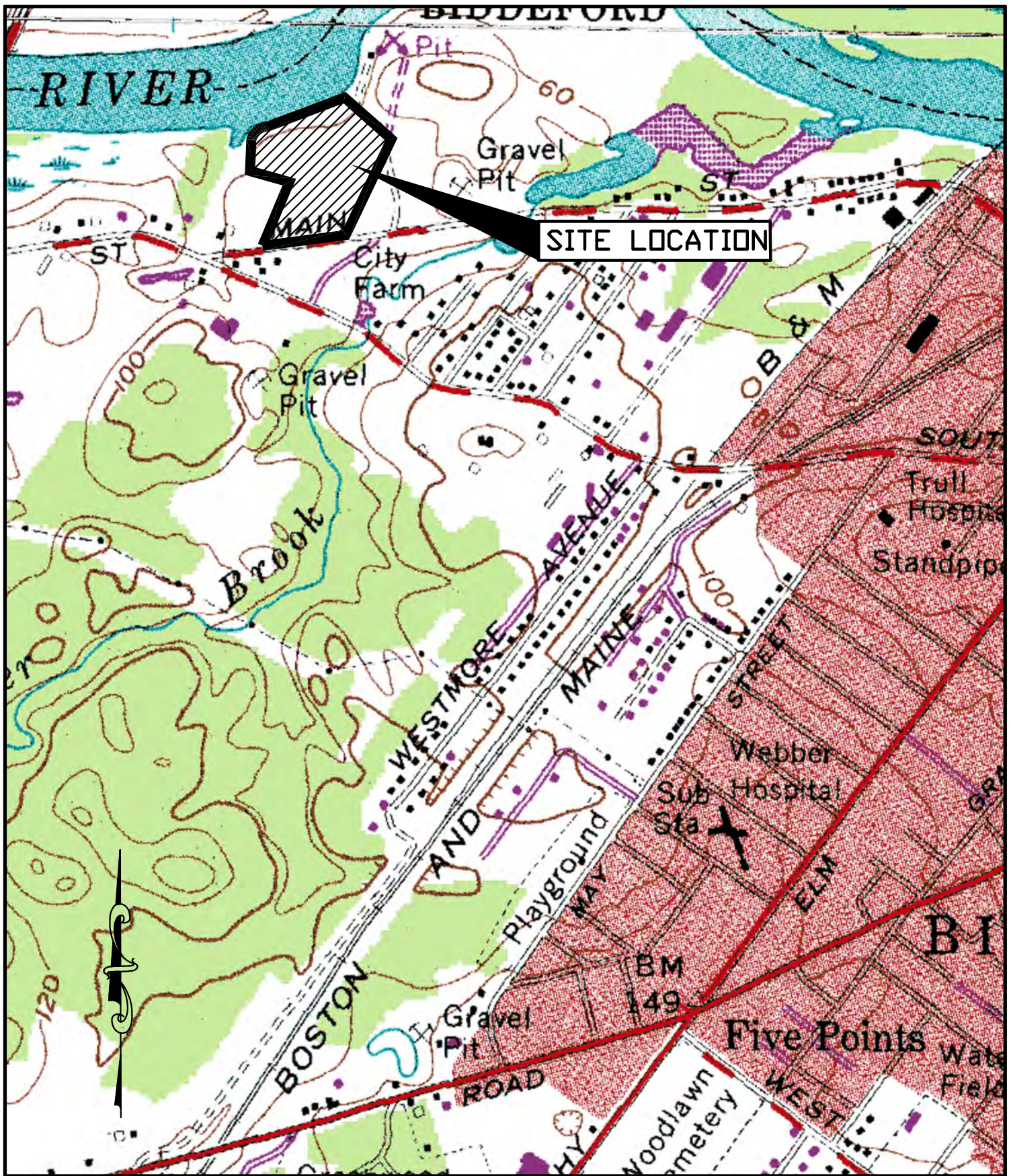
Very truly yours,



Nathan Bateman, Bateman Partners., LLC

ATTACHMENT 3

PROJECT MAPS



U.S.G.S. Location Map
 Forest Green Apartments Expansion - Biddeford, Maine
 U.S.G.S. Biddeford, State-7.5 Minute Series (Topographic)

Design: EJC	Date: NOV. 2024
Draft: EJC	Job No.: 4323
Checked: AJK	Scale: NTS
File Name: 4323-LOCATION MAP.dwg	



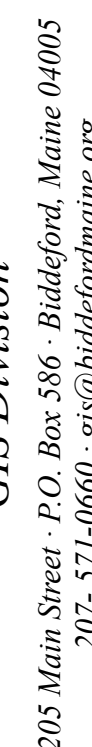
Gorrill Palmer, an LJB Engineering Company
 GorrillPalmer.com
 (207) 772-2515
 300 Southborough Drive - Suite 200
 South Portland, ME 04106

Figure

1



FOR ASSESSMENT PURPOSES ONLY



REFERENCES

This aerial map illustrates flood zones in Saco, Maine. The Saco River flows through the upper left, with a floodway area marked with red diagonal hatching. Thatcher Brook flows through the lower right, also featuring a hatched floodway. The map identifies several flood zones: Zone AE (light blue), Zone A (dark blue), and Zone X (yellow). Key locations include the City of Saco (230155) and the City of Biddeford (230145). Specific areas are labeled as 'FLOODWAY' and 'AREA OF MINIMAL FLOOD HAZARD'. Elevation markers indicate '59 FEET' and '58.1 FEET'. The map also includes a red dot and a green dot, likely representing specific points of interest or measurement.

0 250 500 1,000 1,500 2,000 Feet 1:16,000

70°28'34"W 43°29'35"N

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

 Without Base Flood Elevation (BFE)
Zone A, V, A99

 With BFE or Depth *Zone AE, AO, AH, VE, AR*

 Regulatory Floodway

 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*

 Future Conditions 1% Annual Chance Flood Hazard *Zone X*

 Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*

 Area with Flood Risk due to Levee *Zone D*

NO SCREEN Area of Minimal Flood Hazard Zone X

Effective LOMRs

Area of Undetermined Flood Hazard Zone D

- - - - Channel, Culvert, or Storm Sewer
 ||||| Levee, Dike, or Floodwall

B **20.2** Cross Sections with 1% Annual Chance
17.5 Water Surface Elevation

8 - - - Coastal Transect
Base Flood Elevation Line (BFE)

Limit of Study

Jurisdiction Boundary

- - - - Coastal Transect Baseline

- - - Profile Baseline

Hydrographic Feature

- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **3/14/2025 at 2:37 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 4

UTILITY CORRESPONDENCE

FW: CMP Three Phase Service Process and Ability to Serve Letter

From Agreste, Jay A. <Jay.Agreste@cmpco.com>

Date Wed 4/9/2025 8:01 AM

To Ethan Chadwick <echadwick@gorrillpalmer.com>; Doug E. Reynolds <dreynolds@gorrillpalmer.com>

Cc DELANEY, RICHARD <richard.delaney@cmpco.com>

 4 attachments (1 MB)

Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; EDET Feb 2024.xlsx;

Good morning, Ethan & Doug

Please see ability to serve letter. Thank you

Jay

From: Agreste, Jay A. <Jay.Agreste@cmpco.com>

Sent: Friday, December 20, 2024 9:00 AM

To: dhorne@acorn-engineering.com

Cc: DUPERRE, PAUL <paul.duperre@cmpco.com>

Subject: CMP Three Phase Service Process and Ability to Serve Letter

Douglas Reynolds, PE

Project Manager

Phone: 207-772-2515

dreynolds@gorrillpalmer.com

RE: Provide three-phase power services for a sixty-unit residential development located at 641 Main Street in Biddeford.

Letter of Ability to Serve Request

SAP TBD Please call 1-800-750-4000 when ready to get a notification/job# created

Project Description:

Central Maine Power has the ability to serve at a proposed project located at 641 Main Street in Biddeford, Maine. The development proposes the construction of two, three-story, 7,560 square-foot, multifamily dwellings. Each dwelling will consist of 30 units for a total of 60 units combined. The residential development is proposed to be accessed via Main Street with pedestrian access available to/from Main Street by sidewalk. Please keep in mind if the new diversified connected load is above 500kw. A circuit capacity study will be required by CMP's Distribution Planning Department. There is an existing 3phase Overhead primary line at the corner of Main Street & South Street. All to be determined at a future Field Planner appointment.

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. 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.

- 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 will 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 the electrical inspection has been received.

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](#) An additional resource 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](#)

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 your 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: [PolyphaseLineExtension](#).

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:

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

Jay Agreste

Energy Service Specialist

Central Maine Power

439 Sanford Rd, Alfred ME.04002

Jay.Agreste@cmpco.com

Please consider the environment before printing this email.

If you have received this message in error, please notify the sender and immediately delete this message and any attachment hereto and/or copy hereof, as such message contains confidential information intended solely for the individual or entity to whom it is addressed. The use or disclosure of such information to third parties is prohibited by law and may give rise to civil or criminal liability.

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April 11, 2025

Doug Reynolds, PE
Gorrill-Palmer Consulting Engineers, LLC
300 Southborough Drive, Suite 200
South Portland, ME 04106

Re: Ability to Serve Determination – 641 Main St, Biddeford

Greetings,

The Maine Water Company (MWC) has received your Ability to Serve Determination request on the behalf of your client, Bateman Partners, for a proposed residential development to be located at 641 Main St, Biddeford, Maine. The request specifies a plan to construct utility infrastructure improvements to serve 60 units within two buildings. The expected average domestic service demand is 10,980 gallons per day. The expected fire service demand for the project is unknown.

Based on the criteria provided by the developer's agent, the expected increase in water usage is within the water system's available capacity. The static pressure in the area is approximately **55 psi**. The Biddeford Saco Division of MWC does have sufficient capacity from the existing 8-inch ductile iron water main in the Parkview Court Right-of-Way to serve this project. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

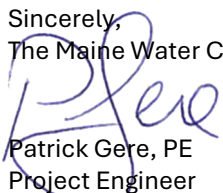
Conditions of Service

- MWC has the understanding that fire service demand is unknown at this time, are not to be included in this request, or accounted for in this Ability to Serve Determination.
- If fire service is required, a hydrant flow test at the nearest available hydrant will need to be conducted and analyzed by the sprinkler designer to ensure that adequate flows can be met during a peak fire demand event.
- The developer is required to pay for the cost of any modification, renewal of impacted service lines, and retirement of unused or discontinued services to MWC standards of best practice.
- Additional plan approval, paperwork, and fees associated with this project will require proper coordination with MWC. MWC requires upfront payment for inspection and paperwork to be fully completed before any construction on waterworks materials.
- Service lines must comply with MWC Cross Connection Control Program.
- Allow up to 30 days for the MWC utility review process once final plans are ready to be completed before any construction on waterworks materials will be approved.

Should a request for service or completion of the project not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project. All work must be completed in accordance with MWC Terms and Conditions as well as material specifications. All appropriate paperwork must be completed, and deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with Maine Public Utility Commission rules.

If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at Patrick.Gere@mainewater.com. We look forward to working with you throughout design and construction.

Sincerely,
The Maine Water Company

A handwritten signature in blue ink, appearing to read "P. Gere".
Patrick Gere, PE
Project Engineer

ATTACHMENT 5

STORMWATER MEMORANDUM

ATTACHMENT 5

STORMWATER MEMORANDUM

Stormwater Memo

To:	David Galbraith, City Planner	From:	Douglas Reynolds, PE
Date:	May 09, 2025	Re:	Forest Green Apartment Expansion 1 Parkview Court, Biddeford, ME Bateman Partners, LLC

Task:

Perform a stormwater management analysis for the proposed development of (2) thirty (30) units located at 1 Park View Court in Biddeford, ME.

References:

- Field reconnaissance by Gorrill Palmer
- LiDAR topography from the Maine Office of GIS
- "Topographic Survey at Park View Court, Biddeford, Maine" dated January 2025, and prepared by Owen Haskell, Inc. for Bateman Partners, LLC.
- Design plans titled "Forest Green Apartment Expansion" prepared by Gorrill Palmer.
- City of Biddeford, ME City Code Article IV – Section 61.A

Background:

Bateman Partners, LLC is currently seeking a Final Site Plan and Subdivision Permit from the City of Biddeford Planning for the construction of (2), thirty (30) unit buildings. The unit breakdown will incorporate forty-two (42) two-bedroom units and eighteen (18) one-bedrooms with associated parking, utility, and drainage infrastructure. The site consists of a 10.15 acre property identified as Lot 1 on Tax Map 32 of the City of Biddeford's Assessor's Map. The property owner (Forest Green Associates LP) is a subsidiary of the Applicant (Bateman Partners, LLC) has retained and authorized Gorrill Palmer to perform all work necessary to submit this application (see Attachment 2 for the Current Deed and Agent Authorization).

The project will create less than 1 acre of impervious area and, therefore, does not meet the threshold for a Maine DEP Stormwater Law permit under the Ch. 500 standards for water quality and quantity control. However, the project is subject to the City of Biddeford's stormwater management standards outlined in Article IV – Section 61.A of the City Code, which requires post-development peak discharges do not exceed pre-development conditions. The plans prepared by Gorrill Palmer include the infrastructure necessary to serve the project and to comply with current local stormwater standards. Erosion and Sedimentation Controls (Basic Standards) will also be employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C002, C404, and C405 and as described in the Erosion and Sedimentation

Control Report in Attachment 3. An Operation and Maintenance Manual prepared by Gorrill Palmer outlines the inspection and maintenance requirements for the proposed stormwater facilities and is included in Attachment 3.

The purpose of this analysis and memorandum is to document what measures will be implemented to control the peak rate of discharge during large storm events to meet city standards. Based on our review of the City Ordinances, there is no standard for the treatment of stormwater runoff, therefore the proposed development is not proposing treatment of stormwater runoff.

Existing Conditions

The 10.15-acre property includes 5 existing residential buildings with a total of 40 units with associated parking and access ways. A portion on the western side of the parcel is primarily undeveloped wooded areas.

The USDA NRCS Class D Intensity Soil Survey for York County identifies the site soils to be comprised of:

Map Symbol	Soil Type	K Value	Hydrologic Soil Group
EmB	Elmwood Fine Sandy Loam	0.32	B
MaB	Madawaska Fine Sandy Loam	0.28	B
Ra	Raynham Silt Loam	0.64	C/D
BuC	Buxton Silt Loam	0.32	C
Po	Podunk and Winooski Soils	0.24	B

The majority of the development is located on Raynham Silt Loam soils, which is considered to have very deep, poorly drained soils with a moderately high or high saturated hydraulic conductivity. The soils are also acceptable to support the installation of the proposed drainage infrastructure installation techniques and measures to prevent erosion.

Proposed Development

The proposed site improvements will include two (2) approximately 9,800 SF footprint three-story buildings connected by an 800 SF shared entry that will contain an elevator for accessibility to the upper floors of both buildings. Additionally, there is a associated driveway for access to the 63 proposed exterior parking spaces. In total, the proposed project is anticipated to create approximately 42,472 SF of new non vegetated area, which includes new paved, gravel, and roof areas. The developed area of the site is anticipated to increase 67,346 SF bringing the total developed footprint of the site to 288,625 SF.

Analysis:

The proposed development was designed to meet the local requirements of Article IV – Section 61.A, which requires the reduction of peak discharge for the twenty-five-year storm to the greatest extent practicable. . Runoff from the site is ultimately tributary to the Saco River which has a watershed area that spans throughout multiple states. Through inspection of the portion of the

watershed between the Skelton Dam in Buxton to the project site, it will be demonstrated that the Flooding Standard is met by the development's proximity to the Saco River and the vastness of the upstream watershed (almost 25,000 acres with a Tc of about 17.7 hours). The increase in impervious area for the development is insignificant compared to the overall watershed and will reach the Saco River well before the peak of the overall watershed and therefore will not lead to increases in peak discharge above the predevelopment levels. The watershed model (included in Attachment 2) was developed to predict peak discharge rates at the Point of Interest (POI) depicted on the watershed maps (included in Attachment 1). The following sections describe the pre-development and the post-development conditions.

In general, the site drains northerly to existing wetlands eventually draining into the Saco River. The slopes range from 1-10%. Elevations (referenced to grid north, Maine State Plane Coordinate System, West Zone, NAD83) range from 72 feet in the southerly portion of the site to 55 feet in the northern portion (POI #1). The proposed site plans have been designed to match the existing drainage patterns to the greatest extent practicable.

Existing Conditions (WS1)

The existing conditions were modeled as one subcatchments as shown on Sheet WS1 and described below:

- S1 encompasses the entire watershed that feeds into the Saco River (POI #1), including the river segment extending from the project site to the Skelton Dam in Buxton. This watershed covers an area of approximately 24,370.6 acres. For modeling purposes, it is assumed that 10% of the watershed will be represented as impervious surface, while 20% will be classified as developed land.

Post-Development Conditions (WS2)

The post-development condition was modeled as five subcatchments as shown on Sheet WS2 and which are described below:

- S1 consists of the watershed modeled in the predevelopment conditions minus the proposed land cover for the proposed project. The subcatchment is tributary to the Saco River identified as POI #1.
- S2 consists of grassed, roof, paved, and remaining undeveloped areas onsite. This subcatchment is first tributary to the onsite drainage system which outlets within the project site to a level lip spreader which ensures runoff flows to the existing lowpoint. The runoff is ultimately tributary to the Saco River (POI #1). It was the intent of the proposed development to maintain the existing drainage pattern of the site.

The following table shows the peak flows measured at the points-of-interest in the pre- and post-development conditions:

Comparison of Pre- and Post-Development Peak Flow Rates						
Point of Interest	Peak Flow (cfs)					
	2 Year		10 Year		25 Year	
	Pre	Post	Pre	Post	Pre	Post
POI #1	951.31	951.30	2308.74	2308.72	3616.71	3616.69

As shown in the table above, the peak flow rate at POI #1 is reduced in the post-development condition. The increase in impervious area for the development is insignificant compared to the

overall watershed and will reach the Saco River well before the peak of the overall watershed and therefore will not lead to increases in peak discharge above the predevelopment levels.

Proposed BMPs

Runoff from the proposed development is designed to be managed with a level lip spreader. The level lip spreader aids in controlling peak flow rates by dispersing flows and mitigating erosive flows. Analysis for the post development condition consists of determining peak flows and limiting the post development flows to at or below predevelopment levels to the greatest extent practicable as required by the City of Biddeford.

The proposed development is not required by the City to provide treatment of stormwater runoff. Additionally, since the site contains a lot of moderate-low permeability soils, stormwater infiltration is not proposed as part of the stormwater management system. Therefore, we do not anticipate any adverse effects on subsurface water quality.

The following section summarizes the design of the Level Lip Spreader BMP being utilized for the proposed development.

Level Lip Spreader:

Runoff from the proposed roof, driveway, and parking areas will be conveyed via open bottom 3'x2' pipe arch culvert to level lip spreader. A rip rap apron is provided at the culvert entrance located southeast of the proposed building to collect fugitive sediment from parking and landscaped areas.

Conclusion:

The proposed stormwater management plan for this project is anticipated to mitigate any impacts of stormwater runoff rates resulting from the proposed development and to reduce peak runoff to the greatest extent practicable.

Erosion and sediment control measures will be employed during construction as outlined in the attached report (see Attachment 3). These include a stabilized construction entrance, silt sacks, silt fence and/or erosion control mix barriers and mulching to assure that the construction activity does not result in any sediment transport off the site.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.

Gorrill Palmer



Douglas Reynolds, PE
Project Manager
Phone: 207-772-2515 x239
dreynolds@gorrillpalmer.com

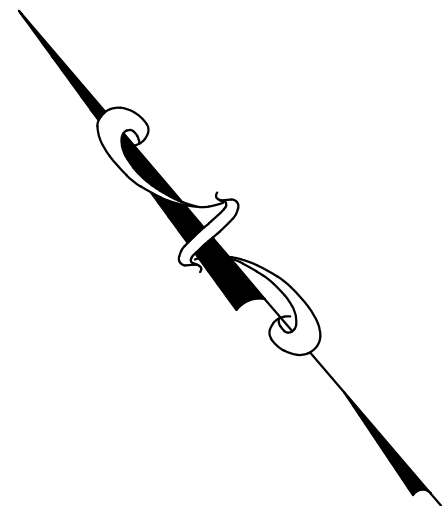
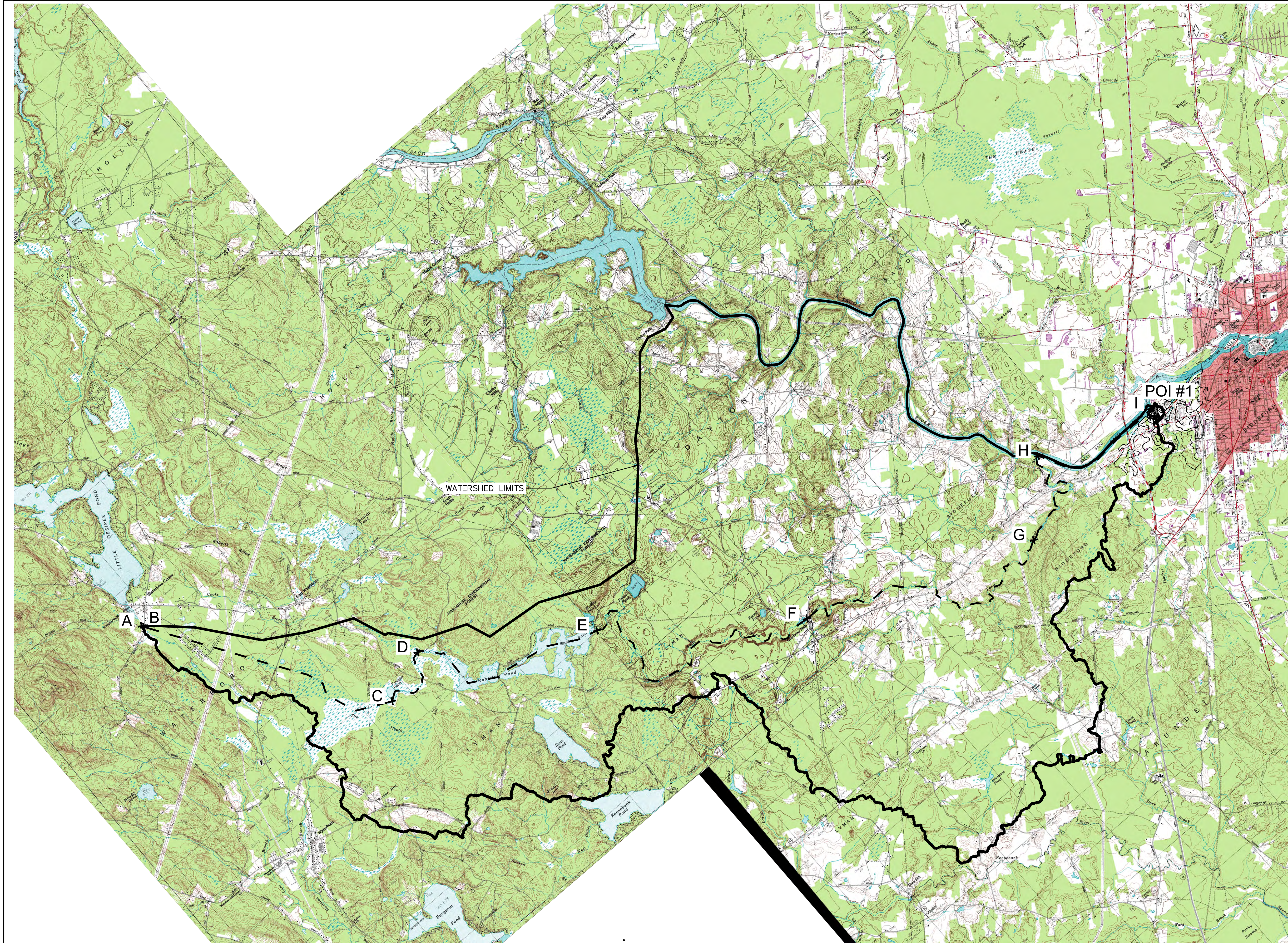
Attachments:

- 1 Watershed Maps:
WS1 Predevelopment Watershed Map
WS2 Post Development Watershed Map
- 2 Pre and Post Development HydroCAD Models

ATTACHMENT 1

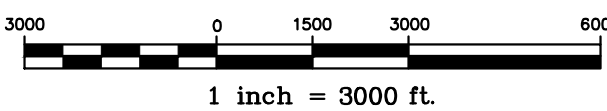
Watershed Maps

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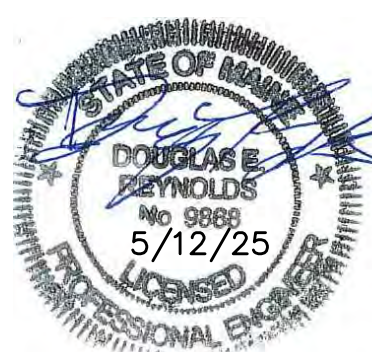


LEGEND

- 1 SUBCATCHMENT AREA
- A TIME OF CONCENTRATION FLOW PATH
- WATERSHED BOUNDARY
- WETLAND BOUNDARY
- SF SHEET FLOW
- PF PIPE FLOW
- SCF SHALLOW CONCENTRATED FLOW
- CF CHANNEL FLOW
- POI POINT OF INTEREST
- 1 REACH



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.



Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=3000'	Job No.: 4323
File Name: 4323-WS-PRE-BTP.dwg		
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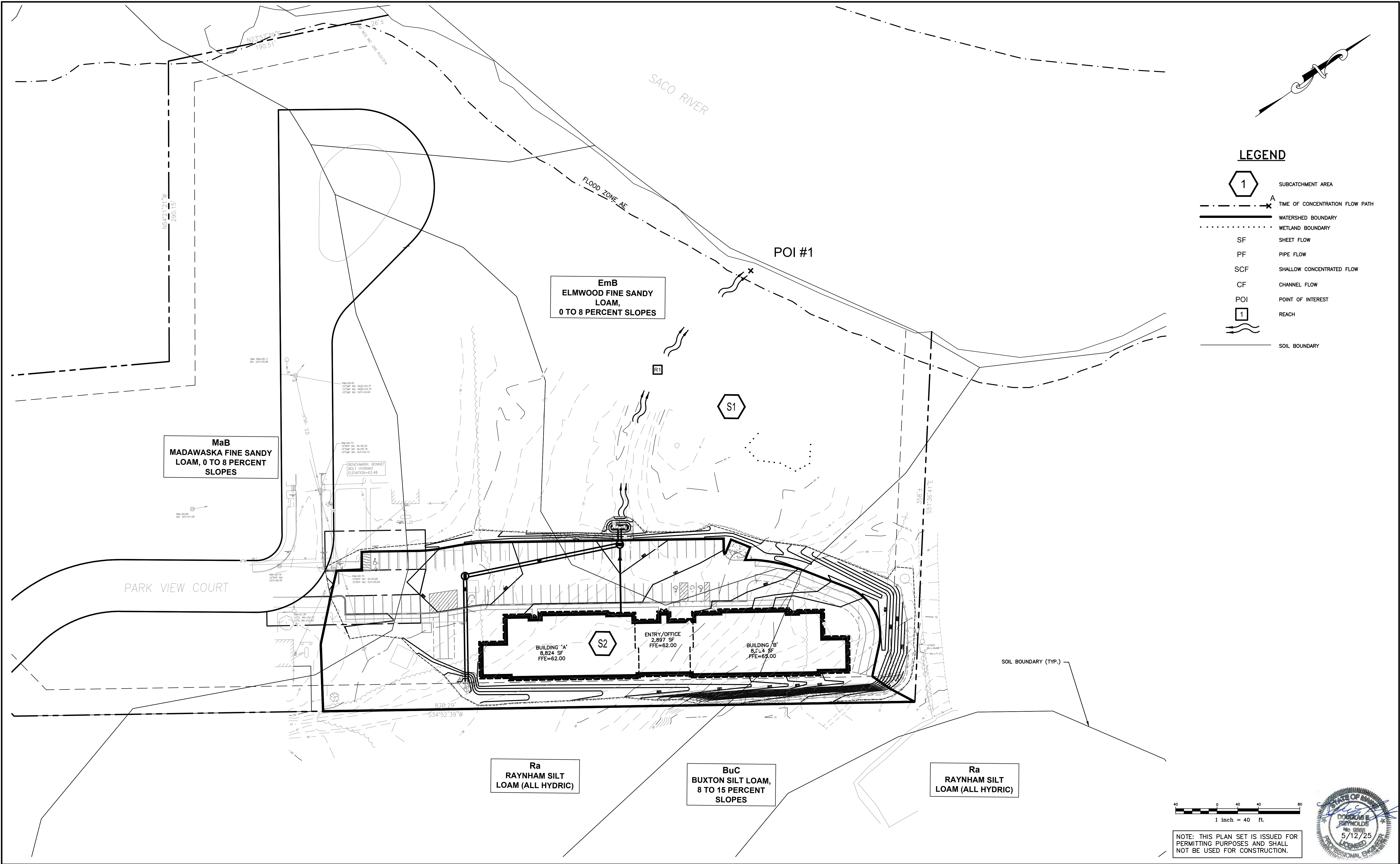


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www.gorrillpalmer.com
207.772.2515
300 Southborough Drive - Suite 200
South Portland, ME 04106

Drawing Name:	Pre Development Watershed Map
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.
W1

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Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=40'	Job No.: 4323
File Name: 4323-WS-POST-BTP.dwg		
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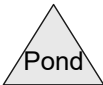
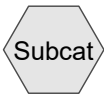
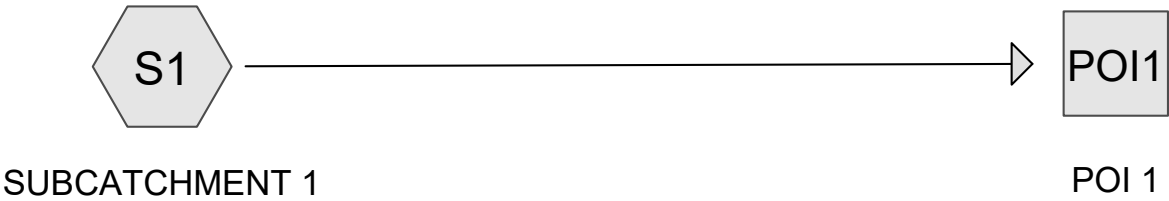
Drawing Name:	Post Development Watershed Map
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	W2
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ATTACHMENT 2

Pre- and Post-development HydroCAD Model

PREDEVELOPMENT



Pre-EJC - BTP

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Type III 24-hr 2 YR Rainfall=3.30"

Printed 5/9/2025

Page 2

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: SUBCATCHMENT 1 Runoff Area=24,370.600 ac 10.65% Impervious Runoff Depth>0.66"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=951.31 cfs 1,345.685 af

Reach POI1: POI 1

Inflow=951.31 cfs 1,345.685 af

Outflow=951.31 cfs 1,345.685 af

Total Runoff Area = 24,370.600 ac Runoff Volume = 1,345.685 af Average Runoff Depth = 0.66"
89.35% Pervious = 21,774.800 ac 10.65% Impervious = 2,595.800 ac

Pre-EJC - BTP

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Type III 24-hr 10 YR Rainfall=4.90"

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Page 3

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: SUBCATCHMENT 1 Runoff Area=24,370.600 ac 10.65% Impervious Runoff Depth>1.59"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=2,308.74 cfs 3,228.494 af

Reach POI1: POI 1

Inflow=2,308.74 cfs 3,228.494 af

Outflow=2,308.74 cfs 3,228.494 af

Total Runoff Area = 24,370.600 ac Runoff Volume = 3,228.494 af Average Runoff Depth = 1.59"
89.35% Pervious = 21,774.800 ac 10.65% Impervious = 2,595.800 ac

Pre-EJC - BTP

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Type III 24-hr 25 YR Rainfall=6.20"

Printed 5/9/2025

Page 1

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: SUBCATCHMENT 1 Runoff Area=24,370.600 ac 10.65% Impervious Runoff Depth>2.48"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=3,616.71 cfs 5,043.681 af

Reach POI1: POI 1

Inflow=3,616.71 cfs 5,043.681 af

Outflow=3,616.71 cfs 5,043.681 af

Total Runoff Area = 24,370.600 ac Runoff Volume = 5,043.681 af Average Runoff Depth = 2.48"
89.35% Pervious = 21,774.800 ac 10.65% Impervious = 2,595.800 ac

Pre-EJC - BTP

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Type III 24-hr 25 YR Rainfall=6.20"

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Page 2

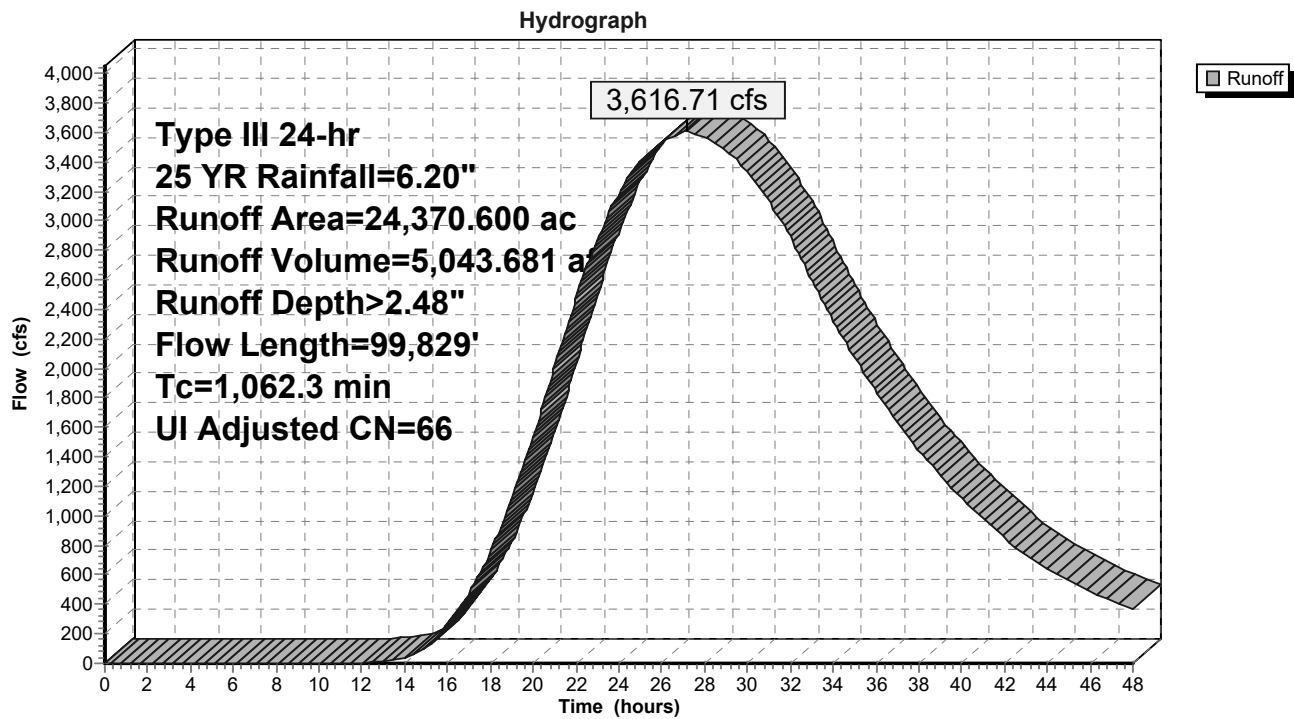
Summary for Subcatchment S1: SUBCATCHMENT 1

Runoff = 3,616.71 cfs @ 27.15 hrs, Volume= 5,043.681 af, Depth> 2.48"
 Routed to Reach POI1 : POI 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR Rainfall=6.20"

Area (ac)	CN	Adj	Description
* 253.200	98		Rock Outcrop
640.300	98		Unconnected pavement, HSG A
640.300	30		Meadow, non-grazed, HSG A
5,122.400	30		Woods, Good, HSG A
77.880	98		Unconnected pavement, HSG B
77.880	58		Meadow, non-grazed, HSG B
623.040	55		Woods, Good, HSG B
310.520	98		Unconnected pavement, HSG C
310.520	71		Meadow, non-grazed, HSG C
2,484.160	70		Woods, Good, HSG C
1,313.900	98		Unconnected pavement, HSG D
1,313.900	78		Meadow, non-grazed, HSG D
10,511.200	77		Woods, Good, HSG D
691.400	98		Water Surface, 0% imp, HSG D
24,370.600	67	66	Weighted Average, UI Adjusted
21,774.800			89.35% Pervious Area
2,595.800			10.65% Impervious Area
2,342.600			90.25% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	150	0.0500	0.12		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.30"
883.4	17,779	0.0045	0.34		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
20.4	5,306	0.0025	4.35	869.02	Trap/Vee/Rect Channel Flow, C to D Bot.W=20.00' D=10.00' n= 0.050 Mountain streams w/large boulders
7.4	13,751		31.08		Lake or Reservoir, D to E Mean Depth= 30.00'
47.3	21,822	0.0050	7.68	1,536.22	Trap/Vee/Rect Channel Flow, E to F Bot.W=20.00' D=10.00' n= 0.040 Winding stream, pools & shoals
55.3	21,894	0.0073	6.60	495.18	Trap/Vee/Rect Channel Flow, F to G Bot.W=15.00' D=5.00' n= 0.040 Winding stream, pools & shoals
21.5	10,055	0.0030	7.80	4,677.83	Trap/Vee/Rect Channel Flow, G to H Bot.W=60.00' D=10.00' n= 0.040 Winding stream, pools & shoals
6.7	9,072	0.0025	22.48	196,689.42	Trap/Vee/Rect Channel Flow, H to I Bot.W=250.00' D=35.00' n= 0.030 Stream, clean & straight
1,062.3	99,829	Total			

Subcatchment S1: SUBCATCHMENT 1

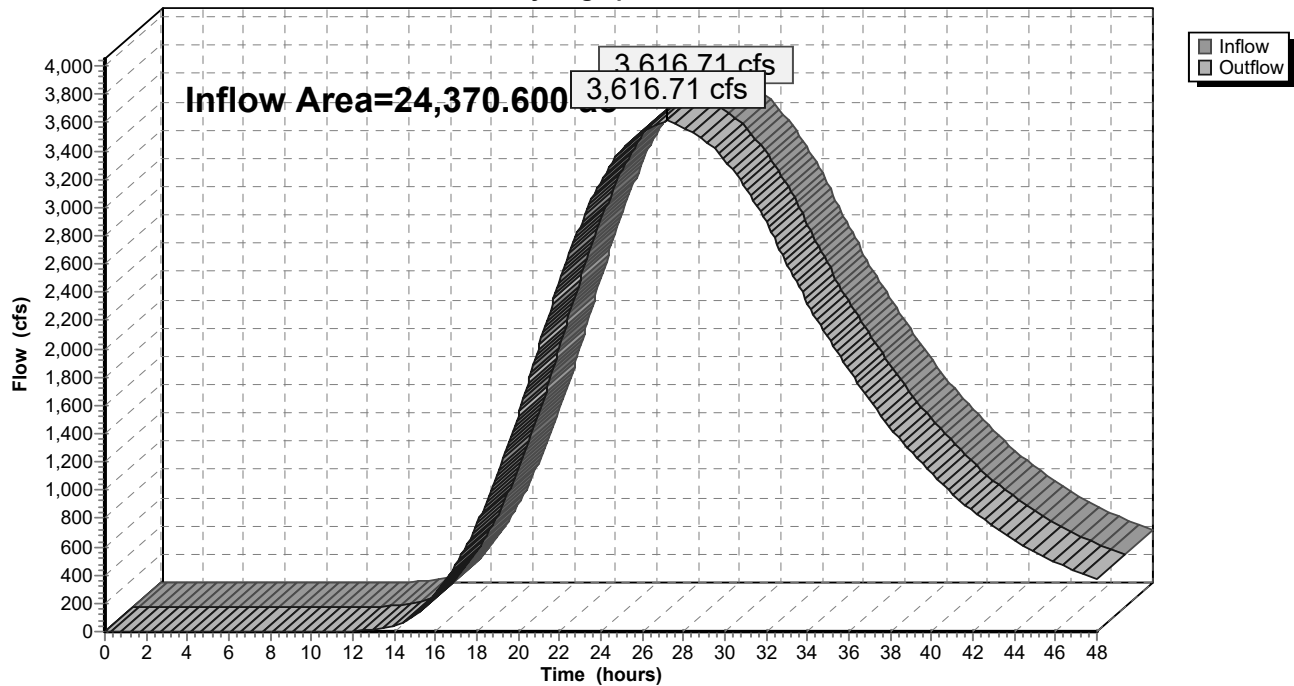
Summary for Reach POI1: POI 1

Inflow Area = 24,370.600 ac, 10.65% Impervious, Inflow Depth > 2.48" for 25 YR event

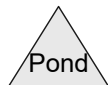
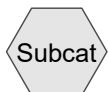
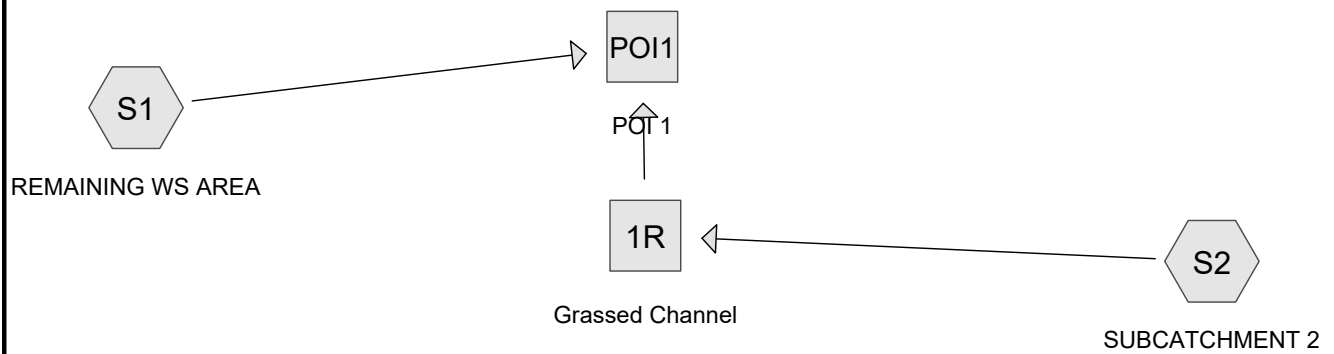
Inflow = 3,616.71 cfs @ 27.15 hrs, Volume= 5,043.681 af

Outflow = 3,616.71 cfs @ 27.15 hrs, Volume= 5,043.681 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2

Reach POI1: POI 1**Hydrograph**

POSTDEVELOPMENT



Routing Diagram for Post-EJC - BTP

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Post-EJC - BTP

Prepared by LJB, Inc

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Type III 24-hr 2 YR Rainfall=3.30"

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Page 2

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: REMAINING WS Runoff Area=1,061,575,768 sf 10.65% Impervious Runoff Depth>0.66"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=951.30 cfs 1,345.675 af

Subcatchment S2: SUBCATCHMENT2 Runoff Area=79,568 sf 62.28% Impervious Runoff Depth=2.09"
Tc=6.0 min CN=88 Runoff=4.45 cfs 0.318 af

Reach 1R: Grassed Channel Avg. Flow Depth=0.43' Max Vel=2.61 fps Inflow=4.45 cfs 0.318 af
n=0.030 L=286.0' S=0.0118 '/' Capacity=20.60 cfs Outflow=4.31 cfs 0.318 af

Reach POI1: POI 1 Inflow=951.30 cfs 1,345.993 af
Outflow=951.30 cfs 1,345.993 af

Total Runoff Area = 24,372.253 ac Runoff Volume = 1,345.993 af Average Runoff Depth = 0.66"
89.35% Pervious = 21,775.626 ac 10.65% Impervious = 2,596.626 ac

Post-EJC - BTP

Prepared by LJB, Inc

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Type III 24-hr 10 YR Rainfall=4.90"

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Page 3

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: REMAINING WS Runoff Area=1,061,575,768 sf 10.65% Impervious Runoff Depth>1.59"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=2,308.72 cfs 3,228.471 af

Subcatchment S2: SUBCATCHMENT2 Runoff Area=79,568 sf 62.28% Impervious Runoff Depth=3.57"
Tc=6.0 min CN=88 Runoff=7.49 cfs 0.544 af

Reach 1R: Grassed Channel Avg. Flow Depth=0.58' Max Vel=3.06 fps Inflow=7.49 cfs 0.544 af
n=0.030 L=286.0' S=0.0118 '/' Capacity=20.60 cfs Outflow=7.31 cfs 0.544 af

Reach POI1: POI 1 Inflow=2,308.72 cfs 3,229.015 af
Outflow=2,308.72 cfs 3,229.015 af

Total Runoff Area = 24,372.253 ac Runoff Volume = 3,229.015 af Average Runoff Depth = 1.59"
89.35% Pervious = 21,775.626 ac 10.65% Impervious = 2,596.626 ac

Post-EJC - BTP

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Type III 24-hr 25 YR Rainfall=6.20"

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Page 1

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S1: REMAINING WS Runoff Area=1,061,575,768 sf 10.65% Impervious Runoff Depth>2.48"
Flow Length=99,829' Tc=1,062.3 min UI Adjusted CN=66 Runoff=3,616.69 cfs 5,043.645 af

Subcatchment S2: SUBCATCHMENT2 Runoff Area=79,568 sf 62.28% Impervious Runoff Depth=4.82"
Tc=6.0 min CN=88 Runoff=9.95 cfs 0.733 af

Reach 1R: Grassed Channel Avg. Flow Depth=0.67' Max Vel=3.33 fps Inflow=9.95 cfs 0.733 af
n=0.030 L=286.0' S=0.0118 '/' Capacity=20.60 cfs Outflow=9.74 cfs 0.733 af

Reach POI1: POI 1 Inflow=3,616.69 cfs 5,044.378 af
Outflow=3,616.69 cfs 5,044.378 af

Total Runoff Area = 24,372.253 ac Runoff Volume = 5,044.378 af Average Runoff Depth = 2.48"
89.35% Pervious = 21,775.626 ac 10.65% Impervious = 2,596.626 ac

Post-EJC - BTP

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Type III 24-hr 25 YR Rainfall=6.20"

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Page 2

Summary for Subcatchment S1: REMAINING WS AREA

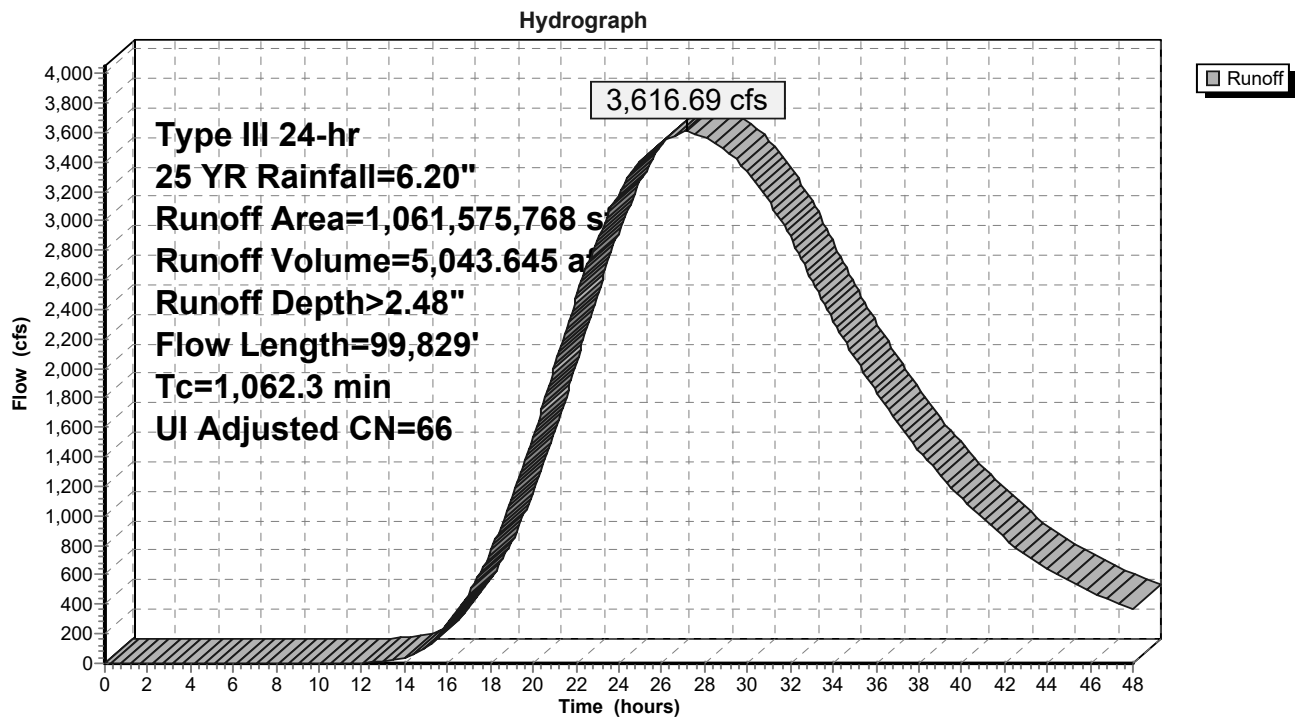
Runoff = 3,616.69 cfs @ 27.15 hrs, Volume= 5,043.645 af, Depth> 2.48"
 Routed to Reach POI1 : POI 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR Rainfall=6.20"

Area (sf)	CN	Adj	Description
* 11,029,392	98		Rock Outcrop
27,891,468	98		Unconnected pavement, HSG A
27,891,468	30		Meadow, non-grazed, HSG A
223,131,744	30		Woods, Good, HSG A
3,380,628	98		Unconnected pavement, HSG B
3,389,813	58		Meadow, non-grazed, HSG B
27,139,622	55		Woods, Good, HSG B
13,524,520	98		Unconnected pavement, HSG C
13,538,816	71		Meadow, non-grazed, HSG C
108,206,073	70		Woods, Good, HSG C
57,233,484	98		Unconnected pavement, HSG D
57,233,484	78		Meadow, non-grazed, HSG D
457,867,872	77		Woods, Good, HSG D
30,117,384	98		Water Surface, 0% imp, HSG D
1,061,575,768	67	66	Weighted Average, UI Adjusted
948,516,276			89.35% Pervious Area
113,059,492			10.65% Impervious Area
102,030,100			90.24% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	150	0.0500	0.12		Sheet Flow, A to B Woods: Light underbrush n= 0.400 P2= 3.30"
883.4	17,779	0.0045	0.34		Shallow Concentrated Flow, B to C Woodland Kv= 5.0 fps
20.4	5,306	0.0025	4.35	869.02	Trap/Vee/Rect Channel Flow, C to D Bot.W=20.00' D=10.00' n= 0.050 Mountain streams w/large boulders
7.4	13,751		31.08		Lake or Reservoir, D to E Mean Depth= 30.00'
47.3	21,822	0.0050	7.68	1,536.22	Trap/Vee/Rect Channel Flow, E to F Bot.W=20.00' D=10.00' n= 0.040 Winding stream, pools & shoals
55.3	21,894	0.0073	6.60	495.18	Trap/Vee/Rect Channel Flow, F to G Bot.W=15.00' D=5.00' n= 0.040 Winding stream, pools & shoals
21.5	10,055	0.0030	7.80	4,677.83	Trap/Vee/Rect Channel Flow, G to H Bot.W=60.00' D=10.00' n= 0.040 Winding stream, pools & shoals
6.7	9,072	0.0025	22.48	196,689.42	Trap/Vee/Rect Channel Flow, H to I Bot.W=250.00' D=35.00' n= 0.030 Stream, clean & straight
1,062.3	99,829	Total			

Subcatchment S1: REMAINING WS AREA



Post-EJC - BTP

Prepared by LJB, Inc

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Type III 24-hr 25 YR Rainfall=6.20"

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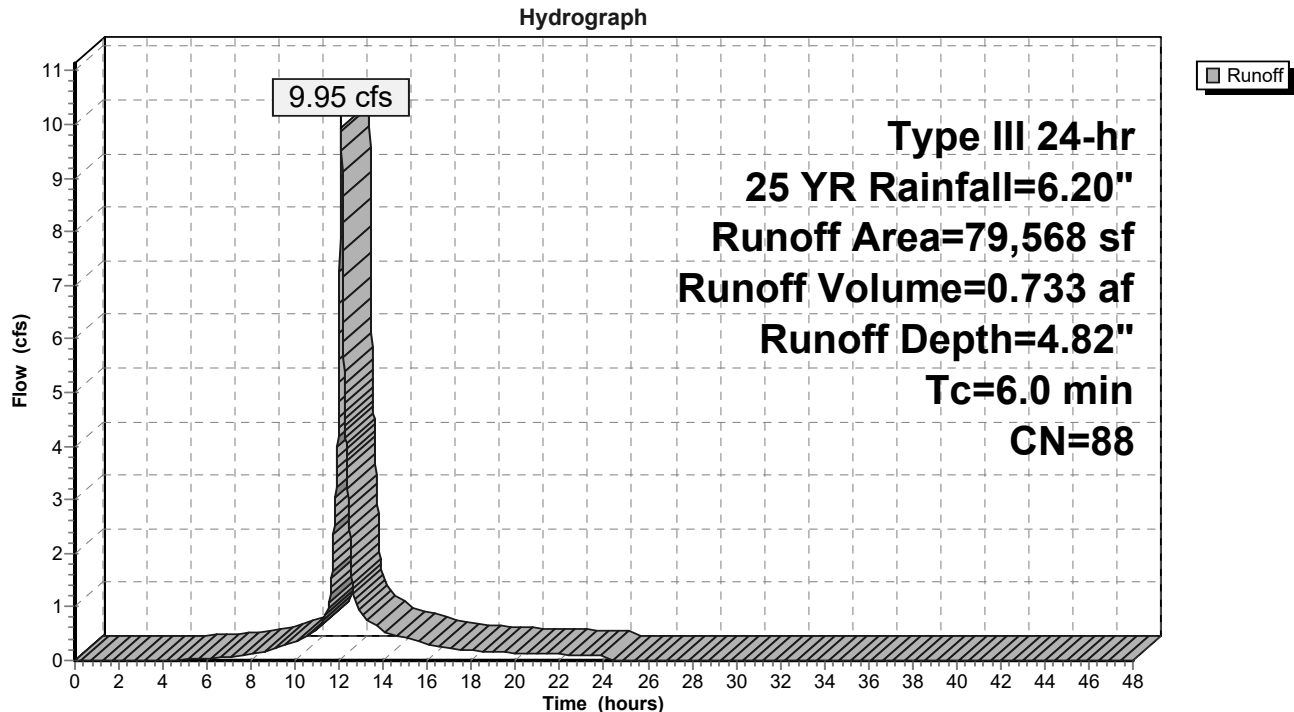
Summary for Subcatchment S2: SUBCATCHMENT 2

Runoff = 9.95 cfs @ 12.09 hrs, Volume= 0.733 af, Depth= 4.82"
 Routed to Reach 1R : Grassed Channel

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25 YR Rainfall=6.20"

Area (sf)	CN	Description
2,640	61	>75% Grass cover, Good, HSG B
23,435	74	>75% Grass cover, Good, HSG C
11,825	98	Paved parking, HSG B
37,731	98	Paved parking, HSG C
3,937	70	Woods, Good, HSG C
79,568	88	Weighted Average
30,012		37.72% Pervious Area
49,556		62.28% Impervious Area

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

Subcatchment S2: SUBCATCHMENT 2

Post-EJC - BTP

Prepared by LJB, Inc

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Type III 24-hr 25 YR Rainfall=6.20"

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Summary for Reach 1R: Grassed Channel

Inflow Area = 1.827 ac, 62.28% Impervious, Inflow Depth = 4.82" for 25 YR event
Inflow = 9.95 cfs @ 12.09 hrs, Volume= 0.733 af
Outflow = 9.74 cfs @ 12.10 hrs, Volume= 0.733 af, Atten= 2%, Lag= 1.0 min
Routed to Reach POI1 : POI 1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Max. Velocity= 3.33 fps, Min. Travel Time= 1.4 min

Avg. Velocity = 0.89 fps, Avg. Travel Time= 5.3 min

Peak Storage= 836 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.67' , Surface Width= 5.69'

Bank-Full Depth= 1.00' Flow Area= 5.0 sf, Capacity= 20.60 cfs

3.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding

Side Slope Z-value= 2.0 '/' Top Width= 7.00'

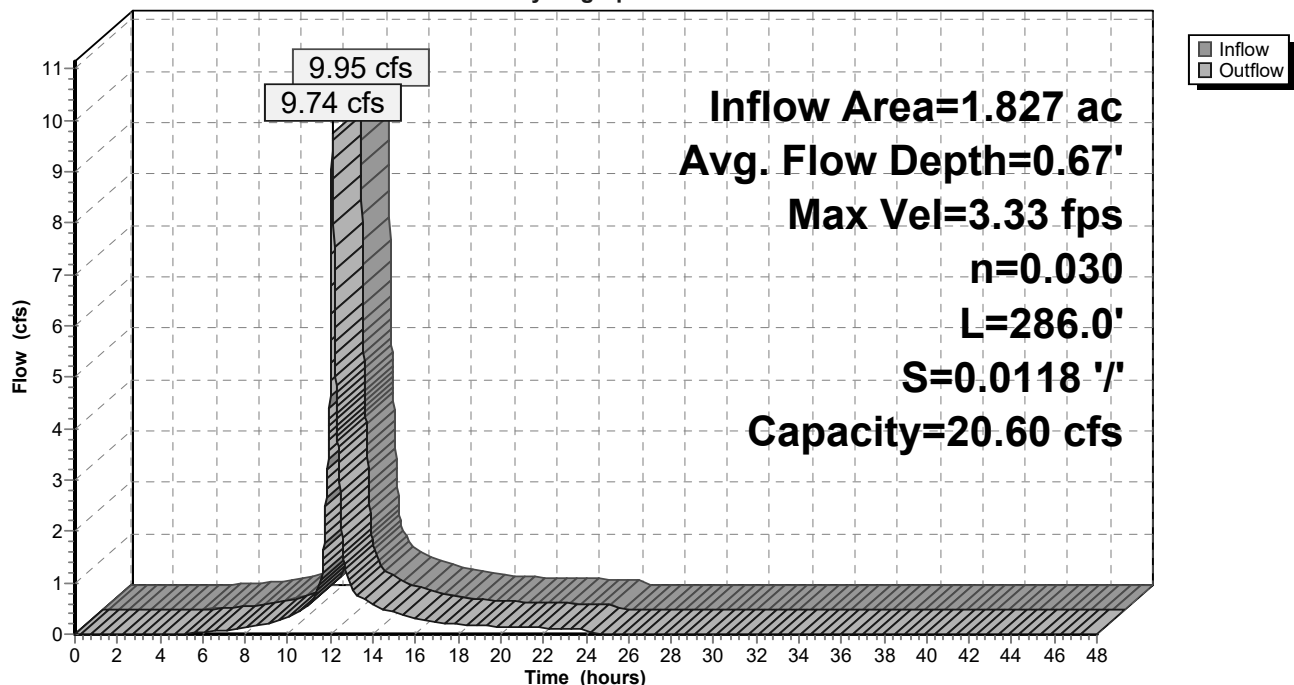
Length= 286.0' Slope= 0.0118 '/'

Inlet Invert= 55.38', Outlet Invert= 52.00'



Reach 1R: Grassed Channel

Hydrograph



Summary for Reach POI1: POI 1

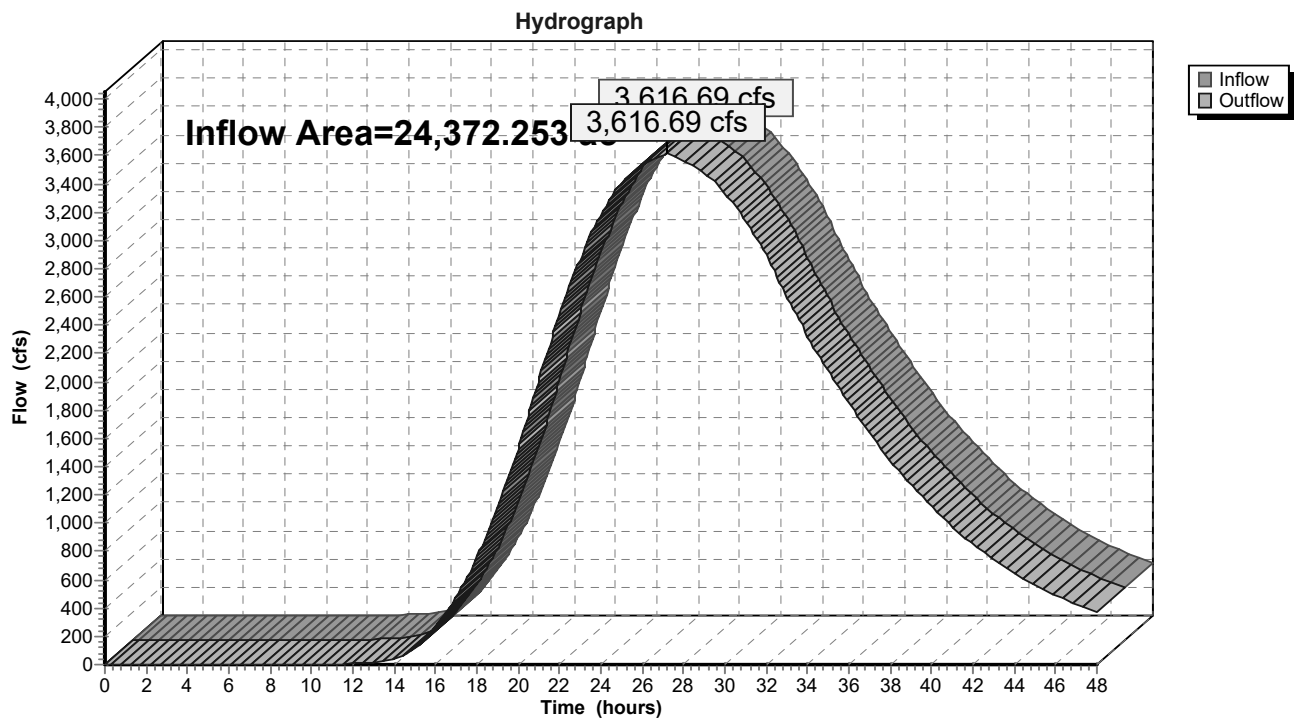
Inflow Area = 24,372.253 ac, 10.65% Impervious, Inflow Depth > 2.48" for 25 YR event

Inflow = 3,616.69 cfs @ 27.15 hrs, Volume= 5,044.378 af

Outflow = 3,616.69 cfs @ 27.15 hrs, Volume= 5,044.378 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Reach POI1: POI 1



ATTACHMENT 6

EROSION CONTROL REPORT

BASIC STANDARDS
EROSION AND SEDIMENTATION CONTROL REPORT
RESIDENTIAL DEVELOPMENT
BIDDEFORD , MAINE

Prepared for

BATEMAN PARTNERS
470 FORE STREET, SUITE 400
PORTLAND, ME 04103

Prepared by

Gorrill Palmer
300 Southborough Drive – Suite 200
South Portland, Maine 04106
207.772.2515

MAY 2025



Overview

This Exhibit demonstrates the developer has made adequate provision for controlling erosion and sedimentation.

Gorrill Palmer has been retained by Bateman Partners, LLC to prepare an Erosion and Sedimentation Control Report for a proposed 60-unit residential development in Biddeford, Maine.

Figure 1 is a map showing the project location. This narrative contains the general erosion and sedimentation control measures, which are appropriate for the construction of the project.

This narrative contains the general erosion and sedimentation control measures, which are appropriate for the construction of the project. Erosion and sedimentation control plans and details have also been prepared by Gorrill Palmer to accompany this report.

Existing Conditions and Soil Types

The proposed project site is approximately 10.15 acres in size. The City of Biddeford identifies the property on the Maine Parcel Viewer as Parcel 32, Lot 1. The 10.15-acre property includes 5 existing residential buildings with a total of 40 units with associated parking and access ways. A portion on the western side of the parcel is primarily undeveloped wooded areas.

Existing topography of the proposed construction area slopes in a generally north direction with slopes in the range of 1% to 10%. The project will discharge northerly to existing wetlands on the parcel and eventually drain into the Saco River.

Abutting land uses include:

- North – Saco River
- West – Residential Home & Riverbend Apartments
- South – Main Street
- East – Biddeford Teen Center & Skate Park

The Class D Intensity Soil Survey for York County as prepared by the Natural Resources Conservation Service was utilized in identifying the on-site soils. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. The higher values are indicative of the more erodible soils. The following table lists the soils found in the proposed development area and their K values:

Map Symbol	Soil Type	K Value	Hydrologic Soil Group
EmB	Elmwood Fine Sandy Loam	0.32	B
MaB	Madawaska Fine Sandy Loam	0.28	B
Ra	Raynham Silt Loam	0.64	C/D
BuC	Buxton Silt Loam	0.32	C
Po	Podunk and Winooski Soils	0.24	B

Based on the review of the K Values, the on-site soils have moderate susceptibility to erosion.

Existing Erosion Problems

Gorrill Palmer is not aware of any existing erosion problems at the project site.

Protected Natural Resources

Based on a report by Flycatcher LLC, two wetland areas currently exist on the site. No potential vernal pools were identified on site. Approximately 22,160 S.F. of wetland will be disturbed as part of this development. Based upon the FEMA maps, the site is not located in a 100-year floodplain.

Critical Areas

No critical areas that would require special attention during construction are present on site.

Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan, which will be implemented for this project, is as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/stone check dams/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the latest edition of the Maine Erosion and Sediment Control Practices Field Guide for Contractors.

A. Dewatering

Water from construction trench dewatering shall pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 50 feet of a protected natural resource.

B. Inspection and Construction Monitoring

Maintenance measures shall be applied as needed during the entire construction season. Before and within 24 hours after each wet weather event that produces more than 0.5 inch of rainfall in a consecutive 24-hour period, snowstorm, or period of thawing and runoff, the qualified contractor knowledgeable of DEP standards shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Additionally, inspections shall be performed at least once a week. Following the temporary and/or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/or unestablished spots. Established vegetative cover means a minimum of 90% of areas vegetated with vigorous growth.

C. Temporary Erosion Control Measures

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. A crushed stone-stabilized construction entrance shall be placed at the approved access drive as depicted on the plans.
2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff-borne sediments until grass areas are revegetated. The silt fence and/or wood waste compost berms shall be installed per the details provided in this package and inspected at least once a week and before and immediately after a storm event of 0.5 inches or greater, and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large

volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are not to be disturbed.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 15th on slopes of less than 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Fabric netting and staples shall be used on disturbed areas within 50' of lakes, streams, and wetlands regardless of the upstream slope. Mulch placed between October 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and equal to or flatter than 2:1, which are to be revegetated, shall receive curlex blankets by American Excelsior or equal. Slopes steeper than 2:1 shall receive riprap as noted on the plans. The mulch application rate for both temporary and permanent seeding is 75 lbs per 1000 sf as identified in Appendix A of this section. Mulch shall not be placed over snow.
4. Temporary stockpiles of stumps, grubblings, or common excavation will be protected as follows:
 - a.) Temporary stockpiles shall not be located within 50 feet of any wetlands which will not be disturbed and shall be located away from drainage swales.
 - b.) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile by a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch, such as hay, straw, or erosion control mix.
 - c.) Stockpiles shall be surrounded by sedimentation barrier at the time of formation.
5. All denuded areas that are within 50 feet of an undisturbed wetland, which have been rough graded and are not located within a building pad, parking area, or access drive subbase area, shall receive mulch or erosion control mesh fabric within 48 hours of initial disturbance of soil. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. In other areas, the time period may be extended to 7 days.
6. For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.
7. Park View Court shall be swept to control mud and dust as necessary.
8. During grubbing operations stone check dams shall be installed at any evident concentrated flow discharge points and as directed on the Erosion Control Plans.
9. Silt fencing with a minimum stake spacing of 6 feet shall be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence shall be anchored.
10. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread in a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained.
11. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications – Section 637 – Dust Control.

12. Loam and seed is intended to serve, as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in Appendix A of this section. Seeding shall not occur over snow.

D. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, gravel subbase, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in Temporary Erosion Control Measures paragraph 4 of this report. All areas within 50 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48-hour window. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.
2. All storm drain pipe outlets shall have riprap aprons at their outlet to protect the outlet and receiving channel from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized to the extent practicable prior to directing runoff to the tributary pipe or culvert.

Implementation Schedule

The following construction sequence shall be required to ensure the effectiveness of the erosion and sedimentation control measures are optimized:

It is anticipated that construction will begin in fall of 2025, with first occupancy anticipated by the end of 2026.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site, this shall be accomplished by limiting the disturbed area. Area shall be limited to no more than the contractor can mulch in one day.

1. Install stabilized construction entrances at the approved locations.
2. Install perimeter silt fence and/or wood waste berms.
3. Install diversion dikes, or check dams (clear only those areas necessary to install BMP's)
4. Clear and grub site. Install stone check dams at any evident concentrated flow discharge points.
5. Commence installation of drainage appurtenances.
6. Commence earthwork and grading to subgrade.
7. Commence installation of water and sewer lines.
8. Continue earthwork and grading to subgrade as necessary for construction.
9. Complete installation of underground utilities to within 5' of future buildings.
10. Install light pole foundations and light poles.
11. Complete remaining earthwork operations.
12. Complete installation of drainage appurtenances.
13. Install sub-base and base gravel within parking areas, walkways, and all driveways.

14. Install curbing in parking areas as needed.
15. Install base course paving for drives and parking area as well as concrete surfaces.
16. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
17. Install surface course paving for drives and parking areas. Stripe per plan.
18. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.
19. Touch up loam and seed.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to reduce the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.
2. The work shall be conducted in sections which shall:
 - Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.
 - Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event; or temporarily stabilized within 48 hours of initial disturbance of soil for areas within 50 feet of an undisturbed wetland and 7 days for all other areas. Areas within 50 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window.
 - Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

Erosion, Sedimentation and Stabilization Control Plan

The Erosion Control information is included in the plan set.

Details and Specifications

The Erosion Control details and specifications are included in the plan set.

Winter Stabilization Plan

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement, vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that any area left exposed can be controlled by the contractor. Limit the exposed area to one acre or an area that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in parking areas or the areas of

future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 square-feet (3 tons/acre) and shall be properly anchored.

For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.

The contractor shall install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs./1,000 square-feet (3 tons per acre) or with a four-inch layer of wood waste erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile shall not be placed (even covered with hay or straw) within 50 feet from any natural resources.

2. Natural Resources Protection

Any areas within 75 feet from any natural resources, if not stabilized with a minimum of 90% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) shall be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 75 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. Sediment Barriers

During frozen conditions, sediment barriers shall consist of wood waste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. Mulching

An area shall be considered denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 square-feet or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible through the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by peg line, mulch netting, asphalt emulsion chemical, or wood cellulose fiber. When ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

5. Mulching of Slopes and Ditches

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230

lbs./1,000 square feet on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3% for slopes exposed to direct winds and for all other slopes greater than 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes greater than 8%. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched. Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 square-feet. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 90% catch) shall be revegetated by replacing loam, seed, and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. Winter Construction Inspection

After each rainfall, snowstorm or period of thawing and runoff, the qualified contractor knowledgeable of DEP standards shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Inspections shall be performed a minimum of once per week and shall be conducted in accordance with the Erosion Control Measures and Site Stabilization within the Erosion Control Report.

Standards for Timely Stabilization of Construction Sites During Winter

1. Standard for the timely stabilization of ditches and channels - The applicant shall construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 1, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch - The applicant shall line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch - The applicant shall line the ditch with stone riprap by November 15. The applicant shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant shall regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes - The applicant shall construct and stabilize stone-covered slopes by November 15. The applicant shall seed and mulch all slopes to be vegetated by September 1. The department shall consider any area having a grade greater than 15% to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant shall take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats - By September 1 the applicant shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The applicant shall monitor the growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant shall cover the slope with a layer of wood waste compost as described in item iii of this standard or with stone riprap as described in item iv of this standard.

Stabilize the slope with sod - The applicant shall stabilize the disturbed slope with properly installed sod by September 1. Proper installation includes the applicant 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 applicant shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with wood waste compost - The applicant shall place a six-inch layer of wood waste compost on the slope by November 15. Prior to placing the wood waste compost, the applicant shall remove any snow accumulation on the disturbed slope. The applicant shall not use wood waste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap - The applicant shall place a layer of stone riprap on the slope by November 15. The applicant shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer underneath the riprap.

3. Standard for the timely stabilization of disturbed soils - By September 15 the applicant shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant shall take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation - By September 1 the applicant shall 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. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 90% of the disturbed soil before November 1, then the applicant shall mulch the area for over-winter protection as described below.

Stabilize the soil with sod - The applicant shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch - By November 15 the applicant shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

Maintenance of Facilities

The stormwater facilities will be maintained by the Applicant, Bateman Partners, LLC or their assigned heirs. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance recommended for the stormwater facilities is presented below.

The responsible party may contract with such professionals, as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this

section. A maintenance log of the inspections shall be kept by the responsible party.

Inspection and Maintenance Frequency and Corrective Measures:

The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

Culverts: Inspect culverts 2 times per year (preferably in Spring and Fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and repair any erosion damage at the culvert's inlet and outlet.

Vegetated Areas: Inspect slopes and embankments early in the growing season 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. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

Roadways and Parking Surfaces: 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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

Stormdrain Outlets: Inspect outlets 2 times per year (preferably in Spring and Fall) to ensure that the outlets are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the outlet and within the conduit. Repair any erosion damage at the stormdrain outlet.

Ditches, Swales and other Open Stormwater Channels: Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will 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. Correct any erosion of the channel's bottom or side slopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Recertification

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix B of the Chapter 500 Rules. Appendix B states that a project must submit a certification of the following to the department within three months of the expiration of each five-year interval from the date of issuance of the permit.

- (a) Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
- (b) Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.

- (c) Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

Chapter 500: Appendix C – Good Housekeeping

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:

1. Discharges from firefighting activity;
2. Discharges from firefighting activity;
3. Fire hydrant flushings;
4. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
5. Dust control runoff in accordance with permit conditions and Appendix (C)(3);
6. Routine external building washdown, not including surface paint removal, that does not involve detergents;
7. 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;
8. Uncontaminated air conditioning or compressor condensate;
9. Uncontaminated groundwater or spring water;
10. Foundation or footer drain-water where flows are not contaminated;
11. Uncontaminated excavation dewatering (see requirements in Appendix C(5));
12. Potable water sources including waterline flushings; and
13. Landscape irrigation.

Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:

1. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
2. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
3. Soaps, solvents, or detergents used in vehicle and equipment washing; and
4. Toxic or hazardous substances from a spill or other release.

Conclusion

The Applicant has provided temporary and permanent erosion control measures as well as specifying a sequence of construction as measures to minimize erosion and sedimentation.

Attachments

Appendix A Seeding Plan

Appendix B Inspection Report

Appendix C Operation & Maintenance Plan

APPENDIX A

Seeding Plan

SEEDING PLAN

Project: Residential Development – Biddeford, ME

Site Location: 1 Park View Court, Biddeford, ME

☐ Permanent Seeding ☒ Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _____ # / acres, OR 138 # /M Sq. Ft.
3. Fertilize with _____ pounds of _____ N-P-K/ac. OR 13.8 pounds of 10-10-10 N-P-K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
 50% Winter Rye
 50% Annual Rye
6. Mulching instructions: Apply at the rate of _____ per acre, OR 75 pounds per M. Sq. Ft.

	<u>Amount</u>	<u>Unit # Tons. Etc.</u>
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	13.8	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended; however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

SEEDING PLAN

Project: Residential Development – Biddeford, ME

Site Location: I Park View Court, Biddeford, ME

☒ Permanent Seeding ☐ Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _____ # / acres, OR 138 # /M Sq. Ft.
3. Fertilize with _____ pounds of _____ N-P-K/ac. OR 18.4 pounds of 10-20-20 N-P-K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
 - 40% Creeping Red Fescue
 - 30% Charger II Perennial Ryegrass
 - 20% KenBlue Kentucky Bluegrass
 - 10% Tiffany Chewings Fescue
6. Mulching instructions: Apply at the rate of _____per acre, OR 75 pounds per M. Sq. Ft.

	<u>Amount</u>	<u>Unit # Tons. Etc.</u>
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	18.4	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended, however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

APPENDIX B

Inspection Report

STORMWATER POLLUTION PREVENTION PLAN

INSPECTION REPORT

PROJECT INFORMATION

Project Name: Forest Green Residential Development

Address: 1 Park View Court, Biddeford Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Inspector Name: _____

Firm: _____

Title: _____

Qualifications: _____

INSPECTION SUMMARY

Date of Inspection: _____

Major Observations: _____

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN
(MUST BE IMPLEMENTED WITHIN 7 DAYS OF INSPECTION):

CERTIFICATION STATEMENT:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Signature

Typed Name

Title

Date

APPENDIX C

Operation & Maintenance Plan

**1 PARK VIEW COURT
BIDDEFORD, MAINE**

**STORMWATER MANAGEMENT SYSTEM
OPERATION AND MAINTENANCE MANUAL FOR
STORMWATER FACILITIES**

Prepared for

**BATEMAN PARTNERS
470 FORE STREET, SUITE 400
PORTLAND, ME 04103**

Prepared by

**Gorrill Palmer
300 Southborough Drive – Suite 200
South Portland, Maine 04106
207.772.2515**

MAY 2025

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APPENDICES

Appendix 1 – Summary Checklist for Inspection and Maintenance

Appendix 2 – Inspection Logs

Appendix 3 – Permits for Project

I. INTRODUCTION

Runoff from developed areas, may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of soil media filters can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of stormwater facilities and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for proposed Residential Development at 1 Park View Court. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items, give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer of the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific

program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the applicant or their agents or assigns. The applicant or their agents or assigns must adhere to the City of Biddeford Performance Standards Section 26 - Erosion Control.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Biddeford Major Site Plan / Subdivision Application
- Saco River Corridor Commission Permit Application
- NRPA Tier II
- MDEP Stormwater Permit By-Rule

A copy of the permits should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
300 Southborough Drive, Suite 200
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, ditches and swales.

The site is ultimately tributary to the Saco River though it appears that most of the runoff infiltrates and does not leave the site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Inlets exist throughout the property.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the building and exposed culvert inlets.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the proposed BMPs, and ultimately to the Saco River. This conveyance system will be principally overland flow discharging to piped drain

systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the site will be through deep sumped catch basins with hooded outlets.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Stone Bermed Level Lip Spreader

Inspect 2 times per year (preferably in Spring and Fall) to ensure that they are free of debris and no undesirable growth is impeding water flow through the berm. In addition, the stone bermed level lip spreaders shall be inspected to ensure that runoff is not bypassing the bermed spreader.

D. Ditches, Swales, and Other Open Stormwater Channels

Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion

of the ditch lining. Vegetated ditches will 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. Correct any erosion of the channel's bottom or sideslopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

E. Roadways and Parking Surfaces

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. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

F. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)
2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.
3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.
4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.
5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.
6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the

results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the Town of Westbrook. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

Beyond the initial 5-year time span of the original approval and maintenance plan, the stormwater management system will need to be recertified through the Maine Department of Environmental Protection every 5 years to confirm that there is conformance with the original permit documents. This process will ensure all systems function properly over time. This document will remain valid throughout any subsequent recertification processes.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX 1

Summary Checklist Inspection and Maintenance

Stormwater Management System Maintenance Program Summary Checklist						
Item	Commentary	Frequency				
		Monthly	Quarterly	Semi-Annual	Annual	Long Term
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Entry may or may not be equipped with a bar rack. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Stone Bermed Level Lip Spreader	Observe sediment accumulation to ensure it is free of debris and no undesirable growth is impeding water flow. Level lip spreader shall be inspected to ensure runoff is not bypassing the bermed spreader.			X		
Ditches Swales and Other open Stormwater Channels	Inspect to ensure the ditch is not eroding or blocked by debris.			X		
Roadways and Parking Surfaces	Remove accumulated sand.				X	
Litter	Litter should be removed daily.					

APPENDIX 2

Sample Inspection Logs

**BATEMAN PARTNERS, LLC
BIDDEFORD, MAINE**

**STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG**

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the DEP Stormwater Permit, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:	Inspection Date:		
Parcel/Lot:	Current Weather:		
BMP Owner:	Date/Amount Last Precip.:		
Owner Mailing Address:	Inspection Company:		
Owner Phone #:	Inspection Co. Mailing Address:		
Owner Email:	Inspector Name:		
	Inspector Phone #:		
	Inspector Email:		
B. Stormwater Inlets (Catch Basins)			
Frequency: Annually in the spring	Observations		
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA		
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA		
Stormwater Inlet Notes:			
C. Tributary Drainage System			
Frequency: Annually spring or late fall and after heavy rains	Observations		
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA		
Remove floatables and other objects	☐ Yes ☐ No ☐ NA		
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA		
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA		
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA		
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA		
Tributary Drainage System Notes:			

D. Stone Bermed Level Lip Spreader	Observations
Frequency: Semi-annually	
Inspect for debris	☐ Yes ☐ No ☐ NA
Undesirable growth impeding water flow	☐ Yes ☐ No ☐ NA
Ensure runoff is not bypassing the bermed spreader, repair as necessary	☐ Yes ☐ No ☐ NA
Level Lip Spreader Notes:	
E. Ditches, Swales, and Other Open Stormwater Channels	Observations
Frequency: Semi Annually spring and late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow.	☐ Yes ☐ No ☐ NA
Mow to control growth and maintain flow capacity.	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Ditches Swales and Other Channel Notes:	
F. Roadways and Parking Surfaces	Observations
Frequency: Annually preferably in spring	
Remove and legally dispose of accumulated winter sand	☐ Yes ☐ No ☐ NA
Repair potholes and other roadway obstructions and hazards.	☐ Yes ☐ No ☐ NA
Roadways and Parking Surfaces Notes:	

APPENDIX 3

Permits for Project

(To be Added at a Subsequent Time)

ATTACHMENT 7
TRAFFIC REPORT

MEMORANDUM
TRAFFIC EVALUATION
FOREST GREEN
BIDDEFORD, ME
April 14, 2025

INTRODUCTION

Bateman Partners, LLC proposes constructing two three-story apartment buildings with 60 total dwelling units within the current Forest Green Apartments. The Forest Green apartments are at 1 Park View Court in Biddeford, Maine.

Per City of Biddeford's ordinance, Article VI, Section 47 D. 1. *"The proposed development shall provide for safety access to and from public or private roads. Safe access shall be assured by providing an adequate number and location of access points, with respect to sight distances, intersections, schools, and other traffic generators."* & 2. *"The proposed development shall not have an unreasonable adverse impact on the public road system as determined by existing level of road service and post-development level of service (a detailed traffic study may be required for this determination), and shall assure safe interior circulation within its site, by separating pedestrian and vehicular traffic and by providing adequate parking and turnaround areas as set forth in the parking provisions of this ordinance."*

This evaluation discusses the following, at a minimum:

- A. Trip Generation & Distribution;
- B. Access conditions at the site;
- C. Accident review;
- D. Operation of the Parkview Drive

The following summarizes the data and information used, assumptions, methodology, and evaluation results.

TRIP GENERATION & DISTRIBUTION (Requirement A)

Trip generation for the site has been calculated using the Institute of Transportation Engineers' (ITE) publication, *Trip Generation*, 11th Edition, the most recent edition accepted by MaineDOT. The proposed residential development will include 60 dwelling units within multifamily housing (Low-Rise). After a review of the Land Use Codes (LUCs) provided in the 11th Edition of *Trip Generation*, the following was selected to calculate the trip generation for the proposed uses:

Proposed Trip Generation Variables

- LUC 220 – Multifamily Housing (Low-Rise) – 60 Units

Trip generation calculations are provided in Attachment B.

Table I summarizes the trip generation for multifamily housing (Low-Rise)

Table I – Trip Generation (LUC 220 – 60 dwelling units)

Time Period	Trip Generation (Trip Ends)	
	Trip Gen Rates	Trip Generation
Weekday	6.74	404
AM Peak Hour of Adjacent Street	0.40	24
PM Peak Hour of Adjacent Street	0.51	31
AM Peak Hour Generator	0.47	28
PM Peak Hour Generator	0.57	34
Saturday Peak Hour Generator*	0.41	25

*Based on one study

It should be noted that based on the number of dwelling units proposed (60), the average rate was considered more representative than using the fitted curve equation. The approximate number of dwelling units used for the ITE graphs is 229-241. Because this project only proposes 60 units, the fitted curve equation forecasts higher trip generation than would be expected and was, therefore, not used.

Table 2 summarizes the trip distribution for multifamily housing (Low-Rise).

Table 2 – Trip Distribution

Time Period	Trip Generation (Trip Ends)		
	Enter	Exit	Total
Weekday*	202	202	404
AM Peak Hour of Adjacent Street	6	18	24
PM Peak Hour of Adjacent Street	20	11	31
AM Peak Hour of Generator	7	21	28
PM Peak Hour of Generator	21	13	34
Saturday Peak Hour of Generator	13	12	25

Due to the residential nature of the proposed project, the site is not expected to experience significant heavy vehicle use.

Trip distribution and assignment are shown in Attachment B. Based on the trip distribution and assignment; the anticipated study area is limited to the site frontage on Main Street.

SITE ACCESS (Requirement B)

The site is proposed to be accessed indirectly via Main Street and directly via an extension of Parkview Court. The existing Parkview Court at Main Street includes a single ingress and single egress lane.

The City of Biddeford and MaineDOT use the same standards for sight distances. Table 3 below presents MaineDOT's sight distance standards.

Table 3 – Standards for Sight Distance

Speed Limit (mph)	Passenger Vehicle – MaineDOT (ft)
25	200
30	250
35	305
40	360
45	425

The City of Biddeford and MaineDOT sight distance evaluation methodology is the same; the methodology is as follows:

Driveway Observation Point:	10 feet from traveled way
Height of Eye at Driveway:	3.5 feet above the ground
Height of Approaching vehicle:	4.25 feet above the ground

According to the MaineDOT Map Viewer, Main Street in the site vicinity is 35 mph. This speed was used for the sight distance evaluation, which Gorrill Palmer completed on 3/25/25.

Table 4 summarizes the measured sight distances at the intersection of Parkview Court / Main Street.

Table 4 – Sight Distance Summary

Driveway	Passenger Vehicle (feet)	Observed Looking Left (feet)	Observed Looking Right (feet)
Parkview Court	305	150	400+

As seen from the results in Table 4, the available sight distance looking right exceeds the City's minimum requirements. The available sight distance looking left does not meet the City's minimum requirements due to a large tree. Removing the tree would, in our opinion, provide adequate sight distance. It is our recommendation that the tree be removed.

SAFETY REVIEW (Requirement C)

GP requested and reviewed the latest three-year (2021-2023) and five-year (2019-2023) MaineDOT crash history for the anticipated study area. Crash history is provided in Attachment C.

MaineDOT evaluates whether a location has a crash problem by using two criteria to define a High Crash Location (HCL). Both criteria must be met for a location to be classified as an HCL.

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

Based on a review of the crash history, no high crash locations exist in the immediate study area.

OPERATIONS OF PARKVIEW DRIVE (Requirements D)

Based on the proposed residential units' low trip generation and the fact that Main Street at that location only has an AADT (Annual Average Daily Traffic) of approximately 2,900, the proposed residential development is not expected to impact the surrounding roadway network significantly.

Attachments:

Attachment A – Trip Generation

Attachment B – Trip Figures

Attachment C – Safety Review

Attachment A

Trip Generation

Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

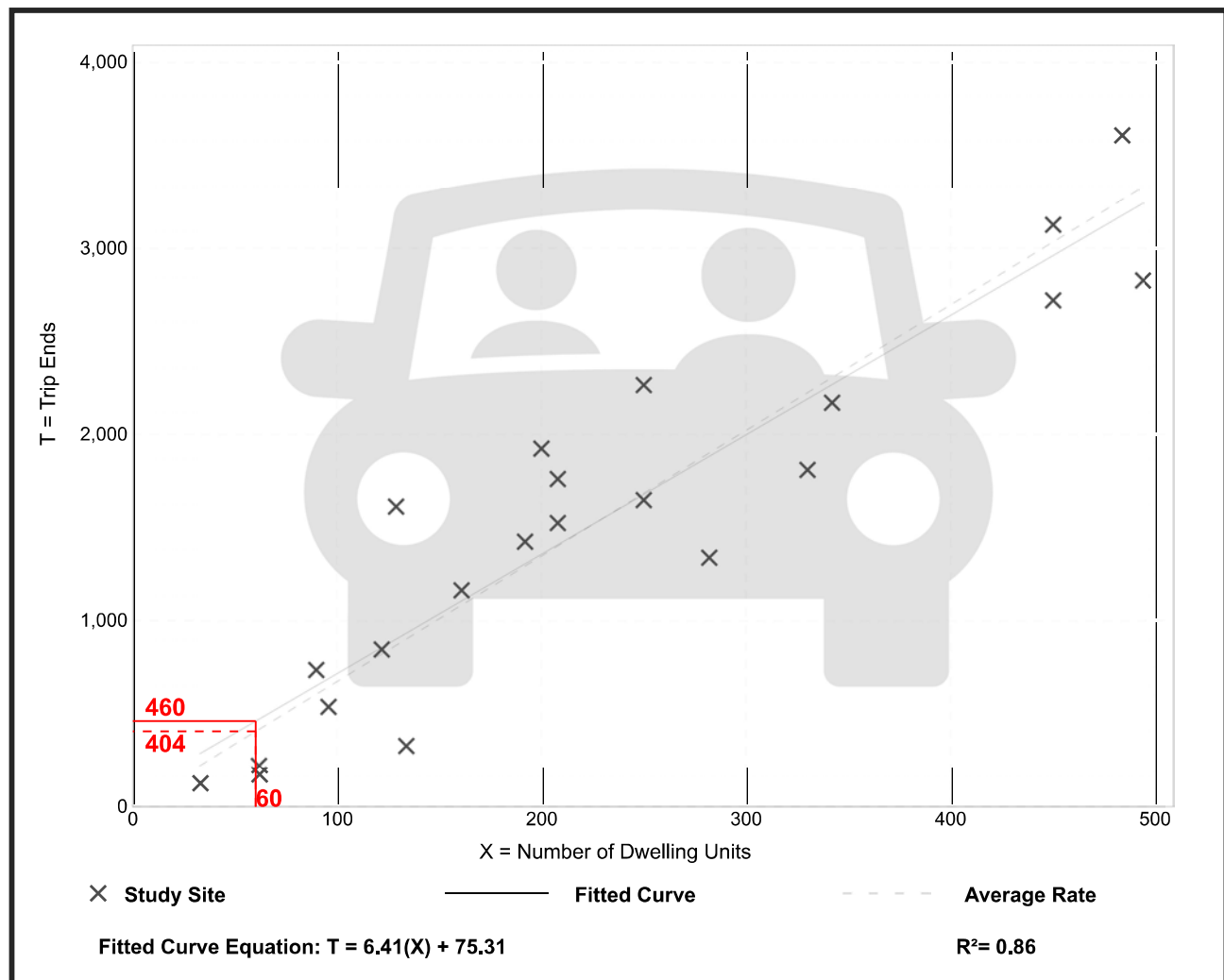
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 49

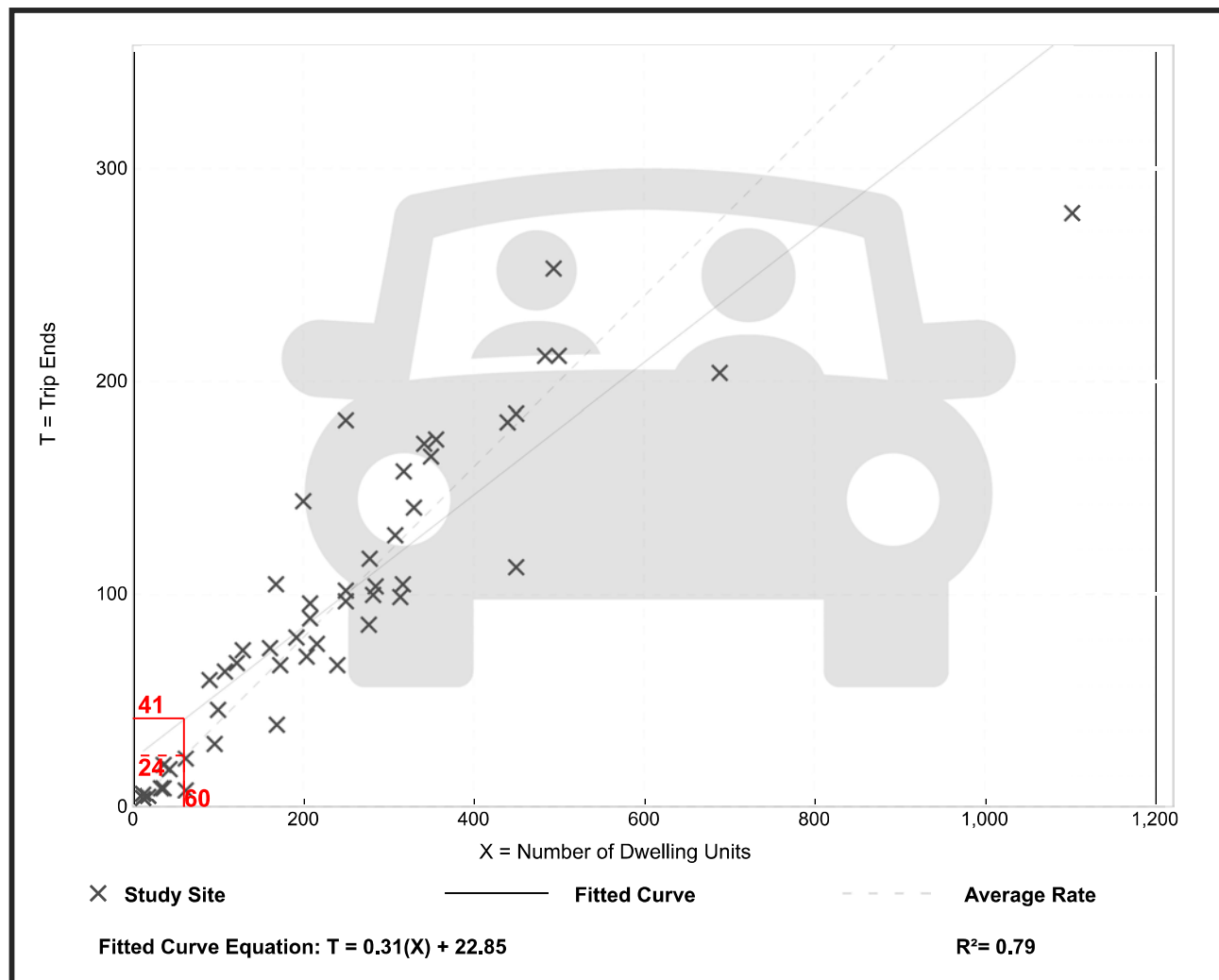
Avg. Num. of Dwelling Units: 249

Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 59

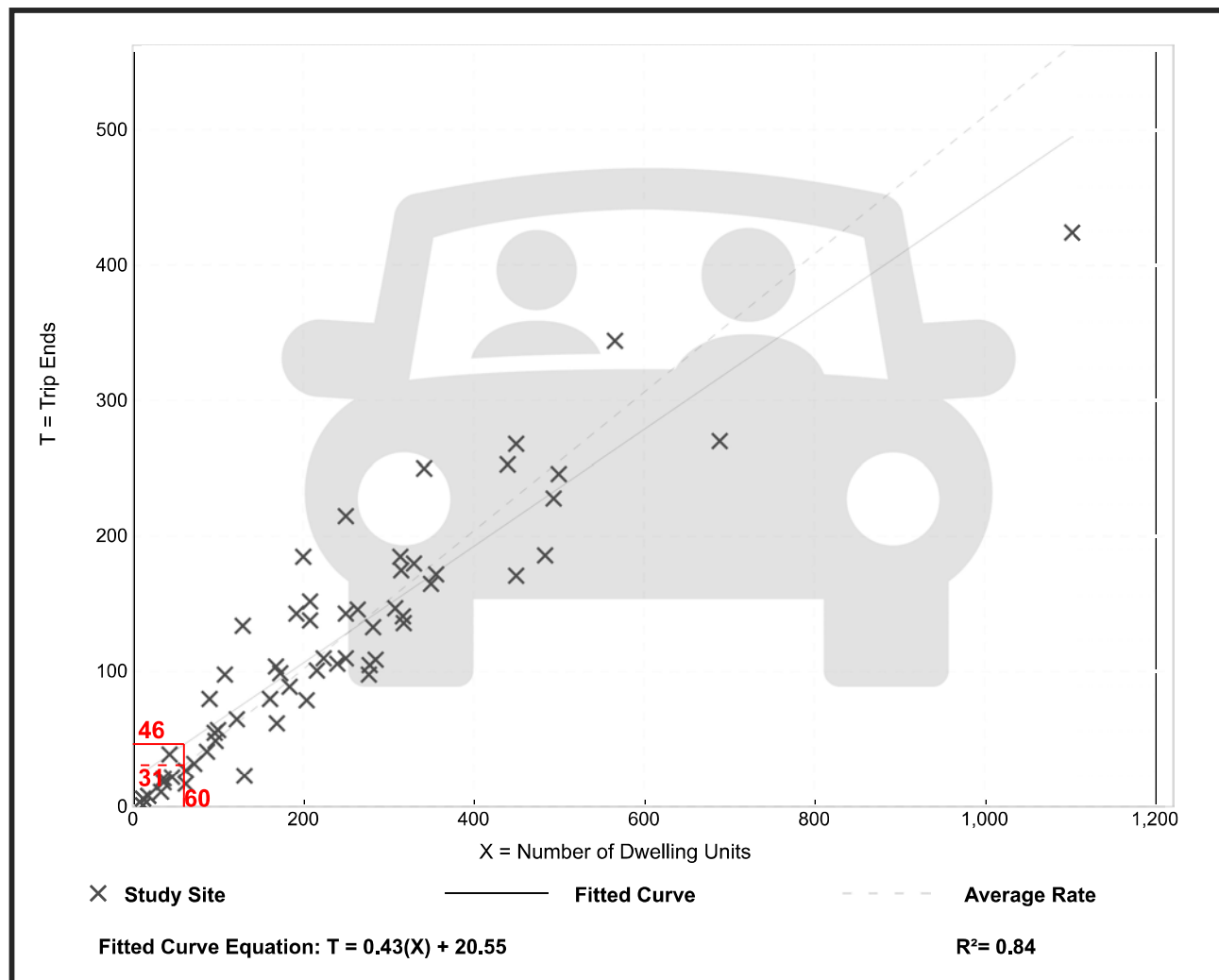
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

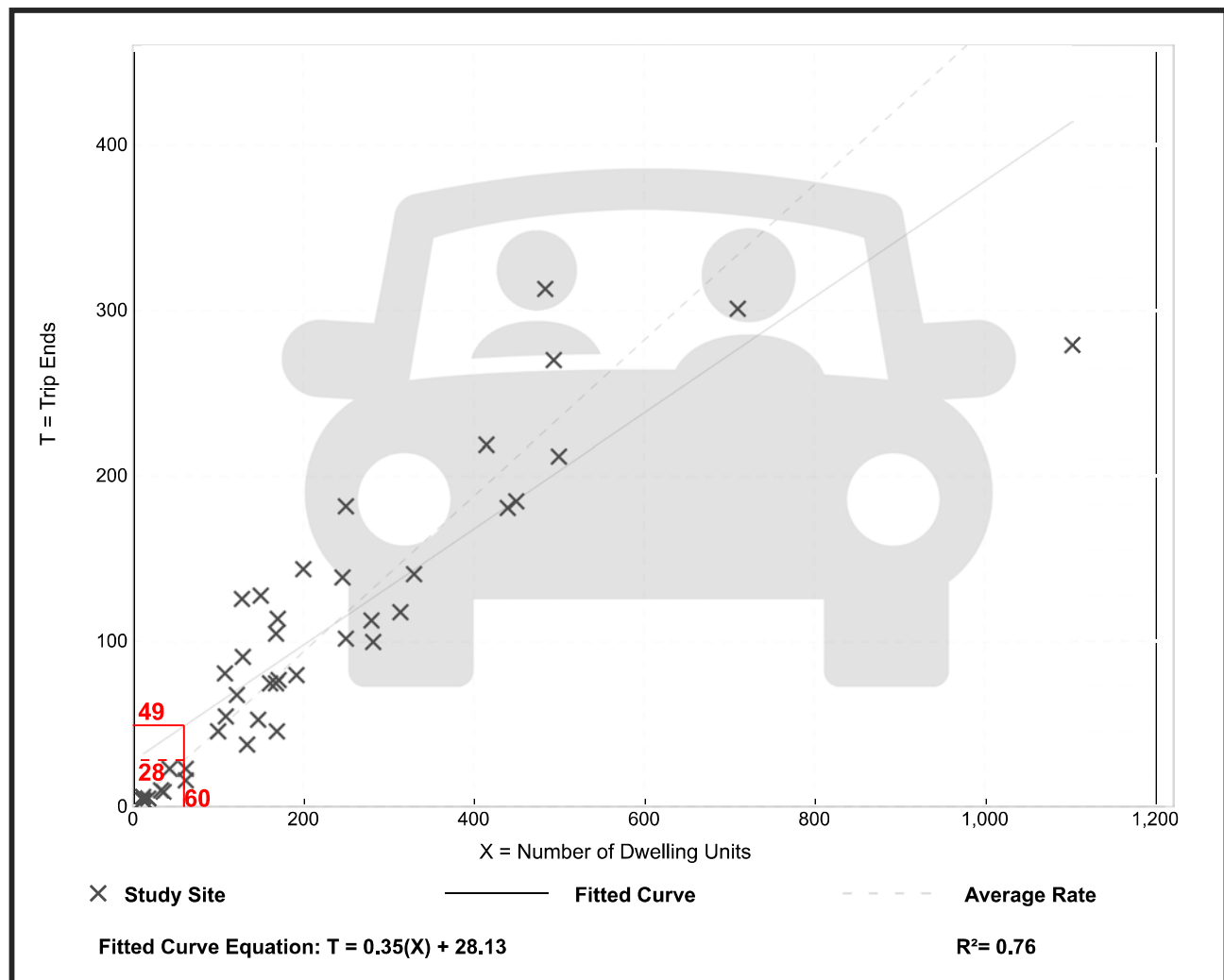
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 40
Avg. Num. of Dwelling Units: 234
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.25 - 0.98	0.16

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

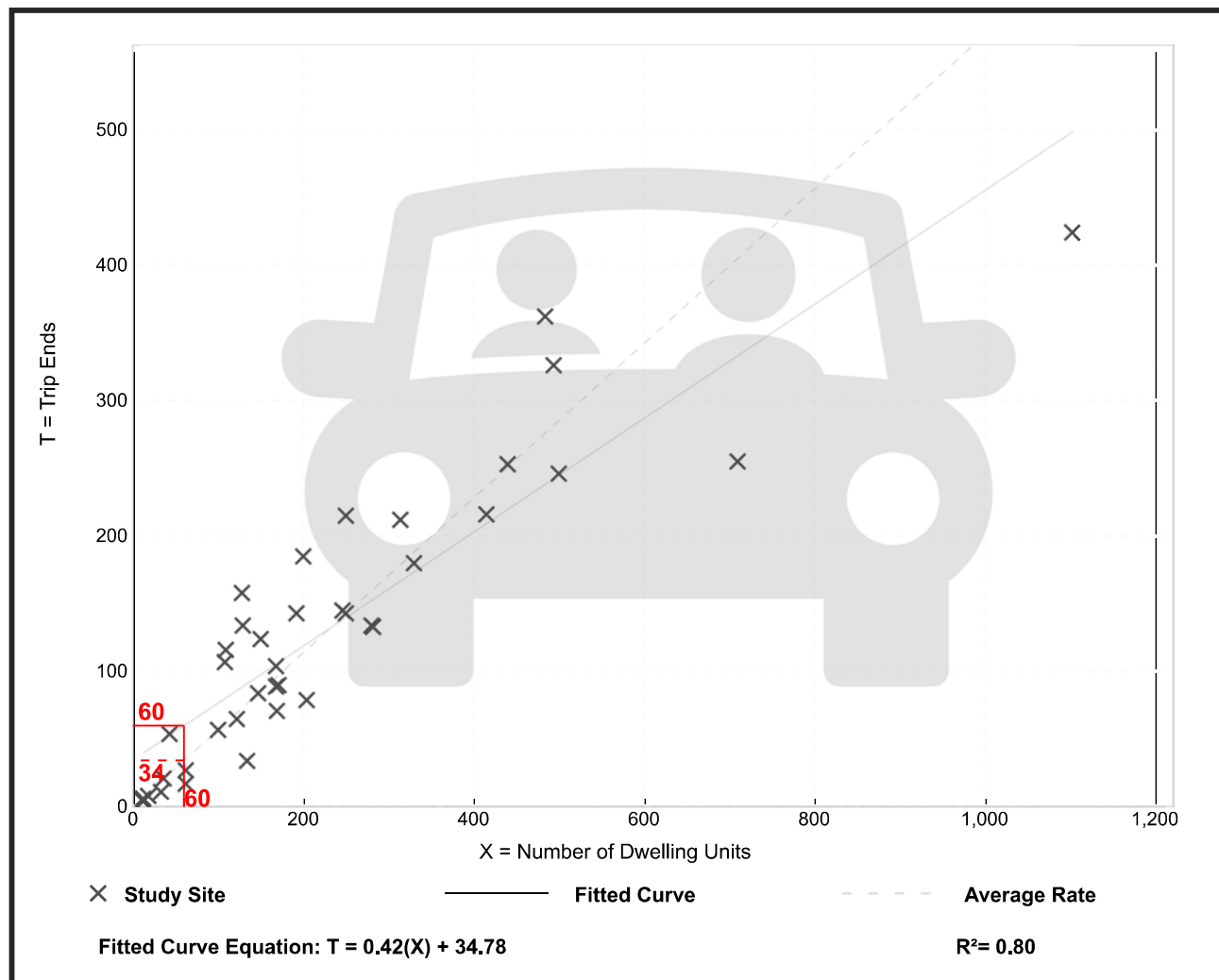
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 38
Avg. Num. of Dwelling Units: 231
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.57	0.25 - 1.26	0.20

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

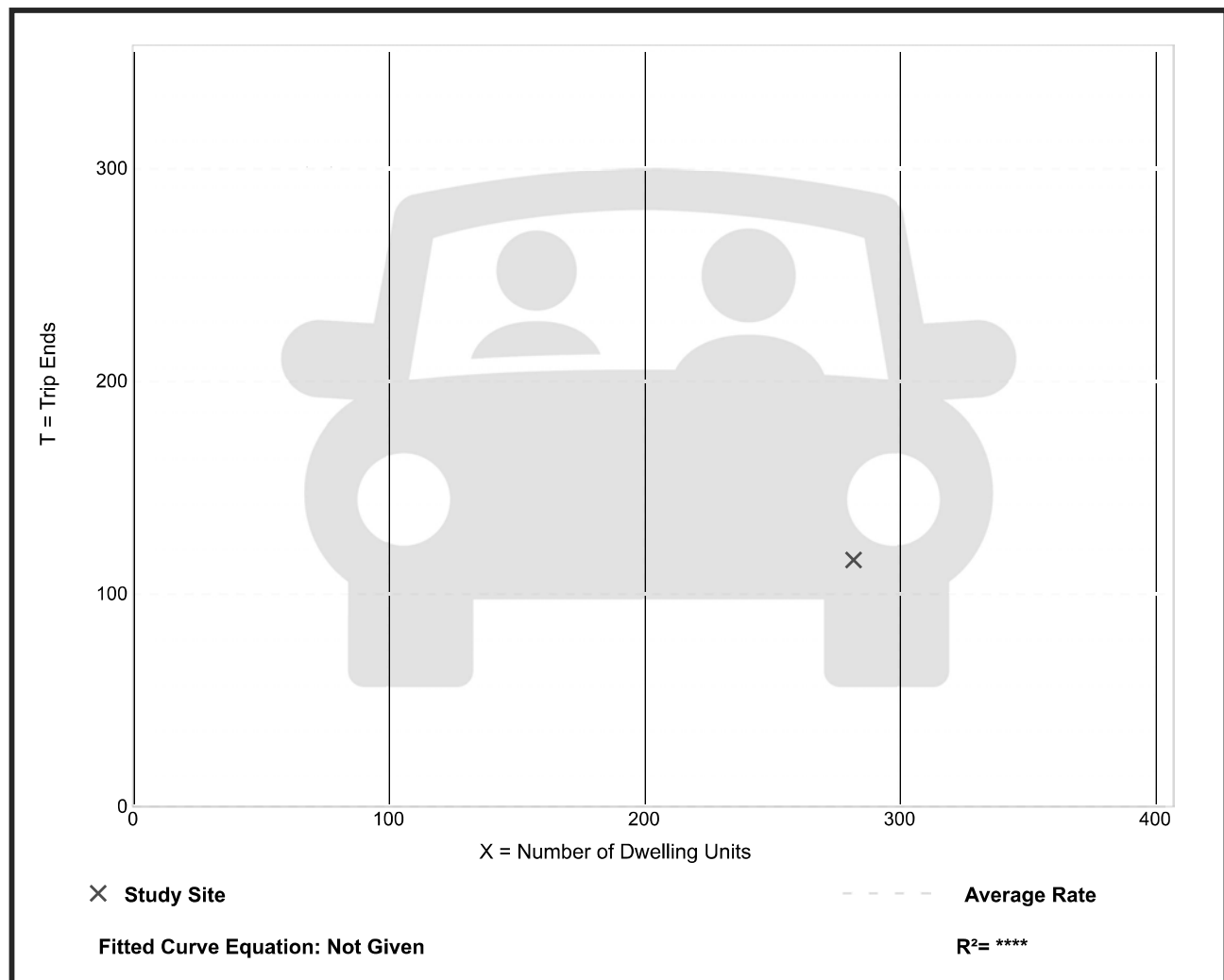
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Dwelling Units: 282
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.41 - 0.41	*

Data Plot and Equation

Caution – Small Sample Size



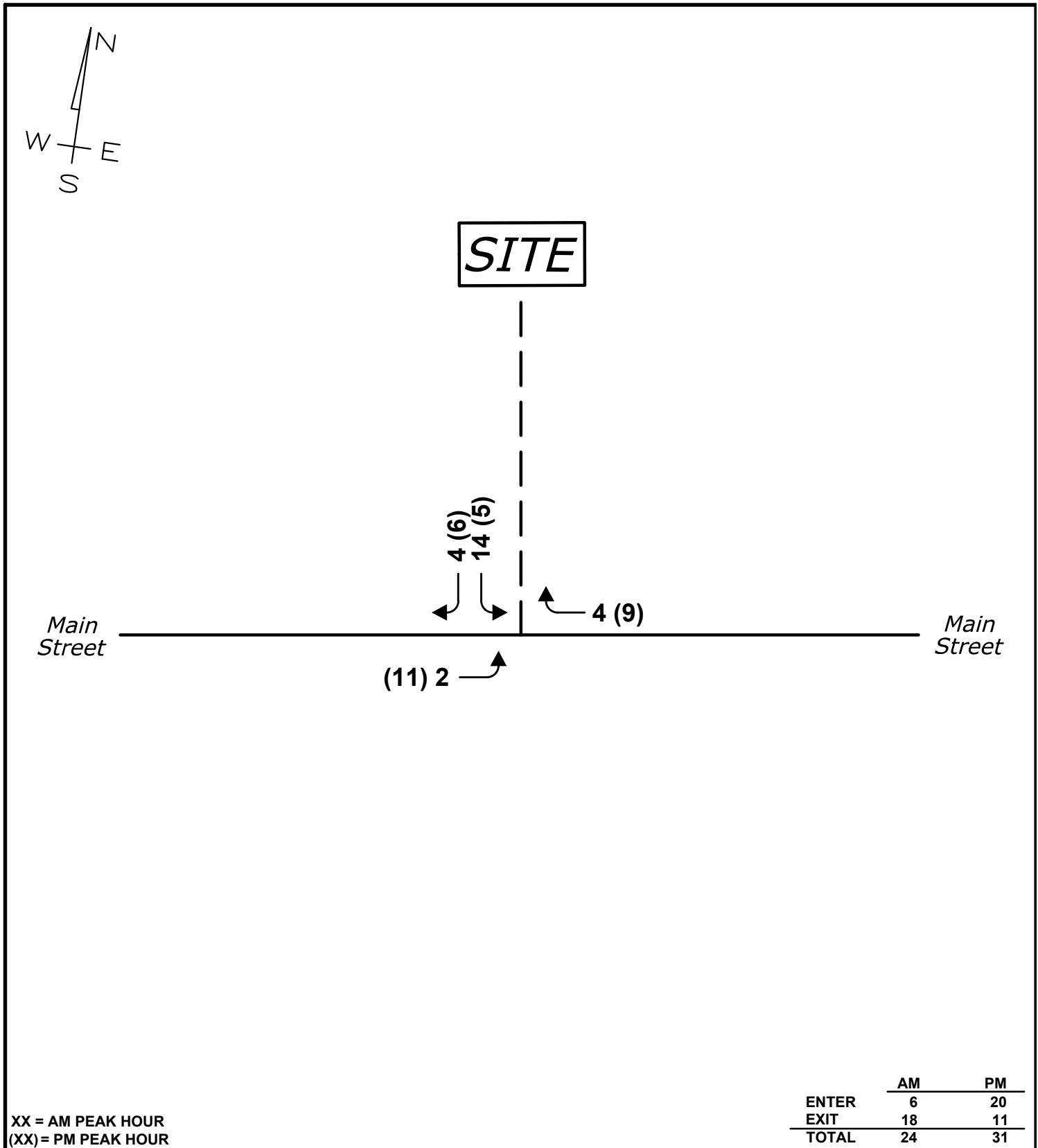
Attachment B

Trip Distribution and Assignment

TRIP DISTRIBUTION & ASSIGNMENT

Figure No.

1



FOREST GREEN BIDDEFORD, MAINE

Design: KJB Scale: NONE
Draft: KJB Date: 3/24/2025
Checked: RED File Name: Trip Dist.dwg



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Attachment C

Safety Review



Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I ☐ Section Detail ☒ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Biddeford
Main St and Parkview Ct area

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 3110104	Start Node: 58485 End Node: 58459	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☐ Exclude Last Node
Route: 3110236	Start Node: 57134 End Node: 57135	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☐ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury Crashes			PD	Percent Annual M Injury	Ent-Veh	Crash Rate	Critical Rate	CRF
57134	3110104 - 1.51	Int of MAIN ST PARK VIEW CT	2	0	0	0	0	0	0	0.0	0.950	0.00	0.50	0.00
												Statewide Crash Rate: 0.13		
58459	3110104 - 1.62	Int of MAIN ST SOUTH ST	2	3	0	0	1	1	1	66.7	1.946	0.51	0.43	1.20
												Statewide Crash Rate: 0.13		
58485	3110104 - 1.11	Int of MAIN ST MT PLEASANT ST	2	0	0	0	0	0	0	0.0	1.141	0.00	0.49	0.00
												Statewide Crash Rate: 0.13		
57134	3110236 - 0	Int of MAIN ST PARK VIEW CT	2	0	0	0	0	0	0	0.0	0.950	0.00	0.50	0.00
												Statewide Crash Rate: 0.13		
57135	3110236 - 0.14	End of PARK VIEW CT	2	0	0	0	0	0	0	0.0	0.039	0.00	-1.44	0.00
												Statewide Crash Rate: 0.13		
Study Years: 3.00		NODE TOTALS:			3	0	0	1	1	66.7	5.026	0.20	0.34	0.59

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	A	B	C	PD	Injury Percent	Annual HMVM	Crash Rate	Critical Rate	CRF
58485	57134	3942491	0 - 0.40	3110104 - 1.11	0.40	2	0	0	0	0	0	0	0.0	0.00425	0.00	426.83	0.00
Int of MAIN ST MT PLEASANT ST				RD INV 31 10104											Statewide Crash Rate: 169.27		
57134	58459	3114468	0 - 0.11	3110104 - 1.51	0.11	2	1	0	1	0	0	0	100.0	0.00083	399.34	639.34	0.00
Int of MAIN ST PARK VIEW CT				RD INV 31 10104											Statewide Crash Rate: 169.27		
57134	57135	5084605	0 - 0.14	3110236 - 0	0.14	2	1	0	0	0	0	1	0.0	0.00011	3062.52	1573.79	1.95
Int of MAIN ST PARK VIEW CT				RD INV 31 10236											Statewide Crash Rate: 368.50		

Study Years:	3.00	Section Totals:	0.65	2	0	1	0	0	1	0	0	1	50.0	0.00520	128.33	413.11	0.31
Grand Totals:			0.65	5	0	1	1	1	1	2	60.0	0.00520	320.82	536.46	0.60		

Crash Summary

Section Details													
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes			Crash Report	Crash Date	Crash Mile Point	Injury Degree
							A	B	C	PD			
58485	57134	3942491	0 - 0.40	3110104 - 1.11	0	0	0	0	0	0			
57134	58459	3114468	0 - 0.11	3110104 - 1.51	1	0	1	0	0	0	2023-36749	12/07/2023	1.52 A
57134	57135	5084605	0 - 0.14	3110236 - 0	1	0	0	0	0	1	2023-25475	08/30/2023	0.03 PD
Totals:					2	0	1	0	0	1			

Crash Summary II - Characteristics

Crashes by Day and Hour																										
		AM												PM												
		Hour of Day												Hour of Day												
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUESDAY	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	0	5
Vehicle Counts by Type																										

Vehicle Counts by Type			
Unit Type	Total	Unit Type	Total
1-Passenger Car	3	23-Bicyclist	0
2-(Sport) Utility Vehicle	1	24-Witness	2
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	2	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	10
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	1		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash							
Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	1	2	0	0	0	0	3
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	2	0	0	0	0	0	2
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	2	0	0	0	0	0	2
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0
Total	5	2	0	0	0	0	7

Crashes by Apparent Physical Condition And Driver							
Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	5	2	0	0	0	0	7
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	5	2	0	0	0	0	7

Driver Age by Unit Type					
Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV
09-Under	0	0	0	0	0
10-14	0	0	0	0	0
15-19	1	0	0	0	0
20-24	0	0	0	0	0
25-29	3	0	0	0	0
30-39	0	0	0	0	0
40-49	0	0	0	0	0
50-59	1	0	0	0	0
60-69	1	0	0	0	0
70-79	1	0	0	0	0
80-Over	0	0	0	0	0
Unknown	1	0	0	0	0
Total	8	0	0	0	0

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Month	2021	2022	2023	Total
JANUARY	0	0	1	1
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	0	0	0
MAY	0	0	0	0
JUNE	0	0	0	0
JULY	0	0	0	0
AUGUST	0	0	1	1
SEPTEMBER	0	0	0	0
OCTOBER	0	0	1	1
NOVEMBER	0	1	0	1
DECEMBER	0	0	1	1
Total	0	1	4	5

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	3	0	0	0	0	0	0	0	0	0	0	0	5

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	3	0	0	0	0	0	0	0	0	0	0	3
Dusk	0	0	0	0	0	0	0	0	0	0	1	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	0	0	0	0	0	0	0	0	0	1	5

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I

☐ Section Detail

☒ Crash Summary II

☐ 1320 Public

☐ 1320 Private

☐ 1320 Summary

REPORT DESCRIPTION

Biddeford

Main St and Parkview Ct area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2023 End Month: 12

Route: 3110104

Start Node: 58485

End Node: 58459

Start Offset: 0

End Offset: 0

☐ Exclude First Node

☐ Exclude Last Node

Route: 3110236

Start Node: 57134

End Node: 57135

Start Offset: 0

End Offset: 0

☐ Exclude First Node

☐ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	A	B	C	PD	Injury	Percent Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
57134	3110104 - 1.51	Int of MAIN ST PARK VIEW CT	2	1	0	0	0	0	1	0.0	0.950	0.21	0.45	0.00
											Statewide Crash Rate: 0.13		0.13	
58459	3110104 - 1.62	Int of MAIN ST SOUTH ST	2	6	0	1	1	1	3	50.0	1.946	0.62	0.38	1.64
											Statewide Crash Rate: 0.13		0.13	
58485	3110104 - 1.11	Int of MAIN ST MT PLEASANT ST	2	0	0	0	0	0	0	0.0	1.141	0.00	0.43	0.00
											Statewide Crash Rate: 0.13		0.13	
57134	3110236 - 0	Int of MAIN ST PARK VIEW CT	2	1	0	0	0	0	1	0.0	0.950	0.21	0.45	0.00
											Statewide Crash Rate: 0.13		0.13	
57135	3110236 - 0.14	End of PARK VIEW CT	2	0	0	0	0	0	0	0.0	0.039	0.00	-0.34	0.00
											Statewide Crash Rate: 0.13		0.13	
Study Years: 5.00			NODE TOTALS:											
				8	0	1	1	1	5	37.5	5.026	0.32	0.29	1.08

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section U/R Length	Total Crashes	K	A	B	C	PD	Injury Percent	Annual HMVM	Crash Rate	Critical Rate	CRF
58485	57134	3942491 Int of MAIN ST MT PLEASANT ST	0 - 0.40	3110104 - 1.11 RD INV 31 10104	0.40	2	0	0	0	0	0	0.0	0.00425	0.00	375.62 Statewide Crash Rate: 169.27	0.00
57134	58459	3114468 Int of MAIN ST PARK VIEW CT	0 - 0.11	3110104 - 1.51 RD INV 31 10104	0.11	2	1	0	1	0	0	100.0	0.00083	239.60 Statewide Crash Rate: 169.27	568.25	0.00
57134	57135	5084605 Int of MAIN ST PARK VIEW CT	0 - 0.14	3110236 - 0 RD INV 31 10236	0.14	2	1	0	0	0	1	0.0	0.00011	1837.51 Statewide Crash Rate: 368.50	1569.47	1.17

Study Years:	5.00	Section Totals:	0.65	2	0	1	0	1	0	0	1	50.0	0.00520	77.00	364.69	0.21
Grand Totals:		0.65	10	0	2	1	1	1	6	40.0	0.00520	384.98	476.44	0.81		

Crash Summary

Section Details														
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
58485	57134	3942491	0 - 0.40	3110104 - 1.11	0	0	0	0	0	0				
57134	58459	3114468	0 - 0.11	3110104 - 1.51	1	0	1	0	0	0	2023-36749	12/07/2023	1.52	A
57134	57135	5084605	0 - 0.14	3110236 - 0	1	0	0	0	0	1	2023-25475	08/30/2023	0.03	PD

Crashes by Day and Hour

Day Of Week	Hour of Day												PM												Un	Tot
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
TUESDAY	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	3	0	1	0	0	0	0	0	0	6	
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
THURSDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	7	23-Bicyclist	1
2-(Sport) Utility Vehicle	2	24-Witness	2
3-Passenger Van	1	25-Other	0
4-Cargo Van (10K lbs or Less)	0	26-Construction	0
5-Pickup	6	27-Farm Vehicle	0
6-Motor Home	0	28-Horse and Buggy	0
7-School Bus	0	Total	20
8-Transit Bus	0		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	0		
12-Moped	0		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	0		
17-Medium/Heavy Trucks (More than 10,000 lbs)	1		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	0		

Crashes by Driver Action at Time of Crash							
Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	2	4	0	0	0	0	6
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	2	0	0	0	0	0	2
Ran Red Light	0	0	0	0	0	0	0
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	0	0	0	0	0	0	0
Improper Passing	2	0	0	0	0	0	2
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	1	0	0	0	0	0	1
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	2	0	0	0	0	0	2
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	2	0	0	0	0	3
Unknown	0	0	0	0	0	0	0
Total	10	6	0	0	0	0	16

Crashes by Apparent Physical Condition And Driver							
Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	10	6	0	0	0	0	16
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	1	0	0	0	0	1
Other	0	0	0	0	0	0	0
Total	10	7	0	0	0	0	17

Driver Age by Unit Type					
Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV
09-Under	0	0	0	0	0
10-14	0	0	0	0	0
15-19	2	0	0	0	0
20-24	2	0	0	0	0
25-29	3	0	0	0	0
30-39	2	0	0	0	0
40-49	1	0	0	0	0
50-59	4	0	0	0	0
60-69	1	0	0	0	0
70-79	1	0	0	0	0
80-Over	0	0	0	0	0
Unknown	1	1	0	0	0
Total	17	1	0	0	0

Total	17	1	0	0	0	0	18
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Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	17
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	1		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	14		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
Traffic Control Devices			
		Traffic Control Device	Total
16-Work Zone / Maintenance Equipment	0	1-Traffic Signals (Stop & Go)	0
17-Other Non-Fixed Object	0	2-Traffic Signals (Flashing)	0
18-Impact Attenuator / Crash Cushion	0	3-Advisory/Warning Sign	0
19-Bridge Overhead Structure	0	4-Stop Signs - All Approaches	0
20-Bridge Pier or Support	0	5-Stop Signs - Other	9
21-Bridge Rail	0	6-Yield Sign	0
22-Cable Barrier	0	7-Curve Warning Sign	0
23-Culvert	0	8-Officer, Flagman, School Patrol	0
24-Curb	0	9-School Bus Stop Arm	0
25-Ditch	0	10-School Zone Sign	0
26-Embankment	0	11-R.R. Crossing Device	0
27-Guardrail Face	0	12-No Passing Zone	0
28-Guardrail End	0	13-None	1
29-Concrete Traffic Barrier	0	14-Other	0
30-Other Traffic Barrier	0	Total	10
31-Tree (Standing)	1		
32-Utility Pole / Light Support	1		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data			
Severity Code	Injury Crashes	Number Of Injuries	
K	0	0	
A	2	2	
B	1	2	
C	1	1	
PD	6	0	
Total	10	5	

Road Character	
Road Grade	Total
1-Level	10
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	10

Light	
Light Condition	Total
1-Daylight	7
2-Dawn	0
3-Dusk	1
4-Dark - Lighted	1
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	10

Crashes by Year and Month

Month	2019	2020	2021	2022	2023	Total
JANUARY	0	1	0	0	1	2
FEBRUARY	0	2	0	0	0	2
MARCH	0	0	0	0	0	0
APRIL	0	1	0	0	0	1
MAY	0	0	0	0	0	0
JUNE	0	1	0	0	0	1
JULY	0	0	0	0	0	0
AUGUST	0	0	0	0	1	1
SEPTEMBER	0	0	0	0	0	0
OCTOBER	0	0	0	0	1	1
NOVEMBER	0	0	0	1	0	1
DECEMBER	0	0	0	0	1	1
Total	0	5	0	1	4	10

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	8	0	0	0	0	0	0	0	0	0	0	0	10

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	5	0	0	0	0	0	0	0	0	0	0	5
Dusk	0	0	0	0	0	0	0	0	0	0	1	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	2	0	0	0	0	0	0	0	0	0	0	2
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

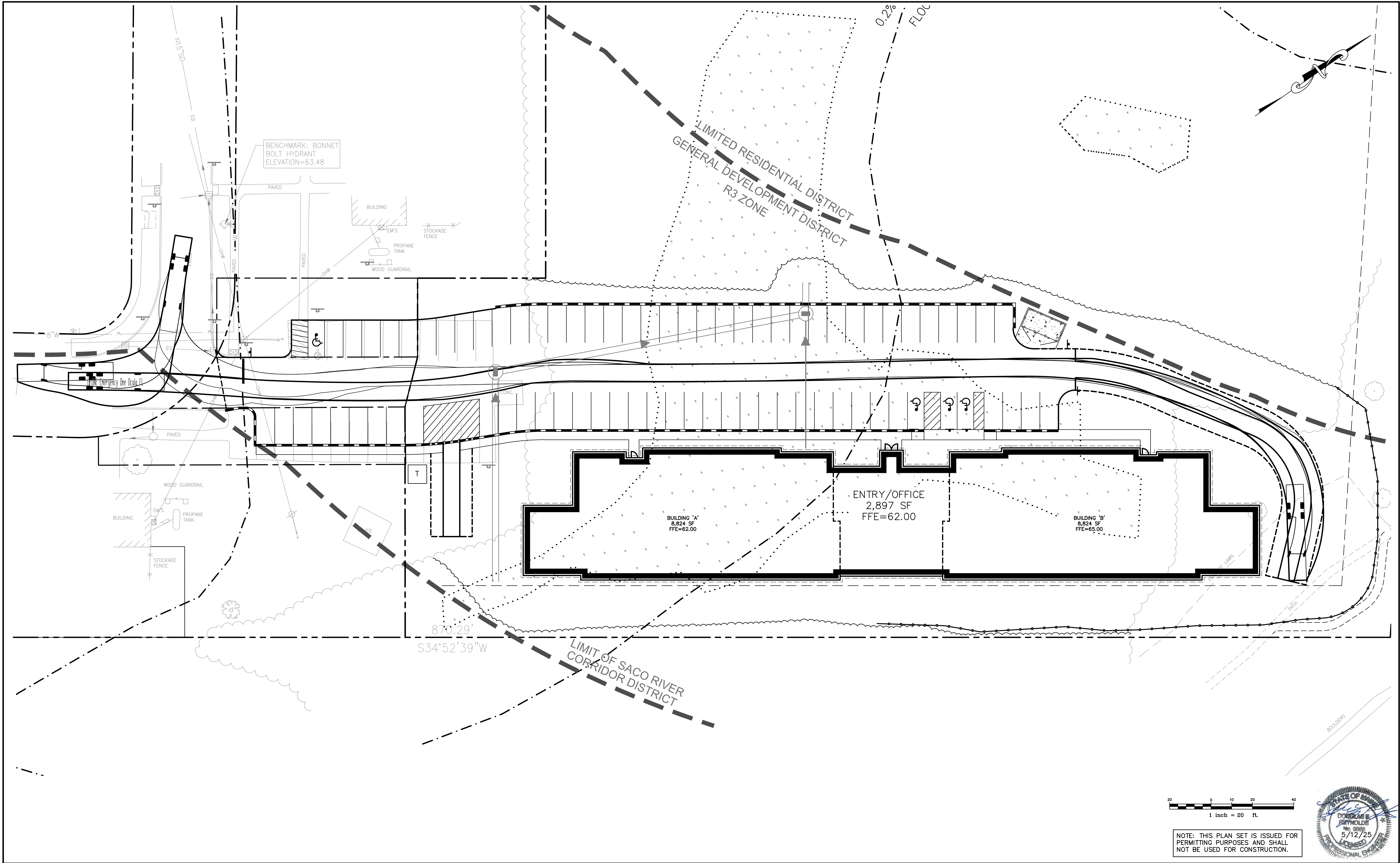
Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	9	0	0	0	0	0	0	0	0	0	1	10

ATTACHMENT 8

TRUCK TURNING MOVEMENT FIGURES

U:\Bateman Partners\4323-Bateman Partners - Forest Green Apts Expansion - Biddeford\Z - CAD\DWG\4323-SP.dwg 5/12/2025 12:55 PM



Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=20'	Job No.: 4323
File Name: 4323-SP.dwg		
This plan shall not be modified without written permission from Gorrill Palmer. Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to Gorrill Palmer.		

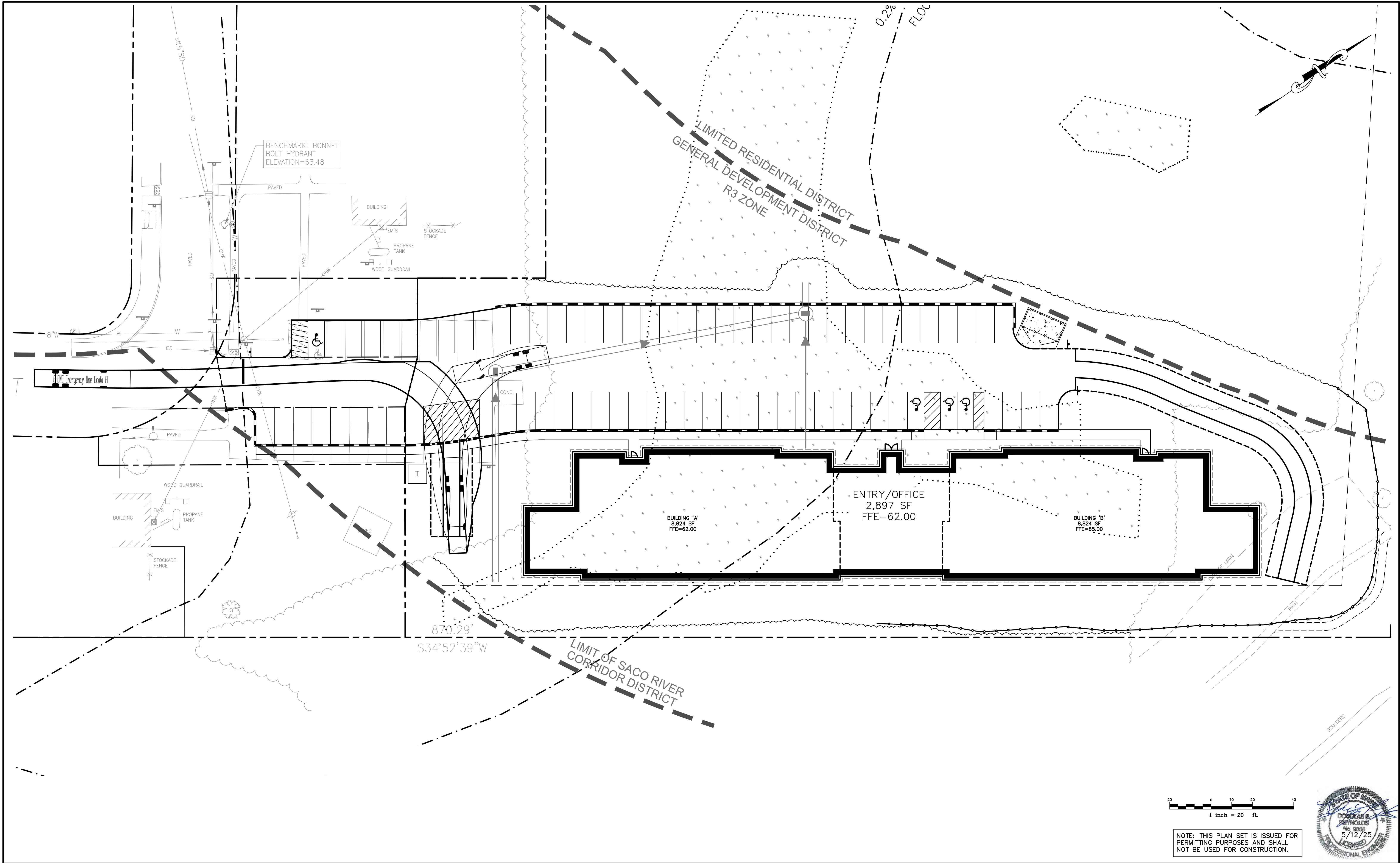


Relationships. Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515
300 Southborough Drive - Suite 200
South Portland, ME 04106

Drawing Name:	Fire Truck Turning Template
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.
1

U:\Bateman Partners\4323-Bateman Partners - Forest Green Apts Expansion - Biddeford\Z - CAD\DWG\4323-SP.dwg 5/12/2025 1:31 PM



Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=20'	Job No.: 4323
File Name: 4323-SP.dwg		
This plan shall not be modified without written permission from Gorrill Palmer. Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to Gorrill Palmer.		



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Drawing Name:	Fire Truck Turning Template
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.
2

ATTACHMENT 9

WETLAND DELINEATION REPORT

Memorandum of Findings

Date: April 24, 2025

To: Doug Reynolds (Gorrill Palmer)

From: Chuck Ferris (Flycatcher)

Cc: Rich Jordan (Flycatcher)

Subject: Parkview, Biddeford - Wetland Delineation Survey Results – REV 1

At the request of Gorrill Palmer, on October 22, 2024, a scientist from Flycatcher LLC (Flycatcher) completed a wetland and waterbody survey on approximately 2.1 acres (the Survey Area) located west of the entrance to Rotary Park and Redman Field at 550 Main Street in Biddeford, Maine. Figure 1 in Attachment 1 depicts the Survey Area boundaries. The purpose of the field survey was to identify and map wetlands, streams, and potential vernal pools to inform avoidance and minimization of impacts to protected natural resources during future property developments. This memo report provides a summary of the methods and findings of our field surveys.

Methods

Wetlands

Wetland delineations were conducted in accordance with the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual¹ and the Northcentral and Northeast Regional Supplement (Version 2.0).² The manual and supplement provide a repeatable methodology to identify wetland areas and are the accepted wetland delineation methodology of the Maine Department of Environmental Protection (MDEP) and the USACE.

The Survey Area was investigated by wetland scientists via a meander survey. When a location appeared to have the requisite three factors that constitute a wetland (i.e., hydrophytic vegetation, indicators of hydrology, and the presence of hydric soils) the scientist analyzed the site-specific data to determine if the area met the criteria to be considered a wetland. Boundaries of wetlands identified in forested areas were marked with pink survey flagging labelled with the word “Wetland Delineation” and numbered in sequential order. The location of each flag was collected via GPS as described in **GPS Location** below.

¹ Environmental Laboratory. (1987). *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station. Vicksburg, MS.

² USACE (2011). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast region (Version 2.0)*, ed. J.S. Wakely, R.W. Lichvar and C.V. Noble, and J.F. Berkowitz. ERDC/EL TR-08-27. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Streams

Stream identification followed the Natural Resources Protection Act (NRPA) definition of a “river, stream or brook” (38 M.R.S. §. 480-B9). If a stream meeting the above definition was observed, blue survey flagging was hung, and GPS data collected, along the centerline for streams less than ten feet in width, or along the top of the bank for streams ten feet or wider.

Potential Vernal Pools

Flycatcher conducted a potential vernal pool survey concurrent with the wetland delineation and stream survey. Vernal pools are temporarily/seasonally flooded wetlands that provide the primary breeding habitat for vernal pool indicator species, and a host of secondary faunal species. Wood frogs (*Lithobates sylvaticus*) spotted salamanders (*Ambystoma maculatum*), blue spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubrachipus* spp.) are vernal pool indicator species that depend on vernal pools to complete their life cycle. Vernal pool habitats are defined in Chapter 335 of the Maine Natural Resources Protection Act (NRPA) and in the USACE Maine General Permit. Each definition is similar, except the Maine General Permit definition does not require a pool to be of natural origin to be regulated.

Productivity of breeding vernal pool species is the primary metric used by regulatory authorities to assess vernal pool quality; thus, vernal pools must be assessed during the breeding season (generally mid-April to late-May). Potential vernal pools were identified within the Survey Area following the Maine Association of Wetland Scientists (MAWS) Vernal Pool Technical Committee Vernal Pool Survey Protocol (April 2014) methods for performing potential vernal pool (PVP) surveys.

GPS Location

Features (e.g., wetlands, streams) located during the survey were geolocated using a mapping grade global positioning system (“GPS”) unit (Juniper Systems’ Geode GPS Antenna and ESRI’s ArcGIS Field Maps software). The data were collected using real-time correction and standards specified by the manufacturer to achieve sub-meter accuracy. The data was exported to CAD and provided to you via email.

Natural Resource Agency Correspondence

Natural Resource Agency outreach was not conducted by Flycatcher.

Wetlands of Special Significance (WoSS)

Chapter 310 of the Maine Natural Resources Protection Act (NRPA)¹ defines a subset of wetlands that provide a high level of valuable functions and/or values to the surrounding and regional environment. Wetlands of Special Significance (WoSS) are afforded additional protections and generally more rigorous permitting oversight if a permittee’s project will result in unavoidable impacts to WoSS. Flycatcher made WoSS determinations based on observations of physical features noted during the delineation.

¹ MEDEP. Natural Resources Protection Act. Chapter 310. Wetlands and Waterbodies Protection Rules. Section 4. A. Wetlands of Special Significance.

Results

Survey Area Description

The Survey Area is located west of the entrance to Rotary Park and Redman Field at 550 Main Street in Biddeford, Maine. Surrounding land use includes recreational fields and parking facilities associated with Rotary Park to the east, and a residential complex to the southwest. The Saco River lies less than 200 ft to the northwest. Land cover within the Survey Area is primarily forested, and the terrain is gently sloping, with wetlands occurring in the lower drainage of the site. Resources identified within the Survey Area can be seen on the Natural Resource Map in Attachment 1. Representative photographs are provided in Attachment 2.

Wetlands

Two wetlands were mapped within the Survey Area. Summary descriptions of wetlands including covertype¹, vegetation, hydrology, and hydric soil indicators, preliminary WoSS determinations, and principal functions and values are provided in Table 1, below. The location of each mapped wetland is depicted in Figure 2, Attachment 1.

Streams

No streams were identified within the Survey Area.

Potential Vernal Pools

No potential vernal pools were observed within the Survey Area.

WOSS

Preliminary WoSS determinations are included in Table 1. WoSS determination may require consultation with the Maine Department of Inland Fisheries and Wildlife (MDIFW) and the Maine Natural Areas Program (MNAP) to ascertain known or potential presence of certain threatened or endangered natural resources. Flycatcher did not perform these consultations but based on agency correspondence provided to Gorrill Palmer on March 20, 2025 MDIFW, and on December 17, 2024 from MNAP, agency responses indicate no known significant wildlife habitat or rare natural communities that would categorize wetlands onsite as WoSS.

¹Wetland classifications per USFWS' Cowardin et al. 1979 (<https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf>).

Table 1. Summary Descriptions of Wetlands Delineated Within the Survey Area

Resource ID	Cowardin Classification ¹	Hydrology Indicators	Dominant Vegetation	Principal Functions and Values	Hydric Soil Indicators	WoSS ²	Description & Notes
W-CWF-1	PFO	Water-Stained Leaves (B9), Moss Trim Lines (B16)	Red maple (<i>Acer rubrum</i>), quaking aspen (<i>Populus tremuloides</i>), red osier (<i>Cornus alba</i>), sensitive fern (<i>Onoclea sensibilis</i>), lamp rush (<i>Juncus effusus</i>)	Groundwater recharge/discharge, nutrient removal, wildlife habitat	Depleted Matrix (F3)	No	Low area next to northeast border. Wetland extends out of the Survey Area to the northwest.
W-CWF-2	PFO	Saturation (A3), Water-Stained Leaves (B9)	Red maple, American elm (<i>Ulmus americana</i>), green ash (<i>Fraxinus pennsylvanica</i>), red osier, Morrow's honeysuckle (<i>Lonicera morrowii</i>), broad-leaf meadowsweet (<i>Spiraea latifolia</i>), sensitive fern, bluejoint (<i>Calamagrostis canadensis</i>), wrinkle-leaf goldenrod (<i>Solidago rugosa</i>)	Groundwater recharge/discharge, nutrient removal, wildlife habitat	Redox Dark Surface (F6), over Loamy Gleyed Matrix (F2)	No	Wetland drainage west of access road. Wetland extends out of the Survey Area to the northwest.
1. Wetland classifications per USFWS' Cowardin et al. 1979. (https://www.nps.gov/goga/learn/management/upload/-1411-Classification-of-Wetlands-and-Deepwater-Habitats-of-the-U-S.pdf) 2. WoSS determinations per MEDEP. Natural Resource Protection Act. Chapter 310. Wetlands and Waterbodies Protection Rules. Section 4 A. Wetlands of Special Significance.							

Thank you for the opportunity to assist you with natural resource identification for this project. If you have any questions regarding the results provided in this report, please do not hesitate to contact me.

Sincerely,

Charles W. Ferris

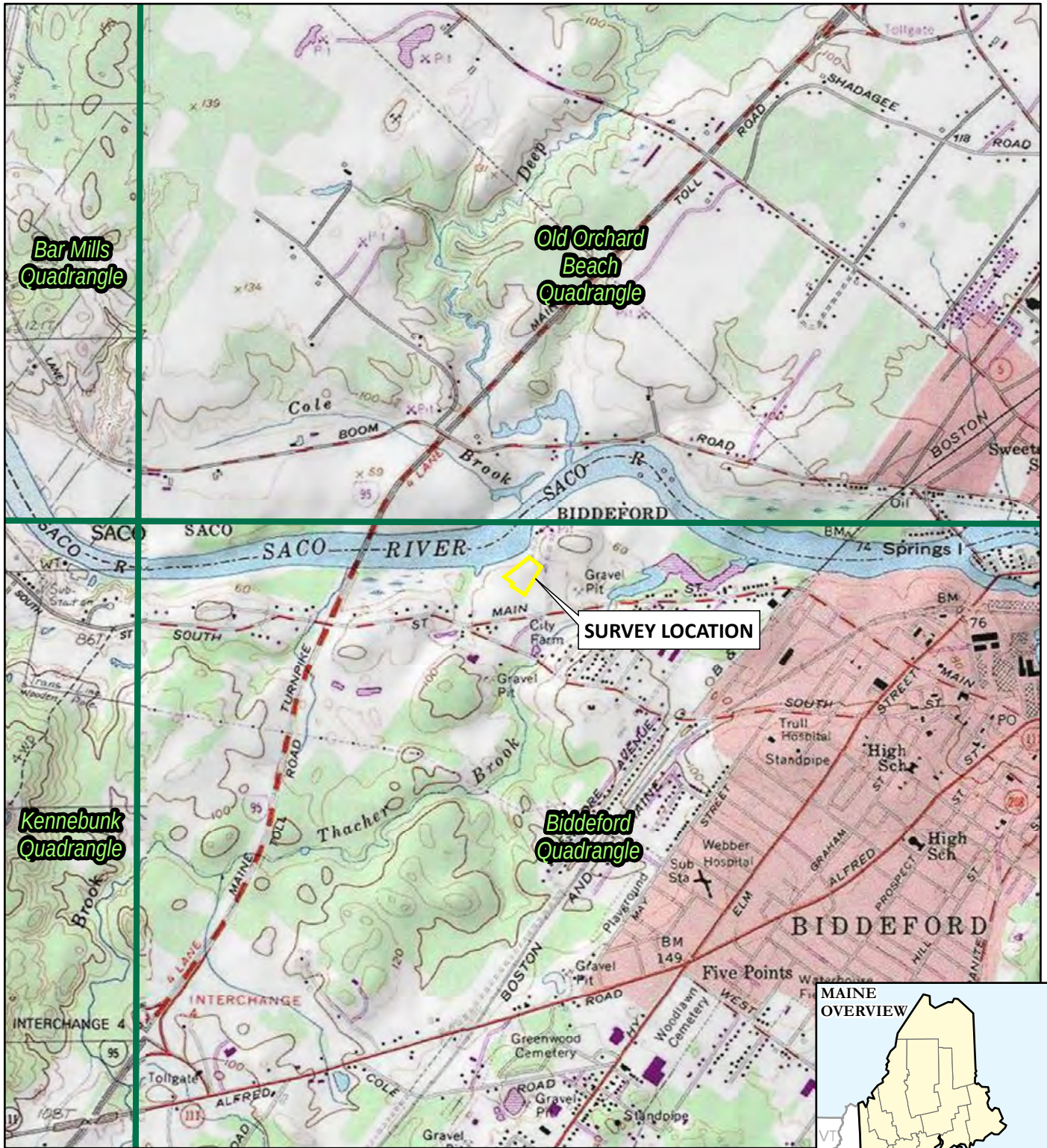
Chuck Ferris, Lead Environmental Specialist
Flycatcher LLC

Attachments (3)

ATTACHMENT 1

Figure 1. USGS Location Map

Figure 2. Delineated Natural Resource Map

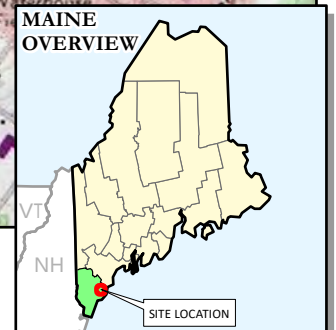


BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.



1" = 2,000'
1:24,000

0 2,000 4,000
FEET



PROJECT: **GORILL PALMER**
550 MAIN STREET
BIDDEFORD, YORK COUNTY, MAINE



LEGEND:
 SURVEY AREA
 USGS 7.5-MINUTE QUADRANGLE BOUNDARY

DRAWN BY: D. KENWORTHY
CHECKED BY: R. THURRELL
MONTH: NOVEMBER
YEAR: 2024
PROJ. NO.: 20F-045
CLIENT: GP

FIGURE 1 - USGS LOCATION MAP

Plot Date: 11/7/2024, 11:12:27 AM by DREWKENWORTHY -- LAYOUT: ANSI B(11"x17")
Path: C:\FLYCATCHER\Projects\GorillPalmer\GP_20F045_Biddeford_Delin_Fig2_Resources_11x17L.mxd

Coordinate System: NAD 1983 StatePlane Maine West FIPS 1802 Feet (Foot US)
Map Rotation: 0



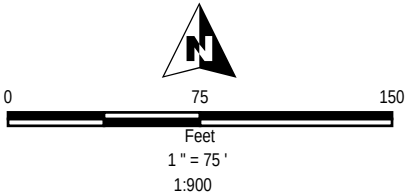
LEGEND

- SURVEY AREA
- UPLAND PLOT
- WETLAND PLOT
- DELINEATED WETLAND BOUNDARY
- DELINEATED WETLAND
- CONTOUR LINE (10' INTERVAL)
- CONTOUR LINE (2' INTERVAL)



NOTES:

- 1 BASEMAP IMAGERY FROM ESRI/NAIP "WORLD IMAGERY" SERVICE LAYER.
- 2 RESOURCE DELINEATIONS WERE CONDUCTED BY FLYCATCHER IN OCTOBER 2024.



PROJECT:		GORILL PALMER 550 MAIN STREET BIDDEFORD, YORK COUNTY, MAINE	
TITLE:		DELINEATED NATURAL RESOURCE MAP	
DRAWN BY:	D. KENWORTHY	PROJ NO.:	20F-045
CHECKED BY:	R. THURRELL	FIGURE 2	
MONTH:	NOVEMBER		
YEAR:	2024	 	
FILE NO.:			

GP_20F045_Biddeford_Delin_Fig2_Resources_11x17L.mxd

ATTACHMENT 2

Representative Photographs



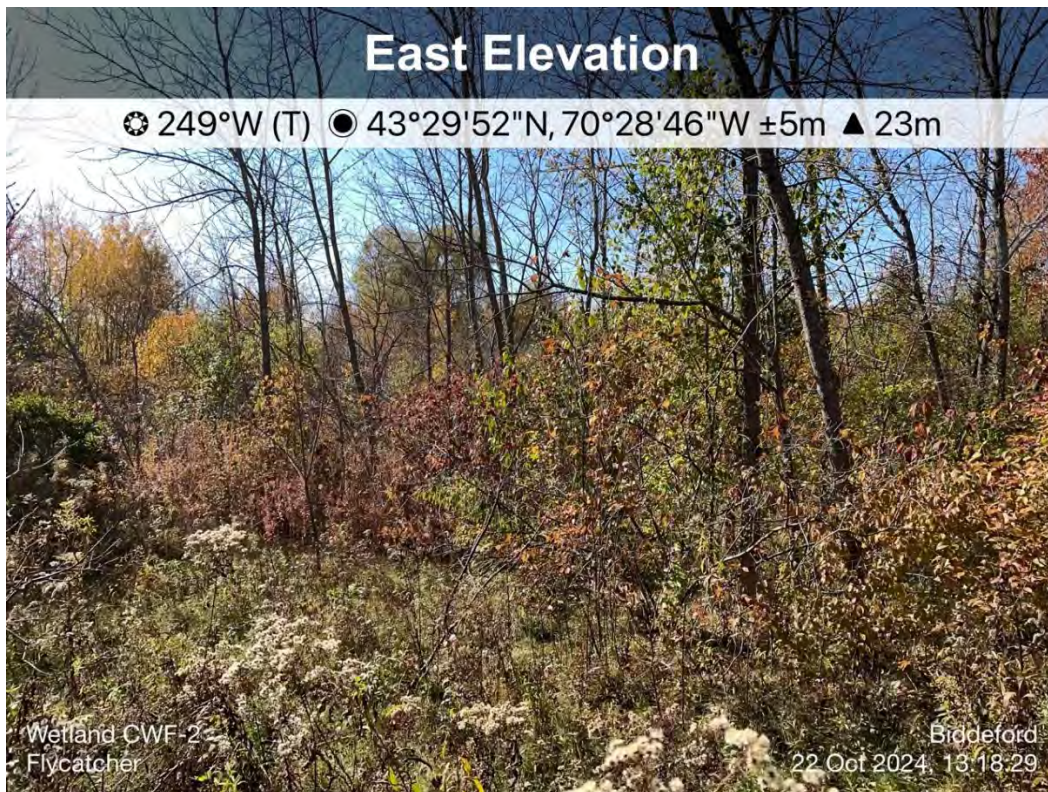
Forested wetland W-CWF-1, October 22, 2024.



Scrub-shrub portion of wetland W-CWF-2, October 22, 2024.



View of drainage in wetland W-CWF-2, October 22, 2024.



Forested wetland W-CWF-2, October 22, 2024.

ATTACHMENT 3

U.S. Army Corps of Engineers Wetland Determination Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Parkview Ct Biddeford City/County: Biddeford/York Sampling Date: 10/22/2024
 Applicant/Owner: Gorrill Palmer State: ME Sampling Point: Upl
 Investigator(s): Chuck Ferris Section, Township, Range: _____
 Landform (hillside, terrace, etc.): Side slope Local relief (concave, convex, none): Convex Slope %: 2
 Subregion (LRR or MLRA): LRR R Lat: 43.498042 Long: 70.479790 Datum: NAD83
 Soil Map Unit Name: Elmwood fine sandy loam, 0 to 8 percent slopes (EmB) NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks:		

VEGETATION – Use scientific names of plants.

Sampling Point: Upl

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>37.5%</u> (A/B)																
2. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Pinus strobus</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>																	
4. <u>Malus sylvestris</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>																	
5. _____	_____	_____	_____	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>25</u></td> <td>x 2 = <u>50</u></td> </tr> <tr> <td>FAC species <u>10</u></td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species <u>85</u></td> <td>x 4 = <u>340</u></td> </tr> <tr> <td>UPL species <u>10</u></td> <td>x 5 = <u>50</u></td> </tr> <tr> <td>Column Totals: <u>130</u> (A)</td> <td><u>470</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.62</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>25</u>	x 2 = <u>50</u>	FAC species <u>10</u>	x 3 = <u>30</u>	FACU species <u>85</u>	x 4 = <u>340</u>	UPL species <u>10</u>	x 5 = <u>50</u>	Column Totals: <u>130</u> (A)	<u>470</u> (B)	Prevalence Index = B/A = <u>3.62</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>25</u>	x 2 = <u>50</u>																			
FAC species <u>10</u>	x 3 = <u>30</u>																			
FACU species <u>85</u>	x 4 = <u>340</u>																			
UPL species <u>10</u>	x 5 = <u>50</u>																			
Column Totals: <u>130</u> (A)	<u>470</u> (B)																			
Prevalence Index = B/A = <u>3.62</u>																				
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
	<u>25</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>Cornus alba</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Lonicera morrowii</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Malus sylvestris</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>																	
4. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
	<u>25</u>	=Total Cover		Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Festuca rubra</u>	<u>70</u>	<u>Yes</u>	<u>FACU</u>																	
2. <u>Solidago rugosa</u>	<u>5</u>	<u>No</u>	<u>FAC</u>																	
3. <u>Doellingeria umbellata</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____	Woody Vine Stratum (Plot size: <u>30'</u>)																
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____	1. _____ 2. _____ 3. _____ 4. _____																
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
	<u>80</u>	=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point	Upl
----------------	-----

Northcentral and Northeast Region – Version 2.0
Page 217 of 924

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Parkview Ct Biddeford City/County: Biddeford/York Sampling Date: 10/22/2024
 Applicant/Owner: Gorrill Palmer State: ME Sampling Point: Wet
 Investigator(s): Chuck Ferris Section, Township, Range: _____

Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope %: 2

Subregion (LRR or MLRA): LRR R Lat: 43.497926 Long: 70.479670 Datum: NAD83

Soil Map Unit Name: Elmwood fine sandy loam, 0 to 8 percent slopes (EmB) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) <u>X</u> Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>X</u> Drainage Patterns (B10) <u>X</u> Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <u>X</u> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

 Sampling Point: Wet

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Acer rubrum</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. <u>Ulmus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Fraxinus pennsylvanica</u>	<u>5</u>	<u>No</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>35</u>	=Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>5</u></td> <td>x 1 = <u>5</u></td> </tr> <tr> <td>FACW species <u>120</u></td> <td>x 2 = <u>240</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>140</u> (A)</td> <td><u>290</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>2.07</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>5</u>	x 1 = <u>5</u>	FACW species <u>120</u>	x 2 = <u>240</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>140</u> (A)	<u>290</u> (B)	Prevalence Index = B/A = <u>2.07</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>5</u>	x 1 = <u>5</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>140</u> (A)	<u>290</u> (B)																			
Prevalence Index = B/A = <u>2.07</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Cornus alba</u>	<u>40</u>	<u>Yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
		<u>40</u>	=Total Cover	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>X</u> <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Onoclea sensibilis</u>	<u>60</u>	<u>Yes</u>	<u>FACW</u>																	
2. <u>Lythrum salicaria</u>	<u>5</u>	<u>No</u>	<u>OBL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
		<u>65</u>	=Total Cover	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
		_____	=Total Cover	Hydrophytic Vegetation Present? Yes <u>X</u> No _____																

Remarks: (Include photo numbers here or on a separate sheet.)

Sampling Point	Wet
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ATTACHMENT 10

AGENCY CORRESPONDENCE



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

Phone: (207) 469-7300 Fax: (207) 902-1588



In Reply Refer To:

11/19/2024 14:43:39 UTC

Project Code: 2025-0021311

Project Name: Forest Green Apartments

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office

P. O. Box A

East Orland, ME 04431

(207) 469-7300

PROJECT SUMMARY

Project Code: 2025-0021311

Project Name: Forest Green Apartments

Project Type: Residential Construction

Project Description: Residential Development

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.497419550000004,-70.48094647707944,14z>



Counties: York County, Maine

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

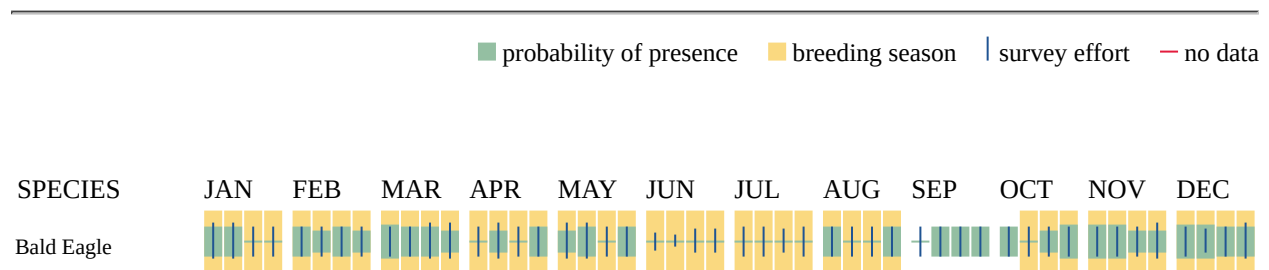
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.



Non-BCC
Vulnerable

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935	Breeds Apr 15 to Aug 31

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black Skimmer <i>Rynchops niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234	Breeds May 20 to Sep 15
Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Blue-winged Warbler <i>Vermivora cyanoptera</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9509	Breeds May 1 to Jun 30
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9643	Breeds May 20 to Aug 10
Chimney Swift <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Grasshopper Sparrow <i>Ammodramus savannarum perpallidus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Gull-billed Tern <i>Gelochelidon nilotica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9501	Breeds May 1 to Jul 31

NAME	BREEDING SEASON
Hudsonian Godwit <i>Limosa haemastica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9482	Breeds elsewhere
Least Tern <i>Sternula antillarum antillarum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/11919	Breeds Apr 25 to Sep 5
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper <i>Calidris melanotos</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prairie Warbler <i>Setophaga discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9513	Breeds May 1 to Jul 31
Purple Sandpiper <i>Calidris maritima</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9574	Breeds elsewhere
Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Saltmarsh Sparrow <i>Ammospiza caudacuta</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9719	Breeds May 15 to Sep 5
Scarlet Tanager <i>Piranga olivacea</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11967	Breeds May 10 to Aug 10

NAME	BREEDING SEASON
Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Whimbrel <i>Numenius phaeopus hudsonicus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11991	Breeds elsewhere
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10669	Breeds Apr 20 to Aug 5
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

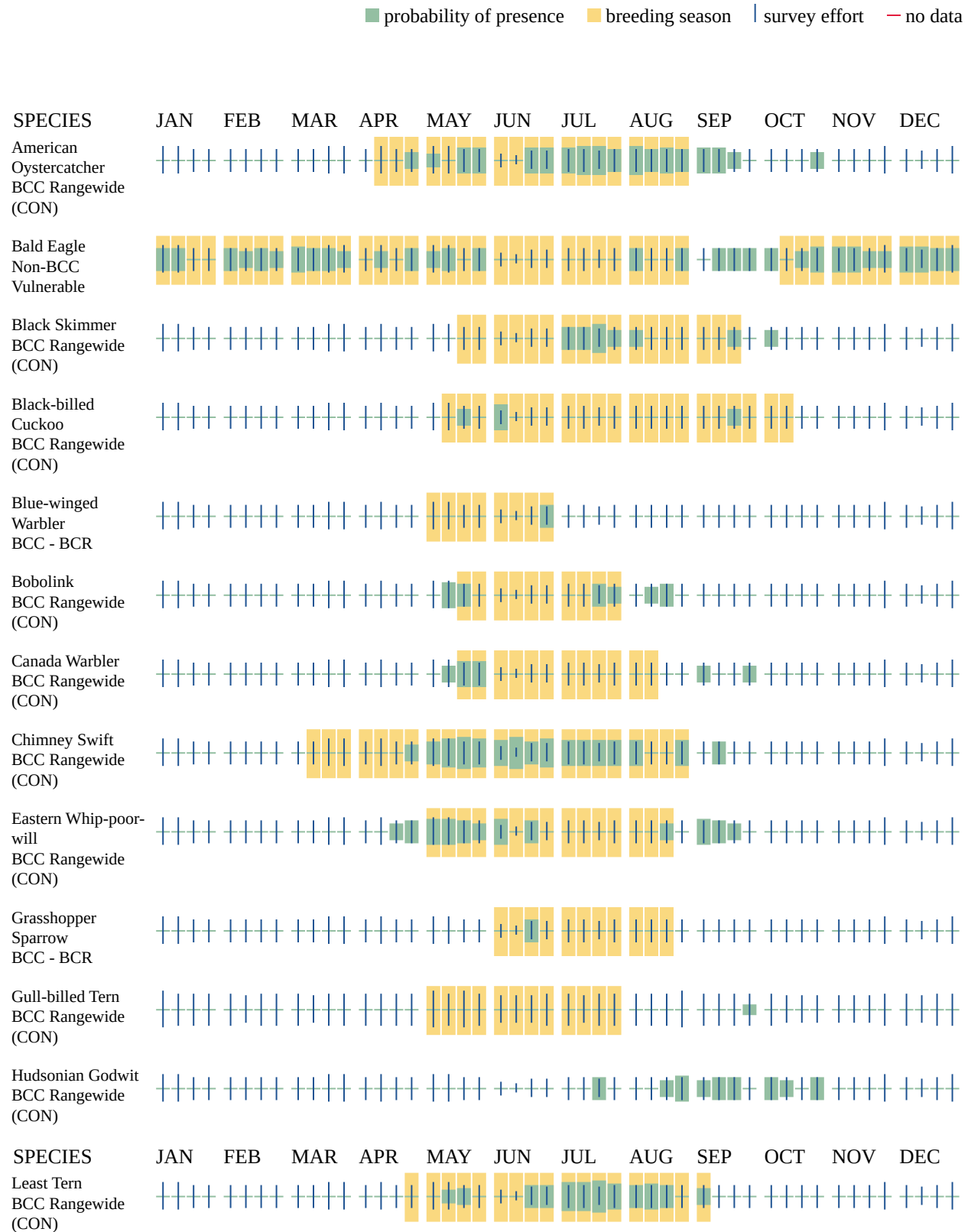
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

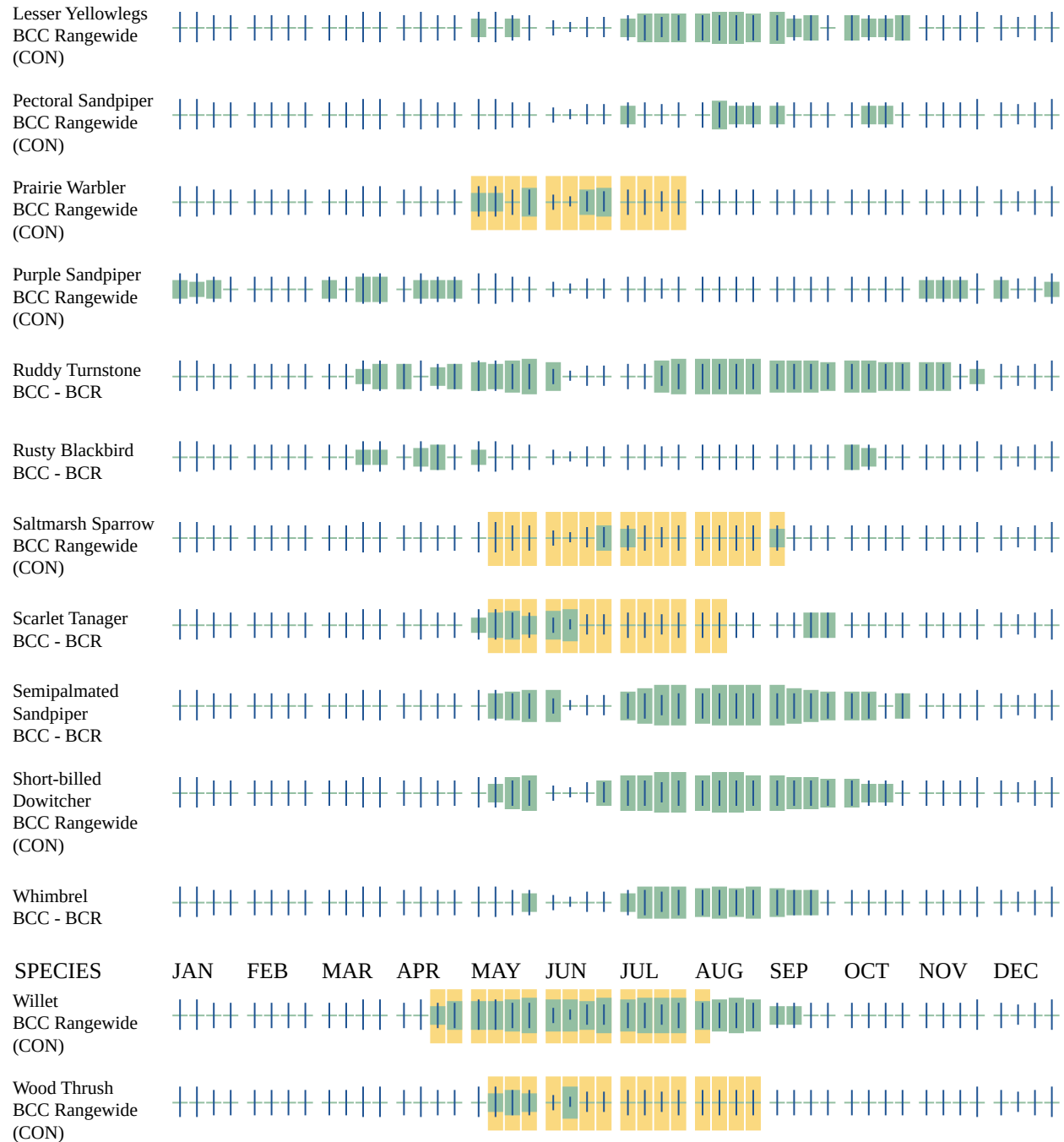
Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1B

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1E

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Ethan Chadwick
Address: 300 Southborough Drive
City: South Portland
State: ME
Zip: 04116
Email: echadwick@gorrillpalmer.com
Phone: 2075955195

Endangered Species Act Review

DETERMINATION KEY

Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key

Release date: November 7, 2024

You completed the latest version of this key, published November 7, 2024, and reached a determination of not applicable for species or critical habitats covered by the key.

This determination key (key) is intended to streamline review of projects for potential effects to the northern long-eared bat (*Myotis septentrionalis*; NLEB) and the proposed tricolored bat (*Perimyotis subflavus*; TCB). This key is designed as a tool to help Federal agencies and other project proponents decide if their proposed action has the potential to adversely affect the northern long-eared bat or jeopardize the continued existence of the proposed tricolored bat and covers certain routine and predictable projects for which predetermined consultation outcomes are feasible.

This key will replace the NLEB Rangewide Key in order to provide for the addition of TCB to the key. Letters provided through use of the NLEB Rangewide Key will still be valid, but the key will no longer be available to users. If a project needs to be reassessed, please use the updated NLEB and TCB Rangewide Key.

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action may affect a listed species. TCB is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can confer under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the TCB be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the TCB range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Some projects may be outside the scope of this key. Activities that fall outside the scope of this key will require additional evaluation and/or consultation outside of the IPaC application; please contact the appropriate Ecological Service Field Office if you have questions.

The link below provides the information used to support the standing analyses and key.

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

If your project qualifies for use of this key, you will be prompted to answer questions about your project to help you evaluate its effects on the northern long-eared bat and/or tricolored bat. Three outcomes are possible:

- 1) If your completed review indicates a "No Effect" (NE) for northern long-eared bat and tricolored bat, and you have made separate "No Effect" determinations for all other species and critical habitats, if any, on your Official Species List, print your IPaC output letter for your files to document your compliance with the Endangered Species Act.
- 2) For Federal projects with a "Not Likely to Adversely Affect" determination, our concurrence becomes valid if you do not hear otherwise after a 15-day review period, as specified in your letter.
- 3) If your output letter indicates additional coordination with the appropriate Ecological Services Field Office is necessary (i.e., you get a "May Affect" determination" without a concurrence that adverse effects are not likely), you will be provided additional guidance on contacting the Service to continue ESA coordination outside of this key; ESA compliance cannot be concluded using the key for "May Affect" determinations.

Please note that only one assisted key may be completed per species for each project. Please carefully review the descriptions of all available keys to select the most appropriate key for your project. For instance, federal transportation projects with potential effects to listed bats may be advised to complete the key entitled, FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat. Finally, be advised that this key is intended to assist the user in evaluating the effects of their actions on northern long-eared bat and/or tricolored bat. It does not authorize any activities that are otherwise prohibited by the Endangered Species Act (e.g., for wildlife: import/export, Interstate or foreign commerce, possession of illegally taken wildlife, etc.; for plants: import/export, reduce to possession, malicious destruction on Federal lands, commercial sale, etc.) or other Federal or state statutes.

Species covered by this key

This key covers the following species expected to occur in this project area:

Tricolored Bat *Perimyotis subflavus*

The following species, also covered by this key, are not expected to occur in this project area:

Critical habitats covered by this key

This key covers the critical habitats for the following species expected to occur in this project area:

None

For more information about this determination key, including a list of all potential questions, refer to the [detailed overview](#).

Qualification interview

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

☒ No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

☒ Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

☒ Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

Note: For federal actions (Action means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas.

Examples include, but are not limited to:

- (a) actions intended to conserve listed species or their habitat;
- (b) the promulgation of regulations;
- (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or
- (d) actions directly or indirectly causing modifications to the land, water, or air.

50 CFR 402.02 "Action" .), answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

☒ No

5. Is the proposed action (A federal action means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to:

- (a) actions intended to conserve listed species or their habitat;
- (b) the promulgation of regulations;
- (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or
- (d) actions directly or indirectly causing modifications to the land, water, or air.

50 CFR 402.02 "Action".) authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

☒ No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

☒ Automatically answered

No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures (A narrow opening or crack of considerable length and depth usually occurring from some breaking or parting;), or other karst (An irregular limestone region with sinkholes,

underground streams, and caverns.) features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

☒ No

8. Does the action area contain (1) talus (A slope formed especially by an accumulation of rock debris or rock debris at the base of a cliff.) or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

☒ No

9. Will the action cause effects to a bridge?

Note: Covered bridges should be considered as bridges in this question.

☒ No

10. Will the action result in effects to a culvert or tunnel at any time of year?

☒ No

11. Are trees present within 1000 feet of the action area?

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

☒ Yes

12. Does the action include the intentional exclusion of bats from a building or structure?

Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators

Association bats”). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

☒ Yes

Your project may result in purposeful take. Your local U.S. Fish and Wildlife Services Ecological Services Field Office may help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term “National Wildlife Control Operators Association bats”). Also see the White-Nose Syndrome Response Team’s guide for bat control in structures. To find the local office for your project, open the “Project Home” or “Regulatory Review” page for your project in IPaC and look for “Local Office” in the upper right-hand part of the page.

If you no longer wish to use this key for your project, you can delete your evaluation.



STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



March 20, 2025

Ethan Chadwick
Gorrill Palmer
300 Southborough Drive, Suite 200
South Portland, ME 04106

RE: Information Request - 641 Main Street, Development, Biddeford Project ID 8736-10099

Dear Ethan:

Per your request received on December 4, 2024, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information sources for known locations of Endangered, Threatened, and Special Concern (Rare) species; designated Essential and Significant Wildlife Habitats; inland fisheries and aquatic habitats; and other protected natural resource concerns within the vicinity of the **641 Main Street, Development, Biddeford** project, pursuant to MDIFW's authority. MDIFW understands the project proposes two residential buildings, a parking lot, and associated stormwater facilities. For the purposes of this review, MDIFW presumes tree clearing would occur.

Our Department has not mapped any Essential Habitats that would be affected by this project.

ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES

Bat Species

Of the eight species of bats that occur in Maine, four species are afforded protection under Maines Endangered Species Act (MESA, 12 M.R.S 12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), eastern small-footed bat (State Threatened), and tri-colored bat (State Threatened). The four remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, and silver-haired bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during spring/fall migration, the summer breeding season, and/or for overwintering. However, our Department does not anticipate significant impacts to any of the bat species as a result of this project.

Blanding's Turtle

Blanding's turtles, a State Endangered species, have been documented in the vicinity of the proposed project area. In Maine, Blanding's turtles are found most frequently in vernal pools, acidic wetlands and larger marsh complexes, within blocks of forested habitat. They also use small streams, shrub swamps, wet meadows, bogs, and forested swamps. Development activity that compromises riparian integrity or migration permeability among seasonally critical wetlands

March 20, 2025

Letter to Ethan Chadwick, Gorrill Palmer

Comments RE: 641 Main Street, Development, Biddeford

can lead to degradation of habitat quality and potential loss of local populations. Additionally, development projects that lead to significant increases in local traffic volume will likely lead to increased roadkill and possible extirpation of the local population. However, based on MDIFW's review of site conditions, we anticipate minimal impacts to this species as a result of project activities.

SIGNIFICANT WILDLIFE HABITAT

Significant Vernal Pools

At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of Significant Vernal Pools (SVPs) in the project search area. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. SVPs are not included on MDIFW maps until project areas have been surveyed using approved methods and the survey results confirmed. Therefore, their absence from resource maps is not necessarily indicative of an absence on the ground. If any tree clearing is proposed, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Department for review well before the submission of any necessary permits. MDIFW will need to review and verify any vernal pool data prior to final determination of significance.

AQUATIC RESOURCES

Fish Habitat

We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, GMDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e., natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct

March 20, 2025

Letter to Ethan Chadwick, Gorrill Palmer

Comments RE: 641 Main Street, Development, Biddeford

impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource and regulatory agencies including the Maine Natural Areas Program and the Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance. For information on federally listed species, contact the U.S. Fish and Wildlife Service's Maine Field Office (207-469-7300, mainefieldoffice@fws.gov).

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

A handwritten signature in black ink, appearing to read "Andrew Wood", written in a cursive style.

Andrew Wood

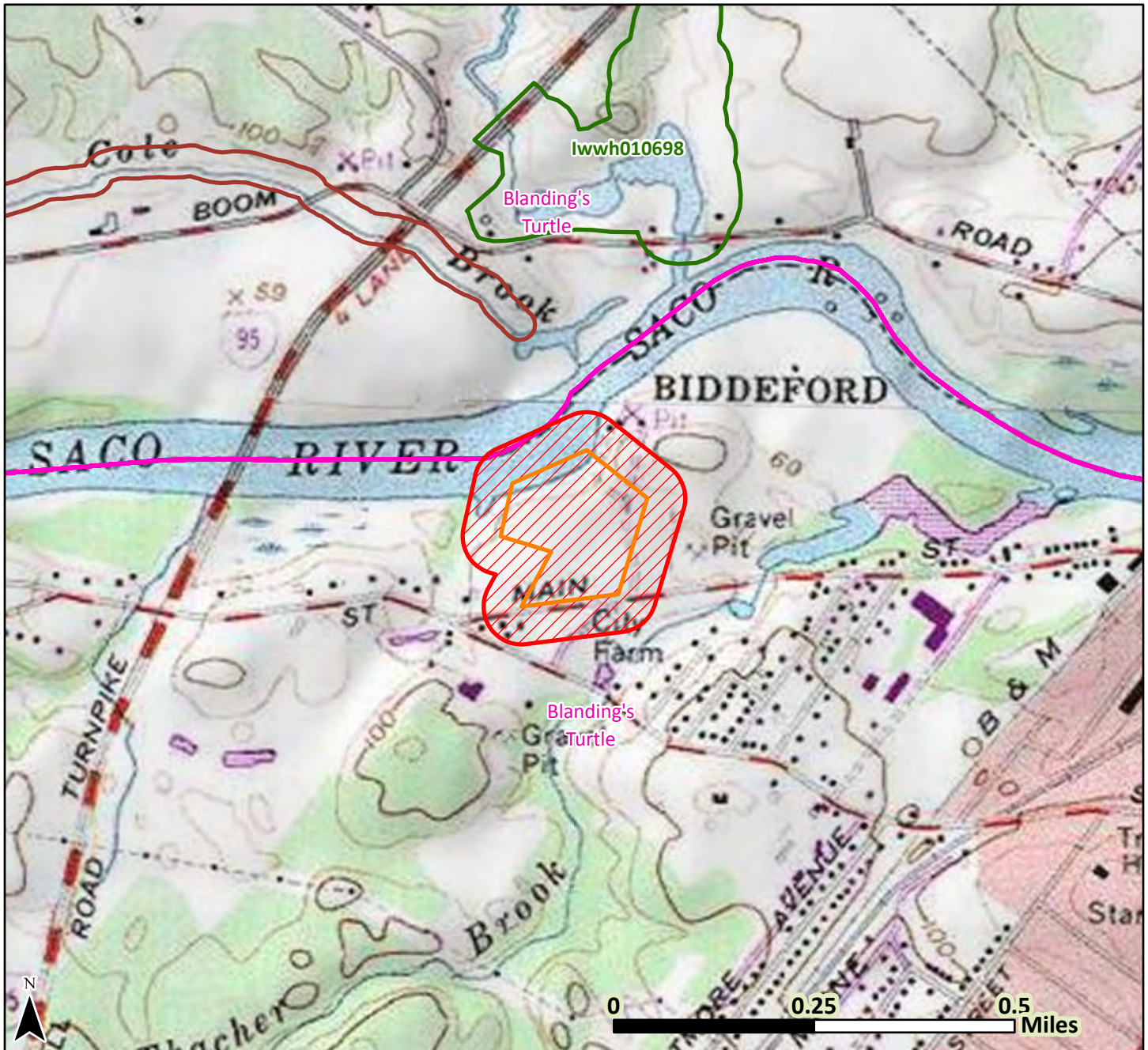
Environmental Review Coordinator



Maine Department of Inland Fisheries and Wildlife
Project Area Review of Fish and Wildlife Observations and Priority Habitats

641 Main Street, Development, Biddeford

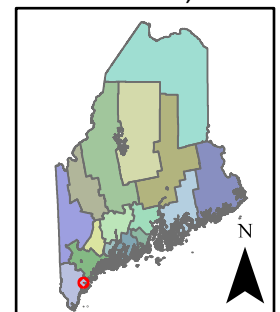
Project ID 8736, Version ID 10099



- County Boundary
- Township Boundary
- Project Footprint
- Search Area

- E, T, & SC Species
- Inland Waterfowl/Wading Bird
- Special Concern Fish

Date: 12/11/2024
Projection:
UTM Zone 19N, NAD83



Legend only lists resources visible in the map; see response letter for all resources that were evaluated.



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

December 17, 2024

Ethan Chadwick
Gorrill Palmer
300 Southborough Drive Suite 200
South Portland, ME 04106

Via email: echadwick@gorillpalmer.com

Re: Rare and exemplary botanical features in proximity to: #4323, Residential Development, 641 Main Street, Biddeford, Maine

Dear Ethan Chadwick:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received December 4, 2024 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

**Rare and Exemplary Botanical Features within 4 miles of
Project: #4323, Residential Development, 641 Main Street, Biddeford, Maine**

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Atlantic White Cedar						
	SC	S2	G4	2017-07-26	3	Forested wetland
Atlantic White Cedar Bog						
		S1	G3G4	2017-07-26	3	
Beach Plum						
	E	S1	G4	1933-06-21	9	Rocky coastal (non-forested, upland)
	E	S1	G4	1932-09	12	Rocky coastal (non-forested, upland)
Brackish Tidal Marsh						
		S3	GNR	2009-07-29	1	
Button Sedge						
	SC	S2	G5	1880-09-06	2	
	SC	S2	G5	2000-08-15	3	
	SC	S2	G5	2017-07-26	5	
Clothed Sedge						
	E	S1	G5	2006-06-07	7	Dry barrens (partly forested, upland)
	E	S1	G5	2006-06-16	8	Dry barrens (partly forested, upland)
Creeping Spike-moss						
	E	S2	G5	1920-07-30	6	Open wetland, not coastal nor rivershore (non-forested,
Estuary Bur-marigold						
	SC	S3	G4	2009-07-30	35	Tidal wetland (non-forested, wetland)
Freshwater Tidal Marsh						
		S2	G4?	2009-07-30	1	
Horned Pondweed						
	SC	S2	G5	1907-08-18	10	Tidal wetland (non-forested, wetland)

Horned Pondweed						
	SC	S2	G5	2000-08-28	15	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2007-07-05	19	Tidal wetland (non-forested, wetland)
Lilaeopsis						
	SC	S2	G5	2012-10-21	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2007-07-05	11	Tidal wetland (non-forested, wetland)
Long's Bulrush						
	T	S2	G3	2017-07-26	10	Open wetland, not coastal nor rivershore (non-forested,
Long-spined Sandbur						
	PE	SH	G5	1984	1	Rocky coastal (non-forested, upland)
Mudwort						
	SC	S3	G5	2009-07-30	35	Tidal wetland (non-forested, wetland)
Pale Green Orchis						
	SC	S2	G4?T4Q	2008-06-27	52	Non-tidal rivershore (non-forested, seasonally wet),Open
	SC	S2	G4?T4Q	2008-06-27	53	Non-tidal rivershore (non-forested, seasonally wet),Open
	SC	S2	G4?T4Q	2008-06-27	54	Non-tidal rivershore (non-forested, seasonally wet),Open
Parker's Pipewort						
	SC	S3	G3	2017-08-31	33	Tidal wetland (non-forested, wetland)
Pendulous Bulrush						
	SC	S2	G5	2023-08-22	8	Open wetland, not coastal nor rivershore (non-forested,
Pitch Pine Bog						
		S2	G3G5	2017-07-26	4	
		S2	G3G5	2015-09-29	20	
Pitch Pine Woodland						
		S3	G2	2016-08-09	30	
Pocket Swamp						
		S2	G5	2020-06-12	18	
		S2	G5	2020-06-12	33	
Pygmyweed						

Pygmyweed						
	SC	S2S3	G5	2009-07-29	25	Open water (non-forested, wetland)
	SC	S2S3	G5	2007-07-05	28	Open water (non-forested, wetland)
Raised Level Bog Ecosystem						
		S4	GNR	2017-07-26	3	
Red Maple Swamp						
		S5	G3G5	2007-06-05	17	
Salt-hay Saltmarsh						
		S3	G5	2010-10-14	12	
Saltmarsh False-foxglove						
	SC	S3	G5	1982	9	Tidal wetland (non-forested, wetland)
	SC	S3	G5	1982	12	Tidal wetland (non-forested, wetland)
Schreber's Wood-aster						
	PE	SX	G4	1894-09	1	Rocky coastal (non-forested, upland)
Small Reed Grass						
	SC	S3	G5	2000-08-15	12	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly						
	SC	S3	G5	2018-09-15	24	Forested wetland
	SC	S3	G5	2004	36	Forested wetland
	SC	S3	G5	2020-6-12	39	Forested wetland
Southern Slender Ladies'-tresses						
	PE	SH	G5T4T5	1918-08-27	1	Dry barrens (partly forested, upland)
Spongy-leaved Arrowhead						
	SC	S3	G5T4	2012-10-21	42	Tidal wetland (non-forested, wetland)
Stiff Arrowhead						
	SC	S2	G5	2006-06-16	15	Tidal wetland (non-forested, wetland)
Sweet Pepper-bush						
	SC	S2	G5	1917-09	9	Hardwood to mixed forest (forest, upland),Forested
Tidal Marsh Estuary Ecosystem						

Tidal Marsh Estuary Ecosystem					
	S3	GNR	2010-10-14	4	
Water Pimpernel					
SC	S3	G5	2012-10-21	26	Tidal wetland (non-forested, wetland)
Yellow Wild Indigo					
PE	SH	G5	1960-06-21	2	Dry barrens (partly forested, upland),Hardwood to mixed

Date Exported: 2024-12-17 12:12

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 G1	Critically Imperiled – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 G2	Imperiled – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 G3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 G4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 G5	Secure – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX GX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH GH	Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery.
S#S# G#G#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU GU	Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR SNR	Unranked – Global or subnational conservation status not yet assessed.
SNA GNA	Not Applicable – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems).
Qualifier	Definition
S#? G#?	Inexact Numeric Rank – Denotes inexact numeric rank.
Q	Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The “Q” modifier is only used at a global level.
T#	Intraspecific Taxon (trinomial) – The status of intraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	Endangered – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	Threatened – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	Special Concern – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	Potentially Extirpated – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	Excellent – Excellent estimated viability/ecological integrity.
B	Good – Good estimated viability/ecological integrity.
C	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
H	Historical – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	Extirpated – Documented loss of population/destruction of habitat.
U	Unrankable – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	Not Ranked – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
<http://www.maine.gov/dacf/mnap>





JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

February 12, 2025

Mr. Ethan Chadwick
Gorrill-Palmer
300 Southborough Dr
Suite 200
South Portland, ME 04106

Project: MHPC #2164-24 Forest Green Apartments; 641 Main St
Proposed Residential Development
Town: Machias, ME

Dear Mr. Chadwick:

In response to your recent request, I have reviewed the information received January 28, 2025 to continue consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

Based on the information submitted, I have concluded that there will be no historic properties (architectural or archaeological) affected by this proposed undertaking, as defined by Section 106.

If you have any questions regarding consultation, please contact Megan M. Rideout of this office at, megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

Tribal Historic Preservation Office
Passamaquoddy Tribe
PO Box 159 Princeton, Me. 04668
207-214-4051

April 1, 2025

GP – Ethan
300 Southborough Drive, Suite 200 | South
Portland, ME 04106

Re: Residential Development - Main Street and South Street in Biddeford.

Dear Ethan ;

The Passamaquoddy THPO has reviewed the following list regarding the historic properties and significant religious and cultural properties in accordance with NHPA, NEPA, AIRFA, NAGPRA, ARPA, Executive Order 13007 Indian Sacred Sites, Executive Order 13175 Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 Environmental Justice.

The items listed above will not have an impact with Passamaquoddy cultural concerns, if any artifacts are uncovered or human remains, please contact this office. If development is within 200 feet of river may require an archeologist survey.

Sincerely;

Donald Soctomah
THPO
Soctomah@gmail.com

Re: Historical Site Information Request

From Isaac St John <istjohn@maliseets.com>

Date Thu 4/24/2025 5:25 PM

To Ethan Chadwick <echadwick@gorrillpalmer.com>

 1 attachment (23 KB)

Outlook-qsfvkdqq.dat;

Good afternoon,

We do not have an immediate concern with your project or project site, and do not currently have the resources to fully investigate same. Should any human remains, archaeological properties or other items of historical importance be unearthed while working on this project, we recommend that you stop your project and report your findings to the appropriate authorities including the Houlton Band of Maliseet Indians.

Thank you,

Isaac St. John
Tribal Historic Preservation Officer
Houlton Band of Maliseet Indians
88 Bell Road
Littleton, ME 04730

From: Ethan Chadwick <echadwick@gorrillpalmer.com>

Sent: Friday, February 21, 2025 1:43 PM

To: 'istjohn@maliseets.com' <istjohn@maliseets.com>

Cc: Andrew J. Kurmin <AKurmin@gorrillpalmer.com>

Subject: Historical Site Information Request

Good Afternoon, Mr. St. John,

Please find the attached letter regarding a property in Biddeford, Maine. A location map is included for your reference. Physical copies of these documents will only be sent through the mail at your request.

Please do not hesitate to contact me with any questions or concerns.

Ethan Chadwick | Design Engineer

February 21, 2025

Attn: Jenny Gaenzle
Mi'kmaq Nation
7 Northern Road
Presque Isle, ME 04769

**Subject: Presence of Historic, Archaeological or Tribal Resources
Parkview Court
Biddeford, Maine**

Dear Ms. Gaenzle,

Gorrill Palmer has been retained to prepare plans and permit applications for the proposed residential development on a 11.0-acre lot with the development drive located approximately 570 feet away the intersection of Main Street and South Street in Biddeford. The project site is shown on the attached Location Map. At this time, the applicant is proposing the development of two new buildings, associated parking lot, utility infrastructure, and stormwater facilities.

To aid in the design, and as part of the permit applications, Gorrill Palmer requests information from the Aroostook Band of Mi'kmaqs relative to the presence of any nearby historic, archaeological, or tribal resources.

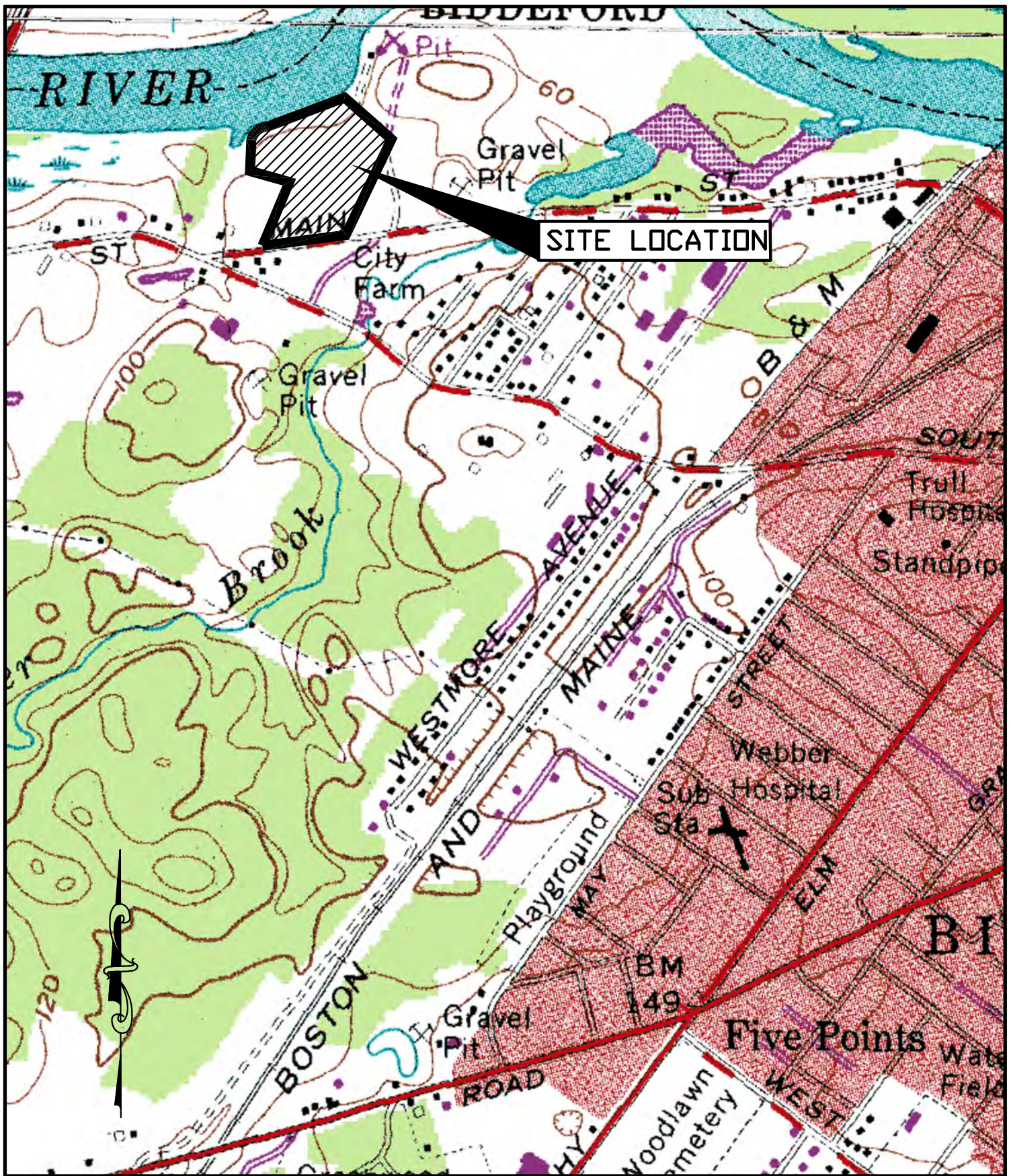
Thank you for your consideration. If you have any questions regarding the proposed project, please contact our office.

Sincerely,

Gorrill Palmer



Ethan Chadwick, EI
Design Engineer
Phone: (207) 772-2515
echadwick@gorrillpalmer.com



U.S.G.S. Location Map
 Forest Green Apartments Expansion - Biddeford, Maine
 U.S.G.S. Biddeford, State-7.5 Minute Series (Topographic)

Design: EJC	Date: NOV. 2024
Draft: EJC	Job No.: 4323
Checked: AJK	Scale: NTS
File Name: 4323-LOCATION MAP.dwg	



Gorrill Palmer, an LJB Engineering Company
 GorrillPalmer.com
 (207) 772-2515
 300 Southborough Drive - Suite 200
 South Portland, ME 04106

Figure

1

February 21, 2025

Attn: Mr. Chris Sockalexis, THPO
Penobscot Nation
12 Wabanaki Way
Indian Island, ME 04468

**Subject: Presence of Historic, Archaeological or Tribal Resources
Parkview Court
Biddeford, Maine**

Dear Mr. Sockalexis,

Gorrill Palmer has been retained to prepare plans and permit applications for the proposed residential development on a 11.0-acre lot with the development drive located approximately 570 feet away the intersection of Main Street and South Street in Biddeford. The project site is shown on the attached Location Map. At this time, the applicant is proposing the development of two new buildings, associated parking lot, utility infrastructure, and stormwater facilities.

To aid in the design, and as part of the permit applications, Gorrill Palmer requests information from the Penobscot Nation relative to the presence of any nearby historic, archaeological, or tribal resources.

Thank you for your consideration. If you have any questions regarding the proposed project, please contact our office.

Sincerely,

Gorrill Palmer



Ethan Chadwick, EI
Design Engineer
Phone: (207) 772-2515
echadwick@gorrillpalmer.com



STRUCTURAL



FALL PROTECTION
SAFETY



TRANSPORTATION



SITE DESIGN



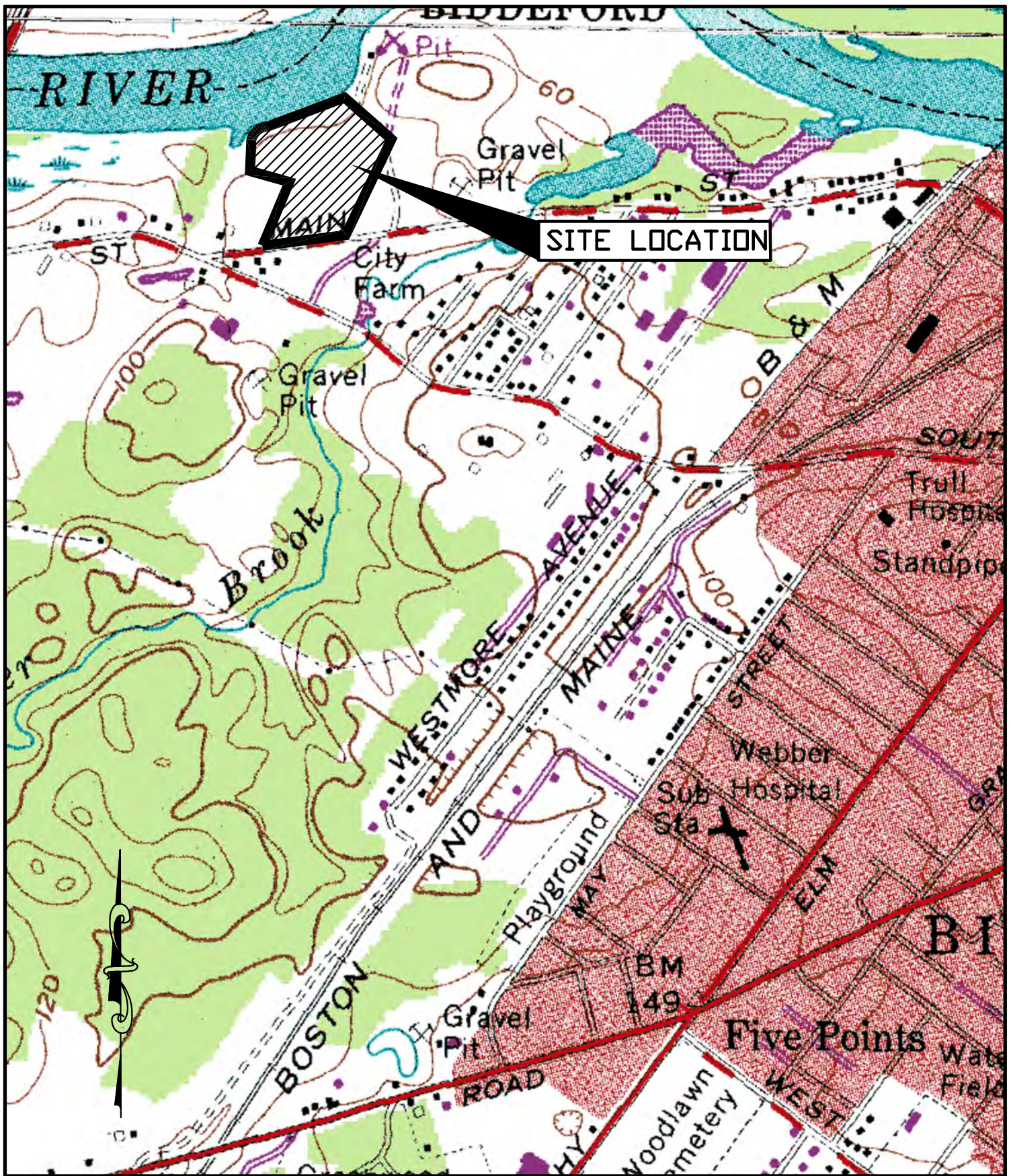
SURVEY



WATER
RESOURCES



TECHNOLOGY
Page 260 of 924



U.S.G.S. Location Map
 Forest Green Apartments Expansion - Biddeford, Maine
 U.S.G.S. Biddeford, State-7.5 Minute Series (Topographic)

Design: EJC	Date: NOV. 2024
Draft: EJC	Job No.: 4323
Checked: AJK	Scale: NTS
File Name: 4323-LOCATION MAP.dwg	



Gorrill Palmer, an LJB Engineering Company
 GorrillPalmer.com
 (207) 772-2515
 300 Southborough Drive - Suite 200
 South Portland, ME 04106

Figure

1

ATTACHMENT 11

PERFORMANCE GUARANTEE

City of Biddeford, Maine

COST ESTIMATE WORKSHEET



OWNER/APPLICANT:

Bateman Partners, LLC

PROJECT NAME:

1 Parkview Court - Forest Green Expansion

	ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
1	Clearing and Grubbing	Acre	1.25	\$10,000.00	\$12,500.00
2	Erosion/Sediment Control	Lump Sum	1	\$10,000.00	\$10,000.00
3	Site Stabilization	Lump Sum	1	\$5,000.00	\$5,000.00
4	Sanitary Sewer				
	Manholes	Each	2	\$6,000.00	\$12,000.00
	8" Main	Linear Foot	472	\$80.00	\$37,760.00
5	Water Main				
	Main	Linear Foot	475	\$100.00	\$47,500.00
	6" Fire Service	Linear Foot	50	\$90.00	\$4,500.00
	2" Domestic Service	Linear Foot	50	\$20.00	\$1,000.00
6	Electric				
	Underground Utility Trench	Linear Foot	115	\$40.00	\$4,600.00
	Conduit/Wiring	Linear Foot	400	\$20.00	\$8,000.00
	Transformer Bases	Each	1	\$7,500.00	\$7,500.00
7	Storm Drainage				
	3' x 2' Pipe Arch Culvert	Linear Foot	257	\$95.00	\$24,415.00
	6" SD Pipe	Linear Foot	63	\$50.00	\$3,150.00
	Dog House Structure	Each	2	\$8,500.00	\$17,000.00
9	Excavate and Grade Subgrade	Cubic Yard	4200	\$15.00	\$63,000.00
10	Roadways/ Parking Area				
	Subbase Gravel	Cubic Yard	1390	\$25.00	\$34,750.00
	Base/Finish Gravel	Cubic Yard	310	\$30.00	\$9,300.00
	Base Paving	Ton	305	\$115.00	\$35,075.00
	Finish Paving	Ton	195	\$135.00	\$26,325.00
11	Sidewalks				
	Subbase Gravel	Cubic Yard	55	\$30.00	\$1,650.00
	Base/Finish Gravel	Cubic Yard	20	\$35.00	\$700.00
	Base Paving	Ton	15	\$115.00	\$1,725.00
	Finish Paving	Ton	15	\$135.00	\$2,025.00
13	Curbing	Linear Foot	650	\$20.00	\$13,000.00
13	Pavement Striping	Linear Foot	1670	\$1.50	\$2,505.00
14	Fencing	Linear Foot	350	\$20.00	\$7,000.00
15	Silt Fence	Linear Foot	1100	\$2.50	\$2,750.00
16	Loam and Seed	1,000 Square Feet	25	\$500.00	\$12,500.00
17	Riprap	Cubic Yard	55	\$120.00	\$6,600.00
18	Landscaping	Lump Sum	1	\$10,000.00	\$10,000.00
19	Reinforced Turf	Square Foot	2610	\$5.00	\$13,050.00
20	Clean Up	Lump Sum	1	\$5,000.00	\$5,000.00
21	As Builts	Lump Sum	1	\$1,000.00	\$1,000.00

COST ESTIMATE TOTAL:

\$442,880.00

150% of TOTAL:

\$664,320.00

FOR OFFICE USE ONLY

EROSION CONTROL/SITE STABILIZATION BOND (IF APPLICABLE):

City of Biddeford, Maine

COST ESTIMATE WORKSHEET

PERFORMANCE GUARANTEE REQUIRED:

Name:

Signature:

Date:

PLAN SET

PLAN SET

U:\Bateman Partners\4323_Bateman Partners - Forest Green Apts Expansion - Biddeford\Z - CAD\DWG\4323-COVER.dwg 5/12/2025 2:55 PM

PROJECT PARCEL SITE BIDDEFORD ASSESSOR'S PARCEL & LOT NUMBERS	
PARCECEL	LOT
32	1

Applicant:
BATEMAN PARTNERS 470 FORE STREET, SUITE 400 PORTLAND, ME 04101 ATTN: NATHAN BATEMAN

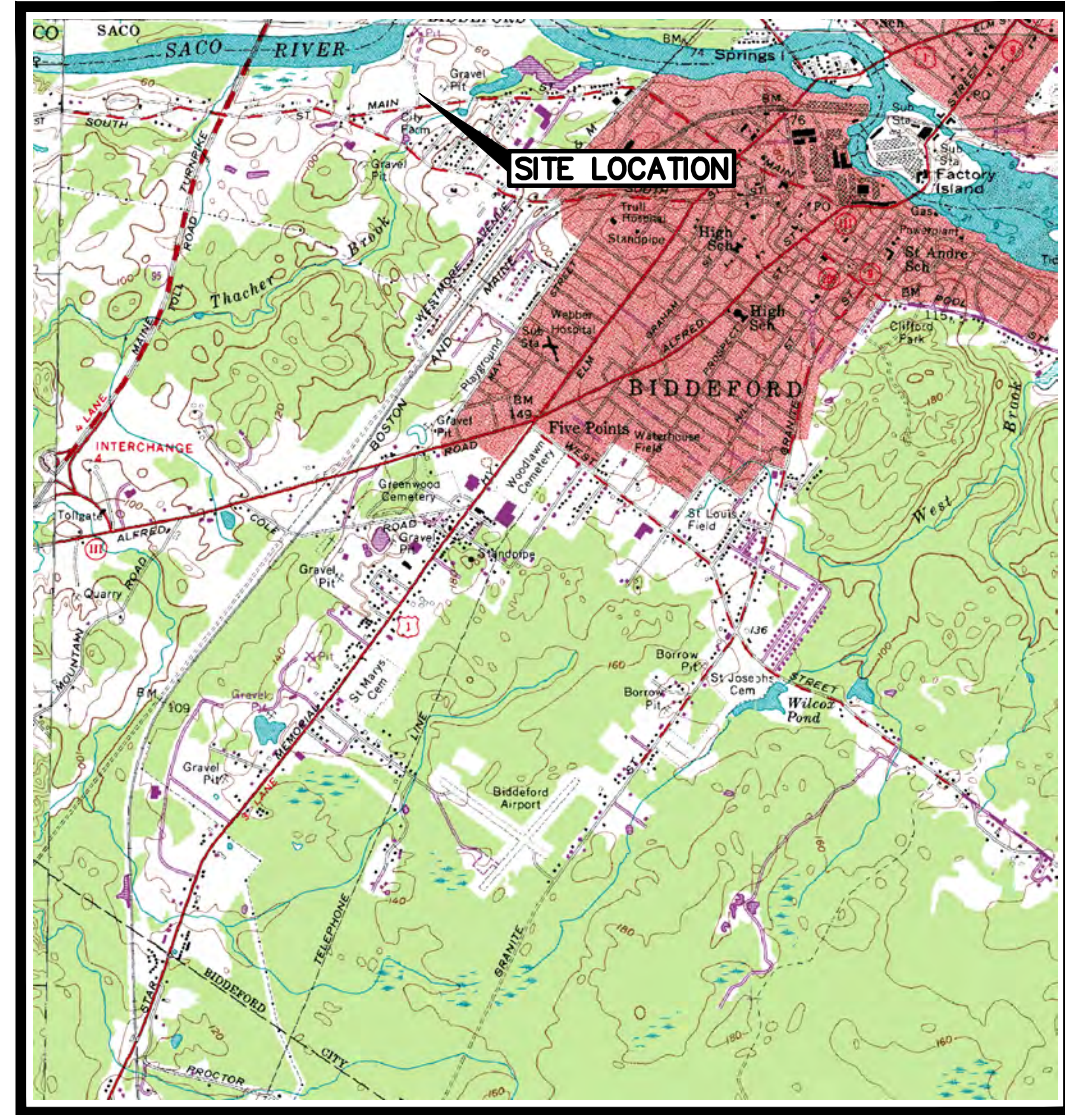
Y.C.R.D.
BOOK 15854 PAGE 978

FOREST GREEN APARTMENT EXPANSION PARKVIEW COURT BIDDEFORD, MAINE

PREPARED BY:



Gorrill Palmer, an LJB Engineering Company
GorrillPalmer.com
(207) 772-2515
300 Southborough Drive - Suite 200
South Portland, ME 04106



LOCATION MAP
N.T.S.

LEGEND

EXISTING	DESCRIPTION	PROPOSED
	BUILDING	
	RIGHT OF WAY	
	PROPERTY LINE	
	BUILDING SETBACK	
	ZONE LINE	
	WETLAND BOUNDARY	
	GUIDE RAIL	
	EDGE OF PAVEMENT	
	EDGE OF GRAVEL DRIVE	
	GRADING CONTOUR LINE	
	SPOT ELEVATION	
	TREELINE	
	TREES & HEDGES	
	POLE WITH LIGHT FIXTURE(S)	
	UTILITY POLE	
	FREESTANDING SIGN	
	PAINTED DIRECTIONAL TRAFFIC ARROW	
	OVERHEAD ELECTRIC/TELEPHONE	
	UNDERGROUND ELECTRIC/TELEPHONE	
	WATER LINE	
	STORM DRAIN LINE	
	CULVERT	
	HYDRANT	
	WATER GATE VALVE	
	WATER SHUT OFF VALVE	
	MANHOLE	
	CATCH BASIN	
	TEST PIT	
	IRON ROD (SET)	
	IRON ROD (FOUND)	
	MONUMENT	
	RIPRAP	
	SILT FENCE - PERIMETER	
	STONE SEDIMENT BARRIER	
	FENCE	
	WELL	

GENERAL NOTES

GENERAL NOTES

1. TOPOGRAPHIC DATA BOUNDARY SURVEY AND EXISTING CONDITIONS WERE PREPARED BY OWEN HASKELL, OF FALMOUTH, MAINE IN DECEMBER OF 2024.
2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
3. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE OWNER AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTIONS OF THE OWNER, THE CITY OF BIDDEFORD OR THEIR REPRESENTATIVES AT NO ADDITIONAL COST TO THE OWNER.
4. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
5. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND CITY OF BIDDEFORD SPECIFICATIONS.

PERMITTING NOTES

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF A SITE PLAN APPROVAL FROM THE CITY OF BIDDEFORD WHICH WILL BE MADE A PART OF THE CONTRACT BID DOCUMENTS. THE CONSTRUCTION WILL BE COVERED BY THE CITY OF BIDDEFORD LAND USE CODE WHICH IS AVAILABLE FOR VIEWING AT THE OFFICE OF THE ENGINEER OR THE MUNICIPAL OFFICE.
2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.

LAYOUT NOTES

1. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB.
2. OFFSETS TO CATCH BASINS AND MANHOLES ARE TO THE CENTER OF THE FRAME.
3. PIPE LENGTH EQUALS THE CENTER TO CENTER DISTANCES BETWEEN CATCH BASINS AND/OR MANHOLES MINUS ONE-HALF OF THE DIAMETER OF EACH CATCH BASIN OR MANHOLE.
4. PROPERTY LINE AND R.O.W. MONUMENTS SHALL NOT BE DISTURBED BY CONSTRUCTION. IF DISTURBED, THEY SHALL BE RESET TO THEIR ORIGINAL LOCATIONS AT THE CONTRACTOR'S EXPENSE, BY A MAINE LICENSED LAND SURVEYOR.
5. PROPOSED RIGHT OF WAY MONUMENTS AND PROPERTY LINE PINS SHALL BE INSTALLED UNDER THE DIRECTION OF A MAINE LICENSED LAND SURVEYOR.

REQUIRED WAIVERS/VARIANCES FOR MAJOR SITE PLAN APPLICATION:

-

UTILITY NOTES

1. THE LOCATION OF THE PROPOSED UNDERGROUND ELECTRICAL SERVICE IS APPROXIMATE AND THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION WITH CENTRAL MAINE POWER COMPANY.
2. TEST PITS AT ALL UTILITY CROSSINGS SHALL BE COMPLETED TWO WEEKS IN ADVANCE OF THE START OF CONSTRUCTION OR ORDERING OF MATERIALS. TEST PIT INFORMATION SHALL BE PROMPTLY PROVIDED TO ENGINEER FOR REVIEW.

GRADING AND DRAINAGE NOTES

1. UNLESS OTHERWISE NOTED, ALL STORM DRAIN PIPE SHALL BE IN ACCORDANCE WITH MDOT SPECIFICATIONS SECTION 603-- PIPE CULVERTS AND STORM DRAINS. LATEST REVISION WITH THE EXCEPTION THAT THE ONLY ACCEPTABLE TYPES OF PIPE ARE AS FOLLOWS:
REINFORCED CONCRETE PIPE, CLASS III
POLYVINYL-CHLORIDE (PVC) PIPE
SMOOTH BORE POLYETHYLENE - ADS OR HANCOR
2. TOPSOIL STRIPPED IN AREAS OF CONSTRUCTION THAT IS SUITABLE FOR REUSE AS LOAM SHALL BE STOCKPILED ON SITE AT A LOCATION TO BE DESIGNATED BY THE OWNER. UNSUITABLE SOIL SHALL BE SEPARATED, REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION OFF SITE.
3. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY. NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING.

EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE SITE.
2. PRIOR TO BEGINNING ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL THE SILT SACKS.
3. ALL GROUND AREAS DISTURBED FOR CONSTRUCTION WILL BE GRADED, LOAMED AND SEEDED AS SOON AS POSSIBLE. PERMANENT SEED MIXTURE SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL REPORT PREPARED FOR THIS PROJECT.
4. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM DRAIN LINES.
5. ALL STORM DRAIN INLETS & OUTLETS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
6. ALL CATCH BASINS WITH OUTLET PIPES 15" DIAMETER OR LESS SHALL BE PROVIDED WITH OUTLET HOOD (SNOUT) PER DETAIL.
7. THE MAINTENANCE SCHEDULE FOR THE CATCH BASIN SEDIMENT SUMPS IS AS FOLLOWS:
THESE DEVICES SHALL BE INSPECTED IN APRIL AND OCTOBER OF EACH YEAR. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE CATCH BASIN WHEN THE DEPTH OF THE SEDIMENT IS GREATER THAN ONE FOOT. THE SEDIMENT WILL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
8. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION/SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS BASED UPON ANY THIRD PARTY REVIEW (ie MDEP) MAY RESULT IN MONETARY PENALTIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
9. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED AND SEEDED, UNLESS OTHERWISE DIRECTED BY THE OWNER.
10. ALL DISTURBED AREAS ARE TO RECEIVE A MINIMUM OF 4" OF TOPSOIL PRIOR TO PERMANENT SEEDING.

LAND COVER CALCULATIONS			
	EXISTING*	PROPOSED*	NET INCREASE
LIMITS OF DISTURBANCE IN SQUARE FEET AND ACRES	221,279 SF (5.08 ACRES)	288,625 SF (6.63 ACRES)	67,346 SF (1.55 ACRES)
PERVIOUS LAND COVER SQUARE FOOTAGE, EXISTING AND PROPOSED	165,359 SF (3.80 ACRES)	190,233 SF (4.37 ACRES)	24,874 SF (0.57 ACRES)
IMPERVIOUS LAND COVER SQUARE FOOTAGE (PAVEMENT/GRAVEL) EXISTING AND PROPOSED	32,736 SF (0.75 ACRES)	54,663 SF (1.25 ACRES)	21,927 SF (0.50 ACRES)
BUILDING ROOF SQUARE FOOTAGE, EXISTING AND PROPOSED	25,353 SF (0.58 ACRES)	45,898 SF (1.05 ACRES)	20,545 SF (0.47 ACRES)

* EXCLUDES AREAS WITHIN PARK VIEW COURT RIGHT-OF-WAY.

CITY OF BIDDEFORD PLANNING BOARD SITE PLAN APPROVAL

CHAIRMAN _____

DATE _____

COVER SHEET SUBMITTAL REQUIREMENTS	
F-ZONE INFORMATION:	RESIDENTIAL 3 (R3)
F-SHORELAND ZONE INFORMATION:	LIMITED RESIDENTIAL (LR)
G-EXISTING USE:	RESIDENTIAL
H-PROPOSED USE:	RESIDENTIAL
J-WATERSHED:	SACO RIVER
K-WITHIN THE MS4 URBANIZED AREA	YES
L-NATURAL RESOURCES (STREMS, WETLANDS, ETC) LOCATED ON-SITE OR ADJACENT TO THE PROPERTY	YES
M-WITHIN THE 100-YEAR FLOOD ZONE	YES
N-PUBLIC ROAD PROPOSED	NO
O-PRIVATE ROAD PROPOSED	NO
P-PUBLIC SEWER CONNECTION	YES
Q-PUBLIC STORM DRAIN CONNECTION	NO

UTILITIES

WATER:

MAINE WATER COMPANY
466 SOUTH STREET
BIDDEFORD, MAINE 04005
ATTN: MARCUS KNIPP

SEWER & STORM DRAIN:

CITY OF BIDDEFORD
205 MAIN STREET
BIDDEFORD, MAINE 04005
CONTACT: TOM MILLIGAN

ELECTRIC:

CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
(207) 242-4092
CONTACT: JAY AGRESTE

TELEPHONE:

CONSOLIDATED COMMUNICATIONS
5 DAVIS FARM ROAD
PORTLAND, MAINE 04103
(207) 797-1866

CABLE:

TIME WARNER CABLE
118 JOHNSON ROAD
PORTLAND, MAINE 04102
(207) 775-3431
CONTACT: MARK PELLETIER

CONSULTANTS LIST:

CIVIL ENGINEER:

GORRILL PALMER CONSULTING ENGINEERS, INC.
300 SOUTHBOROUGH DRIVE, SUITE 200
SOUTH PORTLAND, MAINE 04106
(207) 772-2515
CONTACT: DOUG REYNOLDS, P.E.
dreynolds@gorrillpalmer.com

SURVEYOR (TOPOGRAPHY AND BOUNDARY)

OWEN HASKELL, INC.
390 US ROUTE 1, UNIT 10
FALMOUTH, ME 04105
(207) 774-0424
CONTACT: RANDY LOUBIER, PLS

WETLANDS:

FLYCATCHER, LLC
106 LAFAYETTE STREET, SUITE 2A
YARMOUTH, ME 04096
(207) 217-0859
CONTACT: RICH JORDAN
RICH@FLYCATCHERLLC.COM

LANDSCAPE ARCHITECT:

LONG MEADOW PLANNING & LANDSCAPE ARCHITECTURE
(207) 604-4245
CONTACT: CHRISTOPHER DIMATTEO
CDIMATTEO@LONGMEADOWPLA.COM

ARCHITECT

ARCHETYPE ARCHITECTS
48 UNION WARE
PORTLAND, ME, 04101
(207) 772-6022
CONTACT: MICHAEL COYNE
COYNE@ARCHETYPEPA.COM

PERMITS

TYPE OF PERMIT

GOVERNING BODY

STATUS

MAJOR SITE PLAN APPLICATION

CITY OF BIDDEFORD
205 MAIN STREET
BIDDEFORD, MAINE 04005
(207) 571-0700

SUBMITTED:

-

PETITION FOR REDISTRICTING

SACO RIVER CORRIDOR COMMISSION
81 MAPLE STREET
P.O. BOX 283
CORNISH, MAINE 04020

RECEIVED

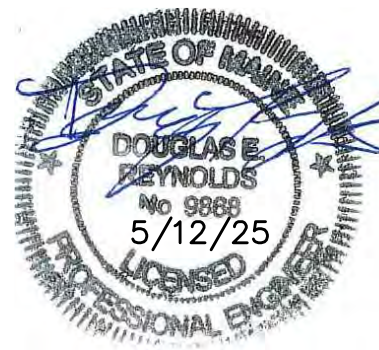
NRPA TIER II PERMIT
STORMWATER PBR

MAINE DEPARTMENT OF
ENVIRONMENTAL PROTECTION
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300

ANTICIPATED SUBMITTAL:
MAY 2025

CALL BEFORE YOU DIG
1-888-344-7233

NOTE: THIS PLAN SET IS ISSUED FOR
PERMITTING PURPOSES AND SHALL
NOT BE USED FOR CONSTRUCTION.



Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: NTS	Job No.: 4323
File Name: 4323-COVER.dwg		
This plan shall not be modified without written permission from Gorrill Palmer. Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to Gorrill Palmer.		

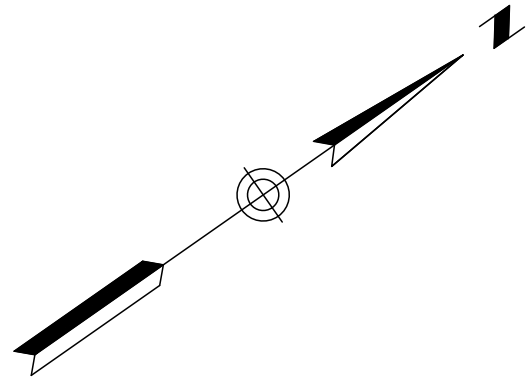


Relationships, Responsiveness. Results.
www.gorrillpalmer.com
207.772.2515
300 Southborough Drive - Suite 200
South Portland, ME 04106

Drawing Name:	Cover Sheet, General Notes, & Legend
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.

C001



PARK VIEW COURT RIGHT OF WAY LINE & CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	159.00'	124.69'	121.52'	N13°40'56"E	44°55'57"
C2	25.00'	39.64'	35.62'	N09°16'53"W	90°51'21"
C3	75.00'	176.71'	138.58'	S77°12'01"E	134°59'47"
C4	50.00'	39.27'	38.27'	S32°12'08"E	45°00'00"
C5	75.00'	118.93'	106.86'	S09°16'53"E	90°51'21"
C6	109.00'	85.49'	83.31'	S13°40'56"W	44°55'57"

LINE	BEARING	DISTANCE
L1	N08°47'03"W	66.57'
L2	N36°09'07"E	130.89'
L3	N54°42'08"W	410.00'
L4	N35°17'52"E	75.00'
L5	S09°42'08"E	89.64'
L6	S54°42'08"E	183.23'
L7	S36°09'07"W	130.89'
L8	S08°47'03"E	66.80'

TAX MAP 32 LOT 1-1
N/F
RICHARD J. & SHARON
J. ROUSSELLE
3631/310

AREA =
442,014 S.F. ±
10.15 ACRES ±
(EXCLUDING PARK VIEW
COURT RIGHT OF WAY)

SMH RM=60.11
INV. OUT=55.96

RM=59.40
15"OMP INV. IN(A)=54.37
15"OMP INV. IN(B)=54.75
15"OMP INV. OUT=54.58

RM=60.73
15"RPP INV. IN=56.29
15"OMP INV. IN=56.18
15"OMP INV. OUT=54.74

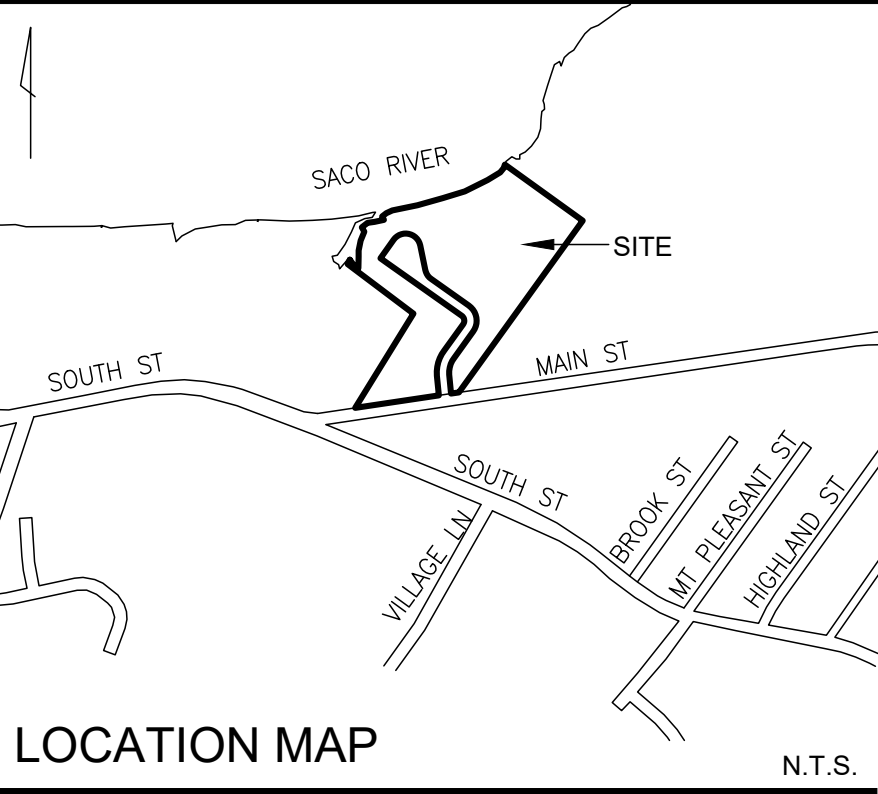
BENCHMARK: BONNET
BOLT HYDRANT
ELEVATION=63.48

RM=59.28
INV. OUT=57.08

RM=60.76
15"RPP INV. IN=56.39
10"CI INV.=54.12
10"CI INV.=53.90

RM=60.70
15"RPP INV. IN=55.80
15"RPP INV. OUT=55.64

RM=61.36
10"CI INV.=54.12
10"CI INV.=53.90



LEGEND

- IRON PIPE OR ROD FOUND
- UTILITY POLE
- MANHOLE
- ELECTRIC METER
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- DECIDUOUS TREE
- WETLAND
- FENCE
- EDGE OF WETLAND
- CURB
- OVERHEAD WIRES
- WATER LINE
- GAS LINE
- STORM DRAIN
- SANITARY SEWER
- 1' CONTOUR
- WOODS LINE
- IRON PIPE/ROD FOUND CONCRETE

EDGE OF SACO RIVER TAKEN
FROM EXISTING AERIAL
PHOTOS AND LIDAR DATA

LIMITED RESIDENTIAL ZONE

FLOOD ZONE A
0.2% ANNUAL CHANCE

0.2% ANNUAL CHANCE
FLOOD ZONE X

R3 ZONE

TAX MAP 32 LOT 2
N/F
CITY OF BIDDEFORD
ROTARY PARK
240/245

GENERAL NOTES

- OWNER OF RECORD: FOREST GREEN ASSOCIATES, LTD.
P.O. BOX 759, SACO, ME 04072
TAX MAP 32 LOT 1
Y.C.R.D. BOOK 15854 PAGE 978
- BEARINGS ARE BASED ON STATE PLANE COORDINATE SYSTEM, MAINE WEST ZONE, NAD83 PER GNSS OBSERVATION.
- ELEVATIONS ARE BASED ON NAVD88 PER GNSS OBSERVATION.
- THE PROPERTY IS LOCATED IN TOWN OF BIDDEFORD, ME IN PARTIALLY IN THE R3 RESIDENTIAL ZONE AND PARTIALLY IN THE LIMITED RESIDENTIAL ZONE.
- BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY IN ZONE X, ZONE A, ZONE AE AND ZONE OF 0.2% ANNUAL CHANCE FLOOD HAZARD OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230145 0145 G, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 2024.
- WETLAND DELINEATION AND LOCATIONS PROVIDED BY FLYCATCHER.
- BOUNDARY LINES SHOWN ARE TAKEN FROM PLAN REFERENCE 1.

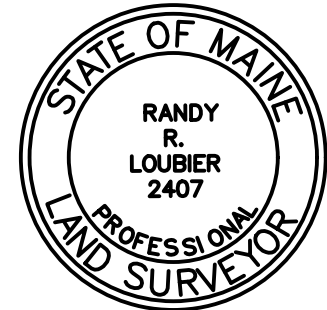
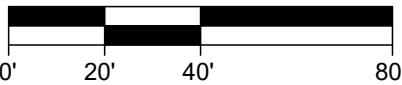
PLAN REFERENCES

- "PLAN OF PROPERTY IN BIDDEFORD, MAINE MADE FOR BIDDEFORD ASSOCIATES "FOREST GREEN APARTMENTS" OCTOBER 9, 1974 REVISED NOV. 12, 1974 BY H.J. & E.C. JORDAN SURVEYORS.
- "ALTA/ACSM LAND TITLE SURVEY (MSHA-RUP-029), 1-6 PARK VIEW COURT, BIDDEFORD, MAINE, OWNER: BIDDEFORD ASSOCIATES, PREPARED FOR PHOENIX MANAGEMENT CO." DECEMBER 7, 2009 BY NORTHEAST CIVIL SOLUTIONS.
- "AS-BUILT SURVEY FOR FOREST GREEN LAND OF BIDDEFORD ASSOCIATES ON MAIN STREET IN BIDDEFORD, MAINE" DATED 11/29/1976 RECORDED IN PLAN BOOK 105, PAGE 47.

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

SCALE: 1" = 40'



RANDY R. LOUBIER, PLS #2407

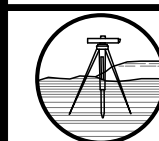
Topographic Survey

At
Park View Court, Biddeford, Maine

Made for

Gorrill Palmer

300 Southborough Dr., South Portland, ME



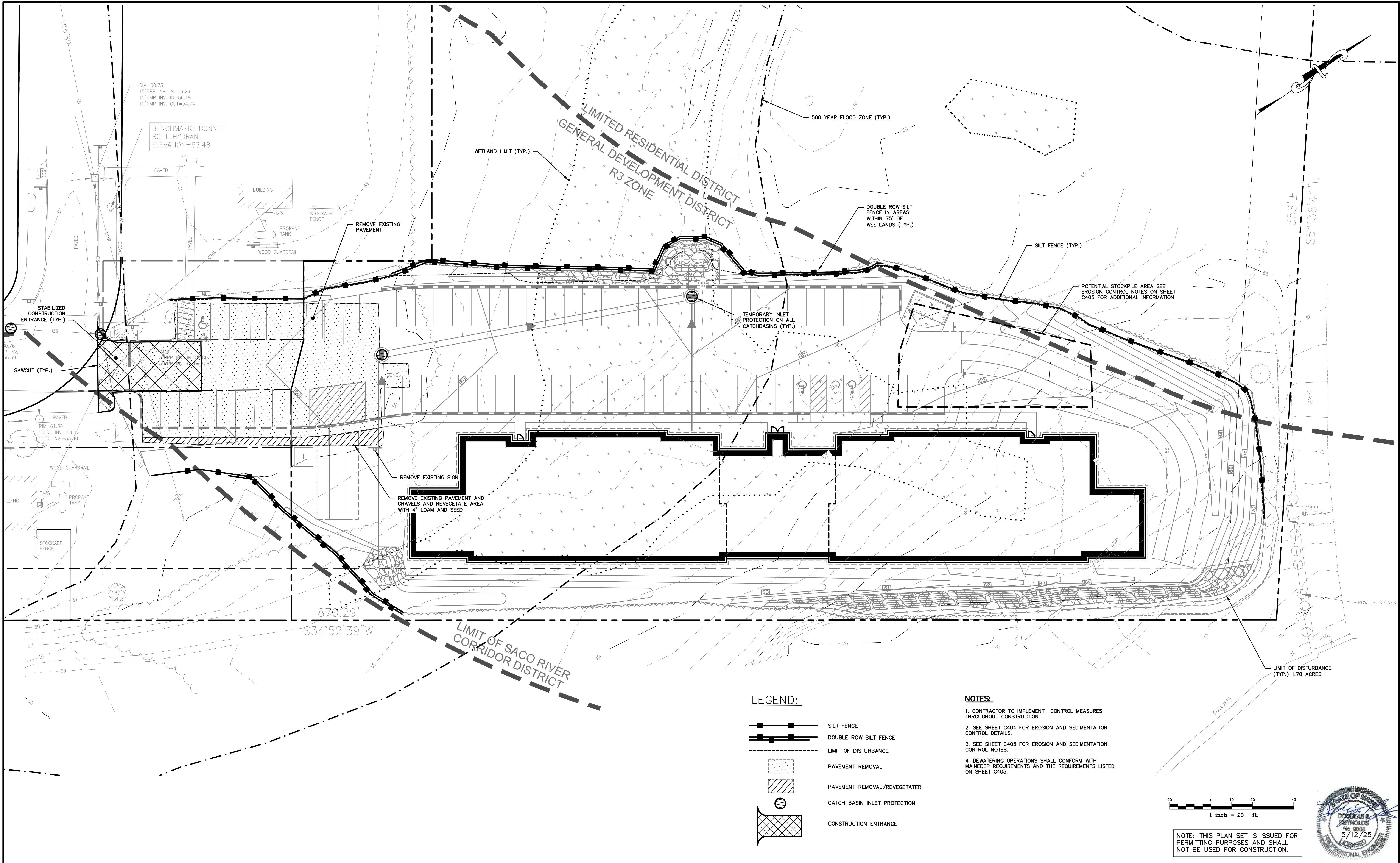
OWEN HASKELL, INC.

PROFESSIONAL LAND SURVEYORS

390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: JLW	DATE: JAN. 5, 2025	JOB NO. 2024-295 B-Y
CHECKED BY: RRL	SCALE: 1" = 40'	DRWG. NO. 1

U:\Bateman Partners\4323-Bateman Partners - Forest Green Apts Expansion - Biddeford\Z - CAD\DWG\4323-DEMO EROS.dwg 5/12/2025 2:55 PM



Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=20'	Job No.: 4323
File Name: 4323-DEMO EROS.dwg		
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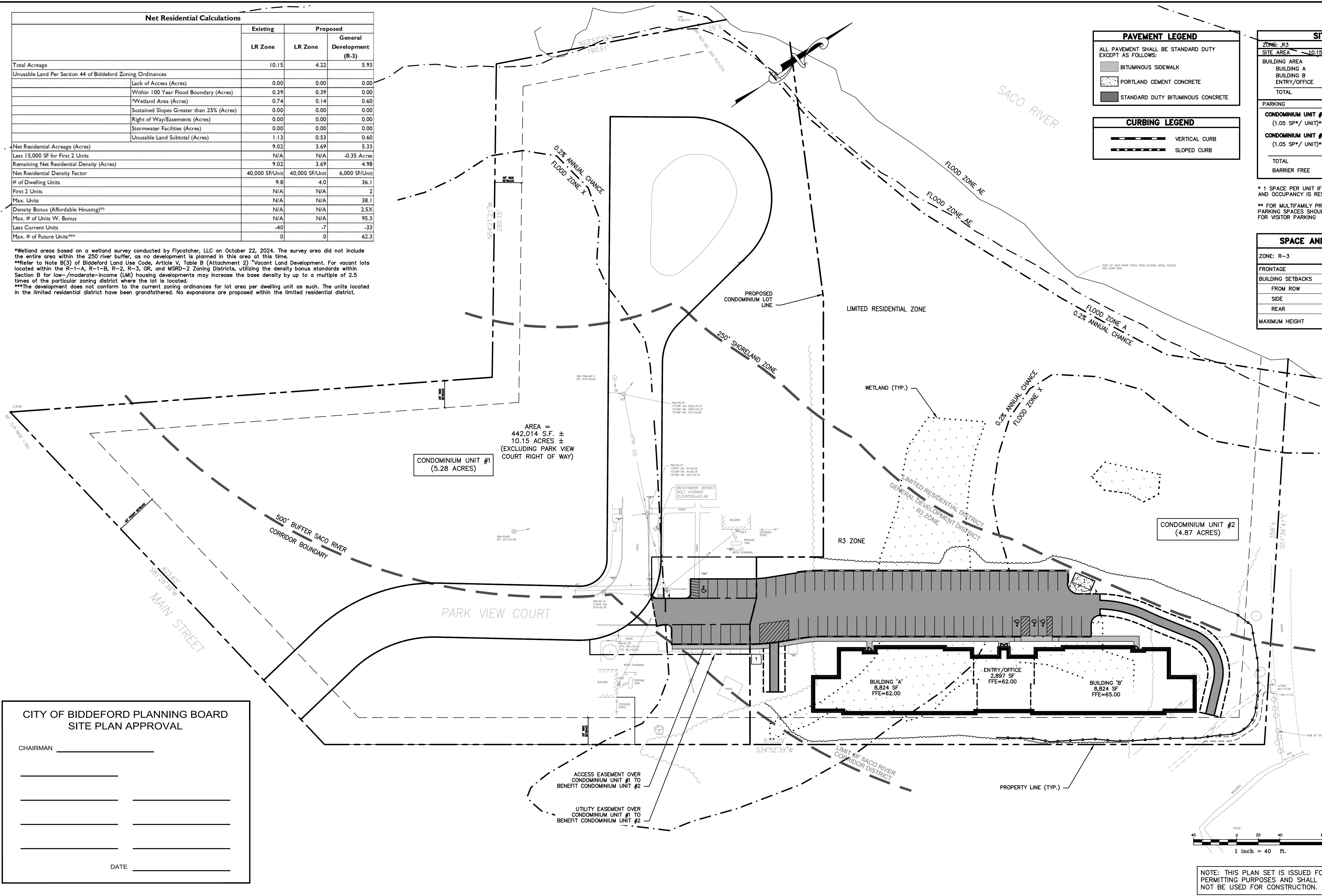
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207.772.2515
300 Southborough Drive - Suite 200
South Portland, ME 04106

Drawing Name:	Site Demolition and Erosion Control Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C002
-------------	------

Net Residential Calculations			
	Existing	Proposed	
	LR Zone	LR Zone	General Development (R-3)
Total Acreage	10.15	4.22	5.93
Unusable Land Per Section 44 of Biddeford Zoning Ordinances			
Lack of Access (Acres)	0.00	0.00	0.00
Within 100 Year Flood Boundary (Acres)	0.39	0.39	0.00
*Wetland Area (Acres)	0.74	0.14	0.60
Sustained Slopes Greater than 25% (Acres)	0.00	0.00	0.00
Right of Way/Easements (Acres)	0.00	0.00	0.00
Stormwater Facilities (Acres)	0.00	0.00	0.00
Unusable Land Subtotal (Acres)	1.13	0.53	0.60
Net Residential Acreage (Acres)	9.02	3.69	5.33
Less 15,000 SF for First 2 Units	N/A	N/A	-0.35 Acres
Remaining Net Residential Density (Acres)	9.02	3.69	4.98
Net Residential Density Factor	40,000 SF/Unit	40,000 SF/Unit	6,000 SF/Unit
# of Dwelling Units	9.8	4.0	36.1
First 2 Units	N/A	N/A	2
Max. Units	N/A	N/A	38.1
Density Bonus (Affordable Housing)**	N/A	N/A	2.5X
Max. # of Units W/ Bonus	N/A	N/A	95.3
Less Current Units	-40	-7	-33
Max. # of Future Units***	0	0	62.3

*Wetland areas based on a wetland survey conducted by Flycatcher, LLC on October 22, 2024. The survey area did not include the entire area within the 250' river buffer, as no development is planned in this area at this time.
**Refer to Note B(3) of Biddeford Land Use Code, Article V, Table B (Attachment 2) "Vacant Land Development. For vacant lots located within the R-1-A, R-1-B, R-2, R-3, OR, and MSO-2 Zoning Districts, utilizing the density bonus standards within Section B for low-/moderate-income (LMI) housing developments may increase the base density by up to a multiple of 2.5 times of the particular zoning district where the lot is located.
***The development does not conform to the current zoning ordinances for lot area per dwelling unit as such. The units located in the limited residential district have been grandfathered. No expansions are proposed within the limited residential district.



PAVEMENT LEGEND	
ALL PAVEMENT SHALL BE STANDARD DUTY EXCEPT AS FOLLOWS:	
	BITUMINOUS SIDEWALK
	PORTLAND CEMENT CONCRETE
	STANDARD DUTY BITUMINOUS CONCRETE

CURBING LEGEND	
	VERTICAL CURB
	SLOPED CURB

SITE DATA		
ZONE: R3		
SITE AREA	10.15 ACRES	
BUILDING AREA		
BUILDING A	8,824 S.F.	
BUILDING B	8,824 S.F.	
ENTRY/OFFICE	2,897 S.F.	
TOTAL	20,545 S.F.	
PARKING	REQUIRED	PROVIDED
CONDOMINIUM UNIT #1		
(1.05 SP* / UNIT)**	42	48
CONDOMINIUM UNIT #2		
(1.05 SP* / UNIT)**	63	63
TOTAL	105	111
BARRIER FREE	4	4

* 1 SPACE PER UNIT IF DESIGNED EXCLUSIVELY FOR, AND OCCUPANCY IS RESTRICTED TO LMI HOUSING
** FOR MULTIFAMILY PROJECT THE NUMBER OF REQUIRED PARKING SPACES SHOULD BE INCREASED 5% TO ALLOW FOR VISITOR PARKING

SPACE AND BULK STANDARDS		
ZONE: R-3	REQUIRED	PROVIDED
FRONTAGE	150 FT	377 FT
BUILDING SETBACKS		
FROM ROW	40 FT	>40 FT
SIDE	25 FT	64.9 FT
REAR	25 FT	27.7 FT
MAXIMUM HEIGHT	3 STORIES	3 STORIES

CITY OF BIDDEFORD PLANNING BOARD SITE PLAN APPROVAL

CHAIRMAN _____

DATE _____

Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=40'	Job No.: 4323
File Name: 4323-SP.dwg		
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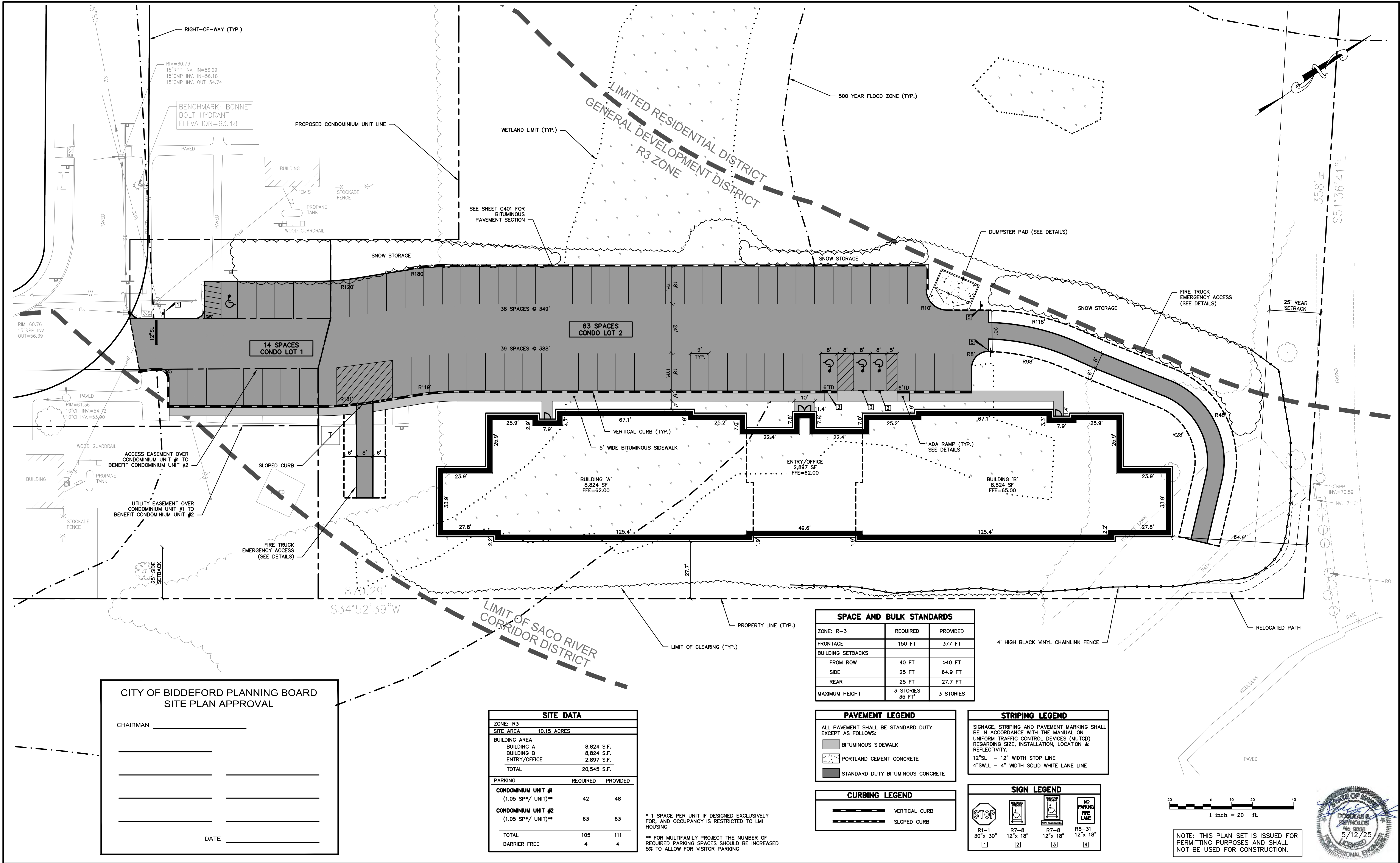


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South Portland, ME 04106

Drawing Name:	Subdivision Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C100
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CITY OF BIDDEFORD PLANNING BOARD
SITE PLAN APPROVAL

CHAIRMAN _____

DATE _____

Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
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LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

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File Name: 4323-SP.dwg		
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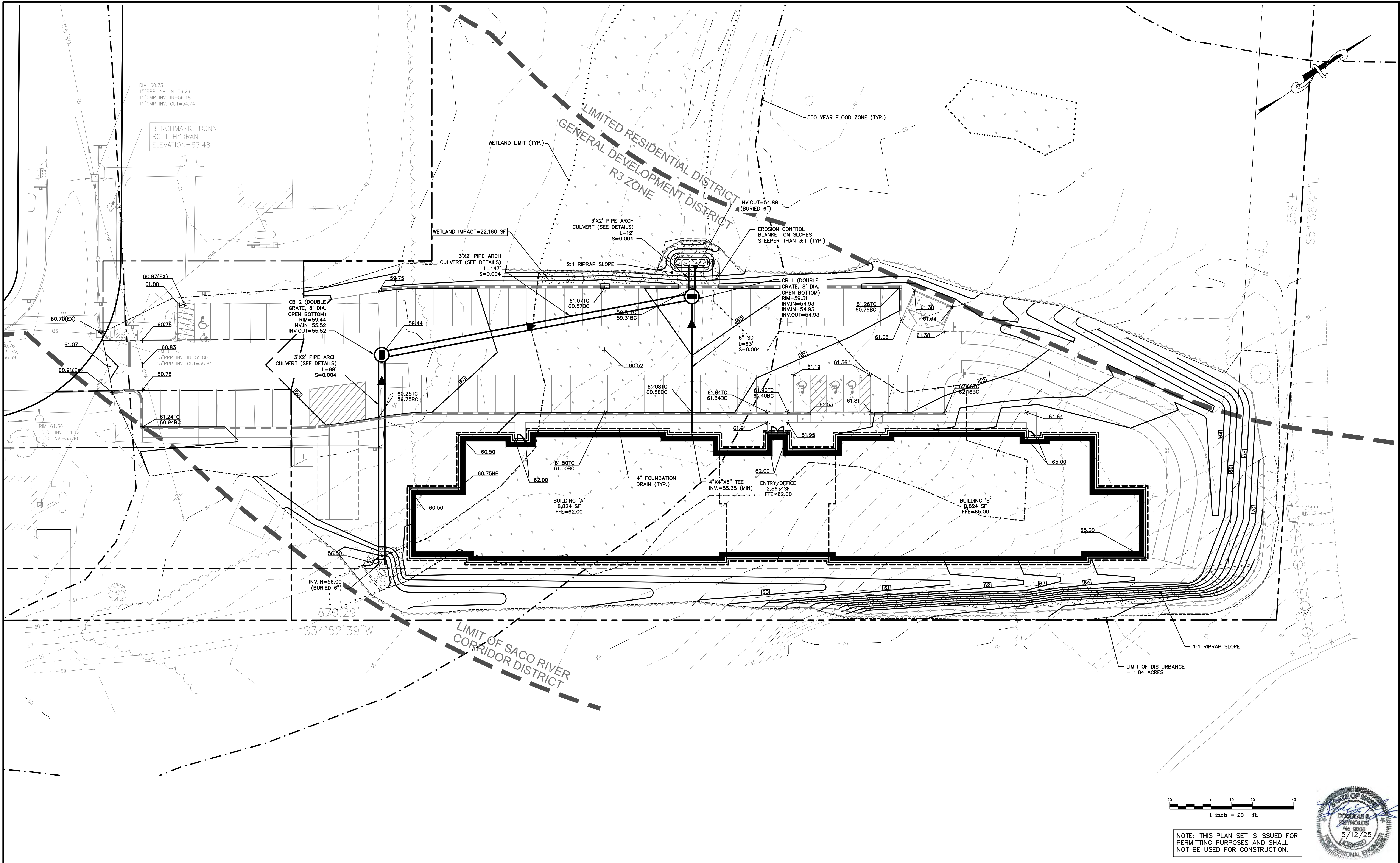
Drawing Name: **Site Plan**

Project: **Forest Green Apartment Expansion**
1 Park View Court, Biddeford, Maine

Client: **Bateman Partners**
470 Fore St., Suite 400, Portland ME 04101

Drawing No. **C101**

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Rev.	Date	Revision

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LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
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File Name: 4323-GRADE.dwg		
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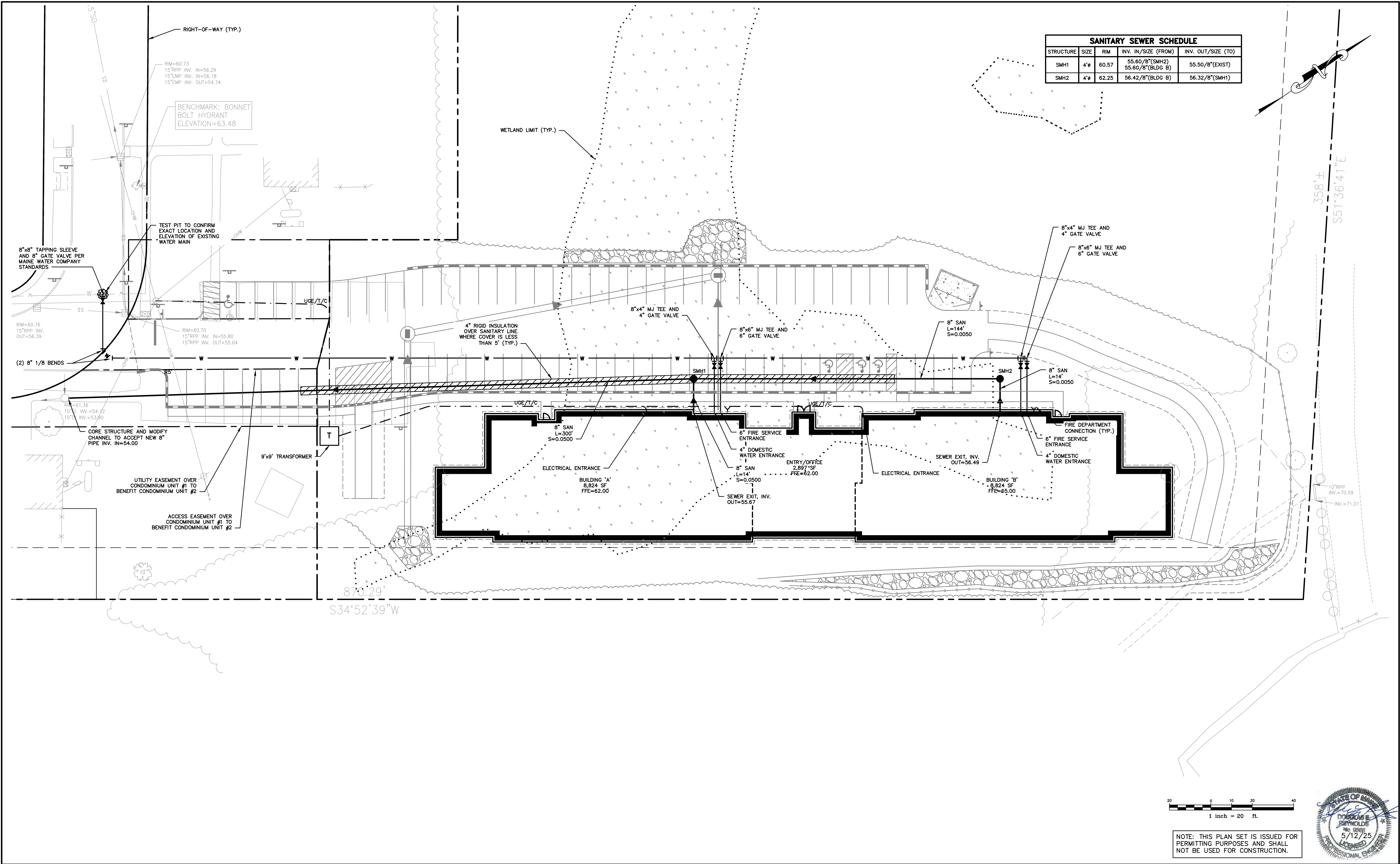


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South Portland, ME 04106

Drawing Name:	Grading and Drainage Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.
C102

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NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: 1"=20'	Job No.: 4323
File Name: 4323-UTILITY.dwg		
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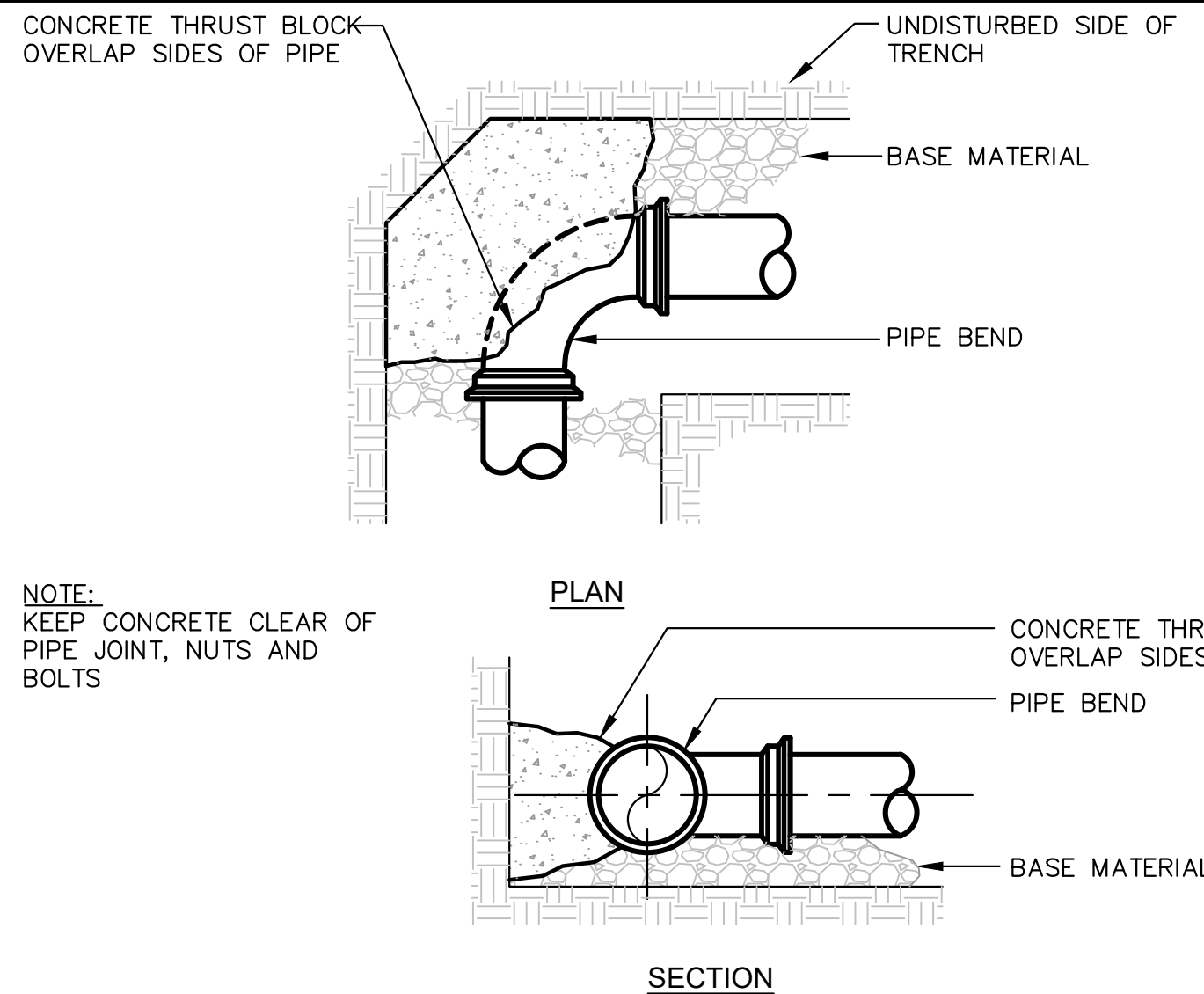
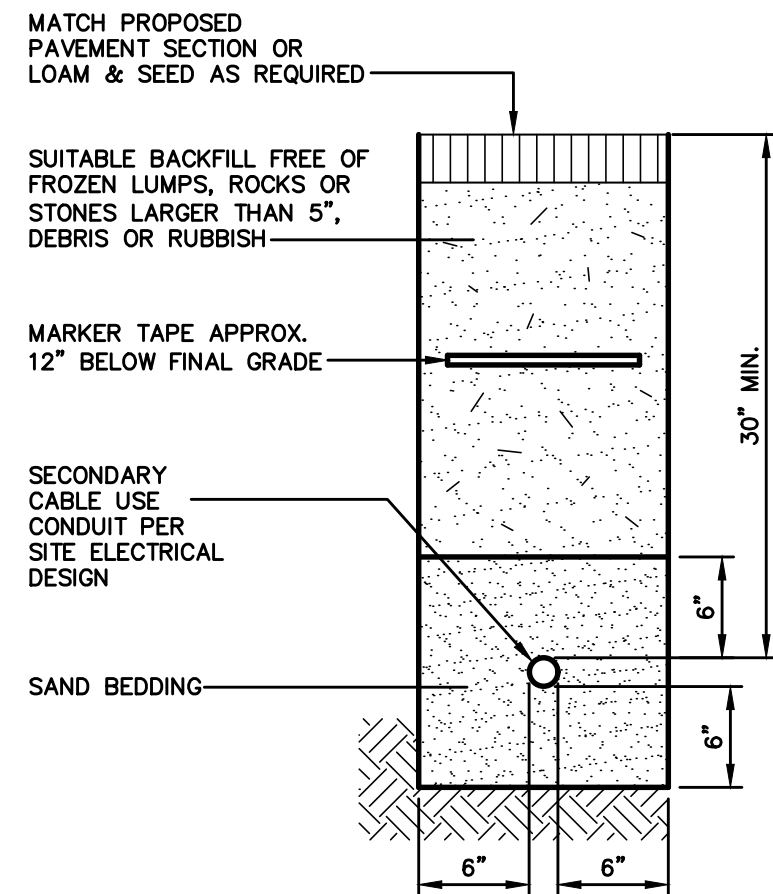
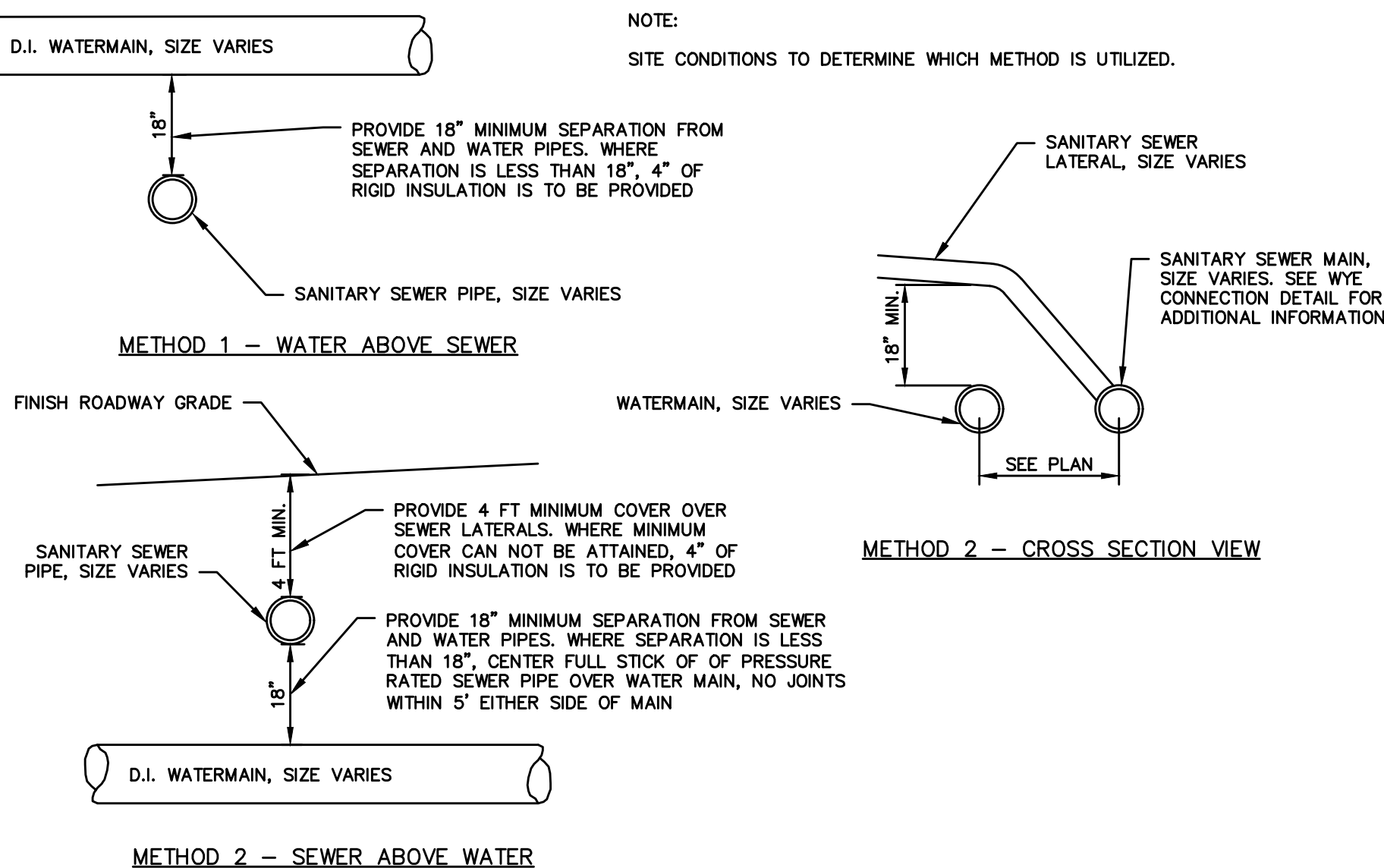
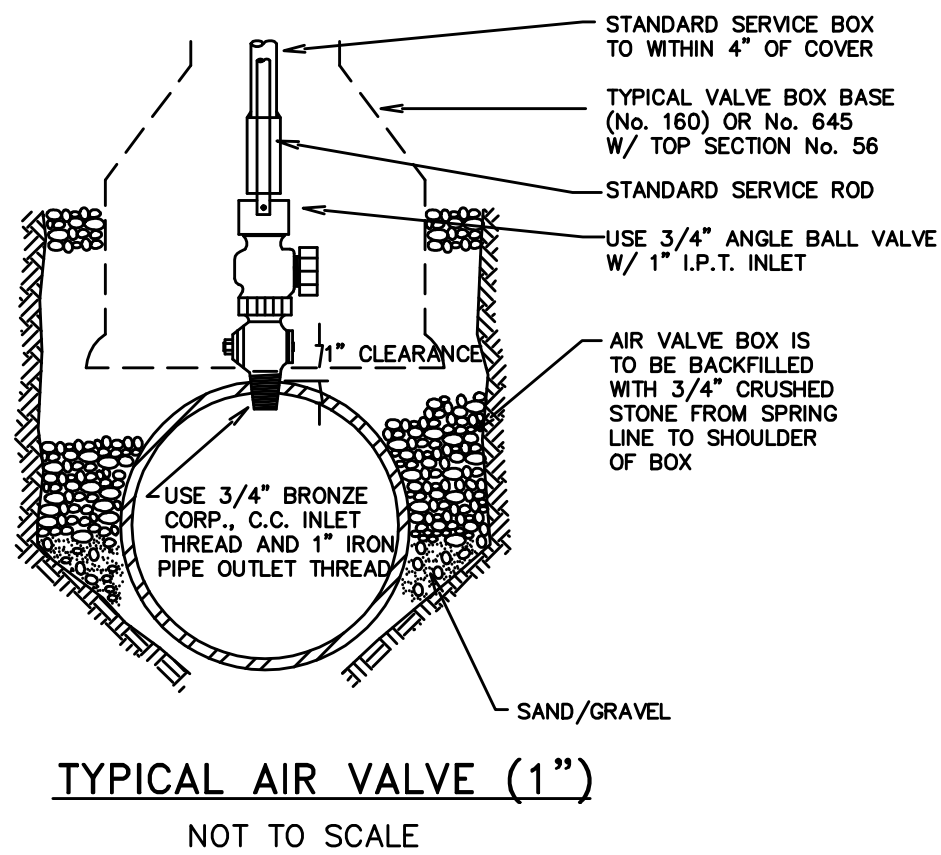


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Drawing Name:	Utility Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C103
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THRUST/RETAINER GLAND SCHEDULE		
1/4 BEND	(45°)	THRUST BLOCK W/ GRIPRING™

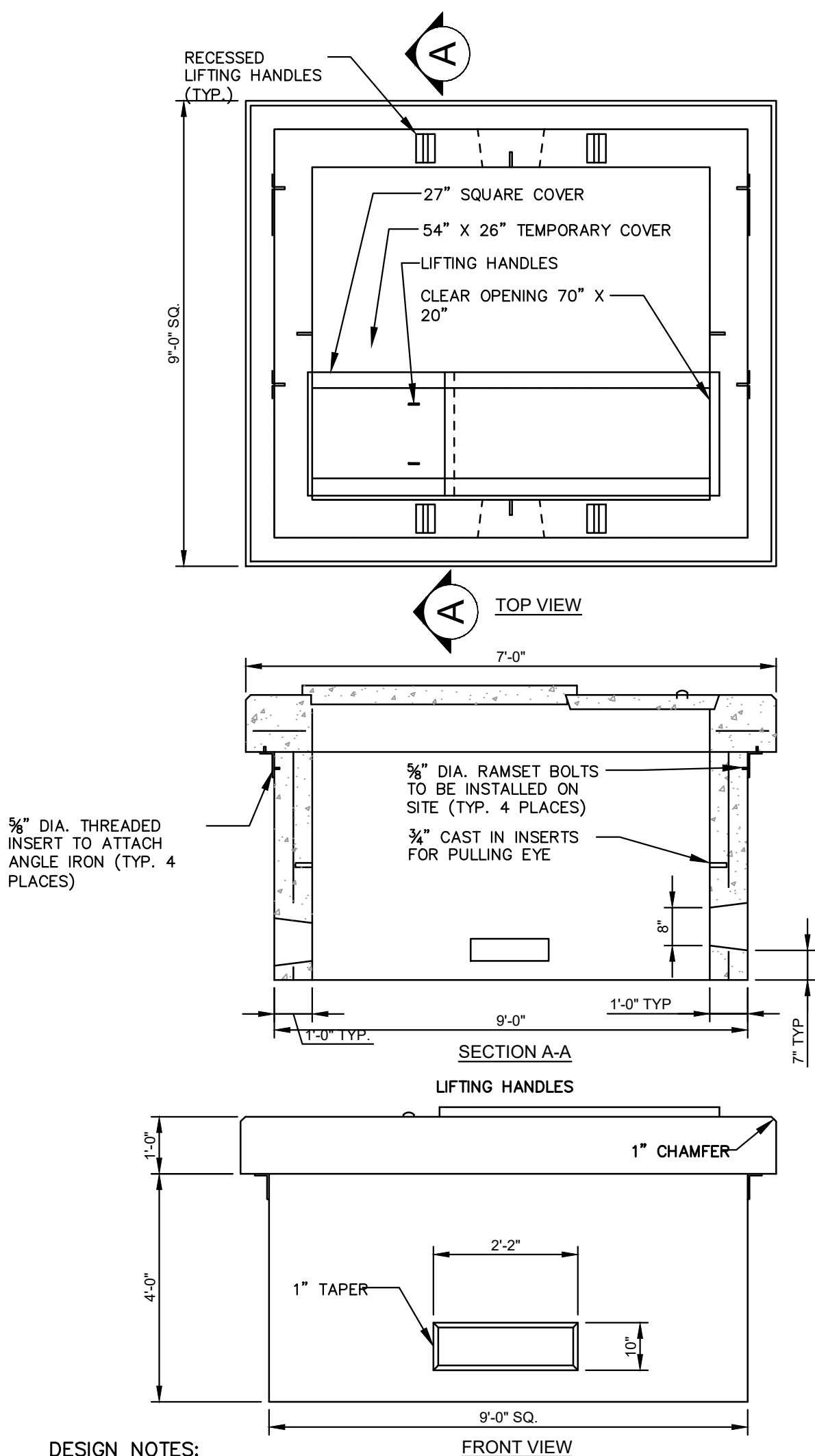
THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

NOTES:

- THE MAINE WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
- FOR WATER MAIN LAYOUT SEE DRAWING C-4.0
- FOR WATER MAIN TRENCH DETAILS SEE DRAWING C402
- REFER TO SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
- ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
- SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

THRUST BLOCK PLACEMENT ON BENDS

NOT TO SCALE



- DESIGN NOTES:
- CONCRETE 4,000 PSI AT 28 DAYS.
 - REINFORCING #4 BARS AT 6" O.C. EACH WAY.
 - DUCT OPENINGS SHOWN ARE TYPICAL AND CAN BE MODIFIED PER REQUEST.
 - CENTRAL MAINE POWER COMPANY SPECIFICATION.
 - TEMPORARY COVER HAS (2) 3/8" THREADED LIFTING INSERTS CAST IN.

NOTE: CONFIRM TRANSFORMER PAD SIZES WITH OWNER AND ELECTRICAL DESIGNER. SITE WORK CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE TRANSFORMER PAD.

TRANSFORMER PAD

N.T.S.

SCHEDULE OF TRENCH BACKFILL		
TYPE OF PIPE	EMBEDMENT MATERIAL	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC-SDR 35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
PERFORATED PVC-SDR35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

- NOTE:
- BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES, 12" BELOW FINISH GRADE.

- (1) COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION.

IN-SITU CONDITION	ALLOWABLE
BEDROCK	3,000 psf
SAND OR OUTWASH DEPOSITS	1,500 psf
OTHER SOILS	1,000 psf

THE THRUST SHALL BE COMPUTED ON THE BASIS OF 150 psi x THE CROSS SECTIONAL AREA OF THE PIPE. FOR EXAMPLE, A THRUST BLOCK FOR A 1/4 BEND ON AN 8" WATER MAIN BEARING AGAINST CLAY WOULD REQUIRE A BEARING SURFACE OF 7.5 s.f.

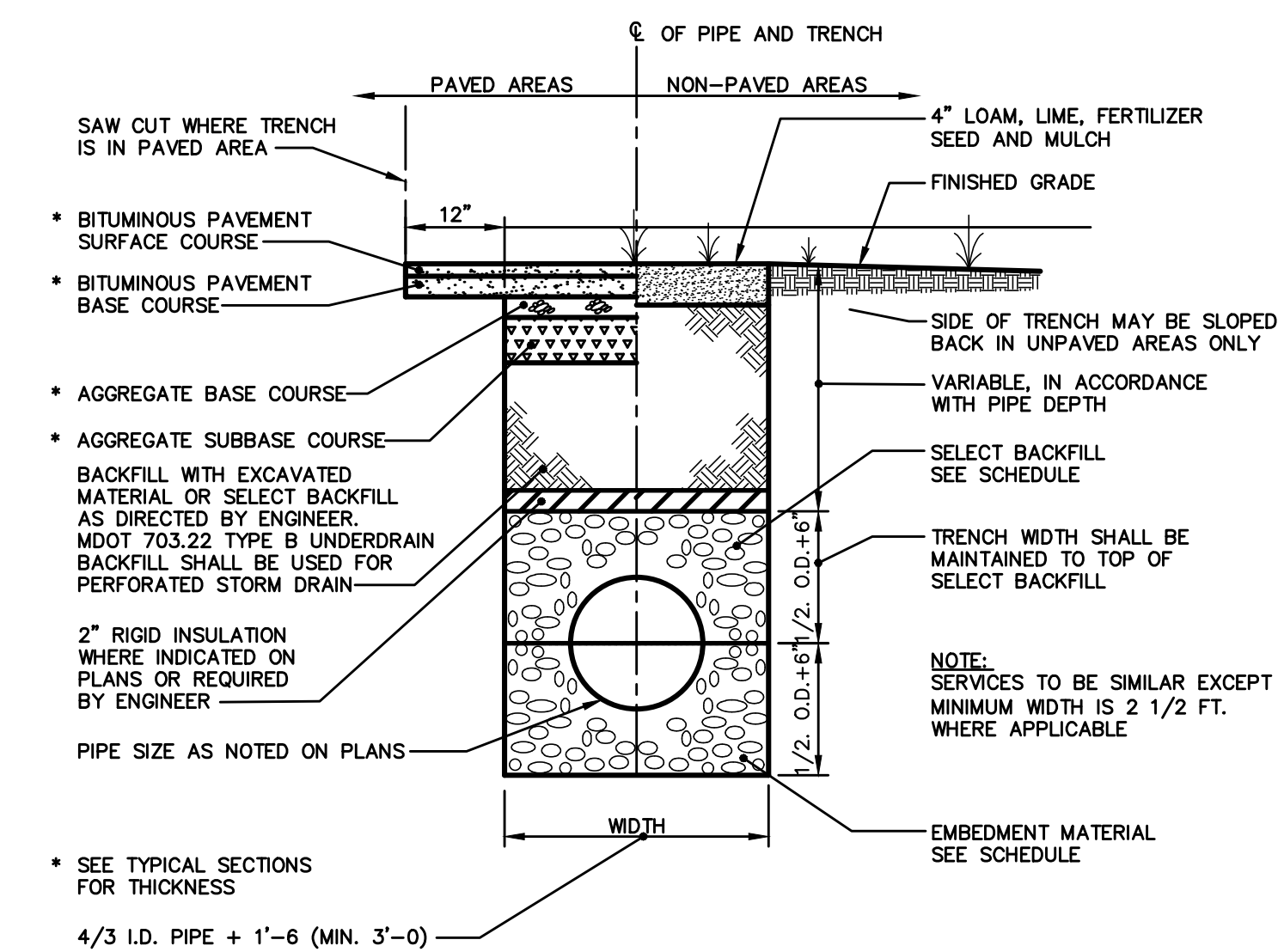
$$150 \text{ psi} \times 50 \text{ sq. in.} = 7.5 \text{ s.f.}$$

1,000 psf

- INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
- ANY WORK RELATED TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE MAINE WATER COMPANY SPECIFICATIONS.

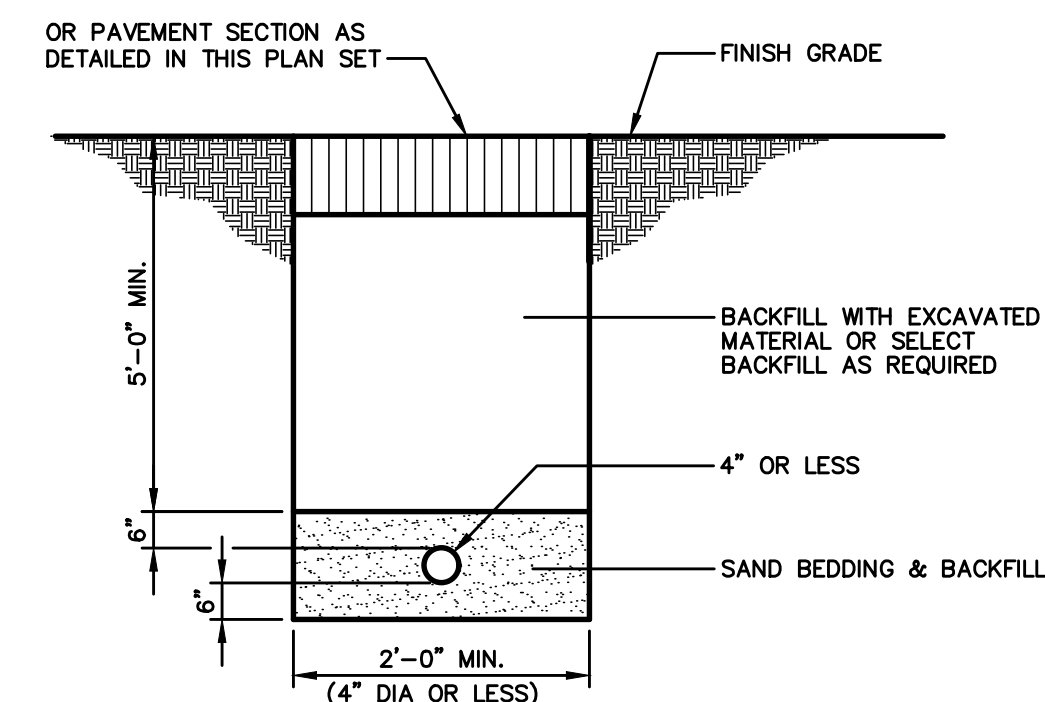
THRUST BLOCK NOTES

MINIMUM COVER	PIPE
2'-0"	DRAIN (1)
5'-5"	WATER
5'-0"	SEWER



TRENCH SECTION

N.T.S.



SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

WATER SERVICE TRENCH SECTION

NOT TO SCALE



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

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Issued For	Date	By

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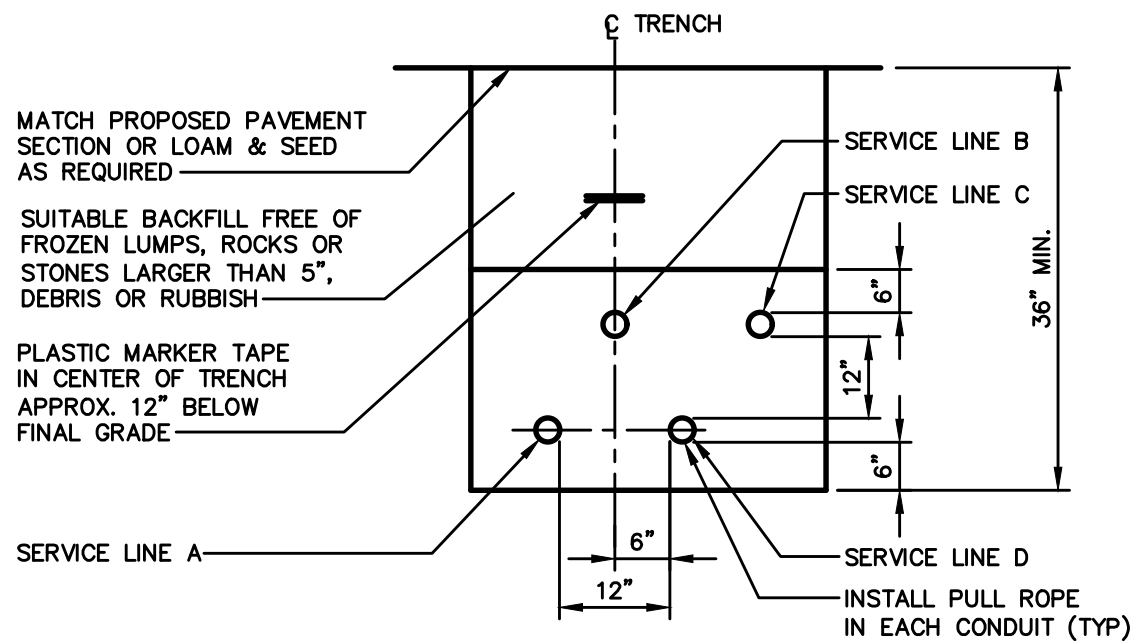
Drawing Name:	Utility Details
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C402
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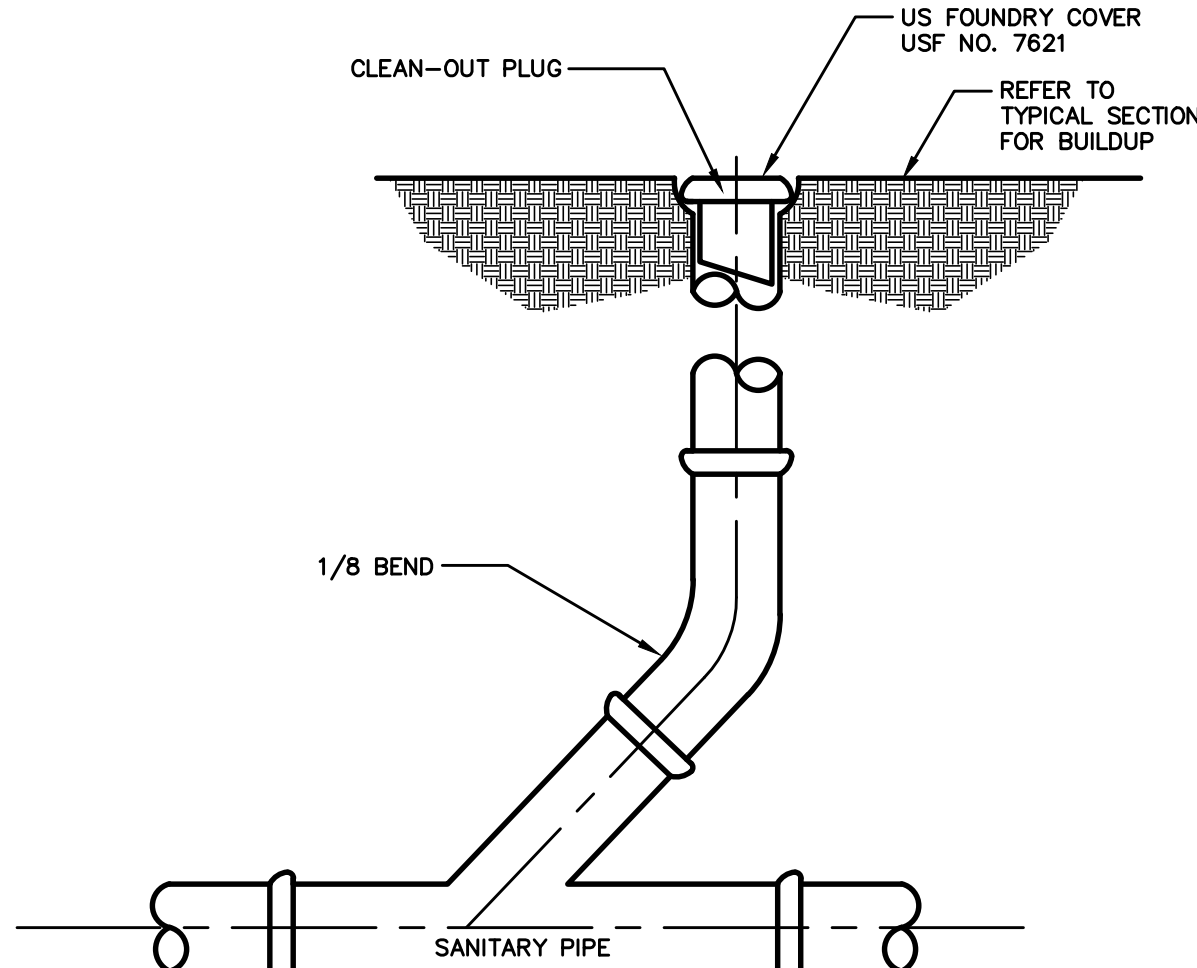
CONDUIT TYPE SCHEDULE				
SERVICE	CONDUIT SIZE	GRASS & PAVED AREAS	UTILITY	REMARKS
A	2-5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE
B	2-4"	SCHEDULE 40	TELEPHONE	SEE NOTE
C	2-4"	SCHEDULE 40	CABLE	SEE NOTE
D	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARES	SEE NOTE

NOTE:
ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.



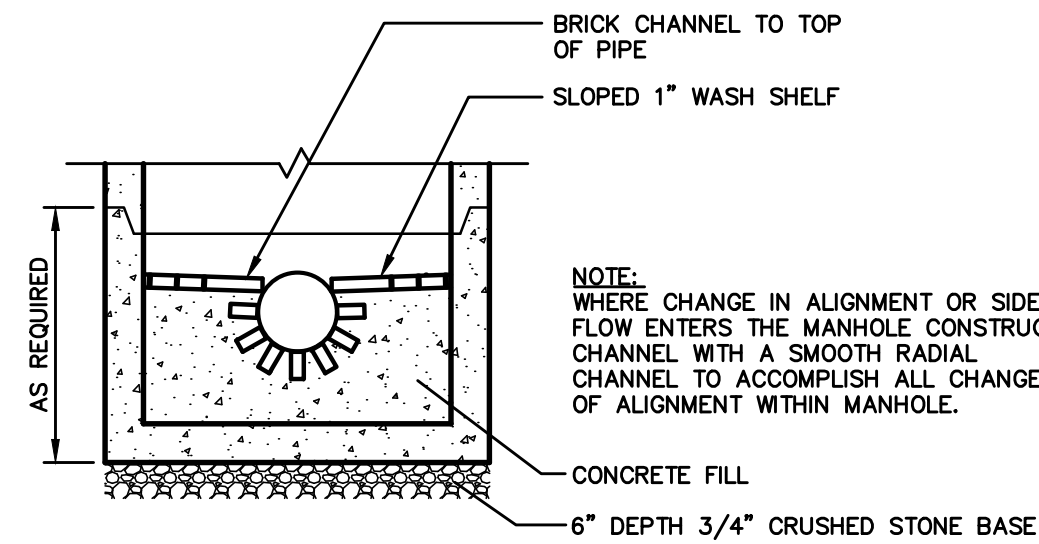
UTILITY TRENCH – PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE



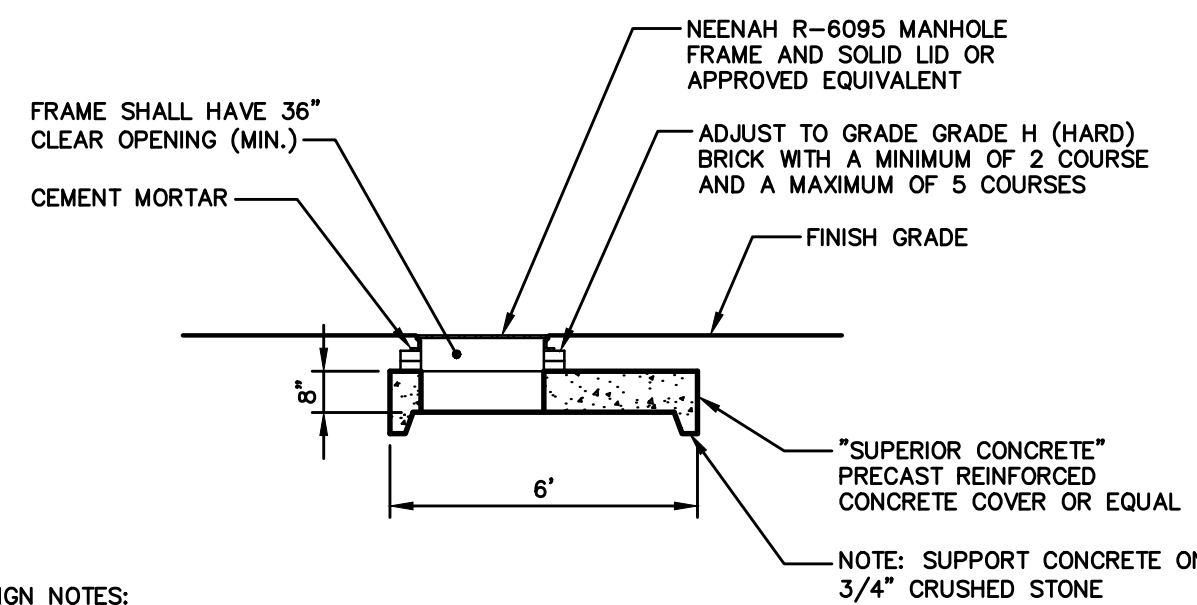
CLEANOUT

NOT TO SCALE



SANITARY SEWER MANHOLE BRICK CHANNEL INSTALLATION

NOT TO SCALE



DESIGN NOTES:

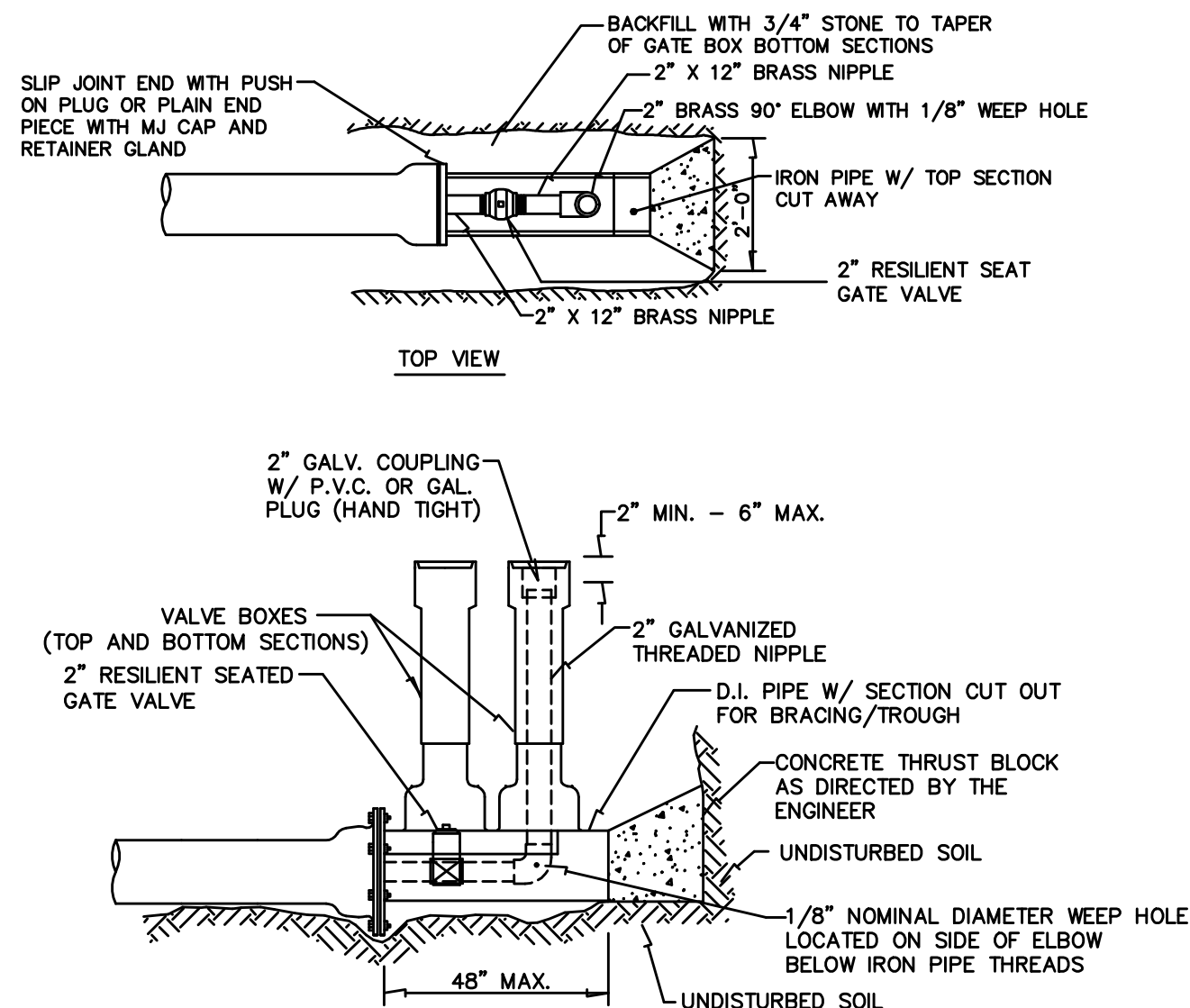
- ALL CONCRETE TO HAVE A MINIMUM OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
- REINFORCE TO 0.12 IN SQ./LF.

NOTE:

- USE FLAT TOP FOR GEOTHERMAL VAULT ACCESS MANHOLE COVER.

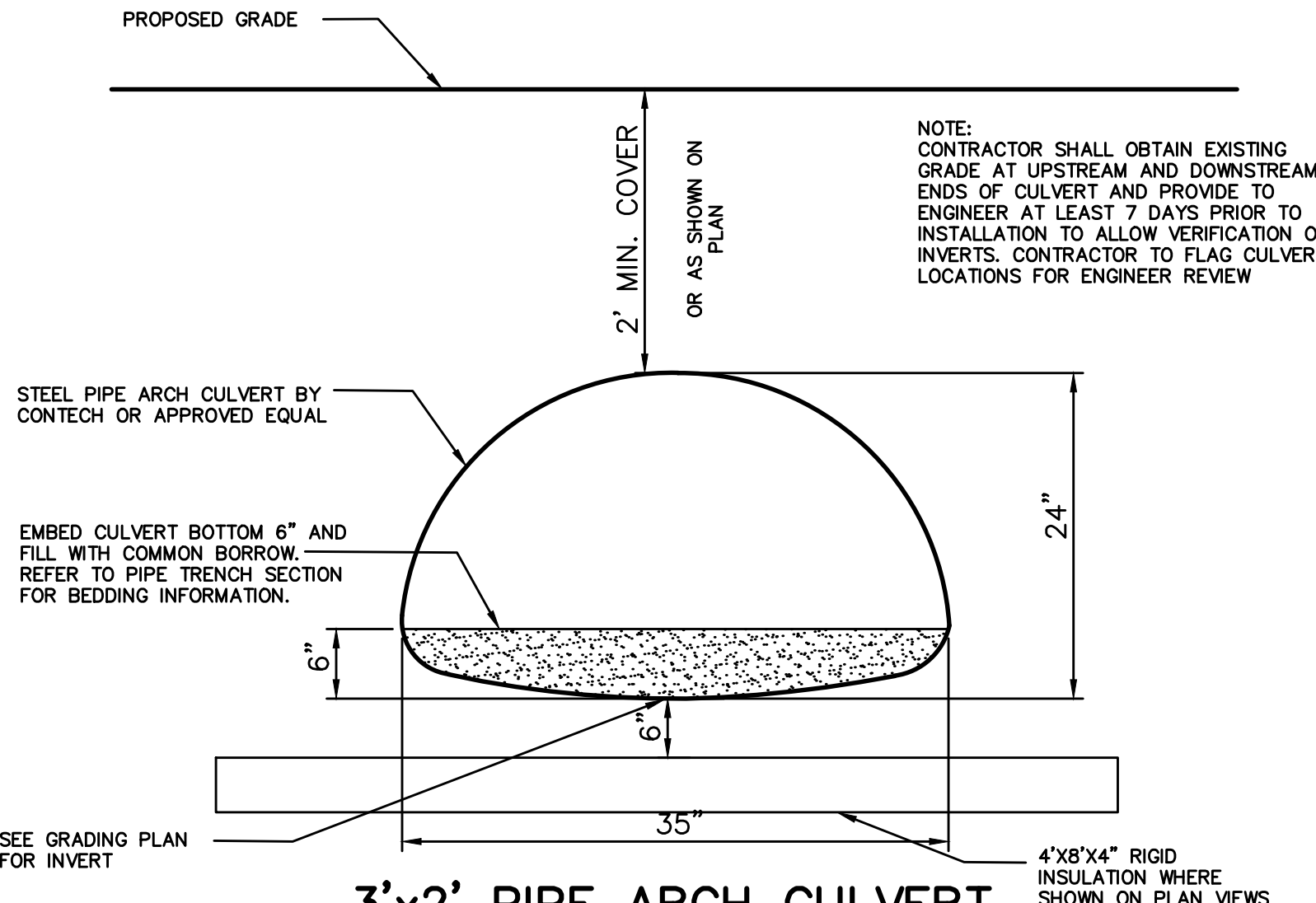
LARGE DIAMETER FLAT TOP DETAIL

NOT TO SCALE



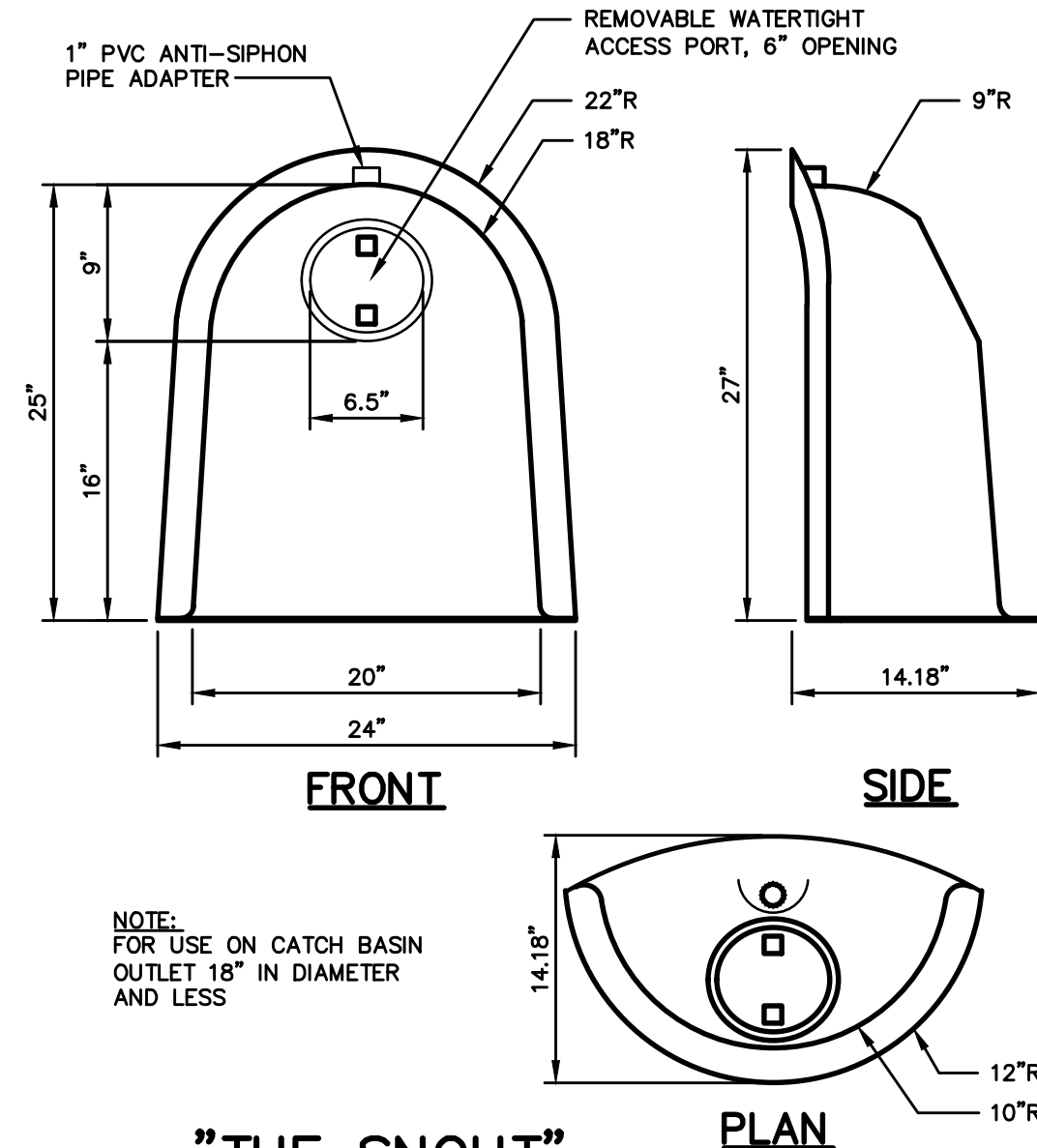
STANDARD 2" BLOW OFF

NOT TO SCALE



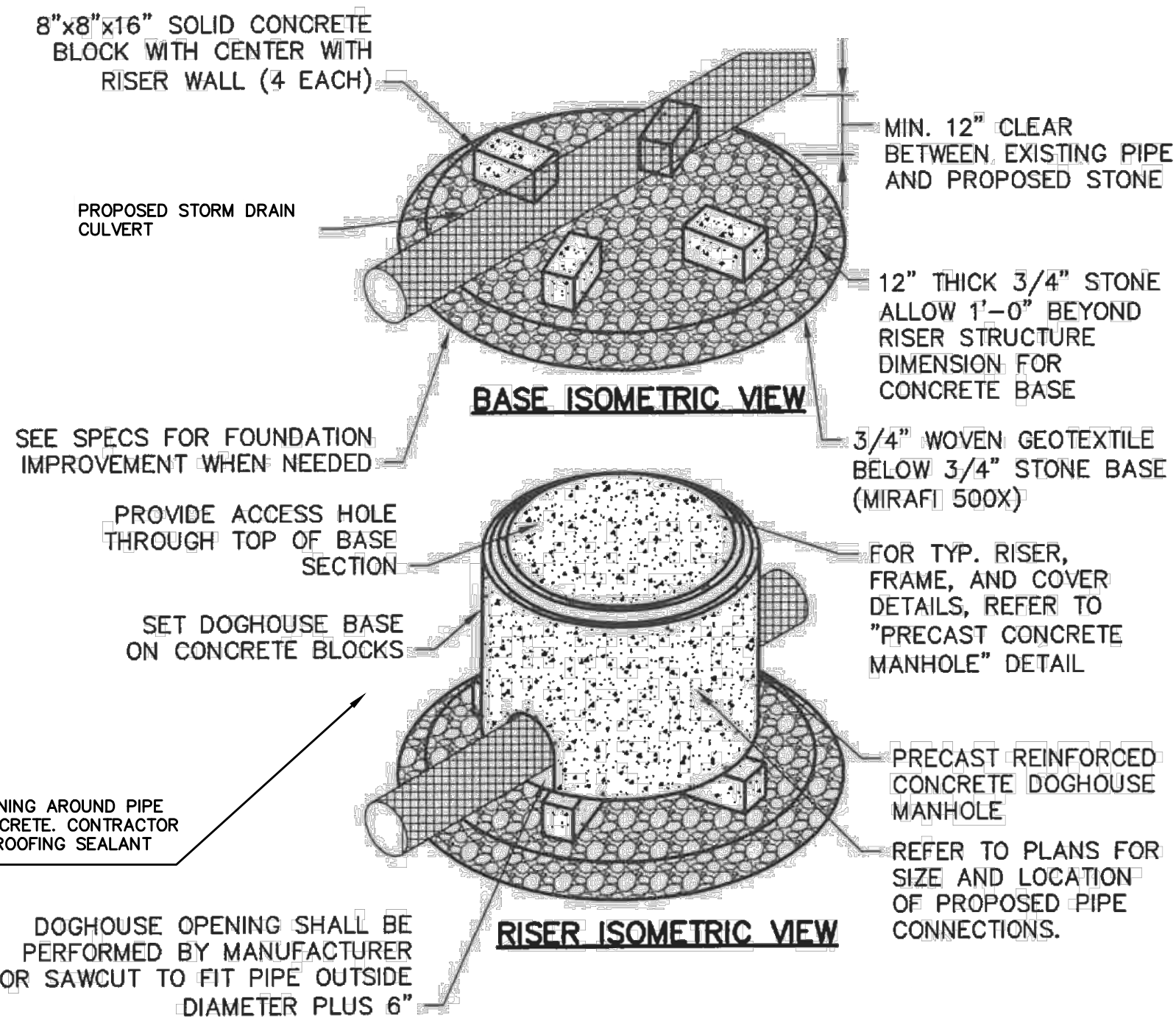
3'x2' PIPE ARCH CULVERT

NOT TO SCALE



"THE SNOOT"

NOT TO SCALE



FILL DOGHOUSE OPENING AROUND PIPE WITH 3,000 PSI CONCRETE. CONTRACTOR TO APPLY WATER PROOFING SEALANT AT JOINT.

DOGHOUSE OPENING SHALL BE PERFORMED BY MANUFACTURER OR SAWCUT TO FIT PIPE OUTSIDE DIAMETER PLUS 6"

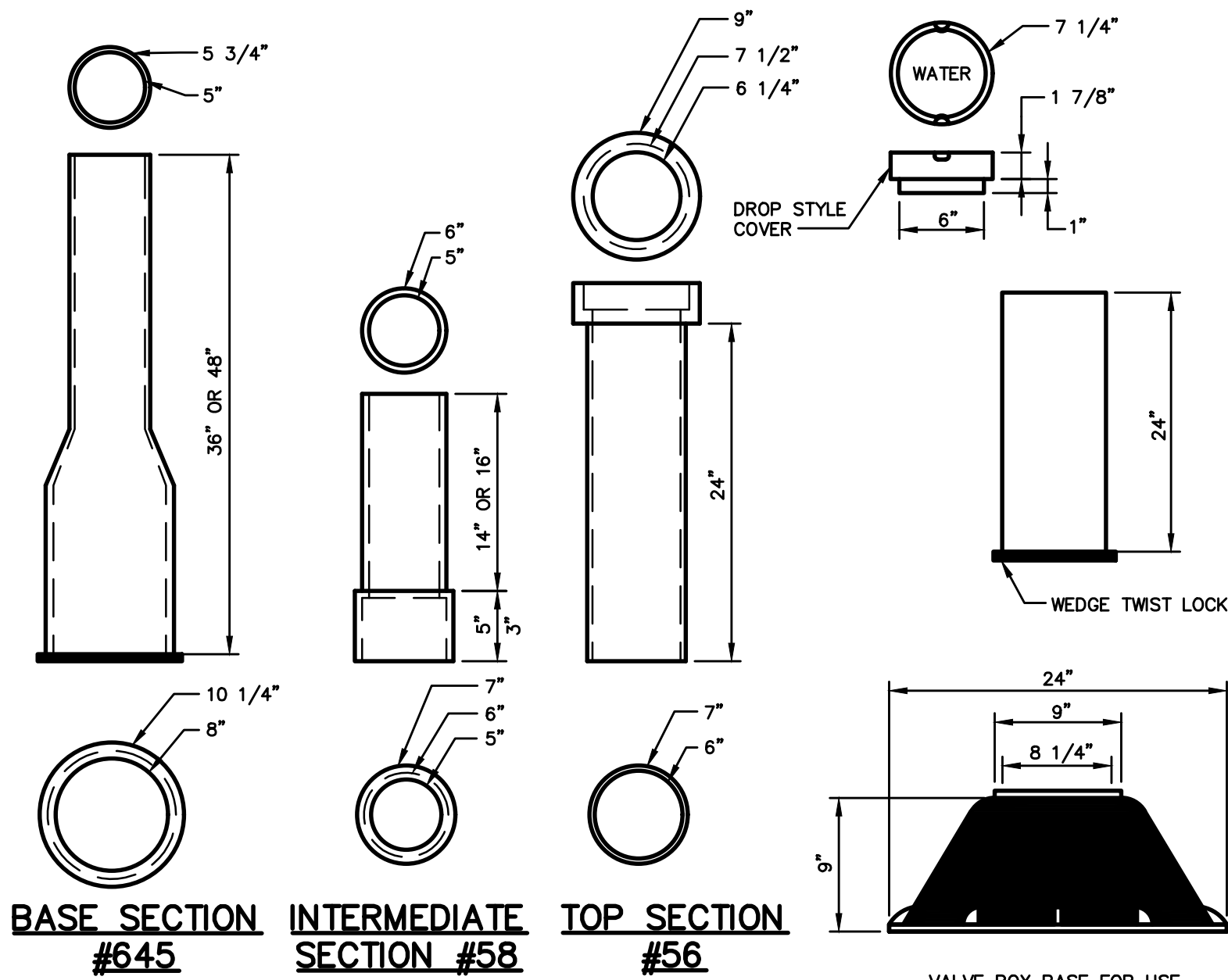
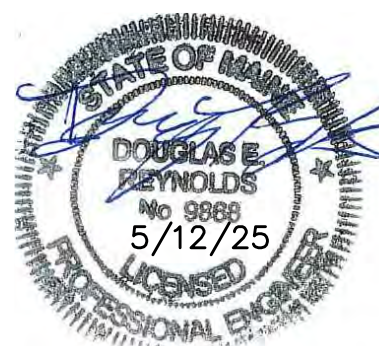
NOTE:

- ALL CONCRETE SHALL HAVE A MINIMUM OF 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- DESIGN LOAD FOR H-20 WHEEL LOAD.

OPEN BOTTOM CATCH BASIN

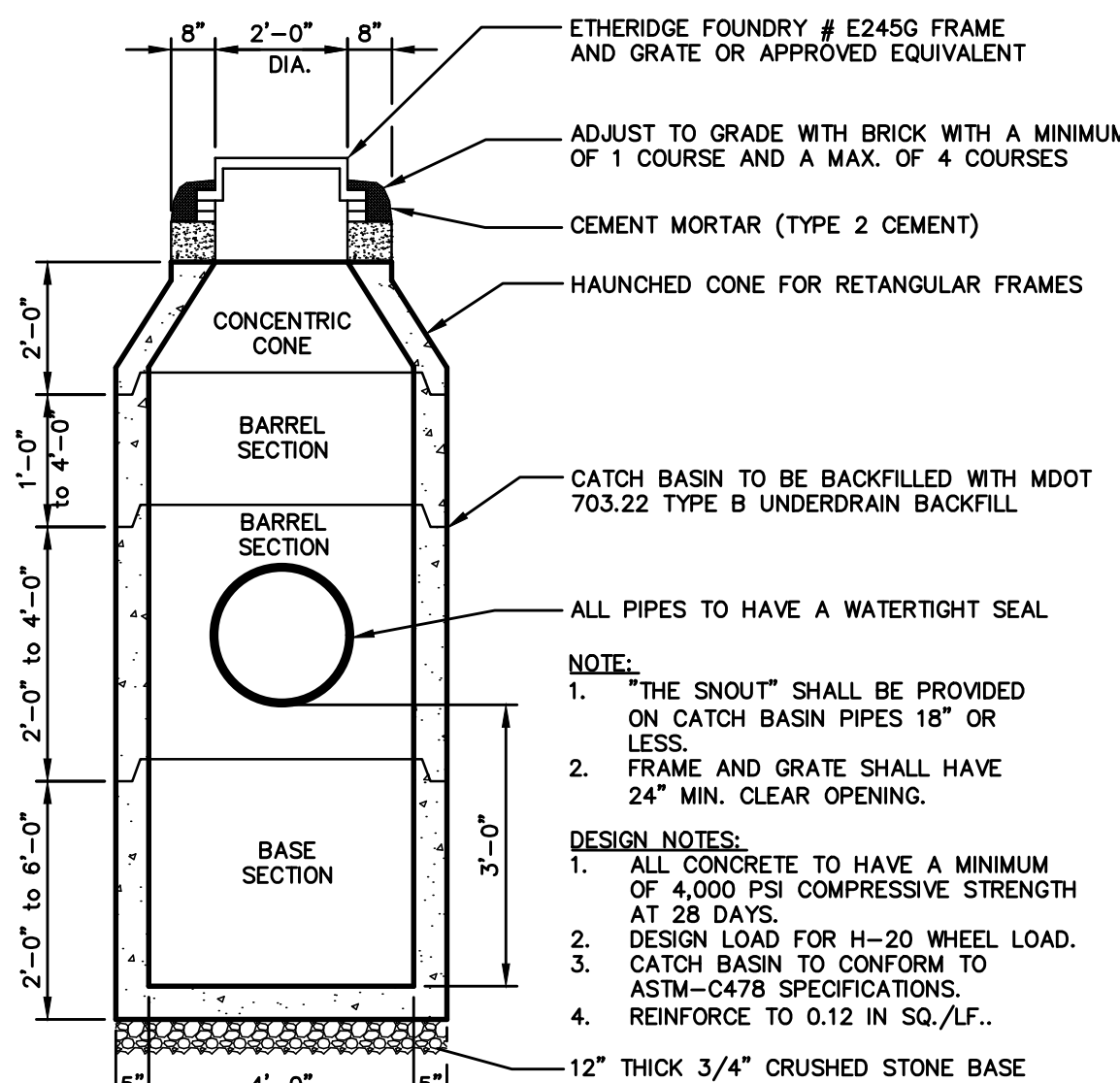
NOT TO SCALE

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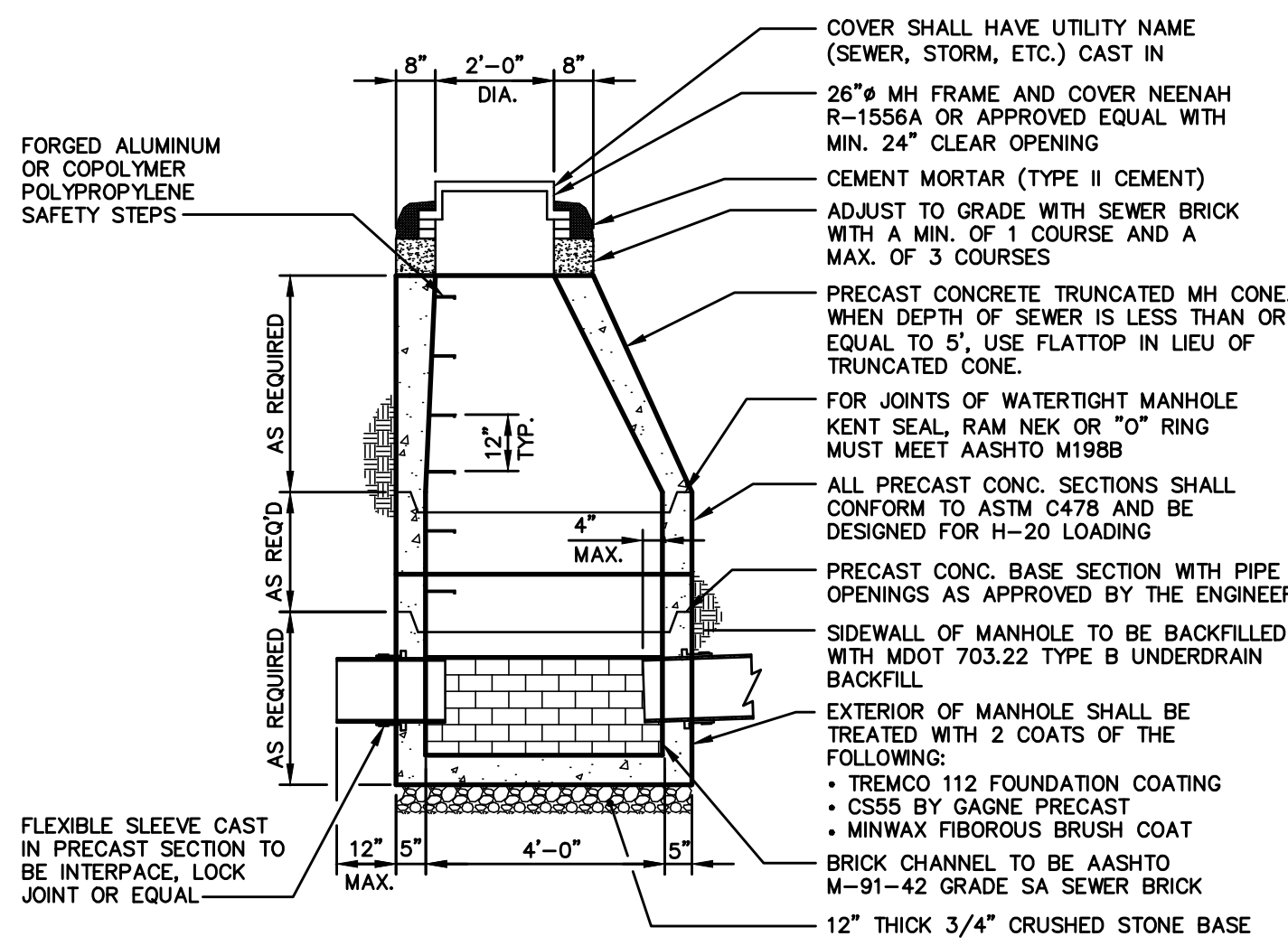
TYPICAL VALVE BOXES

NOT TO SCALE



4'-0" PRECAST CATCH BASIN

NOT TO SCALE



4'-0" PRECAST SEWER MANHOLE AND DRAIN MANHOLE

NOT TO SCALE

Rev.	Date	Revision

LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
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Design: EC	Draft: CG	Date: JUNE 2024
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File Name: 4323-DETAILS.dwg		
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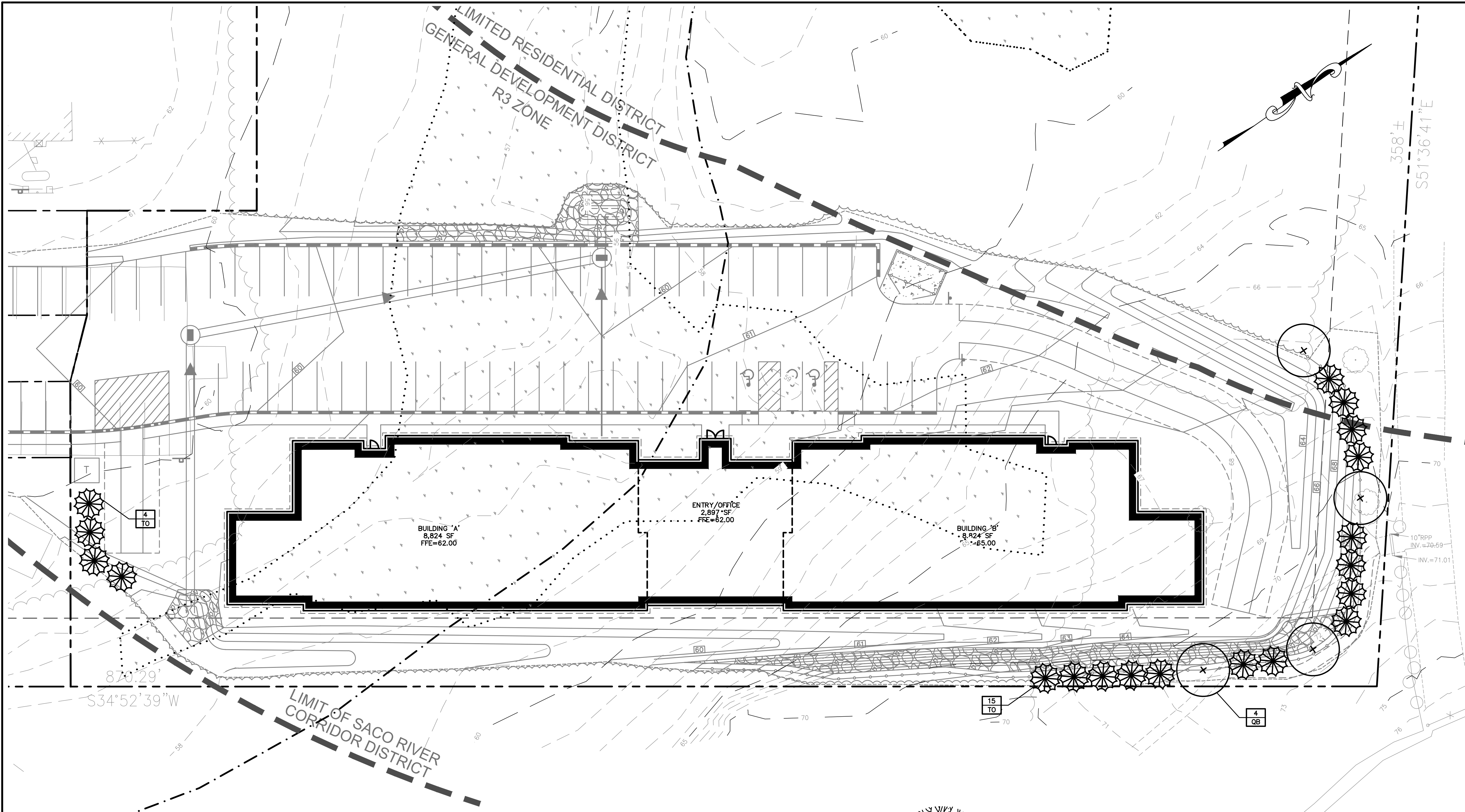


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Drawing Name:	Utility & Drainage Details
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C403
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GENERAL PLANTING NOTES

1. CALL DIG-SAFE (1-888-344-7233) PRIOR TO BEGINNING WORK. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO OWNER.
2. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
3. DO NOT SCALE FROM DRAWINGS. ANY OMISSIONS IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT. ANY DISCREPANCIES BETWEEN DRAWINGS, PLANT QUANTITIES, DETAILS, NOTES AND SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT FOR FURTHER DIRECTION AND RESOLUTION BEFORE ANY ADDITIONAL WORK PROCEEDS.
4. PROVIDE SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
5. CONTRACTOR SHALL FURNISH AND PLACE 12 INCHES OF LOAM IN ALL SHRUB BEDS, 30 INCHES IN ALL TREE PITS, AND 6 INCHES UNDER ALL TURF AREAS. THE LANDSCAPE CONTRACTOR SHALL COORDINATE SUBGRADE PREPARATION WITH THE GENERAL CONTRACTOR PRIOR TO PLACING LOAM.
6. ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARDS FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN".
7. ALL PLANT MATERIAL SHALL BE FREE FROM INSECTS AND DISEASE.
8. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM THE OWNER.
9. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
10. EXISTING TREES TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
11. ANY DEVIATION FROM THE LANDSCAPE PLAN, INCLUDING PLANT LOCATION, SELECTION, SIZE, QUANTITY, OR CONDITION SHALL BE REVIEWED AND APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT (AND MUNICIPAL AUTHORITY, IF APPLICABLE) PRIOR TO INSTALLATION ON SITE.
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
13. DAMAGE TO EXISTING SITE IMPROVEMENTS DURING INSTALLATION OF LANDSCAPE MATERIAL SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
14. CONTRACTOR SHALL COORDINATE INSPECTION OF PLANT MATERIAL AND LOCATIONS WITH PROJECT LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ALL PLANT MATERIAL SHALL BE ON-SITE AND PLACED BEFORE INSPECTION CAN BE COMPLETED. A MINIMUM OF 48 HOUR NOTIFICATION SHALL BE REQUIRED.
15. MAINTENANCE REQUIREMENTS: PRUNE DEAD OR DAMAGED BRANCHES, MAINTAIN GUY POSTS AND WATER AS REQUIRED UNTIL PROJECT COMPLETION AND ACCEPTANCE BY OWNER.
16. WATERING: ALL PLANTINGS SHALL BE THOROUGHLY WATERED UPON INSTALLATION, AND THEN WEEKLY WHENEVER ANY DRY SPELLS OCCUR, UNTIL ACCEPTANCE BY OWNER.
17. LANDSCAPE CONTRACTOR OR PLANT SUPPLIER SHALL GUARANTEE PLANTS AND PROVIDE REPLACEMENTS FOR TWO YEARS FROM INSTALLATION.
18. CONTRACTOR SHALL PLACE 3" SHREDDED BARK MULCH AROUND SHRUB BEDS AND TREE PITS.

PLANT LIST				
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY
TREES				
TO	THUJA OCCIDENTALIS "NIGRA"	DARK AMERICAN ARBORVITAE	7'-8" HGT.	19
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	2-1/2" CAL.	4

GENERAL PLANTING NOTES:

DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH ROOT FLARE AT GROUND LEVEL. CORRECT HOLE DEPTH AS NEEDED. NOTE: MANY BALLED & BURLAPPED PLANTS HAVE SOIL PILED AROUND THE ROOT FLARE WHICH SHOULD BE REMOVED PRIOR TO PLANTING.

FOR DECIDUOUS AND NEEDLED EVERGREEN TREES AND SHRUBS 1 FULL WHEELBARROW EXISTING SOIL, 2 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL. FOR BROAD-LEAVED EVERGREENS AND RELATED ERICACEAE PLANTS, 1 FULL WHEELBARROW EXISTING SOIL, 3-4 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL OF LOW pH (RECOMMENDATIONS ARE FOR ACCEPTABLE PLANTING AREAS).

CONTAINER GROWN STOCK:
REMOVE ALL CONTAINERS AND GENTLY COMB OUT ROOTS TO ELIMINATE CIRCLING ROOTS. PRUNE DAMAGED ROOTS AS NEEDED.

BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

2" x 2" OR 2 1/2" DIAMETER STAKES WITH 2 #12 GAUGE WIRES ENCASED IN 2-PLY REINFORCED RUBBER HOSE 1/2" DIAMETER OR CHAINLOCK AS APPROVED BY LANDSCAPE ARCHITECT. 2 STAKES LOCATED 180° APART (STAKES SHALL BE FIRMLY SET TO PROVIDE NECESSARY TENSION). STAKES TO BE REMOVED AFTER ONE YEAR TIME.

BLACK MULCH IN PLANTING BEDS

REMOVE PLASTIC BURLAP AND FIBER OR PEAT POT. REMOVE NATURAL FIBER BURLAP FROM AT LEAST THE TOP 1/2 OF ROOTBALL, OR MORE IF THE ROOTBALL IS FIRM. REMOVE TOP 1/2 OF WIRE BASKET.

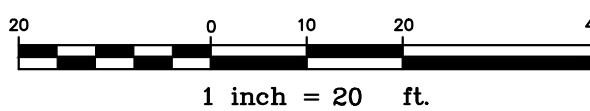
EARTH SAUCER (3" HT.)

SOIL MIX-SEE NOTE ABOVE AND BELOW

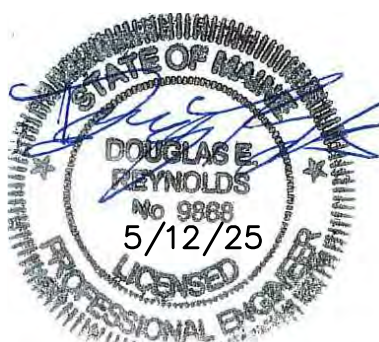
UNDISTURBED SUBGRADE

TREE AND SHRUB PLANTING DETAIL

NOT TO SCALE



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Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.

L100

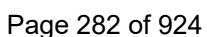


PARKVIEW APARTMENTS

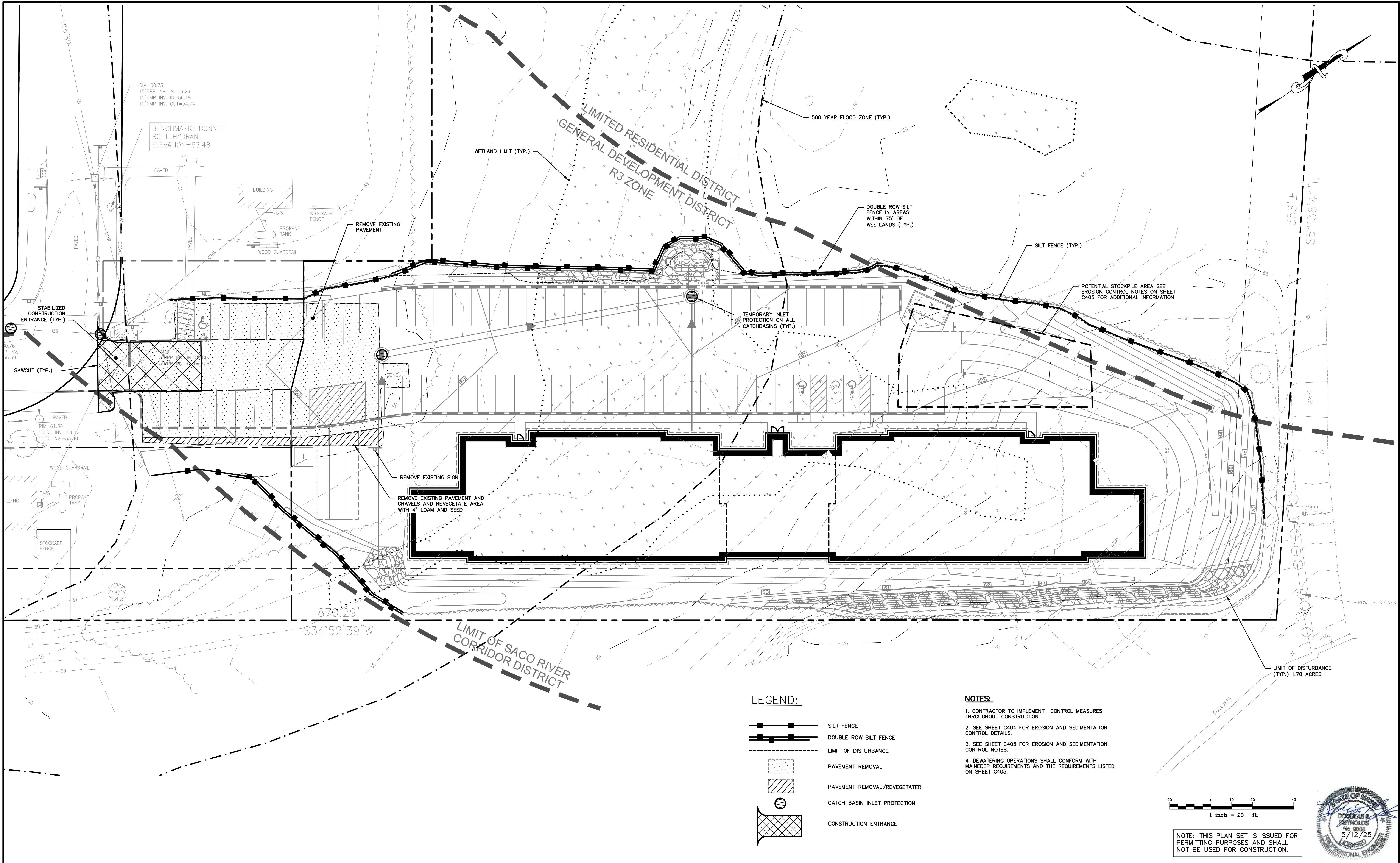
BIDDEFORD, MAINE

**ARCHETYPE
ARCHITECTS**

48 Union Wharf Portland, Maine 04101



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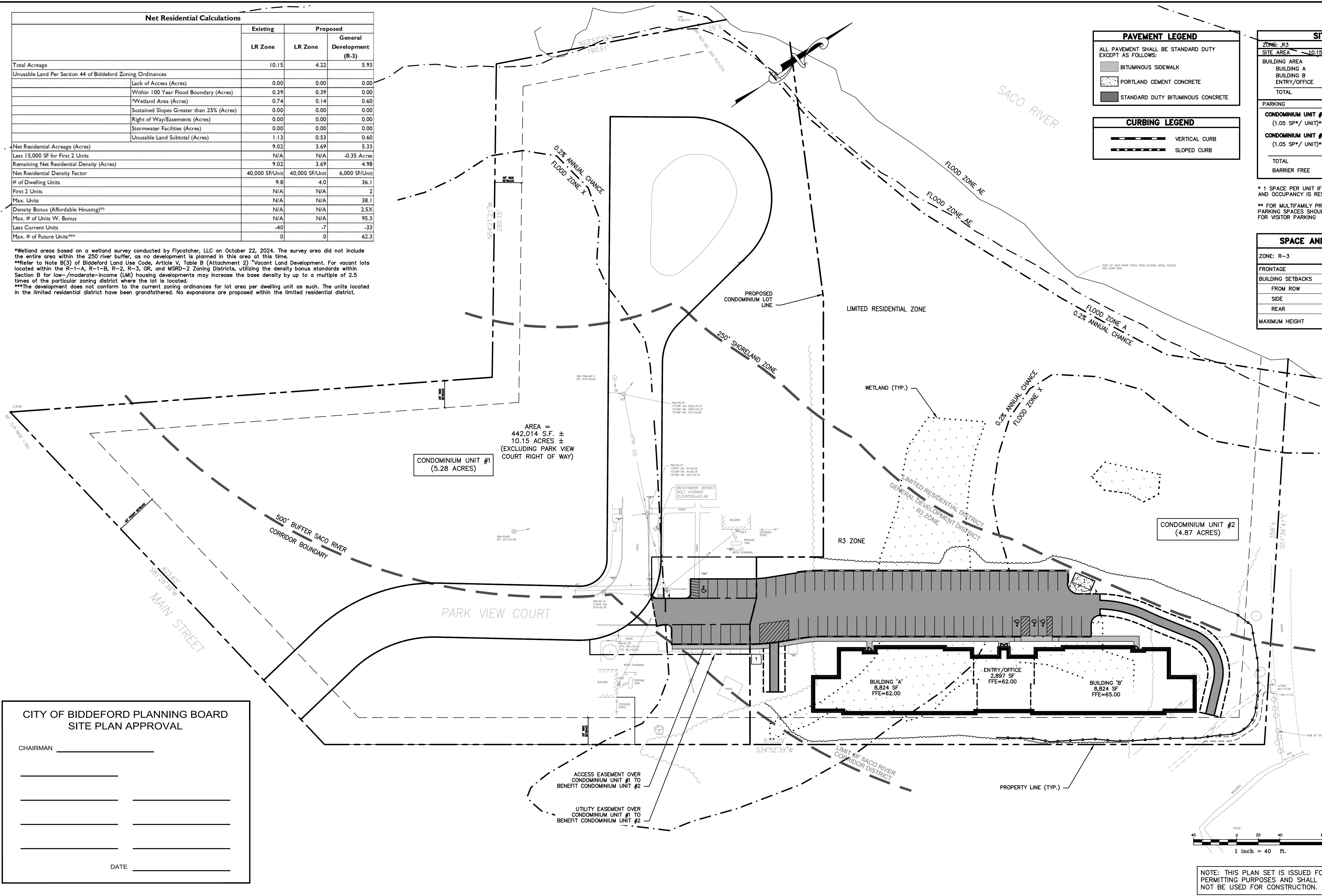
Drawing Name:	Site Demolition and Erosion Control Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C002
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Net Residential Calculations			
	Existing	Proposed	
	LR Zone	LR Zone	General Development (R-3)
Total Acreage	10.15	4.22	5.93
Unusable Land Per Section 44 of Biddeford Zoning Ordinances			
Lack of Access (Acres)	0.00	0.00	0.00
Within 100 Year Flood Boundary (Acres)	0.39	0.39	0.00
*Wetland Area (Acres)	0.74	0.14	0.60
Sustained Slopes Greater than 25% (Acres)	0.00	0.00	0.00
Right of Way/Easements (Acres)	0.00	0.00	0.00
Stormwater Facilities (Acres)	0.00	0.00	0.00
Unusable Land Subtotal (Acres)	1.13	0.53	0.60
Net Residential Acreage (Acres)	9.02	3.69	5.33
Less 15,000 SF for First 2 Units	N/A	N/A	-0.35 Acres
Remaining Net Residential Density (Acres)	9.02	3.69	4.98
Net Residential Density Factor	40,000 SF/Unit	40,000 SF/Unit	6,000 SF/Unit
# of Dwelling Units	9.8	4.0	36.1
First 2 Units	N/A	N/A	2
Max. Units	N/A	N/A	38.1
Density Bonus (Affordable Housing)**	N/A	N/A	2.5X
Max. # of Units W. Bonus	N/A	N/A	95.3
Less Current Units	-40	-7	-33
Max. # of Future Units***	0	0	62.3

*Wetland areas based on a wetland survey conducted by Flycatcher, LLC on October 22, 2024. The survey area did not include the entire area within the 250' river buffer, as no development is planned in this area at this time.
**Refer to Note B(3) of Biddeford Land Use Code, Article V, Table B (Attachment 2) "Vacant Land Development. For vacant lots located within the R-1-A, R-1-B, R-2, R-3, OR, and MSO-2 Zoning Districts, utilizing the density bonus standards within Section B for low-/moderate-income (LMI) housing developments may increase the base density by up to a multiple of 2.5 times of the particular zoning district where the lot is located.
***The development does not conform to the current zoning ordinances for lot area per dwelling unit as such. The units located in the limited residential district have been grandfathered. No expansions are proposed within the limited residential district.



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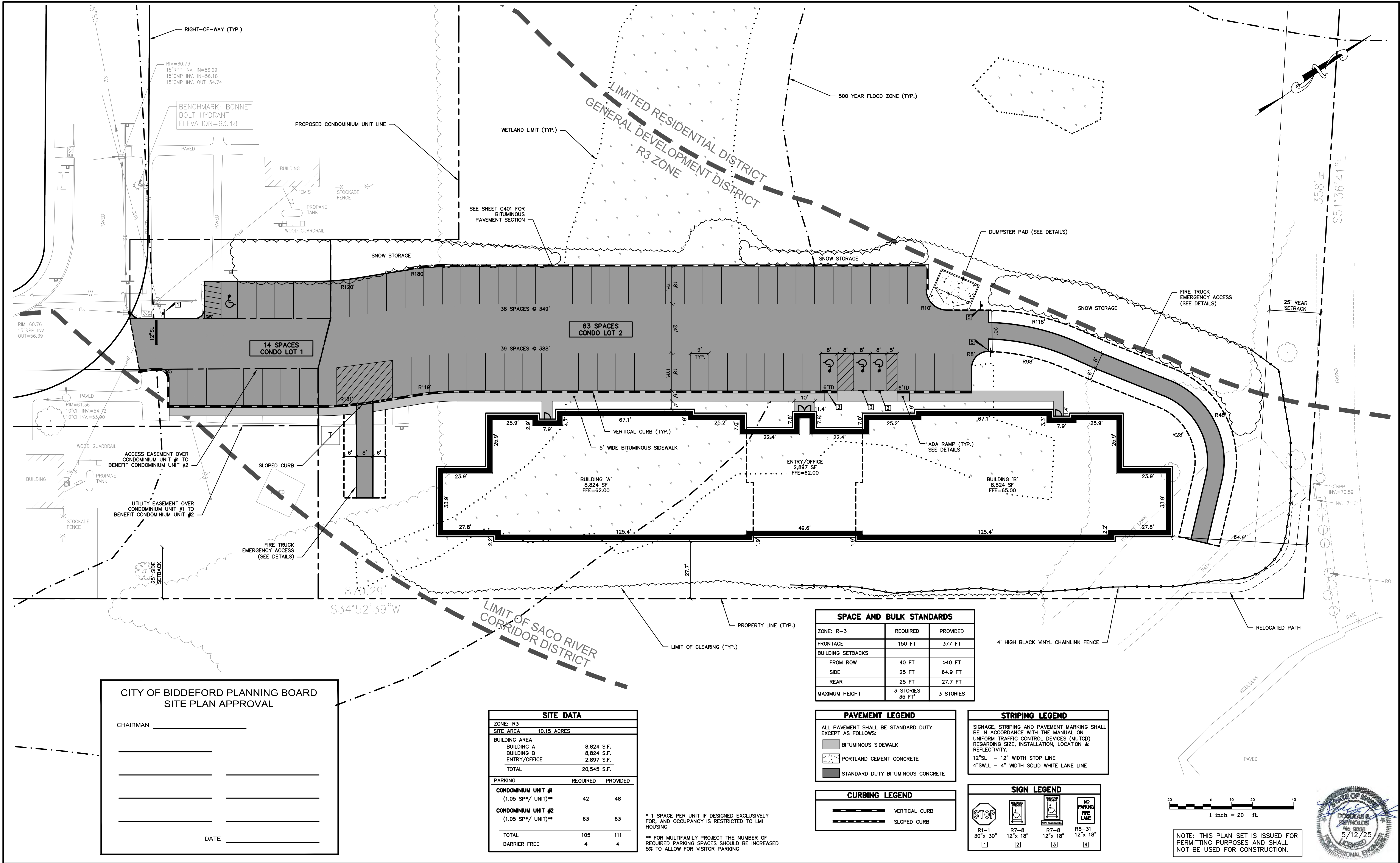


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CITY OF BIDDEFORD PLANNING BOARD
SITE PLAN APPROVAL

CHAIRMAN _____

DATE _____

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LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
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File Name: 4323-SP.dwg		
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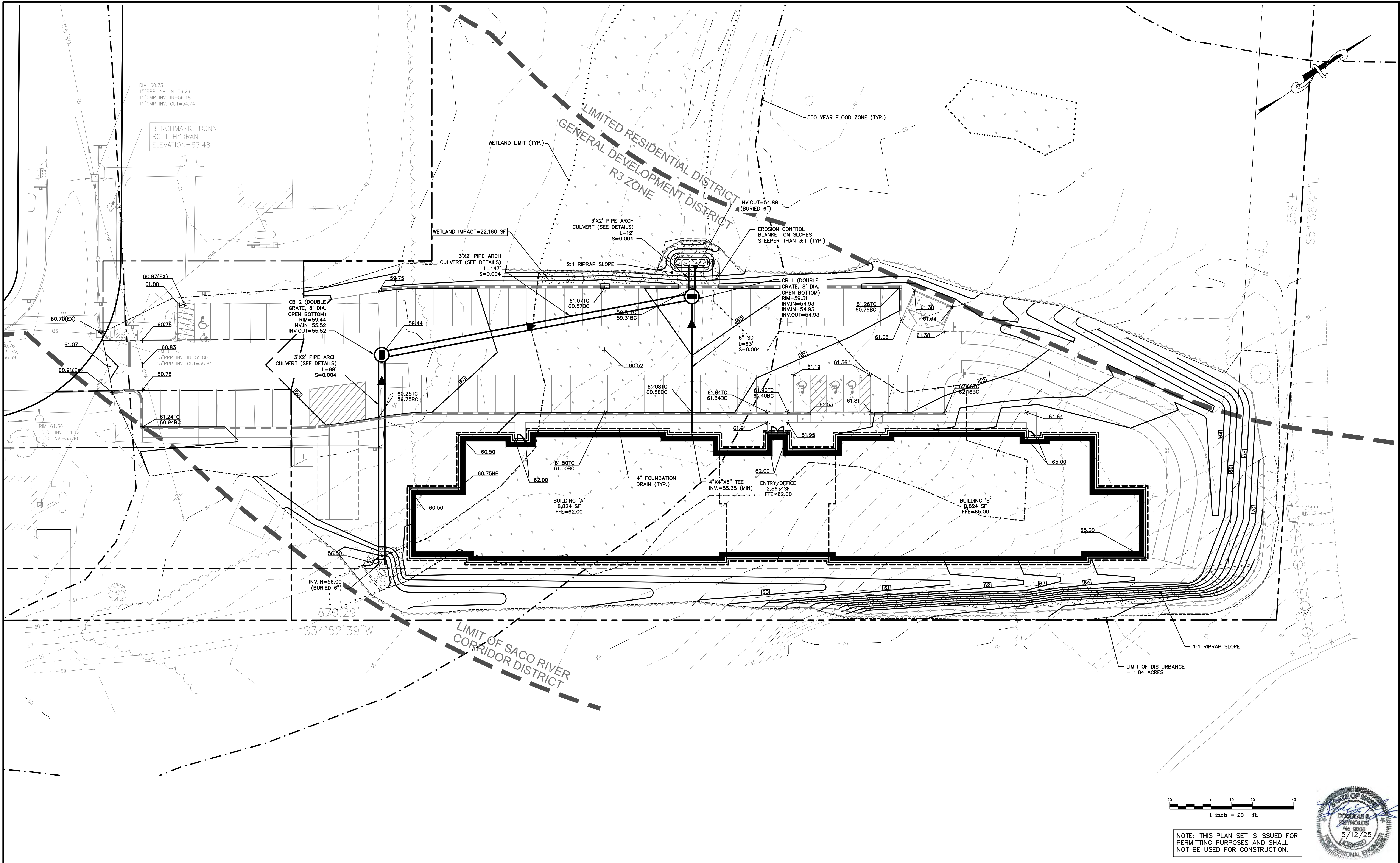


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Drawing Name:	Site Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C101
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LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
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SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
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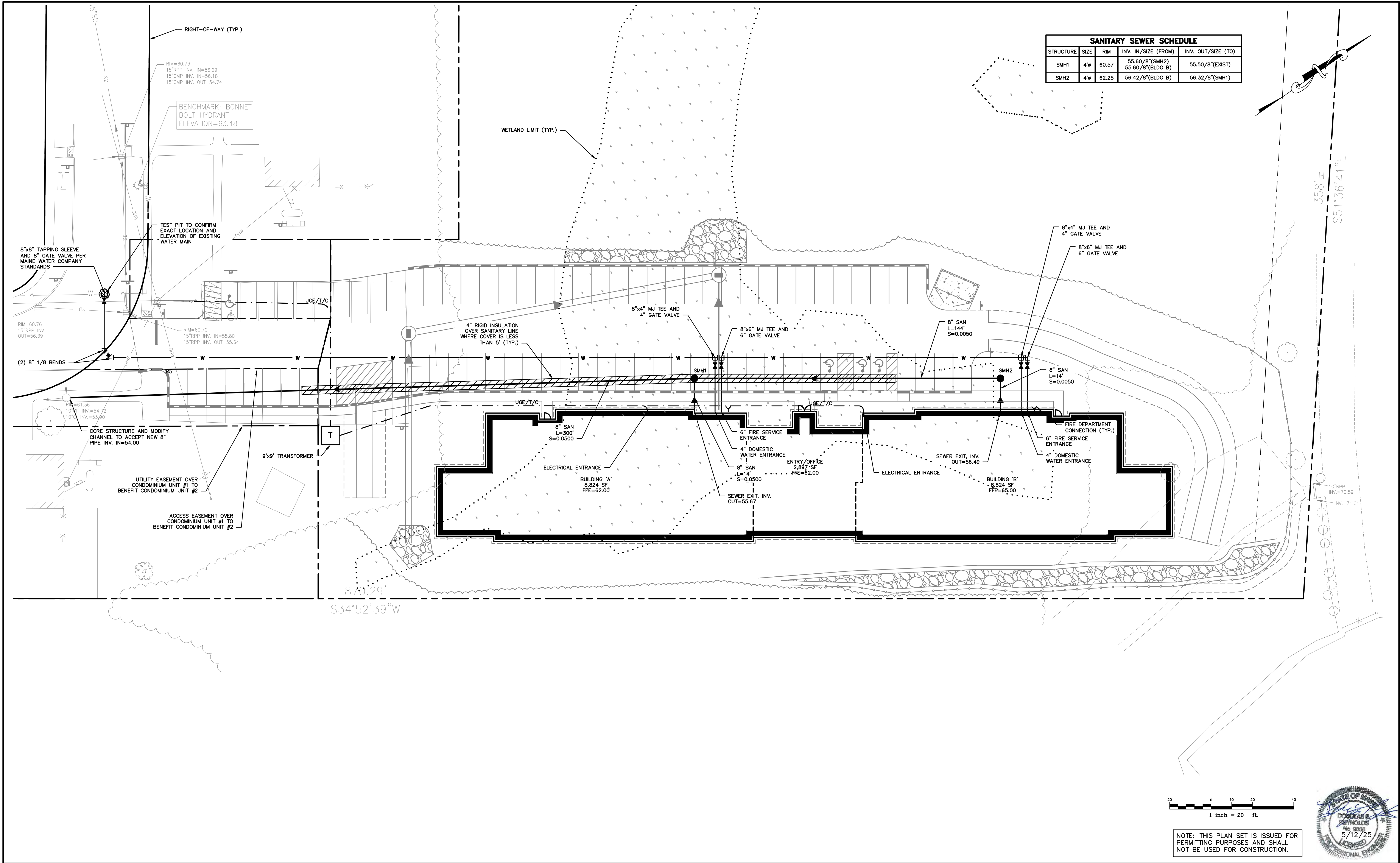


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Drawing Name:	Grading and Drainage Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C102
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LOCAL PRELIMINARY PLAN SUBMISSION	5/12/25	DER
NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
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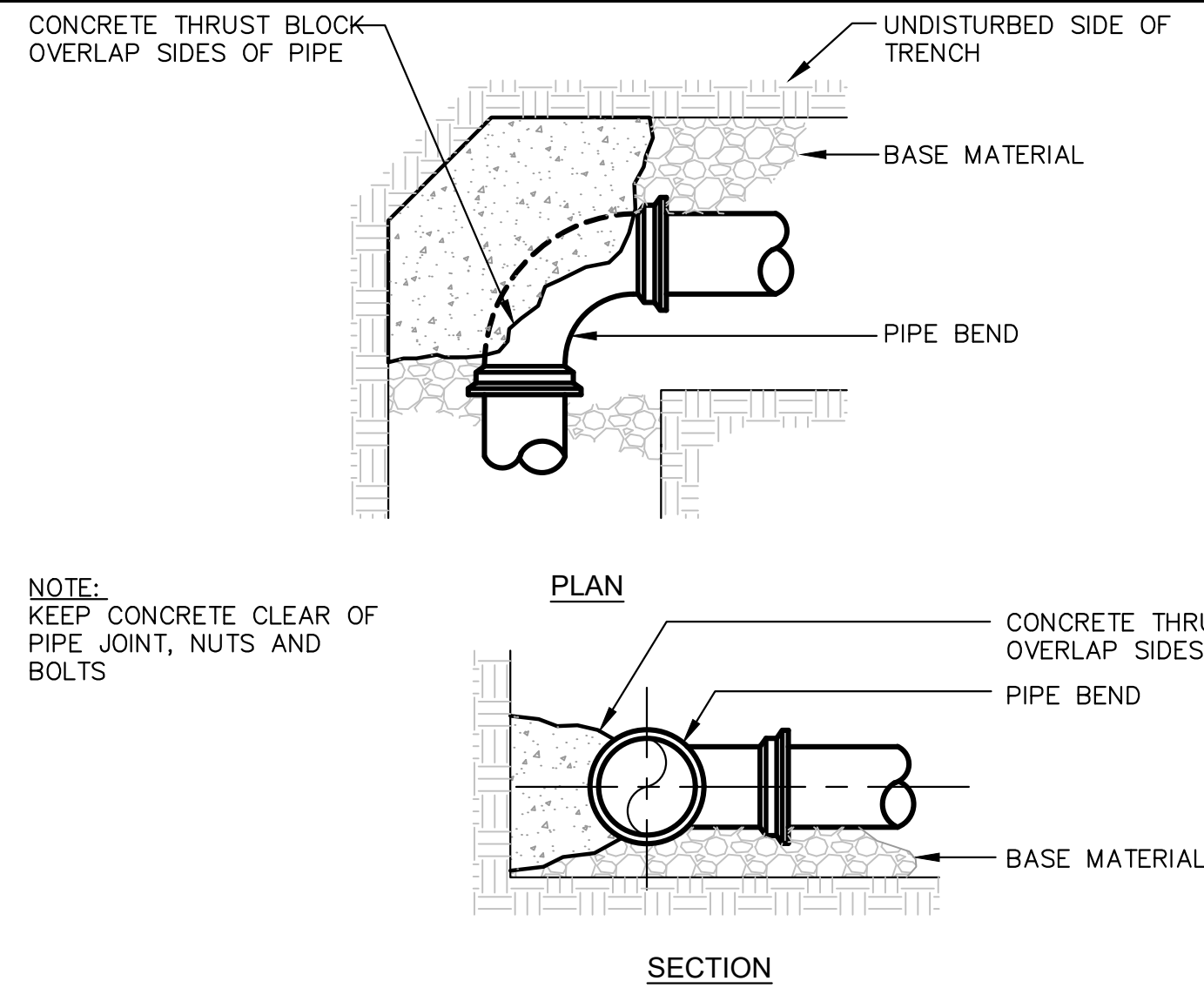
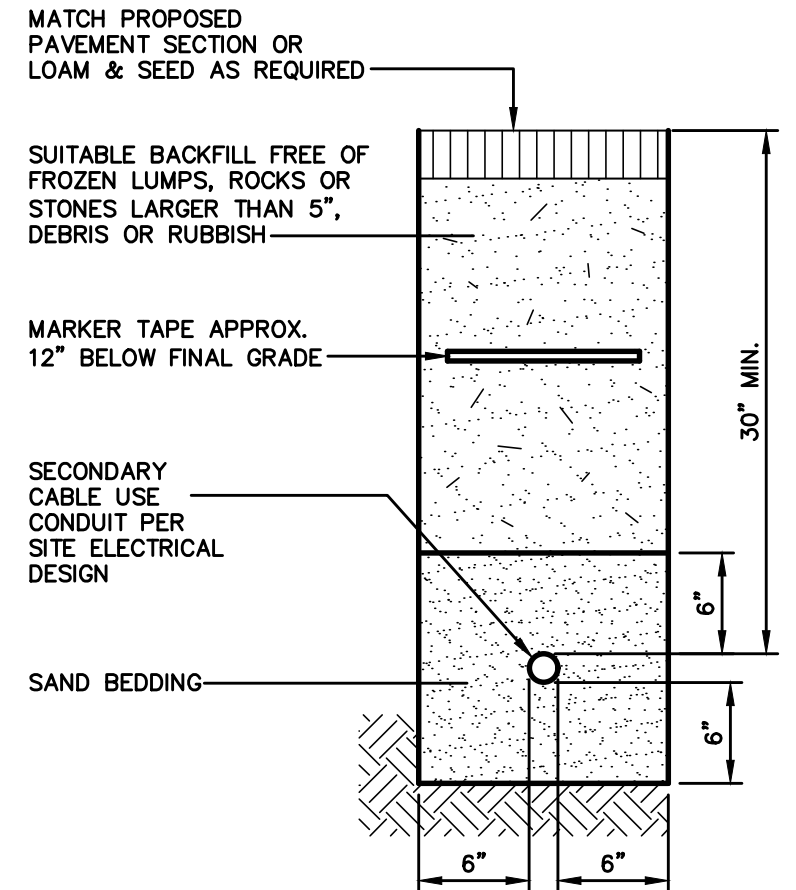
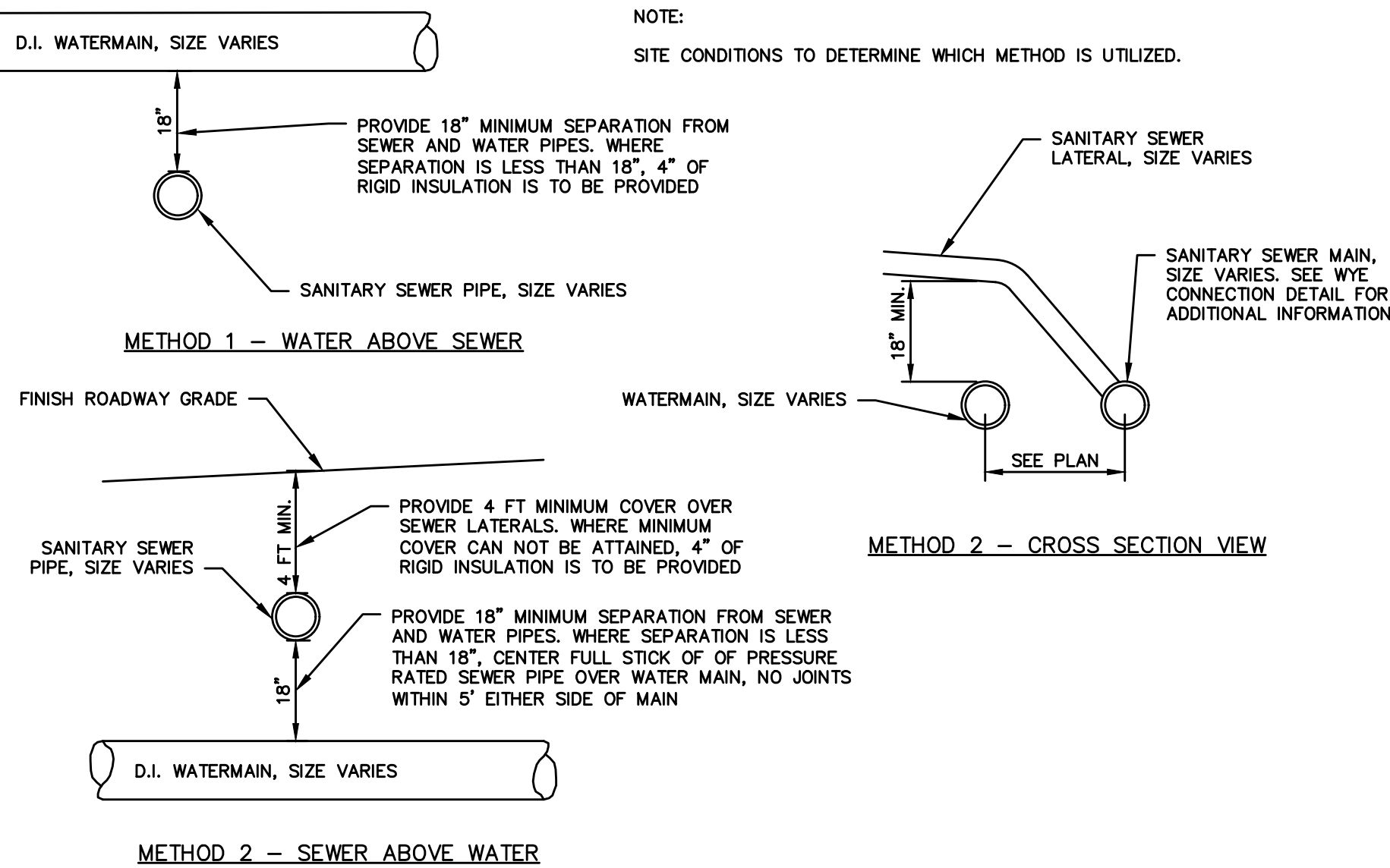
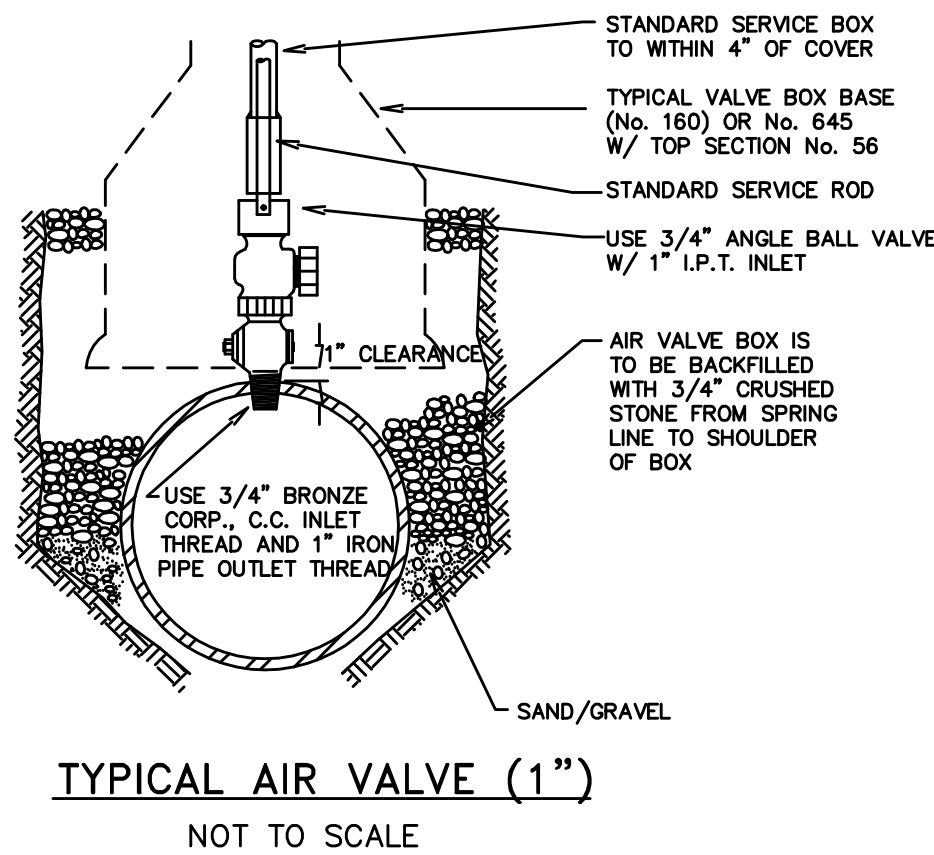


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Drawing Name:	Utility Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C103
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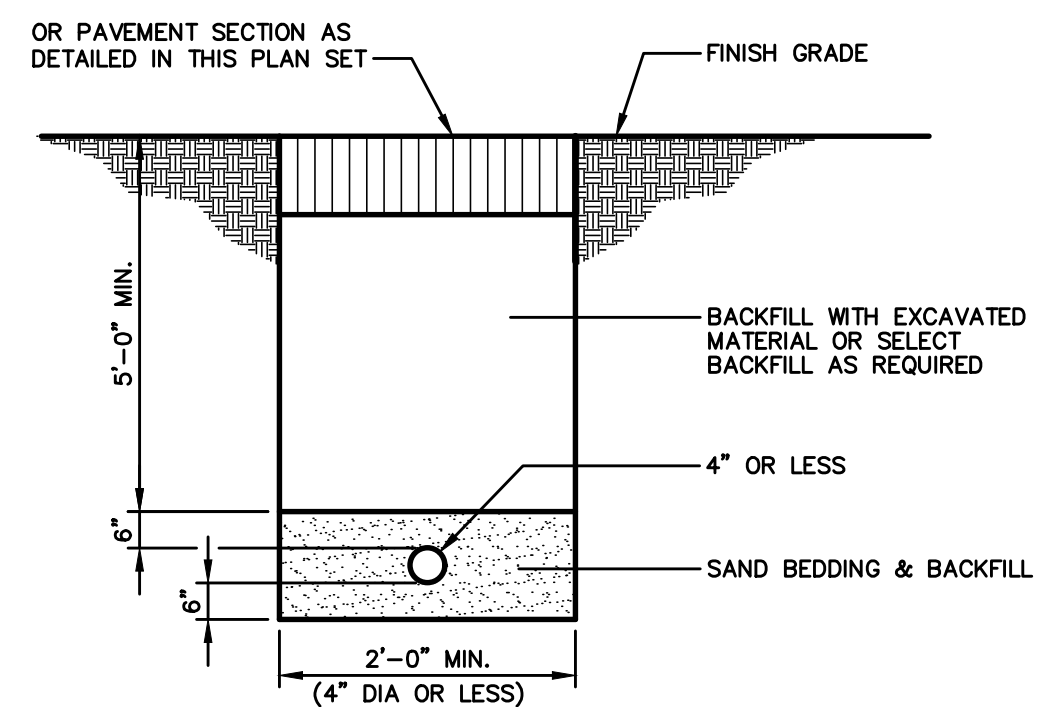


THRUST/RETAINER GLAND SCHEDULE		
1/4 BEND	(45°)	THRUST BLOCK W/ GRIPRING™

- THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.
- NOTES:
- THE MAINE WATER DISTRICT MAY HAVE INSPECTION FEES AND REQUIRE OBSERVATION OF ALL PIPING INSTALLATION BEFORE BURIAL. REFER TO SPECIFICATIONS.
 - FOR WATER MAIN LAYOUT SEE DRAWING C-4.0
 - FOR WATER MAIN TRENCH DETAILS SEE DRAWING C402
 - REFER TO SPECIFICATIONS FOR TESTING AND CHLORINATION REQUIREMENTS.
 - ALL HYDRANTS AND VALVES TO BE EPOXY COATED, NUTS & BOLTS TO BE STAINLESS STEEL.
 - SERVICE RODS FOR DOMESTIC SERVICE OR AIR VALVES TO BE STAINLESS STEEL.

THRUST BLOCK PLACEMENT ON BENDS

NOT TO SCALE



WATER SERVICE TRENCH SECTION

NOT TO SCALE

SCHEDULE OF TRENCH BACKFILL		
TYPE OF PIPE	EMBEDMENT MATERIAL	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC-SDR 35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
PERFORATED PVC-SDR35 HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

- THE BEARING SURFACE OF THE THRUST BLOCK SHALL BE THE SURFACE AREA OF THE THRUST BLOCK WHICH IS CAST AGAINST THE TRENCH WALL. THE BEARING SURFACE SHALL NOT EXCEED THE FOLLOWING LOADINGS:

IN-SITU CONDITION	ALLOWABLE
BEDROCK	3,000 psf
SAND OR OUTWASH DEPOSITS	1,500 psf
OTHER SOILS	1,000 psf

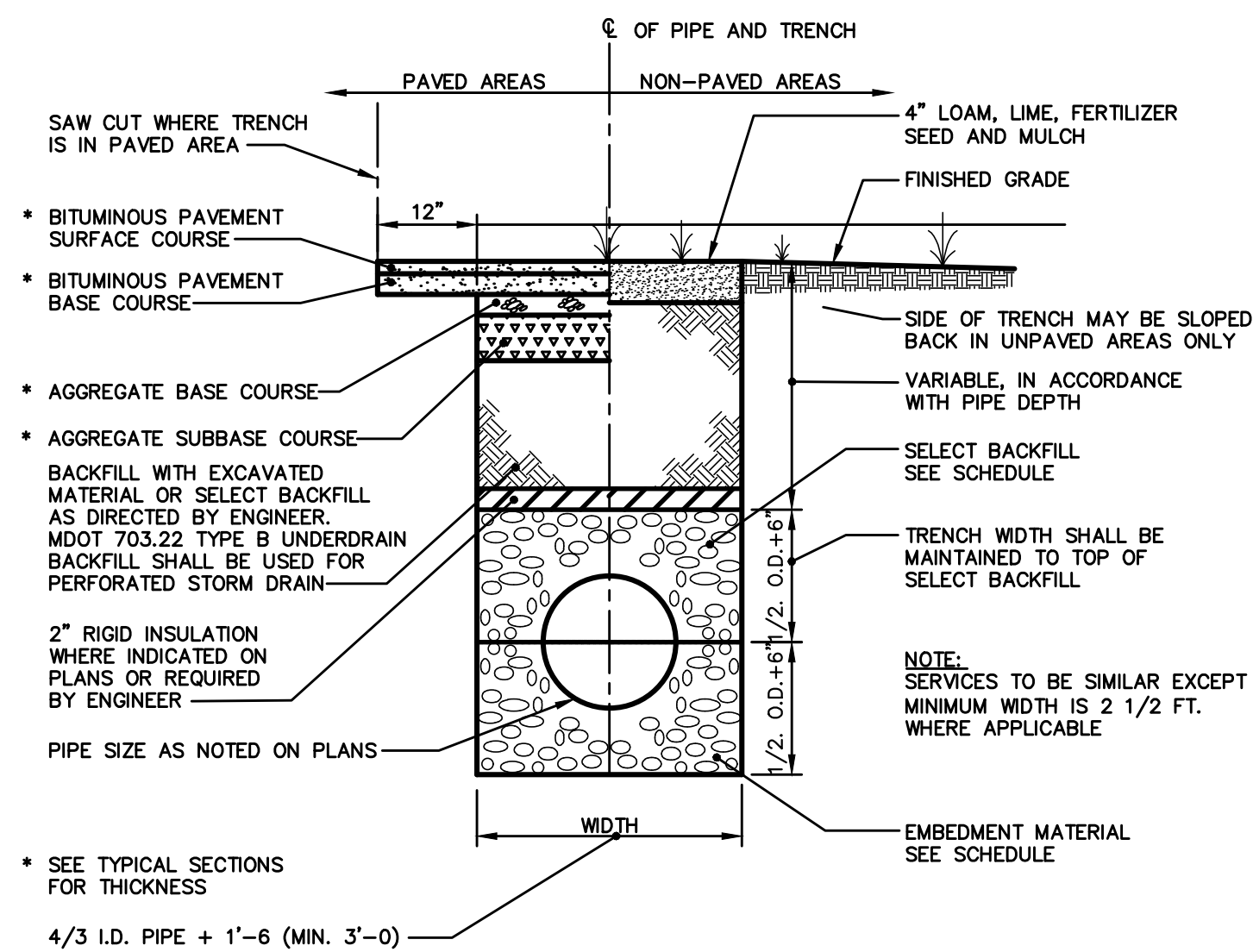
THE THRUST SHALL BE COMPUTED ON THE BASIS OF 150 psi x THE CROSS SECTIONAL AREA OF THE PIPE. FOR EXAMPLE, A THRUST BLOCK FOR A 1/4 BEND ON AN 8\"/>
- INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
- ANY WORK RELATED TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE MAINE WATER COMPANY SPECIFICATIONS.

THRUST BLOCK NOTES

- NOTE:
- BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES, 12\"/>

- (1) COVER BETWEEN 2' AND 3' SHALL INCLUDE 4\"/>

MINIMUM COVER	PIPE
2'-0"	DRAIN (1)
5'-5"	WATER
5'-0"	SEWER



TRENCH SECTION

N.T.S.

- DESIGN NOTES:
- CONCRETE 4,000 PSI AT 28 DAYS.
 - REINFORCING #4 BARS AT 6\"/>
 - DUCT OPENINGS SHOWN ARE TYPICAL AND CAN BE MODIFIED PER REQUEST.
 - CENTRAL MAINE POWER COMPANY SPECIFICATION.
 - TEMPORARY COVER HAS (2) 3/8\"/>

NOTE: CONFIRM TRANSFORMER PAD SIZES WITH OWNER AND ELECTRICAL DESIGNER. SITE WORK CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING THE TRANSFORMER PAD.

TRANSFORMER PAD

N.T.S.

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NRPA APPLICATION SUBMISSION	5/12/25	DER
SACO RIVER CORRIDOR SUBMISSION	5/7/25	DER
LOCAL SKETCH PLAN SUBMISSION	4/16/25	DER
Issued For	Date	By

Design: EC	Draft: CG	Date: JUNE 2024
Checked: DER	Scale: NTS	Job No.: 4323
File Name: 4323-DETAILS.dwg		
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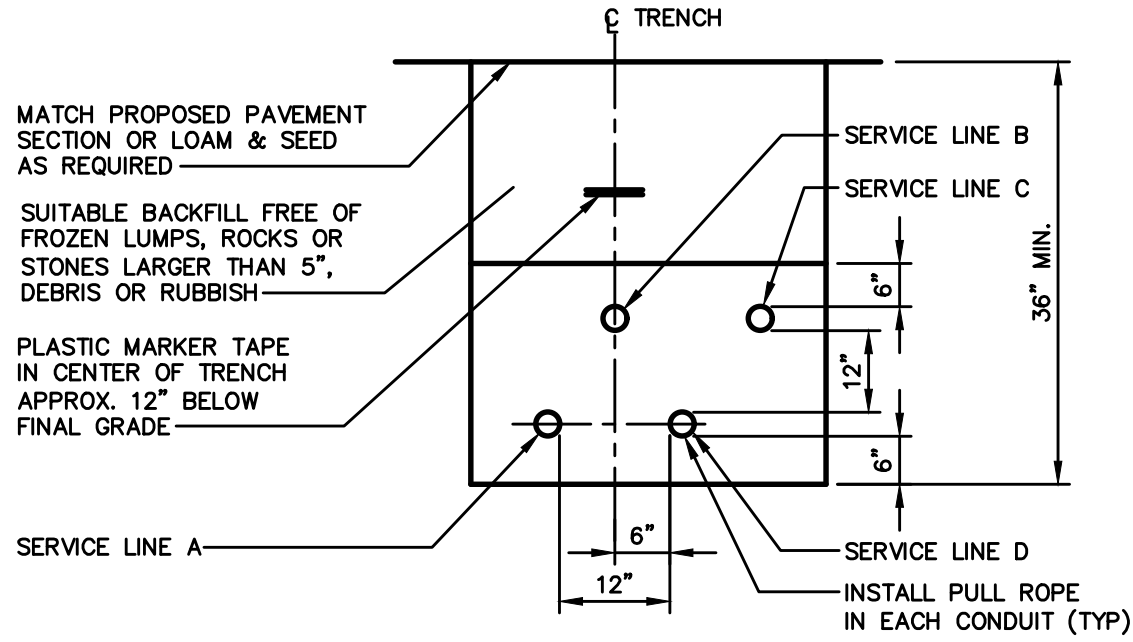
Drawing Name:	Utility Details
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C402
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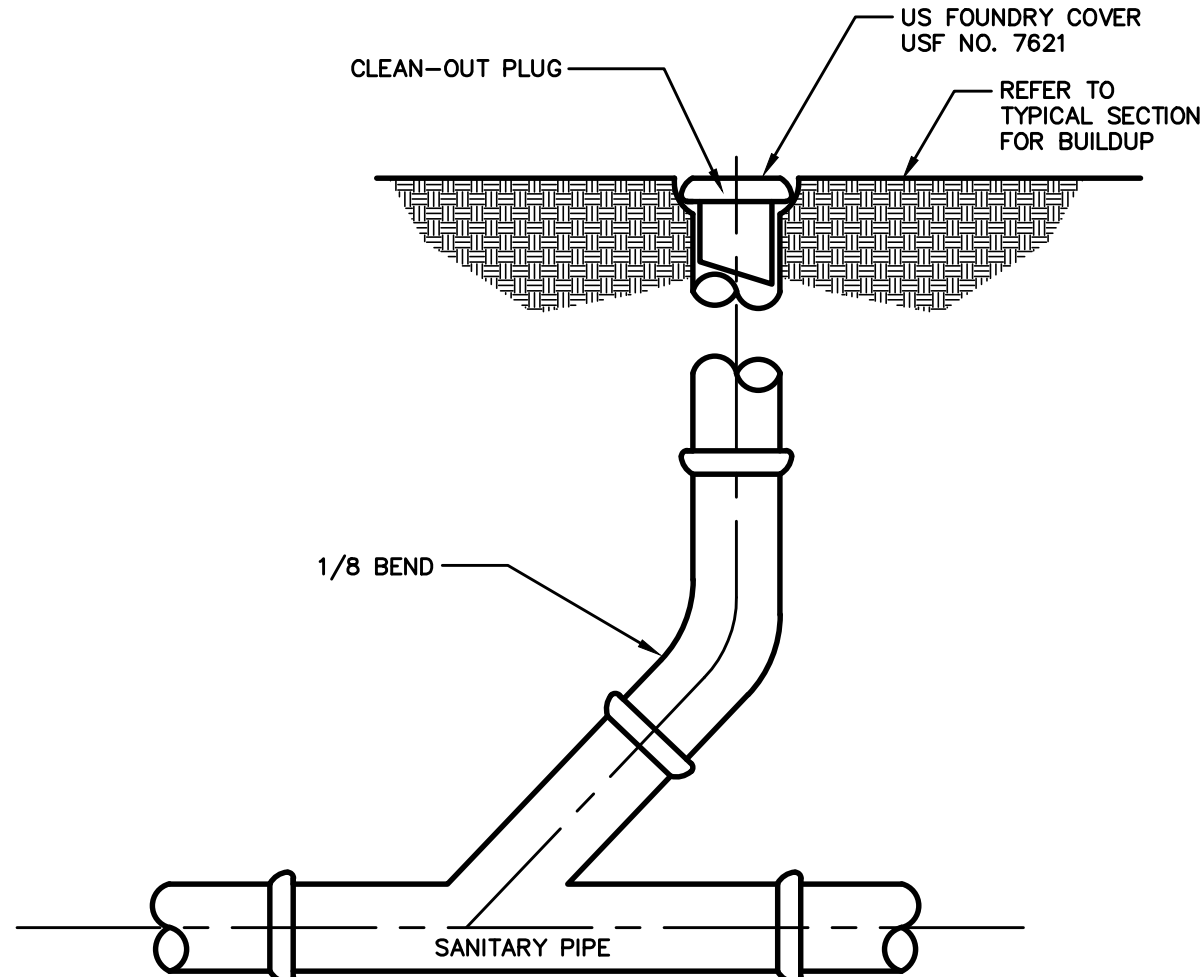
CONDUIT TYPE SCHEDULE				
SERVICE	CONDUIT SIZE	GRASS & PAVED AREAS	UTILITY	REMARKS
A	2-5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE
B	2-4"	SCHEDULE 40	TELEPHONE	SEE NOTE
C	2-4"	SCHEDULE 40	CABLE	SEE NOTE
D	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARES	SEE NOTE

NOTE:
ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.



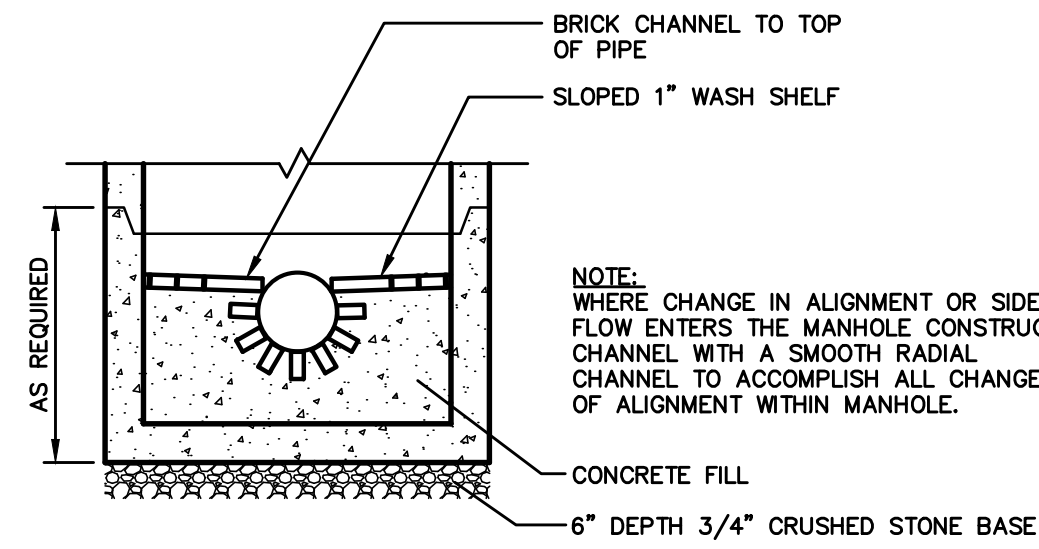
UTILITY TRENCH – PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE



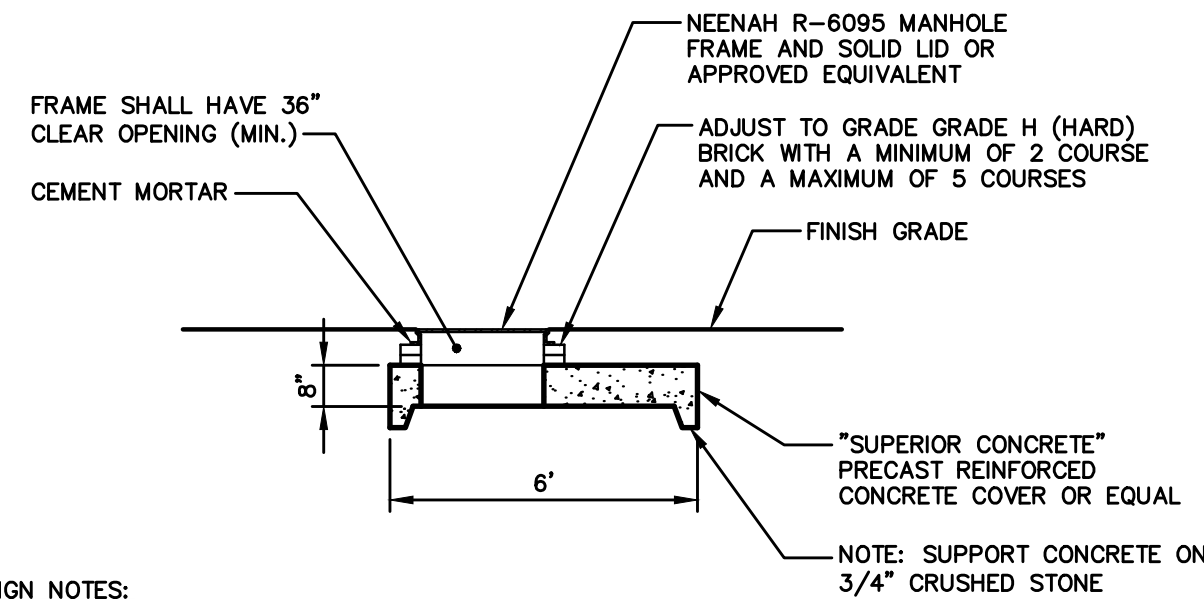
CLEANOUT

NOT TO SCALE



SANITARY SEWER MANHOLE BRICK CHANNEL INSTALLATION

NOT TO SCALE



DESIGN NOTES:

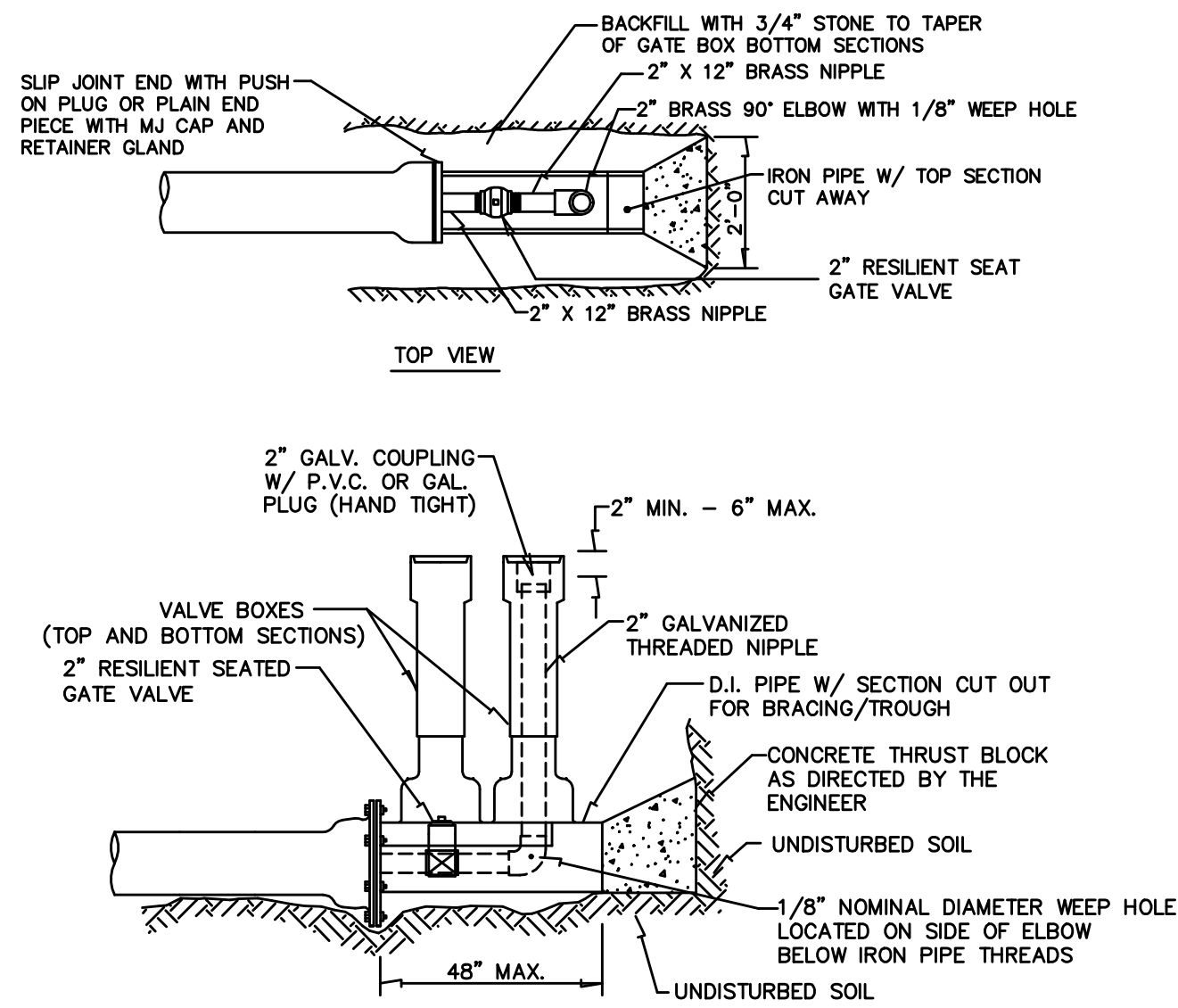
- ALL CONCRETE TO HAVE A MINIMUM OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
- REINFORCE TO 0.12 IN SQ./LF.

NOTE:

- USE FLAT TOP FOR GEOTHERMAL VAULT ACCESS MANHOLE COVER.

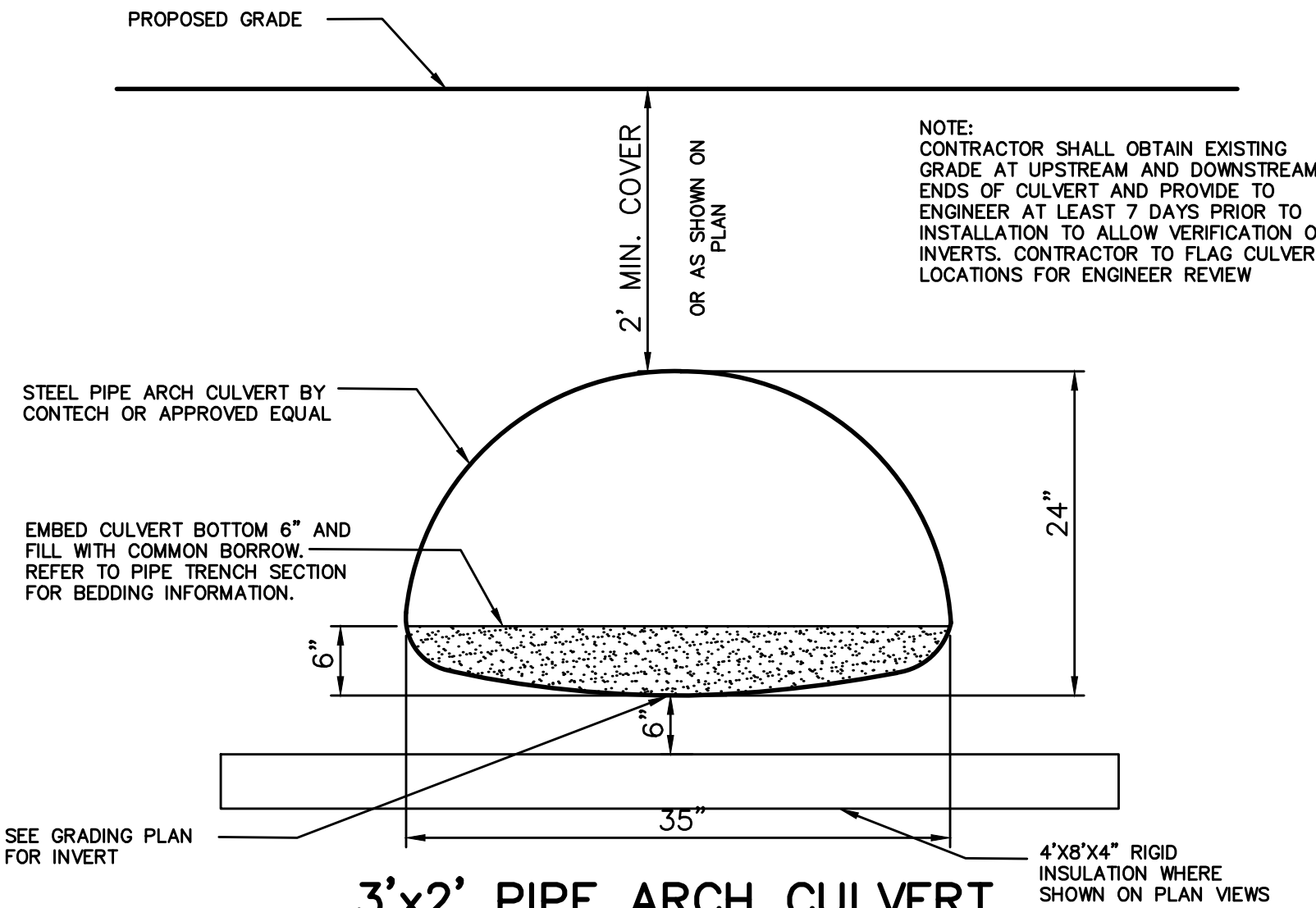
LARGE DIAMETER FLAT TOP DETAIL

NOT TO SCALE



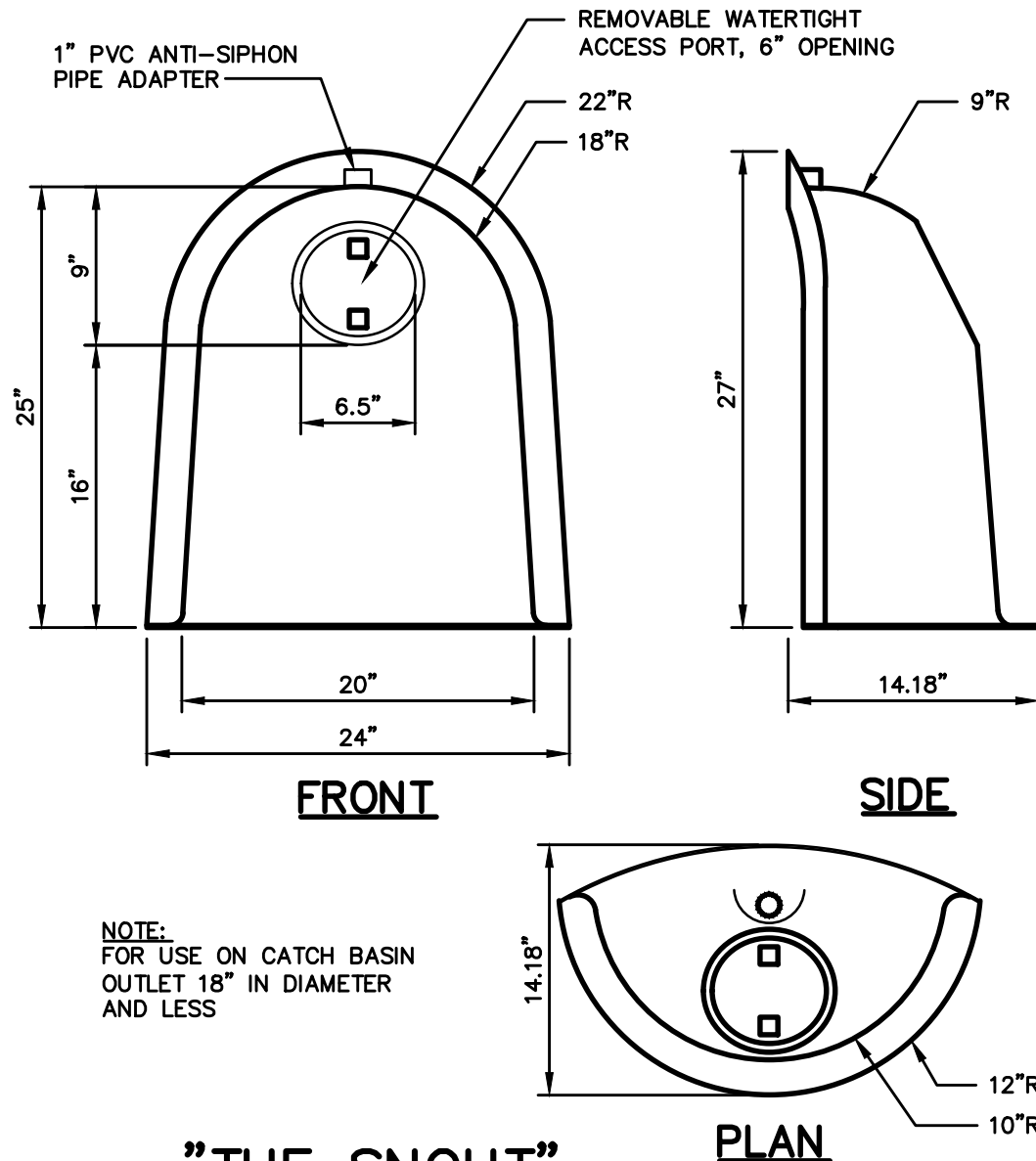
STANDARD 2" BLOW OFF

NOT TO SCALE



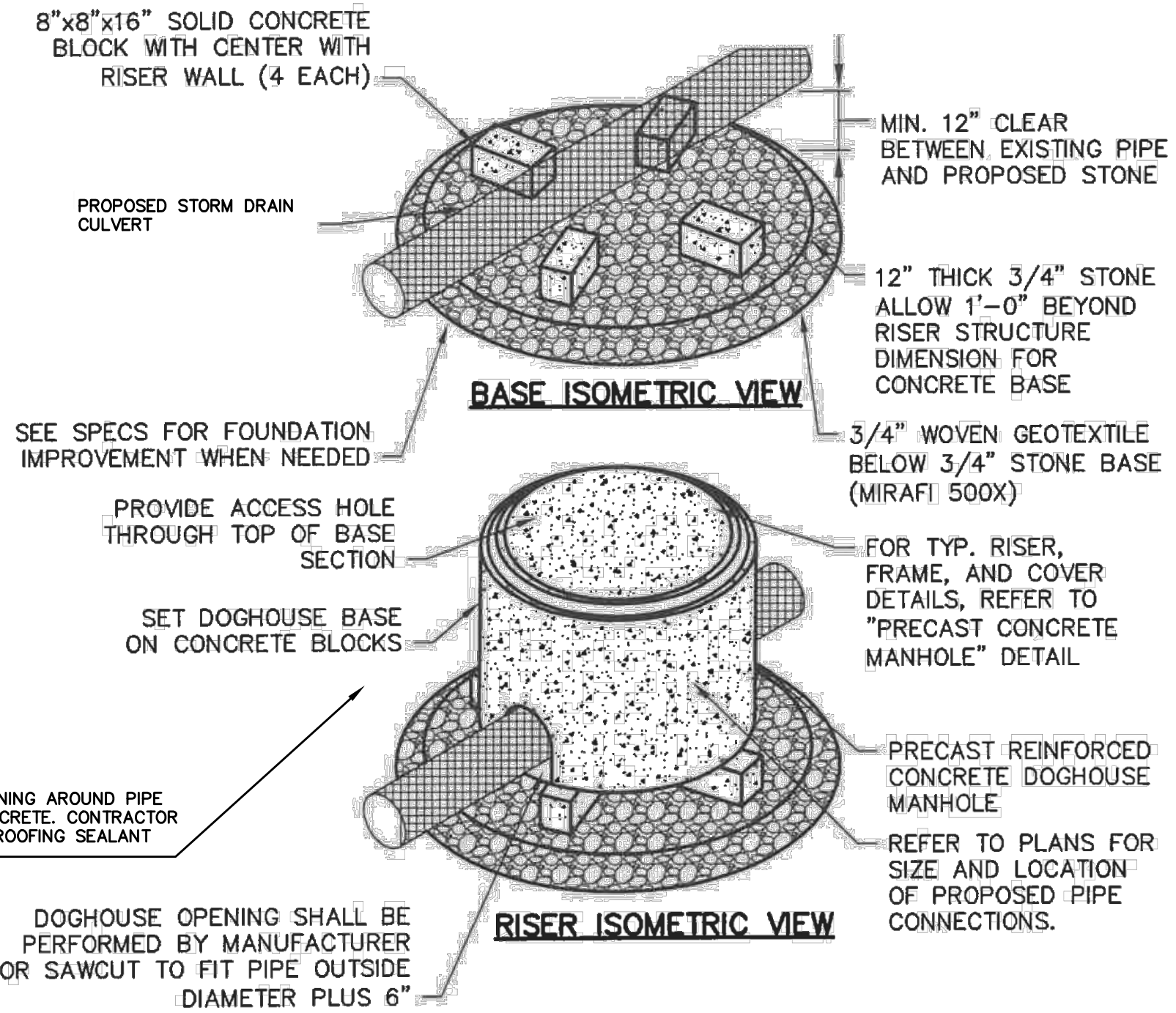
3'x2' PIPE ARCH CULVERT

NOT TO SCALE



"THE SNOOT"

NOT TO SCALE



FILL DOGHOUSE OPENING AROUND PIPE WITH 3,000 PSI CONCRETE. CONTRACTOR TO APPLY WATER PROOFING SEALANT AT JOINT.

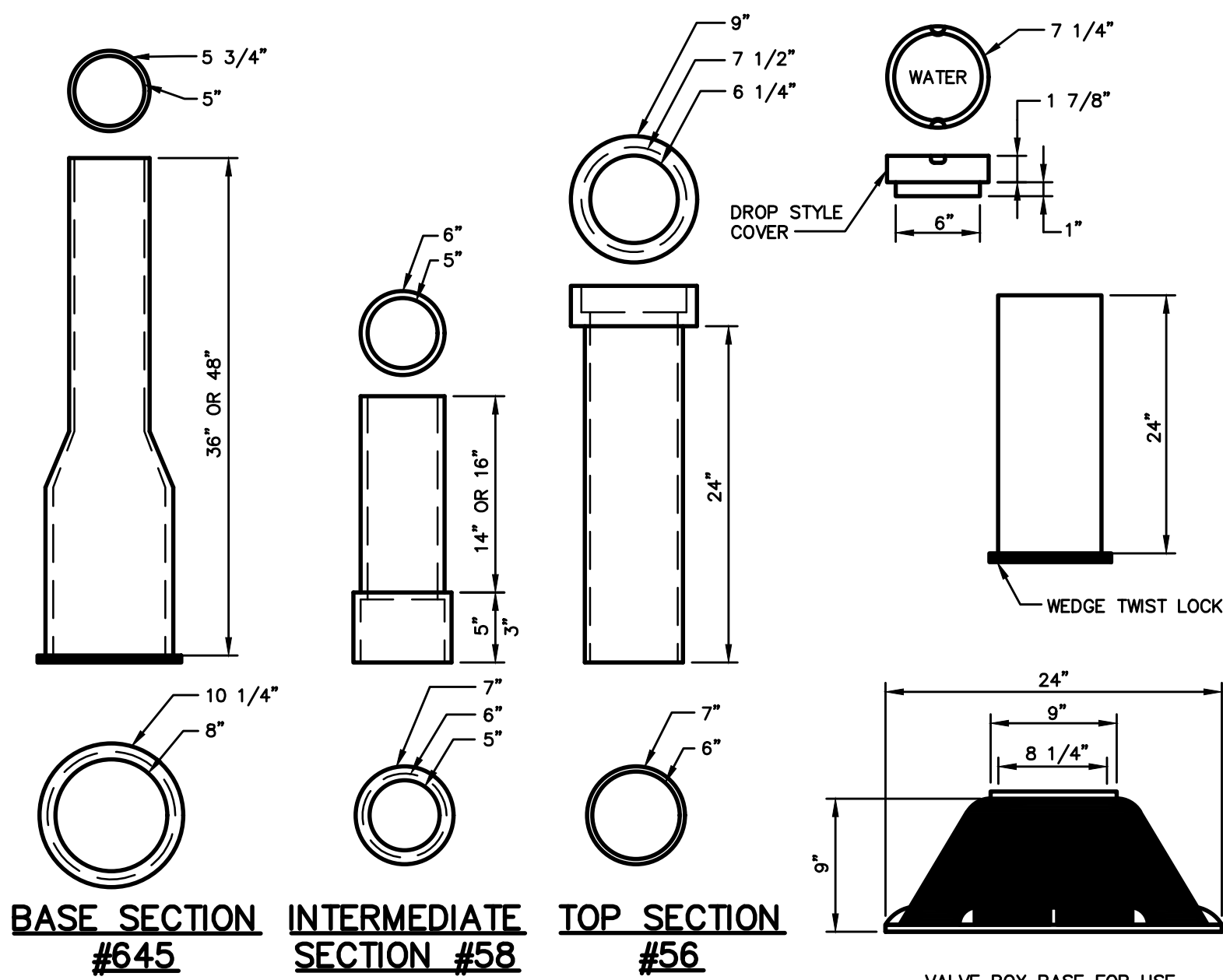
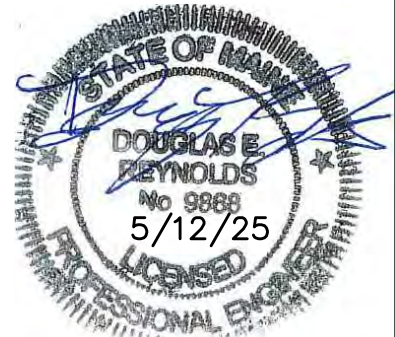
NOTE:

- ALL CONCRETE SHALL HAVE A MINIMUM OF 5,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
- DESIGN LOAD FOR H-20 WHEEL LOAD.

OPEN BOTTOM CATCH BASIN

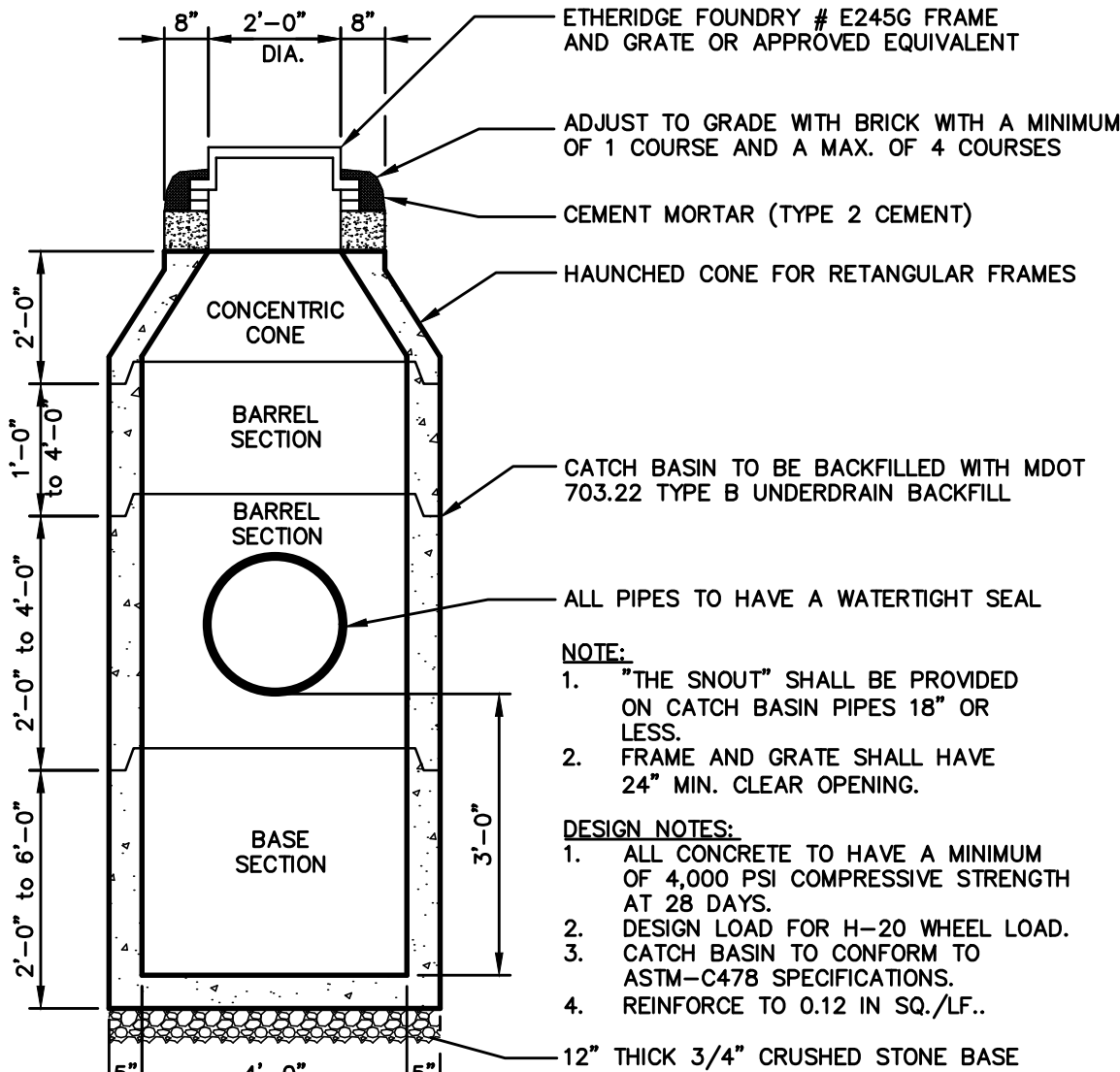
NOT TO SCALE

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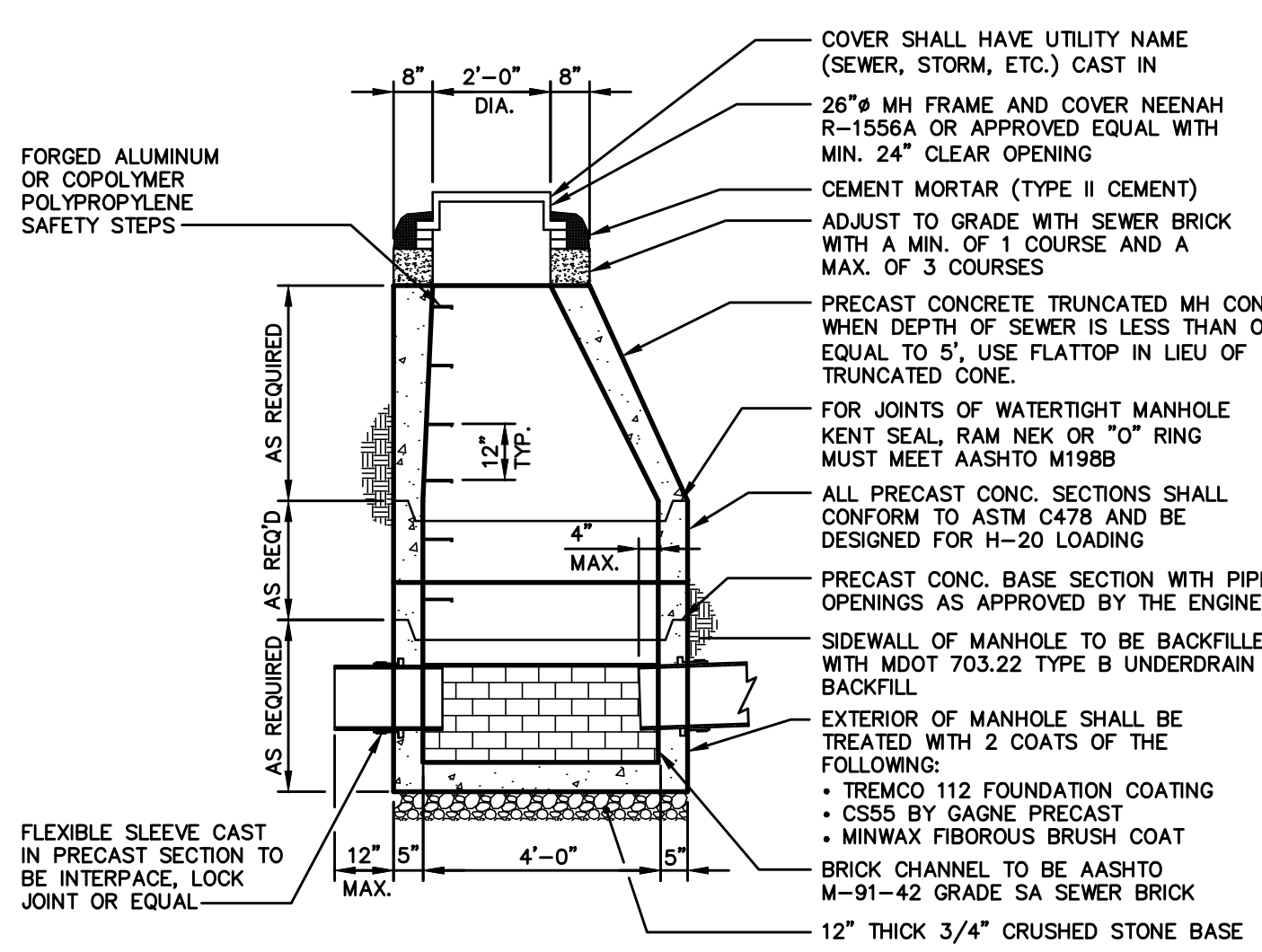
TYPICAL VALVE BOXES

NOT TO SCALE



4'-0" PRECAST CATCH BASIN

NOT TO SCALE



4'-0" PRECAST SEWER MANHOLE AND DRAIN MANHOLE

NOT TO SCALE

Rev.	Date	Revision

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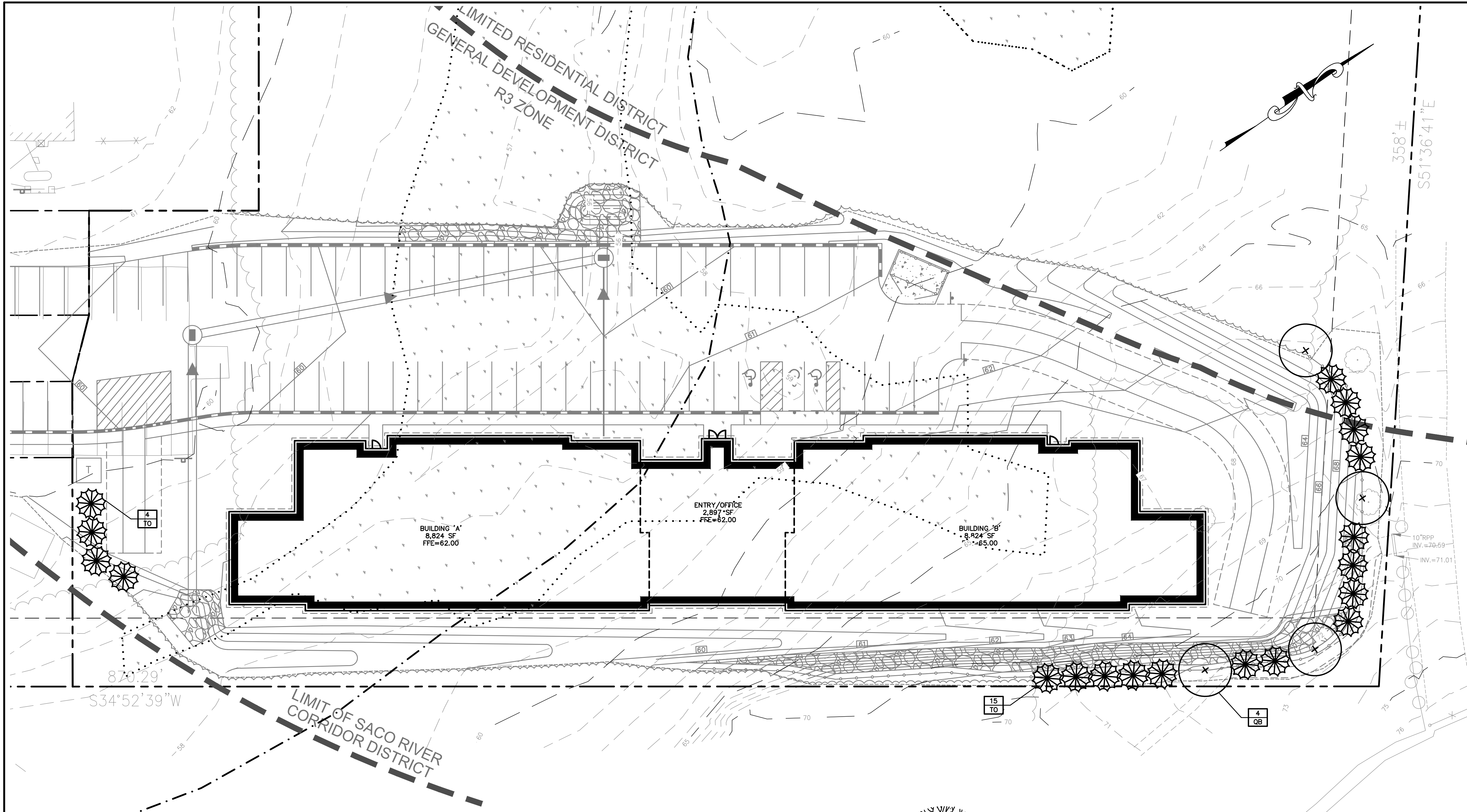


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300 Southborough Drive - Suite 200
South Portland, ME 04106

Drawing Name:	Utility & Drainage Details
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.	C403
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GENERAL PLANTING NOTES

- CALL DIG-SAFE (1-888-344-7233) PRIOR TO BEGINNING WORK. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO OWNER.
- CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
- DO NOT SCALE FROM DRAWINGS. ANY OMISSIONS IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT. ANY DISCREPANCIES BETWEEN DRAWINGS, PLANT QUANTITIES, DETAILS, NOTES AND SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT FOR FURTHER DIRECTION AND RESOLUTION BEFORE ANY ADDITIONAL WORK PROCEEDS.
- PROVIDE SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
- CONTRACTOR SHALL FURNISH AND PLACE 12 INCHES OF LOAM IN ALL SHRUB BEDS, 30 INCHES IN ALL TREE PITS, AND 6 INCHES UNDER ALL TURF AREAS. THE LANDSCAPE CONTRACTOR SHALL COORDINATE SUBGRADE PREPARATION WITH THE GENERAL CONTRACTOR PRIOR TO PLACING LOAM.
- ALL PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARDS FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN".
- ALL PLANT MATERIAL SHALL BE FREE FROM INSECTS AND DISEASE.
- ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM THE OWNER.
- ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
- EXISTING TREES TO BE PRESERVED SHALL BE PROTECTED DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
- ANY DEVIATION FROM THE LANDSCAPE PLAN, INCLUDING PLANT LOCATION, SELECTION, SIZE, QUANTITY, OR CONDITION SHALL BE REVIEWED AND APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT (AND MUNICIPAL AUTHORITY, IF APPLICABLE) PRIOR TO INSTALLATION ON SITE.
- WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
- DAMAGE TO EXISTING SITE IMPROVEMENTS DURING INSTALLATION OF LANDSCAPE MATERIAL SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
- CONTRACTOR SHALL COORDINATE INSPECTION OF PLANT MATERIAL AND LOCATIONS WITH PROJECT LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ALL PLANT MATERIAL SHALL BE ON-SITE AND PLACED BEFORE INSPECTION CAN BE COMPLETED. A MINIMUM OF 48 HOUR NOTIFICATION SHALL BE REQUIRED.
- MAINTENANCE REQUIREMENTS: PRUNE DEAD OR DAMAGED BRANCHES, MAINTAIN GUY POSTS AND WATER AS REQUIRED UNTIL PROJECT COMPLETION AND ACCEPTANCE BY OWNER.
- WATERING: ALL PLANTINGS SHALL BE THOROUGHLY WATERED UPON INSTALLATION, AND THEN WEEKLY WHENEVER ANY DRY SPELLS OCCUR, UNTIL ACCEPTANCE BY OWNER.
- LANDSCAPE CONTRACTOR OR PLANT SUPPLIER SHALL GUARANTEE PLANTS AND PROVIDE REPLACEMENTS FOR TWO YEARS FROM INSTALLATION.
- CONTRACTOR SHALL PLACE 3" SHREDDED BARK MULCH AROUND SHRUB BEDS AND TREE PITS.

PLANT LIST				
KEY	BOTANICAL NAME	COMMON NAME	SIZE	QTY
TREES				
TO	THUJA OCCIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	7'-8' HGT.	19
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	2-1/2' CAL.	4

GENERAL PLANTING NOTES:

DIG HOLE AT LEAST 2 TIMES THE WIDTH OF ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH ROOT FLARE AT GROUND LEVEL. CORRECT HOLE DEPTH AS NEEDED. NOTE: MANY BALLED & BURLAPPED PLANTS HAVE SOIL PILED AROUND THE ROOT FLARE WHICH SHOULD BE REMOVED PRIOR TO PLANTING.

FOR DECIDUOUS AND NEEDLED EVERGREEN TREES AND SHRUBS 1 FULL WHEELBARROW EXISTING SOIL, 2 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL. FOR BROAD-LEAVED EVERGREENS AND RELATED ERICACEAE PLANTS, 1 FULL WHEELBARROW EXISTING SOIL, 3-4 SHOVELS PEAT, 1 SHOVEL WELL ROTTED MANURE, OR OTHER COMPOSTED ORGANIC MATERIAL OF LOW pH (RECOMMENDATIONS ARE FOR ACCEPTABLE PLANTING AREAS).

CONTAINER GROWN STOCK:
REMOVE ALL CONTAINERS AND GENTLY COMB OUT ROOTS TO ELIMINATE CIRCLING ROOTS. PRUNE DAMAGED ROOTS AS NEEDED.

BACKFILL 2/3 OF HOLE WITH AMENDED SOIL THEN FILL HOLE WITH WATER, LET DRAIN, REPEAT WATER AND DRAIN. BACK FILL TO FINISH GRADE, TAMP GENTLY, AND CREATE EARTH SAUCER. WATER THOROUGHLY ONCE AGAIN TO REMOVE REMAINING AIR POCKETS.

2" x 2" OR 2 1/2" DIAMETER STAKES WITH 2 #12 GAUGE WIRES ENCASED IN 2-PLY REINFORCED RUBBER HOSE 1/2" DIAMETER OR CHAINLOCK AS APPROVED BY LANDSCAPE ARCHITECT. 2 STAKES LOCATED 180° APART (STAKES SHALL BE FIRMLY SET TO PROVIDE NECESSARY TENSION). STAKES TO BE REMOVED AFTER ONE YEAR TIME.

BLACK MULCH IN PLANTING BEDS

REMOVE PLASTIC BURLAP AND FIBER OR PEAT POT. REMOVE NATURAL FIBER BURLAP FROM AT LEAST THE TOP 1/2 OF ROOTBALL, OR MORE IF THE ROOTBALL IS FIRM. REMOVE TOP 1/2 OF WIRE BASKET.

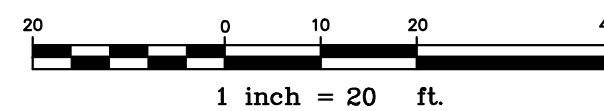
EARTH SAUCER (3" HT.)

SOIL MIX-SEE NOTE ABOVE AND BELOW

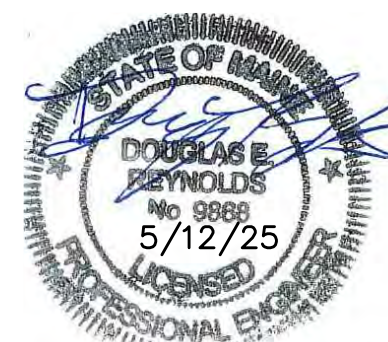
UNDISTURBED SUBGRADE

TREE AND SHRUB PLANTING DETAIL

NOT TO SCALE



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South Portland, ME 04106

Drawing Name:	Landscaping Plan
Project:	Forest Green Apartment Expansion 1 Park View Court, Biddeford, Maine
Client:	Bateman Partners 470 Fore St., Suite 400, Portland ME 04101

Drawing No.
L100

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have ade
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

SUBMITTAL REQUIREMENT	
ITEM NUMBER	DESCRIPTION
1	GENERAL PLAN REQUIREMENTS
A	Drawing specific legends (linetypes, hatches, etc.)
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)
2	COVER SHEET
A	Project Name & Property Address
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)
C	Site Location Map
D	Sheet Set List of Drawings
E	Tax Map and Lot ID
F	Zoning & Shoreland Zone Information
G	Existing Use Description
H	Proposed Use Description
I	Required Waiver/Variations (Yes/No); if yes, plan must clearly list waivers/variances requesting
J	Name of Drainage Watershed
K	Within the MS4 Urbanized Area (Yes/No)
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)
M	Within the 100-year Flood Zone (Yes/No)
N	Public Road Proposed (Yes/No)
O	Private Road Proposed (Yes/No)
P	Public Sewer Connection (Yes/No)
Q	Public Storm Drain Connection (Yes/No)
R	Limits of Disturbance in square feet and acres
S	Pervious Land Cover square footage, existing and proposed
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed
U	Building Roof square footage, existing and proposed
V	Assigned Planning Board Number
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)
3	EXISTING CONDITIONS PLAN
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)
B	Property & Right-of-Way Lines
C	Boundary line information (bearings, distances, etc.)

D	Property pin and monumentation locations
E	Existing easements with proper ownership identified
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
H	100-year Flood Zone Limits & Elevation
I	Existing contours with adequate contour labelling; minimum 1' contour interval
J	Existing building FFEs annotated
K	Spot elevations for all tie-in locations (curb cuts, property line)
L	Existing buildings & structures
M	Existing pavement areas & number of parking spaces
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)
P	Existing signage and striping
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation
U	Location of any borings, drinking wells, and monitoring wells
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN
A	Limits-of-disturbance outlined and acreage annotated
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
C	100-year Flood Zone Limits
D	Callout existing site features to be demolished/removed/replaced
E	Callout existing utilities to be demolished/removed/abandoned-in-place
F	Hatch existing buildings and pavement to be removed
G	Construction Entrance location(s)
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)
I	Stockpile and staging area(s) identified (with proper perimeter control)
J	Inlet protection location(s)
K	Note requiring contractor to implement dust control measures throughout construction
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed
5	SITE PLAN/SUBDIVISION PLAN
A	Partial Site Plans needed for any viewport scale greater than 1"=20'
B	Existing property and right-of-way lines
C	Proposed subdivision lot lines and labels
D	Required Zoning Setbacks shown with dimensions and annotation
E	Bulk requirement summary table (zoning/parking calculations)
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
G	100-year Flood Zone Limits
H	Proposed building outlines, door entrances and loading docks
I	Proposed building labels
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private
K	Proposed parking and accessible parking locations; annotate parking space counts
L	Proposed signage, parking striping, and traffic striping

M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)
O	Proposed landscaping; detailed landscaping design should be shown on separate plans
P	Designated snow storage areas
Q	Proposed dumpster locations and trash removal access
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks
S	Radial dimensions for all curbs, landscaped islands, sidewalks
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
W	Planning Board signature block for final recording
6	GRADING PLAN
A	Partial Grading Plans needed for any viewport greater than 1"=20'
B	Limits-of-disturbance outlined and acreage annotated
C	Proposed Building Labels with Individual Finished Floor Elevations (FFE's)
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval
E	Proposed contours with adequate contour labelling; minimum 1' contour interval
F	Detailed grading for all ditches, swales, outfalls, and riprap
G	All proposed contours tie-into existing contours at limits-of-disturbance outline
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
J	100-year Flood Zone Limits
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points
M	Proposed % slope arrows for all ADA parking spaces and sidewalks
N	Proposed longitudinal % slope arrows for drainage ditch centerlines
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)
7	ROAD PROFILES (if public/private road proposed)
A	Existing surface; dashed and screened
B	Proposed surface; continuous and bold
C	Road design speed must be clearly identified
D	Corresponding centerline stationing and curve data annotation
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37
F	Clear annotation if proposed road will be public or private
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
8	UTILITY PLAN
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)

D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas , electric , telecom , lighting)
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)
F	Proposed storm culverts, outfalls, and riprap locations and sizes
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
I	Flow directional arrows for storm & sewer pipes
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)
K	All storm drains must be sized to convey the 25-year storm
L	Sewer force main sizes and invert elevations
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells
O	Proposed water sizes labelled
9	UTILITY PROFILES
A	Utility profiles required for all gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins
B	Existing surface; dashed and screened
C	Proposed surface; continuous and bold
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated
10	DETAILS
A	Road section detail, including pavement/gravel depths & cross slopes
B	Sidewalk, paver, crosswalk, and any other pavement section details
C	Pavement sawcut & shiplap details
D	Utility trench/backfill detail
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.
F	Signage, striping, and ADA details
G	E&S notes and details
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)
I	Storm outfall & riprap details
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes
K	Pump station, grease trap, oil-water separator, septic, drinking well details
L	Conduit section details
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS
A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified
B	Landscaping & lighting details

12	DOCUMENTS/REPORTS/CALCULATIONS
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B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)
D	A Performance Guarantee Cost Estimate utilizing Planning's template
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified
K	Public sewer pump station sizing calculations and maintenance plan
M	Grease trap sizing calculations
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals

Site Plan & Subdivision submittals. No checklist is required for adequate reasoning to justify their absence.
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YES	ALL
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YES	C001
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YES	C001
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YES	C001
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YES	C001
YES	C001
YES	C001
YES	C001
YES	TOPOGRAPHIC SURVEY
YES	TOPOGRAPHIC SURVEY
YES	TOPOGRAPHIC SURVEY

YES	C101, C401
YES	C100-C104
YES	L101
YES	C101
YES	C101
YES	C101
YES	C101
NO	N/A
NO	N/A
NO	N/A
YES	C001, C100, C101
	C102
	C102
YES	C102
YES	C102
YES	C102
YES	C102
YES	C102
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YES	C102
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NO	N/A
NO	N/A
NO	N/A
YES	C401
YES	C401
YES	C401
YES	C402
YES	C401-C404
YES	C401
YES	C405
YES	C402-C403
YES	C403-C404
YES	
NO	N/A
YES	C403

YES	
YES	Attachment 5 & 6
YES	Attachment 11
NO	N/A
YES	Attachment 5
NO	N/A
NO	N/A
NO	N/A
YES	C001

or sketch submittals.

to resubmit.

[illegible][illegible]

Not Applicable
Not Applicable
Not Applicable
Not within project area
No private road proposed
No private road proposed
No private road proposed
No private road proposed
No private road proposed
No private road proposed
No private road proposed
No private road proposed
No private road proposed

Not Applicable
Not Applicable
Not Applicable
Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
None proposed

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT

Forest Green Apartment Expansion

Bateman Partners LLC

Sketch Plan

5/12/2025

CITY REVIEW RESPONSE

COMMENT	
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Date: **5/20/2025**

Project No.: **22061H**

To: **David Galbraith, City Planner**
Adi Iriqat, Assistant Planner

From: **Christine Rinehart, PE**
Nate Edwards, PE

Subject: **2025.09 Bateman Partners, LLC, Forest Green Expansion – Preliminary Site Plan and Subdivision Review**

As requested by the City of Biddeford, Wright-Pierce has reviewed the Preliminary Site Plan and Subdivision Application for the Forest Green development proposed by Bateman Partners, LLC. The proposed development is located at 1 Park View Court in Biddeford, Maine (Map 32, Lot 1) and is located in the General Development District. The proposed development project includes the construction of two condominiums with a total of 60 dwelling units. The project also includes extension of public sewer and water.

Documents Reviewed by Wright-Pierce

- Application Package for Site Plan and Preliminary Subdivision Review, 1 Park View Court, City of Biddeford, Maine, prepared by Gorrill Palmer for Bateman Partners, LLC, dated May 12, 2025.
- Forest Green Apartment Expansion Park View Court Plans, Biddeford, Maine, prepared by Gorrill Palmer, dated 5/12/2025 (13 pages).

Review Comments

Applicant should provide written responses to review comments recommending clarification or further information to be provided by the Applicant.

City Coordination Items

1. **Coordination items for the City are indicated within the Review Comments in red font.**

Checklist

See comments on attached Site Plan & Subdivision Application Drawing Checklist. Comments in the checklist have not been included in the review comments below.

General

1. Submit NRPA and Stormwater Law PBR permits when available.
2. The Applicant should provide additional clarification regarding Maine DEP Site Law permitting. The Applicant states that there is an existing Site Law permit for the site but also states the project is exempt from general and flooding standards and that permitting is not needed with the Maine DEP, since the City has capacity to review projects subject to Site Law. It is not clear why the project would be exempt from the general or flooding standards or additional permitting. If the site already has met its impervious area threshold requiring a Site Law permit, any additional development would require a Site Law amendment and stormwater treatment/detention. Applicant should coordinate with the City because they only have site capacity, which

includes certain types of submissions, and does not include stormwater capacity. Additionally, if an amendment is required, all the same materials that would be submitted to the DEP will need to be submitted and reviewed as part of this review.

Chapter 62 – Streets, Sidewalks, and Other Public Places

1. Section 62-87: Monumentation is required for streets proposed for public acceptance and intersection with easements. Park View Court is a public road; however, monuments at the Park View Court right-of-way, proposed condo lot line, and easement intersection with the right-of-way could not be located on the plans.

Chapter 66 – Subdivisions

No comment

Land Development Regulations, Article VI Performance Standards

Section 47 Multifamily Developments

2. Article VI, Section 47, Paragraph B.1.a of the Land Development Regulations (LDR) requires a letter from the Maine Water Company indicating an adequate water supply can be provided to the development at an adequate pressure for firefighting purposes. The Applicant has submitted an ability to serve letter, but it states that fire service demand was unknown and that a hydrant flow test is required. Additional coordination is required.
3. Article VI, Section 47, Paragraph B.1.e of the LDR requires a letter from the Biddeford Public Works, Sewer Division, indicating that sewer service is available and the sewage from the development can be adequately treated. **An ability to serve letter has not been submitted and the City has indicated there are downstream capacity concerns.**
4. Article VI, Section 47, Paragraph B.1.g of the LDR requires a common mailbox system and location approved by the local postmaster. Please clarify how mail is being delivered/stored.
5. Article VI, Section 47, Paragraph D.3 states all developments containing 15 or more dwelling units may be required by the Board to have more than one street access (for emergency and safety purposes). No more than two accesses shall be allowed on any single street or roadway. One access from Park View Court is proposed. **City to determine if the single entrance/exit is acceptable.**

Section 59 Signs

1. The sign legend on Sheet C101 does not include sign #5, which is shown on the plans.
2. “No parking” signs are provided at fire lane on north side of building but not on south side. Consider adding signage to both locations.

Section 70 Wildlife Preservation

1. Subsection A states that any project involving parcels of land of greater than five acres, or any portion of a larger parcel greater than five acres, shall be required to conduct a wildlife study by a certified wildlife biologist. This provision may be waived, if a letter from the Maine Department of Inland Fisheries and Wildlife (MDIFW) indicates there are no significant habitat areas involved in the project area or abutting adjacent land. The applicant should request a waiver of this requirement if they do not intend to consult with a wildlife biologist, referencing supporting documentation from MDIFW.

Land Development Regulations, Article XI Site Plan Review, Section 5 Site Design and Development Criteria

Drainage

1. Label the level lip spreader on the Grading and Drainage Plan.
2. While we agree that the stormwater analysis shows that the peak runoff rate mitigation requirement is met, the analysis should also show that the proposed drainage system is designed to properly convey runoff from the 25-year, 24-hour storm. The proposed structures are not included in the analysis.
3. Provide additional information on the detail for proposed catch basins as it is not clear how the pipe arch will be maintained at 90-degree bends within an open bottom structure.

Utilities

1. Since the project connects to public water and sewer, the applicant needs to provide letters from the environmental specialist of the City of Biddeford for sewer, and water company shall confirm details of connection and/or concerns, as required by Article XI.II, Section 5, Paragraph B.2.e of the LDR. An ability to serve determination from Maine Water was provided. Applicant to submit additional information when available.
2. The Applicant noted the static pressure of the proposed tap line in the narrative, and noted they will continue to work with Maine Water to ensure pressure requirements are met; however, the following items could not be located and should be specified in application narrative and on the plan, as required by Article XI.II, Section 5, Paragraph B.2.e of the LDR: Rated normal capacity and gallons per minute at prime use time, rated maximum capacity and gallons per minute at prime use time, and residual pressure of proposed tap line.
3. There is a typo in the slope of the sewer main from Building A to SMH1 and from SMH1 to the Exist. SMH. It appears the slope is intended to be 0.0050.

Parking

1. Applicant indicates lighting is anticipated to be through building mounted fixtures. A photometric plan should be provided.
2. Snow storage is shown on the westerly side of the parking lot. This does not seem realistic since that side of the parking lot has vertical curb. How will snow removal be managed?
3. Proposed pavement joint at south entrance includes two spot grades that match existing; however, the center of the drive includes a spot grade that suggests it does not match existing grade. Does the proposed limit of work need to be extended?

Structural Layout and Design

1. Fire protection
 - a. Submit correspondence with the Fire Department showing that they approve of the design.
 - b. A sprinkler design and plans for a fire alarm system will need to be submitted to the Fire Department for final approval. The City has noted that the sprinkler room should be in the front corner of the building.
 - c. Show the Knox box on the plan at a location approved by the Fire Department.
 - d. Turning diagrams were provided. Emergency vehicles would need to back in or out to access the northerly end of the building, which appears difficult, especially with the slope directly adjacent to the fire truck emergency access. Please coordinate with the Fire Department. They have indicated concerns about there not being enough access to the building.

2. Open space – Article XI.II, Section 5, Paragraphs B.4.j.1 of the LDR states, “In new residential developments: Open space shall be provided in the ratio of 1,000 square feet for each dwelling unit. This open space shall be identified as either a "green space" or as "recreational space."” It appears from the narrative that the open space requirement is met, however the open space extents and area should also be noted on the plans.
3. External lighting – See comment 1 in Parking section above.
4. Signs - See Section 59 Signs comment.

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST

CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have ade
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

SUBMITTAL REQUIREMENT	
ITEM NUMBER	DESCRIPTION
1	GENERAL PLAN REQUIREMENTS
A	Drawing specific legends (linetypes, hatches, etc.)
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)
2	COVER SHEET
A	Project Name & Property Address
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)
C	Site Location Map
D	Sheet Set List of Drawings
E	Tax Map and Lot ID
F	Zoning & Shoreland Zone Information
G	Existing Use Description
H	Proposed Use Description
I	Required Waiver/Variations (Yes/No); if yes, plan must clearly list waivers/variances requesting
J	Name of Drainage Watershed
K	Within the MS4 Urbanized Area (Yes/No)
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)
M	Within the 100-year Flood Zone (Yes/No)
N	Public Road Proposed (Yes/No)
O	Private Road Proposed (Yes/No)
P	Public Sewer Connection (Yes/No)
Q	Public Storm Drain Connection (Yes/No)
R	Limits of Disturbance in square feet and acres
S	Pervious Land Cover square footage, existing and proposed
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed
U	Building Roof square footage, existing and proposed
V	Assigned Planning Board Number
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)
3	EXISTING CONDITIONS PLAN
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)
B	Property & Right-of-Way Lines
C	Boundary line information (bearings, distances, etc.)
D	Property pin and monumentation locations

E	Existing easements with proper ownership identified
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
H	100-year Flood Zone Limits & Elevation
I	Existing contours with adequate contour labelling; minimum 1' contour interval
J	Existing building FFEs annotated
K	Spot elevations for all tie-in locations (curb cuts, property line)
L	Existing buildings & structures
M	Existing pavement areas & number of parking spaces
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)
P	Existing signage and striping
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation
U	Location of any borings, drinking wells, and monitoring wells
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN
A	Limits-of-disturbance outlined and acreage annotated
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
C	100-year Flood Zone Limits
D	Callout existing site features to be demolished/removed/replaced
E	Callout existing utilities to be demolished/removed/abandoned-in-place
F	Hatch existing buildings and pavement to be removed
G	Construction Entrance location(s)
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)
I	Stockpile and staging area(s) identified (with proper perimeter control)
J	Inlet protection location(s)
K	Note requiring contractor to implement dust control measures throughout construction
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed
5	SITE PLAN/SUBDIVISION PLAN
A	Partial Site Plans needed for any viewport scale greater than 1"=20'
B	Existing property and right-of-way lines
C	Proposed subdivision lot lines and labels
D	Required Zoning Setbacks shown with dimensions and annotation
E	Bulk requirement summary table (zoning/parking calculations)
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
G	100-year Flood Zone Limits
H	Proposed building outlines, door entrances and loading docks
I	Proposed building labels
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private
K	Proposed parking and accessible parking locations; annotate parking space counts
L	Proposed signage, parking striping, and traffic striping
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed

N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)
O	Proposed landscaping; detailed landscaping design should be shown on separate plans
P	Designated snow storage areas
Q	Proposed dumpster locations and trash removal access
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks
S	Radial dimensions for all curbs, landscaped islands, sidewalks
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
W	Planning Board signature block for final recording
6	GRADING PLAN
A	Partial Grading Plans needed for any viewport greater than 1"=20'
B	Limits-of-disturbance outlined and acreage annotated
C	Proposed Building Labels with Individual Finished Floor Elevations (FFE's)
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval
E	Proposed contours with adequate contour labelling; minimum 1' contour interval
F	Detailed grading for all ditches, swales, outfalls, and riprap
G	All proposed contours tie-into existing contours at limits-of-disturbance outline
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)
J	100-year Flood Zone Limits
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points
M	Proposed % slope arrows for all ADA parking spaces and sidewalks
N	Proposed longitudinal % slope arrows for drainage ditch centerlines
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)
7	ROAD PROFILES (if public/private road proposed)
A	Existing surface; dashed and screened
B	Proposed surface; continuous and bold
C	Road design speed must be clearly identified
D	Corresponding centerline stationing and curve data annotation
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37
F	Clear annotation if proposed road will be public or private
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads
8	UTILITY PLAN
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)

E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)
F	Proposed storm culverts, outfalls, and riprap locations and sizes
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
I	Flow directional arrows for storm & sewer pipes
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)
K	All storm drains must be sized to convey the 25-year storm
L	Sewer force main sizes and invert elevations
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells
O	Proposed water sizes labelled
9	UTILITY PROFILES
A	Utility profiles required for <u>all</u> gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins
B	Existing surface; dashed and screened
C	Proposed surface; continuous and bold
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated
10	DETAILS
A	Road section detail, including pavement/gravel depths & cross slopes
B	Sidewalk, paver, crosswalk, and any other pavement section details
C	Pavement sawcut & shiplap details
D	Utility trench/backfill detail
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.
F	Signage, striping, and ADA details
G	E&S notes and details
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)
I	Storm outfall & riprap details
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes
K	Pump station, grease trap, oil-water separator, septic, drinking well details
L	Conduit section details
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS
A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified
B	Landscaping & lighting details

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LAST REVISED: 11/26/2024

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YES	C001
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YES	C001
YES	C001
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YES	C001
YES	C001
YES	C001
YES	C001
YES	C001
YES	C001
YES	C001
YES	C001
YES	TOPOGRAPHIC SURVEY
YES	TOPOGRAPHIC SURVEY
YES	TOPOGRAPHIC SURVEY
YES	TOPOGRAPHIC SURVEY

YES	C100-C104
YES	L101
YES	C101
YES	C101
YES	C101
YES	C101
NO	N/A
NO	N/A
NO	N/A
YES	C001, C100, C101
	C102
	C102
YES	C102
YES	C102
YES	C102
YES	C102
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NO	N/A
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NO	N/A
NO	N/A
NO	N/A
NO	N/A
NO	N/A
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NO	N/A
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YES	C103
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YES	C103

YES	C103
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NO	N/A
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NO	N/A
NO	N/A
YES	C401
YES	C401
YES	C401
YES	C402
YES	C401-C404
YES	C401
YES	C405
YES	C402-C403
YES	C403-C404
YES	
NO	N/A
YES	C403

YES	
YES	Attachment 5 & 6
YES	Attachment 11
NO	N/A
YES	Attachment 5
NO	N/A
NO	N/A
NO	N/A
YES	C001

or sketch submittals.

to resubmit.[illegible][illegible]

Not Applicable
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Not Applicable
Not within project area
No private road proposed
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Not proposed within right-of-way
Not proposed within right-of-way
Not proposed within right-of-way
None proposed

Project Name:
Planning Board # (if available):
Applicant Name/Info:
Submittal #/Type (Prelim/Final):
Submittal Date:

ACCEPTABLE (YES/NO-REVISE & RESUBMIT)
Yes
Yes
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Submit photometric for final

City to verify
Yes
No
City to verify
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N/A
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SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT

Forest Green Apartment Expansion

Bateman Partners LLC

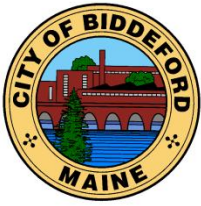
Sketch Plan

5/12/2025

WRIGHT-PIERCE REVIEW RESPONSE 5/20/2025

COMMENT

See review memo



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Deputy Director/City Planner

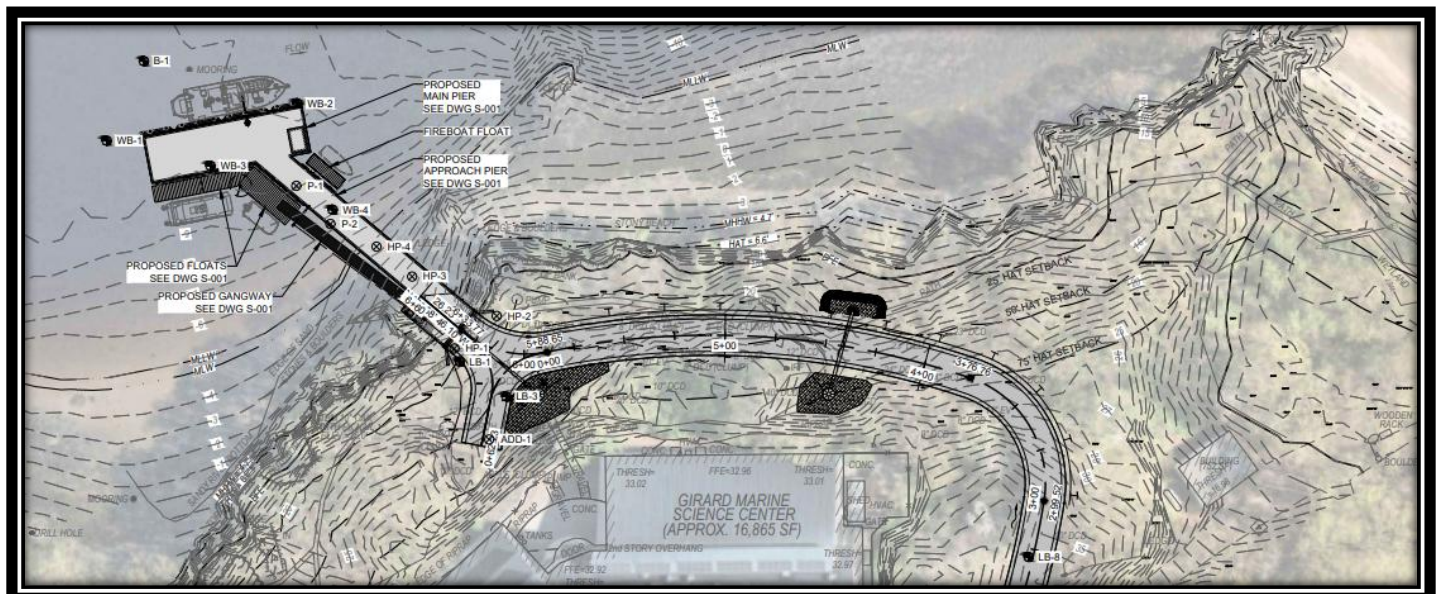
DATE: June 6, 2025

RE: **2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.**

MEETING DATE: June 18, 2025, at 6:00 PM

1. INTRODUCTION

Tom Saucier, PE of Site Design Associates, is representing the University of New England (UNE) who is applying for Preliminary Site Plan Review within the Shoreland Zoning District. The University of New England (UNE) proposes to construct a new pier on the Saco River adjacent to the Girard Marine Science Center (GMSC) to support research and educational programming. The project has been in development for more than 10 years and has gone through extensive planning and alternatives analysis in arriving at the design that is being proposed.

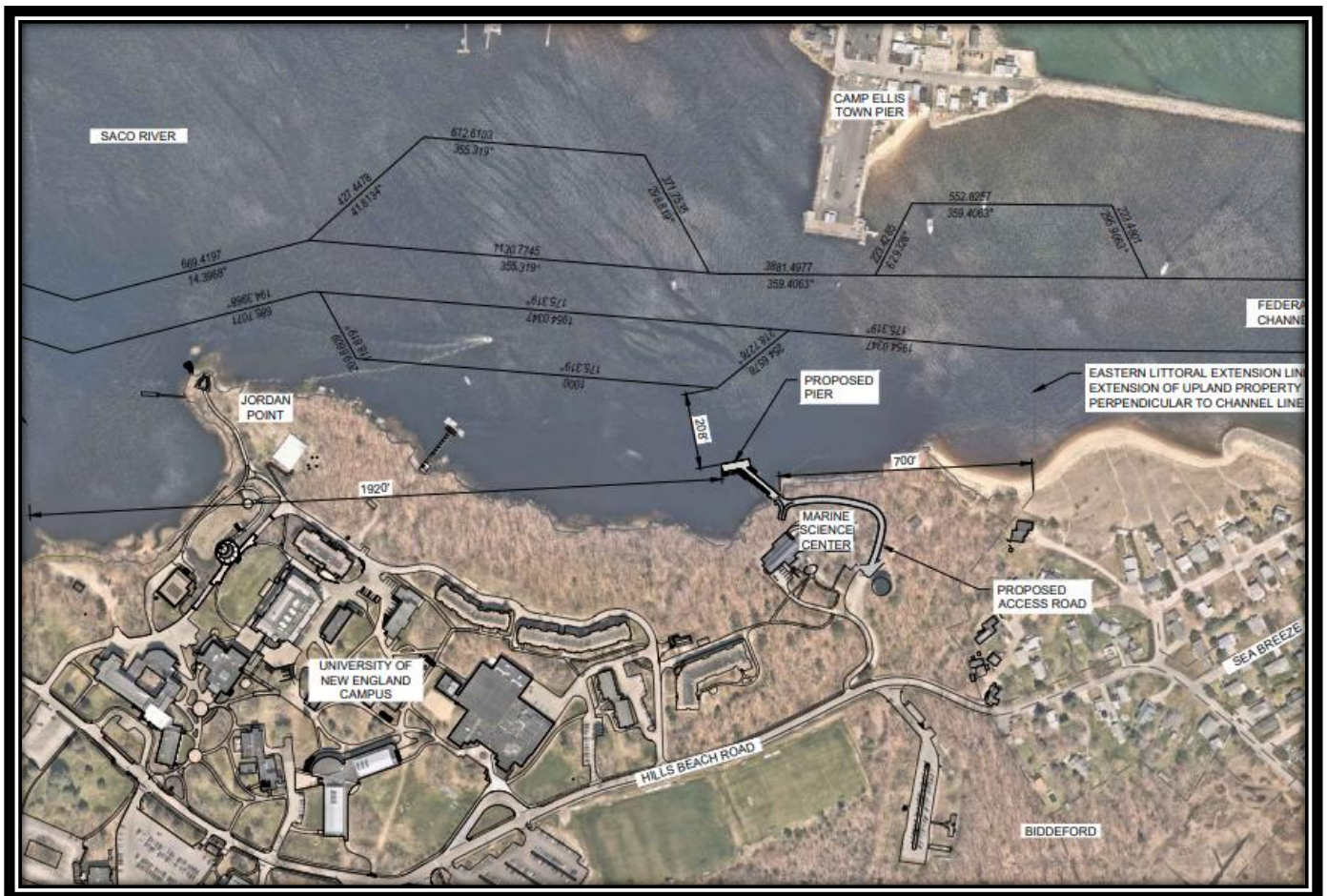


Proposed Marine Science Center Research Pier

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM

It should be noted that the Planning Department received the formal application for this project on April 16, 2025. However, the case # that was assigned to this project was in 2024 (Case # 2024.34) as that is when the Planning Department started receiving comments from the public on this application (prior to application submittal), and Staff wanted to make certain that any and all correspondence related to this matter be saved within the public record for complete transparency. These submitted emails / letters were forwarded to the Planning Board and the University New England and have been maintained by the Planning Department.

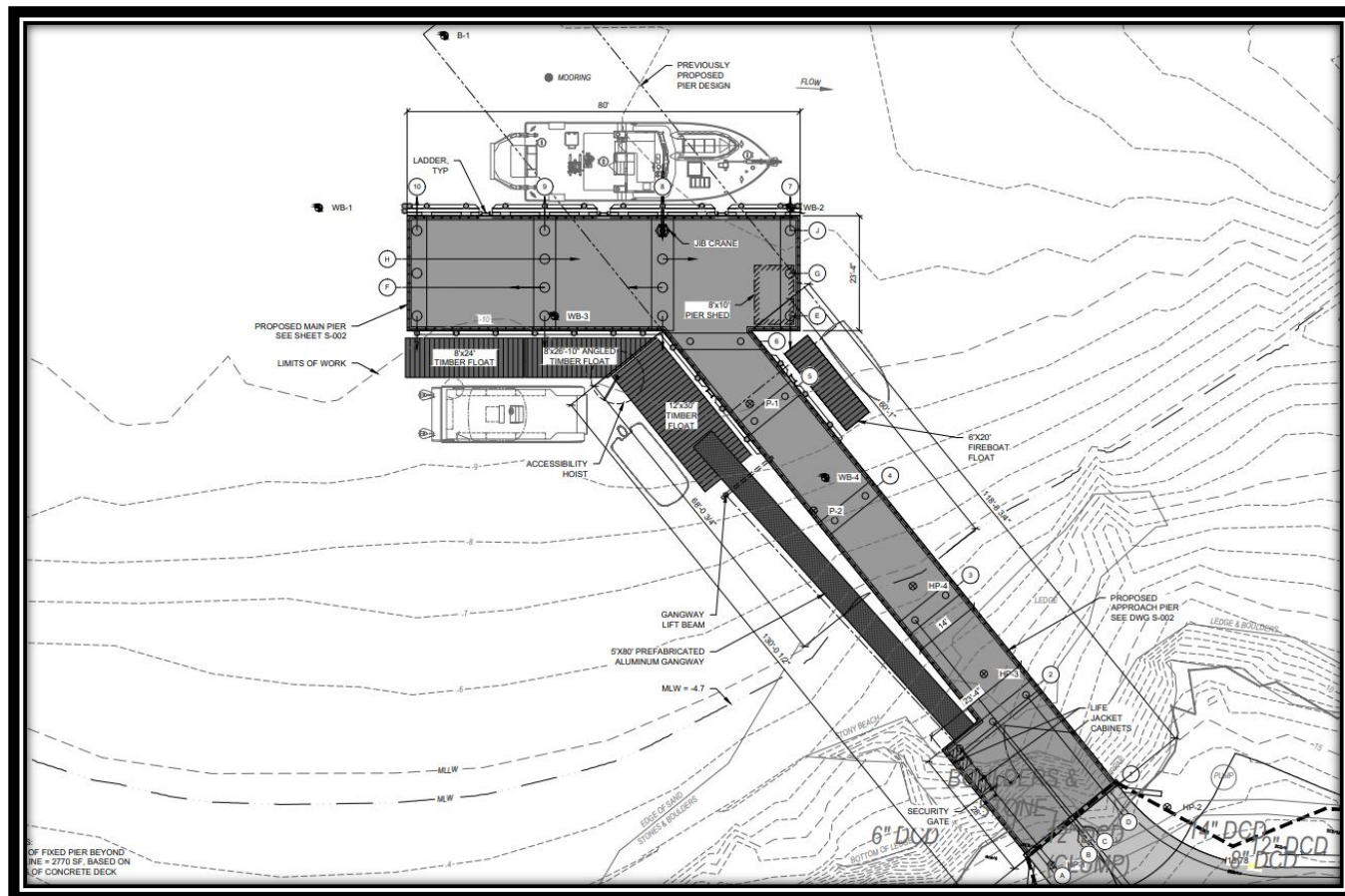


University of New England (UNE) – proposed Marine Science Center Research Pier

The University of New England (UNE) campus is located along the Saco River in Biddeford, ME. The Marine Science Center is located on the waterfront at the easterly end of campus approximately opposite Camp Ellis in Saco. To support MSC research activities, UNE proposes to construct a pier from the shore adjacent to the MSC into the Saco River to provide an all-tide access facility for small and shallow draft vessels (skiffs, landing craft, up to approximately 3-foot draft), with tidally-restricted access for larger vessels.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM



Marine Science Center Research Pier Detail

The proposed facility includes the following:

1. A pile supported pier structure extending from shore into the Saco River. The proposed pier includes an approximately 130-foot-long approach section extending from shore and an 80-foot-long pier head section oriented roughly parallel to the direction of flow in the river. The pier consists of a concrete superstructure on steel pipe piles, with timber fender piles for vessel berthing and floating docks, and a pile supported gangway lifting beam to allow the gangway ramp to be temporarily removed from the water. Site 7 (Preferred) Stormwater Management Report UNE Marine Science Center Pier September 2023, Revision B. April 2025 GEI Consultants, Inc.
2. A floating dock system consisting of one 8-foot by 24-foot float, one 8-foot by 26-foot 10-inch float, and one 12-foot by 30-foot gangway landing float to provide alltide vessel access for UNE’s vessels on the west side of the pier, and a single 6-foot by 20-foot floating dock to provide a tie-up location for the City of Biddeford Fire Boat on the east side of the pier.
3. An 80-foot by 5-foot gangway, to provide ADA compliant access to the float system.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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4. An upland access road connecting the existing road at the MSC to the proposed pier, including associated site grading, drainage, and stormwater management features.

These proposed improvements will result in a total increase in impervious area totaling 0.249 acres. The increase in impervious area will be managed by the two bioretention filter cells to the north of the Girard Marine Science Center. Runoff will be conveyed to the bioretention filter cells via proposed vegetated swales along the low side of the superelevated access road. The bioretention filter cells will slowly release captured stormwater via underground pipe into the Saco River/Atlantic Ocean.

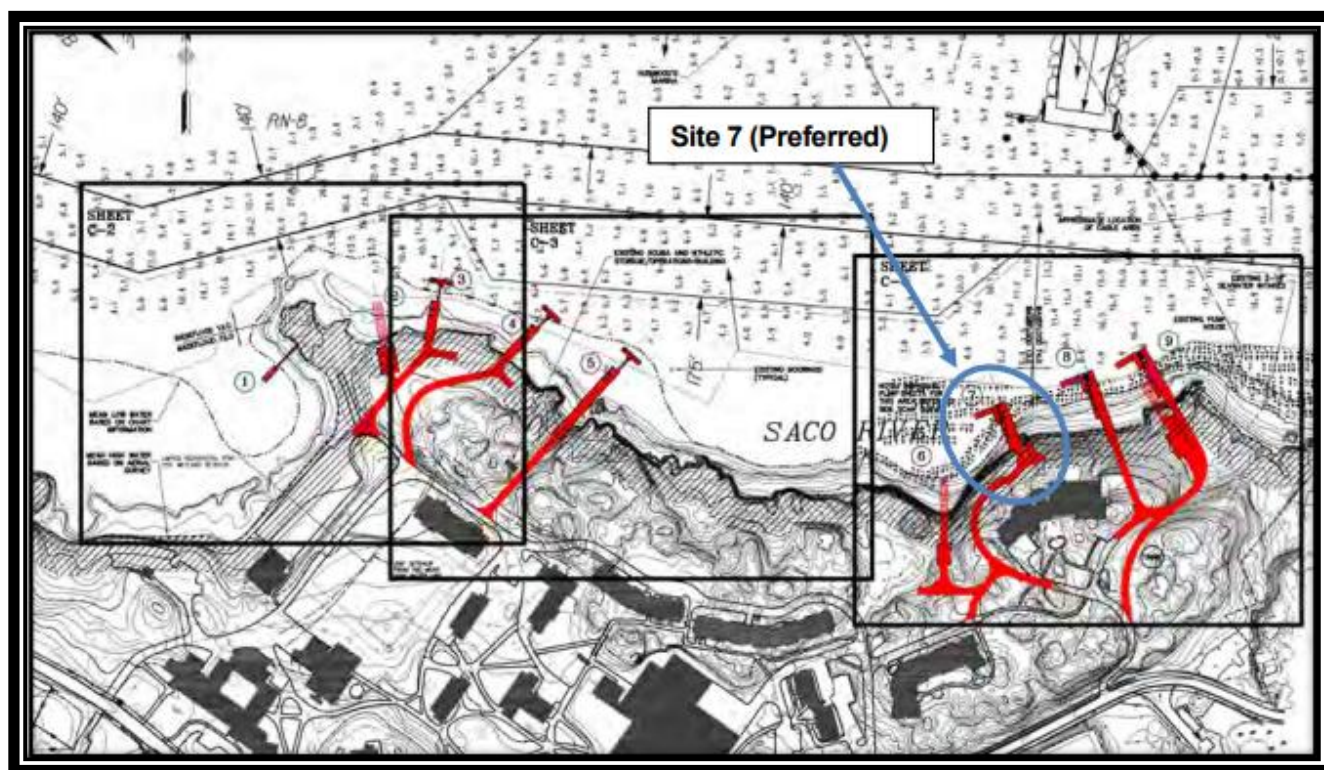


Fig. 1 – Alternative Sites Evaluated in 2008-2010 Study

As outlined in their project narrative, multiple locations for the pier were evaluated Alternative locations “for more than 10 years and has gone through extensive planning and alternatives analysis in arriving at the design that is proposed”.

The University’s consultants (Daniel Bannon, P.E., CFM and Barney Baker, P.E. of GEI Consultants) evaluated alternate pier locations and concluded that:

“GEI has reviewed the concerns raised by the Saco and Biddeford Harbormasters and evaluated their impact on the proposed design, reviewed the history of planning that led to the current design location and layout, and reviewed the potential advantages and disadvantages offered by the suggested alternative pier location. While we respectfully value the input and suggestions for a layout alternative, it is our opinion that the proposed design represents the preferred balance of project requirements and site constraints. Compared to the suggested

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alternative, the proposed design achieves adequate water depth, provides safe navigation, results in a structure of smaller overall dimensions with less coastal wetland impact, does not appear to be subject to significant sediment deposition, and locates the pier in a location that is less exposed to current and icing impacts. For these reasons, GEI recommends that the current design and pier location be maintained” (*Note: Emphasis added).

After completing the pier feasibility study and identifying Site 7 as the preferred pier location, UNE undertook additional effort in 2015-2016 to study alternative pier layouts that would address the functional and vessel needs of the marine science curriculum as well as the site exposure, berthing conditions, access requirements, and associated site impacts. During this work, numerous alternative pier layouts were considered. Alternate locations evaluated water depth, exposure to currents, location relative to river sediment deposition, exposure to icing, and impacts to moorings.

2. PROJECT DATA/INFORMATION

1.	Applicant:	University of New England 11 Hills Beach Road Biddeford, ME
2.	Owner of Property:	University of New England 11 Hills Beach Road Biddeford, ME
3.	Agent:	Tom Saucier, P.E. Site Design Associates 23 Whitney Way Topsham, ME 04086
4.	Surveyor:	Tom Saucier, P.E. Site Design Associates 23 Whitney Way Topsham, ME 04086
5.	Project Location:	11 Hills Beach Road
6.	Project Tax Map #/Lot #:	Tax Map 52 Lot 4
7.	Lot Size:	49.9-acres
8.	Base Zoning:	Institutional (IN)
9.	Overlay Zoning:	Shoreland Zoning
10.	Existing Use:	Saco River
11.	Proposed Use:	Marine Research Pier
12.	Approvals Required:	Site Plan and Shoreland Review
13.	Uses in the Vicinity:	University
14.	Waivers Needed:	A. Article XI.II. Section 5.B.1.a. (post development runoff) B. Article XI.II. Section 5.B.1.e.3. (Slopes steeper than 2:1 in ledge)
18.	Waivers Granted:	Pending
22.	Other Non-City Permits Required:	N/A
23.	LDR Attachment A: Fees Paid:	Yes

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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25.	Planning Board Review History: Sketch Plan Review - May 21, 2025; Site Walk June 9, 2025; Preliminary Review - June 18, 2025
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3. REVIEW PROCESS

Per City ordinance, this application is subject to Site Plan (Land Development Regulations, Article XI) review and Shoreland Zoning approval by the Planning Board. Below is a list of required agency reviews.

- Saco River Corridor Commission (SRCC) – Approval 9-13-2024 Attached pages # 282-287 of the Applicants application.
- Department of Environmental Protection (MDEP), Findings of Fact (FOF) and Order Pages # 288-295, dated April 11, 2025, of the Applicants application.
- U.S. Army Corps of Engineers, New England District, approval dated March 28, 2025. Pages # 296-298 of the Applicants application.
- Maine Historic Preservation Commission, Approval dated May 15, 2023.
- City of Biddeford letter from Former City Manager (James Bennett) regarding a “Notice to Proceed with External Reviews” / compliance with City Code 74-35, subsections (c) items 1-10, dated August 19, 2025, Pages #302-303 of the Applicants application.

4. SITE PLAN APPROVAL / SITE DESIGN CRITERIA:

A. Drainage:

Applicants’ Comments: *A Stormwater Management Report is attached. The report submitted demonstrates compliance with Maine Department of Environmental Protection (DEP) Basic and General standards. The project will include bioretention filters designed to DEP BMP standards for enhancement of stormwater runoff quality. A waiver of Article XI.II.Section 5.B.1. is required for an increase in the rate of runoff. This waiver has historically been granted by the planning board for projects located on the UNE parcel that are directly tributary to tidal receiving waters, which will be the case for this project. There will be no impact on the capacity of a receiving downgradient storm system. The bioretention filters will provide stormwater quality enhancement and cooling of runoff, as well as a level of stormwater detention. Level spreaders will be utilized to evenly distribute runoff from the bioretention filters into sheet flow. Although an increase in the rate of runoff is shown at two point locations on the drainage plans, the reality is that the stormwater runoff from the subcatchments is distributed over a wide area.*

Staff Comment: This standard has been met, as the project complies with the Maine Department of Environmental Protection (DEP) Basic and General standards and permits from the agency. **The project meets this standard.**

B. Utilities: Power will be fed underground to the pier from the Girard Marine Science Center.

Staff Comment: Power to the proposed pier will be provided from the Girard Marine Science Center building. **The proposed utilities address and meet this standard.**

C. Parking: There will be no formal dedicated parking associated with the project.

Staff Comment: The Girard Marine Science Center provides adequate parking for the associated / “accessory structure (pier)” as the students and faculty of Science Center will be the same users of the proposed pier. **The application meets this standard.**

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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D. Structural Layout and Design:

a) Design of Buildings:

An 8 ft x 10 ft shed is proposed on the pier. A photo in attachment 12 shows a rendering of the shed; a wood frame structure, with weather resistant siding, and a metal roof.

b) Setbacks:

The research pier is sited in conformance with all setback requirements.

c) Fire Protection & Safety:

Based on input from the fire department, the road width was increased to 20 ft per NFPA standards. The turnaround meets the city required dimensional standards and has been modelled to accommodate fire apparatus.

d) Landscaping:

The revegetation plan has been developed to meet the City of Biddeford’s Shoreland Zoning requirements as well as to preserve a visual buffer for the access drive to minimize visibility from the water to the greatest extent possible, while achieving the required clearing and considering functional requirements such as snow plowing at the turnaround. The revegetation plan also meets the requirements of the Saco River Corridor Commission (SRCC) who issued a permit for the project.

Revegetation Plan: The revegetation plan, drawing C-15, is intended to meet the city of Biddeford’s shoreland zoning requirements.

Details are as follows:

- 49 trees are being removed with 21 of those within the 50-foot HAT setback
- Approximately 5,850 SF of understory duff later and low growth vegetation (predominantly non-native invasive honeysuckle) is being disturbed within 50 feet of the HAT.
- 5 tree species are proposed in approximate equal quantities with the evergreen trees located between the road shoulder grading and the top of embankment where they are anticipated to fit under the remaining mature forest canopy, and between existing trees and ledge. Field verification during construction will be required to ensure final plant locations are feasible if shallow ledge or significant remaining tree root stock is present.
- 3 shrubs (2 evergreen and 1 deciduous) are proposed to plant at the toe of the road embankment as well as in areas around the turnaround where fitting larger trees will be challenging given limited space and the need to maintain an area for plowed snow.
- Deciduous trees are spread throughout the area.
- The bioretention cells will be filled with a mix of wet, drought and salt tolerant shrubs and perennials which are shown on the plan as a hatched area. The notes on the plan and drawing C-16 plant schedule describe the random pattern mixing of these plants throughout the bio retention cells.
- All other disturbed areas will be planted with a native roadside mix of perennial grasses and flowers. It is recommended that this area be mowed once a year in the fall to maintain the mix of plants. If mowed more often, it will revert to mostly lawn grasses.
- Mature plant sizes are listed on the plant list to give a sense of the amount of screening that may occur over time.

Staff Comment: The proposed development meets these standards.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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e) Service, Storage, and Utility Areas:

Staff Comment: Not applicable

f) Paving, Parking, and Storage Areas:

No paving, parking, or storage is located within the side or rear setback of the property, nor within the front setback of the property.

Staff Comment: The proposed development meets this standard.

g) Handicapped Accessibility:

Staff Comment: The proposed pier has been designed to meet ADA requirements. **The proposed development meets this standard.**

h) Loading Facilities:

Staff Comment: Standard not applicable.

i) Parking, Loading, and Protective Buffers:

The non-vegetated area of the land being developed will be less than 75% and a minimum of 25% of the land area being developed either remains in its natural state or consists of landscape and lawn areas.

Staff Comment: The proposed development meets this standard.

j) Open Space:

Staff Comment: Not applicable.

k) External Lighting:

An electrical site plan is included in the drawing set which shows the site lighting. Full cut off fixtures will be utilized, and lighting will be the minimum necessary for safety and functionality.

Staff Comment: The proposed development meets this standard.

l) Signs:

Staff Comment: The proposed standard is not applicable.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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m) Historic and Archeological Resources:

See attachment 10 for a letter from the Maine Historic Preservation Commission clearing the project.

Staff Comment: The proposed development meets this standard.

5. Shoreland Zoning Land Use Standards:

The project will comply with the applicable standards of Article XIV. Section 15.C. which is listed below:

15 C. Piers, docks, wharfs, bridges and other structures and uses extending over or below the normal high-water line of a water body or within a wetland.

1. Except as provided in Section 15C11 and Section 15X7, no more than one pier, dock, wharf or similar structure extending or located below the normal high-water line of a water body or within a wetland is allowed on a single residential lot; except that when a single lot contains at least twice the minimum shore frontage as specified in Section 15A, a second structure may be allowed and may remain as long as the lot is not further divided.

Staff Comment: Standard not applicable

2. Access from shore shall be developed on soils appropriate for such use and constructed so as to control erosion.

Staff Comment: Access from shore will be developed on soils appropriate for the use. A detailed erosion control plan has been prepared for the project. The proposal meets this standard.

3. The location shall not interfere with existing developed or natural beach areas.

Staff Comment: The proposal does not interfere with existing developed or natural beach areas. The application meets this standard.

4. The facility shall be located so as to minimize adverse effects on fisheries.

Staff Comment: The facility has been located to minimize adverse effects on fisheries. The plan was reviewed by the National Marine Fisheries Service. The application meets this standard.

5. The facility shall be no larger in dimension than necessary to carry on the activity and be consistent with the surrounding character and uses of the area. A temporary pier, dock, or wharf in nontidal waters shall not be wider than six feet for non-commercial uses.

Applicant Comment: The facility size is the minimum necessary to carry out current and future research activities and is consistent with the surrounding character and uses of the area, including the Camp Ellis pier on the opposite side of the river.

Staff Comment: The proposed project meets this standard.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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- 6.** *No new structure shall be built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland unless the structure requires direct access to the water body or wetland as an operational necessity.*

Staff Comment: Standard not applicable

- 7.** *New permanent piers and docks on nontidal waters shall not be permitted unless it is clearly demonstrated to the Planning Board that a temporary pier or dock is not feasible, and a permit has been obtained from the Department of Environmental Protection, pursuant to the Natural Resources Protection Act.*

Staff Comment: A temporary pier / dock at this location at this location is not feasible for the proposed use. The Applicant has obtained approval from the Department of Environmental Protection (DEP).

- 8.** *No existing structures built on, over or abutting a pier, dock, wharf or other structure extending beyond the normal high-water line of a water body or within a wetland shall be converted to residential dwelling units in any district.*

Staff Comment: Standard not applicable

- 9.** *Except in the General Development District, structures built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland shall not exceed 20 feet in height above the pier, wharf, dock or other structure.*

Staff Comment: An 8 ft x 10 ft shed for storage of life jackets, tools, and research equipment is proposed on the pier, and is an operational necessity. The shed will not exceed 20 ft in height. **The proposal meets this standard.**

NOTE: Permanent structures projecting into or over water bodies shall require a permit from the Department of Environmental Protection pursuant to the Natural Resources Protection Act, Title 38 M.R.S.A., Section 480-C.

Staff Comment: The Applicants have received approval for the proposed dock from the Maine Department of Environmental Protection (MDEP)

- 10.** *Vegetation may be removed in excess of the standards in Section 15P of this ordinance in order to conduct shoreline stabilization of an eroding shoreline, provided that a permit is obtained from the Planning Board. Construction equipment must access the shoreline by barge when feasible as determined by the Planning Board.*

Applicant Comments:

a. *When necessary, the removal of trees and other vegetation to allow for construction equipment access to the stabilization site via land must be limited to no more than 12 feet in width. When the stabilization project is complete, the construction equipment accessway must be restored.*

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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b. Revegetation must occur in accordance with Section 15S.

NOTE: A permit pursuant to the Natural Resource Protection Act is required by the Department of Environmental Protection for shoreline stabilization activities.

Staff Comment: The applicant has submitted a detailed erosion control and revegetation plan for the project which adequately addresses erosion control and site revegetation standards. **The applicant meets this standard.**

11. A deck over a river may be exempted from the shoreland setback requirements if it is part of a downtown revitalization project that is defined in a project plan approved by the legislative body of the municipality, and may include the revitalization of structures formerly used as mills that do not meet the structure setback requirements, if the deck meets the following requirements:

Applicant’s Comments:

- a. The total deck area attached to the structure does not exceed 700 square feet;
- b. The deck is cantilevered over a segment of a river that is located within the boundaries of the downtown revitalization project;
- c. The deck is attached to or accessory to an allowed commercial use in a structure that was constructed prior to 1971 and is located within the downtown revitalization project;
- d. The construction of the deck complies with all other applicable standards, except the shoreline setback requirements in Section 15B; and
- e. The construction of the deck complies with all other state and federal laws.

Staff Comment: The proposal is for a dock/pier, so the above standards related to “decks” are not applicable. **Standard not applicable.**

6. Departmental Review Comments:

E. Planning:

- 1) No Comments.

F. Code Enforcement:

- 1. No comments / concerns at this time.

G. Engineering / Public Works:

- 1. No comments at this time.

H. Police Department:

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

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1. No comments / concerns at this time.

I. Fire Department:

1. The Fire Department has been meeting with representatives of UNE to verify the proposed fire turn-around’s design is adequate to maneuver the City’s largest fire apparatus.

J. Traffic Peer Review:

1. Not Applicable.

K. Engineering Peer Review:

1. No comments at this time.

7. SITE PLAN APPROVAL CRITERIA: The proposed project will need to meet the below standards at Final Planning Board review:

- 1) The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
- 2) The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
- 3) The proposed exterior lighting, where allowed, would not create hazards for motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
- 4) The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
- 5) The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
- 6) The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
- 7) The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
- 8) The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM

- 9) The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
- 10) The proposed use would be in compliance with Biddeford's Comprehensive Plan;
- 11) The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
- 12) The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
- 13) Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
- 14) Adequate provision has been made to control erosion or sedimentation;
- 15) Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
- 16) The proposed water supply would meet the demands of the proposed use for fire protection purposes;
- 17) Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
- 18) The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
- 19) When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

8. STAFF REVIEW

APPLICATION COMPLETENESS: This Application is for a “Preliminary Plan” review and in addition to Planning Board review and approval of the project, it also requires approval from:

A. ZONING:

The subject property is located within the City’s Institutional (IN) zoning district where a university research dock is a permitted use.

B. REVIEW STANDARDS:

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM

The major site details being proposed, such as the research dock, access roadway, and landscaped areas have been designed by the Applicant. The submitted application has been in the design process for approximately 10 years, so the “Preliminary Review” application is identical to the “sketch plan” documents as the application was “determined complete” during “Sketch Plan” review. Plans remain unchanged. In reviewing the application, Staff finds that the application satisfies the City’s Shoreland Zoning Ordinance and Site Plan criteria.

C. WAIVER REQUESTS:

The Applicants are seeking two waivers, namely:

- 1) Article XI.II. Section 5.B.1.a.
“The rate of post-development runoff shall not exceed that of predevelopment. Details of catch basins, drainage pipes and retention/detention ponds shall be provided as needed with the application. All detail sheets shall bear the seal and signature of a professional engineer, licensed in the State of Maine”.

Applicant Waiver Request Rational:

A waiver of Article XI.II.Section 5.B.1.a is required for an increase in the rate of runoff. This waiver has historically been granted by the planning board for projects located on the UNE parcel that are directly tributary to tidal receiving waters, which will be the case for this project. There will be no impact on the capacity of a receiving downgradient storm system. The bioretention filters will provide stormwater quality enhancement and cooling of runoff, as well as a level of stormwater detention. Level spreaders will be utilized to evenly distribute runoff from the bioretention filters into sheet flow. Although an increase in the rate of runoff is shown at two point locations on the drainage plans, the reality is that the stormwater runoff from the subcatchments is distributed over a wide area.

Staff Recommendation: The increased rate of post-development runoff is minimal, and Staff recommends granting this waiver request.

9. SAMPLE WAIVER REQUEST MOTIONS (Post Development Runoff):

- A. Motion to Approve: I motion to APPROVE the requested waiver for Article XI.II. Section 5.B.1.a. (post development runoff) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.
- B. Motion to Deny: I motion to DENY the requested waiver for Article XI.II. Section 5.B.1.a. (post development runoff) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM

C. Motion to Table: I motion to TABLE the requested waiver for Article XI.II. Section 5.B.1.a. (post development runoff) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.

SAMPLE WAIVER REQUEST MOTIONS (Article XI.II. Section 5.B.1.e.3. (Slopes steeper than 2:1 in ledge):

The Applicants are seeking a waiver to Article XI.II. Section 5.B.1.e.3. (Slopes steeper than 2:1 in ledge) which states *“No slope shall be created which results in a slope of more than two feet horizontal to one foot vertical unless proper retaining walls are proposed”*.

Staff Recommendation: Staff reviewed the proposed site grading and find the proposed slope waiver to be acceptable, and recommend the Board grant the requested waiver. Below are sample motions:

- 1. Motion to Approve: I motion to APPROVE the requested waiver for Article XI.II. Section 5.B.1.e.3. (slopes greater than 2:1) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.
- 2. Motion to Deny: I motion to DENY the requested waiver for Article XI.II. Section 5.B.1.e.3. (slopes greater than 2:1) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:
 - A) _____.
 - B) _____.
 - C) _____.
- 3. Motion to Table: I motion to TABLE the requested waiver for Article XI.II. Section 5.B.1.e.3. (slopes greater than 2:1) for Case # 2024.34 Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:

RE: Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

MEETING DATE: June 18, 2025, at 6:00 PM

- A) _____.
- B) _____.
- C) _____.

4. SAMPLE MOTIONS FOR SITE PLAN AND SHORELAND ZONE APPROVAL:

The Application before the Board is a “Preliminary Plan”, so a formal vote is required.

- A. Motion to Approve: I motion to APPROVE Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District.

- B. Motion to Deny I motion to DENY Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.

- C. Motion to Table: I motion to TABLE Case # 2024.34 Preliminary Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:

- 1) _____.
- 2) _____.
- 3) _____.

**CONFIDENTIAL
MEMORANDUM**

To: Biddeford Planning Board

From: Harry B. Center, II, Esq., City Solicitor

Date: June 11, 2025

RE: UNE Pier Application

I am writing to supplement my memorandum dated June 9, 2025 regarding the pending University of New England pier application. Citizens have raised the issue regarding TEC Associates review of the initial application pursuant to the Harbor ordinance (Ordinance 74-35). Again, I caution the planning board that its review of this matter must be limited to the applicable city ordinances. There is not a provision within Article 14 §15(C), in the Shoreland zoning ordinance or site plan review, which authorizes the planning board to review the permission requirement in the city's Harbor ordinance.

Attached please find my memorandum dated July 8, 2024, which was sent to the former city manager. In that memorandum, I address the role of the harbormaster, specifically citing the city council's policy committee meeting of August 7, 2023, during which the current ordinance was presented and ultimately adopted by the council. Because the permission required from the harbormaster is not an opportunity to approve or deny an application for a pier, and the harbormaster role is "nothing but a facilitator," I provided a legal opinion that concluded an engineering firm could be delegated the task of reviewing the pier application and determining whether the application was complete. As stated in the memorandum, it is common for the City of Biddeford, including this planning board, to engage outside experts, such as traffic engineers, environmental engineers, and individuals to perform soil or water tests. In this matter, the city appropriately delegated the task of the harbormaster facilitating an applicant request pursuant to the ordinance. Lastly, I note that should there have been any interested party who would have had standing, the time for any judicial review of the city's activity in July and August 2024 has long passed.

**CONFIDENTIAL
MEMORANDUM**

To: City Manager James Bennett

From: Harry B. Center, II, Esq., City Solicitor

Date: July 8, 2024

RE: Opinion and Interpretation of City Code 74-35

You have asked me to provide you with my interpretation and legal opinion regarding City of Biddeford Code of Ordinances Sec. 74-35, which relates to construction of marine piers. This code provision has become the subject of interpretation as a result of the University of New England's recent application for a marine pier. This current ordinance provision was recently amended in September, 2023. An August 9, 2023 policy committee meeting approved a proposed draft ordinance that was submitted by Chair of the Harbor Commission, John Schafer. Set forth below is the full section of the current ordinance:

Sec. 74-35. Construction of wharf, pier or landing regulated.

[Ord. of 4-20-1993, S 26-29; Ord. No. 2007.11, 3-6-2007; amended 2-19-2013 by Ord. No. 2013.7; 9-19-2023 by Ord. No. 2023.1021]

- (a) No additions, alterations, new construction or/or changes to an existing wharf, pier or landing shall be made without prior permission of the Harbormaster.*
- (b) Permission for the construction of any new wharf or pier within the jurisdictional limits of the City shall not be granted without approval of the Harbormaster, along with federal, state, and local governing authorities.*
- (c) To obtain permission for any new wharf or pier, the applicant must provide the following information:*
 - (1) A formal boundary survey that has been documented at the Registry of Deeds.*
 - (2) A copy of the boundary survey showing the littoral zone, established by extending property lines seaward.*
 - (3) A location map from a portion of a USGS topographic map or coastal chart.*
 - (4) Distance to navigable channels or any federal navigation project.*

- (5) *Mean high- and low-water boundary.*
- (6) *A plan view on the drawing(s) that shows the location and dimensions of the applicant's structure(s) in relation to the applicant's property lines.*
- (7) *A typical cross section/side view of the applicant's structures on the drawing(s).*
- (8) *Evidence that owners of abutting properties have been notified of the applicant's intended project.*
- (9) *Evidence that the 1) Maine Historic Preservation Commission, 2) Aroostook Band of Micmac, 3) Passamaquoddy Tribe of Indians: Pleasant Point; Indian Township, 4) Houlton Band of Maliseet Indians, and 5) Penobscot Indian Nation have been notified of the applicant's intended project.*
- (10) *Completed applications to the Army Corps of Engineers, Department of Environmental Protection and Biddeford Code Enforcement. A regulatory permit from the Saco River Corridor Commission may also be required in some instances.*
- (d) *The process to obtain permission for any new wharf or pier shall be facilitated by the Harbormaster. Initially, the Harbormaster shall be available to guide the applicant through the application process and finally, to sign off that all regulatory approvals have been obtained for construction.*

I have previously provided you with opinions relating to allegations regarding the current City of Biddeford Harbormaster's prejudicial and biased statements regarding the potential University of New England pier. I have opined those statements made by the current harbormaster prior to any formal application from UNE, such as "I will never approve the pier application in that location," constituted bias and a violation of the University's due process rights. You removed the current harbormaster from consideration of the UNE marine pier application. While the City determines who, on behalf of the City, will function in the role as harbormaster regarding the UNE marine pier application, you have asked me to review and provide you with a legal opinion as to what conditions and criteria would be applied to the marine pier application on behalf of the City, pursuant to the aforementioned code provisions.

The interpretation of the provisions of a municipal ordinance is a question of law. *Rockland Plaza Realty Corporation v. City of Rockland*, 2001 Me. 81. Numerous Maine Supreme Court Opinions provide that ordinance provisions should be given their plain and ordinary meaning, and any interpretation of ordinance language should be done in a manner to avoid absurd, illogical, or inconsistent results. *Wright v. Town of Kennebunkport*, 1998 Me. 184. There is a legal presumption favoring the validity of municipal ordinances and a municipal ordinance's constitutionality and reasonableness will be presumed. *Gabriel v. Town of Old Orchard Beach*, 390 A.2d 1065 (Me. 1978). In construing and interpreting municipal ordinances, a reviewing Court may review the purpose of the enactors to determine the intent of the ordinance. *Natale v. Kennebunkport Board of Zoning Appeals*, 363 A.2d 1372 (Me. 1976). Applying these legal principles regarding ordinance interpretation, I can provide you with the following opinions.

Subsection (a) and (b) of Sec. 74-35 expressly provide that any new construction of a pier, within the jurisdictional limits of the City of Biddeford, requires permission of the harbor master. The issue is what criteria the harbor master applies when determining whether to “grant permission.” On its face, it would appear that the harbor master has the authority to “deny” permission of a pier application. However, applying the aforementioned legal principles when reviewing the ordinance at (c) (1-10), it is my opinion that the role of a harbor master granting permission is limited to a review of the information set forth in items 1-10. The harbor master’s review is limited to inspection of the items for completeness, then upon the applicant’s receipt of all other agency’s approval, permission is then granted to the applicant to proceed to the City Planning Board and Code Office.

The ordinance provides at subsection (d), that the harbor master shall *guide* the applicant through the application process, and “*sign off that all regulatory approvals have been obtained for construction.*” In my opinion, a plain and ordinary interpretation of the entire ordinance set forth in Section 74-35 leads to the conclusion that the harbor master’s role in granting permission is limited to an initial determination that all of the items set forth in (c) (1-10) have been completed and submitted to the appropriate governing bodies, and then a subsequent determination as to whether those agencies have granted approval.

When interpreting ordinance provisions, the court looks to the legislative intent of the enacting body. A review of the intent of the City Policy Committee and ultimately the City Council’s intent supports my opinions regarding interpretation of the ordinance. Ordinance 74-35 was initially reviewed by the city Council subcommittee, the Policy Committee. At a public meeting on August 7, 2023, chairperson of the Harbor Commission, John Schaeffer, presented the proposed ordinance. During that meeting, City Counselor, Norman Belanger asked Mr. Schaeffer, whether the harbor master was the person who issued a permit for a new pier. Mr. Schaeffer expressly responded, “*that is absolutely not the case.*” Mr. Schaeffer further explained that the harbor master is “*nothing but a facilitator*”. This legislative intent, combined with reading the ordinance as a whole, leads to the legal conclusion that the harbor-master’s role is to guide an applicant through the process, and determine whether the items in subsection (c) (1-10), are complete and ultimately approved by the other agencies.

Construing the ordinance in its entirety and a review of the legislative (City Council) intent unequivocally evidences a clear intent defining the role of the harbor master as a facilitator. An applicant for a new pier must, as a condition precedent, initially establish that items 1 through 10 are complete. Upon return to the harbor master following completion of those items and receipt of approval from the regulatory bodies, the harbor master, then “*signs off*”. The express use of the term “*signs off*” establishes the role of the harbor master in the process.

It is further my opinion that review of items 1 through 10 are not exclusively delegated to the appointed harbor master. Facilitation and review of those items may be delegated to a person or entity with technical expertise, such as an engineering firm. It is common for the City to engage independent experts to review permit applications such as traffic engineers, environmental engineers and others depending on the nature of the approval sought. Because the review process is not the final approval by the City, such delegation is permissible. It is important to note that the harbor master, the code enforcement officer and other individuals in city offices, such as

planners and assistant code personnel, are generally not licensed, professional engineers, nor do their approvals act as performing those expert reviews. The Planning Board, Code Office and other City employees rely on submissions from the applicant such as a stamped professional engineer's approval on plans submitted, structural plans, and other highly technical information that is beyond the scope of city officials. The city does not want to be held liable for the soundness of any project, nor the technical approvals of those projects. City officials rely on the applicant's expert's submitted plans and/or approvals from other regulatory bodies such as the Army Corp of Engineers and the State Department of Environmental Protection in the case of marine piers.

It is my legal opinion that the harbormaster does not issue or approve a permit to construct a marine pier. Pursuant to the ordinance, the harbormaster acts as a facilitator to ensure the prerequisites have been submitted, then once all those approvals are obtained then performs the ministerial act of signing off/granting permission to proceed to the City Planning Board and Code Office. The City Shoreland Zoning Ordinance, as well as the duties of the code enforcement officer to issue permits for structures, provide the city with the necessary final review of the process and protect the City's interests. The harbormaster role pursuant to the ordinance is limited to being a facilitator of the application and ultimately signing off, moving the application forward to the Planning Board and Code Office.

CONCLUSION

1. Reading the ordinance as a whole and applying legal principles for interpretation of the ordinance, the harbormaster's role is as a facilitator to ensure that an applicant for a marine pier has completed items in section (c) 1-10 as a condition precedent.
2. The City may delegate the harbormaster tasks (facilitation of submission to AOC, DEP, etc.) and ensuing completeness, to a third party such as an independent engineer or firm.
3. Once an applicant has received information that includes APPROVALS from the agencies that have expertise in reviewing such projects, the harbormaster performs that ministerial task of granting permission to the applicant or "signs off", pursuant to section (d) of the ordinance.
4. Once the harbormaster signs off on the marine pier application, the Planning Board and Code office review the project and ultimately decide whether grant approval and issue the appropriate permits, pursuant to the City's Shoreland Zoning Ordinance and Floodplain Management Ordinance.

**CONFIDENTIAL
MEMORANDUM**

To: Biddeford Planning Board

From: Harry B. Center, II, Esq., City Solicitor

Date: June 9, 2025

RE: UNE Pier Application

The following sets forth my opinions and responses to the various questions raised during the initial planning board meeting regarding the University of New England pier application. This Memorandum also addresses questions from the planning department and is in response to comments made by the public. Some responses are set forth by reference to the attached prior documentation, opinion memorandum, and correspondence.

I. SCOPE OF PLANNING BOARD REVIEW

Initially as City Attorney, I must advise the planning board as to the criteria for legal review of this application. This project falls within the jurisdiction of the city's shoreland zoning ordinance. Pursuant to the city land use ordinances, this project is also subject to site plan review. Those ordinances provide the planning board with jurisdiction to review and vote on this project.

The planning board's review of the UNE pier application is pursuant to Article XIV of the city's, shoreland zoning ordinance Section 15 (C). That ordinance provision, attached hereto, provides the only basis for planning review and subsequent granting of approval or denial. Just last week, the Maine Supreme Judicial Court in *Newfield Sand v. Town of Newfield*, 2025 ME 45, confirmed the well-established legal authority relating to a planning board's application of ordinance provisions when making any determination to grant or deny an application. The court stated, that any conditions imposed by a municipal planning board must be authorized by the enabling ordinance and defined clearly when a permit is considered, so that the applicant understands what is required, *Newfield Sand v. Town of Newfield* citing *Cobbossee Development Group v. Town of Winthrop* 585 A.2d 190 (ME. 1981). Permit requirements and ordinances lacking specificity are vulnerable to challenge for vagueness or excessive delegation of the municipalities legislative authority *Doane v. Department of Health and Human Services* 2021 ME 28.

At the May 21, 2025 initial planning board meeting, much public comment related to the proposed location of the pier, the current of the river in the area where the proposed pier would be located, the depth of the water at that location and other issues, including, but not limited to moorings in the vicinity of the pier location. None of those concerns raised are within the jurisdiction of the planning board pursuant to Article XIV, §15(C.)

Regarding the issue of the planning board's jurisdiction, and what standards the planning board may apply, considering whether or not to approve this project, I advise the planning board to also rely upon recommendations from the City of Biddeford planning department staff. I have asked staff to review whether I am missing any provisions that would allow the planning board to consider water depth at the location of the proposed pier, impact of the proposed pier on navigation, impact of the proposed pier on the current of the river or any of the other many navigation and waterway related concerns, raised by many of the speakers at the public hearing. To date, I have not been advised of any such provisions are within the planning board review process.

II. REMOVAL OF CURRENT HARBORMASTER FROM UNE PIER PROCESS

Attached is a memorandum that I drafted for the former city manager on May 15, 2024 regarding the UNE pier application and issues regarding the Biddeford Harbormaster and the Biddeford Harbor commission. That memorandum is titled "confidential" because it contained my legal advice to the city manager regarding numerous issues involved at that time. A review of the attached memorandum starting with the "issue" section provides background. You may note that the University of New England is arguing that the late, former harbormaster actually gave his approval verbally for the current requested site.¹ Please review the memorandum, as it explains the legal basis for why the harbormaster's role in this process was changed as well as the legal basis for removing current Harbor commission from the city's review process.

Enclosed, please find a memorandum from the former city manager to the Mayor, City Council, and the University of New England, dated May 22, 2024. In that memorandum, the city's action relating to the pier was set forth in writing. Additionally, I attach a letter dated May 22, 2024 from the former city manager to the current harbormaster which advised the current harbormaster that he would not be handling any review or approval of the UNE project and the basis for that decision.

III. HARBORMASTER PRO TEM PRIOR PERMISSION

Enclosed as a July 22, 2024 letter (I do not have a signed copy) from an independent engineering, firm, TEC Associates addressed to the city, outlining the fee and scope of project for TEC Associates to act as a harbormaster pro tem. The harbormaster's role in reviewing pier applications pursuant to city code Section 74-35, is limited to the Harbormaster being "nothing but a facilitator."² This engineering firm reviewed the UNE application in the role of Harbormaster Pro Tem pursuant to the city ordinance. On August 19, 2024, the city of Biddeford was provided notice that the application was complete and in the role of temporary harbormaster TEC Associates granted permission pursuant to the ordinance. The sole legal basis for a harbormaster to approve or deny a pier application is to **facilitate and guide the applicant's application process and ensure that the application is complete.** The city's harbor ordinance has no legal standards in place to review a pier application for whether the water depth is appropriate, there is an impact on current navigation, or other arguments made by the public at the May 21, 2025 public hearing. The same legal principles that limit a planning board's ability to review an application, also apply to

¹ The City has rejected that position.

² Quotation from former Harbor Commission Chair John Schaefer to the City Council policy committee on August 7, 2023, explaining the intent in drafting code Provision 74-35.

any review by a harbormaster. A citizen applying to their government for approval is constitutionally entitled to be made aware of the legal standards, and only those legal standards validly adopted by the governmental body may be applied to appeal, to approve, or deny a given application. I also attach a memorandum I sent to the former city manager on July 8, 2024, explaining the legal support for the principles, as well as the limitations of the harbormaster's review of a pier application.

IV. POTENTIAL PLANNING BOARD "DENIAL WITHOUT PREJUDICE"

I have been asked whether a member of the planning board may make a motion to "deny without prejudice" regarding the pier application. Any such denial must be based upon a standard that is applicable on this issue. The planning board may not arbitrarily deny a project based upon a desire to simply postpone it. There is no specific provision that I could find to authorize a "denial without prejudice." For guidance, a review of the zoning board of appeals ordinance provides that an applicant who has been denied may make another application two years after that denial or make a substantial change in the request. I would be very concerned about my ability to support a "denial without prejudice" if it is simply intended to delay the project and not based upon any of the standards set forth in the shoreland zoning ordinance.

The planning board enabling ordinance states that it must adopt Roberts Rules of Order. Under Roberts Rules a motion to table either to a date certain or indefinitely may be made. However, I caution you that such a motion without a specific Basis, i.e., needs more information on a subject that is within the planning board jurisdiction, an appeal could be taken from an arbitrary motion to table. I see no legal support for a motion to deny, without prejudice. The planning board may choose to grant the permit for the pier, deny it, or move to table it. Any such final action will first be appealed to the zoning board of appeals, then to the courts.

V. MOORINGS

You have asked me for advice regarding the issue of the placement of moorings in the area where the proposed pier would be located. The planning board has no jurisdiction regarding the issue of moorings. Similar to the analogy of a property ownership dispute between an applicant and another party, the planning board does not have jurisdiction over the legal issues of title or ownership. There are no provisions in the Shoreland zoning ordinance which the planning board would use to review the issue of the impact on moorings when a pier is constructed. Arguments by the public about ownership of the moorings, relocation of the moorings, and other concerns are not subject to the planning board review of this project.

Attached is a copy of the city's mooring permit application. Within that document, it is stated that the city may move the location of a mooring at the city's discretion at any time. Further, while it is not necessary for the planning board to consider all of these issues, a mooring permit is issued for only one year, and does not give the permit holder a legal ownership in any rights in the waterway. Even if the mooring issue was within the planning board's jurisdiction, the planning board would not require a pier, dock, or wharf applicant to compensate mooring permittees who may have moorings adjacent to a potentially constructed pier, dock, or wharf. This issue is not within the scope of the planning boards review.

**CITY OF BIDDEFORD
SHORELAND ZONING
ORDINANCE
ARTICLE XIV
SECTION 15(C)**

- g. A vegetated buffer area is established within 25 feet, horizontal distance, of the normal high-water line of a water body, tributary stream, or upland edge of a wetland when a natural buffer area does not exist. The buffer area must meet the following characteristics:
 - i. The buffer must include shrubs and other woody and herbaceous vegetation. Where natural ground cover is lacking, the area must be supplemented with leaf or bark mulch;
 - ii. Vegetation plantings must be in quantities sufficient to retard erosion and provide for effective infiltration of stormwater runoff;
 - iii. Only native species may be used to establish the buffer area;
 - iv. A minimum buffer width of 15 feet, horizontal distance, is required, measured perpendicularly to the normal high-water line or upland edge of a wetland;
 - v. A footpath not to exceed the standards in Section 15P2a, may traverse the buffer.
 6. Notwithstanding the requirements stated above, stairways or similar structures may be allowed with a permit from the Code Enforcement Officer, to provide shoreline access in areas of steep slopes or unstable soils provided; that the structure is limited to a maximum of four feet in width; that the structure does not extend below or over the normal high-water line of a water body or upland edge of a wetland, (unless permitted by the Department of Environmental Protection pursuant to the Natural Resources Protection Act, 38 M.R.S.A. § 480-C); and that the applicant demonstrates that no reasonable access alternative exists on the property.
- C. Piers, docks, wharfs, bridges and other structures and uses extending over or below the normal high-water line of a water body or within a wetland.
 [Amended 2-2-2010 by Ord. No. 2009.98; 10-18-2016 by Ord. No. 2016.69]
1. Except as provided in Section 15C11 and Section 15X7, no more than one pier, dock, wharf or similar structure extending or located below the normal high-water line of a water body or within a wetland is allowed on a single residential lot; except that when a single lot contains at least twice the minimum shore frontage as specified in Section 15A, a second structure may be allowed and may remain as long as the lot is not further divided.
 2. Access from shore shall be developed on soils appropriate for such use and constructed so as to control erosion.
 3. The location shall not interfere with existing developed or natural beach areas.
 4. The facility shall be located so as to minimize adverse effects on fisheries.
 5. The facility shall be no larger in dimension than necessary to carry on the activity and be consistent with the surrounding character and uses of the area. A temporary pier, dock, or wharf in nontidal waters shall not be wider than six feet for noncommercial uses.
 6. No new structure shall be built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a wetland unless the structure requires direct access to the water body or wetland as an operational necessity.
 7. New permanent piers and docks on nontidal waters shall not be permitted unless it is clearly demonstrated to the Planning Board that a temporary pier or dock is not feasible, and a permit has been obtained from the Department of Environmental Protection, pursuant to the Natural Resources Protection Act.
 8. No existing structures built on, over or abutting a pier, dock, wharf or other structure extending beyond the normal high-water line of a water body or within a wetland shall be converted to residential dwelling units in any district.
 9. Except in the General Development District, structures built on, over or abutting a pier, wharf, dock or other structure extending beyond the normal high-water line of a water body or within a

wetland shall not exceed 20 feet in height above the pier, wharf, dock or other structure.

NOTE: Permanent structures projecting into or over water bodies shall require a permit from the Department of Environmental Protection pursuant to the Natural Resources Protection Act, Title 38 M.R.S.A., Section 480-C.

10. Vegetation may be removed in excess of the standards in Section 15P of this ordinance in order to conduct shoreline stabilization of an eroding shoreline, provided that a permit is obtained from the Planning Board. Construction equipment must access the shoreline by barge when feasible as determined by the Planning Board.

- a. When necessary, the removal of trees and other vegetation to allow for construction equipment access to the stabilization site via land must be limited to no more than 12 feet in width. When the stabilization project is complete, the construction equipment accessway must be restored.
- b. Revegetation must occur in accordance with Section 15S.

NOTE: A permit pursuant to the Natural Resource Protection Act is required from the Department of Environmental Protection for shoreline stabilization activities.

11. A deck over a river may be exempted from the shoreland setback requirements if it is part of a downtown revitalization project that is defined in a project plan approved by the legislative body of the municipality, and may include the revitalization of structures formerly used as mills that do not meet the structure setback requirements, if the deck meets the following requirements:
 - a. The total deck area attached to the structure does not exceed 700 square feet;
 - b. The deck is cantilevered over a segment of a river that is located within the boundaries of the downtown revitalization project;
 - c. The deck is attached to or accessory to an allowed commercial use in a structure that was constructed prior to 1971 and is located within the downtown revitalization project;
 - d. The construction of the deck complies with all other applicable standards, except the shoreline setback requirements in Section 15B; and
 - e. The construction of the deck complies with all other state and federal laws.
- D. Campgrounds. Campgrounds shall conform to the minimum requirements imposed under state licensing procedures and the following:
 1. Campgrounds shall contain a minimum of 5,000 square feet of land, not including roads and driveways, for each site. Land supporting wetland vegetation, and land below the normal high-water line of a water body shall not be included in calculating land area per site.
 2. The areas intended for placement of a recreational vehicle, tent or shelter, and utility and service buildings shall be set back a minimum of 100 feet, horizontal distance, from the normal high-water line of a great pond classified GPA or a river flowing to a great pond classified GPA, and 75 feet, horizontal distance, from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland.
[Amended 2-2-2010 by Ord. No. 2009.98]
- E. Individual private campsites. Individual, private campsites not associated with campgrounds are allowed, provided the following conditions are met:
[Amended 2-2-2010 by Ord. No. 2009.98]
 1. One campsite per lot existing on the effective date of this ordinance, or 30,000 square feet of lot area within the Shoreland Zone, whichever is less, may be permitted.

MAY 15, 2024
LEGAL OPINION FROM CITY ATTORNEY
TO CITY MANAGER REGARDING VIOLATIONS
OF DUE PROCESS BY HARBORMASTER
AND HARBOR COMMISSION

**CONFIDENTIAL
MEMORANDUM**

To: City Manager James Bennett

From: City Attorney Harry B. Center, II, Esq.

Date: May 15, 2024

RE: UNE Pier Application/Due Process Issues

BACKGROUND

Starting in 2015, The University of New England (hereinafter "UNE") has researched and undertaken preliminary steps to construct a marine pier/wharf appurtenant to its campus in the City of Biddeford (UNE refers to this as the Girard Marine Science Center Pier-hereinafter "pier"). The pier would be constructed within the City's jurisdiction of the Saco River. Pursuant to City of Biddeford Code of Ordinances (hereinafter "Code") Section 74-35 (a), any new construction of a pier/wharf must be approved by the City of Biddeford Harbormaster. Pursuant to the Charter of the City of Biddeford (hereinafter "Charter"), Article X, Section 7, the position of Harbormaster is created. Code provisions 74-46 through 74-51 set forth the authority, duties, qualifications and compensation of the Biddeford Harbormaster.

Pursuant to the City Charter, Article IV, the City Manager is the chief administrator of the City and has complete administrative authority over all City of Biddeford personnel, including the Harbormaster. That authority includes the power to direct, supervise, discipline all city department heads and officers and to follow and implement laws of the Federal Government, State of Maine and the Charter and Code provisions of the City of Biddeford.

The Harbormaster is a municipal government official, who must follow all Federal and State Constitutional provisions as well as the Charter and Code. A party aggrieved by a decision of the Harbormaster may appeal to the City's Harbor Commission, which is a Municipal body, established pursuant to the Code Section 74-61. Pursuant to Section 74-63, appeals from parties aggrieved by a decision of the Harbor Master are before the Harbor Commission.

ISSUE

In 2015 UNE initially approached the City with a plan/site map prepared by Baker Design Consultants, which set forth nine potential locations for the pier. UNE contends that at a site walk in August 2015 former Harbormaster Marshall Alexander verbally approved or accepted a location known as Site #7 for the pier. This is a disputed issue of fact. In my opinion, notwithstanding the Code provision which provides that the Harbormaster will facilitate and

guide any applicant through the application process (Code 74-35(d)), because UNE has not formally applied for approval of the pier, no formal municipal decision has been made. Due to funding delays and the pandemic and such, UNE never moved forward with a formal request to the Harbormaster seeking approval to construct the pier at Site #7. In the Fall of 2023, UNE contacted the current Harbormaster Paul Laverriere, to move forward on Site #7.

In early 2024 City officials received complaints from representatives of UNE regarding the Harbormaster Paul Laverriere's conduct in his capacity as Harbormaster as it relates to the proposed pier. Note that I do not call this a "pending application for a permit" as UNE has not yet formally submitted an application for the pier. UNE alleges that the City's Harbormaster, Paul Laverriere, has made numerous statements evidencing bias against the UNE- which is a factual dispute. More importantly, UNE alleges that Harbormaster Laverriere has prejudged the potential pier application, and he has publicly stated that he is going to deny or refuse to issue a permit to UNE for a pier at Site #7. This allegation is not subject to dispute.

Chair of the Harbor Commission, John Schafer, sent email correspondence dated February 25, 2024, to the entire Harbor Commission, the Mayor, yourself and the entire City Council with "cc" to a variety of citizens. In that email, Chair Schafer states that a dispute exists between UNE and Biddeford over the design and location of the subject pier. Further that email contained the minutes of a February 21, 2024 Joint Harbor and Shellfish Meeting. The minutes state "..., *Paul has denied approval of the UNE pier design.*" The correspondence also states that UNE is threatening possible litigation. It is important to note that any "litigation" brought by UNE would be an administrative, appellate review of its Constitutional rights and not any type of litigation seeking money damages from the City. UNE has every right to seek judicial review of any denial of a permit by a governmental entity and should not be penalized or impugned for asserting its Constitutional rights.

Additional complaints by UNE against the Harbormaster are that the Harbormaster has unilaterally and in an ex parte manner advocated to other regulatory bodies to deny the UNE permit for a pier at Site #7. It was entirely improper for the Harbor Commission and its Chair to discuss a potential application for a permit, without notice to the applicant. UNE also alleges that the Harbormaster has contacted the Army Corp of Engineers (which also must approve any final pier plan), indicating that his is or will deny the application and he has urged the ACOE to deny the permit. In my opinion, all of these actions constitute a violation of UNE's due process rights and expose the City to losing any judicial appeal of a denial of a permit for Site #7, irrespective of the potential merits of such denial.

LEGAL CONCLUSIONS & OPINIONS

I have reviewed the City Charter, Code and applicable case law. Based on that research, I have opinions and advice to the City regarding the potential application by UNE for a permit to construct a pier at Site #7.

The public emails which state that the Harbormaster has denied a permit that has not been formally submitted violate the applicant, UNE's due process rights. The due process clauses of the Maine and federal Constitutions guarantee due process before a government entity deprives

any person of a property right. Kirkpatrick v. City of Bangor, 1999 ME 73, ¶ 13, 728 A.2d 1268; see also U.S. Const. amend. XIV, § 1; Me. Const. art. I, § 6-A. The pier application is a constitutionally protected property right of UNE.

Persons who come before an administrative board are entitled to a fair and unbiased hearing. Fitanides v. City of Saco, 2015 ME 32, ¶ 22, 113 A.3d 1088; Gorham v. Town of Cape Elizabeth, 625 A.2d 898, 902 (Me. 1993). An administrative hearing officer “enjoys a presumption of honesty and integrity, which is only rebutted by a showing of some substantial countervailing reason to conclude that a decisionmaker is actually biased with respect to factual issues being adjudicated.” Mr. & Mrs. V. v. York Sch. Dist., 434 F.Supp.2d 5, 12–13 (D. Me. 2006).

Statements by the Harbormaster that UNE’s application is not “common sense”, made outside of any noticed, formal proceeding are in violation of due process. Those statements would likely be found by a reviewing court to constitute bias. The Harbormaster acted unprofessionally when he told the ACOE to deny the UNE permit and by informing the ACOE that he had already denied the permit.

Comments by a municipal official at municipal proceedings without the applicant being notified nor present create a perception of bias, violate due process and raise questions about a municipality’s willingness to consider the contentions of its citizens in a fair and responsible way. UNE has the right to protect its property interests, including its appeals to a neutral, unbiased Harbor Commission or Court. See Fitanides v. City of Saco, 2004 ME 32, ¶ 36, 843. Further evidence of bias is set forth in the Harbor Commission Chair’s email which references UNE’s potential threatened litigation. The exercise of appellate rights is absolutely proper and should not be raised at any level of review.

It is my opinion that the City of Biddeford should engage an independent Harbormaster to review and determine the UNE pier application. This insulates the City from the time and cost of a lengthy appeal of what has already been deemed a ‘denial’ by the current Harbormaster. Such ‘denial’ has been illicitly approved by the Harbor Commission. I do not believe I would successfully defend either a denial by the Harbormaster or a review by the current Harbor Commission.

Should there be an appeal from the independent Harbormaster’s decision, it will need to be presented to a City of Biddeford appellate body, separate and distinct from the current Harbor Commission, for the reasons stated herein.

HARBORMASTER RIGHTS

The current Harbormaster is a governmental employee who has his own Constitutionally protected due process rights in his employment as Harbormaster. It is my opinion that none of those rights are impugned as there is no reduction in pay or benefits, nor is his position in any way diminished. The City Manager is making a decision based on legal advice, to proactively prevent lengthy and very costly appellate review of a pier application that has irrefutably been

the subject of numerous violations of procedural due process. It is my opinion that the current Harbormaster has no right to review the City's decision to have UNE's permit reviewed by an independent Harbormaster.

EXECUTIVE SUMMARY

- There is no factual issue that the City has tainted the pending pier application by UNE, based on the February 25, 2024, Harbor Commission Chair email and the February 21, 2024, Harbor Commission minutes. Evidence of bias, violations of due process and general unfairness are established in the record.
- The decision to have an independent Harbormaster determine the UNE pier permit application is solely within the discretion of the City Manager, based on opinions from the City Solicitor and the Harbormaster has no appellate rights or right to review that decision.
- Should UNE choose to appeal any decision by the independent Harbormaster, a new appellate body should be created as the current Harbor Commission has tainted its ability to independently review any decisions on the UNE pier application.

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**MEMORANDUM FROM CITY MANAGER
TO CITY OFFICIALS
EXPLAINING DUE PROCESS
VIOLATION ISSUES**

City of Biddeford, Maine



The Office of
City Manager

James A. Bennett

Email: jbennett@biddefordmaine.org

MEMORANDUM

TO:	Honorable Mayor Grohman Honorable City Council Biddeford Harbor Commission University of New England
FROM:	James A. Bennett, City Manager
DATE:	May 22, 2024
RE:	Administrative Hearing Authority for Anticipated Girard Marine Science Center Pier

After an extensive review of information and consultation with the City Attorney, I have informed the Harbormaster that I am removing him as the Administrative Hearing Authority for the anticipated application for the above mentioned project. Included within this memo is the rationale for my decision. I want to make it clear from the onset that I have not found the Harbormaster to have malice or intention in his actions. Further, my decision should not be considered disciplinary in nature.

It is my responsibility to ensure all appointed officials, employees and hired agents of the City perform to the highest of standards. In this matter, the process must protect the constitutional property rights of all, including the applicant. Further the applicants are entitled to a fair and unbiased hearing. Without taking this action, I have concluded that those standards would not be achieved.

The City Code directs the Harbormaster to facilitate and guide any applicant through the application process (Code 74-35(d)). Since the UNE has not formally submitted an actual application, the interactions between the applicant and the Harbormaster is governed by this section of the City Code. On the surface, this does not raise any concerns.

Examination of the actual activities of the Harbormaster once the applicant has indicated a difference of opinion on the preferred site raises the concerns. Examination of known factual information has led me to conclude that his actions were beyond the scope required by City Code 74-35(d). I further have concluded that an independent body would determine that the Harbormaster had moved into his role as the hearing authority prior to an application having been filed.

Without going into the complete analysis, I will share some of the factual information that has influenced my decision. In public settings, the Harbormaster has made it clear he would not consider UNE's preferred choice and would not grant a permit for that site. It is generally accepted that he has been informally in contact with other reviewing agencies advocating for his preferred site. At public meeting(s) he attended, it was reported by municipal officials that the Harbormaster had denied UNE's application. No application had been filed and he did not correct the public record. He has also participated in public discussions with the Harbor Commission (the actual appellant board for any aggrieved applicant before the Harbormaster) regarding the pending application and his rationale for his

205 Main Street

Biddeford, ME 04005

Phone: 207.284.9313

Fax 207.571.0678

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Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

decision. He has referred to UNE's 'application' as lacking 'common sense' publicly and outside of any noticed, formal hearing.

Recent Maine court decisions were helpful for my review. Having the public record misrepresent a denial of a permit even before an actual application, is a denial of the applicants due process rights. In *Kirkpatrick vs City of Bangor*, 1999, the court concluded that denying due process rights within both the U.S. and Maine Constitutions is equivalent to denying a property right.

Further, an administrative hearing officer (which the Harbormaster is when considering formal applications) "enjoys a presumption of honesty and integrity, which is only rebutted by showing of some substantial countervailing reason to conclude that a decision maker is actual biased with respect to factual issue being adjudicated" *Mr. & Mrs. V. vs York School District*, 2006. The undisputed facts above, in my opinion, has tarnished the presumption provided by the law.

In addition, I will be advising, with the assistance of the City Attorney, the Harbor Commission of the difficulty in them hearing any potential appeals on this matter. Specifically, comments by municipal officials at a municipal proceedings without the applicant being notified nor present create a perception of bias, violation of due process and raises questions about a municipality's willingness to consider the contentions of its citizens in a fair and responsible way. UNE has the right to protect its property interests, including its appeals to a neutral, unbiased Harbor Commission or Court (*Fitandies vs City of Saco*, 2004). The public discussions at meeting on the merits of the forthcoming application, email communications, and raising the concern of the pending litigation (the excise of an appellate rights is absolutely appropriate and should never be raised as an issue in a review process) has amounted to an illicitly approved denial by the Harbor Commission.

I have also notified the Assistant Harbormaster, by copy of this communication, that he, because of the close working relationship and the admitted role of training him, will not be able to be the administrative hearing officer in this matter.

I will soon announce the appointment of a special 'Harbormaster Pro Tem' for the sole purpose of hearing and deciding on the anticipated application.

**CITY MANAGER
LETTER TO HARBORMASTER
GIVING NOTICE OF REMOVAL
FOR UNE PIER REVIEW**



City of Biddeford, Maine

The Office of
City Manager

James A. Bennett

Email: james.bennett@biddefordmaine.org

May 22, 2024

Mr. Paul Lariviere, Harbormaster
517 Pool Rd
Biddeford, Maine 04005

RE: Expected University of New England (UNE) New Pier Application

Dear Mr. Lariviere,

It is a reasonable assumption that UNE will formally submit their application for the so-called Girard Marine Science Center pier (SMSC Pier). This application will be submitted to you pursuant to Chapter 74-35(a)-(c) of the City Code.

In your official capacity as the Harbormaster, it is your responsibility to consider the application based on the merits of the submitted information. You must join other government officials in ensuring that constitutional property rights are protected, including those of the applicant. Further, you are entrusted to ensure applicants are entitled to a fair and unbiased hearing. As the City Manager, I am enjoined with the same responsibilities.

The City Code also directs the Harbormaster to facilitate and guide any applicant through the application process (Code 74-35(d)). I am aware that you have been playing this role with this proposed application since at least 1995, if not earlier. First as the Assistant Harbormaster and most recently, as the current Harbormaster.

The record is clear that UNE has a different opinion on the best location for the pier than the location your 'guidance and facilitation' has identified. Their preferred location, as I understand it, is based on the information they have received from technical experts they have hired to assist in siting and permitting the pier through various reviewing agencies.

Based on your public comments, you have been steadfast in your conclusion that the only location that is acceptable is the site that you directed UNE towards. These comments and other actions have raised the issue regarding your ability perform your duties objectively. It's my responsibility to evaluate whether you moved beyond the 'guidance and facilitation' role as contemplated by the Code and have essentially acted as the administrative hearing officer prior to the actual submittal of the application.

You have publicly stated there is no way that you would approve the site they are proposing on more than one occasion. It is generally understood that you have informally been in contract with other reviewing agencies to advocate support of your preferred site. There are public

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meetings where it has been reported that you have denied the location that UNE desires; yet no such application has ever been made. You decided to let those comments stand even when lacking factual accuracy. You actively participated in public discussions with the Harbor Commission, the very appellant board to consider any appeals of the Harbormaster's decision, specific to your actions and rationale to date, without any notice to the applicant. Referring to UNE's 'application'ⁱ as lacking 'common sense' publicly and made outside of any noticed, formal proceeding.

Recent Maine Court decisions are helpful in my evaluation process. Having the public record misrepresent a denial of a permit even before an actual application has been submitted, is a denial of the applicants right to due process. In *Kirkpatrick vs City of Bangor*, 1999, the court concluded that denying the right to due process within both the U.S. and Maine Constitutions is equivalent to denying a property right.

Further, an administrative hearing officer (which you are when considering formal applications) "enjoys a presumption of honesty and integrity, which is only rebutted by showing of some substantial countervailing reason to conclude that a decision maker is actual biased with respect to factual issue being adjudicated" *Mr. & Mrs. V. vs York School District*, 2006. The undisputed facts above, in my opinion, have tarnished the presumption provided by the law.

It is my conclusion that allowing you to be the administrative hearing officer on the anticipated application would be a mistake. In my capacity as the City Manager, bound by the responsibility to ensure the application would be considered objectively, compels me to inform you that I will be removing you from any further action on this pending application. Further, you are directed to make no further comments in this regard, public or private.

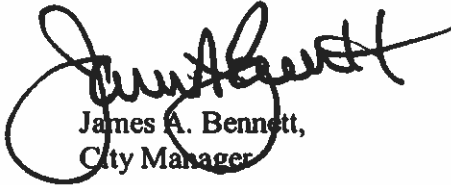
I have also notified the Assistant Harbormaster, by copy of this communication, that he, because of the close working relationship and your admitted role of training him, that he will not be able to be the administrative hearing officer in this matter.

Finally, I will be advising, with the assistance of the City Attorney, the Harbor Commission of the difficulty with them hearing any potential appeals on this matter. Specifically, the fact that comments by municipal officials at a municipal proceeding without the applicant being notified nor present create a perception of bias, and that the violation of due process raises questions about a municipality's willingness to consider the contentions of its citizens in a fair and responsible way. UNE has the right to protect its property interests, including its appeals to a neutral, unbiased Harbor Commission or Court (*Fitandies vs City of Saco*, 2004). The public discussions at meetings on the merits of the forthcoming application, email communications, and raising the concern of the pending litigation (the excise of an appellate rights is absolutely appropriate and should never be raised as an issue in a review process) has amounted to an illicitly approved denial by the Harbor Commission.

I should make it clear, that I have not concluded that you have acted with malice nor that you have been intentional in your actions, but simply overstepped your facilitation and guidance role into actions that an independent body would consider inappropriate. Once this immediate issue is concluded, we can revisit my conclusion and decision.

I will soon announce the appointment of a special 'Harbormaster Pro Tem' for the sole purpose of hearing and deciding on the anticipated application.

Respectfully,

A handwritten signature in black ink, appearing to read "James A. Bennett", is written over the printed name and title. The signature is stylized with a large, looping initial "J".

James A. Bennett,
City Manager

¹ Understanding that no formal application has been submitted

**HARBORMASTER PRO TEM
TEC ASSOCIATES
REVIEW AND PERMISSION
AND CITY CORRESPONDENCE
GRANTING PERMISSION TO
UNE FOR PIER APPLICATION**

22 July 2024

Mr. James A. Bennett
City Manager
City of Biddeford, Maine
205 Main Street
Biddeford, ME 04005

Re: Agreement for Professional Engineering – UNE Pier Project

Dear Mr. Bennett:

TEC Associates proposes to provide professional engineering services for the above referenced project for a fee of \$2,800. Our scope of services for this project includes the following tasks:

1. Review an application by the University of New England to construct a pier on the Saco River in Biddeford and make a determination if the application contains the information required by Section 74-35 (c).

All work shall be in accordance with the attached *Statement of Terms and Conditions* and *Engineering Rate Schedule*. Thank you for asking us to assist you with this project.

Very truly yours,
TEC ASSOCIATES

Wayne Duffett, P.E.
President

Enclosed: Statement of Terms and Conditions
Engineering Rate Schedule

I understand and accept this proposal for the City of Biddeford, Maine.

By: _____ Title: _____
(Authorized Representative)

By: _____ Date: _____
(Print or Type Name)

Please sign and return one copy of this proposal to TEC Associates.



City of Biddeford, Maine

The Office of
City Manager

James A. Bennett

Email: james.bennett@biddefordmaine.org

July 9, 2024

University of New England
11 Hills Beach Road
Biddeford, Maine 04005

Attention: Mr. Alan Thibeault, VP of University Operations

RE: Proposed Marine Science Center Pier

Dear Mr. Thibeault,

I write to you today to update you on the above submittal. I apologize for the delay in proceeding with the application. As the University is very aware, unusual circumstances created challenges in assuring that the application was reviewed in an unbiased process.

On behalf of the City and after consulting with the City Solicitor, I have determined that the role of the Harbormaster consistent with City Code 74-35 is primarily limited to two;

- ...to grant permission for the pier; and
- ...to determine if subsections (c) 1-10 have been complied with.

Further, it is also my determination that completion of subsection (c) 1-10 is a condition precedent prior to the ability of the Harbormaster granting permission or 'signing off' pursuant to section (d) of the ordinance. The City further may delegate the determination of completeness to a third party independent qualified engineering firm.

Therefore, I have engaged Wayne Duffett, PE of TEC Associates specifically to make the determination if your application meets the criteria found in City Code 74-75 Section (c) 1-10. Your application materials have been provided to Mr. Duffett for his review. Your cooperation during his review is requested.

Please feel free to reach out to me if you have any questions

Sincerely,

A handwritten signature in blue ink, which appears to read "James A. Bennett", is written over a circular stamp. The stamp contains the text "James A. Bennett" and "City Manager".

James A. Bennett
City Manager

CC: Biddeford Mayor and City Council

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City of Biddeford, Maine

The Office of
City Manager

James A. Bennett

Email: james.bennett@biddefordmaine.org

August 19, 2024

University of New England
11 Hills Beach Road
Biddeford, Maine 04005

Attention: Mr. Alan Thibeault, VP of University Operations

RE: Notice to Proceed with External Reviews

Dear Mr. Thibeault,

On August 9, 2024, I received written clarification from Mr. Wayne Duffett, PE of TECAssociates that UNE's proposed Research Pier and Float System has complied with City Code 74-35 subsections (c) 1-10. Those sections are as follows:

- (1) A formal boundary survey that has been documented at the Registry of Deeds.
- (2) A copy of the boundary survey showing the littoral zone, established by extending property lines seaward.
- (3) A location map from a portion of a USGS topographic map or coastal chart.
- (4) Distance to navigable channels or any federal navigation project.
- (5) Mean high- and low-water boundary.
- (6) A plan view on the drawing(s) that shows the location and dimensions of the applicant's structure(s) in relation to the applicant's property lines.
- (7) A typical cross section/side view of the applicant's structures on the drawing(s).
- (8) Evidence that owners of abutting properties have been notified of the applicant's intended project.
- (9) Evidence that the 1) Maine Historic Preservation Commission, 2) Aroostook Band of Micmac, 3) Passamaquoddy Tribe of Indians: Pleasant Point; Indian Township, 4) Houlton Band of Maliseet Indians, and 5) Penobscot Indian Nation have been notified of the applicant's intended project.
- (10) Completed applications to the Army Corps of Engineers, Department of Environmental Protection and Biddeford Code Enforcement. A regulatory permit from the Saco River Corridor Commission may also be required in some instances.

Based on this information and in harmony with my earlier communications, please consider this as formal notification from the City of Biddeford that the application has been found in compliance with

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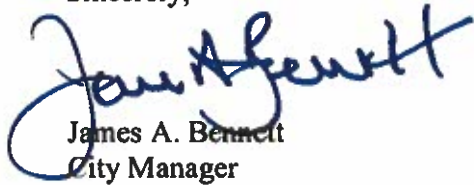
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the above mention City Code. That finding allows the application to proceed in the next steps of the review process; namely formal review by all agencies except those that are part of the City of Biddeford. After each and all of those processes are complete, the City will move forward with the final review(s) by agents and Committees of the City.

While I don't believe it is necessary, let me empathically state that this communication does not in any form, imply that the City has in any way made a determination that the location submitted has been approved. Said approval will considered after completion of all process and in compliance with applicable laws, regulations. This includes all local ordinances.

Please feel free to reach out to me if you have any questions

Sincerely,

A handwritten signature in blue ink, appearing to read "James A. Bennett". The signature is stylized with a large initial "J" and a long horizontal stroke.

James A. Bennett
City Manager

CC: Biddeford Mayor and City Council

**EXAMPLE OF
MOORING PERMIT**

Harbor Master



APPLICATION DUE DATE: MARCH 15TH

City Of Biddeford
205 Main Street
P.O. Box 586
Biddeford, ME 04005-0586

Read Carefully Before Signing MOORING PERMIT APPLICATION

(Please Print Or Type)

Date of Application	_____	Permit#	_____
USE: Personal	Rental	Comm. Fish	Other
	(Circle One)	Summer	Year Round
TYPE: Granite Block	Cement Block	WEIGHT	HEAVY CHAIN
			(Circle One)
			LIGHT CHAIN/NYLON
			(Nylon Only; Non-Floating)
BOAT REG./DOC#	BOAT NAME	MAKE	YEAR BUILT
OWNER NAME	HOME TEL:	BUS TEL:	CELL TEL:
MAILING ADDRESS			TEL:
PERMANENT ADDRESS			EMAIL

(Name, address & telephone number of local person responsible for boat, if non-resident REQUIRED)

BOAT DESCRIPTION: Color	Trim	Length	Draft	Propulsion
OPEN	CABIN	CANOPY	LOBSTER	CRUISER
			SAIL	WORK
			ROW	OTHER
SPECIFIC LOCATION OF MOORING AREA REQUESTED				
DATE PRESENT MOORING PUT DOWN	LAST INSPECTED			BY WHOM

By signing this mooring permit application for the City of Biddeford I hereby expressly give my permission to the Harbor Master, the Assistant Harbor Master or anyone lawfully designated by the Harbor Master to raise, lift, possess, transfer or otherwise handle any lobster traps, buoys, cars, wharfs, weirs, nets or any other sort of fishing gear belonging to me as the licensed owner which appears in any channel to and from any harbor which is designated by the Biddeford City Ordinance as an area in which lobster gear or fishing gear of any type is prohibited or which appears within 100 feet of any mooring in violation of an ordinance for the city of Biddeford. I further give my permission to the Harbor Master, Assistant Harbor Master or the Harbor Master's designated agent permission to remove, transfer and secure any fishing gear of any type or nature which is found in violation of any ordinance of the city of Biddeford. I further agree to pay for any and all costs related to the removal, transfer, transportation and storage of said fishing gear. Permission by me, by signing this permit, is given pursuant of Title 12, M.R.S.A. §6434. This permit is non-transferable and is for the use of the above named boat only, except on a temporary basis at discretion of Harbor Master. The location is subject to change at any time at discretion of Harbor Master or Deputy as conditions dictate. Holder of permit is responsible to set mooring and make adjustments as required for the safety of adjacent boats. Permit numbers must be painted on mooring float in at least 3" letters of a contrasting color.

If mooring is already in place the Harbor Master/Assistant will go to location with owner to identify and approve or reassign location. If a new mooring, Harbor Master/Assistant will inspect and oversee placement of mooring.

Any boat on a licensed mooring taking on water and in danger of sinking, the Harbor Master may authorize a private contractor to pump out said boat at the expense of the owner. The owner must pay contractor within 60 days or lose mooring privileges.

Registration form and fee must be received before March 15 and mooring in before June 30 or mooring will be considered abandoned and location reassigned, unless prior arrangements have been made with the Harbor Master.

Application permit fee \$10.00 to be applied against the mooring fee.

Signed _____ Date _____

THIS PERMIT APPLICATION APPROVED BY HARBOR MASTER/ASSISTANT _____

REQUEST APPROVED YES ☐ NO ☐ DATE _____ EXPIRATION DATE _____

FEE: \$425.00
DATE RECEIVED _____ NEXT INSPECTION DUE DATE _____

BY _____ CHECK/MONEY ORDER # _____ CASH

Whitten, Nan

From: Galbraith, David
Sent: Wednesday, June 11, 2025 9:01 AM
To: Whitten, Nan
Subject: FW: BFD Fire Boat

Please include the below email in the Planning Board packet for the 6-18-25 meeting. Thanks

From: Best, Lawrence <lawrence.best@biddefordmaine.org>
Sent: Tuesday, June 10, 2025 8:01 PM
To: Galbraith, David <David.Galbraith@biddefordmaine.org>
Cc: Alan Thibeault <athibeault@une.edu>
Subject: RE: BFD Fire Boat

Good Evening David,

Thank you for your email. I will answer the question of storing a Fire Boat at the UNE pier the best that I can as some of this planning began prior to me being Fire Chief here in Biddeford. There are couple different factors that I will try to explain.

First, as of today the Fire Department does not have a Fire Boat that we would store at the UNE pier. We are currently working on getting a rescue response boat that would be stored on a trailer here at the Central Firehouse. This boat would be sized to operate both above and below the dam and out into the river/bay near the Islands if needed.

However, thinking ahead to the future strategic planning of the Department for emergency coastal responses and operations, it would make sense from a rapid deployment and operational perspective, that if at some point in the future the Fire Department had a larger Fire Boat it would be beneficial for it to be located and stored at the UNE pier. This would allow for on-duty members dispatched to a coastal emergency to drive to the pier and quickly deploy the boat that is already in the water.

Please let me know if you have any questions.

Thank you

Chief Best

Lawrence D. Best
Chief of Department
Biddeford Fire Department
152 Alfred St.
Biddeford ME. 04005

Office: 207-572-1678
Mobile: 207-391-3982
Email: lawrence.best@biddefordmaine.org

From: Galbraith, David <David.Galbraith@biddefordmaine.org>
Sent: Tuesday, June 10, 2025 1:20 PM

To: Best, Lawrence <lawrence.best@biddefordmaine.org>

Cc: Alan Thibeault <athibeault@une.edu>

Subject: BFD Fire Boat

Chief, last night we held the site walk for the UNE Research Pier. During the course of conversation, UNE mentioned that, once constructed, the BFD would like to store our Fire Boat at this location. Would it be possible for you to provide a letter of support / agreement between the BFD and UNE. One of our Board members requested the letter. I have copied Alan Thibeault from UNE on this email.

I would love to provide a letter to the Board from you regarding the future use of the pier. It would be helpful if I could get the letter by next Wednesday (6-18-25) when the Board meets.

Thanks

David

David C.M. Galbraith

Deputy Director Planning and Development / City Planner

City of Biddeford

205 Main Street

Office Hours:

Monday- Tuesday 7:00 am – 5:00 pm

Wednesday- Thursday 8:00 am- 4:00 pm

Friday- Closed

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST

LAST REVISED: 11/26/2024

CHECKLIST DIRECTIONS:

- The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
- Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
- City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
- Items in **BLACK** are required for "Preliminary" approval & "Final" approval.
- Items in **BLUE** are only required for "Final" approval.

SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	University of New England (UNE) Marine Science Center Research Pier
Planning Board # (if available):	2024.34
Applicant Name/Info:	University of New England
Submittal #/Type (Prelim/Final):	Preliminary
Submittal Date:	6/10/2025

ITEM NUMBER	SUBMITTAL REQUIREMENT DESCRIPTION	APPLICANT RESPONSE		CITY REVIEW RESPONSE	
		INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT) COMMENT
1	GENERAL PLAN REQUIREMENTS	YES			
A	Drawing specific legends (linetypes, hatches, etc.)	YES	C-001, C-002		
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	YES	ALL		
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks	YES	ALL		
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD83 (Vertical)	YES	ALL		
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES	ALL		
2	COVER SHEET	YES			
A	Project Name & Property Address	YES	G-001		
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES	G-001, G-002	Contractor contact info to be added at a later date	
C	Site Location Map	YES	G-001		
D	Sheet Set List of Drawings	YES	G-001		
E	Tax Map and Lot ID	YES	C-001		
F	Zoning & Shoreland Zone Information	YES	C-001		
G	Existing Use Description	YES	C-001		
H	Proposed Use Description	YES	C-003		
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES	G-001		
J	Name of Drainage Watershed	YES	C-001		
K	Within the M54 Urbanized Area (Yes/No)	YES	C-001		
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES	C-001		
M	Within the 100-year Flood Zone (Yes/No)	YES	C-001		
N	Public Road Proposed (Yes/No)	NO	N/A	There are no public roads onsite.	
O	Private Road Proposed (Yes/No)	YES	C-001		
P	Public Sewer Connection (Yes/No)	YES	C-001	There are no proposed improvements to the public sewer	
Q	Public Storm Drain Connection (Yes/No)	NO	N/A	There are no public storm drains onsite.	
R	Limits of Disturbance in square feet and acres	YES	C-005		
S	Pervious Land Cover square footage, existing and proposed	YES	C-003		
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES	C-003		
U	Building Roof square footage, existing and proposed	YES	C-001		
V	Assigned Planning Board Number	YES	C-001		
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	C-007, C-007		
3	EXISTING CONDITIONS PLAN				
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES	C-001		
B	Property & Right-of-Way Lines	YES	C-001		
C	Boundary line information (bearings, distances, etc.)	YES	C-001		
D	Property pin and monumentation locations	YES	C-001		
E	Existing easements with proper ownership identified	YES	C-001		
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES	C-001		
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-001		
H	100-year Flood Zone Limits & Elevation	YES	C-001		
I	Existing contours with adequate contour labelling; minimum 1' contour interval	YES	C-001		
J	Existing building FFEs annotated	YES	C-001		
K	Spot elevations for all tie-in locations (curb cuts, property line)	YES	C-001		
L	Existing buildings & structures	YES	C-001		
M	Existing pavement areas & number of parking spaces	YES	C-001		
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES	C-001		
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES	C-001		
P	Existing signage and striping	YES	C-001		
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES	C-001		
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-001		
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-001		
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	YES	C-001		
U	Location of any borings, drinking wells, and monitoring wells	YES	C-001		
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN				
A	Limits-of-disturbance outlined and acreage annotated	YES	C-005		
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-001		
C	100-year Flood Zone Limits	YES	C-001		
D	Callout existing site features to be demolished/removed/replaced	YES	C-002		
E	Callout existing utilities to be demolished/removed/abandoned-in-place	YES	C-002		
F	Hatch existing buildings and pavement to be removed	YES	C-002		
G	Construction Entrance location(s)	YES	C-005		
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES	C-005		
I	Stockpile and staging area(s) identified (with proper perimeter control)	YES	C-005		
J	Inlet protection location(s)	YES	C-005		
K	Note requiring contractor to implement dust control measures throughout construction	YES	C-012		
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	N/A	N/A	No utilities proposed within right-of-way	
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	YES	C-014		

N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed	N/A		No extensive underground SWM infrastructure is proposed.		
5	SITE PLAN/SUBDIVISION PLAN	YES				
A	Partial Site Plans needed for any viewport scale greater than 1"=20'	YES	C-003			
B	Existing property and right-of-way lines	YES	C-003			
C	Proposed subdivision lot lines and labels	YES	C-003			
D	Required Zoning Setbacks shown with dimensions and annotation	YES	C-003			
E	Bulk requirement summary table (zoning/parking calculations)	YES	C-003			
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-003			
G	100-year Flood Zone Limits	YES	C-003			
H	Proposed building outlines, door entrances and loading docks	YES	C-003			
I	Proposed building labels	YES	C-003			
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	YES	C-003			
K	Proposed parking and accessible parking locations; annotate parking space counts	YES	C-003			
L	Proposed signage, parking striping, and traffic striping	YES	C-003			
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	NO		No ADA ramps or parking are proposed		
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES	C-003, C-004, C-006, C-007			
O	Proposed landscaping; detailed landscaping design should be shown on separate plans	YES	C-015, C-016			
P	Designated snow storage areas	NO		No snow storage areas are proposed		
Q	Proposed dumpster locations and trash removal access	NO		No dumpsters or trash removal are proposed.		
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	YES	C-003, C-006, C-007			
S	Radial dimensions for all curbs, landscaped islands, sidewalks	YES	C-003			
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	YES	C-003, C-006, C-007			
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	NO		Will be provided at a later date		
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO		Will be provided at a later date		
W	Planning Board signature block for final recording	YES	G-001			
6	GRADING PLAN	YES				
A	Partial Grading Plans needed for any viewport greater than 1"=20'	YES	C-004, C-006, C-007			
B	Limits-of-disturbance outlined and acreage annotated	YES	C-004, C-006, C-007			
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	YES	C-004, C-006, C-007			
D	Existing contours with adequate contour labelling; screened; minimum 1' contour interval	YES	C-004, C-006, C-007			
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	YES	C-004, C-006, C-007			
F	Detailed grading for all ditches, swales, outfalls, and riprap	YES	C-004, C-006, C-007			
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	YES	C-004, C-006, C-007			
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations	YES	C-004, C-006, C-007			
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-004, C-006, C-007			
J	100-year Flood Zone Limits	YES	C-004, C-006, C-007			
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, EOP/curblines)	YES	C-004, C-006, C-007			
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	N/A	No new ADA proposed			
M	Proposed % slope arrows for all ADA parking spaces and sidewalks	N/A	No new parking proposed			
N	Proposed longitudinal % slope arrows for drainage ditch centerlines	YES	C-004, C-006, C-007			
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	YES	C-004, C-006, C-007			
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	C-004, C-006, C-007			
7	ROAD PROFILES (if public/private road proposed)	YES				
A	Existing surface; dashed and screened	YES	C-006, C-007			
B	Proposed surface; continuous and bold	YES	C-006, C-007			
C	Road design speed must be clearly identified	YES	C-006, C-007			
D	Corresponding centerline stationing and curve data annotation	YES	C-006, C-007			
E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37	YES	C-006, C-007			
F	Clear annotation if proposed road will be public or private	YES	C-006, C-007			
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	YES	C-003			
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	YES	C-003			
8	UTILITY PLAN					
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	YES	C-004			
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES	C-004			
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	YES	C-004			
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES	C-004, ES1.1			
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-004			
F	Proposed storm culverts, outfalls, and riprap locations and sizes	YES	C-004 to C-007			
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-004 to C-007			
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-004 to C-007	Additional information can be found in the SWM Report		
I	Flow directional arrows for storm & sewer pipes	YES	C-004 to C-007			
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	YES	C-004 to C-007			
K	All storm drains must be sized to convey the 25-year storm	YES	C-004 to C-007	See SWM Report		
L	Sewer force main sizes and invert elevations	NO	N/A	No force main proposed		
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.	NO	N/A	No pump stations proposed		
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells	NO	N/A	None proposed		
O	Proposed water sizes labelled	NO	N/A	None Proposed		
9	UTILITY PROFILES					

A	Utility profiles required for <u>all</u> gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins	NO	N/A	No utilities proposed in ROW		
B	Existing surface; dashed and screened	NO	N/A	No utilities proposed in ROW		
C	Proposed surface; continuous and bold	NO	N/A	No utilities proposed in ROW		
D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	NO	N/A	No utilities proposed in ROW		
E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	NO	N/A	No utilities proposed in ROW		
F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	NO	N/A	No pipe crossing proposed		
G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	YES	ES1.1			
10	DETAILS					
A	Road section detail, including pavement/gravel depths & cross slopes	YES	C-008, C-009, C-010			
B	Sidewalk, paver, crosswalk, and any other pavement section details	N/A	None proposed			
C	Pavement sawcut & shiplap details	YES	C-003, C-006, C-007			
D	Utility trench/backfill detail	YES	C-011			
E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	YES	C-011, C-013, C-014			
F	Signage, striping, and ADA details	N/A	N/A	No signage or striping proposed		
G	E&S notes and details	YES	C-012, C-013, C-014			
H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES	C-013, C-014			
I	Storm outfall & riprap details	YES	C-011			
J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	NO	C-013, C-014			
K	Pump station, grease trap, oil-water separator, septic, drinking well details	N/A	N/A	None Proposed		
L	Conduit section details	N/A	N/A	None Proposed		
11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS					
A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	YES	C-015, C-016, ES1.1			
B	Landscaping & lighting details	YES	C-015, C-016, ES1.1			
12	DOCUMENTS/REPORTS/CALCULATIONS					
A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction v. Site Punchlist/As-Built Inspections post-construction	Yes				
B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	Yes				
C	An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	N/A		No new buildings/sewer conveyance proposed		
D	A Performance Guarantee Cost Estimate utilizing Planning's template	YES				
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	YES				
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	YES				
K	Public sewer pump station sizing calculations and maintenance plan	N/A	No pump stations proposed	No pump stations proposed		
M	Grease trap sizing calculations	N/A	No grease traps proposed	No grease traps proposed		
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A	No HOA	No HOA		
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals	YES				

CITY OF BIDDEFORD, MAINE

**SHORELAND AND SITE PLAN REVIEW
APPLICATION**

Project:
RESEARCH PIER

Applicant:

UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD
BIDDEFORD, MAINE 04005

June 9, 2025

Prepared by:

Site Design Associates
23 Whitney Way
Topsham, Maine 04086
Ph: 207-449-4275
Email: info@sitedesignassociates.biz

Site Design Associates

Consulting Engineering and Land Planning

June 9, 2025

David Galbraith, City Planner
City of Biddeford
P.O. Box 586
205 Main Street
Biddeford, ME 04005

**RE: University of New England
Proposed Research Pier**

Dear David and Planning Board Members:

University of New England is pleased to submit the enclosed application for site plan review and shoreland permits for a proposed research pier and floats at 11 Hills Beach Road in Biddeford. Enclosed are 10 copies of the site plan, and the following information submitted electronically per the direction from your office:

- Letter responding to May 13, 2025 staff comments – Attachment A
- Letter responding to Planning Board Member Comments - Attachment B
- City Application
- Letter of Agent Authorization
- Site Plan Drawing Checklist
- Location Map
- Deed
- Letter of Financial Capacity
- Stormwater Management Report
- Alternatives Analysis and Memo
- ACOE, DEP, and SRCC Permits
- Letter from the Maine Historic Preservation Commission clearing the project
- Notice to Proceed with external reviews from the city
- Typical shed photo
- Light fixture cuts
- Drawing Set

We understand the application fee has been paid in full.

The project is located in the city Institutional (IN) zone and the Limited Residential District shoreland zone. The project was included on the most recent version of the city approved campus master plan.

The Biddeford Campus of the University of New England (UNE), Maine's largest private university, is positioned on the confluence of the Saco River and the Atlantic Ocean. This location, along with state-of-the-art research facilities and world-class faculty, has recently earned UNE's marine programs rankings among the top 10 nationally from *Biology Explorer*, *College Choice*, and *College Magazine*. To expand UNE's unique

experiential learning and research opportunities in the marine ecosystem, the University is proposing the construction of a permanent pier which will serve as a four-season research deployment facility directly adjacent to the Arthur P. Girard Marine Science Center (GMSC) on its Biddeford campus

UNE's School of Marine and Environmental Programs, housed in the GMSC, is the academic home of 325 undergraduate and graduate students who are studying marine science, marine policy and management, as well as a wide variety of interdisciplinary fields, including marine ecosystems, conservation, restoration, business, sustainable fisheries and ecological aquaculture, social-ecological systems, and marine sustainability science. Additionally, two programs provide pathways from undergraduate to graduate degrees in Marine Sciences and Maritime Law (a 3+3 partnership with Maine Law).

Three things distinguish UNE's marine programs. The first is the oceanfront location on its core undergraduate campus, which provides direct access to the Gulf of Maine. The second is the multitude of research opportunities available to students starting as early as their first year of undergraduate studies. And the third is how the marine research done by UNE students and faculty directly impacts the people of Maine and beyond.

However, all three of these key assets are limited by the lack of year-round access to the ocean. ***The planned pier will allow students and faculty to be on the water throughout the year, thereby greatly enhancing UNE's groundbreaking research into critical problems facing Maine.***

The jewel of UNE's marine programs is Ram Island, UNE's private one-acre living laboratory two miles from campus in Saco Bay, which was gifted to the University in 2014. The island, which houses a fieldwork station and an experimental kelp farm, provides unparalleled research and field study opportunities for students and faculty. It also creates the potential to develop research partnerships that focus on critical issues facing Maine, making Ram Island home to coastal zone investigations of climate change, marine geology, invasive species, marine mammal ecology and interactions with fisheries and marine aquaculture.

Despite its prime location with direct access to the ocean, UNE currently has floating docks that are removed seasonally, precluding access to Ram Island and other areas of the Gulf of Maine in the critical winter and spring months. Construction of a permanent pier at UNE's Girard Marine Science Center will allow for dynamic, year-round, ocean-going research activities, facilitating scientific and practical exchanges with local, regional, and national marine researchers and industry partners. Additionally, the deep-water access would expand UNE's ability to serve as a collaboration hub for coastal marine and deep-water science and industry. As good stewards of the environment and our coastal neighbors, UNE is committed to ensuring that the planned structure fully adheres to local, state, and federal regulations.

Investment in UNE's marine programs is good for Maine taxpayers. With the Gulf of Maine warming faster than almost any other body of water on the planet, marine research

afforded by year-round access to the water will allow UNE to gather critical data to guide Maine's response to climate change. These expanded research opportunities will likewise enhance UNE's ability to ensure that its students graduate with the curiosity and experience to both ask and answer the important questions that will inform to the data-driven decisions impacting the expanding fields of aquaculture, fisheries, marine law and policy, marine business and entrepreneurship, ocean food systems, and related fields.

In order to determine the optimum location for the pier, an extensive alternatives analysis and studies were undertaken. This was not only for due diligence, but was required by the state and federal regulators. The regulators concluded that this exhaustive analysis was satisfactory to establish the proposed pier location. A copy of the alternatives analysis is included as Attachment 8.

The proposed facility includes the following:

1. A pile supported pier structure extending from shore into the Saco River. The proposed pier includes an approximately 130-foot long approach section extending from shore and an 80-foot long pier head section oriented roughly parallel to the direction of flow in the river. The pier consists of a concrete superstructure on steel pipe piles, with timber fender piles for vessel berthing and floating docks, and a pile supported gangway lifting beam to allow the gangway ramp to be temporarily removed from the water.
2. A floating dock system consisting of one 8-foot by 24-foot float, one 8-foot by 26-foot 10-inch float, and one 12-foot by 30-foot gangway landing float to provide all-tide vessel access for UNE's vessels on the west side of the pier, and a single 6-foot by 20-foot floating dock to provide a tie-up location for the City of Biddeford Fire Boat on the east side of the pier.
3. An 80-foot by 5-foot gangway to provide ADA compliant access to the float system.
4. An upland access road connecting the existing road at the MSC to the proposed pier, including associated site grading, drainage, and stormwater management features.

The proposed activities are described in detail in the following sections.

Pier Structure

The proposed vehicle rated pier is supported by twenty-five concrete filled steel pipe piles and a concrete abutment which connects the pier to the proposed access road. All of the piles are located beyond the Highest Annual Tide (HAT) line, while the abutment is located shoreward of the HAT line. Fourteen, 24-inch diameter steel piles support the pier head portion of the structure and eleven, 16-inch diameter steel piles support the pier approach. The seven piles at the first three pile bents at the pier approach will be socketed to ledge due to a limited soil layer above the ledge surface at these locations. The remaining piles will be driven to ledge but do not require socketing given the sufficient

depth of overburden soils. The piles support precast concrete pile caps which support precast concrete deck planks that form the pier deck surface.

The pier includes thirty, 12-inch diameter timber fender piles to provide for vessel berthing at the main face of the pier and to restrain the floating dock system. All new fender piles will be untreated timber, greenheart species. A gangway lifting beam is proposed to lift the gangway out of the water during float maintenance or in advance of severe weather. The lifting beam is supported by a steel column anchored to the pier on one side and a 10.75-inch diameter concrete filled steel pipe pile on the other.

Floating Dock System

The proposed floating dock system includes four floating docks. The three timber floats on the west side of the pier are new, while the single float on the east side of the pier is an existing float that will be relocated from UNE's facility that is located upstream of the proposed pier (note that this facility is proposed to be demolished). The new floats consist of an 8-foot by 24-foot float, an 8-foot by 26-foot 10-inch angled float, and a 12-foot by 30-foot gangway landing float. All new floats will be located on the west side of the pier approach at the south side of the pier head. The existing float is 6-feet by 20-feet and will be located on the east side of the pier approach at the south side of the pier head to provide a tie-up location for the City of Biddeford Fire Boat. The new floats are accessed by the proposed gangway or a fixed ladder, and the fireboat float is accessed solely by a fixed ladder. All the floating docks are located beyond the MLLW line and will be restrained and guided by the timber fender piles. The floats will allow vessels to tie up to the pier at any time during the tide cycle. The depths of water at the floats are adequate to meet UNE's needs.

Gangway

The 80-foot by 5-foot gangway provides ADA compliant access to the new floating dock system on the west side of the pier. The gangway connects to the pier near the beginning of the pier approach and lands on the 12-foot by 30-foot floating dock. The total indirect impact from the gangway is 357 square feet (this area excludes the portion of the gangway located above the floating dock).

Pier Building

One pier building, an 8 ft x 10 ft shed, is proposed to be located at the southeast corner of the pier head. This structure will provide storage for small equipment used by MSC staff, as well as an indoor protected location to house certain utility features such as electrical service panels.

Access Drive

Vehicular and pedestrian access to the pier will be provided by a new 20 ft wide access road that will extend from the existing GMSC access road and parking area, around the east side of the GMSC building, and to the end of the pier approach. A turnaround area is

provided adjacent to the pier approach to allow for vehicles up to and including fire trucks accessing the pier to turn around and drive forward to exit the access road. There is no parking proposed adjacent to the pier. All vehicles will use the existing parking spaces adjacent to the GMSC building. The new road will provide construction access for the project, which will help to limit the amount of work performed from the water and allow more staging to be achieved from land. The upland work will include stormwater management features that have been designed to meet Maine DEP Chapter 500 standards.

The following addresses Site Plan Approval/ Site Design Criteria and Shoreland Zoning Land Use standards for piers.

Site Plan Approval/Site Design Criteria

1. Drainage

A Stormwater Management Report is attached. The report submitted demonstrates compliance with Maine Department of Environmental Protection (DEP) Basic and General standards. The project will include bioretention filters designed to DEP BMP standards for enhancement of stormwater runoff quality.

A waiver of Article XI.II.Section 5.B.1. is required for an increase in the rate of runoff. This waiver has historically been granted by the planning board for projects located on the UNE parcel that are directly tributary to tidal receiving waters, which will be the case for this project. There will be no impact on the capacity of a receiving downgradient storm system. The bioretention filters will provide stormwater quality enhancement and cooling of runoff, as well as a level of stormwater detention. Level spreaders will be utilized to evenly distribute runoff from the bioretention filters into sheet flow. Although an increase in the rate of runoff is shown at two point locations on the drainage plans, the reality is that the stormwater runoff from the subcatchments is distributed over a wide area. Note that the peer review engineer supports this waiver.

2. Utilities

Power will be fed underground to the pier from the Girard Marine Science Center.

3. Parking

There will be no formal dedicated parking associated with the project.

4. Structural Layout and Design

a) Design of Buildings

An 8 ft x 10 ft shed is proposed on the pier. A photo in attachment 12 shows a rendering of the shed; a wood frame structure, with weather resistant siding, and a metal roof.

b) Setbacks

The research pier is sited in conformance with all setback requirements.

c) Fire Protection & Safety

Based on input from the fire department, the road width was increased to 20 ft per NFPA standards. The turnaround meets the city required dimensional standards and has been modelled to accommodate fire apparatus.

d) Landscaping

The revegetation plan has been developed to meet the City of Biddeford's Shoreland Zoning requirements as well as to preserve a visual buffer for the access drive to minimize visibility from the water to the greatest extent possible, while achieving the required clearing and considering functional requirements such as snow plowing at the turnaround. The revegetation plan also meets requirements of the Saco River Corridor Commission (SRCC) who has issued a permit for the project.

Revegetation Plan

The revegetation plan, drawing C-15, is intended to meet the city of Biddeford's shoreland zoning requirements. Details are as follows:

- 49 trees are being removed with 21 of those within the 50-foot HAT setback
- Approximately 5,850 SF of understory duff layer and low growth vegetation (predominantly non-native invasive honeysuckle) is being disturbed within 50 feet of the HAT.
- 5 tree species are proposed in approximate equal quantities with the evergreen trees located between the road shoulder grading and the top of embankment where they are anticipated to fit under the remaining mature forest canopy, and between existing trees and ledge. Field verification during construction will be required to ensure final plant locations are feasible if shallow ledge or significant remaining tree root stock is present.
- 3 shrubs (2 evergreen and 1 deciduous) are proposed to plant at the toe of the road embankment as well as in areas around the turnaround where fitting larger trees will be challenging given limited space and the need to maintain an area for plowed snow.
- Deciduous trees are spread throughout the area.

- The bioretention cells will be filled with a mix of wet, drought and salt tolerant shrubs and perennials which are shown on the plan as a hatched area. The notes on the plan and drawing C-16 plant schedule describe the random pattern mixing of these plants throughout the bio retention cells.
 - All other disturbed areas will be planted with a native roadside mix of perennial grasses and flowers. It is recommended that this area be mowed once a year in the fall to maintain the mix of plants. If mowed more often, it will revert to mostly lawn grasses.
 - Mature plant sizes are listed on the plant list to give a sense of the amount of screening that may occur over time.
- e) Service, Storage, and Utility Areas
Not applicable
- f) Paving, Parking, and Storage Areas
No paving, parking, or storage is located within the side or rear setback of the property, nor within the front setback of the property.
- g) Handicapped Accessibility
The pier is designed to meet ADA requirements.
- h) Loading Facilities
Not applicable.
- i) Parking, Loading, and Protective Buffers
The non-vegetated area of the land being developed will be less than 75% and a minimum of 25% of the land area being developed either remains in its natural state or consists of landscape and lawn areas.
- j) Open Space
Not applicable.
- k) External Lighting
An electrical site plan is included in the drawing set which shows the site lighting. Full cut off fixtures will be utilized and lighting will be the minimum necessary for safety and functionality.
- l) Signs
Not applicable.
- m) Historic and Archeological Resources.
See attachment 10 for a letter from the Maine Historic Preservation Commission clearing the project.

Shoreland Zoning Land Use Standards

The project will comply with the applicable standards of Article XIV. Section 15.C.

- Access from shore will be developed on soils appropriate for the use. A detailed erosion control plan has been prepared for the project.
- The location does not interfere with existing beach areas.
- The facility has been located to minimize adverse effects on fisheries. The plan was reviewed by the National Marine Fisheries Service.
- The facility size is the minimum necessary to carry out current and future research activities, and is consistent with the surrounding character and uses of the area, including the Camp Ellis pier on the opposite side of the river.
- An 8 ft x 10 ft shed for storage of life jackets, tools, research equipment is proposed on the pier, and is an operational necessity. The shed will not exceed 20 ft in height.

Waivers:

Four waivers are requested:

- Article XI. II. Section 5.B.1.a. – The rate of post development runoff shall not exceed that of pre-development. As noted in the cover letter for the previous submission, this waiver has historically been granted by the planning board for projects located on the UNE parcel that are directly tributary to tidal receiving waters, which will be the case for this project. There will be no impact on the capacity of a receiving downgradient storm system. The bioretention filters will provide stormwater quality enhancement and cooling of runoff, as well as a level of stormwater detention. Level spreaders will be utilized to evenly distribute runoff from the bioretention filters into sheet flow. Although an increase in the rate of runoff is shown at two point locations on the drainage plans, the reality is that the stormwater runoff from the subcatchments is distributed over a wide area.

Note that the peer review engineer has indicated support for this waiver.

- Article XI.II. Section 5.B.1.e.3. - No slope shall be created which results in a slope of more than two feet horizontal to one foot vertical unless proper retaining walls are proposed. The design includes slopes which exceed this standard in ledge (1/4H:1V) and along the drive (1H:1V). This waiver has been requested by UNE and granted by the planning board for all projects proposed by UNE on the campus due to the presence of ledge and the desire to

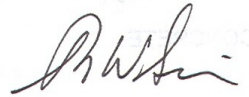
minimize impacts of construction on adjacent areas. Based on our experience the ledge in the area is stable at steeper slopes. Turf reinforcement matting specifically designed to stabilize steeper slopes will be utilized along the drive sideslopes.

- Article VI. Section 26.F. - No cut or fill slopes that exceed 3 horizontal to 1 vertical. See above for justification.
- Article XIV. Section 15.H.4. Road and driveway banks shall be no steeper than a slope of two horizontal to one vertical, and shall be graded and stabilized in accordance with the provisions for erosion and sedimentation control contained in Section 15T. See above for justification for steeper slopes. The erosion control specified for the project exceeds the standards of Section 15T.

We are in hopes the planning board will find that the proposal is consistent with city regulations and approval standards. We look forward to meeting with the planning board on June 18.

If you have any questions or comments, please contact me.

Sincerely,
Site Design Associates



Tom Saucier, P.E.
President

cc: Alan Thibeault, UNE, Vice President for University Operations

Attachment A
Letter responding to May 13, 2025 staff comments

Site Design Associates

Consulting Engineering and Land Planning

June 9, 2025

David C.M. Galbraith, City Planner
City of Biddeford
P.O. Box 586
205 Main Street
Biddeford, ME 04005

**RE: University of New England
Proposed Research Pier**

Dear David and Planning Board Members:

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to submit this response to staff and peer review comments dated May 13, 2025. The comments are included below in italics, with our responses.

A. Staff Review Comments

Comment:

The Preliminary Application shall include copies of the required notification letters provided to the various Native American Tribes listed above in Section 3

Response:

The letters to the tribes, the plan included with the letters, the certified mail receipts, and the two responses received are attached at the end of this letter. This information was included in the DEP NRPA, ACOE and Harbor Master applications previously submitted to the city. In all cases the information was deemed complete and the DEP and ACOE permits issued.

Note that the plan that was included with the letters reflected the pier in the currently proposed location. The purpose of the request for tribal review is to give them the opportunity to review the location of proposed projects to verify whether the proposed development would affect known properties of religious and/or cultural significance. It is not intended to seek approval of any design.

Comment:

Limited information was provided by the Applicant on the checklist. Applicant should fully complete the checklist for the next submission, including column D (list drawing sheet number where information is provided) and column E (reason not provided/comment).

Response:

An updated copy of the checklist is provided with this submission.

Comment:

Section 74-35 Construction of Wharf, Pier, or Landing Regulated states that new piers require permission from the Harbormaster

Response:

Refer to the attached letter addressing the Planning Board Members comments.

Comment:

Section 74-36 Floats requires permission from the Harbormaster for floats that are an integral part of a pier.

Response:

Section 74-36 is not applicable to this project. Section 74-36 addresses floats that are *not* an integral part of a pier.

Comment:

The application lists two (2) project waivers being sought. The application didn't include a narrative or rationale for Staff or the Board to evaluate the requested waivers. This information shall be included in the Preliminary application package.

Response:

Four waivers are requested:

- **Article XI. II. Section 5.B.1.a. – The rate of post development runoff shall not exceed that of pre-development.** As noted in the cover letter for the previous submission, this waiver has historically been granted by the planning board for projects located on the UNE parcel that are directly tributary to tidal receiving waters, which will be the case for this project. There will be no impact on the capacity of a receiving downgradient storm system. The bioretention filters will provide stormwater quality enhancement and cooling of runoff, as well as a level of stormwater detention. Level spreaders will be utilized to evenly distribute runoff from the bioretention filters into sheet flow. Although an increase in the rate of runoff is shown at two point locations on the drainage plans, the reality is that the stormwater runoff from the subcatchments is distributed over a wide area.

Note that the peer review engineer has indicated support for this waiver.

- **Article XI.II. Section 5.B.1.e.3. - No slope shall be created which**

results in a slope of more than two feet horizontal to one foot vertical unless proper retaining walls are proposed. The design includes slopes which exceed this standard in ledge (1/4H:1V) and along the drive (1H:1V). This waiver has been requested by UNE and granted by the planning board for all projects proposed by UNE on the campus due to the presence of ledge and the desire to minimize impacts of construction on adjacent areas. Based on our experience the ledge in the area is stable at steeper slopes. Turf reinforcement matting and geosynthetic reinforcement specifically designed to stabilize steeper slopes will be utilized along the drive sideslopes.

- **Article VI. Section 26.F. - No cut or fill slopes that exceed 3 horizontal to 1 vertical.** See above for justification.
- **Article XIV. Section 15.H.4. Road and driveway banks shall be no steeper than a slope of two horizontal to one vertical, and shall be graded and stabilized in accordance with the provisions for erosion and sedimentation control contained in Section 15T.** See above for justification for steeper slopes. The erosion control specified for the project exceeds the standards of Section 15T.

B. Peer Review Comments

Comment:

The Fire Department has expressed that the length of the turnaround does not meet their needs of a 70- foot-long turnaround at the end of the access road. The provided turnaround is approximately 40 feet long.

Response:

We analyzed the turning movements of the aerial apparatus and the results were provided to E. Dexter, Ass. Chief BFD for review. The results demonstrate there is adequate space for the aerial apparatus to maneuver. Additionally, we have adjusted the location of the security gate on the pier to provide additional space for turning maneuvers. We have enclosed an updated Vehicle Circulation Exhibit to convey the safe turn around of an emergency vehicle, at the end of this letter.

E. Dexter has indicated the design could be approved with a condition of approval that both Truck 32 and SH-34 are able to maneuver the turnaround post construction, and prior to final sign off they should be taken to the location for testing.

Mandating a turnaround larger than that shown would result in more clearing of trees and more impervious surface in the shoreland zone adjacent to the river, neither of which would be looked at favorably by the regulators if an alternative exists. The regulators had asked whether a narrower drive could be provided and we indicated that NFPA rules require 20 ft of width.

Comment:

Access road width has been increased to 20 feet, as requested by the Fire Department.

Response:

Acknowledged.

Comment:

Additional coordination items for the City are indicated within the Review Comments below in red font.

Response:

Acknowledged.

Comment:

Section 74-35 Construction of Wharf, Pier, or Landing Regulated states that new piers require permission from the Harbormaster.

Response:

Refer to response above.

Comment:

Section 74-36 Floats requires permission from the Harbormaster for floats that are an integral part of a pier.

Response:

Refer to response above.

Comment:

What erosion and sedimentation controls will be utilized for the construction of the pier abutment and pier? A turbidity curtain detail is included and assumed to be used for the pier but the location of this is not shown in plan view.

Response:

Turbidity from the project is anticipated to be limited and temporal associated with the installation of piles for the pier. Neither the State or Federal permits require the use of a turbidity curtain. The turbidity curtain detail has been removed from the plans. Areas of upland soil disturbance will utilize erosion

control BMP's as identified in the Erosion Control Notes and Details on sheets C-012, C-013, and C-014.

Comment:

A stabilized construction entrance, silt fence, biodegradable stabilization matting, and plunge pool are proposed for the construction of the proposed access road.

Response:

Acknowledged.

Comment:

A revegetation plan has been submitted showing tree, shrub, and perennial plantings within the shoreland zone and upland areas. The plan has been reviewed and approved by the Saco River Corridor Commission.

Response:

Acknowledged.

Comment:

The Inspection and Maintenance Plan of Stormwater Management Facilities includes a recertification requirement, which includes a five-year recertification to Maine DEP. This reference should be removed, since there is no DEP Stormwater Permit.

Response:

We have removed the language regarding the recertification to Maine DEP from the Inspection and Maintenance Plan.

Comment:

See Land Development Regulations, Article XI Site Plan Review, comments 1-5 below. A waiver of Section 61.A.12 will also be required.

Response:

We are unclear regarding the referenced section, since there is no section 61 in Article XI. If the intent was to reference Article VI, section 61.A.1-2 we do not believe a waiver is required. All new construction and development, is designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff. As noted previously, the rate of runoff after development will slightly exceed predevelopment runoff conditions, and the impact was evaluated in terms of potential soil erosion and sedimentation, drainage capacity, and the land use/land cover characteristics. The impact was determined to be minimal; therefore, a waiver of Article XI.

II. Section 5.B.1.a. was requested, which is supported by the peer review engineer.

Comment:

Subsection A states that any project involving parcels of land of greater than five acres, or any portion of a larger parcel greater than five acres, shall be required to conduct a wildlife study by a certified wildlife biologist. This provision may be waived, if a letter from the Maine Department of Inland Fisheries and Wildlife (MDIFW) indicates there are no significant habitat areas involved in the project area or abutting adjacent land. The Maine DEP Natural Resource Protection Act (NRPA) permit states that “according to the Department’s Geologic Information System (GIS) database there are no mapped Essential or Significant Wildlife Habitats at the site. The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed the proposed project and stated that the project is located adjacent to but outside of Tidal Waterfowl and Wading Bird Habitat (TWWH), a designated significant wildlife habitat. MDIFW stated that minimal impacts to piping plover and Blanding’s turtle habitat are anticipated and provided general recommendations including minimizing vegetation removal and soil disturbance, and that time spent in the water should be minimized to the greatest extent practicable.” Given the supporting information in the NRPA permit, we believe this requirement is met.

Response:

Acknowledged.

Comment:

The applicant has requested a waiver of Article XI.II Section 5.B.1 to allow a small increase in peak stormwater runoff rates. The applicant has stated they are requesting this waiver since stormwater discharges directly to a tidal receiving water and there will be no impact on a downgradient storm system. Since there’s only a small increase in peak runoff rate and Chapter 500 does allow for a waiver of this requirement for sites discharging to coastal wetlands/rivers, we recommend granting this waiver.

Response:

Acknowledged.

Comment:

Bioretention systems are proposed to provide stormwater treatment. 76% of the new impervious area and 72% of the new developed area are treated, which meets the Maine DEP General Standard water quality treatment requirements for linear developments.

Response:

Acknowledged.

Comment:

The Grading and Drainage Plan and HydroCAD model refers to the stormwater treatment practices as Bioretention Filter Cells; however, the details for stormwater practices refer to them as Grassed Underdrained Soil Filters. All notations should be updated to be consistent between plan, details, and model.

Response:

We have revised the plans, details, and hydrology model for consistency. Moving forward, these BMPs will be referred to as Bioretention Filter Cells.

Comment:

A detail should be included in the plans for the 3' diameter catch basin with beehive grate.

Response:

We have revised the plans to include the details mentioned above. The Bioretention Filter Cell detail has been revised to call out an ADS Nyloplast Drain Basin (See Sheet C-103) and the ADS Nyloplast 18" Drain Basin W/Beehive Grate Detail can be found on Sheet C-014.

Comment:

The 3' diameter catch basins are modeled with 18" horizontal orifices (beehive grates). The Grassed Underdrained Soil Filter detail and Grading and Drainage Plan show the beehive grate as the entire catch basin diameter. Please clarify what size the grate is and update the plans and model as needed.

Response:

See response above.

Comment:

The applicant has requested a waiver of Article XI.II Section 5.B.1.e.3 to allow for slopes steeper than 2:1 because of ledge. 1:1 vegetated reinforced slopes are proposed where there is no ledge and 1:10 max slopes are proposed where there is ledge.

Has the ledge cut been reviewed by a geotechnical engineer for stability?

Additional information about the vegetated reinforced slopes is

needed. A 1:1 slope is steep and difficult to vegetate, even with matting. The slope detail on C-013 shows horizontal lines into the slope that are not labeled. Are these additional stabilization measures?

Article XIV, 15.H.4 also prohibits road and driveway banks to be steeper than 2:1, and a waiver would be needed based on the proposed slopes.

Response:

The proposed ledge cuts reflect the same conditions used along the existing access road to the Marine Science Center which has been in place and stable for over 20 years. Conditions will be reviewed in the field by a geotechnical engineer and any loose material will be removed to result in a stable finished slope which may be between 1:1 and 1:10 depending on the conditions encountered.

The slope protection has been specified as a turf reinforcement mat, suitable for stabilization of the slopes shown. Additionally, geosynthetic reinforcement will be incorporated into the reinforced slope to provide stability. Details will be incorporated into the final construction plans for the project.

A waiver of article XIV. Section 15.H.4. has been requested. See previous discussion.

Comment:

North arrow provided on C-006 is incorrect and should be reoriented.

Response:

We have revised the north arrow on Sheet C-006 to properly show the orientation of the drawing.

Comment:

Proposed spot grades along access road do not match proposed contours or vertical profile. For example, see Sta. 4+00. All proposed elevations should correlate between plan view, profile view, cross sections.

Response:

We have revised the plans, profiles, and cross-sections to properly correlate between the sheets.

Comment:

Typical Section provided on sheet C-008 shows the 1:1 embankment starting behind the proposed guardrail. However, Plan View (C-006/007) shows the 1:1 embankment starting in front of the guardrail. The typical section and

plan view should correlate. Additionally, an adequate guardrail “shelf” should be provided behind the guardrail posts for support.

Response:

Plans have been revised such that the guardrail is within the shelf that is above the 1:1 reinforced slope.

Comment:

Vertical curve data is only partially shown in the access road profile (C-006/007). Adjust viewports so all data is legible.

Response:

Plan sheets have been corrected to show all vertical curve data.

Comment:

Proposed pipes missing from access road profile (C-006/007) and storm drain callouts/leader lines pointing to incorrect location. Clarify where storm drain pipes are in profile.

Response:

We have revised the viewports in Sheets C-006 and C-007 to properly show storm drain pipes in the access road profiles.

Comment:

Article XIV, 15.H.1 requires roads and driveways within the shoreland zone to be set back at least 100 feet, horizontal distance, from the normal high-water line of a great pond classified GPA or a river that flows to a great pond classified GPA, and 75 feet, horizontal distance, from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland unless no reasonable alternative exists as determined by the Planning Board. However, Section 15.H.1 does not apply to roads or driveways that provide access permitted structures and facilities located nearer to the shoreline due to operational necessity. Since the pier is a permanent structure with operational necessity to the shoreline and the access road is providing access to the pier, we believe the proposed access road is allowed by the Ordinance.

Response:

Acknowledged.

Comment:

The pier is proposed in the Institutional (IN) zone and Limited Residential (LR) shoreland zoning overlay district. An 8'x10' shed is also proposed on the pier to store life jackets, tools, and research equipment and is stated to be an operational necessity. Although the Shoreland Zoning Ordinance does not allow structures within 75' of the normal high-water line in the Limited Residential overlay district, the setbacks do not apply to structures that are

an operational necessity for direct water access. Based on the information provided, we believe the proposed structure is allowed by the Ordinance.

Response:

Acknowledged.

Comment:

The cover letter for the application indicates the plan was reviewed by the National Marine Fisheries Service. Have review comments from the National Marine Fisheries Service been provided to the City?

Response:

The Army Corps of Engineers requests comments and input from NMFS as a component of their review. The comments we received were verbal during a Teams meeting with NMFS and the ACOE on February 5, 2025. The meeting was held to discuss whether construction activity and/or the project would be likely to affect Atlantic Sturgeon, and how to best go about making that determination. The final determination made as a result of that meeting was that the project was not likely to adversely affect Atlantic Sturgeon, and the ACOE permit was issued.

Comment:

A submerged lands lease or easement is required for structures, such as piers, located on publicly-owned submerged lands. Has a submerged lands lease or easement been secured for the project through the Maine Department of Agriculture, Conservation & Forestry, Bureau of Parks and Lands.

Response:

We will be requesting that the planning board condition any approval on receiving a submerged lands lease from the Submerged Lands Program.

Comment:

Applicant should provide comments about how the pier and shed comply with Article XII Floodplain Management Ordinance requirements and specifically Section R, Coastal Floodplains. Please be sure to include how pier, shed, and utility elevation were selected and if sea level rise was considered.

Response:

It is not clear to us that the Floodplain Management Ordinance is applicable to the pier and floats. From the code: The City of Biddeford has chosen to become a participating community in the National Flood Insurance Program and agreed to comply with the

requirements of the National Flood Insurance Act of 1968, through the establishment of its Floodplain Management Ordinance. The National Flood Insurance Act of 1968, which established the National Flood Insurance Program (NFIP), primarily focuses on insuring improved real property or mobile homes located within designated Special Flood Hazard Areas (SFHA). Essentially, the program covers structures that are walled and roofed, principally above ground, and affixed to a permanent site. This includes residential, industrial, commercial, and agricultural buildings. Piers and floats, specifically those used for “boat-related purposes”, are generally not covered under the NFIP standard flood insurance policy.

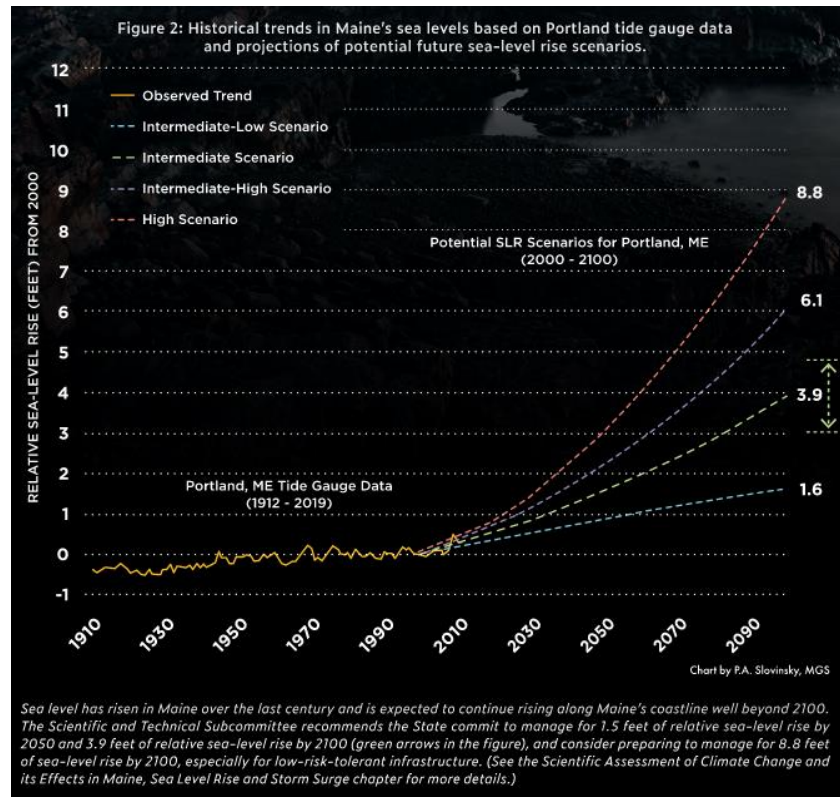
In regards to compliance with section R, Coastal Floodplains:

- The bottom of all electrical work and permanent fixtures and components, will be elevated to at least one foot above the base flood elevation.**
- The bottom of the shed will be 4 feet above the base flood elevation.**
- The project was designed by a professional engineer.**

Regarding sea level rise, GEI conducted a flood risk analysis to assess the potential exposure of the pier to floodwaters in current conditions and under various scenarios of Sea Level Rise that may potentially occur throughout the structure life. For the analysis, GEI utilized the scenarios put forth by the Maine Climate Council (MCC) in their 2020 report “Maine Won’t Wait: A Four-Year Plan for Climate Action.” The MCC recommends consideration of sea level rise based on two separate scenarios:

- Commit to Manage Scenario – This reflects the “intermediate” sea level rise curve from the 2017 NOAA model, with a relative sea level rise of 3.9 feet in 2100 (relative to 2000 mean sea level)**
- Prepare to Manage – This reflects the “high” sea level rise curve from the 2017 NOAA model, with a relative sea level rise of 8.8 feet in 2100 (relative to 2000 mean sea level)**

Sea level rise curves published in the referenced MCC report are shown below for reference:



GEI uses these scenarios to project future water elevations throughout the tidal range and in flood/storm events, throughout the design life of the structure, and compares those elevations to the proposed elevations of various assets to assess the level of risk from exposure to floodwaters.

The design life for the pier is assumed to be approximately 75 years, so the end of life would be approximately 2100. GEI has designed the structure for uplift and lateral loading assuming water elevations associated with the storm surge and wave action during 100-year recurrence interval coastal storm events under the Commit to Manage scenario. This reflects an appropriate design condition that reasonably balances structure risk throughout the design life, project functionality, adjacent site impacts, and project cost. The pier is designed to accommodate conditions through the end of life under the Commit to Manage scenario (3.9 feet of SLR).

Comment:

The cover letter for the application indicates the plan was reviewed by the National Marine Fisheries Service. Have review comments from the National Marine Fisheries Service been provided to the City?

Response:

The Army Corps of Engineers requests comments and input from NMFS as a component of their review. The comments we received were verbal during a Teams meeting with NMFS and the ACOE on February 5, 2025. The meeting was held to discuss whether construction activity and/or the project would be likely to affect Atlantic Sturgeon, and how to best go about making that determination. The final determination made as a result of that meeting was that the project was not likely to adversely affect Atlantic Sturgeon, and ACOE issued their permit.

Comment:

Article XIV, 15.H.1 requires roads and driveways within the shoreland zone to be set back at least 100 feet, horizontal distance, from the normal high-water line of a great pond classified GPA or a river that flows to a great pond classified GPA, and 75 feet, horizontal distance, from the normal high-water line of other water bodies, tributary streams, or the upland edge of a wetland unless no reasonable alternative exists as determined by the Planning Board. However, Section 15.H.1 does not apply to roads or driveways that provide access to permitted structures and facilities located nearer to the shoreline due to operational necessity. Since the pier is a permanent structure with operational necessity to the shoreline and the access road is providing access to the pier, we believe the proposed access road is allowed by the Ordinance.

Response:

Acknowledged.

Comment:

The pier is proposed in the Institutional (IN) zone and Limited Residential (LR) shoreland zoning overlay district. An 8'x10' shed is also proposed on the pier to store life jackets, tools, and research equipment and is stated to be an operational necessity. Although the Shoreland Zoning Ordinance does not allow structures within 75' of the normal high-water line in the Limited Residential overlay district, the setbacks do not apply to structures that are an operational necessity for direct water access. Based on the information provided, we believe the proposed structure is allowed by the Ordinance.

Response:

Acknowledged.

Comment:

A submerged lands lease or easement is required for structures, such as piers, located on publicly-owned submerged lands. Has a submerged lands lease or easement been secured for the project through the Maine Department of Agriculture, Conservation & Forestry, Bureau of Parks and Lands?

Response:

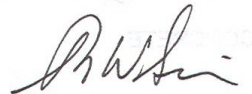
We will be requesting that the planning board condition any approval on receiving a submerged lands lease from the Submerged Lands Program.

In closing, we note that based on the city staff report dated May 13, 2025 staff found the application satisfies the City's Shoreland Zoning Ordinance and Site Plan criteria.

We believe that City Staff and Planning Board will also find that the project conforms to the UNE Institutional Zone Master Plan submission, with regards to the project location, design, and applicable standards. We believe we have satisfactorily addressed staff comments. If you have any additional questions or comments, or require additional information, please do not hesitate to contact Alan Thibeault, (602-2253) or me (449-4275).

We look forward to meeting with the Planning Board on June 18 to further discuss this project.

Sincerely,
Site Design Associates



Tom Saucier, P.E.
President

cc: Alan Thibeault, UNE, Vice President for University Operations

Site Design Associates

Consulting Engineering and Land Planning

April 10, 2023

THPO and Environmental Planner
Houlton Band of Maliseet Indians
88 Bell Road
Littleton, Maine 04730

RE: Proposed Marine Science Center Pier
11 Hills Beach Road
Biddeford, Maine

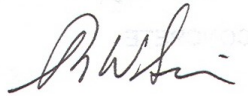
On behalf of our client, University of New England (UNE), we are assisting with the preparation of Maine Department of Environmental Protection Natural Resources Protection Act and U.S. Army Corps of Engineers Permit applications. The applications are for the installation of a permanent pier and float system on UNE's campus at 11 Hills Beach Road in Biddeford.

This letter and the enclosed materials serve as a means to notify you of the project and give you an opportunity to determine whether the proposed development would affect properties of religious and/or cultural significance. If the Tribe has concerns in this area, please notify us by letter to the address below, contact me at 207-449-4275 or via email at tsaucier@sitedesignassociates.biz.

Thank you for your assistance and the generosity of your time to review this project in reference to the Tribe's concerns.

Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures

Site Design Associates

Consulting Engineering and Land Planning

April 10, 2023

THPO

Aroostook Band of Micmacs

7 Northern Road

Presque Isle, ME 04769

RE: Proposed Marine Science Center Pier
11 Hills Beach Road
Biddeford, Maine

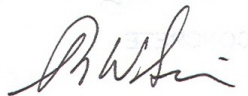
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Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures

Site Design Associates

Consulting Engineering and Land Planning

April 10, 2023

THPO
Passamaquoddy Tribe of Indians
Pleasant Point Reservation
PO Box 343
Perry, Maine 04667

RE: Proposed Marine Science Center Pier
11 Hills Beach Road
Biddeford, Maine

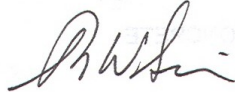
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Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures

Site Design Associates
Consulting Engineering and Land Planning

April 10, 2023

THPO
Passamaquoddy Tribe of Indians
Indian Township Reservation
PO Box 301
Princeton, Maine 04668

RE: Proposed Marine Science Center Pier
11 Hills Beach Road
Biddeford, Maine

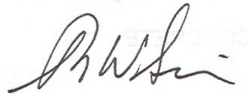
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Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures

Site Design Associates
Consulting Engineering and Land Planning

April 10, 2023

THPO
Penobscot Nation
Cultural and Historic Preservation Dept.
12 Wabanaki Way
Indian Island, Maine 04468

RE: Proposed Marine Science Center Pier
11 Hills Beach Road
Biddeford, Maine

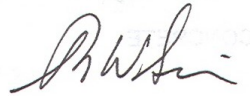
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Thank you for your assistance and the generosity of your time to review this project in reference to the Tribe's concerns.

Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures

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☐ Return Receipt (hardcopy)	\$0.00
☐ Return Receipt (electronic)	\$0.00
☐ Certified Mail Restricted Delivery	\$0.00
☐ Adult Signature Required	\$0.00
☐ Adult Signature Restricted Delivery	\$0.00
Postage	\$0.87
Total Postage	\$8.37

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 Passamaquoddy Tribe of Indians
 Pleasant Point Reservation
 PO Box 343
 Perry, ME 04667

Postmark Here 04/11/2023

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

7022 1670 0001 0356 1942

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Presque Isle, ME 04769

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☐ Return Receipt (hardcopy)	\$0.00
☐ Return Receipt (electronic)	\$0.00
☐ Certified Mail Restricted Delivery	\$0.00
☐ Adult Signature Required	\$0.00
☐ Adult Signature Restricted Delivery	\$0.00
Postage	\$0.87
Total	\$8.37

Sent To
 Aroostook Band of Micmacs
 7 Northern Road
 Presque Isle, ME 04769

Postmark Here 04/11/2023

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Old Town, ME 04468

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☐ Return Receipt (electronic)	\$0.00
☐ Certified Mail Restricted Delivery	\$0.00
☐ Adult Signature Required	\$0.00
☐ Adult Signature Restricted Delivery	\$0.00
Postage	\$0.87
Total Postage	\$8.37

Sent To
 Penobscot Nation
 Cultural and Historic Preservation Dept.
 12 Wabanaki Way
 Indian Island, ME 04468

Postmark Here 04/11/2023

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Princeton, ME 04668

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☐ Return Receipt (electronic)	\$0.00
☐ Certified Mail Restricted Delivery	\$0.00
☐ Adult Signature Required	\$0.00
☐ Adult Signature Restricted Delivery	\$0.00
Postage	\$0.87
Total Postage	\$8.37

Sent To
 Passamaquoddy Tribe of Indians
 Indian Township Reservation
 PO Box 301
 Princeton, ME 04668

Postmark Here 04/11/2023

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions



SOURCE:
USGS TOPOGRAPHICAL MAP OF BIDDEFORD, MAINE 2022

SITE LOCATION MAP

(NOT TO SCALE)



PENOBSCOT NATION
CULTURAL & HISTORIC PRESERVATION
12 WABANAKI WAY, INDIAN ISLAND, ME 04468

CHRIS SOCKALEXIS – TRIBAL HISTORIC PRESERVATION OFFICER

E-MAIL: chris.sockalexis@penobscotnation.org

NAME	Tom Saucier
ADDRESS	Site Design Associates 23 Whitney Way Topsham, ME 04086
OWNER'S NAME	University of New England
TELEPHONE	201-449-4275
EMAIL	tsaucier@sitedesignassociates.biz
PROJECT NAME	Marine Science Center Pier – 11 Hills Beach Road
PROJECT SITE	Biddeford, ME
DATE OF REQUEST	April 10, 2023
DATE REVIEWED	October 19, 2023

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, as amended.

If there is an inadvertent discovery of Native American cultural materials during the course of the project, please contact my office at (207) 817-7471. Thank you for consulting with the Penobscot Nation Tribal Historic Preservation Office with this project.

A handwritten signature in black ink, appearing to read "Chris Sockalexis".

Chris Sockalexis, THPO
Penobscot Nation

**Tribal Historic Preservation Office
Passamaquoddy Tribe
PO Box 159 Princeton, Me. 04668
207-214-4051**

Site Design

23 Whitney Way

Topsham, Me

Re: Biddeford – 11 Hills Beach Rd

Dear Tom;

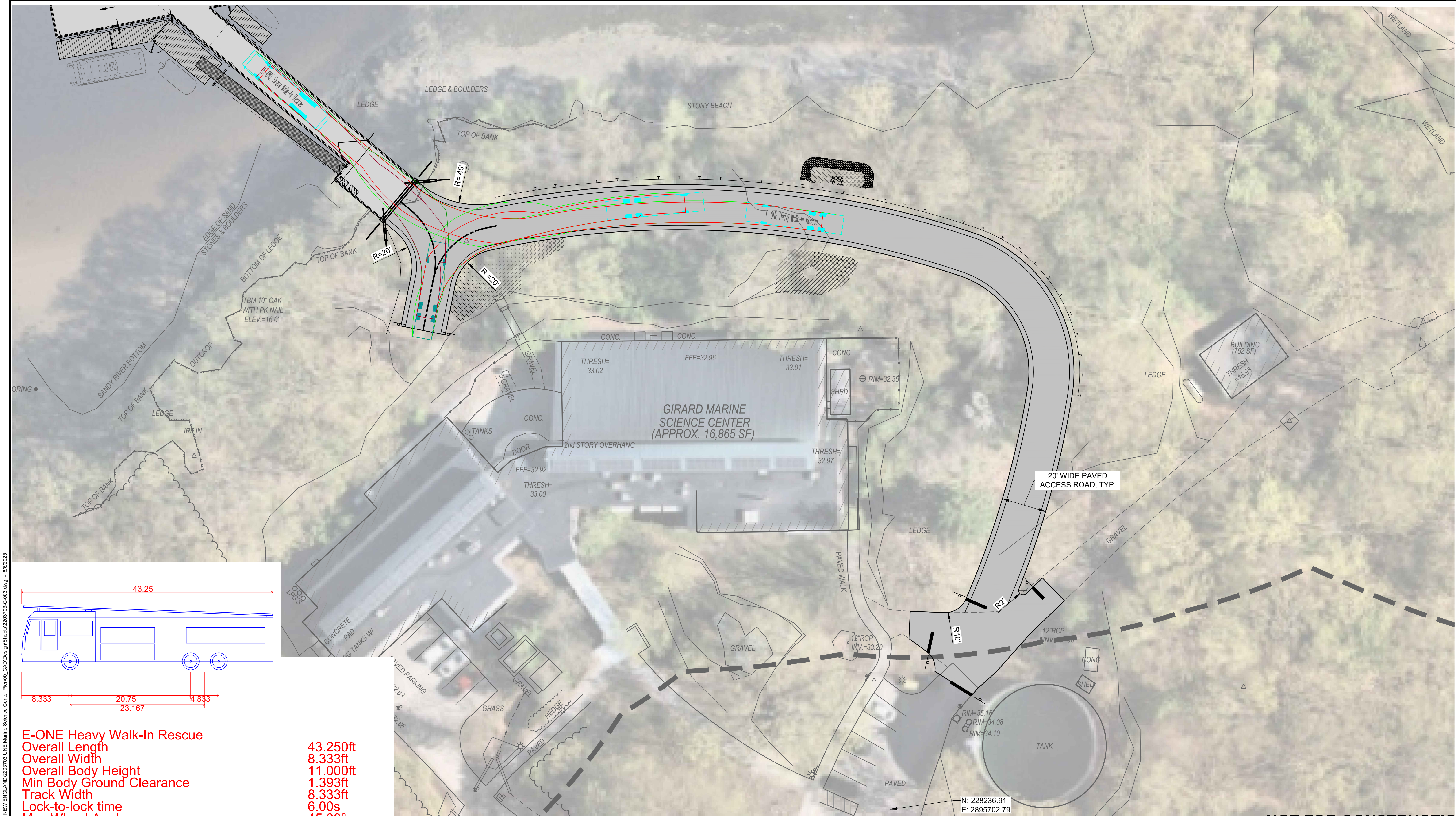
The Passamaquoddy THPO has reviewed the following applications regarding the historic properties and significant religious and cultural properties in accordance with NHPA, NEPA, AIRFA, NAGPRA, ARPA, Executive Order 13007 Indian Sacred Sites, Executive Order 13175 Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 Environmental Justice.

The Pier Project listed above will not have any impact on cultural and historical concerns of the Passamaquoddy Tribe but is concerned about the road work, will there be archeological work . Should buried artifacts, human remains, cultural sites or ground features be unexpectedly unearthed during ground disturbing activities, all construction should immediately cease and the resources be examined by a professional archaeologist. Additionally, all appropriate authorities- including all pertinent tribal entities should be notified.

Sincerely;

Donald Soctomah
Soctomah@gmail.com
THPO
Passamaquoddy Tribe

D:\CASTELNUOVO, VINNIE - B\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\00_CAD\Design\Sheets\2203703-C-003.dwg - 6/15/2025



NOT FOR CONSTRUCTION

Attention: 01" If this scale bar does not measure 1" then drawing is not original scale.	DRAFT	Designed: VD	GEI Consultants GEI CONSULTANTS, INC. 5 MILK STREET PORTLAND, ME 04101 (207)797-8901	UNE UNIVERSITY OF NEW ENGLAND 11 HILLS RD. BIDDEFORD, MAINE	UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER 11 HILLS BEACH ROAD BIDDEFORD, YORK COUNTY, MAINE					SHEET NAME VEHICLE CIRCULATION EXHIBIT	SHEET NO. 1 OF 1
		Drawn: VD									
		Checked: BMM									
		Approved: BMM									
		P.E. No: 13033									
		GEI Project 2203703									
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	NO	DATE	ISSUE/REVISION	APP							

Attachment 14
UNE Response Letter Addressing
Planning Board Member Comments



INNOVATION FOR A HEALTHIER PLANET

June 11, 2025

David Galbraith, City Planner
City of Biddeford
P.O. Box 586
205 Maine Street
Biddeford, Maine 04005

**RE: University of New England
Proposed Research Pier**

Dear David and Planning Board Members:

In response to the questions and deliberations of the Planning Board after the presentation and public comments, UNE is pleased to submit the following:

After all of the discussion at the last meeting, it was clear that there was confusion on what city ordinances and regulations are applicable to this project and the pending Site Plan review.

Review Criteria

Toward the end of the May 21, 2025 Planning Board meeting and then in writing after the meeting, the City Solicitor, Harry Center, stated that the Planning Board process was governed by the City's Ordinances relating to Site Plan review and Shoreland Zoning Ordinance standards. The Site Plan criteria are found in Article XI.II Section 5.B of the City Ordinance while the Shoreland Zoning standards are found in Article XIV Section 15(c).

On May 27, 2025, Attorney Center wrote to the Planning Board reiterating what criteria the Planning Board's decision was governed by. He wrote, in part: "At this time, I see no basis for the City's Planning Board to deny this permit based upon the water depth at the location, the current, or any of the accusations made at the last meeting- as there are no standards within the City's Code of Ordinances/Shoreland Zoning Ordinance that would justify or support the denial of a pier based on such claims by the opponents." See attached, *EXT: UNE Research Pier*, at the end of this letter.

Prior to the May 21 meeting, Planning Office staff issued its report, *Planning Board Staff Report*, dated May 13, 2025, in regards to this project, in which it indicated that the Site Plan and Shoreland Zoning Review criteria applied to UNE's application for site plan approval. From a Zoning perspective, this project should be reviewed against the Institutional Zone and Shoreland Zone standards. This project was included on the

Planning Board approved University of New England Institutional Zone Master Plans on February 9, 2009, February 3, 2016, and again on the current plan approved April 19, 2023. In the aforementioned report, the City Planner wrote, in part: “[Staff find that the application satisfies the City’s Shoreland Zoning Ordinance and Site Plan criteria.](#)”

In light of the fact that there continues to be uncertainty about the Harbormaster’s role in the approval of UNE’s proposed pier. UNE’s obligations and the Harbormaster’s role are set forth in Section 74-35 of the City Ordinance. It is very important to understand that Section 74-35 was amended in September 2023 in order to clarify the role of the Harbormaster in the process as well as to clarify what an applicant must do to obtain permission. The amendments were drafted by John Schafer and presented to the City Council’s Policy Committee by John Schafer on August 7, 2023. Essentially, the amendments created subsections with almost all new language becoming Sections 74-35(c) and (d).

As one can see in Section 74-35, there is no requirement or authority for the Harbormaster to evaluate a pier design or location and no standards or criteria by which any such evaluation would be done. There are no dimensional or design standards for the construction or location of a pier in any city ordinance. Nowhere does the Ordinance state that permission to construct a pier is contingent upon location, orientation, size, depth of water, current, or materials.

The Ordinance begins with **Section 74-35(a)**, which states: “[No additions, alterations, new construction or/or changes to an existing wharf, pier or landing shall be made without prior permission of the Harbormaster.](#)”

Section 74-35(b) then states: “[Permission for the construction of any new wharf or pier within the jurisdictional limits of the City shall not be granted without approval of the Harbormaster, along with federal, state and local governing authorities.](#)”

So that applicants can understand what they need to do, **Section 74-35(c)(1)-(10)** provides the detail of what an applicant must do to “[obtain permission for any new wharf or pier.](#)” In June of 2024, UNE submitted the required information, including all items listed in subsections 1-10.

On August 19, 2024, UNE was notified by the City Manager that “[Based on this information and in harmony with my earlier communications, please consider this as formal notification from the City of Biddeford that the application has been found in compliance with the above-mentioned City Code.](#)” See attached, [scan_jbennett_2024-08-19-10-06-53.pdf](#).

That letter of course did not mean that UNE could begin building the pier. Rather, under Section 74-35, UNE is required to obtain regulatory approvals from entities such as the Army Corps of Engineers, the Maine Department of Environmental Protection, the Saco River Corridor Commission, and the Planning Board (referred to in the Ordinance as Biddeford Code Enforcement).

So that applicants and the Harbormaster would be clear about the Harbormaster's role, **Section 74-35(d)** provides the details of the Harbormaster's role and states: "The process to obtain permission for any new wharf or pier shall be facilitated by the Harbormaster. Initially, the Harbormaster shall be available to guide the applicant through the application process and finally, to sign off that all regulatory approvals have been obtained for construction."

Consistent with practice prior to the 2023 amendments, UNE engaged the Harbormasters and Chair of the Harbor Commission back in 2016 and sought their counsel on the proposed pier project. Their input was considered with some of it incorporated into the design that has been presented to the Planning Board. UNE engaged again with the current Harbormaster in later 2023 and listened to his stated concerns. Both Harbormasters' 2016 and 2023 input is described in detail in the memos from GEI, dated November 28, 2023, and from Baker Design Consultants (later merged into GEI), dated March 22, 2016. These two documents are included in the original Site Plan Application. In its staff report, the Planning Staff recognized the 2023 memo and quoted from it in its staff report.

To date, UNE has obtained required regulatory approvals from the Saco River Corridor Commission, Maine Department of Environmental Protection and the Army Corp of Engineers, which approvals have been provided to the Planning Board in the original UNE submission. The only remaining regulatory approval required under Section 74-35(c)(10) is the Site Plan Review Approval. Once all required regulatory approvals are obtained, the Harbormaster can finally "sign off that all regulatory approvals have been obtained," resulting in UNE having permission from the City to build the pier.

For anybody who still has questions, it could be helpful for them to watch John Schafer's August 7, 2023 discussion with the Policy Committee about the amendments to Section 74-35 that he drafted. A video of the meeting can be found on the City website at <https://biddefordme.portal.civicclerk.com/event/1607/media>

As one can see for themselves, during that meeting, Mr. Schafer told the Committee that the Harbormaster is "nothing but a facilitator" of the process and that the Harbormaster does not approve piers or issue permits. Mr. Schafer stated that Section 74-35(c)(1) - (10) is "nothing but a blueprint" for achieving approval from other regulators. When pressed by Committee members for clarification, Mr. Schafer emphasized that the Harbormaster is "nothing but a facilitator" and that the Harbormaster only affirms that approvals have been obtained and makes sure that the "blueprint is followed."

Moorings

The Planning Board deliberations also reflected on the potential impacts to moorings. While this is **not** a criterion of the Site Plan review ordinance, UNE will work with the City to mitigate any impacts and has offered to pay for any moorings relocations that may be required.

To clarify the consideration of ownership, as per the Maine State Statute, Title 38, Waters and Navigation, Chapter 1.1.3, Mooring Sites, “Assignment of these mooring privileges does not confer any right, title or interest in the submerged or intertidal lands owned by the state”. This statute further clarifies “the harbor master shall assign and indicate only to the masters or owners of boats and vessels the location that they may occupy for mooring purposes and shall change the location of those moorings from time to time when the crowded condition of that harbor or great pond, the need to conform to section 7-A or other conditions render the change desirable”.

The actual mooring balls and their associated tackle are the responsibility of the boat owner. The Biddeford Mooring Permit Application clearly states “The location is subject to change at any time at the discretion of Harbor Master or Deputy as conditions dictate.”, in coordination with the state statute. Thus, the land is owned by the state, the moorings by the boat owners, and the harbor master has the reasonability to assign and relocate these moorings.

To better understand the potential impacts to moorings, UNE requested from the city it’s mooring map, but was informed one was not available. In consultation with the Maine State Bureau of Parks and Recreation, we again requested a copy of the Biddeford Mooring Map. The Submerged Lands Coordinator informed UNE that they had spoken with the harbormaster and confirmed no mooring map was available. They were are to confirm from the harbormaster that two mooring were impacted by the proposed UNE Research Pier development.

In comparison of historical, 09/18/2013, Google Earth imagery, as compared to 2024, there appears to be several unoccupied mooring locations in this general area that could meet the need of relocating the impacted moorings. Additionally, UNE has offered to “swap” one of its current mooring locations for one of the impacted mooring locations. The owners of these moorings do not have a dingy on UNE’s abutting shoreline and are already motoring to the moorings from other locations, so depending on where they are coming from, the relocated moorings might be closer to their point of origin.

Analysis documentation

In 2008 and 2009, UNE initiated an analysis of 9 sites along its shoreland to evaluate options for a new pier. Based on the criteria reviewed and UNE’s programmatic needs, Site 7 was chosen as the optimal site for UNE. This site then was scrutinized for additional considerations utilized in the ultimate design. This included geotechnical surveys on both land and in water. Contour surveys were conducted twice in the water and then again on land. Evaluations of current and its impacts were conducted. Wetlands were surveyed and impacts analyzed. Initial discussions were had with all regulatory bodies in 2015 and 2016. This included conducting a site visit in 2016, with the harbormasters and chair of the Harbor Commission, whose input was incorporated into the design.

The results of the investigatory process were presented to City staff, including the City Manager, City Planner, Harbormasters, Chair of the Harbor Commission/Planning Board

member and Development staff. That presentation is attached at the end of this letter. The site option plan with the 9 sites and the subsequent evaluation matrix are contained within the presentation. It is important to note that while the estimates of cost are relative, they are 15 years old and thus not relevant to today's market. Additionally, the size of the pier has direct correlation to the environmental impact. A larger pier requires additional pilings and results in additional shading of the bottom of the river. This is a much more significant consideration of the regulatory agencies in marshy areas, like site 8, as compared to the smaller rock/rubble intertidal zone at site 7.

It is also important to note that the current at site 7 is slower than further out towards the channel, resulting in easier and more controlled docking and less impacts from ice flowing in the spring runoff. This was also recognized in the consultations with the harbor masters during the site visit in 2016, where they advised *"Relocate pier further upstream and change orientation to reduce current exposure. The Harbormasters confirmed that the channel restriction located just seaward of the pier created fast currents that ran parallel to shore. Based on their knowledge of the harbor, they suggested the pier would be better rotated upstream parallel to the current and moved upstream and inshore from the Layout 1 location. This would put the pier in water with less tidal current and make docking easier and safer"*. The area just seaward of site 7 is site 8.

Request for NIST application

The National Institute of Standards and Technology, NIST, was solicited for funding by UNE to construct the pier. The application is directly related to financing and it is not in any way related to regulatory permitting. The application does not seek approval of the pier design nor location.

In closing, we hope this helps to address some of the questions related to application. We are confident that our submission conforms to the required city standards and ordinances. We look forward to reviewing the Site plan Review Criteria with you in greater detail at the June 18th meeting.

Sincerely,

A handwritten signature in black ink, appearing to read 'Alan Thibeault', with a stylized flourish at the end.

Alan Thibeault
Vice President for University Operations

cc: Tom Saucier, Site Design Associates
Dan Bannon, GEI

From: [Galbraith, David](#)
To: [Alan Thibeault](#); [Plotkin, Alexa](#); [Patoine, Larry](#); [Dubois, Matthew](#); [Angers, Roch](#); [Susan Deschambault](#); [Deschambault, Susan](#); [Lewis, Kayla](#); [Beaudette, Stephen](#)
Cc: [Center, Harry](#); [Whitten, Nan](#)
Subject: EXT: UNE Research Pier
Date: Wednesday, May 28, 2025 11:51:19 AM
Attachments: [Shoreland Zone Ordinance Relating to Piers Docks Wharfs.pdf](#)

This email originated from outside of UNE.

All, this email was sent to me by the City Solicitor (Harry Center) late last night. In his email Harry states *"I will provide this advice/opinion to the Planning Board before the June 18, 2025 meeting and I would ask the Planning Department to please forward this email to all members of the planning board and the designated official from UNE"*. As such, I am forwarding the entire email string and Harry's response.

As always, please do not respond to this email or discuss this matter with other Board members. I have also copied Alan Thibeault of UNE.

Thanks all & looking forward to seeing you all at the site walk on June 9th.
David

From: Harry Center <hcenter@woodedlaw.com>
Sent: Tuesday, May 27, 2025 8:31 PM
To: Matthew Haas <matthew1@maine.rr.com>; Whitten, Nan <Nan.Whitten@Biddefordmaine.org>
Cc: Galbraith, David <David.Galbraith@biddefordmaine.org>
Subject: RE: Public notice

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

Mr. Hass:

Attached is the provision of the City's Shoreland Zoning Ordinance relating to "approval" of piers. There are no standards for "local knowledge"; depth, current, moorings or any other complaints by the opponents of the UNE project.

These are the standards and provisions that the City Planning Board must apply to the application.

Additionally, because this is a non-residential development, site review is also required-- however, none of the standards in that provision of the City Code of Ordinances relate to telling an applicant where the location of a pier should be located.

I will provide this advice/opinion to the Planning Board before the June 18, 2025 meeting and I would ask the Planning Department to please forward this email to all members of the planning board and the designated official from UNE. I will continue to follow the law and due process requirements to all parties.

At this time, I see no basis for the City's Planning Board to deny this permit based upon the water depth at the location, the current, or any of the accusations made at the last meeting-- as there are no standards within the City's Code of Ordinances/Shoreland Zoning Ordinance that would justify or support the denial of a pier based on such claims by the opponents. If someone can point to a Shoreland Zoning Ordinance provision, City land use standard or other ordinance within the City's jurisdiction to deny this request for approval,

then the Planning Board should consider any such provision and decide. Further if an opponent can point to a City Ordinance provision that allows the City to dictate the location of the pier, I will be happy to review it.

I made that statement at the meeting, in good faith, that after the Planning Board heard from the public, I would give them legal advice regarding my opinion as to the legal standards the Planning Board must apply, as many of the public comments related to issues that are not within the Planning Board's jurisdiction. However I will respond to your email now.

The Planning Board will make its decision based on the standards set forth in the attached Ordinance. I have not located any other City of Biddeford Land Use Ordinance provision related to docks, piers, wharfs and City staff has not alerted me to any others. If you or anyone else are aware of anything within the City's Code (available online at the City's website) please feel free to raise such provisions and staff and I will review them.

Thank you,
Harry B. Center, II Esq.
City Attorney

From: Matthew Haas <matthew1@maine.rr.com>
Sent: Tuesday, May 27, 2025 4:52 PM
To: Nan Whitten <Nan.Whitten@biddefordmaine.org>
Cc: David Galbraith <David.Galbraith@biddefordmaine.org>; Harry Center <hcenter@woodedlaw.com>
Subject: Re: Public notice

During the meeting near the end there was a discussion on the limits of the boards review . harry center stated he has and will issue them some guidance on the extent and limits of their review. and he said it was available to the public.

Matthew Haas
Sent from my iPhone

On May 27, 2025, at 1:57 PM, Whitten, Nan
<Nan.Whitten@biddefordmaine.org> wrote:

Guidance, do you mean the ordinance or do you have something specific in mind?

From: matthew1@maine.rr.com <matthew1@maine.rr.com>
Sent: Tuesday, May 27, 2025 1:51 PM
To: Whitten, Nan <Nan.Whitten@Biddefordmaine.org>
Subject: RE: Public notice

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Good afternoon, Can I get copies of the guidance the planning board was

issued by city legal council?

From: "Whitten, Nan"
To: "Matthew Haas"
Cc:
Sent: Tuesday May 27 2025 7:46:38AM
Subject: RE: Public notice

Thank you Matthew, you are on the list

From: Matthew Haas <matthew1@maine.rr.com>
Sent: Thursday, May 22, 2025 6:33 PM
To: Whitten, Nan <Nan.Whitten@Biddefordmaine.org>
Subject: Re: Public notice

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

Matthew haas
36 meeting house road
Biddeford maine
297-590-3889

Matthew Haas
Sent from my iPhone

On May 22, 2025, at 2:34 PM, Whitten, Nan
<Nan.Whitten@biddefordmaine.org> wrote:

Happy to do so. May I please have your full name and mailing address?

Thank you for reaching out

*Nan Whitten
City of Biddeford
Office Manager
Planning & Development
207-284-9115*

From: matthew1@maine.rr.com <matthew1@maine.rr.com>

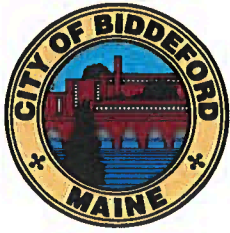
Sent: Thursday, May 22, 2025 2:32 PM

To: Whitten, Nan <Nan.Whitten@Biddefordmaine.org>

Subject: Public notice

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

Please add me to the public notice roster for the UNE pier project. Thank you



City of Biddeford, Maine

The Office of
City Manager

James A. Bennett

Email: james.bennett@biddefordmaine.org

August 19, 2024

University of New England
11 Hills Beach Road
Biddeford, Maine 04005

Attention: Mr. Alan Thibeault, VP of University Operations

RE: Notice to Proceed with External Reviews

Dear Mr. Thibeault,

On August 9, 2024, I received written clarification from Mr. Wayne Duffett, PE of TECAssociates that UNE's proposed Research Pier and Float System has complied with City Code 74-35 subsections (c) 1-10. Those sections are as follows:

- (1) A formal boundary survey that has been documented at the Registry of Deeds.
- (2) A copy of the boundary survey showing the littoral zone, established by extending property lines seaward.
- (3) A location map from a portion of a USGS topographic map or coastal chart.
- (4) Distance to navigable channels or any federal navigation project.
- (5) Mean high- and low-water boundary.
- (6) A plan view on the drawing(s) that shows the location and dimensions of the applicant's structure(s) in relation to the applicant's property lines.
- (7) A typical cross section/side view of the applicant's structures on the drawing(s).
- (8) Evidence that owners of abutting properties have been notified of the applicant's intended project.
- (9) Evidence that the 1) Maine Historic Preservation Commission, 2) Aroostook Band of Micmac, 3) Passamaquoddy Tribe of Indians: Pleasant Point; Indian Township, 4) Houlton Band of Maliseet Indians, and 5) Penobscot Indian Nation have been notified of the applicant's intended project.
- (10) Completed applications to the Army Corps of Engineers, Department of Environmental Protection and Biddeford Code Enforcement. A regulatory permit from the Saco River Corridor Commission may also be required in some instances.

Based on this information and in harmony with my earlier communications, please consider this as formal notification from the City of Biddeford that the application has been found in compliance with

205 Main Street, Biddeford, ME 04005 P: 207.284.9313 F: 207.571.0678 www.biddefordmaine.org

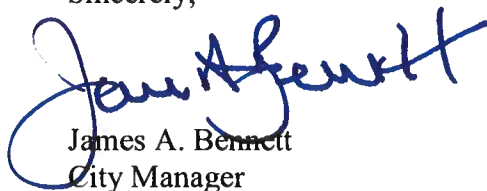
*The City of Biddeford is an equal opportunity provider. To file a complaint, write to
Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

the above mention City Code. That finding allows the application to proceed in the next steps of the review process; namely formal review by all agencies except those that are part of the City of Biddeford. After each and all of those processes are complete, the City will move forward with the final review(s) by agents and Committees of the City.

While I don't believe it is necessary, let me empathically state that this communication does not in any form, imply that the City has in any way made a determination that the location submitted has been approved. Said approval will considered after completion of all process and in compliance with applicable laws, regulations. This includes all local ordinances.

Please feel free to reach out to me if you have any questions

Sincerely,

A handwritten signature in blue ink, appearing to read "James A. Bennett". The signature is stylized with a large initial "J" and a long horizontal stroke.

James A. Bennett
City Manager

CC: Biddeford Mayor and City Council

University of New England Pier Biddeford, Maine

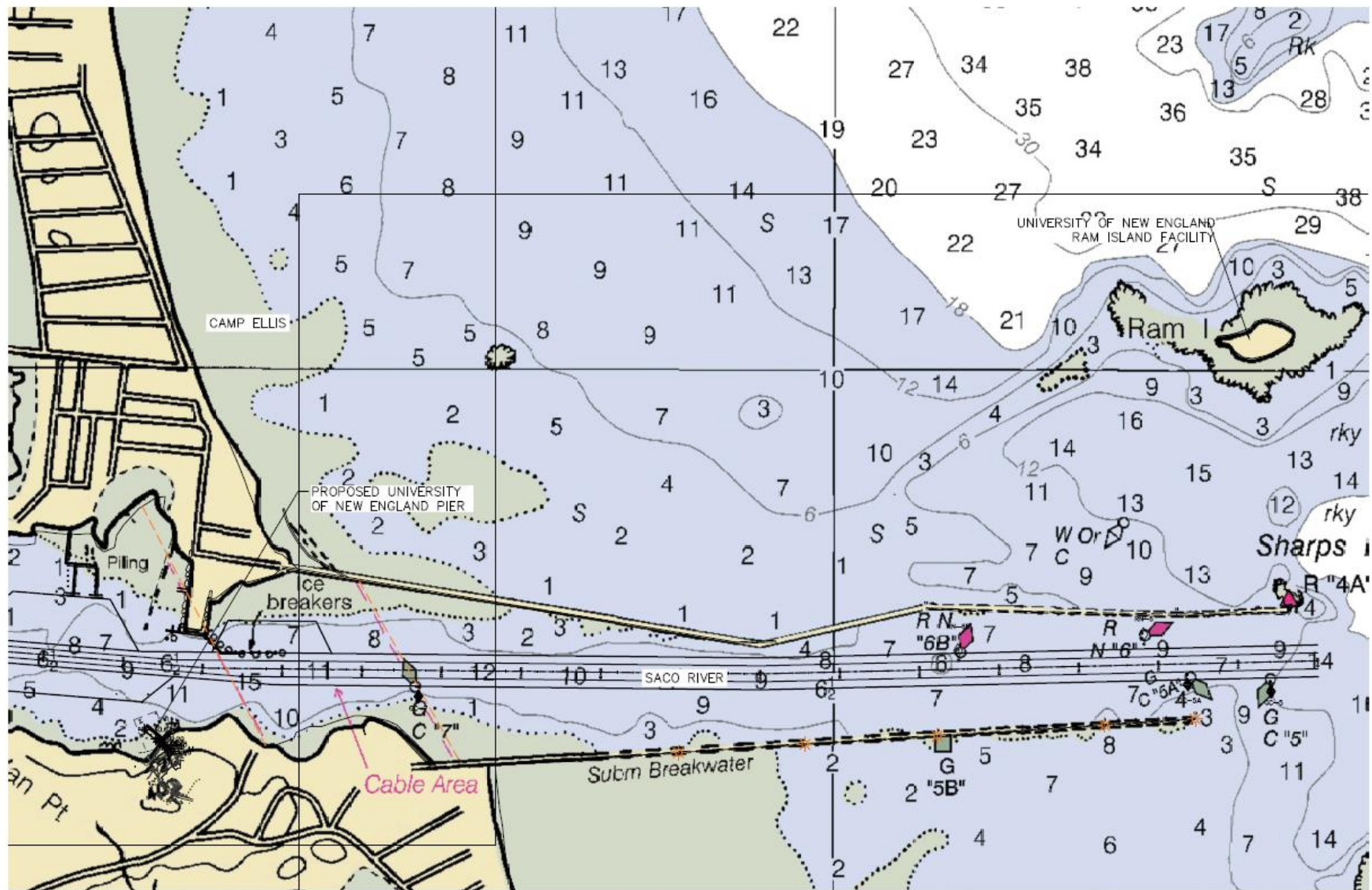


Baker Design Consultants
Civil, Marine & Structural Engineering
7 Spruce Road, Freeport, ME 04032
b.baker@bakerdesignconsultants.com

January 26, 2016

Site Mapping & Plans

NOAA CHART



PLAN
0 150 300 450 600

BAKER DESIGN CONSULTANTS
Civil, Marine, and Structural Engineering
7 Grove Street • Portland, Maine 04101 • 207-866-0044 • www.bakerdesign.com

DESIGNED BY:	JAC	DATE:	10-25-15
DRAWN BY:	BUB	DATE:	10-25-15
CHECKED BY:	BUB	DATE:	10-25-15
SCALE:	AS SHOWN	DATE:	10-25-15

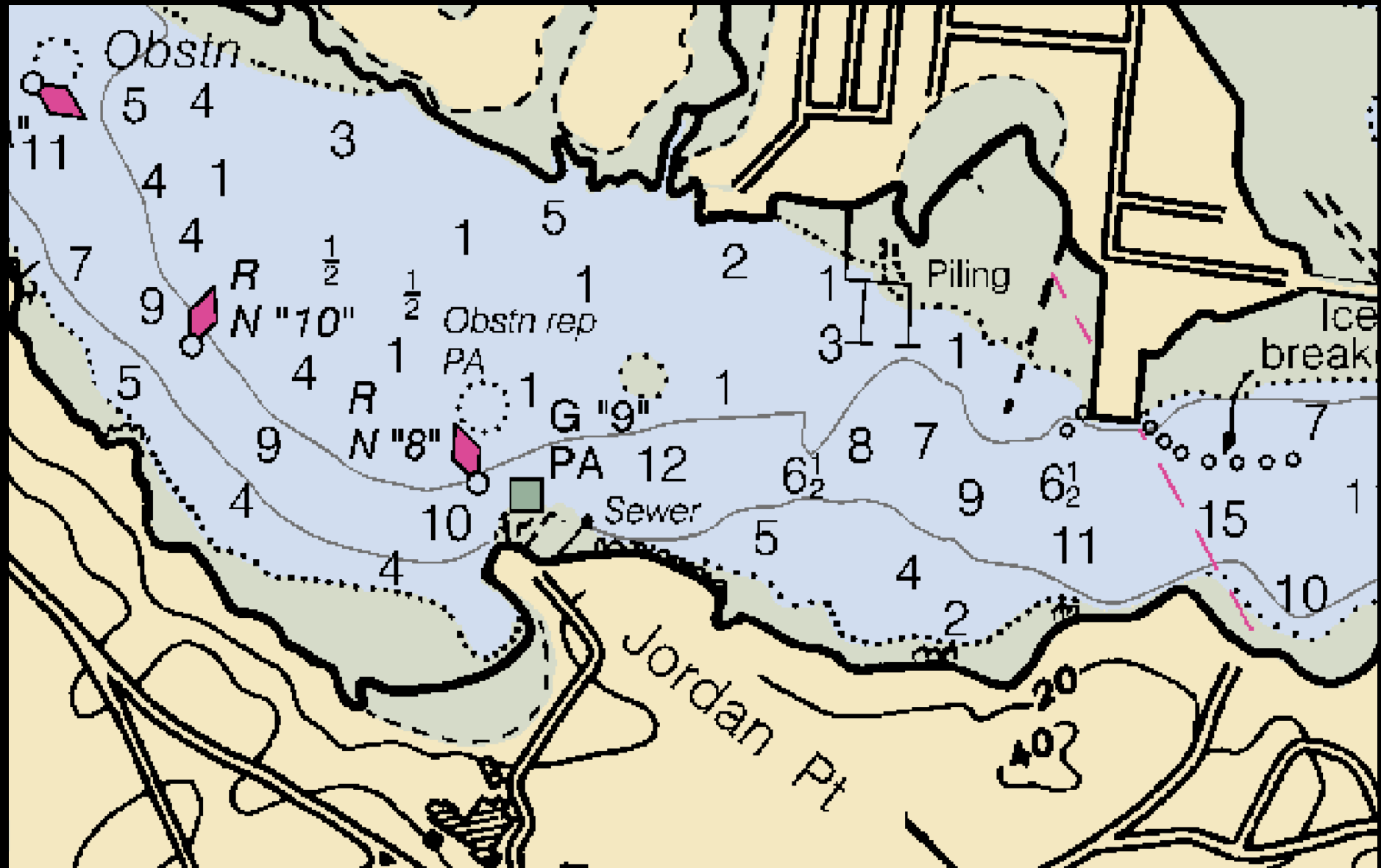
PROJECT VICINITY PLAN
UNIVERSITY OF NEW ENGLAND
PROJECT: UNE MSC WATERFRONT
BOROUGH, MAINE

SHEET NO.	REV.
SK-1	A

Site Selection Study



Site Selection Study



Site Selection Study

TABLE 1 SITE DEVELOPMENT CRITERIA		SITE 1 Existing Pier Improved	SITE 2 New Boat House & Ramp	SITE 3. New Pier with gangway extension	SITE 4 New Pier with gangway extension	SITE 5 Replacement Pier- gangway ext	SITE 6 New Boat House & Ramp	SITE 7 New Pier to deep water	SITE 8 New Pier to deep water	SITE 9 New Pier, Boat House & Ramp.
General Description		Improvements to existing shallow access site	No Pier. Dedicated launching & storage.	Dedicated Pier with Vehicle Access	Dedicated Pier with Vehicle Access	Replaces existing shallow access at recreation site	Steep access . No Pier. Dedicated launching & storage.	Dedicated Pier with Vehicle Access	Dedicated Pier with Vehicle Access	Dedicated Pier . Boathouse and Ramp.
Key Feature		Protected tidal Cove. Seasonal icing prevents year-round use	Tidal ramp requires hydraulic trailer rental or purchase for vessel. Floats installed on ramp to facilitate use.	Floats and Gangway removed for winter. Limited access to pier at Mid to high tide.	Floats and Gangway removed for winter. Limited access to pier at Mid to high tide.	Limited access to pier at Mid to high tide. Shared with recreational program. Pier length dictated by shallow water.	Tidal ramp requires hydraulic trailer rental or purchase for vessel. Floats installed on ramp to facilitate use.	Provides Pier to deep water. Natural protection behind escarpment. Close to Marine Science Bldg.	Avoids any blasting adjacent to the mammal tank. Close to Marine Science Bldg.	Shorefront topography allows for Pier and boat ramp. Close proximity to Neighboring properties.
Primary Affiliation with Marine Science Program		INFREQUENT Use	DEDICATED Waterfront	DEDICATED Waterfront	DEDICATED Waterfront	SHARED with Recreation	DEDICATED Waterfront	DEDICATED Waterfront	DEDICATED Waterfront	DEDICATED Waterfront
Type of Access		Seasonal	Tidal Ramp	Limited Year-round	Limited Year-round	Limited Year-round	Tidal Ramp	Year-round	Year-round	Year-round
Shared Users		UNE Staff/Students	None	None	None	UNE Recreation	None	None	None	None
LOCATION (Sheet Reference)		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9
Distance from Marine Science Ctr	LF	2000	1500	1500	1250	1150	400	200	250	300
Setback from ACOE Channel	LF	Jordon Cove	200	175	215	450	500	350	310	250
Distance to Abutting Property	LF	600	800	1000	1075	1300	650	600	400	250
Base Flood Elev (FEMA '84-NGVD)	NOVD	12.0 (Zone V2)	13.0 (Zone V2)	13.0 (Zone V2)	13.0 (Zone V2)	13.0 (Zone V2)	13.0 (Zone V2)	13.0 (Zone V2)	14.0 (Zone V2)	14.0 (Zone V2)
Wind Exposure		W to NW	NW to N to E	NW to N to E	NW to N to E	NW to N to E	NW to N to NE	NW to N to E	NW to N to E	NW to N to E
Pier Deck Elevation	NOVD	12.0	13.0	13.0	13.0	13.0	13.0	13.0	14.0	14.0
MLW Depth at Float	FT	0-2	NA	6	6	3	NA	6	6	6
PIER GEOMETRY		\$16,500.00	\$0.00	\$202,000.00	\$224,000.00	\$444,000.00	\$0.00	\$334,200.00	\$444,200.00	\$400,200.00
Length of Pier	FT	25	NA	90	100	200	NA	115	165	145
Width of Pier	FT	6	NA	20	20	20	NA	20	20	20
Jib Crane	EA	NA	NA	1	1	1	NA	1	1	1
Wave Barrier	LF	NA	NA	NA	NA	NA	NA	60	60	60
Transfer Pen (Pier Mounted)	EA	NA	NA	NA	NA	NA	NA	1	1	1
Pier Building (12x8 Marine Related)	SF	NA	NA	96	96	96	NA	96	96	96
SITE IMPROVEMENTS		\$2,000.00	\$45,950.00	\$48,000.00	\$55,000.00	\$34,500.00	\$37,500.00	\$143,000.00	\$144,000.00	\$171,000.00
Access Road 16-ft w/tumaround	LF	NA	285	400	500	350	250	600	400	700
Ledge Removal	LF	NA	100	NA	NA	NA	NA	400	400	500
Utility Route (estimate ?)	LF	NA	285	400	500	350	250	300	400	700
Shore Support Building	SF	NA	NA	NA	NA	NA	NA	600	600	600
Landscaping	LS	0.1	1	1	1	0.5	1	1	1	1
FLOAT SYSTEM		\$36,700.00	\$0.00	\$43,000.00	\$43,000.00	\$43,000.00	\$0.00	\$60,900.00	\$60,900.00	\$60,900.00
Gangway	FT	50	NA	40	40	40	NA	50	50	50
Unit Float Length	FT	40	NA	20	20	20	NA	40	40	40
Unit Float Width	FT	12	NA	10	10	10	NA	12	12	12
No. of Floats	EA	1	NA	3	3	3	NA	2	2	2
Fishery Cage (in Float)	EA	NA	NA	1	1	1	NA	1	1	1
BOAT RAMP		\$0.00	\$107,500.00	\$0.00	\$0.00	\$0.00	\$98,800.00	\$0.00	\$0.00	\$94,800.00
Length of Ramp	FT	NA	90	NA	NA	NA	90	NA	NA	70
Width of Ramp	FT	NA	20	NA	NA	NA	20	NA	NA	20
Guide Piles	EA	NA	5	NA	NA	NA	4	NA	NA	4
Unit Float Length	FT	NA	20	NA	NA	NA	20	NA	NA	20
Unit Float Width	FT	NA	8	NA	NA	NA	8	NA	NA	8
No. of Floats	EA	NA	5	NA	NA	NA	4	NA	NA	4
BOAT HOUSE		\$0.00	\$460,000.00	\$0.00	\$0.00	\$0.00	\$460,000.00	\$0.00	\$0.00	\$460,000.00
Setback from shore	FT	NA	25	NA	NA	NA	75	NA	NA	50
No. of Vessel Bays	EA	NA	2	NA	NA	NA	2	NA	NA	2
Footprint SF	SF	NA	2400	NA	NA	NA	2400	NA	NA	2400
Floor Slab Elevation	NOVD	NA	13	NA	NA	NA	13	NA	NA	13
Hydraulic Trailer	Ea	NA	1	NA	NA	NA	1	NA	NA	1

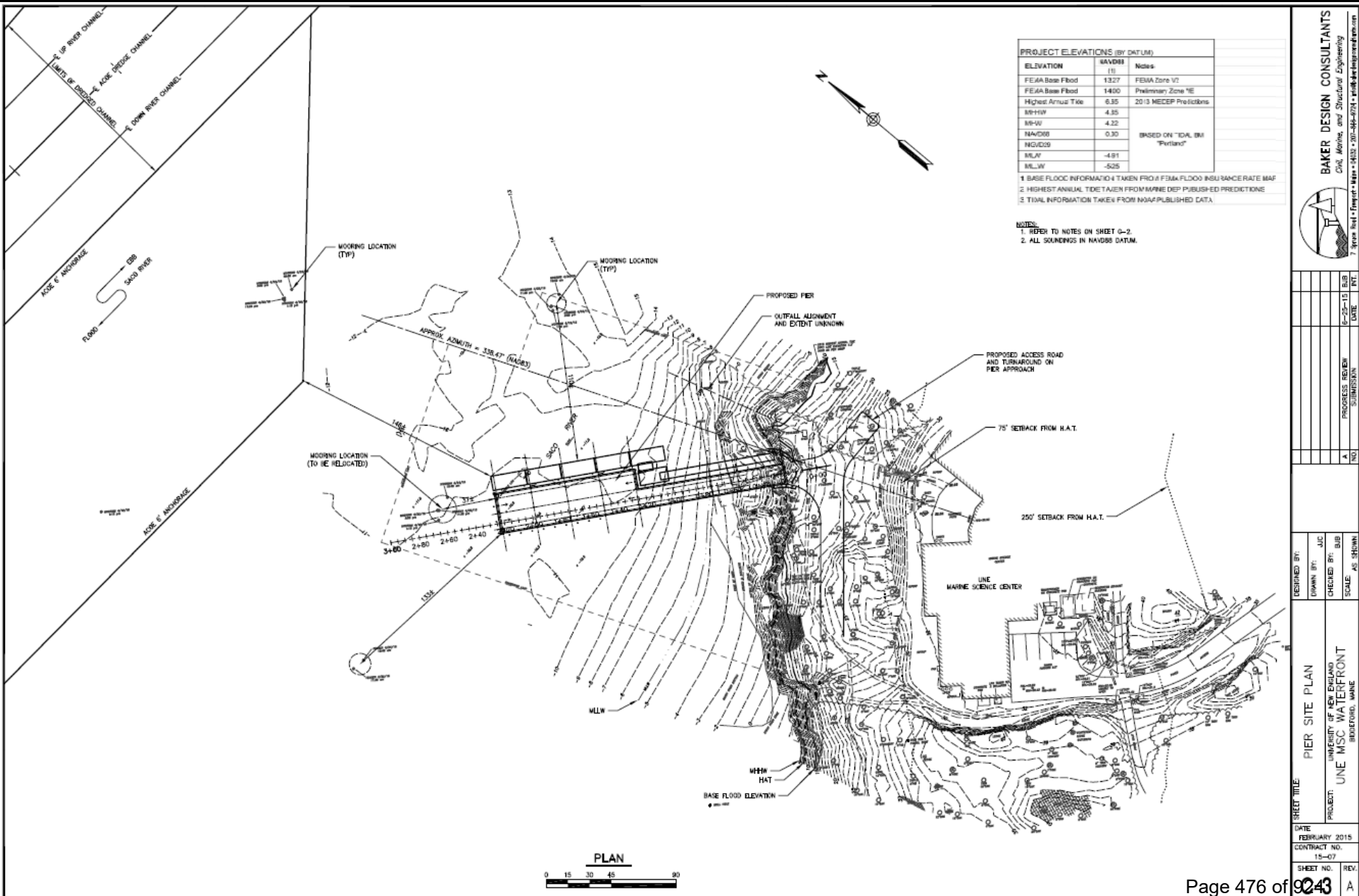
Site Selection Study

TABLE 2 REGULATORY CONSIDERATIONS	SITE 1 Existing Pier Improved	SITE 2 New Boat House & Ramp	SITE 3. New Pier with gangway extension	SITE 4 New Pier with gangway extension	SITE 5 Replacement Pier- gangway ext	SITE 6 New Boat House & Ramp	SITE 7 New Pier to deep water	SITE 8 New Pier to deep water	SITE 9 New Pier, Boat House & Ramp.
PERMIT AGENCIES									
ACOE Dept of the Army	☒	☒	☒	☒	☒	☒	☒	☒	☒
ME DEP NRPA/Site Location	☒	☒	☒	☒	☒	☒	☒	☒	☒
ME DOC Submerged Lands	NA	NA	☒	☒	☒	NA	☒	☒	☒
Saco River Corridor	☒	☒	☒	☒	☒	☒	☒	☒	☒
City of Biddeford	☒	☒	☒	☒	☒	☒	☒	☒	☒
HABITAT IMPACTS									
Upland	Minimal Change to existing access and grading.	Marine related facility (Boathouse and ramp) constructed within 75-ft setback.	Minor grading to create road. Turn around within 75-ft setback.	Road follows natural gradient. Turn around within 75-ft setback.	Access road improves existing route.	Marine related facility (Boathouse and ramp) constructed within 75-ft setback.	Major grading to create access road within 75-ft setback.	Major grading to create access road within 75-ft setback.	Marine related facility (Boathouse and ramp) constructed within 75-ft setback.
Shoreline	Stub Pier Constructed. Minimal shading	Cut/fill to create boathouse pad and ramp gradient.	Pier extends to low water.	Pier extends to low water.	New pier replaces existing facility	Cut/fill to create boathouse pad and ramp gradient.	Pier extends to Deep water with L-shaped float system.	Pier extends to Deep water with L-shaped float system.	Pier extends to Deep water with L-shaped float system.
Benthic	Characterization Required. Float sits on seabed at extreme low tide.	Intertidal impacts associated with ramp construction.	Shading from new floats.	Pier extends to MLW. Shading from floats	Pier extends to MLW. Shading from floats	Intertidal impacts associated with ramp construction.	Shading from pier/floats.	Shading from pier/floats.	Shading from pier/floats.
Water Quality	Shading from float.	Buffer to control ramp/building runoff.	Fishery Cage.	Fishery Cage.	Fishery Cage.	Buffer to control ramp/building runoff.	Fishery cage and mammal pen.	Fishery cage and mammal pen.	Runoff, fishery cage and mammal pen.
ADA ISSUES									
Pier	ADA access to Pier head	15% grade required to launch boats.	ADA access to Pier head	ADA access to Pier head	ADA access to Pier head	15% grade required to launch boats.	ADA access to Pier head	ADA access to Pier head	ADA access to Pier head
Gangway	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	NA	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	NA	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail	Does not meet ADA Guidelines for length (80-ft), ADA width and handrail
VISUAL IMPACT									
From River Corridor	On Jordon Cove. Not directly exposed to the river corridor.	Building and Ramp will be visible from the river corridor.	Pier extends into river corridor.	Pier extends into river corridor.	Pier extends into river corridor.	Building and Ramp will be visible from the river corridor.	Pier extends into river corridor.	Pier extends into river corridor.	Building and Ramp and Pier visible from the river corridor.
SPECIAL CONSIDERATIONS									
Noise	No change from current conditions.	No change from current conditions.	Minimal Impact.	Minimal Impact.	Minimal Impact.	Minimal Impact.	Minimal Impact.	Minimal Impact.	Considers proximity to Neighboring properties.
Navigation	No Impact to existing Mooring Field.	No Impact to existing Mooring Field.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.	Approximately 2 moorings displaced.
Water Quality	No change from current conditions.	No change from current conditions.	Minimal or No Impact.	Minimal or No Impact.	Minimal or No Impact.	Minimal or No Impact.	Minimal or No Impact.	Minimal or No Impact.	Minimal or No Impact.
Winter Icing	Not an issue with seasonal facility	Boat ramp use will be impacted by ice.	Pier must resist ice buildup.	Pier must resist ice buildup.	Pier must resist ice buildup.	Boat ramp use will be impacted by ice.	Pier must resist ice buildup.	Pier must resist ice buildup.	Pier must resist ice buildup.
River Current	Not directly on river.	Cross current with some protection from Jordan Point.	Cross current.	Cross current.	Cross current.	Maximum setback from Channel.	Cost estimate includes wave barrier for protection	Cost estimate includes wave barrier for protection	Cost estimate includes wave barrier for protection
Mitigation	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

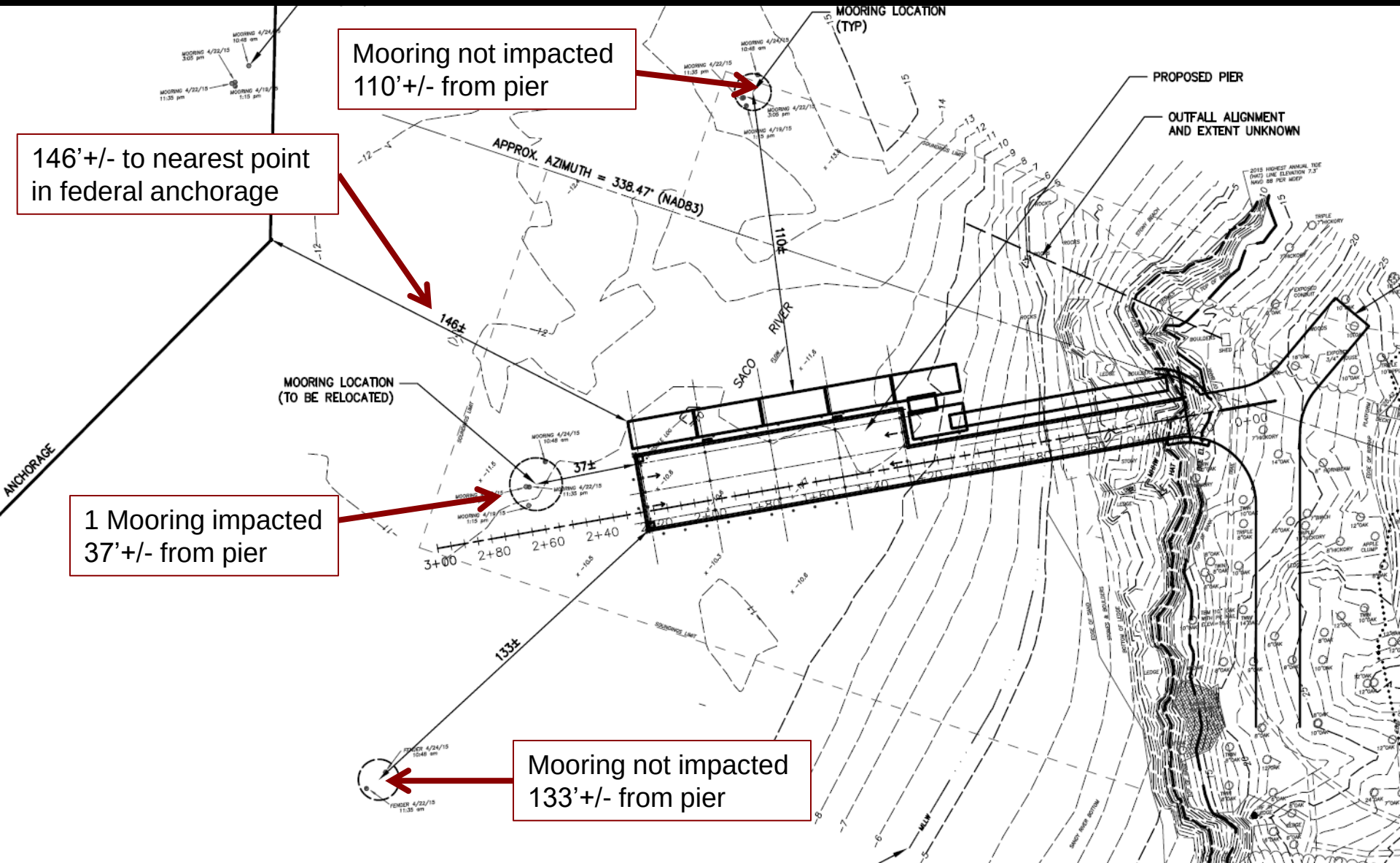
Site Selection Study

TABLE 3 SITE CONCEPT COST ESTIMATE			SITE 1 Existing Pier Improved	SITE 2 New Boat House & Ramp	SITE 3. New Pier with gangway extension	SITE 4 New Pier with gangway extension	SITE 5 Replacement Pier- gangway ext	SITE 6 New Boat House & Ramp	SITE 7 New Pier to deep water	SITE 8 New Pier to deep water	SITE 9 New Pier, Boat House & Ramp.
Description	Unit Cost	Unit									
Mob Demobilization		5%	NA	\$37,655	\$17,985	\$19,785	\$32,011	\$36,590	\$33,030	\$39,843	\$72,229
Bonds & Insurance		1%	NA	\$3,766	\$1,799	\$1,977	\$3,201	\$3,659	\$3,303	\$3,984	\$7,223
PIER											
Fixed Pier	\$110.00	SF	\$16,500.00	NA	\$198,000.00	\$220,000.00	\$440,000.00	NA	\$253,000.00	\$363,000.00	\$319,000.00
Jib Crane	\$4,000.00	EA	NA	NA	\$4,000.00	\$4,000.00	\$4,000.00	NA	\$4,000.00	\$4,000.00	\$4,000.00
Wave Barrier	\$1,000.00	LF	NA	NA	NA	NA	NA	NA	\$60,000.00	\$60,000.00	\$60,000.00
Transfer Pen	\$10,000.00	LS	NA	NA	NA	NA	NA	NA	\$10,000.00	\$10,000.00	\$10,000.00
Pier Building	\$75.00	LF	NA	NA	NA	NA	NA	NA	\$7,200.00	\$7,200.00	\$7,200.00
SITE IMPROVEMENTS											
Access Road 16-ft	\$20.00	LF	NA	\$5,700.00	\$8,000.00	\$10,000.00	\$7,000.00	\$5,000.00	\$12,000.00	\$8,000.00	\$14,000.00
Ledge Removal	\$60.00	LF	NA	\$6,000.00	NA	NA	NA	NA	\$24,000.00	\$24,000.00	\$30,000.00
Utility Route (est ?)	\$50.00	LF	NA	\$14,250.00	\$20,000.00	\$25,000.00	\$17,500.00	\$12,500.00	\$15,000.00	\$20,000.00	\$35,000.00
Shore Support Bldg	\$120.00	SF	NA	NA	NA	NA	NA	NA	\$72,000.00	\$72,000.00	\$72,000.00
Landscaping	\$20,000.00	LS	\$2,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$10,000.00	\$20,000.00	\$20,000.00	\$20,000.00	\$20,000.00
FLOAT SYSTEM											
Gangway	\$350.00	EA	\$17,500.00	NA	\$14,000.00	\$14,000.00	\$14,000.00	NA	\$17,500.00	\$17,500.00	\$17,500.00
Floats	\$40.00	SF	\$19,200.00	NA	\$24,000.00	\$24,000.00	\$24,000.00	NA	\$38,400.00	\$38,400.00	\$38,400.00
Fishery Cage (in Float)	\$5,000.00	EA	NA	NA	\$5,000.00	\$5,000.00	\$5,000.00	NA	\$5,000.00	\$5,000.00	\$5,000.00
BOAT RAMP											
Boat Ramp	\$35.00	SF	NA	\$83,000.00	NA	NA	NA	\$83,000.00	NA	NA	\$49,000.00
Guide Piles	\$2,500.00	EA	NA	\$12,500.00	NA	NA	NA	\$10,000.00	NA	NA	\$10,000.00
Floats	\$40.00	SF	NA	\$32,000.00	NA	NA	NA	\$25,600.00	NA	NA	\$25,600.00
BOAT HOUSE											
Footprint SF	\$150.00	SF	NA	\$360,000	NA	NA	NA	\$360,000	NA	NA	\$360,000
Hydraulic Trailer	\$100,000.00	Ea	NA	\$100,000	NA	NA	NA	\$100,000	NA	NA	\$100,000
Construction Subtotal			\$55,200	\$654,871	\$312,784	\$343,742	\$556,712	\$636,349	\$574,433	\$692,928	\$1,256,152
Cost Adjustment for existing site@	40%		-\$22,080								
Contingency @	15%		\$8,280	\$98,231	\$46,918	\$51,561	\$83,507	\$95,452	\$86,165	\$103,939	\$188,423
Construction Total			\$41,400	\$753,101	\$359,701	\$395,303	\$640,219	\$731,801	\$660,598	\$796,867	\$1,444,574
Survey and Testing											
Geotechnical Investigation	Est.		\$0	\$5,000	\$15,000	\$15,000	\$15,000	\$5,000	\$15,000	\$15,000	\$20,000
Environmental Survey	Est.		\$750	\$10,000	\$10,000	\$10,000	\$10,000	\$5,000	\$10,000	\$10,000	\$10,000
Topographic Survey/Bathymetry	Est.		\$1,500	\$1,500	\$2,500	\$2,500	\$2,500	\$1,500	\$2,500	\$2,500	\$2,500
Permitting	Est.	w/design services		\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Design Development	10%		\$4,140	\$75,310	\$35,970	\$39,530	\$64,022	\$73,180	\$66,060	\$79,687	\$144,457
Bid Phase Services	0.5%		\$207	\$3,766	\$1,799	\$1,977	\$3,201	\$3,659	\$3,303	\$3,984	\$7,223
Construction Admin @ Monitoring	2%		\$828	\$15,062	\$7,194	\$7,906	\$12,804	\$14,636	\$13,212	\$15,937	\$28,891
Consultant Services Total			\$7,425	\$135,638	\$97,463	\$101,913	\$132,527	\$127,975	\$135,075	\$152,108	\$238,072
PROJECT BUDGET			\$48,000	\$888,000	\$457,000	\$497,000	\$772,000	\$859,000	\$795,000	\$948,000	\$1,682,000

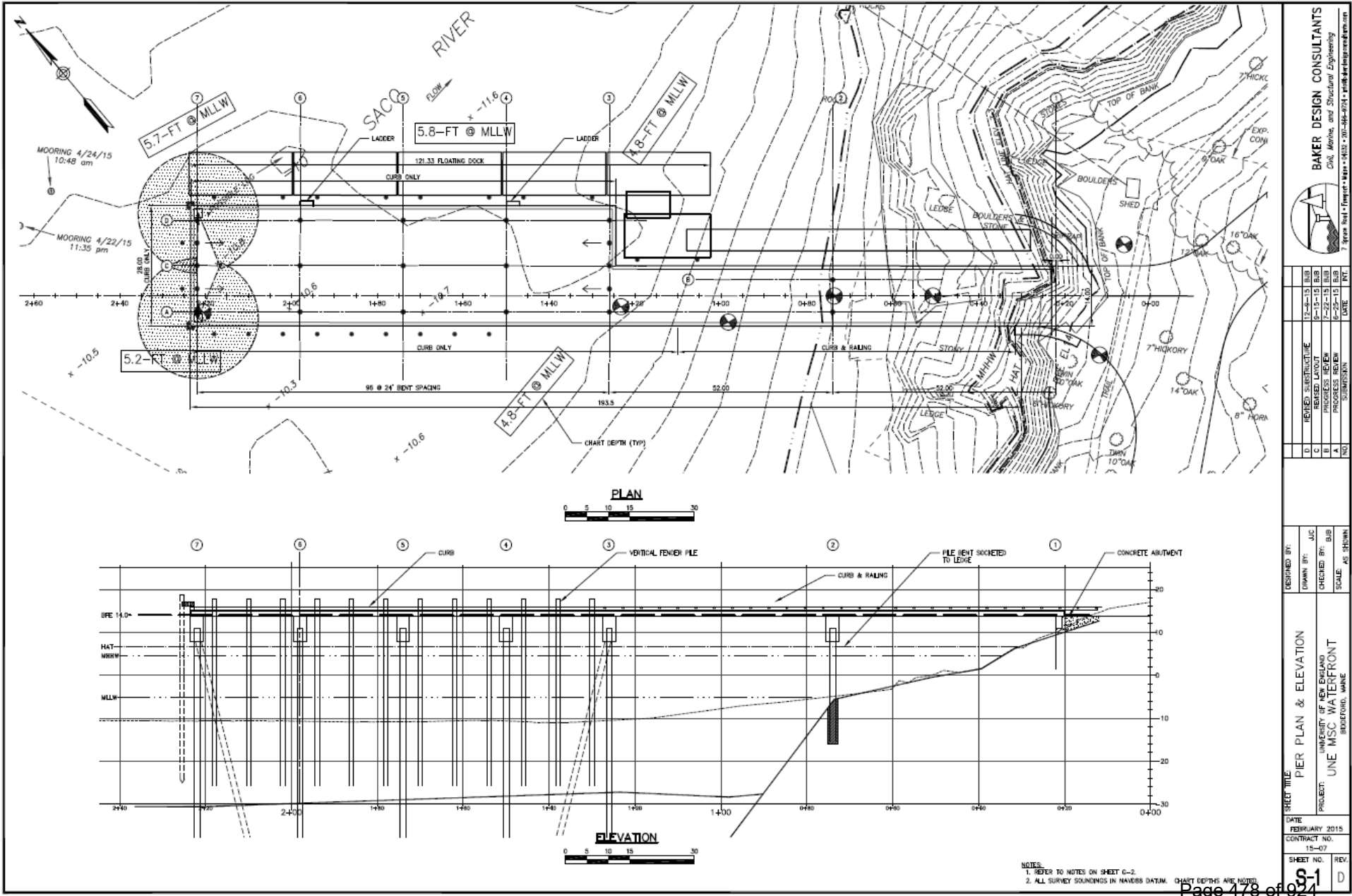
Pier Site Plan



Pier Site Plan - Impacts



Pier Plan & Elevation



BAKER DESIGN CONSULTANTS
 Civil, Marine, and Structural Engineering
 7 Grove Street • Portland, Maine 04101 • 207-884-0001 • www.bakerdesign.com

NO.	DATE	BY	FOR
1	12-18-15	BLB	BLB
2	01-15-16	BLB	BLB
3	02-22-16	BLB	BLB
4	03-23-16	BLB	BLB
5	04-28-16	BLB	BLB

D	REVIEW SUBMITTANCE
C	REVIEW LAYOUT
B	PROGRESS REVIEW
A	PROGRESS REVIEW
NO	NO SUBMITTANCE

Aerial Photos

UNE PIER SITE

September 2014

Legend

0000

Google earth

400 ft

Red Oak Ln

N

UNE PIER SITE

September 2014

Legend

0000

Nearest mooring within
federal channel

(1) Impacted Mooring

Nearest downstream mooring in
Biddeford Waters

Nearest upstream mooring in
Biddeford Waters

Google earth

400 ft

15

N

UNE PIER SITE

September 2014

Legend

0000

Nearest mooring within
federal channel

(1) Impacted Mooring

Nearest downstream mooring in
Biddeford Waters

Nearest upstream mooring in
Biddeford Waters

Google earth

400 ft

N

UNE PIER SITE

September 2013

Legend

0000

Google earth

400 ft

N

17

UNE PIER SITE

May 2012

Legend

0000

Google earth

400 ft

Red Oak Ln

N

UNE PIER SITE

April 2012

Legend

0000

Google earth

400 ft

Retro Oak Ln

N

UNE PIER SITE

November 2011

Legend

0000

Google earth

400 ft

Red Oak Ln

N

20

UNE PIER SITE

May 2010

Legend

0000

Google earth

400 ft

Red Oak Ln

N

UNE PIER SITE

September 2007

Legend

0000

Google earth

400 ft
Red Oak Ln
N

UNE PIER SITE

October 2006

Legend

0000

Google earth

400 ft
Red Oak Ln
N

23

UNE PIER SITE

April 2006

Legend

0000

Google earth

400 ft

Red Oak Ln



Site Photos

Approximate Pier
Location



Photo Date: 11/9/2015

Nearest upstream mooring in
Biddeford Waters

Nearest mooring within
federal channel

(1) Impacted Mooring

Photo Date: 11/9/2015

Nearest upstream mooring in
Biddeford Waters

(1) Impacted Mooring

Barge is currently
positioned at end of
proposed pier (Boring B-1)

Photo Date: 11/9/2015

Nearest downstream mooring in
Biddeford Waters

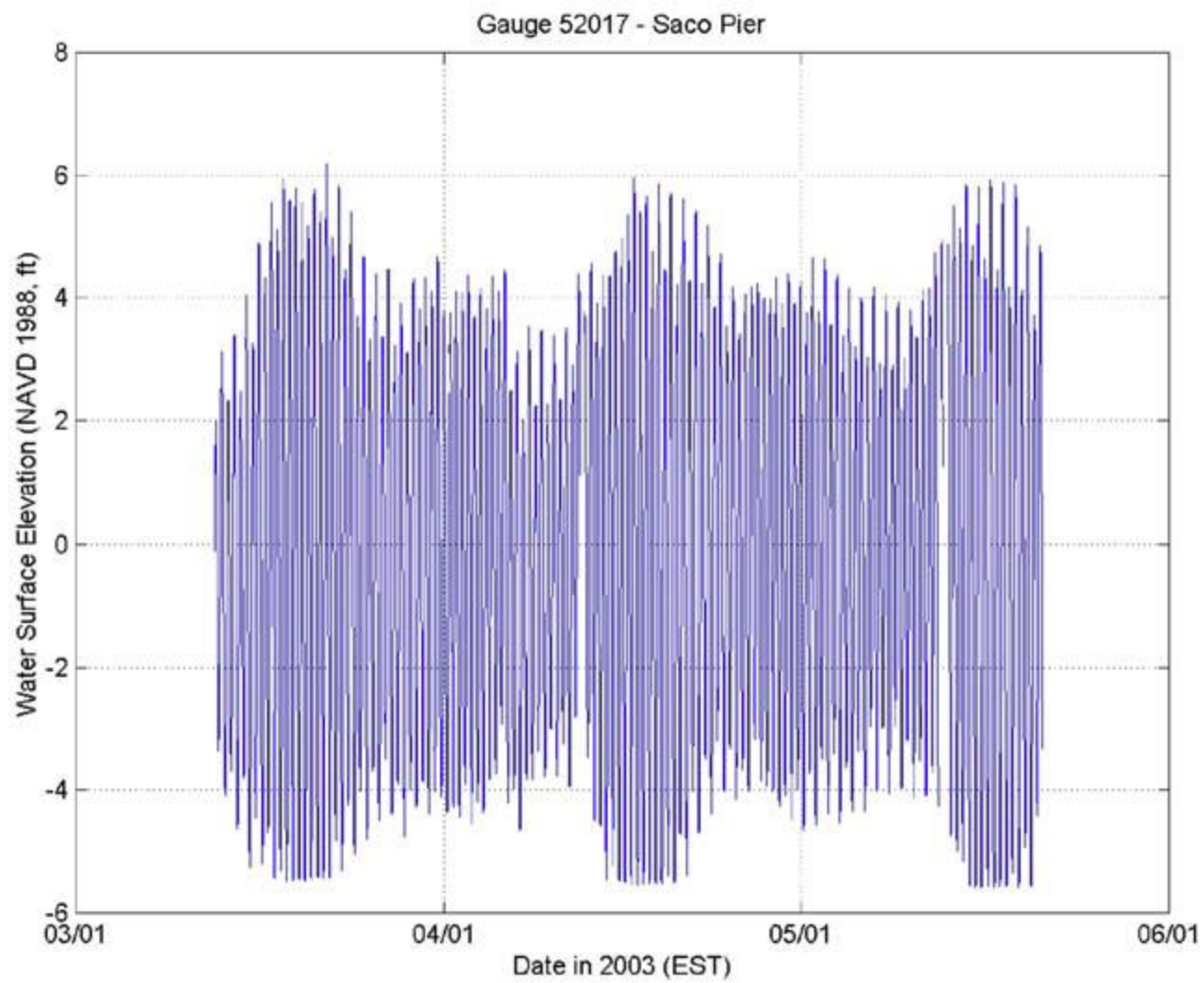


Photo Date: 11/9/2015

Tidal & Current Study

Source:

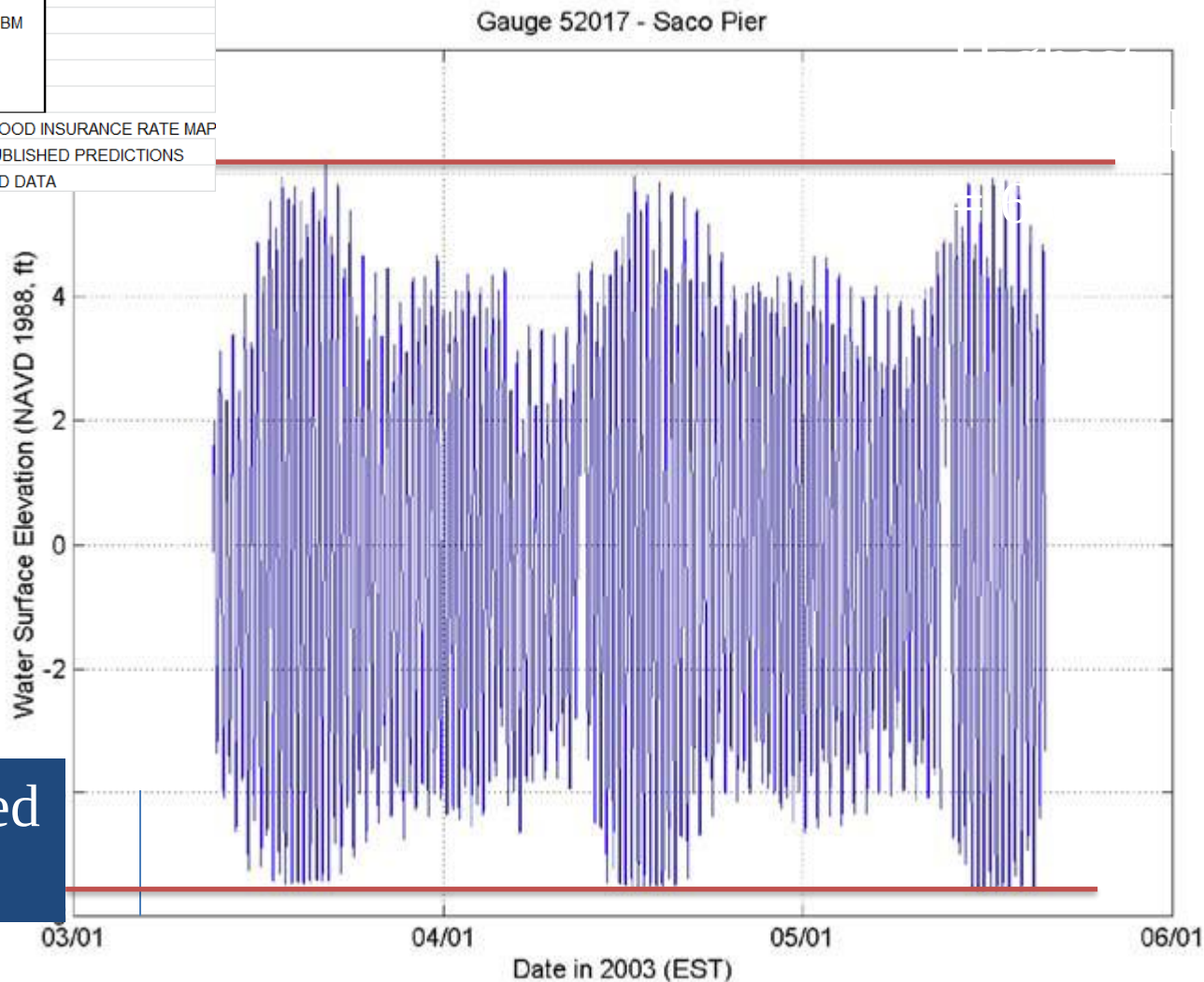
Saco River and Camp Ellis Beach Section 111 Shore Damage Mitigation Study, Appendix C – Data Collection and Modeling Report, prepared by Woods Hole Group and Aubrey Consulting for the US Army Corps of Engineers, October 2006



PROJECT ELEVATIONS (BY DATUM)		
ELEVATION	NAVD88 (ft)	Notes
FEMA Base Flood	13.27	FEMA Zone V2
FEMA Base Flood	14.00	Preliminary Zone VE
Highest Annual Tide	6.65	2013 MEDEP Predictions
MHHW	4.65	BASED ON TIDAL BM "Portland"
MHW	4.22	
NAVD88	0.00	
NGVD29		
MLW	-4.91	
MLLW	-5.25	

1. BASE FLOOD INFORMATION TAKEN FROM FEMA FLOOD INSURANCE RATE MAP
2. HIGHEST ANNUAL TIDE TAKEN FROM MAINE DEP PUBLISHED PREDICTIONS
3. TIDAL INFORMATION TAKEN FROM NOAA PUBLISHED DATA

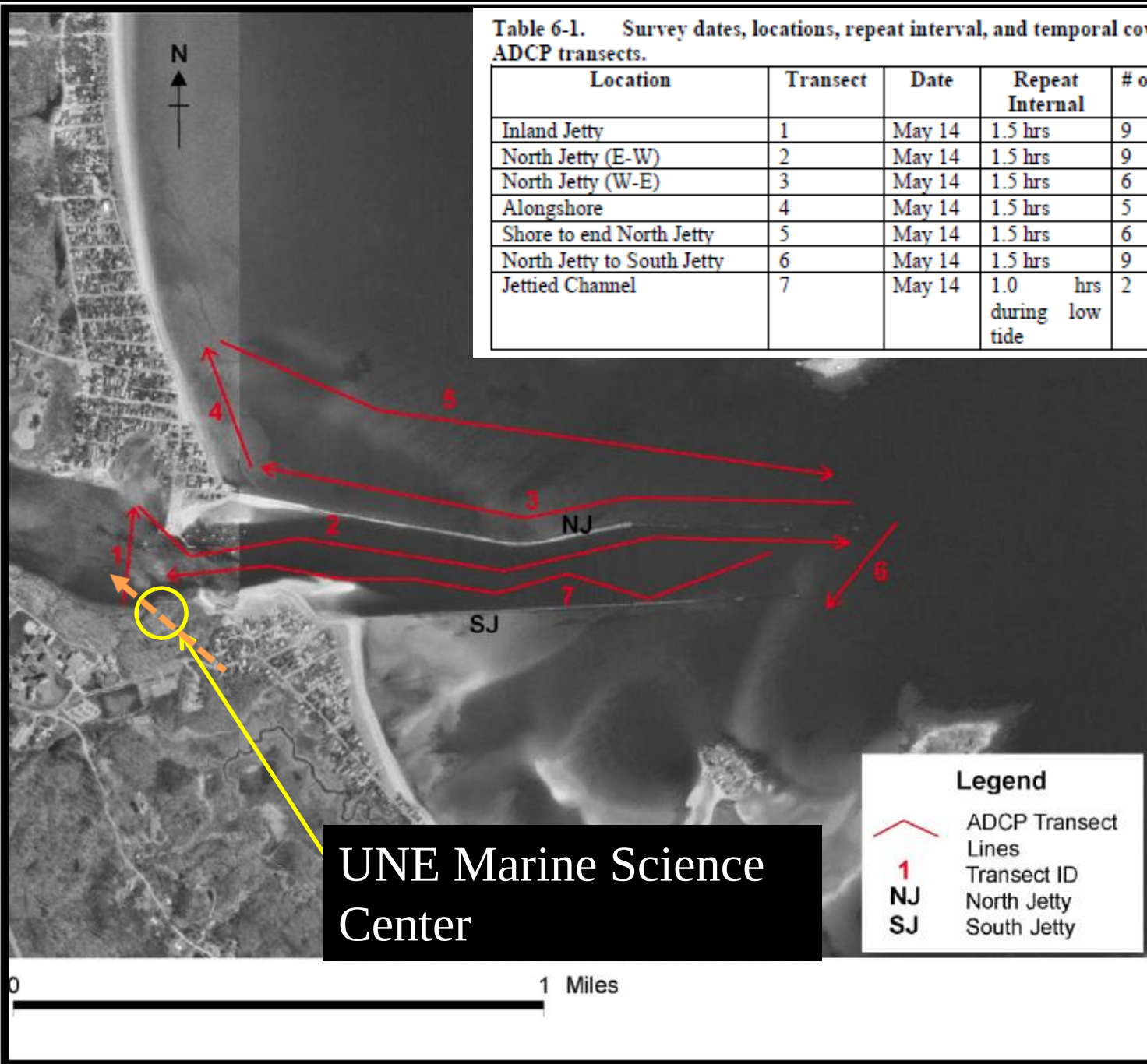
Observations suggest that this location on the Saco River at times sees higher highs and lower lows than the Portland gage for a given tide cycle, possibly due to river influence.

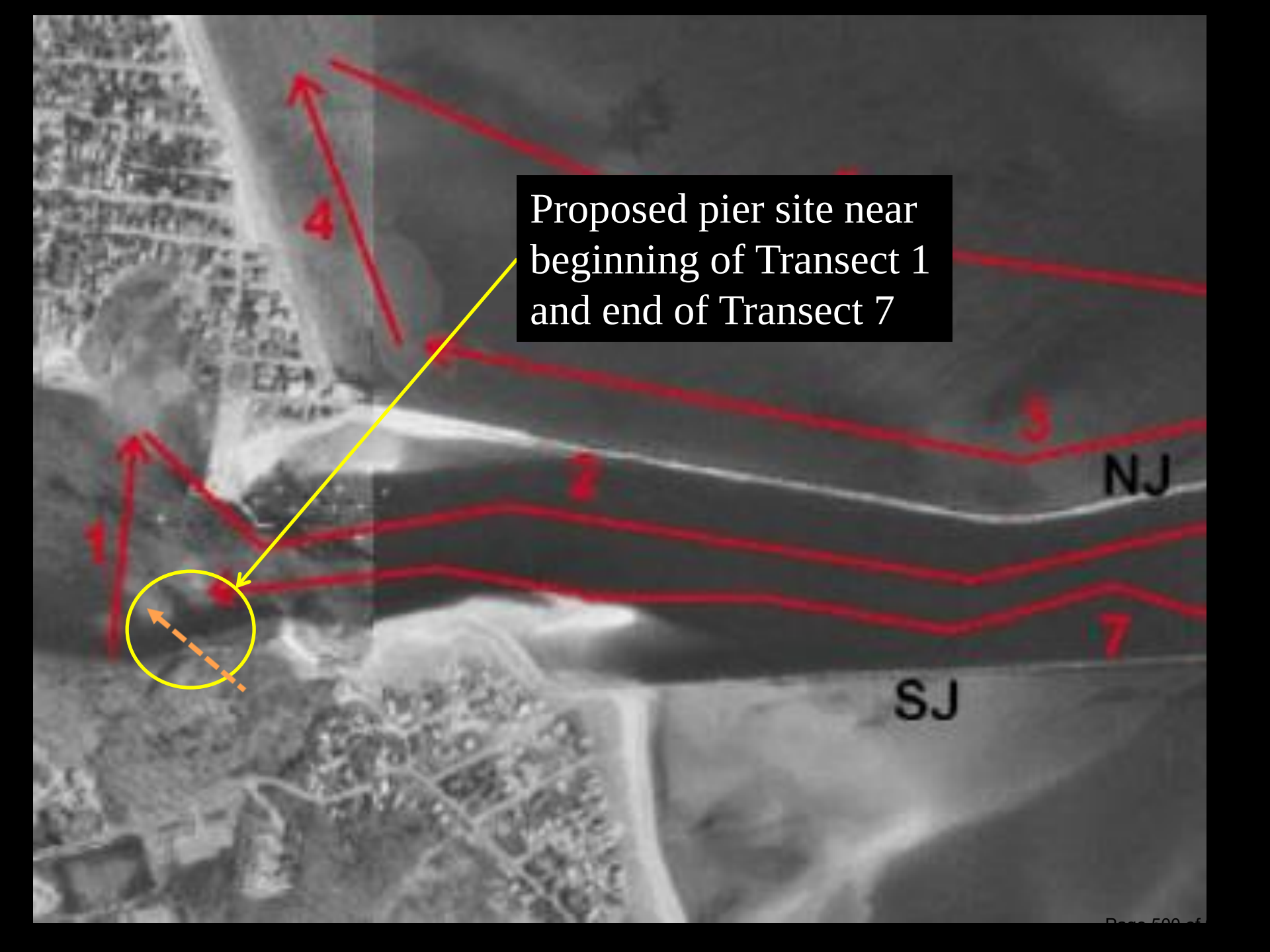


Lowest Observed
Tide = -5.6

Table 6-1. Survey dates, locations, repeat interval, and temporal coverage of the ADCP transects.

Location	Transect	Date	Repeat Interval	# of Transects
Inland Jetty	1	May 14	1.5 hrs	9
North Jetty (E-W)	2	May 14	1.5 hrs	9
North Jetty (W-E)	3	May 14	1.5 hrs	6
Alongshore	4	May 14	1.5 hrs	5
Shore to end North Jetty	5	May 14	1.5 hrs	6
North Jetty to South Jetty	6	May 14	1.5 hrs	9
Jettied Channel	7	May 14	1.0 hrs during low tide	2





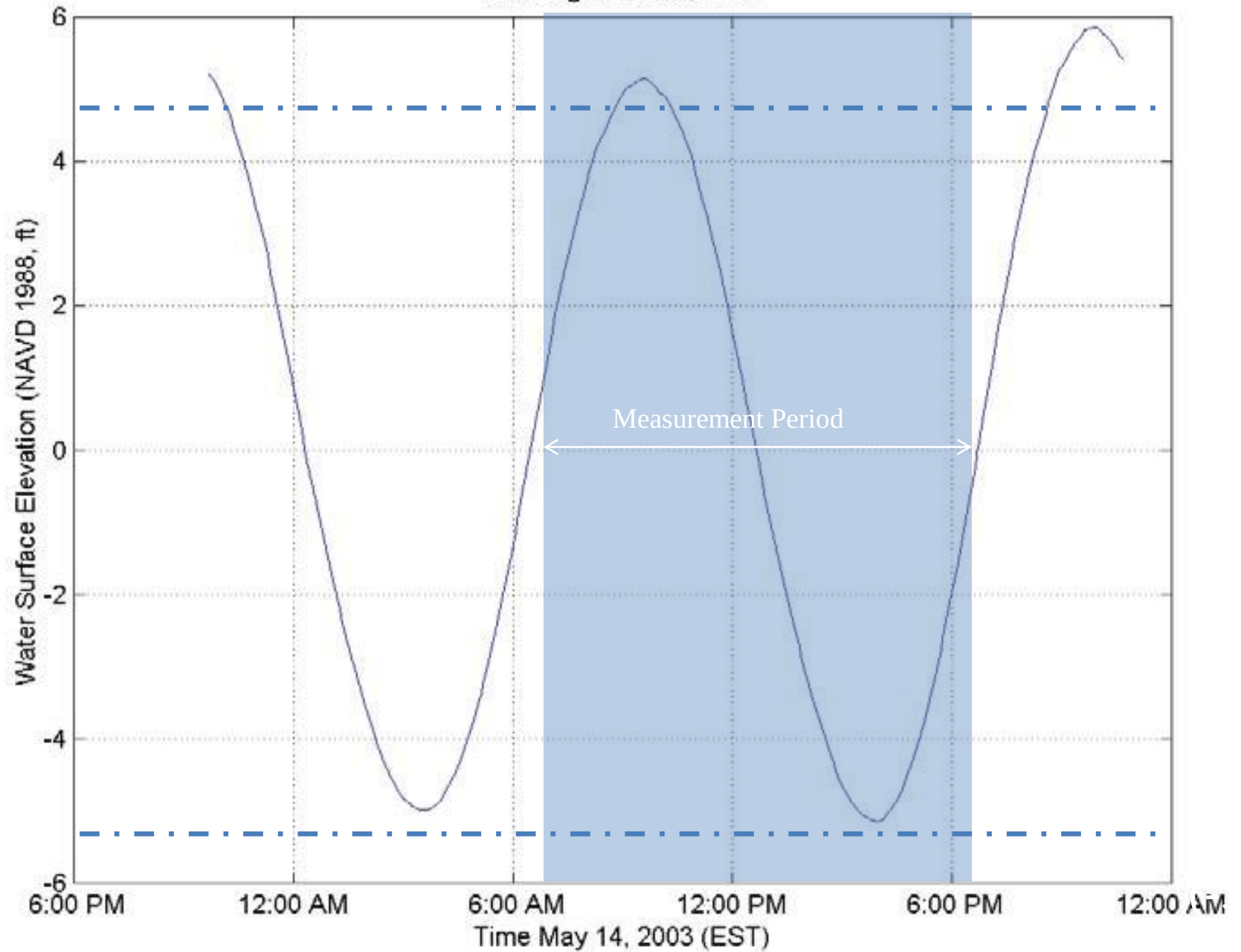
This is an aerial photograph of a coastal region. A series of red lines, numbered 1 through 7, represent transects extending from the shoreline into the water. A yellow circle on the left side of the image, near the shore, contains a dashed orange arrow pointing towards the water. A yellow arrow points from a text box to this circle. The text box contains the text: "Proposed pier site near beginning of Transect 1 and end of Transect 7". The labels "NJ" and "SJ" are visible on the right side of the image, indicating different jurisdictions or areas. The shoreline is visible on the left, with some buildings and infrastructure.

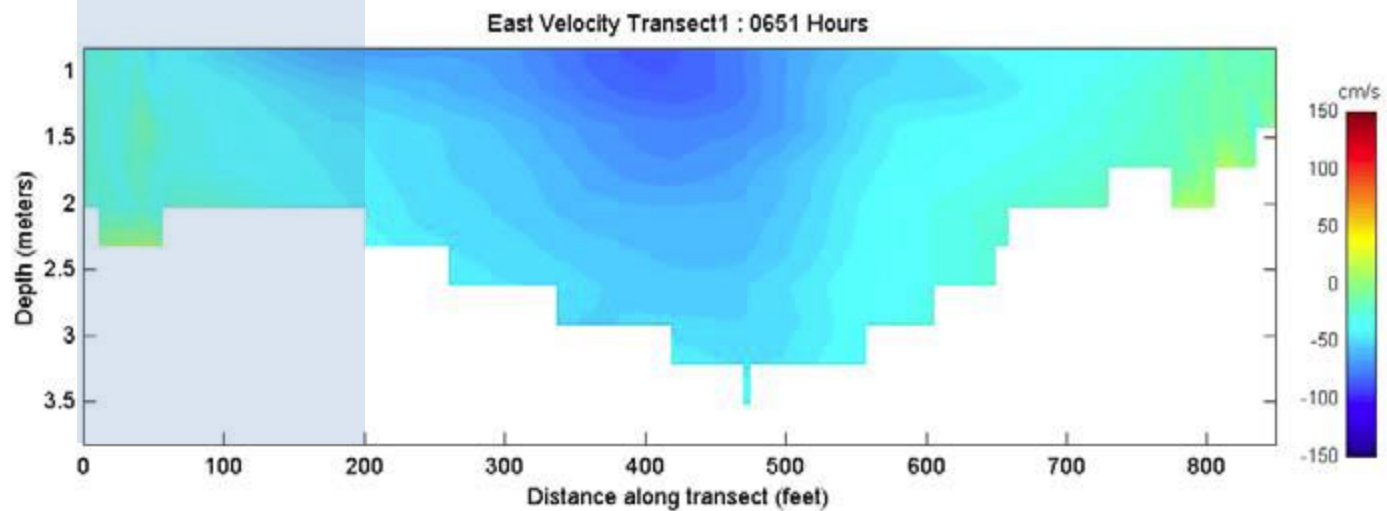
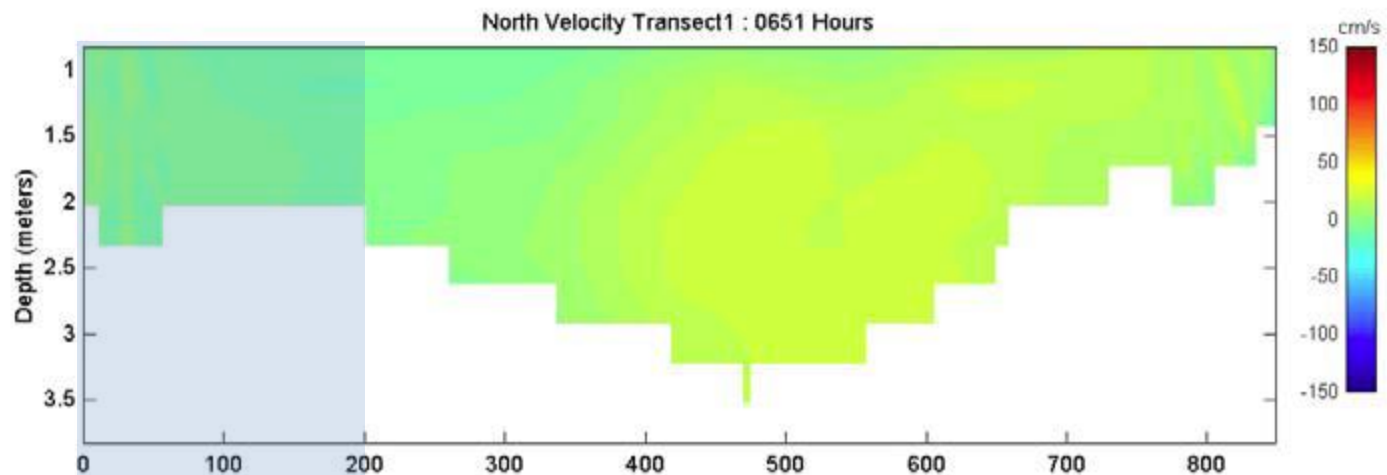
Proposed pier site near
beginning of Transect 1
and end of Transect 7

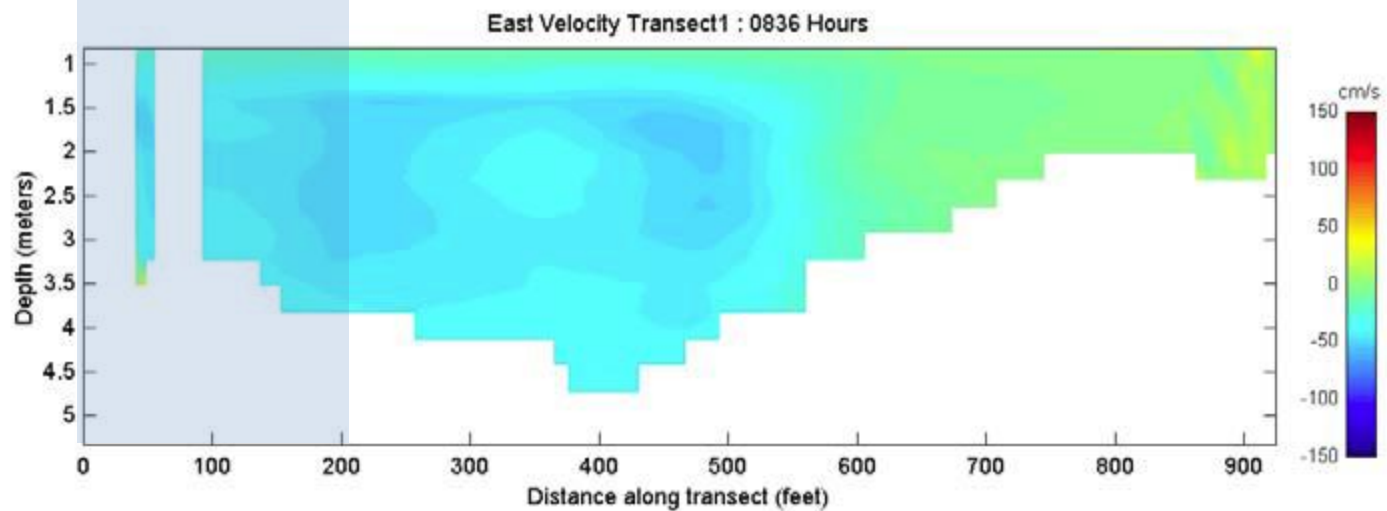
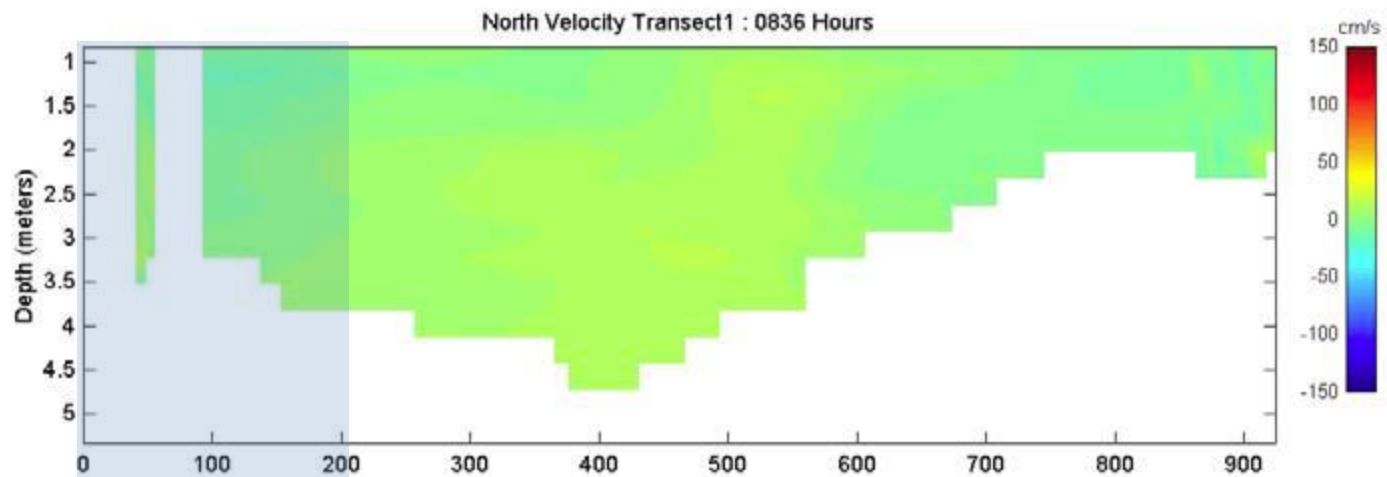
NJ

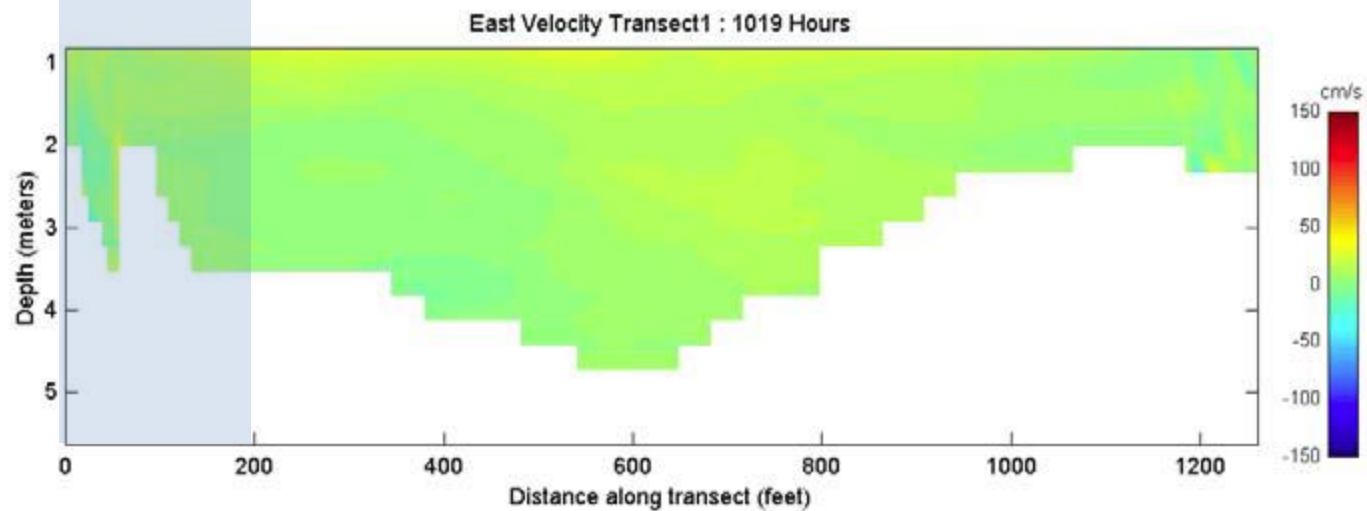
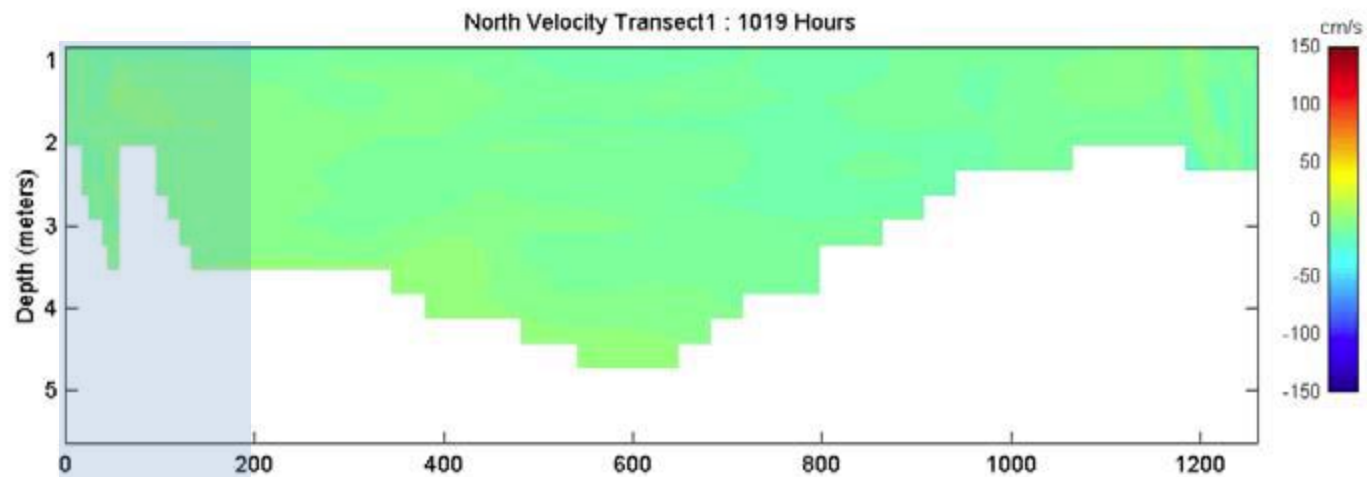
SJ

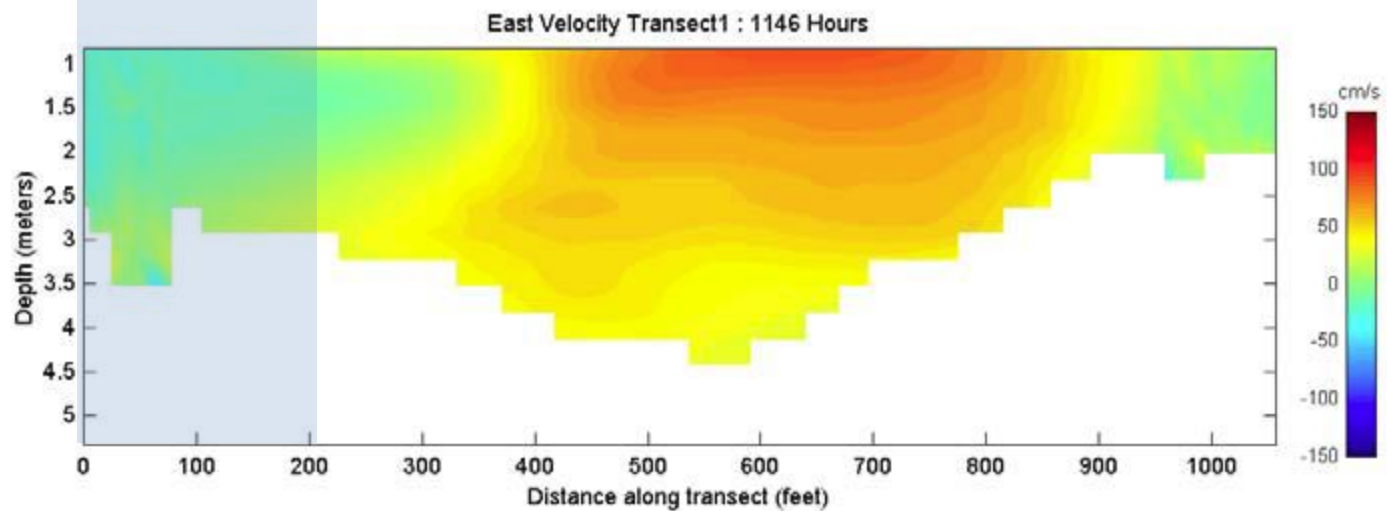
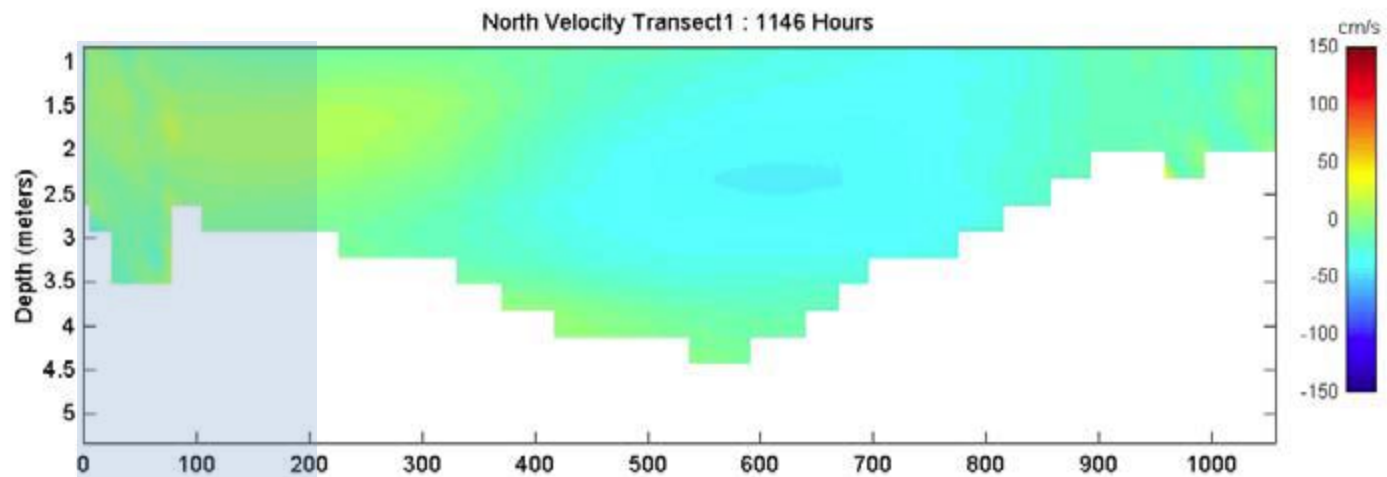
Tidal Signal at Saco Pier

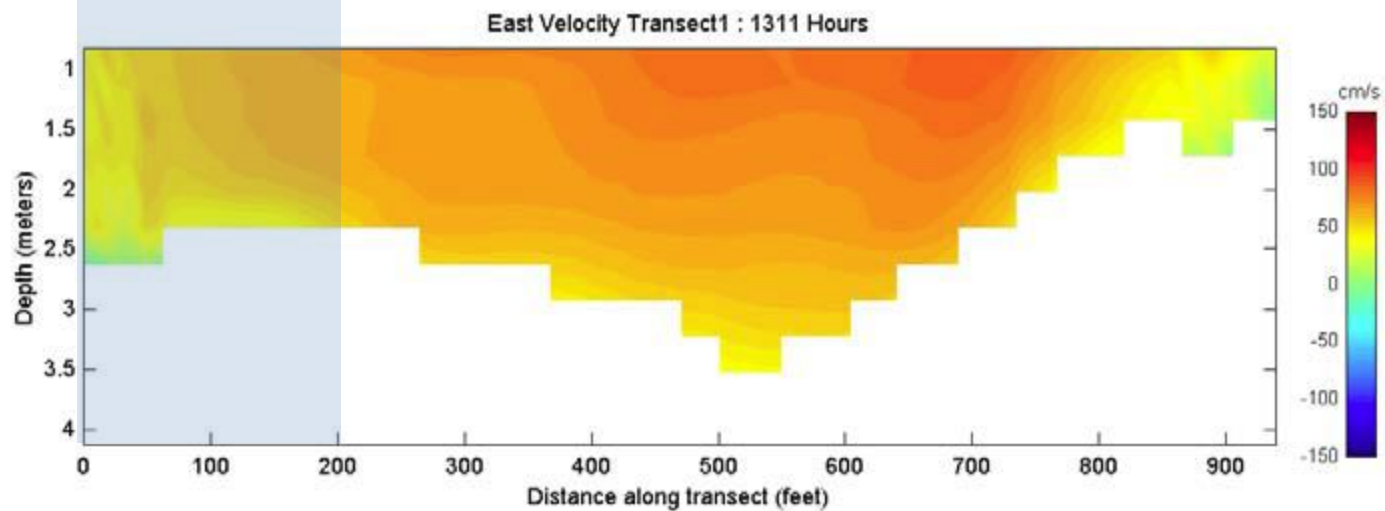
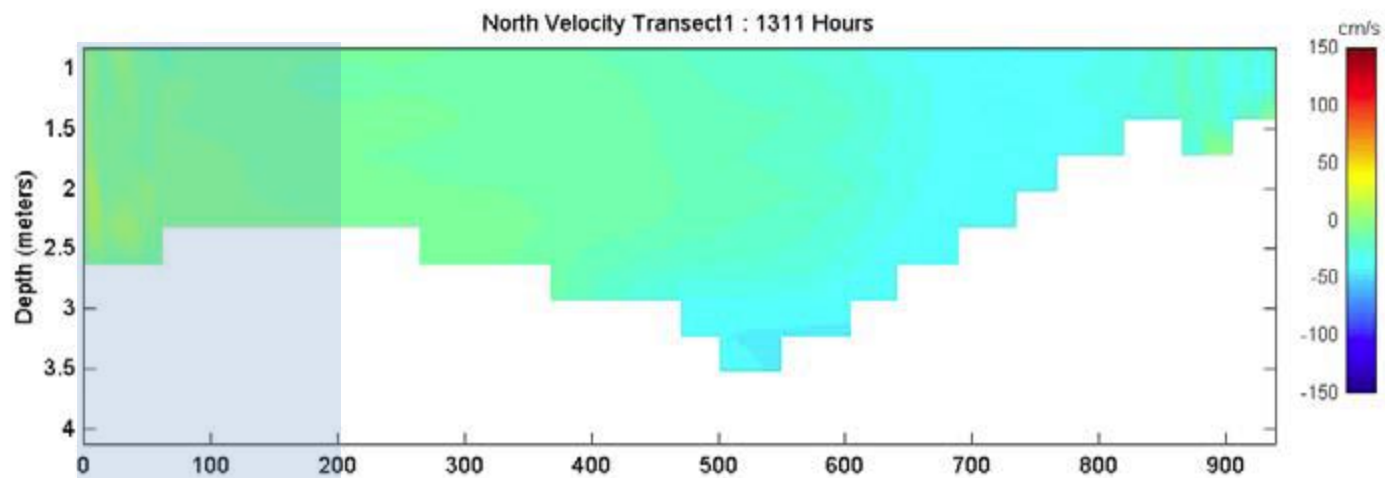


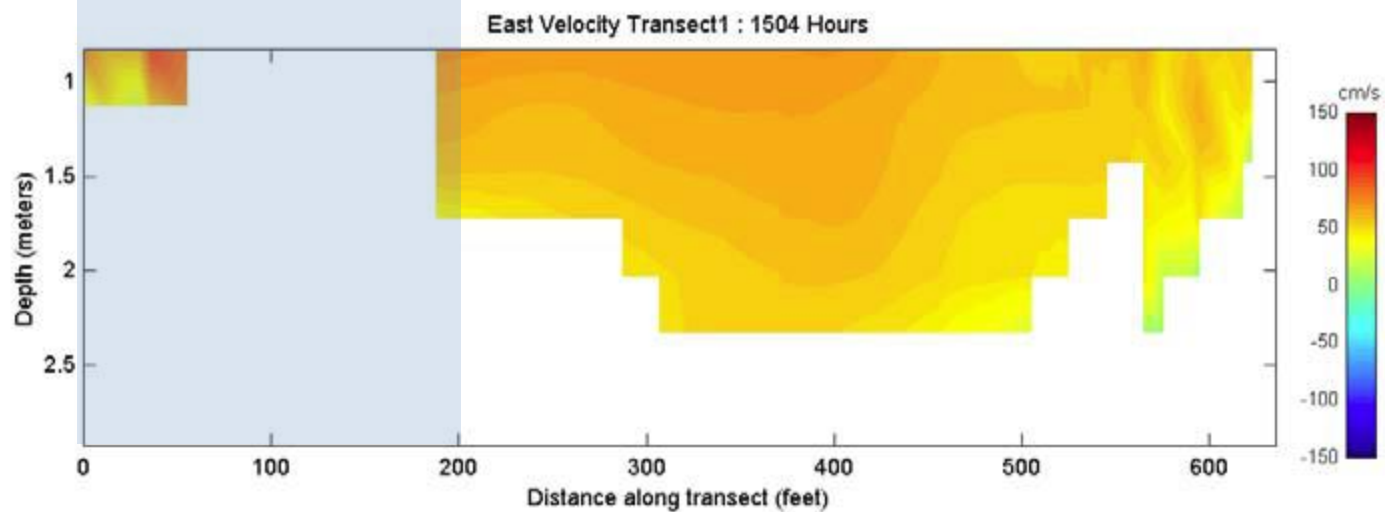
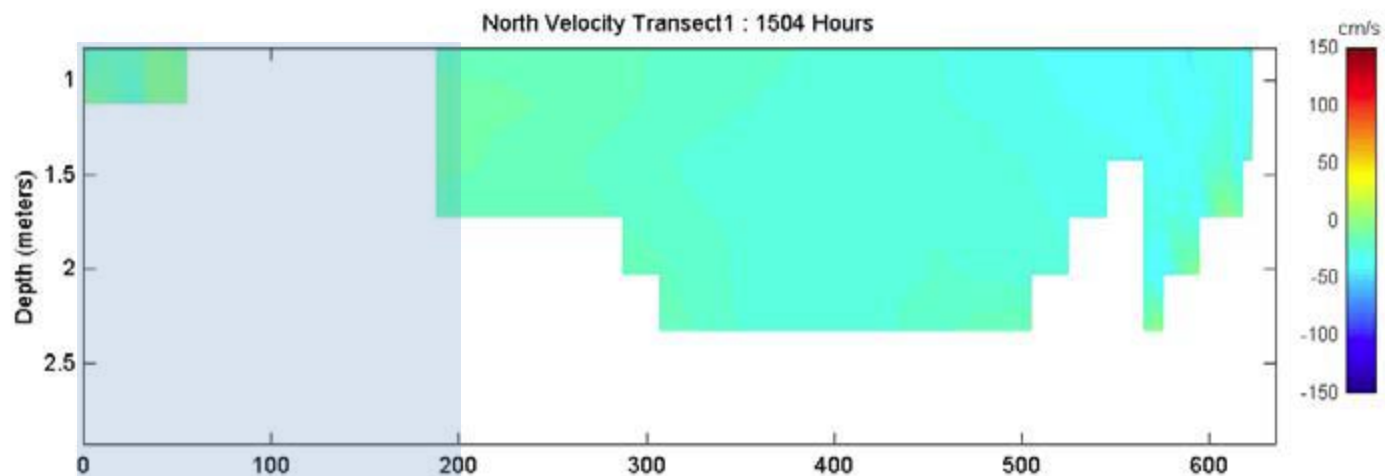


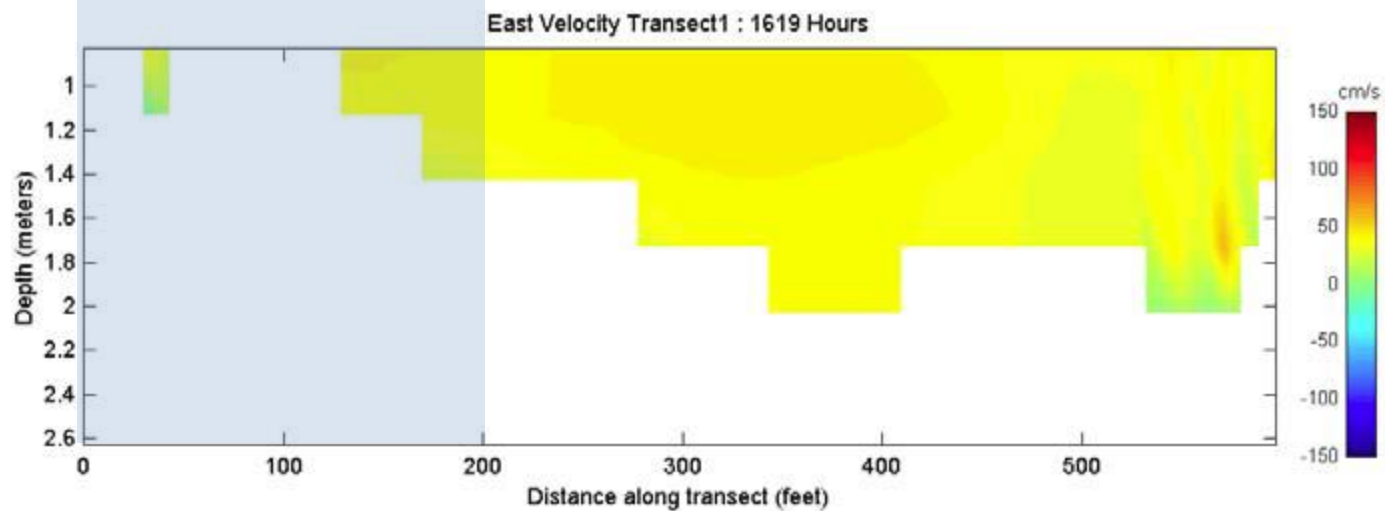
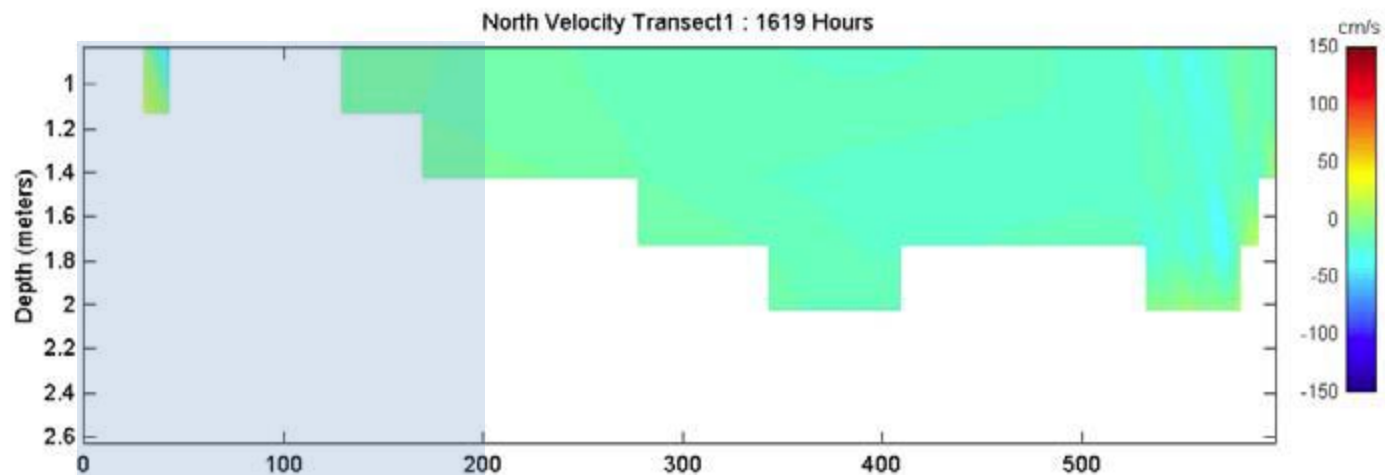


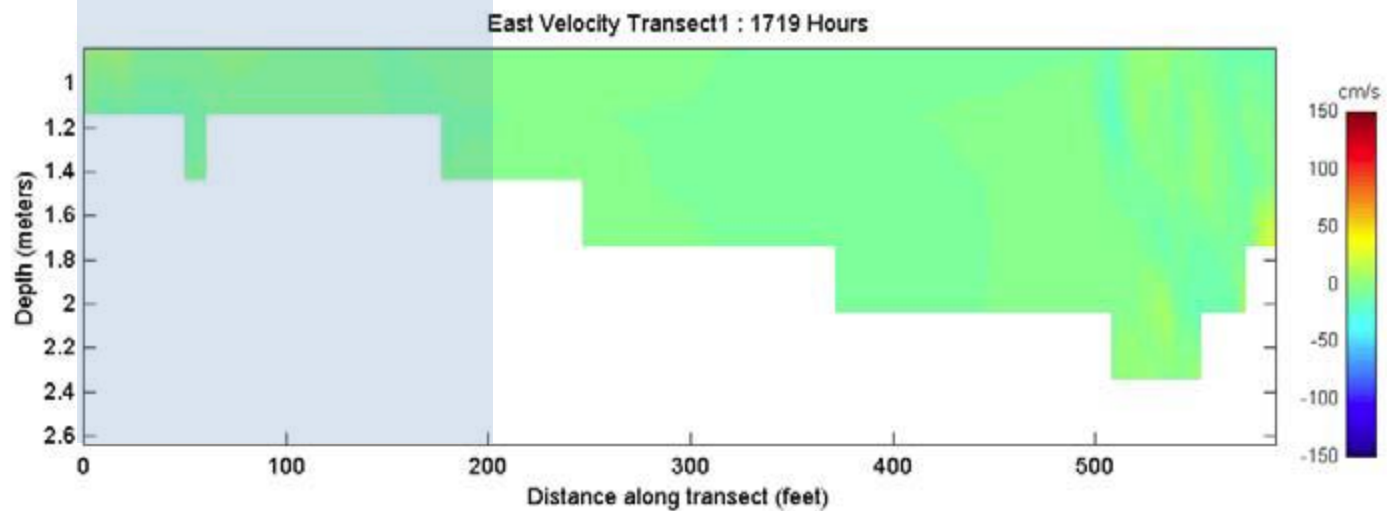
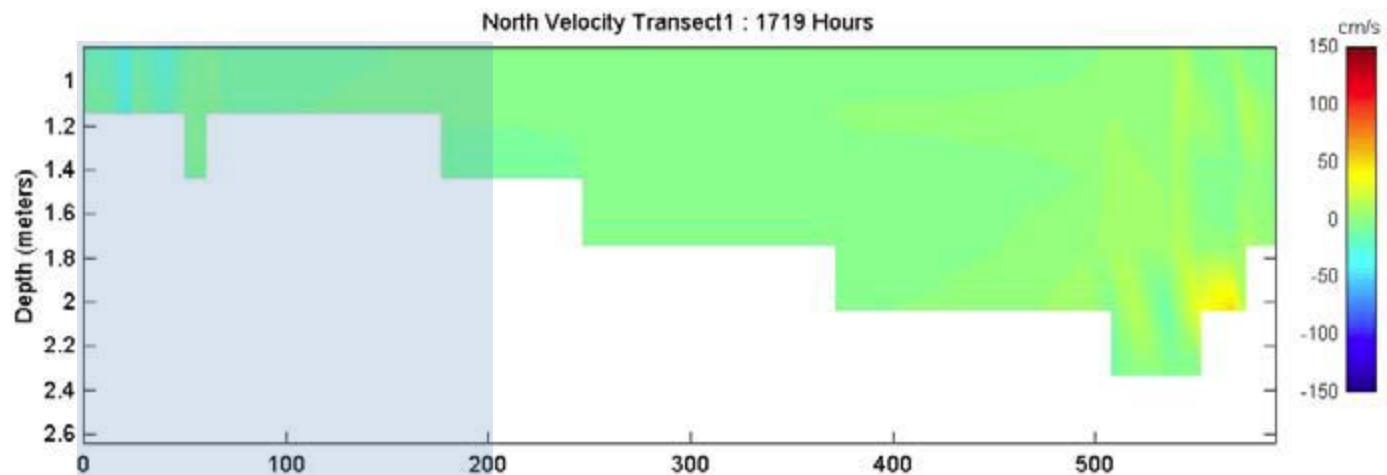


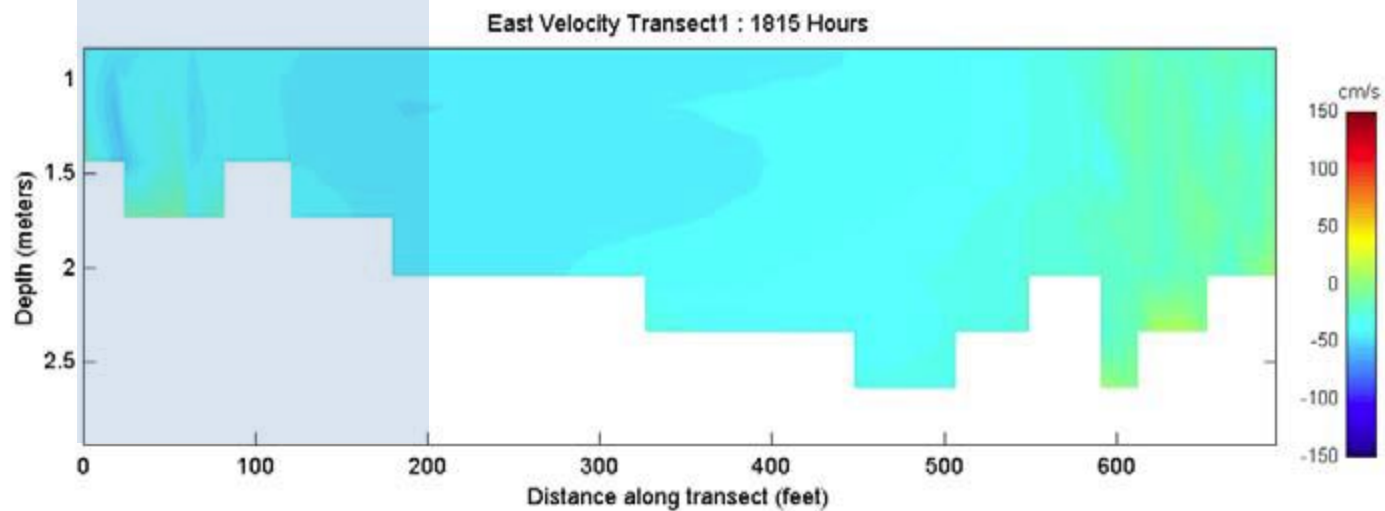
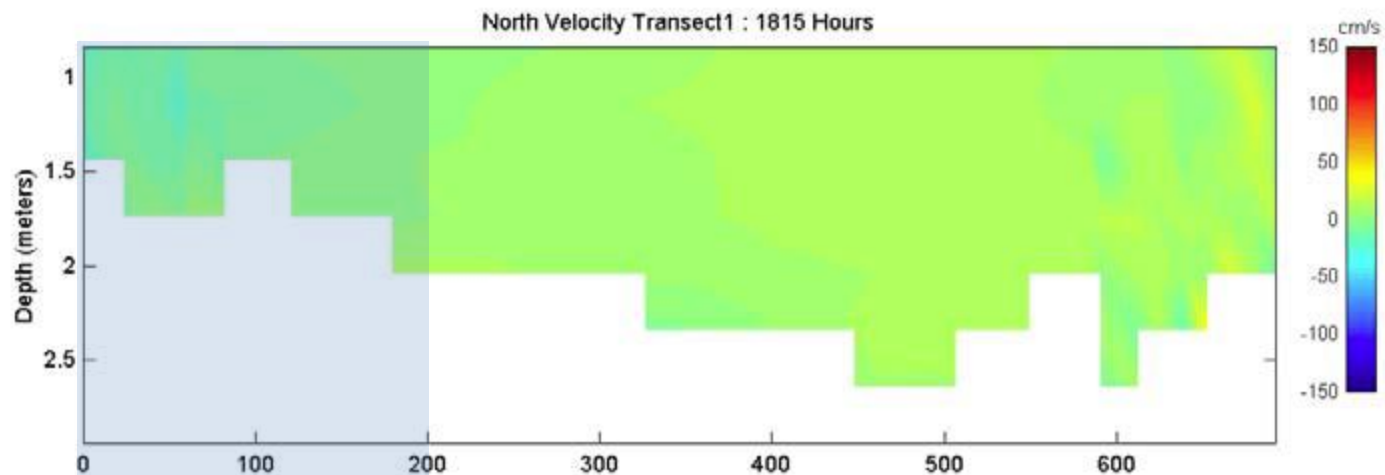




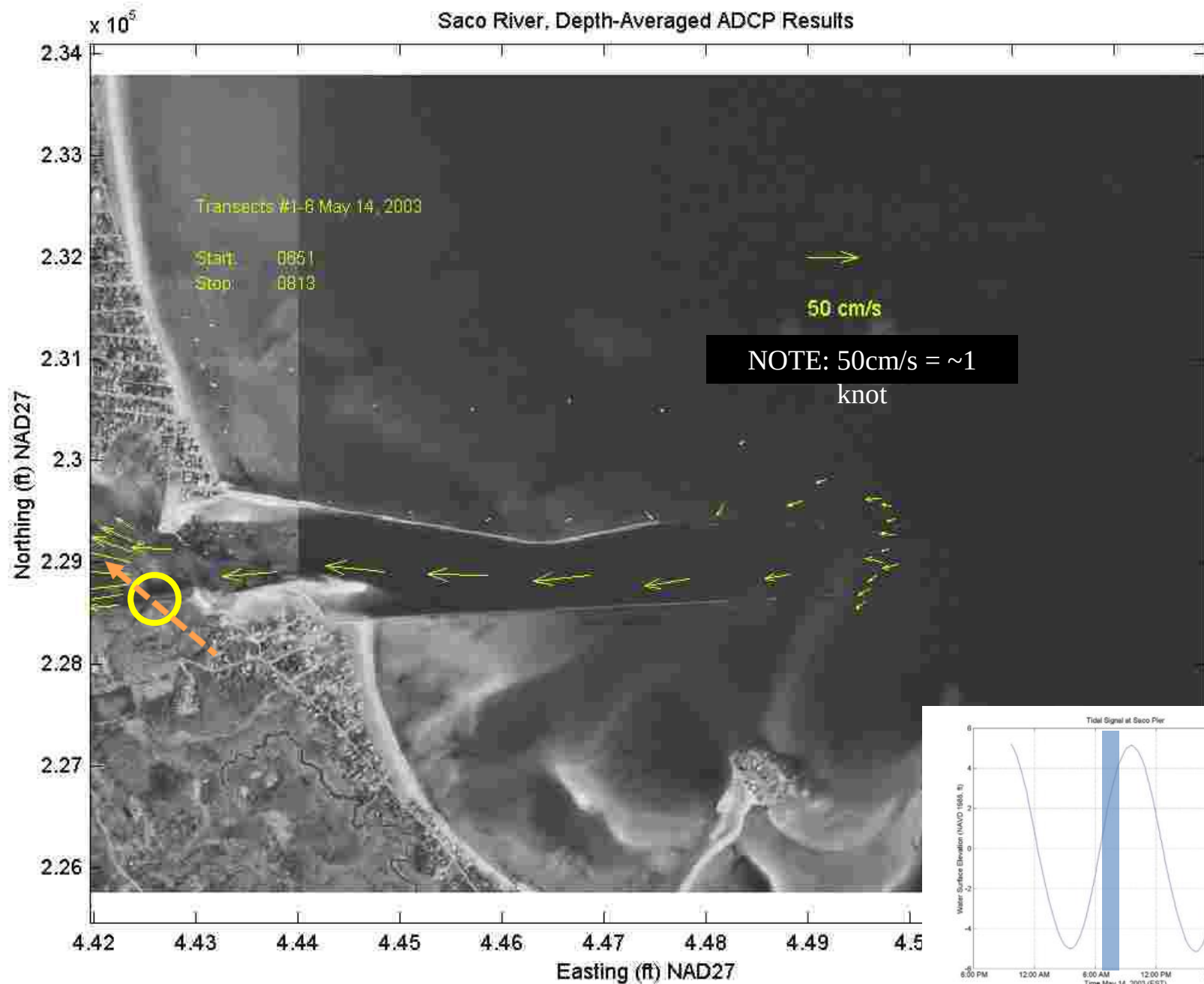




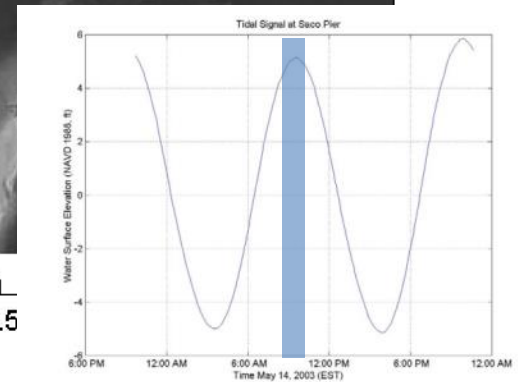
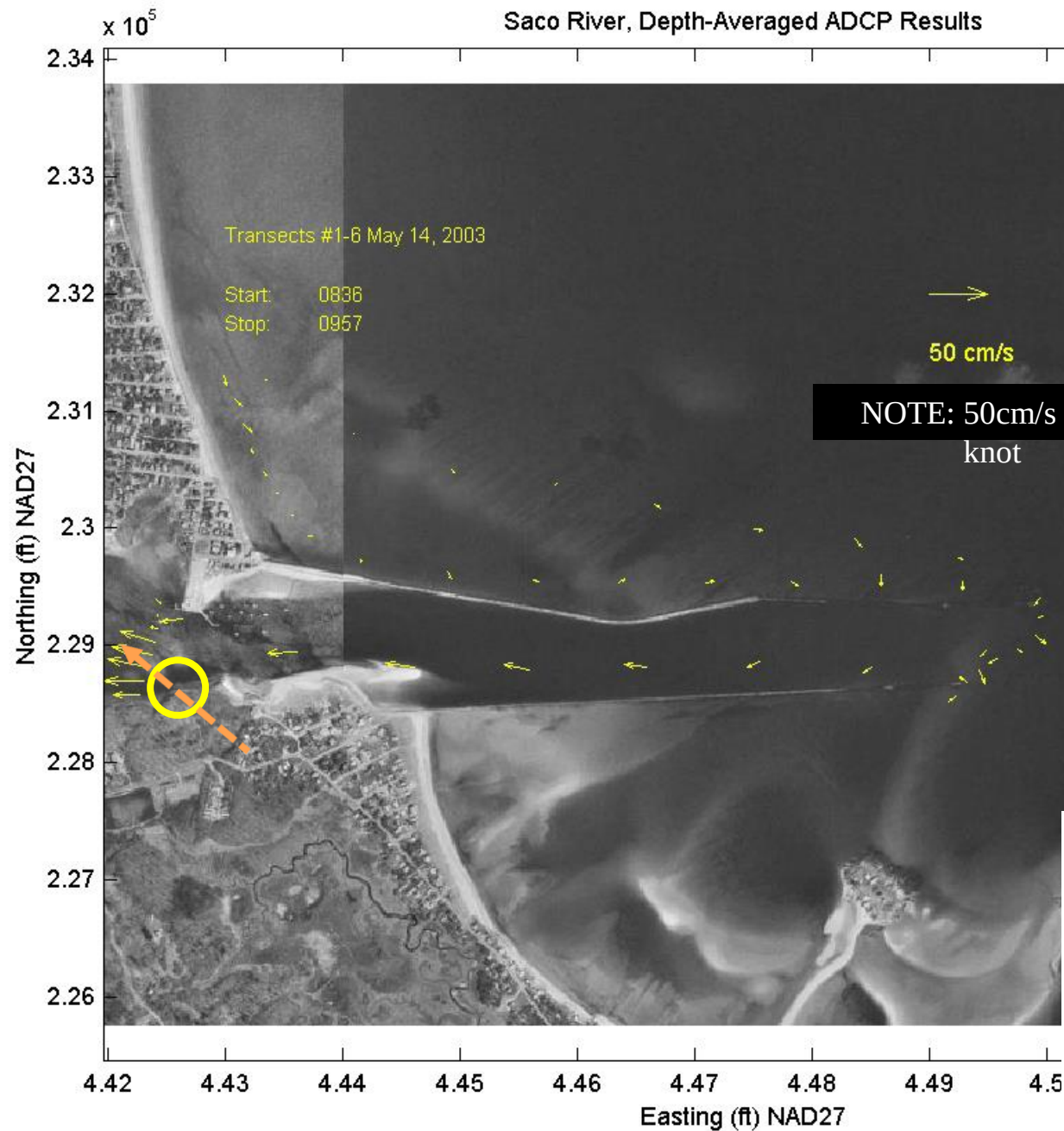




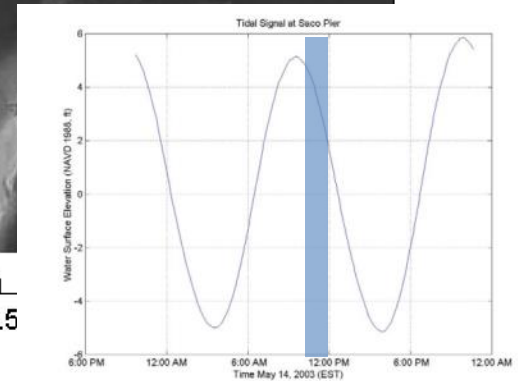
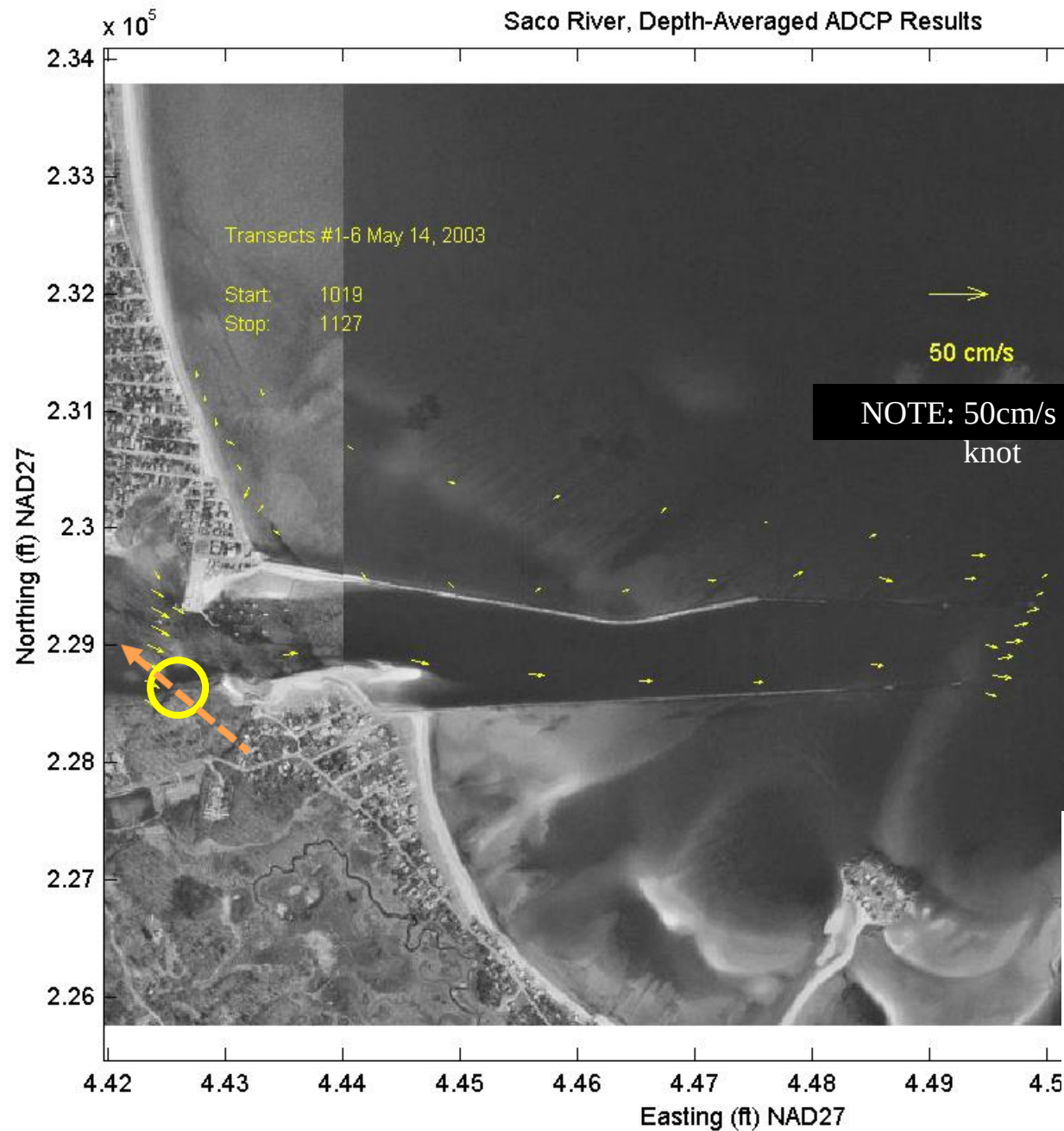
Saco River, Depth-Averaged ADCP Results



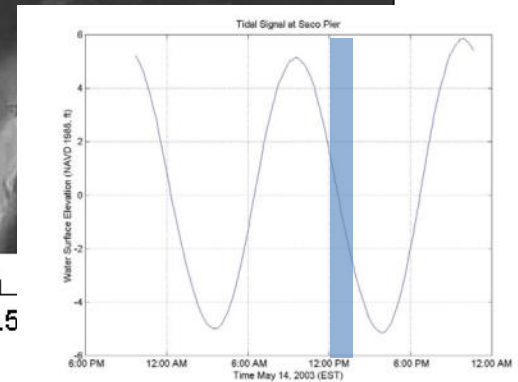
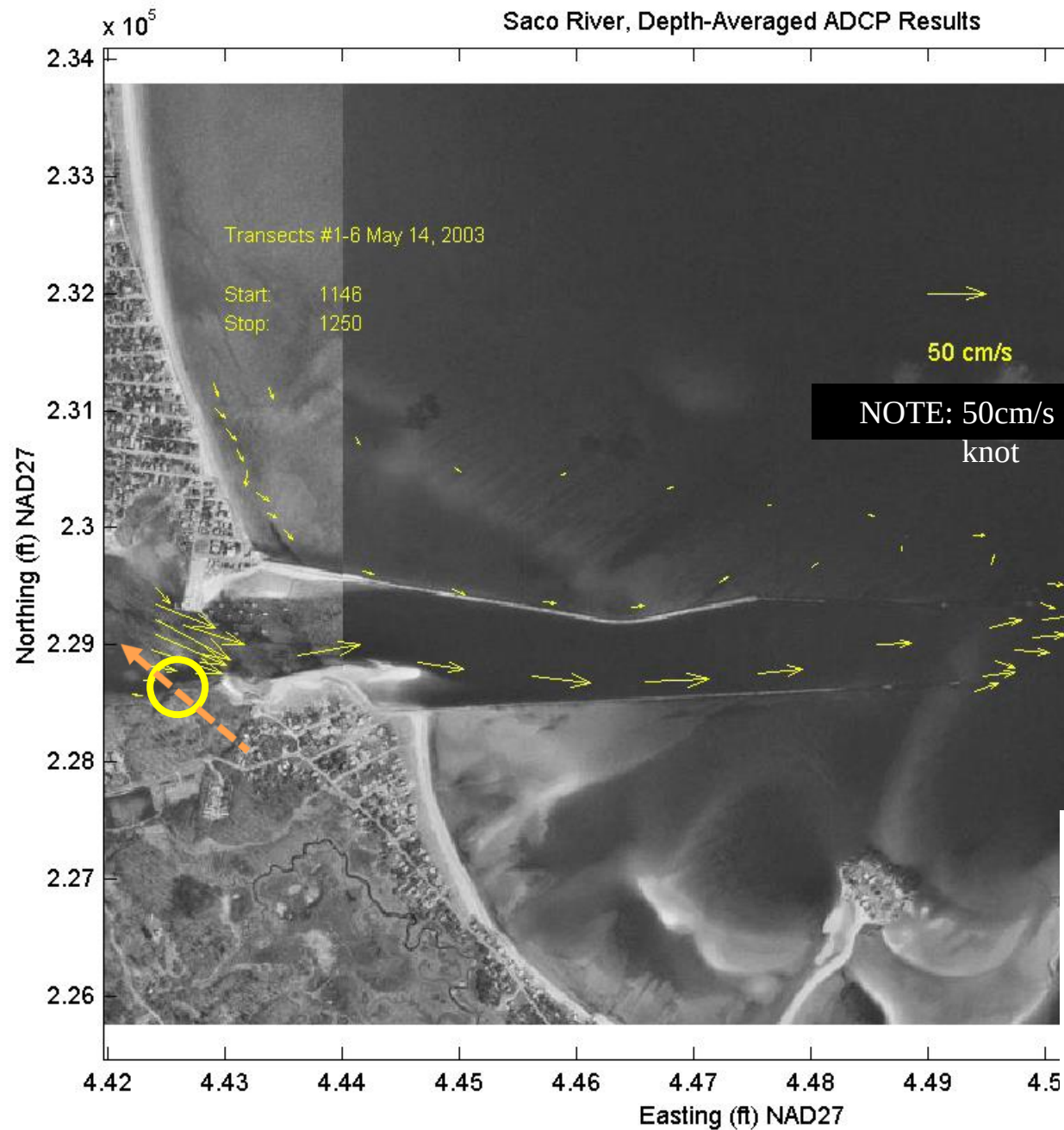
Saco River, Depth-Averaged ADCP Results



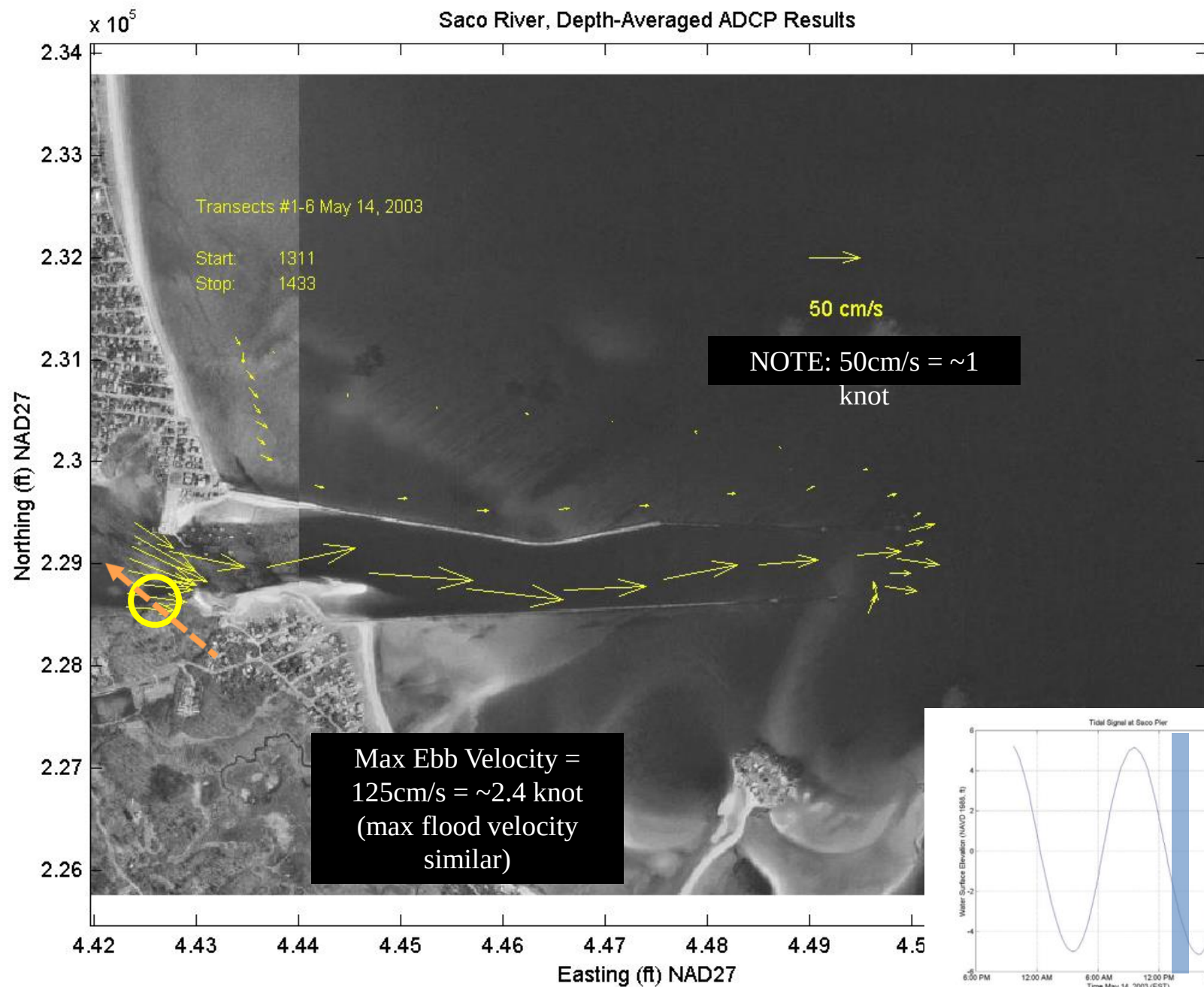
Saco River, Depth-Averaged ADCP Results



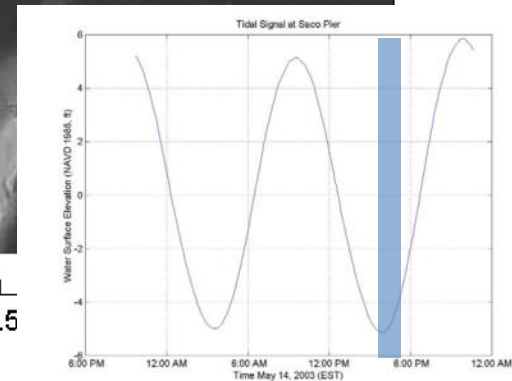
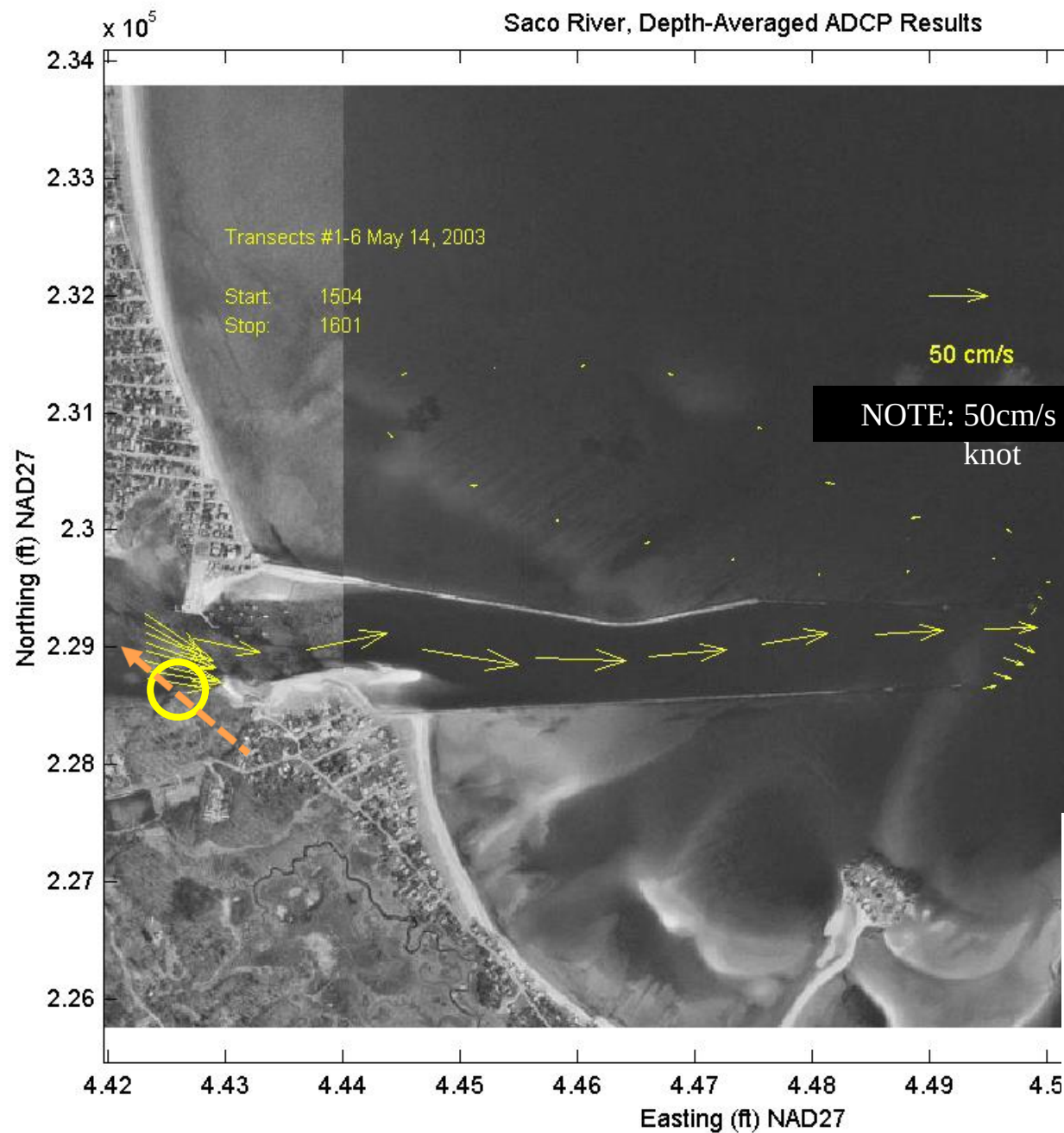
Saco River, Depth-Averaged ADCP Results



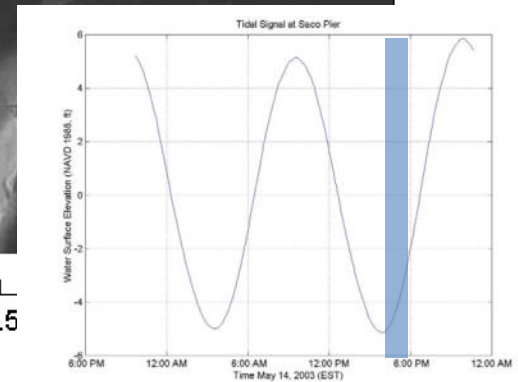
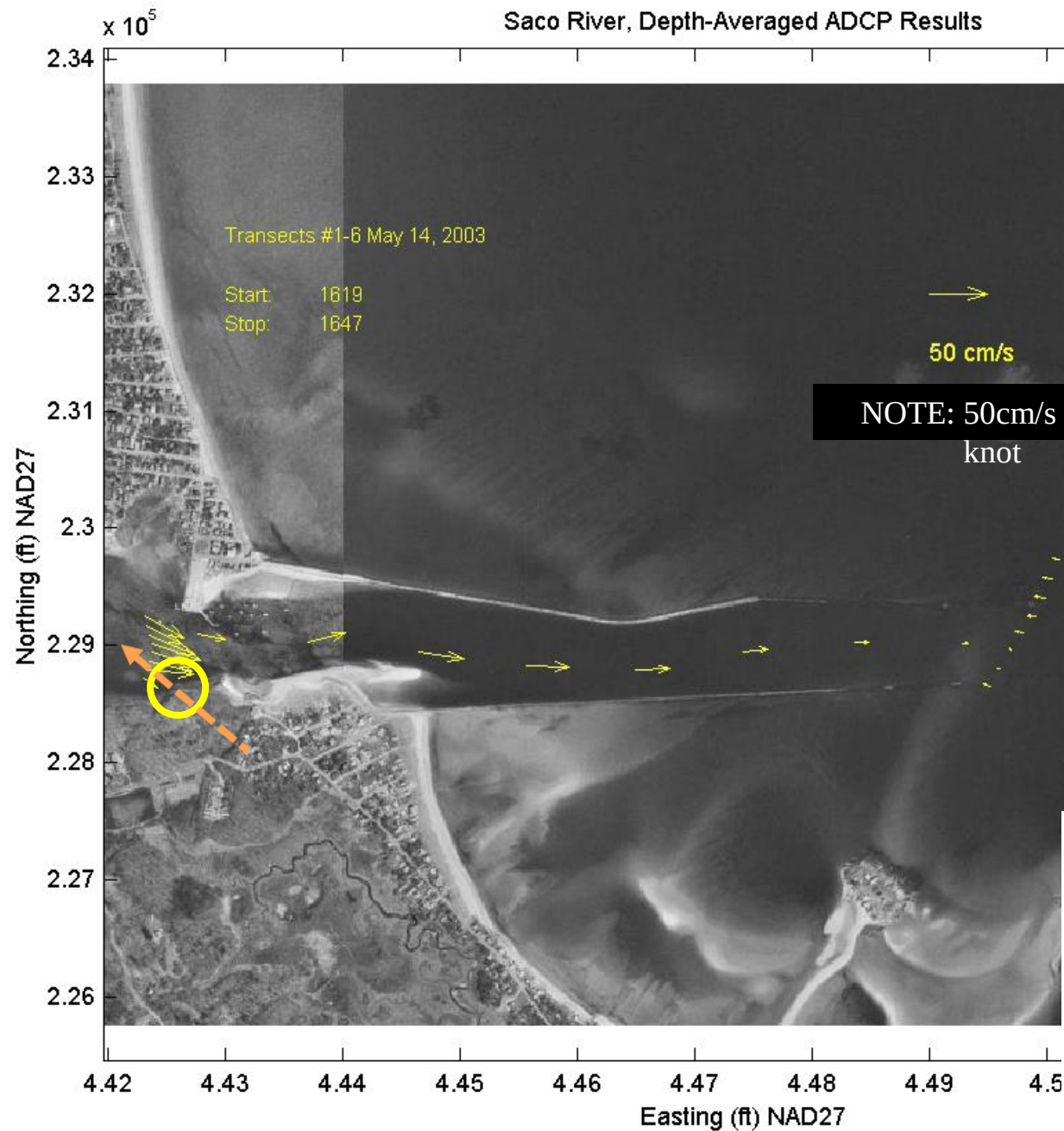
Saco River, Depth-Averaged ADCP Results



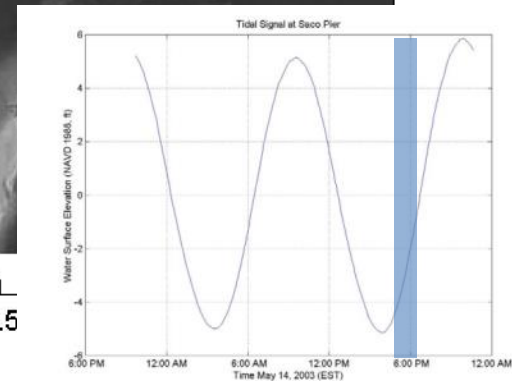
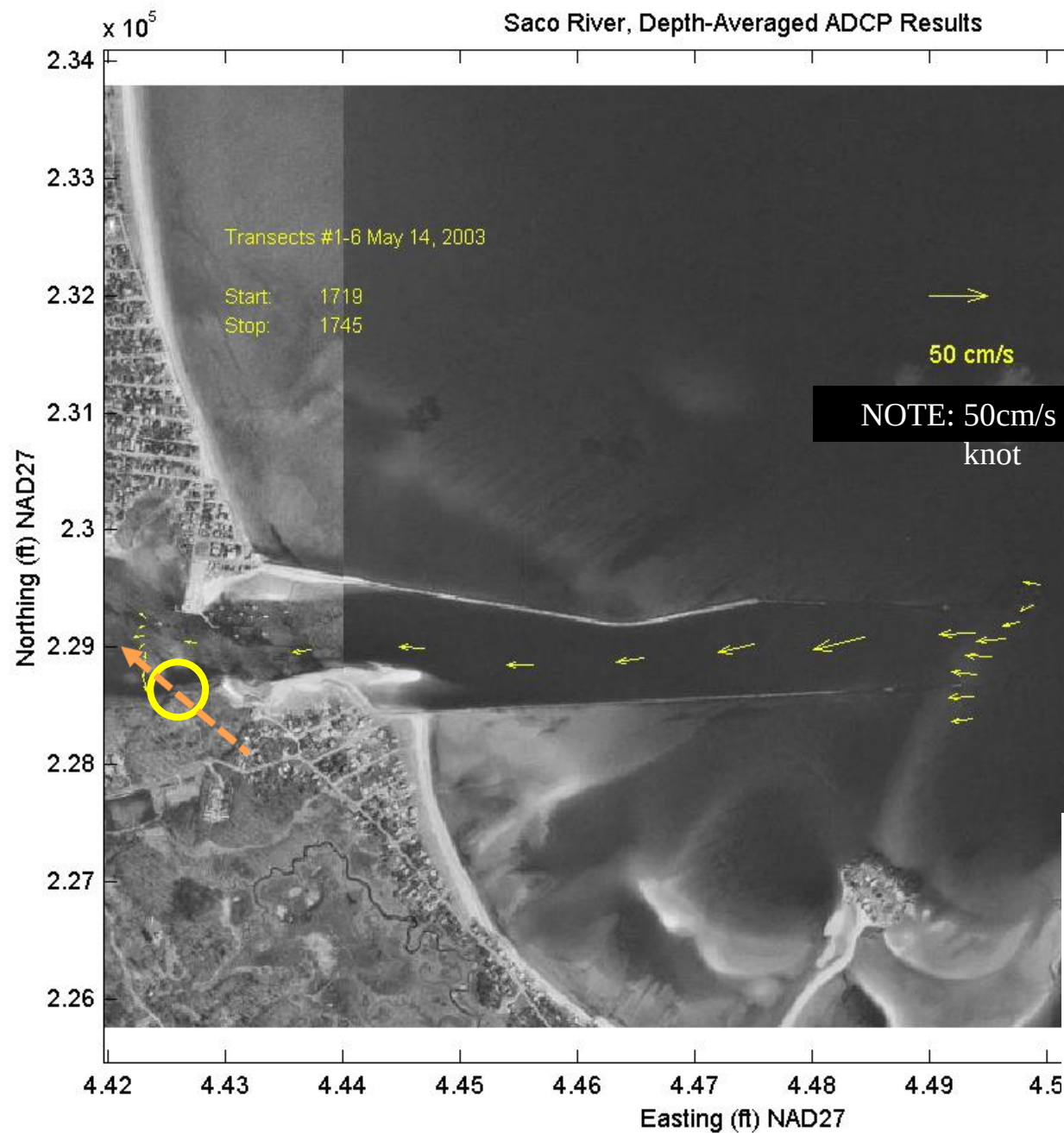
Saco River, Depth-Averaged ADCP Results



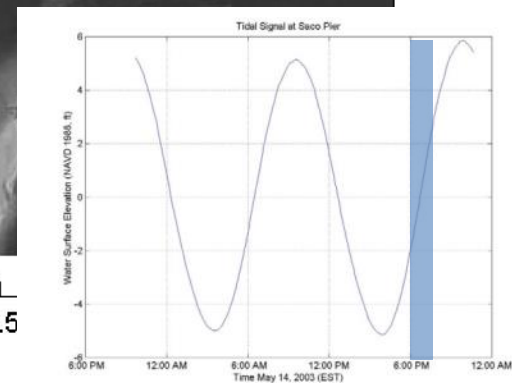
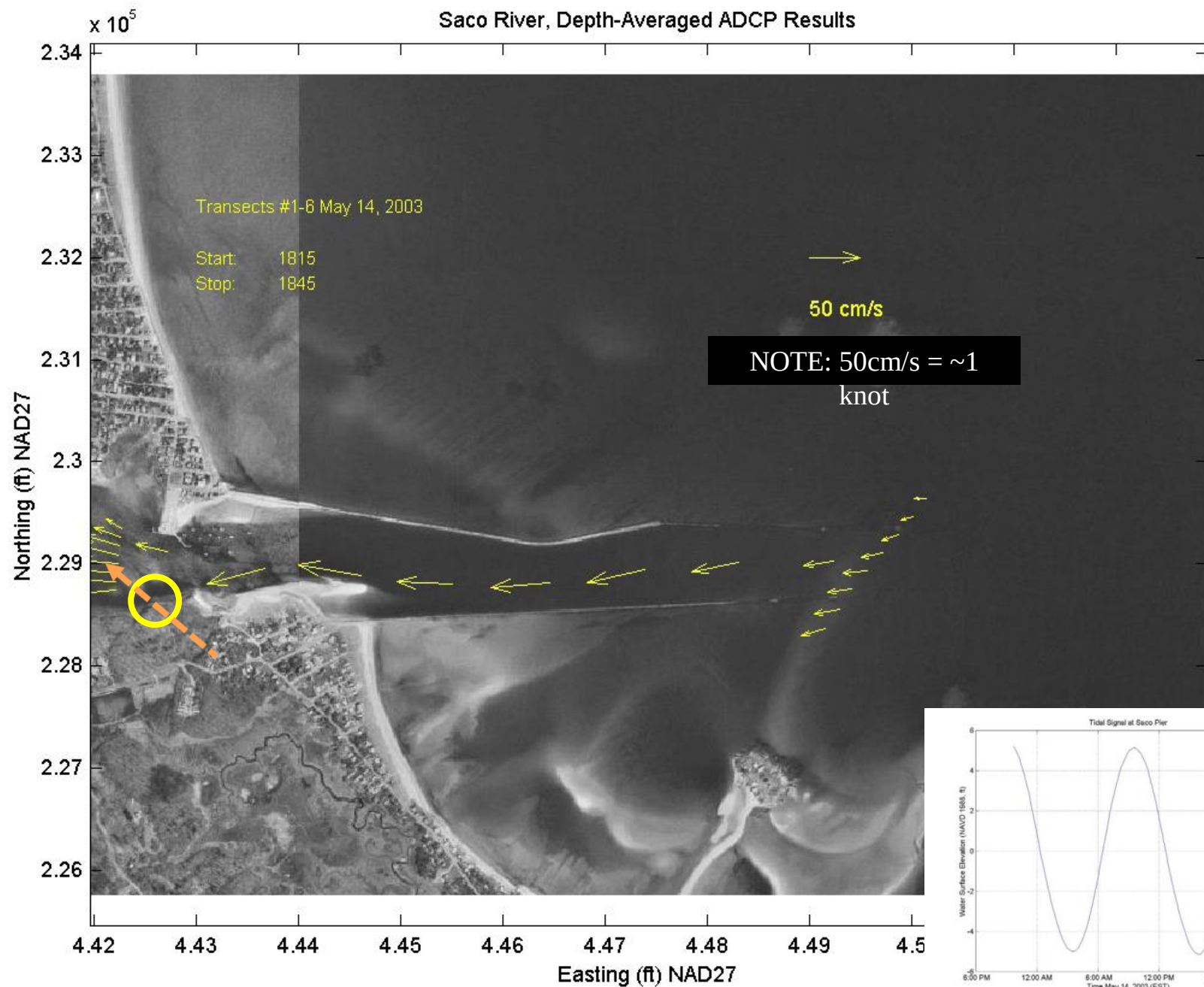
Saco River, Depth-Averaged ADCP Results



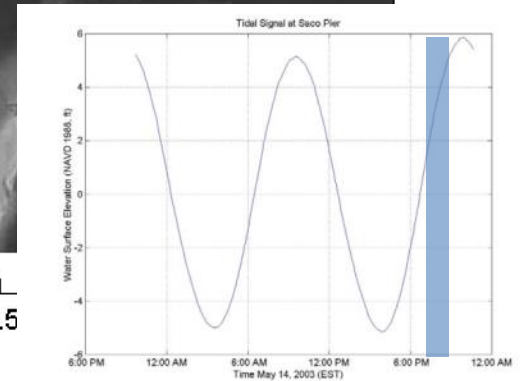
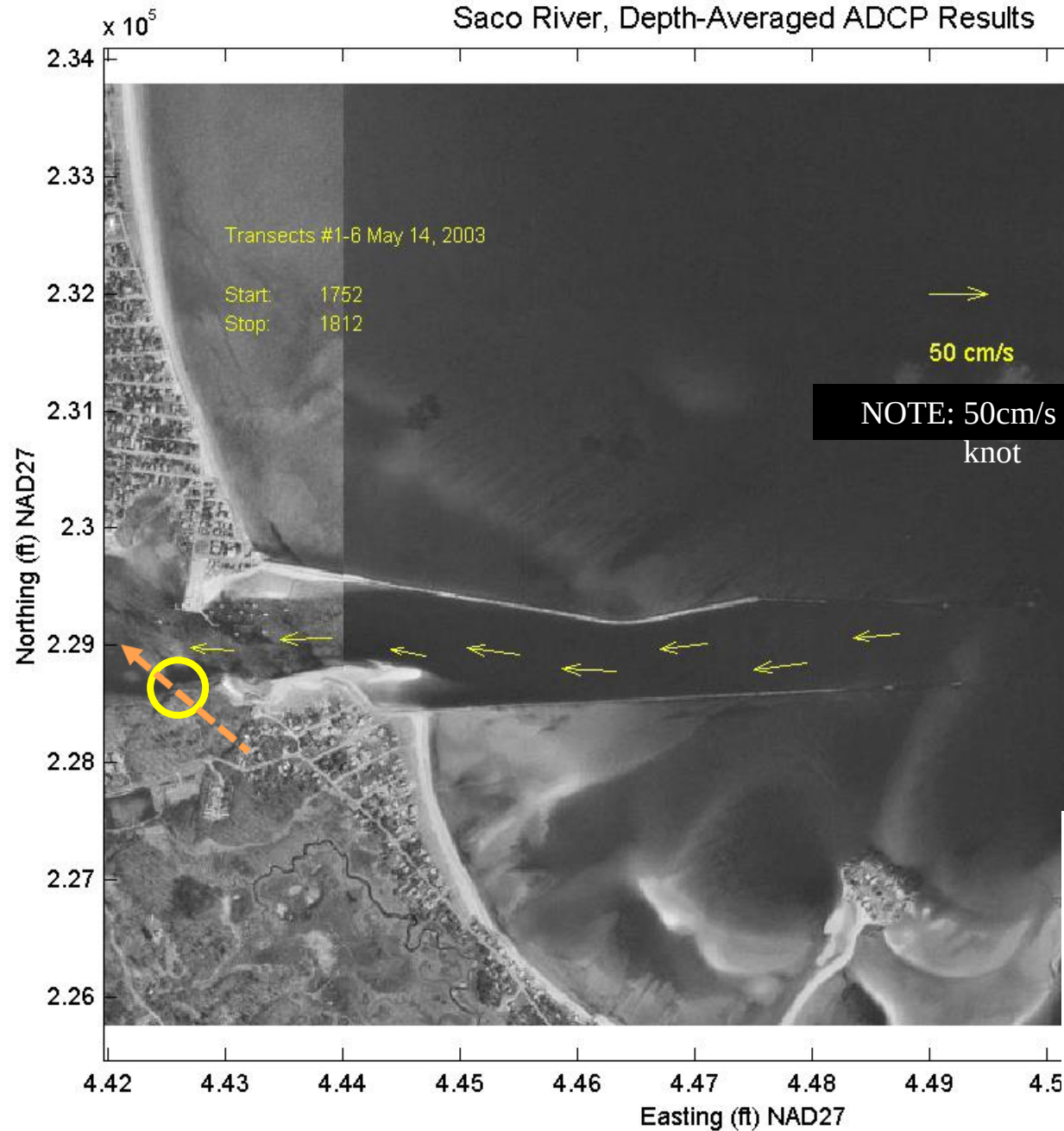
Saco River, Depth-Averaged ADCP Results



Saco River, Depth-Averaged ADCP Results



Saco River, Depth-Averaged ADCP Results



- **6.5.1 Transect 1**

- The channel geometry along Transect 1 consists of a single, relatively shallow channel. The transect is located just east of the Saco Pier, where a significant reduction in channel width occurs. Maximum depths in the channel at this location are approximately 5m (16.4 ft). The maximum recorded flood velocities were approximately 100-125 cm/s (3.3-4.1 ft/s). The maximum flood currents run in a west to west northwest direction throughout the entire water column. In addition to the westward flow, northward flow occurred on the northern portion of the channel indicating likely eddying around the point on the northern shore. The east/west flow also indicates some eastward flow in the northern extent of the transect, supporting the eddy structure. As the flood tide progressed, the stronger western currents were confined to the southern part of the channel. High tide occurred at 0905 hours and reversal of the flow direction was observed throughout the channel by 1019 hours. The maximum recorded ebb velocities were approximately 100-125 cm/s (3.3-4.1 ft/s) and occurred between 1100 and 1330 hours. These southeasterly ebb currents appear to favor the north side of the channel during the start of the ebb where the strongest currents are confined to the upper 2m of the water column. As the tide progresses, these currents spread to the entire channel area depth and breadth. During the majority of the ebb and flood phases of the tide, the color contour plots show increased turbulence and related eddy formation adjacent to the north shore (between 500 ft [152 m] and the end of transect). The increased turbulence is a result of the protrusion of the northern point (near Saco Harbor) into the channel. This narrowing prevents direct flow into or out of the river channel producing eddies as water tries to enter or exit the reduced-width channel.

Permit Requirements and Timing

- Maine DEP NRPA
- ACOE
- Saco River Corridor Commission
- City of Biddeford
- Harbor Commission
- February 2016 grant funding
- Construction spring 2017

Attachment 1
Formal Site Plan Review Application

**City of Biddeford – Planning Department****Planning Board Application**

P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:

☒ Shoreland Zoning Permit ☒ Site Plan Review (Please include checklist) ___ Extraction
___ Conditional Use Permit ___ Subdivision (Please include Checklist) ___ Private Way
___ Other: _____

Applicant Information:

Name: University of New England
Mailing Address: 11 Hills Beach Road Biddeford, Maine
Telephone: 207-602-2365
Email: aphilippe@une.edu

What is your legal interest in the property?

☒ Owner ___ Potential Buyer with Contract ___ Lease/Rental Agreement

Owner's Information:

Name: Applicant
Mailing Address: _____
Telephone: _____
Email: _____

Agent's Information:

Name: Tom Saucier, P.E. Site design Associates
Mailing Address: 23 Whitney Way Topsham, Maine 04086
Telephone: 207-449-4275
Email: tsaucier@sitedesignassociates.biz

Engineer/Surveyor's Information:

Name: Agent
Mailing Address: _____
Telephone: _____
Email: _____

Project Location and Lot Information:

Street Address: 11 Hills Beach Road Drainage Watershed: Tidal portion of Saco River
Tax Map: 52 Lot: 4
Current Zoning: IN Shoreland Zoning: Limited Residential
Size of Lot: 49.9 (x)acres ()s.f. Lot Frontage: 1,489 ft +/-
Existing Use of Property: University use - Girard Marine Science Center

Property currently serviced by:

☒ City Road ___ Public Sewer ☒ Public Water ___ Public Trash
___ Private Road ___ Septic System ___ Private Well ☒ Private Hauler

Slope Conditions in Area of Construction (if applicable):

___ Flat (0-3% slope) ___ Rolling (3-8% slope) ☒ Hilly (8-15% slope) ☒ Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ☒ (Yes) ___ (No) if yes attach information

Is the project within the 100-year floodplain? ___ (Yes) ☒ (No) if yes attach information

Do you plan to bring fill onto the lot? ☒ (Yes) ___ (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

University use - Research Pier

Property to be Serviced by:

☒ City Road ☐ Public Sewer ☒ Public Water ☐ Public Trash
☐ Private Road ☐ Septic System ☐ Private Well ☒ Private Hauler

Limits of Disturbance: 0.5 (☒)acres (☐)s.f.

Net change in impervious cover: 0.249 (☒)acres (☐)s.f.

Is this project part of a larger project? ☐ (Yes) ☒ (No)

Is the project proposing a new Private or Public Road? ☐ (Yes, Private) ☐ (Yes, Public) ☒ (No)

Is this project within the Urbanized Area/MS4 (see [City Drainage Map](#)) ☒ (Yes) ☐ (No)

Is the project proposing any Stormwater facilities/BMPs? ☒ (Yes) ☐ (No)

Will a Traffic Movement Permit (TMP) be required?: ☐ (Yes) ☒ (No)

☒ If in a Shoreland Zone:

Percent of residential lot coverage (Max 20%): N/A

Percent of structure expansion (Max 30%): N/A

☐ **If Subdivision Review, number of lots proposed:** _____

☐ **If a Private Way is proposed, number of lots served:** _____

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: _____

Total new square feet paving/parking: 10,850 +/-

Waiver Requests (attach details):

1. See cover letter and June 9, 2025 responses to comments

2. _____

3. _____

4. _____

5. _____

Required Submittal Attachments:

A. Letters of Approval

☒ Fire Department – Contact Chief or Deputy Chief – 282-9986 (Request sent; previously revised plans
☐ Ability to Serve for Water Service – Maine Water – 282-1543 in response to BFD comments.)

☐ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118

☐ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127

☐ Ability to Serve for Electrical Service-CMP-1-866-225-4200

☒ Letter to Planning Board describing project, Waiver requests, proposed improvements,
addressing permit requirements, etc.

B. Photographs of Site.

C. Architectural renderings/drawings of proposed buildings, as required.

D. Engineering Plans, as required.

E. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- \$75 Nonrefundable Administration Fee is required for every application.
- Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

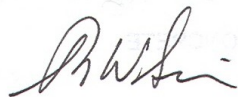
By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance? __ (Yes) x (No)

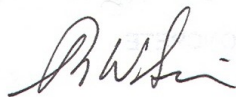
- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: _____



Date 06/09/25

Signature of Property Owner: _____



Date 06/09/25

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

- A) PDF OF SIGNED APPLICATION
- B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

- A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)
 - *Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVIDUAL DRAWING NAME.pdf'*
- B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.
- C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)
 - *All drawings & CAD reference files must be to-scale and within the following coordinate systems:*
 - MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE
- B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

Attachment 2
Letter of Agent Authorization



UNIVERSITY OF
NEW ENGLAND

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
(207) 283-0171 T

Portland Campus
716 Stevens Avenue
Portland, ME 04103
(207) 797-7261 T

May 29, 2023

Mr. Tom Saucier
Site Design Associates
23 Whitney Way
Topsham, Maine 04086

TO WHOM IT MAY CONCERN:

This letter authorizes Tom Saucier, Site Design Associates, to serve as an agent for University of New England for the purpose of permitting the proposed installation of a research pier and float on its Biddeford campus.

Sincerely,

A handwritten signature in black ink that reads "alan thibeault". The signature is written in a cursive style with a large, sweeping flourish above the name.

Alan Thibeault
Vice president for University Operations

Attachment 3
Site Plan Checklist

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST

LAST REVISED: 11/26/2024

CHECKLIST DIRECTIONS:

- The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
- Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
- City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
- Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
- Items in **BLUE** are only required for 'Final' approval.

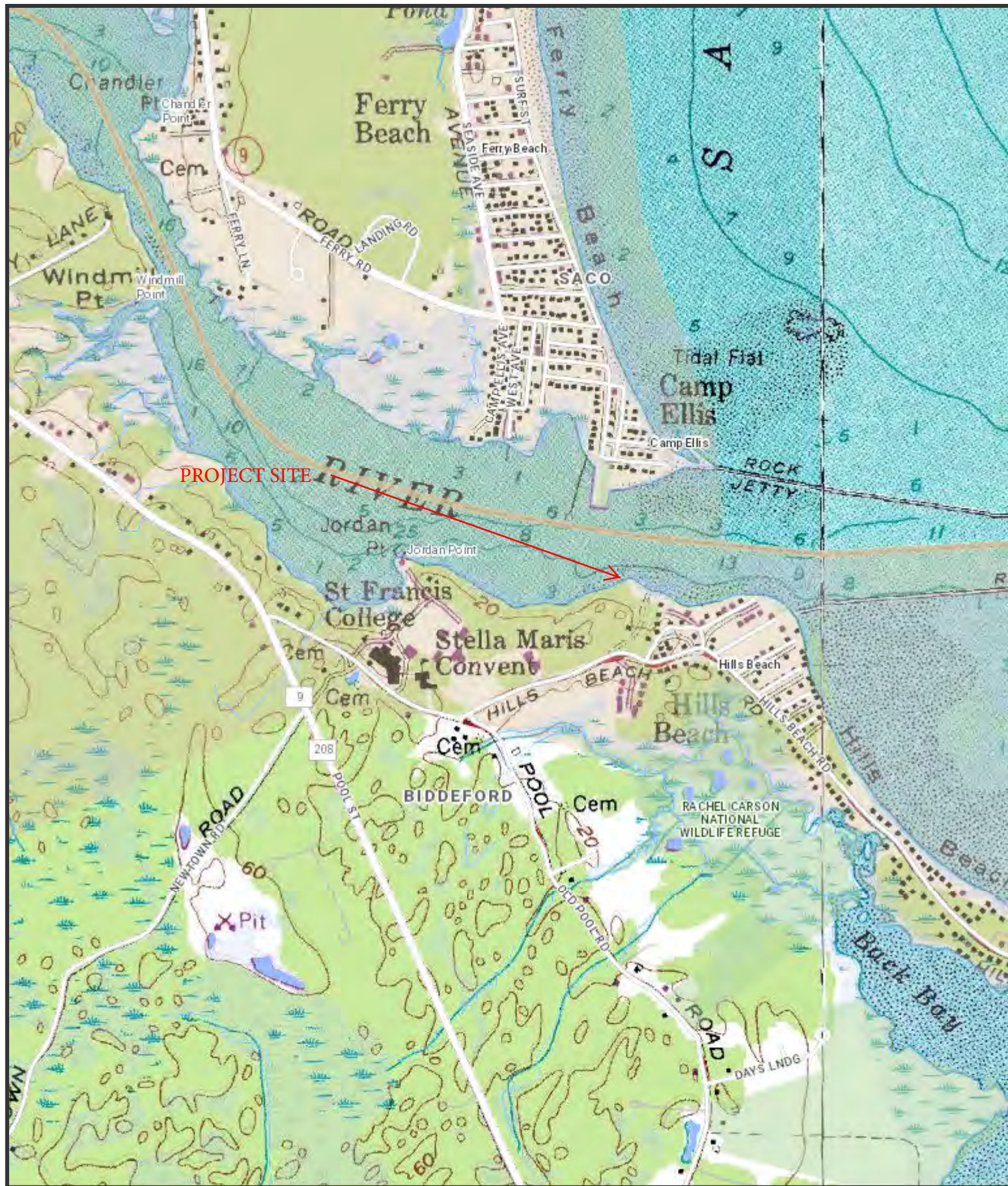
SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	University of New England (UNE) Marine Science Center Research Pier
Planning Board # (if available):	2024.34
Applicant Name/Info:	University of New England
Submittal #/Type (Prelim/Final):	Preliminary
Submittal Date:	6/10/2025

ITEM NUMBER	SUBMITTAL REQUIREMENT	APPLICANT RESPONSE		CITY REVIEW RESPONSE	
		INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)
1	GENERAL PLAN REQUIREMENTS	YES			
A	Drawing specific legends (linetypes, hatches, etc.)	YES	C-001, C-002		
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a nonproposed site plan)	YES	ALL		
C	North arrows, standard engineering scale viewports, scale bars, dated revision block	YES	ALL		
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	YES	ALL		
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES	ALL		
2	COVER SHEET	YES			
A	Project Name & Property Address	YES	G-001		
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES	G-001, G-002	Contractor contact info to be added at a later date	
C	Site Location Map	YES	G-001		
D	Sheet Set List of Drawings	YES	G-001		
E	Tax Map and Lot ID	YES	C-001		
F	Zoning & Shoreland Zone Information	YES	C-001		
G	Existing Use Description	YES	C-001		
H	Proposed Use Description	YES	C-003		
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES	G-001		
J	Name of Drainage Watershed	YES	C-001		
K	Within the MS4 Urbanized Area (Yes/No)	YES	C-001		
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES	C-001		
M	Within the 100-year Flood Zone (Yes/No)	YES	C-001		
N	Public Road Proposed (Yes/No)	NO	N/A	There are no public roads onsite	
O	Private Road Proposed (Yes/No)	YES	C-001		
P	Public Sewer Connection (Yes/No)	YES	C-001	There are no proposed improvements to the public sewer	
Q	Public Storm Drain Connection (Yes/No)	NO	N/A	There are no public storm drains onsite	
R	Limits of Disturbance in square feet and acre:	YES	C-005		
S	Pervious Land Cover square footage, existing and proposed	YES	C-003		
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES	C-003		
U	Building Roof square footage, existing and proposed	YES	C-001		
V	Assigned Planning Board Number	YES	G-001		
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required overall site vs. within flood zone	YES	C-007, C-007		
3	EXISTING CONDITIONS PLAN				
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	YES	C-001		
B	Property & Right-of-Way Lines	YES	C-001		
C	Boundary line information (bearings, distances, etc.)	YES	C-001		
D	Property pin and monumentation locations	YES	C-001		
E	Existing easements with proper ownership identifier	YES	C-001		
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES	C-001		
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-001		
H	100-year Flood Zone Limits & Elevation	YES	C-001		
I	Existing contours with adequate contour labelling; minimum 1' contour interval	YES	C-001		
J	Existing building FFEs annotated	YES	C-001		
K	Spot elevations for all tie-in locations (curb cuts, property line)	YES	C-001		
L	Existing buildings & structure	YES	C-001		
M	Existing pavement areas & number of parking spaces	YES	C-001		
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking space	YES	C-001		
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES	C-001		
P	Existing signage and striping	YES	C-001		
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	YES	C-001		
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, risers)	YES	C-001		
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfall)	YES	C-001		
T	Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	YES	C-001		
U	Location of any borings, drinking wells, and monitoring well	YES	C-001		
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN				
A	Limits-of-disturbance outlined and acreage annotated	YES	C-005		
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-001		
C	100-year Flood Zone Limits	YES	C-001		
D	Callout existing site features to be demolished/removed/replace	YES	C-002		
E	Callout existing utilities to be demolished/removed/abandoned-in-place	YES	C-002		
F	Hatch existing buildings and pavement to be removed	YES	C-002		
G	Construction Entrance location(s)	YES	C-005		
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	YES	C-005		
I	Stockpile and staging area(s) identified (with proper perimeter control)	YES	C-005		
J	Inlet protection location(s)	YES	C-005		
K	Note requiring contractor to implement dust control measures throughout construction	YES	C-012		
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	N/A	N/A	No utilities proposed within right-of-way	
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routine	YES	C-014		

N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment transport practices are needed.	N/A		No extensive underground SWM infrastructure is proposed.		
5	SITE PLAN/SUBDIVISION PLAN	YES				
A	Partial Site Plan needed for any viewpoint scale greater than 1"=20'	YES	C-003			
B	Existing property and right-of-way lines	YES	C-003			
C	Proposed subdivision lot lines and label	YES	C-003			
D	Required Zoning Setbacks shown with dimensions and annotation	YES	C-003			
E	Bulk requirement summary table (zoning/parking calculations)	YES	C-003			
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-003			
G	100-year Flood Zone Limits	YES	C-003			
H	Proposed building outlines, door entrances and loading dock	YES	C-003			
I	Proposed building labels	YES	C-003			
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	YES	C-003			
K	Proposed parking and accessible parking locations; annotate parking space count	YES	C-003			
L	Proposed signage, parking striping, and traffic striping	YES	C-003			
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	NO		No ADA ramps or parking are proposed		
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	YES	C-003, C-004, C-006, C-007			
O	Proposed landscaping; detailed landscaping design should be shown on separate plan	YES	C-015, C-016			
P	Designated snow storage areas	NO		No snow storage areas are proposed		
Q	Proposed dumpster locations and trash removal access	NO		No dumpsters or trash removal are proposed.		
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading dock	YES	C-003, C-006, C-007			
S	Radial dimensions for all curbs, landscaped islands, sidewalk	YES	C-003			
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	YES	C-003, C-006, C-007			
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance.	NO		Will be provided at a later date		
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO		Will be provided at a later date		
W	Planning Board signature block for final recording	YES	G-001			
6	GRADING PLAN	YES				
A	Partial Grading Plans needed for any viewpoint greater than 1"=20'	YES	C-004, C-006, C-007			
B	Limits-of-disturbance outlined and acreage annotated	YES	C-004, C-006, C-007			
C	Proposed Building Labels with Individual Finished Floor Elevations (FFEs)	YES	C-004, C-006, C-007			
D	Existing contours with adequate contour labelling; screened; minimum 1' contour interval	YES	C-004, C-006, C-007			
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	YES	C-004, C-006, C-007			
F	Detailed grading for all ditches, swales, outfalls, and riprap	YES	C-004, C-006, C-007			
G	All proposed contours tie into existing contours at limits-of-disturbance outline	YES	C-004, C-006, C-007			
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in location	YES	C-004, C-006, C-007			
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES	C-004, C-006, C-007			
J	100-year Flood Zone Limits	YES	C-004, C-006, C-007			
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, RDP/curbline/side) to: parking/drive aisles, building corners/entrances, retaining walls, loading docks,	YES	C-004, C-006, C-007			
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry point	N/A	No new ADA proposed			
M	Proposed % slope arrows for all ADA parking spaces and sidewalk	N/A	No new parking proposed			
N	Proposed longitudinal % slope arrows for drainage ditch centerline	YES	C-004, C-006, C-007			
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in area	YES	C-004, C-006, C-007			
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	YES	C-004, C-006, C-007			
7	ROAD PROFILES (if public/private road proposed)	YES				
A	Existing surface, dashed and screened	YES	C-006, C-007			
B	Proposed surface; continuous and bold	YES	C-006, C-007			
C	Road design speed must be clearly identifier	YES	C-006, C-007			
D	Corresponding centerline stationing and curve data annotation	YES	C-006, C-007			
E	All vertical curves must identify the proposed "K" values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-3	YES	C-006, C-007			
F	Clear annotation if proposed road will be public or private	YES	C-006, C-007			
G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance.	YES	C-003			
H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private road.	YES	C-003			
8	UTILITY PLAN					
A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom).	YES	C-004			
B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	YES	C-004			
C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfall)	YES	C-004			
D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	YES	C-004, ES.1			
E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	YES	C-004			
F	Proposed storm culverts, outfalls, and riprap locations and size	YES	C-004 to C-007			
G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	YES	C-004 to C-007			
H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	YES	C-004 to C-007	Additional information can be found in the SWM Report		
I	Flow directional arrows for storm & sewer pipes	YES	C-004 to C-007			
J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, light poles, bollards, foundations, guiderails)	YES	C-004 to C-007			
K	All storm drains must be sized to convey the 25-year storm	YES	C-004 to C-007	See SWM Report		
L	Sewer force main sizes and invert elevation	NO	N/A	No force main proposed		
M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N, E, S, W); additional details and hydraulic calculations required for any Public pump station proposed.	NO	N/A	No pump stations proposed		
N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells.	NO	N/A	None proposed		
O	Proposed water sizes labelled	NO	N/A	None Proposed		
9	UTILITY PROFILES					
A	Utility profiles required for all gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins	NO	N/A	No utilities proposed in ROW		

B Existing surface; dashed and screened	NO	N/A	No utilities proposed in ROW		
C Proposed surface; continuous and bold	NO	N/A	No utilities proposed in ROW		
D Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	NO	N/A	No utilities proposed in ROW		
E Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	NO	N/A	No utilities proposed in ROW		
F Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	NO	N/A	No pipe crossing proposed		
G Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	YES	ES1.1			
10 DETAILS					
A Road section detail, including pavement/gravel depths & cross slope	YES	C-008, C-009, C-010			
B Sidewalk, paver, crosswalk, and any other pavement section detail:	N/A	None proposed			
C Pavement sawcut & shiplap details	YES	C-003, C-006, C-007			
D Utility trench/backfill detail	YES	C-011			
E All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, et	YES	C-011, C-013, C-014			
F Signage, striping, and ADA detail:	N/A	N/A	No signage or striping proposed		
G E&S notes and details:	YES	C-012, C-013, C-014			
H Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	YES	C-013, C-014			
I Storm outfall & riprap details	YES	C-011			
J Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	NO	C-013, C-014			
K Pump station, grease trap, oil-water separator, septic, drinking well detail	N/A	N/A	None Proposed		
L Conduit section details	N/A	N/A	None Proposed		
11 LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS					
A As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	YES	C-015, C-016, ES1.1			
B Landscaping & lighting details	YES	C-015, C-016, ES1.1			
12 DOCUMENTS/REPORTS/CALCULATIONS					
A On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction	Yes				
B Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner's contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	Yes				
C An approved 'Sewer Ability-to-Serve Letter' from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine's Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	N/A		No new buildings/sewer conveyance proposed		
D A Performance Guarantee Cost Estimate utilizing Planning's template	YES				
E For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	YES				
F 25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	YES				
K Public sewer pump station sizing calculations and maintenance plan	N/A	No pump stations proposed	No pump stations proposed		
M Grease trap sizing calculations	N/A	No grease traps proposed	No grease traps proposed		
N Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A	No HOA	No HOA		
O Summary list & copy of any required DOT/DEP/USACE permits & approval	YES				

Attachment 4
Location Map



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.25 Miles
1 inch = 0.28 miles

Date: 6/8/2023
Time: 3:54:08 PM

Attachment 5
Deed

Book 1484

Excepting and reserving, however, from the last parcel described a small triangular parcel of land in the rear of the premises of Charles E. Roberts which triangular lot has a base of about 50 feet in length which is an extension of the northwesterly boundary of said Roberts lot; and has an altitude of about 100 feet in length which is the northeasterly side thereof and is located in the center of a ditch long supposed to be the rear line of the Roberts lot; and which has a hypotenuse which is coincident with the rear line of said Roberts lot and is the southerly side of said triangle, being the same premises conveyed by Blanche T. Beuscher and Olga M. DeHaven to the said Kenneth A. Littlefield and Barbara A. Littlefield, by their deed of mortgage dated on the twentieth (20) day of February 1958 and recorded in York Registry of Deeds, Book 1354, Page 447, but described under the aforementioned reference only as three certain lots or parcels of land, with buildings thereon, and mentioned as being the same premises conveyed on February 20th, 1958, by Kenneth A. and Barbara A. Littlefield to Blanche T. Beuscher and Olga M. DeHaven, by Warranty Deed, Recorded Book 1362, Page 112; and that such entry was made and possession taken as aforesaid, for the avowed purpose of foreclosing said mortgage, because of a breach of the condition thereof.

Raymond E. Mealey

Madeline C. Mealey

STATE OF MAINE

COUNTY OF YORK, SS March 24, 1962 Signed and sworn to by the said Raymond E. Mealey and Madeline C. Mealey,

Before me. Maurice L. Shibbes Notary Public (L.S.)
My Commission Expires Sept. 2, 1966

Recorded according to the original received April 6, 1962 at 11h. 58m. A. M.

BL

KNOW ALL MEN BY THESE PRESENTS, THAT, COUVENT de la PRESENTATION de MARIE, a corporation organized and existing under the laws of the State of Maine and located at Biddeford, in the County of York and said State of Maine, in consideration of One Hundred Fifty Thousand Dollars (\$150,000.00) paid by THE FRANCISCAN FATHERS OF MAINE, a corporation duly organized by law and having an established place of business at 605 Pool Road, in said Biddeford, the receipt whereof it does hereby acknowledge, does hereby give, grant, bargain, sell and convey, unto the said The Franciscan Fathers of Maine, its successors or assigns, forever, the following described property:

Parcel 1

A certain lot or parcel of land, with the buildings thereon, situated in

I.R.S.
One
Hundred
and
Sixty
Five
Dollars

said Biddeford and bounded and described as follows:

BEGINNING at a point on the Northerly side of the Hill's Beach Road, so-called, in said Biddeford, said point being the Westerly corner of the land herein conveyed and being in the Southerly line of land formerly of one Finney and now of Couvent de la Presentation de Marie, and being marked by an iron stake driven into the ground; thence South eighty-two degrees eight minutes East (S 82° 08' E) two hundred fourteen and forty-six one-hundredths (214.46) feet by said Hill's Beach Road to an iron stake driven into the ground; thence North eighty-one degrees forty-two minutes East (N 81° 42' E) five hundred forty-five and five one-hundredths (545.05) feet by said Hill's Beach Road to an iron stake driven into the ground; thence South fifty degrees thirty-five minutes East (S 50° 35' E) two hundred thirty-eight and forty-seven one-hundredths (238.47) feet by said Hill's Beach Road to an iron stake driven into the ground and other land of this Grantor; thence North eighty-six degrees twenty-seven minutes East (N 86° 27' E) sixteen and ninety-one one-hundredths (16.91) feet by said other land of this Grantor to a drill hole into the ledge and land now or formerly of John J. Traynor; thence North three degrees thirty-three minutes West (N 3° 33' W) one hundred thirty-three and five tenths (133.5) feet by said land of John J. Traynor, land now or formerly of one Michael Reddy and a reserved street as shown on a plan of land of William A. Chadbourne, drawn by Z. G. Staples, July 14, 1874, and recorded in York County Registry of Deeds in Plan Book 2, Page 40, and by the stone wall to an iron stake driven into the ground at the Southwesterly corner of land now or formerly of William Libby; thence North twenty-two degrees forty-one minutes West (N 22° 41' W) one hundred twenty-eight and one-half (128½) feet by said land of William Libby, other land of this Grantor and by the stone wall to an angle in said stone wall; thence North fifty-five degrees fifty-seven minutes East (N 55° 57' E) three hundred ninety-three and nineteen one-hundredths (393.19) feet by said other land of this Grantor, by a reserved street as shown on said plan, and land now or formerly of Thomas Gallagher and by the fence and wall to an iron stake driven into the ground at the top of the bank; thence this same course to Saco River; thence Northerly, Northwesterly and Westerly by said River to an iron stake driven into the ground at a point of ledge and to said other land of this Grantor; thence South forty-one degrees East (S 41° E) three hundred thirty-nine and seven tenths (339.7) feet to an iron stake driven into the ground at the stone wall; thence South sixty-three degrees West (S 63° W) fifty-six and three tenths (56.3) feet by said stone wall to an iron stake driven into the ground; thence South sixty-nine degrees fifteen minutes West (S 69° 15' W) one hundred sixteen and one-half (116½) feet by said

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wall to an iron stake driven into the ground; thence South fifty-three degrees
 forty minutes West (S 53° 40' W) one hundred twenty-eight and five tenths
 (128.5) feet by said wall to an iron stake driven into the ground; thence South
 sixty-eight degrees nineteen minutes West (S 68° 19' W) one hundred and four
 tenths (100.4) feet by said wall to an iron stake driven into the ground; thence
 North eighty-eight degrees four minutes West (N 88° 04' W) seventy-seven and
 nine tenths (77.9) feet by said wall to an iron stake driven into the ground;
 thence South seventy-four degrees twenty-three minutes West (S 74° 23' W)
 seventy-nine and two tenths (79.2) feet by said wall to an iron stake driven
 into the ground; thence South fifty-seven degrees nineteen minutes West (S 57°
 19' W) ninety-five and one tenth (95.1) feet by said wall to an iron stake driven
 into the ground; thence South sixty-four degrees ten minutes West (S 64° 10' W)
 one hundred six and nine tenths (106.9) feet by said wall to an iron stake driven
 into the ground; thence South sixty-five degrees thirty minutes West (S 65° 30'
 W) one hundred forty-four and eight tenths (144.8) feet by said wall to the point
 of beginning. The last ten courses described being bounded by said other land
 of this Grantor. The above courses refer to the 1931 magnetic meridian.

Parcel 2

Also another certain lot of land, bounded and described as follows:

BEGINNING at an iron stake driven into the ground at the Southerly corner
 of the above described parcel and on the Northerly side of said Hill's Beach
 Road; thence North eighty-six degrees twenty-seven minutes East (N 86° 27' E)
 sixteen and ninety-one one-hundredths (16.91) feet by said above described par-
 cel to a drill hole in the ledge and land now or formerly of John J. Traynor;
 thence South three degrees thirty-three minutes East (S 3° 33' E) fifteen and
 seventy-five one-hundredths (15.75) feet by said land of Traynor to said Hill's
 Beach Road; thence North fifty degrees thirty-five minutes West (N 50° 35' W)
 twenty-three and eleven one-hundredths (23.11) feet by said road to the point
 of beginning.

Parcel 3

Also another certain lot or parcel of land, situated at Hill's Beach, so-
 called, in said Biddeford, and adjoining the first above described parcel,
 bounded and described as follows:

BEGINNING at the Northwest corner of Lot #18, on a plan of land made
 by Z. G. Staples for William A. Chadbourne, dated July 14, A. D. 1874, at land
 of the late Selucus Adams and S. S. Mitchell; thence running Southerly one hun-
 dred (100) feet to Lot #17 on said plan; thence Westerly by last named lot fifty
 (50) feet; thence North forty-eight degrees West (N 48° W) forty-eight (48) feet
 by land of said Adams; thence North fifty-one and one-half degrees East (N 51½°
 E) one hundred six (106) feet by land of said Adams and Mitchell to the place of

beginning, and containing about five thousand four hundred and twenty-four (5,424) square feet, being the same parcel of land as described in deed of James B. Marr and others to Caroline P. Adams, dated April 1, 1891 and recorded in York County Registry of Deeds in Book 443, Page 88.

The above described premises were conveyed to the within Grantor by Les Soeurs de la Presentation de Marie by deed of Warranty, dated September 30, 1932 and recorded in York County Registry of Deeds in Book 834, Page 87.

Parcel 4

Also another certain lot or parcel of land, together with the buildings thereon, situated in said Biddeford and known as the old Ralph Tristram Jordan place situated on the northeasterly side of the Pool Road, so-called, bounded on the southwesterly side by said Pool Road; southeasterly by the road to the beach and land formerly of Mrs. Horace Woodman; on the northeasterly side by the Saco River; and on the northwesterly side by land, now or formerly of J. B. Coolbroth.

For more particular description of the premises hereinabove last described, reference is made to decree of Supreme Judicial Court of Maine in the matter of Hanford E. Finney against claimants known and unknown dated October 3, 1919, and recorded in said York County Registry of Deeds, Book 671, Page 374.

All fixtures and articles of whatever nature permanently attached to said buildings are included in this conveyance.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said The Franciscan Fathers of Maine, its successors or assigns, to its and their use and behoof forever.

AND it does COVENANT with the said Grantee, its successors or assigns, that it is lawfully seized in fee of the premises; that they are free of all encumbrances; that it has good right to sell and convey the same to the said Grantee to hold as aforesaid; and that it shall and will Warrant and Defend the same to the said Grantee, its successors or assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, the said Couvent de la Presentation de Marie has caused this instrument to be executed and its corporate seal affixed thereto by - - its Treasurer, thereunto duly authorized, this eighteenth day of April, in the year of our Lord one thousand nine hundred and sixty-two.

Signed, Sealed and Delivered
in Presence of

Harold D. Carroll

COUVENT de la PRESENTATION de
MARIE
(Corporate Seal)
By Sister St. Leon of Rome
Leona Lafleur
Its Treasurer, thereunto duly
authorized.

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Attachment 6
Letter of Financial Capacity



UNIVERSITY OF
NEW ENGLAND

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
(207) 283-0171 T

Portland Campus
716 Stevens Avenue
Portland, ME 04103
(207) 797-7261 T

April 14, 2025

To Whom It May Concern:

The University of New England plans to construct a research pier facility, along with an associated access road, on its Biddeford Campus. This new facility will have an estimated total project cost of \$5,500,000. The University of New England has received a federal appropriation for \$3,500,000 for this project, and another \$1,000,000 has already been received in private donations. The remainder of the project will be financed by the university.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Thibeault", with a large, sweeping flourish above the name.

Alan Thibeault
Vice President for University Operations

Attachment 7
Stormwater Management Report



Stormwater Management Report

UNE Marine Science Center Pier

Submitted to:

University of New England
11 Hills Beach Road
Biddeford, ME 04005

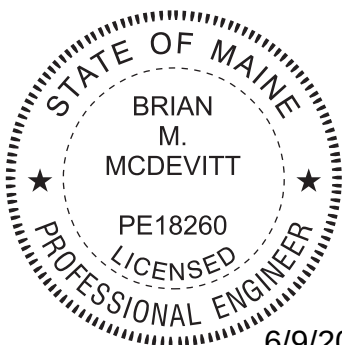
Submitted by:

GEI Consultants, Inc.
5 Milk Street
Portland, ME 04101
207-797-8901

September 2023

Revision C. June 2025

Project 2203703



6/9/2025



Brian McDevitt, P.E.
Senior Civil Engineer

Daniel J. Bannon, P.E. CFM
Project Manager / Sr. Waterfront Engineer

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Appendices

- A. USDA NRCS Soil Survey Report
- B. Pre-Development HydroCAD Calculations
- C. Post-Development HydroCAD Calculations
- D. Inspection and Maintenance Plan

Drawings

- SW-01 PRE-DEVELOPMENT DRAINAGE PLAN
- SW-02 POST-DEVELOPMENT DRAINAGE PLAN
- SW-03 TREATMENT AREA PLAN

- C-001 EXISTING CONDITIONS PLAN
- C-002 DEMOLITION AND CONSTRUCTION STAGING
- C-003 SITE PLAN
- C-004 GRADING AND DRAINAGE PLAN
- C-005 EROSION CONTROL PLAN
- C-006 ACCESS ROAD PLAN AND PROFILE STA 1+00 TO MATCHLINE STA 4+00
- C-007 ACCESS ROAD PLAN AND PROFILE MATCHLINE STA 4+00 TO STA 6+60
- C-008 ACCESS ROAD TYPICAL SECTION
- C-009 ACCESS ROAD SECTIONS 2+00 TO 3+75
- C-010 ACCESS ROAD SECTIONS 4+00 TO 5+75
- C-011 SITE DETAILS I
- C-012 EROSION CONTROL NOTES
- C-013 EROSION CONTROL DETAILS I
- C-014 EROSION CONTROL DETAILS II
- C-015 REVEGETATION PLAN
- C-016 REVEGETATION NOTES, DETAILS, AND SCHEDULES

DJB:BM:bdp

B:\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\06_REGULATORY\Stormwater\UNE MSC Stormwater
Report Rev. 06-05-2025.docx

1. Introduction

The University of New England (UNE) campus is located along the Saco River in Biddeford, ME. The Marine Science Center is located on the waterfront at the easterly end of campus (Fig. 1) approximately opposite Camp Ellis in Saco. To support MSC research activities, UNE proposes to construct a pier from the shore adjacent to the MSC into the Saco River to provide an all-tide access facility for small and shallow draft vessels (skiffs, landing craft, up to approximately 3-foot draft), with tidally-restricted access for larger vessels.



Fig. 1. Aerial Photo of University of New England Marine Science Center Waterfront

In 2008-2010, UNE worked with Baker Design Consultants (BDC) to undertake a concept planning study for the proposed pier. In this study, nine alternative designs were developed for water access facilities along the UNE waterfront consisting of various configurations of piers, boat ramps, and upland access and support facilities. The alternatives were evaluated on a range of criteria including technical criteria, functionality, constructability, cost and others to identify a preferred facility location. The nine alternatives evaluated through this study are shown in Fig. 2. At the conclusion of this study, Site 7 (directly in front of the Marine Science Center building) was identified as the preferred facility location (Site) to develop a new pier facility that would consist of a pile-supported pier extending from shore out into the Saco River.

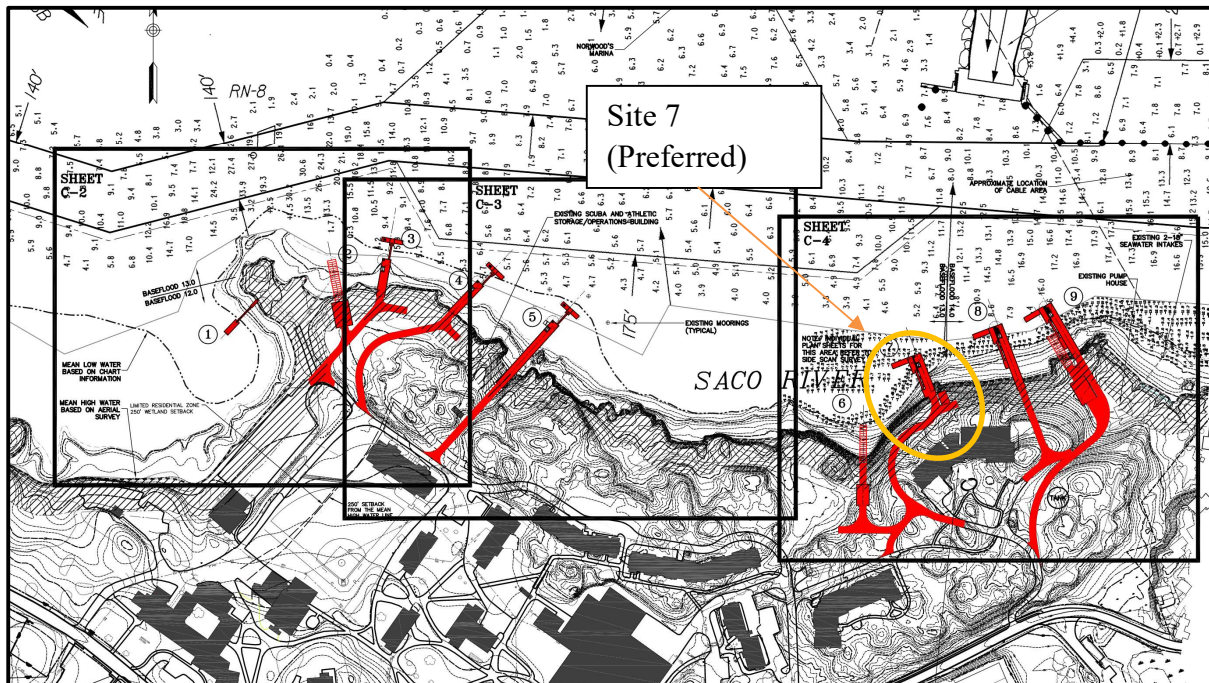


Fig. 2. Pier Location Alternatives from BDC Feasibility Study

In 2015-2016, UNE worked with BDC to undertake further design studies for a pier at the preferred location to investigate structure dimensions, orientation, rough order of magnitude costs, and impacts to coastal resources and features. As part of this evaluation, a preliminary geotechnical investigation was undertaken by GZA Geoenvironmental that included one water boring, two probes, and four test pits. At the conclusion of this phase of work, three alternative layouts were developed and reviewed with staff from UNE, the City of Biddeford, and the Saco River Corridor Commission and memorialized in a memo from BDC dated March 22, 2016.

In February 2022, UNE resumed design of the new proposed pier working with GEI Consultants to confirm conceptual layout for the pier and access road, and undertake design through 100% design and bid documents, as well as coordinate with UNE's consultant Site Design Associates for permitting of the proposed facility.

The proposed facility includes the following:

1. A pile supported pier structure extending from shore into the Saco River. The proposed pier includes an approximately 130-foot-long approach section extending from shore and an 80-foot long pier head section oriented roughly parallel to the direction of flow in the river. The pier consists of a concrete superstructure on steel pipe piles, with timber fender piles for vessel berthing and floating docks, and a pile supported gangway lifting beam to allow the gangway ramp to be temporarily removed from the water.

2. A floating dock system consisting of one 8-foot by 24-foot float, one 8-foot by 26-foot 10-inch float, and one 12-foot by 30-foot gangway landing float to provide all-tide vessel access for UNE's vessels on the west side of the pier, and a single 6-foot by 20-foot floating dock to provide a tie-up location for the City of Biddeford Fire Boat on the east side of the pier.
3. An 80-foot by 5-foot gangway to provide ADA compliant access to the float system.
4. An upland access road connecting the existing road at the MSC to the proposed pier, including associated site grading, drainage, and stormwater management features.

2. Methodology

Technical Release No. 22 (TR20) was used to calculate the existing and developed runoff from the project area. Hydrographs have been generated for the 2, 10, and 25-year frequency design storm events utilizing the NRCS Type III storm distribution and the 24-hour regional data from York County's rainfall data as required by MaineDEP. The rainfall amounts for York County are listed below:

<u>Table 1-Existing</u> 24 Hour Rainfall Frequency			
Rainfall amounts in Inches			
<i>Design Storm</i>	<i>2-Year</i>	<i>10-Year</i>	<i>25-Year</i>
	3.21	4.83	6.11

The following guidelines were utilized in the design of the Site's stormwater measures and BMPs (MaineDEP Stormwater Guidelines, Chapter 500):

1. Waiver of the flooding standard. A project is eligible for a waiver from the flooding standard if it discharges to a coastal wetland, a great pond, or a major river segment. A waiver is available for a project in the watershed of a coastal wetland, a great pond, or a major river segment provide the applicant demonstrates that the project convey stormwater exclusively in sheet flow, in a manmade open channel or in a piped system directly into one of these resources.
2. The redistribution of stormwater discharges standard will be met by discharging to a level spreader. The peak stormwater flow rate to a level spreader due to runoff from a 10-year, 24-hours storm must be less than 0.25 cubic feet per second (0.25 cfs) per foot length of level spreader.
3. Project will meet the erosion and sedimentation control standards found in Maine Department of Environmental Protection Guidelines, Chapter 500, Appendix A.

3. Pre-Development Conditions

1. Land Use

Presently, the Site is the location of the University of New England Girard Marine Science Center. However, the existing buildings and parking lots exist outside of the limits of this project. Runoff generated from the buildings and parking lots is conveyed via underground pipes to the south, away from the Saco River.

The proposed project limits currently consists of predominantly wooded areas. The southeast corner of the Site contains gravel path.

2. Topography

The Site is mainly comprised of steeply sloped wooded areas with slopes near 20% for most of the Site. The Site mostly slopes to the north towards the Saco River/Atlantic Ocean. Per the NRCS WebSoil Survey, the Site is comprised almost completely of sandy, stony soil. These sandy soils are rated as Hydrologic Group D. A copy of the Web Soil Survey can be found in the Appendices.

3. Existing Drainage Area

Presently, the runoff from the Site flows via overland flow to three different points of analysis, hereafter known as DP1, DP2 and DP3, with associated drainage areas 1S, 2S and 3S, respectively. The predevelopment drainage areas are described below:

A map entitled Pre-Development Drainage Plan is included in the Drawings section of this report. Additionally, the HydroCAD model and calculations can also be found in the Appendix.

Predevelopment Area 1S is the smallest of the existing drainage areas and is ± 0.460 acres which consists of wooded areas. Runoff from Predevelopment Area 1S flows overland from the rear of the Girard Marine Science Center to the northeast and directly into the Saco River/Atlantic Ocean at DP1.

Predevelopment Area 2S is ± 0.637 acres and can be found in the middle of the Site. Predevelopment Area 2S consists of all wooded areas. Runoff from Predevelopment Area 2S flows via overland flow from a ledge in the middle of the Site to the north to the Saco River/Atlantic Ocean at DP2.

Predevelopment Area 3S is ±1.461 acres and comprises the eastern most portion of the Site. Predevelopment Areas 3S consists mostly of wooded areas and contains a gravel path leading to the lower lying wetlands and sand beaches along the Saco River/Atlantic Ocean. Runoff from Predevelopment Area 3S from the paved walkway at the Girard Marine Science Center to the northeast to the Saco River/Atlantic Ocean at DP3.

Tables 2A, 2B and 2C below list the total runoff for each Predevelopment Area:

<u>Table 2A-Predevelopment Area 1S Runoff</u>				
Rainfall amounts in cubic feet per second				
<i>Pre-Development Total</i>	<i>2-Year</i>	<i>10-Year</i>	<i>25-Year</i>	<i>100-Year</i>
Peak Runoff Rate (cfs)	0.71	1.44	2.07	3.31

<u>Table 2B-Predevelopment Area 2S Runoff</u>				
Rainfall amounts in cubic feet per second				
<i>Pre-Development Total</i>	<i>2-Year</i>	<i>10-Year</i>	<i>25-Year</i>	<i>100-Year</i>
Peak Runoff Rate (cfs)	0.74	1.51	2.17	3.50

<u>Table 2C-Predevelopment Area 3S Runoff</u>				
Rainfall amounts in cubic feet per second				
<i>Pre-Development Total</i>	<i>2-Year</i>	<i>10-Year</i>	<i>25-Year</i>	<i>100-Year</i>
Peak Runoff Rate (cfs)	2.39	4.58	6.44	10.05

4. Post Development Conditions

1. Land Use

When fully developed, the Site will contain the following improvements:

- a. A pile supported pier structure extending from shore into the Saco River. The proposed pier includes an approximately 130-foot-long approach section extending from shore and an 80-foot long pier head section oriented roughly parallel to the direction of flow in the river. The pier consists of a concrete superstructure on steel pipe piles, with timber fender piles for vessel berthing and floating docks, and a pile supported gangway lifting beam to allow the gangway ramp to be temporarily removed from the water.
- b. A floating dock system consisting of one 8-foot by 24-foot float, one 8-foot by 26-foot 10-inch float, and one 12-foot by 30-foot gangway landing float to provide all-tide vessel access for UNE's vessels on the west side of the pier, and a single 6-foot by 20-foot floating dock to provide a tie-up location for the City of Biddeford Fire Boat on the east side of the pier.
- c. An 80-foot by 5-foot gangway to provide ADA compliant access to the float system.
- d. An upland superelevated access road connecting the existing road at the MSC to the proposed pier, including associated site grading, drainage, and stormwater management features.

These improvements will result in a total increase in impervious area of 0.249 acres. The increase in impervious area will be managed by the two bioretention filter cells to the north of the Girard Marine Science Center. Runoff will be conveyed to the bioretention filter cells via proposed vegetated swales along the low side of the superelevated access road.

The bioretention filter cells will slowly release captured stormwater via underground pipe into the Saco River/Atlantic Ocean.

2. Drainage Areas

The map entitled Post-Development Drainage Plan delineating all developed drainage areas can be found in the Drawings section of this report. For analysis, the Site was broken up into 5 different drainage areas hereafter known as 1S, 2S, 3S, 4S, and 5S.

Post Development Area 1S contains the area that conveys runoff to the western Bioretention Filter Cell B. This area contains impervious areas from the access road and the proposed vegetated areas behind the Girard Marine Science Center. Runoff is conveyed to the Bioretention Filter Cell B via vegetated swale. Runoff captured by the bioretention filter cell will be treated and slowly released via underground pipe to the outfall under the proposed pier and into the Saco River/Atlantic Ocean near DP1.

Post Development Area 2S contains the areas to the northwest of the Site that conveys runoff via over land flow from the Girard Marine Science Center to DP1. This area contains small impervious areas as it contains the northern shoulder of the access road and the transition from access road to pier. Runoff from this area will not be managed for water quality or peak rate reduction.

Post Development Area 3S contains the area that conveys runoff to the eastern Bioretention Filter Cell A. This area contains impervious area from the access road and the proposed vegetated areas behind and to the east of the Girard Marine Science Center. Runoff is conveyed to the Bioretention Filter Cell A via vegetated swale. Runoff captured by the bioretention filter cell will be treated and slowly released via underground pipe to the outfall to the north where it will run through a level spreader to further reduce peak flow rate. Runoff will leave the level spreader and reach the Saco River/Atlantic Ocean via overland flow near DP2.

Post Development Area 4S contains the area to the northeast of the Site that conveys runoff via over land flow from the Girard Marine Science Center to DP2. This area contains small impervious areas as it contains the northern shoulder of the access road and the level spreader. Runoff from this area will not be managed for water quality or peak rate reduction.

Post Development Drainage Area 5S contains the area to the eastern portion of the Site. This this area contains the southernmost portion of the proposed access road and the existing gravel path. Runoff from this area will be conveyed via overland flow to the Saco River/Atlantic Ocean at DP3.

5. Stormwater Management

1. Stormwater Quantity

The bioretention filter cells are proposed to reduce the peak runoff rate of the 2, 10, and 25-year storms to treat stormwater runoff from the Site in accordance with DEP standards. Despite this, efforts were made to minimize the peak runoff rate from the Site. The tables below summarize the peak rate of runoff for the Site:

TABLE No. 3A

Managed Total Peak Discharge Summary of the Proposed Conditions to Discharge Point DP1

Storm Event	2-Year		10-Year		25-Year		100-Year	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Peak Runoff Rate (cfs)	0.71	1.02	1.44	1.85	2.07	2.54	3.31	3.88

TABLE No. 3B

Managed Total Peak Discharge Summary of the Proposed Conditions to Discharge Point DP2

Storm Event	2-Year		10-Year		25-Year		100-Year	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Peak Runoff Rate (cfs)	0.74	1.24	1.51	2.31	2.17	3.22	3.50	4.98

TABLE No. 3C

Managed Total Peak Discharge Summary of the Proposed Conditions to Discharge Point DP3

Storm Event	2-Year		10-Year		25-Year		100-Year	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Peak Runoff Rate (cfs)	2.39	2.23	4.58	4.26	6.44	5.99	10.05	9.35

The tables above show a relatively minor increase in the peak rate of stormwater runoff subsequent to development. The northern most outfall will discharge to a level spreader which will create sheet flow into the Saco River/Atlantic Ocean. The western most outfall will outlet through the pier concrete abutment. Because the area downgradient of the outlets is stable rock, there will be no impacts due to the minor

increase in runoff. Stormwater runoff from each of the subcatchments adjacent to the river is not considered a point discharge in either the existing or proposed conditions, and is dispersed over the entire frontage along the river.

Since this development outlets directly to a major river segment/ocean, the flooding standard is typically waived by DEP (Chapter 500-Section F.3.a). The City also typically waives the need to provide detention of stormwater runoff from this parcel of UNE's property due to the tidal nature of the receiving waters. A waiver has been requested.

2. Stormwater Quality

The project proposes to treat 76% of impervious development and 72% of all new development. As discussed in the preapplication meeting, the proposed development will be treated as a linear portion of the project. For a linear project, the minimum treatment level required is 70% for impervious development and 50% of all new development. Water Quality treatment level are found in the tables below.

TABLE No. 4
Water Quality Treatment Level

Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Developed Area (SF)	Filter Area Required (SF)	Filter Area Provided (SF)	Water Quality Volume Required (CF)	Water Quality Volume Provided (CF)	Sediment Forebay Volume Required (CF)	Sediment Forebay Volume Provided (CF)	BMP
1S	4,917	4,915	9,832	344	854	574	200	144	115	Bioretention Filter
2S	1,238	10,250	11,488	267	-	445	-			-
3S	4,476	8,889	13,365	402	565	669	380			Bioretention Filter
4S	295	17,234	17,529	359	-	599	-			-
5S	6,273	52,906	59,179	1,372	-	2,286	-			-
Total Treated	13,071	13,804	80,203	930	-	1,549				
Total Developed Impervious Area	17,199									
Total Developed Area	111,393									
Percent Developed Area Treated	72%									
Percent Developed Impervious Area Treated	76%									

3. Erosion and Sedimentation Control

BMP's such as stabilized construction entrance, silt fence and/or filter berms of erosion control mix, riprap pipe inlet and outlet protection, turf reinforcement matting, mulch and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures are erosion and sedimentation control notes

and details are shown on the design drawing set.

4. Inspection and Maintenance

The University of New England will be responsible for maintaining the stormwater facilities for the project. An Inspection and Maintenance Plan is included in the Appendix. The plan includes a draft of the Stormwater Drainage System Maintenance Agreement, to be finalized and recorded as a condition of approval.

6. Conclusions

The stormwater management for this project included a variety of BMPs to control both the quantity and quality of stormwater runoff. The HydroCAD calculations show a minimal increase in the stormwater runoff from the proposed Site however the Stormwater Quantity requirement can be waved since this development discharges directly to a major river segment/ocean, the flooding standards can be waived (Chapter 500-Section F.3.a).

Stormwater treatment BMPs have been designed to treat stormwater runoff from more than 70% of the developed impervious area with additional treatment credit from the implementation of Low Impact Development Measures. Based on the information provided, no adverse impacts to downstream receiving bodies are anticipated.

Appendix A

NRCS Web Soil Survey Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for **York County, Maine**



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: York County, Maine
Survey Area Data: Version 21, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Beaches, sand	0.3	5.5%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	1.7	27.7%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	3.3	54.8%
UH	Urban land-Hooksan complex, 0 to 8 percent slopes	0.2	3.1%
W	Water bodies	0.5	8.9%
Totals for Area of Interest		6.1	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.

York County, Maine

Ba—Beaches, sand

Map Unit Setting

National map unit symbol: 2y080
Elevation: 0 to 20 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Beaches, sandy surface: 90 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Beaches, Sandy Surface

Setting

Landform: Back-barrier beaches, barrier beaches, beaches, shores
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Beach sand

Typical profile

C1 - 0 to 10 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Runoff class: Negligible
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: About 0 to 12 inches
Frequency of flooding: Very frequent
Maximum salinity: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 0.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

LyC—Lyman-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2trqj
Elevation: 0 to 790 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F

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Frost-free period: 60 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Lyman, very stony, and similar soils: 62 percent

Rock outcrop: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loam

E - 3 to 5 inches: fine sandy loam

Bhs - 5 to 7 inches: loam

Bs1 - 7 to 11 inches: loam

Bs2 - 11 to 18 inches: channery loam

R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 1.5 percent

Depth to restrictive feature: 11 to 24 inches to lithic bedrock

Drainage class: Somewhat excessively drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: D

Ecological site: F144BY701ME - Shallow Till

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest

Down-slope shape: Convex

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Across-slope shape: Convex

Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Capacity of the most limiting layer to transmit water (Ksat): Very low to very high
(0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Ecological site: F144BY801ME - Rockland (reserved)

Hydric soil rating: Unranked

LyE—Lyman-Rock outcrop complex, 15 to 80 percent slopes

Map Unit Setting

National map unit symbol: 2trqp

Elevation: 0 to 980 feet

Mean annual precipitation: 36 to 65 inches

Mean annual air temperature: 36 to 52 degrees F

Frost-free period: 60 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Lyman, very stony, and similar soils: 60 percent

Rock outcrop: 30 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loam

E - 3 to 5 inches: fine sandy loam

Bhs - 5 to 7 inches: loam

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Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 80 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144BY701ME - Shallow Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest, free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 15 to 80 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

UH—Urban land-Hooksan complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2x111
Elevation: 0 to 50 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land, coastal: 50 percent
Hooksan and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Coastal

Setting

Landform: Dunes
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Frequency of flooding: Rare
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Description of Hooksan

Setting

Landform: Dunes
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Side slope, base slope, crest
Down-slope shape: Convex
Across-slope shape: Convex, linear
Parent material: Sandy eolian deposits

Typical profile

C1 - 0 to 20 inches: sand
C2 - 20 to 30 inches: sand
C3 - 30 to 64 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (14.17 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: R149BY002MA - Coastal Dunes
Hydric soil rating: No

W—Water bodies

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

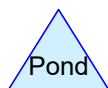
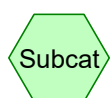
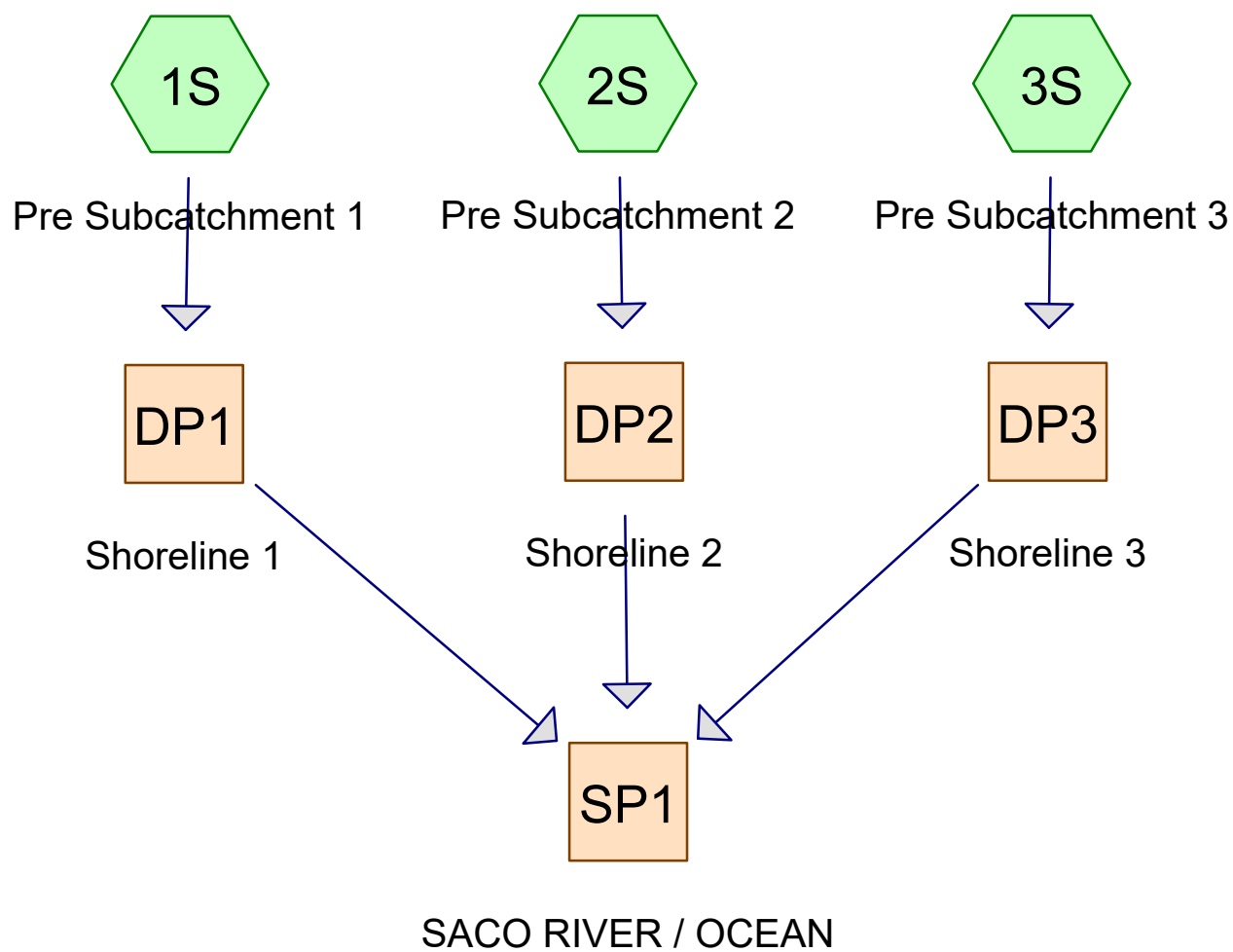
Description of Water

Setting

Landform: Hills

Appendix B

Pre Development HydroCAD Calculations



Routing Diagram for UNE-PreDrainage
Prepared by GEI Consultants, Printed 7/9/2024
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UNE-PreDrainage

Prepared by GEI Consultants

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Project Notes

Defined 3 rainfall events from ME-York IDF

UNE-PreDrainage

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.30	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.90	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.20	2
4	100-yr	Type III 24-hr		Default	24.00	1	8.70	2

UNE-PreDrainage

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.110	96	Gravel surface, HSG D (3S)
0.017	98	Roofs, HSG D (3S)
0.160	88	Sand Beach, HSG D (3S)
2.270	77	Woods, Good, HSG D (1S, 2S, 3S)
2.557	79	TOTAL AREA

UNE-PreDrainage

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
2.557	HSG D	1S, 2S, 3S
0.000	Other	
2.557		TOTAL AREA

UNE-PreDrainage

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.110	0.000	0.110	Gravel surface	3S
0.000	0.000	0.000	0.017	0.000	0.017	Roofs	3S
0.000	0.000	0.000	0.160	0.000	0.160	Sand Beach	3S
0.000	0.000	0.000	2.270	0.000	2.270	Woods, Good	1S, 2S, 3S
0.000	0.000	0.000	2.557	0.000	2.557	TOTAL AREA	

UNE-PreDrainage

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Type III 24-hr 2-yr Rainfall=3.30"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre Subcatchment 1 Runoff Area=20,023 sf 0.00% Impervious Runoff Depth>1.18"
Flow Length=138' Tc=4.0 min CN=77 Runoff=0.71 cfs 0.045 af

Subcatchment 2S: Pre Subcatchment 2 Runoff Area=27,744 sf 0.00% Impervious Runoff Depth>1.18"
Flow Length=198' Tc=12.7 min CN=77 Runoff=0.74 cfs 0.062 af

Subcatchment 3S: Pre Subcatchment 3 Runoff Area=63,622 sf 1.18% Impervious Runoff Depth>1.37"
Flow Length=445' Tc=7.0 min CN=80 Runoff=2.39 cfs 0.166 af

Reach DP1: Shoreline 1 Inflow=0.71 cfs 0.045 af
Outflow=0.71 cfs 0.045 af

Reach DP2: Shoreline 2 Inflow=0.74 cfs 0.062 af
Outflow=0.74 cfs 0.062 af

Reach DP3: Shoreline 3 Inflow=2.39 cfs 0.166 af
Outflow=2.39 cfs 0.166 af

Reach SP1: SACO RIVER / OCEAN Inflow=3.63 cfs 0.274 af
Outflow=3.63 cfs 0.274 af

Total Runoff Area = 2.557 ac Runoff Volume = 0.274 af Average Runoff Depth = 1.29"
99.33% Pervious = 2.540 ac 0.67% Impervious = 0.017 ac

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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 1S: Pre Subcatchment 1

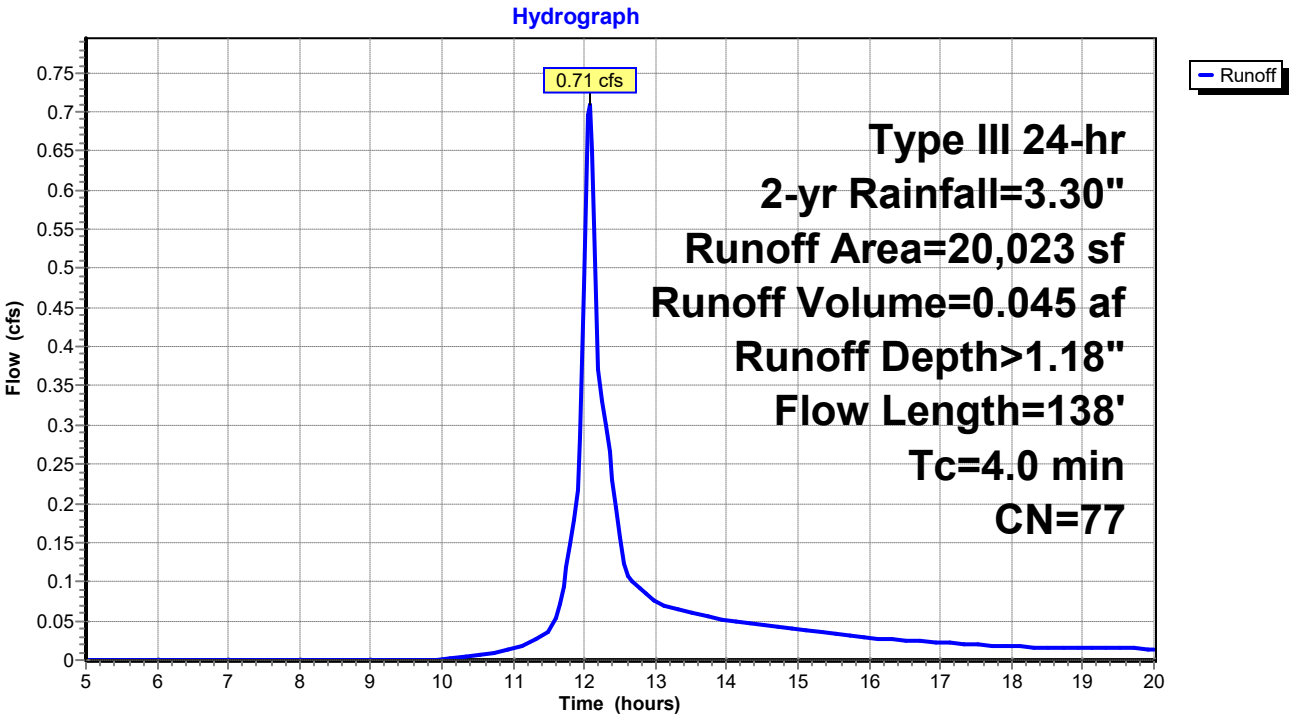
Runoff = 0.71 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 1.18"
Routed to Reach DP1 : Shoreline 1

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
20,023	77	Woods, Good, HSG D
20,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	20	0.1000	0.11		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	118	0.1780	2.11		Shallow Concentrated Flow, Tc-2 Woodland Kv= 5.0 fps
4.0	138	Total			

Subcatchment 1S: Pre Subcatchment 1



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 2S: Pre Subcatchment 2

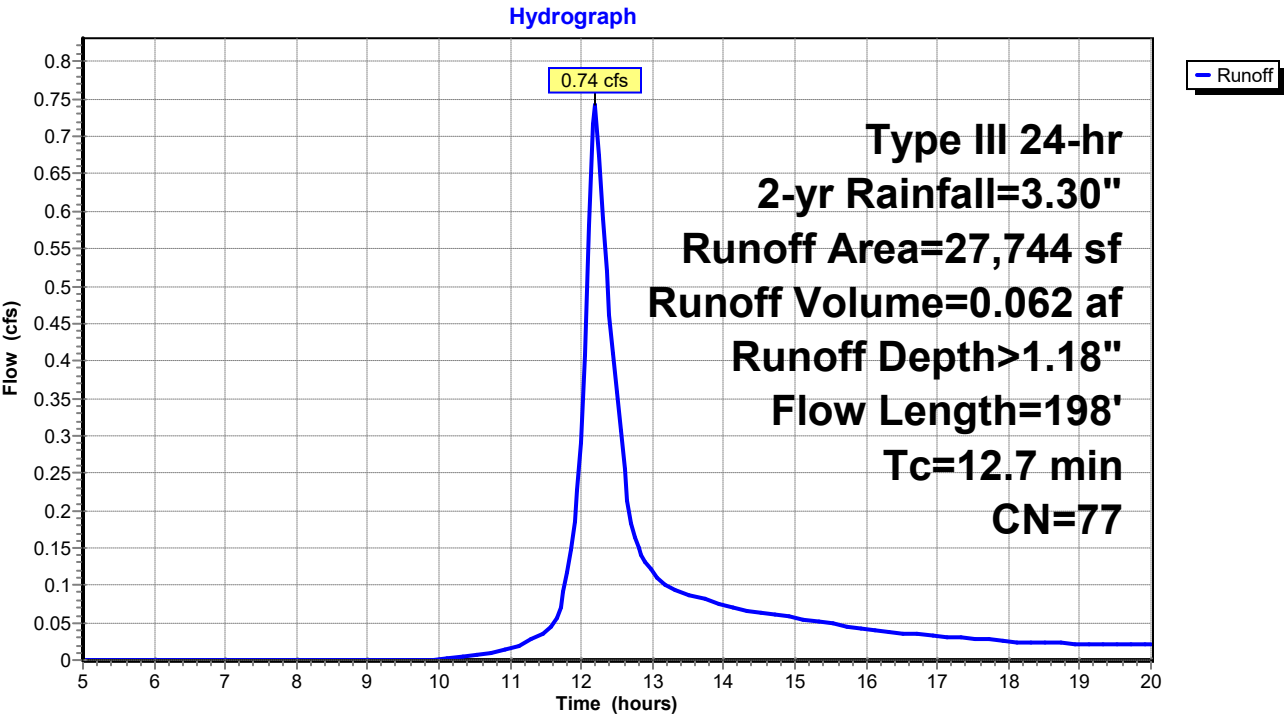
Runoff = 0.74 cfs @ 12.19 hrs, Volume= 0.062 af, Depth> 1.18"
Routed to Reach DP2 : Shoreline 2

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
27,744	77	Woods, Good, HSG D
27,744		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	148	0.1689	0.20		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	50	0.1800	2.12		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
12.7	198	Total			

Subcatchment 2S: Pre Subcatchment 2



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 3S: Pre Subcatchment 3

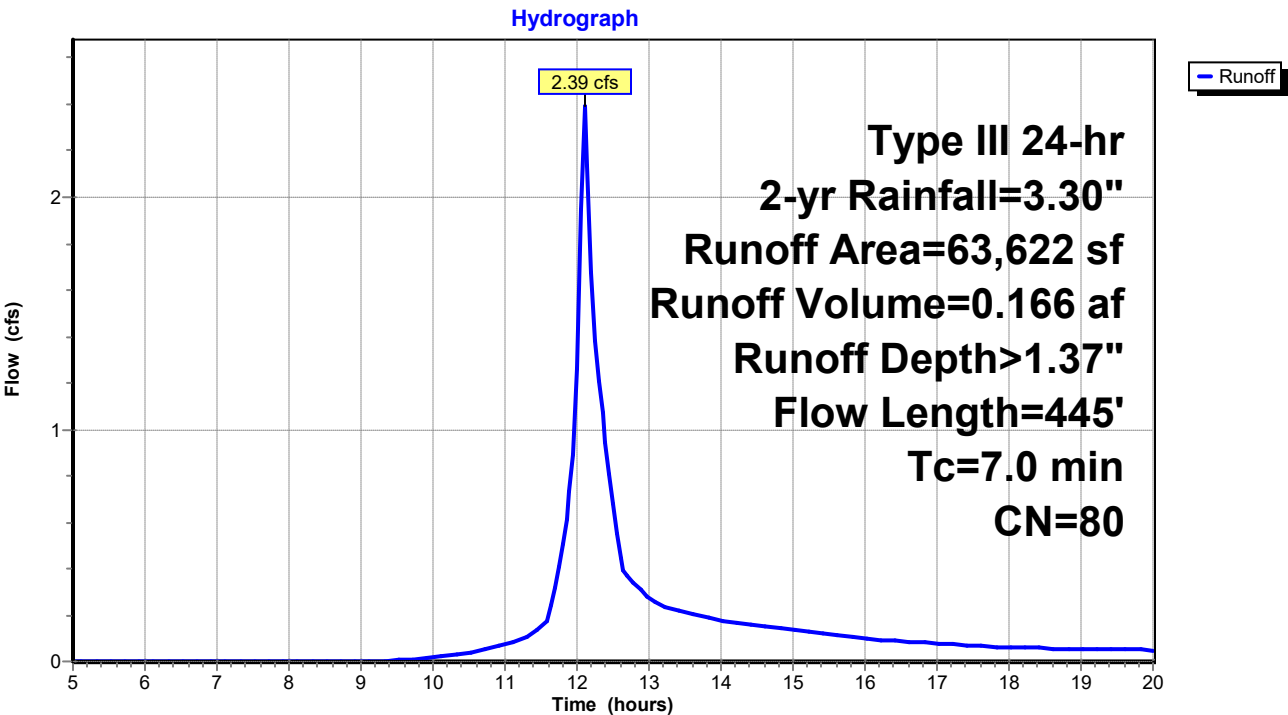
Runoff = 2.39 cfs @ 12.11 hrs, Volume= 0.166 af, Depth> 1.37"
 Routed to Reach DP3 : Shoreline 3

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
51,121	77	Woods, Good, HSG D
751	98	Roofs, HSG D
4,795	96	Gravel surface, HSG D
* 6,955	88	Sand Beach, HSG D
63,622	80	Weighted Average
62,871		98.82% Pervious Area
751		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0571	1.19		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-4
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 3S: Pre Subcatchment 3



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Type III 24-hr 2-yr Rainfall=3.30"

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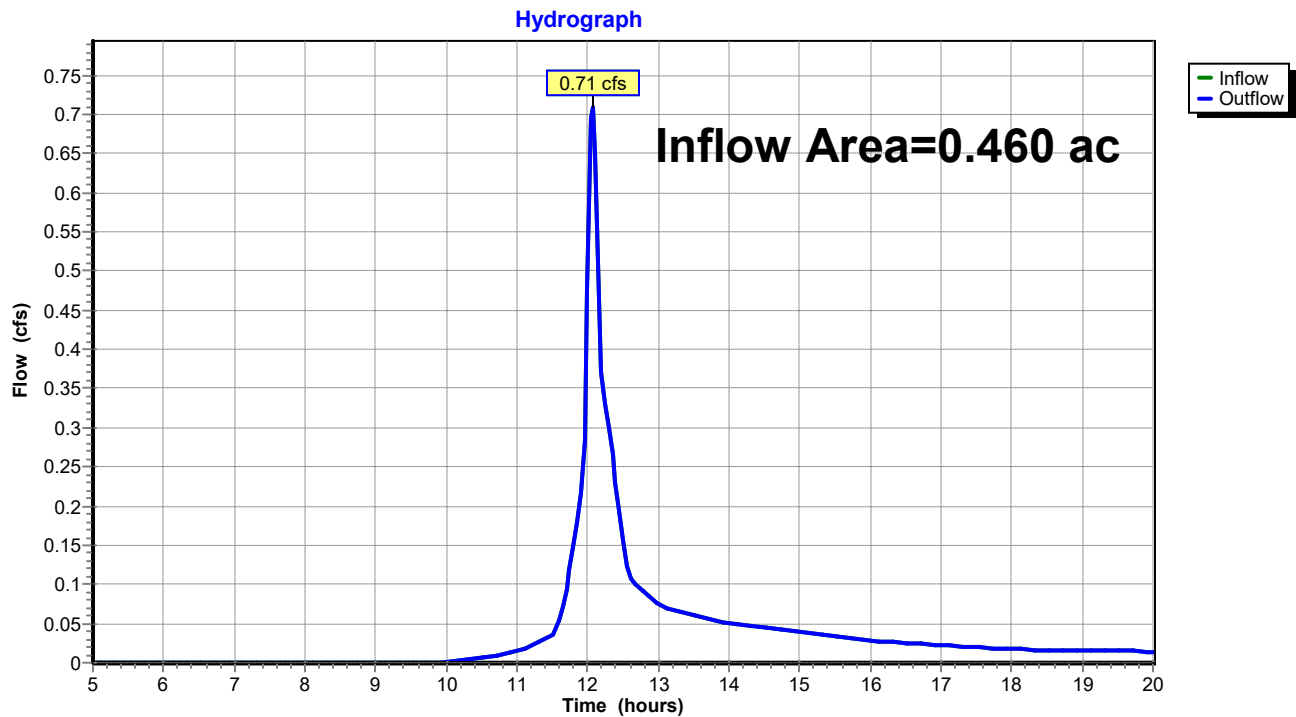
Page 12

Summary for Reach DP1: Shoreline 1

Inflow Area = 0.460 ac, 0.00% Impervious, Inflow Depth > 1.18" for 2-yr event
Inflow = 0.71 cfs @ 12.07 hrs, Volume= 0.045 af
Outflow = 0.71 cfs @ 12.07 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP1: Shoreline 1



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Type III 24-hr 2-yr Rainfall=3.30"

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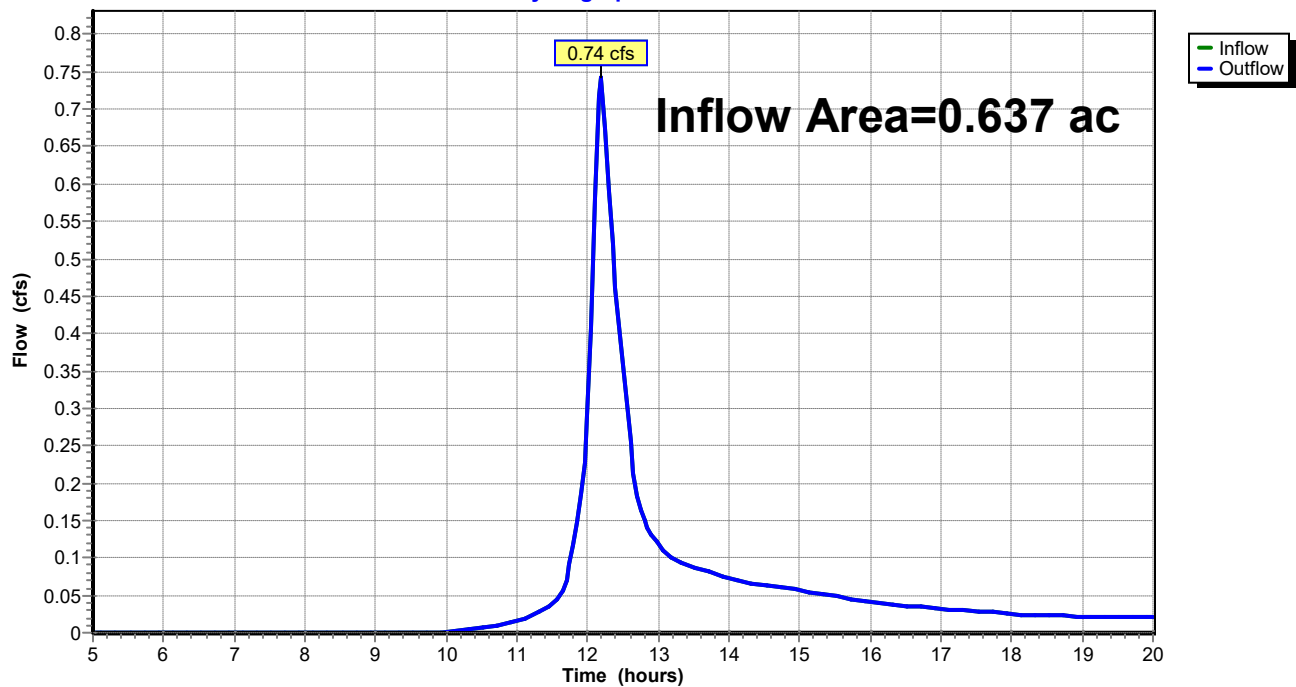
Summary for Reach DP2: Shoreline 2

Inflow Area = 0.637 ac, 0.00% Impervious, Inflow Depth > 1.18" for 2-yr event
Inflow = 0.74 cfs @ 12.19 hrs, Volume= 0.062 af
Outflow = 0.74 cfs @ 12.19 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP2: Shoreline 2

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.30"

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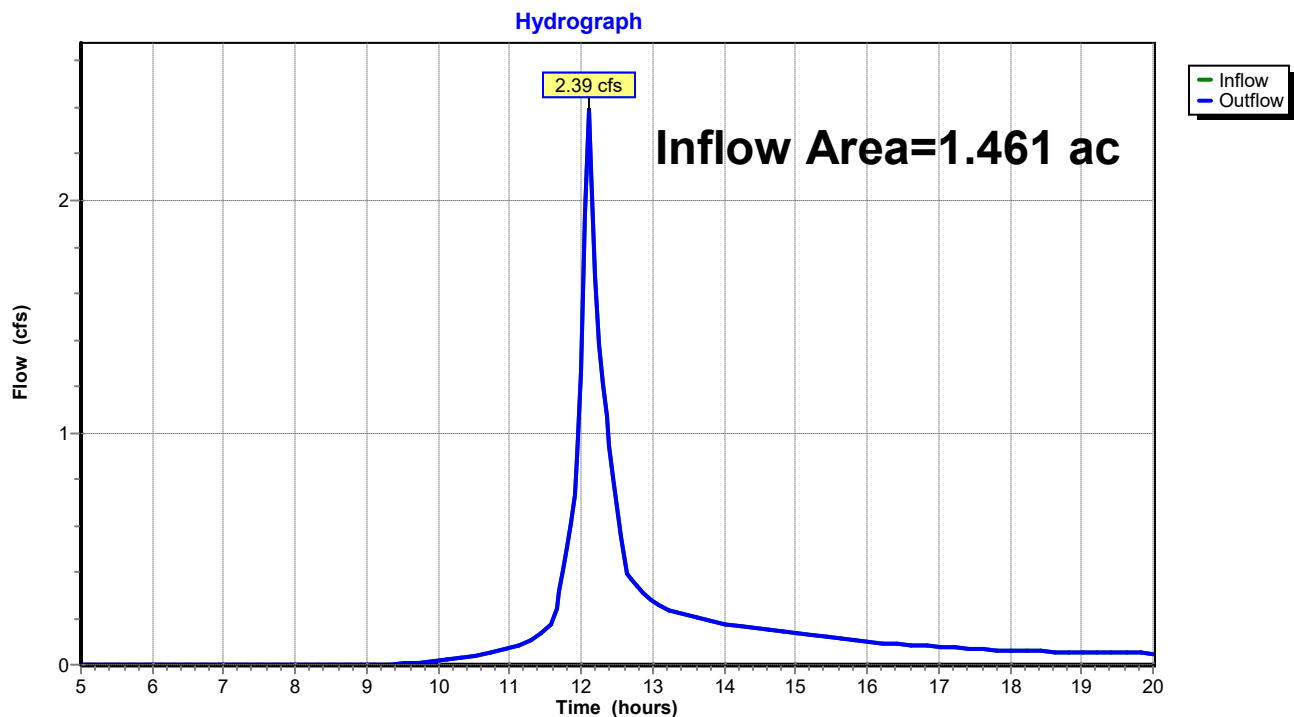
Page 14

Summary for Reach DP3: Shoreline 3

Inflow Area = 1.461 ac, 1.18% Impervious, Inflow Depth > 1.37" for 2-yr event
Inflow = 2.39 cfs @ 12.11 hrs, Volume= 0.166 af
Outflow = 2.39 cfs @ 12.11 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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Type III 24-hr 2-yr Rainfall=3.30"

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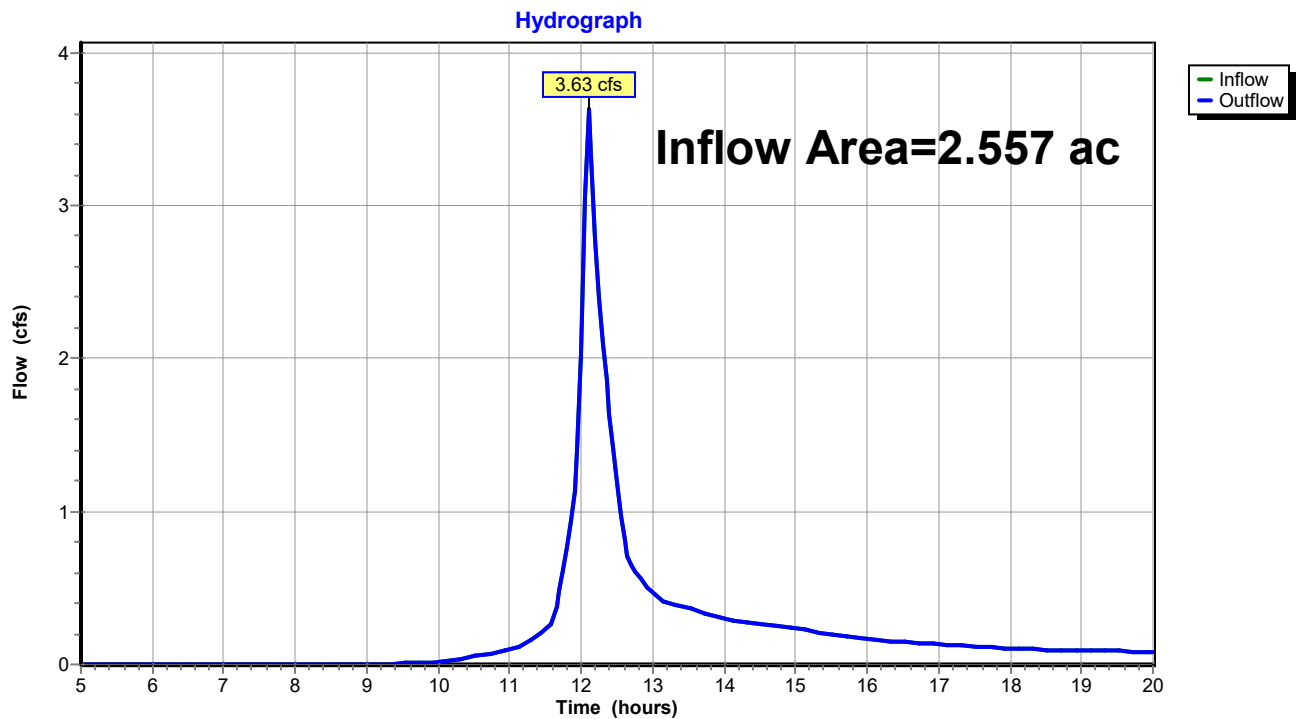
Page 15

Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 0.67% Impervious, Inflow Depth > 1.29" for 2-yr event
Inflow = 3.63 cfs @ 12.11 hrs, Volume= 0.274 af
Outflow = 3.63 cfs @ 12.11 hrs, Volume= 0.274 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 10-yr Rainfall=4.90"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre Subcatchment 1 Runoff Area=20,023 sf 0.00% Impervious Runoff Depth>2.36"
Flow Length=138' Tc=4.0 min CN=77 Runoff=1.44 cfs 0.091 af

Subcatchment 2S: Pre Subcatchment 2 Runoff Area=27,744 sf 0.00% Impervious Runoff Depth>2.36"
Flow Length=198' Tc=12.7 min CN=77 Runoff=1.51 cfs 0.125 af

Subcatchment 3S: Pre Subcatchment 3 Runoff Area=63,622 sf 1.18% Impervious Runoff Depth>2.62"
Flow Length=445' Tc=7.0 min CN=80 Runoff=4.58 cfs 0.319 af

Reach DP1: Shoreline 1 Inflow=1.44 cfs 0.091 af
Outflow=1.44 cfs 0.091 af

Reach DP2: Shoreline 2 Inflow=1.51 cfs 0.125 af
Outflow=1.51 cfs 0.125 af

Reach DP3: Shoreline 3 Inflow=4.58 cfs 0.319 af
Outflow=4.58 cfs 0.319 af

Reach SP1: SACO RIVER / OCEAN Inflow=7.10 cfs 0.534 af
Outflow=7.10 cfs 0.534 af

Total Runoff Area = 2.557 ac Runoff Volume = 0.534 af Average Runoff Depth = 2.51"
99.33% Pervious = 2.540 ac 0.67% Impervious = 0.017 ac

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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 1S: Pre Subcatchment 1

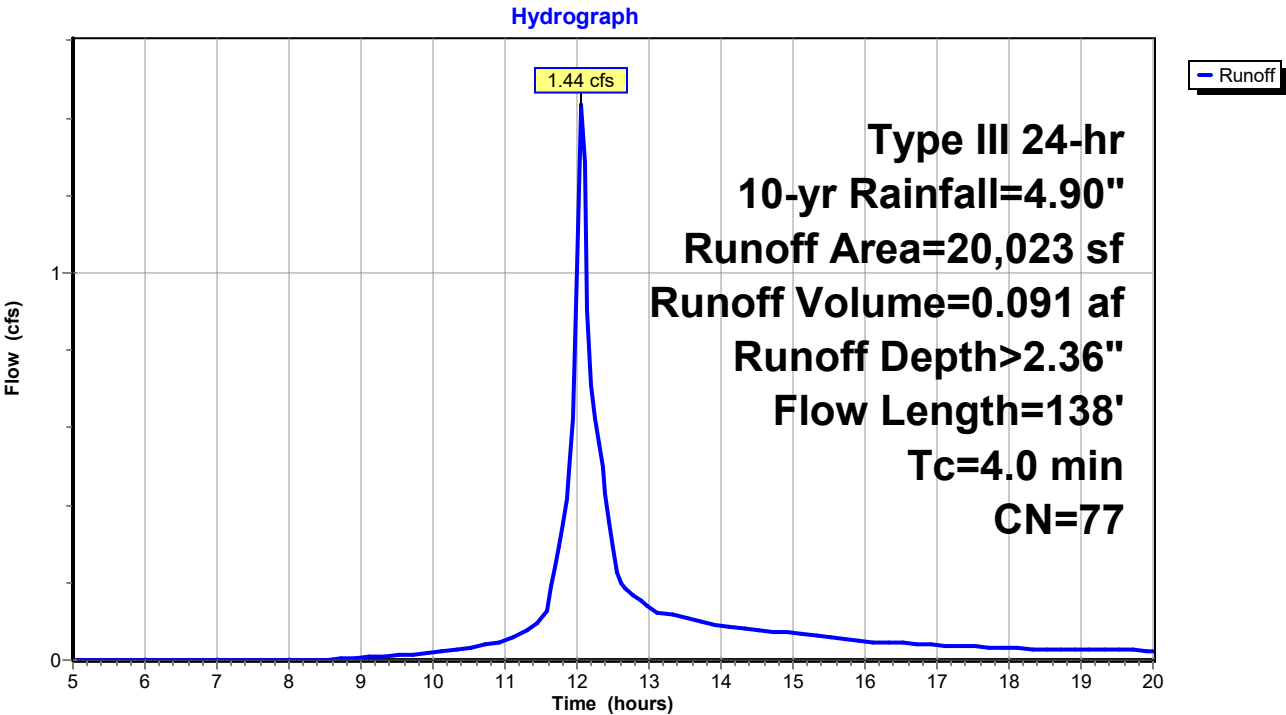
Runoff = 1.44 cfs @ 12.06 hrs, Volume= 0.091 af, Depth> 2.36"
Routed to Reach DP1 : Shoreline 1

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
20,023	77	Woods, Good, HSG D
20,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	20	0.1000	0.11		Sheet Flow, Tc-1
0.9	118	0.1780	2.11		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
4.0	138	Total			

Subcatchment 1S: Pre Subcatchment 1



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 2S: Pre Subcatchment 2

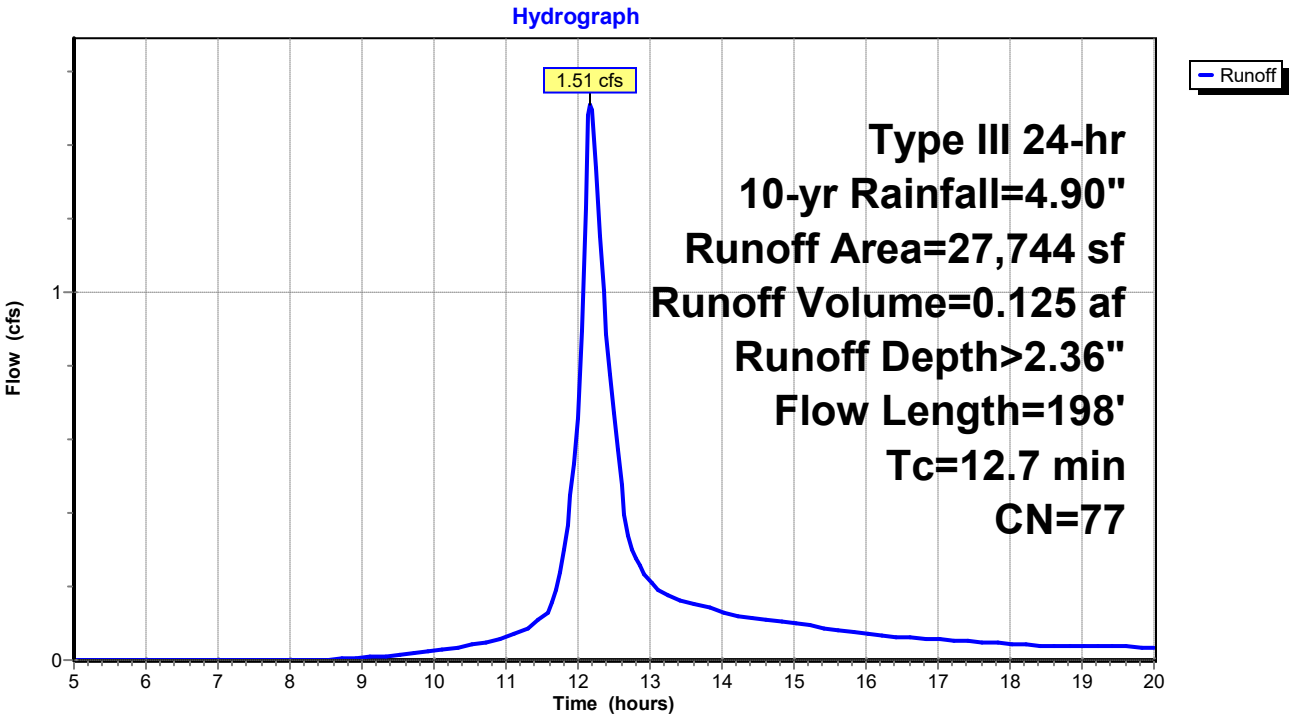
Runoff = 1.51 cfs @ 12.18 hrs, Volume= 0.125 af, Depth> 2.36"
Routed to Reach DP2 : Shoreline 2

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
27,744	77	Woods, Good, HSG D
27,744		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	148	0.1689	0.20		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	50	0.1800	2.12		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
12.7	198	Total			

Subcatchment 2S: Pre Subcatchment 2



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 3S: Pre Subcatchment 3

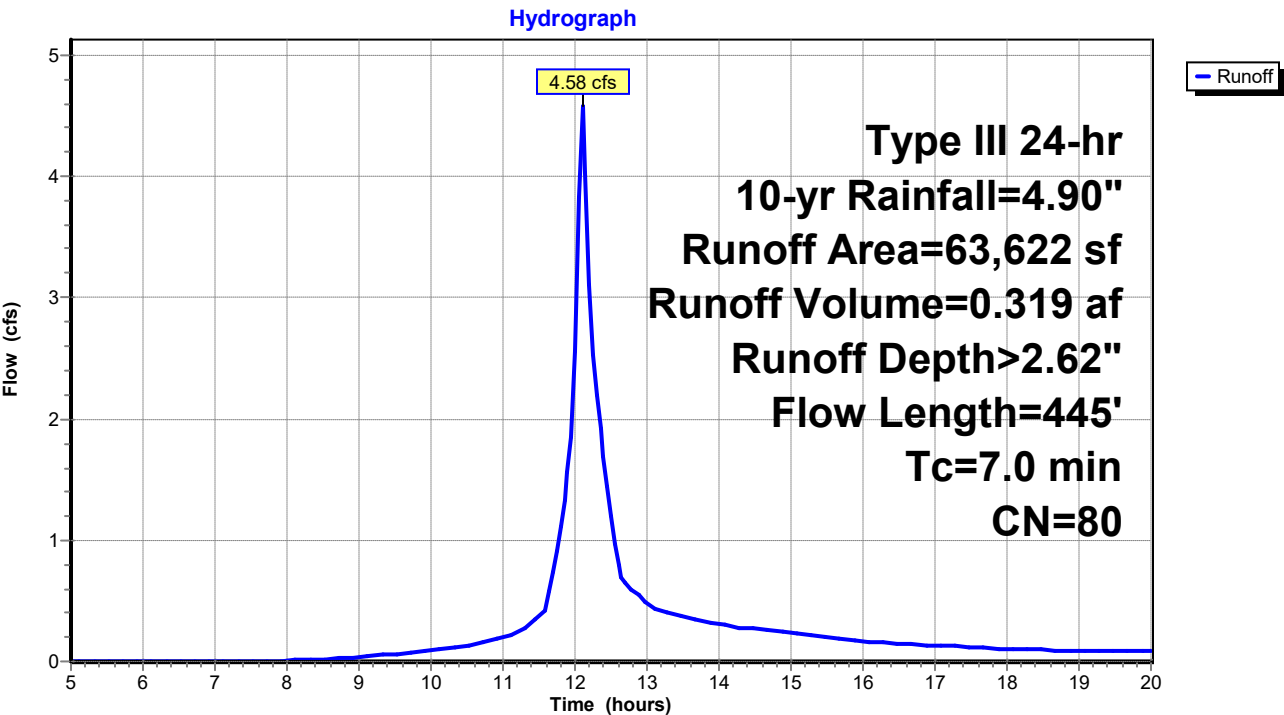
Runoff = 4.58 cfs @ 12.10 hrs, Volume= 0.319 af, Depth> 2.62"
 Routed to Reach DP3 : Shoreline 3

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
51,121	77	Woods, Good, HSG D
751	98	Roofs, HSG D
4,795	96	Gravel surface, HSG D
* 6,955	88	Sand Beach, HSG D
63,622	80	Weighted Average
62,871		98.82% Pervious Area
751		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0571	1.19		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-4
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 3S: Pre Subcatchment 3



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Type III 24-hr 10-yr Rainfall=4.90"

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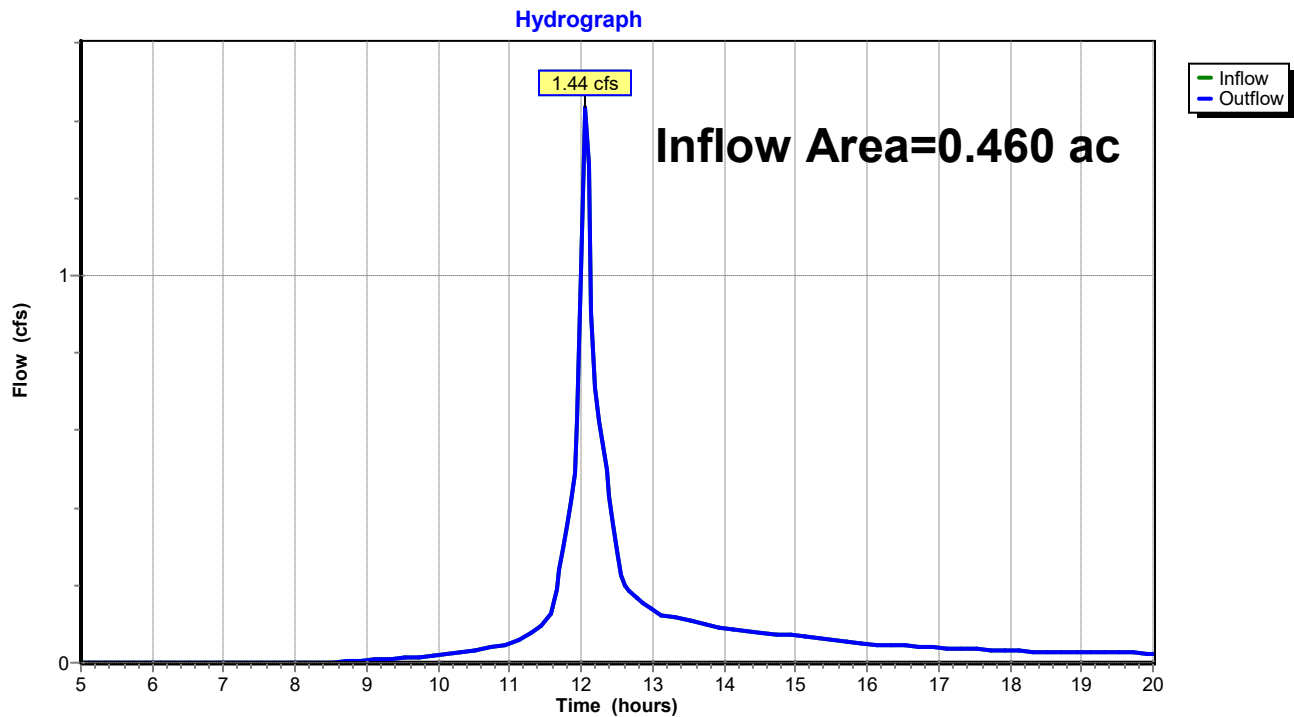
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Summary for Reach DP1: Shoreline 1

Inflow Area = 0.460 ac, 0.00% Impervious, Inflow Depth > 2.36" for 10-yr event
Inflow = 1.44 cfs @ 12.06 hrs, Volume= 0.091 af
Outflow = 1.44 cfs @ 12.06 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP1: Shoreline 1



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Type III 24-hr 10-yr Rainfall=4.90"

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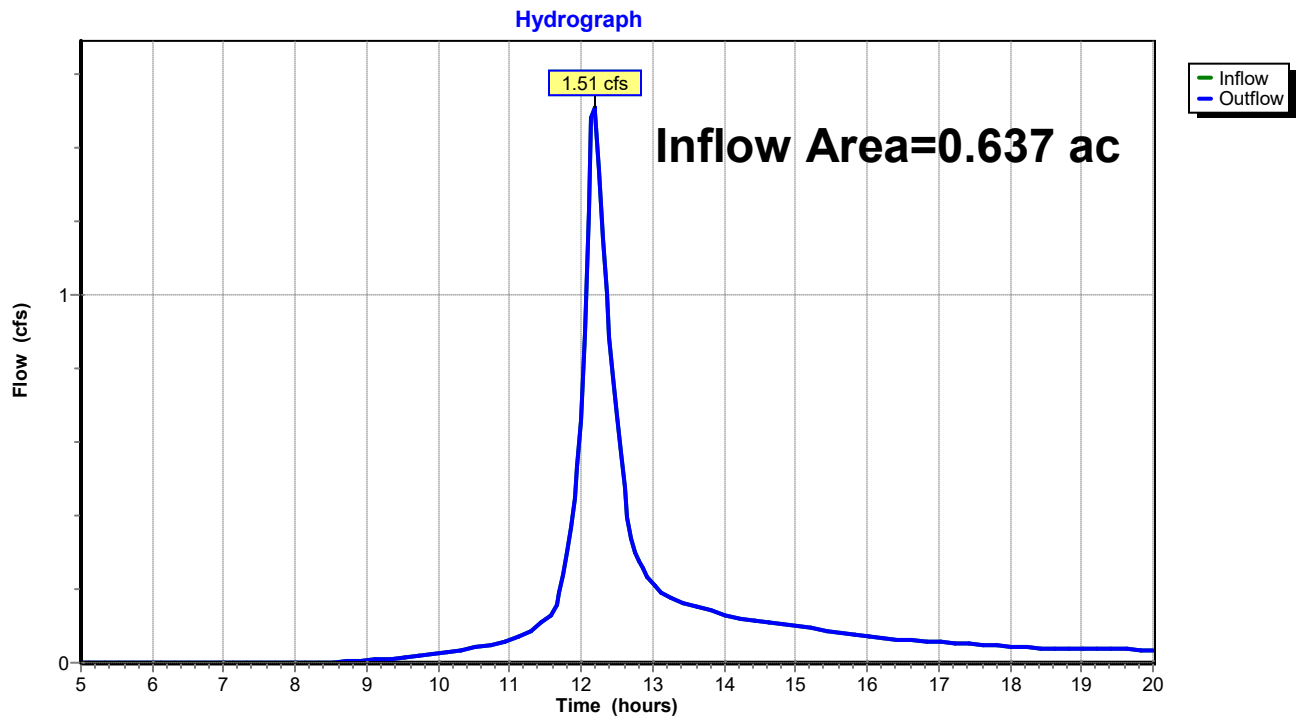
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Summary for Reach DP2: Shoreline 2

Inflow Area = 0.637 ac, 0.00% Impervious, Inflow Depth > 2.36" for 10-yr event
Inflow = 1.51 cfs @ 12.18 hrs, Volume= 0.125 af
Outflow = 1.51 cfs @ 12.18 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP2: Shoreline 2



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Type III 24-hr 10-yr Rainfall=4.90"

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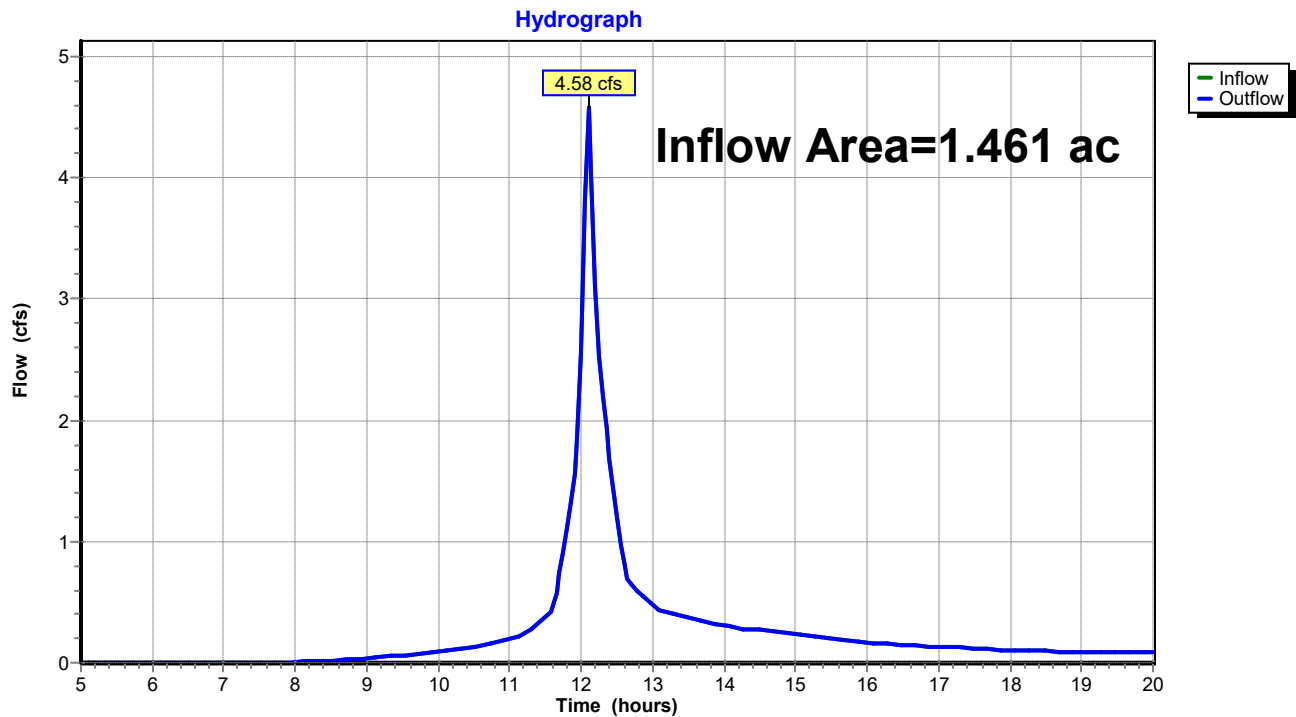
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Summary for Reach DP3: Shoreline 3

Inflow Area = 1.461 ac, 1.18% Impervious, Inflow Depth > 2.62" for 10-yr event
Inflow = 4.58 cfs @ 12.10 hrs, Volume= 0.319 af
Outflow = 4.58 cfs @ 12.10 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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Type III 24-hr 10-yr Rainfall=4.90"

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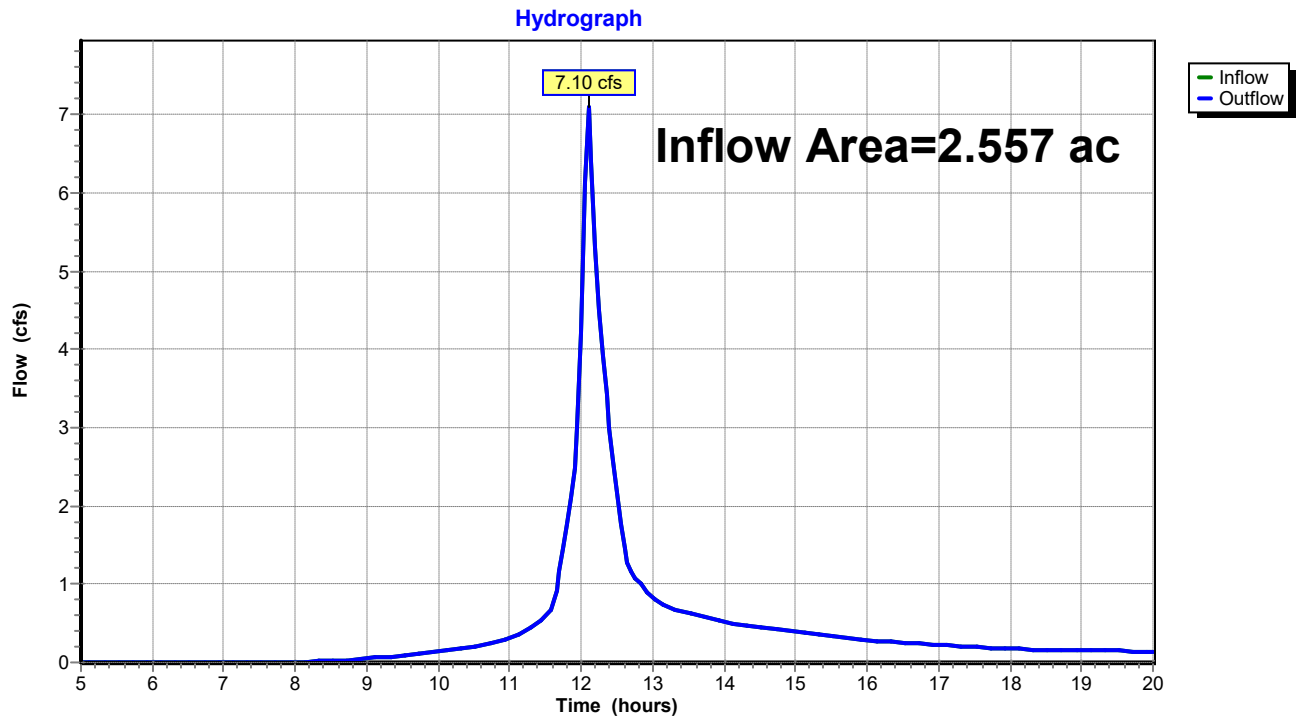
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Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 0.67% Impervious, Inflow Depth > 2.51" for 10-yr event
Inflow = 7.10 cfs @ 12.10 hrs, Volume= 0.534 af
Outflow = 7.10 cfs @ 12.10 hrs, Volume= 0.534 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 25-yr Rainfall=6.20"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre Subcatchment 1 Runoff Area=20,023 sf 0.00% Impervious Runoff Depth>3.42"
Flow Length=138' Tc=4.0 min CN=77 Runoff=2.07 cfs 0.131 af

Subcatchment 2S: Pre Subcatchment 2 Runoff Area=27,744 sf 0.00% Impervious Runoff Depth>3.41"
Flow Length=198' Tc=12.7 min CN=77 Runoff=2.17 cfs 0.181 af

Subcatchment 3S: Pre Subcatchment 3 Runoff Area=63,622 sf 1.18% Impervious Runoff Depth>3.72"
Flow Length=445' Tc=7.0 min CN=80 Runoff=6.44 cfs 0.452 af

Reach DP1: Shoreline 1 Inflow=2.07 cfs 0.131 af
Outflow=2.07 cfs 0.131 af

Reach DP2: Shoreline 2 Inflow=2.17 cfs 0.181 af
Outflow=2.17 cfs 0.181 af

Reach DP3: Shoreline 3 Inflow=6.44 cfs 0.452 af
Outflow=6.44 cfs 0.452 af

Reach SP1: SACO RIVER / OCEAN Inflow=10.07 cfs 0.764 af
Outflow=10.07 cfs 0.764 af

Total Runoff Area = 2.557 ac Runoff Volume = 0.764 af Average Runoff Depth = 3.59"
99.33% Pervious = 2.540 ac 0.67% Impervious = 0.017 ac

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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 1S: Pre Subcatchment 1

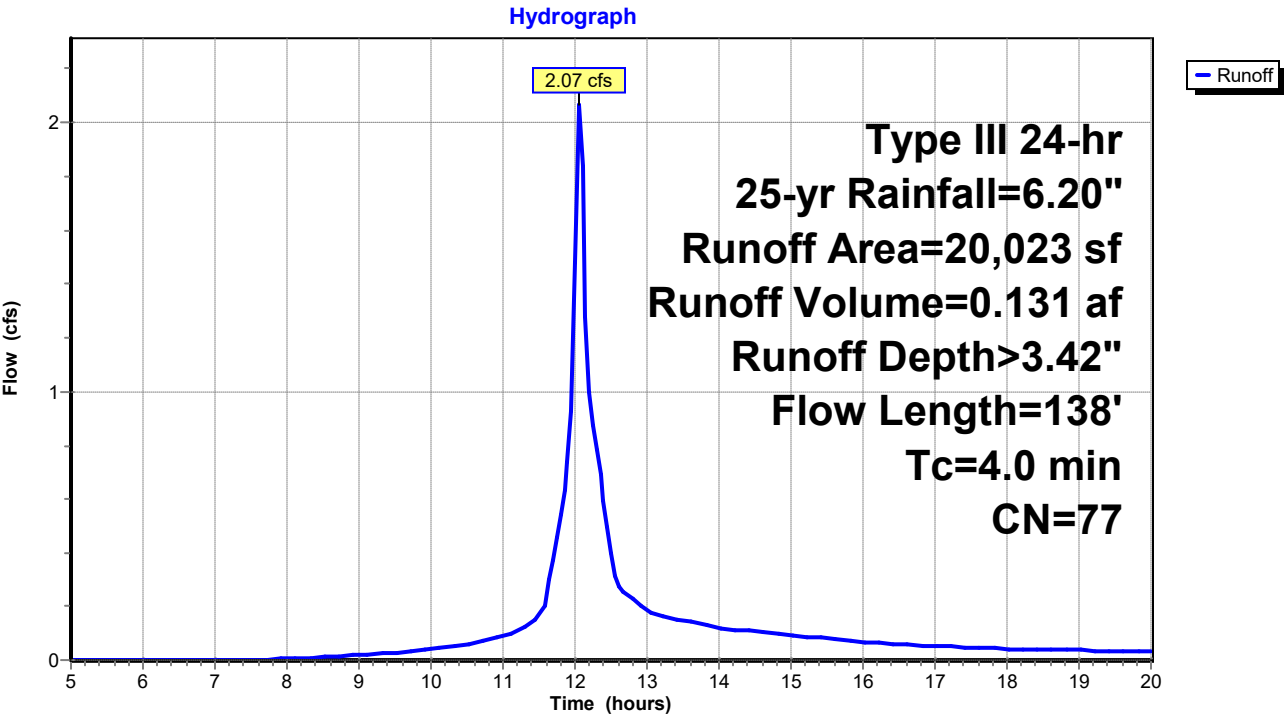
Runoff = 2.07 cfs @ 12.06 hrs, Volume= 0.131 af, Depth> 3.42"
Routed to Reach DP1 : Shoreline 1

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-yr Rainfall=6.20"

Area (sf)	CN	Description
20,023	77	Woods, Good, HSG D
20,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	20	0.1000	0.11		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	118	0.1780	2.11		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
4.0	138	Total			

Subcatchment 1S: Pre Subcatchment 1



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 2S: Pre Subcatchment 2

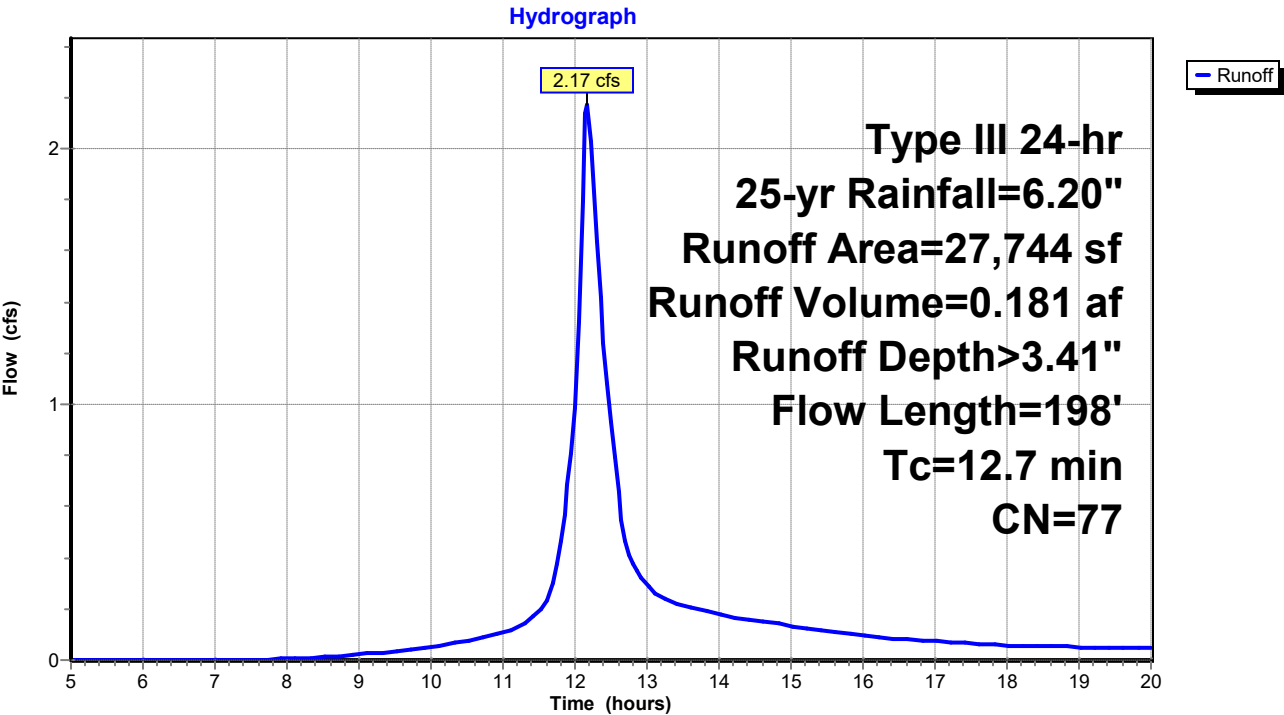
Runoff = 2.17 cfs @ 12.18 hrs, Volume= 0.181 af, Depth> 3.41"
Routed to Reach DP2 : Shoreline 2

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-yr Rainfall=6.20"

Area (sf)	CN	Description
27,744	77	Woods, Good, HSG D
27,744		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	148	0.1689	0.20		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	50	0.1800	2.12		Shallow Concentrated Flow, Tc-2 Woodland Kv= 5.0 fps
12.7	198	Total			

Subcatchment 2S: Pre Subcatchment 2



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 3S: Pre Subcatchment 3

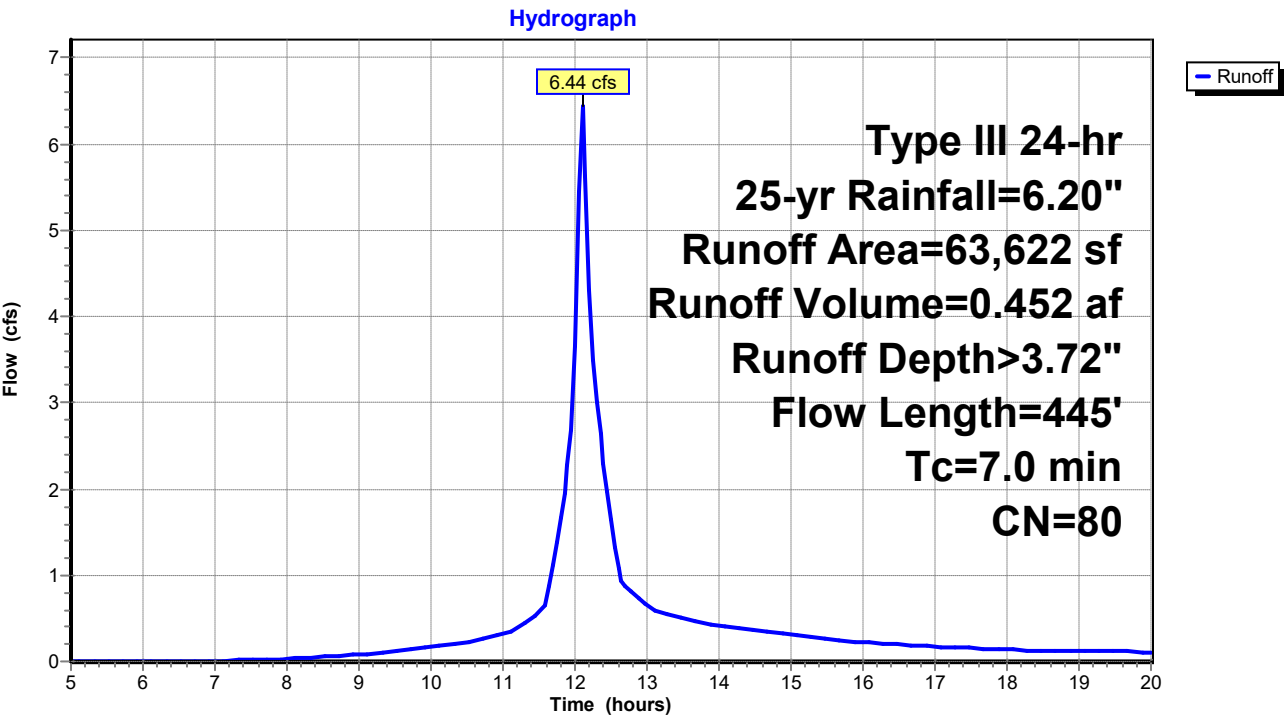
Runoff = 6.44 cfs @ 12.10 hrs, Volume= 0.452 af, Depth> 3.72"
 Routed to Reach DP3 : Shoreline 3

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-yr Rainfall=6.20"

Area (sf)	CN	Description
51,121	77	Woods, Good, HSG D
751	98	Roofs, HSG D
4,795	96	Gravel surface, HSG D
* 6,955	88	Sand Beach, HSG D
63,622	80	Weighted Average
62,871		98.82% Pervious Area
751		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0571	1.19		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-4
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 3S: Pre Subcatchment 3



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Type III 24-hr 25-yr Rainfall=6.20"

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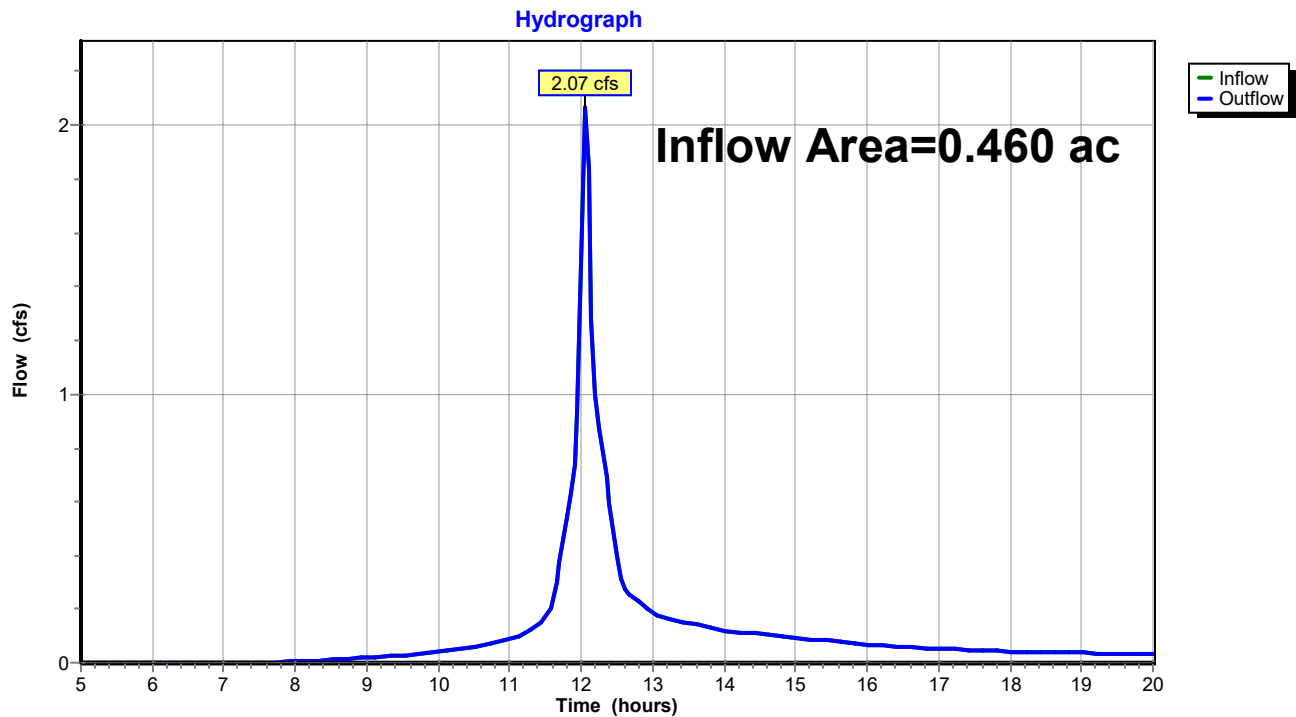
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Summary for Reach DP1: Shoreline 1

Inflow Area = 0.460 ac, 0.00% Impervious, Inflow Depth > 3.42" for 25-yr event
Inflow = 2.07 cfs @ 12.06 hrs, Volume= 0.131 af
Outflow = 2.07 cfs @ 12.06 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP1: Shoreline 1



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Type III 24-hr 25-yr Rainfall=6.20"

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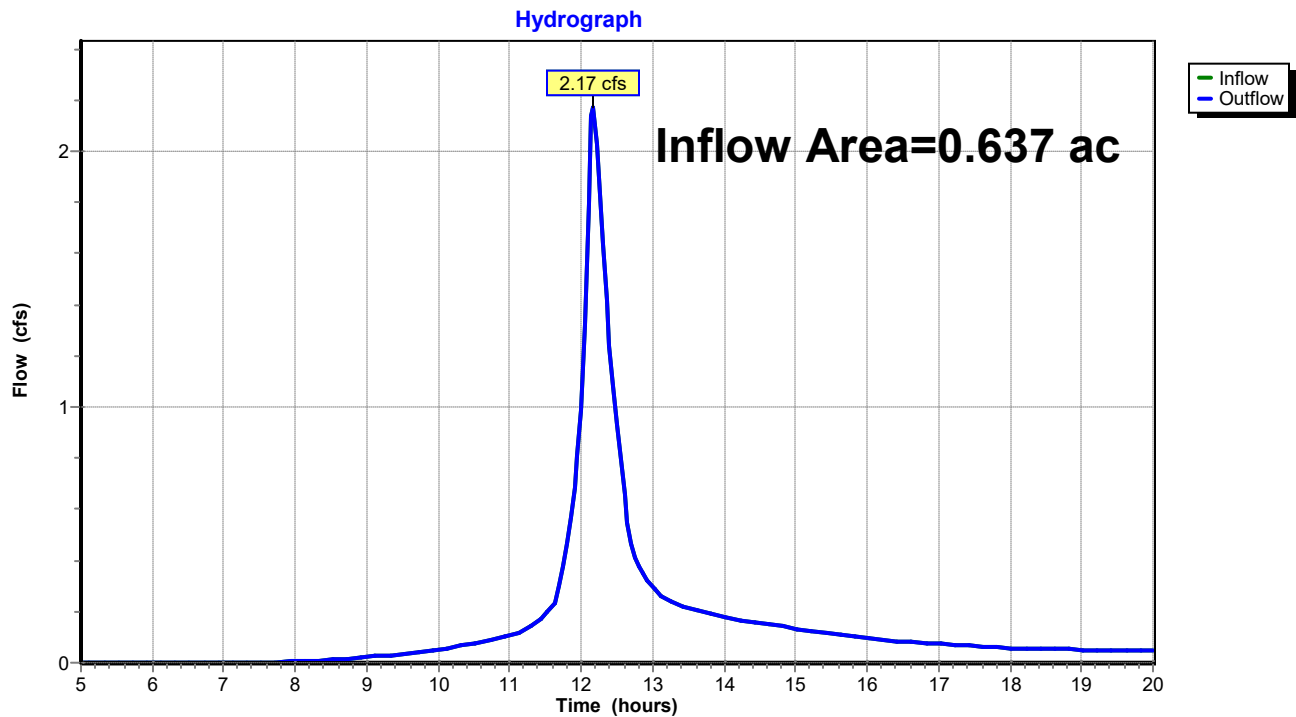
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Summary for Reach DP2: Shoreline 2

Inflow Area = 0.637 ac, 0.00% Impervious, Inflow Depth > 3.41" for 25-yr event
Inflow = 2.17 cfs @ 12.18 hrs, Volume= 0.181 af
Outflow = 2.17 cfs @ 12.18 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP2: Shoreline 2



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Type III 24-hr 25-yr Rainfall=6.20"

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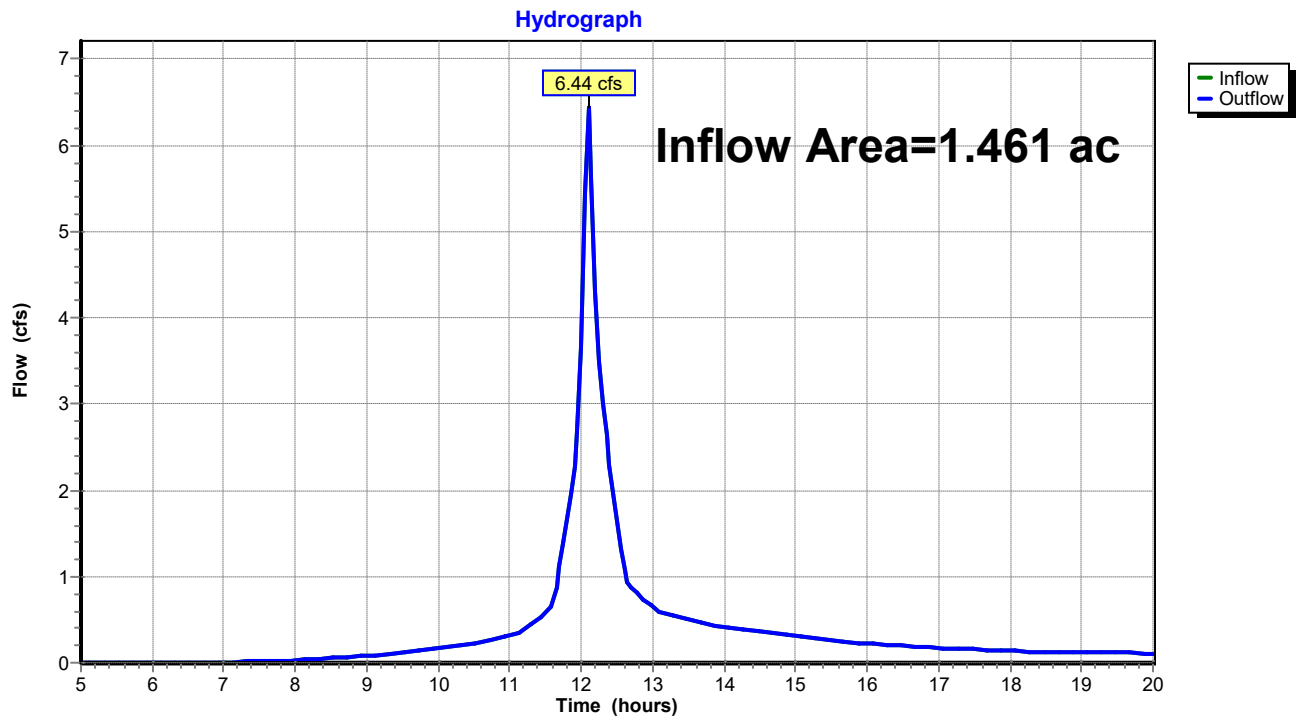
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Summary for Reach DP3: Shoreline 3

Inflow Area = 1.461 ac, 1.18% Impervious, Inflow Depth > 3.72" for 25-yr event
Inflow = 6.44 cfs @ 12.10 hrs, Volume= 0.452 af
Outflow = 6.44 cfs @ 12.10 hrs, Volume= 0.452 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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Type III 24-hr 25-yr Rainfall=6.20"

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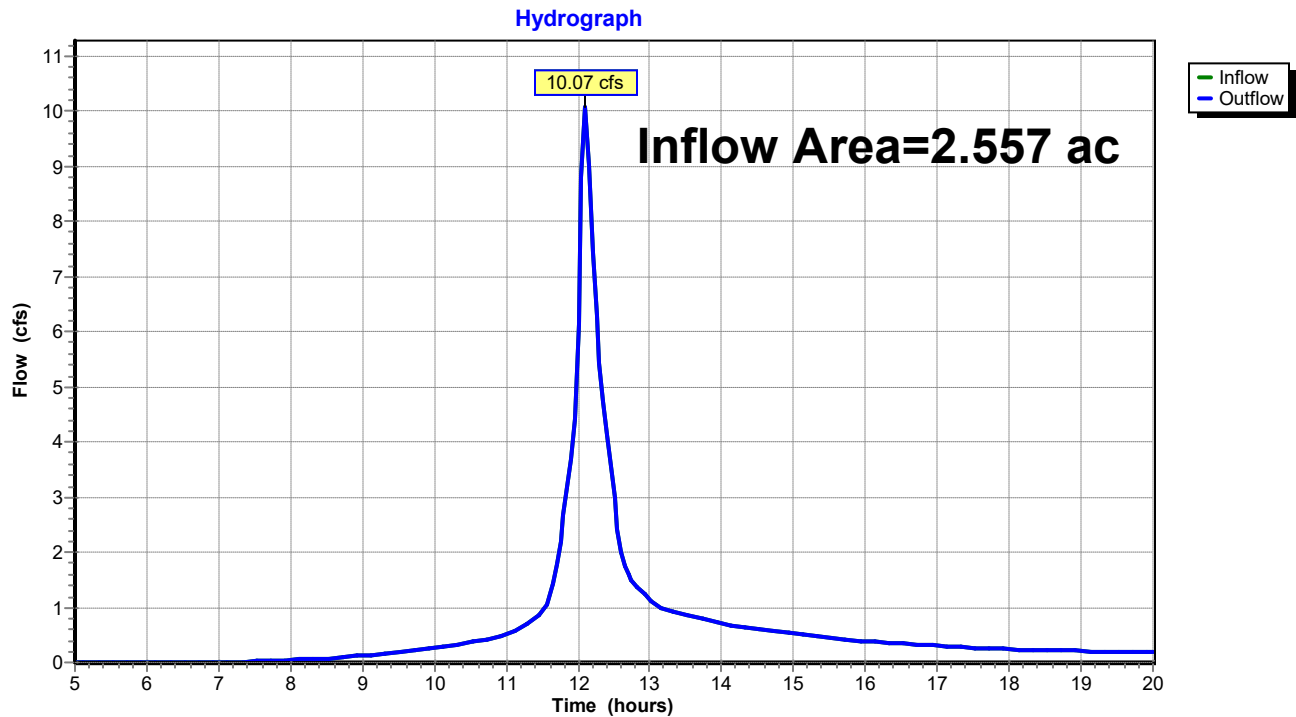
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Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 0.67% Impervious, Inflow Depth > 3.59" for 25-yr event
Inflow = 10.07 cfs @ 12.10 hrs, Volume= 0.764 af
Outflow = 10.07 cfs @ 12.10 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



UNE-PreDrainage

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Type III 24-hr 100-yr Rainfall=8.70"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre Subcatchment 1 Runoff Area=20,023 sf 0.00% Impervious Runoff Depth>5.57"
Flow Length=138' Tc=4.0 min CN=77 Runoff=3.31 cfs 0.213 af

Subcatchment 2S: Pre Subcatchment 2 Runoff Area=27,744 sf 0.00% Impervious Runoff Depth>5.56"
Flow Length=198' Tc=12.7 min CN=77 Runoff=3.50 cfs 0.295 af

Subcatchment 3S: Pre Subcatchment 3 Runoff Area=63,622 sf 1.18% Impervious Runoff Depth>5.92"
Flow Length=445' Tc=7.0 min CN=80 Runoff=10.05 cfs 0.721 af

Reach DP1: Shoreline 1 Inflow=3.31 cfs 0.213 af
Outflow=3.31 cfs 0.213 af

Reach DP2: Shoreline 2 Inflow=3.50 cfs 0.295 af
Outflow=3.50 cfs 0.295 af

Reach DP3: Shoreline 3 Inflow=10.05 cfs 0.721 af
Outflow=10.05 cfs 0.721 af

Reach SP1: SACO RIVER / OCEAN Inflow=15.89 cfs 1.229 af
Outflow=15.89 cfs 1.229 af

Total Runoff Area = 2.557 ac Runoff Volume = 1.229 af Average Runoff Depth = 5.77"
99.33% Pervious = 2.540 ac 0.67% Impervious = 0.017 ac

UNE-PreDrainage

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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 1S: Pre Subcatchment 1

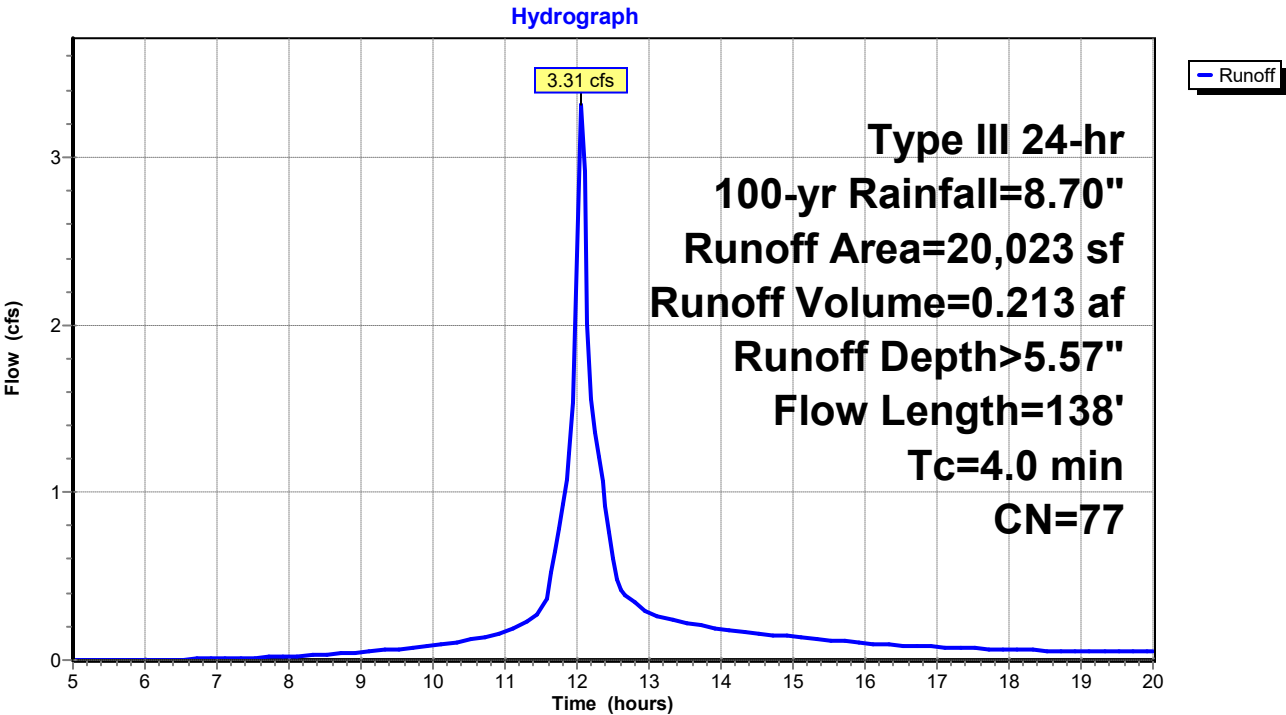
Runoff = 3.31 cfs @ 12.06 hrs, Volume= 0.213 af, Depth> 5.57"
Routed to Reach DP1 : Shoreline 1

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
20,023	77	Woods, Good, HSG D
20,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.1	20	0.1000	0.11		Sheet Flow, Tc-1
0.9	118	0.1780	2.11		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
4.0	138	Total			

Subcatchment 1S: Pre Subcatchment 1



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 2S: Pre Subcatchment 2

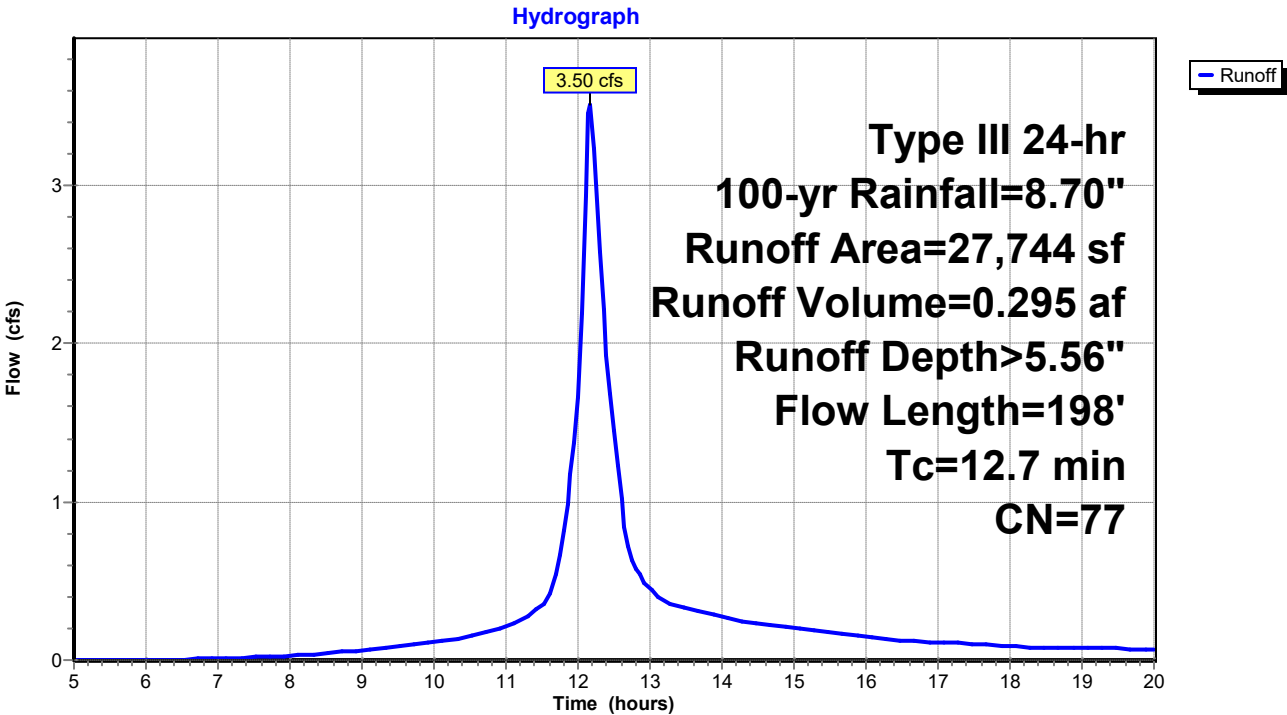
Runoff = 3.50 cfs @ 12.17 hrs, Volume= 0.295 af, Depth> 5.56"
Routed to Reach DP2 : Shoreline 2

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
27,744	77	Woods, Good, HSG D
27,744		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	148	0.1689	0.20		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	50	0.1800	2.12		Shallow Concentrated Flow, Tc-2 Woodland Kv= 5.0 fps
12.7	198	Total			

Subcatchment 2S: Pre Subcatchment 2



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 3S: Pre Subcatchment 3

Runoff = 10.05 cfs @ 12.10 hrs, Volume= 0.721 af, Depth> 5.92"
 Routed to Reach DP3 : Shoreline 3

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
51,121	77	Woods, Good, HSG D
751	98	Roofs, HSG D
4,795	96	Gravel surface, HSG D
* 6,955	88	Sand Beach, HSG D
63,622	80	Weighted Average
62,871		98.82% Pervious Area
751		1.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0571	1.19		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-4
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

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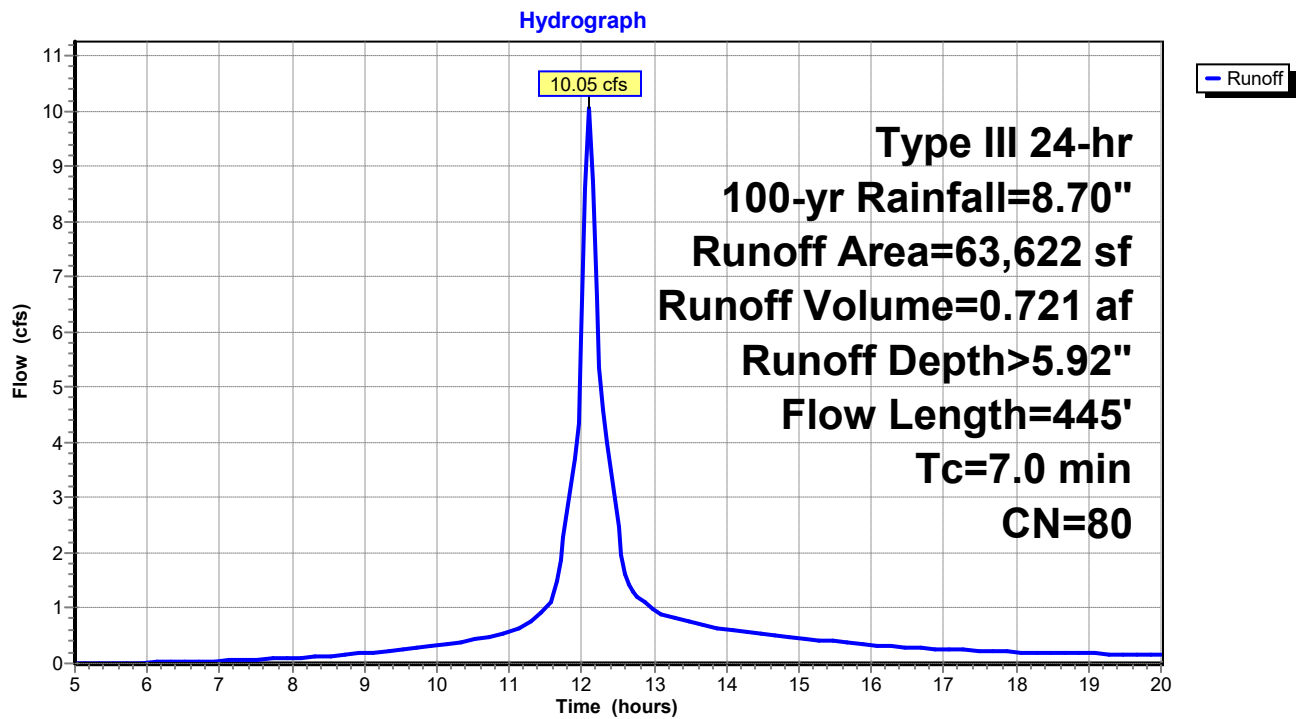
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Subcatchment 3S: Pre Subcatchment 3



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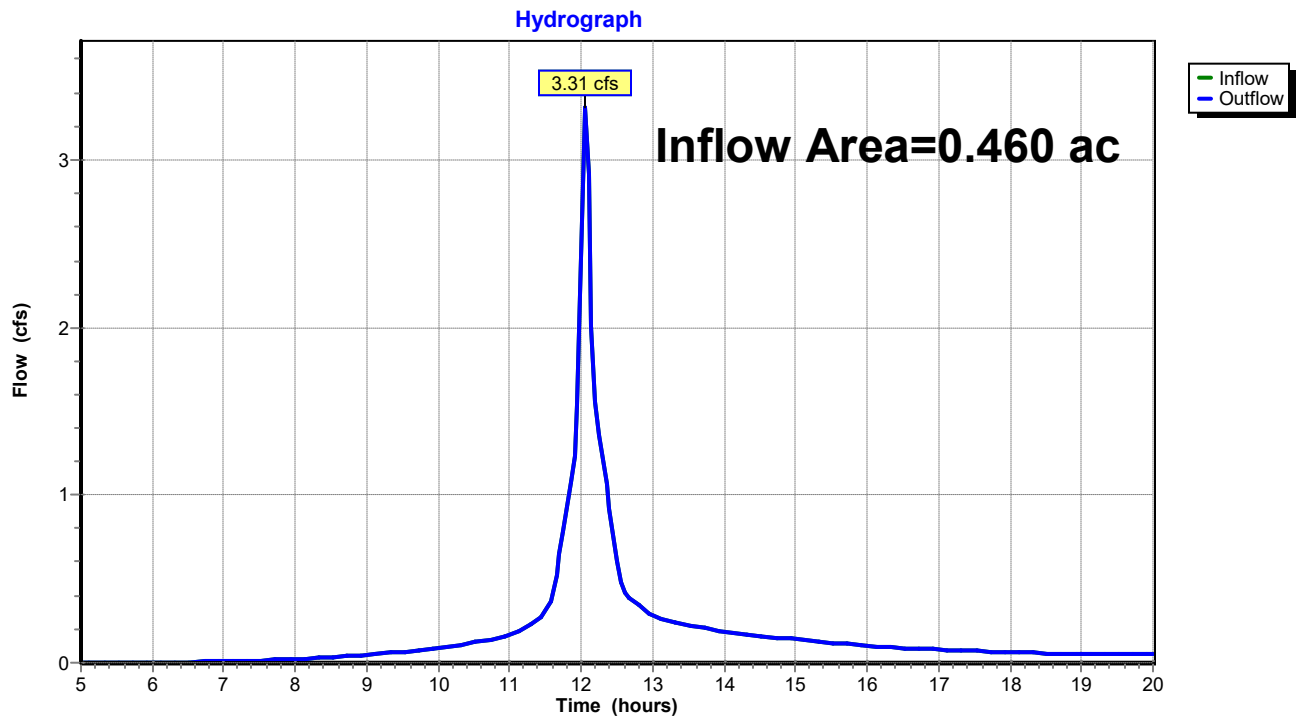
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Summary for Reach DP1: Shoreline 1

Inflow Area = 0.460 ac, 0.00% Impervious, Inflow Depth > 5.57" for 100-yr event
Inflow = 3.31 cfs @ 12.06 hrs, Volume= 0.213 af
Outflow = 3.31 cfs @ 12.06 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP1: Shoreline 1



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Type III 24-hr 100-yr Rainfall=8.70"

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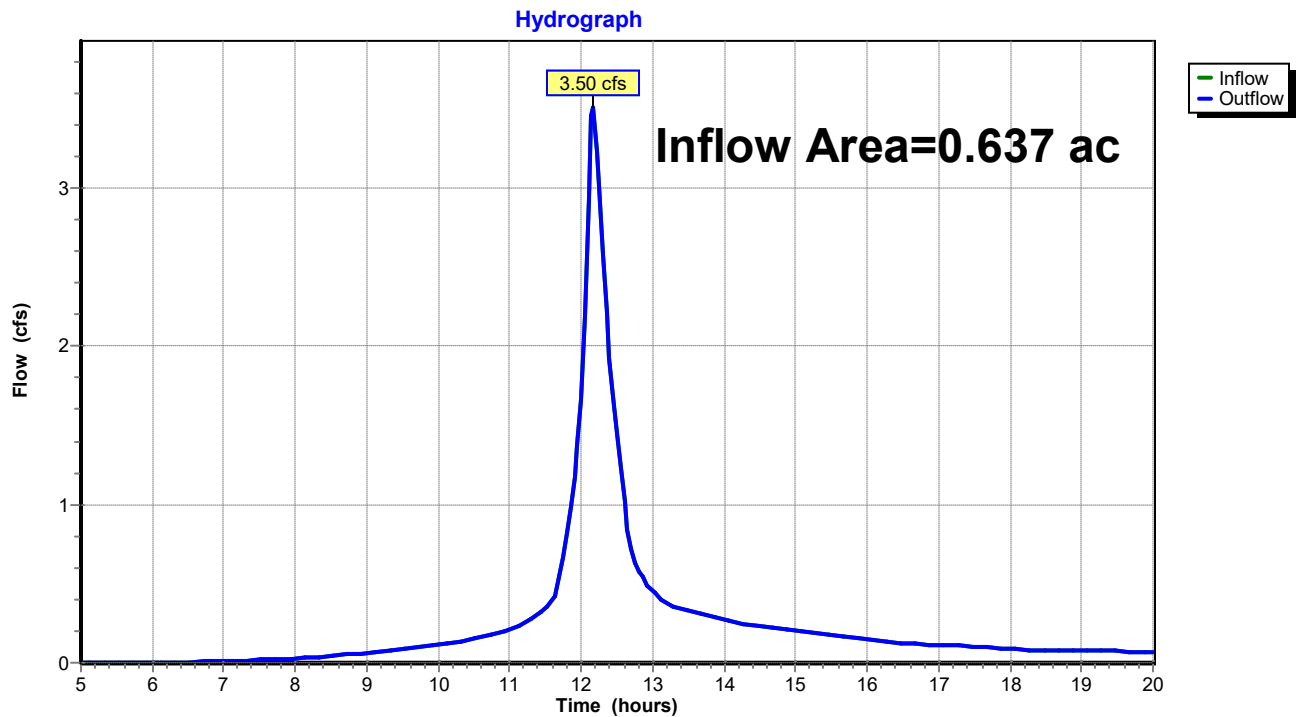
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Summary for Reach DP2: Shoreline 2

Inflow Area = 0.637 ac, 0.00% Impervious, Inflow Depth > 5.56" for 100-yr event
Inflow = 3.50 cfs @ 12.17 hrs, Volume= 0.295 af
Outflow = 3.50 cfs @ 12.17 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP2: Shoreline 2



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Type III 24-hr 100-yr Rainfall=8.70"

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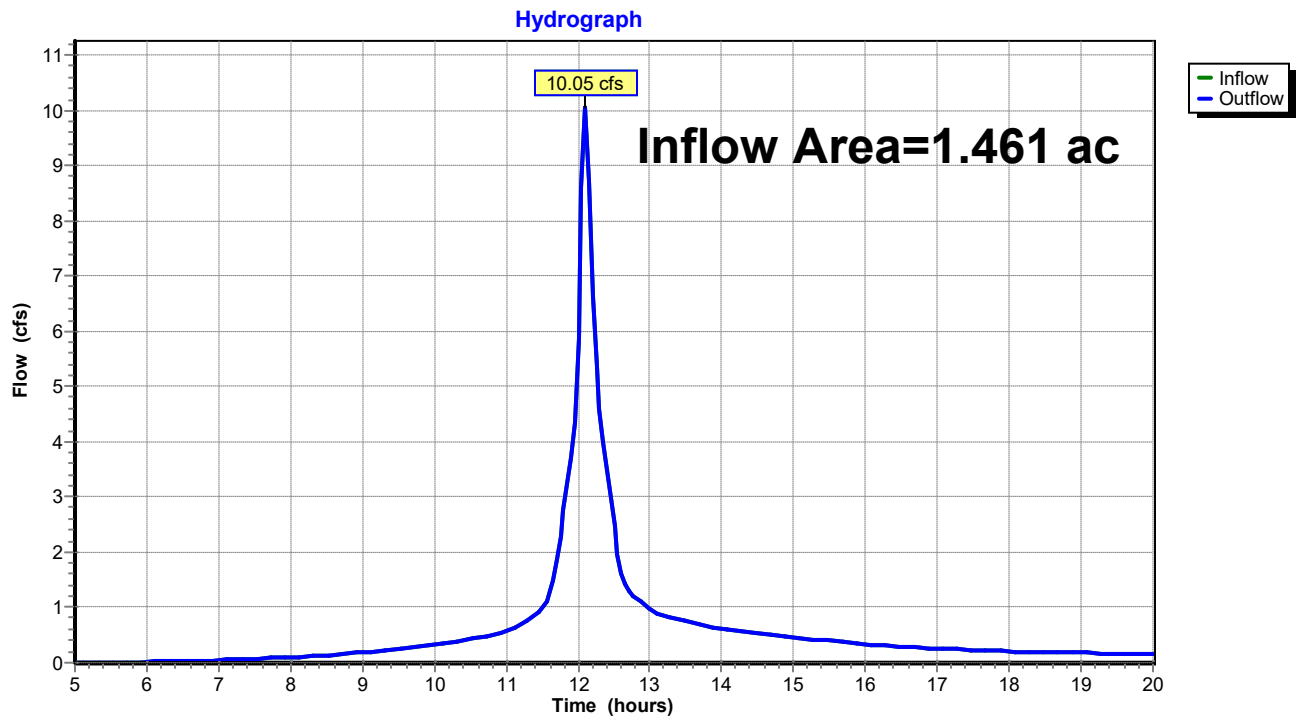
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Summary for Reach DP3: Shoreline 3

Inflow Area = 1.461 ac, 1.18% Impervious, Inflow Depth > 5.92" for 100-yr event
Inflow = 10.05 cfs @ 12.10 hrs, Volume= 0.721 af
Outflow = 10.05 cfs @ 12.10 hrs, Volume= 0.721 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 0.67% Impervious, Inflow Depth > 5.77" for 100-yr event
Inflow = 15.89 cfs @ 12.10 hrs, Volume= 1.229 af
Outflow = 15.89 cfs @ 12.10 hrs, Volume= 1.229 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN

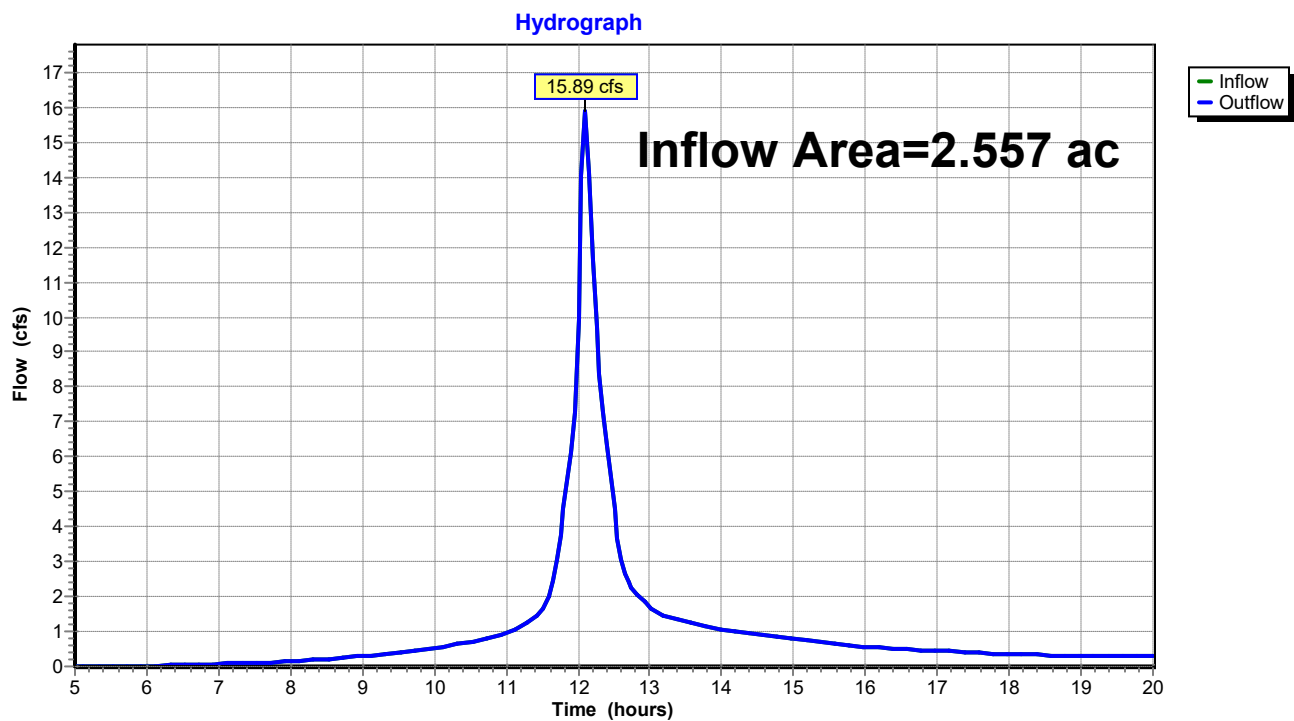


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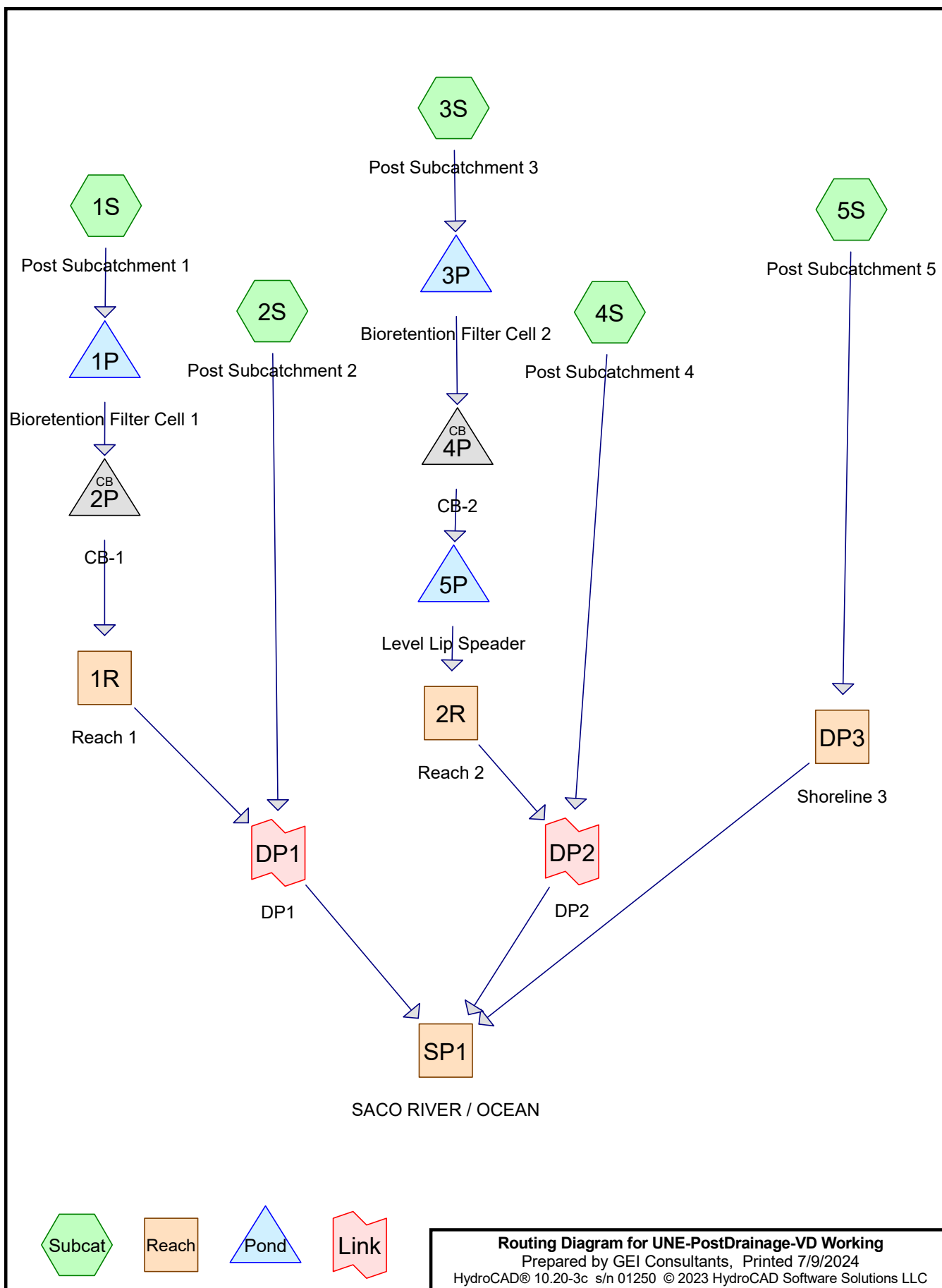
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Appendix C

Post Development HydroCAD Calculations



Project Notes

Defined 3 rainfall events from ME-York IDF

UNE-PostDrainage-VD Working

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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.30	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.90	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.20	2
4	100-yr	Type III 24-hr		Default	24.00	1	8.70	2
5	WQ	Type III 24-hr		Default	24.00	1	1.00	2

UNE-PostDrainage-VD Working

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.081	80	>75% Grass cover, Good, HSG D (1S, 3S, 4S)
0.013	73	Biofiltration cell, Good, HSG D (3S)
0.020	73	Bioretention Filter Cell, Good, HSG D (1S)
0.089	96	Gravel surface, HSG D (5S)
0.039	98	Ledge, HSG D (1S, 3S)
0.090	98	Paved Access Drive, HSG D (1S)
0.038	98	Paved access drive, HSG D (5S)
0.093	98	Paved access drive, HSG D (3S, 4S)
0.028	98	Paved parking, HSG D (2S)
0.017	98	Roofs, HSG D (5S)
0.160	88	Sand beach, HSG D (5S)
0.362	79	Woods, Fair, HSG D (4S)
1.526	77	Woods, Good, HSG D (1S, 2S, 3S, 5S)
2.557	81	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
2.557	HSG D	1S, 2S, 3S, 4S, 5S
0.000	Other	
2.557		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.081	0.000	0.081	>75% Grass cover, Good	1S, 3S, 4S
0.000	0.000	0.000	0.013	0.000	0.013	Biofiltration cell, Good	3S
0.000	0.000	0.000	0.020	0.000	0.020	Bioretention Filter Cell, Good	1S
0.000	0.000	0.000	0.089	0.000	0.089	Gravel surface	5S
0.000	0.000	0.000	0.039	0.000	0.039	Ledge	1S, 3S
0.000	0.000	0.000	0.090	0.000	0.090	Paved Access Drive	1S
0.000	0.000	0.000	0.038	0.000	0.038	Paved access drive	5S
0.000	0.000	0.000	0.093	0.000	0.093	Paved access drive	3S, 4S
0.000	0.000	0.000	0.028	0.000	0.028	Paved parking	2S
0.000	0.000	0.000	0.017	0.000	0.017	Roofs	5S
0.000	0.000	0.000	0.160	0.000	0.160	Sand beach	5S
0.000	0.000	0.000	0.362	0.000	0.362	Woods, Fair	4S
0.000	0.000	0.000	1.526	0.000	1.526	Woods, Good	1S, 2S, 3S, 5S
0.000	0.000	0.000	2.557	0.000	2.557	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	2P	13.75	12.00	48.0	0.0365	0.013	0.0	15.0	0.0	
2	4P	18.75	18.00	40.0	0.0187	0.013	0.0	18.0	0.0	

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Type III 24-hr 2-yr Rainfall=3.30"

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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 method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Subcatchment 1 Runoff Area=9,832 sf 50.01% Impervious Runoff Depth>1.88"
Flow Length=172' Tc=0.8 min CN=87 Runoff=0.59 cfs 0.035 af

Subcatchment 2S: Post Subcatchment 2 Runoff Area=11,488 sf 10.78% Impervious Runoff Depth>1.30"
Flow Length=133' Tc=3.4 min CN=79 Runoff=0.46 cfs 0.029 af

Subcatchment 3S: Post Subcatchment 3 Runoff Area=13,365 sf 33.49% Impervious Runoff Depth>1.65"
Flow Length=262' Tc=4.9 min CN=84 Runoff=0.64 cfs 0.042 af

Subcatchment 4S: Post Subcatchment 4 Runoff Area=17,529 sf 1.68% Impervious Runoff Depth>1.30"
Flow Length=126' Tc=7.2 min CN=79 Runoff=0.62 cfs 0.044 af

Subcatchment 5S: Post Subcatchment 5 Runoff Area=59,179 sf 4.06% Impervious Runoff Depth>1.37"
Flow Length=445' Tc=7.0 min CN=80 Runoff=2.23 cfs 0.155 af

Reach 1R: Reach 1 Inflow=0.58 cfs 0.034 af
Outflow=0.58 cfs 0.034 af

Reach 2R: Reach 2 Inflow=0.61 cfs 0.038 af
Outflow=0.61 cfs 0.038 af

Reach DP3: Shoreline 3 Inflow=2.23 cfs 0.155 af
Outflow=2.23 cfs 0.155 af

Reach SP1: SACO RIVER / OCEAN Inflow=4.22 cfs 0.300 af
Outflow=4.22 cfs 0.300 af

Pond 1P: Bioretention Filter Cell 1 Peak Elev=18.11' Storage=79 cf Inflow=0.59 cfs 0.035 af
Outflow=0.58 cfs 0.034 af

Pond 2P: CB-1 Peak Elev=14.15' Inflow=0.58 cfs 0.034 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0365 ' /' Outflow=0.58 cfs 0.034 af

Pond 3P: Bioretention Filter Cell 2 Peak Elev=23.62' Storage=64 cf Inflow=0.64 cfs 0.042 af
Outflow=0.64 cfs 0.041 af

Pond 4P: CB-2 Peak Elev=19.15' Inflow=0.64 cfs 0.041 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0187 ' /' Outflow=0.64 cfs 0.041 af

Pond 5P: Level Lip Spreader Peak Elev=18.00' Storage=115 cf Inflow=0.64 cfs 0.041 af
Outflow=0.61 cfs 0.038 af

Link DP1: DP1 Inflow=1.02 cfs 0.063 af
Primary=1.02 cfs 0.063 af

Link DP2: DP2 Inflow=1.24 cfs 0.082 af
Primary=1.24 cfs 0.082 af

UNE-PostDrainage-VD Working

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Type III 24-hr 2-yr Rainfall=3.30"

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Total Runoff Area = 2.557 ac Runoff Volume = 0.305 af Average Runoff Depth = 1.43"
88.04% Pervious = 2.251 ac 11.96% Impervious = 0.306 ac

UNE-PostDrainage-VD Working

Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 1S: Post Subcatchment 1

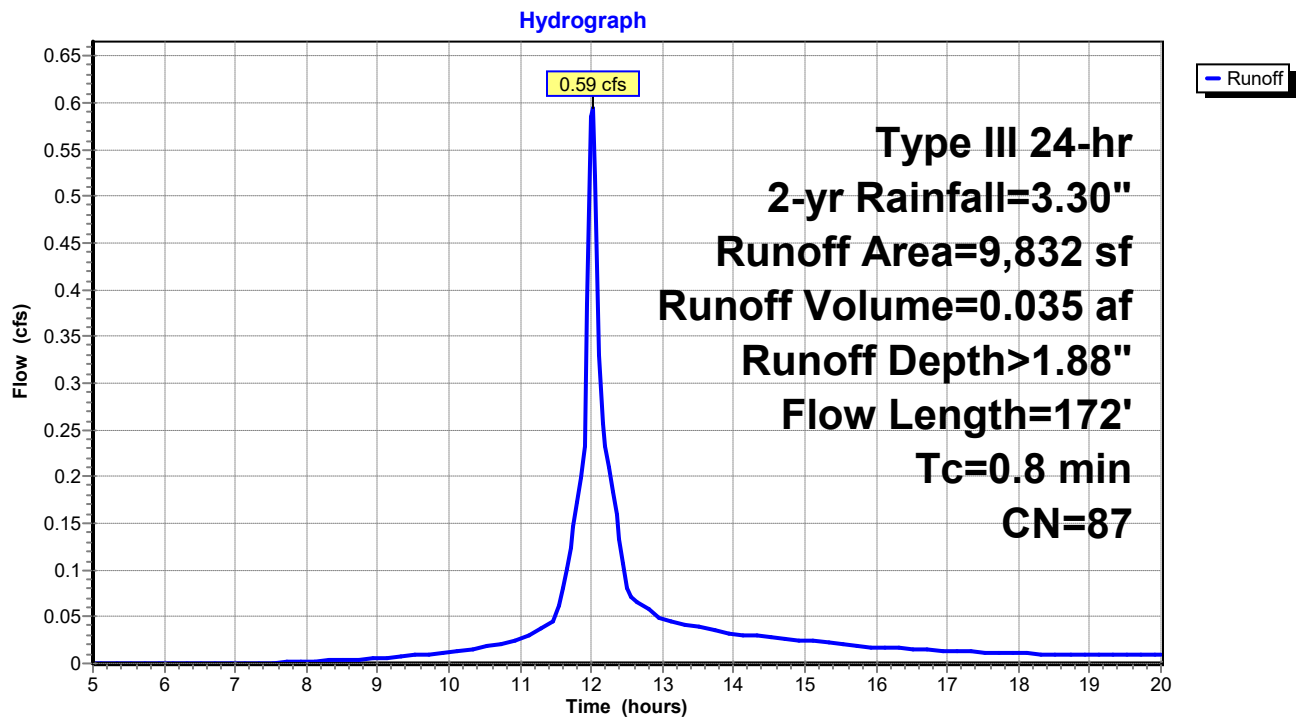
Runoff = 0.59 cfs @ 12.01 hrs, Volume= 0.035 af, Depth> 1.88"
 Routed to Pond 1P : Bioretention Filter Cell 1

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
3,430	77	Woods, Good, HSG D
* 982	98	Ledge, HSG D
595	80	>75% Grass cover, Good, HSG D
* 3,935	98	Paved Access Drive, HSG D
* 890	73	Bioretention Filter Cell, Good, HSG D
9,832	87	Weighted Average
4,915		49.99% Pervious Area
4,917		50.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	46	0.0500	1.73		Sheet Flow, Tc-1 Smooth surfaces n= 0.011 P2= 3.30"
0.3	102	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.1	24	0.0625	3.75		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
0.8	172	Total			

Subcatchment 1S: Post Subcatchment 1



UNE-PostDrainage-VD Working

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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 2S: Post Subcatchment 2

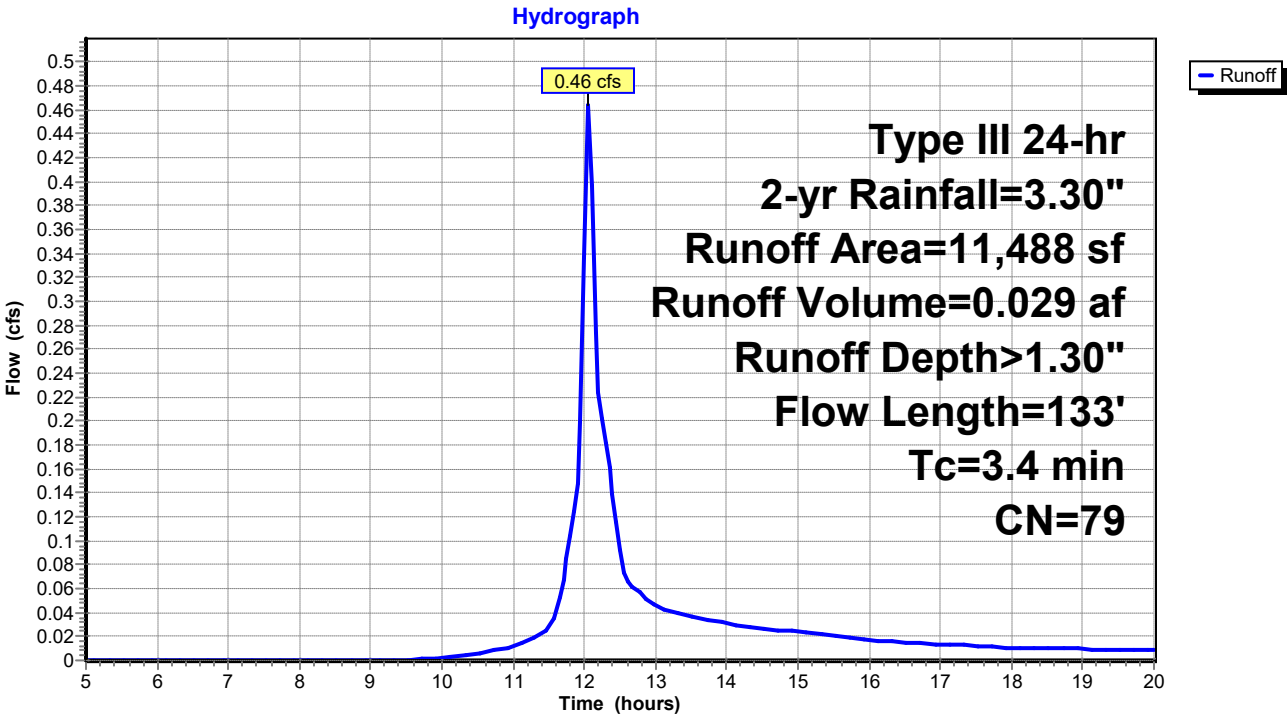
Runoff = 0.46 cfs @ 12.06 hrs, Volume= 0.029 af, Depth> 1.30"
Routed to Link DP1 : DP1

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
10,250	77	Woods, Good, HSG D
1,238	98	Paved parking, HSG D
11,488	79	Weighted Average
10,250		89.22% Pervious Area
1,238		10.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.1905	0.14		Sheet Flow, Tc-1
0.9	112	0.1696	2.06		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
3.4	133	Total			

Subcatchment 2S: Post Subcatchment 2



UNE-PostDrainage-VD Working

Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 3S: Post Subcatchment 3

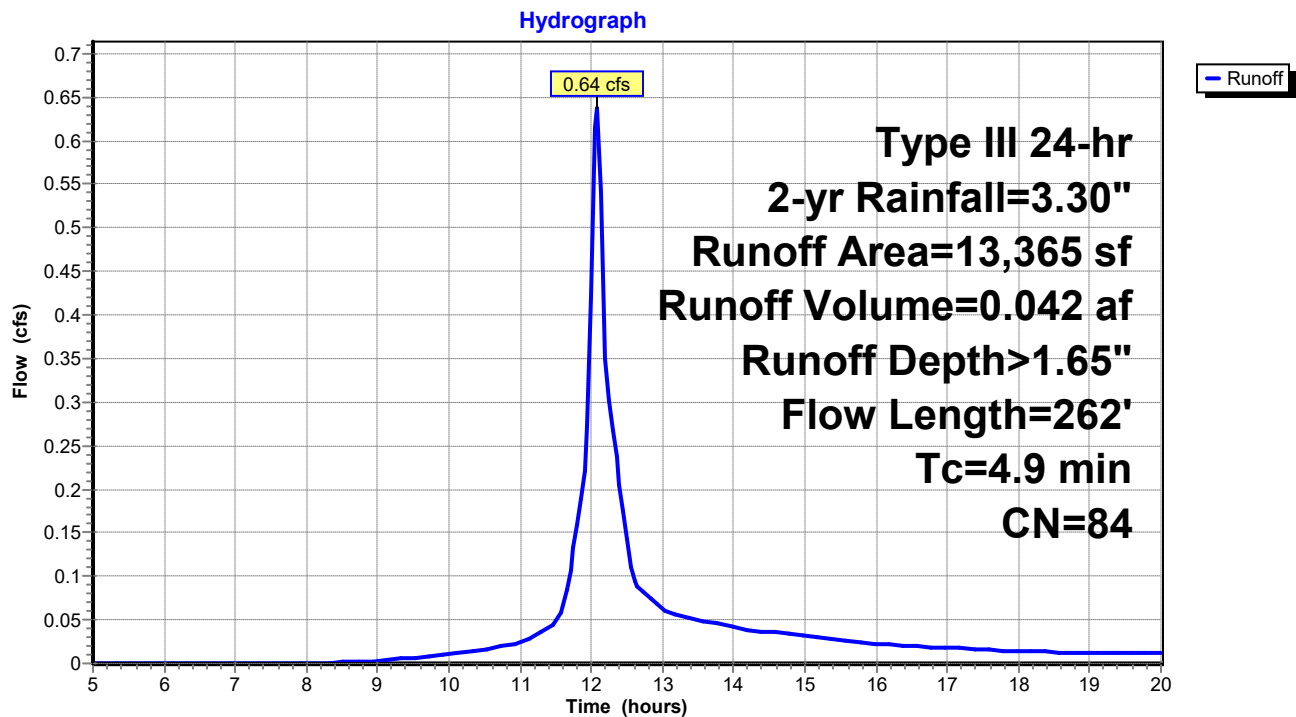
Runoff = 0.64 cfs @ 12.08 hrs, Volume= 0.042 af, Depth> 1.65"
 Routed to Pond 3P : Bioretention Filter Cell 2

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
6,822	77	Woods, Good, HSG D
* 580	73	Biofiltration cell, Good, HSG D
* 3,768	98	Paved access drive, HSG D
1,487	80	>75% Grass cover, Good, HSG D
* 708	98	Ledge, HSG D
13,365	84	Weighted Average
8,889		66.51% Pervious Area
4,476		33.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	43	0.2093	0.17		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.7	214	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.0	5	0.0500	3.35		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
4.9	262	Total			

Subcatchment 3S: Post Subcatchment 3



UNE-PostDrainage-VD Working

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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 4S: Post Subcatchment 4

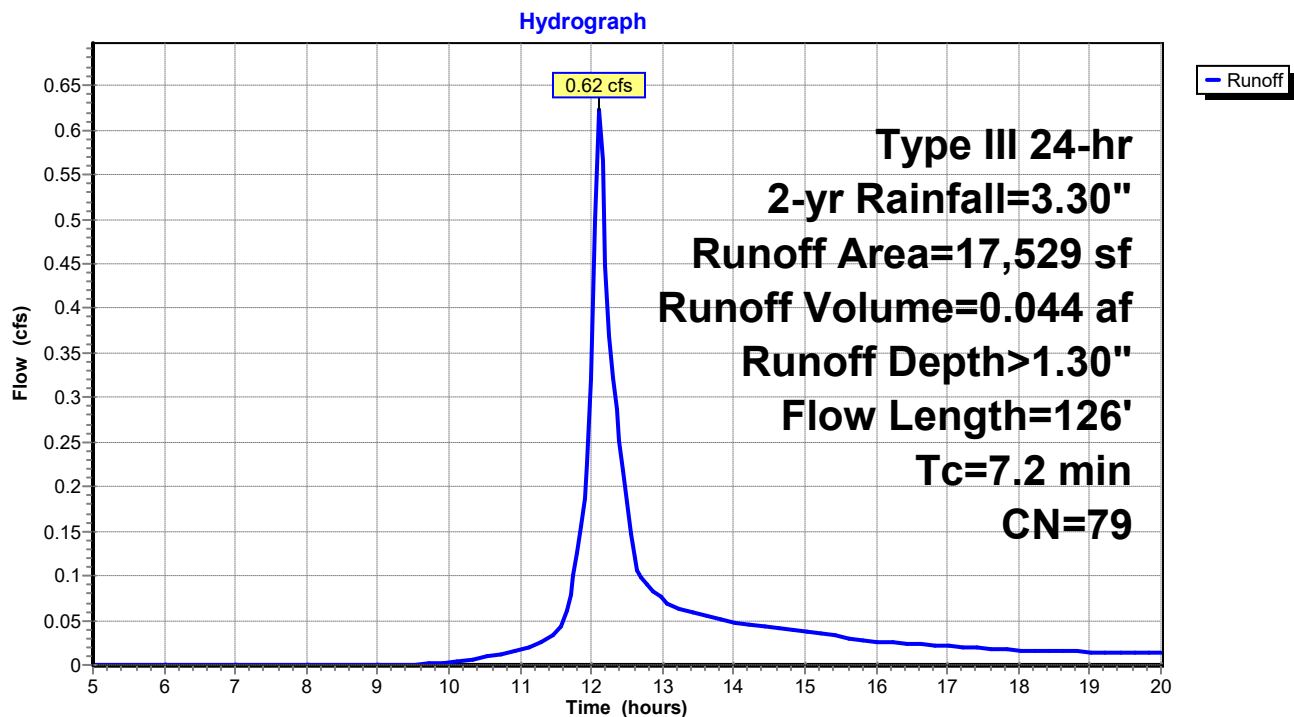
Runoff = 0.62 cfs @ 12.11 hrs, Volume= 0.044 af, Depth> 1.30"
Routed to Link DP2 : DP2

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 2-yr Rainfall=3.30"

Area (sf)	CN	Description
* 295	98	Paved access drive, HSG D
1,450	80	>75% Grass cover, Good, HSG D
15,784	79	Woods, Fair, HSG D
17,529	79	Weighted Average
17,234		98.32% Pervious Area
295		1.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	62	0.1290	0.15		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	64	0.2343	2.42		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
7.2	126	Total			

Subcatchment 4S: Post Subcatchment 4



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Subcatchment 5S: Post Subcatchment 5

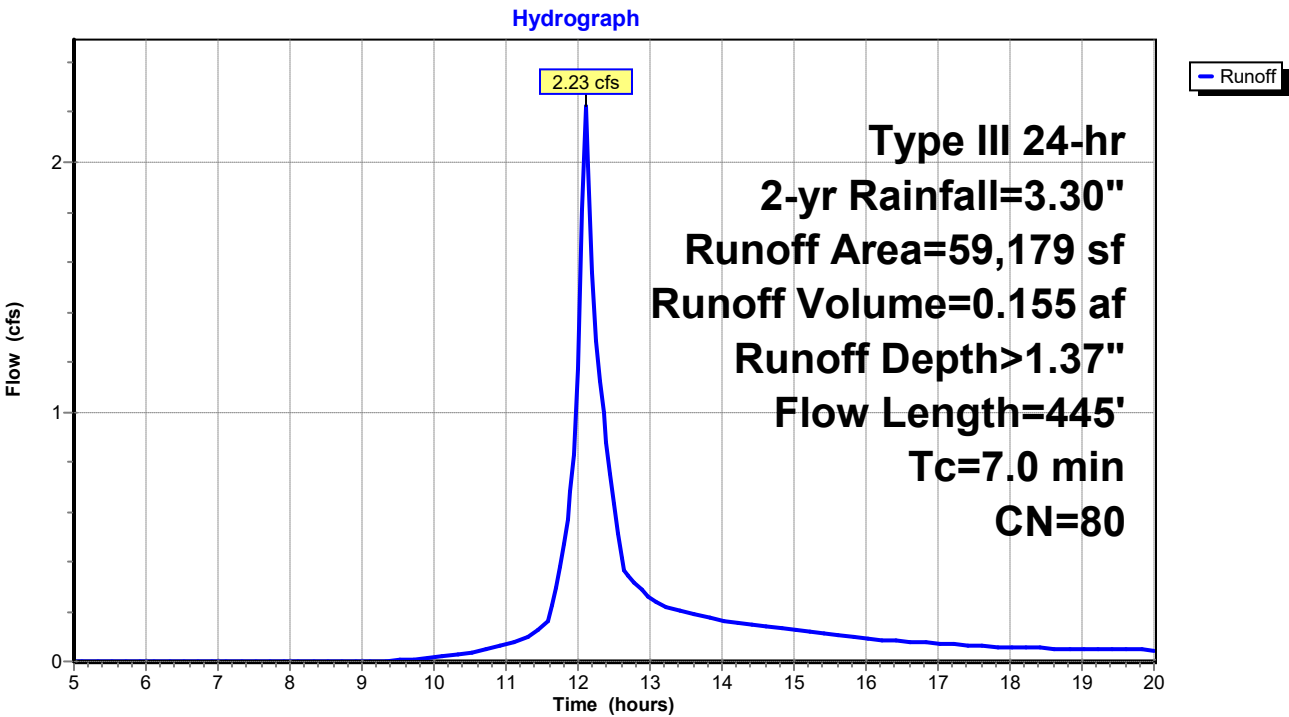
Runoff = 2.23 cfs @ 12.11 hrs, Volume= 0.155 af, Depth> 1.37"
 Routed to Reach DP3 : Shoreline 3

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 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	1,650	98	Paved access drive, HSG D
	751	98	Roofs, HSG D
*	6,955	88	Sand beach, HSG D
	3,872	96	Gravel surface, HSG D
	45,951	77	Woods, Good, HSG D
	59,179	80	Weighted Average
	56,778		95.94% Pervious Area
	2,401		4.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0574	1.20		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-5
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 5S: Post Subcatchment 5



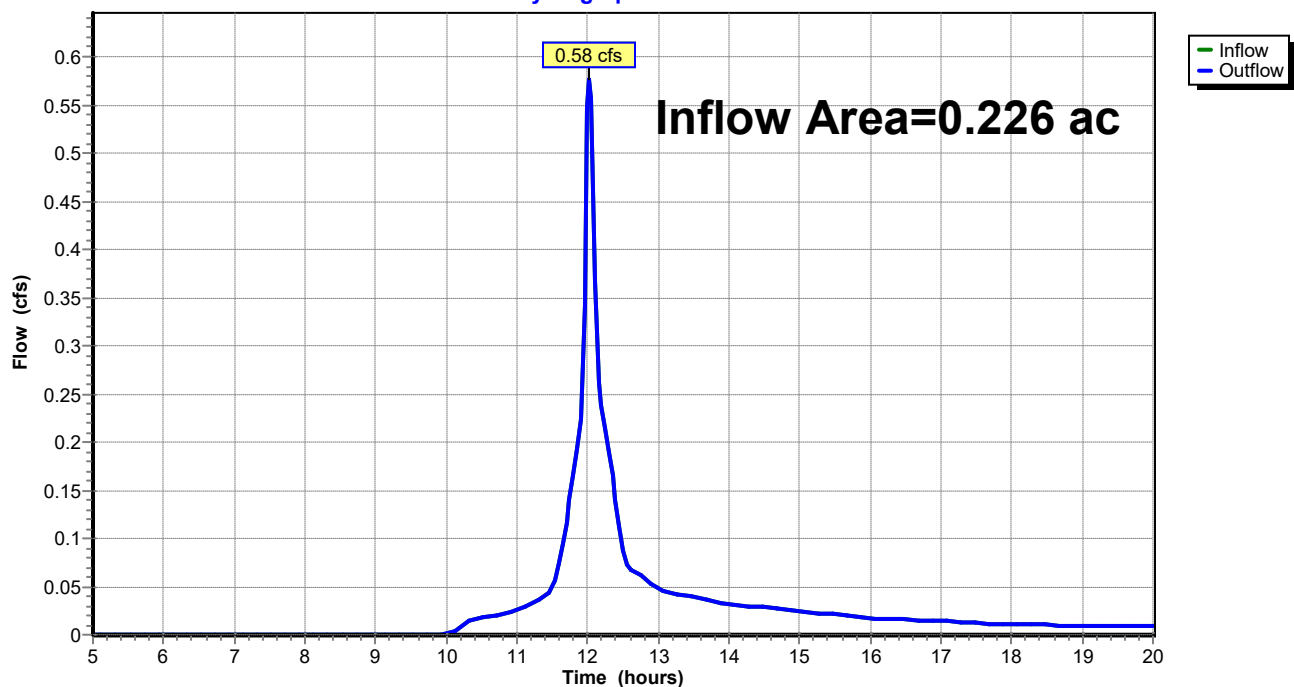
Summary for Reach 1R: Reach 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 1.81" for 2-yr event
 Inflow = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af
 Outflow = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP1 : DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Reach 1

Hydrograph



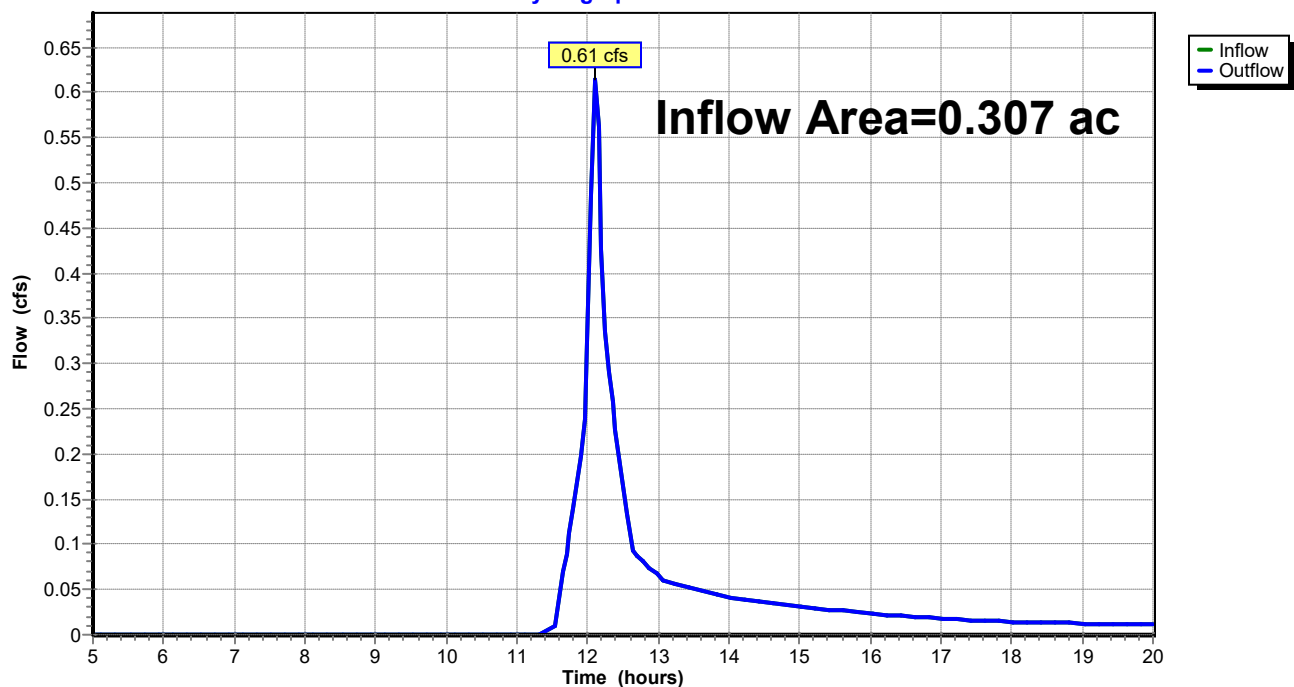
Summary for Reach 2R: Reach 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 1.50" for 2-yr event
 Inflow = 0.61 cfs @ 12.11 hrs, Volume= 0.038 af
 Outflow = 0.61 cfs @ 12.11 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP2 : DP2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Reach 2

Hydrograph



UNE-PostDrainage-VD Working

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Type III 24-hr 2-yr Rainfall=3.30"

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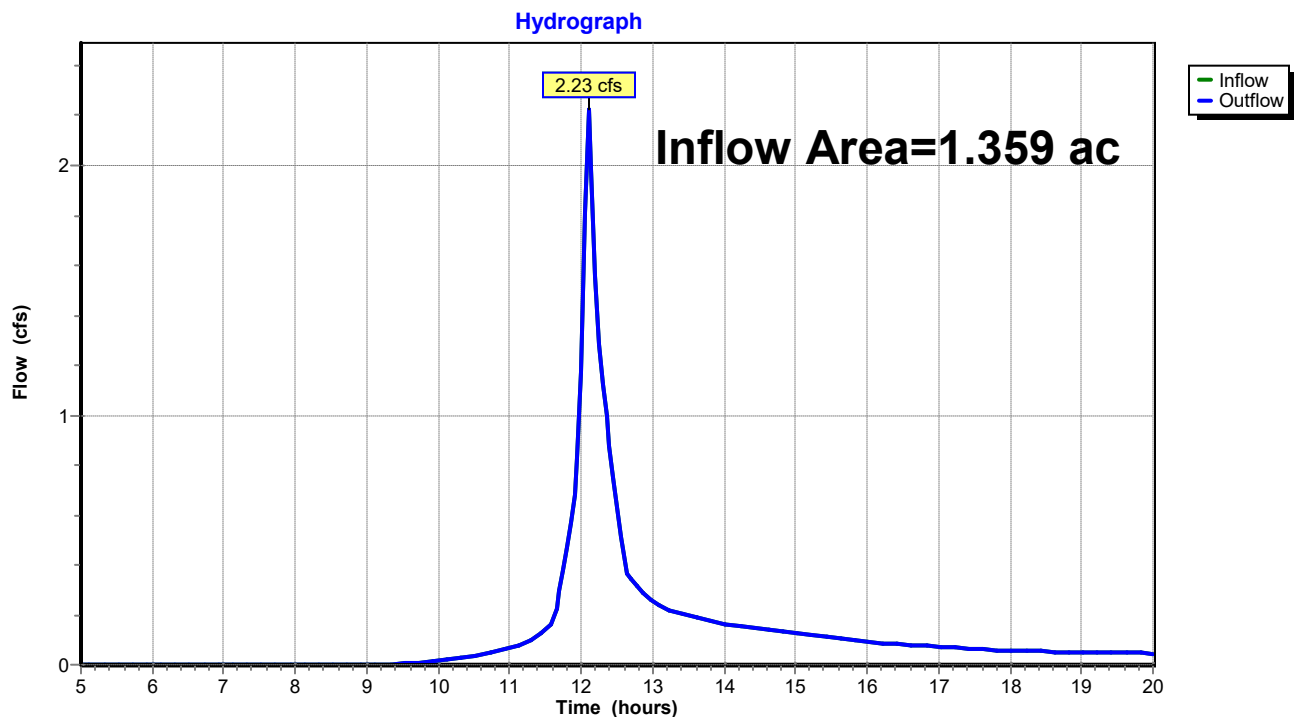
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Summary for Reach DP3: Shoreline 3

Inflow Area = 1.359 ac, 4.06% Impervious, Inflow Depth > 1.37" for 2-yr event
Inflow = 2.23 cfs @ 12.11 hrs, Volume= 0.155 af
Outflow = 2.23 cfs @ 12.11 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3

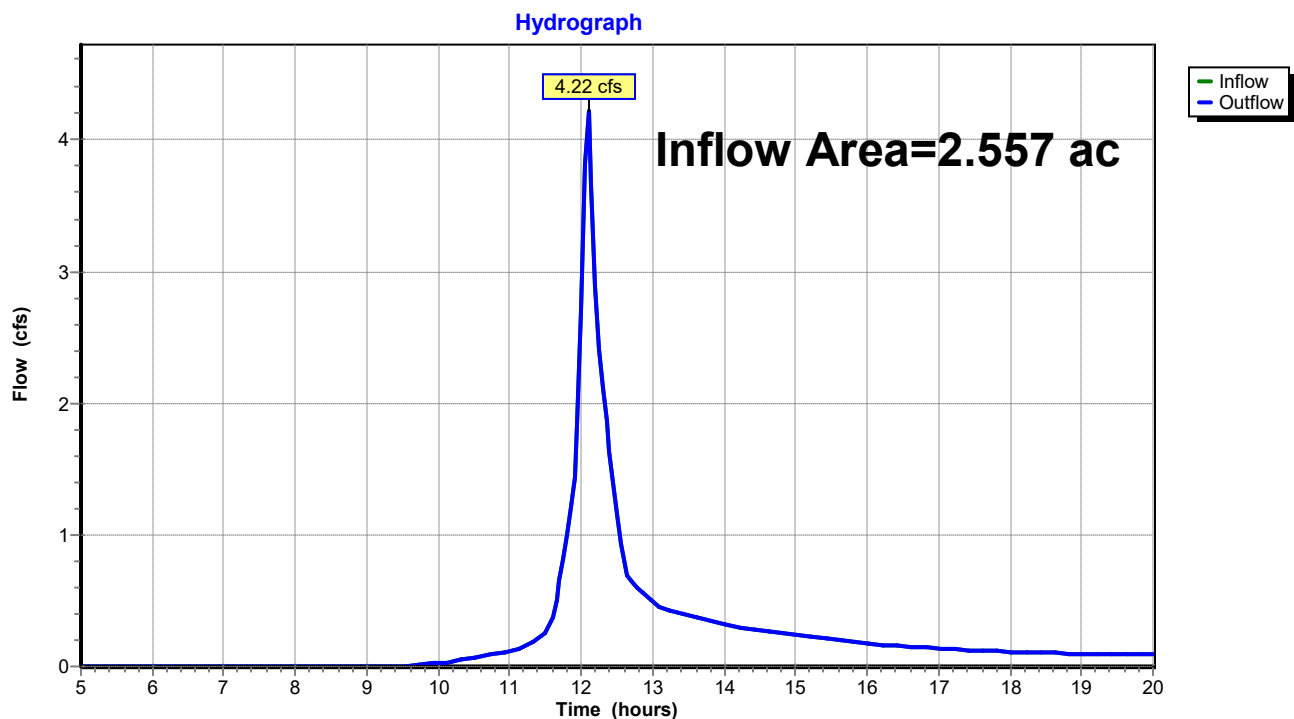


Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 11.96% Impervious, Inflow Depth > 1.41" for 2-yr event
 Inflow = 4.22 cfs @ 12.10 hrs, Volume= 0.300 af
 Outflow = 4.22 cfs @ 12.10 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Pond 1P: Bioretention Filter Cell 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 1.88" for 2-yr event
Inflow = 0.59 cfs @ 12.01 hrs, Volume= 0.035 af
Outflow = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af, Atten= 3%, Lag= 0.8 min
Primary = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af
Routed to Pond 2P : CB-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 18.11' @ 12.03 hrs Surf.Area= 249 sf Storage= 79 cf

Plug-Flow detention time= 22.5 min calculated for 0.034 af (96% of inflow)

Center-of-Mass det. time= 9.1 min (788.5 - 779.4)

Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

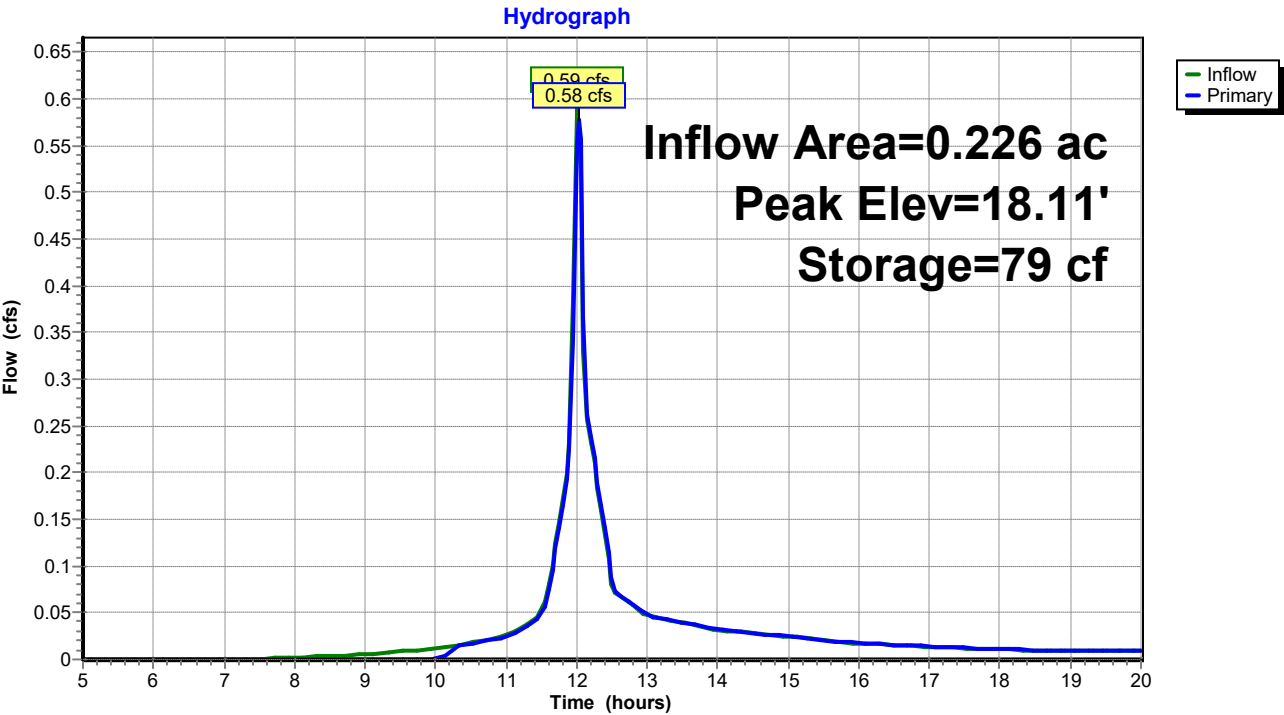
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.55 cfs @ 12.03 hrs HW=18.11' (Free Discharge)

↑ **1=Orifice/Grate** (Weir Controls 0.55 cfs @ 1.08 fps)

Pond 1P: Bioretention Filter Cell 1



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Pond 2P: CB-1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 1.81" for 2-yr event
Inflow = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af
Outflow = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.03 hrs, Volume= 0.034 af
Routed to Reach 1R : Reach 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 14.15' @ 12.03 hrs

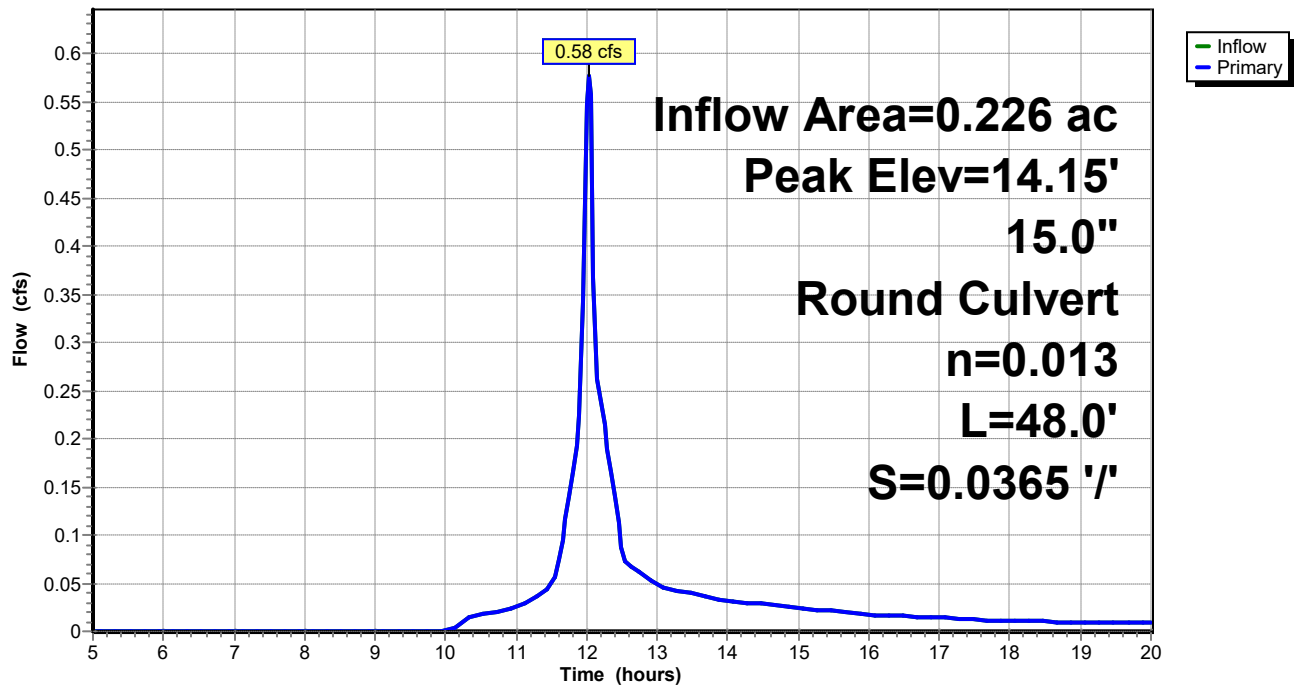
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.55 cfs @ 12.03 hrs HW=14.14' (Free Discharge)

↑1=Culvert (Inlet Controls 0.55 cfs @ 1.68 fps)

Pond 2P: CB-1

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Pond 3P: Bioretention Filter Cell 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 1.65" for 2-yr event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 0.042 af
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.7 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af
Routed to Pond 4P : CB-2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 23.62' @ 12.09 hrs Surf.Area= 208 sf Storage= 64 cf

Plug-Flow detention time= 14.5 min calculated for 0.041 af (97% of inflow)

Center-of-Mass det. time= 5.7 min (797.0 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

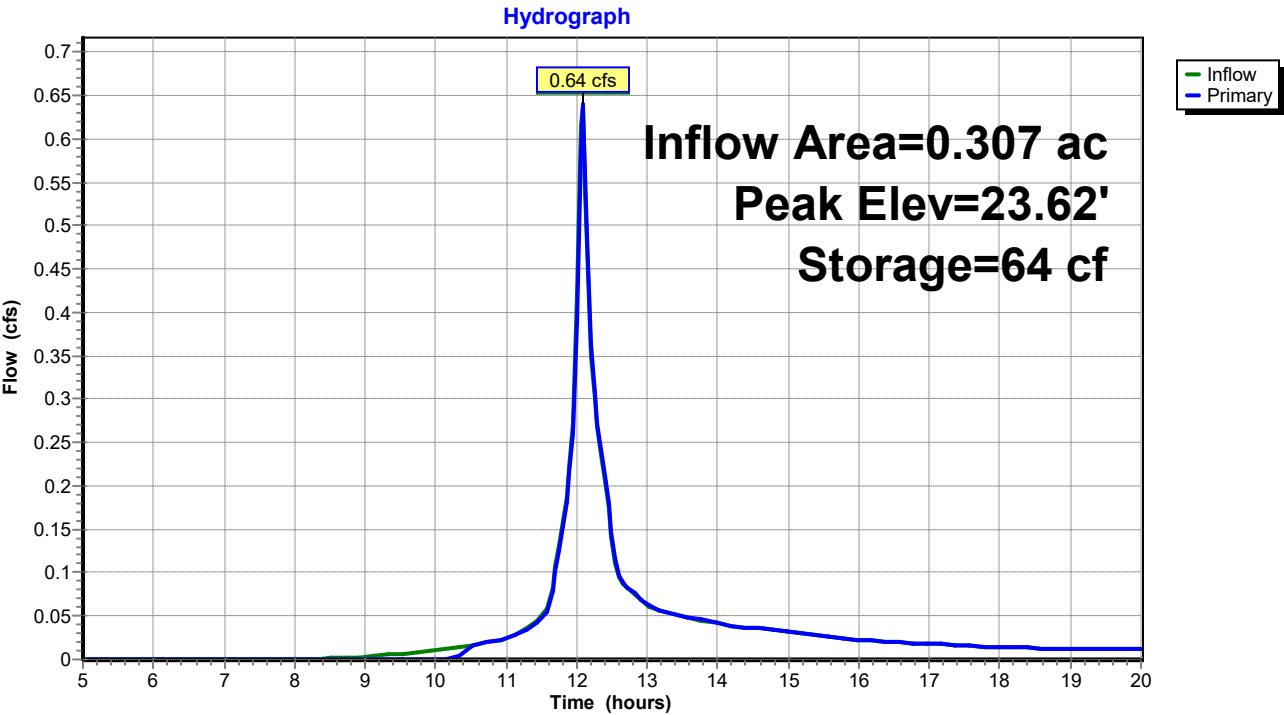
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	0	0	0
24.00	335	168	168
24.50	515	213	380

Device	Routing	Invert	Outlet Devices
#1	Primary	23.50'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=23.62' (Free Discharge)

↑ **1=Orifice/Grate** (Weir Controls 0.62 cfs @ 1.12 fps)

Pond 3P: Bioretention Filter Cell 2



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Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Pond 4P: CB-2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 1.61" for 2-yr event
Inflow = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af
Routed to Pond 5P : Level Lip Spreader

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 19.15' @ 12.09 hrs

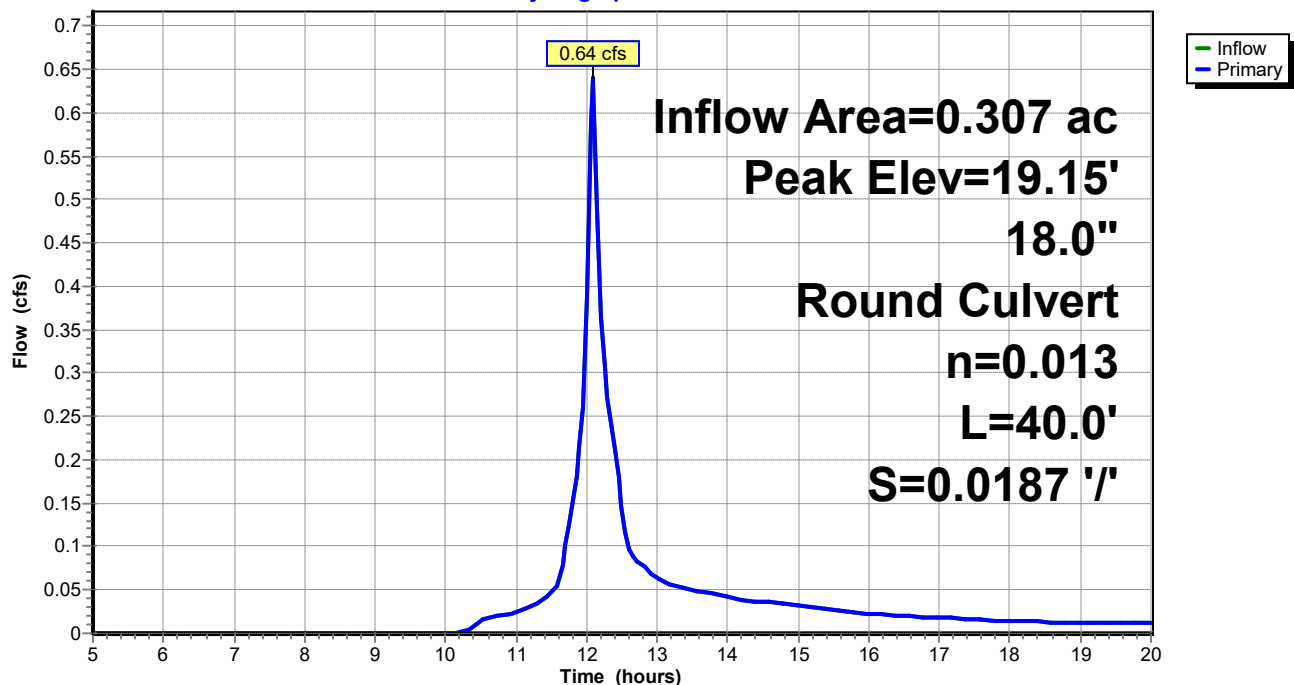
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.62 cfs @ 12.09 hrs HW=19.14' (Free Discharge)

↑1=Culvert (Inlet Controls 0.62 cfs @ 1.69 fps)

Pond 4P: CB-2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 2-yr Rainfall=3.30"

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Summary for Pond 5P: Level Lip Spreader

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 1.61" for 2-yr event
 Inflow = 0.64 cfs @ 12.09 hrs, Volume= 0.041 af
 Outflow = 0.61 cfs @ 12.11 hrs, Volume= 0.038 af, Atten= 4%, Lag= 1.4 min
 Primary = 0.61 cfs @ 12.11 hrs, Volume= 0.038 af
 Routed to Reach 2R : Reach 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.00' @ 11.60 hrs Surf.Area= 168 sf Storage= 115 cf
 Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

Plug-Flow detention time= 32.2 min calculated for 0.038 af (93% of inflow)
 Center-of-Mass det. time= 10.2 min (807.2 - 797.0)

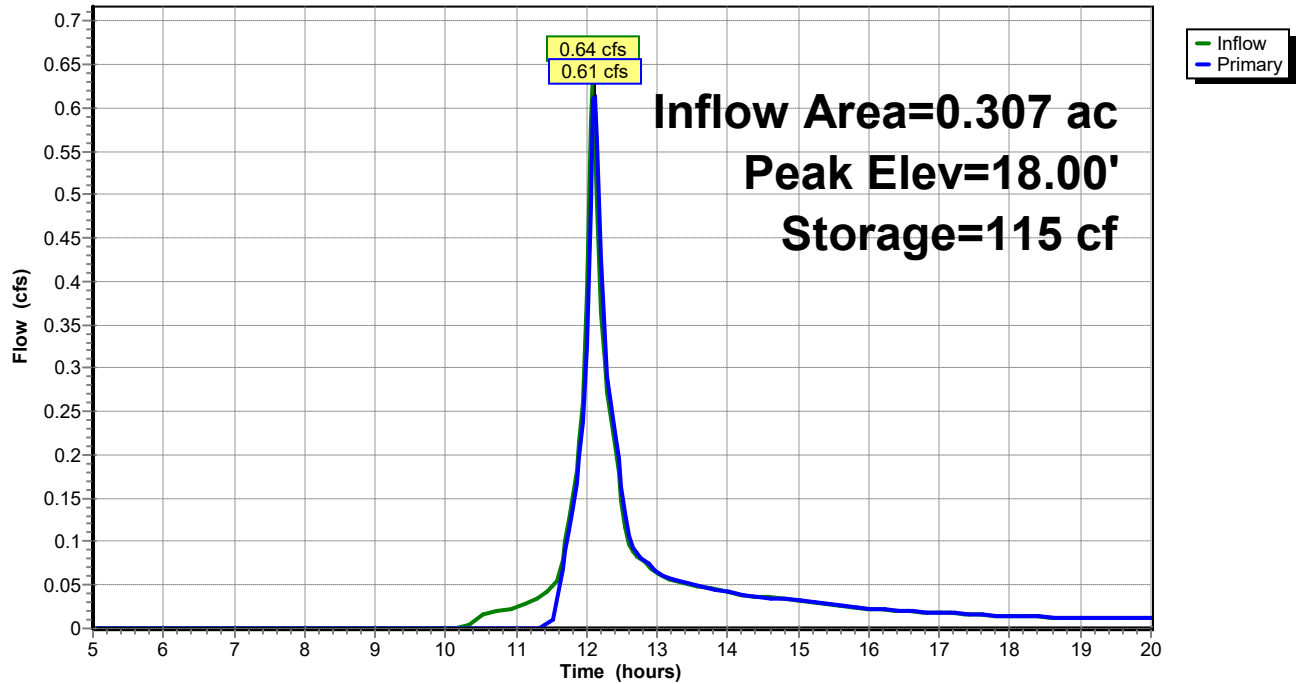
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

Device	Routing	Invert	Outlet Devices
#0	Primary	18.00'	Automatic Storage Overflow (Discharged without head)

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=18.00' (Free Discharge)

Pond 5P: Level Lip Spreader

Hydrograph



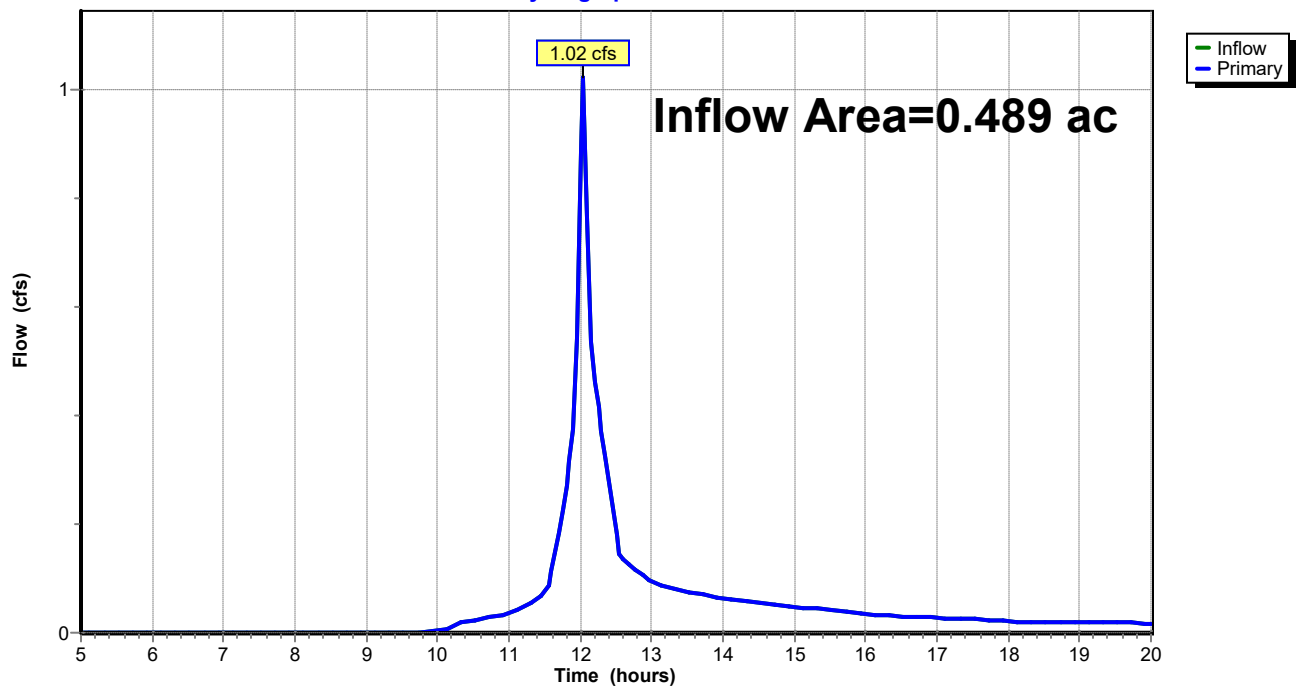
Summary for Link DP1: DP1

Inflow Area = 0.489 ac, 28.87% Impervious, Inflow Depth > 1.54" for 2-yr event
 Inflow = 1.02 cfs @ 12.04 hrs, Volume= 0.063 af
 Primary = 1.02 cfs @ 12.04 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

Hydrograph



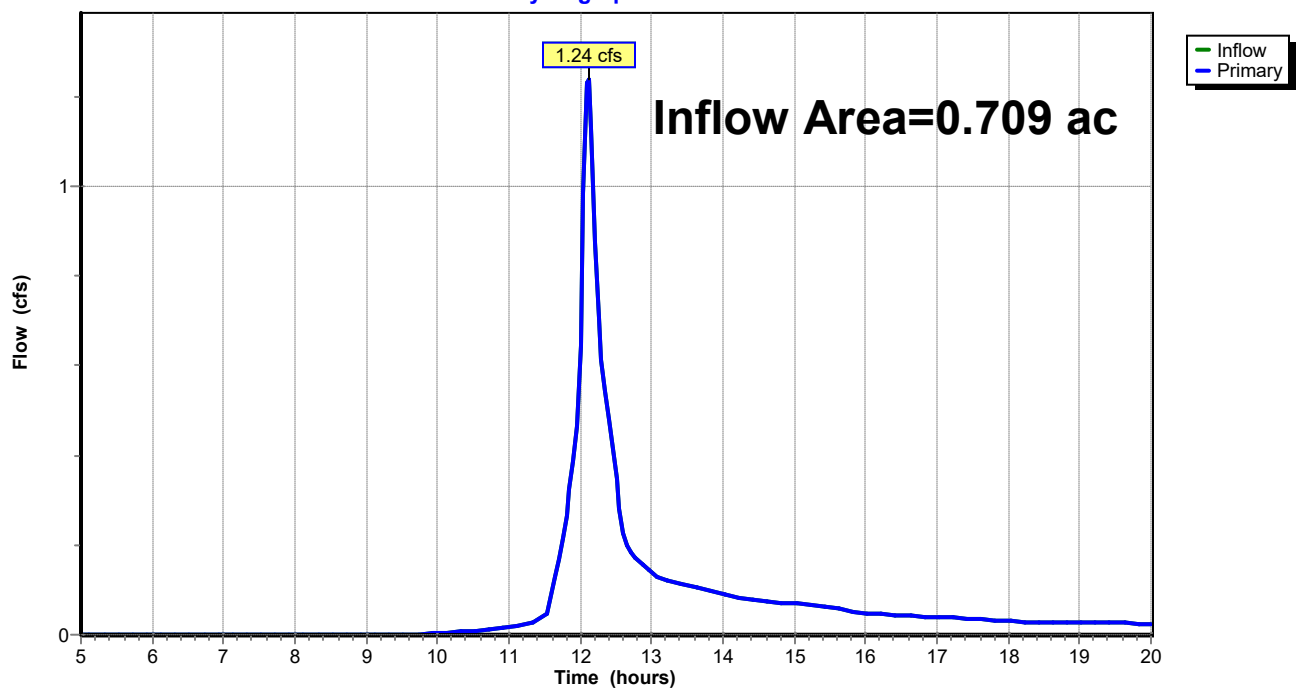
Summary for Link DP2: DP2

Inflow Area = 0.709 ac, 15.44% Impervious, Inflow Depth > 1.39" for 2-yr event
 Inflow = 1.24 cfs @ 12.11 hrs, Volume= 0.082 af
 Primary = 1.24 cfs @ 12.11 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 10-yr Rainfall=4.90"

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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 method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Subcatchment 1 Runoff Area=9,832 sf 50.01% Impervious Runoff Depth>3.28"
Flow Length=172' Tc=0.8 min CN=87 Runoff=1.02 cfs 0.062 af

Subcatchment 2S: Post Subcatchment 2 Runoff Area=11,488 sf 10.78% Impervious Runoff Depth>2.53"
Flow Length=133' Tc=3.4 min CN=79 Runoff=0.90 cfs 0.056 af

Subcatchment 3S: Post Subcatchment 3 Runoff Area=13,365 sf 33.49% Impervious Runoff Depth>2.98"
Flow Length=262' Tc=4.9 min CN=84 Runoff=1.15 cfs 0.076 af

Subcatchment 4S: Post Subcatchment 4 Runoff Area=17,529 sf 1.68% Impervious Runoff Depth>2.53"
Flow Length=126' Tc=7.2 min CN=79 Runoff=1.21 cfs 0.085 af

Subcatchment 5S: Post Subcatchment 5 Runoff Area=59,179 sf 4.06% Impervious Runoff Depth>2.62"
Flow Length=445' Tc=7.0 min CN=80 Runoff=4.26 cfs 0.297 af

Reach 1R: Reach 1 Inflow=0.99 cfs 0.060 af
Outflow=0.99 cfs 0.060 af

Reach 2R: Reach 2 Inflow=1.10 cfs 0.073 af
Outflow=1.10 cfs 0.073 af

Reach DP3: Shoreline 3 Inflow=4.26 cfs 0.297 af
Outflow=4.26 cfs 0.297 af

Reach SP1: SACO RIVER / OCEAN Inflow=7.94 cfs 0.570 af
Outflow=7.94 cfs 0.570 af

Pond 1P: Bioretention Filter Cell 1 Peak Elev=18.16' Storage=92 cf Inflow=1.02 cfs 0.062 af
Outflow=0.99 cfs 0.060 af

Pond 2P: CB-1 Peak Elev=14.29' Inflow=0.99 cfs 0.060 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0365 ' / ' Outflow=0.99 cfs 0.060 af

Pond 3P: Bioretention Filter Cell 2 Peak Elev=23.68' Storage=77 cf Inflow=1.15 cfs 0.076 af
Outflow=1.14 cfs 0.075 af

Pond 4P: CB-2 Peak Elev=19.29' Inflow=1.14 cfs 0.075 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0187 ' / ' Outflow=1.14 cfs 0.075 af

Pond 5P: Level Lip Spreader Peak Elev=18.00' Storage=115 cf Inflow=1.14 cfs 0.075 af
Outflow=1.10 cfs 0.073 af

Link DP1: DP1 Inflow=1.85 cfs 0.116 af
Primary=1.85 cfs 0.116 af

Link DP2: DP2 Inflow=2.31 cfs 0.158 af
Primary=2.31 cfs 0.158 af

UNE-PostDrainage-VD Working

Type III 24-hr 10-yr Rainfall=4.90"

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Total Runoff Area = 2.557 ac Runoff Volume = 0.575 af Average Runoff Depth = 2.70"
88.04% Pervious = 2.251 ac 11.96% Impervious = 0.306 ac

UNE-PostDrainage-VD Working

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 1S: Post Subcatchment 1

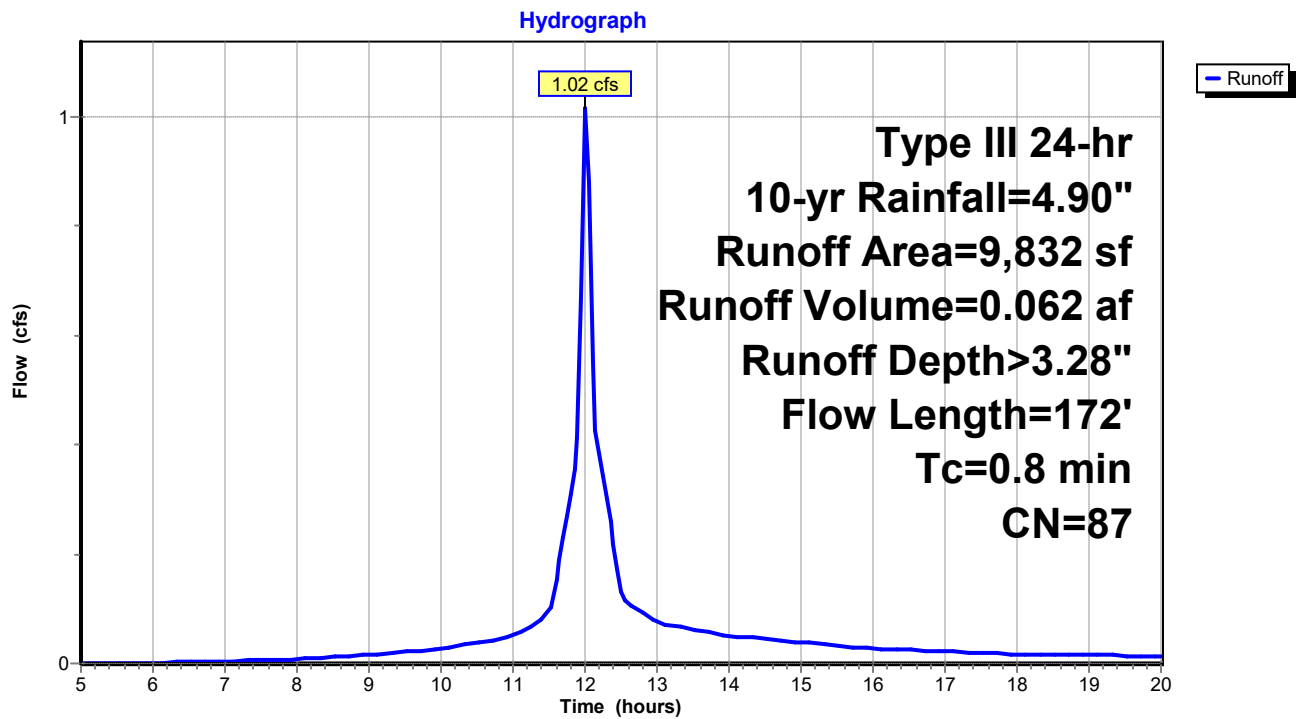
Runoff = 1.02 cfs @ 12.01 hrs, Volume= 0.062 af, Depth> 3.28"
 Routed to Pond 1P : Bioretention Filter Cell 1

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
3,430	77	Woods, Good, HSG D
* 982	98	Ledge, HSG D
595	80	>75% Grass cover, Good, HSG D
* 3,935	98	Paved Access Drive, HSG D
* 890	73	Bioretention Filter Cell, Good, HSG D
9,832	87	Weighted Average
4,915		49.99% Pervious Area
4,917		50.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	46	0.0500	1.73		Sheet Flow, Tc-1 Smooth surfaces n= 0.011 P2= 3.30"
0.3	102	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.1	24	0.0625	3.75		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
0.8	172	Total			

Subcatchment 1S: Post Subcatchment 1



UNE-PostDrainage-VD Working

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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 2S: Post Subcatchment 2

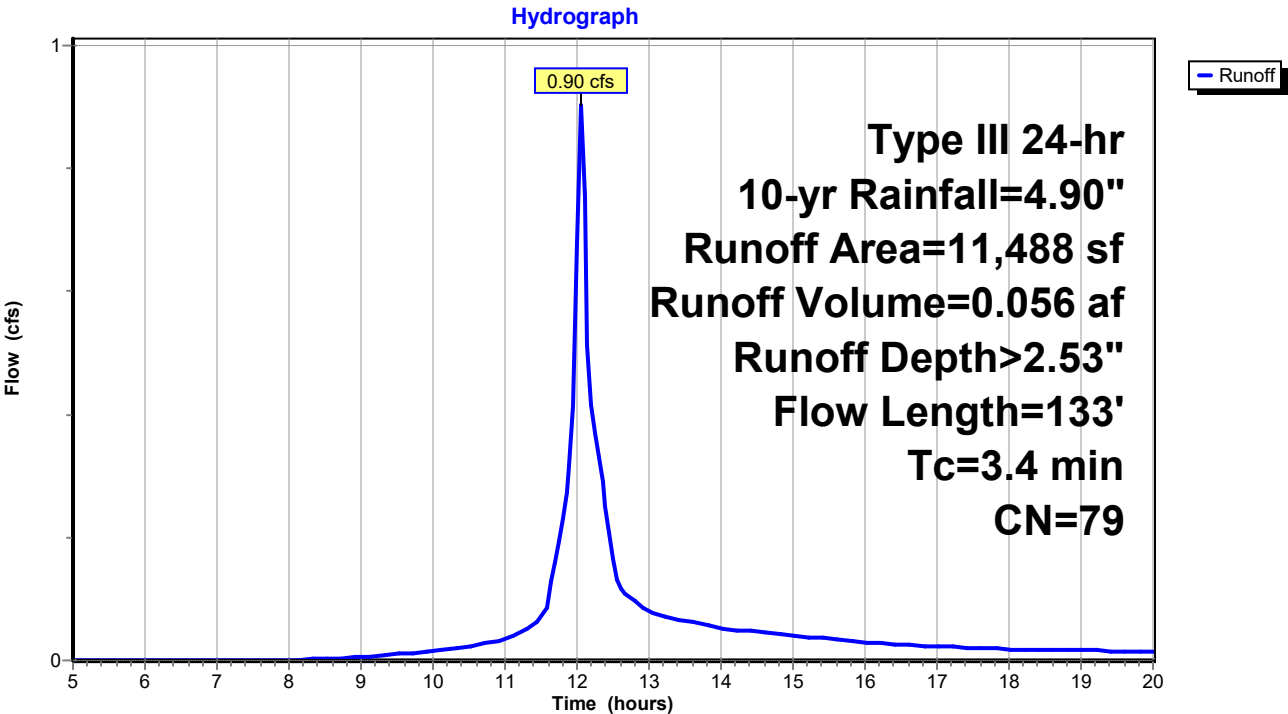
Runoff = 0.90 cfs @ 12.06 hrs, Volume= 0.056 af, Depth> 2.53"
Routed to Link DP1 : DP1

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
10,250	77	Woods, Good, HSG D
1,238	98	Paved parking, HSG D
11,488	79	Weighted Average
10,250		89.22% Pervious Area
1,238		10.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.1905	0.14		Sheet Flow, Tc-1
0.9	112	0.1696	2.06		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
3.4	133	Total			

Subcatchment 2S: Post Subcatchment 2



UNE-PostDrainage-VD Working

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 3S: Post Subcatchment 3

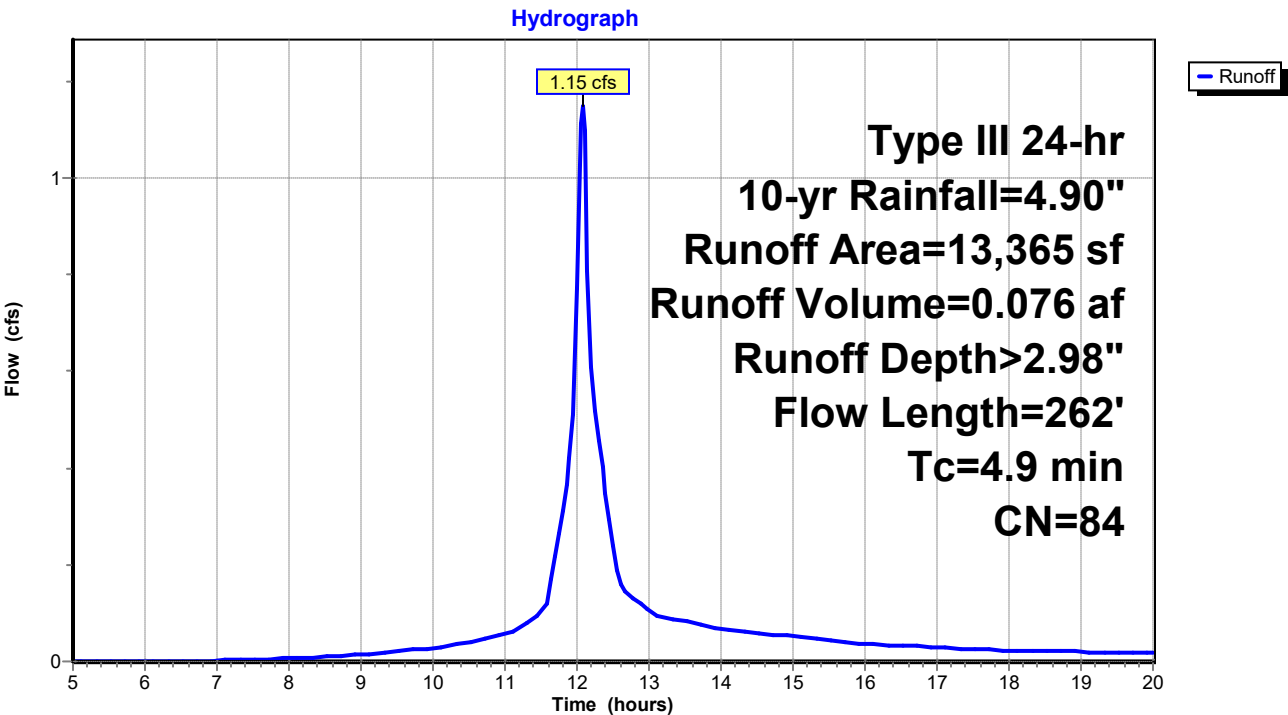
Runoff = 1.15 cfs @ 12.07 hrs, Volume= 0.076 af, Depth> 2.98"
 Routed to Pond 3P : Bioretention Filter Cell 2

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
6,822	77	Woods, Good, HSG D
* 580	73	Biofiltration cell, Good, HSG D
* 3,768	98	Paved access drive, HSG D
1,487	80	>75% Grass cover, Good, HSG D
* 708	98	Ledge, HSG D
13,365	84	Weighted Average
8,889		66.51% Pervious Area
4,476		33.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	43	0.2093	0.17		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.7	214	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.0	5	0.0500	3.35		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
4.9	262	Total			

Subcatchment 3S: Post Subcatchment 3



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 4S: Post Subcatchment 4

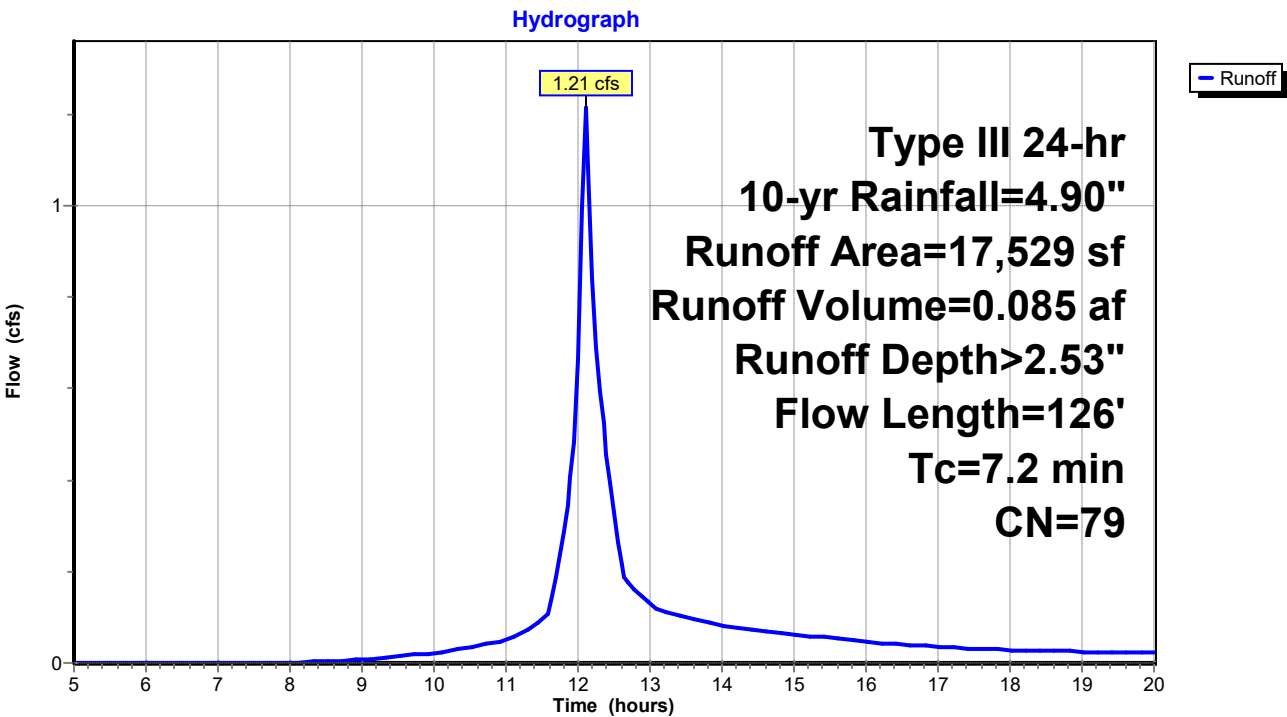
Runoff = 1.21 cfs @ 12.11 hrs, Volume= 0.085 af, Depth> 2.53"
Routed to Link DP2 : DP2

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 10-yr Rainfall=4.90"

Area (sf)	CN	Description
* 295	98	Paved access drive, HSG D
1,450	80	>75% Grass cover, Good, HSG D
15,784	79	Woods, Fair, HSG D
17,529	79	Weighted Average
17,234		98.32% Pervious Area
295		1.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	62	0.1290	0.15		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	64	0.2343	2.42		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
7.2	126	Total			

Subcatchment 4S: Post Subcatchment 4



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Subcatchment 5S: Post Subcatchment 5

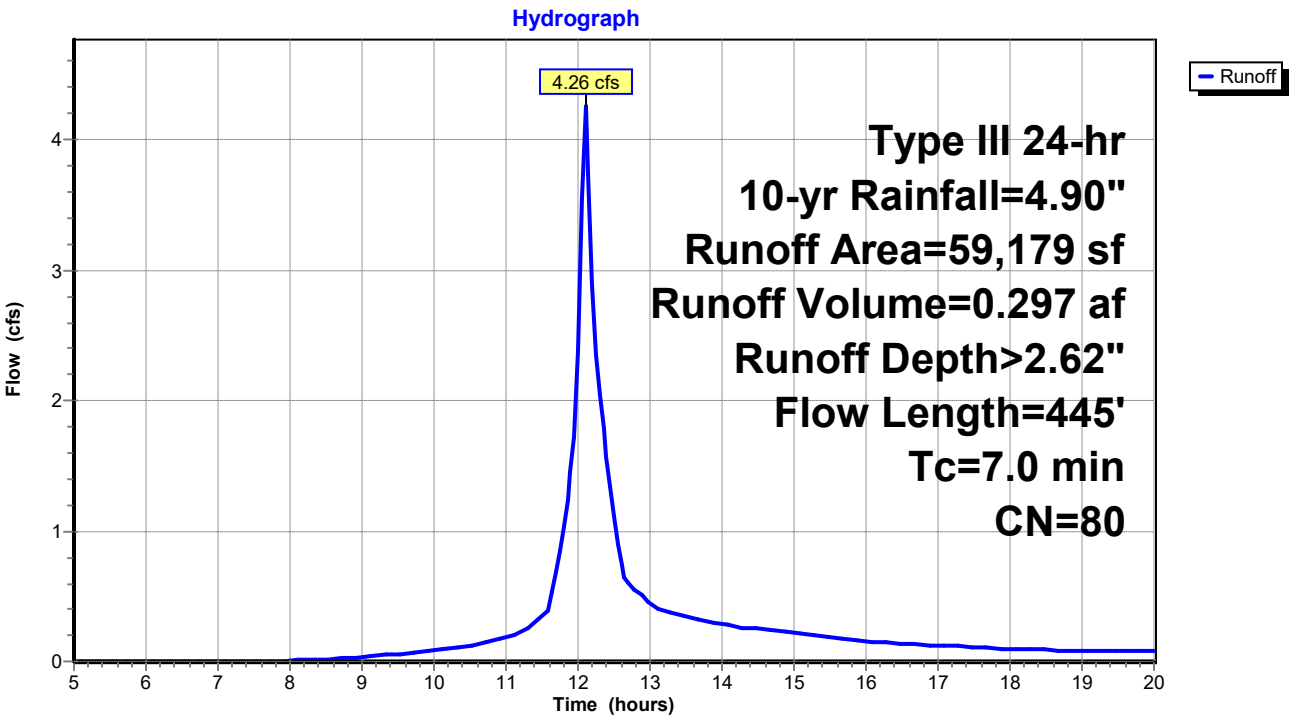
Runoff = 4.26 cfs @ 12.10 hrs, Volume= 0.297 af, Depth> 2.62"
 Routed to Reach DP3 : Shoreline 3

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 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	1,650	98	Paved access drive, HSG D
	751	98	Roofs, HSG D
*	6,955	88	Sand beach, HSG D
	3,872	96	Gravel surface, HSG D
	45,951	77	Woods, Good, HSG D
	59,179	80	Weighted Average
	56,778		95.94% Pervious Area
	2,401		4.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0574	1.20		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-5
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 5S: Post Subcatchment 5



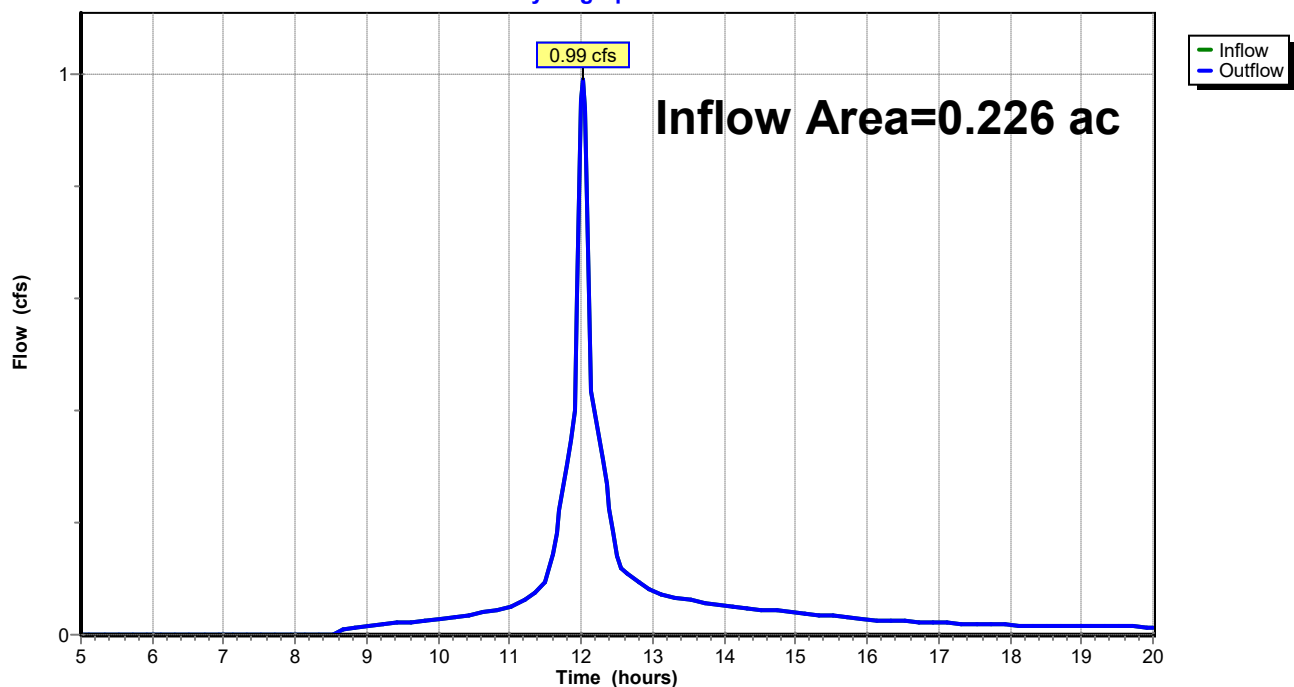
Summary for Reach 1R: Reach 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 3.21" for 10-yr event
 Inflow = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af
 Outflow = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP1 : DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Reach 1

Hydrograph



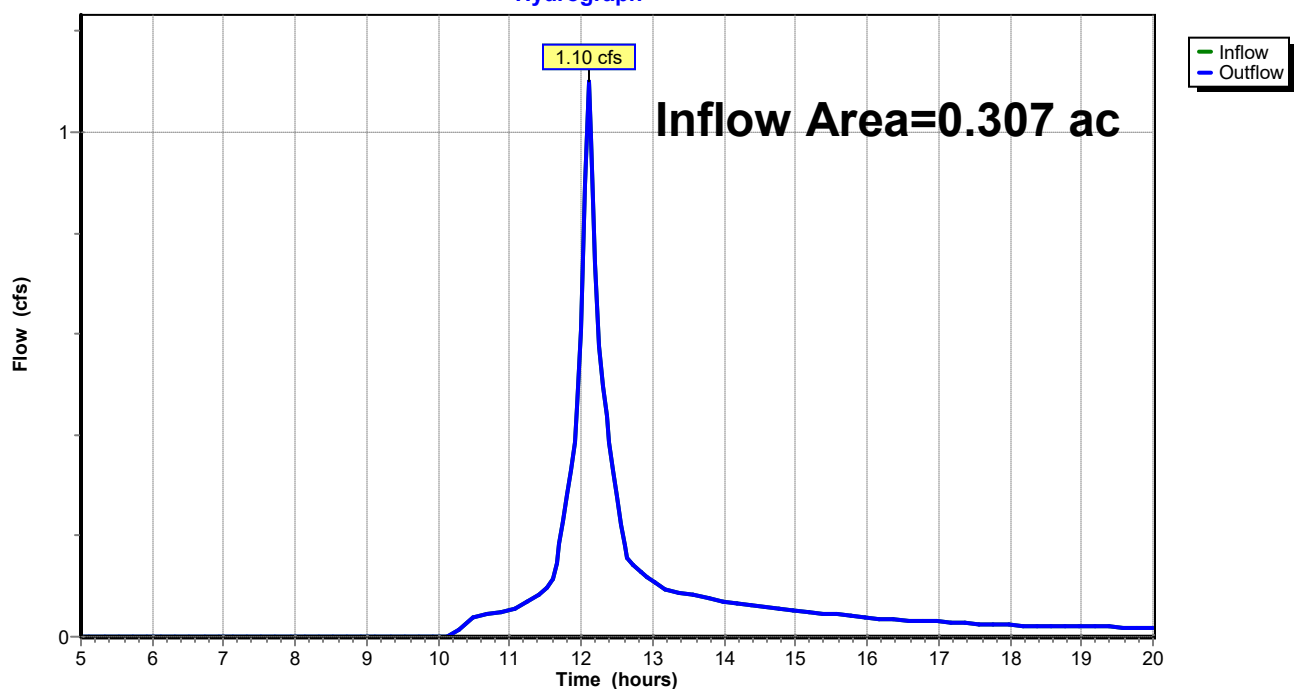
Summary for Reach 2R: Reach 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 2.84" for 10-yr event
 Inflow = 1.10 cfs @ 12.11 hrs, Volume= 0.073 af
 Outflow = 1.10 cfs @ 12.11 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP2 : DP2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Reach 2

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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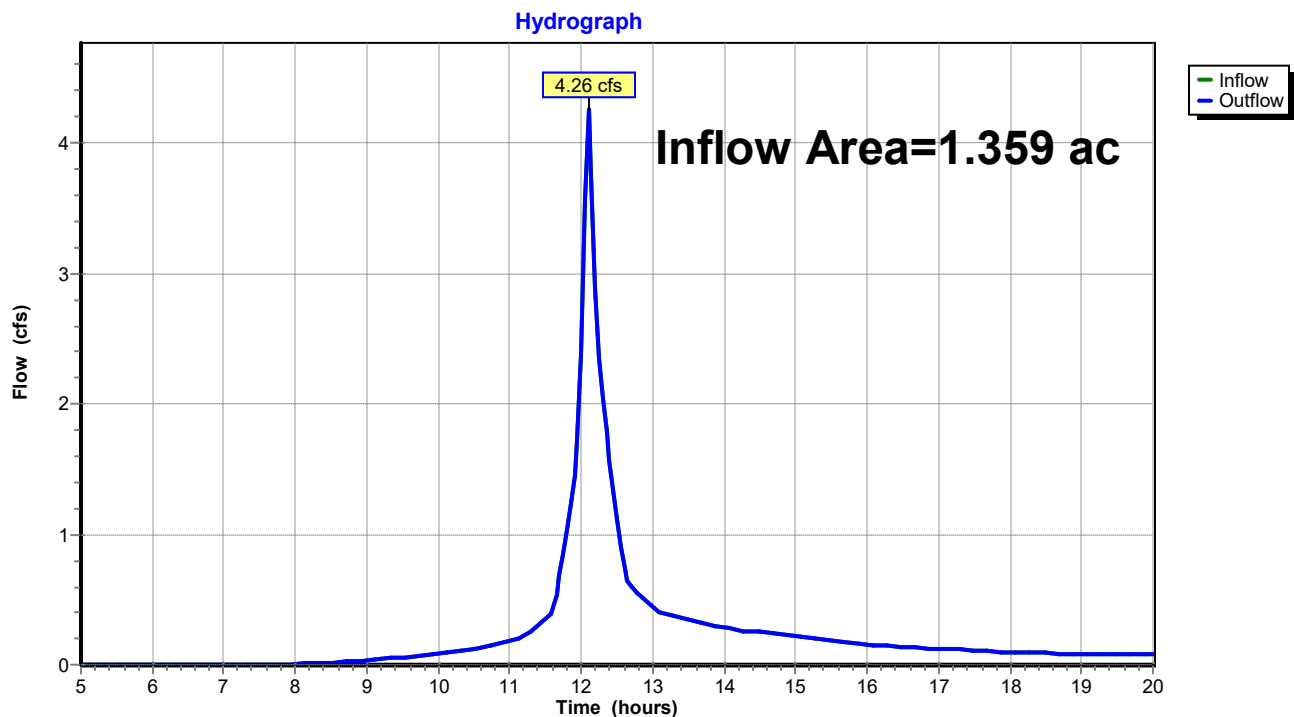
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Summary for Reach DP3: Shoreline 3

Inflow Area = 1.359 ac, 4.06% Impervious, Inflow Depth > 2.62" for 10-yr event
Inflow = 4.26 cfs @ 12.10 hrs, Volume= 0.297 af
Outflow = 4.26 cfs @ 12.10 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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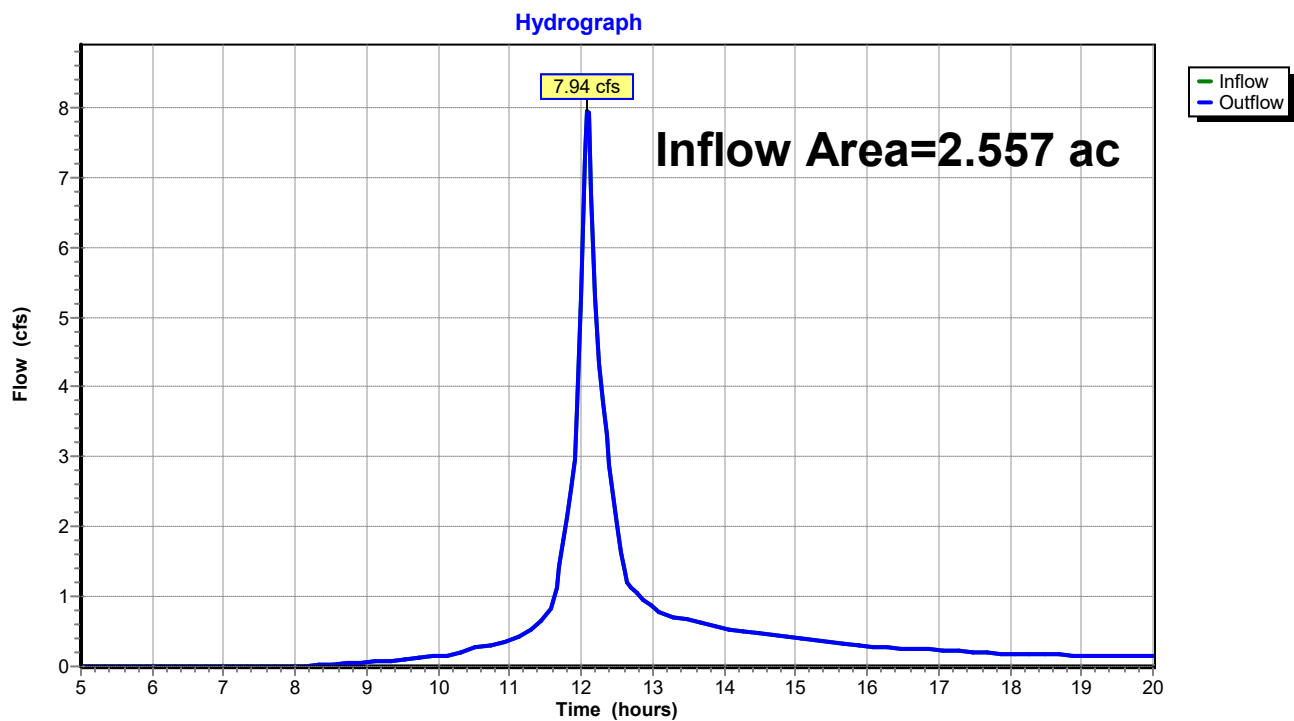
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Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 11.96% Impervious, Inflow Depth > 2.68" for 10-yr event
Inflow = 7.94 cfs @ 12.09 hrs, Volume= 0.570 af
Outflow = 7.94 cfs @ 12.09 hrs, Volume= 0.570 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 1P: Bioretention Filter Cell 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 3.28" for 10-yr event
Inflow = 1.02 cfs @ 12.01 hrs, Volume= 0.062 af
Outflow = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af, Atten= 3%, Lag= 0.7 min
Primary = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af
Routed to Pond 2P : CB-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.16' @ 12.02 hrs Surf.Area= 264 sf Storage= 92 cf

Plug-Flow detention time= 15.2 min calculated for 0.060 af (98% of inflow)
Center-of-Mass det. time= 7.1 min (773.3 - 766.2)

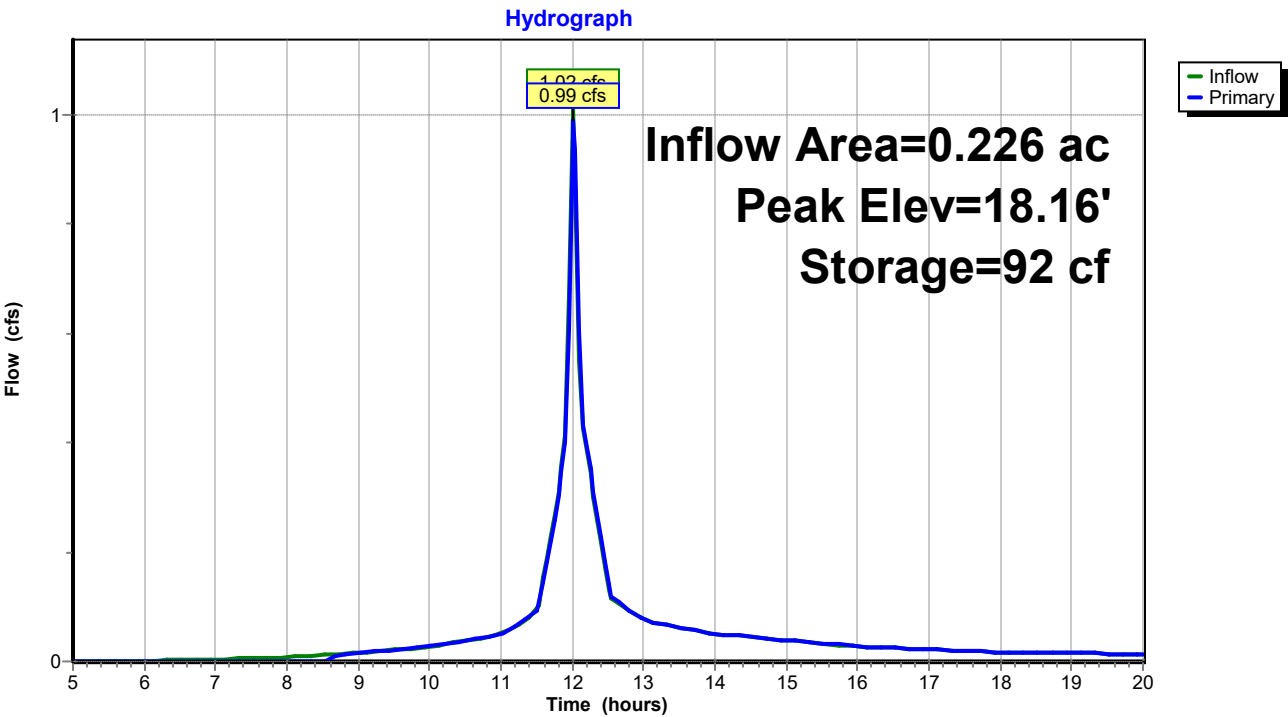
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.94 cfs @ 12.02 hrs HW=18.16' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 0.94 cfs @ 1.29 fps)

Pond 1P: Bioretention Filter Cell 1



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 2P: CB-1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 3.21" for 10-yr event
Inflow = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af
Outflow = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.02 hrs, Volume= 0.060 af
Routed to Reach 1R : Reach 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 14.29' @ 12.02 hrs

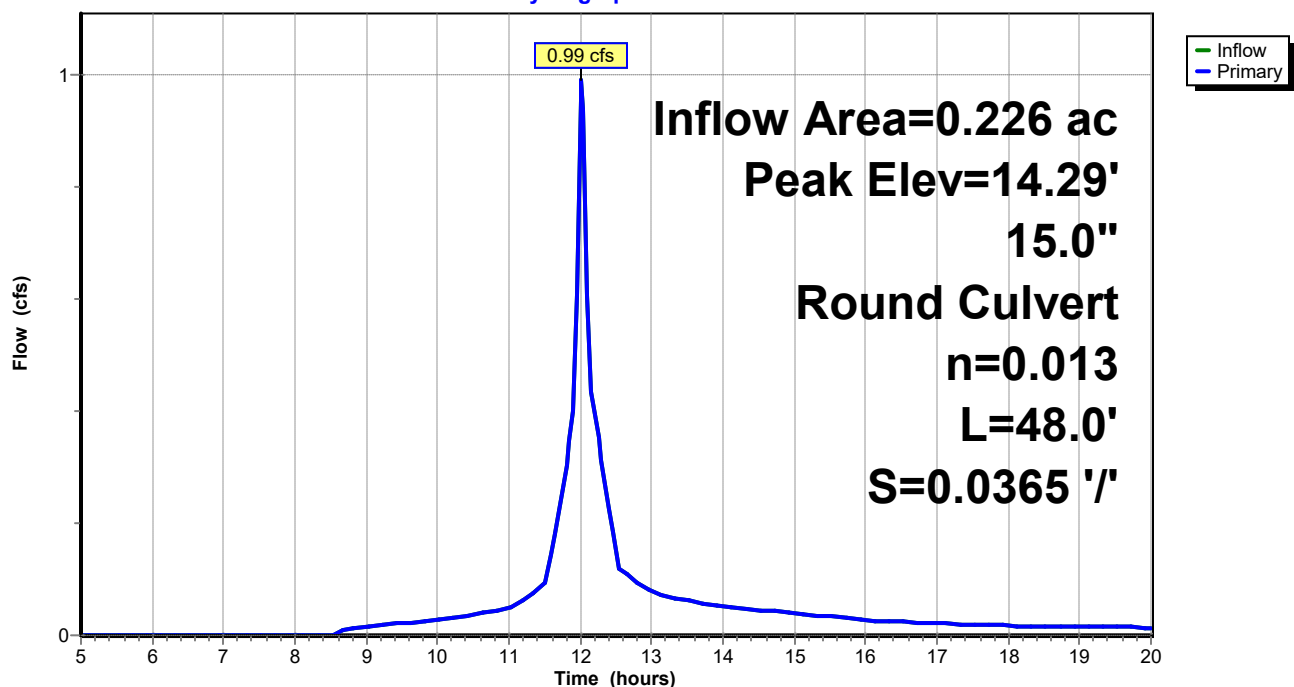
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.94 cfs @ 12.02 hrs HW=14.27' (Free Discharge)

↑1=Culvert (Inlet Controls 0.94 cfs @ 1.94 fps)

Pond 2P: CB-1

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 3P: Bioretention Filter Cell 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 2.98" for 10-yr event
Inflow = 1.15 cfs @ 12.07 hrs, Volume= 0.076 af
Outflow = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.6 min
Primary = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af
Routed to Pond 4P : CB-2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 23.68' @ 12.08 hrs Surf.Area= 227 sf Storage= 77 cf

Plug-Flow detention time= 9.5 min calculated for 0.075 af (98% of inflow)
Center-of-Mass det. time= 4.4 min (781.8 - 777.5)

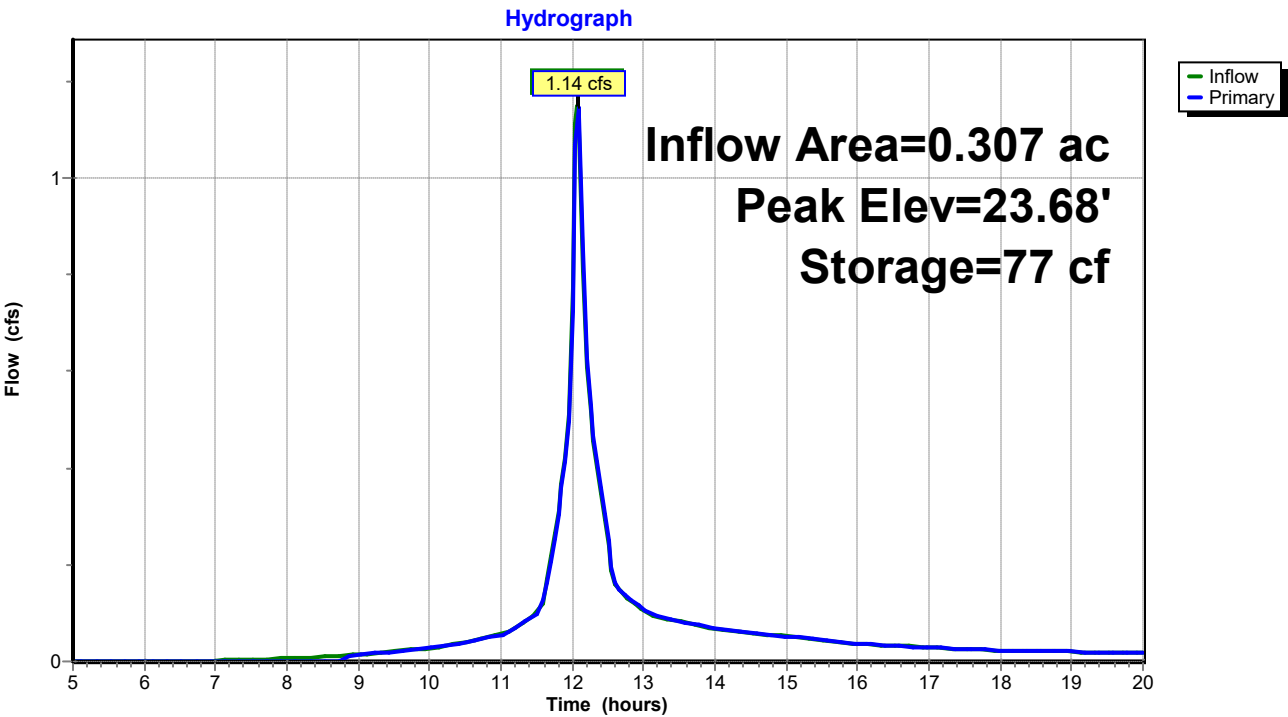
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	0	0	0
24.00	335	168	168
24.50	515	213	380

Device	Routing	Invert	Outlet Devices
#1	Primary	23.50'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.11 cfs @ 12.08 hrs HW=23.67' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 1.11 cfs @ 1.36 fps)

Pond 3P: Bioretention Filter Cell 2



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Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 4P: CB-2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 2.95" for 10-yr event
Inflow = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af
Outflow = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af
Routed to Pond 5P : Level Lip Spreader

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 19.29' @ 12.08 hrs

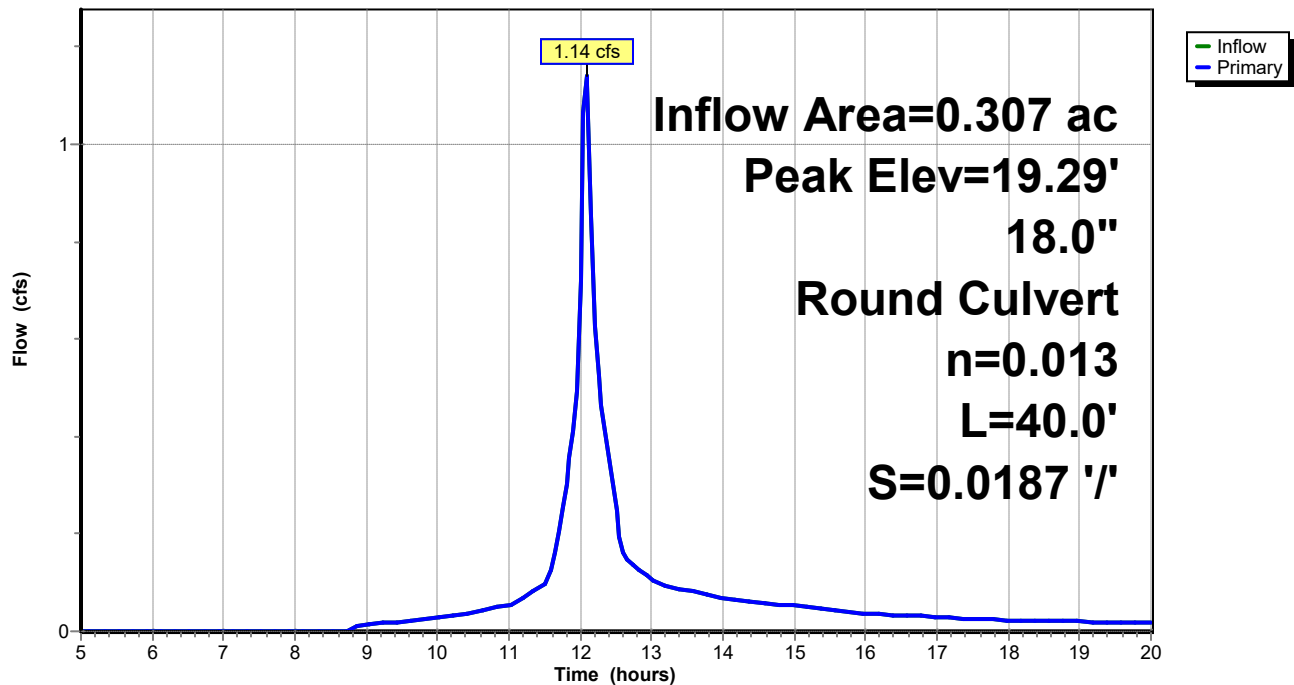
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.11 cfs @ 12.08 hrs HW=19.28' (Free Discharge)

↑1=Culvert (Inlet Controls 1.11 cfs @ 1.96 fps)

Pond 4P: CB-2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 10-yr Rainfall=4.90"

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Summary for Pond 5P: Level Lip Spreader

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 2.95" for 10-yr event
 Inflow = 1.14 cfs @ 12.08 hrs, Volume= 0.075 af
 Outflow = 1.10 cfs @ 12.11 hrs, Volume= 0.073 af, Atten= 4%, Lag= 1.4 min
 Primary = 1.10 cfs @ 12.11 hrs, Volume= 0.073 af
 Routed to Reach 2R : Reach 2

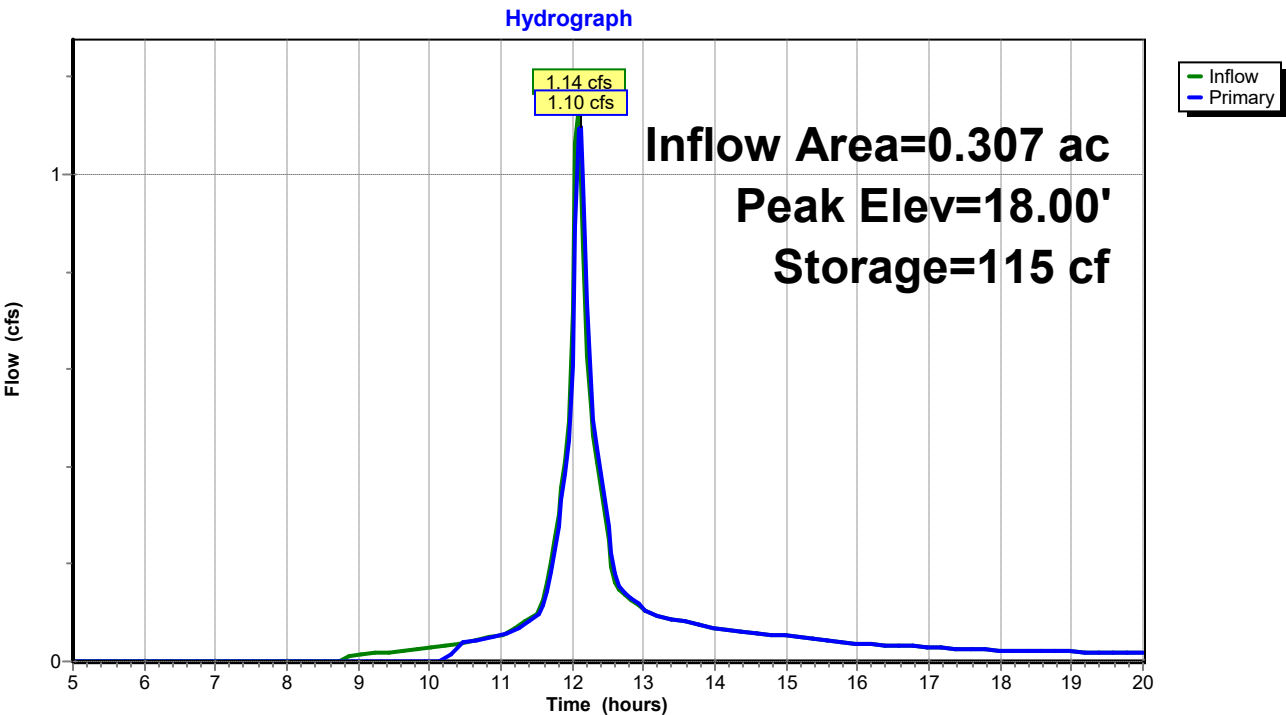
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.00' @ 10.30 hrs Surf.Area= 168 sf Storage= 115 cf
 Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

Plug-Flow detention time= 21.7 min calculated for 0.072 af (96% of inflow)
 Center-of-Mass det. time= 8.6 min (790.4 - 781.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115
Device	Routing	Invert	Outlet Devices	
#0	Primary	18.00'	Automatic Storage Overflow (Discharged without head)	

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=18.00' (Free Discharge)

Pond 5P: Level Lip Spreader



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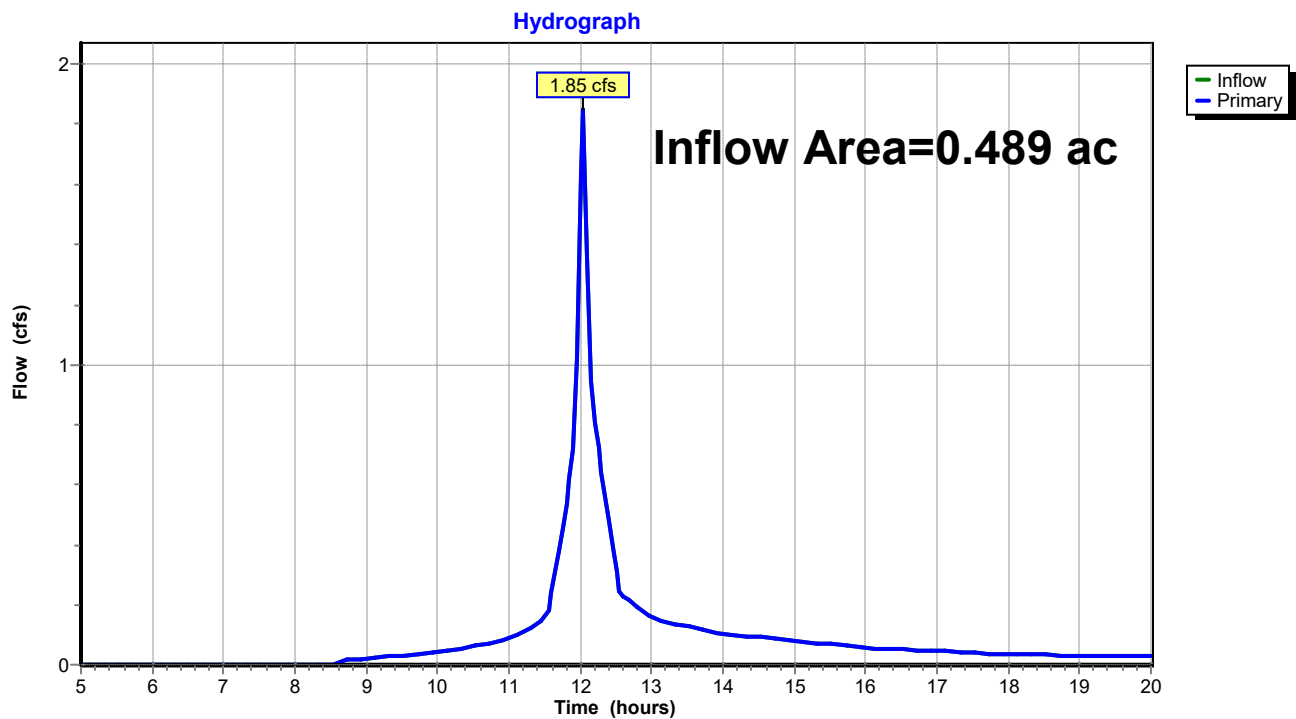
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Summary for Link DP1: DP1

Inflow Area = 0.489 ac, 28.87% Impervious, Inflow Depth > 2.85" for 10-yr event
Inflow = 1.85 cfs @ 12.04 hrs, Volume= 0.116 af
Primary = 1.85 cfs @ 12.04 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1



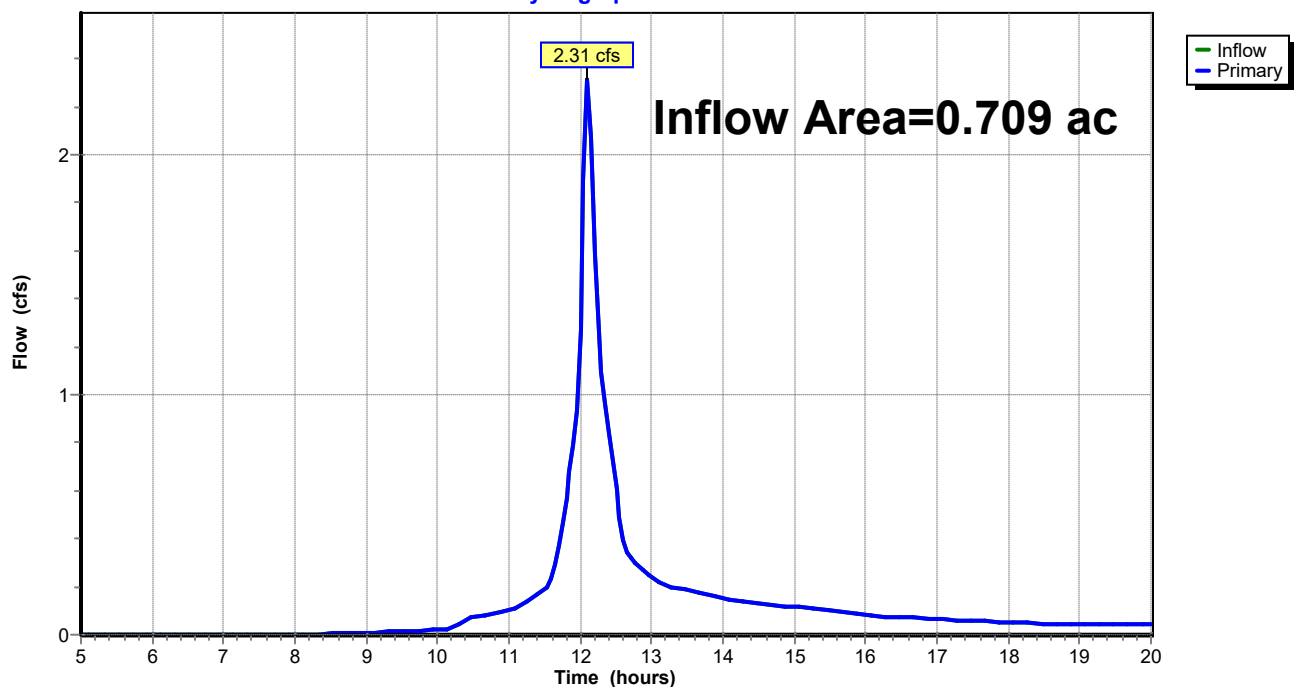
Summary for Link DP2: DP2

Inflow Area = 0.709 ac, 15.44% Impervious, Inflow Depth > 2.67" for 10-yr event
 Inflow = 2.31 cfs @ 12.11 hrs, Volume= 0.158 af
 Primary = 2.31 cfs @ 12.11 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 25-yr Rainfall=6.20"

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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 method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Subcatchment 1 Runoff Area=9,832 sf 50.01% Impervious Runoff Depth>4.45"
Flow Length=172' Tc=0.8 min CN=87 Runoff=1.36 cfs 0.084 af

Subcatchment 2S: Post Subcatchment 2 Runoff Area=11,488 sf 10.78% Impervious Runoff Depth>3.62"
Flow Length=133' Tc=3.4 min CN=79 Runoff=1.28 cfs 0.080 af

Subcatchment 3S: Post Subcatchment 3 Runoff Area=13,365 sf 33.49% Impervious Runoff Depth>4.13"
Flow Length=262' Tc=4.9 min CN=84 Runoff=1.57 cfs 0.106 af

Subcatchment 4S: Post Subcatchment 4 Runoff Area=17,529 sf 1.68% Impervious Runoff Depth>3.61"
Flow Length=126' Tc=7.2 min CN=79 Runoff=1.72 cfs 0.121 af

Subcatchment 5S: Post Subcatchment 5 Runoff Area=59,179 sf 4.06% Impervious Runoff Depth>3.72"
Flow Length=445' Tc=7.0 min CN=80 Runoff=5.99 cfs 0.421 af

Reach 1R: Reach 1 Inflow=1.33 cfs 0.082 af
Outflow=1.33 cfs 0.082 af

Reach 2R: Reach 2 Inflow=1.50 cfs 0.102 af
Outflow=1.50 cfs 0.102 af

Reach DP3: Shoreline 3 Inflow=5.99 cfs 0.421 af
Outflow=5.99 cfs 0.421 af

Reach SP1: SACO RIVER / OCEAN Inflow=11.09 cfs 0.806 af
Outflow=11.09 cfs 0.806 af

Pond 1P: Bioretention Filter Cell 1 Peak Elev=18.20' Storage=101 cf Inflow=1.36 cfs 0.084 af
Outflow=1.33 cfs 0.082 af

Pond 2P: CB-1 Peak Elev=14.38' Inflow=1.33 cfs 0.082 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0365 ' / ' Outflow=1.33 cfs 0.082 af

Pond 3P: Bioretention Filter Cell 2 Peak Elev=23.72' Storage=86 cf Inflow=1.57 cfs 0.106 af
Outflow=1.56 cfs 0.105 af

Pond 4P: CB-2 Peak Elev=19.39' Inflow=1.56 cfs 0.105 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0187 ' / ' Outflow=1.56 cfs 0.105 af

Pond 5P: Level Lip Spreader Peak Elev=18.00' Storage=115 cf Inflow=1.56 cfs 0.105 af
Outflow=1.50 cfs 0.102 af

Link DP1: DP1 Inflow=2.54 cfs 0.162 af
Primary=2.54 cfs 0.162 af

Link DP2: DP2 Inflow=3.22 cfs 0.223 af
Primary=3.22 cfs 0.223 af

UNE-PostDrainage-VD Working

Type III 24-hr 25-yr Rainfall=6.20"

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Total Runoff Area = 2.557 ac Runoff Volume = 0.811 af Average Runoff Depth = 3.80"
88.04% Pervious = 2.251 ac 11.96% Impervious = 0.306 ac

UNE-PostDrainage-VD Working

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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 1S: Post Subcatchment 1

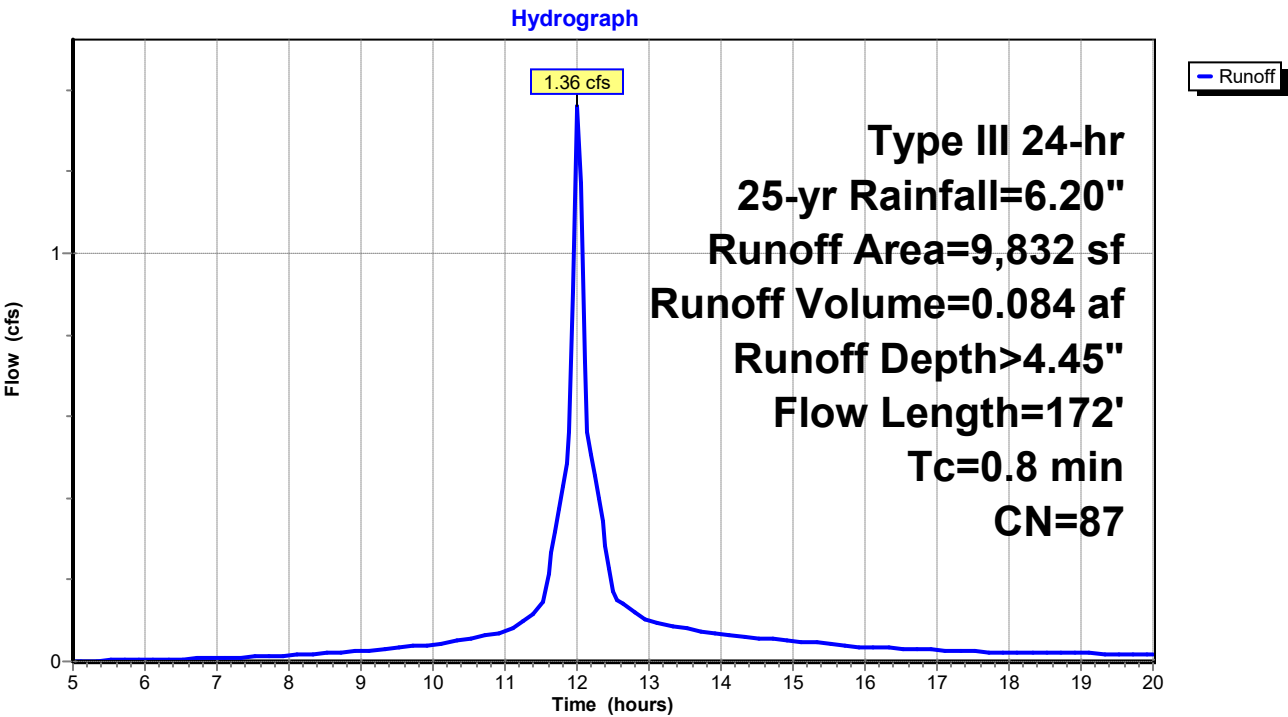
Runoff = 1.36 cfs @ 12.01 hrs, Volume= 0.084 af, Depth> 4.45"
 Routed to Pond 1P : Bioretention Filter Cell 1

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-yr Rainfall=6.20"

Area (sf)	CN	Description
3,430	77	Woods, Good, HSG D
* 982	98	Ledge, HSG D
595	80	>75% Grass cover, Good, HSG D
* 3,935	98	Paved Access Drive, HSG D
* 890	73	Bioretention Filter Cell, Good, HSG D
9,832	87	Weighted Average
4,915		49.99% Pervious Area
4,917		50.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	46	0.0500	1.73		Sheet Flow, Tc-1 Smooth surfaces n= 0.011 P2= 3.30"
0.3	102	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.1	24	0.0625	3.75		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
0.8	172	Total			

Subcatchment 1S: Post Subcatchment 1



UNE-PostDrainage-VD Working

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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 2S: Post Subcatchment 2

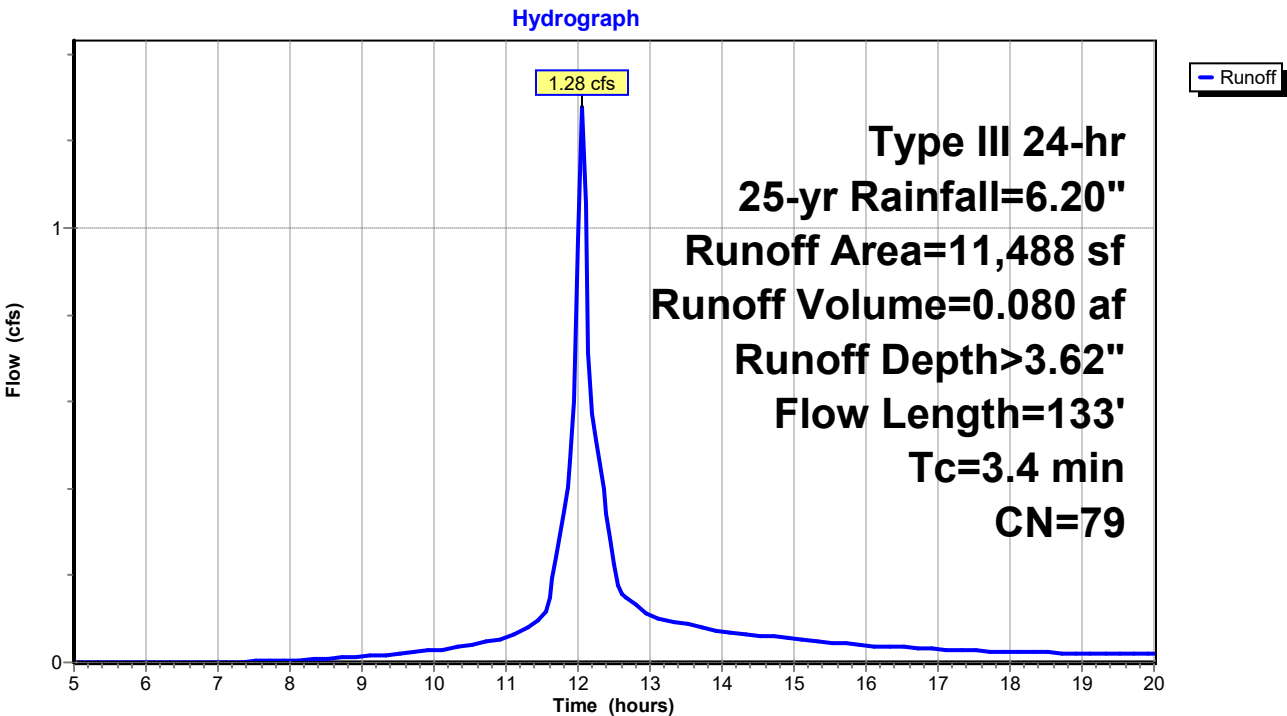
Runoff = 1.28 cfs @ 12.05 hrs, Volume= 0.080 af, Depth> 3.62"
Routed to Link DP1 : DP1

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-yr Rainfall=6.20"

Area (sf)	CN	Description
10,250	77	Woods, Good, HSG D
1,238	98	Paved parking, HSG D
11,488	79	Weighted Average
10,250		89.22% Pervious Area
1,238		10.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.1905	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	112	0.1696	2.06		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
3.4	133	Total			

Subcatchment 2S: Post Subcatchment 2



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 3S: Post Subcatchment 3

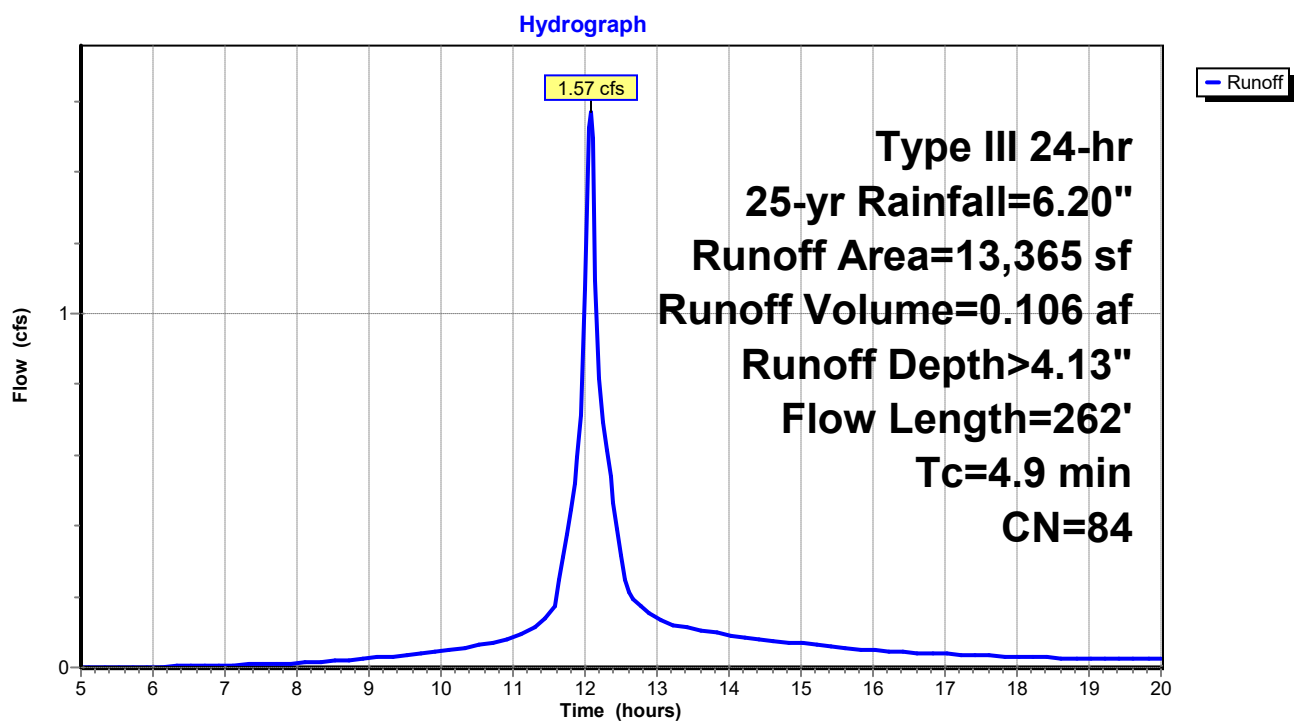
Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.106 af, Depth> 4.13"
 Routed to Pond 3P : Bioretention Filter Cell 2

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-yr Rainfall=6.20"

Area (sf)	CN	Description
6,822	77	Woods, Good, HSG D
* 580	73	Biofiltration cell, Good, HSG D
* 3,768	98	Paved access drive, HSG D
1,487	80	>75% Grass cover, Good, HSG D
* 708	98	Ledge, HSG D
13,365	84	Weighted Average
8,889		66.51% Pervious Area
4,476		33.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	43	0.2093	0.17		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.7	214	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.0	5	0.0500	3.35		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
4.9	262	Total			

Subcatchment 3S: Post Subcatchment 3



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 4S: Post Subcatchment 4

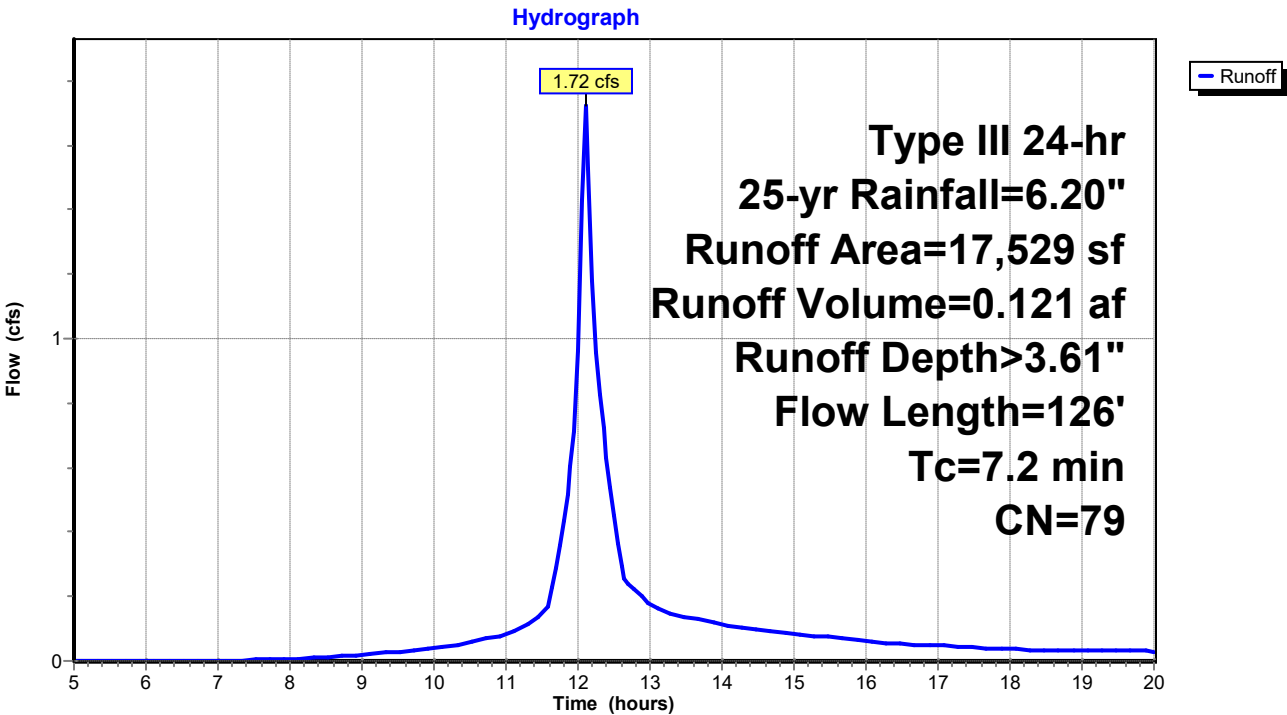
Runoff = 1.72 cfs @ 12.11 hrs, Volume= 0.121 af, Depth> 3.61"
Routed to Link DP2 : DP2

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-yr Rainfall=6.20"

Area (sf)	CN	Description
* 295	98	Paved access drive, HSG D
1,450	80	>75% Grass cover, Good, HSG D
15,784	79	Woods, Fair, HSG D
17,529	79	Weighted Average
17,234		98.32% Pervious Area
295		1.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	62	0.1290	0.15		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	64	0.2343	2.42		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
7.2	126	Total			

Subcatchment 4S: Post Subcatchment 4



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Subcatchment 5S: Post Subcatchment 5

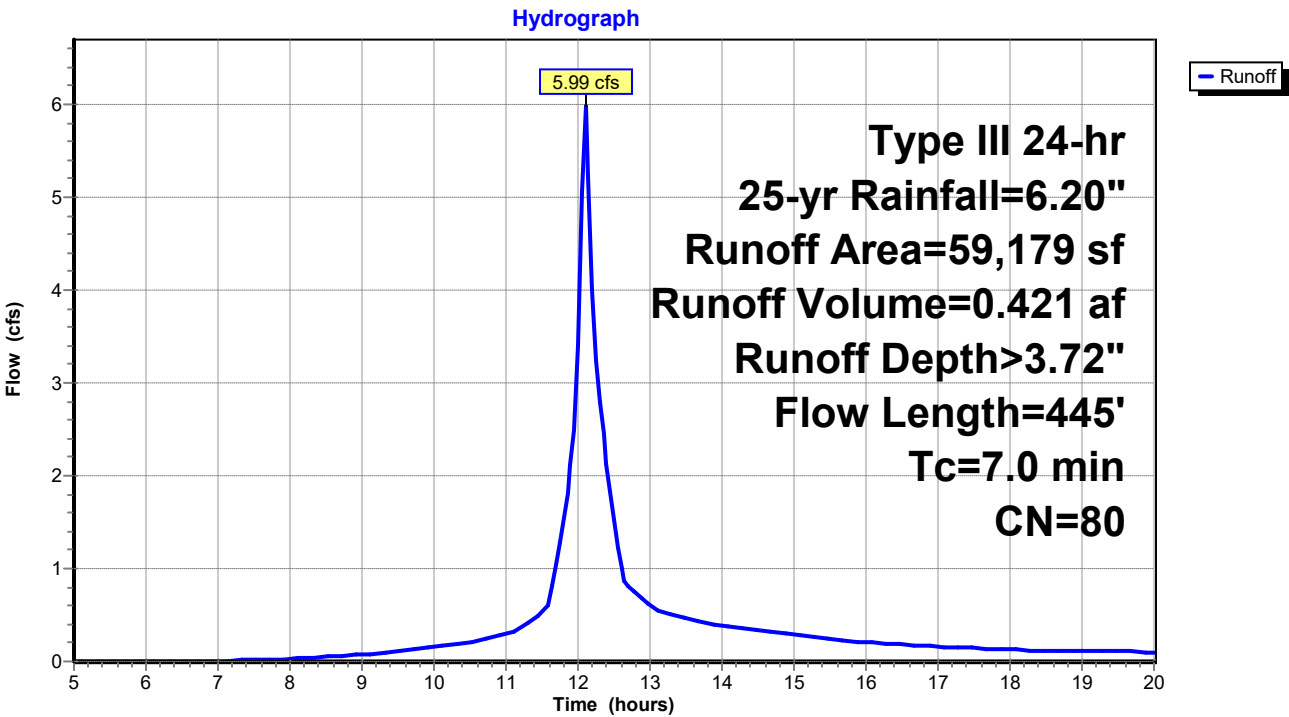
Runoff = 5.99 cfs @ 12.10 hrs, Volume= 0.421 af, Depth> 3.72"
 Routed to Reach DP3 : Shoreline 3

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-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	1,650	98	Paved access drive, HSG D
	751	98	Roofs, HSG D
*	6,955	88	Sand beach, HSG D
	3,872	96	Gravel surface, HSG D
	45,951	77	Woods, Good, HSG D
	59,179	80	Weighted Average
	56,778		95.94% Pervious Area
	2,401		4.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0574	1.20		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-5
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 5S: Post Subcatchment 5



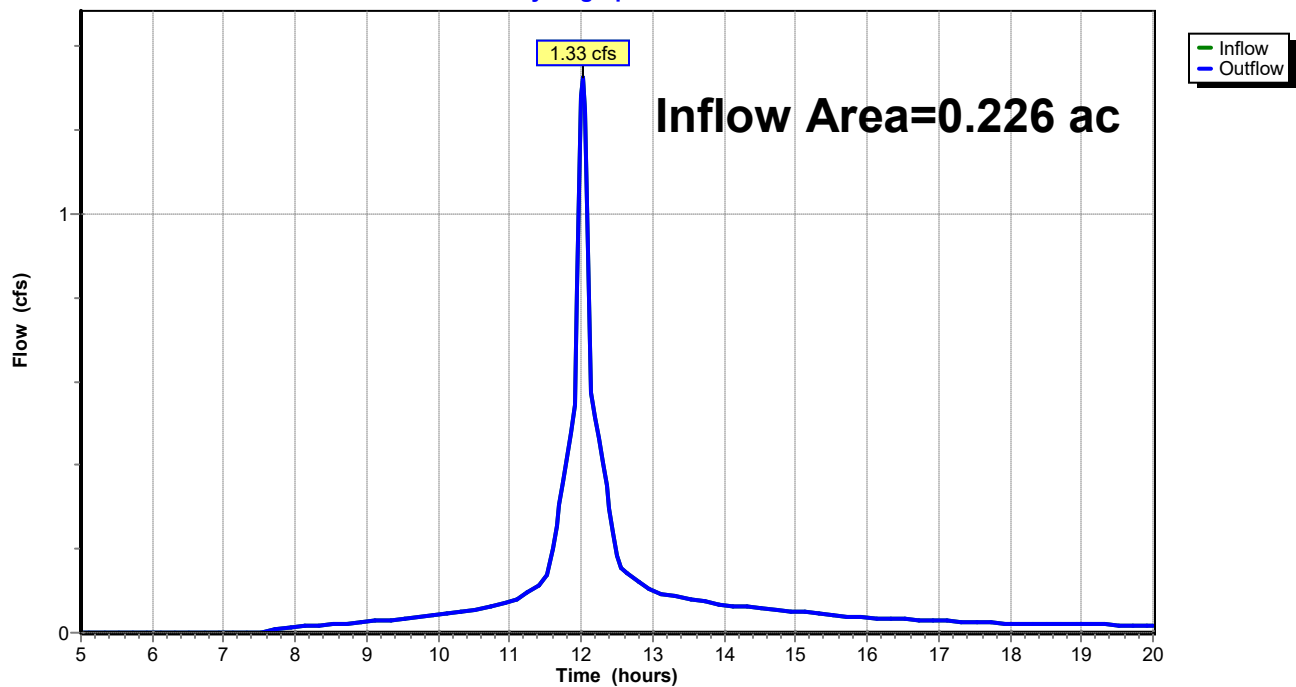
Summary for Reach 1R: Reach 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 4.39" for 25-yr event
 Inflow = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af
 Outflow = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP1 : DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Reach 1

Hydrograph



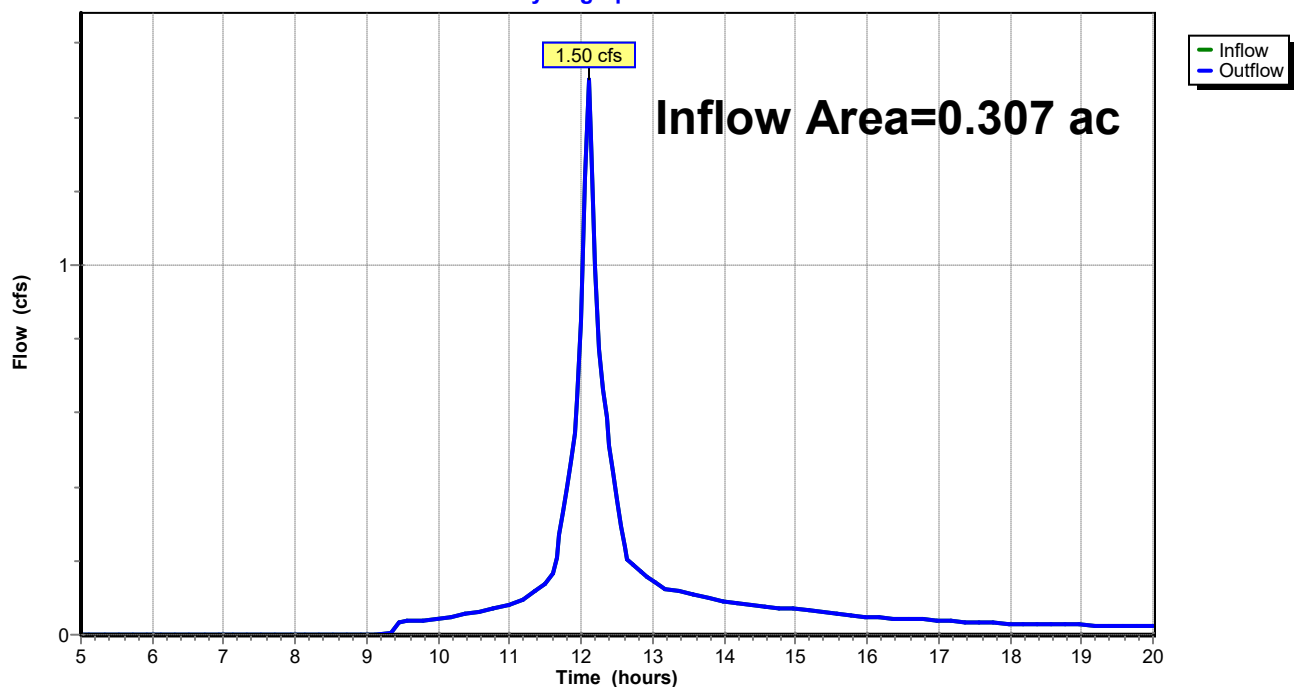
Summary for Reach 2R: Reach 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 3.99" for 25-yr event
 Inflow = 1.50 cfs @ 12.11 hrs, Volume= 0.102 af
 Outflow = 1.50 cfs @ 12.11 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP2 : DP2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Reach 2

Hydrograph

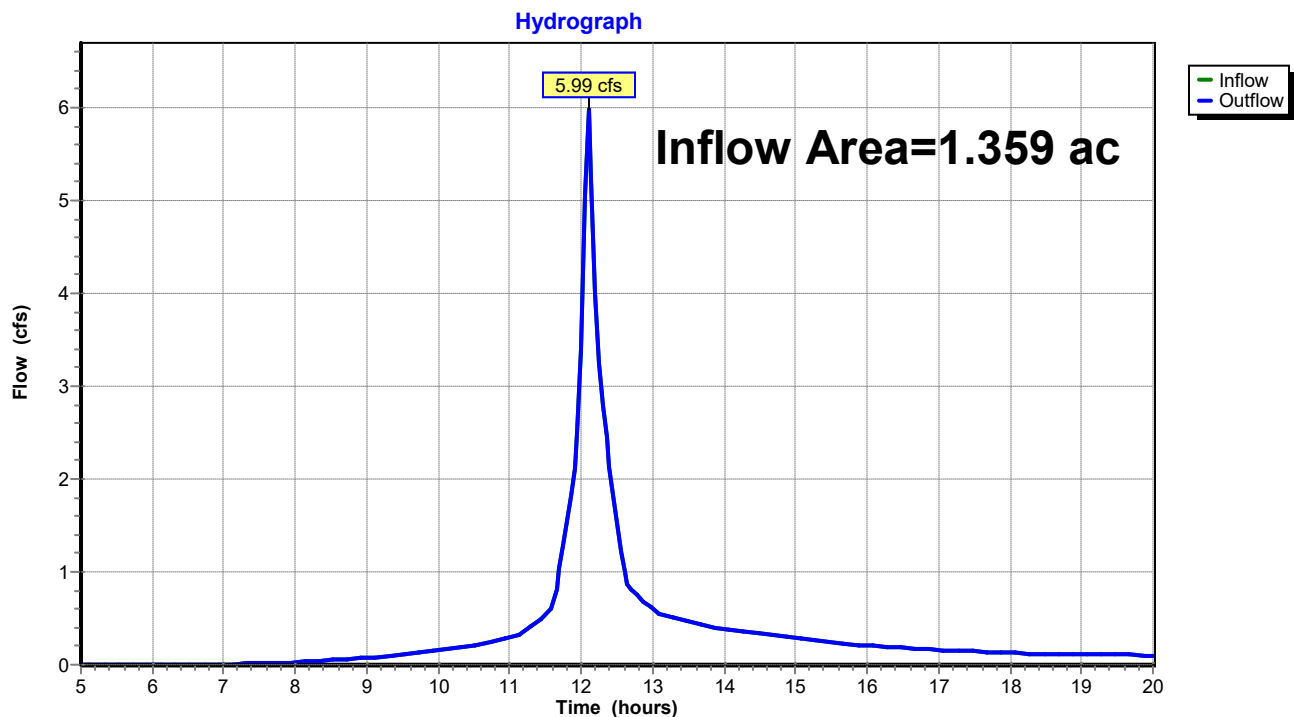


Summary for Reach DP3: Shoreline 3

Inflow Area = 1.359 ac, 4.06% Impervious, Inflow Depth > 3.72" for 25-yr event
 Inflow = 5.99 cfs @ 12.10 hrs, Volume= 0.421 af
 Outflow = 5.99 cfs @ 12.10 hrs, Volume= 0.421 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3



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Type III 24-hr 25-yr Rainfall=6.20"

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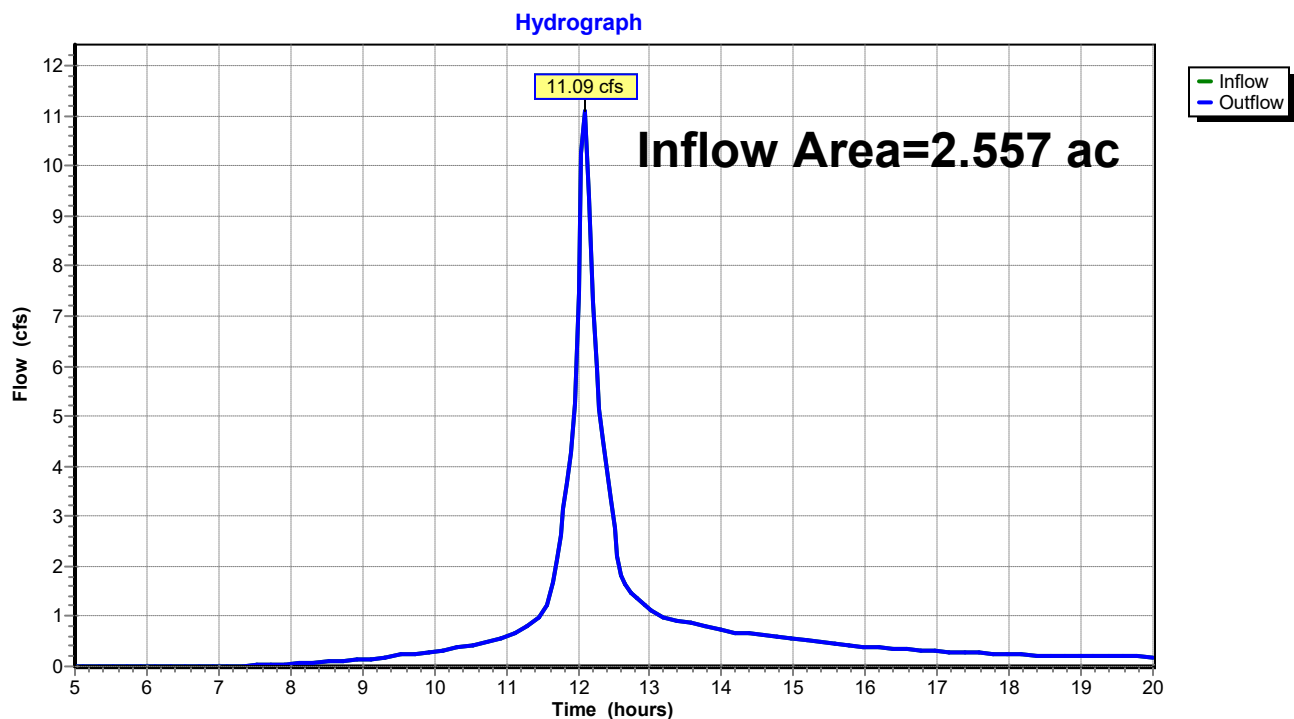
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Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 11.96% Impervious, Inflow Depth > 3.78" for 25-yr event
Inflow = 11.09 cfs @ 12.09 hrs, Volume= 0.806 af
Outflow = 11.09 cfs @ 12.09 hrs, Volume= 0.806 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Pond 1P: Bioretention Filter Cell 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 4.45" for 25-yr event
Inflow = 1.36 cfs @ 12.01 hrs, Volume= 0.084 af
Outflow = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af, Atten= 2%, Lag= 0.6 min
Primary = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af
Routed to Pond 2P : CB-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.20' @ 12.02 hrs Surf.Area= 275 sf Storage= 101 cf

Plug-Flow detention time= 12.6 min calculated for 0.082 af (98% of inflow)
Center-of-Mass det. time= 6.1 min (765.1 - 758.9)

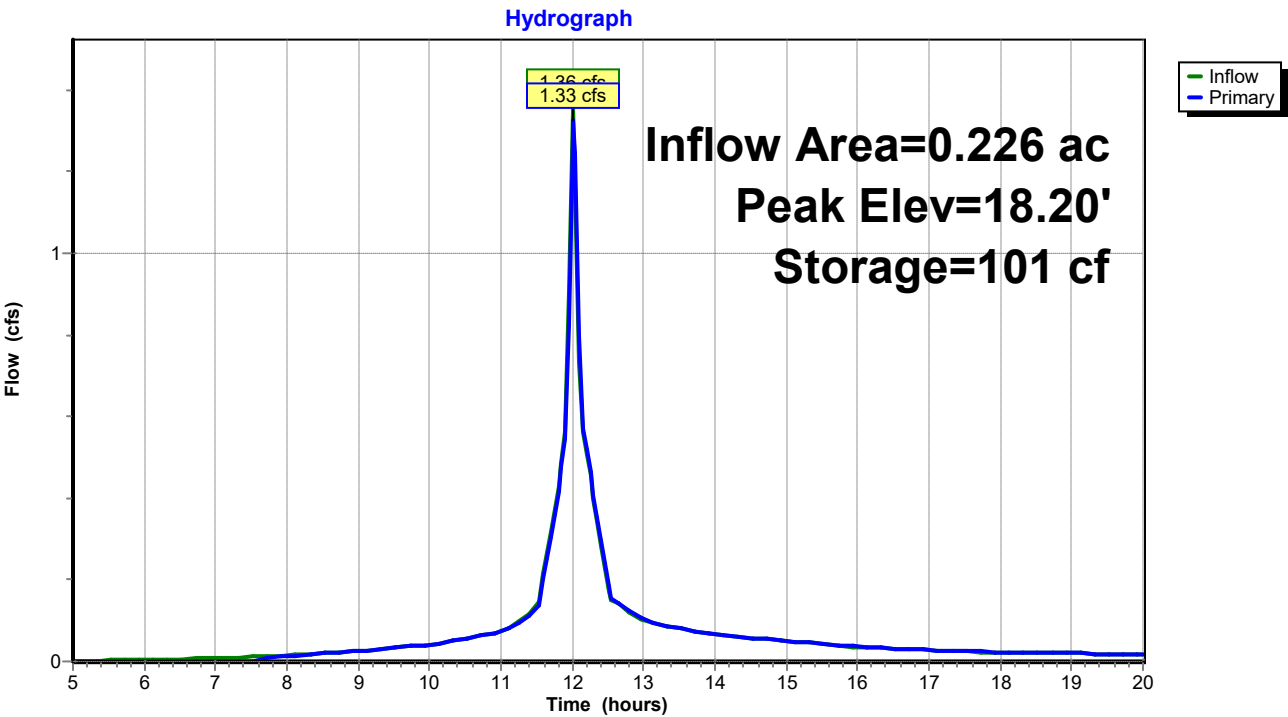
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.27 cfs @ 12.02 hrs HW=18.19' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 1.27 cfs @ 1.42 fps)

Pond 1P: Bioretention Filter Cell 1



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Pond 2P: CB-1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 4.39" for 25-yr event
Inflow = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af
Outflow = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 12.02 hrs, Volume= 0.082 af
Routed to Reach 1R : Reach 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 14.38' @ 12.02 hrs

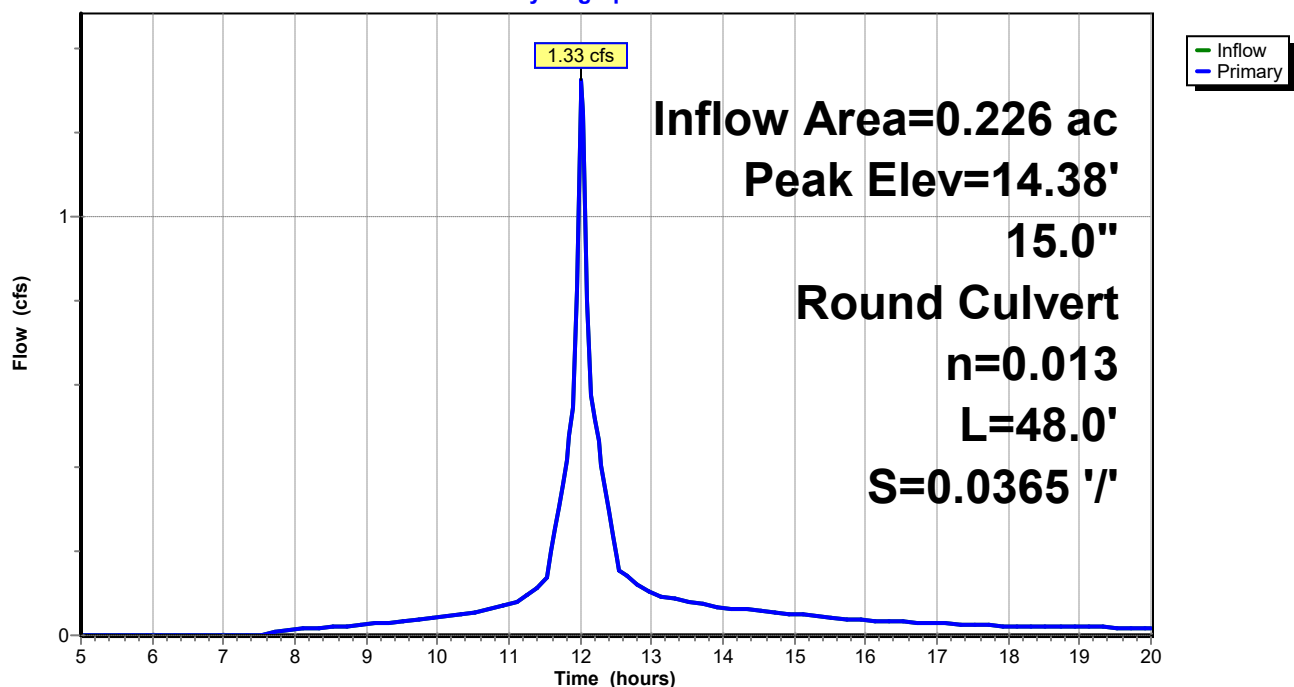
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.27 cfs @ 12.02 hrs HW=14.36' (Free Discharge)

↑1=Culvert (Inlet Controls 1.27 cfs @ 2.11 fps)

Pond 2P: CB-1

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Pond 3P: Bioretention Filter Cell 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 4.13" for 25-yr event
Inflow = 1.57 cfs @ 12.07 hrs, Volume= 0.106 af
Outflow = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af, Atten= 1%, Lag= 0.6 min
Primary = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af
Routed to Pond 4P : CB-2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 23.72' @ 12.08 hrs Surf.Area= 240 sf Storage= 86 cf

Plug-Flow detention time= 7.6 min calculated for 0.104 af (99% of inflow)

Center-of-Mass det. time= 3.8 min (773.5 - 769.7)

Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

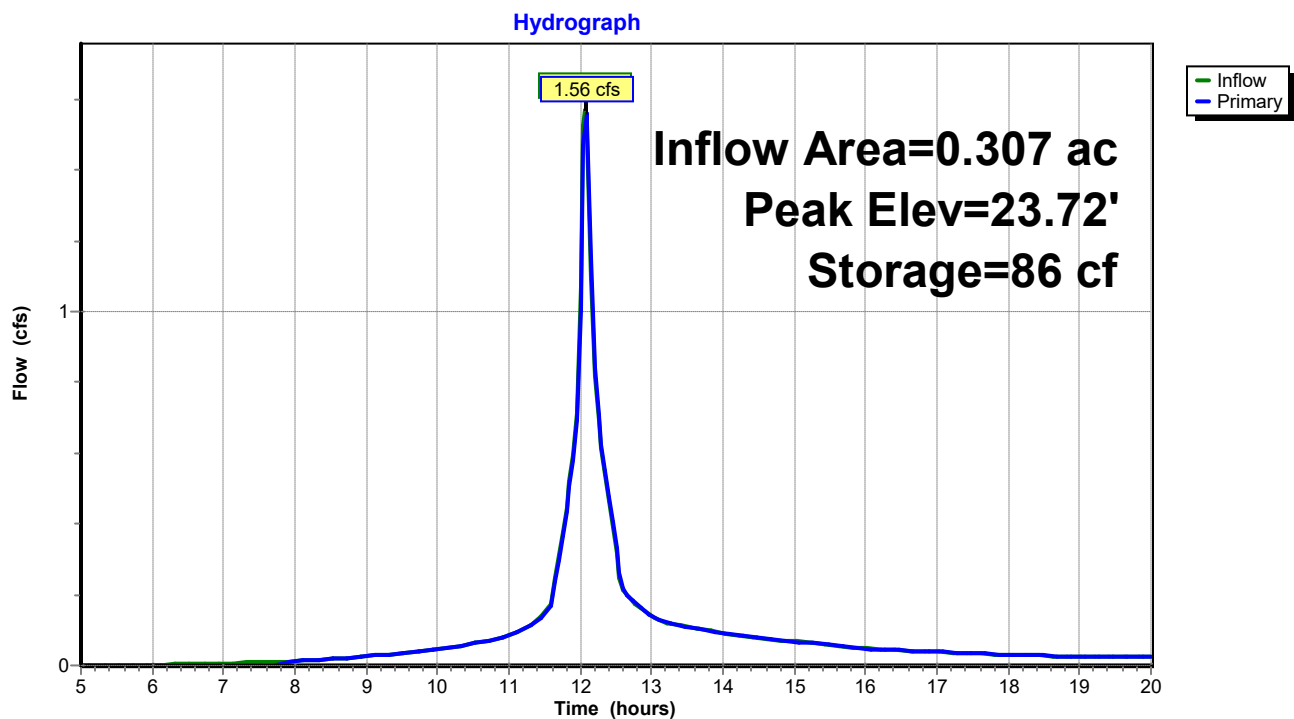
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	0	0	0
24.00	335	168	168
24.50	515	213	380

Device	Routing	Invert	Outlet Devices
#1	Primary	23.50'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.51 cfs @ 12.08 hrs HW=23.71' (Free Discharge)

↑ **1=Orifice/Grate** (Weir Controls 1.51 cfs @ 1.51 fps)

Pond 3P: Bioretention Filter Cell 2



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Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Pond 4P: CB-2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 4.09" for 25-yr event
Inflow = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af
Outflow = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af
Routed to Pond 5P : Level Lip Spreader

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 19.39' @ 12.08 hrs

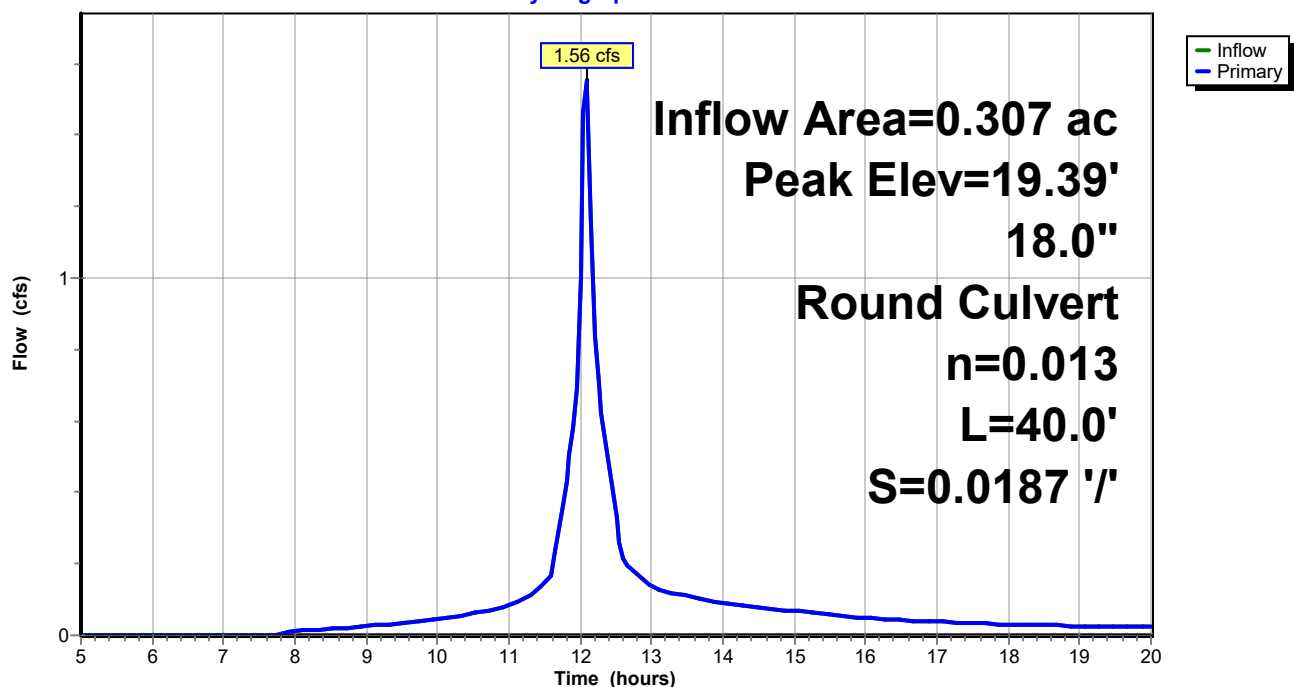
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.51 cfs @ 12.08 hrs HW=19.38' (Free Discharge)

↑1=Culvert (Inlet Controls 1.51 cfs @ 2.13 fps)

Pond 4P: CB-2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 25-yr Rainfall=6.20"

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Summary for Pond 5P: Level Lip Spreader

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 4.09" for 25-yr event
 Inflow = 1.56 cfs @ 12.08 hrs, Volume= 0.105 af
 Outflow = 1.50 cfs @ 12.11 hrs, Volume= 0.102 af, Atten= 4%, Lag= 1.4 min
 Primary = 1.50 cfs @ 12.11 hrs, Volume= 0.102 af
 Routed to Reach 2R : Reach 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.00' @ 9.40 hrs Surf.Area= 168 sf Storage= 115 cf
 Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

Plug-Flow detention time= 17.8 min calculated for 0.102 af (97% of inflow)
 Center-of-Mass det. time= 7.7 min (781.2 - 773.5)

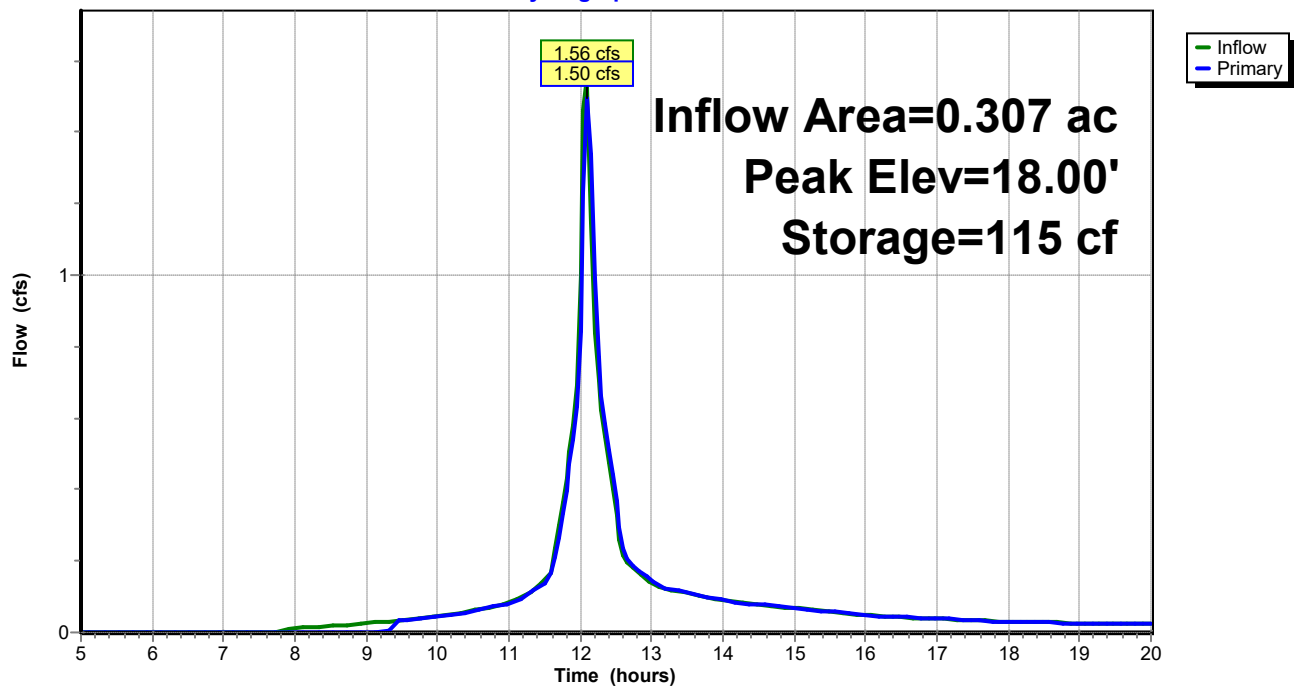
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

Device	Routing	Invert	Outlet Devices
#0	Primary	18.00'	Automatic Storage Overflow (Discharged without head)

Primary OutFlow Max=0.00 cfs @ 12.11 hrs HW=18.00' (Free Discharge)

Pond 5P: Level Lip Spreader

Hydrograph



UNE-PostDrainage-VD Working

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Type III 24-hr 25-yr Rainfall=6.20"

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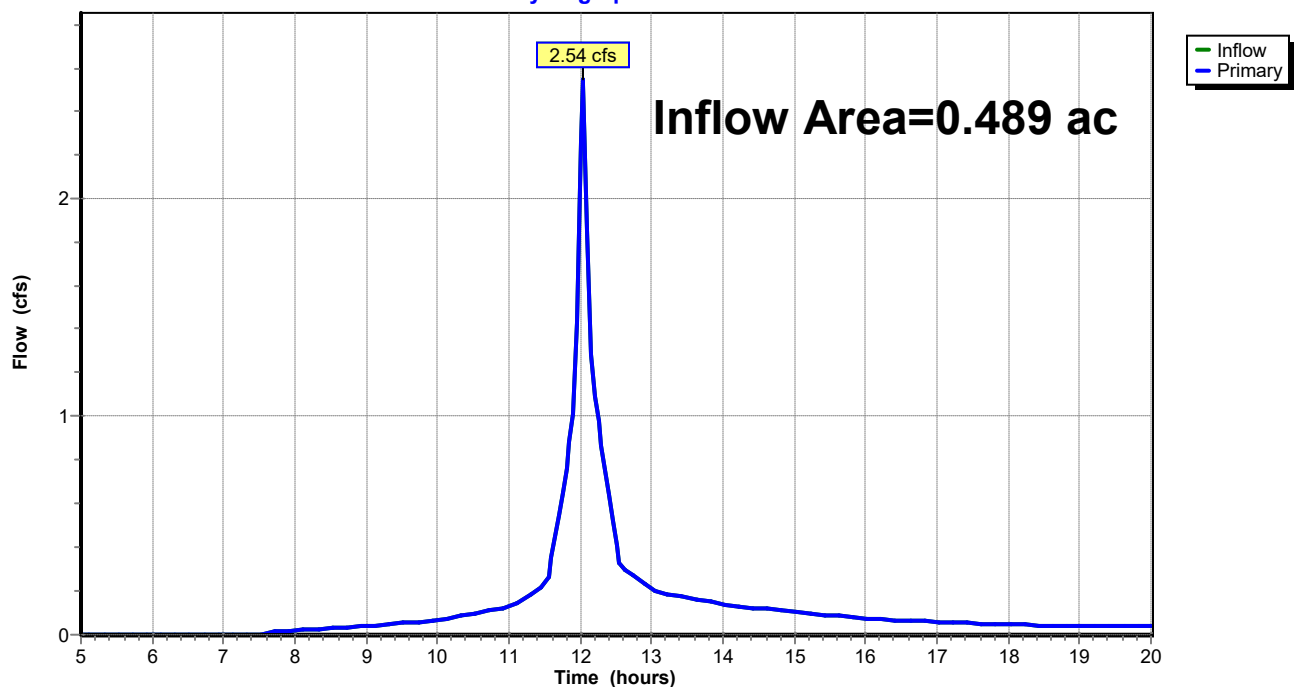
Summary for Link DP1: DP1

Inflow Area = 0.489 ac, 28.87% Impervious, Inflow Depth > 3.97" for 25-yr event
Inflow = 2.54 cfs @ 12.04 hrs, Volume= 0.162 af
Primary = 2.54 cfs @ 12.04 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

Hydrograph



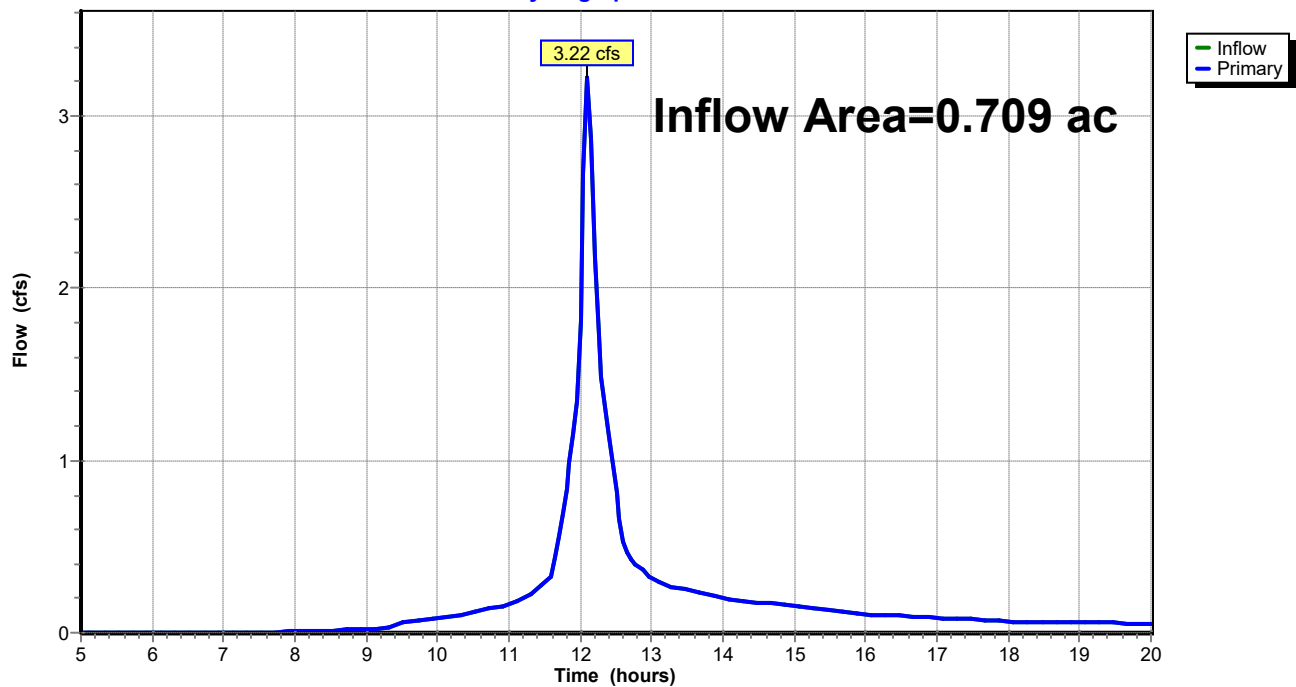
Summary for Link DP2: DP2

Inflow Area = 0.709 ac, 15.44% Impervious, Inflow Depth > 3.77" for 25-yr event
 Inflow = 3.22 cfs @ 12.11 hrs, Volume= 0.223 af
 Primary = 3.22 cfs @ 12.11 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 100-yr Rainfall=8.70"

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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 method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Subcatchment 1 Runoff Area=9,832 sf 50.01% Impervious Runoff Depth>6.75"
Flow Length=172' Tc=0.8 min CN=87 Runoff=2.01 cfs 0.127 af

Subcatchment 2S: Post Subcatchment 2 Runoff Area=11,488 sf 10.78% Impervious Runoff Depth>5.81"
Flow Length=133' Tc=3.4 min CN=79 Runoff=2.01 cfs 0.128 af

Subcatchment 3S: Post Subcatchment 3 Runoff Area=13,365 sf 33.49% Impervious Runoff Depth>6.40"
Flow Length=262' Tc=4.9 min CN=84 Runoff=2.37 cfs 0.164 af

Subcatchment 4S: Post Subcatchment 4 Runoff Area=17,529 sf 1.68% Impervious Runoff Depth>5.80"
Flow Length=126' Tc=7.2 min CN=79 Runoff=2.71 cfs 0.195 af

Subcatchment 5S: Post Subcatchment 5 Runoff Area=59,179 sf 4.06% Impervious Runoff Depth>5.92"
Flow Length=445' Tc=7.0 min CN=80 Runoff=9.35 cfs 0.670 af

Reach 1R: Reach 1 Inflow=1.97 cfs 0.126 af
Outflow=1.97 cfs 0.126 af

Reach 2R: Reach 2 Inflow=2.27 cfs 0.160 af
Outflow=2.27 cfs 0.160 af

Reach DP3: Shoreline 3 Inflow=9.35 cfs 0.670 af
Outflow=9.35 cfs 0.670 af

Reach SP1: SACO RIVER / OCEAN Inflow=17.21 cfs 1.278 af
Outflow=17.21 cfs 1.278 af

Pond 1P: Bioretention Filter Cell 1 Peak Elev=18.25' Storage=118 cf Inflow=2.01 cfs 0.127 af
Outflow=1.97 cfs 0.126 af

Pond 2P: CB-1 Peak Elev=14.54' Inflow=1.97 cfs 0.126 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0365 ' /' Outflow=1.97 cfs 0.126 af

Pond 3P: Bioretention Filter Cell 2 Peak Elev=23.79' Storage=103 cf Inflow=2.37 cfs 0.164 af
Outflow=2.35 cfs 0.163 af

Pond 4P: CB-2 Peak Elev=19.56' Inflow=2.35 cfs 0.163 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0187 ' /' Outflow=2.35 cfs 0.163 af

Pond 5P: Level Lip Spreader Peak Elev=18.00' Storage=115 cf Inflow=2.35 cfs 0.163 af
Outflow=2.27 cfs 0.160 af

Link DP1: DP1 Inflow=3.88 cfs 0.253 af
Primary=3.88 cfs 0.253 af

Link DP2: DP2 Inflow=4.98 cfs 0.354 af
Primary=4.98 cfs 0.354 af

UNE-PostDrainage-VD Working

Type III 24-hr 100-yr Rainfall=8.70"

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Total Runoff Area = 2.557 ac Runoff Volume = 1.283 af Average Runoff Depth = 6.02"
88.04% Pervious = 2.251 ac 11.96% Impervious = 0.306 ac

UNE-PostDrainage-VD Working

Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 1S: Post Subcatchment 1

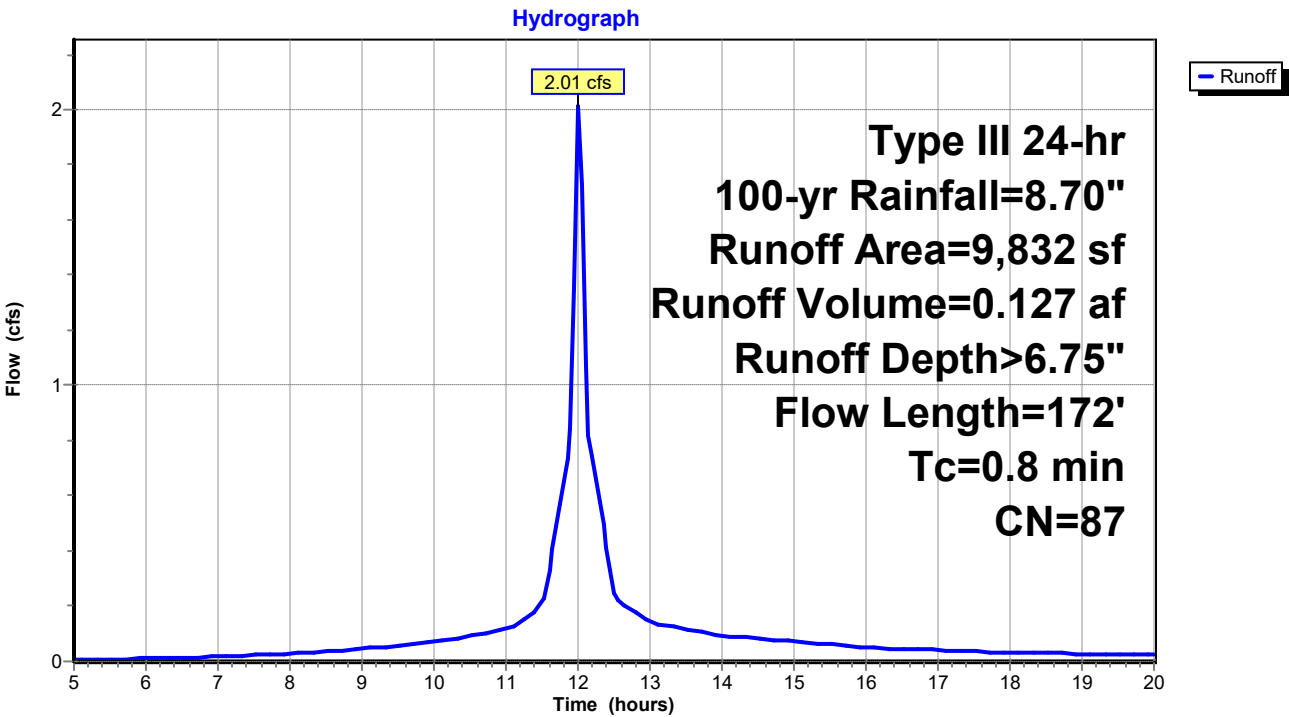
Runoff = 2.01 cfs @ 12.01 hrs, Volume= 0.127 af, Depth> 6.75"
 Routed to Pond 1P : Bioretention Filter Cell 1

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
3,430	77	Woods, Good, HSG D
* 982	98	Ledge, HSG D
595	80	>75% Grass cover, Good, HSG D
* 3,935	98	Paved Access Drive, HSG D
* 890	73	Bioretention Filter Cell, Good, HSG D
9,832	87	Weighted Average
4,915		49.99% Pervious Area
4,917		50.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	46	0.0500	1.73		Sheet Flow, Tc-1 Smooth surfaces n= 0.011 P2= 3.30"
0.3	102	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.1	24	0.0625	3.75		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
0.8	172	Total			

Subcatchment 1S: Post Subcatchment 1



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 2S: Post Subcatchment 2

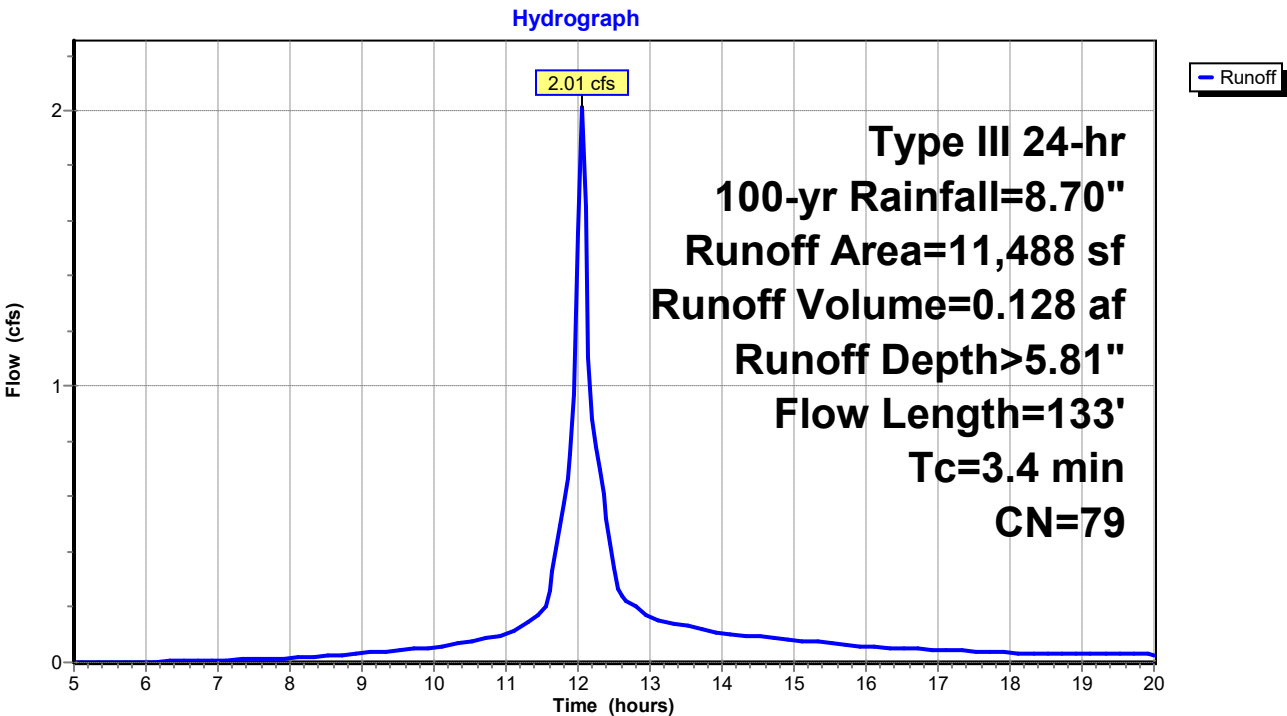
Runoff = 2.01 cfs @ 12.05 hrs, Volume= 0.128 af, Depth> 5.81"
Routed to Link DP1 : DP1

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
10,250	77	Woods, Good, HSG D
1,238	98	Paved parking, HSG D
11,488	79	Weighted Average
10,250		89.22% Pervious Area
1,238		10.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.1905	0.14		Sheet Flow, Tc-1
0.9	112	0.1696	2.06		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
3.4	133	Total			

Subcatchment 2S: Post Subcatchment 2



UNE-PostDrainage-VD Working

Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 3S: Post Subcatchment 3

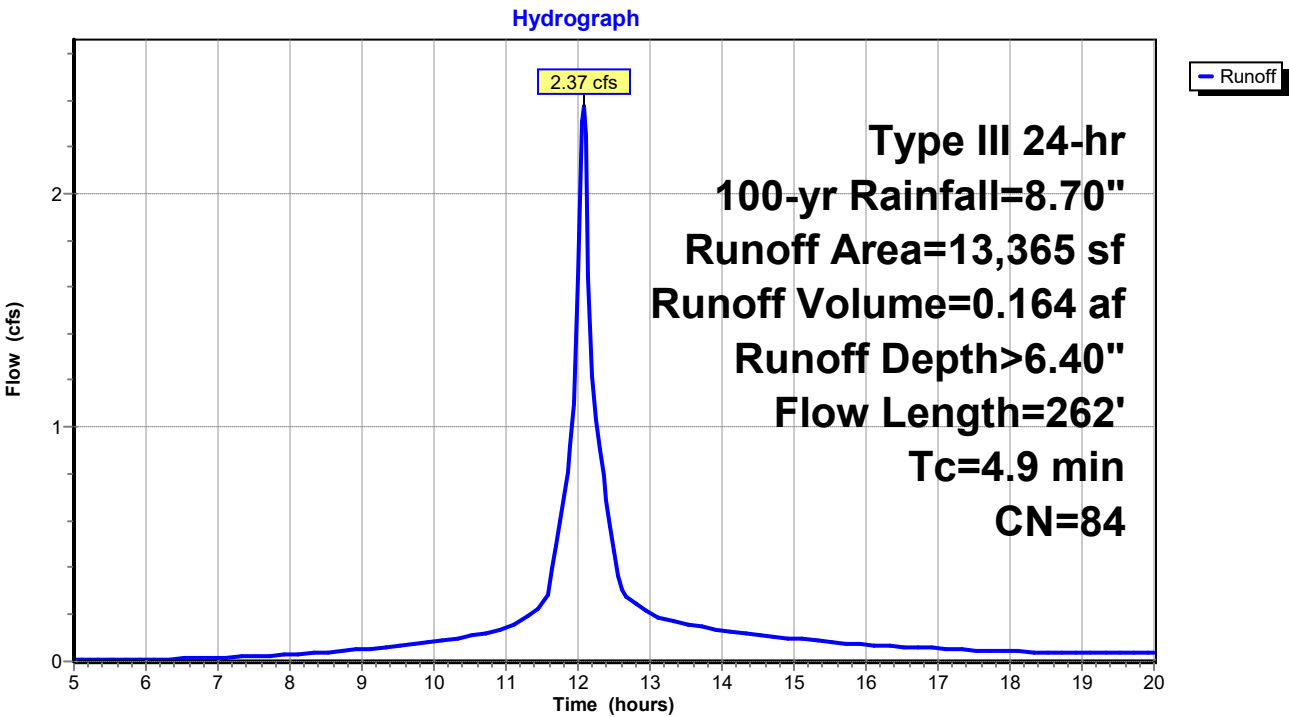
Runoff = 2.37 cfs @ 12.07 hrs, Volume= 0.164 af, Depth> 6.40"
 Routed to Pond 3P : Bioretention Filter Cell 2

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
6,822	77	Woods, Good, HSG D
* 580	73	Biofiltration cell, Good, HSG D
* 3,768	98	Paved access drive, HSG D
1,487	80	>75% Grass cover, Good, HSG D
* 708	98	Ledge, HSG D
13,365	84	Weighted Average
8,889		66.51% Pervious Area
4,476		33.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	43	0.2093	0.17		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.7	214	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.0	5	0.0500	3.35		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
4.9	262	Total			

Subcatchment 3S: Post Subcatchment 3



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 4S: Post Subcatchment 4

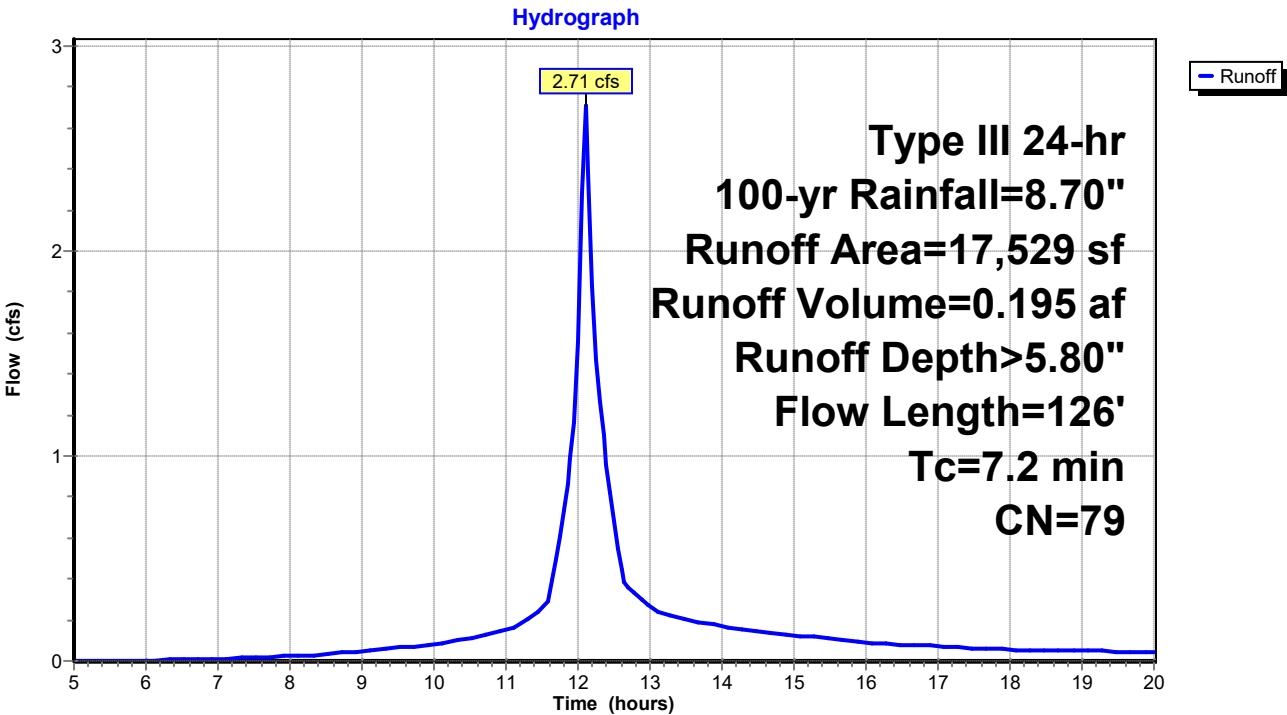
Runoff = 2.71 cfs @ 12.10 hrs, Volume= 0.195 af, Depth> 5.80"
Routed to Link DP2 : DP2

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 100-yr Rainfall=8.70"

Area (sf)	CN	Description
* 295	98	Paved access drive, HSG D
1,450	80	>75% Grass cover, Good, HSG D
15,784	79	Woods, Fair, HSG D
17,529	79	Weighted Average
17,234		98.32% Pervious Area
295		1.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	62	0.1290	0.15		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	64	0.2343	2.42		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
7.2	126	Total			

Subcatchment 4S: Post Subcatchment 4



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Subcatchment 5S: Post Subcatchment 5

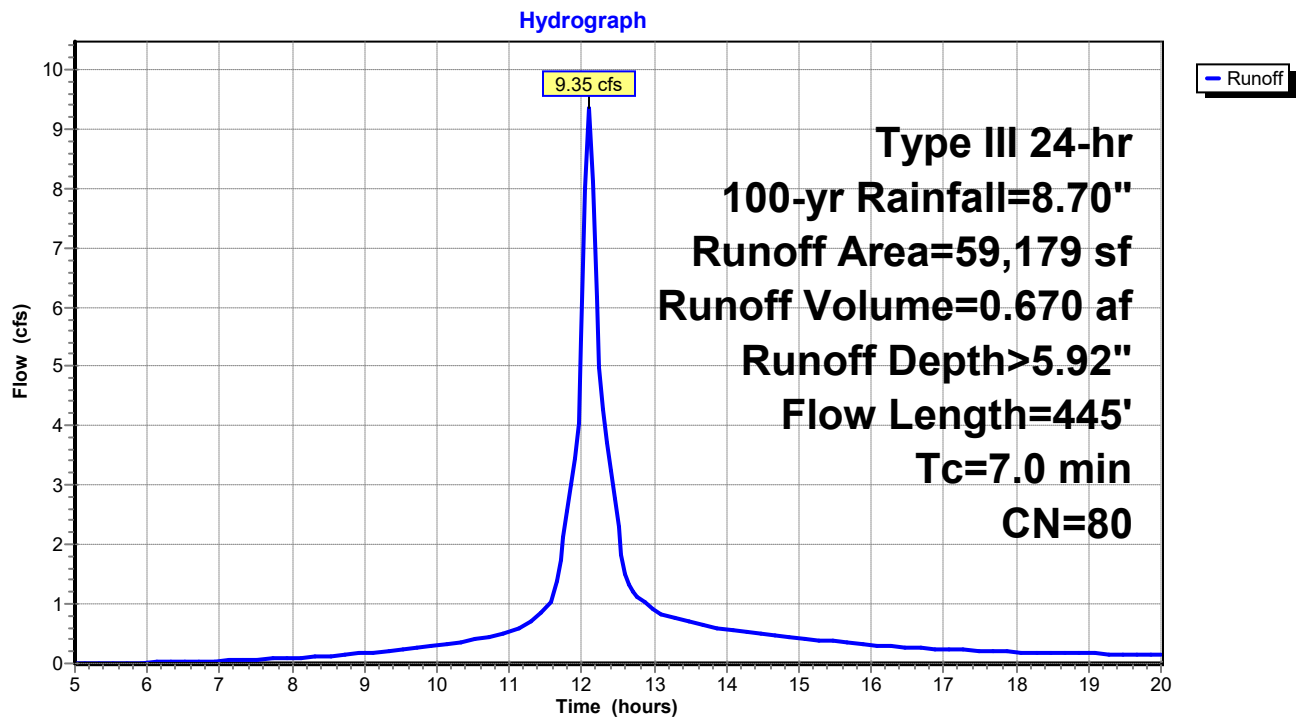
Runoff = 9.35 cfs @ 12.10 hrs, Volume= 0.670 af, Depth> 5.92"
 Routed to Reach DP3 : Shoreline 3

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 100-yr Rainfall=8.70"

	Area (sf)	CN	Description
*	1,650	98	Paved access drive, HSG D
	751	98	Roofs, HSG D
*	6,955	88	Sand beach, HSG D
	3,872	96	Gravel surface, HSG D
	45,951	77	Woods, Good, HSG D
	59,179	80	Weighted Average
	56,778		95.94% Pervious Area
	2,401		4.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0574	1.20		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-5
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 5S: Post Subcatchment 5



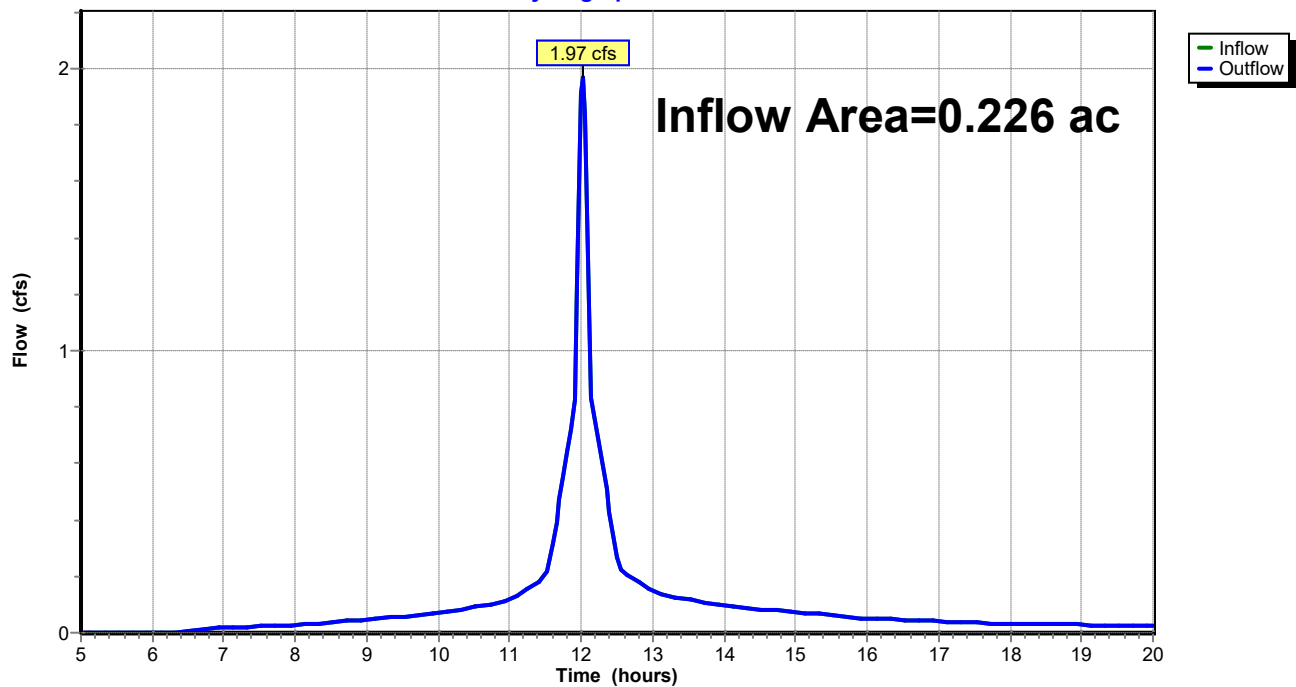
Summary for Reach 1R: Reach 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 6.68" for 100-yr event
 Inflow = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af
 Outflow = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP1 : DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Reach 1

Hydrograph



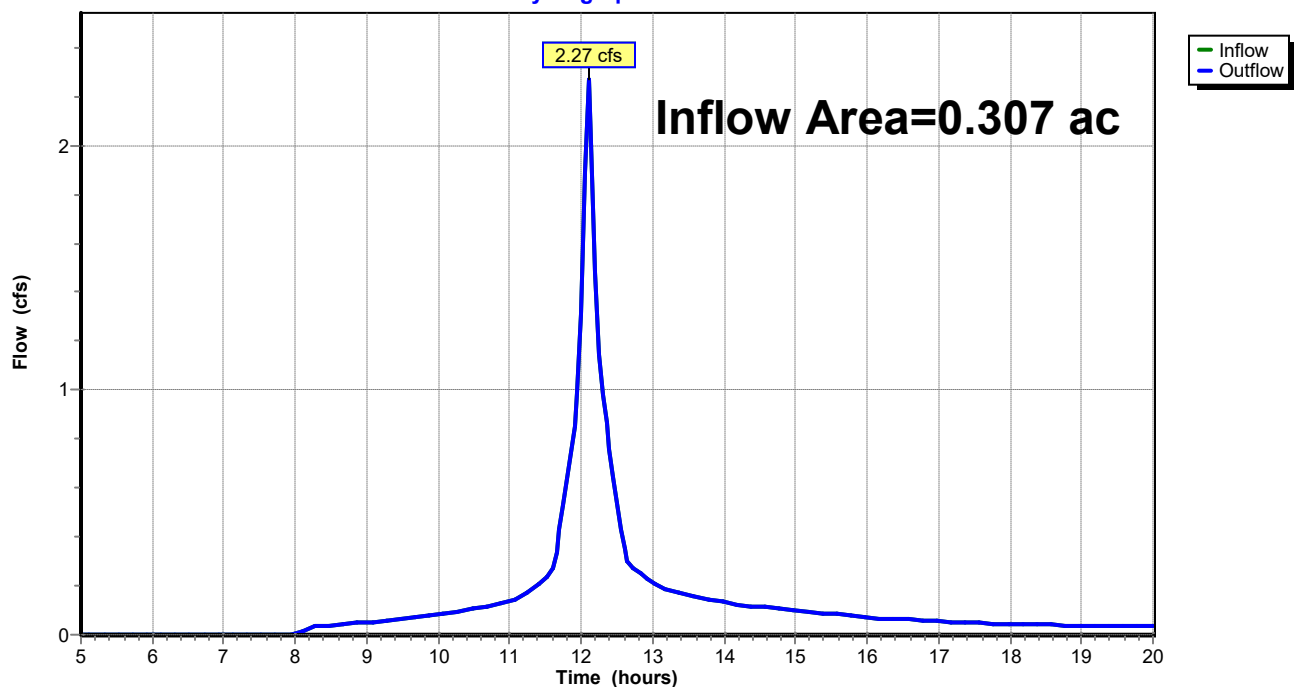
Summary for Reach 2R: Reach 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 6.25" for 100-yr event
 Inflow = 2.27 cfs @ 12.10 hrs, Volume= 0.160 af
 Outflow = 2.27 cfs @ 12.10 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
 Routed to Link DP2 : DP2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Reach 2

Hydrograph

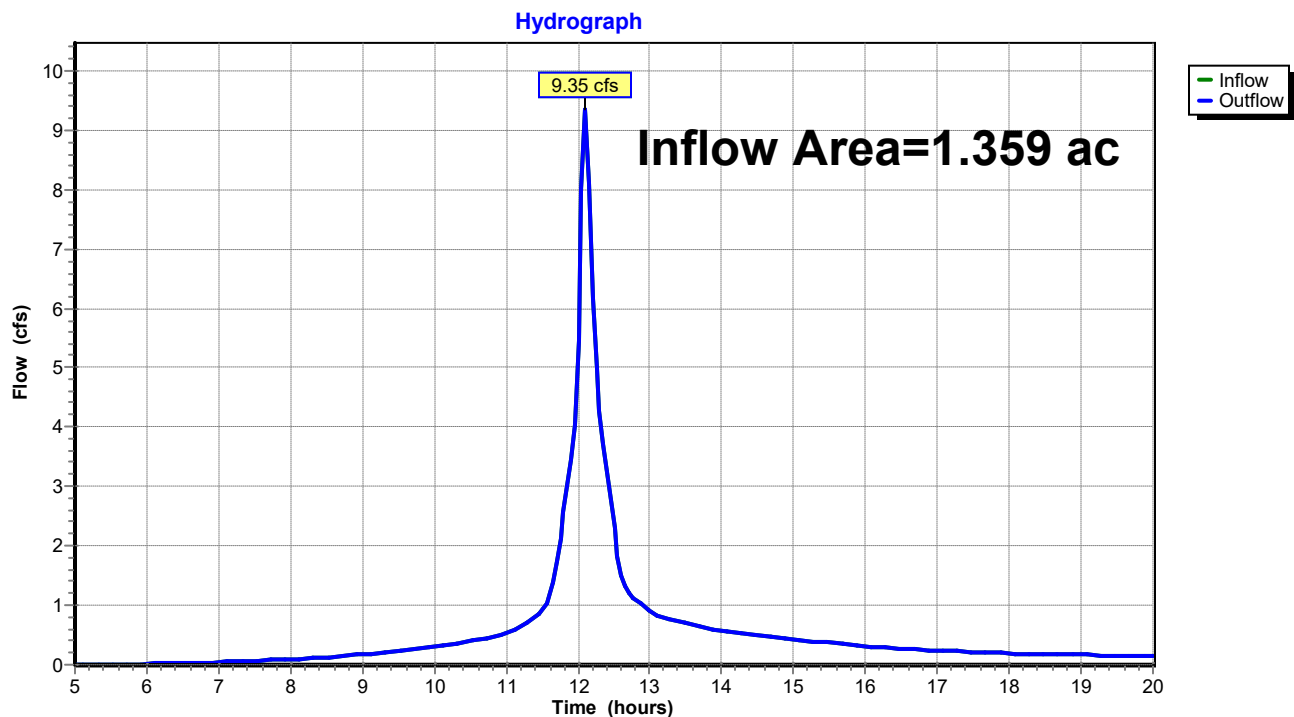


Summary for Reach DP3: Shoreline 3

Inflow Area = 1.359 ac, 4.06% Impervious, Inflow Depth > 5.92" for 100-yr event
 Inflow = 9.35 cfs @ 12.10 hrs, Volume= 0.670 af
 Outflow = 9.35 cfs @ 12.10 hrs, Volume= 0.670 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3

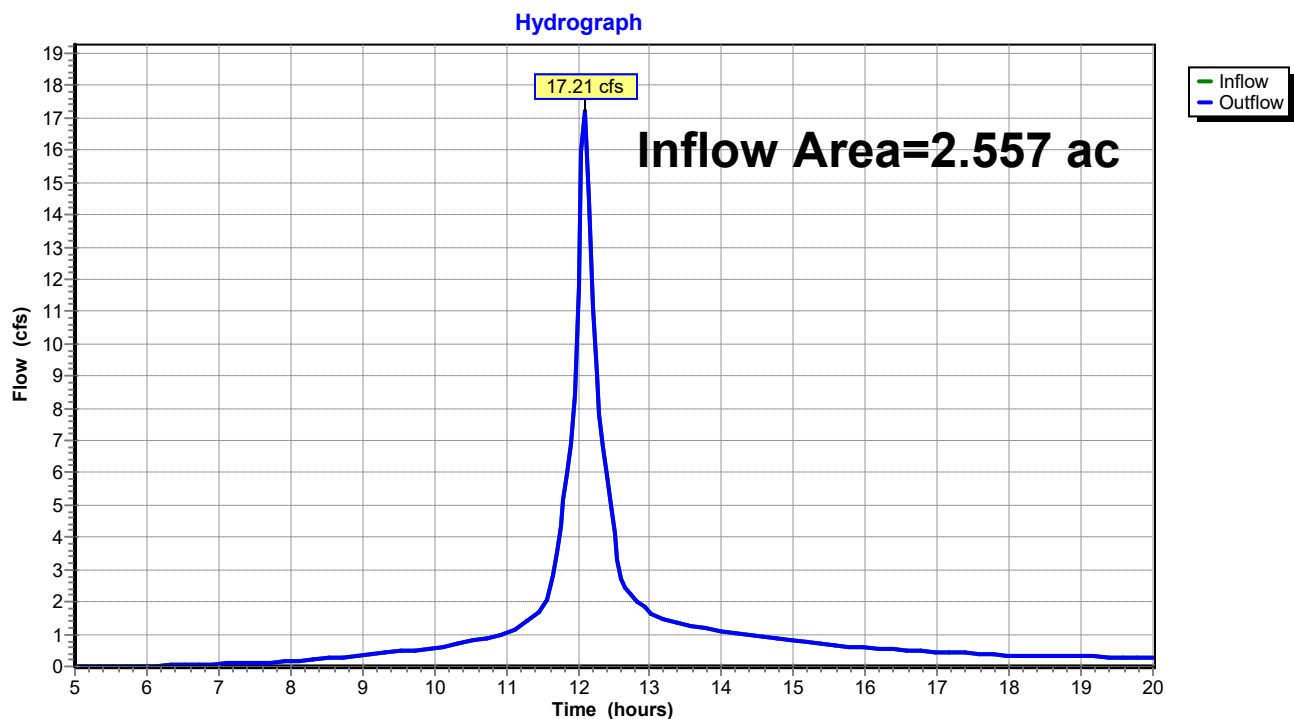


Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 11.96% Impervious, Inflow Depth > 6.00" for 100-yr event
 Inflow = 17.21 cfs @ 12.09 hrs, Volume= 1.278 af
 Outflow = 17.21 cfs @ 12.09 hrs, Volume= 1.278 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Pond 1P: Bioretention Filter Cell 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 6.75" for 100-yr event
Inflow = 2.01 cfs @ 12.01 hrs, Volume= 0.127 af
Outflow = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af, Atten= 2%, Lag= 0.6 min
Primary = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af
Routed to Pond 2P : CB-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.25' @ 12.02 hrs Surf.Area= 294 sf Storage= 118 cf

Plug-Flow detention time= 9.1 min calculated for 0.125 af (99% of inflow)
Center-of-Mass det. time= 4.7 min (754.9 - 750.3)

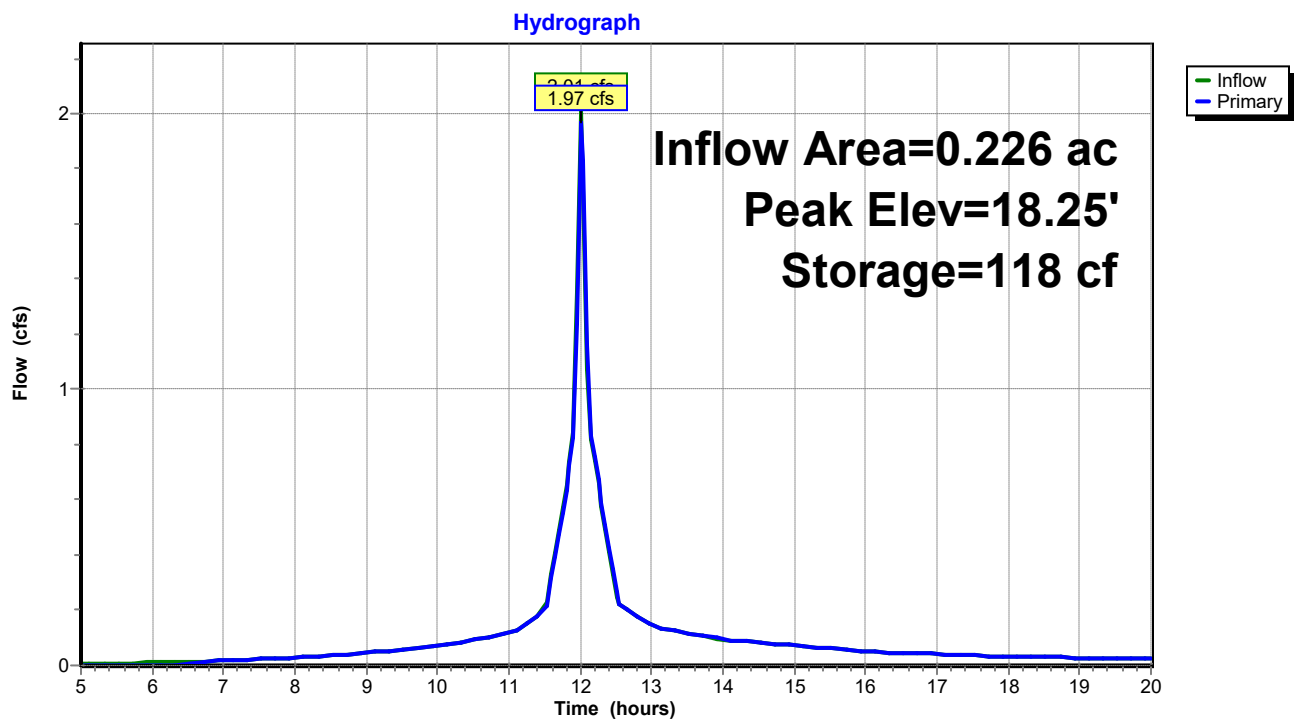
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=1.88 cfs @ 12.02 hrs HW=18.25' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 1.88 cfs @ 1.62 fps)

Pond 1P: Bioretention Filter Cell 1



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Pond 2P: CB-1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 6.68" for 100-yr event
Inflow = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af
Outflow = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
Primary = 1.97 cfs @ 12.02 hrs, Volume= 0.126 af
Routed to Reach 1R : Reach 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 14.54' @ 12.02 hrs

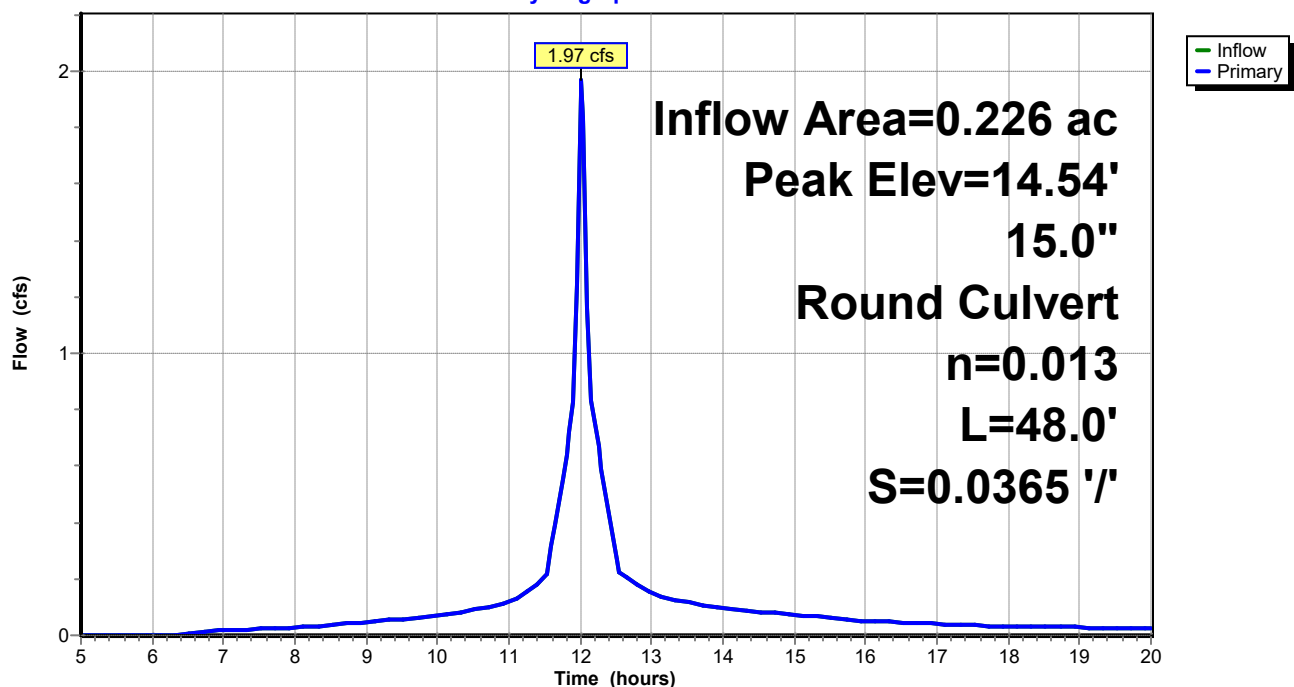
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.88 cfs @ 12.02 hrs HW=14.52' (Free Discharge)

↑1=Culvert (Inlet Controls 1.88 cfs @ 2.36 fps)

Pond 2P: CB-1

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Pond 3P: Bioretention Filter Cell 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 6.40" for 100-yr event
Inflow = 2.37 cfs @ 12.07 hrs, Volume= 0.164 af
Outflow = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af, Atten= 1%, Lag= 0.6 min
Primary = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af
Routed to Pond 4P : CB-2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 23.79' @ 12.08 hrs Surf.Area= 263 sf Storage= 103 cf

Plug-Flow detention time= 5.8 min calculated for 0.163 af (99% of inflow)
Center-of-Mass det. time= 3.0 min (762.5 - 759.5)

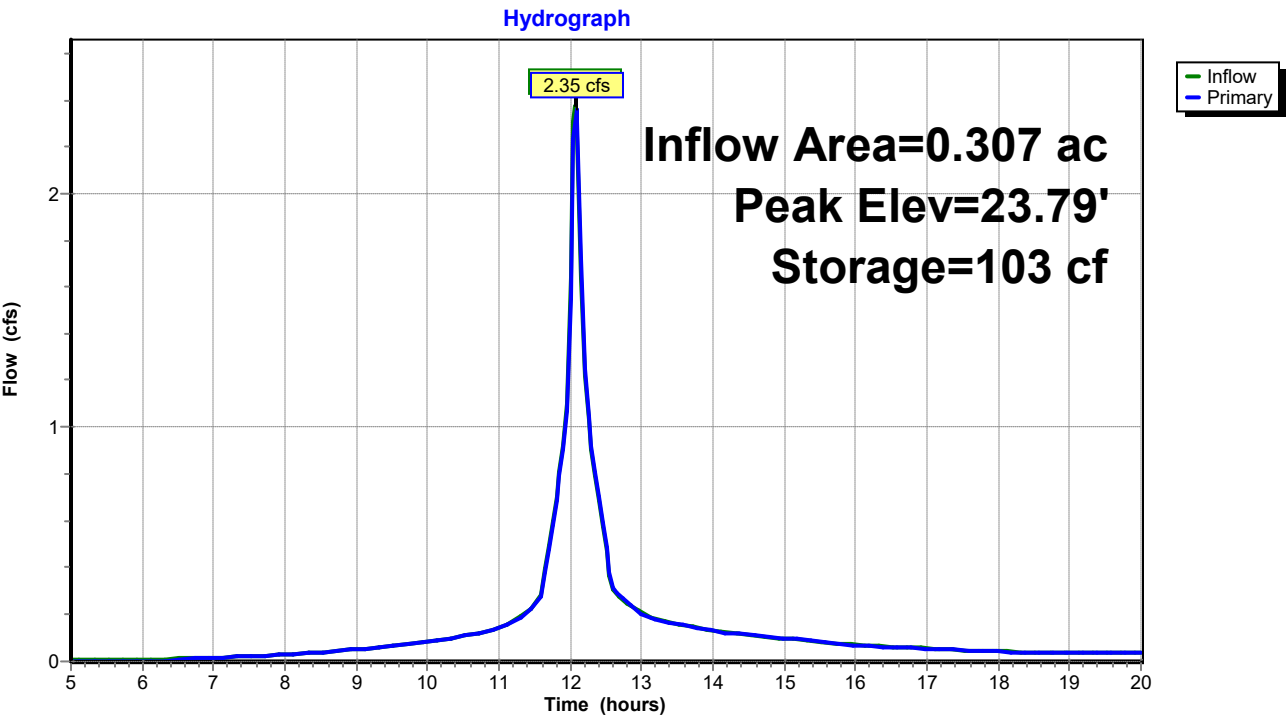
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	0	0	0
24.00	335	168	168
24.50	515	213	380

Device	Routing	Invert	Outlet Devices
#1	Primary	23.50'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=2.28 cfs @ 12.08 hrs HW=23.78' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 2.28 cfs @ 1.73 fps)

Pond 3P: Bioretention Filter Cell 2



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Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Pond 4P: CB-2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 6.36" for 100-yr event
Inflow = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af
Outflow = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af
Routed to Pond 5P : Level Lip Spreader

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 19.56' @ 12.08 hrs

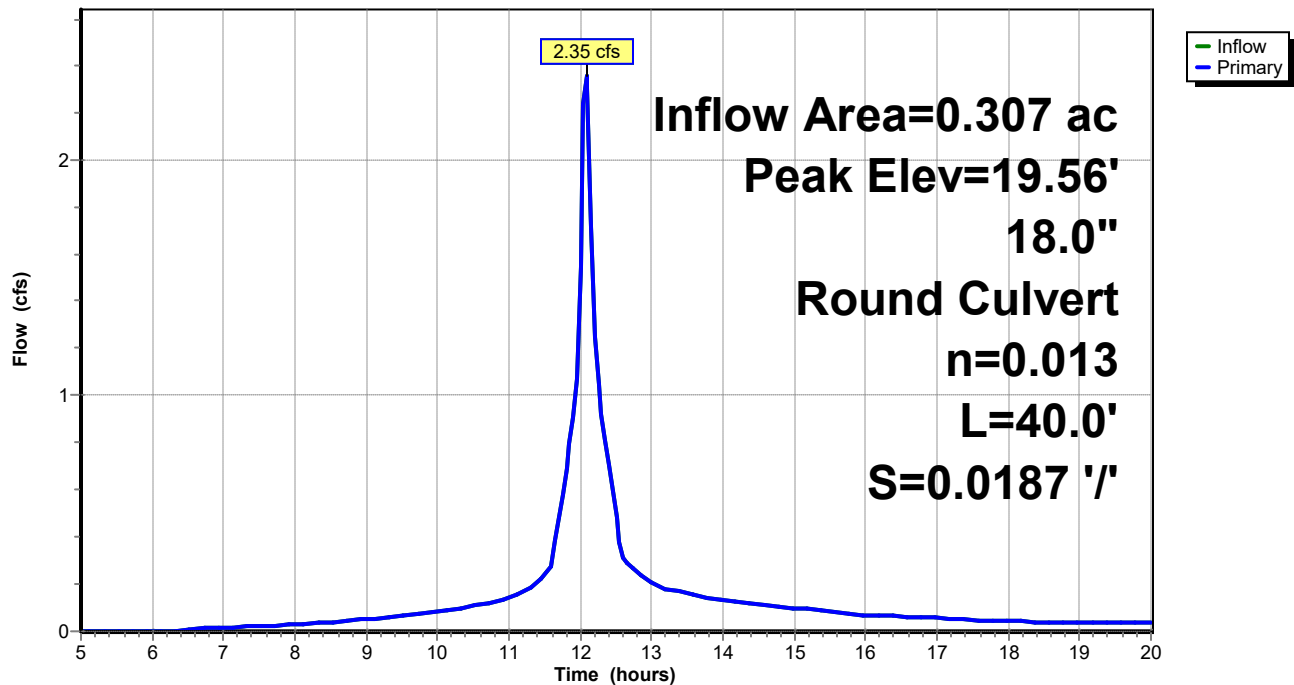
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.28 cfs @ 12.08 hrs HW=19.54' (Free Discharge)

↑1=Culvert (Inlet Controls 2.28 cfs @ 2.40 fps)

Pond 4P: CB-2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr 100-yr Rainfall=8.70"

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Summary for Pond 5P: Level Lip Spreader

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 6.36" for 100-yr event
 Inflow = 2.35 cfs @ 12.08 hrs, Volume= 0.163 af
 Outflow = 2.27 cfs @ 12.10 hrs, Volume= 0.160 af, Atten= 4%, Lag= 1.5 min
 Primary = 2.27 cfs @ 12.10 hrs, Volume= 0.160 af
 Routed to Reach 2R : Reach 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 18.00' @ 8.10 hrs Surf.Area= 168 sf Storage= 115 cf

Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

Plug-Flow detention time= 13.3 min calculated for 0.160 af (98% of inflow)

Center-of-Mass det. time= 6.5 min (769.1 - 762.5)

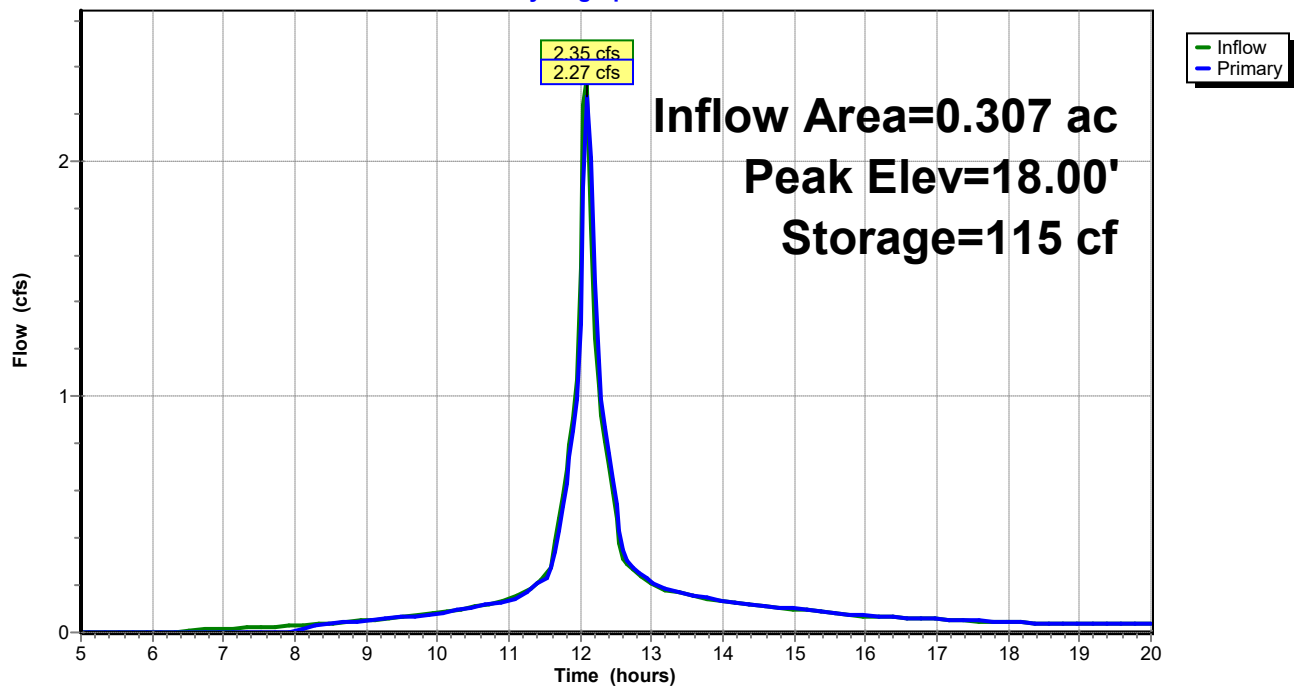
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

Device	Routing	Invert	Outlet Devices
#0	Primary	18.00'	Automatic Storage Overflow (Discharged without head)

Primary OutFlow Max=0.00 cfs @ 12.10 hrs HW=18.00' (Free Discharge)

Pond 5P: Level Lip Spreader

Hydrograph



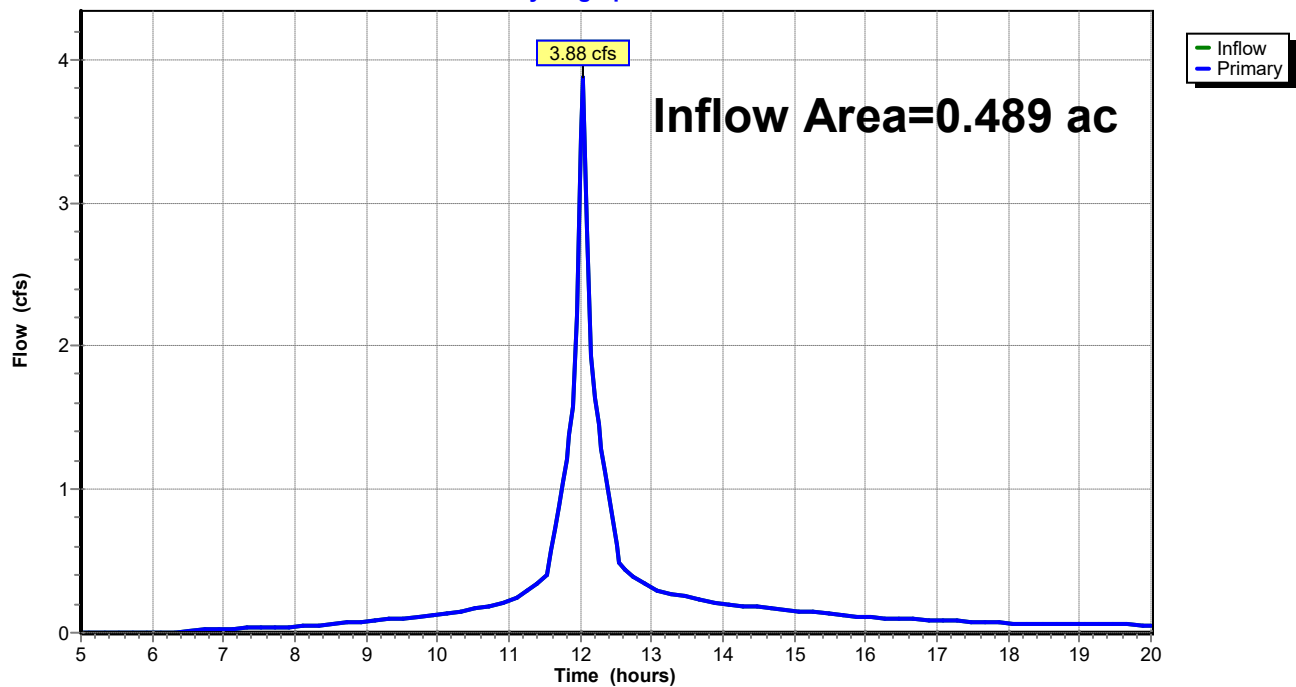
Summary for Link DP1: DP1

Inflow Area = 0.489 ac, 28.87% Impervious, Inflow Depth > 6.21" for 100-yr event
 Inflow = 3.88 cfs @ 12.04 hrs, Volume= 0.253 af
 Primary = 3.88 cfs @ 12.04 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

Hydrograph



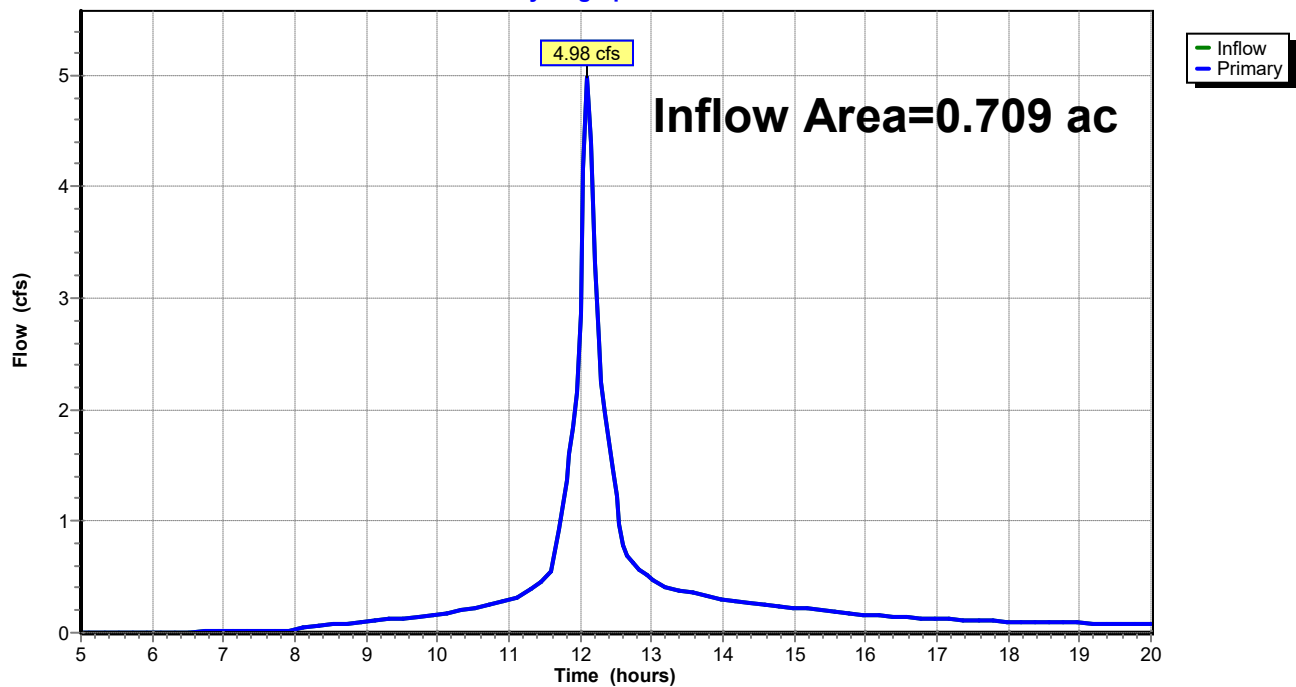
Summary for Link DP2: DP2

Inflow Area = 0.709 ac, 15.44% Impervious, Inflow Depth > 6.00" for 100-yr event
 Inflow = 4.98 cfs @ 12.10 hrs, Volume= 0.354 af
 Primary = 4.98 cfs @ 12.10 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr WQ Rainfall=1.00"

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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 method - Pond routing by Stor-Ind method

Subcatchment 1S: Post Subcatchment 1 Runoff Area=9,832 sf 50.01% Impervious Runoff Depth>0.20"
Flow Length=172' Tc=0.8 min CN=87 Runoff=0.06 cfs 0.004 af

Subcatchment 2S: Post Subcatchment 2 Runoff Area=11,488 sf 10.78% Impervious Runoff Depth>0.06"
Flow Length=133' Tc=3.4 min CN=79 Runoff=0.01 cfs 0.001 af

Subcatchment 3S: Post Subcatchment 3 Runoff Area=13,365 sf 33.49% Impervious Runoff Depth>0.13"
Flow Length=262' Tc=4.9 min CN=84 Runoff=0.04 cfs 0.003 af

Subcatchment 4S: Post Subcatchment 4 Runoff Area=17,529 sf 1.68% Impervious Runoff Depth>0.06"
Flow Length=126' Tc=7.2 min CN=79 Runoff=0.01 cfs 0.002 af

Subcatchment 5S: Post Subcatchment 5 Runoff Area=59,179 sf 4.06% Impervious Runoff Depth>0.07"
Flow Length=445' Tc=7.0 min CN=80 Runoff=0.05 cfs 0.008 af

Reach 1R: Reach 1 Inflow=0.02 cfs 0.003 af
Outflow=0.02 cfs 0.003 af

Reach 2R: Reach 2 Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP3: Shoreline 3 Inflow=0.05 cfs 0.008 af
Outflow=0.05 cfs 0.008 af

Reach SP1: SACO RIVER / OCEAN Inflow=0.09 cfs 0.014 af
Outflow=0.09 cfs 0.014 af

Pond 1P: Bioretention Filter Cell 1 Peak Elev=18.01' Storage=56 cf Inflow=0.06 cfs 0.004 af
Outflow=0.02 cfs 0.003 af

Pond 2P: CB-1 Peak Elev=13.83' Inflow=0.02 cfs 0.003 af
15.0" Round Culvert n=0.013 L=48.0' S=0.0365 ' /' Outflow=0.02 cfs 0.003 af

Pond 3P: Bioretention Filter Cell 2 Peak Elev=23.51' Storage=44 cf Inflow=0.04 cfs 0.003 af
Outflow=0.02 cfs 0.002 af

Pond 4P: CB-2 Peak Elev=18.81' Inflow=0.02 cfs 0.002 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0187 ' /' Outflow=0.02 cfs 0.002 af

Pond 5P: Level Lip Spreader Peak Elev=17.95' Storage=106 cf Inflow=0.02 cfs 0.002 af
Outflow=0.00 cfs 0.000 af

Link DP1: DP1 Inflow=0.03 cfs 0.004 af
Primary=0.03 cfs 0.004 af

Link DP2: DP2 Inflow=0.01 cfs 0.002 af
Primary=0.01 cfs 0.002 af

UNE-PostDrainage-VD Working

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Type III 24-hr WQ Rainfall=1.00"

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Total Runoff Area = 2.557 ac Runoff Volume = 0.018 af Average Runoff Depth = 0.09"
88.04% Pervious = 2.251 ac 11.96% Impervious = 0.306 ac

UNE-PostDrainage-VD Working

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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 1S: Post Subcatchment 1

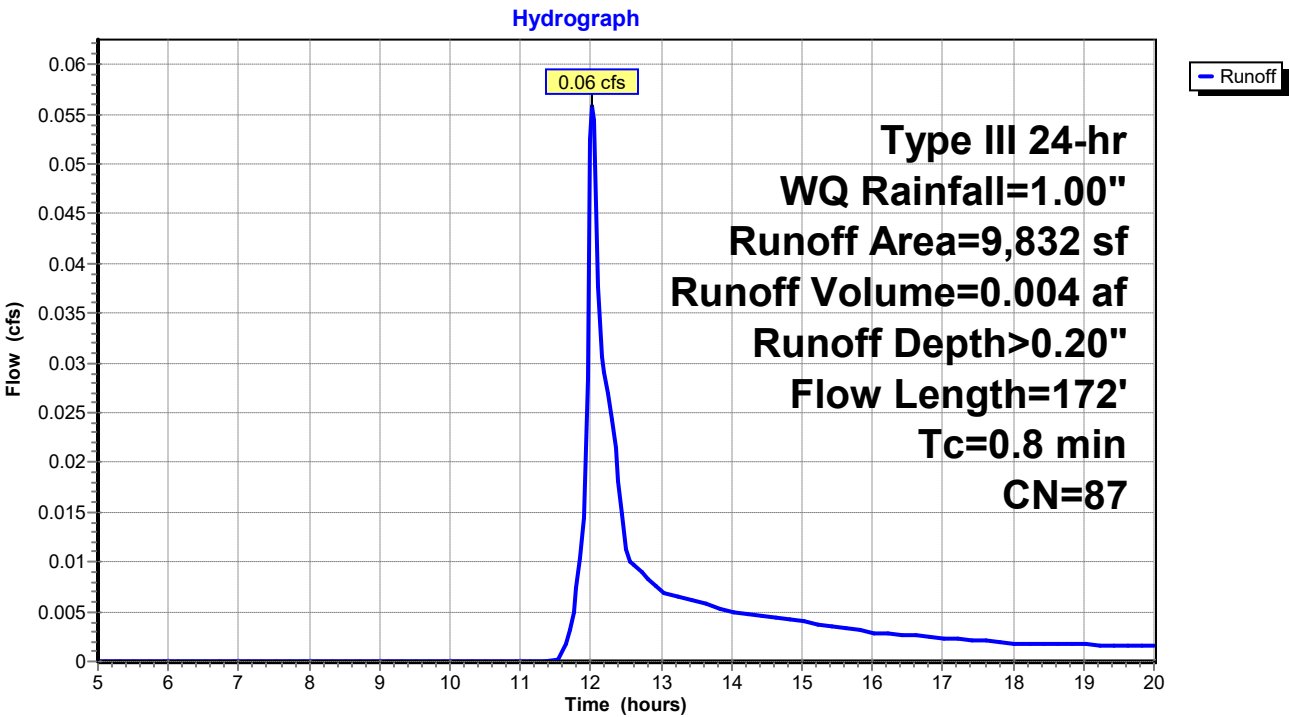
Runoff = 0.06 cfs @ 12.03 hrs, Volume= 0.004 af, Depth> 0.20"
 Routed to Pond 1P : Bioretention Filter Cell 1

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 WQ Rainfall=1.00"

Area (sf)	CN	Description
3,430	77	Woods, Good, HSG D
* 982	98	Ledge, HSG D
595	80	>75% Grass cover, Good, HSG D
* 3,935	98	Paved Access Drive, HSG D
* 890	73	Bioretention Filter Cell, Good, HSG D
9,832	87	Weighted Average
4,915		49.99% Pervious Area
4,917		50.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	46	0.0500	1.73		Sheet Flow, Tc-1 Smooth surfaces n= 0.011 P2= 3.30"
0.3	102	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.1	24	0.0625	3.75		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
0.8	172	Total			

Subcatchment 1S: Post Subcatchment 1



UNE-PostDrainage-VD Working

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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 2S: Post Subcatchment 2

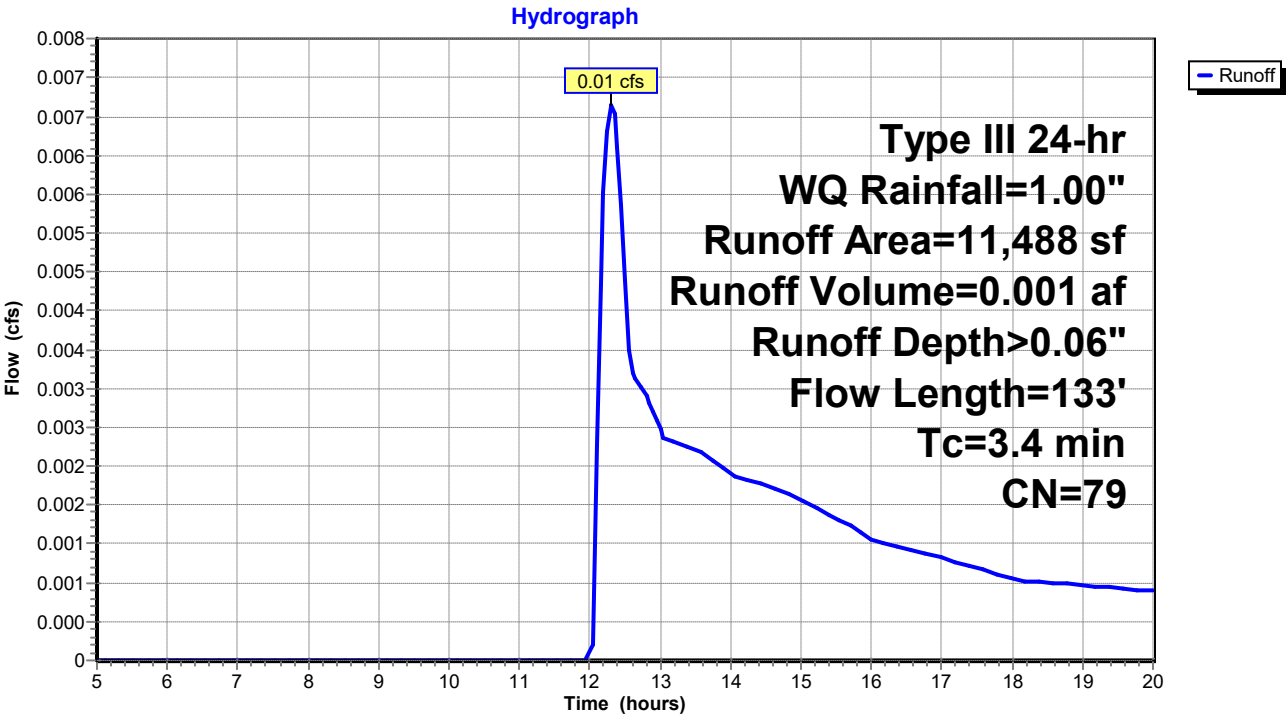
Runoff = 0.01 cfs @ 12.31 hrs, Volume= 0.001 af, Depth> 0.06"
Routed to Link DP1 : DP1

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 WQ Rainfall=1.00"

Area (sf)	CN	Description
10,250	77	Woods, Good, HSG D
1,238	98	Paved parking, HSG D
11,488	79	Weighted Average
10,250		89.22% Pervious Area
1,238		10.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	21	0.1905	0.14		Sheet Flow, Tc-1
0.9	112	0.1696	2.06		Woods: Light underbrush n= 0.400 P2= 3.30"
					Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
3.4	133	Total			

Subcatchment 2S: Post Subcatchment 2



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 3S: Post Subcatchment 3

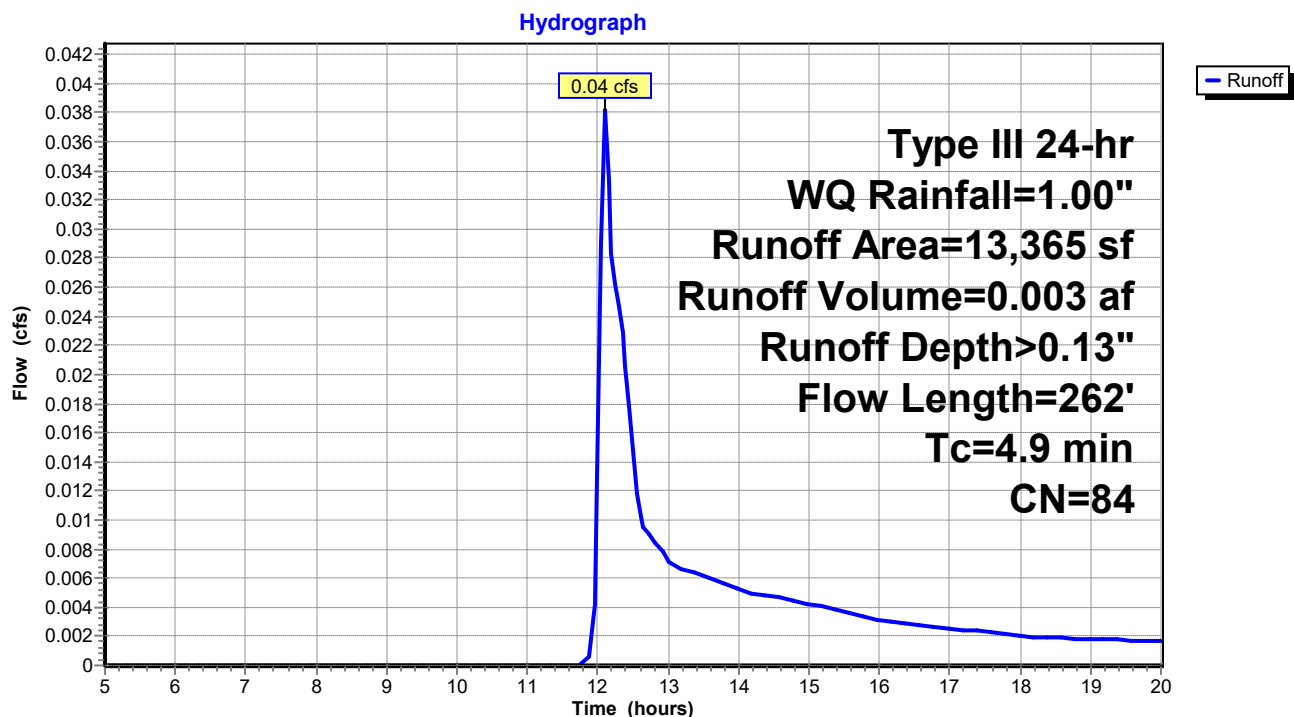
Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.003 af, Depth> 0.13"
 Routed to Pond 3P : Bioretention Filter Cell 2

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 WQ Rainfall=1.00"

Area (sf)	CN	Description
6,822	77	Woods, Good, HSG D
* 580	73	Biofiltration cell, Good, HSG D
* 3,768	98	Paved access drive, HSG D
1,487	80	>75% Grass cover, Good, HSG D
* 708	98	Ledge, HSG D
13,365	84	Weighted Average
8,889		66.51% Pervious Area
4,476		33.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	43	0.2093	0.17		Sheet Flow, Tc-1 Woods: Light underbrush n= 0.400 P2= 3.30"
0.7	214	0.0500	5.25	15.74	Channel Flow, Tc-2 Area= 3.0 sf Perim= 9.2' r= 0.33' n= 0.030 Earth, grassed & winding
0.0	5	0.0500	3.35		Shallow Concentrated Flow, Tc-3 Grassed Waterway Kv= 15.0 fps
4.9	262	Total			

Subcatchment 3S: Post Subcatchment 3



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 4S: Post Subcatchment 4

Runoff = 0.01 cfs @ 12.38 hrs, Volume= 0.002 af, Depth> 0.06"
Routed to Link DP2 : DP2

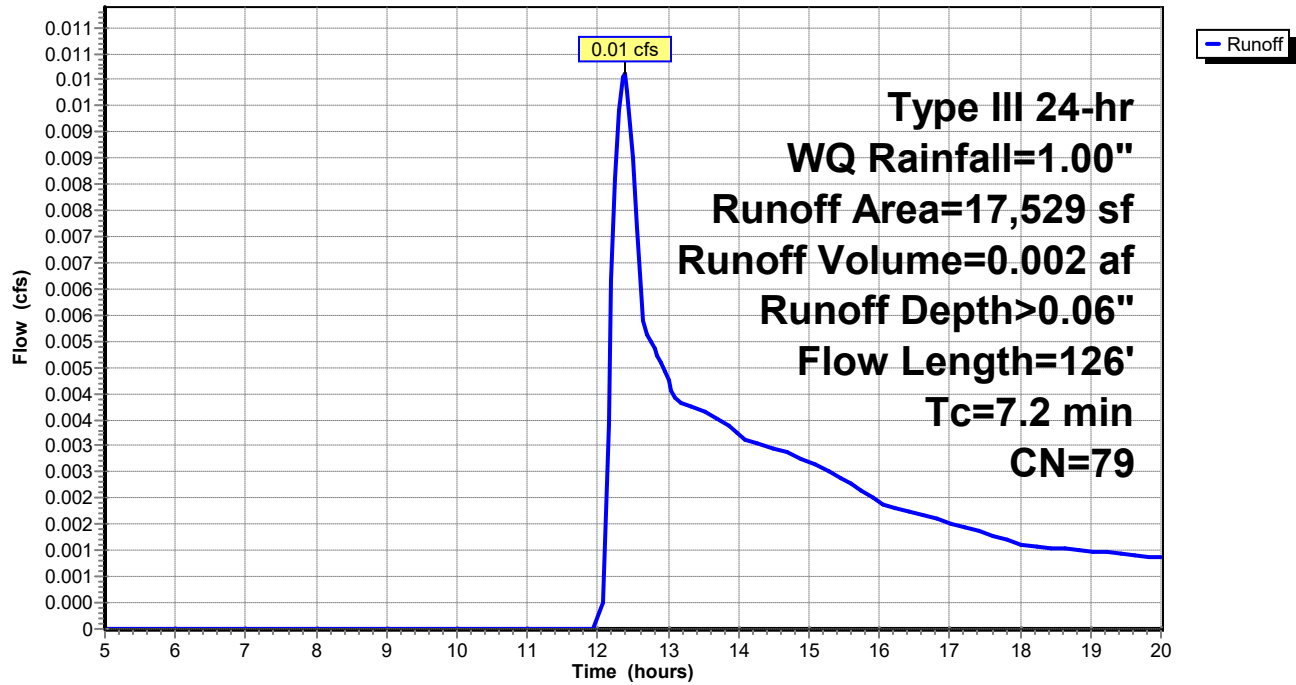
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
* 295	98	Paved access drive, HSG D
1,450	80	>75% Grass cover, Good, HSG D
15,784	79	Woods, Fair, HSG D
17,529	79	Weighted Average
17,234		98.32% Pervious Area
295		1.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	62	0.1290	0.15		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
0.4	64	0.2343	2.42		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
7.2	126	Total			

Subcatchment 4S: Post Subcatchment 4

Hydrograph



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 5S: Post Subcatchment 5

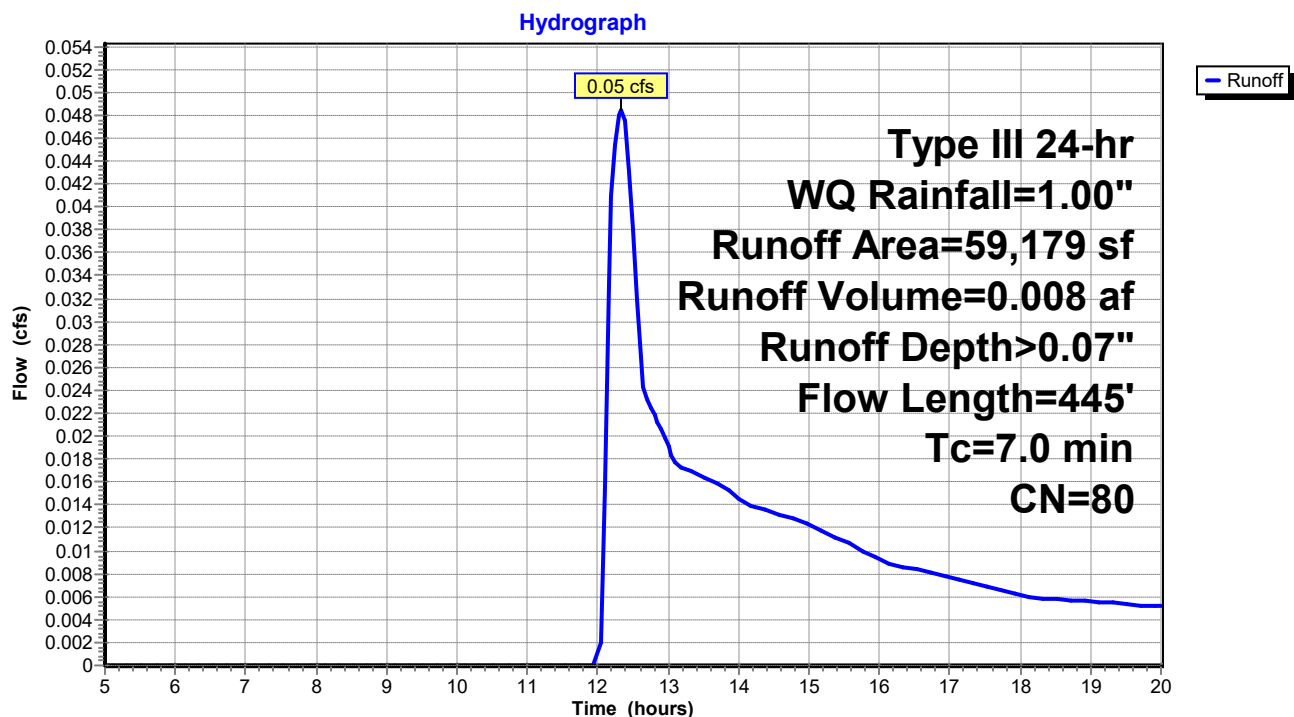
Runoff = 0.05 cfs @ 12.34 hrs, Volume= 0.008 af, Depth> 0.07"
 Routed to Reach DP3 : Shoreline 3

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 WQ Rainfall=1.00"

	Area (sf)	CN	Description
*	1,650	98	Paved access drive, HSG D
	751	98	Roofs, HSG D
*	6,955	88	Sand beach, HSG D
	3,872	96	Gravel surface, HSG D
	45,951	77	Woods, Good, HSG D
	59,179	80	Weighted Average
	56,778		95.94% Pervious Area
	2,401		4.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	23	0.1740	0.14		Sheet Flow, Tc-1
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.0	70	0.0574	1.20		Shallow Concentrated Flow, Tc-2
					Woodland Kv= 5.0 fps
0.5	170	0.1059	5.24		Shallow Concentrated Flow, Tc-3
					Unpaved Kv= 16.1 fps
2.5	140	0.0357	0.94		Shallow Concentrated Flow, Tc-4
					Woodland Kv= 5.0 fps
0.3	42	0.0714	2.67		Shallow Concentrated Flow, Tc-5
					Nearly Bare & Untilled Kv= 10.0 fps
7.0	445	Total			

Subcatchment 5S: Post Subcatchment 5



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Type III 24-hr WQ Rainfall=1.00"

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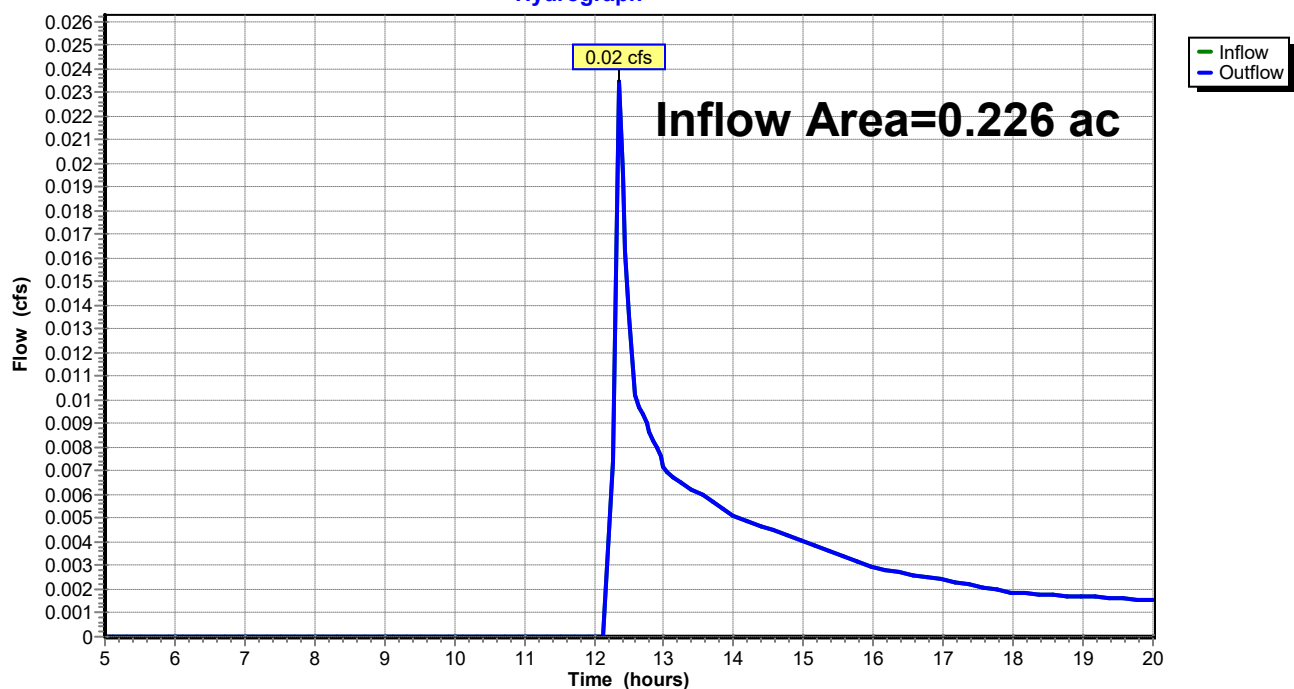
Summary for Reach 1R: Reach 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 0.14" for WQ event
Inflow = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP1 : DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Reach 1

Hydrograph



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Type III 24-hr WQ Rainfall=1.00"

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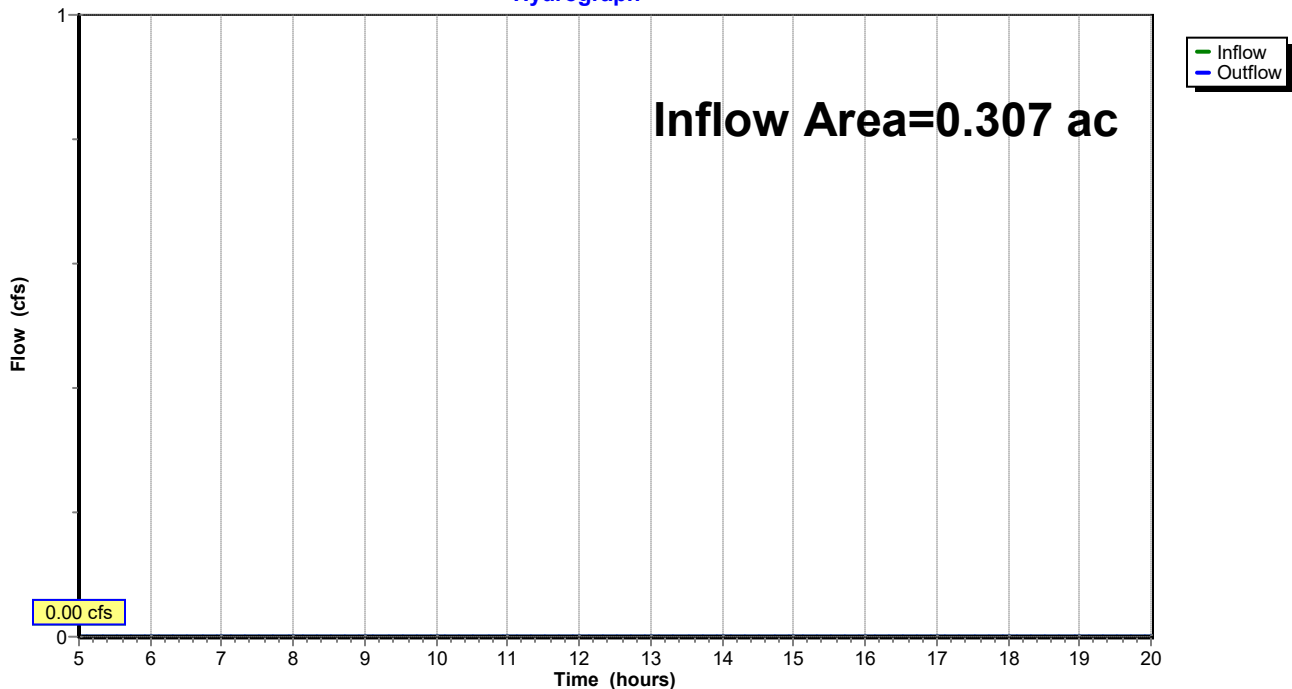
Summary for Reach 2R: Reach 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth = 0.00" for WQ event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP2 : DP2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Reach 2

Hydrograph

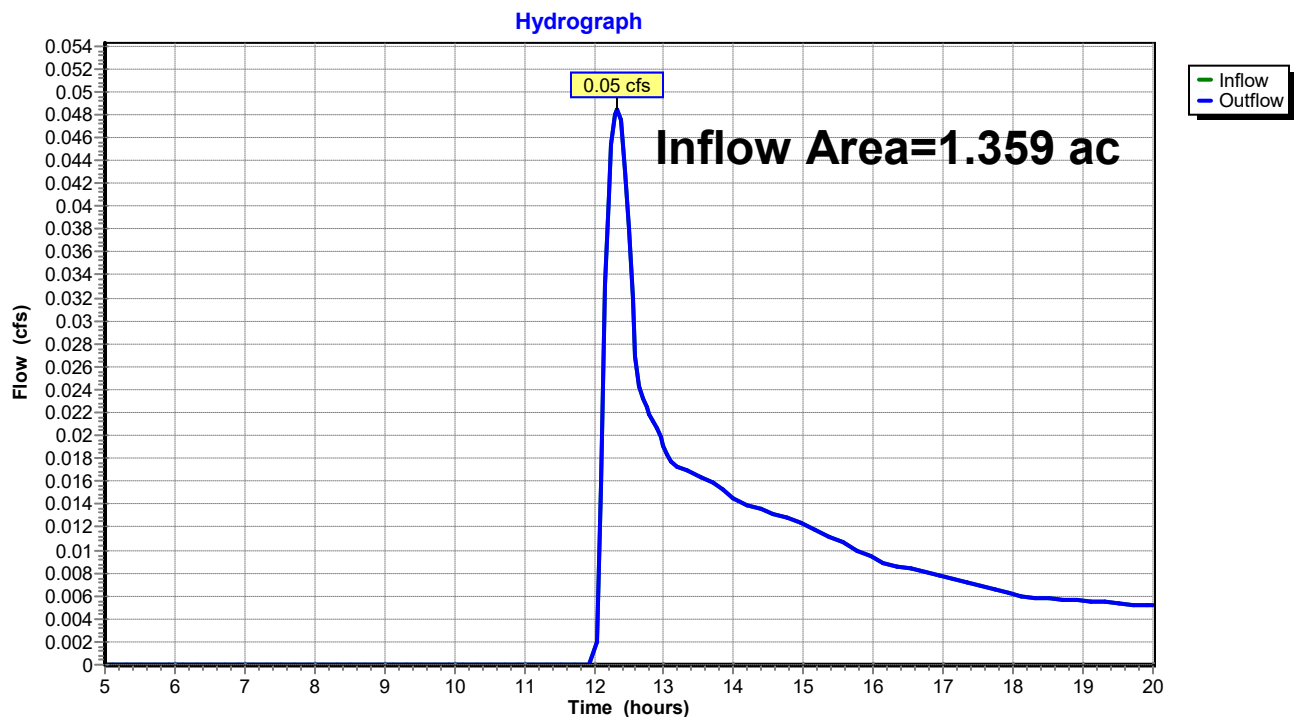


Summary for Reach DP3: Shoreline 3

Inflow Area = 1.359 ac, 4.06% Impervious, Inflow Depth > 0.07" for WQ event
 Inflow = 0.05 cfs @ 12.34 hrs, Volume= 0.008 af
 Outflow = 0.05 cfs @ 12.34 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP3: Shoreline 3

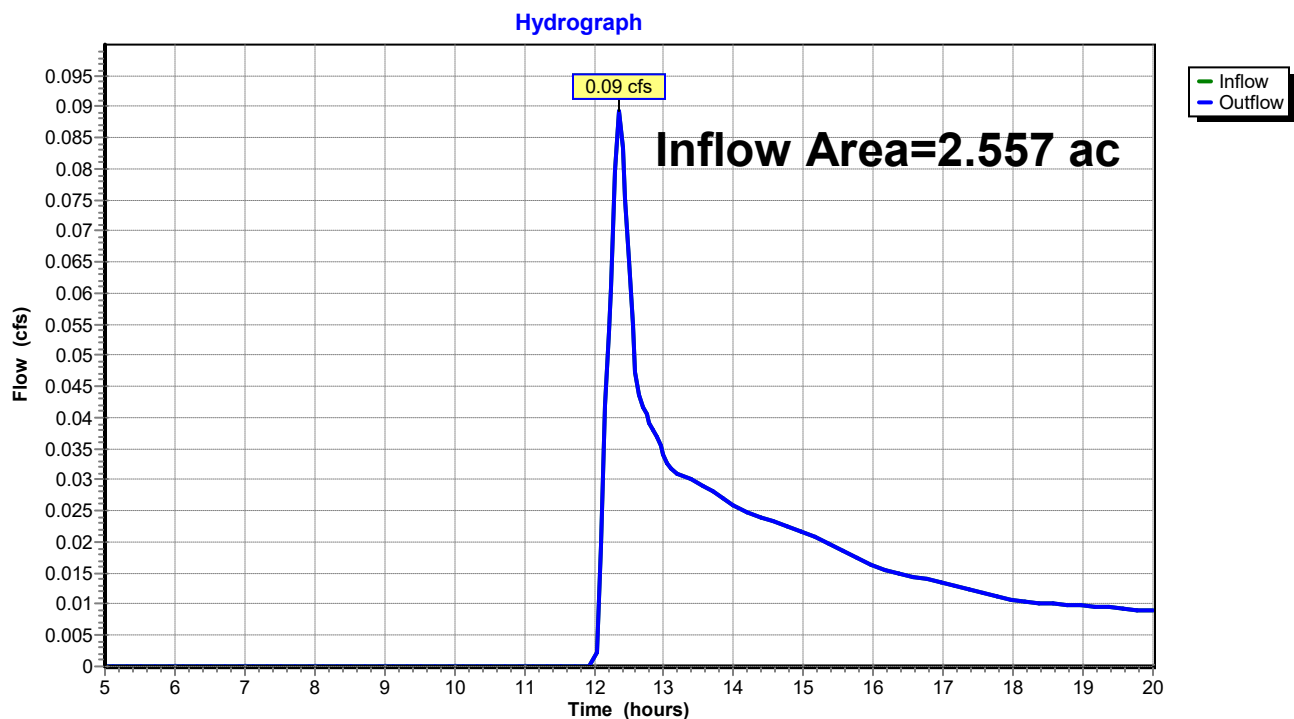


Summary for Reach SP1: SACO RIVER / OCEAN

Inflow Area = 2.557 ac, 11.96% Impervious, Inflow Depth > 0.06" for WQ event
 Inflow = 0.09 cfs @ 12.36 hrs, Volume= 0.014 af
 Outflow = 0.09 cfs @ 12.36 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SACO RIVER / OCEAN



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 1P: Bioretention Filter Cell 1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 0.20" for WQ event
Inflow = 0.06 cfs @ 12.03 hrs, Volume= 0.004 af
Outflow = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af, Atten= 58%, Lag= 19.8 min
Primary = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af
Routed to Pond 2P : CB-1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 18.01' @ 12.36 hrs Surf.Area= 217 sf Storage= 56 cf

Plug-Flow detention time= 130.6 min calculated for 0.003 af (67% of inflow)
Center-of-Mass det. time= 53.4 min (884.3 - 831.0)

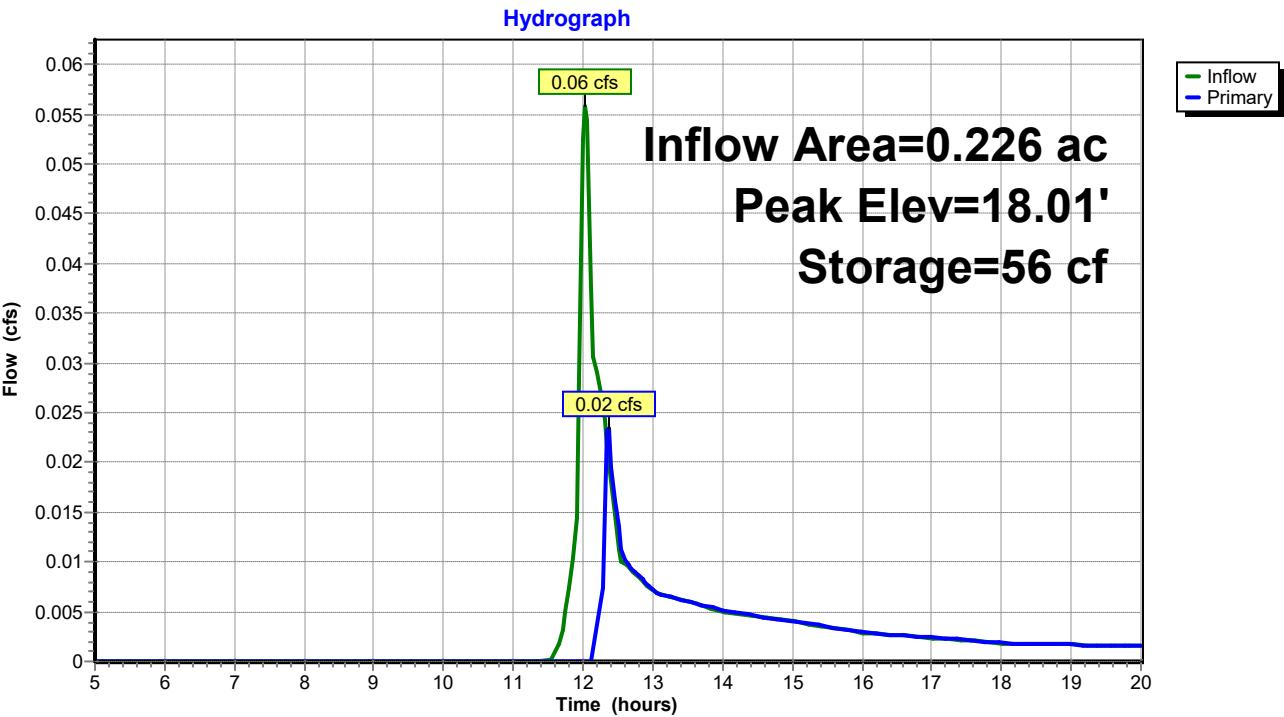
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.36 hrs HW=18.01' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.37 fps)

Pond 1P: Bioretention Filter Cell 1



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 2P: CB-1

Inflow Area = 0.226 ac, 50.01% Impervious, Inflow Depth > 0.14" for WQ event
Inflow = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.36 hrs, Volume= 0.003 af
Routed to Reach 1R : Reach 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 13.83' @ 12.36 hrs

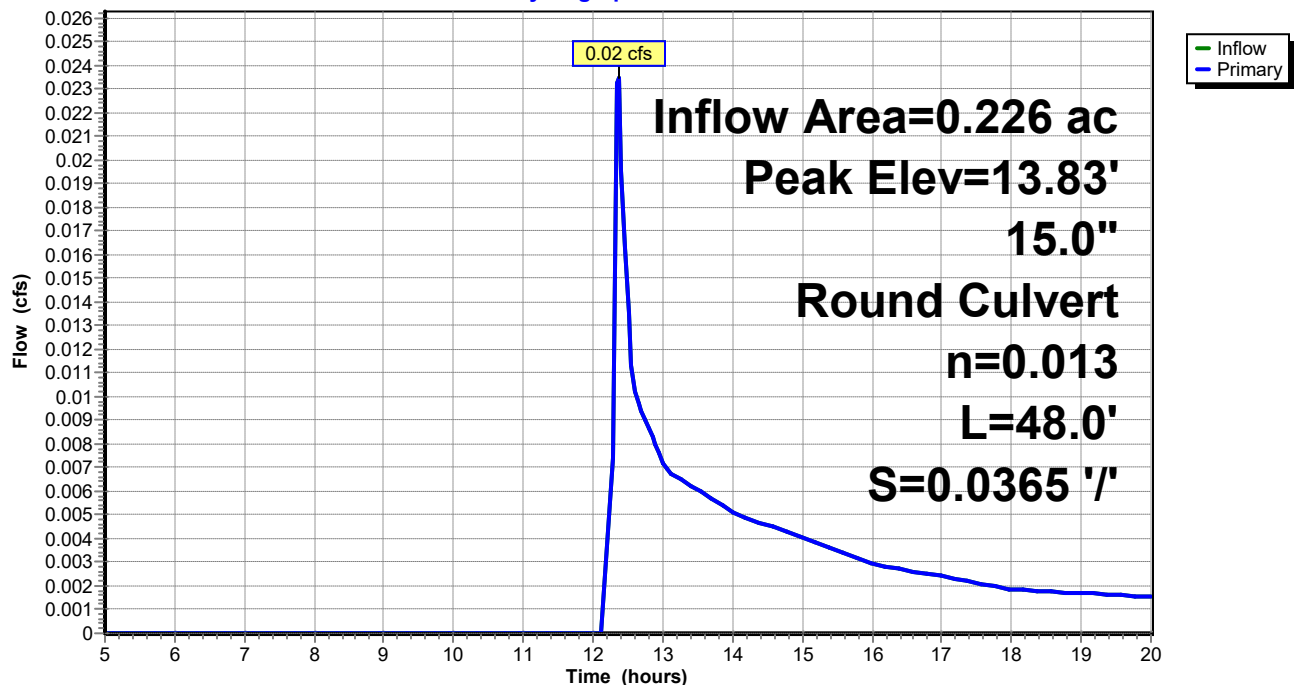
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.02 cfs @ 12.36 hrs HW=13.83' (Free Discharge)

↑1=Culvert (Inlet Controls 0.02 cfs @ 0.74 fps)

Pond 2P: CB-1

Hydrograph



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Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 3P: Bioretention Filter Cell 2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 0.13" for WQ event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af, Atten= 56%, Lag= 22.5 min
Primary = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af
Routed to Pond 4P : CB-2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 23.51' @ 12.48 hrs Surf.Area= 171 sf Storage= 44 cf

Plug-Flow detention time= 120.8 min calculated for 0.002 af (72% of inflow)
Center-of-Mass det. time= 48.7 min (900.5 - 851.8)

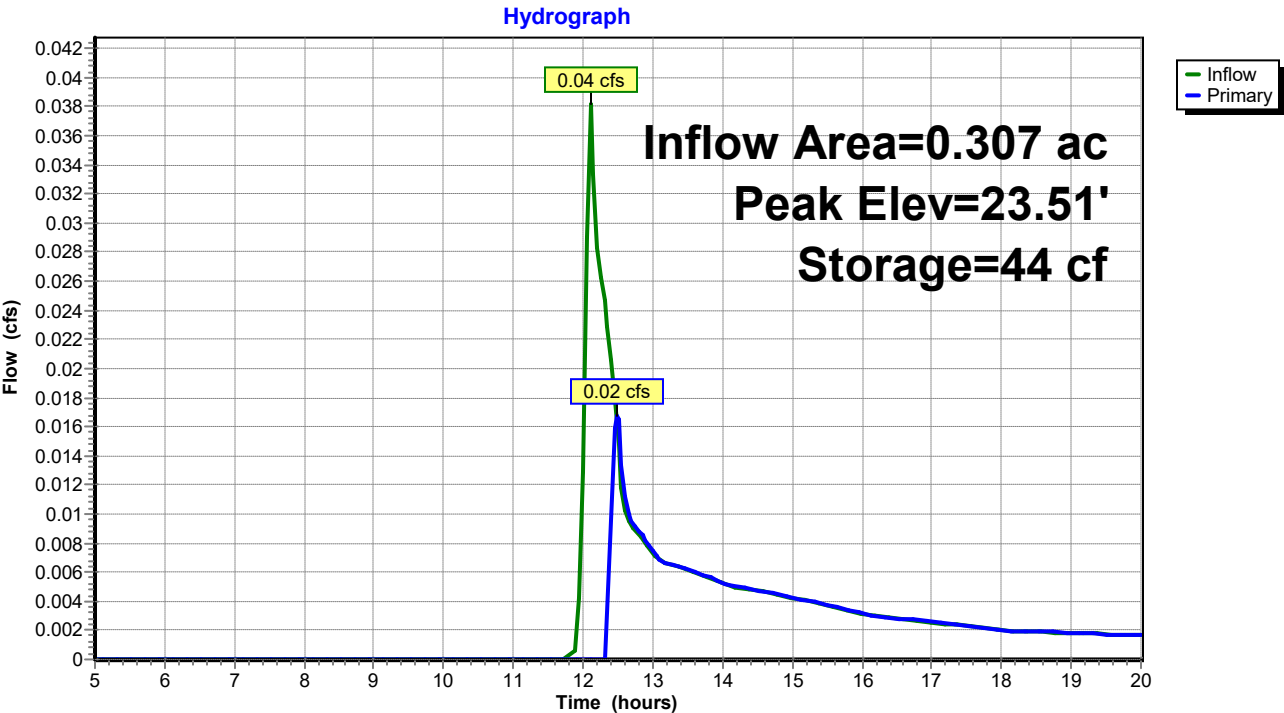
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
23.00	0	0	0
24.00	335	168	168
24.50	515	213	380

Device	Routing	Invert	Outlet Devices
#1	Primary	23.50'	18.0" Horiz. Orifice/Grate C= 0.600 in 24.0" Grate (56% open area) Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.48 hrs HW=23.51' (Free Discharge)
↑ **1=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.33 fps)

Pond 3P: Bioretention Filter Cell 2



UNE-PostDrainage-VD Working

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Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 4P: CB-2

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 0.10" for WQ event
Inflow = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af
Outflow = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af
Routed to Pond 5P : Level Lip Spreader

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 18.81' @ 12.48 hrs

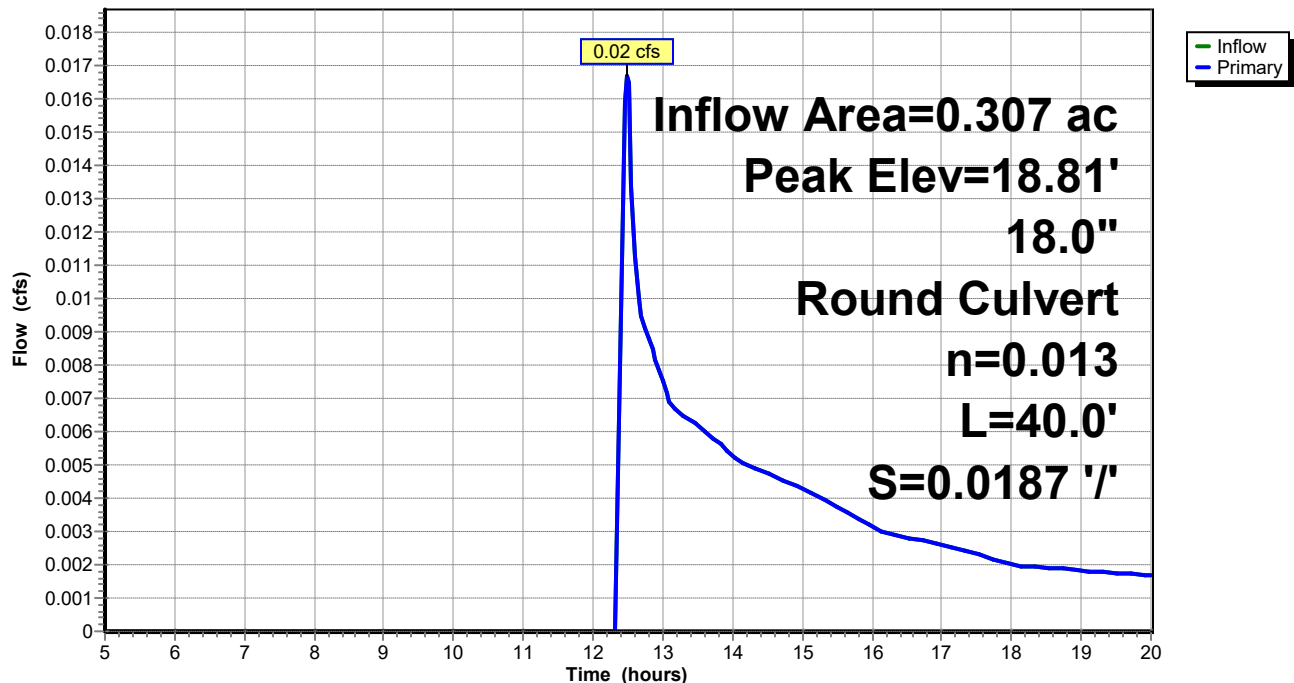
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.02 cfs @ 12.48 hrs HW=18.81' (Free Discharge)

↑1=Culvert (Inlet Controls 0.02 cfs @ 0.66 fps)

Pond 4P: CB-2

Hydrograph



UNE-PostDrainage-VD Working

Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 5P: Level Lip Spreader

Inflow Area = 0.307 ac, 33.49% Impervious, Inflow Depth > 0.10" for WQ event
 Inflow = 0.02 cfs @ 12.48 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach 2R : Reach 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 17.95' @ 20.00 hrs Surf.Area= 163 sf Storage= 106 cf
 Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

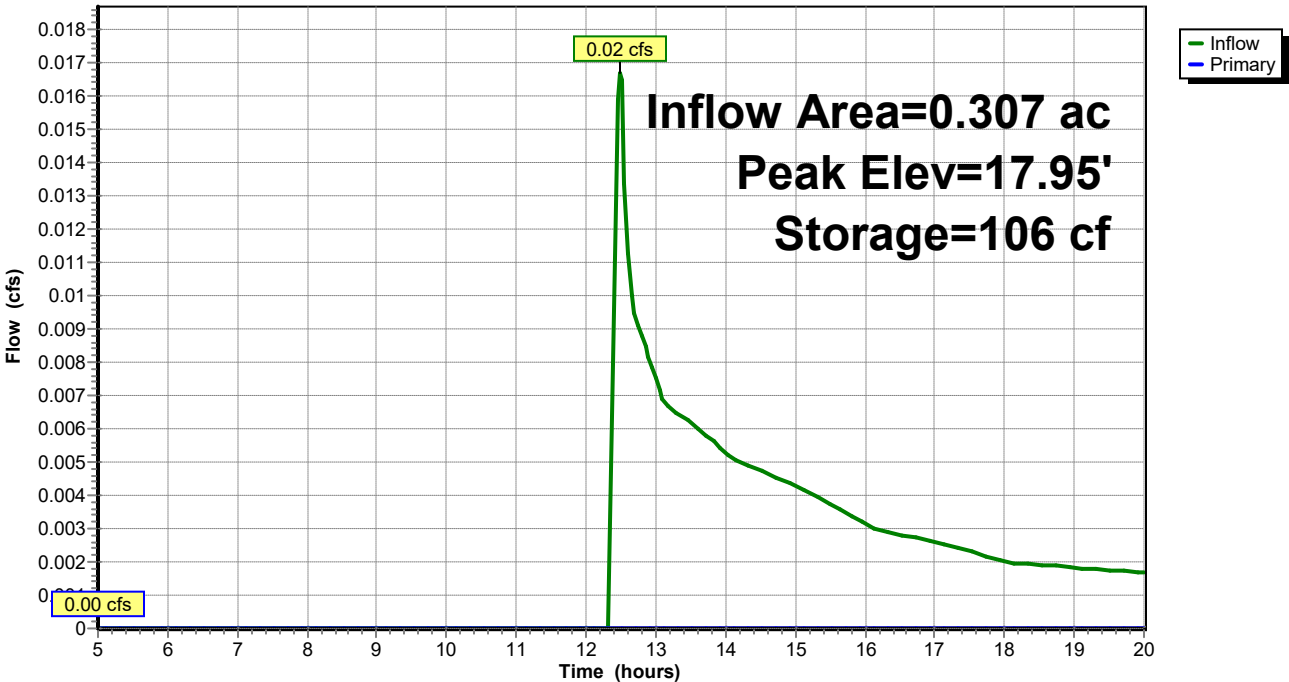
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

Device	Routing	Invert	Outlet Devices
#0	Primary	18.00'	Automatic Storage Overflow (Discharged without head)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=17.00' (Free Discharge)

Pond 5P: Level Lip Spreader

Hydrograph



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Type III 24-hr WQ Rainfall=1.00"

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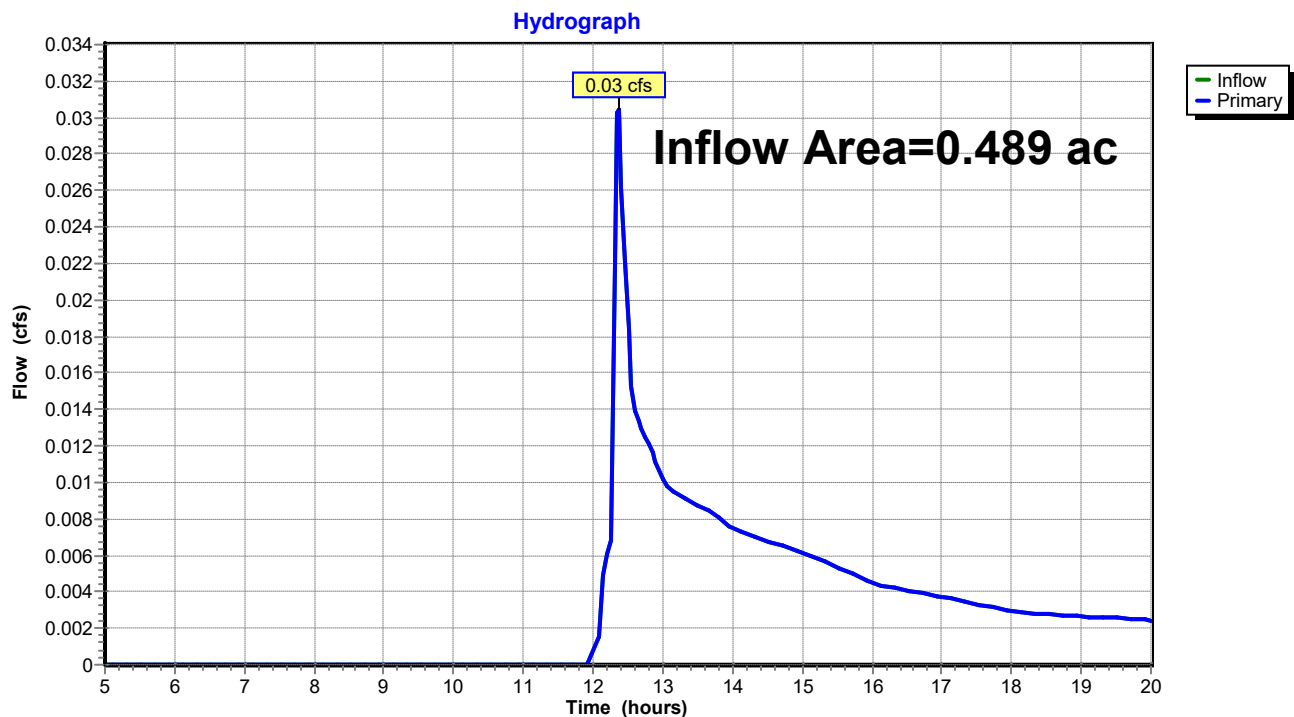
Page 126

Summary for Link DP1: DP1

Inflow Area = 0.489 ac, 28.87% Impervious, Inflow Depth > 0.09" for WQ event
Inflow = 0.03 cfs @ 12.36 hrs, Volume= 0.004 af
Primary = 0.03 cfs @ 12.36 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1



Summary for Link DP2: DP2

Inflow Area = 0.709 ac, 15.44% Impervious, Inflow Depth > 0.03" for WQ event
 Inflow = 0.01 cfs @ 12.38 hrs, Volume= 0.002 af
 Primary = 0.01 cfs @ 12.38 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
 Routed to Reach SP1 : SACO RIVER / OCEAN

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

Hydrograph

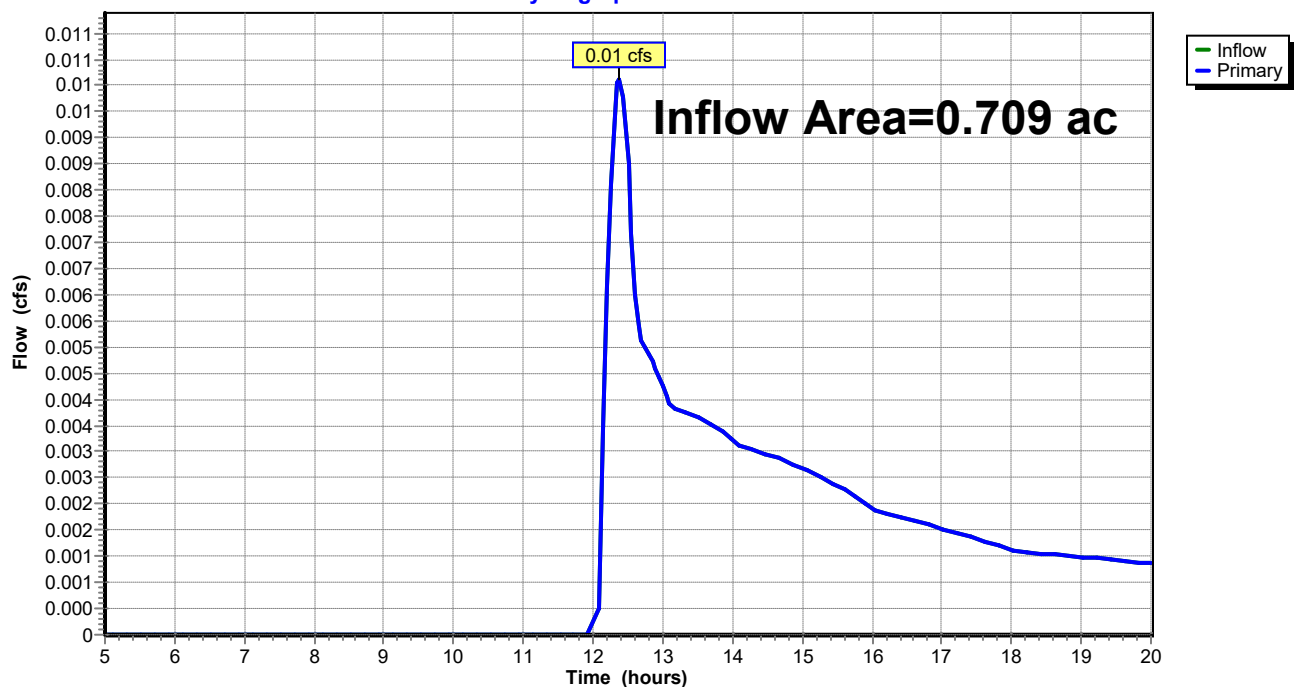


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- 1 Routing Diagram
- 2 Project Notes
- 3 Rainfall Events Listing
- 4 Area Listing (all nodes)
- 5 Soil Listing (all nodes)
- 6 Ground Covers (all nodes)
- 7 Pipe Listing (all nodes)

2-yr Event

- 8 Node Listing
- 10 Subcat 1S: Post Subcatchment 1
- 12 Subcat 2S: Post Subcatchment 2
- 13 Subcat 3S: Post Subcatchment 3
- 15 Subcat 4S: Post Subcatchment 4
- 16 Subcat 5S: Post Subcatchment 5
- 18 Reach 1R: Reach 1
- 19 Reach 2R: Reach 2
- 20 Reach DP3: Shoreline 3
- 21 Reach SP1: SACO RIVER / OCEAN
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- 28 Pond 5P: Level Lip Spreader
- 30 Link DP1: DP1
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10-yr Event

- 32 Node Listing
- 34 Subcat 1S: Post Subcatchment 1
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- 37 Subcat 3S: Post Subcatchment 3
- 39 Subcat 4S: Post Subcatchment 4
- 40 Subcat 5S: Post Subcatchment 5
- 42 Reach 1R: Reach 1
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- 44 Reach DP3: Shoreline 3
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- 46 Pond 1P: Bioretention Filter Cell 1
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- 51 Pond 4P: CB-2
- 52 Pond 5P: Level Lip Spreader
- 54 Link DP1: DP1
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25-yr Event

- 56 Node Listing
- 58 Subcat 1S: Post Subcatchment 1
- 60 Subcat 2S: Post Subcatchment 2
- 61 Subcat 3S: Post Subcatchment 3
- 63 Subcat 4S: Post Subcatchment 4
- 64 Subcat 5S: Post Subcatchment 5
- 66 Reach 1R: Reach 1
- 67 Reach 2R: Reach 2
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- 70 Pond 1P: Bioretention Filter Cell 1
- 72 Pond 2P: CB-1
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- 75 Pond 4P: CB-2
- 76 Pond 5P: Level Lip Spreader
- 78 Link DP1: DP1
- 79 Link DP2: DP2

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- 84 Subcat 2S: Post Subcatchment 2
- 85 Subcat 3S: Post Subcatchment 3
- 87 Subcat 4S: Post Subcatchment 4
- 88 Subcat 5S: Post Subcatchment 5
- 90 Reach 1R: Reach 1
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- 94 Pond 1P: Bioretention Filter Cell 1
- 96 Pond 2P: CB-1
- 97 Pond 3P: Bioretention Filter Cell 2
- 99 Pond 4P: CB-2
- 100 Pond 5P: Level Lip Spreader
- 102 Link DP1: DP1
- 103 Link DP2: DP2

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- 108 Subcat 2S: Post Subcatchment 2
- 109 Subcat 3S: Post Subcatchment 3
- 111 Subcat 4S: Post Subcatchment 4
- 112 Subcat 5S: Post Subcatchment 5
- 114 Reach 1R: Reach 1
- 115 Reach 2R: Reach 2
- 116 Reach DP3: Shoreline 3

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117	Reach SP1: SACO RIVER / OCEAN
118	Pond 1P: Bioretention Filter Cell 1
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123	Pond 4P: CB-2
124	Pond 5P: Level Lip Spreader
126	Link DP1: DP1
127	Link DP2: DP2

PROPOSED PIPES (BIORETENTION FILTER CELLS)

				AREAS														Q25			Vel	Q	Q (Prov)
From	Inv	To	Inv	Paved 0.98	Open 'C' 0.61	Total (sf)	C	A (ac)	CA (ac)	ΣCA (ac)	Tc (min)	i25 (in/hr)	(req) (CFS)	Type	Pipe n	Leng (ft)	Dia (in)	Slope (%)	¼ Full (ft/sec)	Vel (ft/sec)	(prov) (CFS)	> Q (Req'd)	
SF-A	18.75	18" Outfall	18.00	3,935	5,897	9,832	FLOW FROM HYDROLOGY MODEL							1.33	HDPE	0.012	40	18	1.88%	6.18	8.82	15.58	good
SF-B	13.75	15" Outfall	12.00	3,768	9,597	13,365	FLOW FROM HYDROLOGY MODEL							1.56	HDPE	0.012	48	15	3.65%	7.63	10.89	13.36	good

Appendix D

Inspection and Maintenance Plan

Owner Responsible for Maintenance

All maintenance plans for stormwater management measures must include the following:

The name, address, and telephone number of the person or persons responsible for the preventative and corrective maintenance of the stormwater management measure. If the plan identifies a party other than the owner or developer as having responsibility for maintenance, i.e., a public entity or homeowners' association, the plan must include a copy of the other party's written agreement to assume this responsibility. This agreement must include a copy of any ordinance or regulation that requires the owner or developer to dedicate the stormwater management measure and/or its maintenance to the other party.

Information of the Person Responsible for Maintenance:

Name:

Address:

Telephone:

If an entity other than the above listed property owner or the developer will have the responsibility for stormwater pond maintenance, then they will provide a copy of the designated party's written agreement to assume this responsibility.

**University of New England
Biddeford, Maine
June 2025**

**INSPECTION AND MAINTENANCE PLAN
OF STORMWATER MANAGEMENT FACILITIES**

Stormwater Management Facilities include swales, paved surfaces, manholes and catch basins, drain pipe, riprapped aprons, level spreaders, wooded buffers, and bioretention filter cells. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion, protect roadways and other paved areas, and remove pollutants from stormwater runoff. Best management practices and stormwater facilities should be inspected as noted below, and after a rainfall event of 1" or more in 24 hours.

University of New England Facilities Department is responsible for the inspections and maintenance of stormwater facilities associated with this project.

SWALES, DITCHES, CURBS AND PAVED AREAS:

Swales, ditches, curbs and paved areas are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events such as thunder showers and periods of heavy or extended rainfall and during periods of significant snowmelt. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged curb or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved areas should be visually inspected monthly during the winter. The inspector should pay particular attention to the build up of sand around catch basin grates and remove accumulations that block the free flow of surface runoff to the catch basins. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made and the approximate volume of sand that was removed.

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal of vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

CATCH BASINS, FIELD INLETS AND DRAIN MANHOLES:

Catch Basins and field inlets are precast concrete structures with sumps and cast iron grates used to collect stormwater and trap heavy sediments. Drain Manholes are similar structures constructed with a channel instead of a sump and a solid cast iron cover instead of a grate. Drain Manholes exist at changes in direction and/or size of storm drain pipe. Catch Basins, field inlets and drain manholes provide access to the closed storm drain system for inspection and maintenance.

Throughout the winter / spring sanding period, inspect catch basins and field inlets monthly and after every significant rainfall event or period of heavy snowmelt. Clean catch basin and field inlet sumps when sediment level is within 12 inches of the outlet pipe invert. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required.

Record dates of inspections, observations and maintenance measures implemented (if any) on the forms provided and initial the entry.

DRAIN PIPES:

Drain pipes are road culverts and pipes connecting drain manholes. Inspect drain pipes when inspecting other stormwater maintenance facilities. At least annually make a visual inspection of the pipe. During the daylight you should be able to see light through most pipes as they have been laid to a straight line and grade. In some cases (e.g. pipe runs to a drain manhole, or is blocked) you will need a light to inspect pipes.

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 pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the stormwater filter or wetland areas.

Riprap aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Record inspections on the forms provided noting condition of pipe and any maintenance procedures implemented.

LEVEL SPREADERS:

Level Spreaders are shallow basins or ditches constructed at the ends of ditches or pipe outlets to disperse or "spread" concentrated flow thinly over a receiving area. Level Spreaders are constructed along the natural contour of the land to create a level "lip" on the outlet side. The integrity of the level lip is critical to the proper performance of this device.

Inspect the Level Spreader at least once each season and following significant rainfall events (1 inch or more of rain in 12 hours). Record inspections on the forms provided noting your observations and any corrective action taken. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation and stability of stone berms for the stability of the level spreader for proper function. Minor regrading, releveling of the stone "lip," and reseeding

of the level lip on an annual basis should be anticipated. Mow level lips at least twice during the growing season. Maintenance may also include removal of sediment buildup especially on the inlet end.

BIORETENTION FILTER CELLS:

A bioretention filter cells is a landscaped depression with an under drained soil bed or soil filter that exfiltrates the stormwater. The depression is designed to temporarily store runoff, which will drain through the soil filter into the underdrains; excess runoff will flow into structures or over earthen spillways.

Soil Filter Inspection: The soil filter should be inspected after every major storm in the first few months to ensure proper function. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 48 hours; and that, after storms that fill the system to overflow, it drains in no less than 24 hours. If the filter drains too rapidly, (i.e. prior to 24 hours), then an adjustable orifice shall be installed on the underdrain outlet pipe. The orifice shall be adjusted such that the filter completely drains within 24 to 72 hours.

Underdrain System: The soil filter outlet consists of a layer of planting loam and sand with a stone and perforated pipe underdrain. Outlet inspections shall include flushing of the underdrain through the cleanouts at the end of the pipes. Trash, sediment, and debris shall be removed from the vicinity of the outlet and must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Soil Filter Replacement: If the filter fails to drain within 72 hours, the surface of the pond shall be rototilled to promote aeration of the filter media and vegetation shall be re-established. If aeration of the surface soil fails to promote filtration of impounded water within 72 hours, then the filter media shall be replaced as necessary. The stone underdrain shall also be replaced at this time, along with the perforated pipe.

Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.

Mowing: Filters with grass cover should be mowed no more than 2 times per growing season to maintain grass heights less than 12 inches.

Fertilization: Fertilization of the bioretention filter cells should be avoided unless absolutely necessary to establish vegetation.

Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Add new mulch as necessary for bioretention cells.

Bioretention Filter Cells shall not be used for snow storage area. Vehicular equipment used to maintain or rehabilitate Bioretention Filter Cells should work from the basin perimeter and not enter the basin area, as this will compact the soil surface and reduce the design infiltration rate. Record all maintenance on forms provided.

SEDIMENT DISPOSAL:

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

UNIVERSITY OF NEW ENGLAND			
BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, CURBS AND PAVED SURFACES			
I: INSPECTED - C: CLEANED - S: SWEEPED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
5/10/19	RST	I, C	EXAMPLE: Removed sand around CB's 19 and 20. Heavy rain over the weekend.

UNIVERSITY OF NEW ENGLAND			
BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
CATCH BASINS, FIELD INLETS, AND DRAIN MANHOLES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
6/13/19	JKL	I, C	EXAMPLE: Called ACME to clean catch basins.

UNIVERSITY OF NEW ENGLAND			
BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
DRAIN PIPES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
4/19/18	JKL	I, C	EXAMPLE: Called ACME to clean debris from culvert inlets along Main Road and Loop Road.

UNIVERSITY OF NEW ENGLAND			
BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
LEVEL SPREADERS			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
8/16/19	JKL	I, C	EXAMPLE: Inspected level spreaders on site, found minimal sediment build up, stone lips appeared consistently level and functional. Mowed level lips.

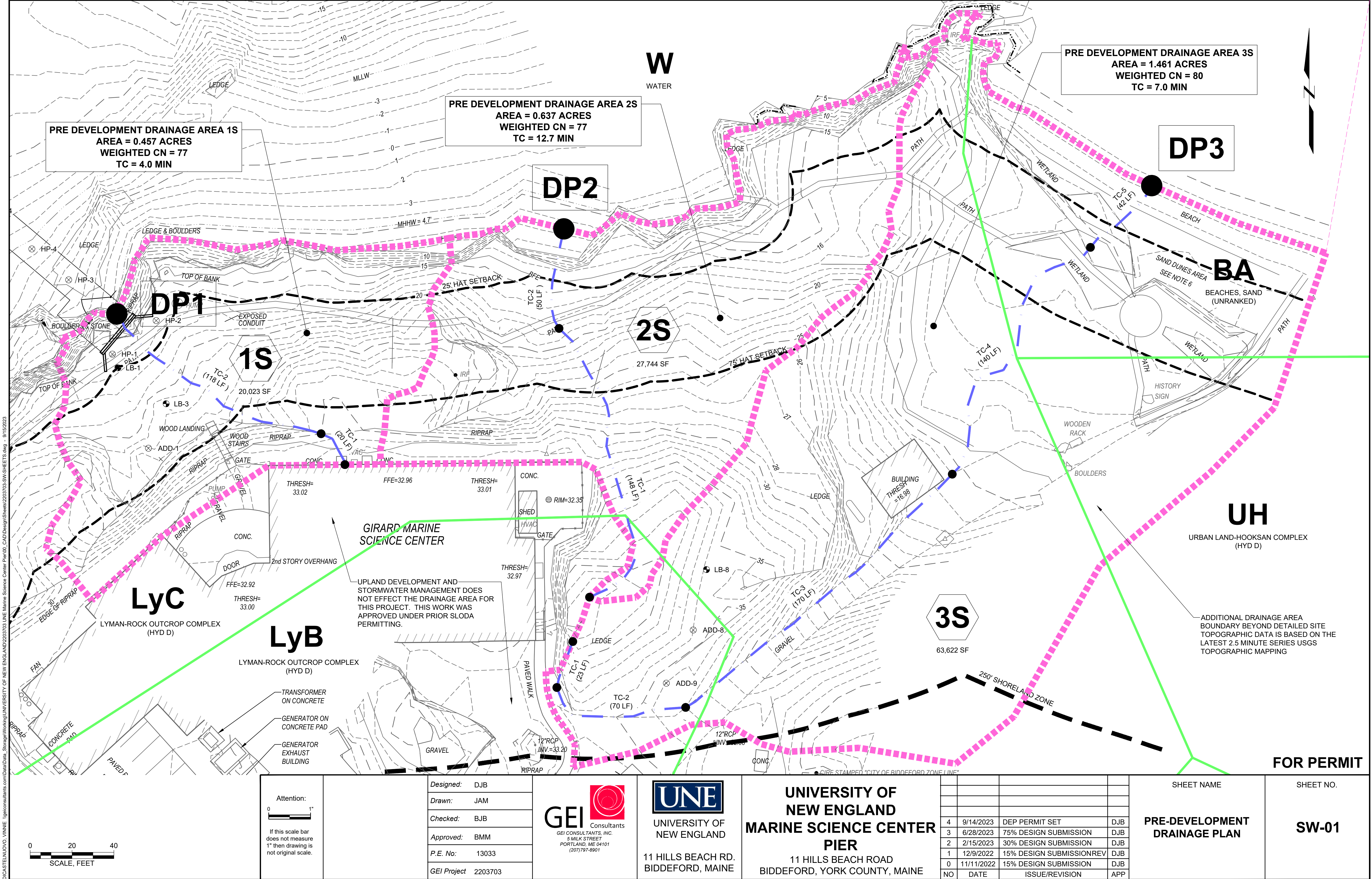
UNIVERSITY OF NEW ENGLAND**BIDDEFORD, MAINE****INSPECTION / MAINTENANCE LOG****BIORETENTION FILTER CELLS****I: INSPECTED - C: CLEANED - R: REPAIRED**

DATE	INITIALS	Unit #	ACTION	COMMENT
7/6/19	PQR	LA2	I, C	EXAMPLE: Cleared sediment and plant debris from inlet area, mowed filter area, crest, and sideslopes.

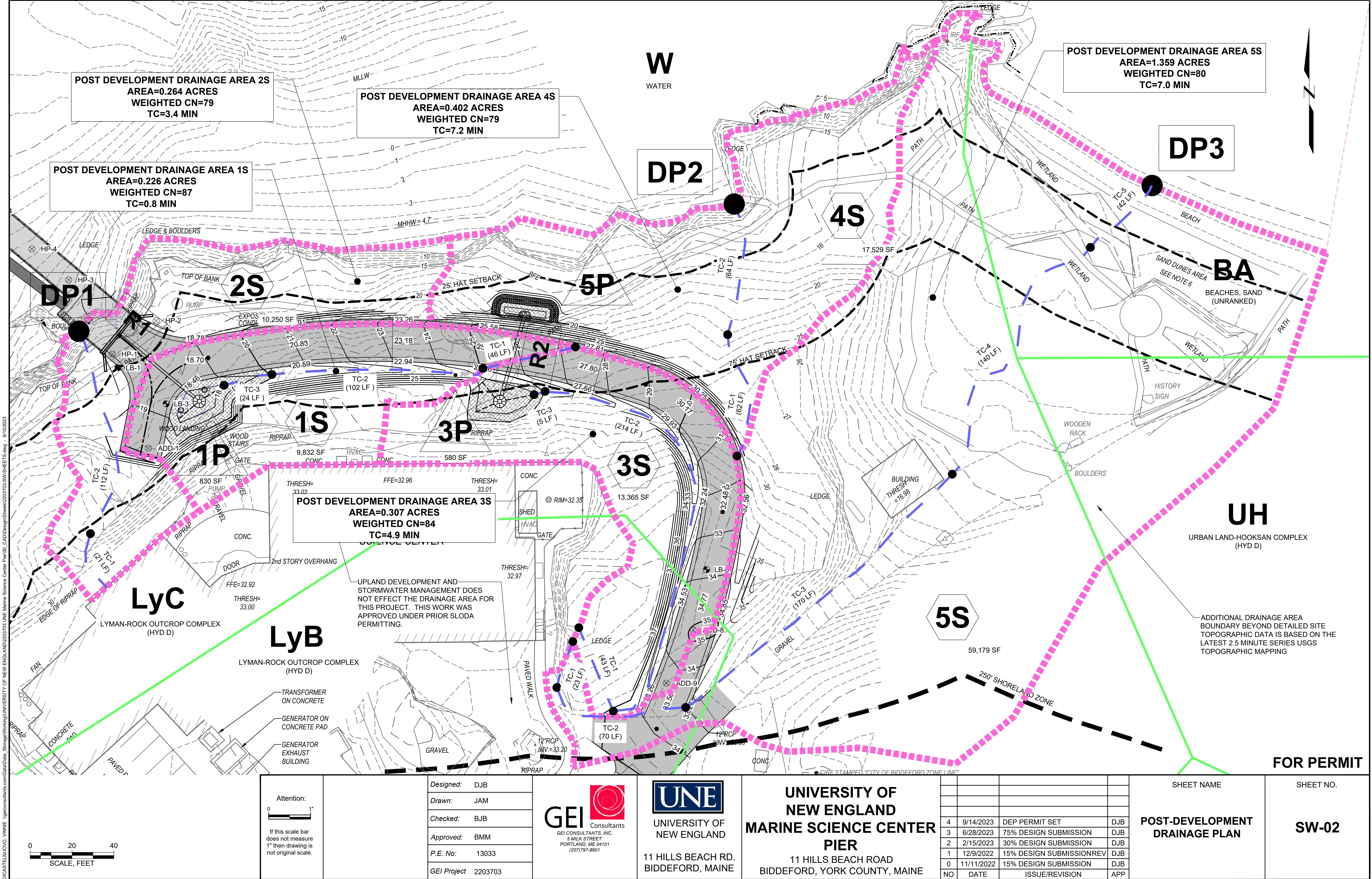
**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
All Pond and Filter side slopes	Inspect slopes for sloughing, erosion or undesirable tree growth. Mow slopes to control vegetation, repair any structure flaws identified	X Mow Summer		X	
All Pond and Filter Sediment Removal	Remove sediment when it occupies 15% of volume.				X 5 Years
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	X Mow		X	
Pavement	Review for damage and buildup of debris and sand.	X	X Sweep		
Level Spreaders	Review level lip for stability and grass growth, remove sediment and debris		X		
Catchbasin and Drain Manholes	Inspect grates to assure optimum water flows into the structures. Inspect sumps for blockage and sediment accumulation. Clean out sumps .	X Inspect		X Sediment removal	
Pipelines	Inspect for sediment build-up in pipe. Flush and remove as required.			X	
Bioretention Filter Cells	Mow twice per year. Inspect for erosion.		X		

Drawings



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POST DEVELOPMENT DRAINAGE AREA 2S
AREA=0.264 ACRES
WEIGHTED CN=79
TC=3.4 MIN

POST DEVELOPMENT DRAINAGE AREA 4S
AREA=0.402 ACRES
WEIGHTED CN=79
TC=7.2 MIN

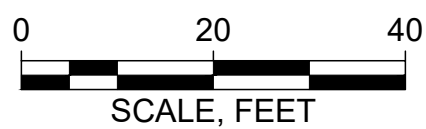
POST DEVELOPMENT DRAINAGE AREA 1S
AREA=0.226 ACRES
WEIGHTED CN=87
TC=0.8 MIN

POST DEVELOPMENT DRAINAGE AREA 5S
AREA=1.359 ACRES
WEIGHTED CN=80
TC=7.0 MIN

POST DEVELOPMENT DRAINAGE AREA 3S
AREA=0.307 ACRES
WEIGHTED CN=84
TC=4.9 MIN

UPLAND DEVELOPMENT AND
STORMWATER MANAGEMENT DOES
NOT EFFECT THE DRAINAGE AREA FOR
THIS PROJECT. THIS WORK WAS
APPROVED UNDER PRIOR SLODA
PERMITTING.

ADDITIONAL DRAINAGE AREA
BOUNDARY BEYOND DETAILED SITE
TOPOGRAPHIC DATA IS BASED ON THE
LATEST 2.5 MINUTE SERIES USGS
TOPOGRAPHIC MAPPING



Attention:
0 1"
If this scale bar
does not measure
1" then drawing is
not original scale.

Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



UNE
UNIVERSITY OF
NEW ENGLAND
11 HILLS BEACH RD.
BIDDEFORD, MAINE

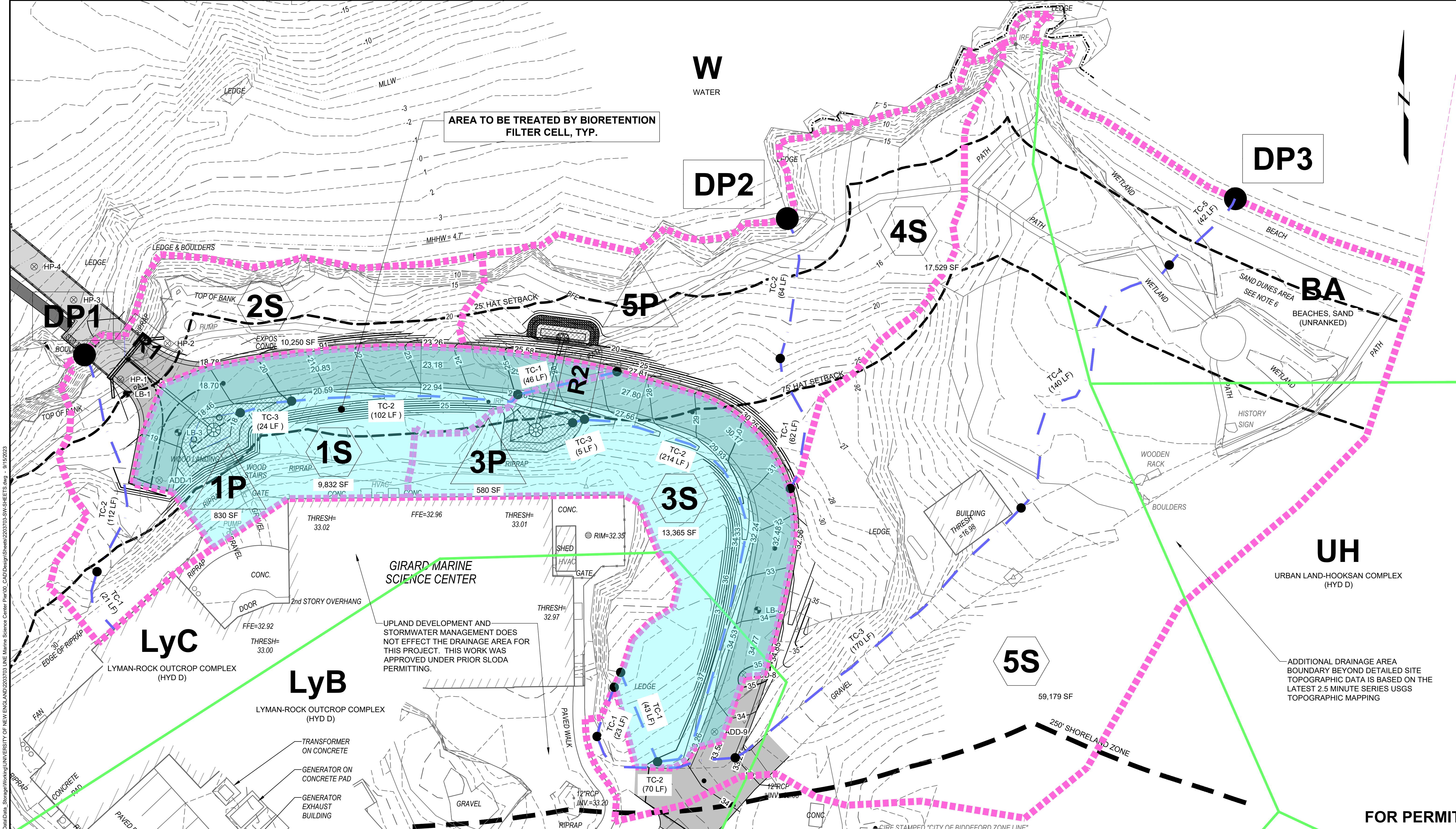
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

NO	DATE	ISSUE/REVISION	APP
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUBMISSIONREV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

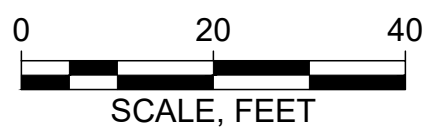
SHEET NAME
POST-DEVELOPMENT
DRAINAGE PLAN

SHEET NO.
SW-02

FOR PERMIT



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Attention:	Designed: DJB	
	Drawn: JAM	
	Checked: BJB	
	Approved: BMM	
	P.E. No:	13033
	GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

NO	DATE	ISSUE/REVISION	APP
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUBMISSIONREV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME		SHEET NO.
TREATMENT AREA PLAN		SW-03

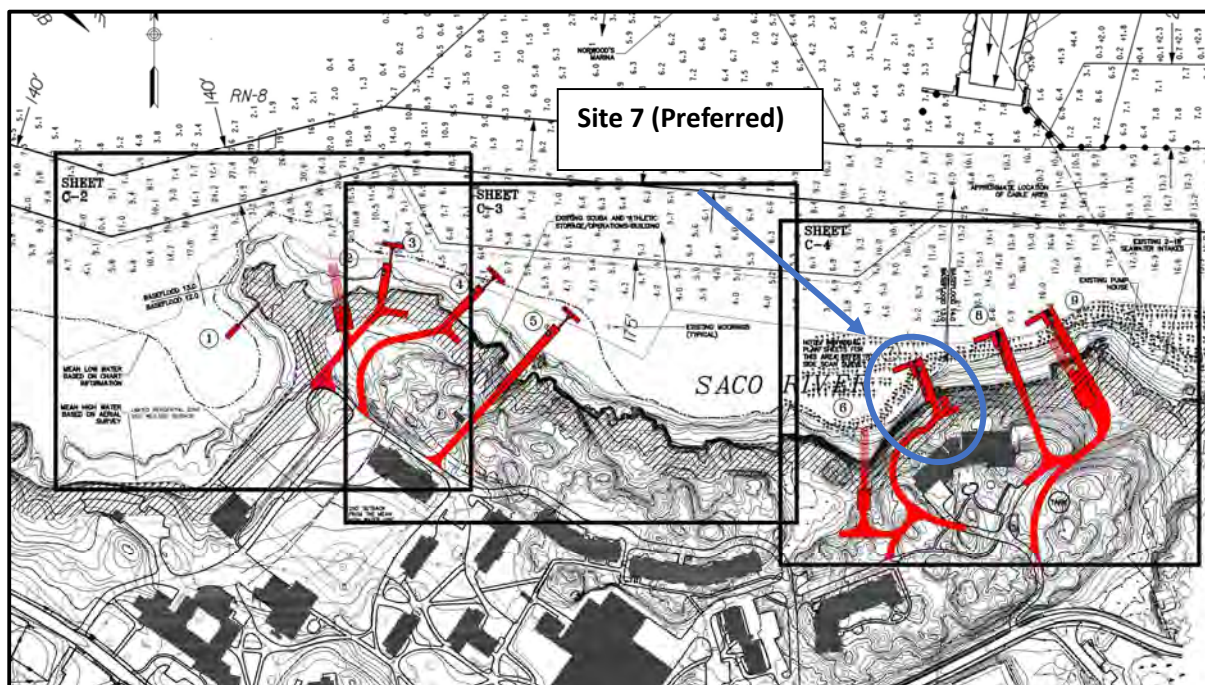
**Attachment 8
Alternatives Analysis
and Memo**

Alternatives Analysis

The Plans provided in attachments 5 and 6 detail the preferred alternative. This design was arrived at after extensive study of alternative locations and layouts for the pier over multiple years time. Alternatives considered in developing the proposed project are briefly described below.

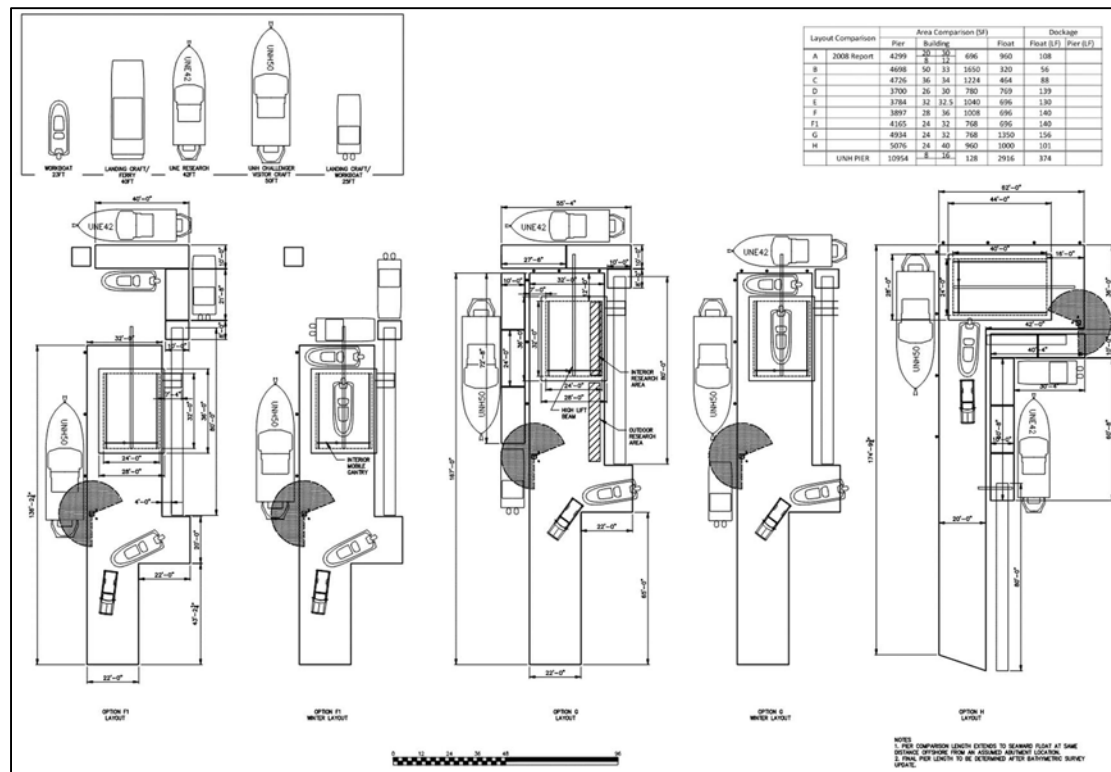
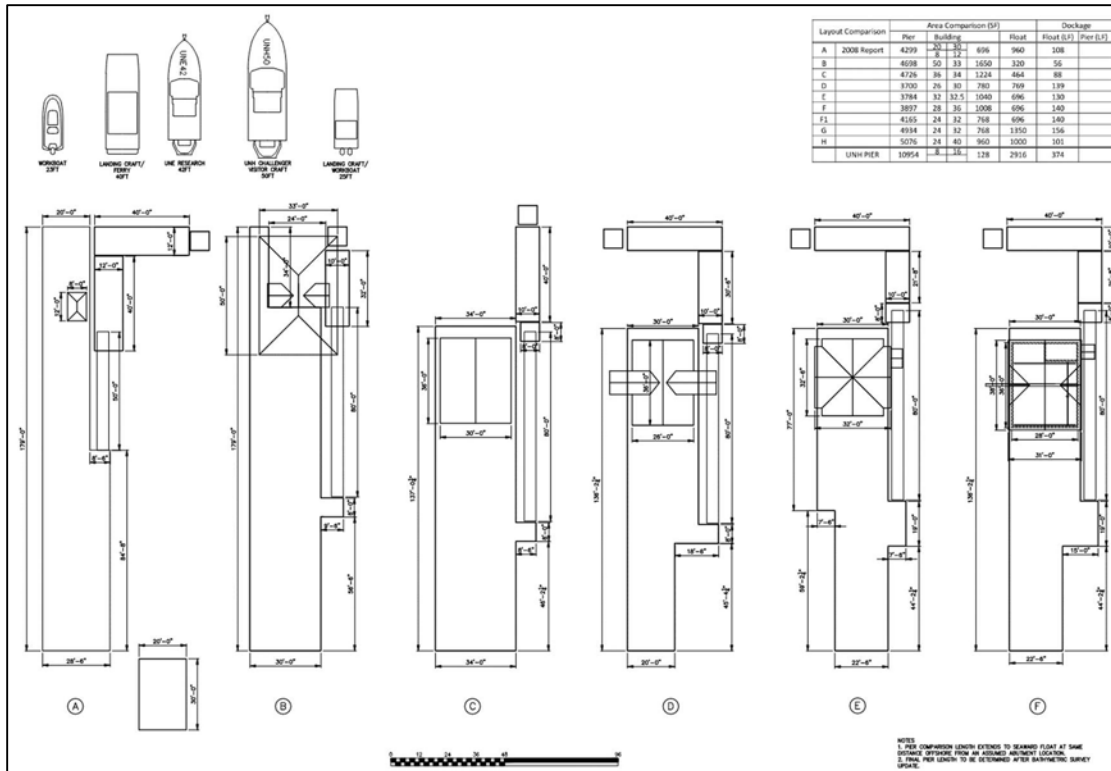
2008-2010 Pier Feasibility Study

In 2008-2010, UNE completed a concept planning study for the proposed pier. In this study, nine alternative designs were developed for water access facilities along the UNE waterfront consisting of various configurations of piers, boat ramps, and upland access and support facilities. The alternatives were evaluated on a range of criteria including technical criteria, functionality, constructability, regulatory impacts, cost of construction, and others to identify a preferred facility location. The nine alternatives evaluated through this study are shown in the figure below. At the conclusion of this study, Site 7 (directly in front of the Marine Science Center building) was identified as the preferred facility location to develop a new pier facility that would consist of a pile-supported pier extending from shore out into the Saco River. This location is optimal for access to and from the MSC facility and on the water, and allows for all-tide berthing with a smaller structure and less impact than several adjacent alternatives that were considered. At the conclusion of this study it was determined that Site 7 was the preferred alternative to move forward with further planning and design.



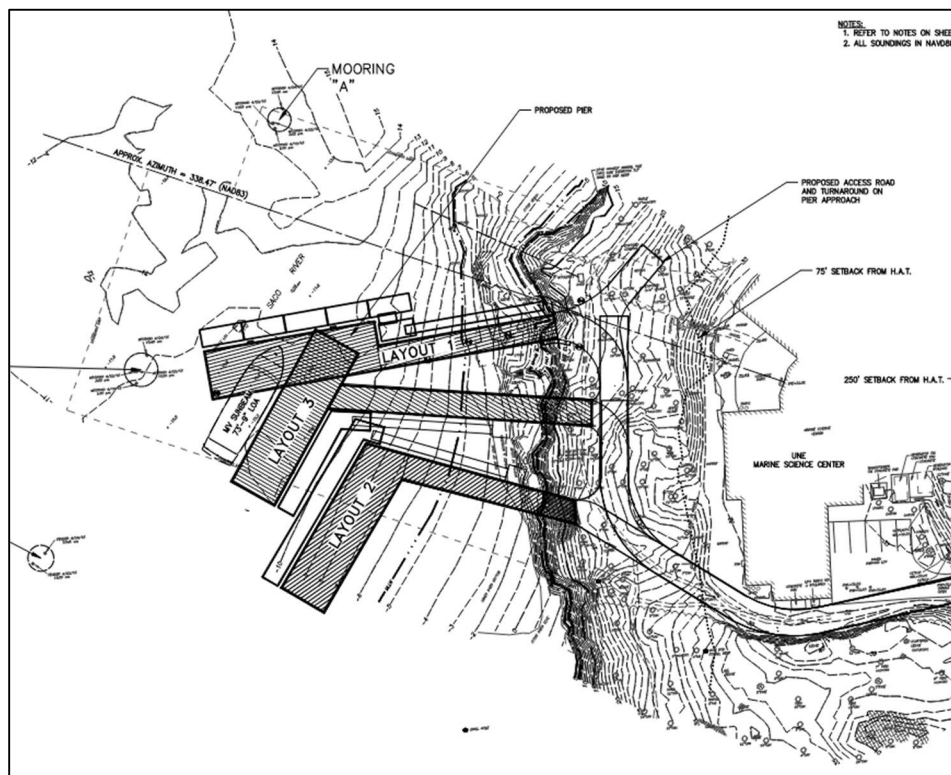
2015-2016 Pier Layout Study

After completion of the pier feasibility study described above, UNE undertook additional effort to study alternative pier layouts that would address the functional needs of the facility as well as the site exposure, berthing conditions, access requirements, and associated site impacts. During this study, numerous alternative pier layouts were considered which are depicted in the two figures that follow.



Further alternative development was completed in 2016 to address a realignment of the pier head parallel to the predominant direction of flow in the River for improved berth functionality. These alternatives considered input of the Biddeford Harbormaster and his knowledge of boating and

conditions on the Saco River after review of earlier layouts during a meeting in early 2016. The figure below depicts three alternatives considered during the study.



2023 Layout Refinement

During design refinement undertaken in 2023, the preferred alternative was identified as a combination of the pier approach from Layout 1, and the pier head from Layout 3, of the 2016 layout study. The Layout 1 pier approach represents the least impactful and most feasible option for upland site access. The Layout 3 pier head provides more desirable berthing conditions by aligning the main berth with flow directions in the River, and reaches sufficient depth to provide all-tide access for the range of vessels anticipated to use the facility. The layout was then refined somewhat to reduce the size of the structure to keep the dimensions to the minimum necessary to accomplish the functional goals of the project. During this refinement, the dimensions of the pier head were reduced from the initially proposed 28-foot wide by 100-foot long, to the currently proposed 23-foot 4 inches wide by 80-foot long. The dimensions of the float dock system were reduced somewhat, and the layout of fender piles was refined to reflect a functional design with minimum necessary dimensions and impacts.

The preferred alternative as currently presented represents a facility of the smallest dimensions possible to provide a functional facility that provides all-tide access for the range of vessels anticipated to use the facility, and ADA compliant access to the floating dock and gangway system and berthed vessels. While it could be possible to further reduce site impacts by further reducing the dimensions of the facility, any reduction beyond the size that is currently proposed would impact the proposed uses of the facility.

Do Nothing Alternative

A Do Nothing Alternative is the least impactful option, but would fail to address the goal of providing all-tide access to support UNE's marine research and educational programming through the marine science center. The existing seasonal floats and gangway located on the UNE campus upstream of the MSC building do not effectively meet these needs. Therefore, a Do Nothing alternative is not considered to be a feasible long-term solution.

Memo

To: Andrew Philippe, Director of Campus Planning

From: Daniel Bannon, P.E., CFM and Barney Baker, P.E.

c: UNE – Alan Thibeault
Site Design Associates – Tom Saucier, P.E.
GEI Consultants, Inc. - John Gareau, E.I.

Date: November 28, 2023

Re: Proposed GMSC Pier Location
University of New England, Girard Marine Science Center Pier
Biddeford, Maine
GEI Project No. 2203703

Summary and Purpose

The University of New England (UNE) proposes to construct a new pier on the Saco River adjacent to the Girard Marine Science Center (GMSC) to support research and educational programming. The project has been in development for more than 10 years and has gone through extensive planning and alternatives analysis in arriving at the design that is proposed. In October 2023, UNE staff held a meeting with several key stakeholders including the Biddeford and Saco Harbormasters, who raised questions as to the viability of relocating the pier further toward the east, downstream from the proposed location, in a revised alignment. The purpose of this memo is to summarize the process that has been undertaken for selecting the proposed pier location and to evaluate the advantages or disadvantages of the suggested alternative location compared to the proposed design.

Planning History

UNE has undertaken multiple studies to investigate locations and configurations for the proposed GMSC pier. These studies considered factors and constraints including but not limited to proximity to campus facilities, available water depths, site exposure to currents and wave action, upland site impacts, coastal wetland and habitat impacts, impacts to harbor uses such as fishing, recreational boating, and moorings, and estimated cost of construction. The proposed pier represents the preferred balance of these factors. The past studies that resulted in this design are briefly summarized below.

In 2008-2010, UNE completed a concept planning study to investigate opportunities for construction of improved water access to support marine science programs on campus. In this study, nine alternative design concepts were developed along the UNE waterfront consisting of various configurations of piers, boat ramps, and upland access and support facilities. The concept alternatives are shown in Fig. 1. The alternatives were evaluated on a range of criteria including technical criteria, functionality, constructability, regulatory impacts, costs of construction, and others to identify a preferred facility location. At the conclusion of this study, Site 7 (directly in front of the GMSC building) was identified as the preferred location to develop a new pier facility that would consist of a pile-supported pier extending from shore out into the Saco River. This location was determined to provide the best balance of site constraints and desired functions with good access from the GMSC, ability to achieve adequate water depths to allow for all-tide berthing of the anticipated vessels, and a location of river frontage semi-sheltered from currents and wave action.

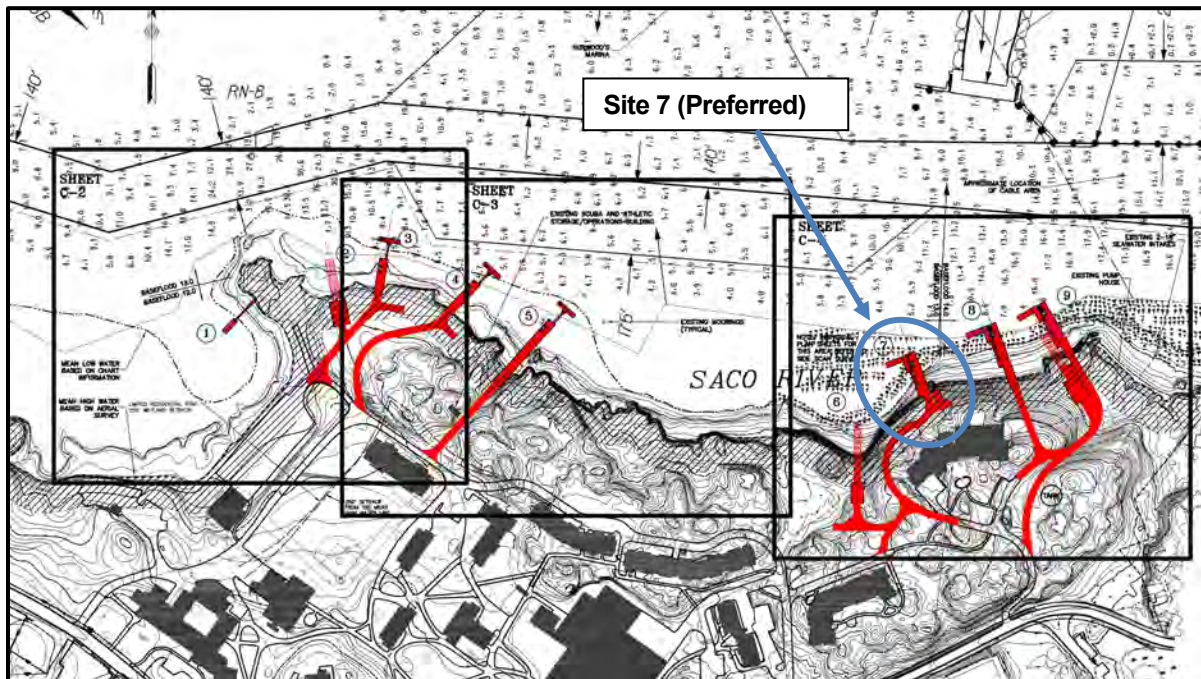


Fig. 1 – Alternative Sites Evaluated in 2008-2010 Study

After completing the pier feasibility study and identifying Site 7 as the preferred pier location, UNE undertook additional effort in 2015-2016 to study alternative pier layouts that would address the functional and vessel needs of the marine science curriculum as well as the site exposure, berthing conditions, access requirements, and associated site impacts. During this work, numerous alternative pier layouts were considered. Figs. 2 and 3 demonstrate some of the alternative layouts that were considered. This process allowed for consideration of desired pier dimensions and features, configurations of fixed structures and floating docks, pedestrian access needs, and other design criteria.

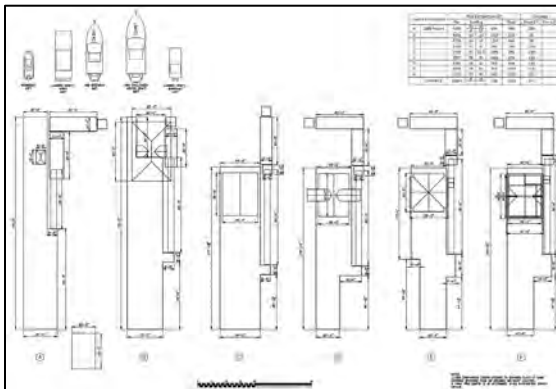


Fig. 2 – Sample of pier layout alternatives evaluated in 2015-2016 (1 of 2)

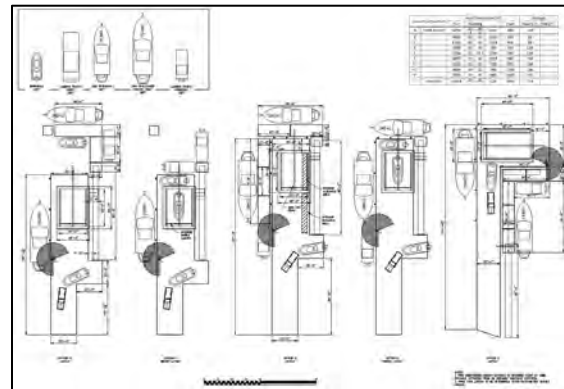


Fig. 3 – Sample of pier layout alternatives evaluated in 2015-2016 (2 of 2)

In February 2016, the proposed pier was reviewed with the Biddeford City Manager and key city representatives that included the Biddeford Harbormaster and Assistant Harbormaster and representatives from development staff and the Saco River Corridor Commission. Further input was gathered on river currents, recreational boating, and fishing activities resulting in the development of the three layout alternatives shown in Fig. 4 (labeled as Layout 1, Layout 2, and Layout 3). The

Harbormasters suggested that a layout with pier head oriented along the predominant direction of current such as shown in Layouts 2 and 3 would be preferable for vessels berthed at the facility. The Harbormasters also suggested that locating the pier closer to shore to minimize impacts to existing moorings and fishing activities would be preferable. These suggestions were taken into account in the next stages of design. A summary of the pier layout alternatives considered is provided in the attached memo from Baker Design Consultants dated March 22, 2016 titled “Consideration of an Alternate Pier Configuration as recommended by the City of Biddeford”.

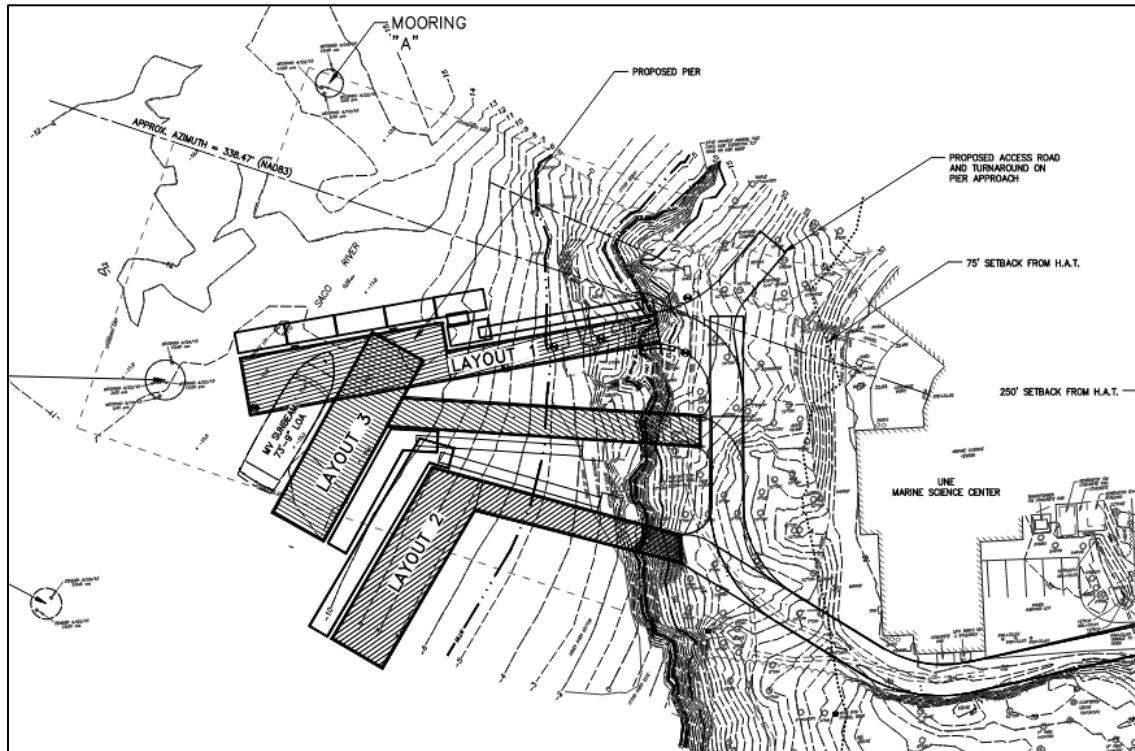


Fig. 4 – Pier layout alternatives developed in 2016 to address Harbormaster feedback

Final Design

In 2022, UNE resumed formal design development for the proposed GMSC Pier. At the start of this process, a layout was developed based on the 2016 layouts shown in Fig. 4 that reflected a combination of the pier head from Layout 3 and the pier approach from Layout 1. This new layout represented the optimal balance of site and functional constraints and upland access, with a pier head orientation that provides a main berth that is aligned with flow directions in the river, and sufficient depth to provide all-tide access for the range of vessels anticipated to use the facility.

The pier dimensions were refined through the design process to keep the structure to the minimum dimensions necessary to achieve the intended functions. This process resulted in a 22% reduction in footprint of the fixed pier, a 47% reduction in the footprint of floating docks, and a 17% reduction in the quantity of piles. Design development was advanced to 75% complete based on this design. The 75% design layout is shown in Figs. 5 and 6.

Water Depth

One reason for suggesting the alternative pier location is greater available water depths.

In the proposed design there is 5 to 6 feet of depth at mean lower low water (MLLW) at the main berth on the outer face of the pier which is sufficient for the proposed vessels using the facility. The suggested alternative location does have greater depth at the main berth, approximately 11 to 12 feet at MLLW. While this additional depth could allow larger vessels to use the pier, it is not needed to support the currently proposed and/or future envisioned uses.

The proposed design has 3.5 to 5 feet of depth at MLLW at the proposed floats on the inside of the pier, with sufficient distance to the MLLW line and a generally soft substrate near the floats to minimize risk of damage from vessels grounding out. In the suggested alternate location, the subtidal bottom slopes up rapidly behind the pier head. The available depth at the floats varies from 2 to 12 feet at MLLW, however the floats are in close proximity to a shallow ledge outcrop and there are concerns of hazardous conditions for vessels accessing these floats. In order to provide safe navigation to the floats the pier would need to be moved further downstream and/or extended further out into the River adding to its size, footprint, and cost.

From the standpoint of required water depths and navigational safety, the proposed design is preferred.

Exposure to Currents

The Saco River experiences currents due to tidal influence and riverine flows. To understand currents on the River, GEI has reviewed data gathered by the US Army Corps of Engineers as part of their study of erosion at Camp Ellis¹. Figs. 8 through 11 demonstrate trends in current through differing stages of the tide. The magnitude of the current's velocity is represented by the length of the yellow arrows, with a reference arrow of 50 cm/s provided in the figures, while the current direction is indicated by the direction of the arrow. As can be seen from this data, the proposed pier location benefits from the natural shape of the shoreline which generally results in lower current velocities at the proposed location than at the downstream constriction of the River where the suggested alternate location would be located.

The lower current velocities at the proposed pier location compared to the suggested alternate result in more favorable conditions for vessels berthing at the pier, greater safety for vessels and users, and reduced structural loading on the pier. For these reasons, the proposed pier location is preferred from the standpoint of exposure to currents.

¹ Saco River and Camp Ellis Beach Section 111 Shore Damage Mitigation Study, Appendix C – Data Collection and Modeling Report, prepared by Woods Hole Group and Aubrey Consulting for the US Army Corps of Engineers, October 2006

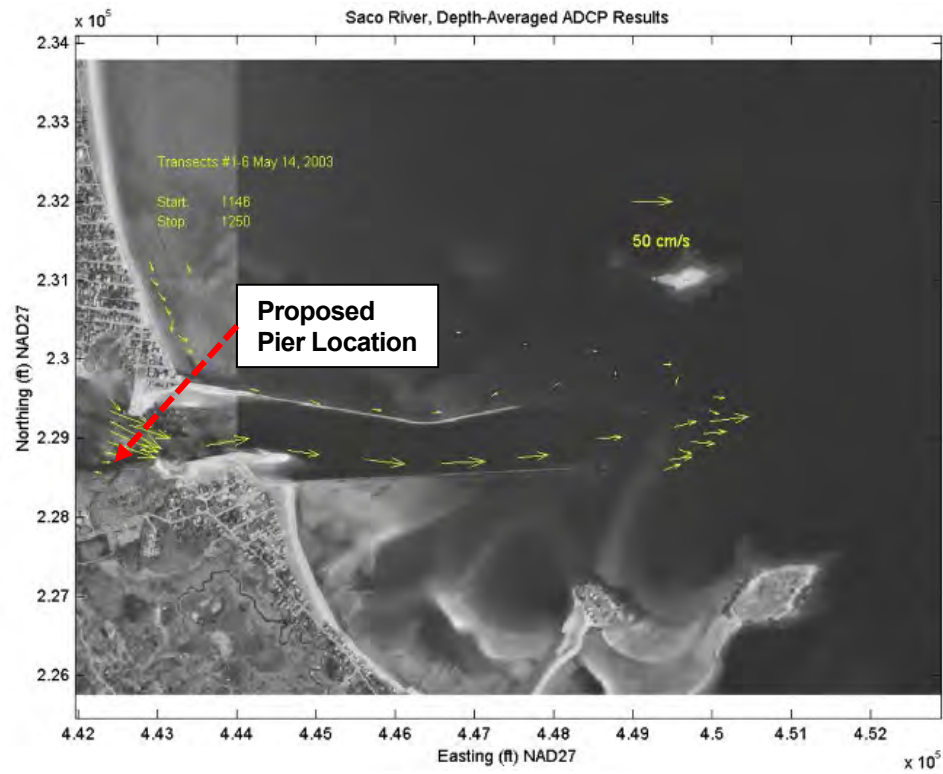


Fig. 8 – Sample of USACE Current Monitoring Data

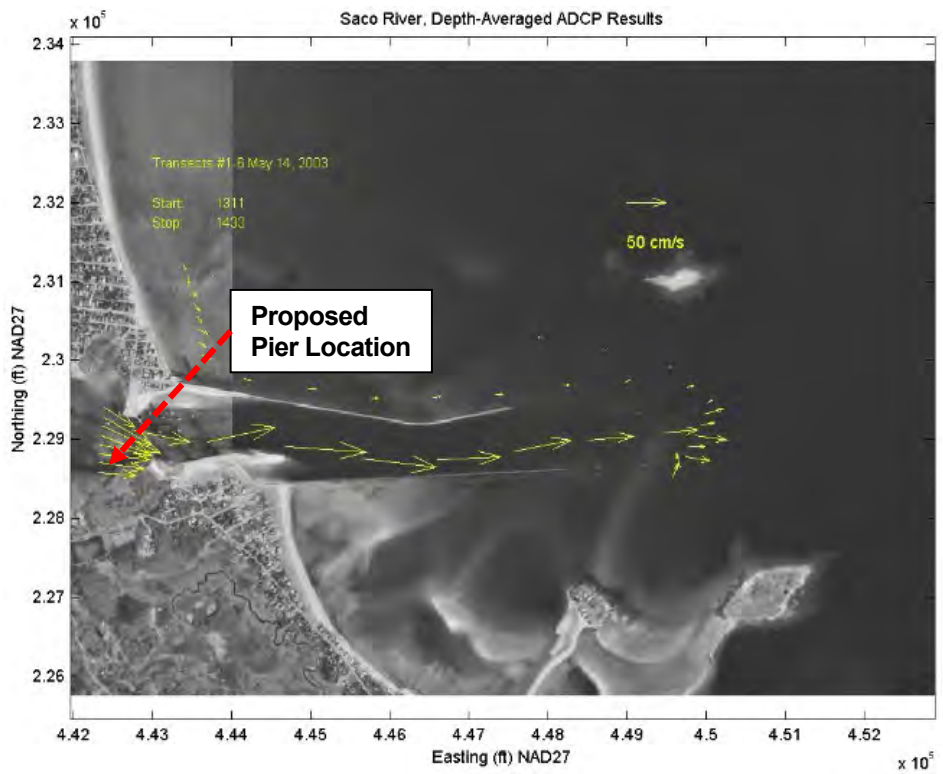


Fig. 9 – Sample of USACE Current Monitoring Data

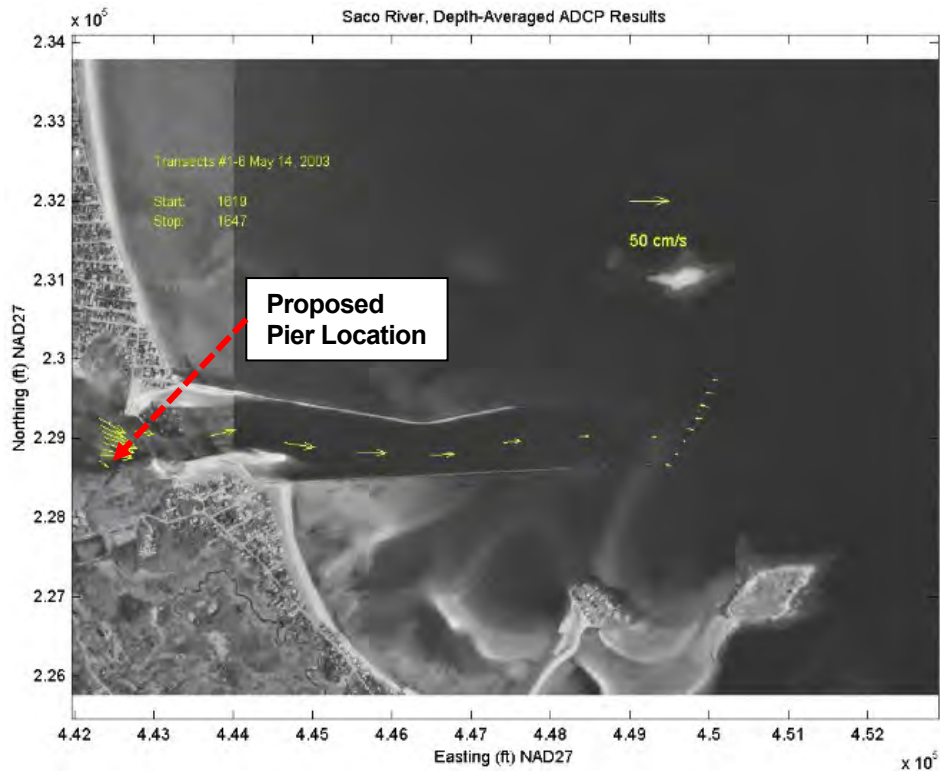


Fig. 10 – Sample of USACE Current Monitoring Data

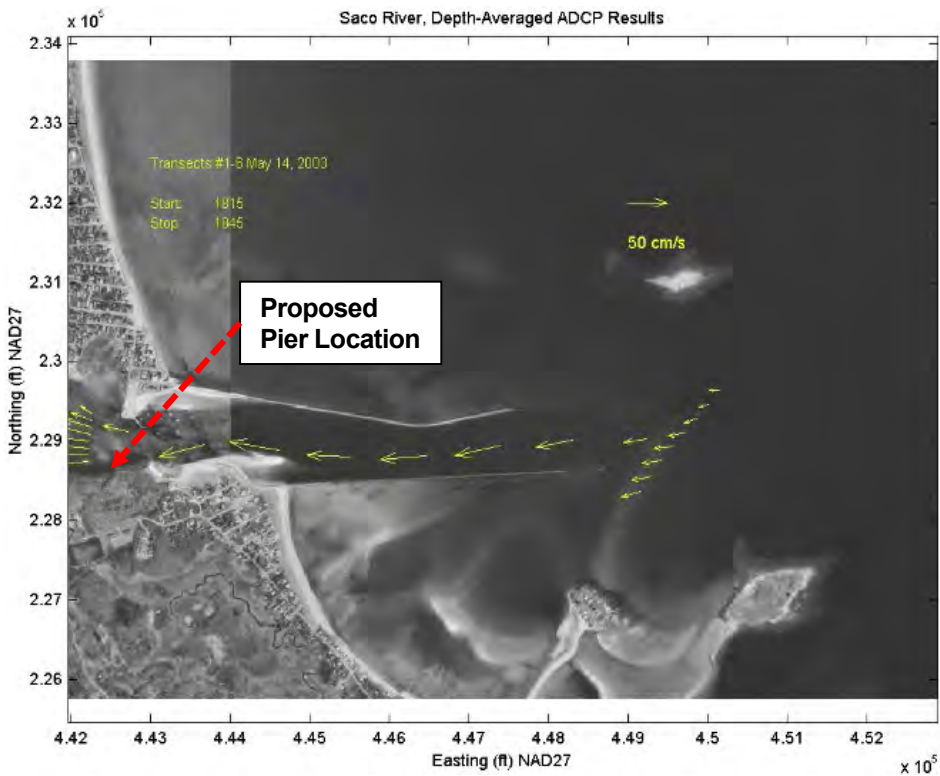


Fig. 11 – Sample of USACE Current Monitoring Data

Location Relative to River Sediment Deposition

The Harbormasters commented during the October 2023 meeting that the proposed pier location may be subject to sediment deposition that may impact pier navigation over time and require dredging in the future to restore water depths. As part of the project development, bathymetric surveys were completed in the pier area in May 2015 and again in November 2022. Fig. 9 provides an overlay of these two surveys (2022 contours are shown blue, 2015 contours are shown grey and red). In comparing these two surveys, there is negligible difference between the surveys that were taken 7.5 years apart. While there are minor differences that can be observed in contour locations and shapes, these could be attributed to the bathymetric survey accuracy and method of modeling the three-dimension surfaces used to create the contours. None of the differences are significant enough to suggest that there are large scale trends of deposition in the project area. Based upon this review, there is no indication that sediment deposition will be a substantial concern in the proposed area of the pier, and it does not appear that the suggested alternate pier location offers an advantage.

The proposed pier location does not appear to be in an area that is subject to notable sediment deposition and remains the preferred location.

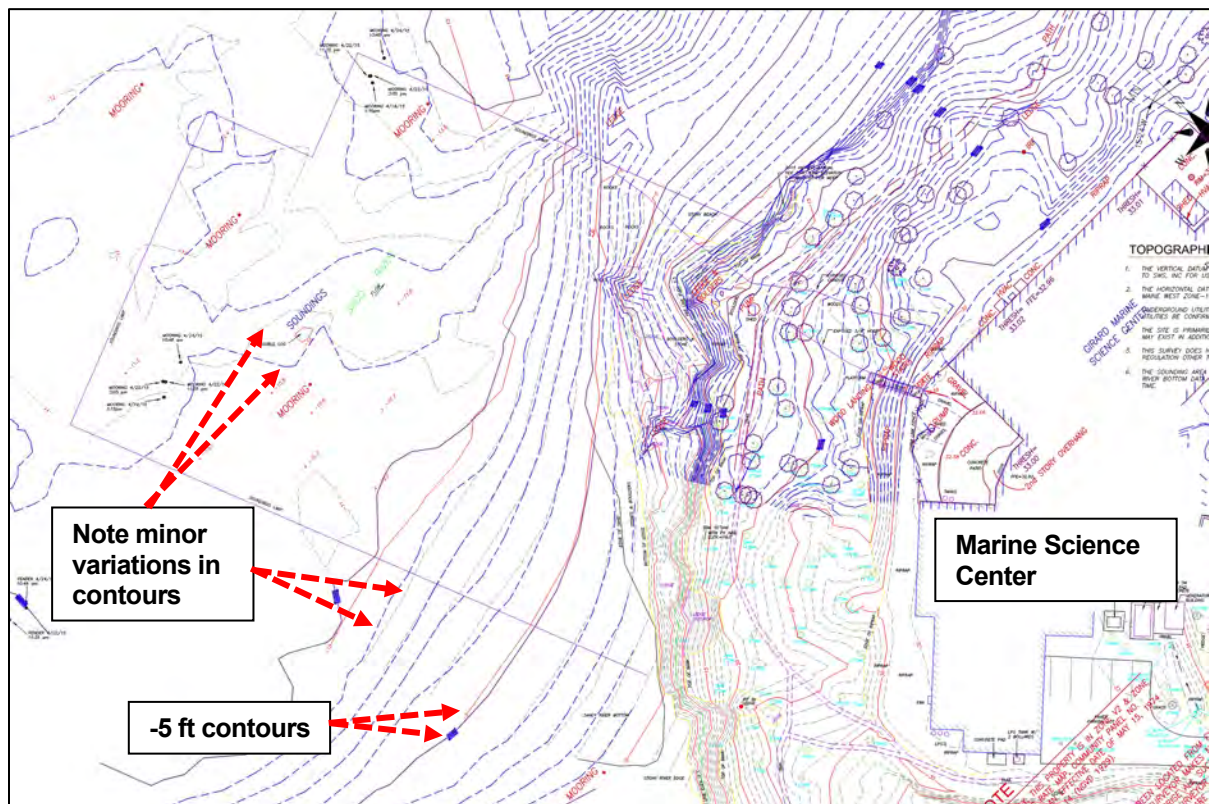


Fig. 12 – Comparison of 2022 (blue) and 2015 (grey and red) bathymetric contours

Exposure to Icing

The Harbormasters have raised concerns about exposure of the pier to winter icing. Icing on the Saco River is also a concern of UNE and the design team. The River is known to experience ice floes during the winter season that have historically been damaging to vessels at Camp Ellis. In terms of designing the fixed pier structure, the exposure to ice loading has been considered and the pile

supported pier structure will be able to sustain the forces from ice. The primary concern of the design team with winter icing is related to the impact on floating docks and berthed vessels. The ability to keep the facility in operation throughout the winter months when exposed to icing is still being evaluated by UNE. Additional steps are planned to monitor the site through winter conditions to better understand the extent of icing and potential impacts. The results of this investigation will inform the facility operations and vessel berthing plans. Methods being considered to mitigate the risks of ice impact to floats and vessels may involve the installation of additional temporary or permanent protective measures and/or limiting use of the pier during times when icing is anticipated. Irrespective of the ice protection and operational measures that may ultimately be included, the proposed pier location has less velocity exposure to icing than the suggested alternate location given its location and therefore reduced exposure. For this reason, the proposed design is preferred.

GEI has designed the fixed pier structure to resist the impact associated with river icing. Irrespective of pier location, the UNE will need to plan facility operation during periods of icing to manage risk associated with reduced facility use.

Impact to Moorings

The proposed pier layout is in close proximity to one existing known mooring which will likely need to be relocated to allow for the proposed construction. The suggested alternative is also in close proximity to one existing known mooring which would also need to be relocated if this alternative was used. Therefore, from the standpoint of mooring impacts, the proposed design and the alternative are believed to be similar.

To address anticipated impacts to moorings, GEI and UNE are prepared to work with City staff as necessary to allow for mooring adjustments to accommodate the proposed pier.

Conclusions and Closing

GEI has reviewed the concerns raised by the Saco and Biddeford Harbormasters and evaluated their impact on the proposed design, reviewed the history of planning that led to the current design location and layout, and reviewed the potential advantages and disadvantages offered by the suggested alternative pier location. While we respectfully value the input and suggestions for a layout alternative, it is our opinion that the proposed design represents the preferred balance of project requirements and site constraints. Compared to the suggested alternative, the proposed design achieves adequate water depth, provides safe navigation, results in a structure of smaller overall dimensions with less coastal wetland impact, does not appear to be subject to significant sediment deposition, and locates the pier in a location that is less exposed to current and icing impacts. For these reasons, GEI recommends that the current design and pier location be maintained.

We would be happy to discuss any elements of this memo at your convenience. Please contact Dan Bannon (dbannon@geiconsultants.com) or Barney Baker (bbaker@geiconsultants.com) with any questions.

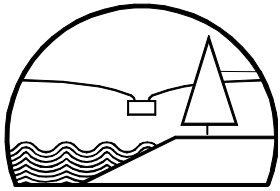
Attachment

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\\geiconsultants.com\data\Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\11_SUBMISSIONS\2023-11-29 -Revised Memo on Suggested Alternative Location of Pier\UNE MSC Pier - MEMO_Alternative Pier Location_2023-11-28.docx

Attachment 1

2016 Pier Alternatives Memo



BAKER DESIGN CONSULTANTS
Civil, Marine and Structural Engineering

Project: **15-07 UNE Pier Layout Alternatives**

Date: March 22, 2016

To: Alan Thibeault; University of New England

Copy: Tom Saucier; Site Design Associates
Dan Bannon; Baker Design Consultants,

Subject: Consideration of an Alternate Pier Configuration as recommended by the City of Biddeford

\\BDC-SRV\PROJECTS\15\15-07 UNE MSC WATERFRONT\DESIGN\ALTERNATE PIER LOCATION STUDY\15-07 UNE PIER ALTERNATIVES MEMO MARCH 2016.DOCX

MEMO

Introduction

Baker Design Consultants (BDC) completed a pier feasibility study in 2010 study for the University. The work first defined the type of pier and parameters necessary to support the Marine Science program and then looked at the entire Saco River shoreline of the Biddeford Campus for suitable sites. Concept pier layouts for nine (9) sites were prepared and then compared in a matrix format that looked at the ability of the pier to meet the program objectives, the respective shore and waterside development challenges, the environmental impacts associated with each solution and the approximate cost and scope for construction. The pier was added to the long-term facility plan for the University.

In September 2015, BDC was retained to develop the design for a new pier at the site that had been most favorably rated in the 2010 study. Site No. 7 met the operational objectives for the pier and was located close to the Marine Science Facility pier with access to deep-water. The design has advanced through several stages of UNE MSC faculty review to define an optimum footprint and access for the pier. This was followed by site survey and geotechnical borings to verify water depths and subsurface conditions at the proposed pier location. Initial contact with the regulatory agencies has been made, but no permits applications have been filed to date. The Biddeford Harbormasters were invited to the site to review the pending (now complete) geotechnical exploration and the pier was discussed briefly at this meeting.

In February, Barney Baker and Alan Thibeault met with the City Manager and key city representatives that included the Harbormasters and representatives from development staff and the Saco River Corridor Commission. Preliminary plans for the pier were reviewed and discussed with an opportunity for staff to share comments on the proposed design. The Harbormasters were particularly keen advocates for design adjustments based on their knowledge and experience with the Harbor. All City staff was supportive of the pier and recognized the benefits it will provide to the Marine Science program at UNE.

This memo considers comments made by City staff on the current design and considers two Alternate Layouts to evaluate the changes requested. Refer to the appended drawings that show the three (3) Layouts discussed in this memo. Sheet C-1 shows the pier site in the relation to other features in the Saco River Basin.

Sheet C-1 - Saco River Basin

Sheet 1 of 4- Layout 1- Current Design

Sheet 2 of 4- Layout 2- Incorporating all City Recommendations

Sheet 3 of 4- Layout 3- Modification proposed by BDC

Sheet 4 of 4- Composite showing all 3 Layouts

Recommendations for Pier changes made by the City.

The City suggested changes to the proposed pier (Layout 1) at the February 2016 review meeting are outlined below with comments from Baker Design Consultants (BDC Response). These collectively advocate for the pier to be relocated inshore, upstream and realigned to be more parallel with the shore.

Alternate Pier configurations (Layout 2 and Layout 3) are appended. These were prepared to investigate and illustrate the changes that would be necessary to incorporate the recommended pier changes. The Table on page 4 provides a summary comparison of the proposed design (Layout 1) with the Alternate Layouts.

1. Place the pier closer to shore to minimize existing moorings impacts.

The Harbormasters were concerned that the proposed pier (Layout 1) impacted the location of several moorings and that this would create specific hardship for individual mooring holders and harbor management in general. The Harbor masters made general reference to several mooring holders, but did not have access to a plan to show where these were located.

BDC Response. Both Alternate Layouts (2 & 3) move the pier closer towards shore. Refer to tabulated mooring clearances in the Table that follows for each Layout considered.

The moorings in the pier area at the time of the April 2015 survey were put on the plan and a general search was made of google earth aerial photographs going back several years for others that might not have been in the water at the time of the field survey.

The three recorded moorings nearest the pier site are identified on the attached plans as Mooring "A", "B", and "C". For each of the pier layout alternates considered, the distance from the approximate mooring center point to the nearest point on the pier is tabulated. A clear distance in excess of 110 to 120-ft is considered an acceptable mooring clearance to the pier

2. Consider pier impacts to nearshore fishing.

The Harbormasters indicated the nearshore at the pier location was used by fishermen that use small boats to fish along the southern shore of the river from upstream to downstream. The proposed pier would require boaters to move out and around the pier and may be perceived as a barrier to the fishing activity. It was pointed out that any new pier at any waterfront location will have a similar impact on near shore navigation, but moving the pier inshore would reduce the necessary detour.

BDC Response: It is acknowledged that while the pier would influence nearshore navigation, it was well clear of the designated federal channel and boats moving around the pier would not conflict with channel traffic. The nearshore fisherman in small boats could pass under the approach section of the pier at all states of the tide in Layout No. 3 but would be restricted at low water by floats and gangway in Layouts 1 & 2.

3. Relocate pier further upstream and change orientation to reduce current exposure.

The Harbormasters confirmed that the channel restriction located just seaward of the pier created fast currents that ran parallel to shore. Based on their knowledge of the harbor, they suggested the pier would be better rotated upstream parallel to the current and moved upstream and inshore from the Layout 1 location. This would put the pier in water with less tidal current and make docking easier and safer.

BDC Response. BDC indicated they had studied a 2006 study by the Army Corps of Engineers of currents at the pier location and had already oriented the pier upstream and away from the highest tidal currents while maintaining deep water access to both sides of the pier. It is recognized that moving the pier upstream reduces the current exposure, but because the water shoals, the vessel berthing is less efficient. BDC feels strongly that dredging is a last resort because of high cost, unreliable timeframes for periodic maintenance.

Alternate Layouts 2 & 3 benefit from the local knowledge and recommendation of the Harbormasters by effectively placing the pier in calmer water with an improved docking angle to the current. However, in both alternate configurations there is a decrease in the pier face docking provided by the pier. Layout 3 also would require dredging to maintain float access. Refer to the attributes for each Layout in the Table that follows.

4. Reduce length of pier access road to reduce visual impact on shore.

This comment was made in consideration of tree cutting, vegetation removal, and regrading that would be necessary to create an access road to the pier. The road access is located within the 250' Shoreland Zone. The visual impact will be carefully reviewed by the Saco River Corridor Commission. It was suggested that the access road length to the pier could be reduced by relocating the pier upstream from the current Layout 1 location.

BDC Response. Preliminary road alignment and profiles are provided for each layout in the appended drawings and compared in the Table on page 4. In each case, the access road extends around the existing Marine Science Center building to provide equipment and vehicle access to the pier. At the pier abutment it is necessary to provide a vehicle turnaround. Options that locate the pier approach further upstream require a sloped pier approach connector in order to accommodate the steeper grades at the shore. This undesirable feature is alleviated by providing a turn-around space on the Pierhead.

Alternatives Study Results summary

In summarizing the results of this Alternatives Study, the following points can be made.

- The local knowledge and insight provided by the City is both timely and helpful. The input provided both validates the Layout 1 design development to date and creates the opportunity to make small design improvements to reduce the tidal current exposure at the pier.
- Layout 2 does not work because of the steep shoreside access and the need to consider dredging in order to effectively use both sides of the pier.
- Layout 3 benefits from inside docking of small vessels, reduces access road impacts on shore with minimal concessions in water depth. However, the footprint of the pier (and cost) is increased and it is necessary to slope the connector pier to make the shore transition work. While the geotechnical fieldwork connected to date would be useful, additional geotechnical work is needed to verify subsurface conditions.

Moving forward, we recommend that Layout 3 be considered by UNE staff as a viable alternative for consensus approval with City stakeholders in advance of further design and regulatory discussion.

Please contact me with any questions.



Barney Baker, PE
Principal
JN 15-07

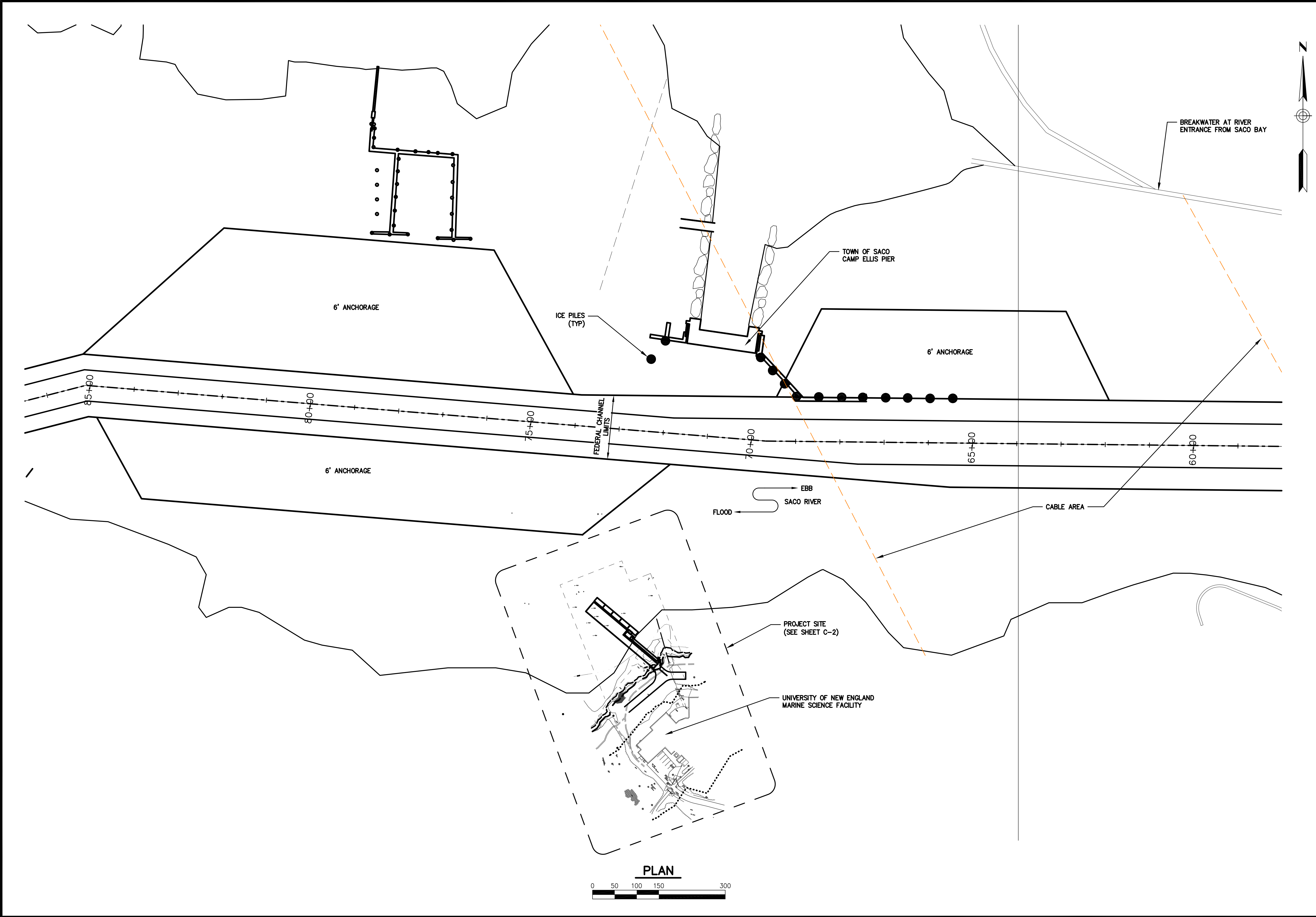
Table 1 – Pier Layout Alternatives Comparison

This Table below compares the proposed pier design (Layout 1) with two alternative layouts (Layouts 2 and 3) that were developed with consideration of City recommendations and key criteria that relate to size and type of impacts, facility safety and functionality that were used in the original site analysis.

	LAYOUT 1 Proposed Design	LAYOUT 2 Alternate	LAYOUT 3 Alternate
Outer face of Pier, Distance from HAT	193'	110'	152'
Orientation of Berth	40 DEG WNW	10 DEG WSW	11 DEG WSW
Setback to nearest mooring	A - 110' B - 37' C - 133'	A - 176' B - 120' C - 127'	A - 121' B - 76' C - 117'
Impacted moorings	B	None	B
Setback to federal anchorage	147'	248'	204'
Water Depth Available at MLLW (no dredging)	Downstream Face – 6' Upstream Face – 5.5'	Seaward Face – 4.5' Landward Face – 1'	Seaward Face – 5.5' Landward Face – 5'
Berthing Available	Downstream Face – 100' Upstream Face – 100'	Seaward Face – 104' Landward Face* – 84' <i>*Dredging Required</i>	Seaward Face – 110' Landward Face – 57'
Length of pier approach connector	100'	102'	147'
Slope of Pier Approach	No slope	1V:20H	1V:25H
Length of access road	390'	295'	330'
Access Road Gradient	200' @ 2% 150' @ 10% 40' @ 0%	200' @ 2% 95' @ 10%	200' @ 2% 110' @ 10% 20' @ 0%
Length of pedestrian route from MSC building to Pier	120'	230'	170'
*Dredging Required	No	*Yes	No
Berthed vessel alignment to currents	~40 deg	Parallel	Parallel
Pier Area	Approach – 1,400 SF Pier Head – 2,800 SF Total – 4,200 SF	Approach – 1,300 SF Pier Head – 2,800 SF Total – 4,100 SF	Approach – 2,100 SF Pier Head – 2,800 SF Total – 4,900 SF
Pier Support Conditions	Pier approach supported on shallow ledge, ability to span across transition area and support pier head on deep piles.	Pier head and majority of piles may be located in transition area with challenging geotechnical conditions. Need to confirm with additional geotechnical information.	Pier head likely located beyond transition area where the majority of piles can be driven to ledge without socketing. Need to confirm with additional geotechnical information.
Availability of geotechnical information	Geotechnical program completed	Pier is located a significant distance from any borings/probes, additional subsurface investigation required	Pier is located near the original boring/probe locations, but subsurface information will need to be supplemented with additional data.

Appendix A – Concept Plans

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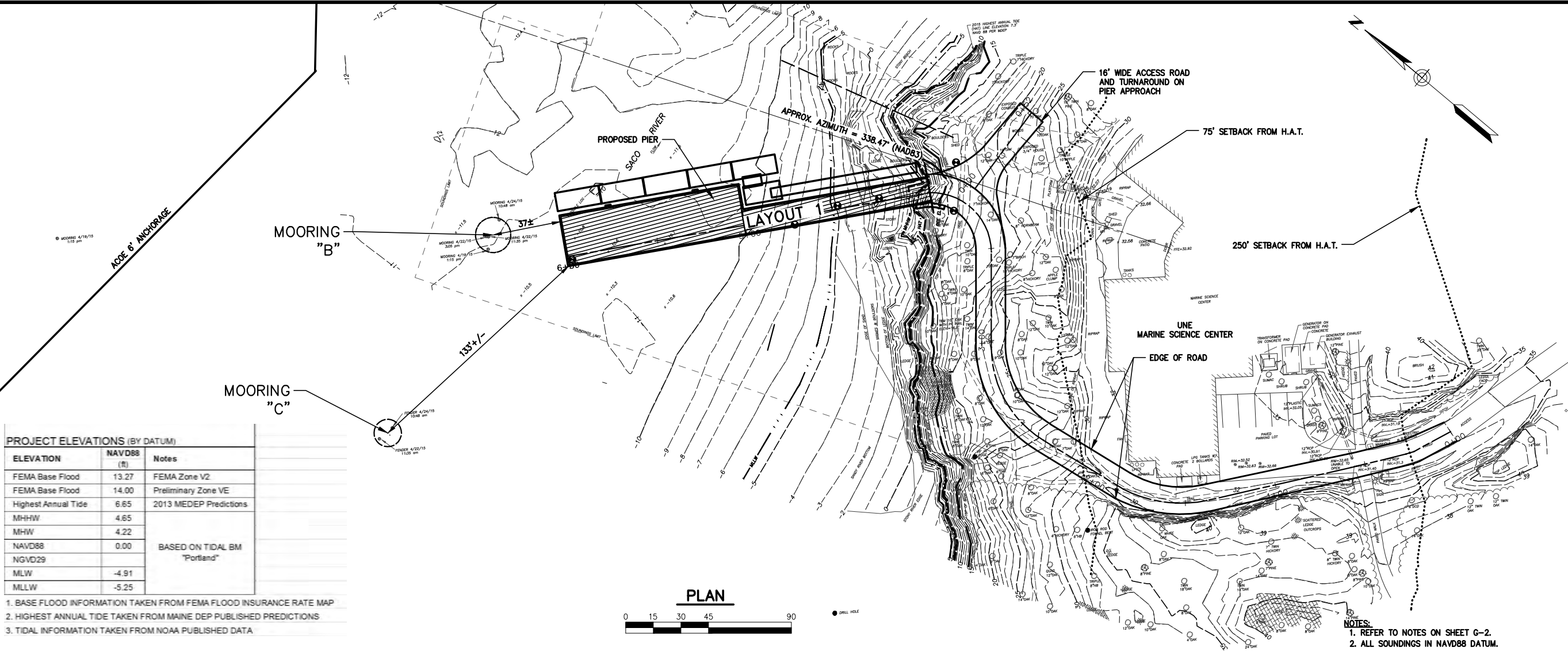
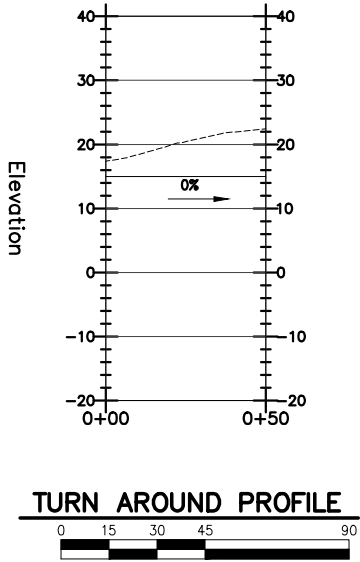
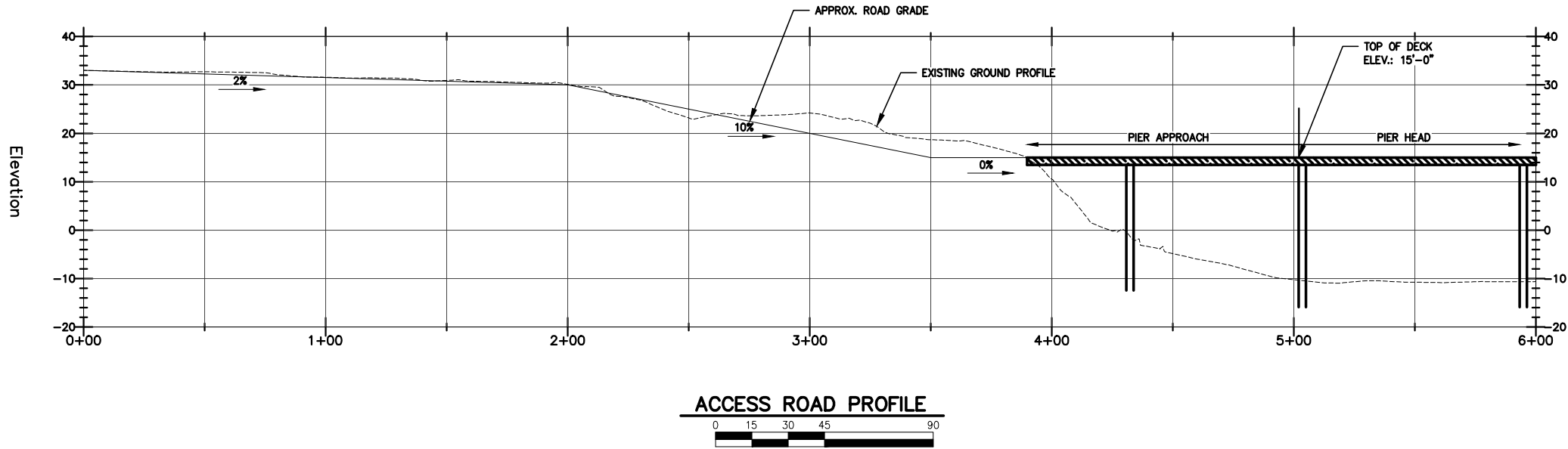
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PROJECT ELEVATIONS (BY DATUM)		
ELEVATION	NAVD88 (ft)	Notes
FEMA Base Flood	13.27	FEMA Zone V2
FEMA Base Flood	14.00	Preliminary Zone VE
Highest Annual Tide	6.65	2013 MEDEP Predictions
MHHW	4.65	BASED ON TIDAL BM "Portland"
MHW	4.22	
NAVD88	0.00	
NGVD29		
MLW	-4.91	
MLLW	-5.25	

1. BASE FLOOD INFORMATION TAKEN FROM FEMA FLOOD INSURANCE RATE MAP

2. HIGHEST ANNUAL TIDE TAKEN FROM MAINE DEP PUBLISHED PREDICTIONS

3. TIDAL INFORMATION TAKEN FROM NOAA PUBLISHED DATA



NO.	DATE	B/B	INT.
A	3-15-16		
SUBMISSION			
ALTERNATIVES MEMO			



DESIGNED BY:	DJB
DRAWN BY:	KET
CHECKED BY:	DJB
SCALE:	AS SHOWN

SHEET TITLE:	PIER LAYOUT 1
PROJECT:	ACCESS ROAD PLAN AND PROFILE
UNIVERSITY OF NEW ENGLAND	UNE MSC WATERFRONT
BIDDEFORD, MAINE	

DATE	MARCH 2016
CONTRACT NO.	15-07
SHEET NO.	10 OF 4
REV.	A

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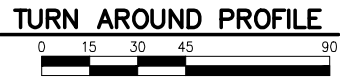
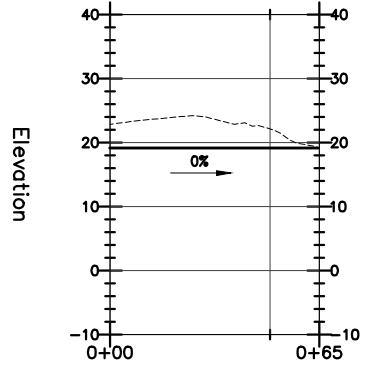
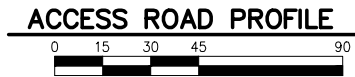
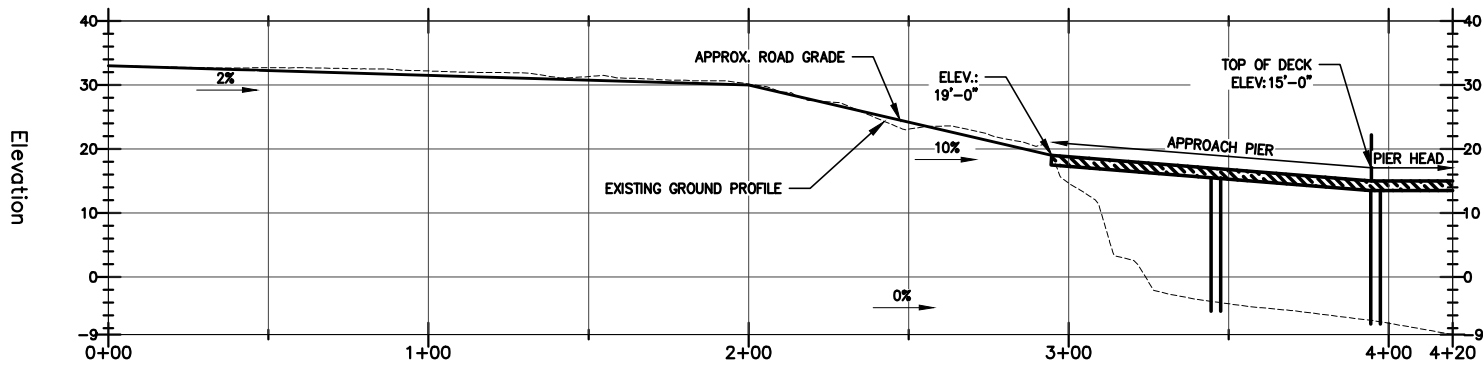
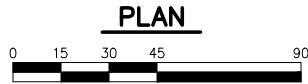
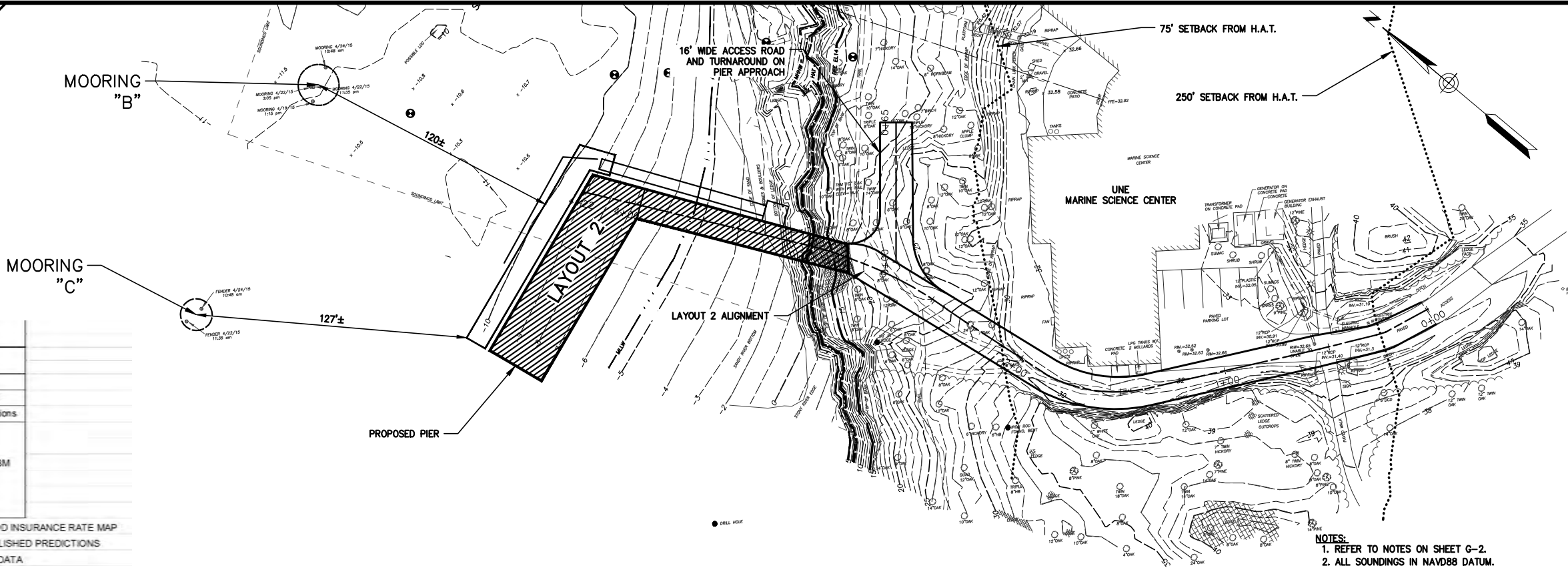
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NGVD29		
MLW	-4.91	
MLLW	-5.25	

1. BASE FLOOD INFORMATION TAKEN FROM FEMA FLOOD INSURANCE RATE MAP

2. HIGHEST ANNUAL TIDE TAKEN FROM MAINE DEP PUBLISHED PREDICTIONS

3. TIDAL INFORMATION TAKEN FROM NOAA PUBLISHED DATA



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STATE OF MAINE
BARNEY J. BAKER
No. 5737
LICENSED PROFESSIONAL ENGINEER

SHEET TITLE: PIER LAYOUT 2
ACCESS ROAD PLAN AND PROFILE
PROJECT: UNIVERSITY OF NEW ENGLAND
UNE MSC WATERFRONT
RIDGEBURY, MAINE

DESIGNED BY: DUB
DRAWN BY: KET
CHECKED BY: DUB
SCALE: AS SHOWN

DATE: MARCH 2016
CONTRACT NO.: 15-07
SHEET NO.: 2 OF 4
REV: A

ALTERNATIVES MEMO
SUBMITTANT

DATE: 3-15-16
BUB

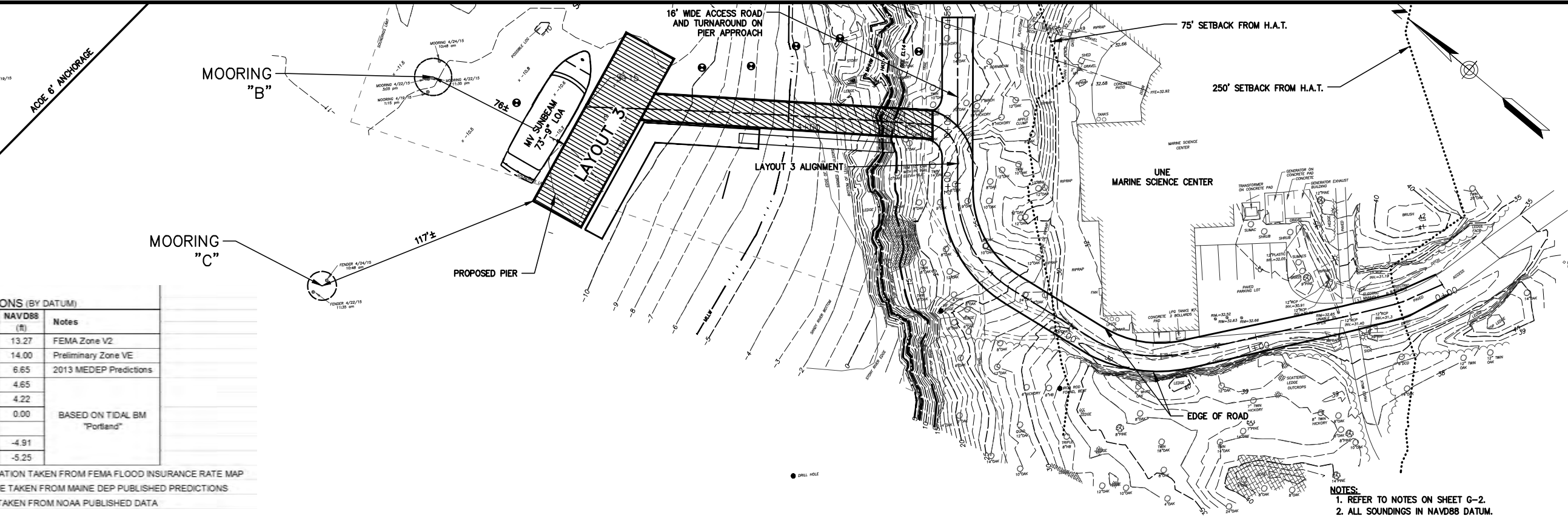
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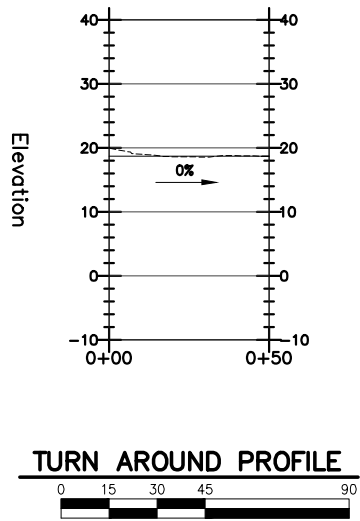
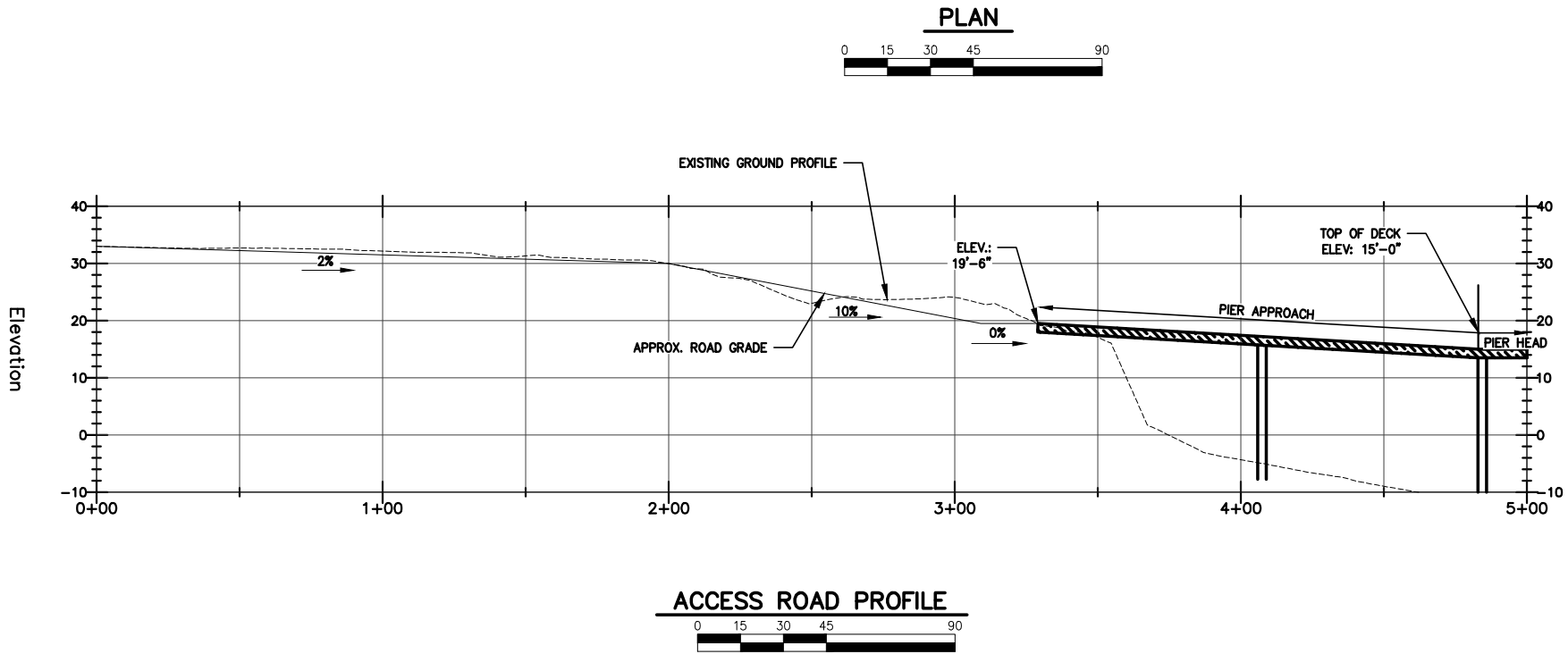
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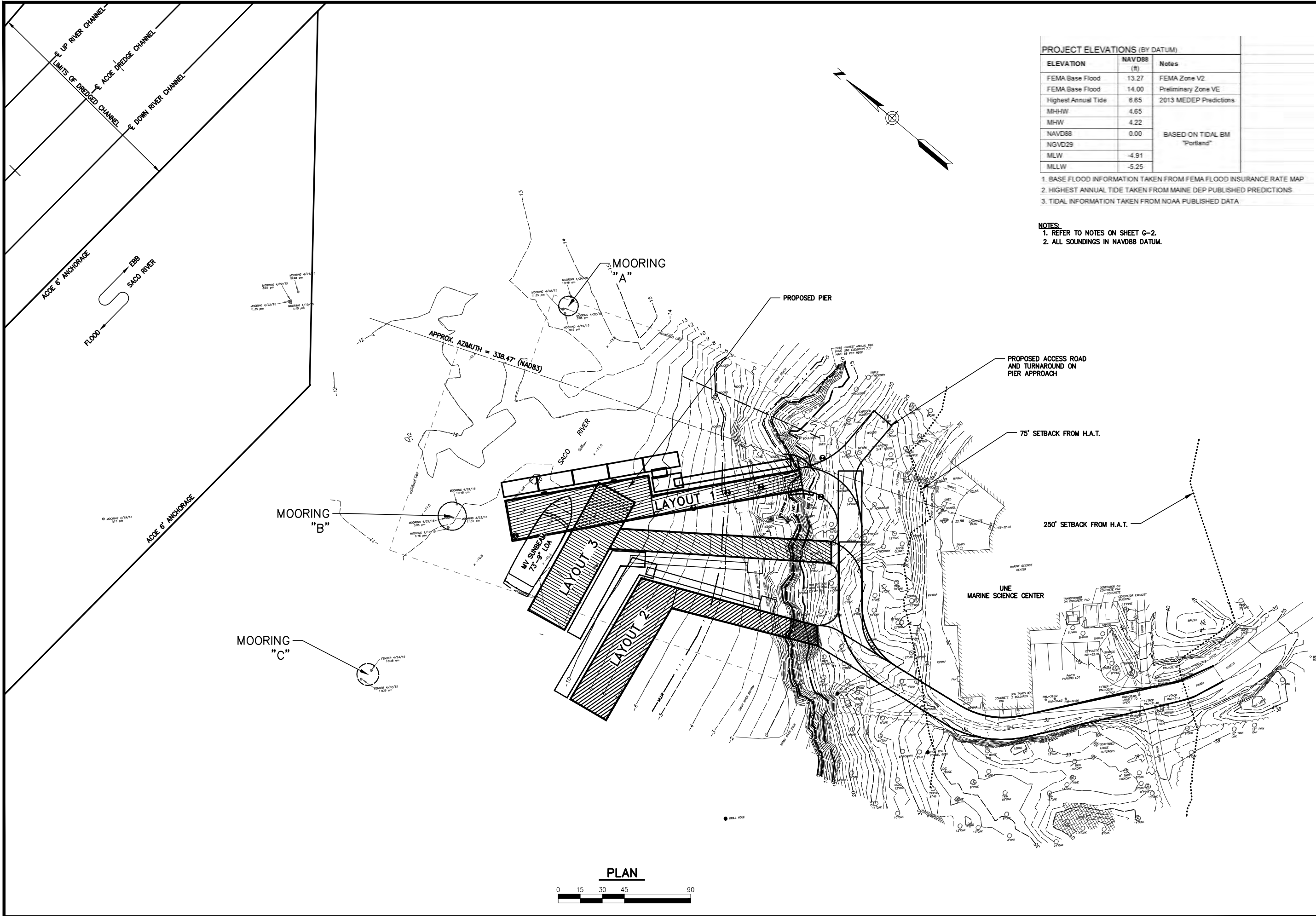


NOTES:
1. REFER TO NOTES ON SHEET G-2.
2. ALL SOUNDINGS IN NAVD88 DATUM.



SHEET TITLE: PIER SITE PLAN LAYOUT 3 SKETCH		DATE MARCH 2016	
PROJECT: UNIVERSITY OF NEW ENGLAND UNE MSC WATERFRONT BIDDEFORD, MAINE		CONTRACT NO. 15-07	
SHEET NO. 3 OF 4		REV. A	
DESIGNED BY: DJB	DRAWN BY: KET	CHECKED BY: DJB	SCALE: AS SHOWN
STATE OF MAINE BARNEY J. BAKER No. 5737 LICENSED PROFESSIONAL ENGINEER			
ALTERNATIVES MEMO SUBMISSION		3-15-16 DATE	B/B INT.
BAKER DESIGN CONSULTANTS Civil, Marine, and Structural Engineering 7 Spruce Road • Freeport • Maine • 04032 • 207-846-9724 • info@bakerdesignconsultants.com			

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PIER SITE PLAN
ALTERNATIVES SKETCHES

PROJECT:
UNIVERSITY OF NEW ENGLAND
UNE MSC WATERFRONT
BIDDEFORD, MAINE

DATE
FEBRUARY 2015

CONTRACT NO.
15-07

SHEET NO.
4 OF 4

REV.
A

DESIGNED BY: BJB
DRAWN BY: KET
CHECKED BY: BJB
SCALE: AS SHOWN

STATE OF MAINE
BARNEY J. BAKER
No. 5737
LICENSED PROFESSIONAL ENGINEER

ALTERNATIVES: MEMO
SUBMISSION
NO. 3-15-16
DATE BJB INT.

BAKER DESIGN CONSULTANTS
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Attachment 9
Permits



Saco River Corridor Commission

"Communities Working Together To Protect Our Rivers"

COMMISSION ORDER IN THE MATTER OF

UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD
BIDDEFORD, ME 04005
PERMIT #20-491

SACO RIVER CORRIDOR ACT
FINDINGS OF FACT AND ORDER

The Saco River Corridor Commission, created by the Maine State Legislature in the Saco River Corridor Act, 38 M.R.S.A. §951, et seq., (the Act), at a meeting held on August 28th, 2024, at the Porter Town Hall in Porter, Maine, and after a review of the application and supporting documents makes the following findings of fact:

PROJECT DESCRIPTION

1. The applicant is seeking a permit to construct a research pier with associated development, including a dock and float system, shed, and access road.

SITE LOCATION/DESCRIPTION

2. The property is described in the York County Registry of Deeds, Book 1484, Page 145.
3. Location: Lot 4 (Map 52) at 11 Hills Beach Road in Biddeford, Maine.
4. The 49.9-acre lot has approximately 3,500 feet of frontage on the Saco River
5. Most project activities are proposed within 250 feet of the high water line.
 - a. The proposed pier, dock and float system, and shed (located on the pier) extend below the mean high water line of the Saco River.
 - b. The access road begins slightly beyond the 250-foot buffer; as it turns parallel to the river, it enters the 75-foot buffer and only extends into the 25-foot buffer, where it connects to the pier at the shoreline of the Saco River. The proposed turnaround area is located outside of the 25-foot buffer.
6. The property is located in the General Development District.
7. The 100-year floodplain is limited to the immediate shoreline.

ANALYSIS

Pier Structure

8. The applicant proposes to construct a permanent vehicle-rated pier structure extending from the shore into the Saco River. The proposed pier consists of an approximately 130-foot-long approach section and an 80-foot-long pier head section oriented parallel to the flow of the river. The proposed pier consists of a concrete superstructure on 25 concrete-filled steel pipe piles (7 of which will be socketed to ledge, with the remaining 18 to be driven to ledge), with 30 untreated timber piles for vessel berthing and floating docks, and a pile-supported gangway lifting beam

which will allow the gangway to be removed from the water temporarily. All of the piles are located below the highest annual tide line.

9. The direct impact from all piles totals 84 square feet, while the indirect impact below the highest annual tide line from the pier footprint is 3,579 square feet.
10. A concrete abutment connecting the pier to the access road is located above the highest annual tide line.

Floating Dock System & Gangway

11. The proposed floating dock system consists of one 8 x 24-foot float, one 8 x 26-foot, 10-inch float, and one 12 x 30-foot gangway landing float to provide all-tide vessel access on the west side of the pier. A 6 x 20-foot floating dock (relocated from an existing upstream location on the property) is also proposed to provide a tie-up location for the City of Biddeford Fire Boat on the east side of the pier.
12. The applicant additionally proposes an 80 x 5-foot gangway on the west side of the pier to provide ADA-compliant access to the float system.
13. All floating docks are located below the mean lower low water line and are proposed to be restrained and guided by the timber piles. The proposal will allow vessels to tie up to the pier during all tide levels.
14. The floating dock system has a total indirect impact of 848 square feet, and the gangway has a total indirect impact of 357 square feet.

Pier Buildings

15. An 8 x 10-foot shed is proposed on the east side of the pier head to provide storage for small equipment and to house utility features (electric panels).

Access Drive

16. The applicant proposes to construct a 16-foot-wide paved access road with 2-foot-wide paved shoulders extending from the road near the Marine Science Center around the east side of the Marine Science Center to the proposed pier, as well as associated grading, drainage, and stormwater management features.
17. A turnaround is proposed adjacent to the pier to allow vehicles, including fire trucks, to redirect and exit via the access road.
18. The applicant reports that vehicles will use the existing parking spaces adjacent to the Marine Science Center and that no parking is proposed adjacent to the pier.
19. The applicant states that the proposed access road will provide construction access for the project and allow more staging to take place on land, minimizing impacts to the water.
20. They report that upland work includes stormwater management features that have been designed to meet Maine DEP Chapter 500 standards.

Summary of Statement of Necessity

21. The proposed pier will provide students and researchers year-round access to the river and ocean, including a "living laboratory" located on Ram Island in Saco Bay, which is currently inaccessible during the winter and spring when the seasonal dock and float system aren't in use. The applicant states that the pier will facilitate research activities and scientific and practical exchanges with local, regional, and national marine researchers and industry partners. They note

that the marine research afforded by the proposed year-round access will allow UNE to gather data to guide Maine's response to climate change and inform data-driven decisions impacting aquaculture, fisheries, marine law and policy, and related fields.

General Background

22. The applicant reports that the area where the pier will be located is ledge, with adjacent areas consisting of undeveloped sparsely wooded areas and coastal wetlands.
23. The applicant addressed the §959-A.(A-K) standards in the project description. Where applicable, the staff has added additional details gathered from site plans. In summary:
 - a. Degradation of Air and Water Quality – no anticipated impacts.
 - i. Vegetation swales and two bioretention filtration ponding areas are proposed along the access road as part of the stormwater management plans.
 - b. Harmful Alteration of Wetlands – no anticipated significant impacts (84 square feet of direct impact as noted above in Item 9.)
 - c. Increase in Erosion and Sedimentation –
 - i. The soils in the project area are not highly erodible, and the pier is located over exposed ledge and ledge with overburden.
 - ii. All construction and site alterations will be done in accordance with Maine Erosion and Sedimentation Control Best Management Practices, and the site will be permanently stabilized following completion of construction.
 - iii. Site plans note that the siltation boom will be installed for the duration of the construction process.
 - d. Danger of Increased Flood Damage –
 - i. The structure has been designed to withstand flood impacts, and its elevation takes into account rising sea levels.
 - e. Obstruction of Flood Flow – no significant impacts
 - f. Damage to Fish and Wildlife Habitat – no significant impacts
 - g. Despoliation of Scenic Rural, and Open Space Character of the Corridor –
 - i. The project's limit of disturbance encompasses 0.92 acres, with vegetation removal taking place in that envelope to provide a cleared area for the access drive and stormwater facilities.
 - ii. 44 trees, including stumps, are proposed for removal within the project area.
 - iii. 10 to 25 feet of clearing is proposed on average along either side of the access road. Clearing in several areas is greater to accommodate stormwater structures.
 - iv. The remaining open space will be maintained, natural surroundings will be preserved, and scenic views from neighboring properties will not be obstructed.
 - v. Given the water-dependent nature of the project, it will be visible from the river.
 - h. Overcrowding – no significant impacts
 - i. Excessive noise – no significant impacts
 - j. Obstruction to Navigation –
 - i. The structures will be no closer than 208 feet from the Army Corps of Engineers anchorage area.
 - ii. Site plans note that construction activities will not impact the federal navigation channel at any time.

- k. Interference with Educational, Scenic, Scientific, Historic, or Archaeological Values of the Areas Designated and Approved for Inclusion within the Resource Protection District
 - i. The project is not located in the Resource Protection District, and the applicant states that it will enhance the area's educational value.
- 24. At the August 14th, 2024, Rules Committee meeting, the Committee expressed concerns about the diminution of the vegetated buffer as a result of the proposed access road construction. They noted that the removal of vegetation in that area could increase the visual impact of the existing Marine Science Center and of the access road itself. The Committee suggested that, if possible (depending on site conditions), the applicant should propose additional plantings between the access road and the shoreline.
- 25. In response to the Rules Committee comments:
 - a. The applicant's agent submitted an updated vegetation plan, which reduced the number of trees proposed for removal by five trees, most of which were in the 25-foot buffer. The updated vegetation plan also clarified the number of trees 8 inches in diameter and greater within the 25-foot buffer that would remain post-construction.
 - b. The applicant's agent stated that it was not possible to reduce the width of the access drive to less than the currently proposed 20 feet due to the National Fire Protection Association codes.
 - c. The applicant's agent submitted the Stormwater Inspection and Maintenance plans for the project, which will include routine inspections of the systems post-construction to ensure proper function.
- 26. Staff notes from the August 23rd, 2024, site visit state:
 - a. The area has many smaller shrubby vegetation. Numerous large trees are also present, and they are proposed for removal.
 - b. A cleared opening would be created between the River and the Marine Science Center.
 - c. The proposed clearing (for the road) extends no closer than 25 feet from the mean high water line. However, little vegetation would remain in some areas.
- 27. At the August 28th, 2024, Commission meeting:
 - a. Public comments were heard and considered for impacts on the Commission's standards.
 - b. The applicant presented an updated revegetation plan using native plantings for a 1:1 replacement ratio.
 - c. The Commission questioned the status of other agencies' review of the project.
 - i. The applicant's agent stated that the US Fish and Wildlife Service had advised that the work window be limited to November to April.
 - d. The applicant's representatives estimated that the finished pier, including railings, would be approximately 26 feet above the water at low tide.
 - e. The applicant's agent clarified that the previously proposed classroom on the pier head had been removed from the proposal.

RELEVANT STANDARDS OF THE ACT

§957-A. Resource Protection District | §957-C. General Development District | §959-A. Requirements for granting permits | §962. General Performance Standards | Chapter 102: Standard Conditions of Approval | Chapter 103: Standards to Address the Environmental Factors

UNIVERSITY OF NEW ENGLAND
PERMIT #20-491
PAGE 5

BASED ON THE ABOVE FINDINGS, as determined at a duly noticed Commission Meeting, the Commission draws the following conclusions:

1. The applicant has shown the proposed design to be within the meaning of the Act.
2. The proposed use will not unreasonably involve any of the factors enumerated in §959-A(1)(A)-(K) of the Act.

THEREFORE, the Commission APPROVES the application of the University of New England, #20-491, for a permit to construct a research pier with associated development on the property owned by them, provided the activity is carried out according to the application and UPON THE FOLLOWING CONDITIONS:

1. Standard Conditions of Approval (copy attached).
2. All in-water portions of the existing research pier shall be removed.

This decision, including any of its conditions, may be appealed pursuant to 38 M.R.S. §968, except that no appeal pursuant to 38 M.R.S. §968 shall be taken from a decision of the Commission which decision was made without a public hearing until a request for reconsideration has been submitted to the Commission, and the Commission has made a final determination in the matter. Any person wishing to file an appeal or to request reconsideration must do so within 30 days of the Commission's written decision and order. Requests for reconsideration must be submitted in accordance with applicable Commission regulations. To be valid, all permits must meet all federal, state, and local ordinances and regulations.

DONE AND DATED AT CORNISH, MAINE, THIS 13TH DAY OF SEPTEMBER 2024.

SACO RIVER CORRIDOR COMMISSION

BY: Ben Pinault
Benjamin Pinault, Chairperson

9/13/24
Dated



Registry of Deeds Notarization Form

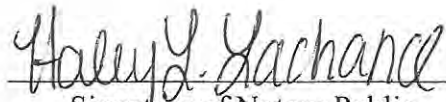
Saco River Corridor Commission Permit #20-491 University of New England

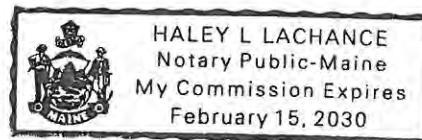
Acknowledgment

State of Maine

County of York

This record was acknowledged before me on this 13th day of September 2024 by Benjamin Pinault.


Signature of Notary Public



Haley Lachance

Notary Public, State of Maine

My commission expires: February 15, 2030



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

UNIVERSITY OF NEW ENGLAND	) NATURAL RESOURCES PROTECTION ACT
Biddeford, York County	) COASTAL WETLAND ALTERATION
COMMERCIAL PIER SYSTEM	) WATER QUALITY CERTIFICATION
L-18314-4P-BE-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. §§ 480-A–480-JJ, Section 401 of the Clean Water Act (33 U.S.C. § 1341), and Chapters 310, 315, and 335 of Department rules, the Department of Environmental Protection (Department) has considered the application of UNIVERSITY OF NEW ENGLAND (applicant) with the supportive data, agency review comments, public comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Department Order #L-18314-22-A-N, dated April 12, 1993, the Department granted after-the-fact approval to the University of New England for an expansion of the main campus. In Department Order #L-18314-22/31-J-M, dated December 19, 1996, the Department approved the construction of athletic facilities, a service road, a pier system, and seasonal floating dock on the Saco River. In Department Order #L-18314-22-L-A, dated May 31, 2000, the Department approved the construction of the Marine Science and Research Center and included a modification to the pier and floating dock. In Department Order #L-18314-22-AY-M/L-18314-4P-AZ-M, dated July 13, 2017, the Department approved the addition of two six-foot wide by 16-foot long seasonal floats attached seaward and perpendicular to the existing permanent floats oriented parallel to shore. A second, seasonal pier system was installed on Jordan Point in 2016. In Department Order #L-18314-22-BC-M/4P-BD-N, dated December 7, 2023, the Department approved the replacement of the second seasonal pier with a permanent pier system consisting of a six-foot wide by 63-foot long fixed pier, an existing four-foot wide by 48-foot long seasonal aluminum gangway, and an existing 10-foot long by 60-foot wide seasonal float system. The completed project resulted in 16 square feet of direct impacts and 1732 square feet of indirect impacts to the coastal wetland.

B. Summary: The applicant proposes to construct a new commercial size pier to provide all-tide access for the Marine Science Center and dock space for the City of Biddeford fireboat used for public safety. The proposed permanent pier structure will be built in three sections: section one consist of a 23-foot wide by 30-foot deck with a security gate, that connects to the second 14-foot wide by 100-foot long pier structure that seaward into the river, and the third pier section a 23-foot wide an 80-foot long pier head that will be oriented parallel to shore and a five-foot wide by 80-foot long permanent gangway perpendicular to the shore. The pier head and gangway will be flanked by four permanent floats running end to end parallel to shore; an 8-foot wide by

24-foot long float an 8-foot wide by 27-foot long float, a 12-foot wide by 30-foot long gangway landing float to provide all-tide access on the west side of the pier and a six-foot wide by 20-foot float to provide a tie-up location for the City of Biddeford's Fire Boat on the east side of the pier, both perpendicular to the shore. The pier system will be supported by 25 concrete-filled steel pipe piles and a concrete abutment which connects the pier to the proposed access road. The project as proposed will result in 84 square feet of direct impacts to the coastal wetland due to pilings, and 3,579 square feet of indirect impacts to the coastal wetland due to shading from the pier, ramp, and floats. The large size of the pier and gangway will accommodate an outdoor covered classroom, ADA-compliant access and fireboat tiedown float, and vehicular access to the pier for transportation of research and emergency equipment. Between this proposed pier and the currently existing pier system, cumulative direct impacts to the coastal wetland will total 100 square feet, and cumulative indirect impacts to the coastal wetland will total 5,311 square feet.

In addition to the proposed pier system, an upland access road connecting the existing road to the proposed pier will be constructed, including associated site grading, drainage, and stormwater management features. Work on the access road will result in approximately 475 square feet of impacts adjacent to the coastal wetland. Upland work proposed will not exceed 40,000 square feet of additional disturbed area and thus is exempt from permitting pursuant to M.R.S 38 §488(27)(A).

The proposed project is shown on a set of plans, the first of which is titled "University of New England Marine Science Center Pier", completed by GEI Consultants, Inc. and dated April 22, 2024. The project site is located at 11 Hills Beach Road in the Town of Biddeford.

C. Current Use of the Site: The project site is located on an approximately 50-acre parcel of land that is developed with various university buildings and a permanent pier system. The parcel is identified as Lot 4 on Map 52 of the City of Biddeford's tax maps.

D. Public Interest: The Department received emails from one individual between September 4 and December 11, 2024. The interested person expressed concerns related to the Town's project review process. Additionally, the interested person stated that the applicant did not consider alternative locations for the pier that would be less impactful to the resource. After reviewing the application, the Department determined that the applicant provided a sufficient alternative analysis which is further discussed in Section 4.

The interested person submitted a public hearing request on July 1, 2024. The request was reviewed by the Department and a response sent on August 20, 2024, citing that the application did not meet the Chapter 2 criteria for the Board to hold a hearing.

2. EXISTING SCENIC, AESTHETIC, RECREATIONAL OR NAVIGATIONAL USES:

The Natural Resources Protection Act (NRPA), in 38 M.R.S. § 480-D(1), requires the applicant to demonstrate that the proposed project will not unreasonably interfere with existing scenic, aesthetic, recreational and navigational uses.

In accordance with Chapter 315, *Assessing and Mitigating Impacts to Scenic and Aesthetic Uses* (06-096 C.M.R. ch. 315, effective June 29, 2003), the applicant submitted a copy of the Department's Visual Evaluation Field Survey Checklist as Appendix A to the application along with a description of the property and the proposed project. The applicant also submitted several photographs of the proposed project site and surroundings including an aerial photograph of the project site.

The proposed project is located in the Saco River, which is a scenic resource visited by the general public, in part, for the use, observation, enjoyment and appreciation of its natural and cultural visual qualities. Given the piers on abutting properties and the existing pier on the same parcel, the proposed pier will not substantially alter the visual aesthetic of the riverbank from the river. The proposed pier system is of similar size, scale, and design as nearby pier systems, including a commercial marina with slips located directly across the river and visible from the project site.

The Department staff utilized the Department's Visual Impact Assessment Matrix in its evaluation of the proposed project and the Matrix showed an acceptable potential visual impact rating for the proposed project. Based on the information submitted in the application and the visual impact rating, the Department determined that the location and scale of the proposed activity is compatible with the existing visual quality and landscape characteristics found within the viewshed of the scenic resource in the project area.

The Department of Marine Resources (DMR) reviewed the project and stated that the proposed project should not cause any significant adverse impact to navigation or recreation based on the nature of the project and its location.

The Department finds that the proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational or navigational uses of the river.

3. SOIL EROSION:

The NRPA, in 38 M.R.S. § 480-D(2), requires the applicant to demonstrate that the proposed project will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

Construction will take place from the upland and by barge. Access by land will occur on existing roads, and the proposed new road will be started early in construction to provide an additional route for construction access, material deliveries, and staging. When the site is being accessed by barge, the contractor will avoid the nearby federal navigation

channel and adjacent waterfront facilities during construction activity. Any work within the resource will be conducted in compliance with the standard November 8th-April 9th in-water work window discussed in Finding 4. A certified erosion control contractor will be on site.

The Department finds that the activity will not cause unreasonable erosion of soil or sediment nor unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

4. HABITAT CONSIDERATIONS:

The NRPA, in 38 M.R.S. § 480-D(3), requires the applicant to demonstrate that the proposed project will not unreasonably harm significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

The project site consists of ledge in the upper intertidal, grading to rockweed-covered rocky shore then to mixed coarse and fine sediments. Eelgrass resources were documented in the subtidal near the project area prior to 1997 but have not been mapped in recent years.

In its review, the Department of Marine Resources (DMR) stated that the project as proposed would have direct impacts to marine resources and habitat in the footprint of the pier, and recommended that if piles are driven outside of the winter work window of November 8th-April 9th. The mouth of the Saco River is utilized by diadromous fish species including Atlantic Salmon, alewife, and sea run brook trout. Atlantic and short nose sturgeon may be present year round in this area.. DMR further recommended that the applicant use a vibratory hammer or a bubble screen for noise mitigation.

The applicant concurred that work will only occur during the winter work window.

According to the Department's Geographic Information System (GIS) database there are no mapped Essential or Significant Wildlife Habitats located at the site. The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed the proposed project and stated that the project is located adjacent to but outside of Tidal Waterfowl and Wading Bird Habitat (TWWH), a designated Significant Wildlife Habitat. MDIFW stated that minimal impacts to piping plover and Blanding's turtle habitat are anticipated and provided general recommendations including minimizing vegetation removal and soil disturbance, and that time spent in the water should be minimized to the greatest extent practicable.

The applicant responded to these comments, and agreed to minimize vegetation removal, soil disturbance, and time spent in the water.

The Department finds that the activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic

or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life provided in-water work is only conducted between November 8th-April 9th of any given year

5. WATER QUALITY CONSIDERATIONS:

The applicant proposes to use lumber treated with chromated copper arsenate (CCA) to construct the pier. To protect water quality, all CCA-treated lumber must be cured on dry land in a manner that exposes all surfaces to the air for 21 days prior to the start of construction.

Provided that CCA-treated lumber is cured as described above, the Department finds that the proposed project will not violate any state water quality law, including those governing the classification of the State's waters.

6. WETLANDS AND WATERBODIES PROTECTION RULES:

The proposed project will result in 84 square feet of direct impacts and 4,784 square feet of indirect impacts to the coastal wetland from the new pier system. The overall cumulative impacts from the existing pier and proposed project will be 100 square feet of direct impacts to the coastal resource and 5,311 square feet of indirect impacts to the coastal resource. Coastal wetlands are wetlands of special significance.

The *Wetlands and Waterbodies Protection Rules*, 06-096 C.M.R. ch. 310 (last amended November 11, 2018), interpret and elaborate on the Natural Resources Protection Act (NRPA) criteria for obtaining a permit. The rules guide the Department in its determination of whether a project's impacts would be unreasonable. A proposed project would generally be found to be unreasonable if it would cause a loss in wetland area, functions and values and there is a practicable alternative to the project that would be less damaging to the environment. Each application for a NRPA permit that involves a coastal wetland alteration must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist.

A. Avoidance. An applicant must submit an analysis of whether there is a practicable alternative to the project that would be less damaging to the environment and this analysis is considered by the Department in its assessment of the reasonableness of any impacts. Additionally, for activities proposed in, on, or over wetlands of special significance the activity must be among the types listed in Chapter 310, § 5(A) or a practicable alternative less damaging to the environment is considered to exist and the impact is unreasonable. A pier is a water dependent use and its proposed construction is among the activities specifically provided for in Chapter 310, § 5(A)(1)(c). Additionally, any project related to health and safety is among the activities specifically provided for in Chapter 310, § 5(A)(1)(a).

The applicant submitted an alternatives analysis for the proposed project completed by Site Design Associates and dated June 17, 2024, with a last revision date of December

10, 2024. The purpose of the proposed project is to provide all-tide, year-round access to the resource for research and education operations associated with the Arthur P. Girard Marine Science Center (GMSC) at the University of New England. A secondary project purpose is to provide docking space for the City of Biddeford's fireboat for emergency response and safety. The applicant plans to launch a variety of research vessels from the proposed pier, including a 31-foot long research vessel and potentially larger ones in the future. The City's fireboat is 19 feet long. The applicant considered not building the new pier system and instead utilizing the existing pier on the parcel; however, this existing pier is seasonal, including the floats that are hauled out of the water each winter limiting year-round access that is required to support the a Universities' marine science programs. Additionally, the existing pier does not provide a docking area for the City of Biddeford's fireboat. Therefore, this alternative was rejected. The applicant considered a seasonal gangway and l floats; however, research and access to the water is required for emergency response from the City and for year-round, all-tide access to the resource for educational purposes. Finally, the applicant considered using public facilities including marinas, boat launches and moorings to moor and launch research vessels; however, access to the water can be time-sensitive due to course schedules or the need to access the water during certain tide cycles. With shuttling of staff, students, and equipment, and the lack of reliable parking, this alternative was rejected. The private marinas in the area have long waitlists for private slips and do not have the capacity to handle the frequent use and group size that the University requires to meet their education and research mission

B. Minimal Alteration. In support of an application and to address the analysis of the reasonableness of any impacts of a proposed project, an applicant must demonstrate that the amount of coastal wetland to be altered will be kept to the minimum amount necessary for meeting the overall purpose of the project. During the planning phase of this project, the applicant selected the pier location with the shortest length necessary to reach adequate water depths for all -tide access. In addition, the dimensions of the pier head were reduced from 28-feet wide by 100-feet long to the currently proposed 23-feet wide by 80-feet long to reduce impacts to the coastal resource.

C. Compensation. In accordance with Chapter 310, § 5(C)(6)(b), compensation may be required to achieve the goal of no net loss of coastal wetland functions and values. This project will not result in over 500 square feet of fill in the resource, which is the threshold over which compensation is generally required. Further, the proposed project will not have an adverse impact on marine resources or wildlife habitat as determined by DMR and MDIFW. For these reasons, the Department determined that compensation is not required.

The Department finds that the applicant has avoided and minimized coastal wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project.

7. OTHER CONSIDERATIONS:

The Department finds, based on the design, proposed construction methods, and location, the proposed project will not inhibit the natural transfer of soil from the terrestrial to the marine environment, will not interfere with the natural flow of any surface or subsurface waters, and will not cause or increase flooding. The proposed project is not located in a coastal sand dune system, is not a crossing of an outstanding river segment, and does not involve dredge spoils disposal or the transport of dredge spoils by water.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 480-A–480-JJ and Section 401 of the Clean Water Act (33 U.S.C. § 1341):

- A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.
- B. The proposed activity will not cause unreasonable erosion of soil or sediment.
- C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.
- D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided winter work windows are utilized as described in Finding 3.
- E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.
- F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters provided that CCA-treated lumber is cured as described in Finding 5.
- G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.
- H. The proposed activity is not on or adjacent to a sand dune.
- I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S. § 480-P.

THEREFORE, the Department APPROVES the above noted application of UNIVERSITY OF NEW ENGLAND to construct a research pier as described in Finding 1, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations:

1. Standard Conditions of Approval, a copy attached.

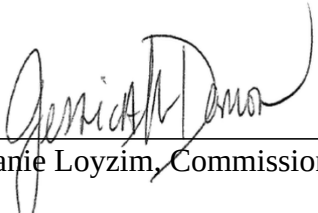
2. The applicant shall take all necessary measures to ensure that their activities or those of their agents do not result in measurable erosion of soil on the site during the construction of the project covered by this approval.
3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.
4. Construction is only allowed from November 8th-April 9th of any given year.
5. All CCA-treated lumber shall be cured on dry land in a manner that exposes all surfaces to the air for 21 days prior to the start of construction.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 11TH DAY OF APRIL, 2025.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____

For:  Melanie Loyzin, Commissioner

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

PCS/L18314BEN/ATS#92653



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW ENGLAND DISTRICT
NEW ENGLAND DISTRICT OFFICE
696 VIRGINIA ROAD
CONCORD MASSACHUSETTS 01742-2751

March 28, 2025

Regulatory Division

Andrew Phillippe
University of New England
11 Hills Beach Road
Biddeford, Maine 04005
Via Email: aphilippe@une.edu

Dear Mr. Phillippe:

This letter is in response to the application you submitted to the U.S. Army Corps of Engineers (USACE), New England District on June 21, 2024 for a Department of the Army general permit verification. We have assigned this project file number NAE-2024-01628, which you should reference in all correspondence with this office.

A review of the information provided indicates the proposed work includes the construction of a permanent pier consisting of a 28-foot long by 24-foot-wide landing; a 90-foot long by 14-foot-wide approach pier; and an 80-foot long by 24-foot-long pier. Additionally, your project includes a floating dock system consisting of an 80-foot long by 5-foot-wide gangway; a 30-foot long by 12-foot wide float; a 24-foot long by 8-foot wide float; and a 27-foot long by 8-foot wide float, and a 20-foot long by 6-foot wide float. The project is located in the Saco River; at 11 Hills Beach Road, at Latitude 43.458630° and Longitude -70.389050°; in Biddeford, York County, Maine. The work is shown on the enclosed plans titled "University of New England Marine Science Center Pier", on 38 sheets, and dated 8/14/2024.

Based on the information you have provided; we verify that the activity is authorized under General Permit 2. *Structures, Floats, and Lifts* of the October 14, 2020, federal permit known as the Maine General Permits (GPs). If the extent of the project area and/or nature of the authorized impacts to waters are modified, a revised application must be submitted to this office for written approval before work is initiated. You can find a copy of these permits at:

<https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/>

Any deviation from the terms and conditions of the permit, or your submitted plans, may subject the permittee to the enforcement provisions of our regulations. Therefore, in the event changes to this project are contemplated, it is recommended you coordinate with this office prior to proceeding with the work. This office must approve any changes before you undertake them. You must perform this work in compliance

with the terms and conditions of the GPs listed above, and also in compliance with the following special conditions:

1. The permittee shall complete and return the enclosed Work-Start Notification Form to this office at least two weeks prior to the anticipated construction start date.
2. The permittee shall complete and return the enclosed Completion Certification Form to this office at least one month following the completion of the authorized work.
3. You must maintain the activity herein in good condition and in conformance with the terms and conditions of this authorization. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with a general condition of these GPs. Should you wish to cease to maintain the authorized activities, or should you desire to abandon it without a good faith transfer, you must obtain a modification of this authorization from this office, which may require restoration of the area.
4. All construction shall be completed in accordance with the limits of construction and construction sequences detailed on the enclosed plan drawings, titled "University of New England Marine Science Center Pier," on a total of 38 sheets, and dated 8/14/2024. If you change the plans or construction methods for work within or adjacent to the Saco River, please contact us immediately to discuss modification of this authorization. The USACE must approve any changes before you undertake them.
5. A "soft start" is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. In addition to using a soft start at the beginning of the workday for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes or longer.
 - a) For impact pile driving: Pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.
 - b) For vibratory pile installation: Pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.
6. The work authorized herein shall not be conducted during the time of year (TOY) restriction of April 10 to November 7 in order to minimize adverse impacts to the Atlantic sturgeon, shortnose sturgeon.

This verification is valid until October 14, 2025. You must commence or be under contract to commence the work authorized herein by October 14, 2025 and complete

the work by October 14, 2026. If not, you must contact this office to determine the need for further authorization before beginning or continuing the activity. It is recommended that you contact this office before this authorization expires to discuss if permit reissuance is a possibility.

This GP verification and any associated authorizations does not preclude the necessity to obtain any other federal, state, or local permits, licenses, and/or certifications, which may be required.

If you have any questions related to this verification or have issues accessing documents referenced in this letter, please contact Jana Jacobson, Project Manager at (207) 233-2117, or by email at Jana.L.Jacobson@usace.army.mil. This agency continually strives to improve our customer service. To better serve you, please complete the Customer Service Survey located at: <https://regulatory.ops.usace.army.mil/customer-service-survey/>.

Sincerely,

Jon T. Coleman
Team Leader
Technical Regional Execution Center
North Atlantic Division

Enclosures

Cc (w/enclosures):
Tom Saucier, Site Design Associates (via tsaucier@sitedesignassociates.biz)

Attachment 10
MHPC Clearance



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

May 15, 2023

Mr. Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086

Project: MHPC# 0500-23 University of New England; 11 Hills Beach Road
Permanent Pier and Float System
Town: Biddeford, ME

Dear Mr. Saucier:

In response to your recent request, I have reviewed the information received April 13, 2023 to initiate consultation on the above referenced projects in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA).

Dr. Arthur Spiess of my staff has carefully reviewed our February 7, 2000 letter concerning areas of archaeological site significance on the UNE campus, and the Phase III report that formed the background of these recommendations. We note that some of the areas of the proposed access road and the head of the pier fall outside of the areas found not to be contributing to the overall significance of the archaeological site(s) on the UNE campus (specifically areas 99.1, 99.2 and 99.8. Moreover, the intensity of previous archaeological testing along the now-proposed access road (especially within area 99.1).

Based on the information submitted, I have concluded that the proposed work will have **no adverse effect** upon historic properties.

However, our finding is conditional upon the following:

- 1) We recommend that one or more archaeologists monitor the initial clearing of soil from the route of the access road and be allowed enough time to recover information from any subsoil features that are present. It would be most important to monitor the access road from the curve in the road to be located just east of the north wall of the marine science center to the head of the proposed pier.

Please contact Megan M. Rideout at (207) 287-2992 or megan.m.rideout@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

Attachment 11
Notice to Proceed
With External Reviews



City of Biddeford, Maine

The Office of
City Manager

James A. Bennett

Email: james.bennett@biddefordmaine.org

August 19, 2024

University of New England
11 Hills Beach Road
Biddeford, Maine 04005

Attention: Mr. Alan Thibeault, VP of University Operations

RE: Notice to Proceed with External Reviews

Dear Mr. Thibeault,

On August 9, 2024, I received written clarification from Mr. Wayne Duffett, PE of TECAssociates that UNE's proposed Research Pier and Float System has complied with City Code 74-35 subsections (c) 1-10. Those sections are as follows:

- (1) A formal boundary survey that has been documented at the Registry of Deeds.
- (2) A copy of the boundary survey showing the littoral zone, established by extending property lines seaward.
- (3) A location map from a portion of a USGS topographic map or coastal chart.
- (4) Distance to navigable channels or any federal navigation project.
- (5) Mean high- and low-water boundary.
- (6) A plan view on the drawing(s) that shows the location and dimensions of the applicant's structure(s) in relation to the applicant's property lines.
- (7) A typical cross section/side view of the applicant's structures on the drawing(s).
- (8) Evidence that owners of abutting properties have been notified of the applicant's intended project.
- (9) Evidence that the 1) Maine Historic Preservation Commission, 2) Aroostook Band of Micmac, 3) Passamaquoddy Tribe of Indians: Pleasant Point; Indian Township, 4) Houlton Band of Maliseet Indians, and 5) Penobscot Indian Nation have been notified of the applicant's intended project.
- (10) Completed applications to the Army Corps of Engineers, Department of Environmental Protection and Biddeford Code Enforcement. A regulatory permit from the Saco River Corridor Commission may also be required in some instances.

Based on this information and in harmony with my earlier communications, please consider this as formal notification from the City of Biddeford that the application has been found in compliance with

205 Main Street, Biddeford, ME 04005 P: 207.284.9313 F: 207.571.0678 www.biddefordmaine.org

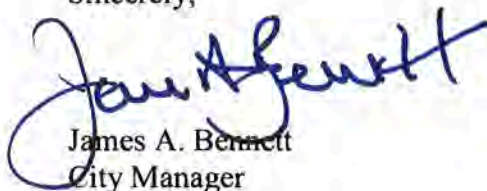
*The City of Biddeford is an equal opportunity provider. To file a complaint, write to
Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

the above mention City Code. That finding allows the application to proceed in the next steps of the review process; namely formal review by all agencies except those that are part of the City of Biddeford. After each and all of those processes are complete, the City will move forward with the final review(s) by agents and Committees of the City.

While I don't believe it is necessary, let me empathically state that this communication does not in any form, imply that the City has in any way made a determination that the location submitted has been approved. Said approval will considered after completion of all process and in compliance with applicable laws, regulations. This includes all local ordinances.

Please feel free to reach out to me if you have any questions

Sincerely,

A handwritten signature in blue ink, appearing to read "James A. Bennett". The signature is stylized with a large initial "J" and a long horizontal stroke.

James A. Bennett
City Manager

CC: Biddeford Mayor and City Council

Attachment 12
Photo of shed



Attachment 13
Light Fixture Information



URBAN SERIES

URBAN LUMINAIRE

FEATURES

- Decorative transitional style lighting fixture series is suitable for walkway lighting and wall mounting
- Two unique shade and style options
- LED turtle-friendly option available
- Integral Surge and Thermal Protection



*3000K and warmer CCTs only

CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- The drivers shall be located in the top cast housing and shall be accessible without tools by hinging the lower shade assembly. The driver and all electrical components shall be on a tray
- The lower shade shall be made from a one-piece aluminum spinning
- The housing is designed for LED thermal management without the use of metallic screens, cages, or fans. The top casting shall be able to be pendent mounted in place with a stainless steel safety pin and then permanently held in place with four stainless steel bolts

ELECTRICAL

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input
- Power factor is ≥ 0.90 at full load
- Dimming drivers are standard with connections for external dimming equipment available upon request
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is listed by UL for use at 600VAC at 50°C or higher
- Plug disconnects are listed by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only
- Fixture electrical compartment shall contain all LED driver components
- Button photocell available
- Ambient operating temperature -40°C to 40°C

ELECTRICAL (CONTINUED)

- Surge protection - 20KA
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. A luminaire equipped with the device may be reliably operated in any ambient temperature up to 55°C (131°F). Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to “fail on”, allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.)

CONTROLS

- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night visit

FINISH

- IFS polyester powder-coat electrostatically applied and thermocured
- IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds



Shown with arm

CERTIFICATIONS

- NRTL Certified, UL8750, UL 1598 and CSA22.2#250. 13-14 for wet locations
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available.

WARRANTY

- 5 year warranty

KEY DATA	
Lumen Range	3,300–13,000
Wattage Range	27.8–137.5
Efficacy Range (LPW)	61–87



URBAN SERIES

URBAN LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

ORDERING GUIDE

Example: URB-CAP-21-36L-120-5K7-UNV-4-NRNW-BLT

CATALOG #

Model	Lens Option	Engine-Watts	CCT/CRI ¹	Voltage	Optics ²	Electrical Options
URB Urban	CAP-21 21" Capitol	18L-25 25W, LED array	3K7 3000K, 70 CRI	UNV 120-277V	FR Type I	PCU Button Photocell, Universal
	MRDS-21 21" Miramar deep shade	18L-39 39W, LED array	4K7 4000K, 70 CRI	347 347V	2 Type II	
	MAR-21 21" Maritas	18L-50 50W, LED array	5K7 5000K, 70 CRI	480 480V	3 Type III	
	CAP-26 26" Capitol	18L-70 70W, LED array	3K8 3000K, 80 CRI		4F Type IV forward	
	MRSS-26 26" Miramar shallow shade	18L-90 90W, LED array	4K8 4000K, 80 CRI		4W Type IV wide	
	MRDS-26 26" Miramar deep shade	18L-110 110W, LED array	5K8 5000K, 80 CRI		5QN Type V square narrow	
	MAR-26 26" Maritas	36L-120 120W, LED array	AM Monochromatic Amber, 595nm		5QW Type V square wide	
		36L-135 135W, LED array			5RW Type V rectangular wide	
		36L-155 155W, LED array			5W Type V round wide	
		36L-175 175W, LED array			BC Backshield (available for FR, 2, 3, 4, 4W Optics)	

Control Options	Mounting Style	Style	Finish	Options
GENI-XX Energeni ³	PM Pendant mount	NRNW No rings	BLT Black Matte Textured	BC Backlight Control
XX - Please specify	SM Side mount	3RNW Three rings	BLS Black Gloss Smooth	
	YM3 Yoke mount, 3" OD		DBT Dark Bronze Matte Textured	
	YM4 Yoke mount, 4" OD		DBS Dark Bronze Gloss Smooth	
	YM5 Yoke mount, 5" OD		GTT Graphite Matte Textured	
			LGS Light Grey Gloss Smooth	
			PSS Platinum Silver Smooth	
			WHT White Matte Textured	
			WHS White Gloss Smooth	
			VGT Verde Green Textured	
			Color Option	
			CC Custom Color	

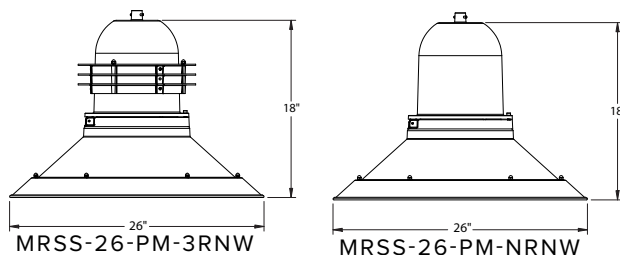
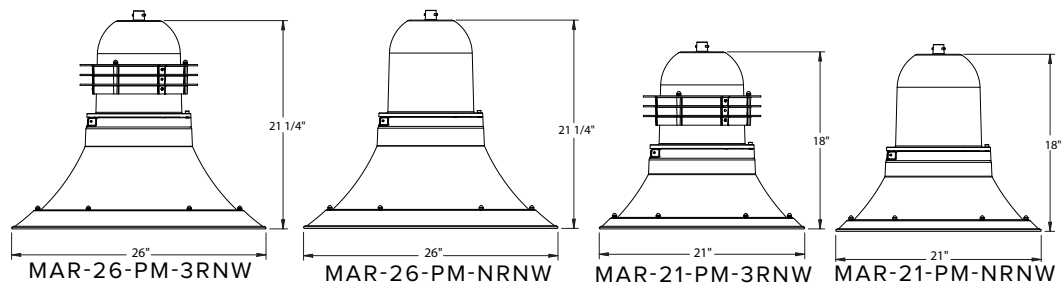
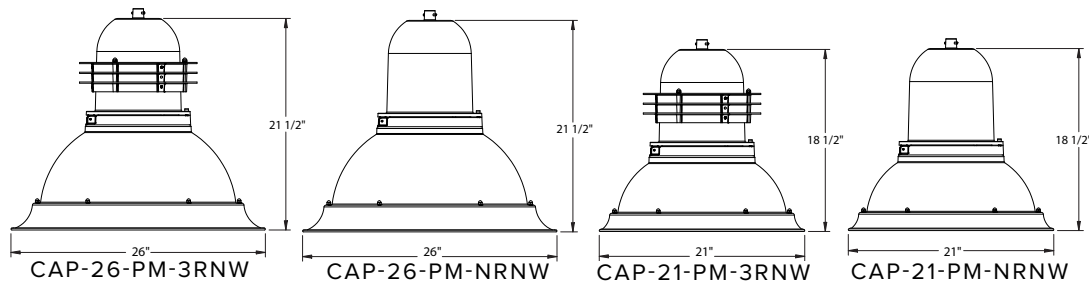
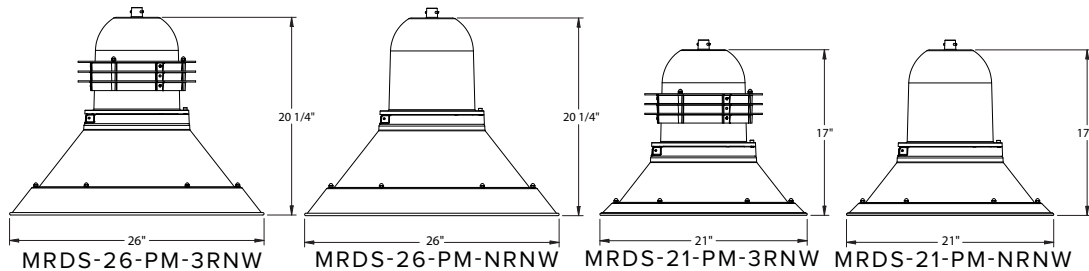
- Notes:
- 1 26" only
- 2 To rotate optics left or right 90 degrees, specify L or R after the optical distribution example: 4L
- 3 When ordering Energeni, specify the routine setting code (Example GENI-04). See Energeni brochure and Energeni instructions for setting table and options. Not available with sensor options
- 4 This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available on our website.



URBAN SERIES

URBAN LUMINAIRE

PENDANT MOUNT



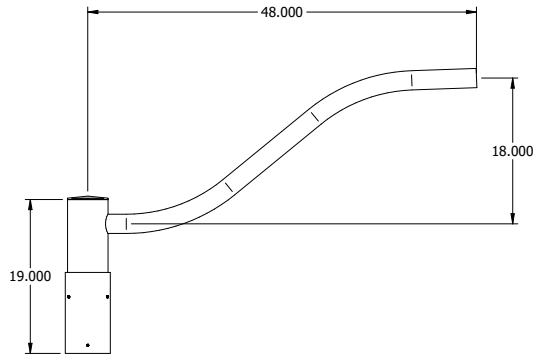


URBAN SERIES

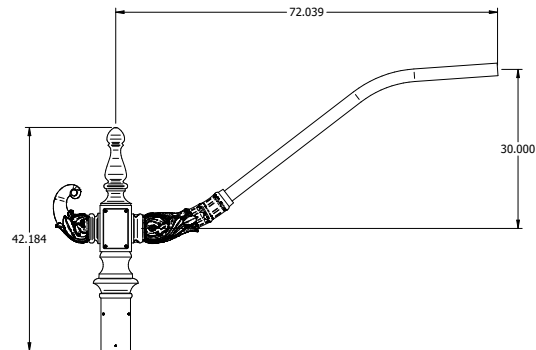
URBAN LUMINAIRE

SIDE MOUNT

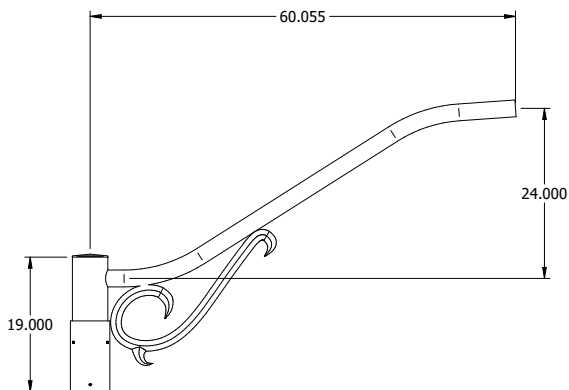
* Arms ordered separately, arms mount over an open top pole, they do not mount to a tenon.



AA-10 COBRA



AA-10B COBRA BALBOA



AA-10S COBRA SCROLL

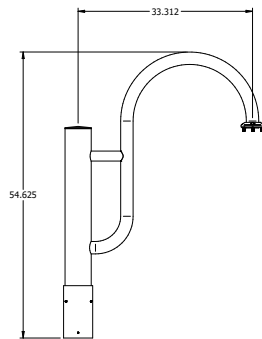


URBAN SERIES

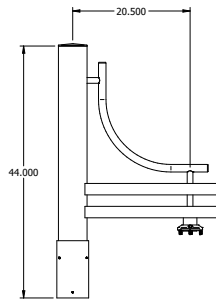
URBAN LUMINAIRE

PENDANT MOUNT

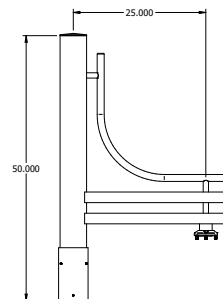
* Arms ordered separately, arms mount over an open top pole, they do not mount to a tenon.



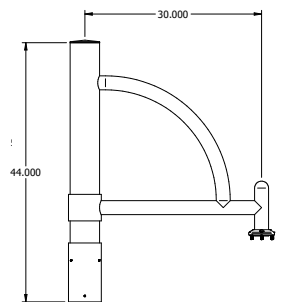
AA-41 RAILROAD STRAP



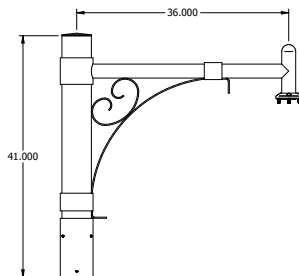
AA-10 SMALL PIERWALK



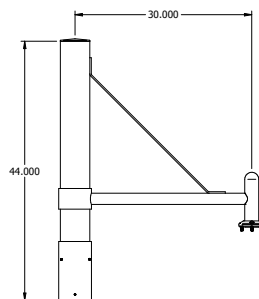
AA-38 LARGE PIERWALK



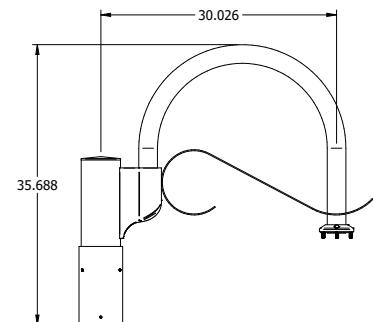
AA-49 RADIUS



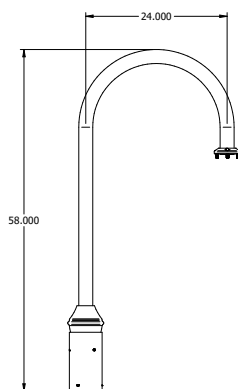
AA-27 STRATFORD



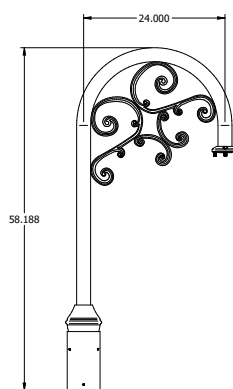
AA-44 STRUT



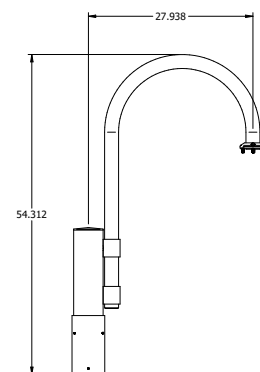
AA-45 TWIN EAGLES



AA-39 RAILROAD



AA-39S RAILROAD SCROLL



AA-42 RAILROAD SCS



URBAN SERIES

URBAN LUMINAIRE

DELIVERED LUMENS

DELIVERED LUMENS				5K7 (5000K nominal, 70 CRI)					4K7 (4000K nominal, 70 CRI)					3K7 (3000K nominal, 70 CRI)				
# of LEDs	NOMINAL WATTAGE (W)	SYSTEM WATTS (W)	DISTRIBUTION TYPE	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
18	25	27.8	FR	3428	123	0	0	0	3496	126	0	0	0	3233	116	0	0	0
			2	3236	117	1	0	1	3300	119	1	0	1	3052	110	1	0	1
			3	3164	114	1	0	1	3226	116	1	0	1	2983	107	1	0	1
			4F	3257	117	0	0	1	3321	120	0	0	1	3071	110	0	0	1
			4W	3114	112	1	0	1	3176	114	1	0	1	2937	106	1	0	1
			5QM	3398	122	2	0	0	3465	125	2	0	0	3204	115	2	0	0
			5QN	3431	124	2	0	0	3499	126	2	0	0	3236	116	2	0	0
			5QW	2937	106	2	0	1	2995	108	2	0	1	2770	100	0	0	0
			5RW	3150	113	2	0	2	3212	116	2	0	2	2970	107	2	0	2
	5W	3207	116	2	0	1	3271	118	2	0	1	3024	109	2	0	1		
	39	45.1	FR	4977	110	0	0	0	5076	113	0	0	0	4694	104	0	0	0
			2	4699	104	1	0	1	4791	106	1	0	1	4431	98	1	0	1
			3	4593	102	1	0	1	4684	104	1	0	1	4332	96	1	0	1
			4F	4729	105	0	0	1	4822	107	0	0	1	4459	99	0	0	1
			4W	4522	100	1	0	1	4611	102	1	0	1	4264	95	1	0	1
			5QM	4934	110	2	0	0	5032	112	2	0	0	4653	103	2	0	0
			5QN	4982	111	2	0	0	5081	113	2	0	0	4698	104	2	0	0
			5QW	4522	100	3	0	1	4611	102	3	0	1	4264	95	3	0	1
			5RW	4573	101	2	0	2	4664	104	2	0	2	4313	96	2	0	2
	5W	4657	103	2	0	1	4749	105	2	0	1	4391	97	2	0	1		
	50	57.5	FR	6019	105	0	0	0	6138	107	0	0	0	5676	99	0	0	0
			2	5682	99	1	0	1	5794	101	1	0	1	5358	93	1	0	1
			3	5555	97	1	0	1	5665	99	1	0	1	5238	91	1	0	1
			4F	5718	100	0	0	1	5831	101	0	0	1	5392	94	0	0	1
			4W	5468	95	1	0	1	5576	97	1	0	1	5156	90	1	0	1
			5QM	5967	104	2	0	0	6085	106	2	0	0	5627	98	2	0	0
			5QN	6025	105	2	0	0	6144	107	2	0	0	5682	99	2	0	0
			5QW	5468	95	3	0	1	5576	97	3	0	1	5156	90	3	0	1
			5RW	5531	96	2	0	2	5640	98	2	0	2	5215	91	2	0	2
	5W	5632	98	2	0	1	5743	100	2	0	1	5311	92	2	0	1		
	70	62.4	FR	6650	107	0	0	0	6781	109	0	0	0	6271	100	0	0	0
			2	6277	101	1	0	1	6401	103	1	0	1	5919	95	1	0	1
			3	6137	98	1	0	1	6258	100	1	0	1	5787	93	1	0	1
			4F	6317	101	0	0	1	6442	103	0	0	1	5957	95	0	0	1
			4W	6041	97	1	0	1	6160	99	1	0	1	5696	91	1	0	1
			5QM	6592	106	2	0	0	6722	108	2	0	0	6216	100	2	0	0
			5QN	6656	107	2	0	0	6788	109	2	0	0	6277	101	2	0	0
			5QW	6041	97	3	0	1	6160	99	3	0	1	5696	91	3	0	1
			5RW	6110	98	2	0	2	6231	100	2	0	2	5762	92	2	0	2
	5W	6221	100	2	0	1	6344	102	2	0	1	5867	94	2	0	1		
DELIVERED LUMENS CHART CONTINUED ONTO NEXT PAGE																		

Notes:

1 Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

* Available in the 26" Urban only



URBAN SERIES

URBAN LUMINAIRE

DELIVERED LUMENS (CONTINUED)

# of LEDs	NOMINAL WATTAGE (W)	SYSTEM WATTS (W)	DISTRIBUTION TYPE	5K7 (5000K nominal, 70 CRI)					4K7 (4000K nominal, 70 CRI)					3K7 (3000K nominal, 70 CRI)				
				LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
18	90	82.3	FR	7681	93	0	0	0	7833	95	0	0	0	7244	88	0	0	0
			2	7251	88	1	0	1	7394	90	1	0	1	6838	83	1	0	1
			3	7089	86	1	0	1	7229	88	1	0	1	6685	81	1	0	1
			4F	7297	89	0	0	1	7442	90	0	0	1	6882	84	0	0	1
			4W	6978	85	1	0	1	7116	86	1	0	1	6580	80	1	0	1
			5QM	7614	93	2	0	0	7765	94	2	0	0	7180	87	2	0	0
			5QN	7689	93	2	0	0	7841	95	2	0	0	7251	88	2	0	0
			5QW	6978	85	3	0	1	7116	86	3	0	1	6580	80	3	0	1
			5RW	7058	86	2	0	2	7197	87	2	0	2	6656	81	2	0	2
			5W	7187	87	2	0	1	7329	89	2	0	1	6777	82	2	0	1
	110	98.7	FR	8346	85	0	0	0	8511	86	0	0	0	7870	80	0	0	0
			2	7878	80	1	0	1	8034	81	1	0	1	7429	75	1	0	1
			3	7702	78	1	0	1	7854	80	1	0	1	7263	74	1	0	1
			4F	7929	80	0	0	1	8085	82	0	0	1	7477	76	0	0	1
			4W	7582	77	1	0	1	7731	78	1	0	1	7150	72	1	0	1
			5QM	8273	84	2	0	0	8437	86	2	0	0	7802	79	2	0	0
			5QN	8354	85	2	0	0	8519	86	2	0	0	7878	80	2	0	0
			5QW	7582	77	3	0	2	7731	78	3	0	2	7150	72	3	0	2
			5RW	7668	78	2	0	2	7820	79	2	0	2	7231	73	2	0	2
			5W	7808	79	2	0	1	7963	81	2	0	1	7363	75	2	0	1
36	120	124.9	FR	12463	100	0	0	0	12709	102	0	0	0	11752	94	0	0	0
			2	11765	94	1	0	1	11997	96	1	0	1	11094	89	1	0	1
			3	11501	92	1	0	1	11728	94	1	0	1	10846	87	1	0	1
			4F	11840	95	0	0	1	12074	97	0	0	1	11165	89	0	0	1
			4W	11321	91	1	0	1	11545	92	1	0	1	10676	85	1	0	1
			5QM	12354	99	2	0	0	12598	101	2	0	0	11650	93	2	0	0
			5QN	12475	100	2	0	0	12722	102	2	0	0	11764	94	2	0	0
			5QW	11321	91	3	0	2	11545	92	3	0	2	10676	85	3	0	2
			5RW	11451	92	2	0	2	11677	93	2	0	2	10798	86	2	0	2
			5W	11660	93	2	0	1	11890	95	2	0	1	10995	88	2	0	1
	135	137.5	FR	13255	96	0	0	0	13517	98	0	0	0	12500	91	0	0	0
			2	12513	91	1	0	1	12760	93	1	0	1	11799	86	1	0	1
			3	12232	89	1	0	1	12474	91	1	0	1	11535	84	1	0	1
			4F	12593	92	0	0	1	12841	93	0	0	1	11875	86	0	0	1
			4W	12041	88	1	0	1	12279	89	1	0	1	11355	83	1	0	1
			5QM	13140	96	2	0	0	13399	97	2	0	0	12391	90	2	0	0
			5QN	13268	97	2	0	0	13531	98	2	0	0	12512	91	2	0	0
			5QW	12041	88	3	0	2	12279	89	3	0	2	11355	83	3	0	2
			5RW	12179	89	2	0	2	12420	90	2	0	2	11485	84	2	0	2
			5W	12401	90	2	0	1	12646	92	2	0	1	11695	85	2	0	1
			TCR	13051	95	0	0	0	13308	97	0	0	0	12307	90	0	0	0

DELIVERED LUMENS CHART CONTINUED ONTO NEXT PAGE

Notes:

- 1 Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.
- * Available in the 26" Urban only



URBAN SERIES

URBAN LUMINAIRE

DELIVERED LUMENS (CONTINUED)

# of LEDs	NOMINAL WATTAGE (W)	SYSTEM WATTS (W)	DISTRIBUTION TYPE	5K7 (5000K nominal, 70 CRI)					4K7 (4000K nominal, 70 CRI)					3K7 (3000K nominal, 70 CRI)				
				LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
36	155	150.6	FR	13992	93	0	0	0	14268	95	0	0	0	13194	88	0	0	0
			2	13208	88	1	0	1	13469	89	1	0	1	12455	83	1	0	1
			3	12912	86	1	0	1	13167	87	1	0	1	12176	81	1	0	1
			4F	13293	88	0	0	1	13555	90	0	0	1	12535	83	0	0	1
			4W	12711	84	1	0	1	12962	86	1	0	1	11986	80	1	0	1
			5QM	13870	92	2	0	0	14144	94	2	0	0	13079	87	2	0	0
			5QN	14006	93	2	0	0	14283	95	2	0	0	13208	88	2	0	0
			5QW	12711	84	3	0	2	12962	86	3	0	2	11986	80	3	0	2
			5RW	12856	85	2	0	2	13110	87	2	0	2	12123	80	2	0	2
			5W	13091	87	2	0	1	13349	89	2	0	1	12345	82	2	0	1
	175	167.3	FR	14784	88	0	0	0	15076	90	0	0	0	13942	83	0	0	0
			2	13956	83	1	0	1	14232	85	1	0	1	13161	79	1	0	1
			3	13644	82	1	0	1	13913	83	1	0	1	12866	77	1	0	1
			4F	14045	84	0	0	1	14323	86	0	0	1	13245	79	0	0	1
			4W	13430	80	1	0	1	13696	82	1	0	1	12665	76	1	0	1
			5QM	14655	88	2	0	0	14945	89	2	0	0	13820	83	2	0	0
			5QN	14799	88	2	0	0	15091	90	2	0	0	13956	83	2	0	0
			5QW	13430	80	3	0	2	13696	82	3	0	2	12665	76	3	0	2
			5RW	13584	81	2	0	2	13852	83	2	0	2	12810	77	2	0	2
			5W	13832	83	2	0	1	14105	84	2	0	1	13044	78	2	0	1

Notes:

1 Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

* Available in the 26" Urban only

ELECTRICAL DATA

# LED's	Nominal Wattage (W)	Input Voltage (Volts)	Oper. Current (Amps)	System Power (W)
18	25	120	0.23	27.8
		277	0.10	
		347	0.08	
		480	0.06	
	39	120	0.38	45.1
		277	0.16	
		347	0.13	
		480	0.09	
	50	120	0.48	57.7
		277	0.21	
		347	0.17	
		480	0.12	
	70	120	0.52	62.4
		277	0.23	
		347	0.18	
		480	0.13	
	90	120	0.69	82.3
		277	0.30	
		347	0.24	
		480	0.17	
	110	120	0.82	98.7
		277	0.36	
		347	0.28	
		480	0.21	
# LED's	Nominal Wattage (W)	Input Voltage (Volts)	Oper. Current (Amps)	System Power (W)
36	120	120	1.04	124.9
		277	0.45	
		347	0.36	
		480	0.26	
	135	120	1.15	137.5
		277	0.50	
		347	0.40	
		480	0.29	
	155	120	1.26	150.6
		277	0.54	
		347	0.43	
		480	0.31	
	175	120	1.39	167.3
		277	0.60	
		347	0.48	
		480	0.35	



URBAN SERIES

URBAN LUMINAIRE

PROJECTED LUMEN MAINTENANCE

Ambient Temperature	OPERATING HOURS					
	0	25,000	*TM-21-11 36,000	50,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.97	0.96	0.95	0.91	408,000
40°C / 104°F	0.99	0.96	0.95	0.94	0.89	356,000

Notes:
 * Projected per IESNA TM-21-11. Data references the extrapolated performance projections for thebase model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Temperature		Lumen Multiplier
0°C	32°F	1.03
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.98
50°C	122°F	0.97

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

EPA

EPA: X.XX sqft		PM	SM	YM
CAP	21	1.04	1.14	1.39
	26	1.39	1.49	1.79
MAR	21	1.00	1.10	1.35
	26	1.25	1.35	1.65
MRDS	21	1.00	1.10	1.35
	26	1.25	1.35	1.65
MRSS	26	1.17	1.27	1.57

FOR ALL CONFIGURATIONS LINE DRAWINGS PLEASE SEE:

URB-HD-P.PDF
 URB-HD-S.PDF
 URB-HD-YM.PDF



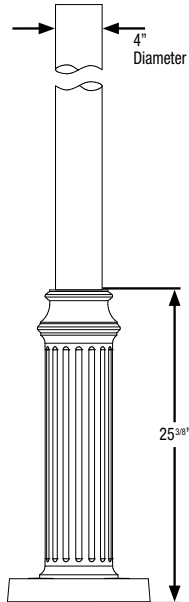
RSA-B-KENS Series Poles

ROUND STRAIGHT ALUMINUM

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____

**APPLICATIONS**

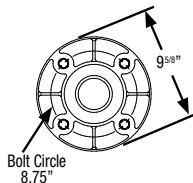
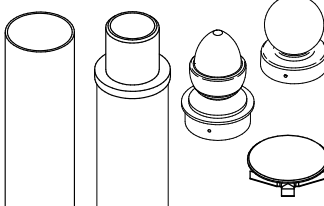
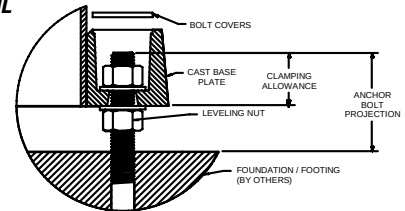
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

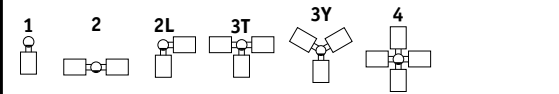
- SHAFT:** One-piece straight aluminum with fluted or smooth cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/16", or 1/4" thickness. Decorative base of 356 cast aluminum.
- POLE CAP OR FINALS:** Cap or decorative finials available for side mounted luminaires. Open top or tenons provided for post top mounted luminaires.
- HAND HOLE:** Hand hole provided in cast base; Mounting provisions for grounding lug located behind cover
- ANCHOR BOLTS:** Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in twelve standard colors; Custom colors available; RAL number preferable.

**TENONS & POLE CAPS****BASE DETAIL****ORDERING EXAMPLE:**
RSA-B-KENS - **S/F** - **16** - **40** - **A/B/C** - **2L** - **B3** - **DBT** - **VM2**

SERIES	STYLE	HEIGHT	SHAFT	THICKNESS	MOUNTING	FINISH	OPTIONS
RSA-B-KENS Round Straight Aluminum Pole Beacon	S Smooth F Fluted	Reference page 2 Ordering matrix 12'	Reference page 2 Ordering matrix 40	Reference page 2 Ordering matrix B	1 Single arm mount 2 Two fixtures at 180° 2L Two fixtures at 90° 3T Three fixtures at 90° 3Y Three at 120° 4 Four fixtures at 90° OT Open top (includes pole cap) TN3 Tenon 3 x 3 TN4 Tenon 3 x 4 CAP Cap ARC Acorn Finial BAL Ball Finial	BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VG Verde Green Textured Color Option CC Custom Color	GFI 20 Amp GFI Receptacle and Cover EHH Extra Handhole C05 .5" Coupling C07 .75" Coupling C20 2" Coupling VM2 2nd mode vibration damper LAB Less Anchor Bolts

MOUNTING ORIENTATION1 Specify option location using logic found on page 2 (**Option Orientation**)**ACCESSORIES- Order Separately**

Catalog Number	Description
VM2SXX	2nd mode vibration damper

DRILL PATTERN

- B1** Cruzer, "AM" arm
B3 2 bolt (2-1/2" spacing), Viper "A" arm
S2 2 bolt (3-1/2" spacing), Viper "AD" arm



RSA-B-KENS Series Poles

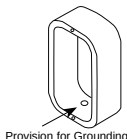
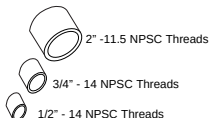
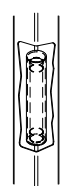
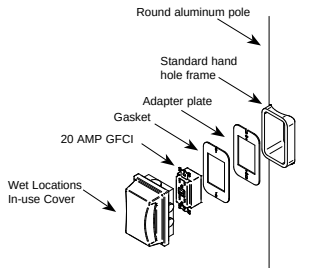
ROUND STRAIGHT ALUMINUM

DATE: _____ LOCATION: _____
TYPE: _____ PROJECT: _____
CATALOG #: _____

ORDERING INFORMATION Cont.

Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Square	Base Plate Size	Anchor Bolt Size	Bolt Projection	Pole weight (lbs)
	Feet	Meters								
RSA-B-KENS-S-10-40-A	10	3.0	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	39
RSA-B-KENS-S-12-40-A	12	3.7	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	43
RSA-B-KENS-S-14-40-A	14	4.3	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	46
RSA-B-KENS-S-16-40-A	16	4.9	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	50
RSA-B-KENS-S-18-40-A	18	5.5	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	53
RSA-B-KENS-S-20-40-A	20	6.1	4" Round	0.125"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	57
RSA-B-KENS-S-10-40-B	10	3.0	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	47
RSA-B-KENS-S-12-40-B	12	3.7	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	53
RSA-B-KENS-S-14-40-B	14	4.3	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	58
RSA-B-KENS-S-16-40-B	16	4.9	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	63
RSA-B-KENS-S-18-40-B	18	5.5	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	69
RSA-B-KENS-S-20-40-B	20	6.1	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	74
RSA-B-KENS-S-22-40-B	22	6.7	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	79
RSA-B-KENS-S-24-40-B	24	7.3	4" Round	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	84
RSA-B-KENS-S-10-40-C	10	3.0	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	56
RSA-B-KENS-S-12-40-C	12	3.7	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	62
RSA-B-KENS-S-14-40-C	14	4.3	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	69
RSA-B-KENS-S-16-40-C	16	4.9	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	76
RSA-B-KENS-S-18-40-C	18	5.5	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	83
RSA-B-KENS-S-20-40-C	20	6.1	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	90
RSA-B-KENS-S-22-40-C	22	6.7	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	97
RSA-B-KENS-S-24-40-C	24	7.3	4" Round	0.25"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	104
RSA-B-KENS-F-10-40-B	10	3.0	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	50
RSA-B-KENS-F-12-40-B	12	3.7	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	55
RSA-B-KENS-F-14-40-B	14	4.3	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	61
RSA-B-KENS-F-16-40-B	16	4.9	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	67
RSA-B-KENS-F-18-40-B	18	5.5	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	72
RSA-B-KENS-F-20-40-B	20	6.1	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	78
RSA-B-KENS-F-22-40-B	22	6.7	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	84
RSA-B-KENS-F-24-40-B	24	7.3	4" Fluted	0.188"	8-3/4"	6.19"	11-5/8" x 25-3/8" Tall	3/4 x 30 x 3	2-3/4"	90

NOTE: Factory supplied template must be used when setting anchor bolts. Current will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

EHH - EXTRA HANDHOLE  Provision for Grounding	C05 - C07 - C20 - COUPLING  2" - 11.5 NPT Threads 3/4" - 14 NPT Threads 1/2" - 14 NPT Threads	VM2 - VIBRATION DAMPER 2ND MODE  Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.	GFI - 20 AMP GFCI RECEPTACLE & COVER  Round aluminum pole Standard hand hole frame Adapter plate Gasket 20 AMP GFCI Wet Locations, In-use Cover
OPTION ORIENTATION Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: RSA-B-KENS-F16-40B-TN3-DBT-C05-0-5 (.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1" spacing required between option. Consult factory for other configurations.		VM2SXX - VIBRATION DAMPER 2ND MODE Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration. VM2S08 - 8' VM2S12 - 12' VM2S16 - 16' VM2S20 - 20' VM2S24 - 24'	

For more information about pole vibration and vibration dampers, please consult Pole Vibration Application Guide.
Due to our continued efforts to improve our products, product specifications are subject to change without notice.



RSA-B-KENS Series Poles

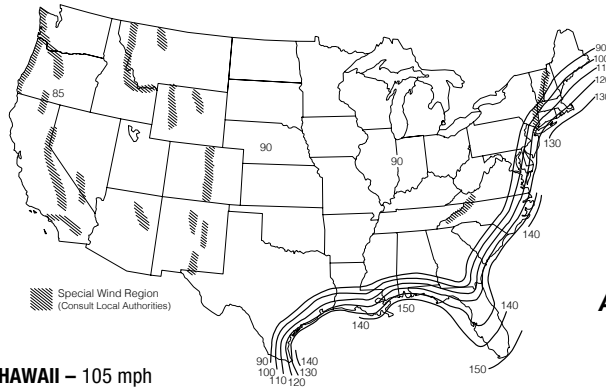
ROUND STRAIGHT ALUMINUM

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

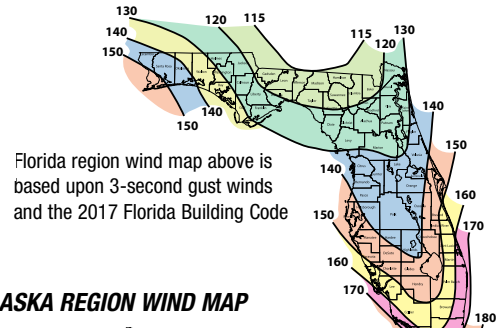
ASCE7-05 WIND MAP



HAWAII – 105 mph
PUERTO RICO – 145 mph

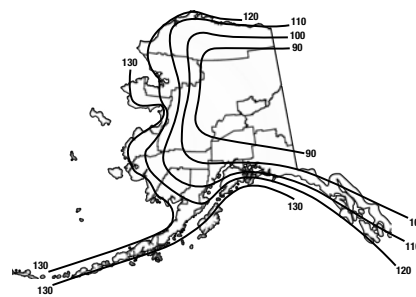
*PRINTED WITH PERMISSION FROM ASCE

FLORIDA REGION WIND MAP



Florida region wind map above is
based upon 3-second gust winds
and the 2017 Florida Building Code

ALASKA REGION WIND MAP



ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds										
Catalog Number	85	90	100	105	110	120	130	140	145	150
RSA-B-KENS-S-10-40-A	12.2	10.8	8.7	7.8	7.0	5.8	4.9	4.2	3.9	3.6
RSA-B-KENS-S-12-40-A	9.0	7.9	6.2	5.5	4.9	3.9	3.3	2.8	2.6	2.4
RSA-B-KENS-S-14-40-A	6.8	5.9	4.5	3.9	3.4	2.6	2.2	1.8	1.6	1.5
RSA-B-KENS-S-16-40-A	5.1	4.4	3.2	2.7	2.3	1.6	1.3	1.0	0.9	0.8
RSA-B-KENS-S-18-40-A	3.8	3.1	2.1	1.7	1.3	0.8	0.5	NR	NR	NR
RSA-B-KENS-S-20-40-A	2.6	2.1	1.2	0.8	0.5	NR	NR	NR	NR	NR
RSA-B-KENS-S-10-40-B	18.0	16.1	13.0	11.8	10.6	8.9	7.5	6.5	6.0	5.6
RSA-B-KENS-S-12-40-B	13.6	12.1	9.7	8.7	7.8	6.4	5.4	4.6	4.3	4.0
RSA-B-KENS-S-14-40-B	10.6	9.3	7.3	6.5	5.8	4.7	3.9	3.3	3.0	2.8
RSA-B-KENS-S-16-40-B	8.3	7.3	5.6	4.9	4.3	3.3	2.7	2.3	2.1	1.9
RSA-B-KENS-S-18-40-B	6.5	5.6	4.1	3.5	3.0	2.2	1.8	1.4	1.3	1.2
RSA-B-KENS-S-20-40-B	5.0	4.2	2.9	2.4	2.0	1.3	1.0	0.7	0.6	0.5
RSA-B-KENS-S-22-40-B	3.7	3.0	1.9	1.5	1.1	0.5	NR	NR	NR	NR
RSA-B-KENS-S-24-40-B	2.7	2.1	1.1	0.7	NR	NR	NR	NR	NR	NR
RSA-B-KENS-S-10-40-C	23.3	20.8	16.9	15.3	13.9	11.6	9.9	8.5	7.9	7.4
RSA-B-KENS-S-12-40-C	17.7	15.8	12.7	11.5	10.4	8.6	7.3	6.2	5.8	5.4
RSA-B-KENS-S-14-40-C	14.0	12.4	9.8	8.8	7.9	6.5	5.4	4.6	4.3	4.0
RSA-B-KENS-S-16-40-C	11.2	9.9	7.7	6.8	6.1	4.8	4.1	3.4	3.1	2.9
RSA-B-KENS-S-18-40-C	8.9	7.8	5.9	5.2	4.5	3.5	2.9	2.4	2.2	2.0
RSA-B-KENS-S-20-40-C	7.0	6.1	4.5	3.8	3.3	2.4	1.9	1.5	1.4	1.2
RSA-B-KENS-S-22-40-C	5.5	4.7	3.3	2.7	2.2	1.5	1.1	0.8	0.7	0.6
RSA-B-KENS-S-24-40-C	4.3	3.5	2.3	1.8	1.3	0.7	NR	NR	NR	NR
RSA-B-KENS-F-10-40-B	17.9	16.0	12.9	11.6	10.5	8.7	7.2	6.1	5.6	5.1
RSA-B-KENS-F-12-40-B	13.5	12.0	9.5	8.5	7.6	6.2	5.0	4.1	3.7	3.3
RSA-B-KENS-F-14-40-B	10.4	9.2	7.2	6.3	5.6	4.4	3.5	2.7	2.4	2.1
RSA-B-KENS-F-16-40-B	8.1	7.1	5.4	4.7	4.1	3.0	2.2	1.6	1.3	1.0
RSA-B-KENS-F-18-40-B	6.3	5.4	3.9	3.3	2.8	1.9	1.2	0.6	NR	NR
RSA-B-KENS-F-20-40-B	4.7	3.9	2.7	2.2	1.7	0.9	NR	NR	NR	NR
RSA-B-KENS-F-22-40-B	3.4	2.8	1.6	1.2	0.8	NR	NR	NR	NR	NR
RSA-B-KENS-F-24-40-B	2.4	1.8	0.8	NR	NR	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds										
Catalog Number	115	120	130	140	150	160	170	180		
RSA-10-40-A-S-KENS	9.0	8.2	6.9	5.8	4.9	4.1	3.8	3.6		
RSA-12-40-A-S-KENS	6.5	5.8	4.8	3.9	3.2	2.6	2.5	2.4		
RSA-14-40-A-S-KENS	4.7	4.1	3.2	2.5	1.9	1.4	1.2	1.1		
RSA-16-40-A-S-KENS	3.2	2.8	2.0	1.4	0.9	0.5	NR	NR		
RSA-18-40-A-S-KENS	2.1	1.7	1.0	0.5	NR	NR	NR	NR		
RSA-20-40-A-S-KENS	1.1	0.8	NR	NR	NR	NR	NR	NR		
RSA-10-40-B-S-KENS	13.6	12.4	10.5	8.9	7.6	6.6	6.3	5.5		
RSA-12-40-B-S-KENS	10.1	9.2	7.6	6.4	5.4	4.5	4.3	4.0		
RSA-14-40-B-S-KENS	7.6	6.9	5.6	4.6	3.7	3.0	2.9	2.7		
RSA-16-40-B-S-KENS	5.7	5.1	4.0	3.2	2.4	1.8	1.6	1.4		
RSA-18-40-B-S-KENS	4.2	3.6	2.7	2.0	1.4	0.8	0.6	NR		
RSA-20-40-B-S-KENS	2.9	2.4	1.6	1.0	0.5	NR	NR	NR		
RSA-22-40-B-S-KENS	1.9	1.4	0.7	NR	NR	NR	NR	NR		
RSA-24-40-B-S-KENS	0.9	0.6	NR	NR	NR	NR	NR	NR		
RSA-10-40-C-S-KENS	17.6	16.2	13.7	11.7	10.1	8.8	8.2	7.3		
RSA-12-40-C-S-KENS	13.3	12.1	10.2	8.6	7.3	6.2	5.8	5.4		
RSA-14-40-C-S-KENS	10.3	9.3	7.7	6.4	5.3	4.5	4.3	4.0		
RSA-16-40-C-S-KENS	7.9	7.1	5.8	4.7	3.8	3.0	2.7	2.5		
RSA-18-40-C-S-KENS	6.0	5.4	4.2	3.3	2.5	1.9	1.7	1.5		
RSA-20-40-C-S-KENS	4.5	3.9	2.9	2.1	1.4	0.9	0.7	0.5		
RSA-22-40-C-S-KENS	3.2	2.7	1.9	1.1	0.5	NR	NR	NR		
RSA-24-40-C-S-KENS	2.2	1.7	0.9	NR	NR	NR	NR	NR		
RSA-10-40-B-F-KENS	13.6	12.4	10.5	8.9	7.6	6.6	5.7	4.9		
RSA-12-40-B-F-KENS	10.1	9.2	7.6	6.4	5.4	4.5	3.8	3.2		
RSA-14-40-B-F-KENS	7.6	6.9	5.6	4.6	3.7	3.0	2.4	1.9		
RSA-16-40-B-F-KENS	5.7	5.1	4.0	3.2	2.4	1.8	1.3	0.9		
RSA-18-40-B-F-KENS	4.2	3.6	2.7	2.0	1.4	0.8	NR	NR		
RSA-20-40-B-F-KENS	2.9	2.4	1.6	1.0	0.5	NR	NR	NR		
RSA-22-40-B-F-KENS	1.9	1.4	0.7	NR	NR	NR	NR	NR		
RSA-24-40-B-F-KENS	0.9	0.6	NR	NR	NR	NR	NR	NR		

Submitted by Swaney Lighting		Catalog Number: RSAB-KENS-S12-40B-OT-BLS Notes:	Type: A SLA24-58713
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RSA-B-KENS Series Poles

ROUND STRAIGHT ALUMINUM

DATE: _____	LOCATION: _____
TYPE: _____	PROJECT: _____
CATALOG #: _____	

NOTES

Wind-speed Website disclaimer:

Current has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Current has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Current does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. <http://windspeed.atcouncil.org>

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Pole Vibration Application Guide for environmental risk factors and design considerations.
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

Due to our continued efforts to improve our products, product specifications are subject to change without notice.



AA-37 Nautilus

ARMS

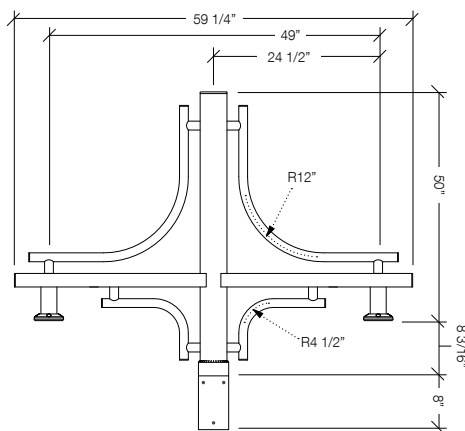
DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

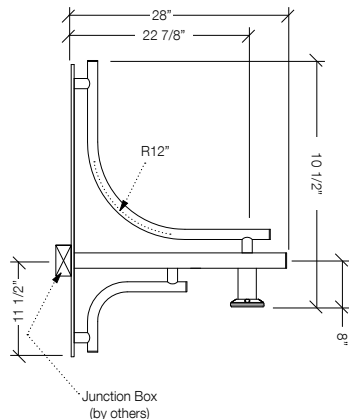
CATALOG #: _____

Sample AA-37 S 4 B P BBT
 Ordering A / B / C / D / E / F

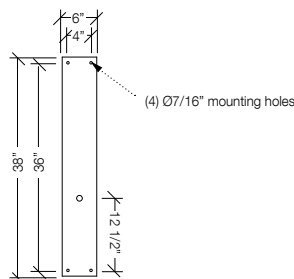
DETAILS



WALL BRACKET DETAILS



WALL PLATE DETAILS



A. MODEL

AA-37 Nautilus

B. POST SHAFT PROFILE

W wall mount

S smooth

F fluted

C. POST SHAFT DIAMETER

4 4"

5 5"

6 6"

OTHER _____

D. ARRANGEMENT

B see arrangement table below

E. LUMINAIRE MOUNTING

P pendantF. COLOR **BLS - Black Gloss Smooth**

BBT basic black textured
 BMT black matte textured
 WHT white textured
 MBT metallic bronze textured
 BZT bronze textured
 DBT dark bronze textured
 GYS gray smooth
 DPS dark platinum smooth
 GNT green textured
 MST metallic silver textured
 MTT metallic titanium textured
 OWI old world iron
 RAL _____

Construction: All cast aluminum parts shall be low copper alloy A356. All extruded aluminum parts shall be alloy 6061-T6, 6063-T5 or equal.

EPA (effective projected area): EPA is de-fined as (projected surface area X drag factor) and measured in ft². Allowable post, luminaire arm, luminaire and accessory EPAs are derived from the most current published AASHTO (American Association of State Highway and Transportation Officials) standard, currently AASHTO 2001 (50yr design life). Customer assumes all responsibility for selecting the appropriate post for installation (consult factory for assistance). Luminaire arm, luminaire and accessory EPA must be equal to or less than allowable EPA of post. Consult a professional engineer for compliance with local codes and standards.

Fasteners: All fasteners shall be Corrosion Resistant. When tamper resistant fasteners are required, spanner HD (snake eye) style shall be provided (special tool required, available at additional cost).

Finish: Finish shall be a Beacote V polyester powder-coat electro-statically applied and thermocured. Beacote V finish shall consist of a five stage iron phosphate chemical pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder-coat finish. The finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pound.

Limited Warranty: Beacon Products warrants its products, to the original purchaser, against defects in materials and workmanship for proper usage for a period of 5 years after date of production, when properly installed, maintained and appropriately specified. See Warranty Information on www.beaconproducts.com for complete details and exclusions.

2CC - 2" Cast Coupling

		arrangement (EPA index ft ² / weight (lbs))									
		A	B	C	D	E	F	G	H	I	J
shaft Ø	weight	18	-	-	-	-	-	-	-	-	-
	EPA	-	3.37	5.04	5.04	-	5.19	5.19	-	-	-
Ø4"	weight	-	26	36	38	-	46	48	-	-	-
	EPA	-	3.80	5.47	5.47	4.49	5.62	5.62	6.07	6.85	6.85
Ø5"	weight	-	30	40	42	40	50	52	50	60	62
	EPA	-	4.22	5.89	5.89	4.91	6.04	6.04	6.49	7.27	7.27
Ø6"	weight	-	34	44	46	44	54	56	54	64	66
	EPA	-	4.22	5.89	5.89	4.91	6.04	6.04	6.49	7.27	7.27

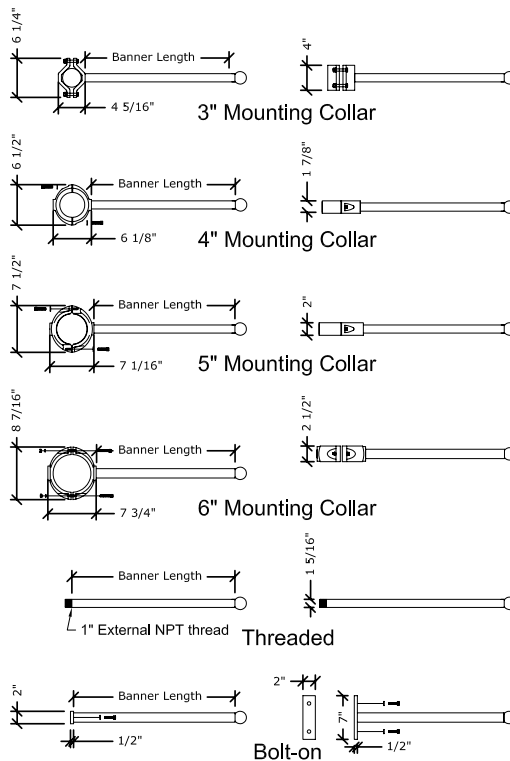


Banner Arms

ARMS

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

Banner Arm Mounting Styles



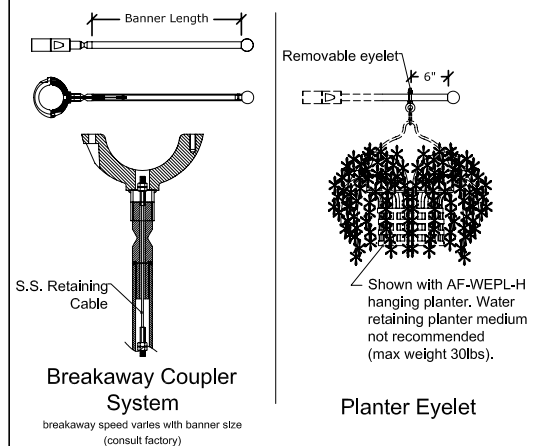
Specifications

Construction:
All cast aluminum parts shall low copper alloy A356. All extruded aluminum parts shall be alloy 6061-T6, 6063-T5 or equal.

Fasteners:
All fasteners shall be stainless steel. When tamper resistant fasteners are required, spanner HD (snake eye) style shall be provided (special tool required, available at additional cost), consult factory for availability.

Finish:
Finish shall be Beacote III polyester powdercoat electrostatically applied and thermocured. Poles shall be subjected to chemical pre-treatment prior to painting by immersion process.

Options



Ordering Example:
AA-0024 / 4"MTC / BA / BKT

AA-00			
Length	Mounting	Options	Finish
☐ 18 18" ☐ 20 20" ☐ 22 22" ☐ 24 24" ☐ 30 30"	☐ 3"MTC mounting collar for 3" shaft ☒ 4"MTC mounting collar for 4" shaft ☐ 5"MTC mounting collar for 5" shaft ☐ 6"MTC mounting collar for 6" shaft ☐ BO bolted connection ☐ TO threaded connection	☐ BA breakaway coupler system* ☐ PA removable planter eyelet* ☐ 2X two banner arms at 180°	☐ BB black ☐ BZ bronze ☐ BG green ☐ BW white ☐ BY gray ☐ RAL RAL- ☐ OTHER
Consult factory for premium and verde finishes. Custom colors available. BLS - Black Gloss Smooth			

Notes:
* Consult factory



Domus
POLES & BASES

DATE: _____ LOCATION: _____

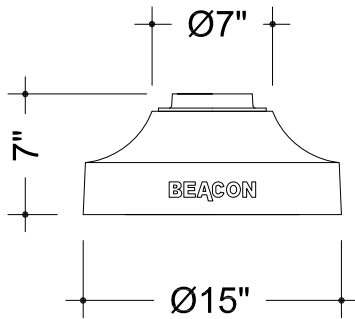
TYPE: _____ PROJECT: _____

CATALOG #: _____

RSAB-BC-60-BLS-DOMU

Sample *DOMU* 5 *BBT*
Ordering _____ / _____ / _____
A B C

DETAILS



A. MODEL

DOMU Domus

B. POST SHAFT DIAMETER

3 3"
4 4"
5 5"
6 6"

C. COLOR

BBT basic black textured
BMT black matte textured
WHT white textured
MBT metallic bronze textured
BZT bronze textured
DBT dark bronze textured
GYS gray smooth
DPS dark platinum smooth
GNT green textured
MST metallic silver textured
MTT metallic titanium textured
OWI old world iron
RAL _____

BLS - Black Gloss Smooth

Construction: All cast aluminum parts shall be low copper alloy A356. All extruded aluminum parts shall be alloy 6061-T6, 6063-T5 or equal. Standard fluted shaft profile shall be 16-flat flutes for 3"OD and 12-flat flutes for 4", 5", & 6"OD.

Base Covers: require specification of smooth or fluted shafts of the size required to meet wind load requirements

Vibration Dampeners: Vibration dampener pads shall be provided when required by customer or deemed necessary by Beacon Products. Please consult factory for bridge mounted applications.

EPA (effective projected area): EPA is defined as (projected surface area X drag factor) and measured in ft². Allowable post, luminaire arm, luminaire and accessory EPAs are derived from the most current published AASHTO (American Association of State Highway and Transportation Officials) standard, currently AASHTO 2001 (50yr design life). Customer assumes all responsibility for selecting the appropriate post for installation (consult factory for assistance). Luminaire arm, luminaire and accessory EPA must be equal to or less than allowable EPA of post. Consult a professional engineer for compliance with local codes and standards.

Anchor Bolt: Anchor bolts, sized as required, double hex nuts and flat washers shall be hot dipped galvanized steel. A bolt circle template shall be provided for installation.

Fasteners: All fasteners shall be Corrosion Resistant. When tamper resistant fasteners are required, spanner HD (snake eye) style shall be provided (special tool required, available at additional cost).

Finish: Finish shall be a Beacote V polyester powder-coat electrostatically applied and thermocured. Beacote V finish shall consist of a five stage iron phosphate chemical pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish. The finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pound.

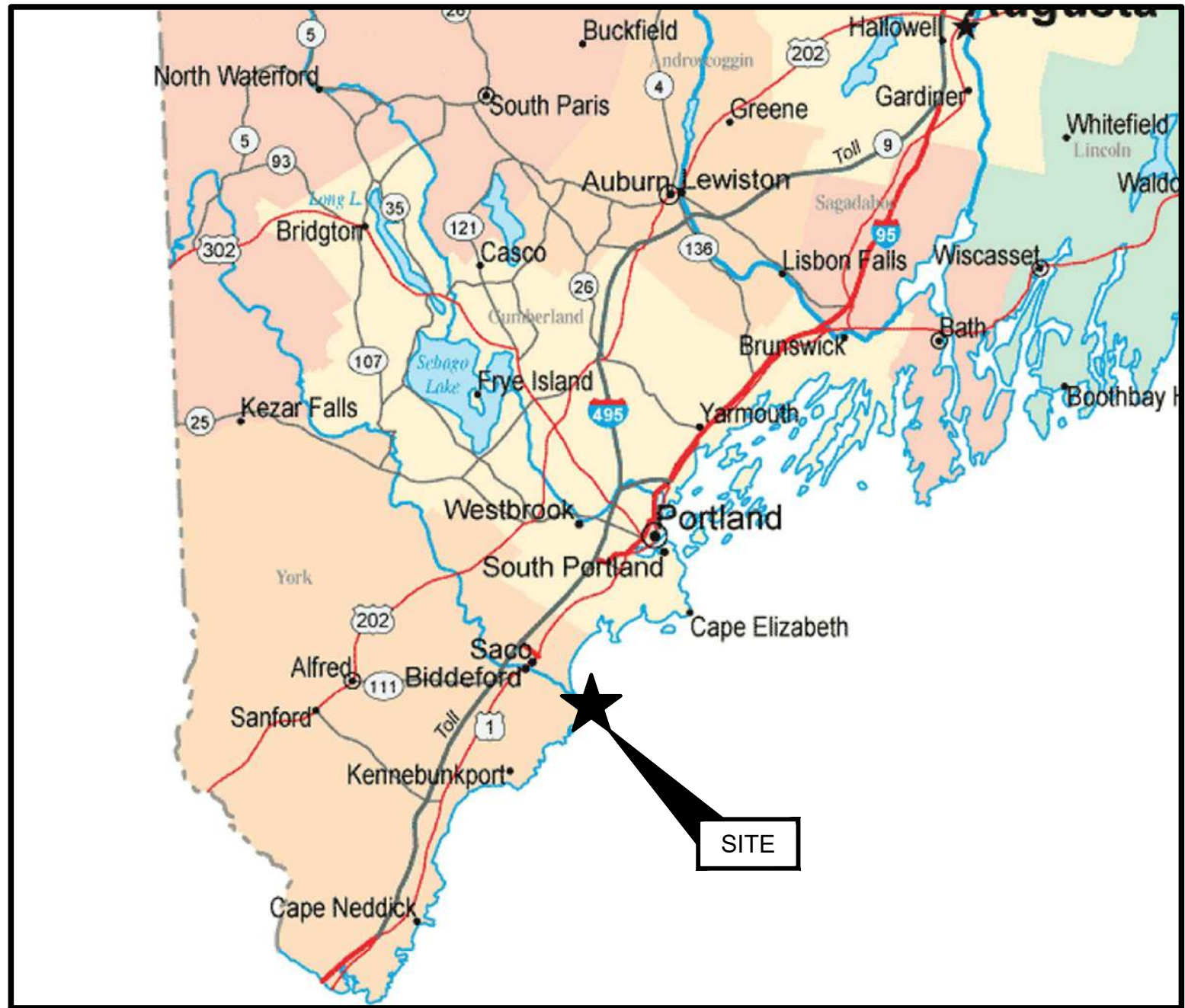
Limited Warranty: Beacon Products warrants its products, to the original purchaser, against defects in materials and workmanship for proper usage for a period of 5 years after date of production, when properly installed, maintained and appropriately specified.

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

Attachment 15
Drawings

UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER

BIDDEFORD, MAINE



SOURCE:
MAINE ROAD MAP, GOOGLE IMAGES, ACCESSED SEPTEMBER 2023.

STATE MAP

(NOT TO SCALE)

PROJECT INFO:

ZONING DISTRICT: INSTITUTIONAL (IN) ZONE WITH LIMITED RESIDENTIAL (LR) SHORELAND OVERLAY
EXISTING AND PROPOSED USE: MARINE RESEARCH CENTER
WATERSHED: SACO RIVER
WITHIN MS4 URBANIZED AREA: YES
WITHIN 100-YEAR FLOOD ZONE: NO
PUBLIC ROAD PROPOSED: NO
PRIVATE ROAD PROPOSED: YES
PUBLIC SEWER CONNECTION: YES, EXISTING
PUBLIC STORM DRAIN CONNECTION: NO

PERVIOUS COVERAGE: EXISTING= 105,843 SF
PROPOSED=95,194 SF

IMPERVIOUS COVERAGE: EXISTING=5,546 SF
PROPOSED=16,195 SF

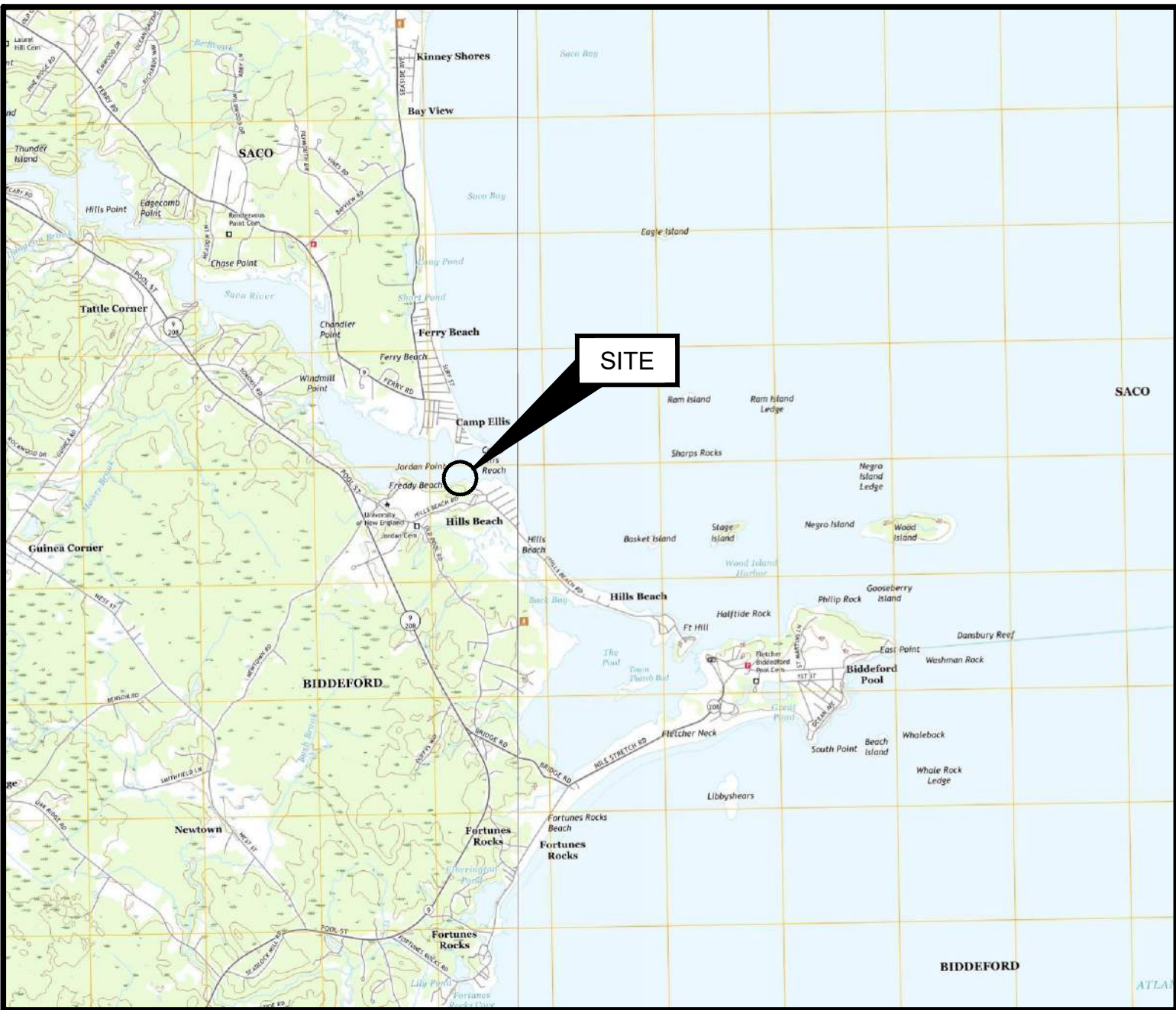
BUILDING ROOF SQUARE FOOTAGE=751 WITHIN LIMIT OF DISTURBANCE

WAIVERS REQUESTED:

ARTICLE XI.II. SECTION 5.B.1.A. - SEE COVER LETTER
ARTICLE XI.II. SECTION 5.B.1.E.3. - SLOPES STEEPER THAN 2:1 IN LEDGE
ARTICLE VI. SECTION 26.F. - SLOPES STEEPER THAN 3:1 IN CUT/FILL SLOPES
ARTICLE XIV SECTION 15.H.4 - ROADWAY BANKS STEEPER THAN 2:1



THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, IS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF GEI CONSULTANTS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF GEI CONSULTANTS.



SOURCE:
USGS TOPOGRAPHICAL MAP OF BIDDEFORD, MAINE 2022

SITE LOCATION MAP

(NOT TO SCALE)

PREPARED FOR:

UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD
BIDDEFORD, MAINE
(207)283-0171



PREPARED BY:

GEI CONSULTANTS, INC.
5 MILK STREET
PORTLAND, ME 04101
(207)797-8901



SHEET INDEX

SHEET NO.	DRAWING NO.	TITLE
1	G-001	COVER SHEET
2	G-002	GENERAL NOTES
3	G-003	VICINITY PLAN
4	B-001	BORING LOCATION PLAN
5	B-002	BORING LOGS (1 OF 3)
6	B-003	BORING LOGS (2 OF 3)
7	B-004	BORING LOGS (3 OF 3)
8	B-005	INTERPRETIVE SUBSURFACE PROFILE
9	C-001	EXISTING CONDITIONS PLAN
10	C-002	DEMOLITION AND CONSTRUCTION STAGING
11	C-003	SITE PLAN
12	C-004	GRADING AND DRAINAGE PLAN
13	C-005	EROSION CONTROL PLAN
14	ES1.1	ELECTRICAL SITE PLAN
15	C-006	ACCESS ROAD PLAN AND PROFILE STA 1+00 TO MATCHLINE STA 4+00
16	C-007	ACCESS ROAD PLAN AND PROFILE MATCHLINE STA 4+00 TO STA 6+00
17	C-008	ACCESS ROAD TYPICAL SECTION
18	C-009	ACCESS ROAD SECTIONS 2+00 TO 3+75
19	C-010	ACCESS ROAD SECTIONS 4+00 TO 5+75
20	C-011	SITE DETAILS I
21	C-012	EROSION CONTROL NOTES
22	C-013	EROSION CONTROL DETAILS I
23	C-014	EROSION CONTROL DETAILS II
24	C-015	REVEGETATION PLAN
25	C-016	REVEGETATION NOTES, DETAILS AND SCHEDULES
26	S-001	PIER LAYOUT PLAN
27	S-002	PIER PLANS AND ELEVATIONS
28	S-003	TYPICAL PIER SECTIONS (1 OF 2)
29	S-004	TYPICAL PIER SECTIONS (2 OF 2)
30	S-005	PILE PLAN
31	S-006	PRECAST PILE CAP PLAN (1 OF 2)
32	S-007	PRECAST PILE CAP PLAN (1 OF 2)
33	S-008	PRECAST DECK PLANK PLAN
34	S-009	MISCELLANEOUS DETAILS (1 OF 5)
35	S-010	MISCELLANEOUS DETAILS (2 OF 5)
36	S-011	MISCELLANEOUS DETAILS (3 OF 5)
37	S-012	MISCELLANEOUS DETAILS (4 OF 5)
38	S-013	MISCELLANEOUS DETAILS (5 OF 5)
39	S-014	ABUTMENT DETAILS
40	F-001	FLOAT PLAN AND DETAILS

FOR PERMIT

8	6/5/2025	ADDRESS PB COMMENTS	DJB		DWG. NO. G-001
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB		SHEET NO. 1 OF 39
6	9/17/2024	REVISED PERMIT SET	DJB		
5	6/27/2024	REVISED PERMIT SET	DJB		
4	9/14/2023	DEP PERMIT SET	DJB		
NO.	DATE	ISSUE/REVISION	APP		

CITY OF BIDDEFORD PLANNING BOARD
PROJECT NO. 2024.34
GEI PROJECT NO. 2203703

D:\CASTELNUOVO, VINNIE_B\Working\UNIVERSITY OF NEW ENGLAND\2203703-UNE Marine Science Center Pier\00_CAD\Design\Sheets\2203703-G-002.dwg - 6/19/2025

- COORDINATION OF WORK:
- THE CONTRACTOR SHALL SCHEDULE ALL ACTIVITIES SO AS TO LIMIT IMPACT TO MARINE AND LANDSIDE USES.
 - WORK SHALL BE COORDINATED WITH THE OWNER AND THEIR REPRESENTATIVES:
UNE-A:A-A: ANDREW PHILIPPE 207-602-2365 (OFFICE) 207-400-6166 (CELL)
GEIA:A-B: DANIEL BANNON 207-347-2372 (OFFICE) 207-671-2583 (CELL)
SDA:A-A-C: TOM SAUCIER 207-449-4275
 - WORK IS SUBJECT TO THE FOLLOWING TIME OF YEAR AND TIMING OF ACTIVITY RESTRICTIONS:
 - TO BE DEFINED UPON PERMIT APPROVAL.
 - CONTRACTOR ACCESS TO THE SITE BY WATER SHALL AT NO TIME IMPACT USE OF THE ADJACENT FEDERAL NAVIGATION CHANNEL.
 - THE OWNER WILL PERMIT THE CONTRACTOR TO HAVE A LAYDOWN AREA ON THE UPLAND PROPERTY FOR USE DURING CONSTRUCTION. AN APPROXIMATE LAYDOWN AREA IS SHOWN ON SHEET C-005. THE FINAL LOCATION AND DIMENSIONS OF THE LAYDOWN AREA SHALL BE APPROVED BY THE OWNER.

- SITE ENVIRONMENTAL CONTROLS:
- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH CITY, STATE, AND FEDERAL PERMITS. COPIES OF PERMIT APPROVALS ARE PROVIDED IN THE PROJECT MANUAL.

- OSHA REQUIREMENTS:
- PURSUANT TO 26 M.R.S.A. §565, THE CONTRACTOR SHALL ADHERE TO THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS AS PROMULGATED BY THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AT 29-CFR PART 1926 AS MOST RECENTLY AMENDED.

- EROSION CONTROL:
- EROSION AND SEDIMENTATION CONTROL MEASURES ARE PROPOSED TO CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE ADVERSE IMPACTS FROM RUNOFF AND EROSION AT THE WORK SITE.
 - APPLICATION OF TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MAINE EROSION AND SEDIMENT CONTROL BMP'S PUBLISHED BY MAINE DEP AND AVAILABLE AT: [HTTPS://WWW.MAINE.GOV/DEP/LAND/EROSION/ESCBMPs/](https://www.maine.gov/dep/land/erosion/escbmps/)
 - THE WORK SHALL BE PERFORMED BY A CONTRACTOR THAT IS CERTIFIED BY MAINE DEP IN EROSION AND SEDIMENT CONTROL MEASURES. A CERTIFIED INDIVIDUAL SHALL BE ONSITE DURING ALL CONSTRUCTION ACTIVITY.
 - EROSION AND SEDIMENTATION DUE TO RUNOFF, TIDAL EXPOSURE, AND WAVE ACTION SHALL BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY TO MINIMIZE AREA AND TIME OF DISTURBANCE, APPLICATION OF SILT FENCE, BARRIERS, AND OTHER EROSION CONTROL MEASURES, AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE.
 - THE CONTRACTOR'S SEQUENCE OF OPERATIONS AND SCHEDULE FOR WORK ACTIVITIES SHALL ACT TO MINIMIZE EXPOSURE TO EROSION.
 - THE CONTRACTOR SHALL TAKE CARE TO LIMIT THE AREA OF SOIL DISTURBANCE TO THE MINIMUM NECESSARY TO COMPLETE THE WORK.
 - EROSION CONTROL MEASURES, SEEDING, AND VEGETATION SHALL BE INSPECTED WEEKLY AND AFTER RAINSTORMS, RUNOFF EVENTS, AND STORM EVENTS UNTIL FINAL ACCEPTANCE. REPAIRS SHALL BE MADE WHEN NO LONGER SERVICEABLE DUE TO DAMAGE OR ACCUMULATION OF SEDIMENT.
 - AT THE COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS.

- SITE PREPARATION:
- CONTRACTOR SHALL INSTALL ALL SIGNAGE PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES. INCLUDE OWNER PROJECT SIGNAGE AND FEDERAL AND STATE MANDATED WORK PLACE SIGNAGE.
 - CONTRACTOR SHALL HAVE IN-PLACE TRASH AND SANITARY FACILITIES FOR THE WORK PLACE.
 - DISCOVERY OF INCONSISTENT SITE INFORMATION OR CONDITIONS ARE TO BE IMMEDIATELY CONVEYED TO THE OWNER AND ENGINEER PRIOR TO COMMENCING OR CONTINUING CONSTRUCTION.
 - THE CONTRACTOR SHALL NOTIFY DIG SAFE PRIOR TO COMMENCING ANY WORK.
 - LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY LOCATIONS OF UTILITIES AS MAY BE REQUIRED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES OCCURRING AS A RESULT OF THE CONTRACTOR'S FAILURE TO LOCATE AND PROTECT UNDERGROUND UTILITIES. ALL REPAIRS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
 - CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING UTILITIES AND DRAINAGE AT ALL TIMES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AND RESTORE TO THE PRE-EXISTING CONDITION AT NO COST TO THE OWNER.
 - CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES AND SHALL PERFORM THE WORK IN A MANNER THAT AVOIDS DAMAGE TO EXISTING STRUCTURES. STRUCTURES INCLUDE, BUT ARE NOT LIMITED TO, BUILDINGS, PIERS, BULKHEADS, FLOATS, PIER UTILITIES AND FIXTURES, AND RIPRAP SLOPES. CONTRACTOR SHALL REPAIR ANY DAMAGE AT NO ADDITIONAL COST TO THE CITY.
 - CONTRACTOR SHALL SUPPLY ALL NECESSARY TEMPORARY UTILITIES FOR CONSTRUCTION INCLUDING, BUT NOT LIMITED TO; WATER, POWER, LIGHTING, DATA, AND TELEPHONE.
 - CONTRACTOR SHALL READ AND UNDERSTAND ALL REGULATORY CONDITIONS ASSOCIATED WITH THE PROJECT AND SHALL COMPLY WITH ALL ENVIRONMENTAL REQUIREMENTS AND PERMIT CONDITIONS.
 - CONTRACTOR SHALL PROVIDE A CONFINED CONCRETE TRUCK WASHDOWN AREA AT A LOCATION TO BE APPROVED BY THE ENGINEER. WASHDOWN AREA SHALL INCLUDE PROTECTION TO PAVEMENT, A PERIMETER WALL AND A FILTER FABRIC LINER. NO RUNOFF CONTAINING CEMENT OR OTHER SUSPENDED SOLIDS WILL BE PERMITTED. ALL MATERIALS SHALL BE COMPLETELY REMOVED UPON COMPLETION OF CONSTRUCTION AND DISPOSED OF AT AN APPROVED DISPOSAL LOCATION.

- CODES:
- MAINE DOT STANDARD SPECIFICATIONS, MARCH 2020 ED. WITH SUPPLEMENTAL SPECIFICATIONS THROUGH JUNE 16,2023.
 - MAINE UNIFORM BUILDING AND ENERGY CODE (MUBEC).
 - AMERICAN CONCRETE INSTITUTE (ACI) 318-14: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, 2014 ED.
 - CONCRETE REINFORCING STEEL INSTITUTE (CRSI):
 - AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC) STEEL CONSTRUCTION MANUAL, 15TH ED.
 - ALUMINUM ASSOCIATION, ALUMINUM DESIGN MANUAL, 2015 ED.
 - AMERICAN WOOD COUNCIL, NATIONAL DESIGN SPECIFICATIONS (NDS) FOR WOOD CONSTRUCTION, 2015 ED.

- SITE CONTROL AND BASELINES:
- PROJECT BASE PLAN HAS BEEN DEVELOPED FROM A COMPILATION OF MULTIPLE SURVEYS AS DESCRIBED UNDER "SURVEY AND PROPERTY NOTES".
 - ELEVATIONS ARE PROVIDED IN NAVD88 VERTICAL DATUM UNLESS OTHERWISE NOTED.
 - THE CONTRACTOR SHALL INSTALL SURVEY CONTROL AS NECESSARY TO PERFORM THE WORK. PERMANENT SURVEY CONTROL (AT LEAST 2 POINTS) SHALL BE ESTABLISHED FOR THE PROJECT AND PROTECTED FROM DAMAGE DURING CONSTRUCTION AND PROVIDED ON AS-BUILT DRAWINGS.
 - THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN PROJECT BASELINES AND CONTROL AS REQUIRED TO ENSURE ACCURATE LOCATION OF ALL ELEMENTS OF THE PROJECT.

- SURVEY AND PROPERTY NOTES:
- LOCUS PARCEL IS DEPICTED ON CITY OF BIDDEFORD, TAX MAP 52, LOT 4 AND IS LOCATED IN THE INSTITUTIONAL (IN) ZONE. A PORTION OF THE SITE IS LOCATED IN THE LIMITED RESIDENTIAL (LR) SHORELAND OVERLAY DISTRICT.
 - THE RECORD OWNER IS THE UNIVERSITY OF NEW ENGLAND, BY DEED DATED APRIL 18, 1962, RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 1484, PAGE 0145.
 - UPLAND TOPOGRAPHY AND BASE SURVEY INFORMATION DEPICTED HEREON ARE BASED ON THE FOLLOWING SURVEYS:
 - "TOPOGRAPHIC SURVEY, MARINE SCIENCE CENTER, UNIVERSITY OF NEW ENGLAND" BY OWEN HASKELL, INC. DATED DEC. 13, 2022.
 - "TOPOGRAPHIC SURVEY AT MARINE SCIENCE CENTER" BY STATEWIDE SURVEYS, INC., DATED MAY 4, 2015.
 - HYDROGRAPHIC DATA DEPICTED HEREON IS BASED ON 2022 SURVEY BY OWEN HASKELL SURVEY.
 - FEDERAL CHANNEL LIMITS ARE DEPICTED BASED ON THE PLAN, "SACO RIVER, SACE AND BIDDEFORD, MAINE, CONDITION SURVEY" PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS, DATED JULY 3, 2021.
 - HORIZONTAL COORDINATES ARE BASED ON NAD83 MAINE STATE PLANE WEST ZONE-1801 AND ARE EXPRESSED IN FEET. ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM AND CONTROL POINTS PROVIDED BY UNE.
 - UTILITY INFORMATION DEPICTED HEREON IS BASED ON FEBRUARY 2023 UTILITY LOCATION SURVEY PERFORMED BY BLOOD HOUND, LLC UNDERGROUND UTILITY LOCATORS AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTACT DIG SAFE (1-888-DIG-SAFE) AND VERIFY EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
 - PORTIONS OF THE PROPERTY ARE DEPICTED AS BEING IN A SPECIAL FLOOD HAZARD AREA BASED ON FEMA PRELIMINARY FIRM 23031C0459G DATED APRIL 14, 2017. THE SITE IS LOCATED IN A VE ZONE HAVING BASE FLOOD ELEVATION OF 14 FT NAVD88.
 - SUBSURFACE INFORMATION IS BASED ON EXPLORATIONS PERFORMED IN 2015 AND 2022 CONSISTING OF BORINGS, PROBES, AND TEST PITS. REFER TO SHEETS B-001 - B-005 FOR SUBSURFACE INFORMATION.

- CONCRETE
- CAST IN PLACE CONCRETE SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS BASED ON THE MAINE DOT STANDARD SPECIFICATION:

LOCATION	MDOT CLASS	f _c
ALL CONCRETE	CLASS LP	5,000 PSI
 - ALL REINFORCEMENT SHALL BE NEW DEFORMED BARS, GRADE 60 CONFORMING TO ASTM A615, HOT DIP GALVANIZED ACCORDING TO ASTM A767/A767M OR ASTM A1094/A1094M.
 - REINFORCEMENT ACCESSORIES SHALL BE DIELECTRIC COATED STEEL OR APPROVED PLASTIC.
 - GROUT SHALL BE A HIGH STRENGTH, NON-SHRINK GROUT WITH SALT WATER RESISTANCE.
 - CONCRETE COVER SHALL BE A MINIMUM OF 3 INCHES UNLESS NOTED OTHERWISE.
 - ALL EXPOSED EDGES OF CONCRETE AT COLD JOINTS SHALL HAVE A ROUGHENED FINISH AND BE COATED WITH EPOXY BONDING AGENT PRIOR TO CASTING ADJACENT POUR.
 - PROVIDE 1 INCH CHAMFER ON ALL EXPOSED EDGES UNLESS NOTED OR DIRECTED OTHERWISE.
 - TOP SURFACE OF EXPOSED CONCRETE SHALL RECEIVE A BROOM FINISH.
 - COAT FINISHED SURFACES OF CONCRETE WITH A 100% SILANE PENETRATING CONCRETE SEALER SUITABLE FOR USE IN A MARINE ENVIRONMENT. SEALER SHALL BE LISTED ON THE MAINE DOT QUALIFIED PRODUCTS LIST.
 - REINFORCEMENT DEVELOPMENT AND LAP SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH ACI 318.
 - CONCRETE MIX DESIGN SHALL INCLUDE THE USE OF CORROSION INHIBITING ADMIXTURE AT DOSAGE SUITABLE FOR USE IN AN AGGRESSIVE MARINE ENVIRONMENT. CORROSION INHIBITOR SHALL BE LISTED ON THE MAINE DOT QUALIFIED PRODUCTS LIST.

- EPOXY ANCHORS
- ANCHOR ROD, WASHERS, AND NUTS SHALL CONFORM TO ASTM F1554, GRADE 36, AND SHALL BE HOT DIP GALVANIZED.
 - THE MINIMUM EDGE DISTANCE AND MINIMUM SPACING FOR ALL ANCHORS SHALL BE 6 BOLT DIAMETERS.
 - ALL HOLES SHALL BE DRILLED TO THE RECOMMENDED DIAMETER PER MANUFACTURERS REQUIREMENTS USING CARBIDE DRILL BITS MEETING ANSI B212.5-1994.
 - HOLES SHALL BE BRUSHED WITH NYLON BRUSH AND BLOWN CLEAN USING OIL-FREE COMPRESSED AIR A MINIMUM OF TWO TIMES.
 - ALL HOLES SHALL BE FREE OF STANDING WATER BEFORE INSTALLING ANCHORS.
 - EPOXY SHALL HAVE MINIMUM BOND STRENGTH OF 1,600 PSI @ 14 DAYS.

- EARTHWORK
- EARTHWORK MATERIALS SHALL MEET THE FOLLOWING SPECIFICATIONS:

AGGREGATE BASE	TYPE A (MDOT 703.06A)
AGGREGATE SUBBASE	TYPE D (MDOT 703.06C)
WALL BACKFILL	CRUSHED STONE 3" (MDOT 703.13)
DRAINAGE STONE	CRUSHED STONE 2 INCH (MDOT 703.31)
ORDINARY BORROW	SEE #2 BELOW.
 - ORDINARY BORROW SHALL BE EXISTING GRANULAR SOIL WITH MAXIMUM 4 INCH STONE SUBJECT TO APPROVAL BY THE ENGINEER. ALL DEBRIS OR OTHER DELETERIOUS MATERIALS SHALL BE REMOVED FROM ORDINARY BORROW PRIOR TO REUSE.

- STEEL
- STEEL ANGLE, STRAPS, AND MISCELLANEOUS FABRICATIONS SHALL BE ASTM A36 HOT DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED.
 - ALL FASTENERS SHALL BE HOT-DIP GALVANIZED OR STAINLESS STEEL.
 - ALL BOLTS SHALL CONFORM TO ASTM A307. MINIMUM SIZE SHALL BE $\frac{5}{8}$ INCH UNLESS OTHERWISE NOTED.

- HEAVY TIMBER
- UNLESS OTHERWISE SPECIFIED, ALL TIMBER FRAMING TO BE USED SHALL BE NO. 1 AND BETTER SOUTHERN PINE AS GRADED BY SPIB AND WITH DESIGN VALUES PER NDS 2015.
 - ALL TIMBER SHALL BE NEW AND SUPPLIED WITH NOMINAL DIMENSIONS UNLESS OTHERWISE NOTED.
 - ALL NEW SOUTHERN YELLOW PINE TIMBER MEMBERS TO WHICH THE PUBLIC MAY BE EXPOSED SHALL BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) IN ACCORDANCE WITH AWP& AWPB W/ MINIMUM RETENTION OF 0.40 LBS. PER CUBIC FOOT. ALL OTHER SOUTHERN YELLOW PINE MEMBERS SHALL BE CCA TREATED TO 2.5 PCF RETENTION.
 - ALL EXPOSED EDGES SHALL BE PLANED OR SANDED TO PROVIDE SMOOTH SURFACE FREE OF ROUGH EDGES OR DEFECTS.
 - ALL EXPOSED FASTENERS SHALL BE COUNTERSUNK.
 - DOCK WASHERS SHALL BE PROVIDED BENEATH NUT OR BOLT HEAD OF ALL TIMBER BOLTED CONNECTIONS. TIMBER BOLTS SHALL BE CONSIDERED AN ACCEPTABLE ALTERNATIVE TO HEX HEADED BOLTS WITH DOCK WASHERS.
 - STANDARD WASHERS SHALL BE PERMISSIBLE WHERE CONNECTED PARTS INCLUDE STEEL PLATES, ANGLES, BRACKETS, OR BACKER PLATES.

- TIMBER PILES
- TIMBER PILES SHALL BE TROPICAL GREENHEART AND SHALL CONFORM TO ASTM D25.
 - PROVIDE PROTECTION TO PILE TIP AND BUTT TO AVOID DAMAGE DURING DRIVING.
 - PILES SHALL BE ORDERED MINIMUM 5 FT LONGER THAN TABULATED LENGTHS TO ALLOW FOR INSTALLATION VARIABILITY AND CUTOFF.
 - ALL TIMBER PILES SHALL BE DRIVEN TO THE MINIMUM EMBEDMENT OR CAPACITY CRITERIA INDICATED IN THE PILE SCHEDULE. FENDER PILLES MAY BE INSTALLED TO THE REQUIRED DEPTH USING A VIBRATORY HAMMER. IN THE EVENT THAT A VIBRATORY HAMMER IS UNABLE TO ACHIEVE THE MINIMUM REQUIRED EMBEDMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR COMPLETING FINAL SET USING AN IMPACT HAMMER.
 - GREENHEART PILES SHALL BE Banded WITH $\frac{1}{2}$ INCH STAINLESS STEEL UTILITY STRAPPING PRIOR TO CUTOFF. REFER TO DETAIL ON SHEET S-009.

- ASPHALT
- PAVING GRADES SHALL PITCH TO EXISTING STRUCTURES.
 - PAVEMENT SHALL CONSIST OF 4" OF HOT MIX ASPHALT PLACED IN TWO COURSES, SEE DETAIL.
 - CONTRACTOR TO SAW CUT PAVEMENT AT LIMIT OF REMOVAL.
 - CONTRACTOR TO PROVIDE SMOOTH TRANSITIONS BETWEEN NEW AND EXISTING ASPHALT.
 - CONTRACTOR TO SEAL JOINT BETWEEN NEW AND EXISTING ASPHALT WITH BITUMINOUS JOINT SEALANT.

- GEOTEXTILE
- GEOTEXTILE SEPARATION FABRIC SHALL BE MIRAFI FW700 OR EQUIVALENT.
 - OVERLAP ALL SEAMS MINIMUM 2 FT.
 - INSTALL PER MANUFACTURERS RECOMMENDATIONS.

- STEEL PIPE PILES
- STEEL PIPE PILES SHALL CONFORM TO ASTM A252, GRADE 3.
 - ALL PILES SHALL BE SEAMLESS.
 - AN OPEN CUTTING SHOE IS REQUIRED.
 - PIPE PILES SHALL BE COATED WITH FUSION BONDED EPOXY, COLOR BROWN. MINIMUM COATING THICKNESS SHALL BE 18-20 MIL. COATING SHALL EXTEND FROM TOP OF PILE DOWN TO MINIMUM 5-FEET BELOW GRADE.
 - DAMAGE TO ANY STEEL COATING SHALL BE TOUCHED UP BY THE CONTRACTOR USING APPROVED MATERIALS AND METHODS.
 - ALL PILES SHALL BE FILLED TO THE TOP WITH CONCRETE AFTER INSTALLATION. ROCK-SOCKETED PILES SHALL BE CLEANED OUT AND FILLED FOR THEIR ENTIRE LENGTH PRIOR TO CONCRETE FILLING. DRIVEN PILES SHALL BE CLEANED OUT TO MINIMUM 10-FEET BELOW ADJACENT MUDLINE.
 - REFER TO PILE SCHEDULE ON SHEET S-005 FOR ESTIMATED PILE LENGTHS, COATING LENGTHS, SIZES, AND SOCKETING REQUIREMENTS.

- TIMBER FLOATS
- LOAT MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A MAINE LICENSED PROFESSIONAL ENGINEER. MANUFACTURER SHALL BE RESPONSIBLE FOR FINAL DETERMINATION OF FLOAT FRAMING AND DRUM LAYOUT TO MEET BOUYANCY, LOADING, AND ENVIRONMENTAL EXPOSURE REQUIREMENTS IN ACCORDANCE WITH THE SPECIFICATIONS.
 - UNLESS OTHERWISE SPECIFIED, ALL TIMBER TO BE USED SHALL BE NO. 1 AND BETTER SOUTHERN PINE AS GRADED BY SPIB AND WITH DESIGN VALUES PER NFPA NATIONAL DESIGN SPECIFICATION OR THE EQUIVALENT FOR DOUGLAS FIR AS GRADED BY WCLIB AND WWPA.
 - ALL TIMBER SHALL BE NEW AND SUPPLIED WITH NOMINAL DIMENSIONS.
 - ALL TIMBER MEMBERS TO WHICH THE PUBLIC MAY BE EXPOSED SHALL BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) IN ACCORDANCE WITH AWP& AWPB W/ MINIMUM RETENTION OF 0.40 LBS. PER CUBIC FOOT. ALL OTHER SOUTHERN YELLOW PINE MEMBERS SHALL BE CCA TREATED TO 2.5 PCF RETENTION.
 - DECKING SHALL BE NO. 1 SOUTHERN PINE, MINIMUM SIZE 2X6.
 - MISC. HARDWARE: GALVANIZED STEEL PLATES AND ALL BOLTS AND RELATED HARDWARE SHALL BE FASHIONED FROM STEEL AND GALVANIZED AFTER FABRICATION AND IN ACCORDANCE WITH REQUIREMENTS OF ASTM A123, AND/OR A153. BOLTS AND NUTS SHALL CONFORM TO ASTM A307.
 - CONNECTION HARDWARE SHALL BE FABRICATED FROM ASTM-A36 GRADE STEEL WITH MINIMUM THICKNESS $\frac{1}{4}$ ".
 - PROVIDE GUIDE/WEARING BRACKETS AT GANGWAY LANDING ON FLOAT 'C' PER DETAIL A ON SHEET S-012. BRACKETS SHALL BE LOCATED IN FIELD TO BE CENTERED ON GANGWAY RANGE OF TRAVEL AT MID-TIDE ELEVATION.
 - TRANSITIONS BETWEEN FLOATING DOCKS SHALL INCLUDE ADA COMPLIANT TRANSITION PLATES ACROSS GAPS AT HINGE LOCATIONS.
 - FLOATING DOCKS SHALL MEET THE FOLLOWING LOADING AND FREEBOARD CRITERIA:

DEAD LOAD	20 INCH FREEBOARD
20 PSF UNIFORM LIVE LOAD	MINIMUM 8 INCH FREEBOARD
40 PSF UNIFORM LIVE LOAD	MINIMUM ZERO FREEBOARD

DEAD LOADS SHALL INCLUDE ALL COMPONENTS AND ATTACHMENTS INCLUDING WEIGHT OF ALUMINUM GANGWAY BEARING ON FLOAT 'C'.

- ALUMINUM GANGWAY
- GANGWAY MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A MAINE LICENSED PROFESSIONAL ENGINEER. MANUFACTURER SHALL BE RESPONSIBLE FOR FINAL DETERMINATION OF GANGWAY FRAMING AND CONFIGURATION TO MEET STRUCTURAL, PERFORMANCE, AND ACCESSIBILITY REQUIREMENTS IN ACCORDANCE WITH THE SPECIFICATIONS.
 - GANGWAY SHALL MEET THE FOLLOWING LOADING AND DEFLECTION CRITERIA:
 - DEAD LOAD SHALL CONSIST OF WEIGHT OF THE ENTIRE GANGWAY STRUCTURE PLUS ANY UTILITIES AND ATTACHMENTS.
 - ALLOWABLE STRESSES IN DECK SURFACE, GANGWAY FRAMING, AND MOUNTING COMPONENTS SHALL NOT BE EXCEEDED AT A UNIFORM LIVE LOAD OF 100 PSF.
 - 50 PSF UNIFORM LIVE LOAD MAX. DEFLECTION U/360
 - 100 PSF UNIFORM LIVE LOAD MAX. DEFLECTION NOT TO EXCEED GANGWAY CAMBER
 - ALL HANDRAIL AND POSTS SHALL BE DESIGNED TO WITHSTAND A 200 LB LOAD APPLIED IN ANY DIRECTION OR A 50 LB/FT LOAD APPLIED ALONG THE HANDRAIL LENGTH.
 - GANGWAY HINGES SHALL BE CAPABLE OF TRAVELING FREELY AND WITHOUT BINDING THROUGH THE ENTIRE RANGE OF WATER LEVELS FROM MLLW TO BASE FLOOD ELEVATION PLUS TWO-FEET OF ADDITIONAL ELEVATION IN EITHER DIRECTION.

FOR PERMIT

SHEET NAME			SHEET NO.	
GENERAL NOTES			G-002	
8	6/5/2025	ADDRESS PB COMMENTS	DJB	
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB	
6	9/17/2024	REVISED PERMIT SET	DJB	
5	6/27/2024	REVISED PERMIT SET	DJB	
4	9/14/2023	DEP PERMIT SET	DJB	
3	6/28/2023	75% DESIGN SUBMISSION	DJB	
2	2/15/2023	30% DESIGN SUBMISSION	DJB	
1	12/9/2022	15% DESIGN SUB REV	DJB	
0	11/11/2022	15% DESIGN SUBMISSION	DJB	
NO	DATE	ISSUE/REVISION	APP	

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

6/9/2025

Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703

GEI CONSULTANTS, INC.
5 MILK STREET
PORTLAND, ME 04101
(207)797-8901

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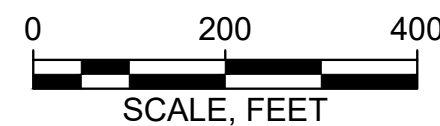
11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE



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Attention:

If this scale bar does not measure 1" then drawing is not original scale.

6/9/2025

Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



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UNIVERSITY OF
NEW ENGLAND
11 HILLS BEACH RD.
BIDDEFORD, MAINE

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MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
VICINITY PLAN	G-003

FOR PERMIT

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- LEGEND:**
- LB-1 BORINGS
 - ⊗ HP-1 PROBES
 - - - EXISTING CONTOUR
 - - - HAT SETBACK
 - - - MLLW
 - - - MHHW
 - - - HAT
 - - - BFE
 - - - 250' SHORELAND ZONE
 - - - TOP OF BANK
 - - - LEDGE
 - - - CENTER LINE
 - - - EDGE OF PAVEMENT
 - - - STRUCTURES

BORING LOCATIONS

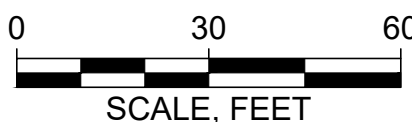
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
B-1	228639.4694	2895328.6104	W70.2258652	N43.2737588
LB-1	228491.1316	2895484.7460	W70.2256530	N43.2736127
LB-3	228473.9539	2895507.7880	W70.2256217	N43.2735958
LB-8	228394.7680	2895765.9460	W70.2252714	N43.2735182
WB-1	228600.2367	2895310.1868	W70.2258901	N43.2737200
WB-2	228618.6209	2895404.4100	W70.2257624	N43.2737384
WB-3	228587.8279	2895361.5094	W70.2258204	N43.2737079
WB-4	228566.1309	2895421.9060	W70.2257385	N43.2736866

BORING LOCATIONS

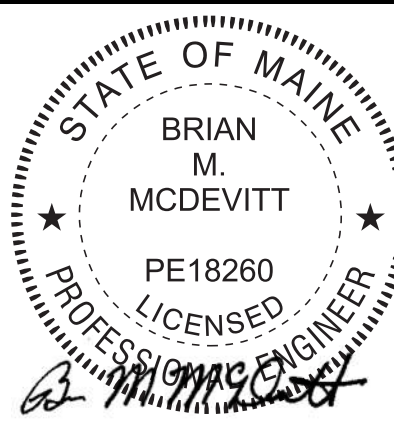
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
ADD-1	228452.7149	2895499.3250	W70.2256331	N43.2735748
ADD-8	228365.9058	2895759.6110	W70.2252799	N43.2734897
ADD-9	228340.5054	2895746.7690	W70.2252972	N43.2734646
HP-1	228497.6520	2895482.1026	W70.2256566	N43.2736191
HP-2	228513.6726	2895503.0285	W70.2256283	N43.2736350
HP-3	228533.1223	2895461.2100	W70.2256851	N43.2736541
HP-4	228547.8975	2895443.6208	W70.2257090	N43.2736686
P-1	228577.9008	2895403.9741	W70.2257628	N43.2736982
P-2	228559.0882	2895420.8334	W70.2257399	N43.2736796

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM



Attention:
0 1"
If this scale bar
does not measure
1" then drawing is
not original scale.



6/9/2025

Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



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BIDDEFORD, YORK COUNTY, MAINE

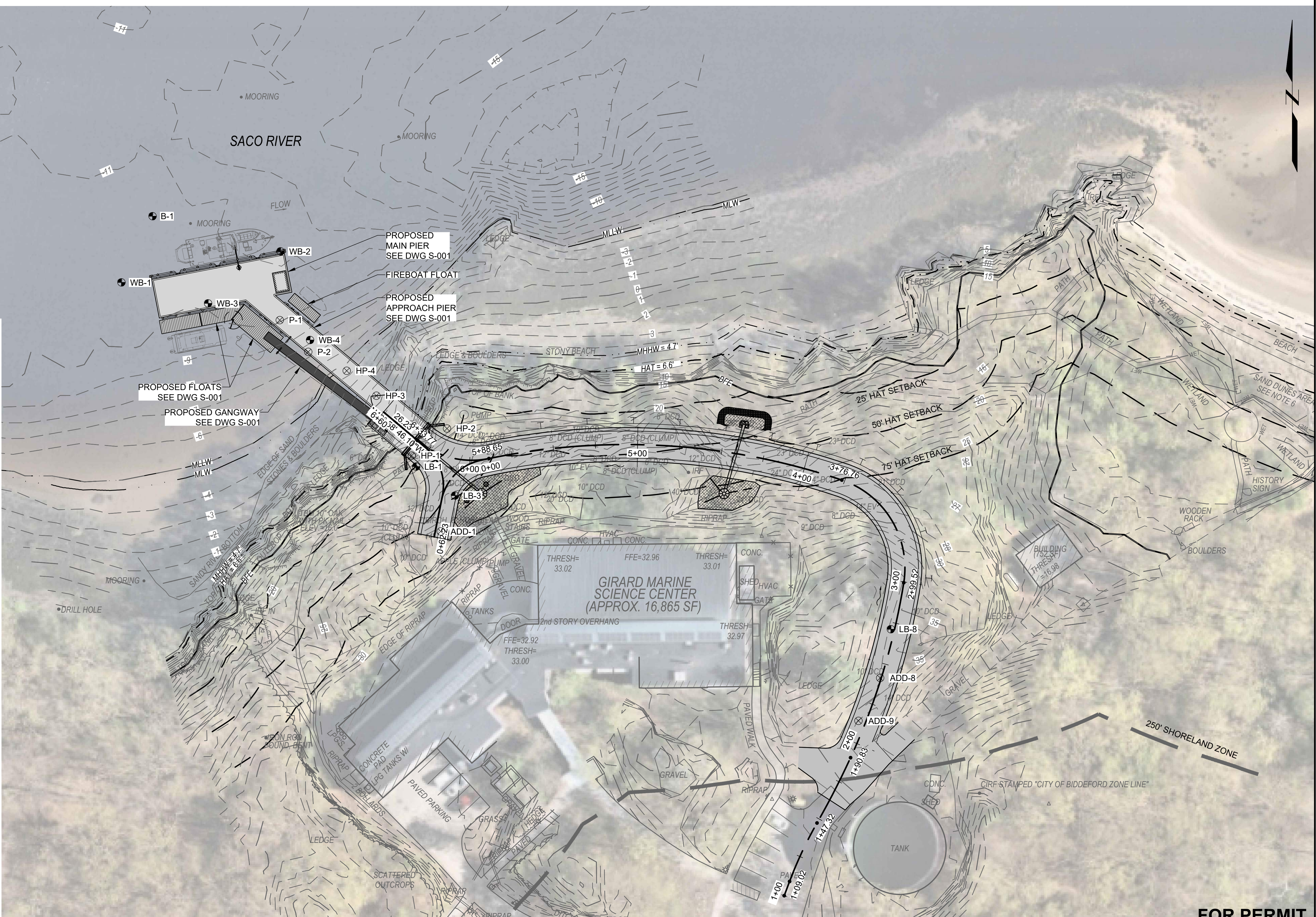
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0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME

**BORING LOCATION
PLAN**

SHEET NO.

B-001



FOR PERMIT

TEST BORING LOG										EXPLORATION NO.: B-1	
GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i> University of New England Marine Science Center Pier Biddeford, Maine										SHEET: 1 of 3 PROJECT NO.: 19.0025897.00 REVIEWED BY:	
Logged By: B. Cardall Drilling Co.: New England Boring Foreman: Brad Enos				Type of Rig: Barge Rig Model: Drilling Method: Drive and Wash				Boring Location: See Plan Ground Surface Elev. (ft.): -10.8 Final Boring Depth (ft.): -65.8 Date Start - Finish: 11/25/2015 - 11/10/2015		H. Datum: V. Datum: NAVD 88	
Hammer Type: Safety Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casting O.D./I.D Dia (in.):				Sampler Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NO				Groundwater Depth (ft.)		Time	
								Date		Water Depth	
Depth (ft.)	Casing (ft.)	Sample					Sample Description and Identification (Modified Burmister Procedure)		Remarks	Field Test Data	Stratum Description
		No.	Depth (ft.)	Pen (in)	Rec. (in)	Blows (per ft.)	SPT Value				Depth (ft.)
3	S-1	0-2	24	5	1	2		S-1: Very loose, brown, fine to coarse SAND, trace Silt.			
4						1					
6						2					
9						3					
16											
5	S-2	5-7	24	4	3	2		S-2: Loose, brown, fine to coarse SAND, trace Silt.			
9						2					
11						4					
10	S-3	10-12	24	3	1	2		S-3: Loose, brown, fine to coarse SAND, trace Silt.			SAND
8						2					
13						4					
15	S-4	15-17	24	8	2	2		S-4: Loose, brown, fine to coarse SAND, trace Silt.			
7						4					
28											
35											
31											
OPEN	S-5	20-22	24	7	7	3		S-5: Medium Stiff, gray, Silty CLAY, little fine Sand.			
1						4					
25	S-6	25-27	24	2	1	2		S-6: Soft, gray, Silty CLAY, little fine Sand.			SILTY CLAY
3						3					
1 - 4" casing installed to 20.0' below mudline (bmt), then wash ahead to 51.0' bmt.											

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock type. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-1

[illegible]

TEST BORING LOG

		University of New England Marine Science Center Pier Biddeford, Maine				EXPLORATION NO.: B-1 SHEET: 3 of 3 PROJECT NO.: 00.0025897.00 REVIEWED BY:											
Logged By: B. Cardal Drilling Co.: New England Boring Foreman: Brad Enos						Boring Location: See Plan Ground Surface Elevation (ft.): -10.6 Final Boring Depth (ft.): -65.8 Date Start - Finish: 11/02/15 - 11/10/15				H. Datum: V. Datum: NAVD 88							
Hammer Type: Safety Hammer Weight (lb.): 140 Hammer Fall (in.): 30 Auger or Casing O.D./I.D Dia (in.):						Sample Type: SS Sampler O.D. (in.): 2.0 Sampler Length (in.): 24 Rock Core Size: NO				Groundwater Depth (ft.)		Pneum.	Field Test Data	Stratum Description	Stratum Depth (ft.)		
						Date		Time		Water Depth						Stab. Time	
Depth (ft.) 65 70 75 80 85 90						Sample No. Depth (ft.) Pen (in) Blow (per 6 in) SPT Value						Sample Description and Identification (Modified Burmister Procedure) C-1: Hard, fresh, fine grained, gray, GNEISS. Joints are very close to closely spaced, moderately dipping, planar, rough to discolored. RDB = 31% C-2: Hard, fresh, fine grained, gray, GNEISS. Joints are extremely close to closely spaced, moderately dipping to high angle, planar, rough to smooth, fresh to discolored. RDB = 0% End of exploration at 65.8 feet.					
						C-1 61.6-61.7 32 32						3 61.6 GLACIAL TILL					
						C-2 64.3-65.8 18 18						65.8 GNEISS					

2015 BORING B-1

[illegible]

TEST BORING LOG

GEO Environmental, Inc.
Engineers and Scientists

University of New England
Marine Science Center Pier
Biddeford, Maine

EXPLORATION NO.: P-1
SHEET:
PROJECT NO.: 09.0025897.00
REVIEWED BY:

Logged By: B. Cardal
Drilling Co.: New England Boring
Foreman: Brad Enos

Type of Rig: Barge
Rig Model:
Drilling Method:
Rod Probe

Boring Location: See Plan
Ground Surface Elev. (ft.): -10.2
Final Boring Depth (ft.): 52.3
Date Start - Finish: 11/10/2015 - 11/10/2015

H. Datum:
V. Datum: NAVD 88

Hammer Type: Safety
Hammer Weight (lb.): 300
Hammer Fall (in.): 24
Auger or Casing O.D./I.D Dia (in.):

Sampler Type:
Sampler O.D. (in.):
Sampler Length (in.):
Rock Core Size:

Groundwater Depth (ft.)		
Date	Time	Water Depth

Depth (ft)	Coring (ft)	No.	Sample Depth Pen Rec (ft) (in)	Blows (per 6 in)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Penet. (ft)	Field Test Data	Stratum Description (ft)
24									
26									
28									
30									
32									
34									
36									
38									
40									
42									
44									
46									
48									
50									
52									
54									
56									
58									
60									
62									
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 GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>		University of New England Marine Science Center Pier Biddeford, Maine		EXPLORATION NO.: P-2 SHEET: 6 of 2 PROJECT NO: 05.0025897.00 REVIEWED BY:	
Logged By: B. Cardail Dilling Co.: New England Boring Foreman: Brad Enos		Type of Rig: Barge Rig Model: Drilling Method: Rod Probe		Boring Location: See Plan Ground Surface Elev. (ft.): -7.3 Final Boring Depth (ft.): 54.2 Date Start - Finish: 11/10/2015 - 11/10/2015	
Hammer Type: Safety Hammer Weight (lb.): 300 Hammer Fall (in.): 24 Auger or Casing O.D./I.D Dia (in.):		Sampler Type: Sampler O.D. (in.): Sampler Length (in.): Rock Core Size:		H. Datum: V. Datum: NAVD 88	
				Groundwater Depth (ft.)	
				Date	Time
				Water Depth	Stat. Time
Depth (ft)	Casing Cor. (ft)	No. Depth (ft)	Pen. (in)	Rac. (in)	Blows (per 6 in.)
	Rate	Sample		SPT Value	
Sample Description and Identification (Modified Barmeter Procedure)					
		Remarks		Field Test Date	Stratum Description
1					
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REMARKS

1 - Upon retrieval of probe rods, bottom 37' of rods was bent at an angle approximately 30-45 degrees off of the vertical indicating possible seeping rock at approximately 30.0' bent (EL 37.3).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the ends of the wells under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: P-2

GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>		University of New England Marine Science Center Pier Biddeford, Maine		EXPLORATION NO.: P-2 SHEET: 2 of 2 PROJECT NO: 06.0025897.00 REVIEWED BY:	
Logged By: B. Cardall Drill Co.: New England Boring Foreman: Brad Enos		Type of Rig: Barge Rig Model: Drilling Method: Rod Probe		Boring Location: See Plan Ground Surface Elev. (ft.): -7.3 Final Boring Depth (ft.): 54.2 Date Start - Finish: 11/10/2015, 11/11/2015	
Hammer Type: Safety Hammer Weight (lb.): 300 Auger or Casting O.D./I.D. (in.):		Sampler Type: Sampler O.D. (in.): Sampler Length (in.): Rock Core Size:		H. Datum: V. Datum: NAVD 88	
				Groundwater Depth (ft.)	
				Date	Time
				Water Depth	Stab. Time
Depth (ft.)	Casing Bore Diameter (in.)	Sample			Field Test Data
	No.	Depth (ft.)	Pen. (in.)	Rac. (in.)	Blows (per 6 in.)
	Page				SPT Value
Sample Description and Identification (Modified Burmister Procedure)					
→ Horizontal					
19					
27					
39					
35					
34					
42					
31					
36					
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46					
43					
45					
50					
41					
48					
50					
71					
50					
75					
55					
100'					
50					
50					
2 - Probe refusal at 54.2' mb (EI. -61.5').					
REMARKS					

2015 PROBE P-1

<i>Designed:</i>	DJB
<i>Drawn:</i>	JAM
<i>Checked:</i>	BJB
<i>Approved:</i>	BMM
<i>P.E. No:</i>	13033
<i>GEI Project</i>	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

**BORING LOGS
(SHEET 1 OF 3)**

SHEET NO.

B-002

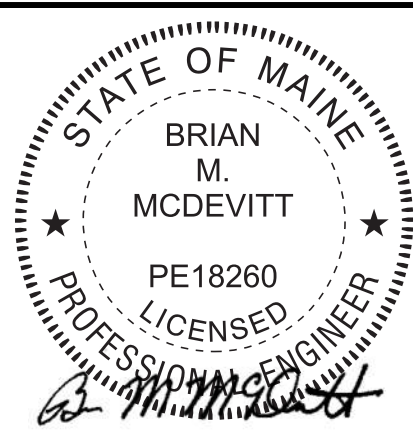
ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

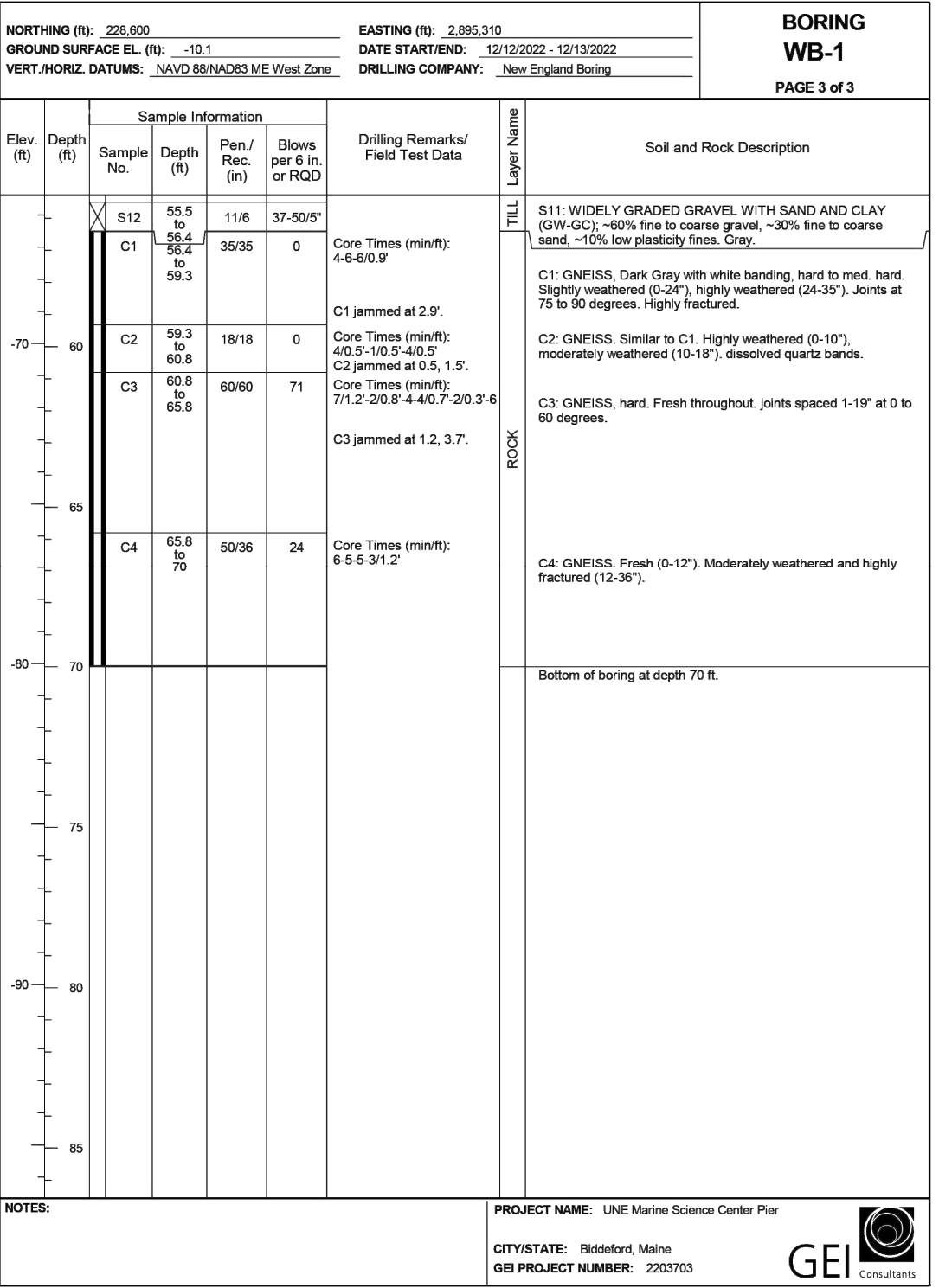
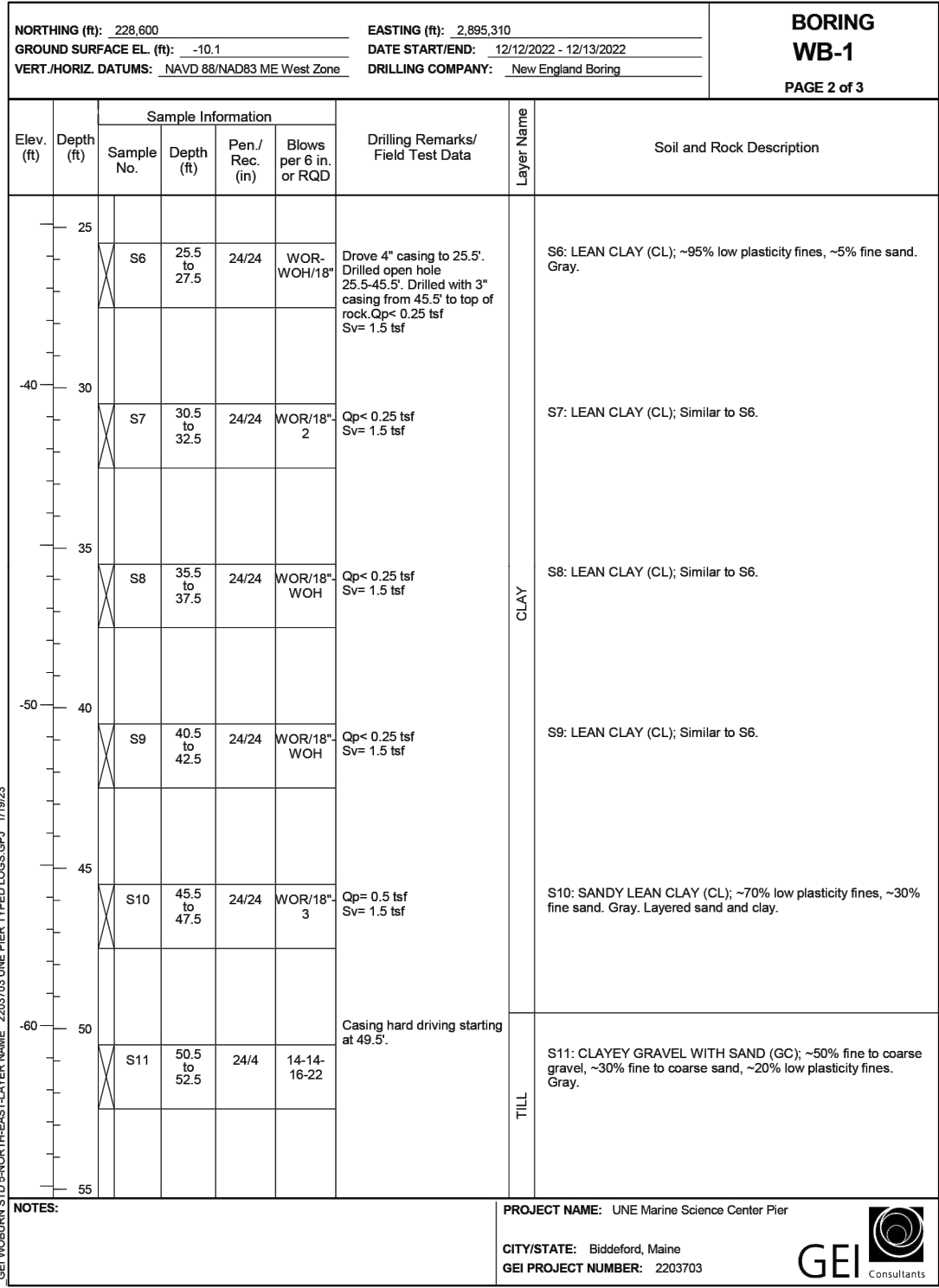
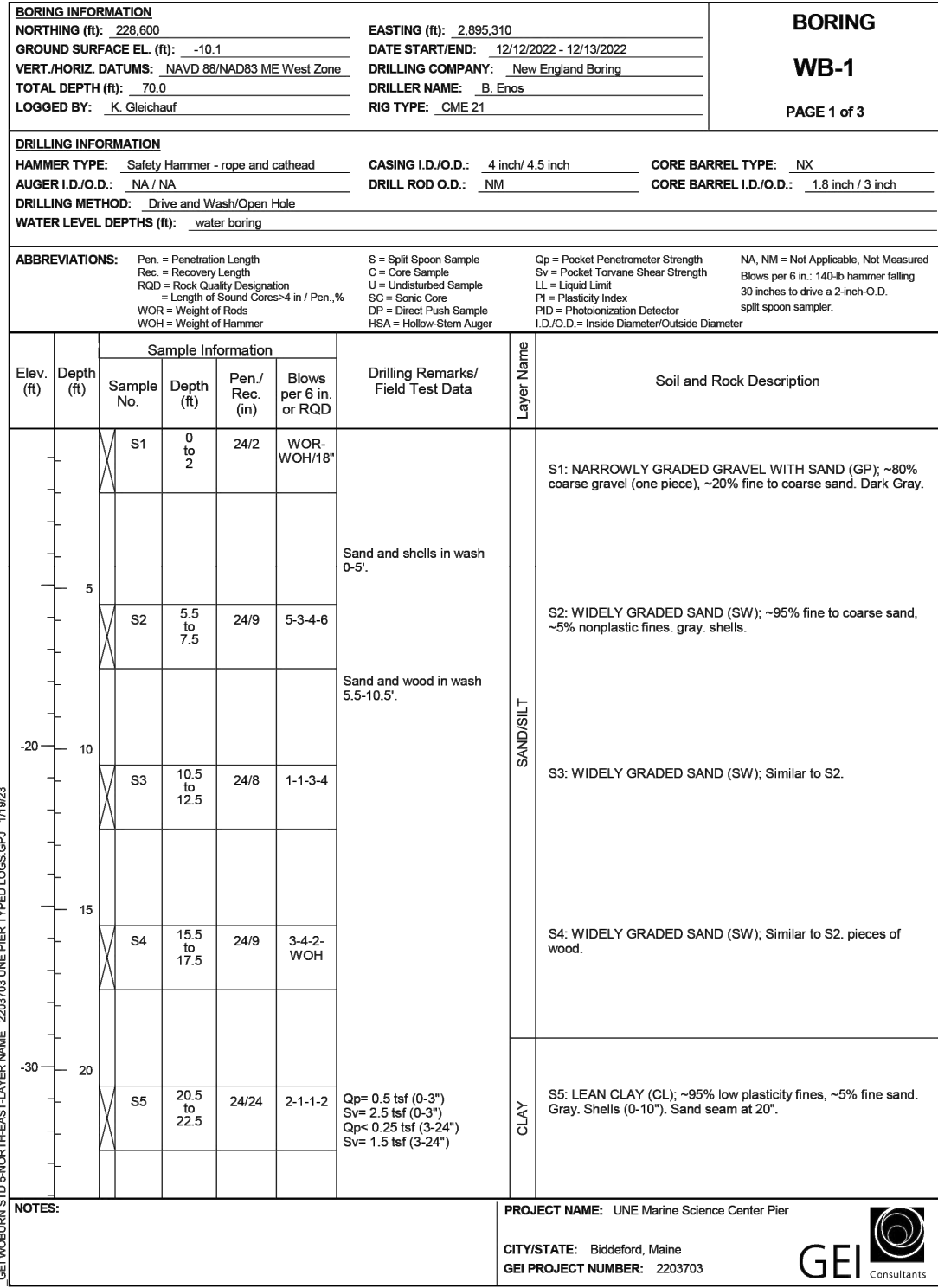
Attention:



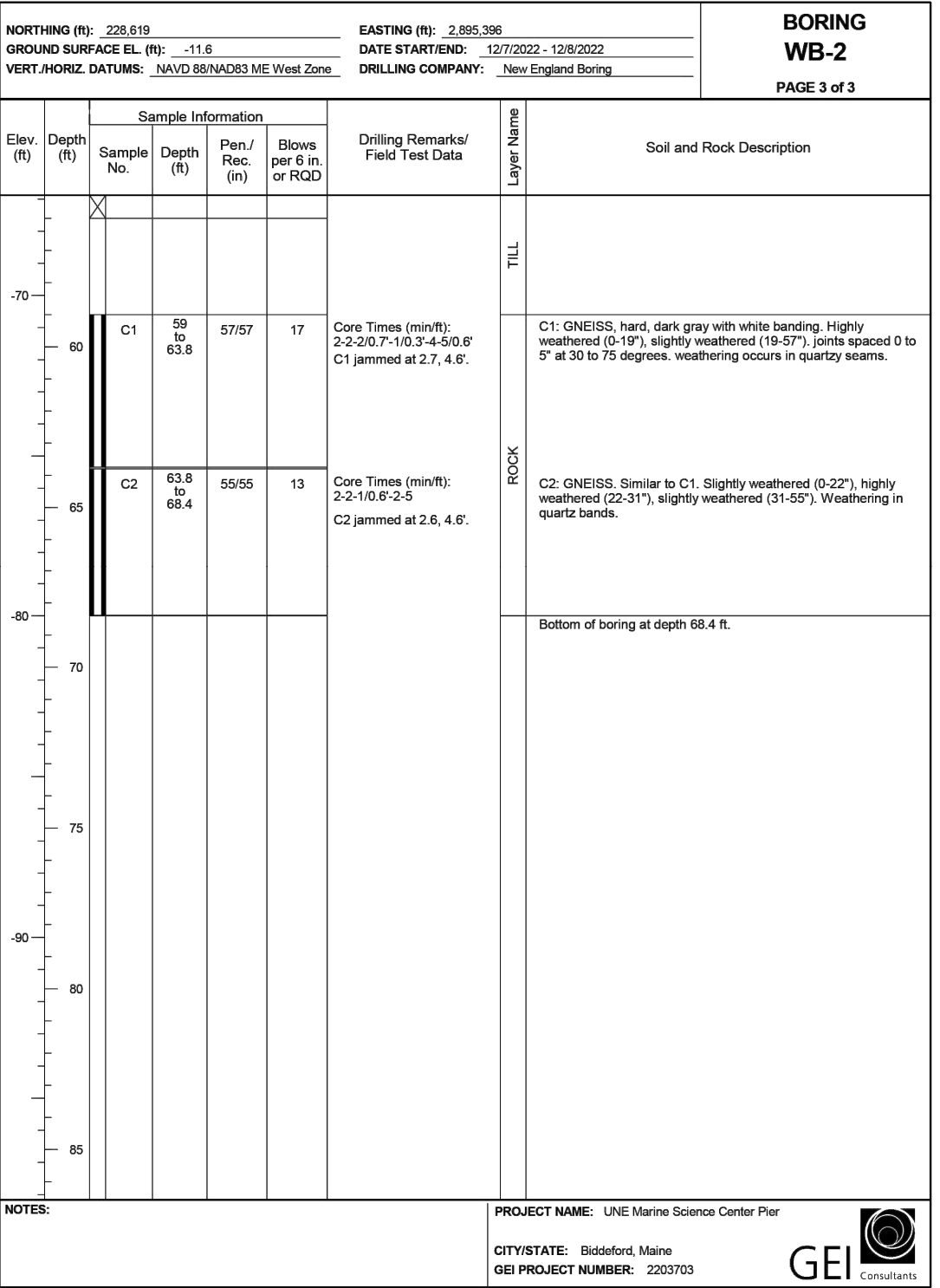
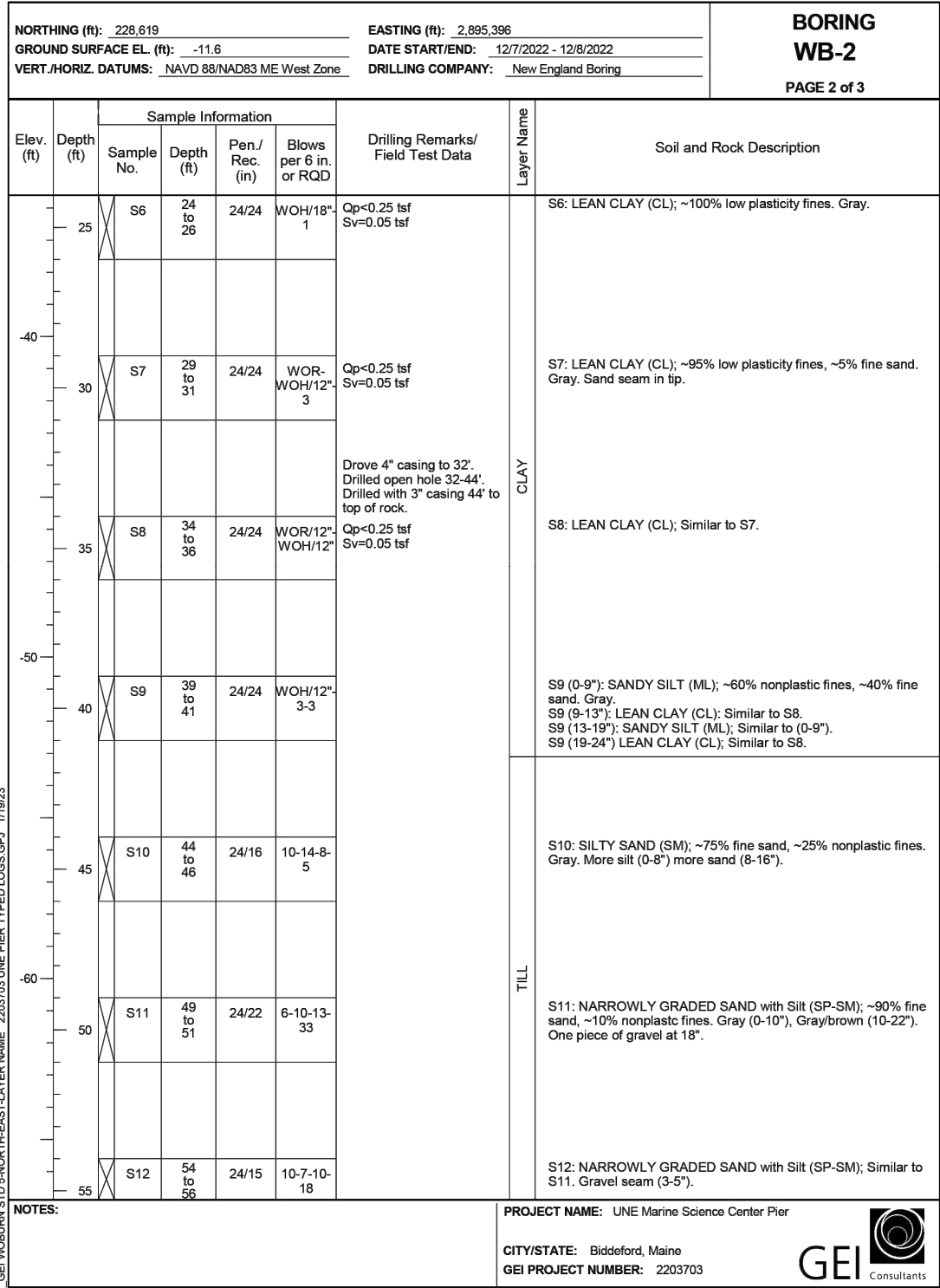
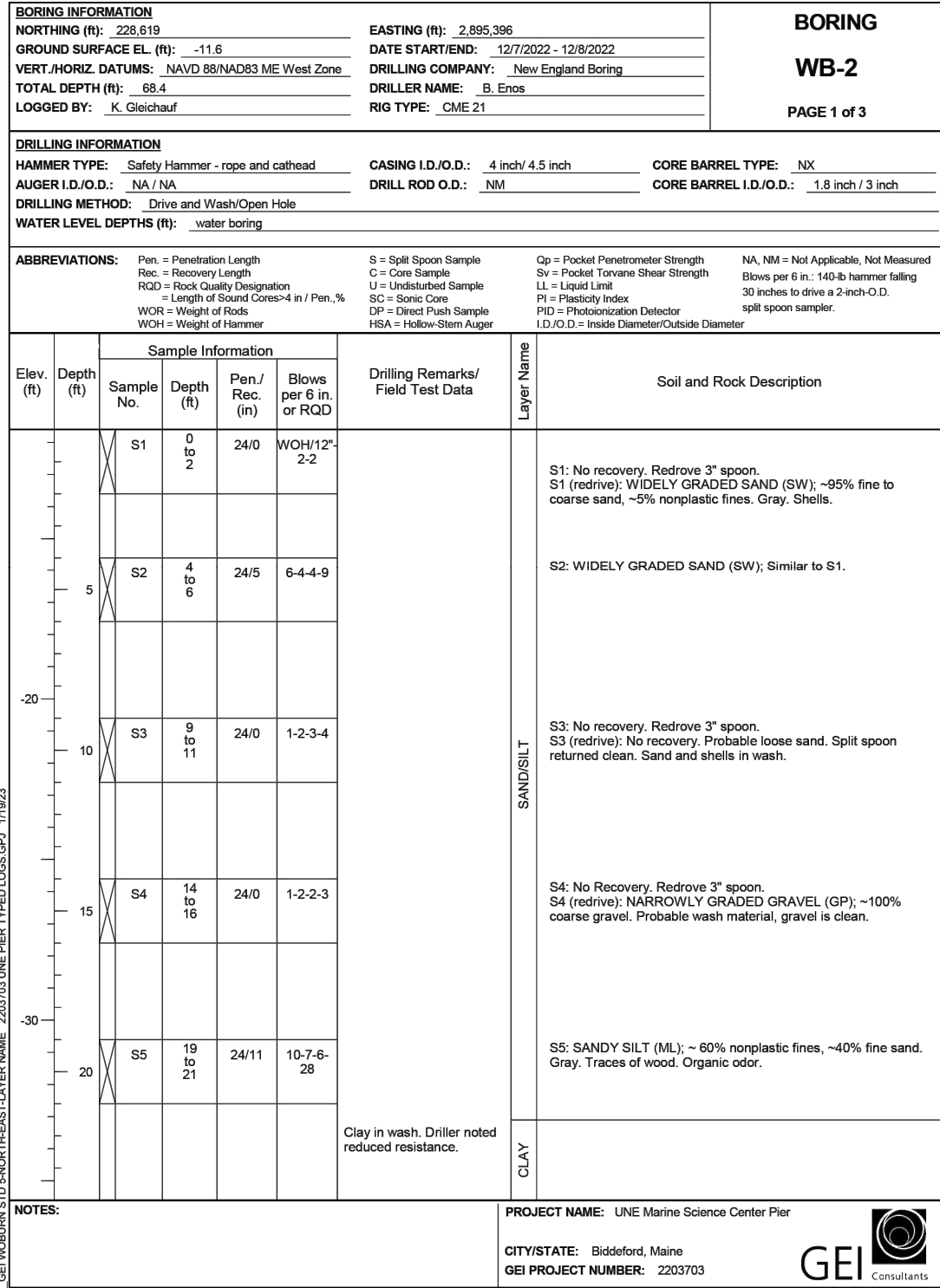
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then drawing is
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2022 BORING WB-1



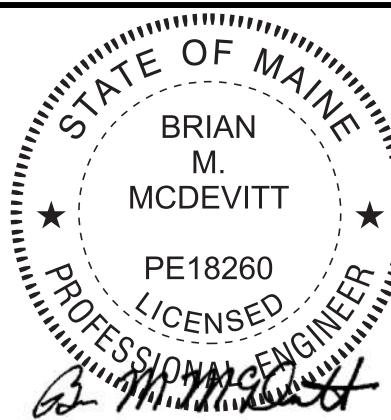
2022 BORING WB-2

FOR PERMIT

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



6/9/2025

Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



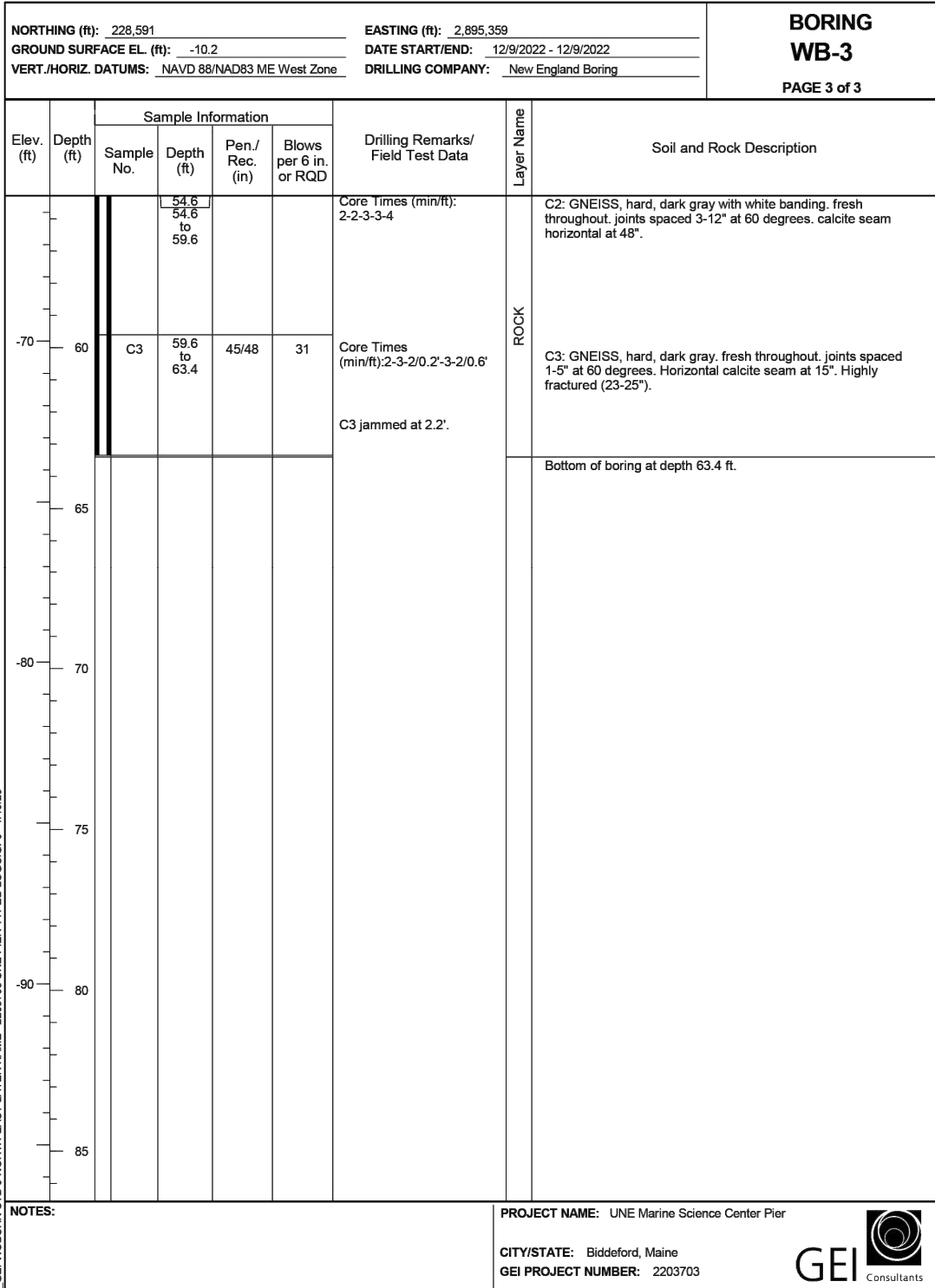
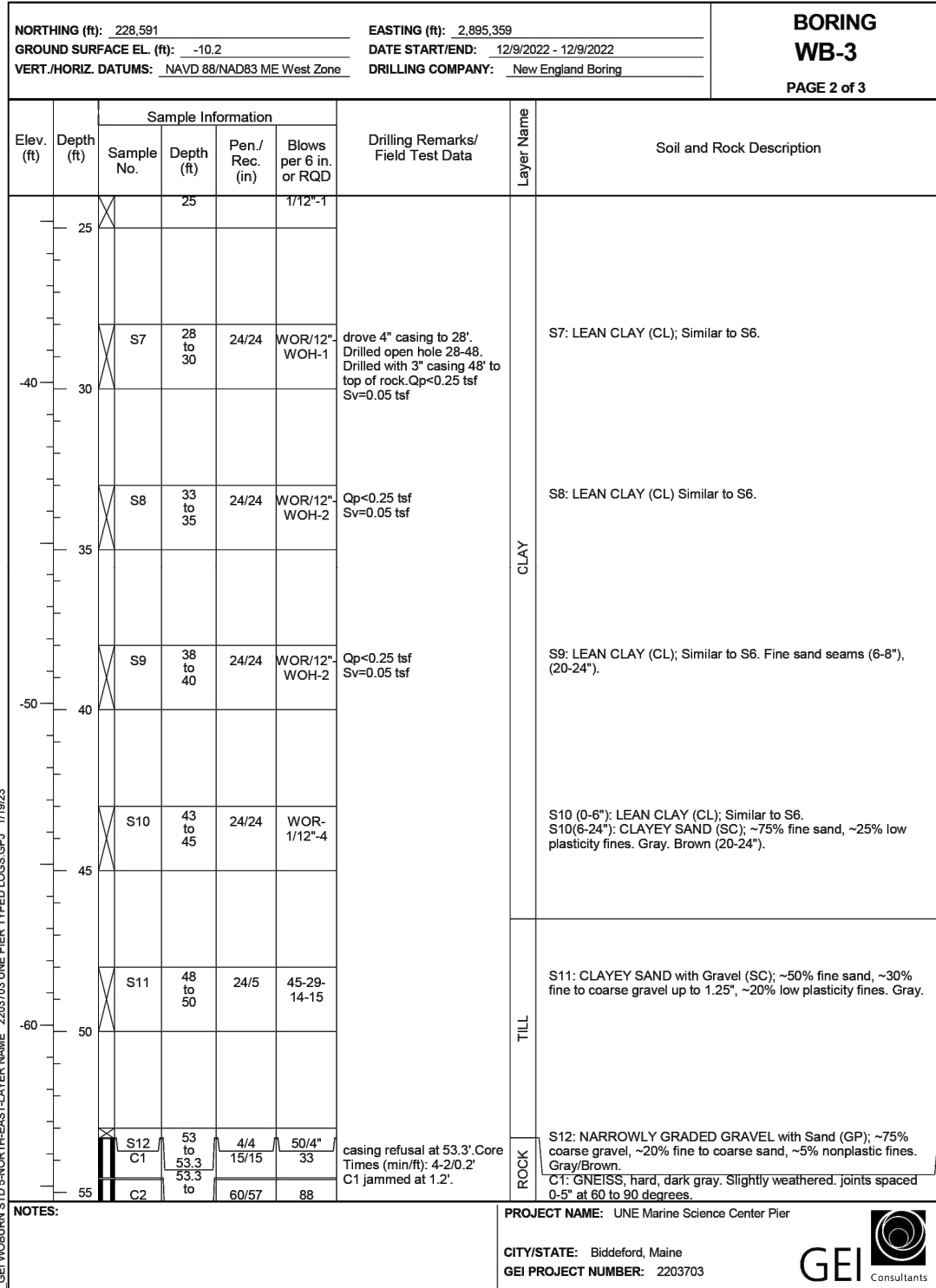
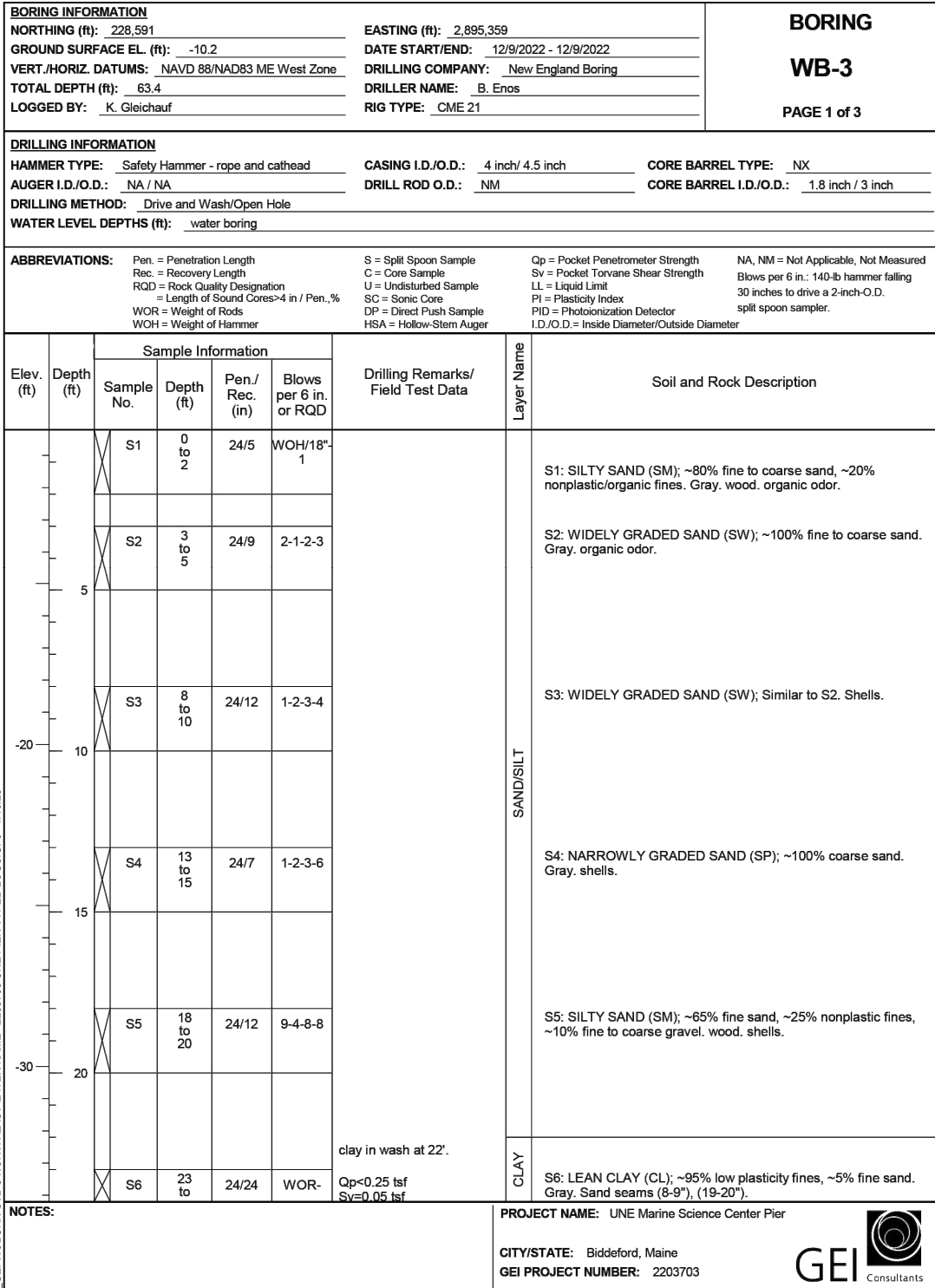
11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

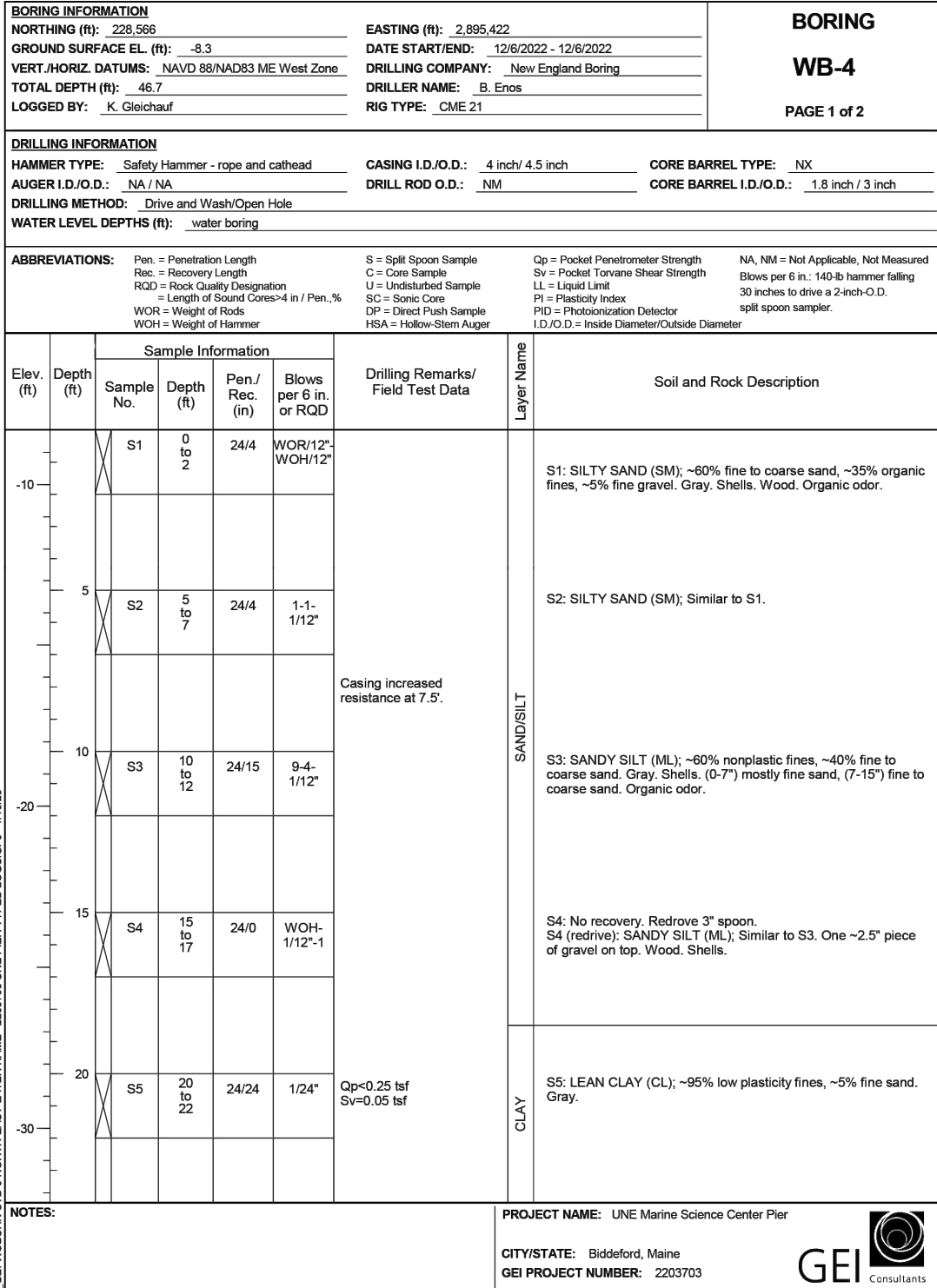
		ADDRESS PB COMMENTS	
8	6/5/2025		DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
BORING LOGS
(SHEET 2 OF 3)

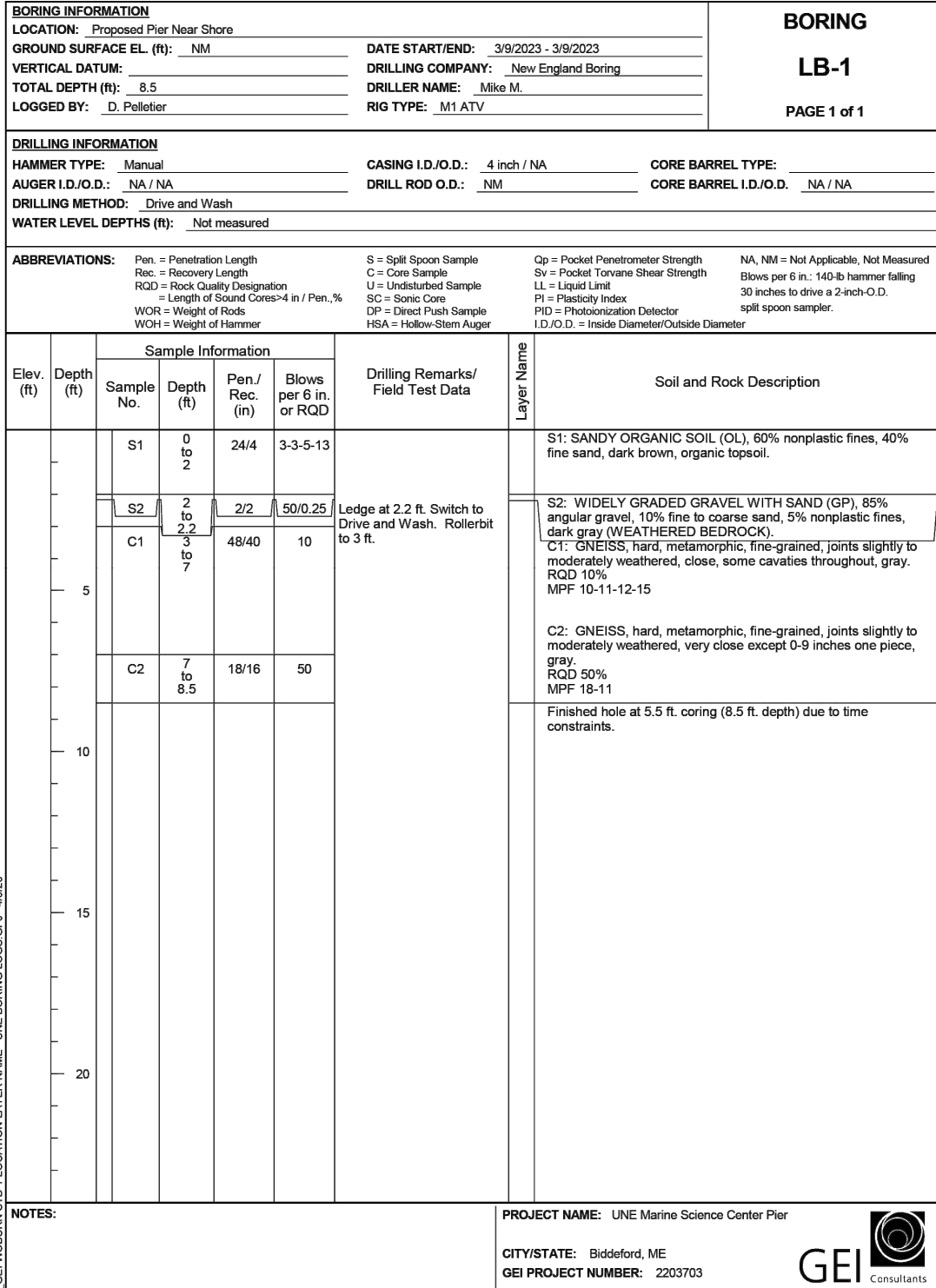
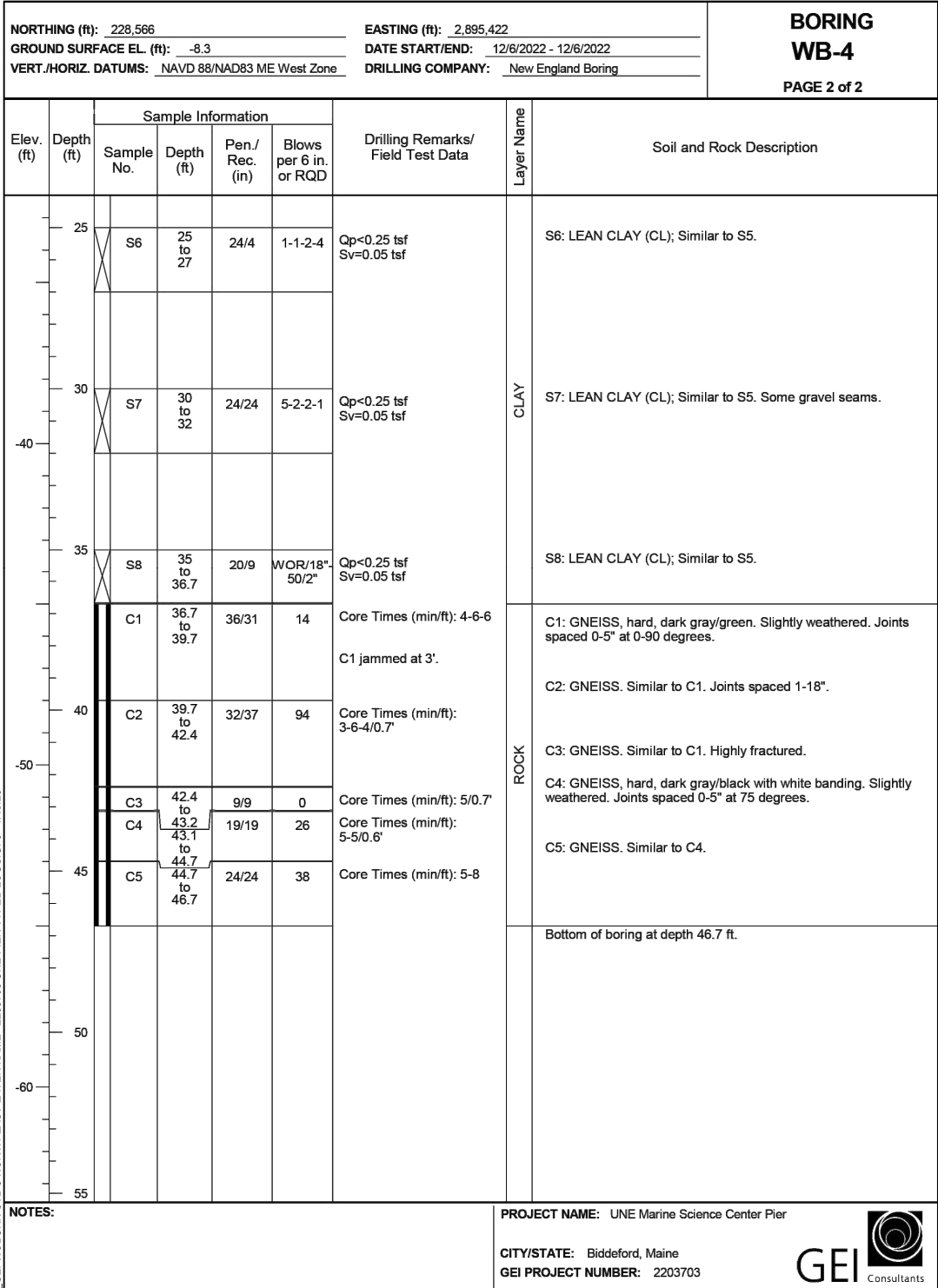
SHEET NO.
B-003



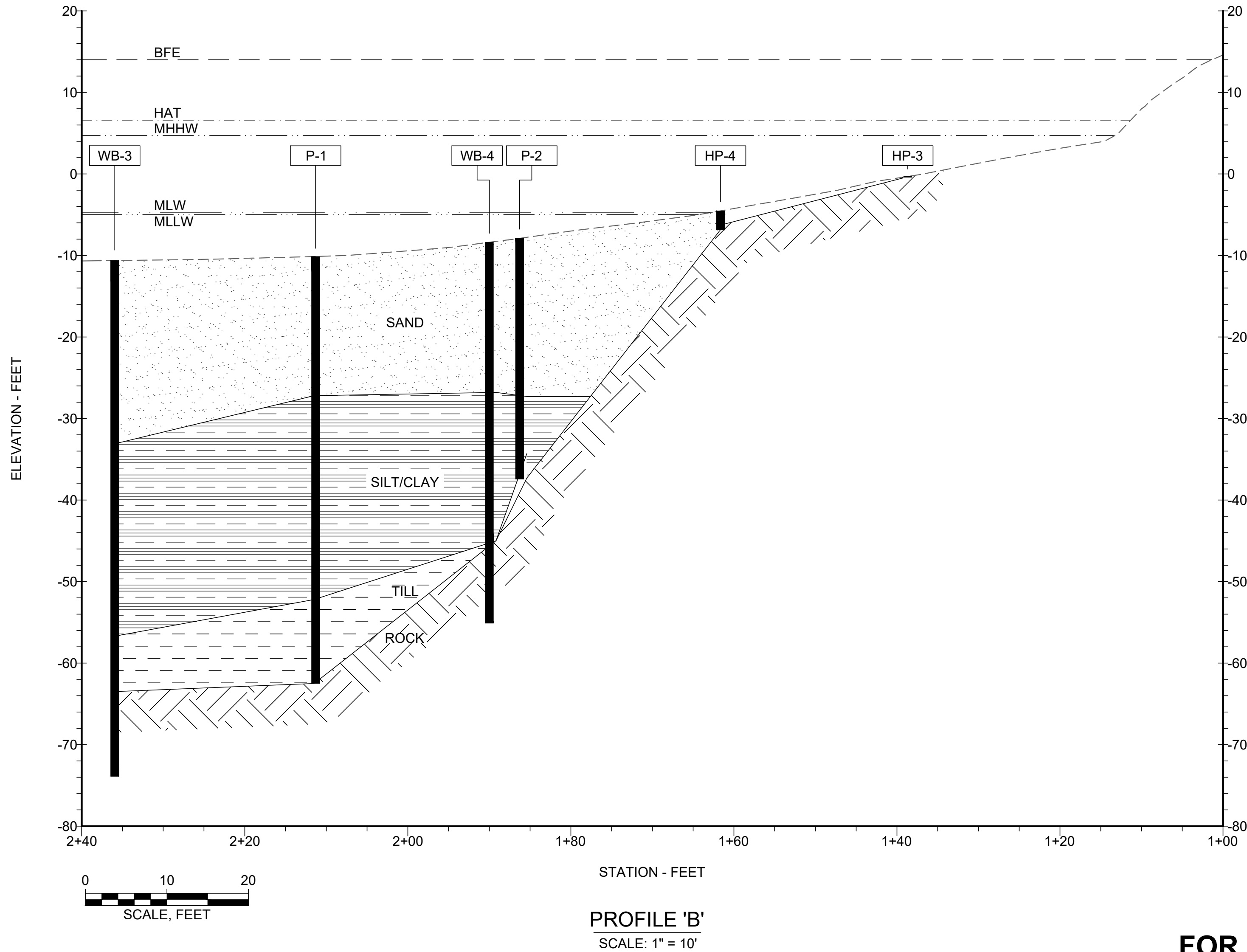
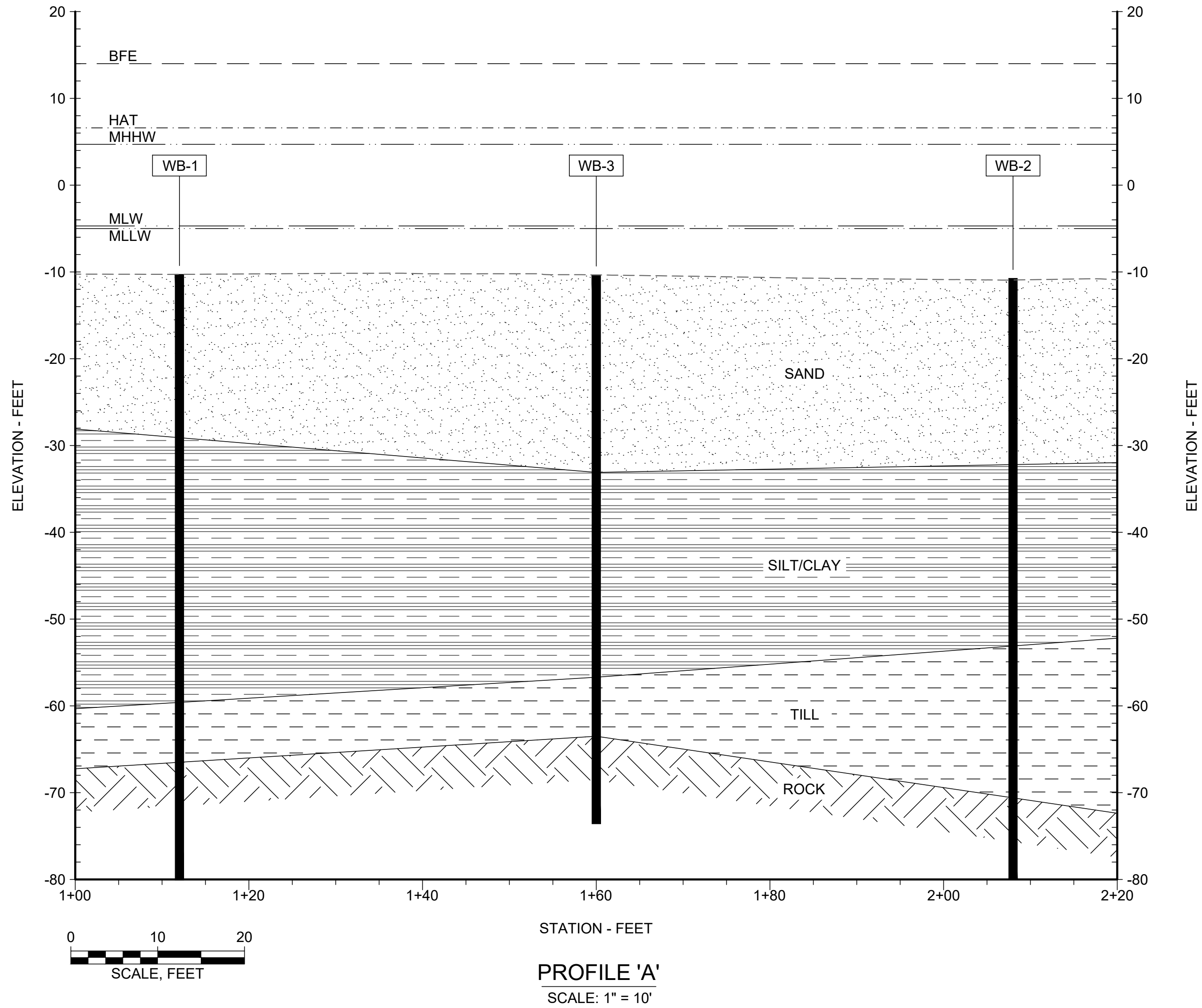
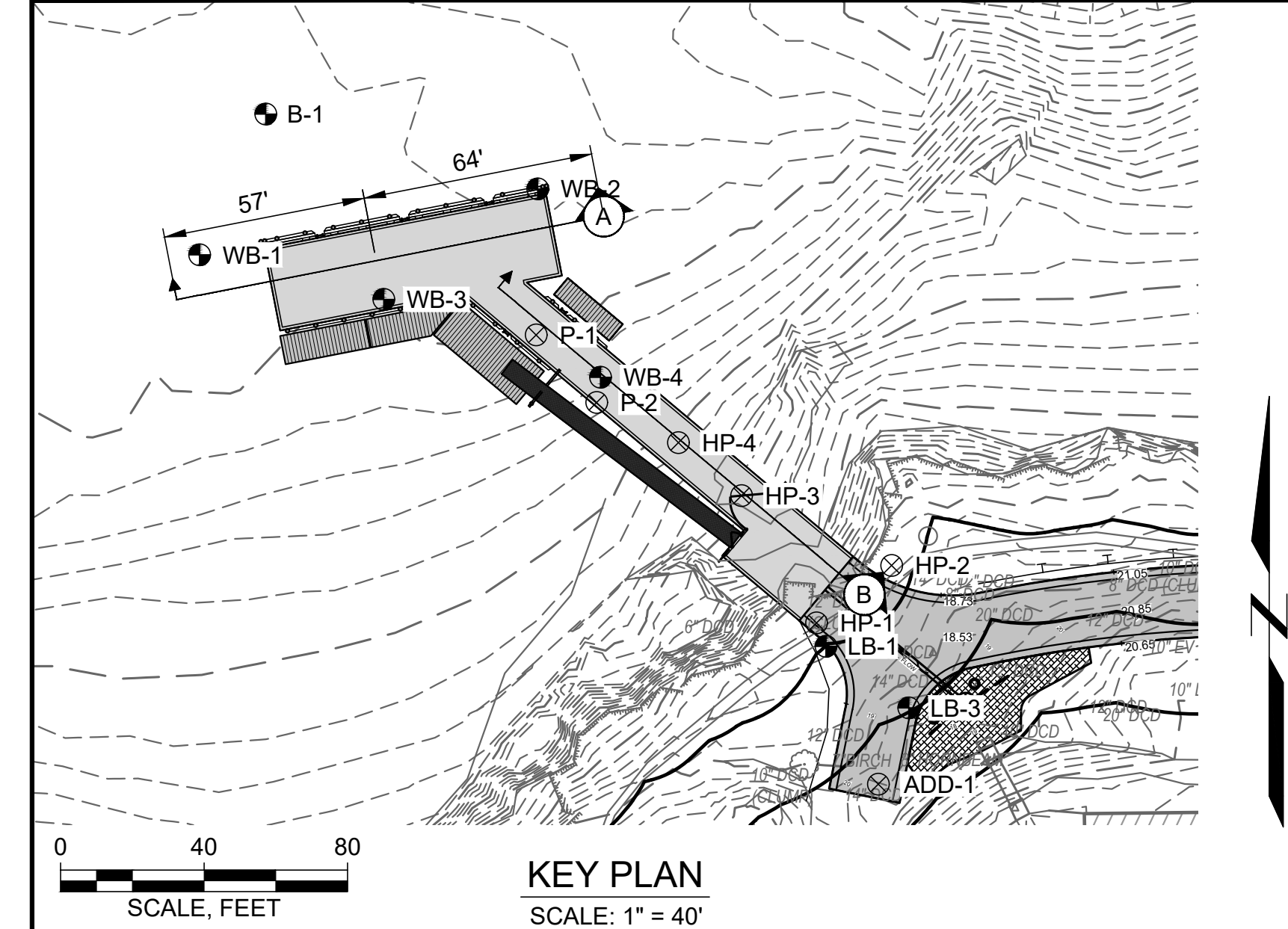
2022 BORING WB-3



2022 BORING WB-4



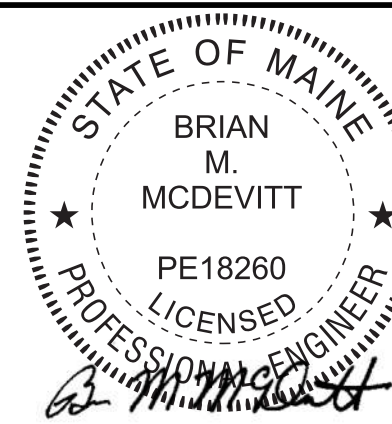
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ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar
does not measure
1" then drawing is
not original scale.



6/9/2025

Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
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6	9/17/2024	REVISED PERMIT SET	DJB
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2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**INTERPRETIVE
SUBSURFACE
PROFILE**

FOR PERMIT

SHEET NO.

B-005

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LEGEND:

- EXISTING CONTOUR
- HAT SETBACK
- MLLW
- MHHW
- HAT
- BFE
- 250' SHORELAND ZONE
- TOP OF BANK
- LEDGE
- STRUCTURES

SURVEY AND PROPERTY NOTES:

- LOCUS PARCEL IS DEPICTED ON CITY OF BIDDEFORD, TAX MAP 52, LOT 4 AND IS LOCATED IN THE INSTITUTIONAL (IN) ZONE. A PORTION OF THE SITE IS LOCATED IN THE LIMITED RESIDENTIAL (LR) SHORELAND OVERLAY DISTRICT.
- THE RECORD OWNER IS THE UNIVERSITY OF NEW ENGLAND, BY DEED DATED APRIL 18, 1962, RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 1484, PAGE 0145.
- UPLAND TOPOGRAPHY AND BASE SURVEY INFORMATION DEPICTED HEREON ARE BASED ON THE FOLLOWING SURVEYS:
 - "TOPOGRAPHIC SURVEY, MARINE SCIENCE CENTER, UNIVERSITY OF NEW ENGLAND" BY OWEN HASKELL, INC. DATED DEC. 13, 2022.
 - "TOPOGRAPHIC SURVEY AT MARINE SCIENCE CENTER" BY STATEWIDE SURVEYS, INC. DATED MAY 4, 2015.
- HYDROGRAPHIC DATA DEPICTED HEREON IS BASED ON 2022 SURVEY BY OWEN HASKELL SURVEY.
- FEDERAL CHANNEL LIMITS ARE DEPICTED BASED ON THE PLAN, "SACO RIVER, SACE AND BIDDEFORD, MAINE, CONDITION SURVEY" PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS, DATED JULY 3, 2021.
- HORIZONTAL COORDINATES ARE BASED ON NAD83 MAINE STATE PLANE WEST ZONE-1801 AND ARE EXPRESSED IN FEET. ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.
- UTILITY INFORMATION DEPICTED HEREON IS BASED ON FEBRUARY 2023 UTILITY LOCATION SURVEY PERFORMED BY BLOOD HOUND, LLC UNDERGROUND UTILITY LOCATORS AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTACT DIG SAFE (1-888-DIG-SAFE) AND VERIFY EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION OR EXCAVATION.
- PORTIONS OF THE PROPERTY ARE DEPICTED AS BEING IN A SPECIAL FLOOD HAZARD AREA BASED ON FEMA PRELIMINARY FIRM 23031C0459G DATED APRIL 14, 2017. THE SITE IS LOCATED IN A VE ZONE HAVING BASE FLOOD ELEVATION OF 14 FT NAVD88.
- SUBSURFACE INFORMATION IS BASED ON EXPLORATIONS PERFORMED IN 2015 AND 2022 CONSISTING OF BORINGS, PROBES, AND TEST PITTS. REFER TO SHEETS B-001 - B-005 FOR SUBSURFACE INFORMATION.
- BENCHMARKS:

0 30 60
SCALE, FEET

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM



Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF MAINE

BRIAN M. MCDEVITT

PE18260

PROFESSIONAL ENGINEER

6/9/2025

Designed: DJB

Drawn: JAM

Checked: BJB

Approved: BMM

P.E. No: 13033

GEI Project 2203703

GEI Consultants

5 MILK STREET
PORTLAND, ME 04101
(207)797-8901

UNIVERSITY OF NEW ENGLAND

11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

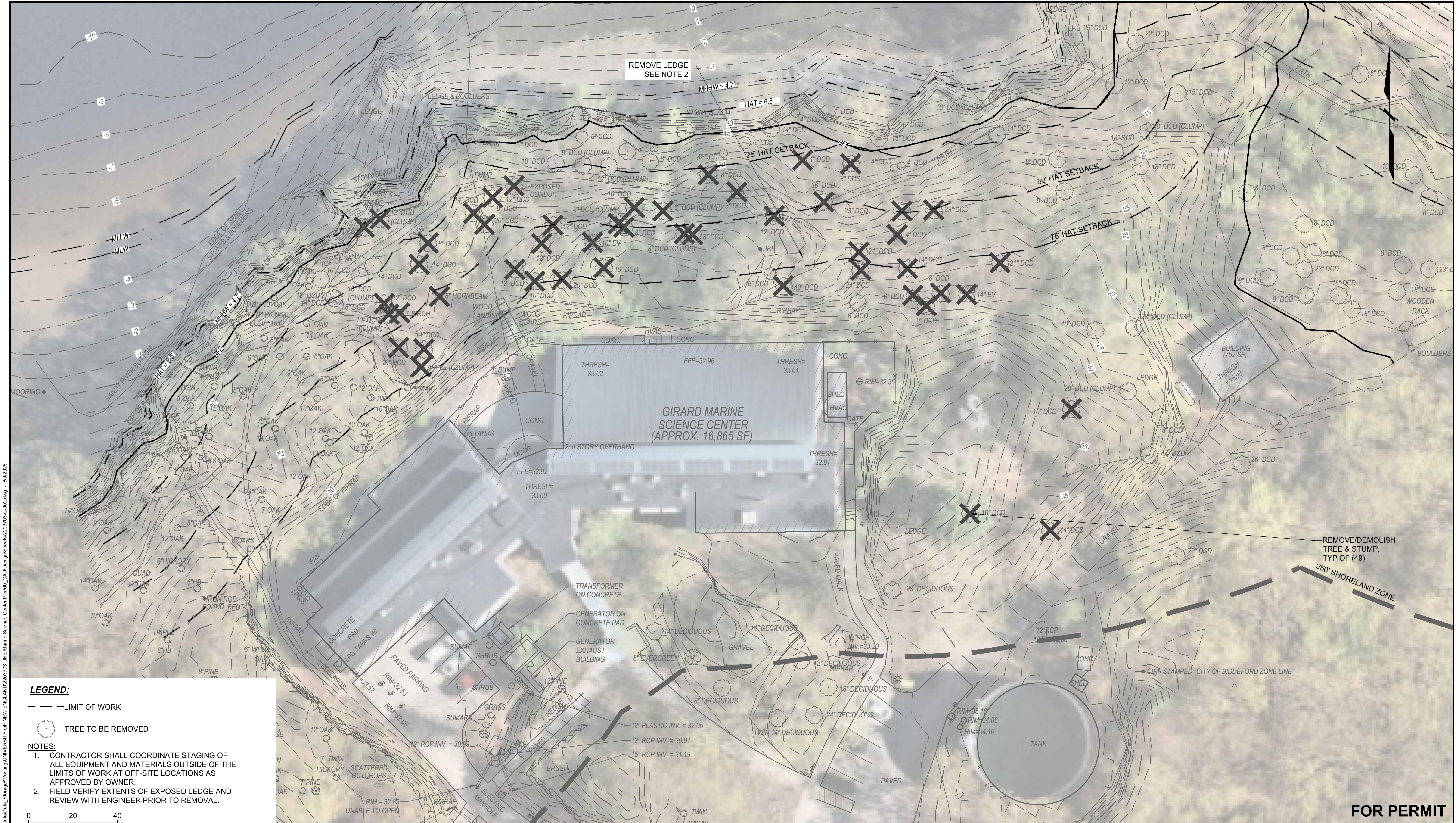
SHEET NAME

EXISTING CONDITIONS
PLAN

SHEET NO.

C-001

D:\CASTELNUOVO\UNINE\lgiconsultants\confdata\Data_Support\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\00_CADD\Design\Sheets\2203703-C-002.dwg - 6/8/2025



LEGEND:

- LIMIT OF WORK
- TREE TO BE REMOVED

NOTES:

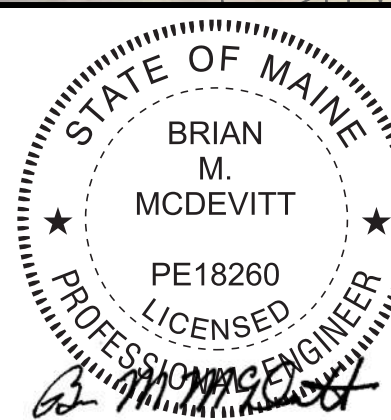
- CONTRACTOR SHALL COORDINATE STAGING OF ALL EQUIPMENT AND MATERIALS OUTSIDE OF THE LIMITS OF WORK AT OFF-SITE LOCATIONS AS APPROVED BY OWNER.
- FIELD VERIFY EXTENTS OF EXPOSED LEDGE AND REVIEW WITH ENGINEER PRIOR TO REMOVAL.



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



6/9/2025

Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
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NO	DATE	ISSUE/REVISION	APP

DEMOLITION AND
CONSTRUCTION
STAGING

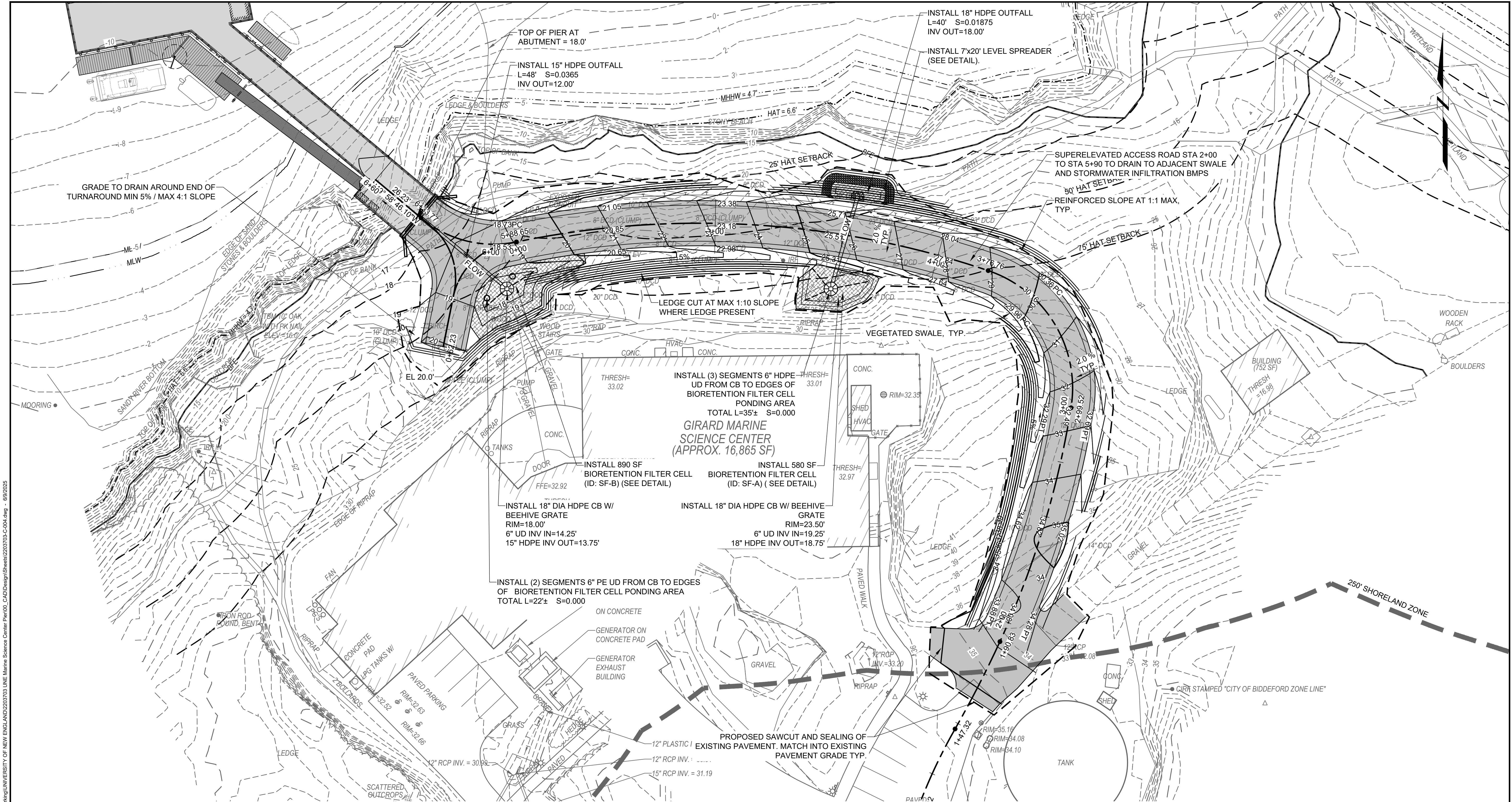
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SHEET NO.

C-002

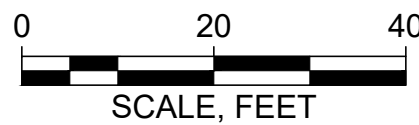
FOR PERMIT

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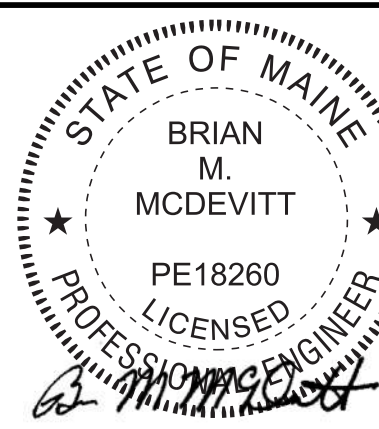


PLAN

SCALE: 1" = 20'



Attention:
0 1"
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does not measure
1" then drawing is
not original scale.



Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



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BIDDEFORD, MAINE

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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

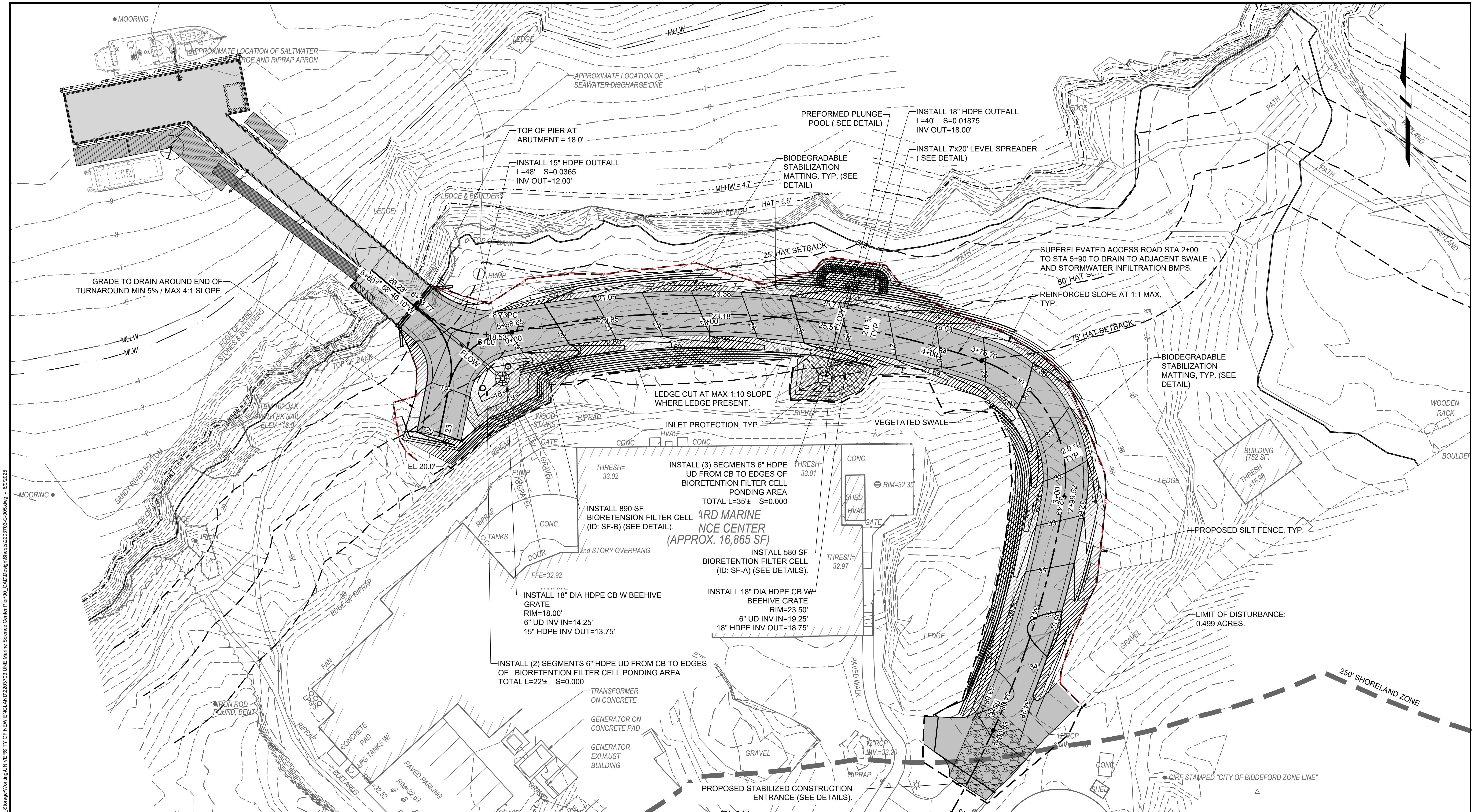
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

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**GRADING AND
DRAINAGE PLAN**

SHEET NO.
C-004

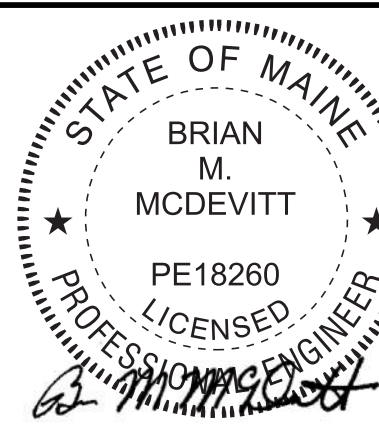
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NOTE:
CONTRACTOR SHALL INSTALL BIODEGRADABLE STABILIZATION MATTING WHEREVER PROPOSED SLOPES EXCEED 5H:1V.

Attention:
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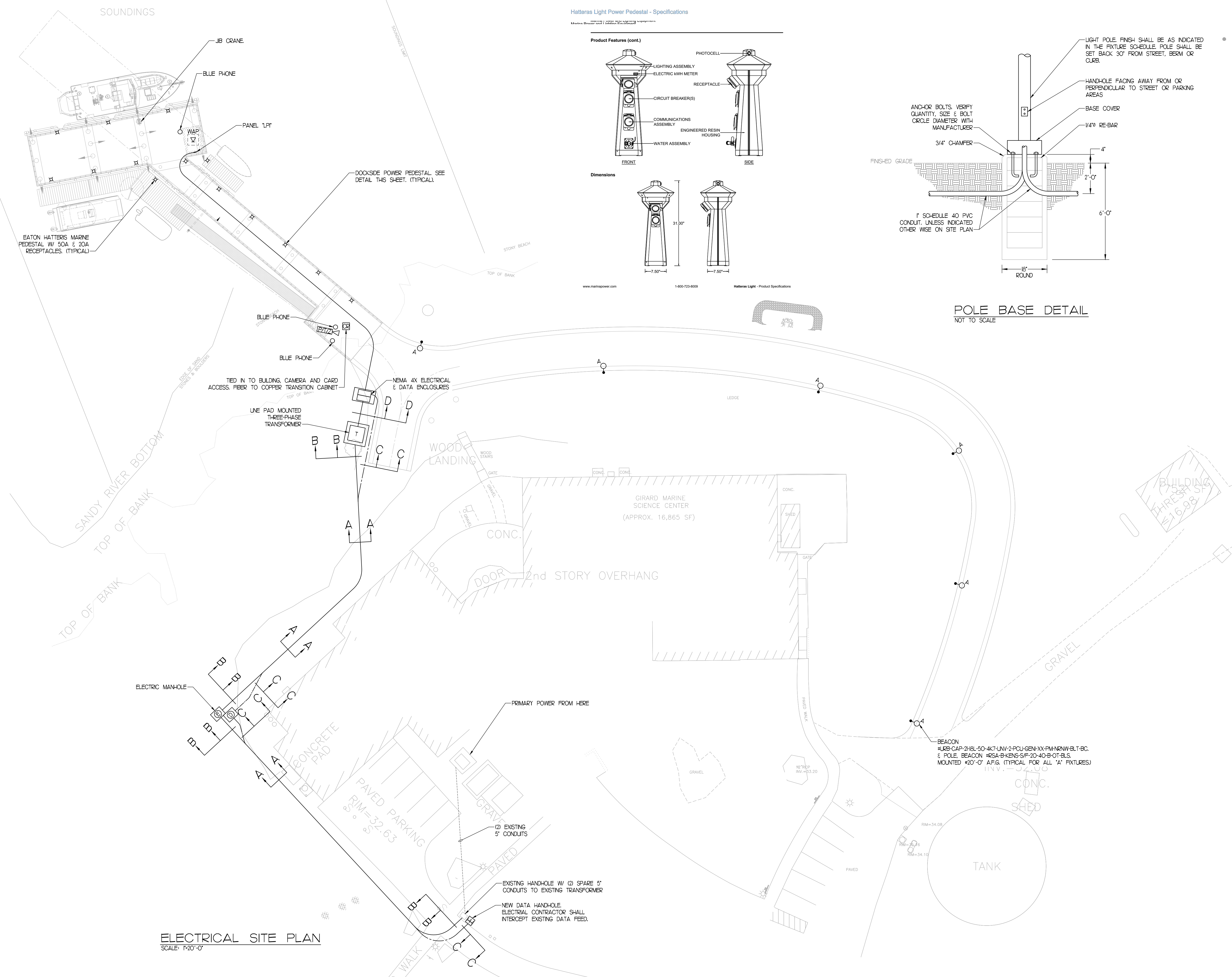
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
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**EROSION CONTROL
PLAN**

SHEET NO.
C-005

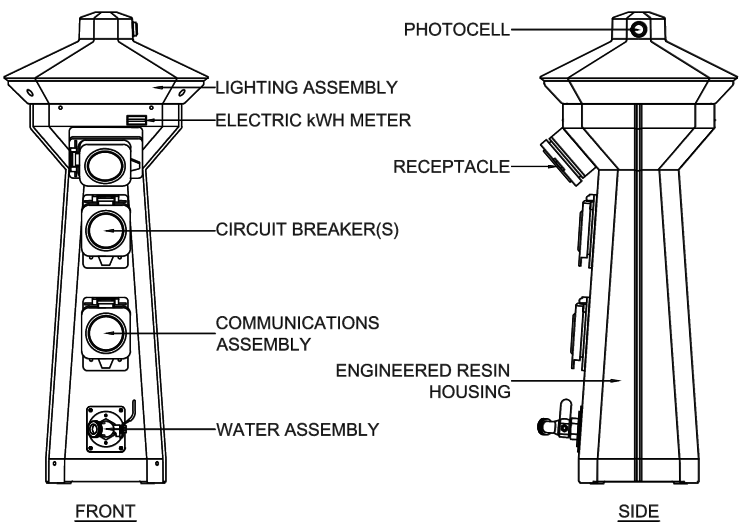
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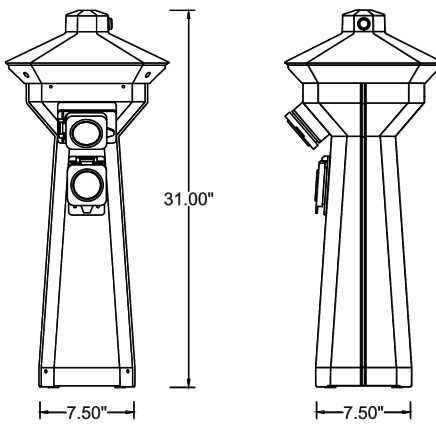
Hatteras Light Power Pedestal - Specifications

www.hatteraspower.com

Product Features (cont.)



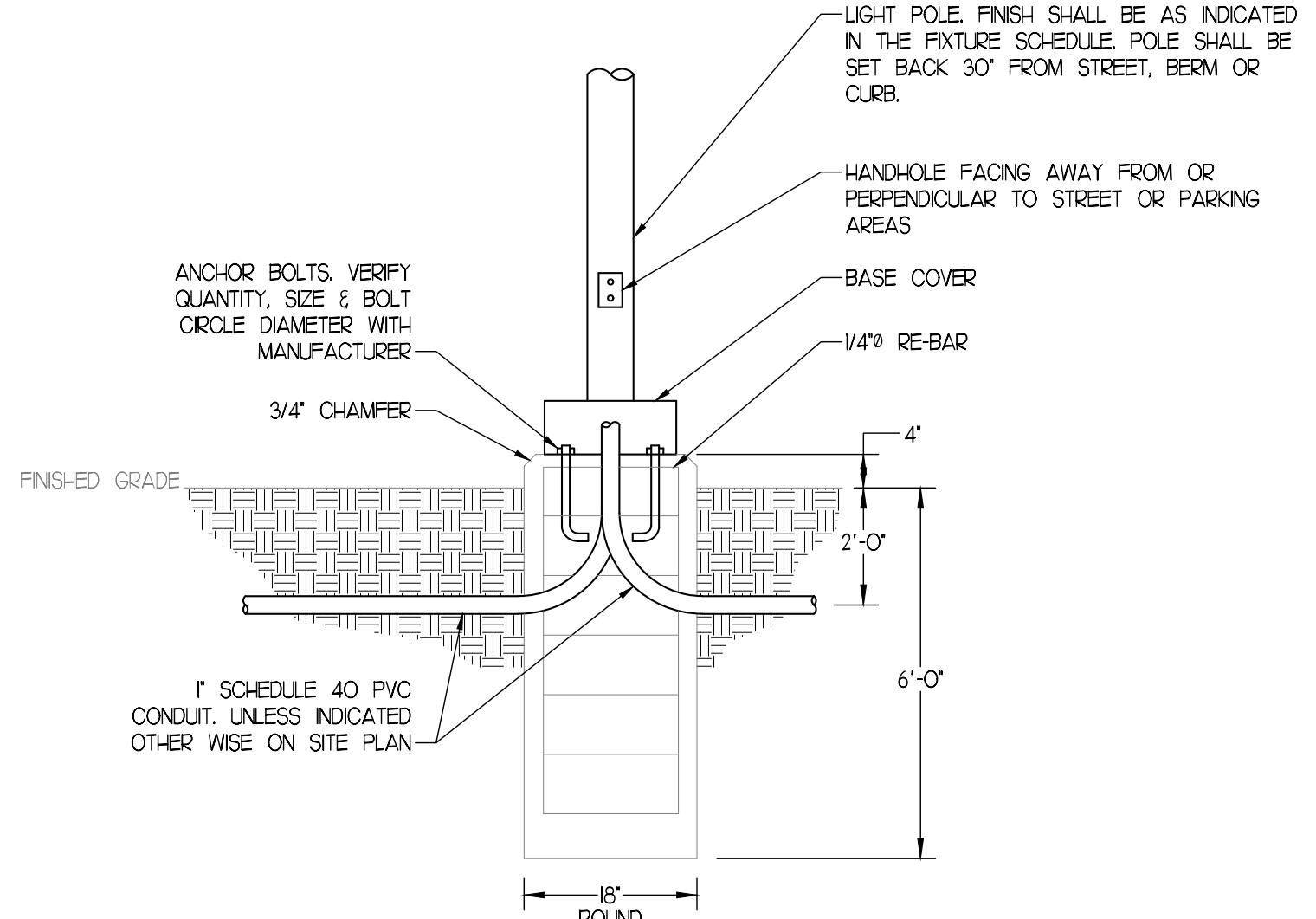
Dimensions



www.hatteraspower.com

1-800-723-8009

Hatteras Light - Product Specifications

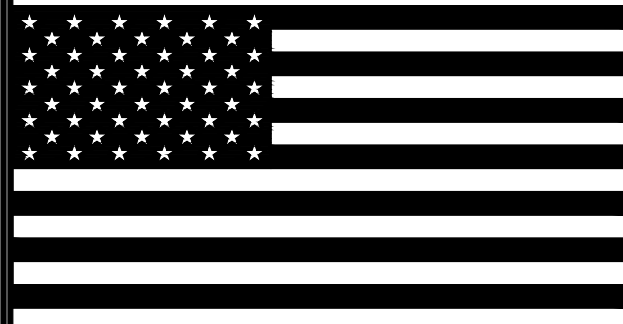


POLE BASE DETAIL
NOT TO SCALE

ELECTRICAL SITE PLAN
SCALE: 1"=20'-0"



est. 1972
VINCENT A. DIORIO, INC.
CONSULTING ENGINEERS
89 Access Rd. Suite 18
Norwood, MA 02062
(781)255-9754 | vadjr@vadeng.com
www.vadeng.com



REVISIONS:		
REV.	DATE	DESCRIPTION

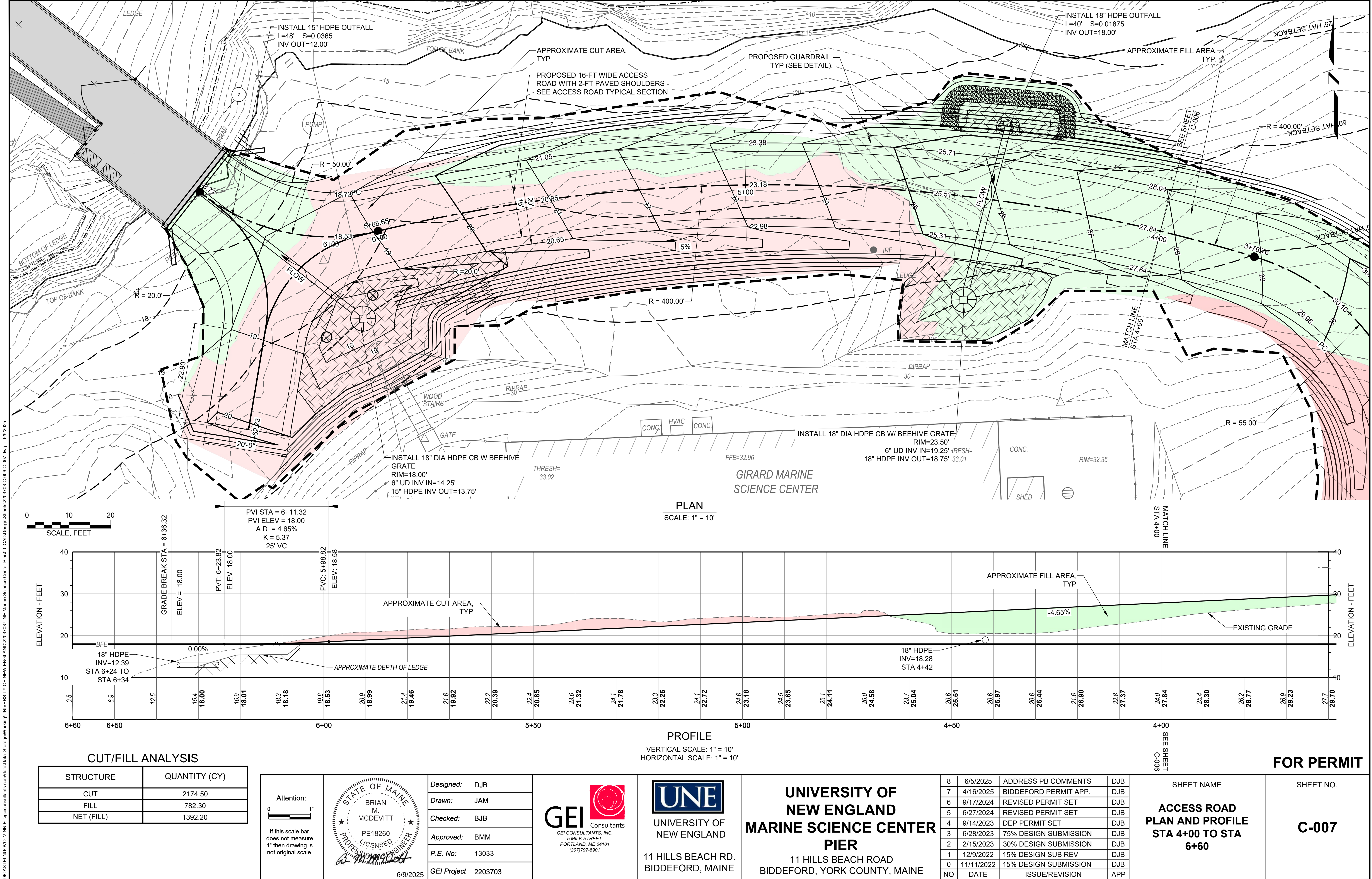
CLIENT:
**UNIVERSITY OF
NEW ENGLAND**

PROJECT:
**MARINE SCIENCE
CENTER PIER**
11 HILLS BEACH ROAD
BIDDEFORD, MAINE

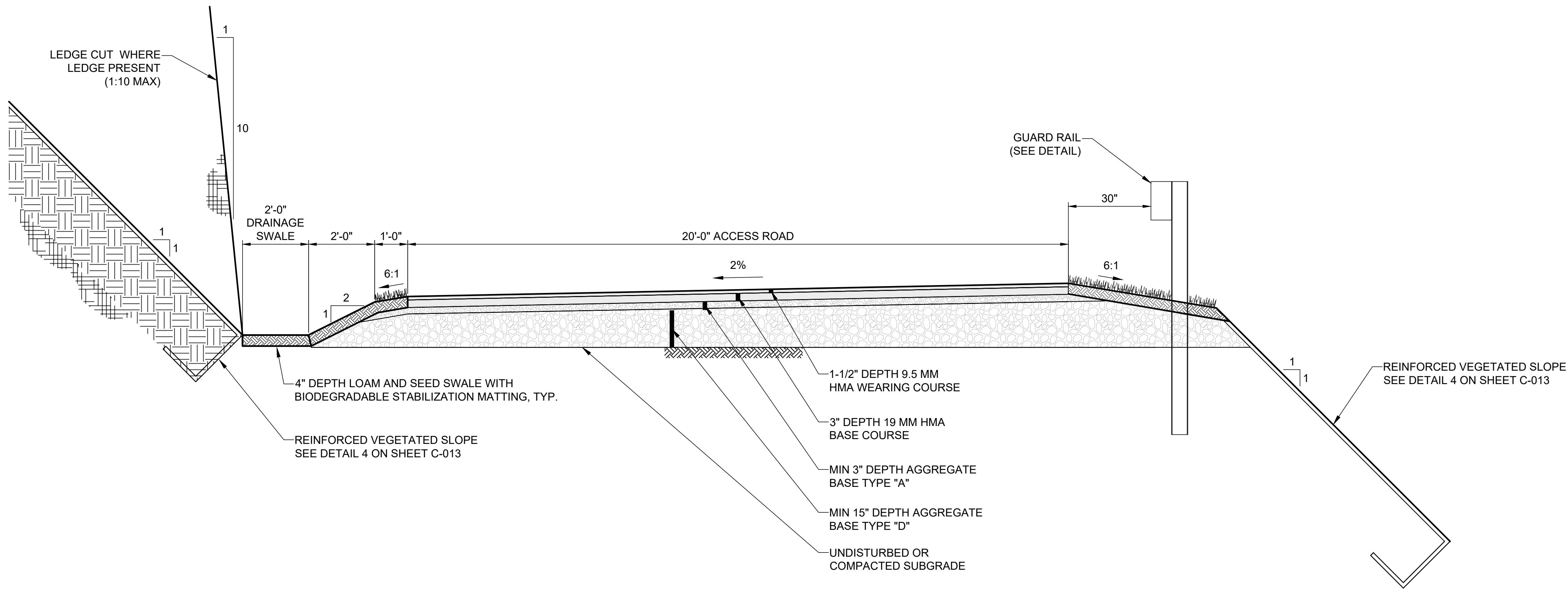
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DRAWN: CWQ
CHECKED: VAD Jr
SCALE: AS INDICATED
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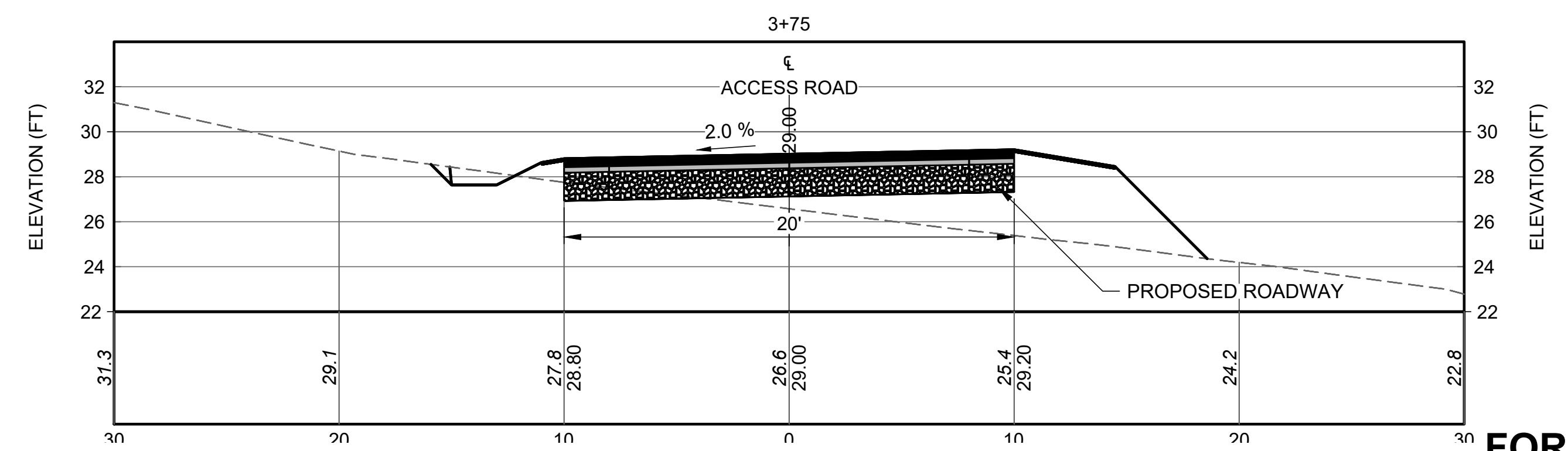
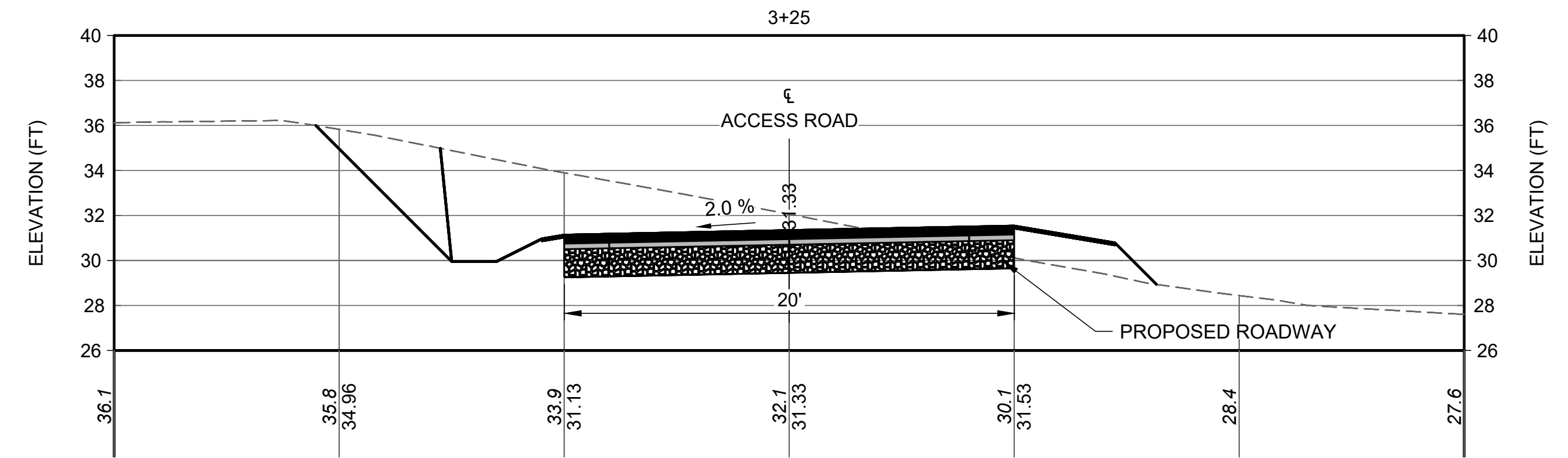
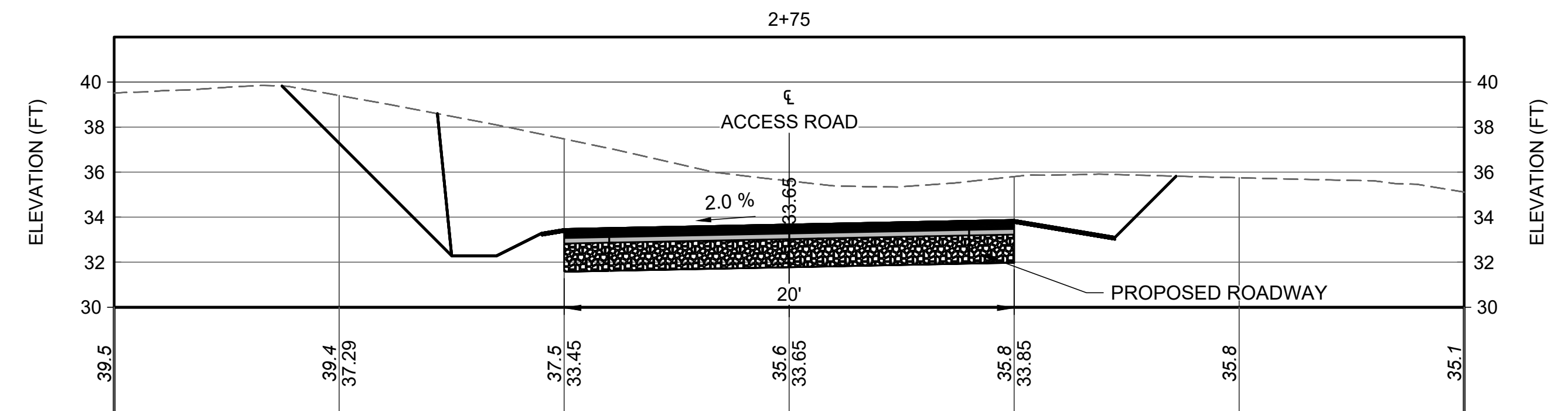
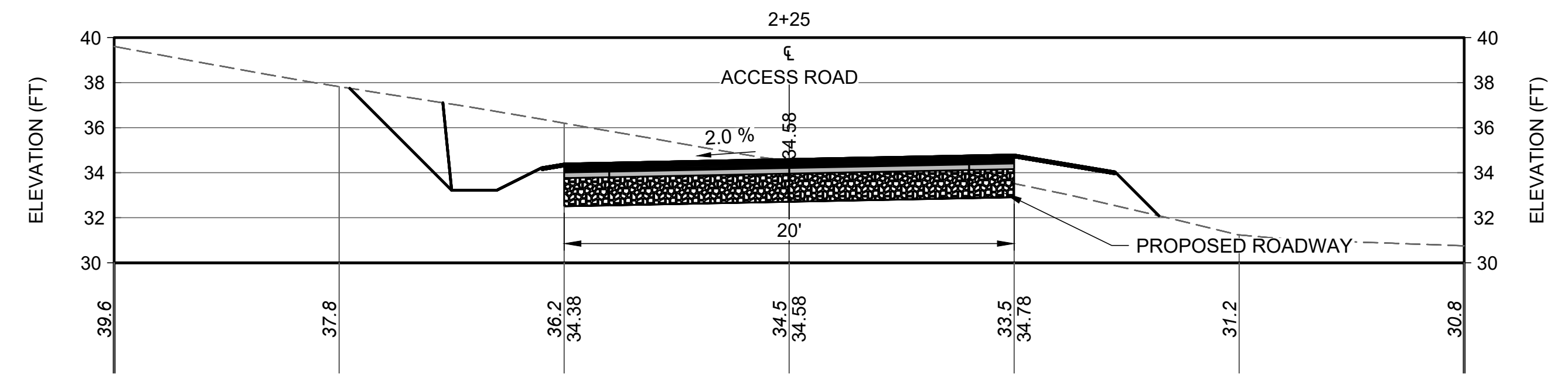
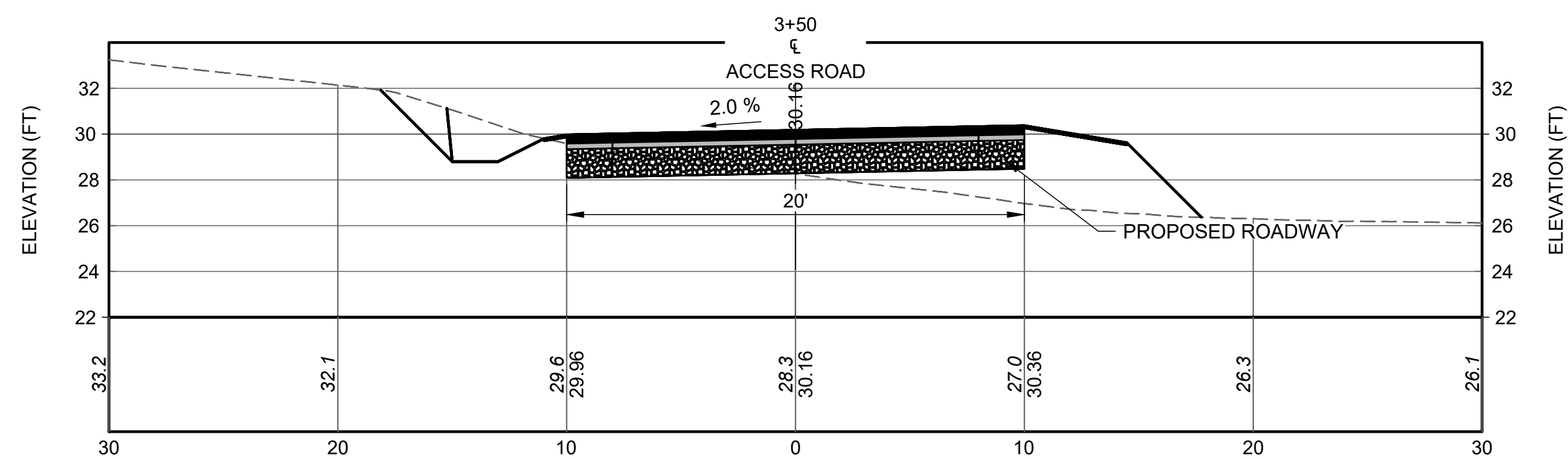
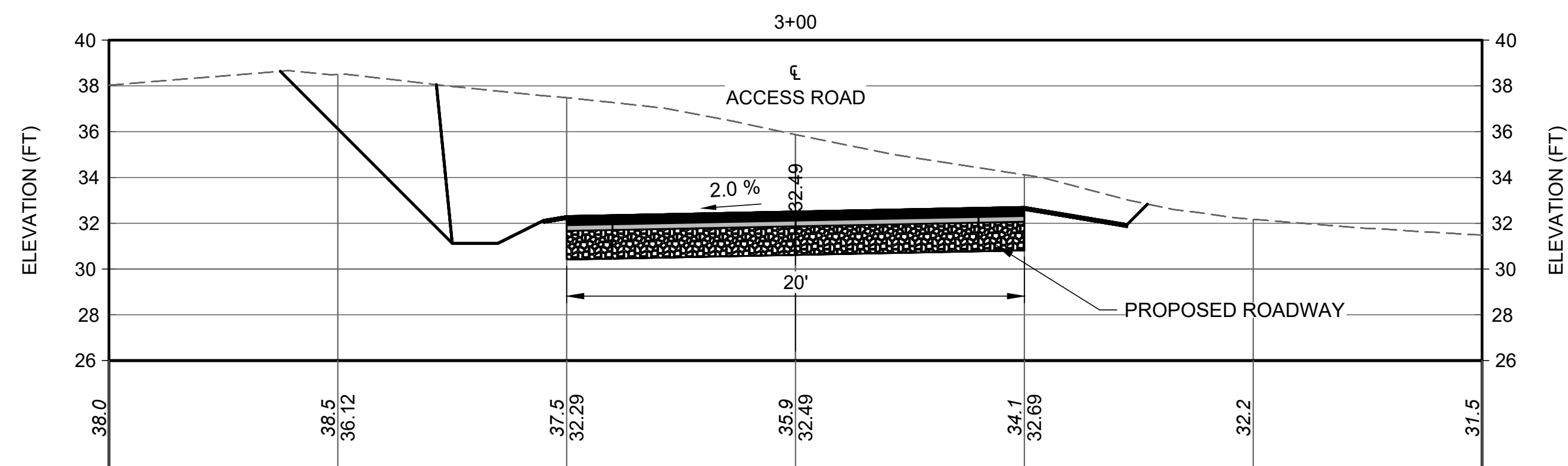
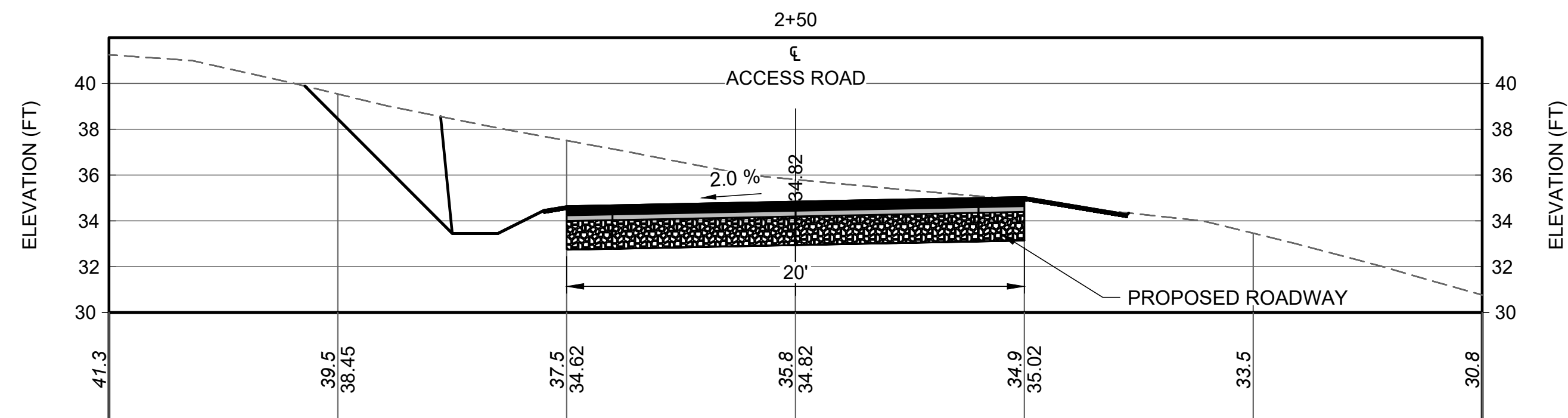
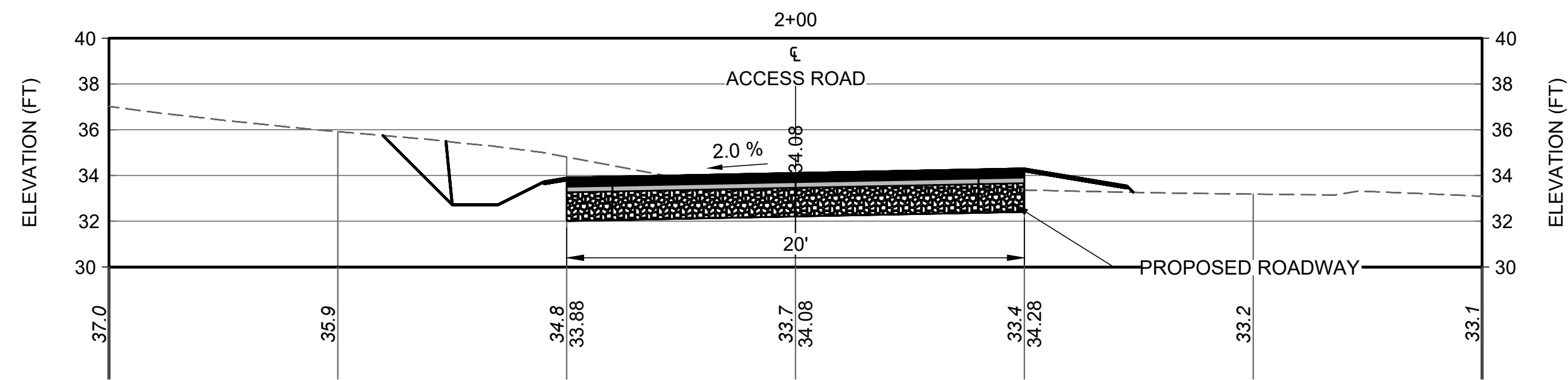
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TYPICAL ACCESS ROAD SECTION
SCALE: NTS

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		Drawn: JAM				7	4/16/2025	BIDDEFORD PERMIT APP.	DJB		
		Checked: BJB				6	9/17/2024	REVISED PERMIT SET	DJB	ACCESS ROAD TYPICAL SECTION	C-008
		Approved: BMM				5	6/27/2024	REVISED PERMIT SET	DJB		
		P.E. No: 13033				4	9/14/2023	DEP PERMIT SET	DJB		
		GEI Project 2203703				3	6/28/2023	75% DESIGN SUBMISSION	DJB		
						2	2/15/2023	30% DESIGN SUBMISSION	DJB		
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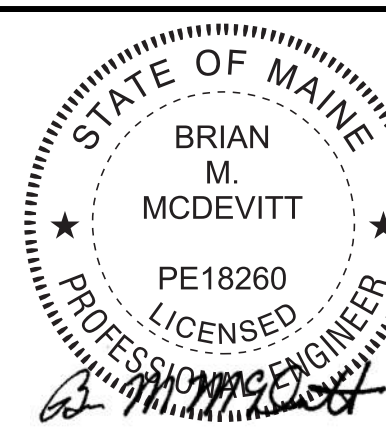
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<i>Drawn:</i>	JAM
<i>Checked:</i>	BJB
<i>Approved:</i>	BMM
<i>P.E. No:</i>	13033
<i>GEI Project</i>	2203703



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BIDDEFORD, MAINE

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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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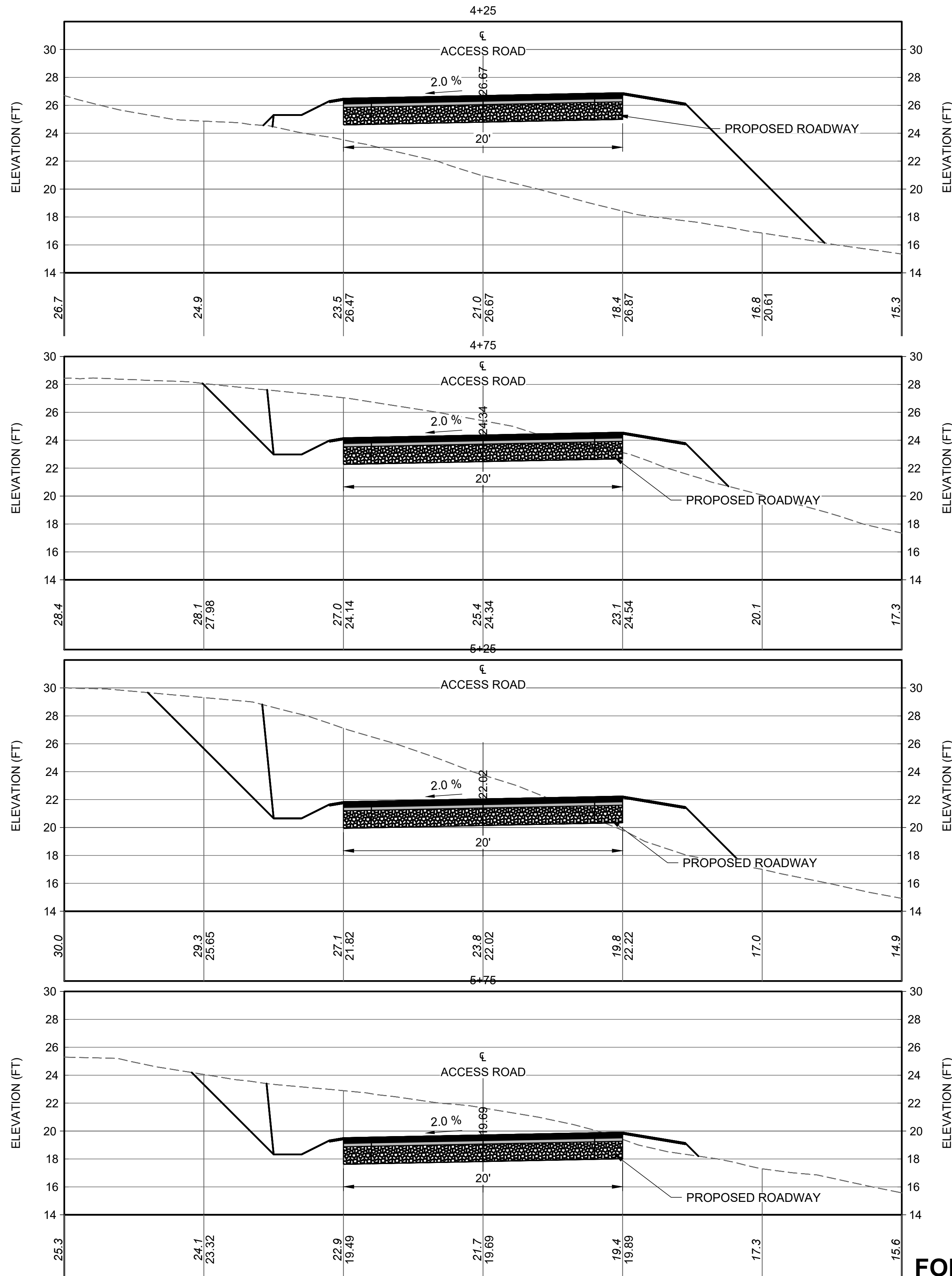
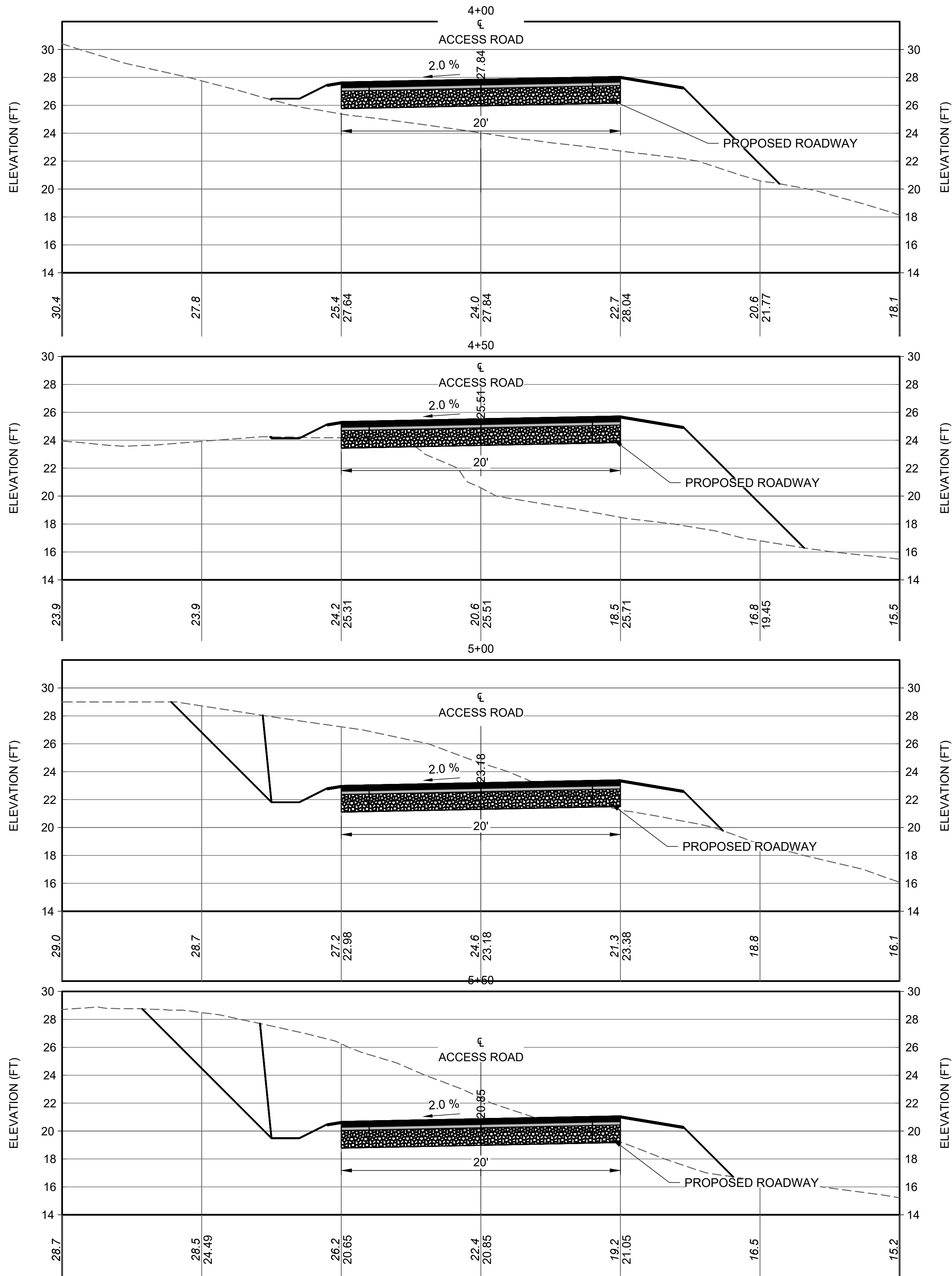
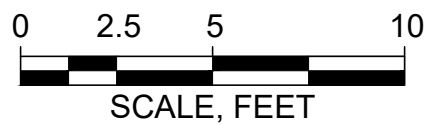
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**ROAD ACCESS
SECTIONS STA
2+00 TO 3+75**

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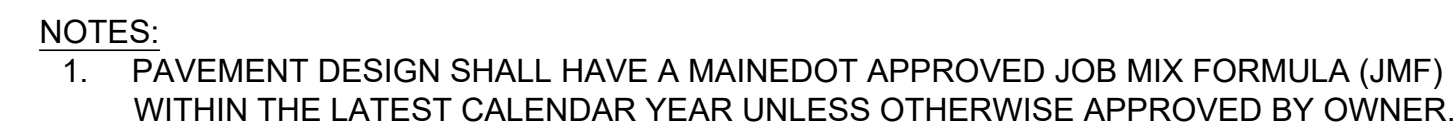
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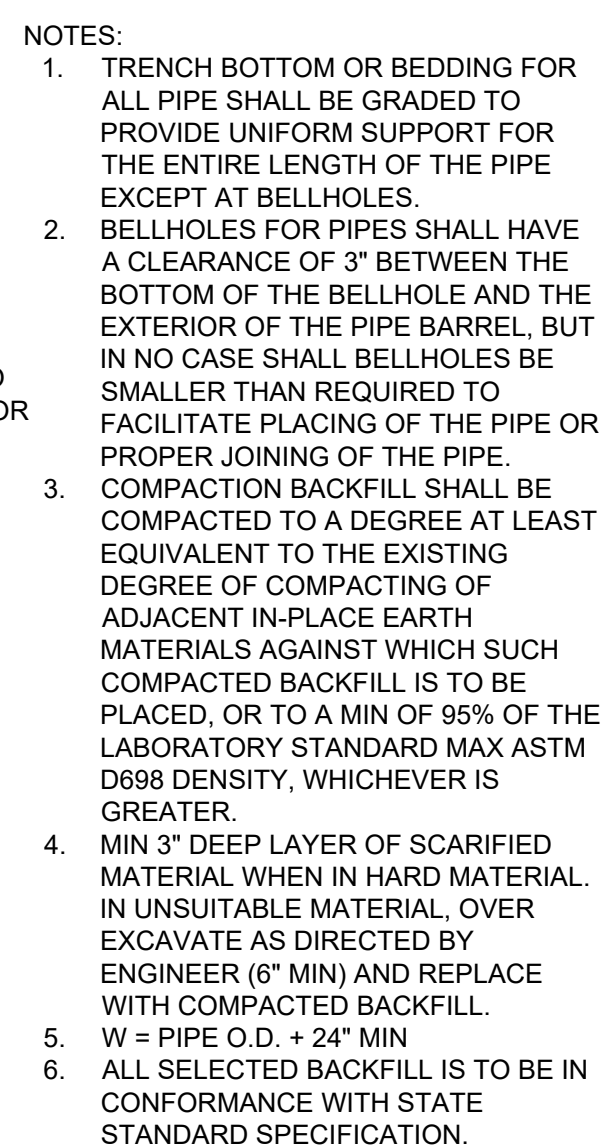
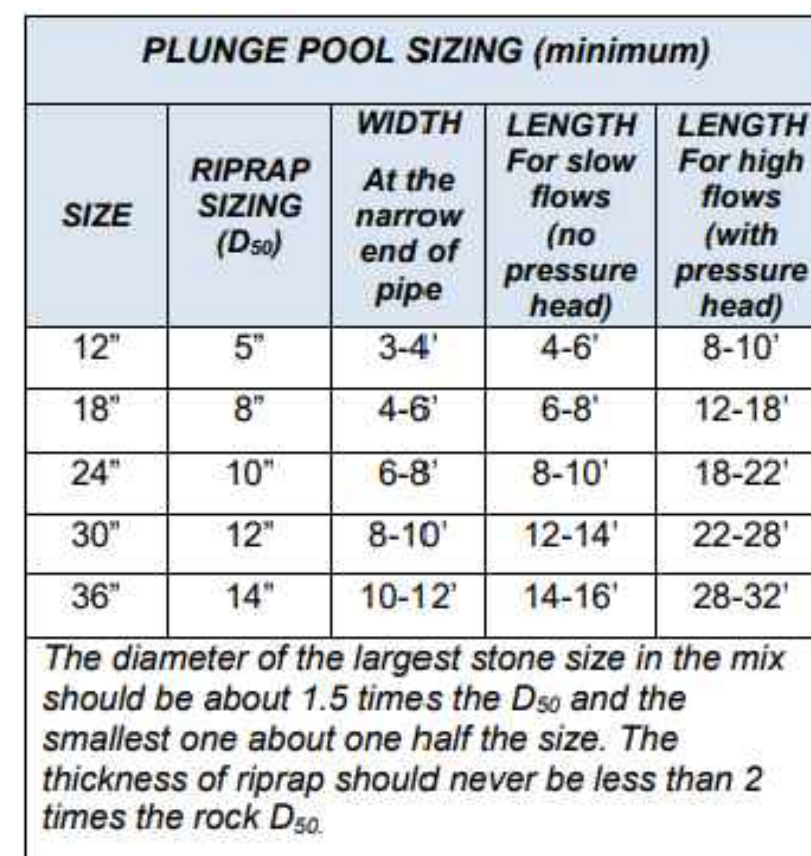
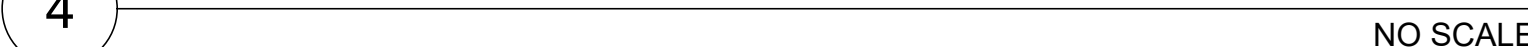


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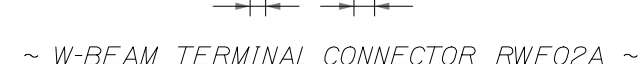
NO SCALE



3 NO SCALE

1. IF THE PIPE DISCHARGES ONTO A FLAT AREA, THE APRON SHOULD HAVE A WIDTH THAT IS THREE TIMES THE OUTLET PIPE'S DIAMETER. IF THE PIPE FLOWS HAVE THE POTENTIAL OF CAUSING A GULLY, A LEVEL SPREADER SHOULD BE PROVIDED.
2. THE CHANNEL SIDE SLOPES SHOULD BE NO STEEPER THAN 2:1. RIPRAP ON THE SIDES OF THE PLUNGE POOL SHOULD EXTEND TO THE TOP OF THE CHANNEL.
3. THE PLUNGE POOL SIZING AND THE MEDIAN SIZED RIPRAP CAN BE DETERMINED FROM THE FOLLOWING TABLE. THE THICKNESS OF RIPRAP SHOULD NOT BE LESS THAN 2 TIMES THE ROCK D50.
4. A GEOTEXTILE OR APPROPRIATE GRAVEL FILTER SHOULD BE USED TO PROTECT AGAINST PIPING OF SOIL FINES FROM BENEATH THE ROCK.
5. IN A CHANNEL THAT CAN BE REVEGETATED, SEED AND MULCH SHOULD BE APPLIED WITHIN 7 DAYS FROM FINAL CONSTRUCTION..

2 _____ NO SCALE



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EROSION AND SEDIMENTATION CONTROL NOTES:

INTRODUCTION
THE FOLLOWING PLAN FOR CONTROLLING SEDIMENTATION AND EROSION IN THIS PROJECT IS BASED ON CONSERVATION PRACTICES FOUND IN THE MAINE EROSION & SEDIMENT CONTROL BMPS MANUAL, OCTOBER 2016, AND MAINE EROSION AND SEDIMENT CONTROL PRACTICE FIELD GUIDE FOR CONTRACTORS, REVISED 2014, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE CONTRACTOR WHO IMPLEMENTS THIS PLAN SHALL BE FAMILIAR WITH THESE PUBLICATIONS AND ADHERE TO THEM AND THE PRACTICES PRESENTED HEREIN REFERENCE IS MADE TO THE EROSION CONTROL PLANS AND DETAILS (C-005 AND C-013) WITHIN THE PLAN SET, SHOWING THE LOCATIONS AND TYPES OF PROPOSED MEASURES TO BE IMPLEMENTED.

GENERAL EROSION AND SEDIMENTATION CONTROL NOTES:

1. EROSION AND SEDIMENTATION CONTROL MEASURES ARE PROPOSED TO CONTROL ACCELERATED EROSION AND SEDIMENTATION AND REDUCE ADVERSE IMPACTS FROM RUNOFF AND EROSION AT THE WORK SITE.
2. APPLICATION OF TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MAINE EROSION AND SEDIMENT CONTROL BMPS PUBLISHED BY MAINE DEP AND AVAILABLE AT: [HTTPS://WWW.MAINE.GOV/DEP/LAND/EROSION/ESCBMPS/](https://www.maine.gov/dep/land/erosion/escbm/ps/)
3. THE WORK SHALL BE PERFORMED BY A CONTRACTOR THAT IS CERTIFIED BY MAINE DEP IN EROSION AND SEDIMENT CONTROL MEASURES. A CERTIFIED INDIVIDUAL SHALL BE ONSITE DURING ALL CONSTRUCTION ACTIVITY.
4. EROSION AND SEDIMENTATION DUE TO RUNOFF, TIDAL EXPOSURE, AND WAVE ACTION SHALL BE CONTROLLED BY STAGING CONSTRUCTION ACTIVITY TO MINIMIZE AREA AND TIME OF DISTURBANCE, APPLICATION OF SILT FENCE, BARRIERS, AND OTHER EROSION CONTROL MEASURES, AND PRESERVING NATURAL VEGETATION WHENEVER POSSIBLE.
5. THE CONTRACTOR'S SEQUENCE OF OPERATIONS AND SCHEDULE FOR WORK ACTIVITIES SHALL ACT TO MINIMIZE EXPOSURE TO EROSION.
6. THE CONTRACTOR SHALL TAKE CARE TO LIMIT THE AREA OF SOIL DISTURBANCE TO THE MINIMUM NECESSARY TO COMPLETE THE WORK.
7. EROSION CONTROL MEASURES, SEEDING, AND VEGETATION SHALL BE INSPECTED WEEKLY AND AFTER RAINSTORMS, RUNOFF EVENTS, AND STORM EVENTS UNTIL FINAL ACCEPTANCE. REPAIRS SHALL BE MADE WHEN NO LONGER SERVICEABLE DUE TO DAMAGE OR ACCUMULATION OF SEDIMENT.
8. AT THE COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND CONTOUR, UNLESS OTHERWISE INDICATED ON THE PLANS.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

THE FOLLOWING IS A LIST OF GENERAL EROSION CONTROL PRACTICES THAT WILL BE USED TO PREVENT EROSION AND SEDIMENTATION BEFORE, DURING AND AFTER THE CONSTRUCTION OF THIS PROJECT. IN ADDITION, SPECIAL CARE SHALL BE USED AT ALL TIMES TO:

LIMIT DISTURBANCE AND, HENCE, EROSION

1. CORRECT ANY EROSION PROBLEMS IMMEDIATELY.
2. REGULARLY MONITOR THE IMPLEMENTED PRACTICES, ESPECIALLY AFTER EVERY RAINFALL.
3. REVEGETATE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION.
4. CONFORM TO ALL REQUIREMENTS/STANDARDS OF THE SITE'S MAINE DEP EROSION & SEDIMENT CONTROL BMP MANUAL.

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS WILL BE INSTALLED ALONG THE DOWN GRADIENT SIDE OF THE PROPOSED GROUND DISTURBANCE AREAS PRIOR TO ANY CONSTRUCTION ACTIVITIES WHERE SLOPES EXCEED 8% OR THERE IS FLOWING WATER BOTH SILT FENCE AND EROSION CONTROL MATTING BERMS SHALL BE USED.

CATCH BASIN PROTECTION

CATCH BASIN PROTECTION WILL BE INSTALLED AT THE FIRST DOWNGRADIENT CATCH BASIN IN STREET ADJACENT TO ANY CONSTRUCTION ACTIVITIES AND IN ALL ONSITE CATCH BASINS UNTIL SITE HAS BEEN COMPLETELY STABILIZED.

CONSTRUCTION PHASE

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION DURING CONSTRUCTION ON THIS PROJECT:

1. EROSION AND SEDIMENTATION CONTROL BMPS SHALL BE INTALLED PRIOR TO THE COMMENCEMENT OF EARTHWORK ACTIVITIES.
2. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION WILL BE CLEARED AND LEFT IN AN UNTREATED OR UNVEGETATED CONDITION. AN AREA NO LARGER THAN WHAT CAN BE MULCHED IN ONE DAY MAY BE OPEN AT ONCE. ONCE CONSTRUCTION OF AN AREA IS COMPLETE, FINAL GRADING, LOAMING AND SEEDING SHALL OCCUR IMMEDIATELY (REFER TO "POST CONSTRUCTION REVEGETATION" SECTION). IF DURING FINAL GRADING, LOAMING AND SEEDING CAN NOT OCCUR IMMEDIATELY, IT SHALL BE DONE PRIOR TO ANY STORM EVENT AND WITHIN 15 DAYS OF COMPLETING CONSTRUCTION IN THE AREA. IF FINAL GRADING, LOAMING AND SEEDING CANNOT OCCUR WITHIN 7 DAYS, OR IF THE AREA IS NOT UNDER ACTIVE CONSTRUCTION FOR A PERIOD LONGER THAN 7 DAYS, SEE ITEM NO. 4 BELOW.
3. PRIOR TO THE START OF CONSTRUCTION IN A SPECIFIC AREA, SILT FENCING SHALL BE INSTALLED ON DOWNGRADIENT PORTIONS OF THE SITE AS LOCATED ON THE PLANS TO PROTECT AGAINST ANY CONSTRUCTION RELATED EROSION.
4. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM EXISTING DRAINAGE AREAS AND WETLANDS. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
 - A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
 - B. SEEDDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
 - C. STOCKPILES SHALL BE EITHER PLACED UPHILL OF AN EXISTING SEDIMENT BARRIER ON THE SITE OR ENCIRCLED BY A HAY BALE OR SILT FENCE BARRIER THE FIRST DAY THAT STOCKPILING COMMENCES.
5. ALL DISTURBED AREAS EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
 - A. TREATED WITH STRAW AT A RATE OF 70-90 LBS. PER 1000 SQUARE FEET FROM 4/16 TO 10/1, OR AT A RATE OF 150-200 LBS. PER 1000 SQUARE FEET FROM 10/1 TO 4/15.
 - B. SEEDDED WITH CONSERVATION MIX OF PERENNIAL RYE GRASS (1.0 LBS/1000 SQ.FT.) AND MULCHED IMMEDIATELY. FROM 10/1 TO 4/15.
 - C. FOLLOW THE SEEDING RATES AS OUTLINED BELOW IN SUB-SECTION 4.D. OF THE "POST CONSTRUCTION REVEGETATION" SECTION.
 - C. MONITORED EVERY TWO WEEKS UNTIL SEEDING CAN OCCUR AND REMULCHED AS NEEDED TO PROTECT SLOPES.
6. ALL GRADING WILL BE HELD TO A MAXIMUM 3:1 SLOPE WHERE PRACTICAL. GREATER SLOPES MAY BE USED WHERE THE BANKS ARE PROTECTED WITH SOFT ARMOUR MATTING, EROSION CONTROL MATTING, OR RIPRAP. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY AFTER FINAL GRADING IS COMPLETE. (IT IS UNDERSTOOD THAT IMMEDIATELY MEANS WITHIN 5 DAYS OF THE COMPLETION OF WORK. SEE POST-CONSTRUCTION REVEGETATION FOR SEEDING SPECIFICATION).
7. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
8. CONSTRUCTION TRAFFIC WILL BE DIRECTED OVER THE EXISTING SITE ENTRANCE. THE ROAD SHALL BE

SWEEPED AND VACUUMED DAILY SHOULD SEDIMENT BE TRACKED ONTO IT.

9. ALL AREAS DRAINING TO A STORMWATER FILTER OR BMP SHALL BE STABILIZED PRIOR TO CONSTRUCTION OF FILTER MEDIA TO PREVENT SEDIMENT FROM CLOGGING MEDIA.

DEWATERING

1. ALL DEWATERING DISCHARGE LOCATIONS SHALL BE LOCATED ON RELATIVELY FLAT GROUND AT LEAST 75' FROM STREAMS AND 25' FROM WETLANDS. THE CONTRACTOR SHALL UTILIZE DIRTBAGS, EROSION CONTROL MIX BERMS, OR SIMILAR METHODS FOR FILTRATION OF DEWATERING AND SHALL CONFORM TO THE MAINE EROSION AND SEDIMENT CONTROL BMPS G-1, G-2, AND G-3.

POST CONSTRUCTION REVEGETATION

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING:

1. A MINIMUM OF 6" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE.
2. LAWN AREAS: "PARK MIX" GRASS SEED BY ALLEN, STERLING & LOTHROP (FALMOUTH, MAINE), OR APPROVED EQUAL.
3. MULCH SHALL BE HAY OR STRAW MULCHES THAT ARE DRY AND FREE FROM UNDESIRABLE SEEDS AND COURSE MATERIALS.
 - A. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE.
 - B. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
 - C. BLANKET WITH TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING ON GRADES GREATER THAN 5%.
4. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF ASPHALT, WOOD FIBRE OR PAPER FIBRE AND WATER, WHICH IS SPRAYED OVER A SEEDDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 10/1 AND 4/15.
5. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN OCTOBER 1ST AND APRIL 15TH. SHOULD SEEDING BE NECESSARY BETWEEN THESE DATES, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED:
 - A. ONLY UNFROZEN LOAM SHALL BE USED.
 - B. LOAMING, SEEDING AND MULCHING WILL NOT BE DONE OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.
 - C. WHERE PERMANENT SEEDING IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
 - D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.5 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
 - E. FERTILIZING, SEEDING AND MULCHING SHALL BE DONE ON LOAM THE DAY THE LOAM IS SPREAD.
 - F. HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE. WINTER MULCHING RATES, SHALL BE DOUBLE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION, SHOULD BE APPLIED DURING THIS PERIOD.
6. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 90% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE DESIGN PROFESSIONAL THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING AND REMOVING ALL OF THE EROSION AND SEDIMENTATION CONTROLS OR APPOINTING A QUALIFIED SUBCONTRACTOR TO DO SO. MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL, AND AT LEAST ONCE A WEEK, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. SILT FENCE SHALL BE INSPECTED AND REPAIRED. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING.
2. CONSTRUCTION ENTRANCE SHALL BE VISUALLY INSPECTED AND REPAIRED AS NEEDED. ANY AREAS SUBJECT TO RUTTING SHALL BE STABILIZED IMMEDIATELY. IF THE VOIDS OF THE CONSTRUCTION ENTRANCE BECOME FILLED WITH MUD, MORE CRUSHED STONE SHALL BE ADDED AS NEEDED. THE PUBLIC ROADWAY SHALL BE SWEEPED AND VACUUMED SHOULD MUD BE DEPOSITED/TRACKED ONTO THEM.

STANDARDS FOR STABILIZING SITES FOR THE WINTER

THE FOLLOWING STANDARDS AND METHODOLOGIES SHALL BE USED FOR STABILIZING THE SITE DURING THE WINTER CONSTRUCTION PERIOD:

1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES (ANY AREA HAVING A GRADE GREATER THAN 25%) - THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15TH. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15TH, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.
 - A. **STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS:**
BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A RATE OF 3 POUNDS PER 1000 SQUARE FEET AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED HAY MULCH OVER THE SEEDING AT TWICE THE RATE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS.
 - B. **STABILIZE THE SLOPE WITH WOOD-WASTE COMPOST:**
THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD-WASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. THE CONTRACTOR WILL NOT USE WOOD-WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
 - C. **STABILIZE THE SLOPE WITH STONE RIPRAP:**
THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. 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.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS - BY SEPTEMBER 15TH THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON THE SITE. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ON OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

- A. **STABILIZE THE SOIL WITH TEMPORARY VEGETATION:**
BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM III OF THIS STANDARD.
- B. **STABILIZE THE SOIL WITH SOD:**
THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.

- C. **STABILIZE THE SOIL WITH MULCH:** BY NOVEMBER 15TH THE CONTRACTOR WILL 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, THE CONTRACTOR WILL ANCHOR THE MULCH WITH NETTING OR OTHER METHOD TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

EROSION CONTROL REMOVAL

AN AREA IS CONSIDERED STABLE IF IT IS PAVED OR IF 90% GROWTH OF PLANTED SEEDS IS ESTABLISHED. ONCE AN AREA IS CONSIDERED STABLE, THE EROSION CONTROL MEASURES CAN BE REMOVED AS FOLLOWS:

1. SILT FENCE: SILT FENCE SHALL BE DISPOSED OF LEGALLY AND PROPERLY OFF-SITE. ALL SEDIMENT TRAPPED BEHIND THESE CONTROLS SHALL BE DISTRIBUTED TO AN AREA UNDERGOING FINAL GRADING OR REMOVED AND RELOCATED OFF-SITE.
2. STABILIZED CONSTRUCTION ENTRANCE: THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE REMOVED ONCE THE COMPACTED ROADWAY BASE IN IN PLACE. STONE AND SEDIMENT FROM THE CONSTRUCTION ENTRANCE SHALL BE REDISTRIBUTED TO AN AREA UNDERGOING GRADING OR REMOVED AND RELOCATED OFF-SITE.
3. MISCELLANEOUS: ONCE ALL THE TRAPPED SEDIMENTS HAVE BEEN REMOVED FROM THE TEMPORARY SEDIMENTATION DEVICES THE DISTURBED AREAS MUST BE REGRADED IN AN AESTHETIC MANNER TO CONFORM TO THE SURROUNDING TOPOGRAPHY. ONCE GRADED THESE DISTURBED AREAS MUST BE LOAMED (IF NECESSARY), FERTILIZED, SEEDDED AND MULCHED IN ACCORDANCE WITH THE RATES PREVIOUSLY STATED.

THE ABOVE EROSION CONTROLS MUST BE REMOVED WITHIN 30 DAYS OF FINAL STABILIZATION OF THE SITE. CONFORMANCE WITH THIS PLAN AND FOLLOWING THESE PRACTICES WILL RESULT IN A PROJECT THAT COMPLIES WITH THE STATE REGULATIONS AND THE STANDARDS OF THE NATURAL RESOURCES PROTECTION ACT, AND WILL PROTECT WATER QUALITY IN AREAS DOWNSTREAM ROM THE PROJECT.

MAINE CONSTRUCTION GENERAL PERMIT REQUIRED

SUBMISSION OF A MAINE CONSTRUCTION GENERAL PERMIT (MCGP) IS REQUIRED PRIOR TO COMMENCEMENT OF ANY EXCAVATION ACTIVITIES.

INSPECTION AND MAINTENANCE (APPENDIX B)

1. **INSPECTION AND MAINTENANCE REQUIREMENTS:** INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION AND STORMWATER CONTROL MEASURES, AREAS USED FOR STORAGE 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 AFTER A SIGNIFICANT STORM EVENT (0.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD) AND PRIOR TO COMPLETION OF PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS IN THE MCGP AND ANY DEPARTMENTAL COMPANION DOCUMENT TO THE MCGP, MUST CONDUCT THE INSPECTION. THIS PERSON MUST BE IDENTIFIED IN THE INSPECTION LOG. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY, IMPLEMENTATION MUST BE STARTED BY THE END OF THE NEXT WORKIN DAY. AND COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED. DOCUMENTATION OF CORRECTION ACTIONS SHALL BE MAINTAINED WITH THE INSPECTION FORMS.
2. **INSPECTION LOG (REPORT):** A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE. BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE INSPECTION LOG THE CORRECT ACTION TAKEN AND WHEN IT WAS TAKEN. THE LOG MUST BE MADE ACCESSIBLE TO THE DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF THE PERMANENT STABILIZATION.

HOUSEKEEPING (APPENDIX C)

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 1-800-452-4684 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: [HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLSRESP/](http://www.maine.gov/dep/spills/emergspillsresp/)

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.

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 SWEEPED IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. **DEBRIS AND OTHER MATERIALS:** MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. **EXCAVATION DEWATERING:** EXCAVATION DEWATERING 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:..
 - 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);
 - 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));
 - 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). 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.

ADDITIONAL REQUIREMENTS: ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

CONSTRUCTION OVERSITE

THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION FOR ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE POND'S CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE POND HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT, AND INCLUDE ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.

CONSTRUCTION SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER AS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETED.

COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED BY FLOODING EACH LIFT. THE BED SHOULD BE INSTALLED IN AT LEAST 2 LIFTS OF 9 INCHES TO PREVENT POCKETS OF LOOSE MEDIA.

CONSTRUCTION INSPECTIONS: AT A MINIMUM, THE PROFESSIONAL ENGINEER'S INSPECTION WILL OCCUR:

- AFTER THE THE FILTER HAS BEEN CONSTRUCTED TO SUBGRADE.
- AFTER INSTALLATION OF THE FILTER LINER.
- AFTER INSTALLATION OF THE UNDERDRAIN PIPES HAVE BEEN INSTALLED BUT NOT BACKFILLED.
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA.
- AFTER THE SOIL FILTER MEDIA HAS BEEN INSTALLED, SEEDDED AND MULCHED.
- AFTER ONE YEAR TO INSPECT VEGETATION AND MAKE CORRECTIONS.
- ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.

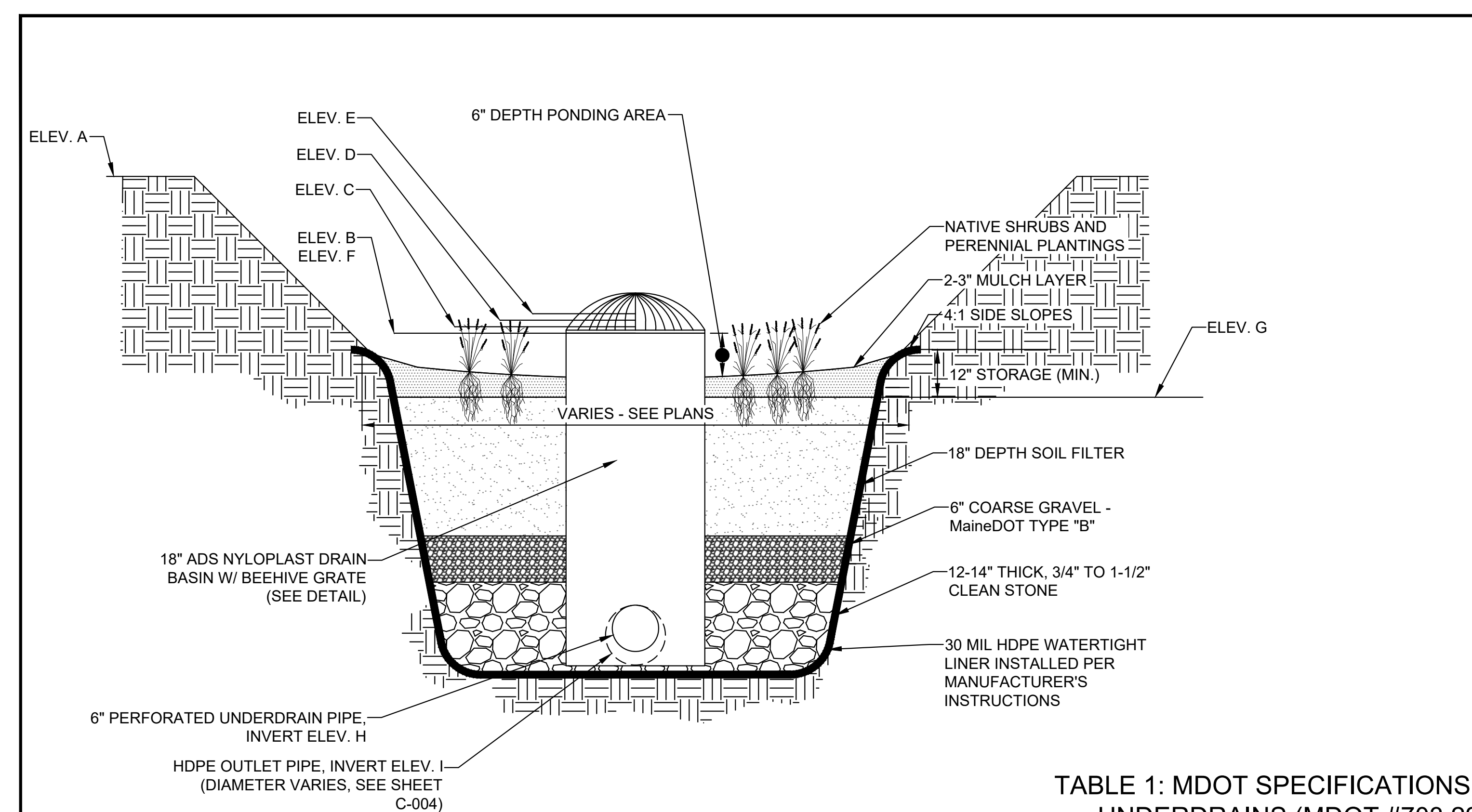
TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:

- SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
- PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES; 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL.
- PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D2434 WITH THE MIXTURE COMPACTED TO 90-92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.

FOR PERMIT

Attention: 01"0 If this scale bar does not measure 1" then drawing is not original scale.	STATE OF MAINE BRIAN M. MCDEVITT PE18260 PROFESSIONAL ENGINEER LICENSED 6/9/2025	Designed: DJB Drawn: JAM Checked: BJB Approved: BMM P.E. No: 13033 GEI Project 2203703	GEI Consultants GEI CONSULTANTS, INC. 5 MILK STREET PORTLAND, ME 04101 (207)797-8901	UNIVERSITY OF NEW ENGLAND 11 HILLS BEACH RD. BIDDEFORD, MAINE	UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER 11 HILLS BEACH ROAD BIDDEFORD, YORK COUNTY, MAINE	<table><tr><td>8</td><td>6/5/2025</td><td>ADDRESS PB COMMENTS</td><td>DJB</td></tr><tr><td>7</td><td>4/16/2025</td><td>BIDDEFORD PERMIT APP.</td><td>DJB</td></tr><tr><td>6</td><td>9/17/2024</td><td>REVISED PERMIT SET</td><td>DJB</td></tr><tr><td>5</td><td>6/27/2024</td><td>REVISED PERMIT SET</td><td>DJB</td></tr><tr><td>4</td><td>9/14/2023</td><td>DEP PERMIT SET</td><td>DJB</td></tr><tr><td>3</td><td>6/28/2023</td><td>75% DESIGN SUBMISSION</td><td>DJB</td></tr><tr><td>2</td><td>2/15/2023</td><td>30% DESIGN SUBMISSION</td><td>DJB</td></tr><tr><td>1</td><td>12/9/2022</td><td>15% DESIGN SUB REV</td><td>DJB</td></tr><tr><td>0</td><td>11/11/2022</td><td>15% DESIGN SUBMISSION</td><td>DJB</td></tr><tr><td>NO</td><td>DATE</td><td>ISSUE/REVISION</td><td>APP</td></tr></table>	8	6/5/2025	ADDRESS PB COMMENTS	DJB	7	4/16/2025	BIDDEFORD PERMIT APP.	DJB	6	9/17/2024	REVISED PERMIT SET	DJB	5	6/27/2024	REVISED PERMIT SET	DJB	4	9/14/2023	DEP PERMIT SET	DJB	3	6/28/2023	75% DESIGN SUBMISSION	DJB	2	2/15/2023	30% DESIGN SUBMISSION	DJB	1	12/9/2022	15% DESIGN SUB REV	DJB	0	11/11/2022	15% DESIGN SUBMISSION	DJB	NO	DATE	ISSUE/REVISION	APP	SHEET NAME EROSION CONTROL NOTES	SHEET NO. C-012
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SOIL FILTER MEDIA NOTES:

- SOIL FILTER MEDIA SHALL CONFORM TO MAINE DEP SOIL FILTER MEDIA OPTION 1, PER MAINE DEP STORMWATER BMP MANUAL CHAPTER 7.1. AS FOLLOWS:
- SOIL FILTER MEDIA SHALL CONSIST OF A SILTY SAND SOIL OR SOIL MIXTURE COMBINED WITH A MATURE, MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH.
 - THE RESULTING MIX SHALL CONTAIN NO LESS THAN 10% BY DRY WEIGHT ORGANIC MATERIAL.
 - THE RESULTING MIX SHALL CONTAIN 8% TO 12% PASSING THE NO. 200 SIEVE.
 - THE RESULTING MIX SHALL CONTAIN A MAXIMUM CLAY CONTENT OF 2%.

UNDERDRAIN OUTLET VALVE CALIBRATION NOTES:

- AFTER THE COMPLETION OF INSTALLATION OF THE SOIL FILTER MEDIA, THE CONTRACTOR SHALL PERFORM THE FOLLOWING PROCEDURE TO CALIBRATE THE UNDERDRAIN OUTLET VALVE TO ACHIEVE THE 0.75"/HOUR DESIGN FLOW RATE.
- BEGIN WITH VALVE HALF-OPEN.
 - CAREFULLY FLOOD THE BASIN UNTIL THERE IS 18" OF WATER STORED ABOVE THE SOIL FILTER MEDIA (UP TO THE HEIGHT OF OUTLET STRUCTURE RIM) WITHOUT CAUSING EROSION OF THE SOIL FILTER MEDIA.
 - RECORD THE TIME IT TAKES FOR THE 18" OF WATER TO DRAIN TO THE TOP OF THE SOIL FILTER MEDIA. THE TARGET DRAINDOWN TIME IS 24 HOURS.
 - IF THE 18" OF WATER DRAINS IN LESS THAN 24 HOURS, CLOSE THE VALVE SLIGHTLY AND REPEAT STEPS 2 & 3 ABOVE.
 - IF THE 18" OF WATER DRAINS IN MORE THAN 24 HOURS, OPEN THE VALVE SLIGHTLY AND REPEAT STEPS 2 & 3 ABOVE.
 - REPEAT THIS PROCESS UNTIL THE 18" OF WATER DRAINS IN 24 HOURS.

BIORETENTION FILTER CELL SCHEDULE

BIORETENTION FILTER CELL ID	EMBKMT. ELEV.	WATER QUALITY STORM ELEV.	2-YR STORM ELEV.	10-YR STORM ELEV.	25-YR STORM ELEV.	TOP OF OUTLET STRUCT ELEV.	BOTTOM OF STORAGE ELV.	INTERIOR UNDERDRAIN INVERT (START)	UNDERDRAIN OUTLET INVERT	FILTER AREA (SQ. FT.)
	A	B	C	D	E	F	G	H	I	
SF-A	24.50	23.50	23.62	23.67	23.71	23.50	23.00	19.25	18.75	580
SF-B	18.50	18.00	18.11	18.16	18.19	18.00	17.50	14.25	13.75	890

2 BIORETENTION FILTER CELL

NO SCALE

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

STATE OF MAINE
BRIAN M. MCDEVITT
PE18260
LICENSED PROFESSIONAL ENGINEER
6/9/2025

Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**EROSION CONTROL
DETAILS I**

SHEET NO.

C-013

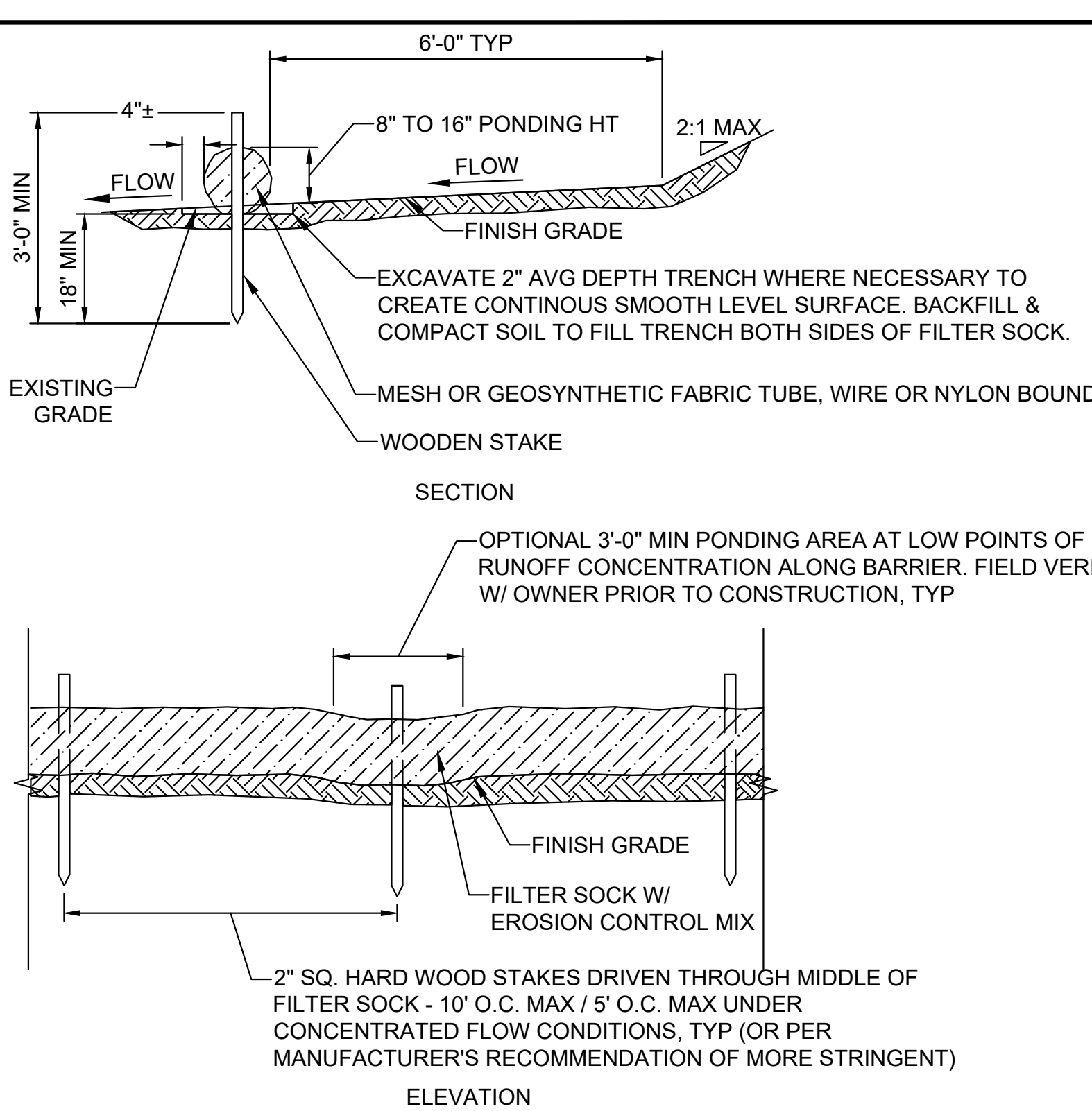
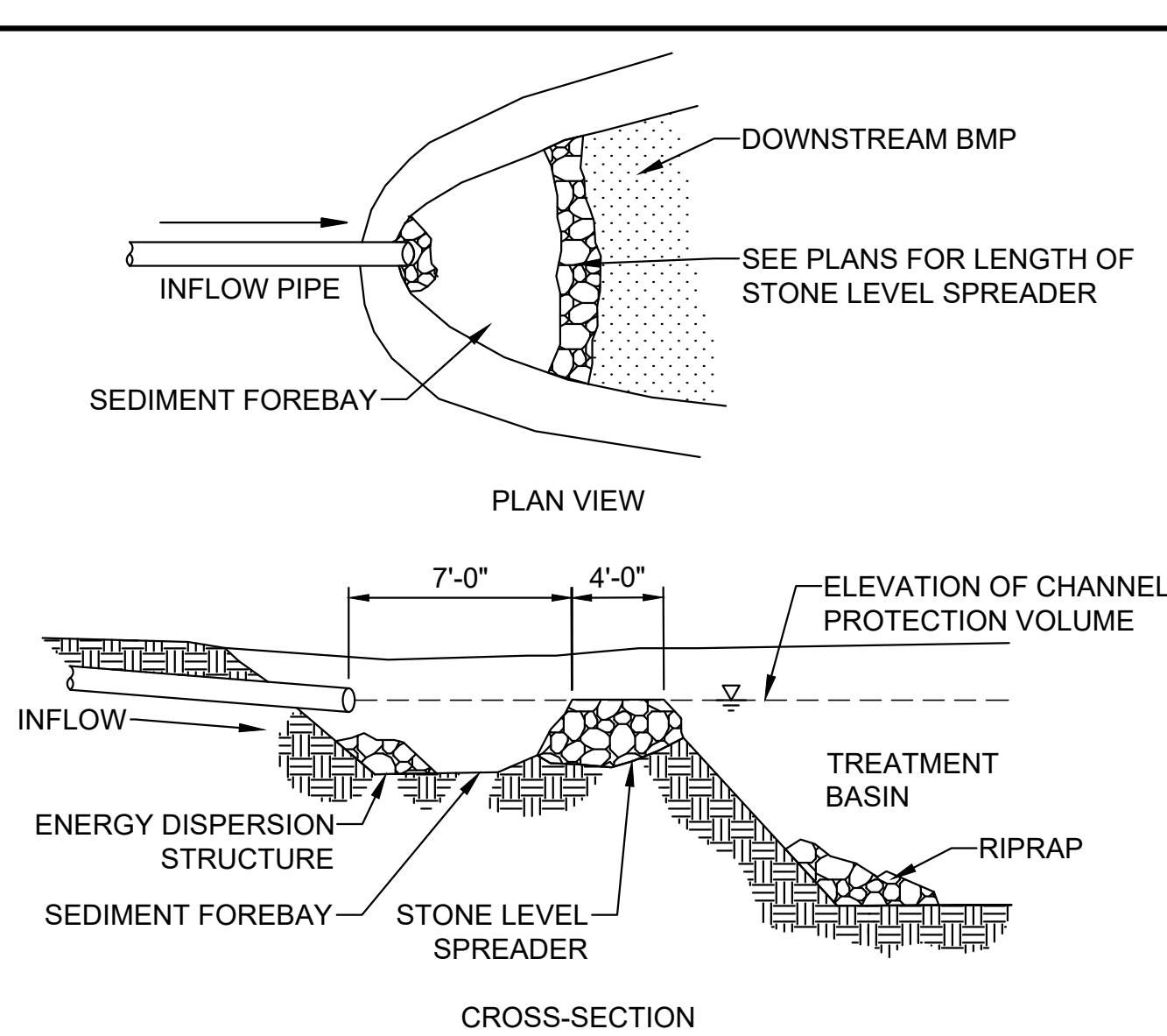
NOTES:

- STONE SHALL BE AASHTO #3 STONE, UNIFORMLY GRADED, CLEAN.

3

LEVEL SPREADER DESIGN

NO SCALE



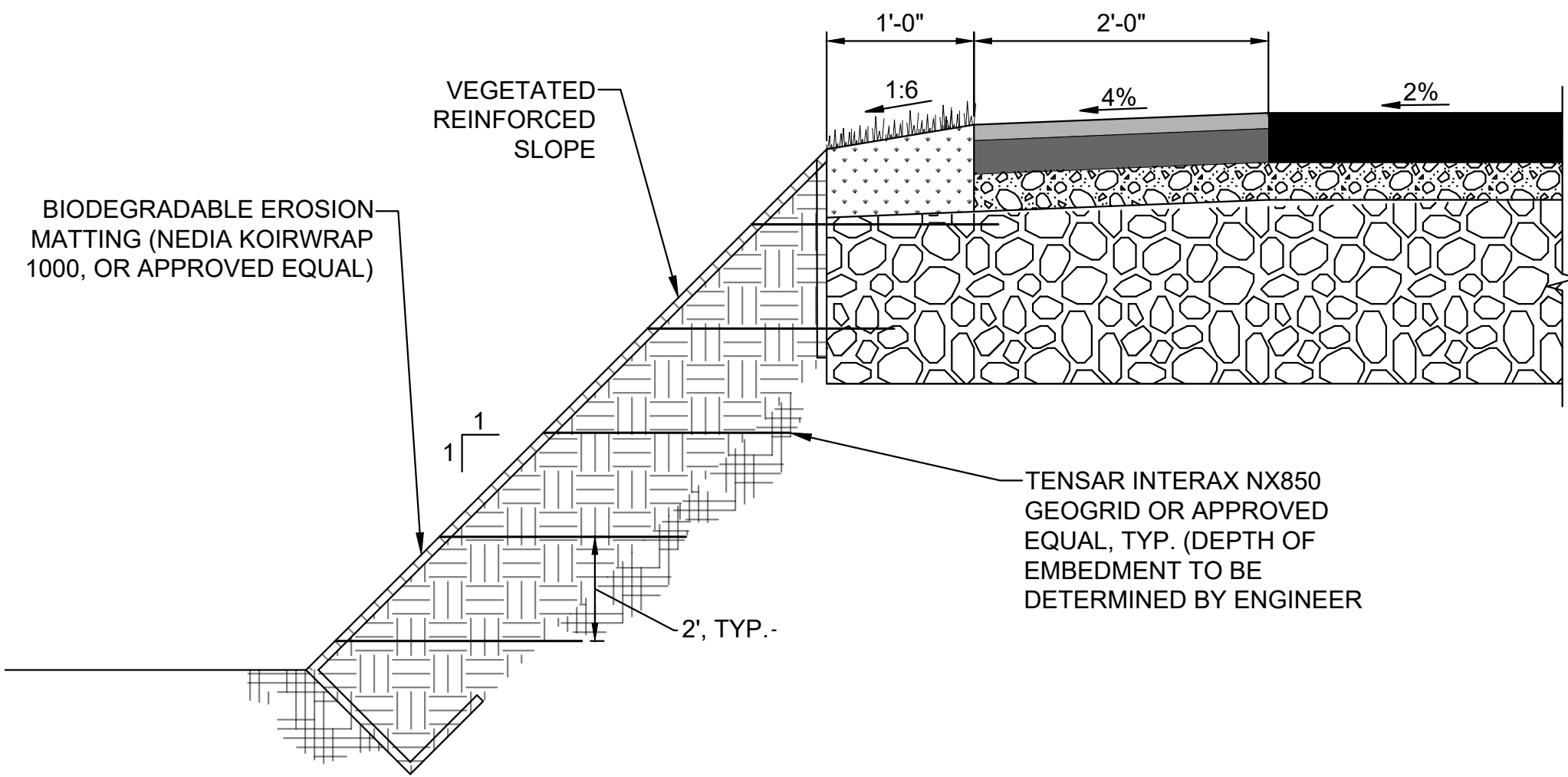
NOTES:

- FILTER SOCKS SHALL BE INSTALLED IN CONTINUOUS SEGMENT AND IN FULL CONTACT WITH THE GROUND ON A SMOOTH LEVEL SURFACE.
- FOLLOW MANUFACTURER'S REQUIREMENTS FOR INSTALLATION, MAINTENANCE AND REMOVAL OF FILTER SOCK MATERIALS.
- AREAS DISTURBED BY EROSION BARRIERS SHALL BE STABILIZED AFTER REMOVAL.

1

SEDIMENT BARRIER - FILTER SOCK

NO SCALE

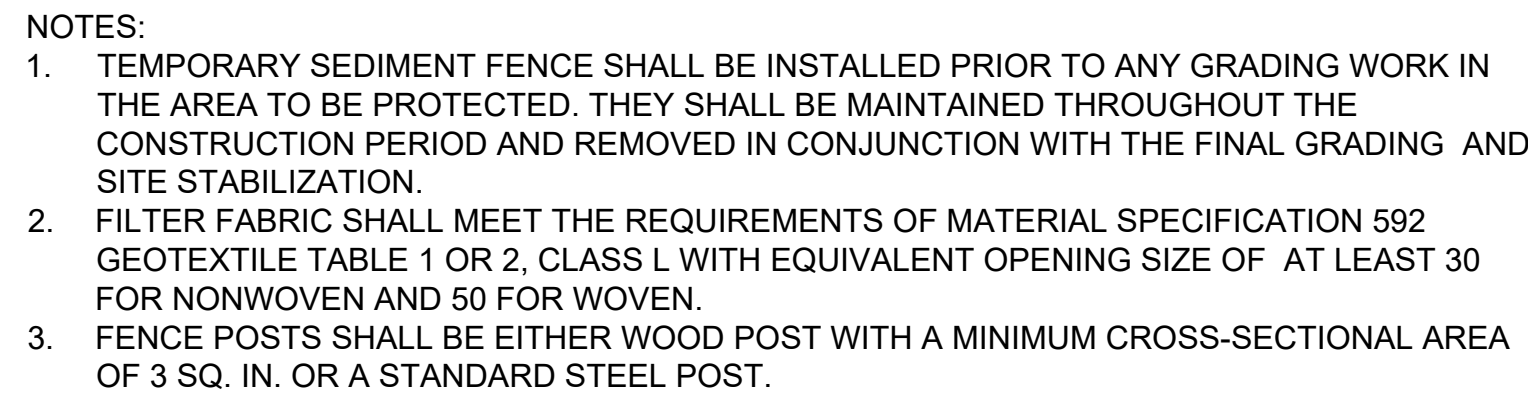


4

1:1 VEGETATED REINFORCED SLOPE

NO SCALE

FOR PERMIT

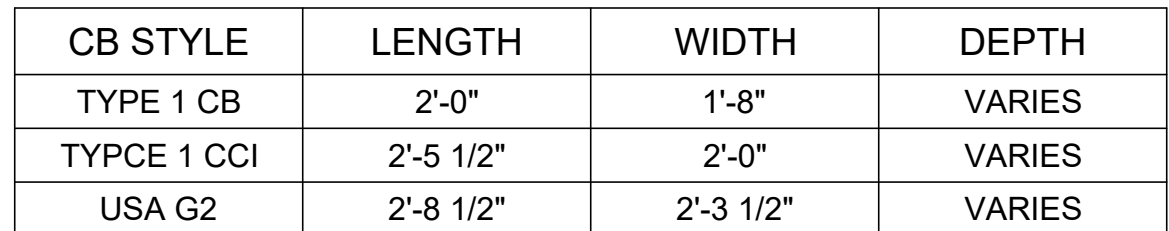
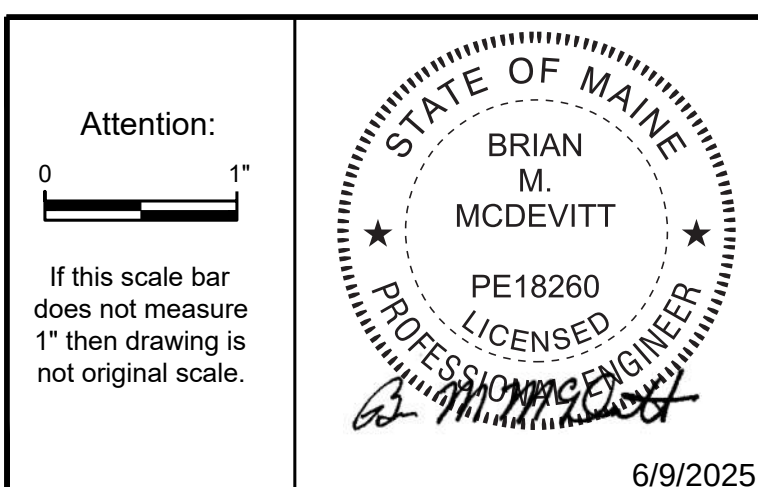


NO SCALE



NOTES:

1. THE ENTRANCE/EXIT PAD SHOULD HAVE A LENGTH OF 50 FEET OR MORE AND A 12-FOOT MINIMUM WIDTH (OR AS APPROPRIATE TO CONTAIN THE WHEEL BASE OF CONSTRUCTION VEHICLES PLUS 3 FEET ON EITHER SIDE).
2. THE PAD SHOULD BE 6 INCHES OR MORE THICK WITH ANGULAR AGGREGATE (2-3 INCH DIAMETER). APPROPRIATE RECLAIMED CONCRETE MATERIAL MAY BE USED.
3. THE AGGREGATE SHOULD BE PLACED OVER A GEOTEXTILE FILTER TO PREVENT THE STONES FROM PUSHING INTO THE NATIVE SOIL.
4. AT THE BOTTOM OF SLOPES, A DIVERSION RIDGE SHOULD BE PROVIDED TO INTERCEPT RUNOFF.
5. BERMS MAY BE NECESSARY TO DIVERT WATER AROUND ANY EXPOSED SOIL, AND RUNOFF SHOULD BE DIRECTED TO A SEDIMENT TRAP.
6. THE WHEELS OF CONSTRUCTION EQUIPMENT MAY BE WASHED PRIOR TO EXITING THE SITE. WASHING SHOULD BE PERFORMED IN AN AREA THAT DRAINS TO A SEDIMENT TRAP OR BASIN.
7. THE PAD SHOULD BE INSPECTED WEEKLY, AND BEFORE AND AFTER EACH STORM. THE PAD MAY HAVE TO BE REPLACED IF THE VOIDS BECOME FILLED WITH SEDIMENT. STREET SWEEPING MAY BE NECESSARY



NOTES:

1. THE DIMENSION CHART ABOVE IS FOR STANDARD CATCH BASINS AND INLETS ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE CORRECT SIZE DEVICE FOR EACH INLET.
2. FOR NON-STANDARD CATCH BASINS AND INLETS, THE CONTRACTOR SHALL MEASURE DIMENSIONS IN THE FIELD AND ORDER THE APPROPRIATE SIZE(S).
3. THE INLET SEDIMENT CONTROL DEVICE SHALL BE OF HIGH FLOW DESIGN (200 GAL/MIN/FT), AS PER THE MANUFACTURER'S SPECS.
4. THE SEDIMENT CONTROL DEVICE SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED A MINIMUM ONCE PER MONTH OR WITHIN THE 48 HOURS FOLLOWING A STORM EVENT. FILTER SHALL BE CLEANED IN A MANNER WHICH ENSURES THAT ALL SEDIMENT REMAINS ON SITE.
5. SUBSTITUTION OF A SHEET OF FILTER FABRIC PLACED OVER THE OPENING OF THE INLET IS NOT APPROVED.
6. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS, SIZE OF FILTER INLET SACK TO BE DETERMINED BY MANUFACTURER.
7. THE FILTER SHALL BE REPLACED OR CLEANED WHEN THE BAG BECOMES HALF FULL.
8. SEE INLET PROTECTION NOTES STD. DETAIL E3.

SCALE: N.T.S.



NOTES:

1. THE SOIL SURFACE SHOULD BE FINELY GRADED AND SMOOTH FOR THE BLANKET TO HAVE DIRECT CONTACT WITH THE SOIL AND TO PREVENT UNDERMINING. EROSION CONTROL BLANKETS PERFORM BEST ON LOAMY SOILS AND SHOULD NOT BE USED ON ROCKY SITES OR SHALLOW SOILS.
2. SEED SHOULD BE SOWN BEFORE INSTALLING THE EROSION CONTROL BLANKET.
3. ALWAYS UNROLL THE BLANKET DOWNHILL WITHOUT STRETCHING AND ANCHOR THE UPSLOPE EDGE IN A 12 INCH DEEP TRENCH THAT IS BACKFILLED AND TAMPED.
4. OVERLAP SHINGLE STYLE A MINIMUM OF 12 INCHES AT THE TOP OF EACH ROW AND 4 INCHES AT THE EDGES OF PARALLEL ROWS. ANCHOR ALONG THE OVERLAP WITH A MAXIMUM SPACING OF 3 FEET OR AS REQUIRED BY THE MANUFACTURER.



NO SCALE



NOTES:

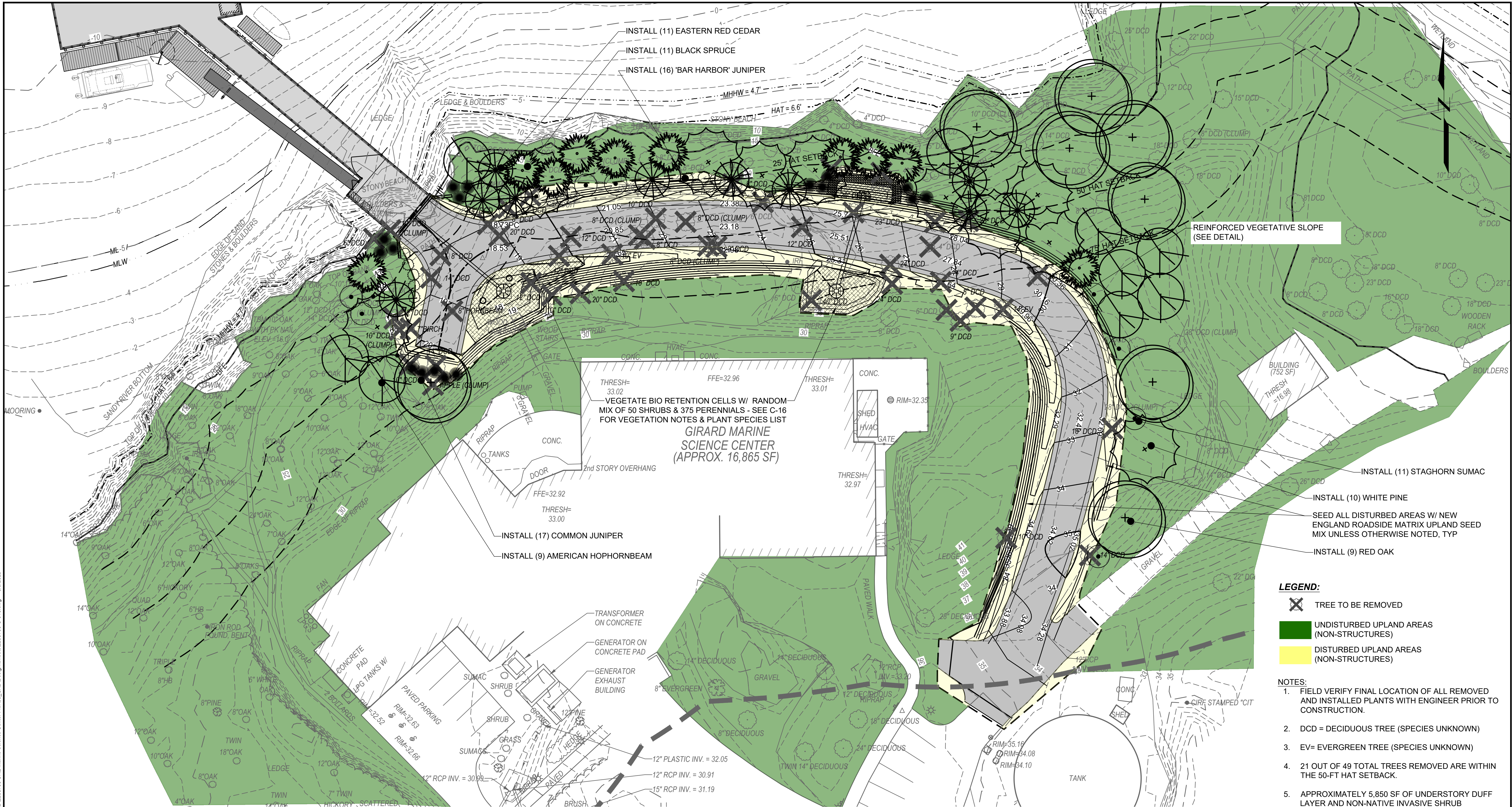
1. INSTALL THE FILTER BAG PRIOR TO INITIATING ANY ACTIVITIES WHICH WILL REQUIRE DEWATERING.
2. THE TYPE OF FABRIC SHOULD BE BASED ON THE SIZE OF SOIL PARTICLES TO BE TRAPPED (I.E. A WOVEN MATERIAL FOR COARSE PARTICLES AND A NONWOVEN MATERIAL FOR FINER PARTICLES).
3. A FILTER BAG SHOULD BE LOCATED IN AN AREA MOSTLY LEVEL (WITH LESS THAN 5% SLOPE). A PAD OF CRUSHED GRAVEL MAY BE PROVIDED.
4. AVOID DISCHARGING TO AN AREA THAT IS BARE OF VEGETATION OR NEWLY VEGETATED. ANY SIGN OF EROSION OR CHANNELIZATION FROM THE DISCHARGED WATER REQUIRES IMMEDIATELY CORRECTION.
5. FILTER BAGS HAVE A FINITE CAPACITY FOR SEDIMENT COLLECTION AND MAY BE PRONE TO PLUGGING. AVOID OVER-PRESSURIZING THE BAG OR IT MAY BURST.

NO SCALE

FOR PERMIT

8	6/5/2025	ADDRESS PB COMMENTS	DJB	SHEET NAME EROSION CONTROL DETAILS II SHEET NO. C-014	
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB		
6	9/17/2024	REVISED PERMIT SET	DJB		
5	6/27/2024	REVISED PERMIT SET	DJB		
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1	12/9/2022	15% DESIGN SUB REV	DJB		
0	11/11/2022	15% DESIGN SUBMISSION	DJB		
NO	DATE	ISSUE/REVISION	APP		

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PLAN
SCALE: 1" = 20'

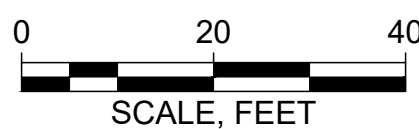
LEGEND:

- TREE TO BE REMOVED
- UNDISTURBED UPLAND AREAS (NON-STRUCTURES)
- DISTURBED UPLAND AREAS (NON-STRUCTURES)

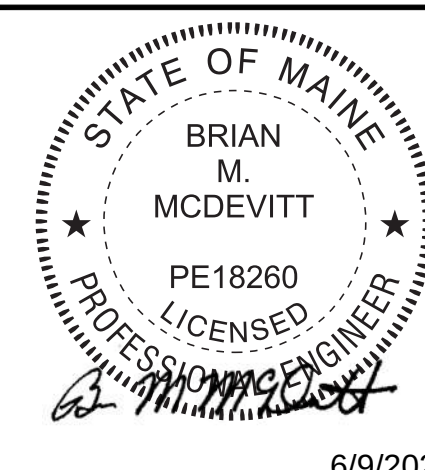
NOTES:

- FIELD VERIFY FINAL LOCATION OF ALL REMOVED AND INSTALLED PLANTS WITH ENGINEER PRIOR TO CONSTRUCTION.
- DCD = DECIDUOUS TREE (SPECIES UNKNOWN)
- EV= EVERGREEN TREE (SPECIES UNKNOWN)
- 21 OUT OF 49 TOTAL TREES REMOVED ARE WITHIN THE 50-FT HAT SETBACK.
- APPROXIMATELY 5,850 SF OF UNDERSTORY DUFF LAYER AND NON-NATIVE INVASIVE SHRUB HONEYSUCKLE (*LONICERA MORROWII*) WILL BE REMOVED WITHIN THE 50-FT HAT SETBACK.

FOR PERMIT



Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



UNE
UNIVERSITY OF
NEW ENGLAND
11 HILLS BEACH RD.
BIDDEFORD, MAINE

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MARINE SCIENCE CENTER
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0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
REVEGETATION PLAN	C-015

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VEGETATION GENERAL NOTES:

- VEGETATION MANAGEMENT (INSTALLATION AND MAINTENANCE) SHALL COMPLY WITH CITY OF BIDDEFORD SHORELAND ZONING ORDINANCE REQUIREMENTS.
 - ALL REVEGETATION MUST OCCUR ALONG THE SAME SEGMENT OF SHORELINE AND IN AS CLOSE OF PROXIMITY AS PRACTICAL TO THE LOCATION WHERE THE VEGETATION WAS REMOVED.
 - ALL VEGETATION REMOVED MUST BE REPLACED WITH NATIVE, NON-INVASIVE SPECIES.
 - AT LEAST THREE DIFFERENT SPECIES OF TREES AND WOODY VEGETATION UNDER THREE FEET IN HEIGHT SHALL BE USED.
 - NO MORE THAN ONE SPECIES OF TREES AND WOODY VEGETATION UNDER THREE FEET IN HEIGHT SHALL MAKE UP MORE THAN 50% OF THE TOTAL NUMBER OF TREES AND WOOD VEGETATION UNDER THREE FEET IN HEIGHT PLANTED.
 - SURVIVAL OF ALL VEGETATION MUST BE MAINTAINED FOR A MINIMUM OF FIVE YEARS.
- ALL REMOVED NON-NATIVE PLANT MATERIAL SHALL BE PROPERLY DISPOSED OF BY BURNING ON-SITE OR DISPOSAL AT A WASTE RECEIVING FACILITY.
- AN UPDATED LIST OF NON-NATIVE INVASIVE VEGETATION IS MAINTAINED BY THE DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY'S NATURAL AREAS PROGRAM:
[HTTPS://WWW.MAINE.GOV/DACF/MNAP/FEATURES/INVASIVE_PLANTS/INVASIVES.HTM](https://www.maine.gov/dacf/mnap/features/invasive_plants/invasives.htm)
- PLANT SPECIES SUBSTITUTIONS SHALL BE APPROVED BY THE OWNER. CONTRACTOR SHALL REFERENCE THE FOLLOWING RESOURCES FOR COASTAL PLANT LIST GUIDELINES: CUMBERLAND COUNTY SOIL & WATER CONSERVATION DISTRICT - COASTAL PLANTING GUIDE; UNIVERSITY OF MAINE COOPERATE EXTENSION; AND/OR THE WILD SEED PROJECT.

VEGETATION INSTALLATION NOTES:

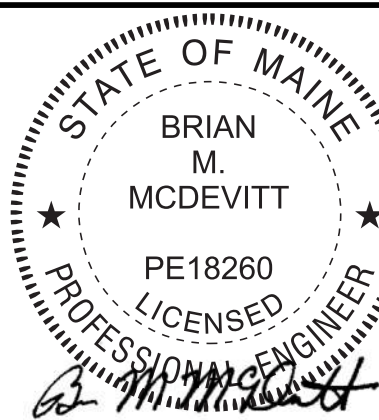
- THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE VEGETATION WITHIN THE CONSTRUCTION AREA UNLESS NOTED TO BE REMOVED, LIMBED OR PRUNED. THIS MAY REQUIRE HAND EXCAVATION WITHIN TREE DRIPLINES.
- ALL PLANT MATERIAL SELECTIONS SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
- ALL NEW PLANTING MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. IN ADDITION ALL NEW PLANT MATERIAL FOR THE PROJECT SHALL BE OF THE HIGHEST SPECIMEN QUALITY.
- ALL NEW PLANTS SHALL BE BALLED AND BURLAPPED OR CONTAINER GROWN UNLESS OTHERWISE NOTED ON THE PLANT LIST.
- CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON THE DRAWINGS.
- NO TREES SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS THEY BORE TO PREVIOUS GRADE.
- STAKE LOCATION OF ALL PROPOSED PLANTING FOR APPROVAL BY THE OWNER PRIOR TO COMMENCEMENT OF PLANTING.
- ALL EXISTING TREES TO REMAIN SHALL BE PROPERLY PROTECTED, PRUNED AND FERTILIZED PER THE SPECIFICATIONS.
- ALL LAWN AREAS DISTURBED BY CONSTRUCTION OPERATIONS INSIDE AND OUTSIDE THE LIMIT OF WORK SHALL BE LOAMED AND SEEDED AS SPECIFIED.
- ALL PLANT BEDS ARE TO RECEIVE THREE INCHES (4") OF SHREDDED BARK MULCH AS SPECIFIED.
- ANY PROPOSED SUBSTITUTIONS OF PLANT SPECIES SHALL BE MADE WITH PLANTS OF EQUIVALENT OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE ONLY AS APPROVED BY OWNER.
- ALL AREAS TO BE SEEDED SHALL RECEIVE SOIL PREPARATION AS SPECIFIED PRIOR TO SEEDING, UNLESS OTHERWISE NOTED ON PLAN.
- PREPARE ALL PLANT PITS WITH PLANTING SOIL TO A MINIMUM DEPTH MATCHING THE DEPTH OF ROOT BALLS.
- NATIVE PLANT SPECIES REMOVED SHALL BE REPLANTED WITH IN-KIND SPECIES AND/OR THOSE PROVIDE IN THE PLANT LIST.

PLANT LIST							
KEY	QTY	SCIENTIFIC NAME COMMON NAME	SIZE	SPACING	ROOTING	MATURE SIZE	NOTES
TREES							
CC	9	CARPINUS CAROLINIANA AMERICAN HORNBEAM	1" CAL	10' O.C.	B&B / CONT	25' HT / 25' W	REPLACE REMOVED TREES 1 FOR 1 AT LOCATIONS AS INDICATED ON THE REVEGETATION PLAN.
JV	10	JUNIPERUS VIRGINIANA EASTERN RED CEDAR	3'-4' HT	10' O.C.	B&B / CONT	35' HT / 15' W	
PM	10	PICEA MARIANA BLACK SPRUCE	5'-6' HT	10' O.C.	B&B / CONT	35' HT / 15' W	
PS	10	PINUS STROBUS WHITE PINE	6'-7' HT	15' O.C.	B&B / CONT	75' HT / 35' W	
QR	9	QUERCUS RUBRA RED OAK	1.5 - 2" CAL	25' O.C.	B&B / CONT	75' HT / 50' W	
SHRUBS							
JC	17	JUNIPERUS COMMUNIS COMMON JUNIPER	18"-24" HT	5' O.C.	CONT	10' HT / 10' W	PLANT SHRUBS AT LOCATIONS AS INDICATED ON THE REVEGETATION PLAN.
JH	16	JUNIPERUS HORIZONTALIS 'BAR HARBOR' BAR HARBOR CREEPING JUNIPER	5-7 PPP	6' O.C.	CONT	1.5' HT / 10' W	
RT	11	RHUS TYPHINA STAGHORN SUMAC	18"-24" HT	10' O.C.	B&B / CONT	20' HT / 25' W	
BIORETENTION CELL PLANTING							
AS	75	ASCLEPIAS SYRIACA COMMON MILKWEED	5-7 PPP	18" O.C.	CONT	2' HT / 3' W	PROVIDE A RANDOM MIX OF EQUAL QUANTITIES OF EACH PERENNIAL AND SHRUB SPECIES THROUGHOUT BIO RETENTION CELLS. PLANT EACH SPECIES AS INDIVIDUALS OR IN GROUPINGS OF THREE.
IR	75	IRIS VERSICOLOR BLUE FLAG IRIS	5-7 PPP	18" O.C.	CONT	18" HT / 2' W	
IV	25	ILEX VERTICILLATA WINTERBERRY	12"-18" HT	3' O.C.	CONT	8' HT / 8' W	
MP	25	MYRICA PENSYLVANICA NORTHERN BAYBERRY	12"-18" HT	3' O.C.	CONT	8' HT / 8' W	
PV	75	PANICUM VIRGATUM SWITCHGRASS	5-7 PPP	18" O.C.	CONT	3' HT / 2' W	
SN	75	SYMPHYOTRICHUM NOVAE-ANGLIAE NEW ENGLAND ASTER	5-7 PPP	18" O.C.	CONT	2' HT / 3' W	
SS	75	SOLIDAGO SEMPERVIRENS SEASIDE GOLDENROD	5-7 PPP	18" O.C.	CONT	2' HT / 3' W	
SEED MIX							
SOW NEW ENGLAND ROADSIDE MATRIX UPLAND SEED MIX ON ALL DISTURBED AREAS UNLESS OTHERWISE NOTED ON REVEGETATION PLAN.							

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



6/9/2025

Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703

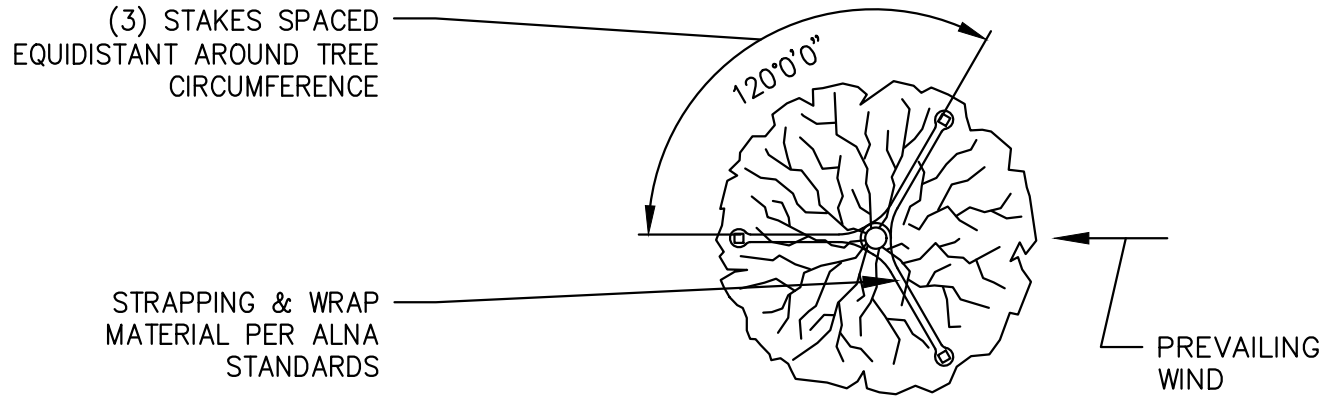


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BIDDEFORD, MAINE

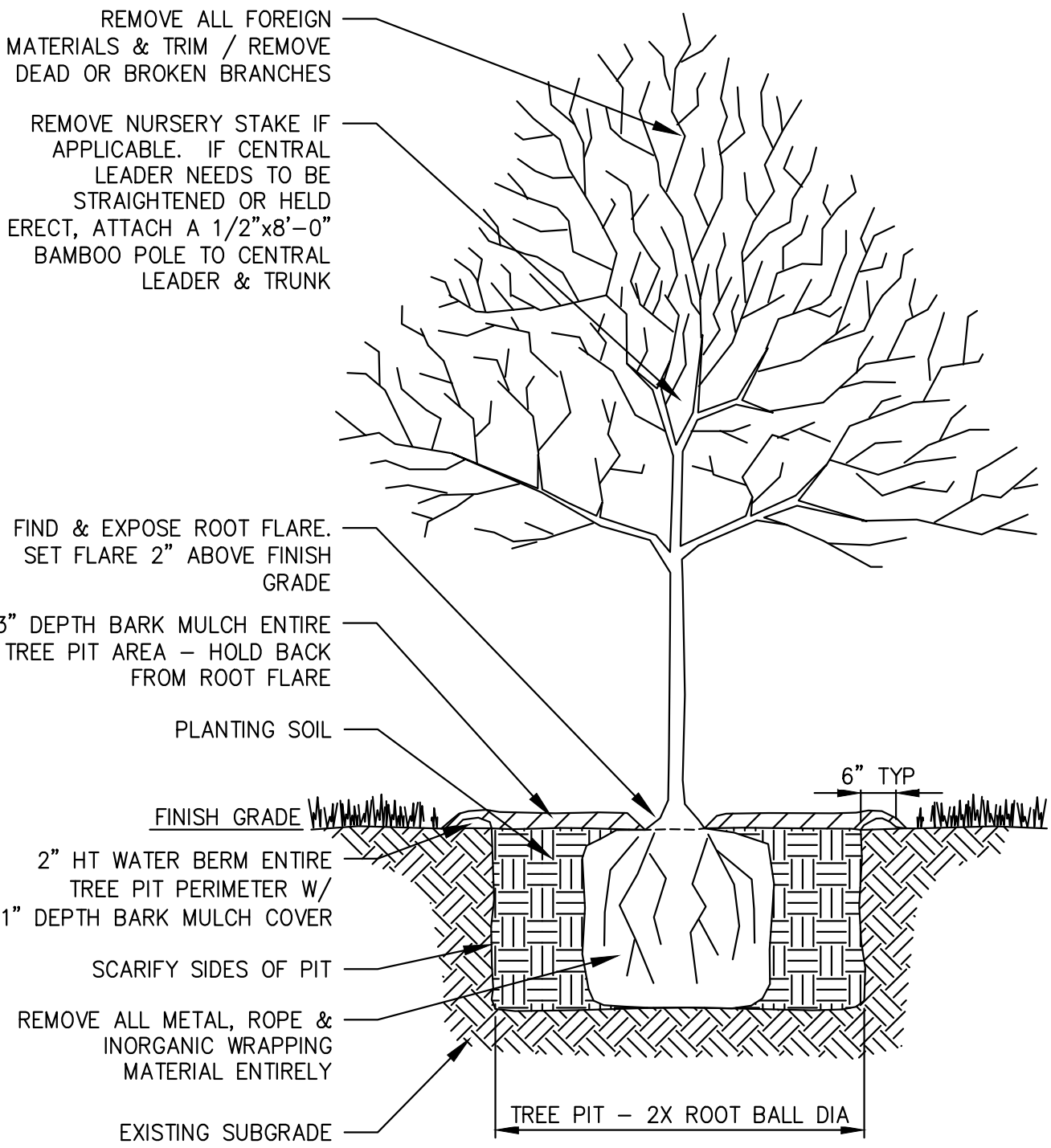
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0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**REVEGETATION
NOTES, DETAILS
AND SCHEDULES**
SHEET NO.
C-016

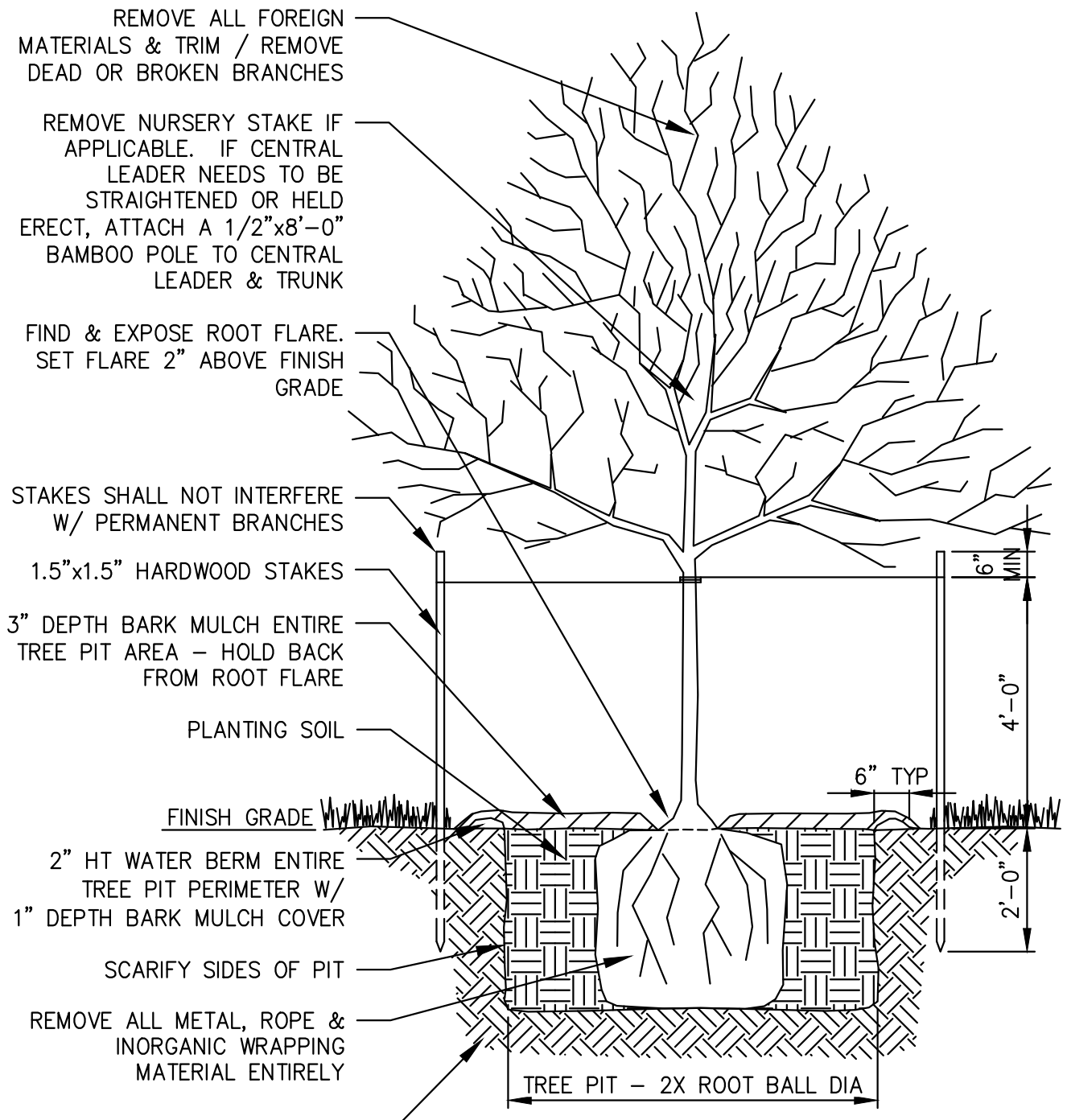


PLAN



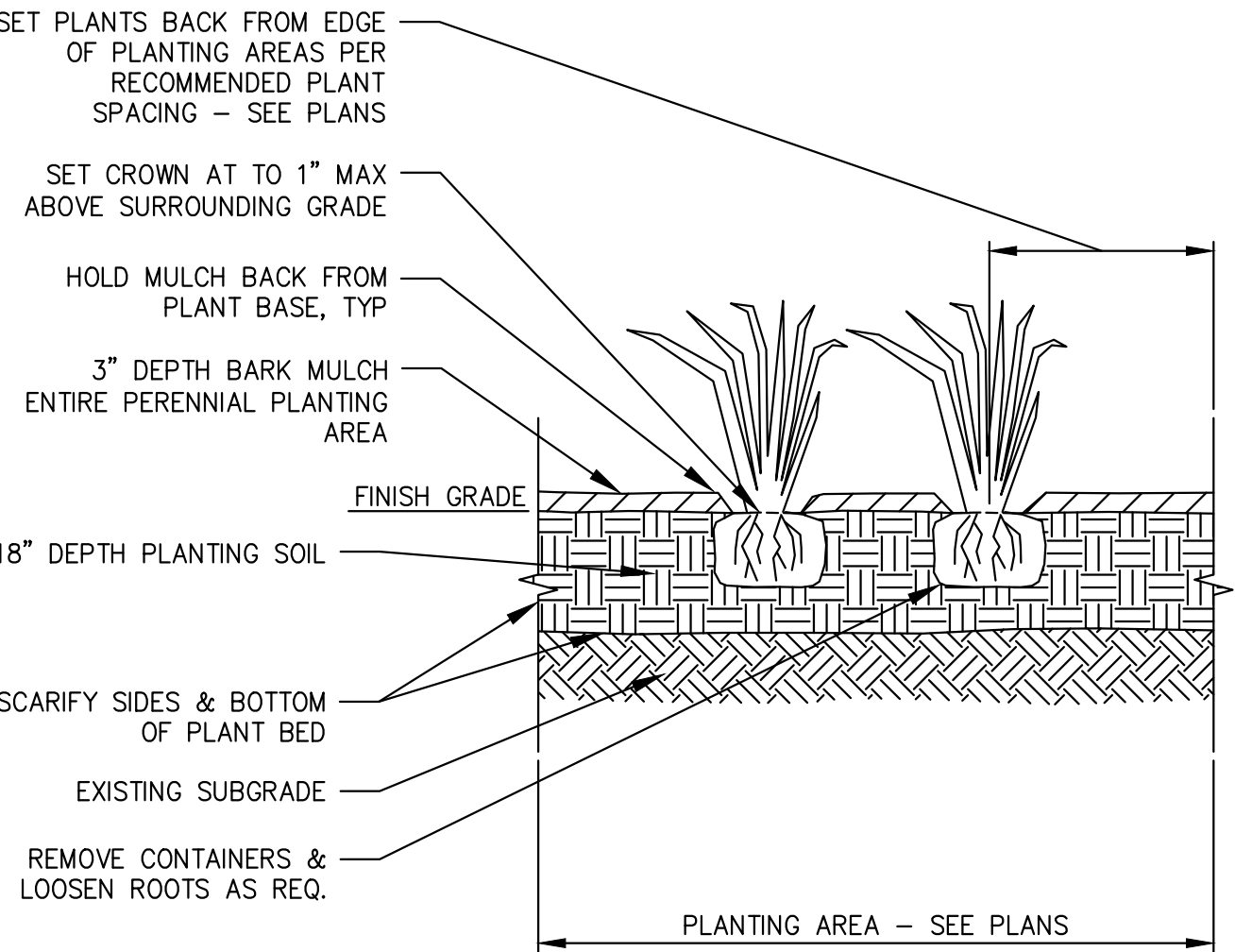
TREE INSTALLATION <= 10-FT

NOT TO SCALE



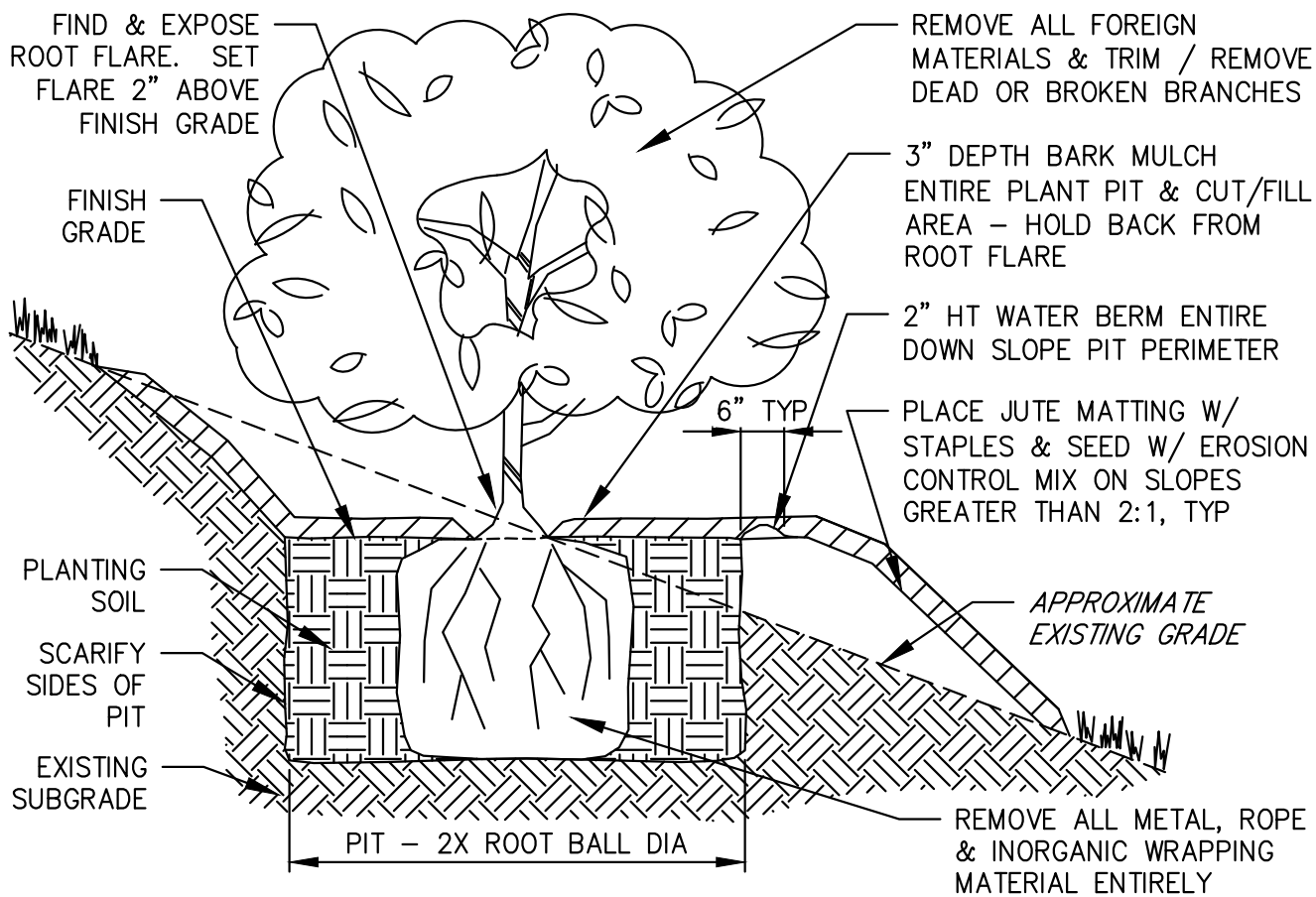
TREE INSTALLATION > 10-FT

NOT TO SCALE



PERENNIAL INSTALLATION

NOT TO SCALE



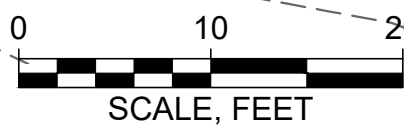
SHRUB INSTALLATION ON SLOPE

NOT TO SCALE

FOR PERMIT

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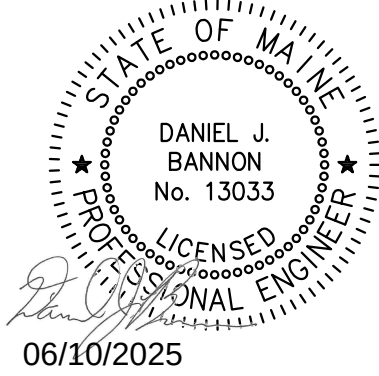
NOTES:
AREA OF FIXED PIER BEYOND
MLW LINE = 2770 SF, BASED ON
LIMITS OF CONCRETE DECK



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

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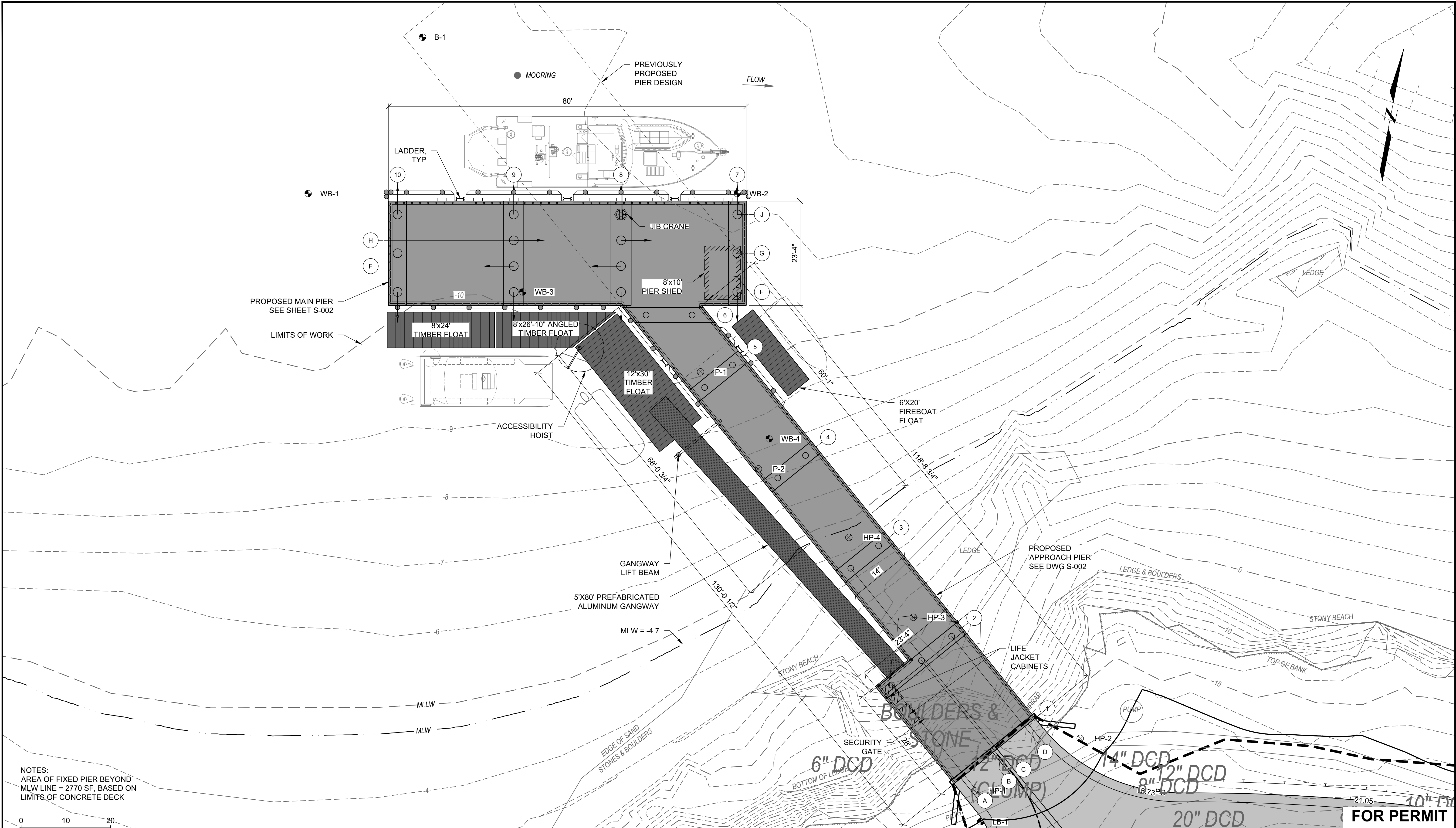
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BIDDEFORD, YORK COUNTY, MAINE

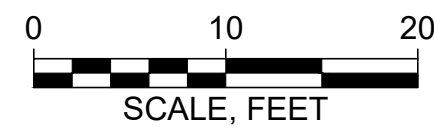
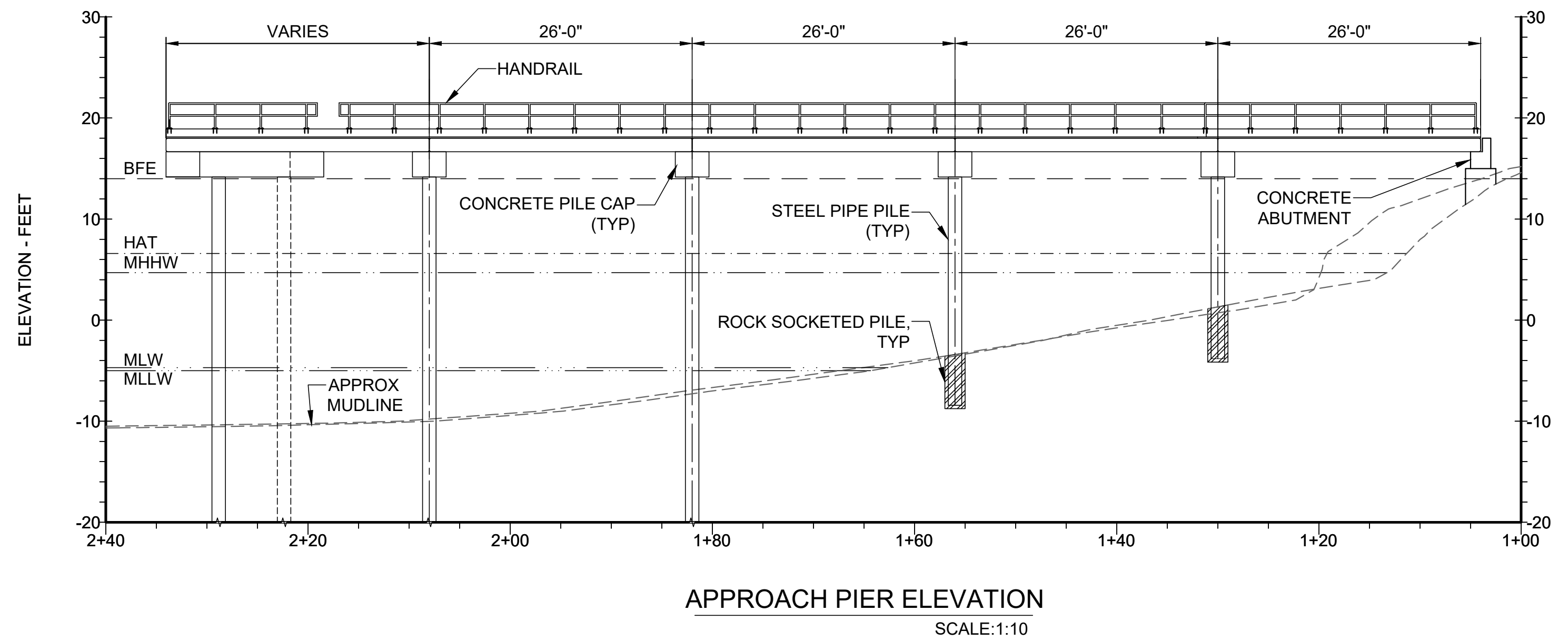
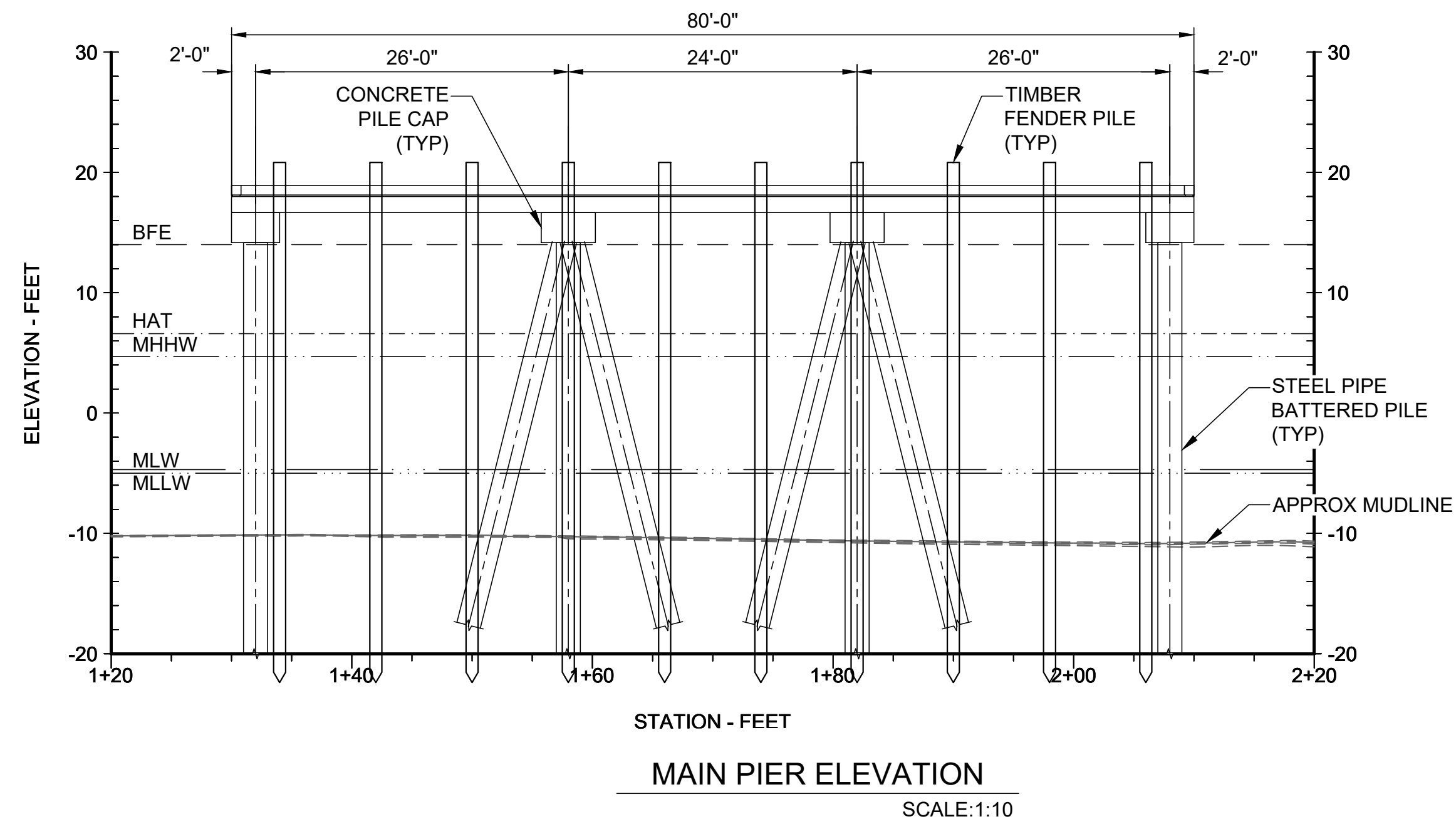
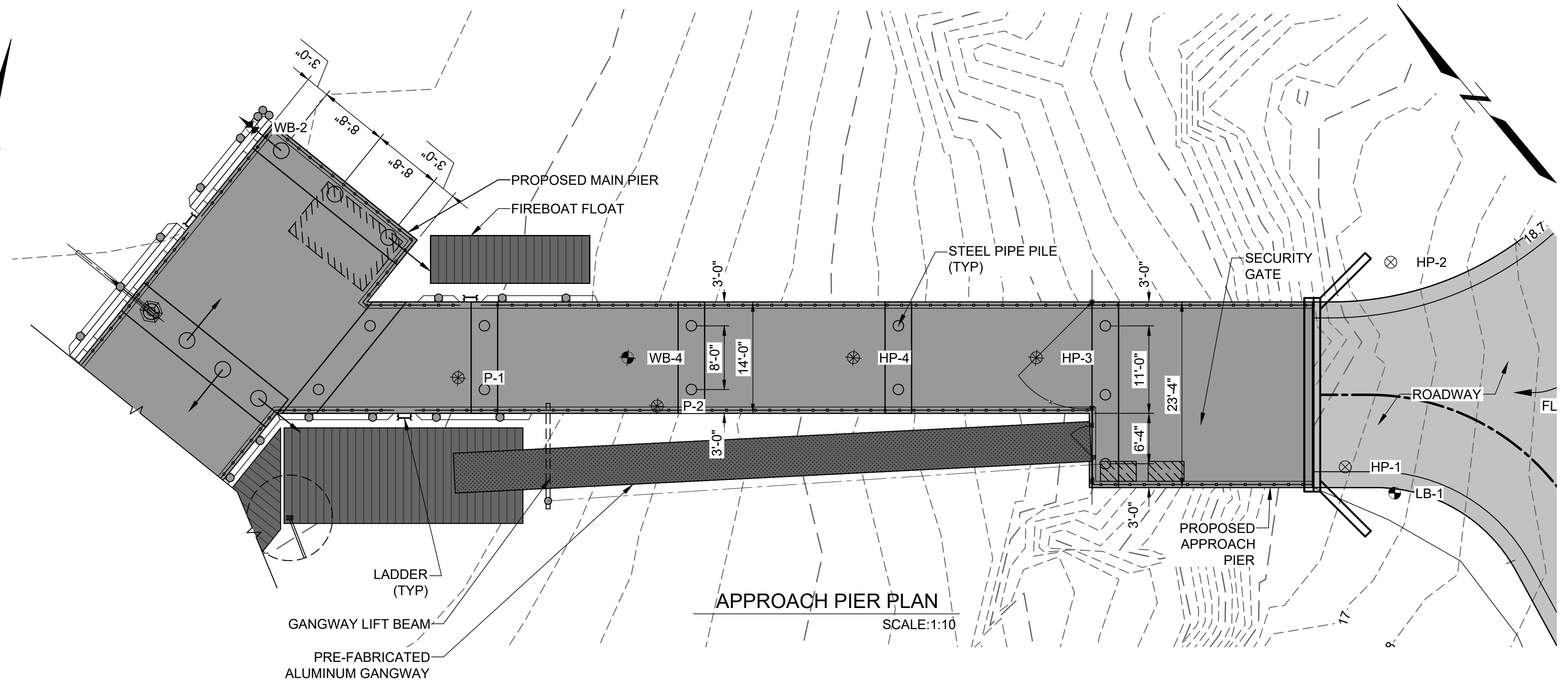
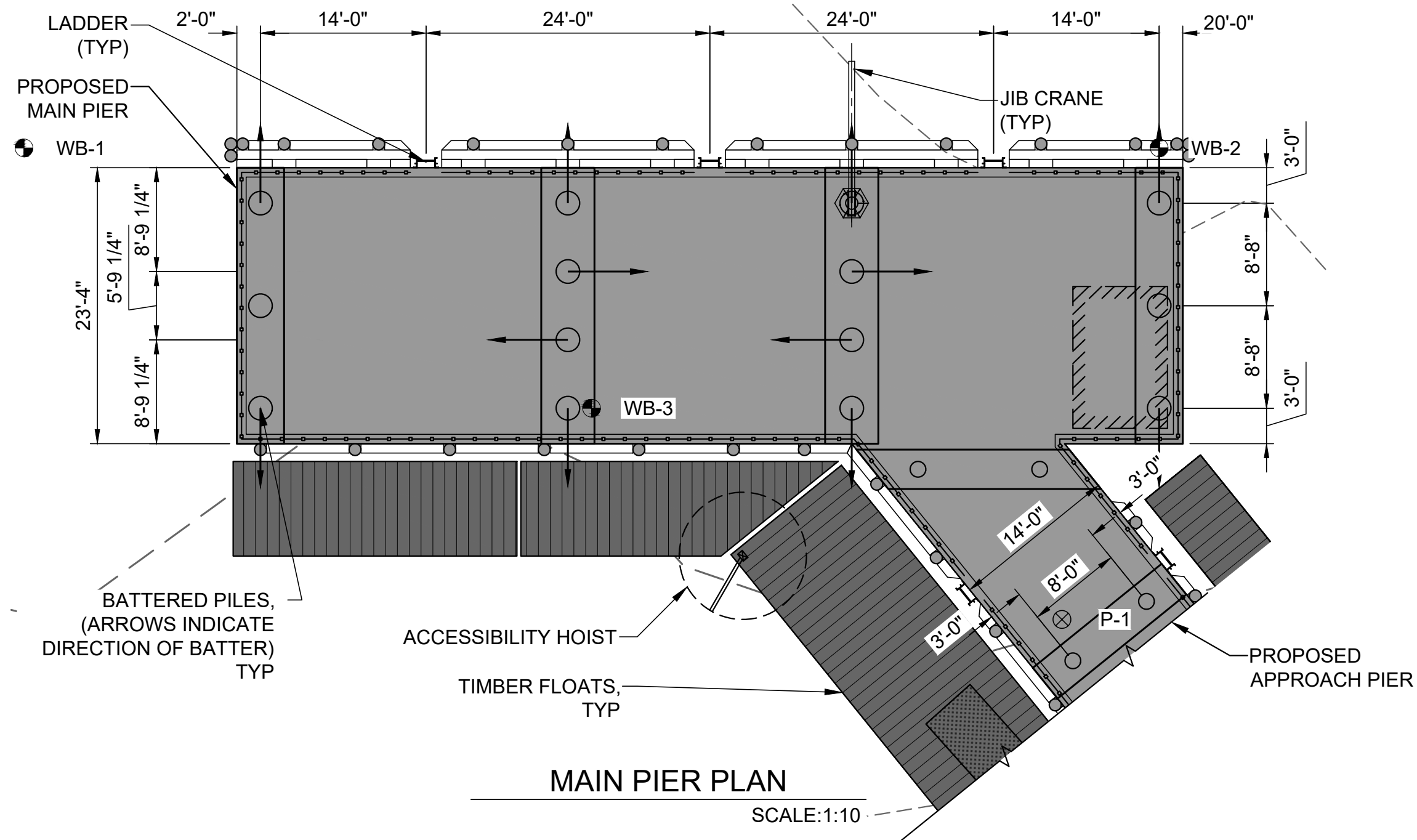
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7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
PIER LAYOUT PLAN

SHEET NO.
S-001



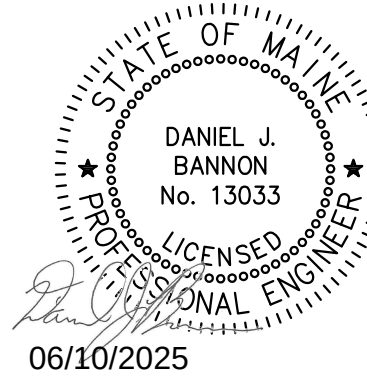
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ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

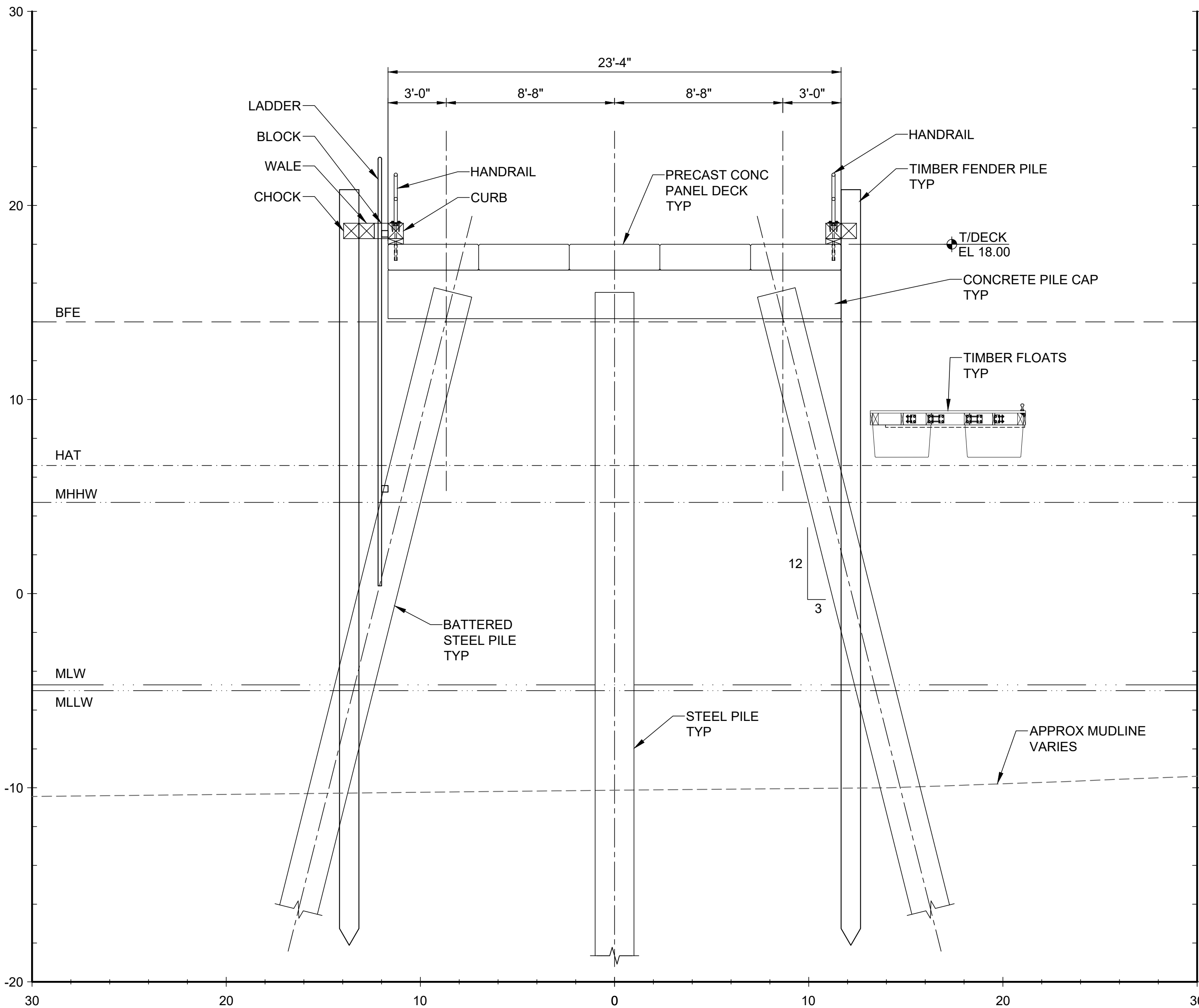
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**PIER PLANS
AND
ELEVATIONS**

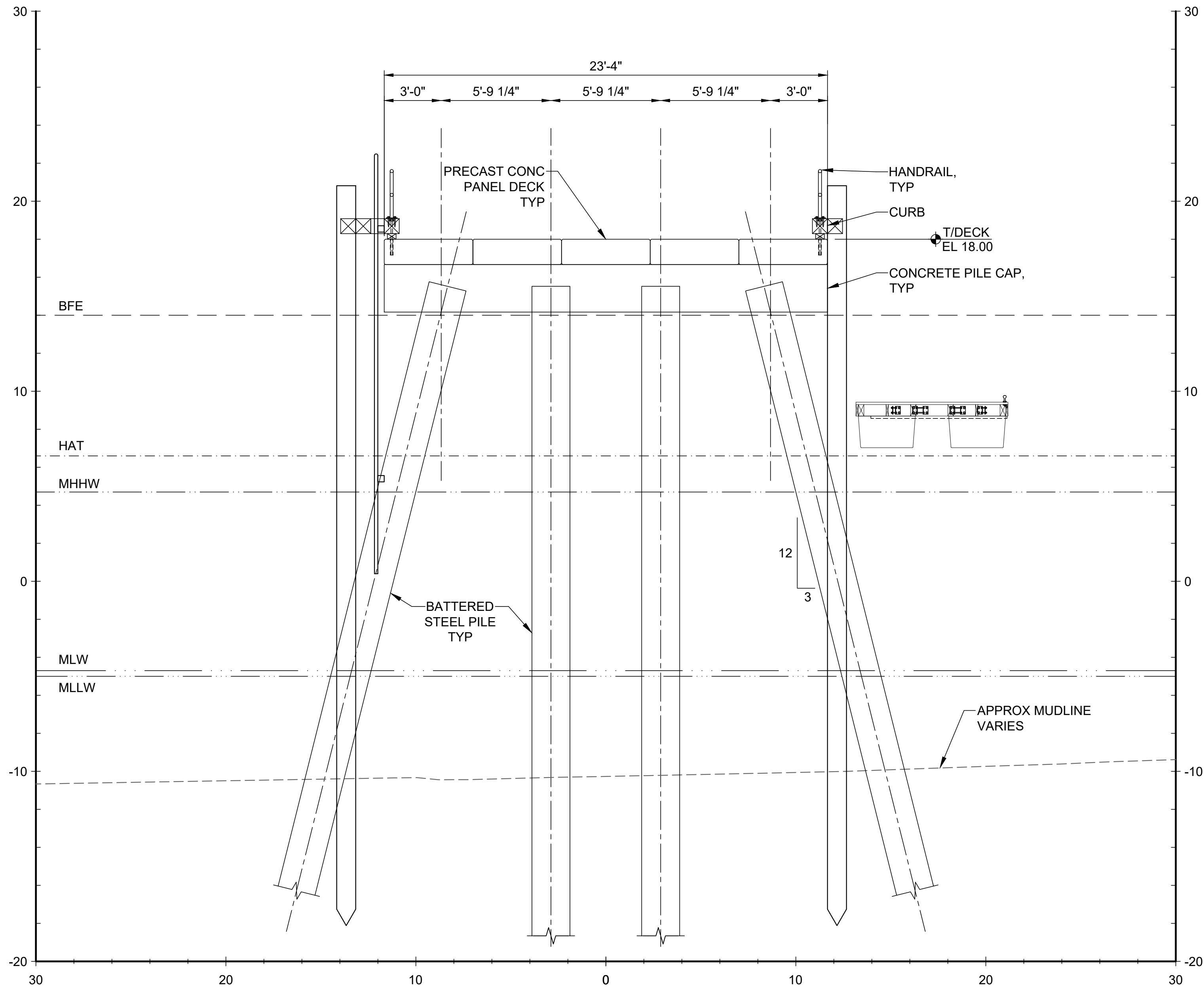
SHEET NO.
S-002

FOR PERMIT

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SECTION
MAIN PIER AT BENT 10
SCALE: 1"=4'



SECTION
MAIN PIER AT BENT 9
SCALE: 1"=4'

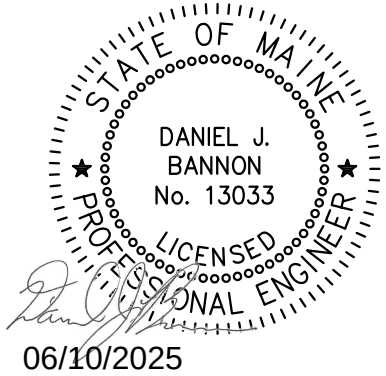


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:

If this scale bar
does not measure
1" then drawing is
not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

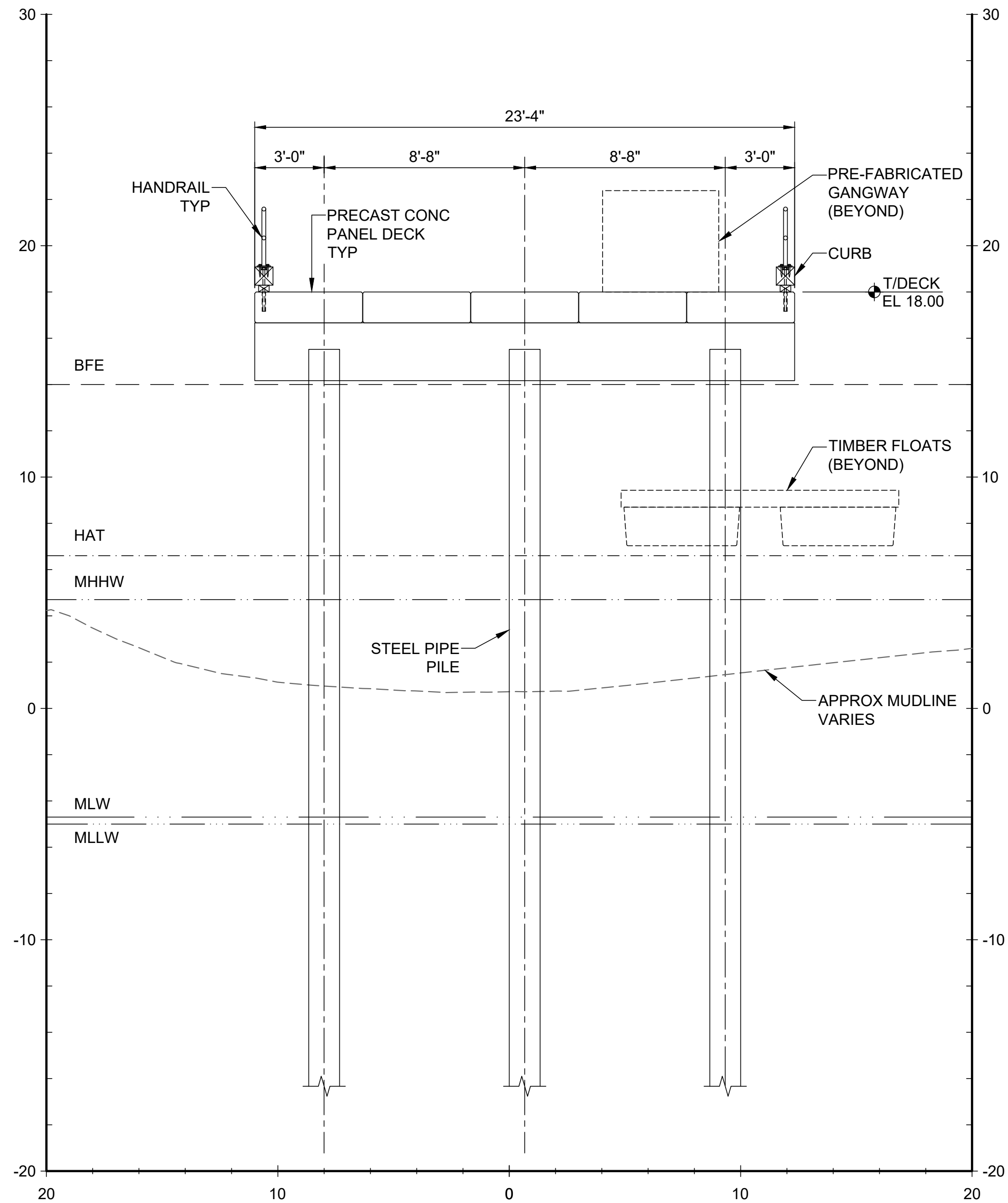
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5	6/27/2024	REVISED PERMIT SET	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**TYPICAL PIER SECTIONS
(1 OF 2)**

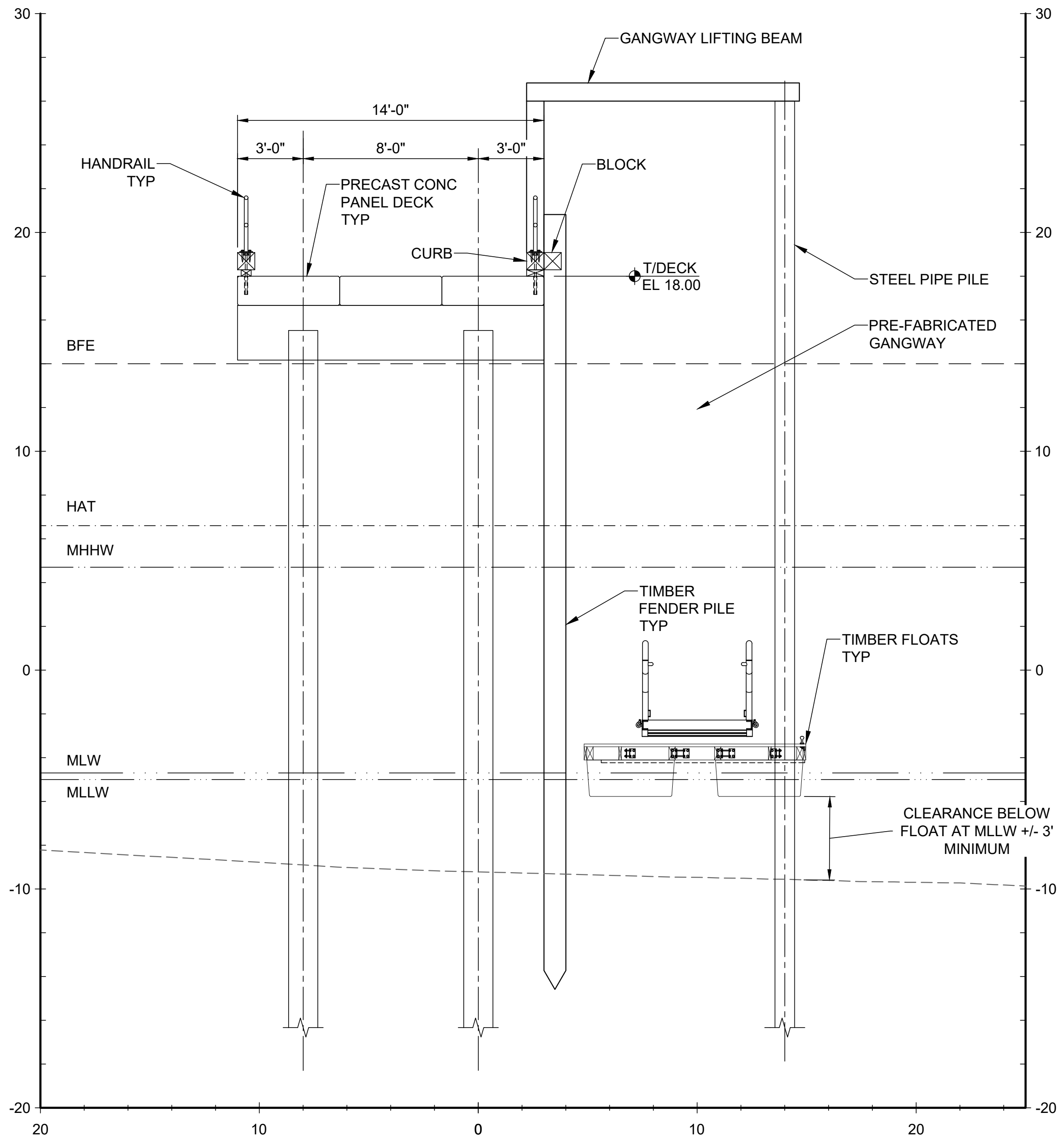
SHEET NO.
S-003

FOR PERMIT

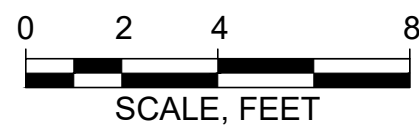
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SECTION
28' WIDE APPROACH PIER AT BENT 2 SCALE: 1"=4'



SECTION
14' WIDE APPROACH PIER AT GANGWAY HOIST SCALE: 1"=4'

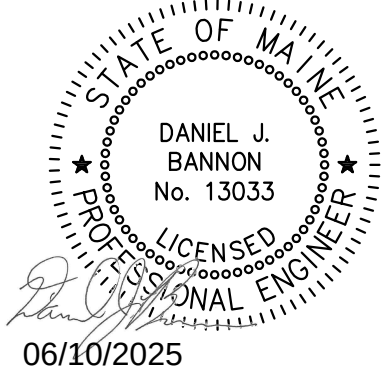


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:

If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

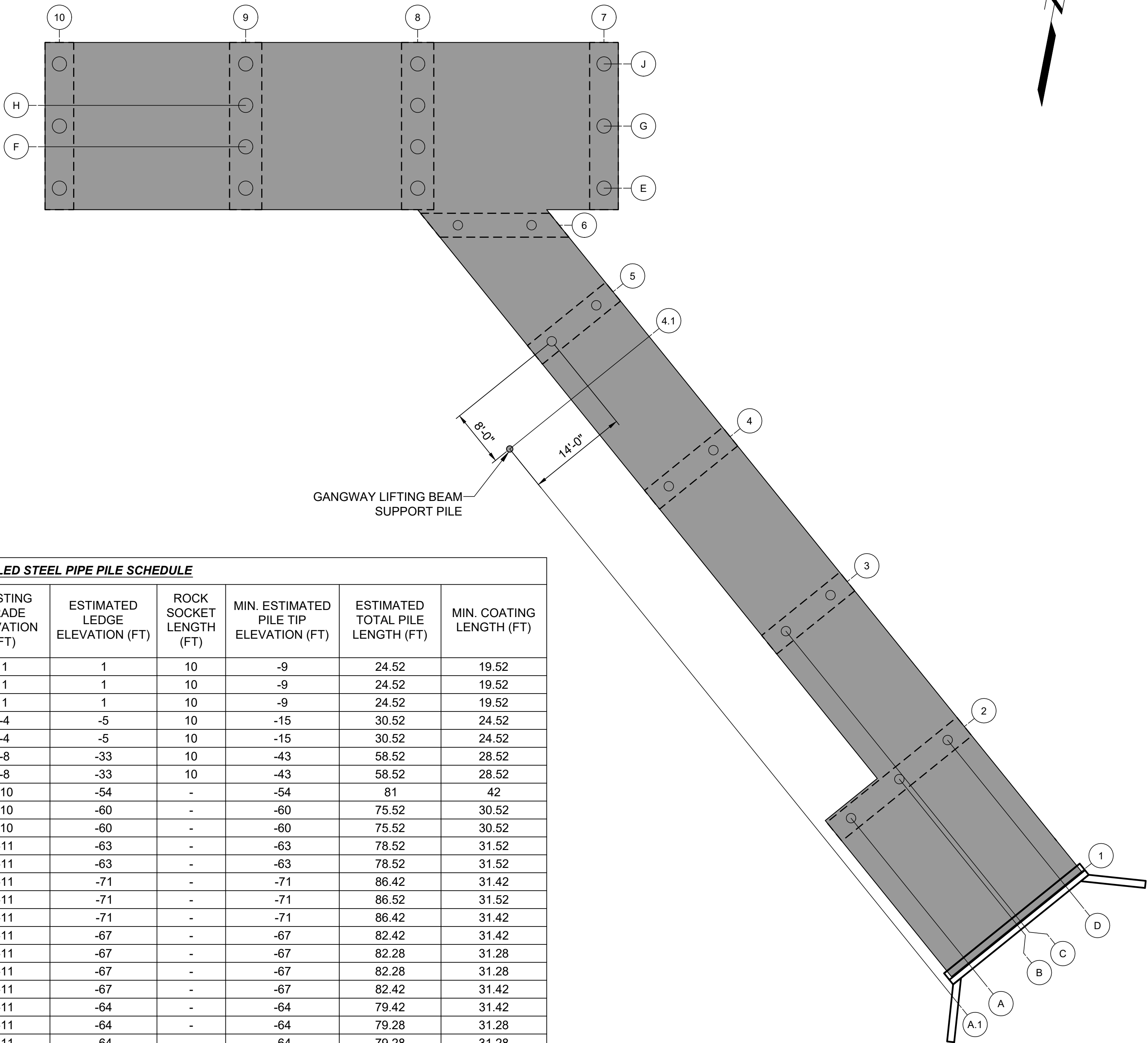
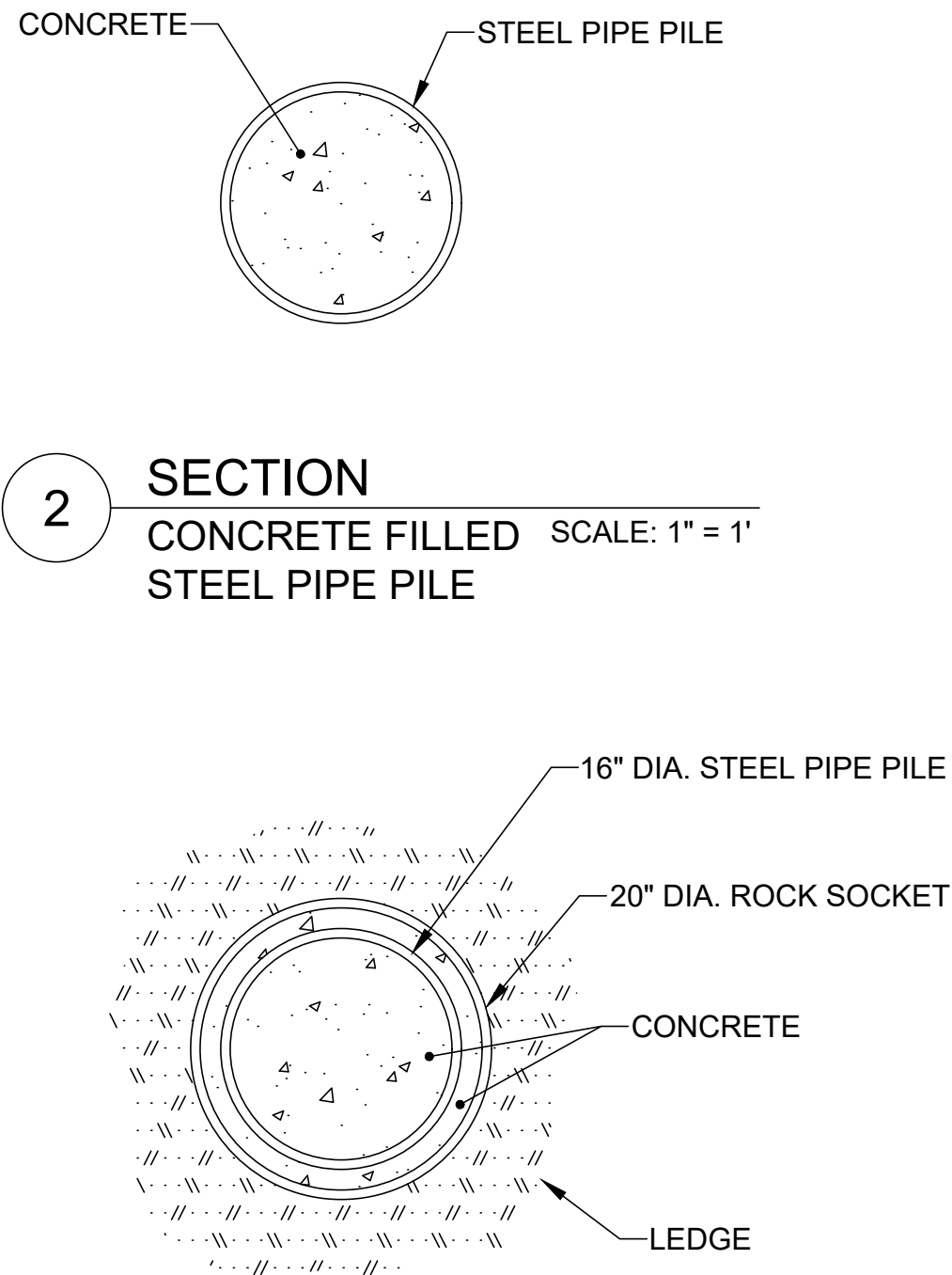
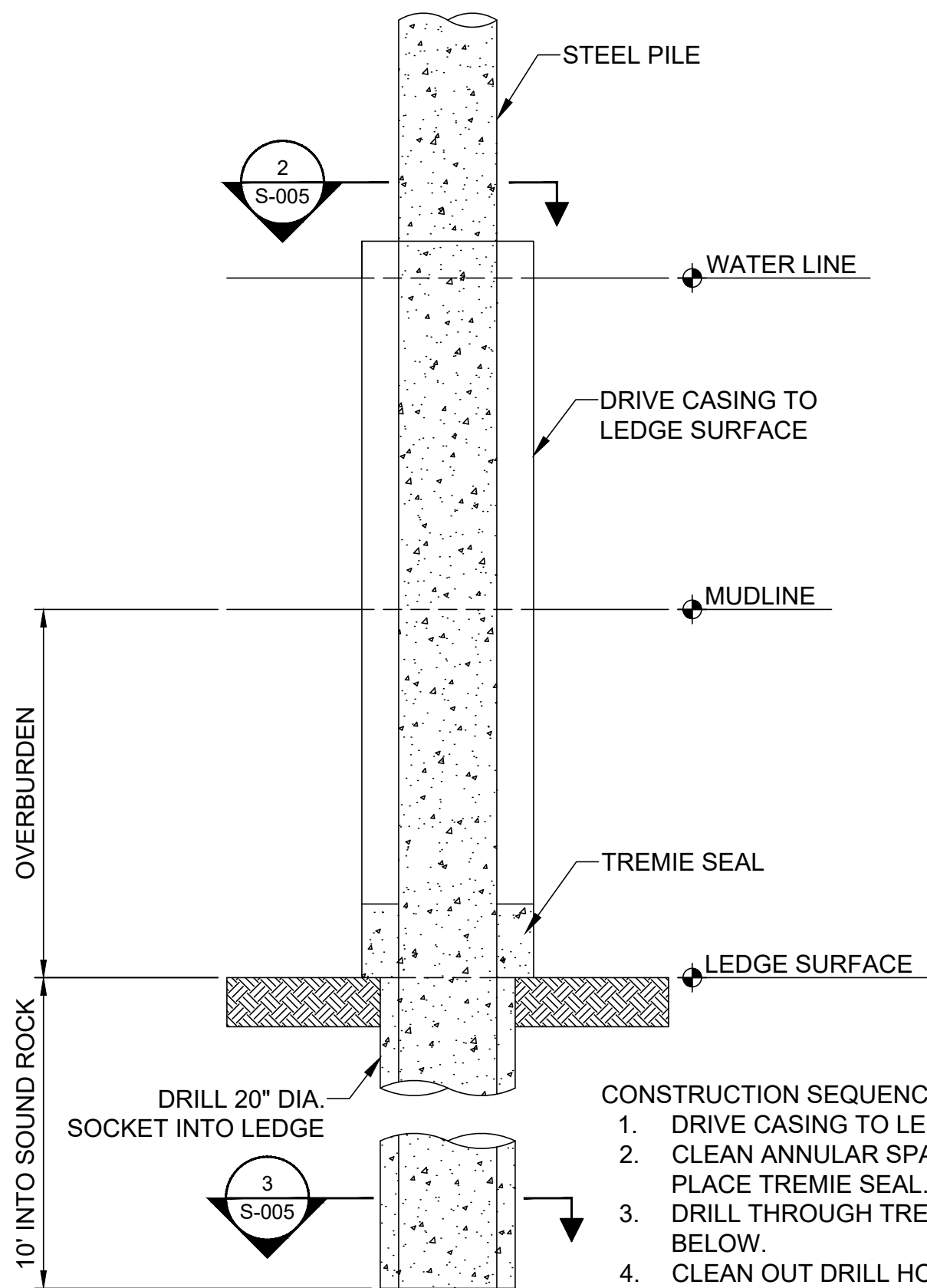
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5	6/27/2024	REVISED PERMIT SET	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**TYPICAL PIER SECTIONS
(2 OF 2)**

SHEET NO.
S-004

FOR PERMIT

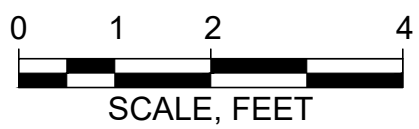
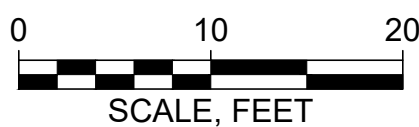
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CONCRETE FILLED STEEL PIPE PILE SCHEDULE									
PILE DESIGNATION	PILE SIZE (INCHES)	BATTER	CUTOFF ELEVATION (FT)	EXISTING GRADE ELEVATION (FT)	ESTIMATED LEDGE ELEVATION (FT)	ROCK SOCKET LENGTH (FT)	MIN. ESTIMATED PILE TIP ELEVATION (FT)	ESTIMATED TOTAL PILE LENGTH (FT)	MIN. COATING LENGTH (FT)
2A	16x5/8	VERTICAL	15.52	1	1	10	-9	24.52	19.52
2B	16x5/8	VERTICAL	15.52	1	1	10	-9	24.52	19.52
2D	16x5/8	VERTICAL	15.52	1	1	10	-9	24.52	19.52
3C	16x5/8	VERTICAL	15.52	-4	-5	10	-15	30.52	24.52
3D	16x5/8	VERTICAL	15.52	-4	-5	10	-15	30.52	24.52
4C	16x5/8	VERTICAL	15.52	-8	-33	10	-43	58.52	28.52
4D	16x5/8	VERTICAL	15.52	-8	-33	10	-43	58.52	28.52
4.1-A.1	10.75x5/8	VERTICAL	27	-10	-54	-	-54	81	42
5C	16x5/8	VERTICAL	15.52	-10	-60	-	-60	75.52	30.52
5D	16x5/8	VERTICAL	15.52	-10	-60	-	-60	75.52	30.52
6C	16x5/8	VERTICAL	15.52	-11	-63	-	-63	78.52	31.52
6D	16x5/8	VERTICAL	15.52	-11	-63	-	-63	78.52	31.52
7E	24x5/8	3:12	15.42	-11	-71	-	-71	86.42	31.42
7G	24x5/8	VERTICAL	15.52	-11	-71	-	-71	86.52	31.52
7J	24x5/8	3:12	15.42	-11	-71	-	-71	86.42	31.42
8E	24x5/8	3:12	15.42	-11	-67	-	-67	82.42	31.42
8F	24x5/8	3:12	15.28	-11	-67	-	-67	82.28	31.28
8H	24x5/8	3:12	15.28	-11	-67	-	-67	82.28	31.28
8J	24x5/8	3:12	15.42	-11	-67	-	-67	82.42	31.42
9E	24x5/8	3:12	15.42	-11	-64	-	-64	79.42	31.42
9F	24x5/8	3:12	15.28	-11	-64	-	-64	79.28	31.28
9H	24x5/8	3:12	15.28	-11	-64	-	-64	79.28	31.28
9J	24x5/8	3:12	15.42	-11	-64	-	-64	79.42	31.42
10E	24x5/8	3:12	15.42	-11	-66	-	-66	81.42	31.42
10G	24x5/8	VERTICAL	15.52	-11	-66	-	-66	81.52	31.52
10J	24x5/8	3:12	15.42	-11	-66	-	-66	81.42	31.42
TOTAL								1821.5	

SCHEDULE NOTES

1. ALL ELEVATIONS REFERENCED IN TABLE ARE IN NAVD88 DATUM.



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:

If this scale bar does not measure 1" then drawing is not original scale.

Designed: DJB

Drawn: JAM

Checked: BJB

Approved: BMM

P.E. No: 13033

GEI Project 2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

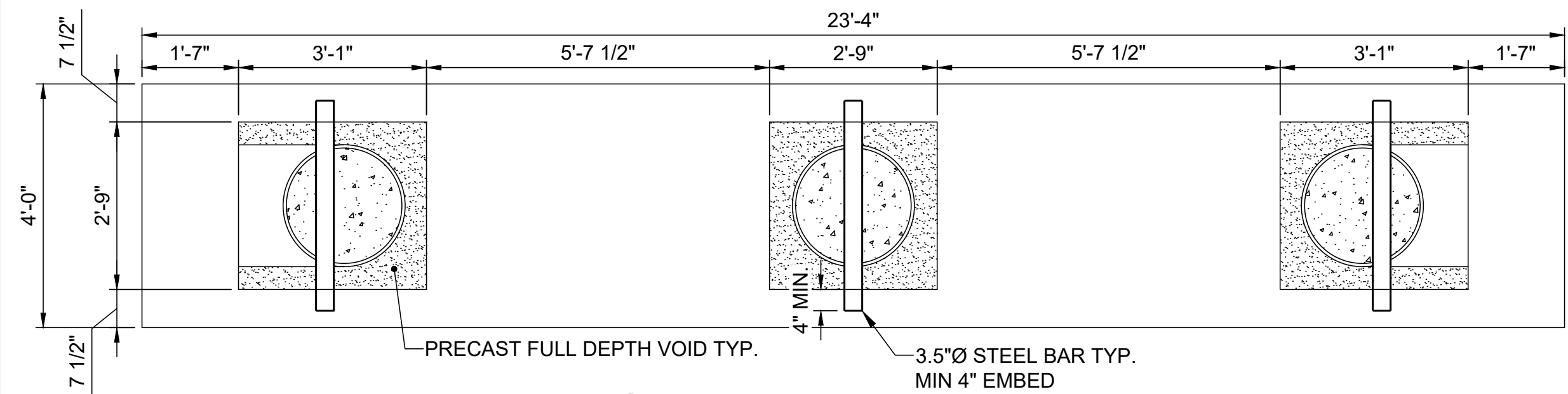
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

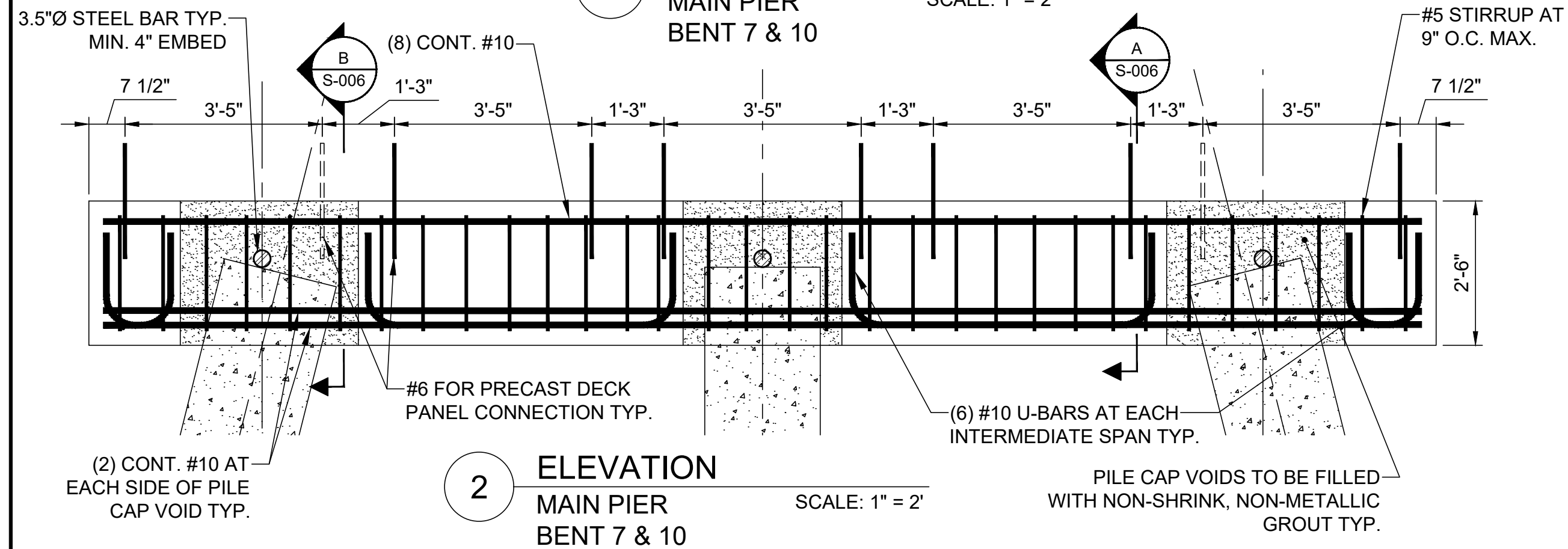
SHEET NAME		SHEET NO.
PILE PLAN		S-005

FOR PERMIT

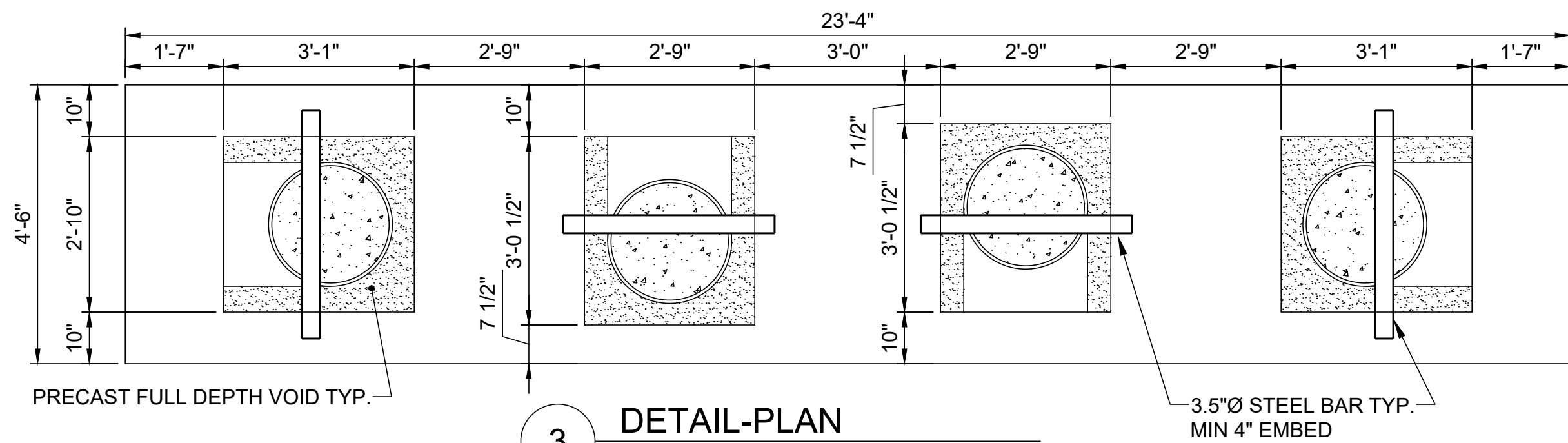
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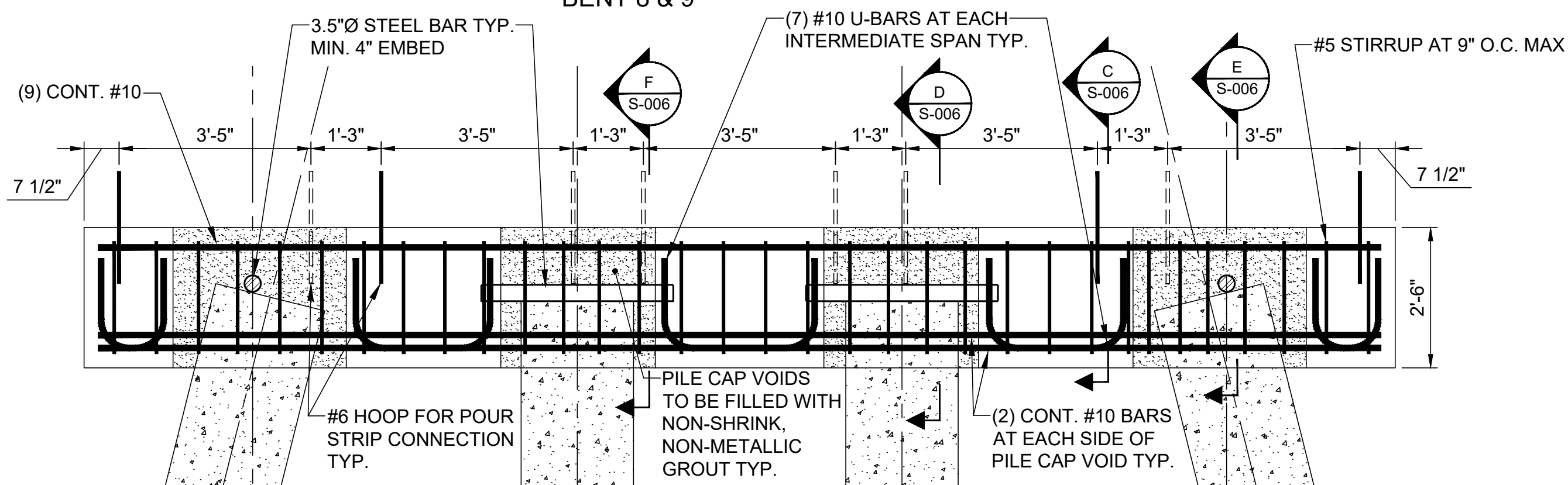
1 DETAIL-PLAN
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



2 ELEVATION
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



3 DETAIL-PLAN
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



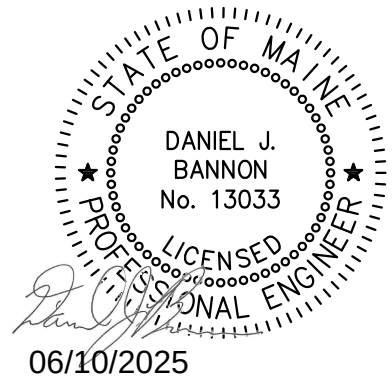
4 ELEVATION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

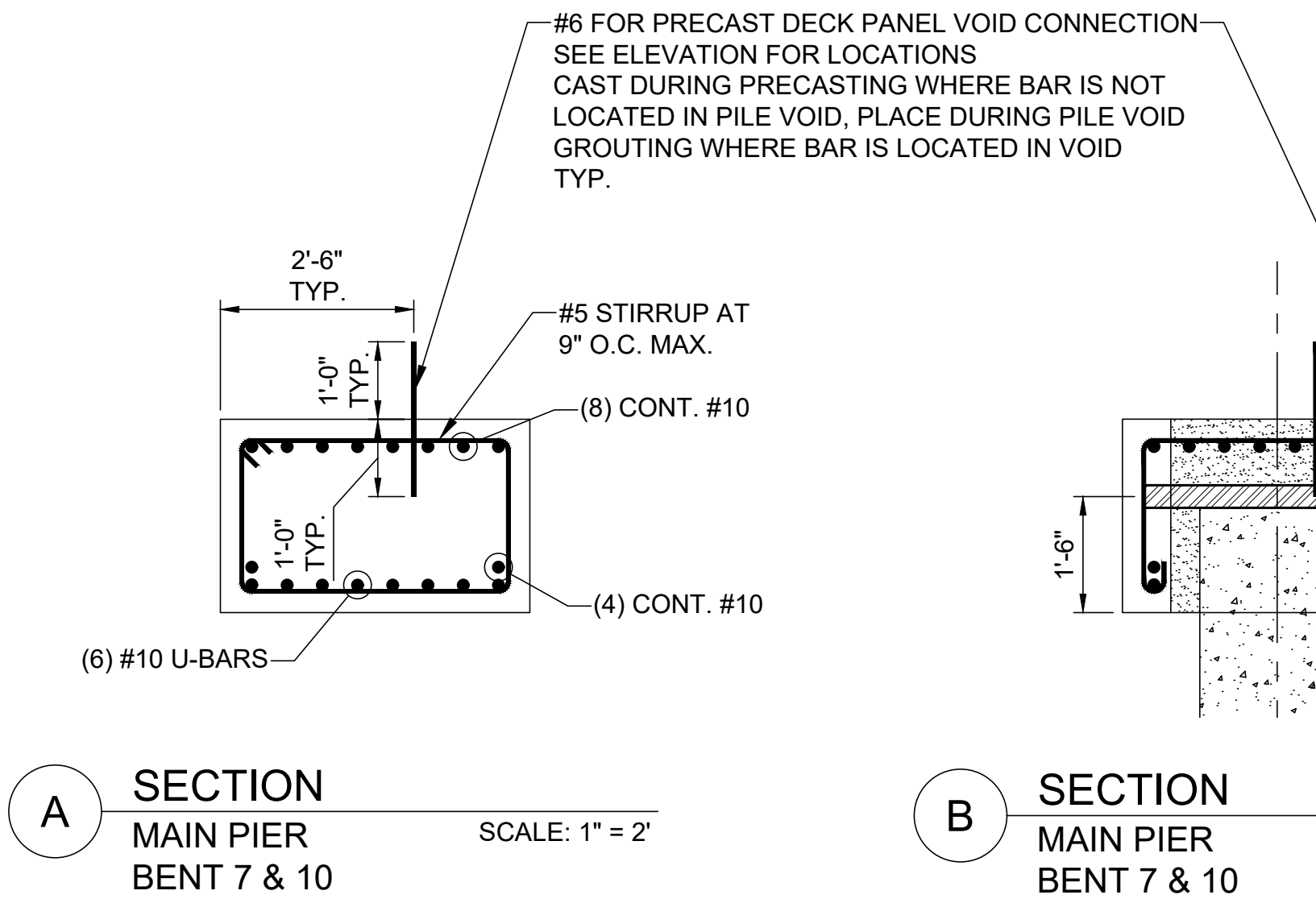
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0 1" SCALE BAR
If this scale bar does not measure 1" then drawing is not original scale.



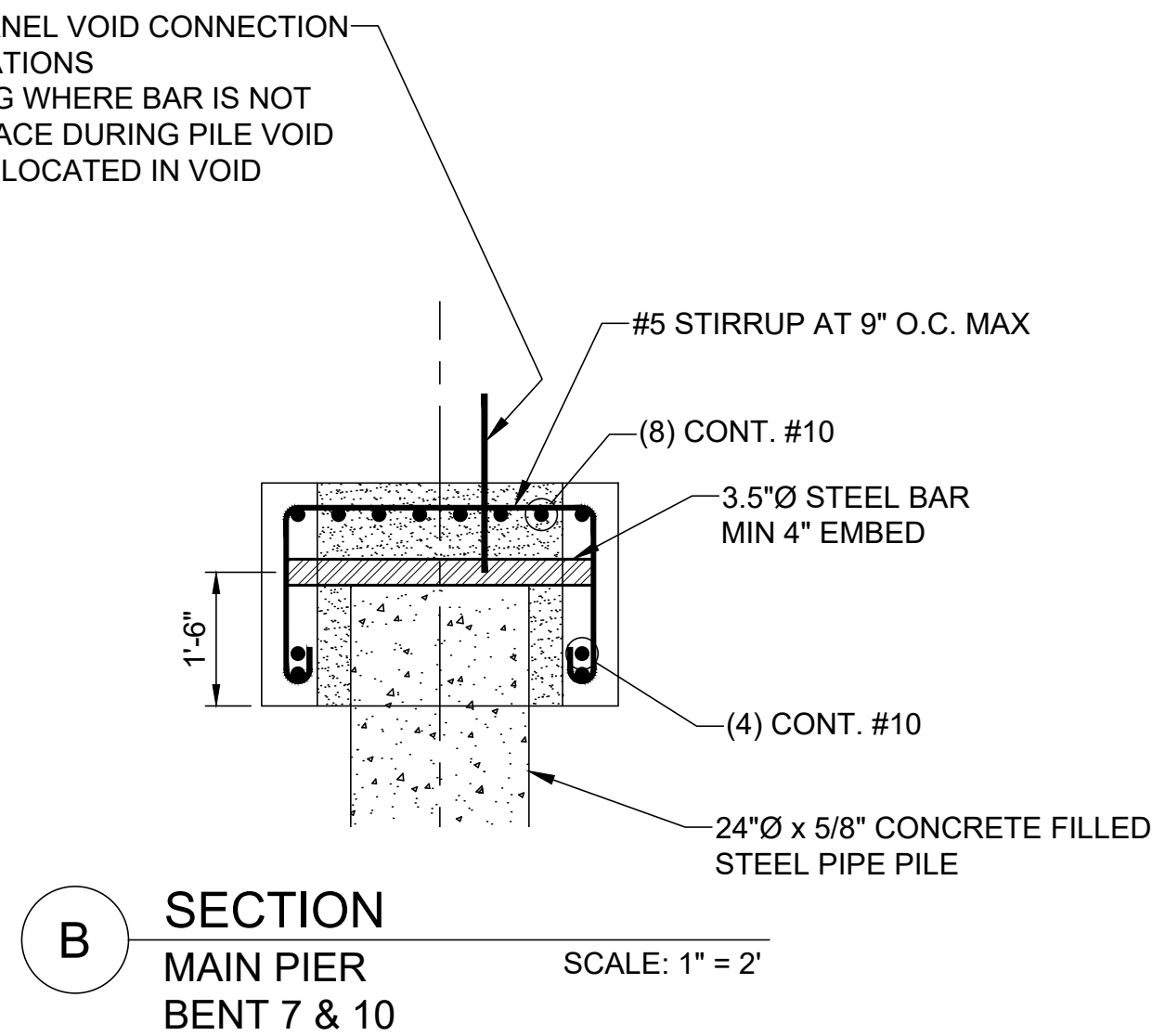
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Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



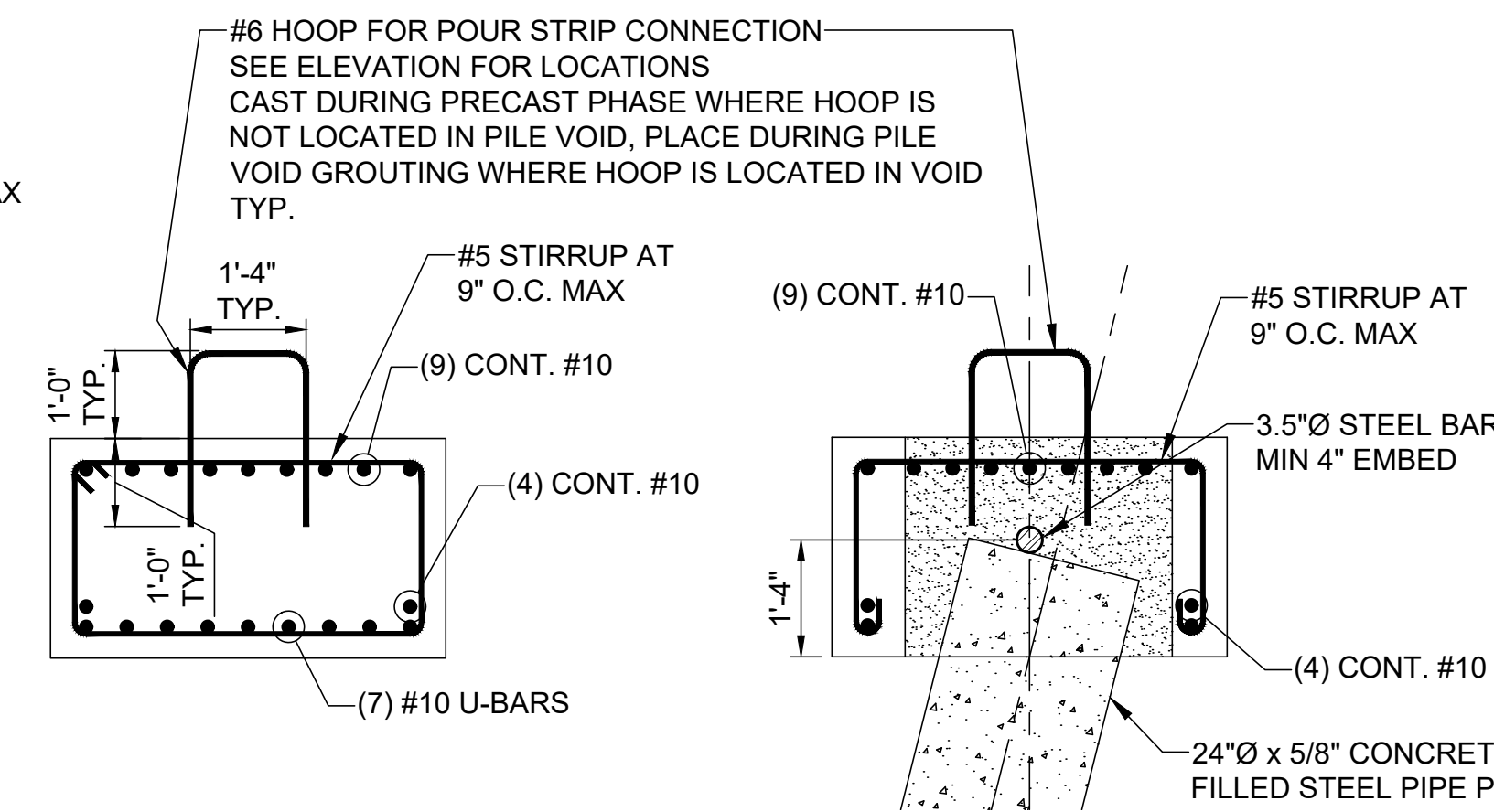
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE



A SECTION
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'

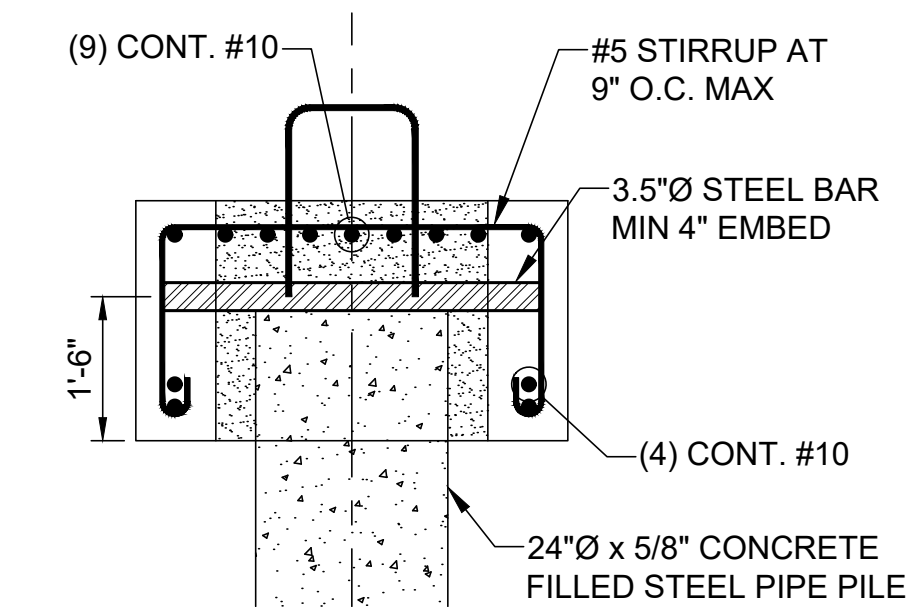


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MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'

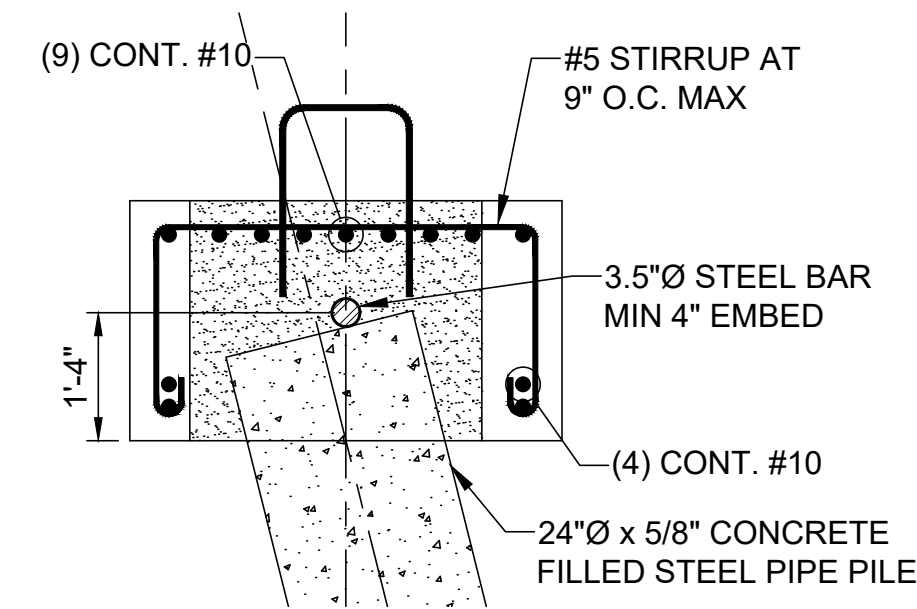


C SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'

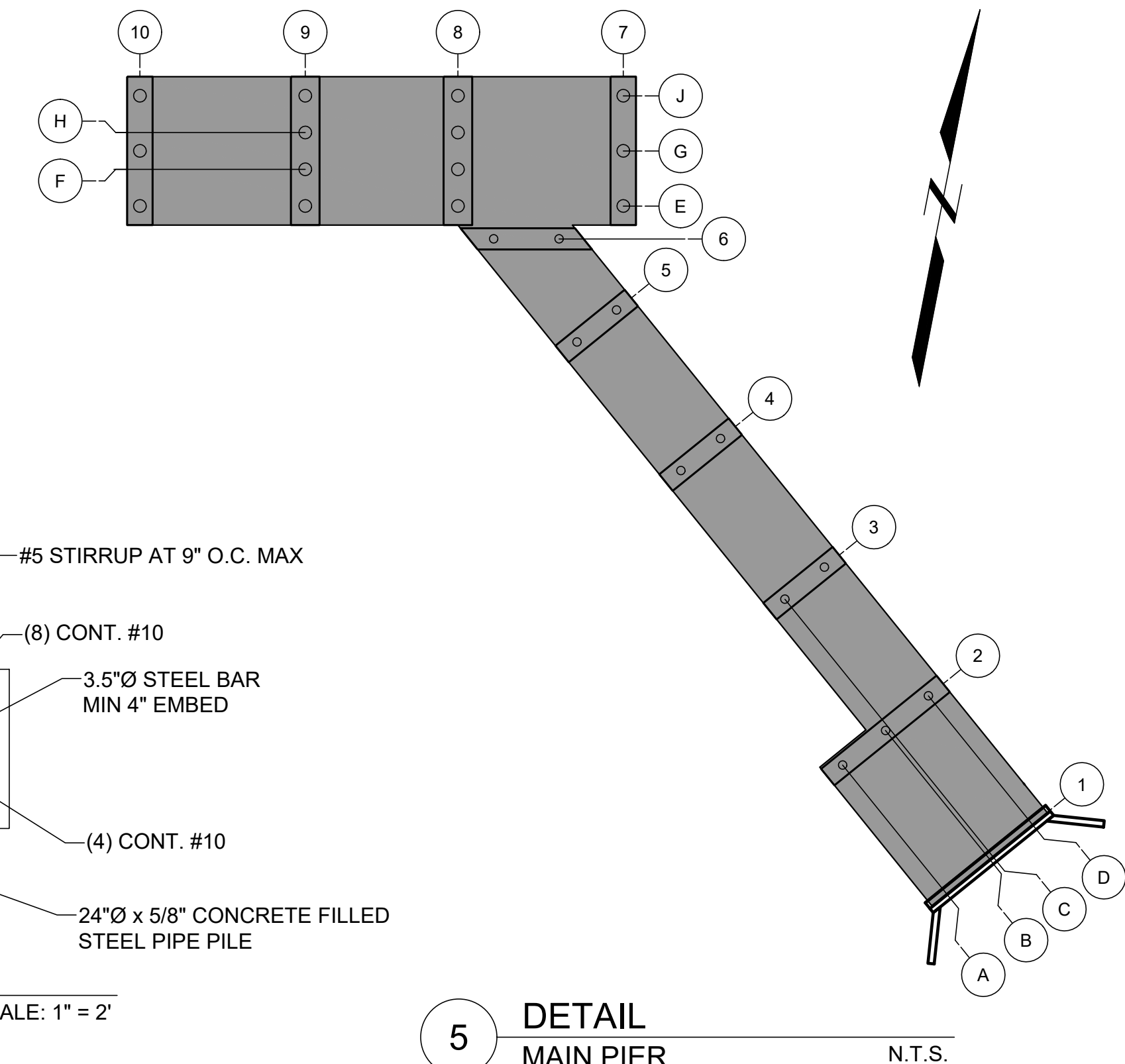
D SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



E SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



F SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



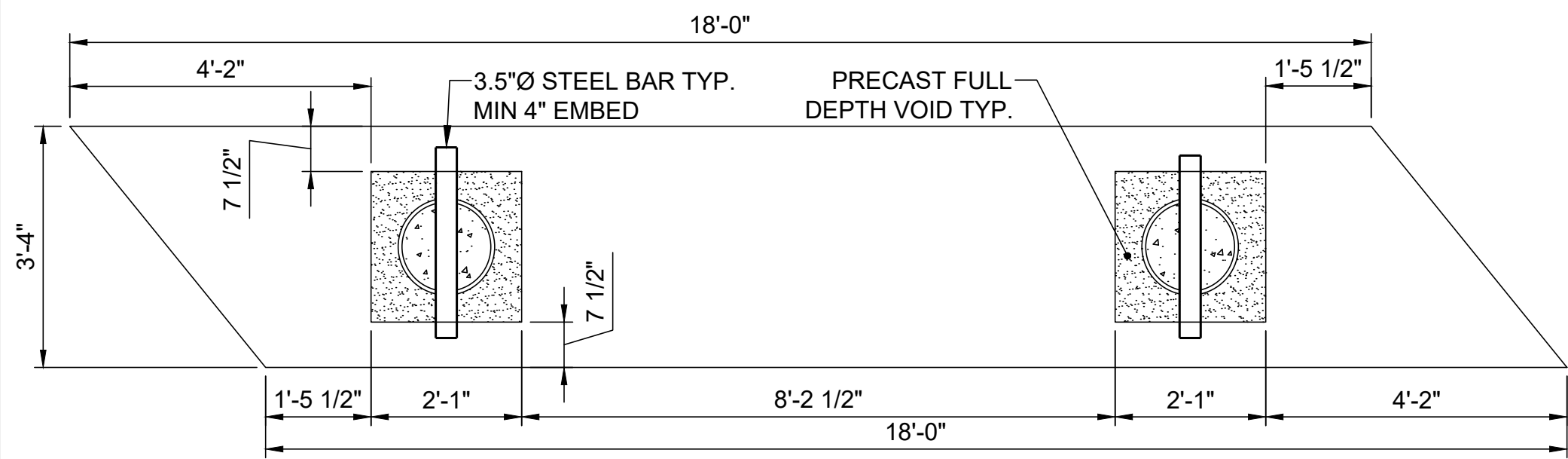
5 DETAIL
MAIN PIER
N.T.S.

FOR PERMIT

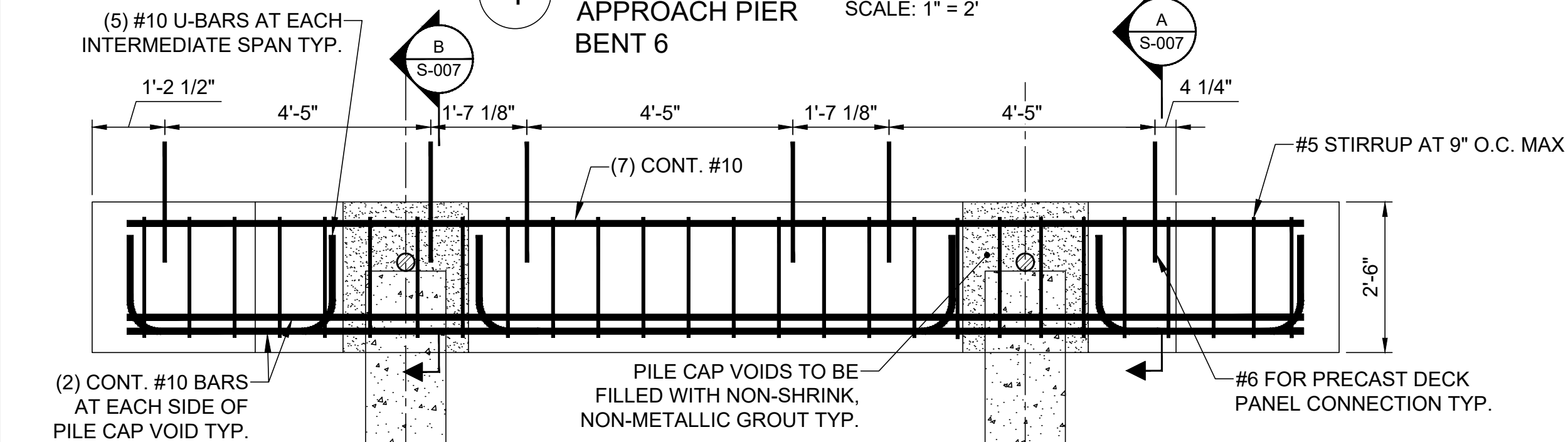
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5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME	SHEET NO.
PRECAST PILE CAP PLAN AND SECTIONS 1 OF 2	S-006

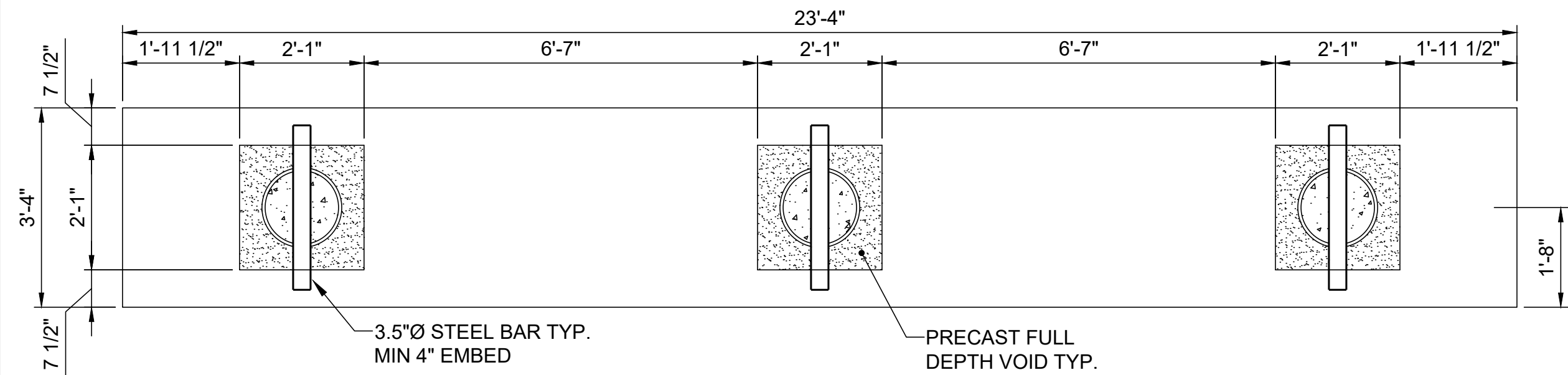
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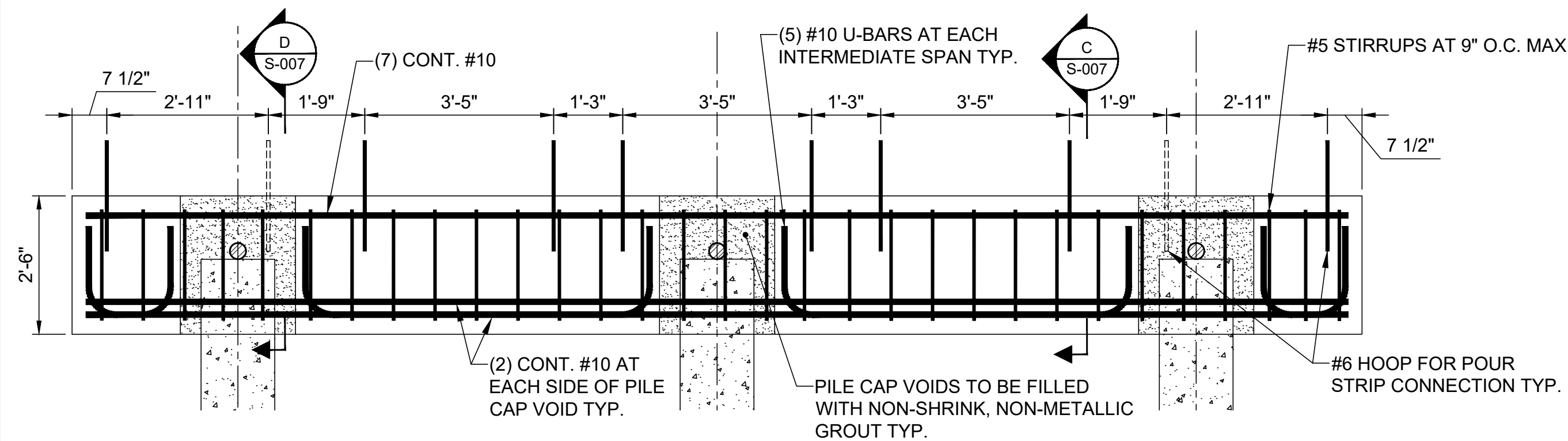
1
DETAIL-PLAN
APPROACH PIER
BENT 6
SCALE: 1" = 2'



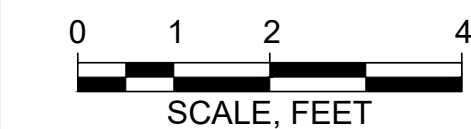
2
ELEVATION
APPROACH PIER
BENT 6
SCALE: 1" = 2'



3
DETAIL-PLAN
APPROACH PIER
BENT 2
SCALE: 1" = 2'



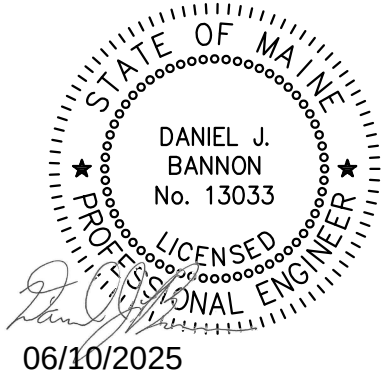
4
ELEVATION
APPROACH PIER
BENT 2
SCALE: 1" = 2'



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1" 1"
If this scale bar
does not measure
1" then drawing is
not original scale.



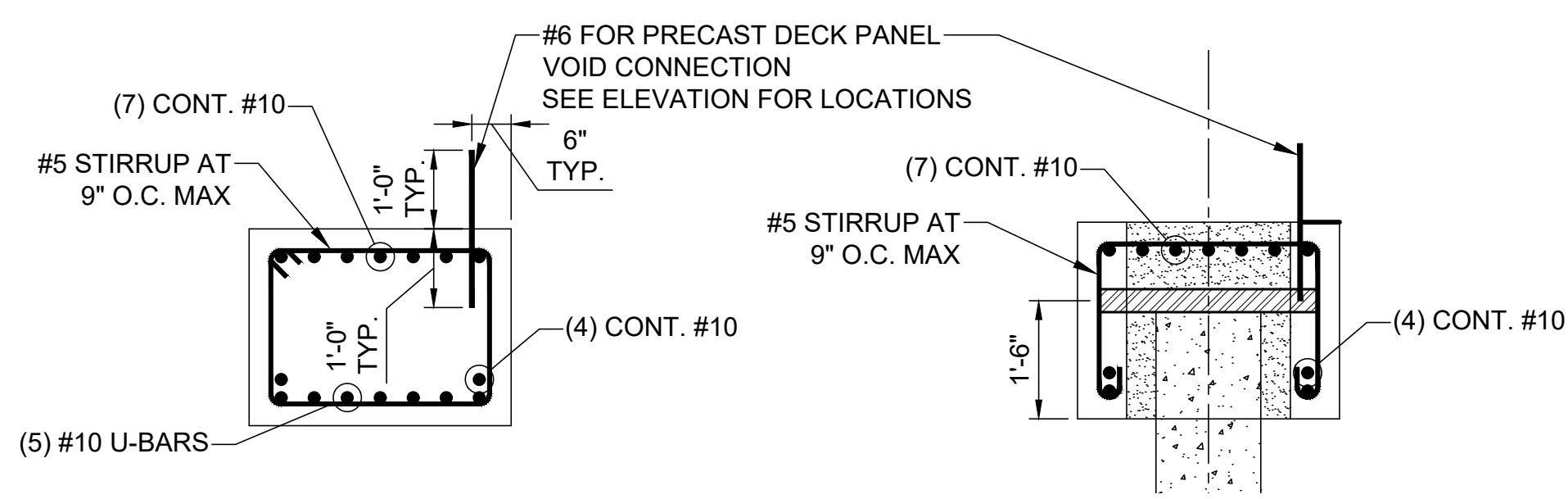
Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



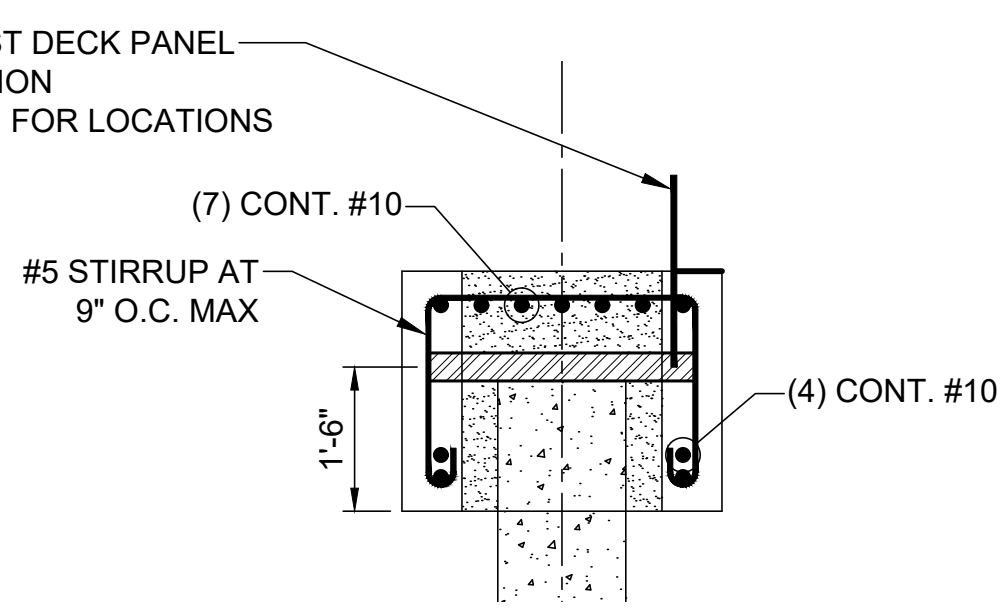
11 HILLS BEACH RD.
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MARINE SCIENCE CENTER
PIER

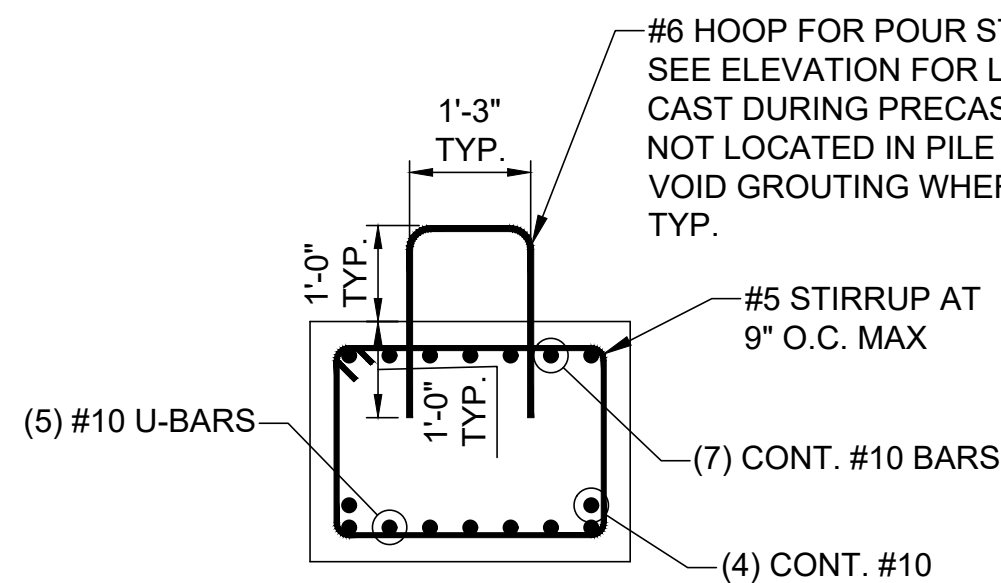
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE



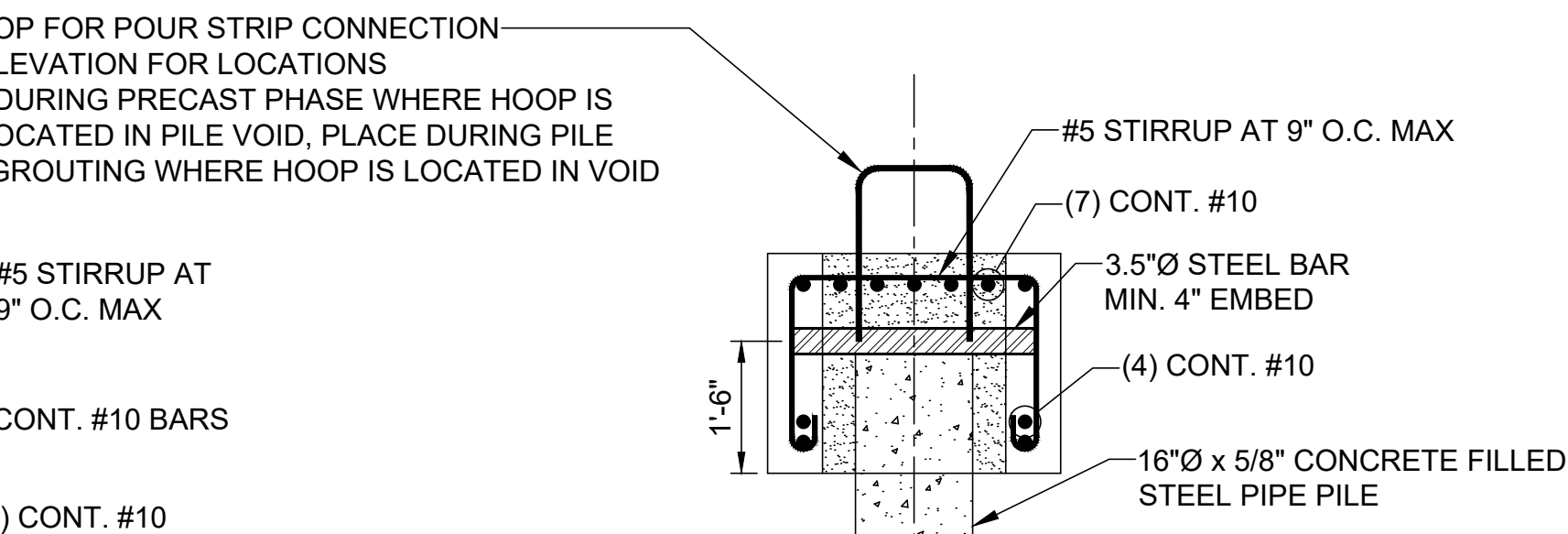
A
SECTION
APPROACH PIER
BENT 6
SCALE: 1" = 2'



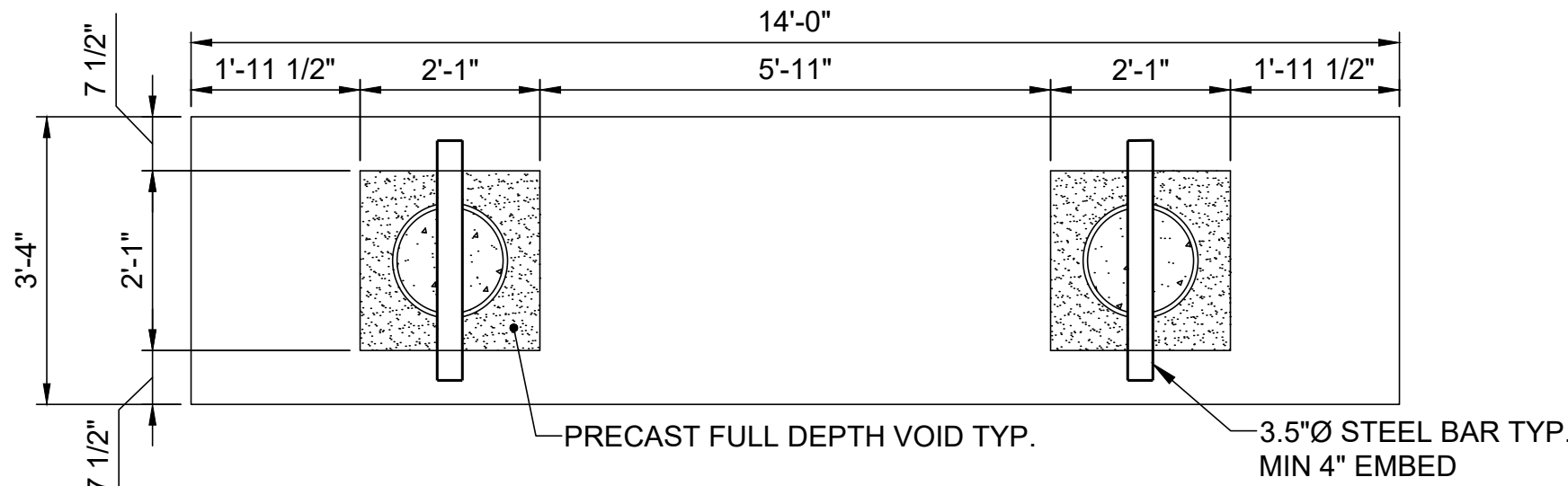
B
SECTION
APPROACH PIER
BENT 6
SCALE: 1" = 2'



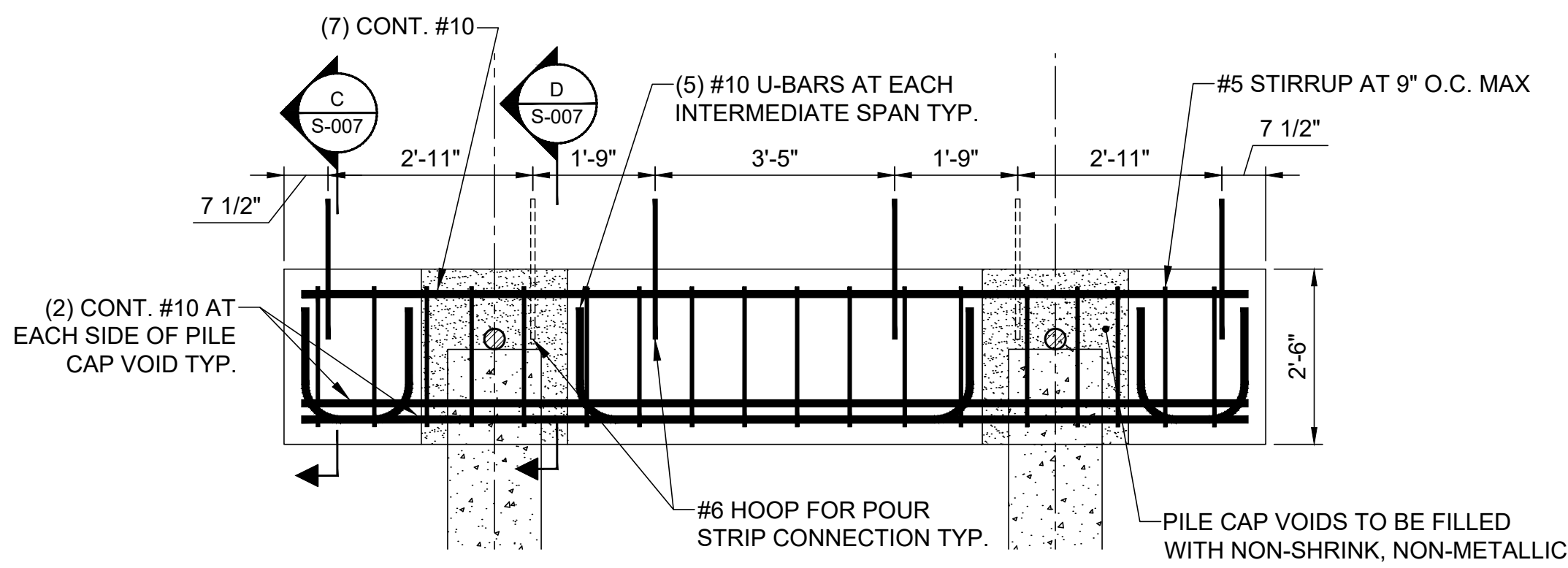
C
SECTION
APPROACH PIER
BENTS 2-5
SCALE: 1" = 2'



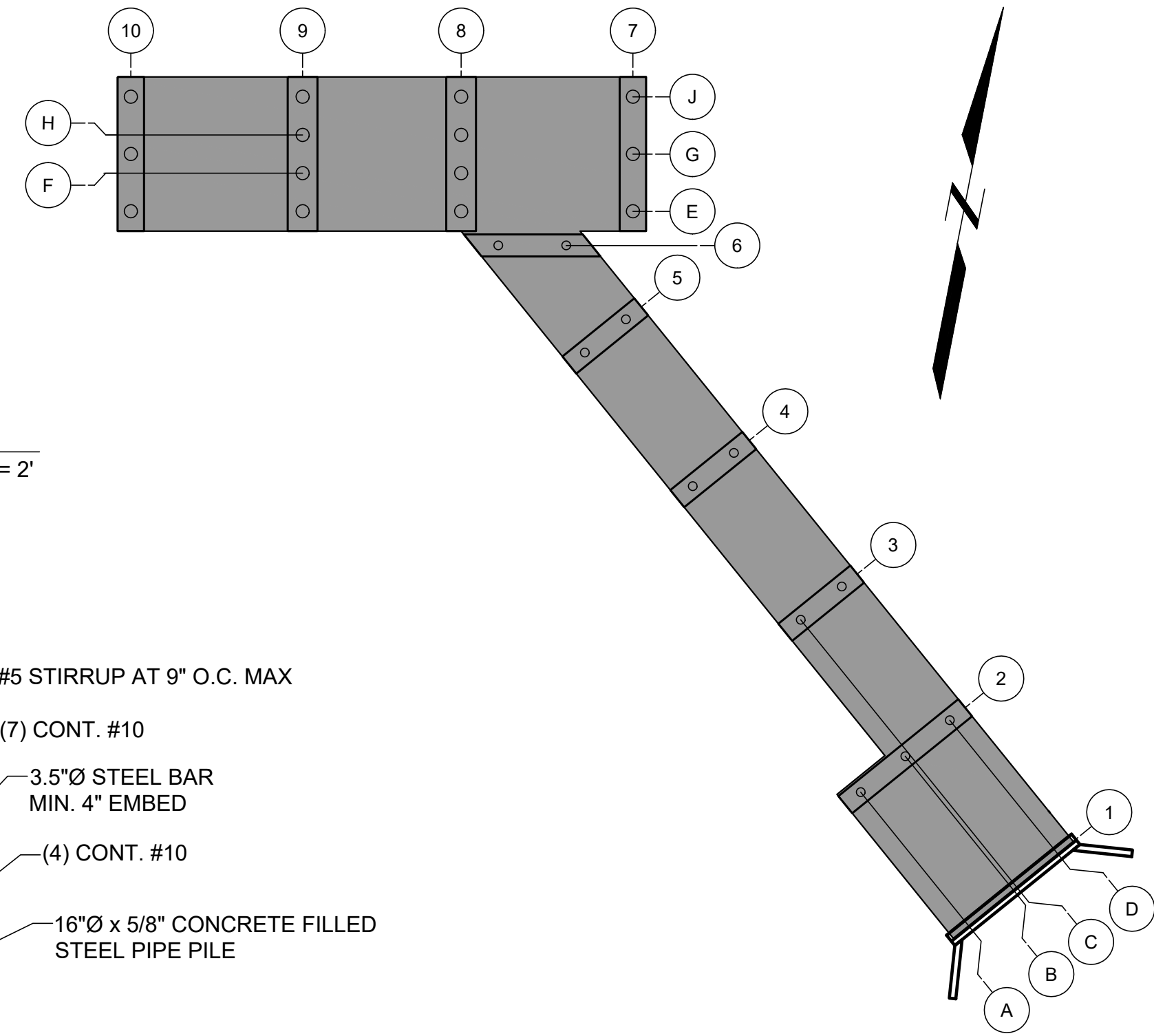
D
SECTION
APPROACH PIER
BENTS 2-5
SCALE: 1" = 2'



5
DETAIL-PLAN
APPROACH PIER
BENTS 3-5
SCALE: 1" = 2'



6
ELEVATION
APPROACH PIER
BENTS 3-5
SCALE: 1" = 2'



7
DETAIL
MAIN PIER
N.T.S.

FOR PERMIT

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

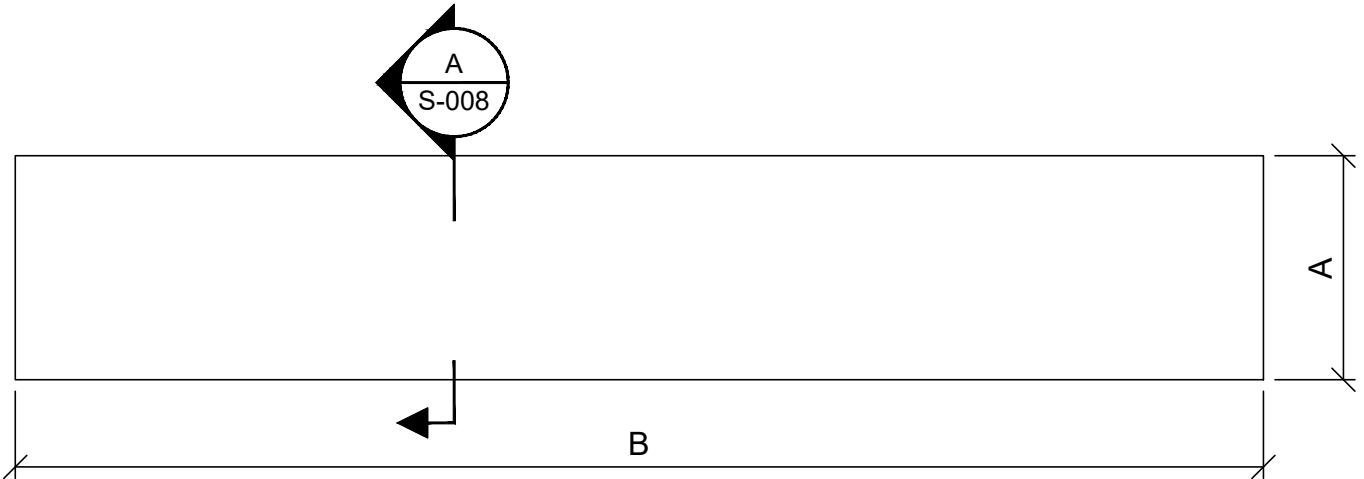
SHEET NAME
**PRECAST PILE CAP PLAN
AND SECTIONS
2 OF 2**

SHEET NO.

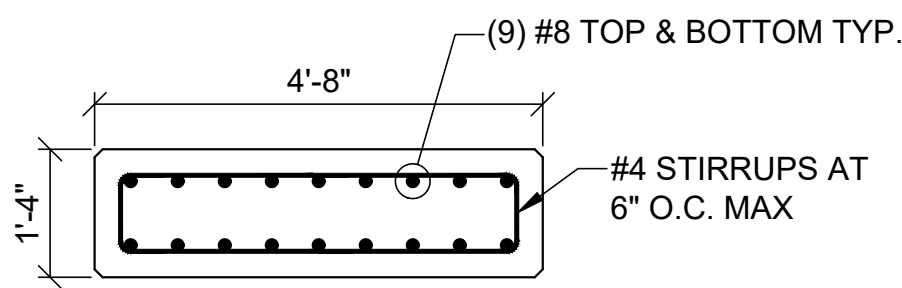
S-007

D:\CASTELNUOVO, VINNE - Iltast\452Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\00_CAD\Design\Sheets\2203703-S-008.dwg - 6/5/2025

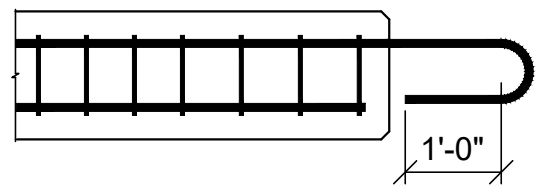
PRECAST DECK PANEL SCHEDULE					
PANEL ID	A	B	C	D	QTY.
A	4'-8"	25'-2"	-	-	5
B	4'-8"	24'-3"	-	-	9
C	4'-8"	-	13'-3"	17'-0"	1
D	4'-8"	-	17'-0"	20'-9 1/2"	1
E	4'-8"	-	20'-9 1/2"	24'-7"	1
F	4'-8"	26'-0"	-	-	10
G	4'-8"	22'-0"	-	-	5



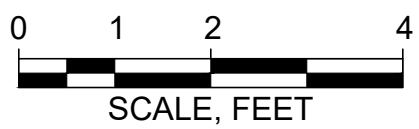
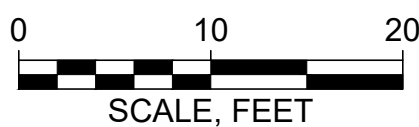
1 DETAIL-PLAN
PRECAST DECK PANEL SCALE: 1"=4'



A SECTION
PRECAST DECK PANEL SCALE: 1"=2'

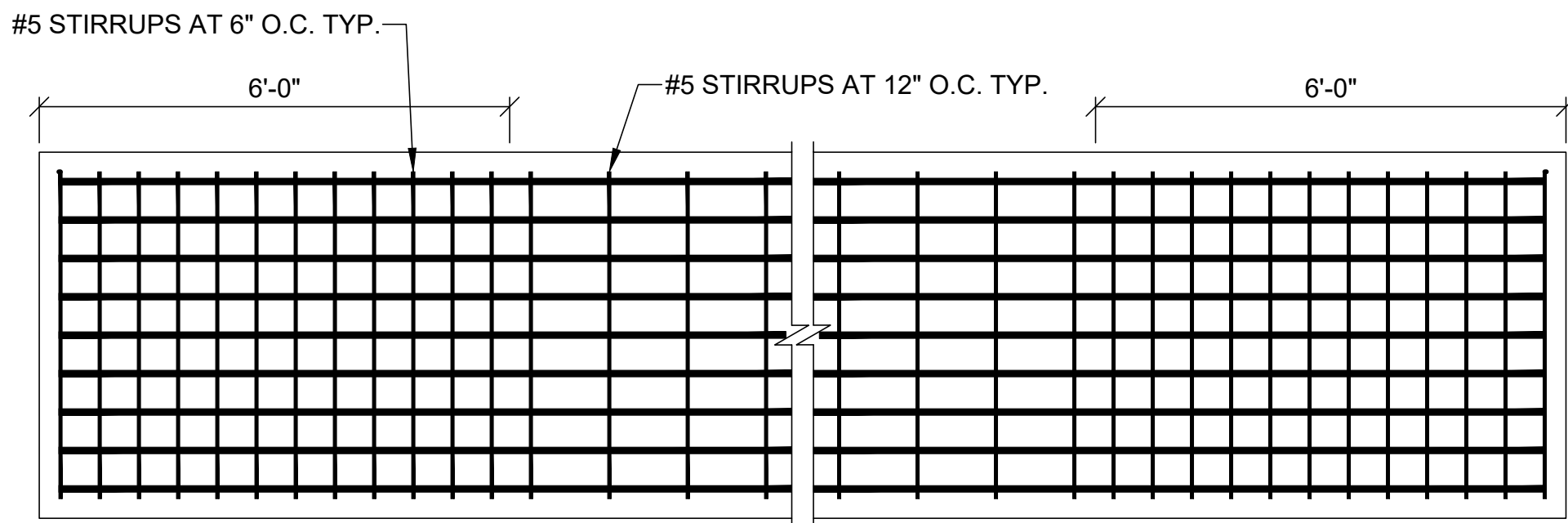


B SECTION
PRECAST DECK PANEL
CONNECTION END 2 & 3 SCALE: 1"=2'

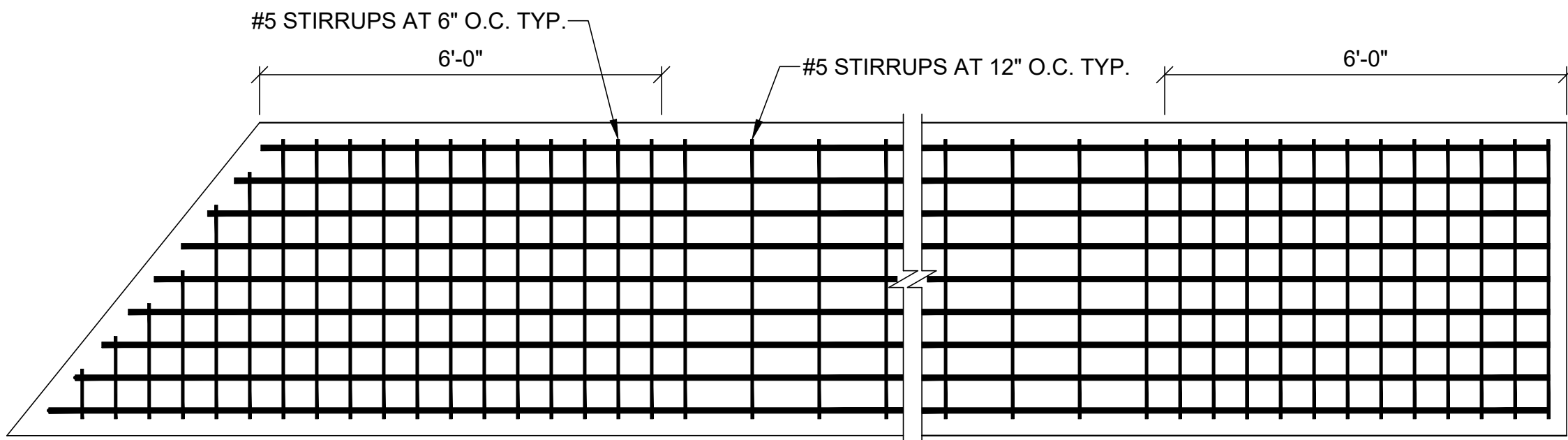


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

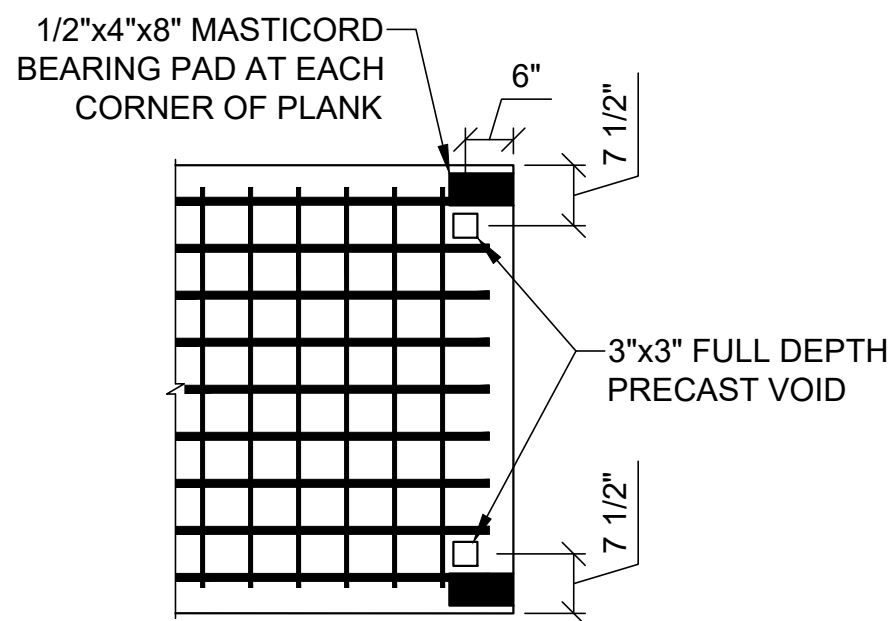
*PROJECT DATUM



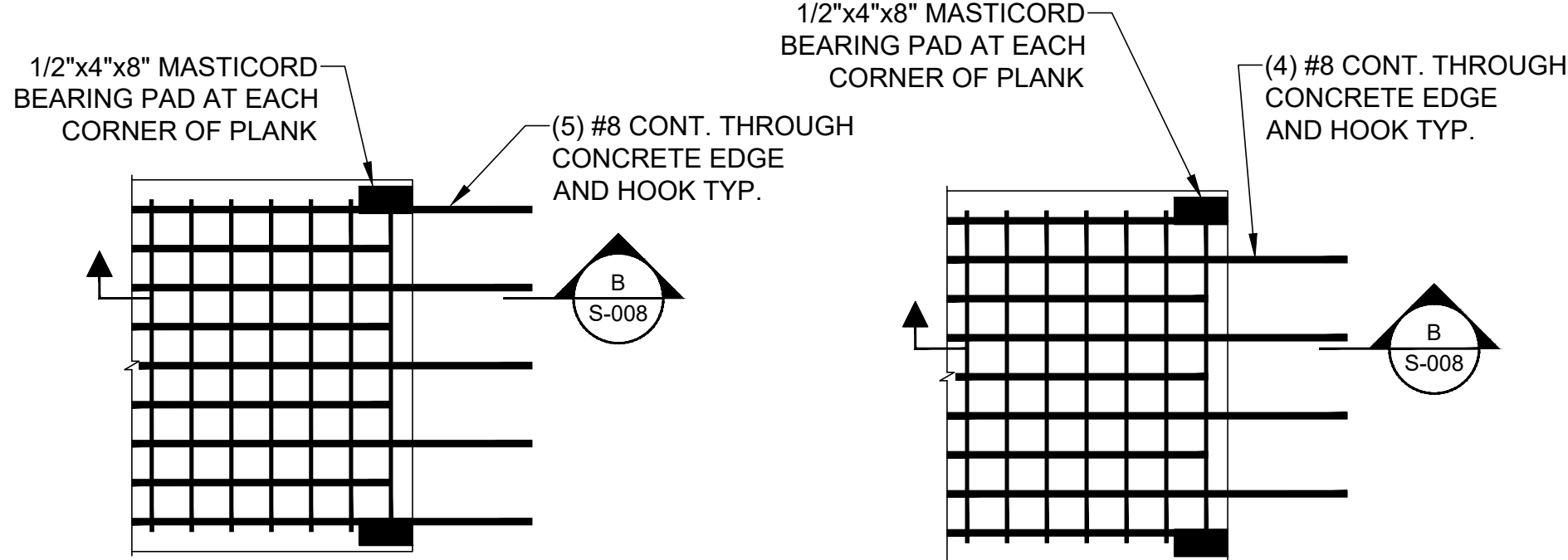
3 DETAIL-PLAN PLANKS A, B, F, & G
PRECAST DECK PANEL
STIRRUP SPACING SCALE: 1"=2'



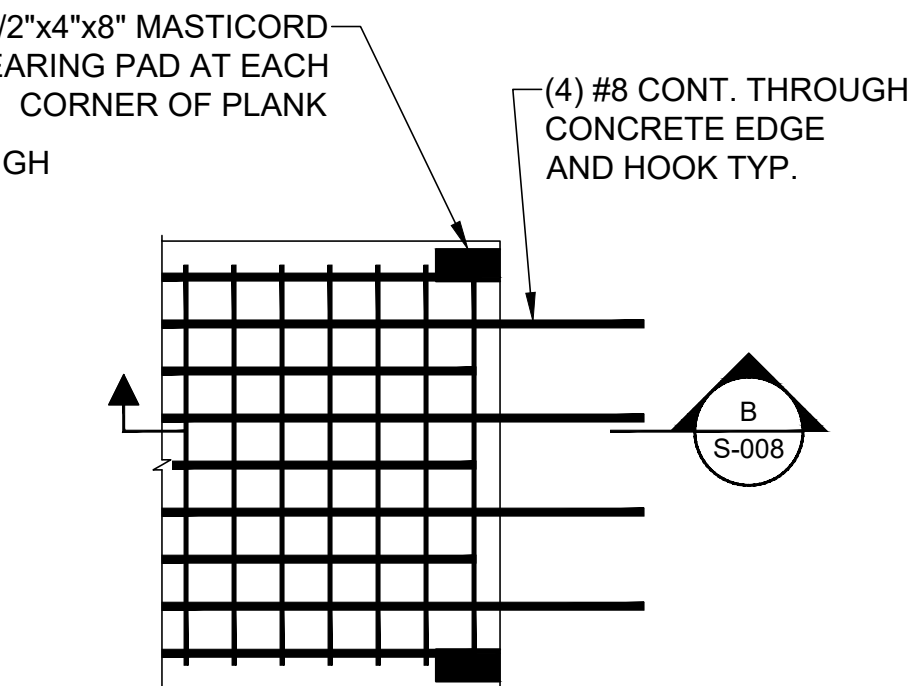
4 DETAIL-PLAN PLANKS C, D, & E
PRECAST DECK PANEL
STIRRUP SPACING SCALE: 1"=2'



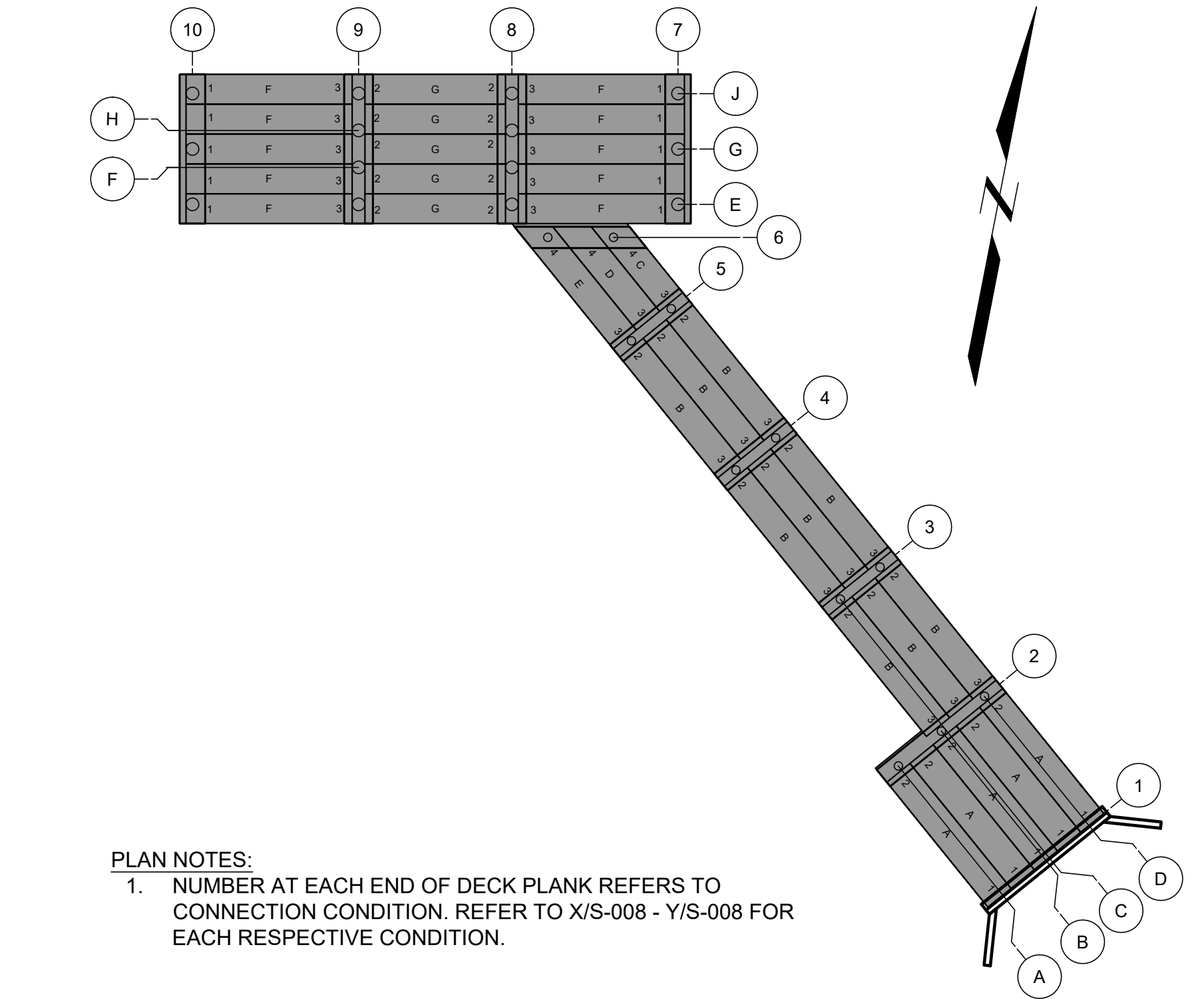
5 DETAIL - PLAN
DECK PANEL
CONNECTION 1 SCALE: 1"=2'



6 DETAIL - PLAN
DECK PANEL
CONNECTION 2 SCALE: 1"=2'

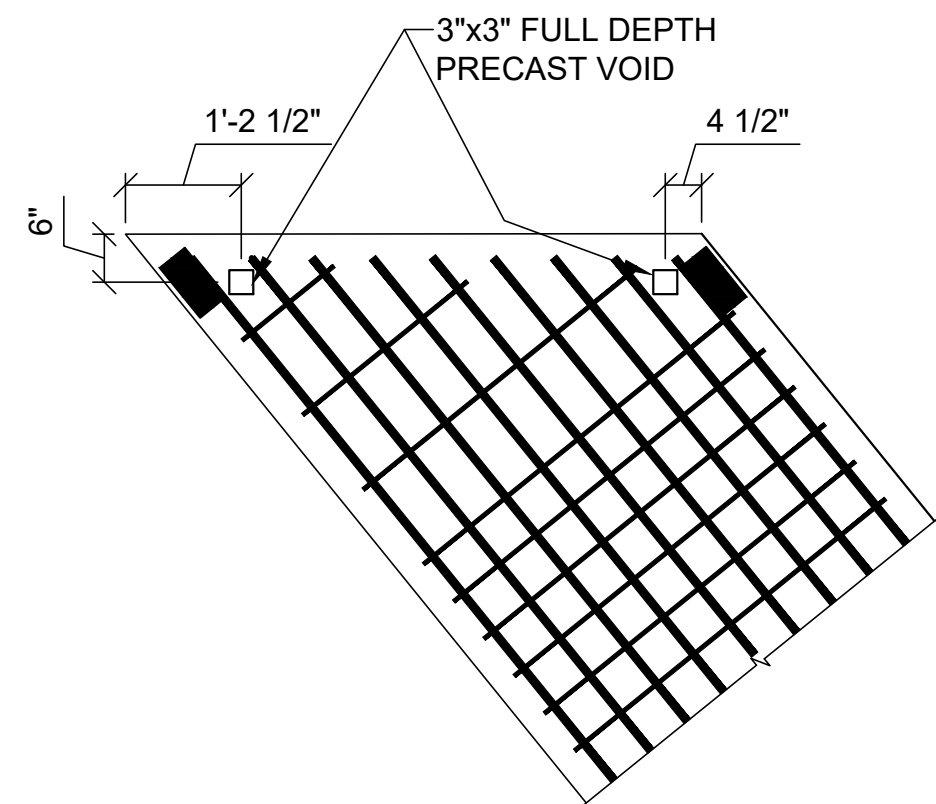


7 DETAIL - PLAN
DECK PANEL
CONNECTION 3 SCALE: 1"=2'



PLAN NOTES:
1. NUMBER AT EACH END OF DECK PLANK REFERS TO CONNECTION CONDITION. REFER TO X/S-008 - Y/S-008 FOR EACH RESPECTIVE CONDITION.

9 DETAIL
PIER DECK PANELS N.T.S.

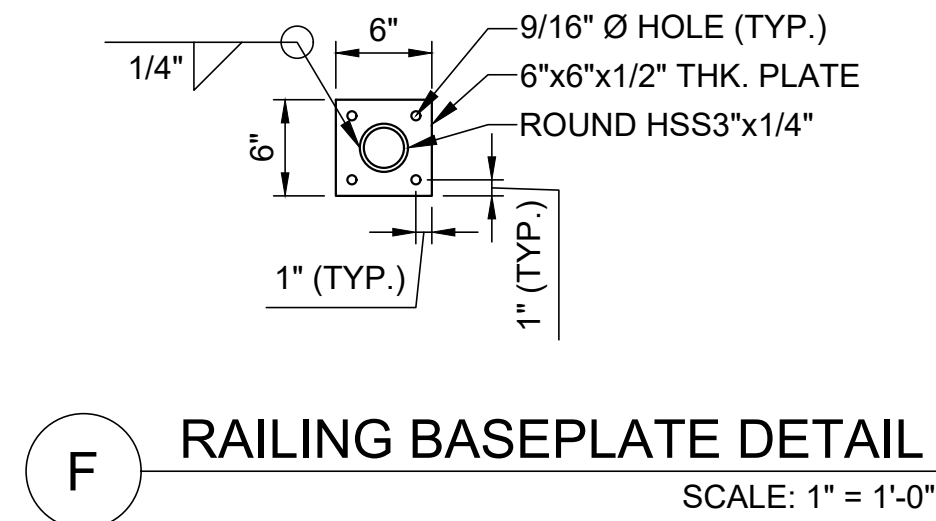
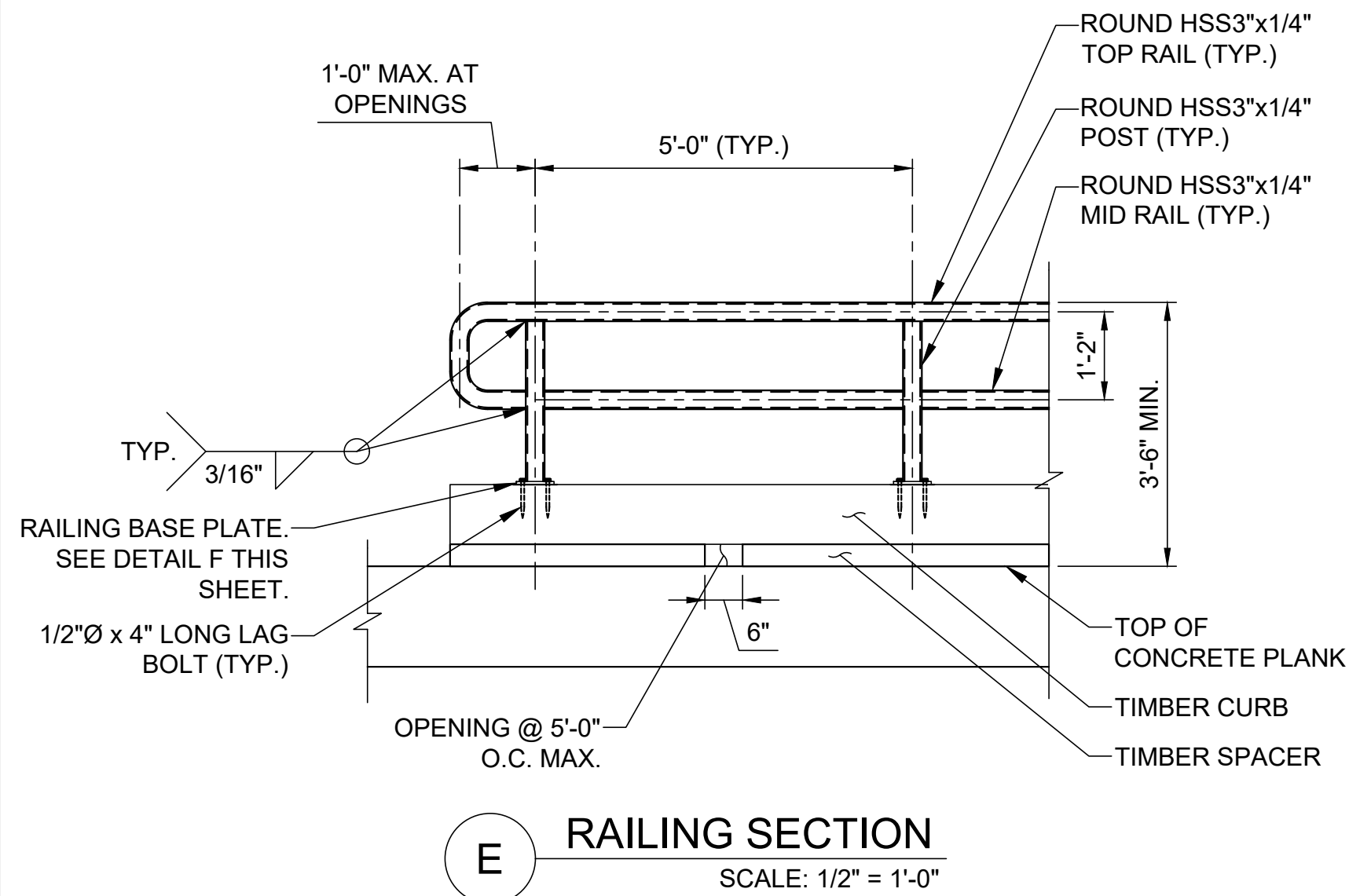
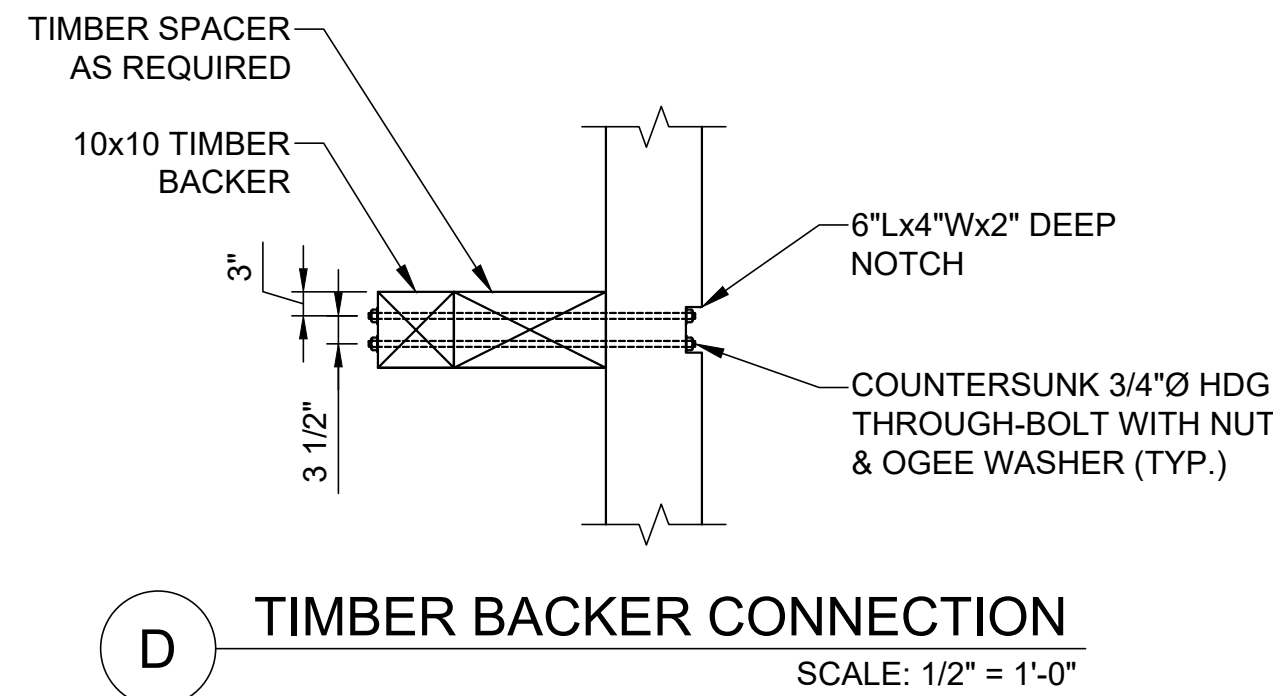
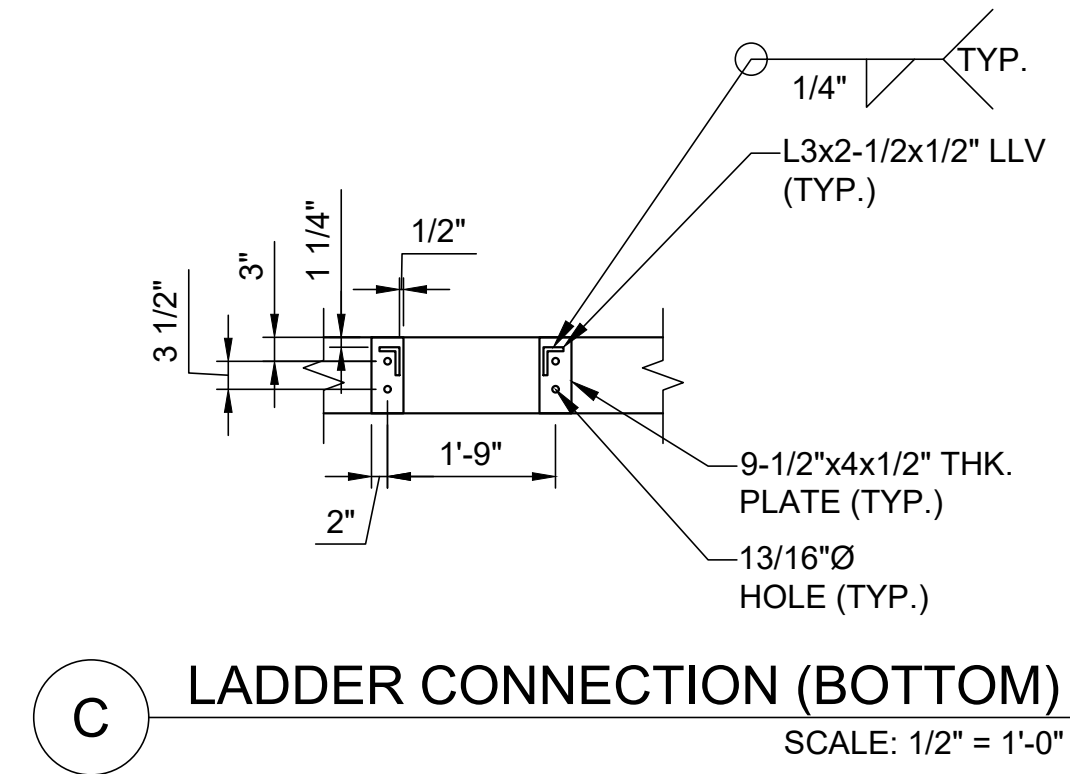
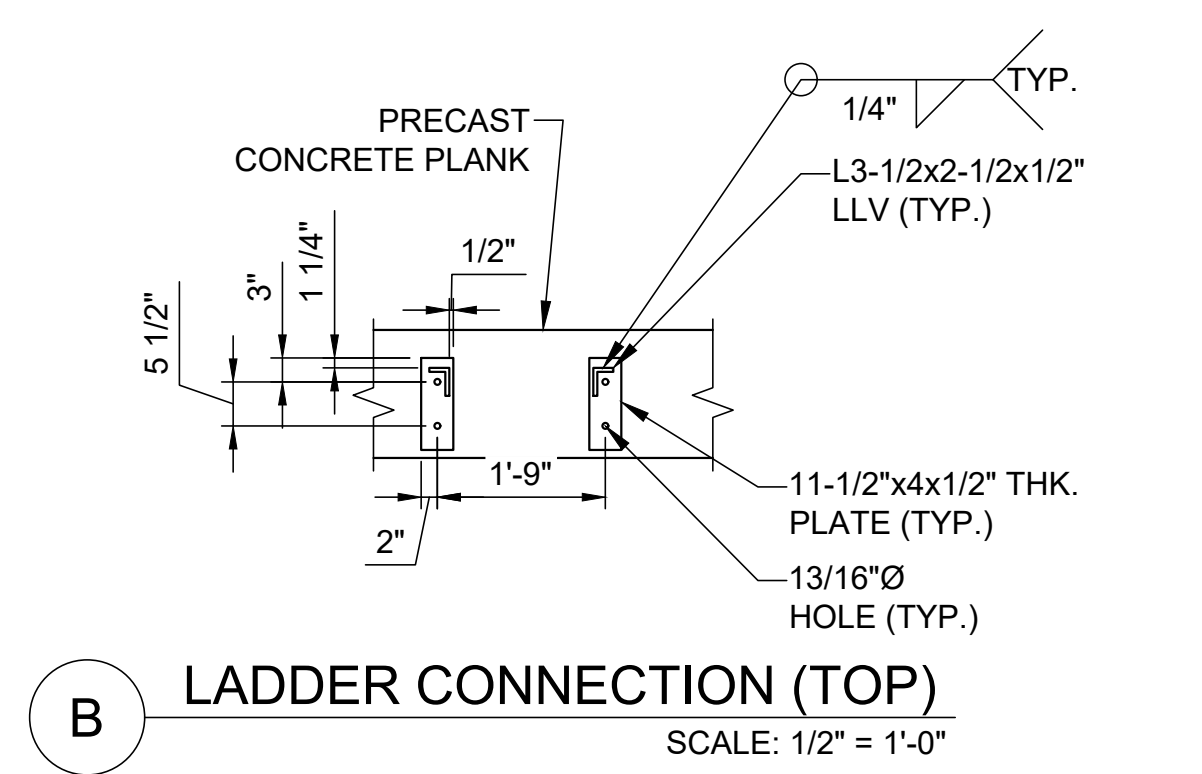
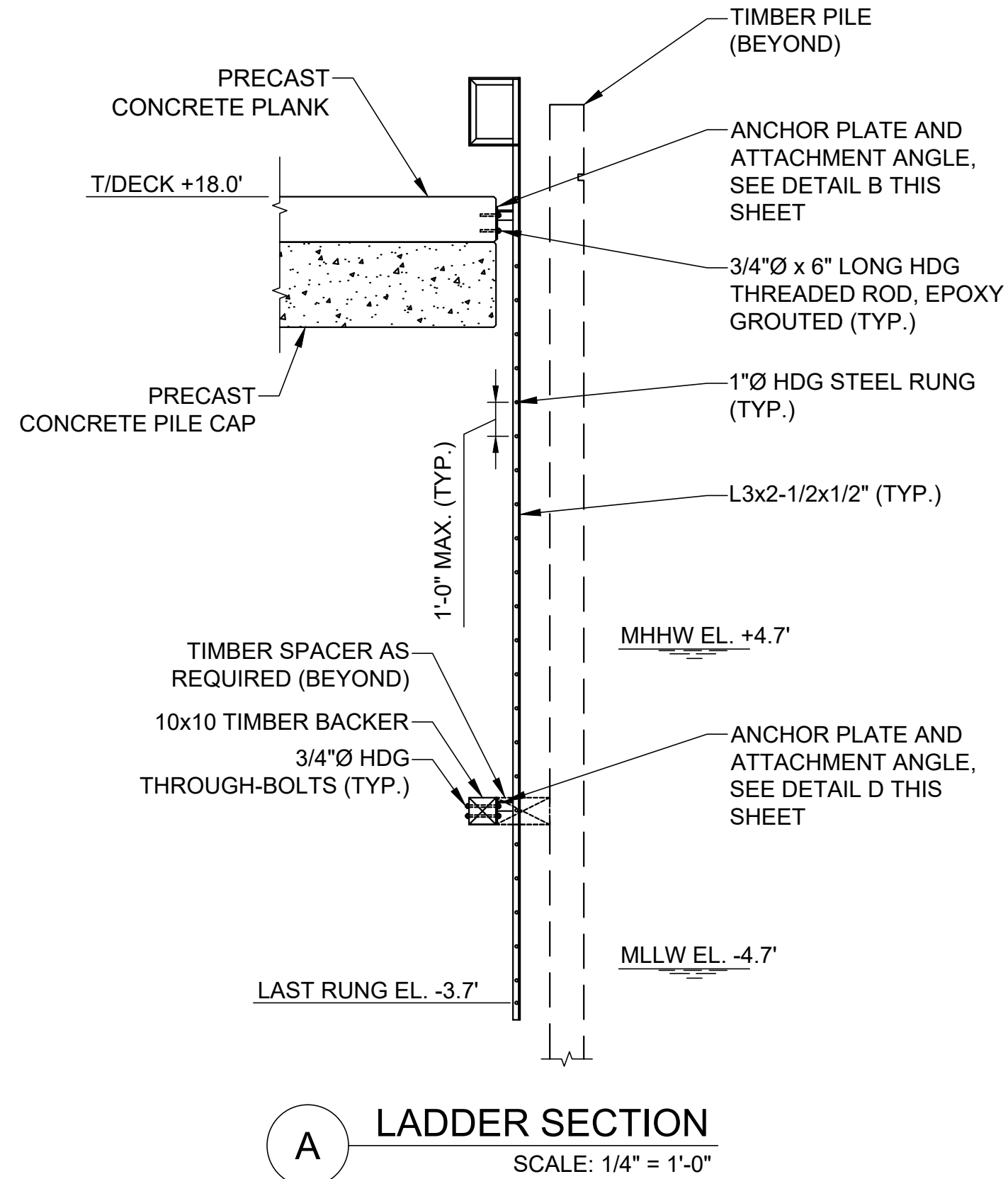
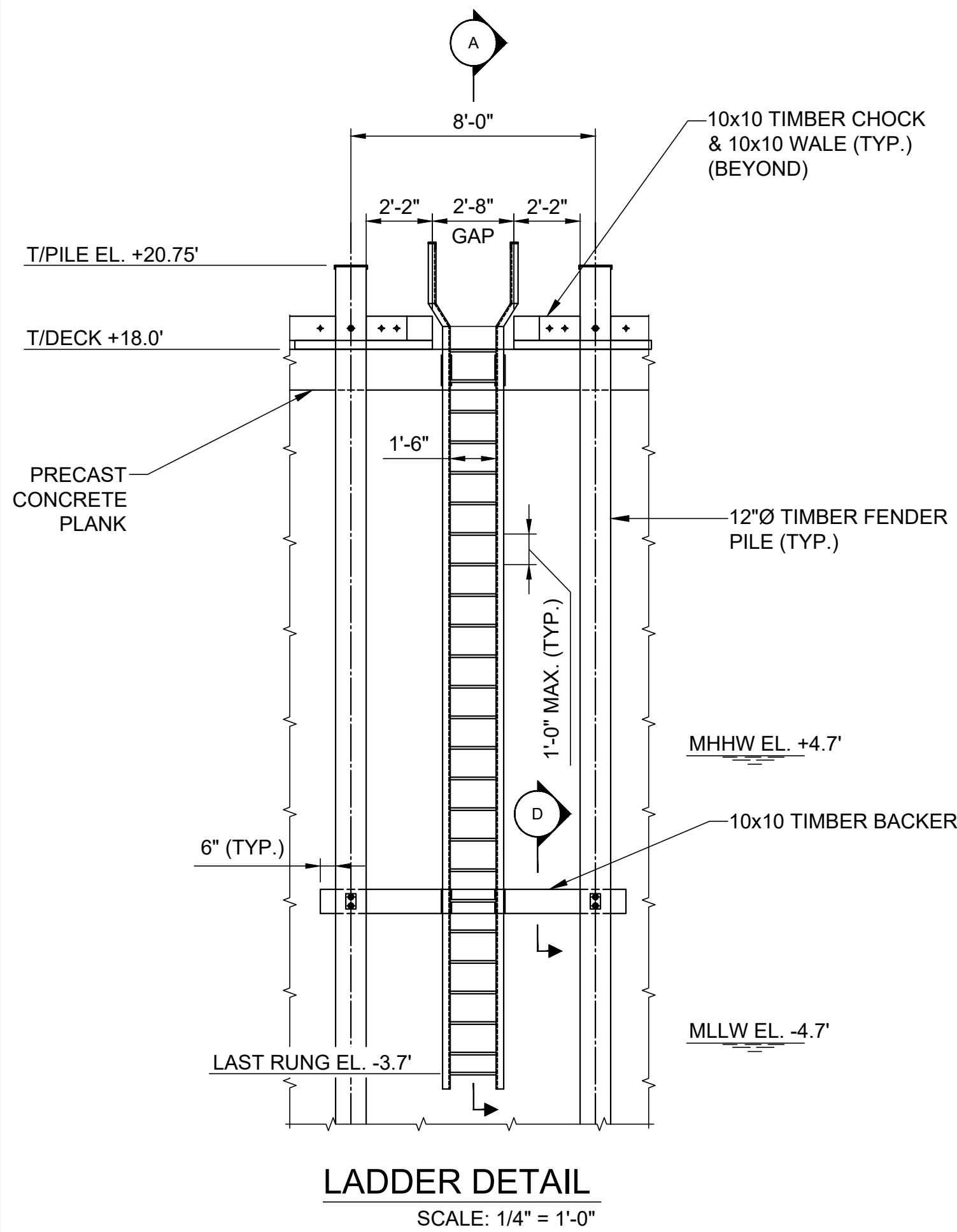


8 DETAIL - PLAN
DECK PANEL
CONNECTION 1 SCALE: 1"=2'

FOR PERMIT

Attention: 01" If this scale bar does not measure 1" then drawing is not original scale.	STATE OF MAINE DANIEL J. BANNON No. 13033 PROFESSIONAL ENGINEER 06/10/2025	Designed: DJB	GEI Consultants GEI CONSULTANTS, INC. 5 MILK STREET PORTLAND, ME 04101 (207)797-8901	UNE UNIVERSITY OF NEW ENGLAND 11 HILLS BEACH RD. BIDDEFORD, MAINE	UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER 11 HILLS BEACH ROAD BIDDEFORD, YORK COUNTY, MAINE	86/5/2025ADDRESS PB COMMENTS	DJB	SHEET NAME PRECAST DECK PANEL PLAN	SHEET NO. S-008
		74/16/2025BIDDEFORD PERMIT APP.				DJB			
		69/17/2024REVISED PERMIT SET				DJB			
		56/27/2024REVISED PERMIT SET				DJB			
		49/14/2023DEP PERMIT SET				DJB			
		36/28/202375% DESIGN SUBMISSION				DJB			
		22/15/202330% DESIGN SUBMISSION				DJB			
		112/9/202215% DESIGN SUB REV				DJB			
		011/11/202215% DESIGN SUBMISSION				DJB			
		NO DATEISSUE/REVISION APP				APP			

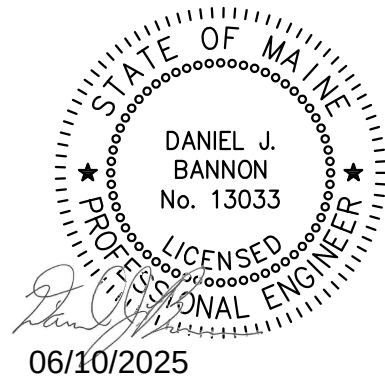
D:\CASTELNUOVO, VINNE - Iltast\452Data - Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\00_CAD\Design\Sheets\2203703-S-010.dwg - 6/5/2025



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

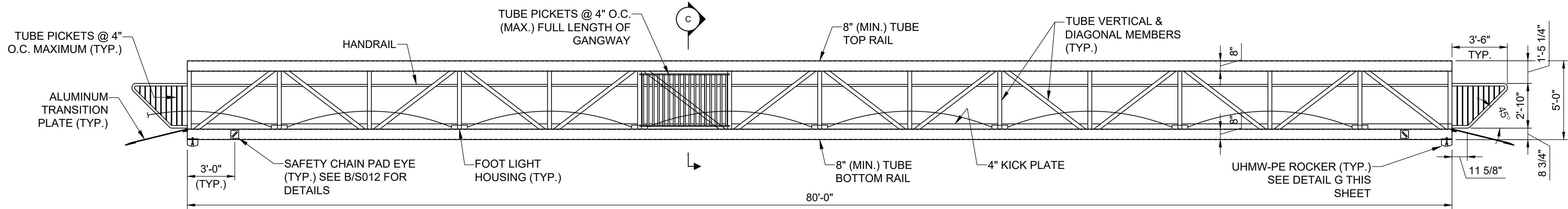
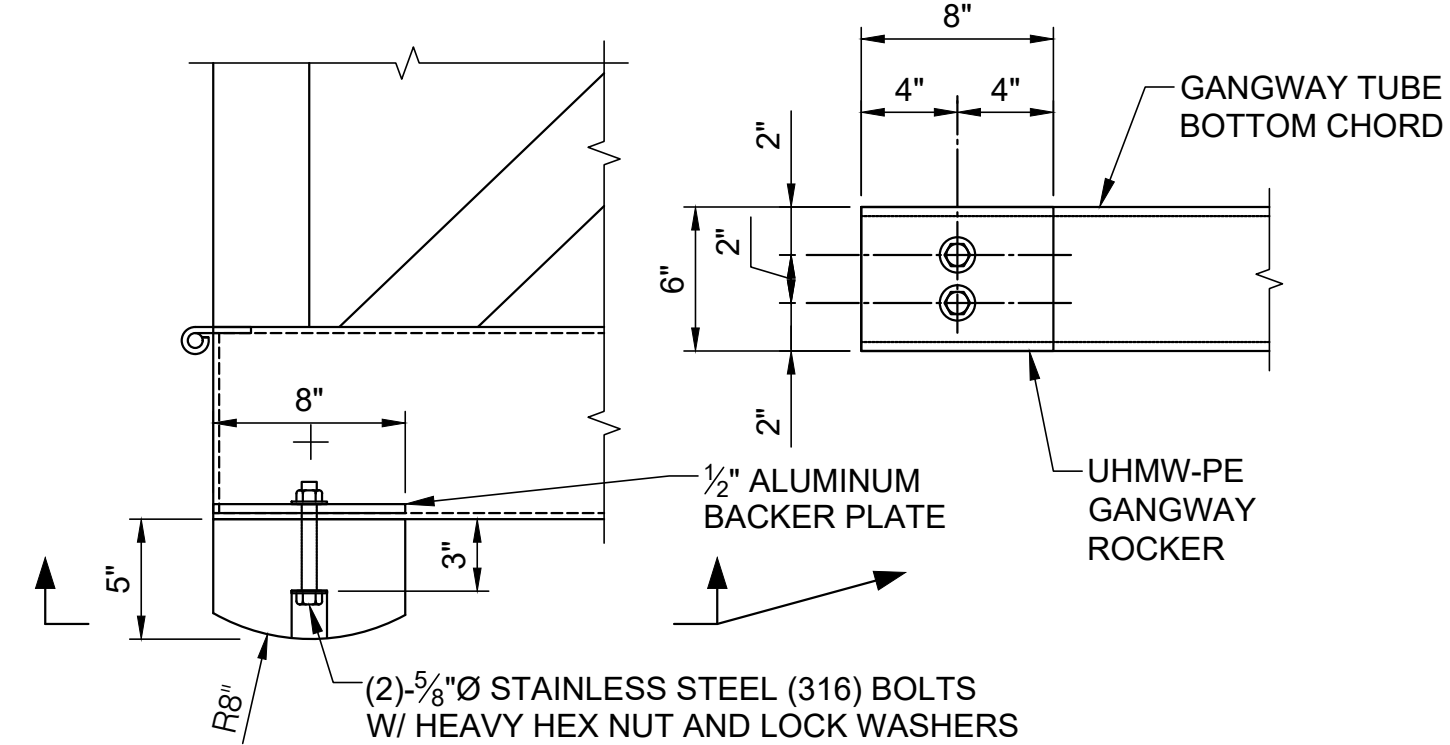
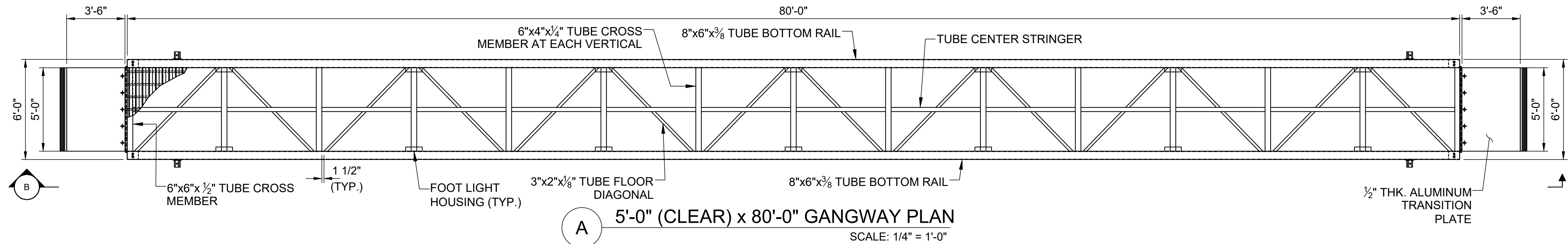
8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**MISCELLANEOUS
DETAILS (2 OF 5)**

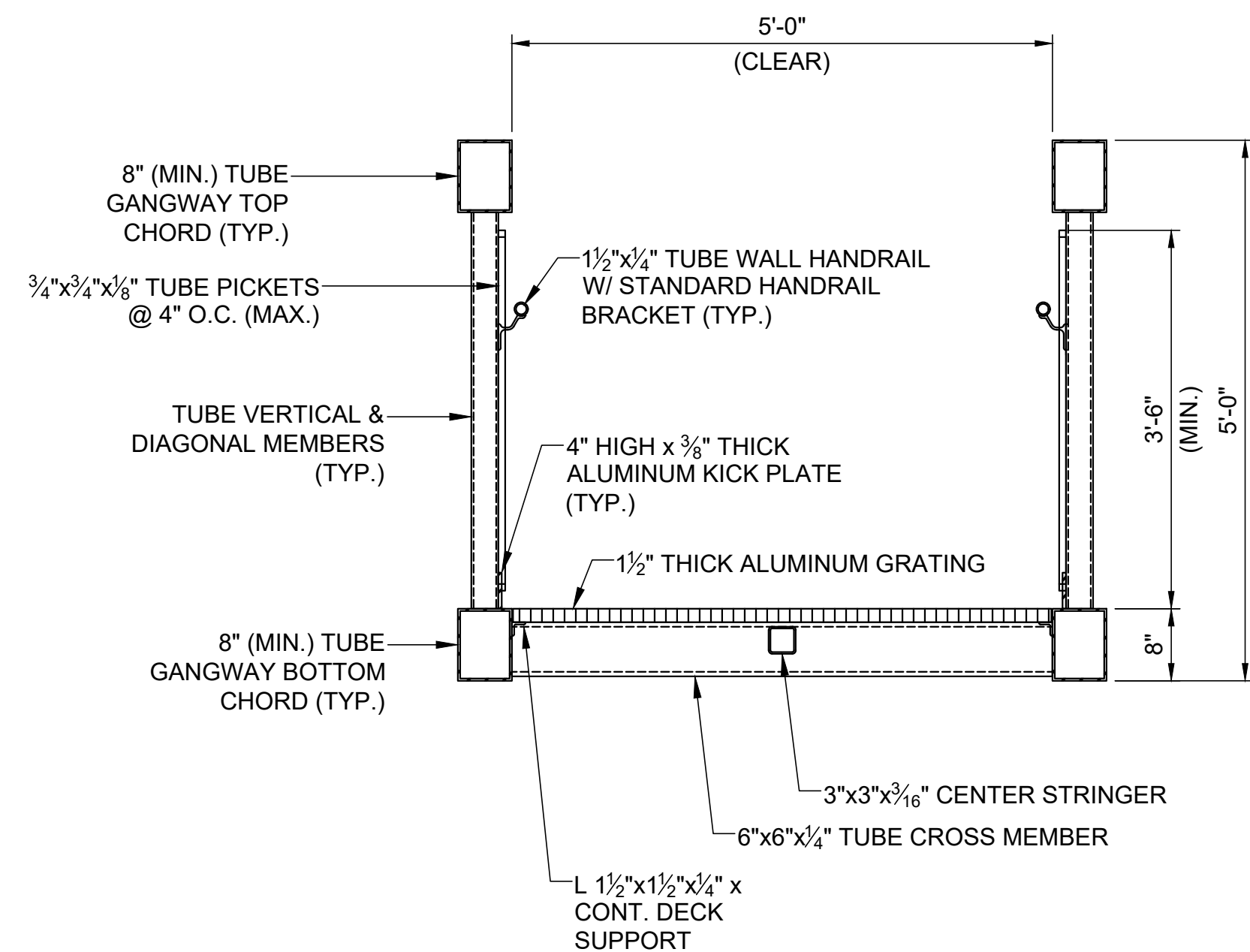
SHEET NO.
S-010

FOR PERMIT

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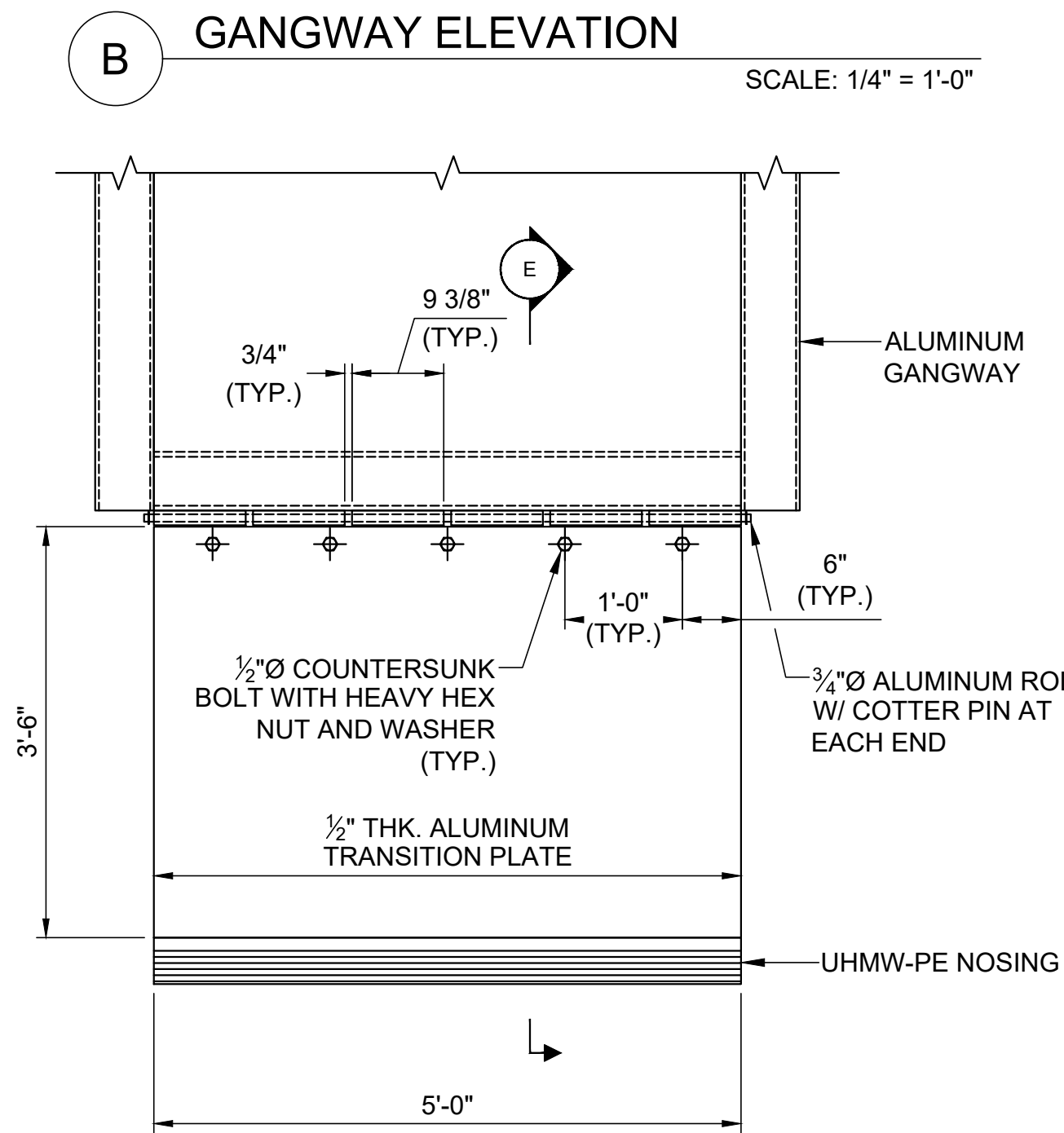


NOTES:
1. ROCKER MATERIAL SHALL BE VIRGIN UHMW-PE, BLACK IN COLOR.
2. ALUMINUM BACKER PLATE PLAN DIMENSIONS SHALL MATCH ROCKER PLAN DIMENSIONS.



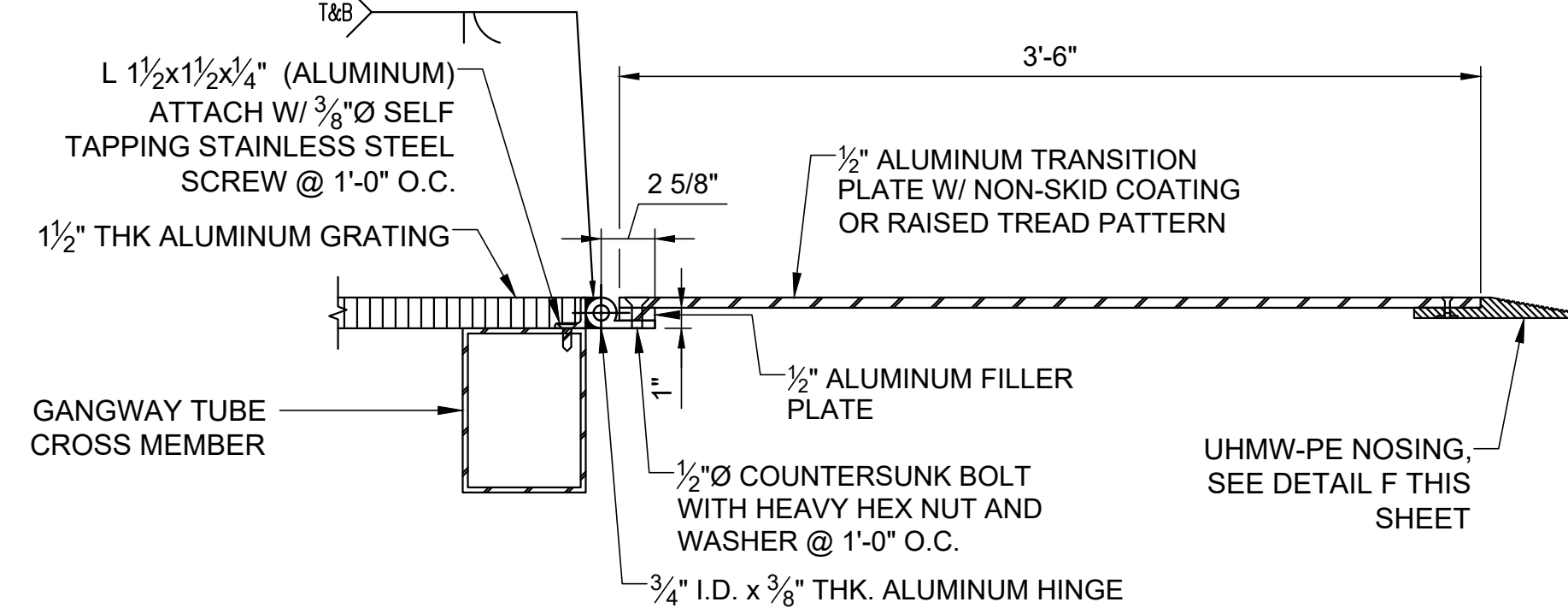
C TYPICAL GANGWAY SECTION
SCALE: 3/4" = 1'-0"

NOTE(S):
1. CONTRACTOR AND GANGWAY MANUFACTURER SHALL DETERMINE FINAL GANGWAY MEMBER SIZES AND SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL.
2. ALUMINUM GRATING SHALL MEET ADA REQUIREMENTS.

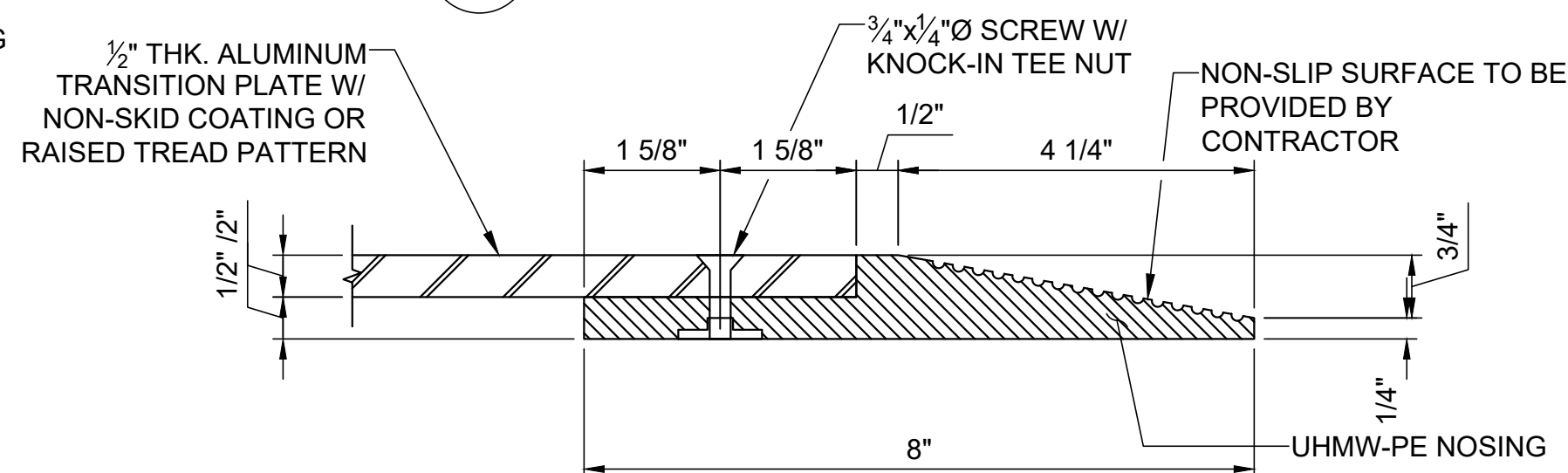


D TRANSITION PLATE DETAIL
SCALE: 3/4" = 1'-0"

NOTES:
1. CONTRACTOR SHALL DETERMINE FINAL GANGWAY MEMBER SIZES. MEMBERS ONLY SHOWN SCHEMATICALLY FOR REFERENCE.
2. CONTRACTOR SHALL SUBMIT FINAL GANGWAY SHOP DRAWINGS AND CALCULATION PACKAGE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MAINE.
3. ALL GANGWAY TUBE MEMBERS SHALL BE 6061-T6 ALUMINUM.
4. ALL GANGWAY TUBE MEMBERS SHALL BE CAPPED AND SEALED W/ ALUMINUM PLATES AT EXPOSED ENDS.



E GANGWAY TRANSITION PLATE SECTION
SCALE: 1-1/2" = 1'-0"



F UHMW-PE NOSING DETAIL
SCALE: 6" = 1'-0"

NOTE(S):
1. DRILL AND COUNTER BORE TRANSITION PLATES. COUNTERSINK HOLES FOR TEE NUTS TO TWICE BASE THICKNESS. SCREWS TO BE COUNTERSUNK INTO PLATE. INSTALL NEW SCREWS OVER SILICONE TO COVER EXPOSED ALUMINUM.
2. UHMW-PE NOSING DETAILS TO BE DETERMINED AFTER TRANSITION PLATE INSTALLATION AND SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN ADA.

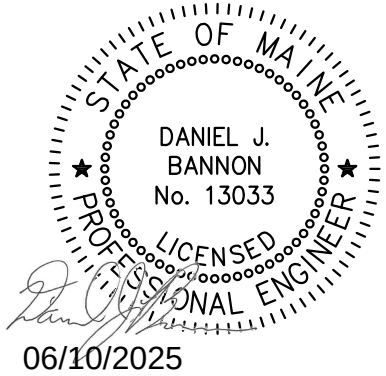
J GANGWAY SHOE DETAIL
SCALE: 1-1/2" = 1'-0"

NOTE: SHOE MATERIAL SHALL BE VIRGIN UHMW-PE, BLACK IN COLOR.

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.5	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

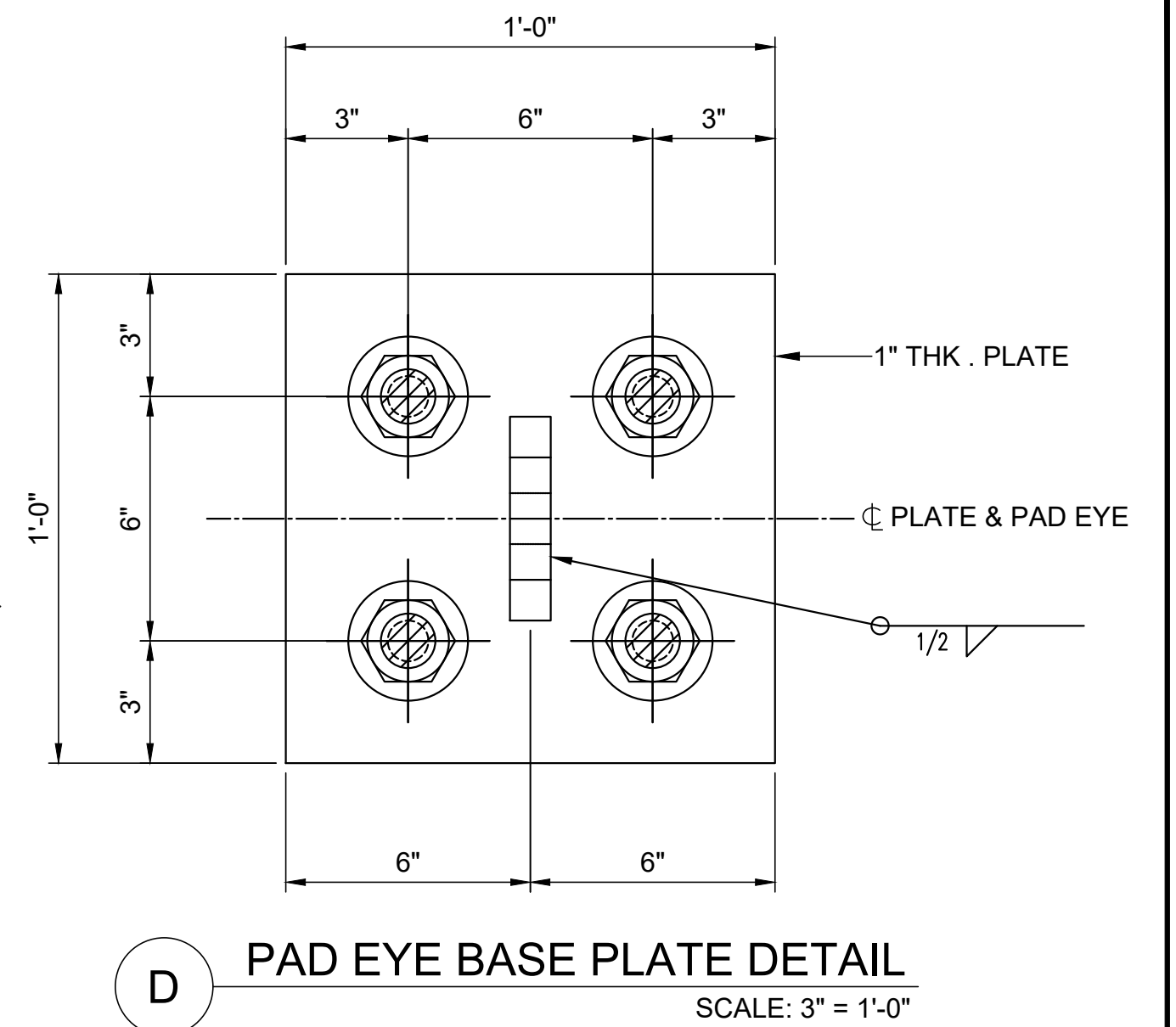
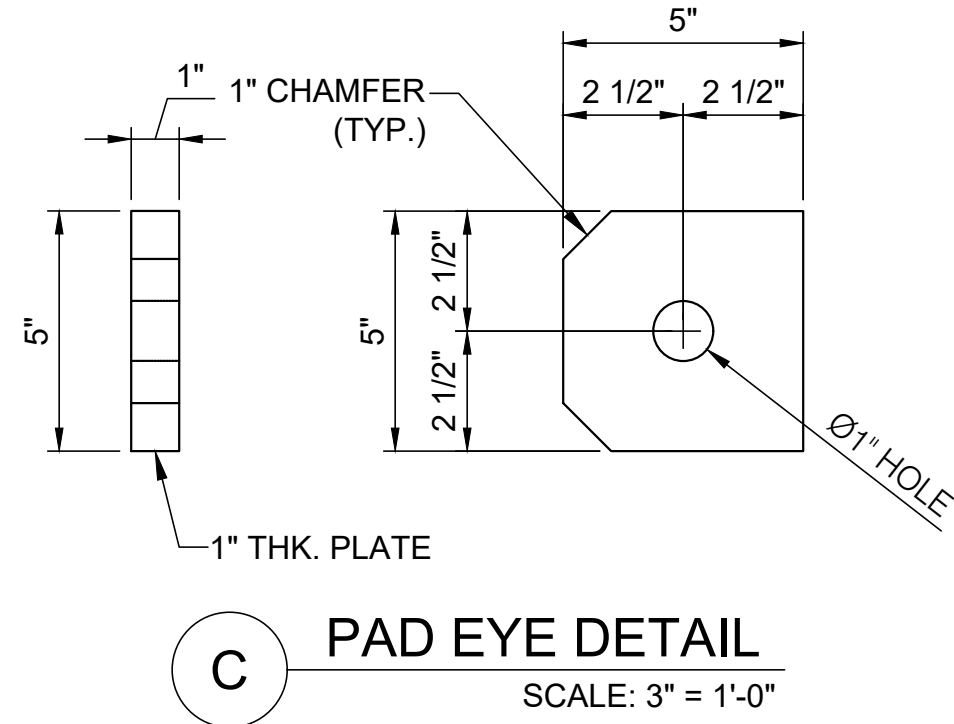
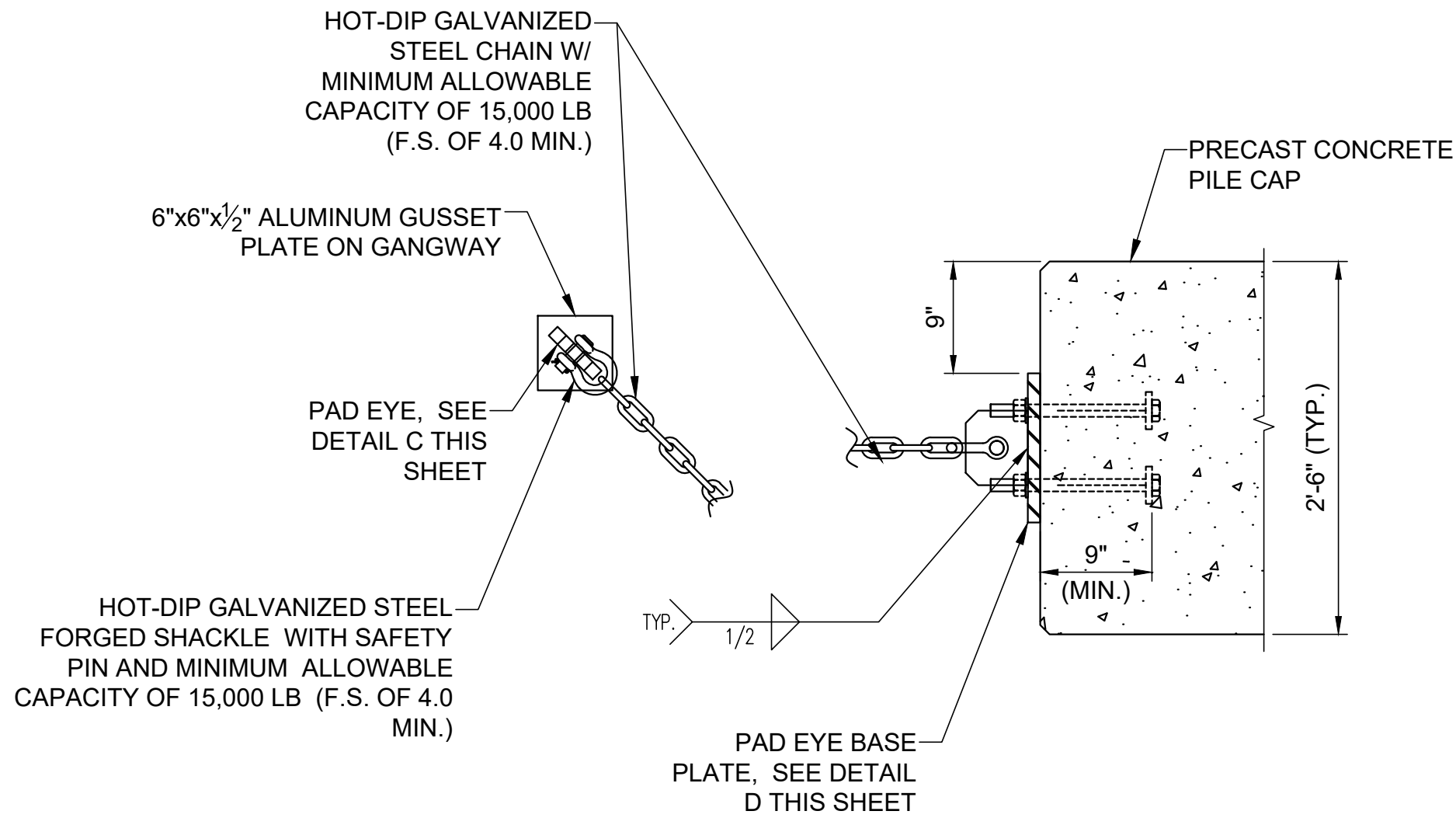
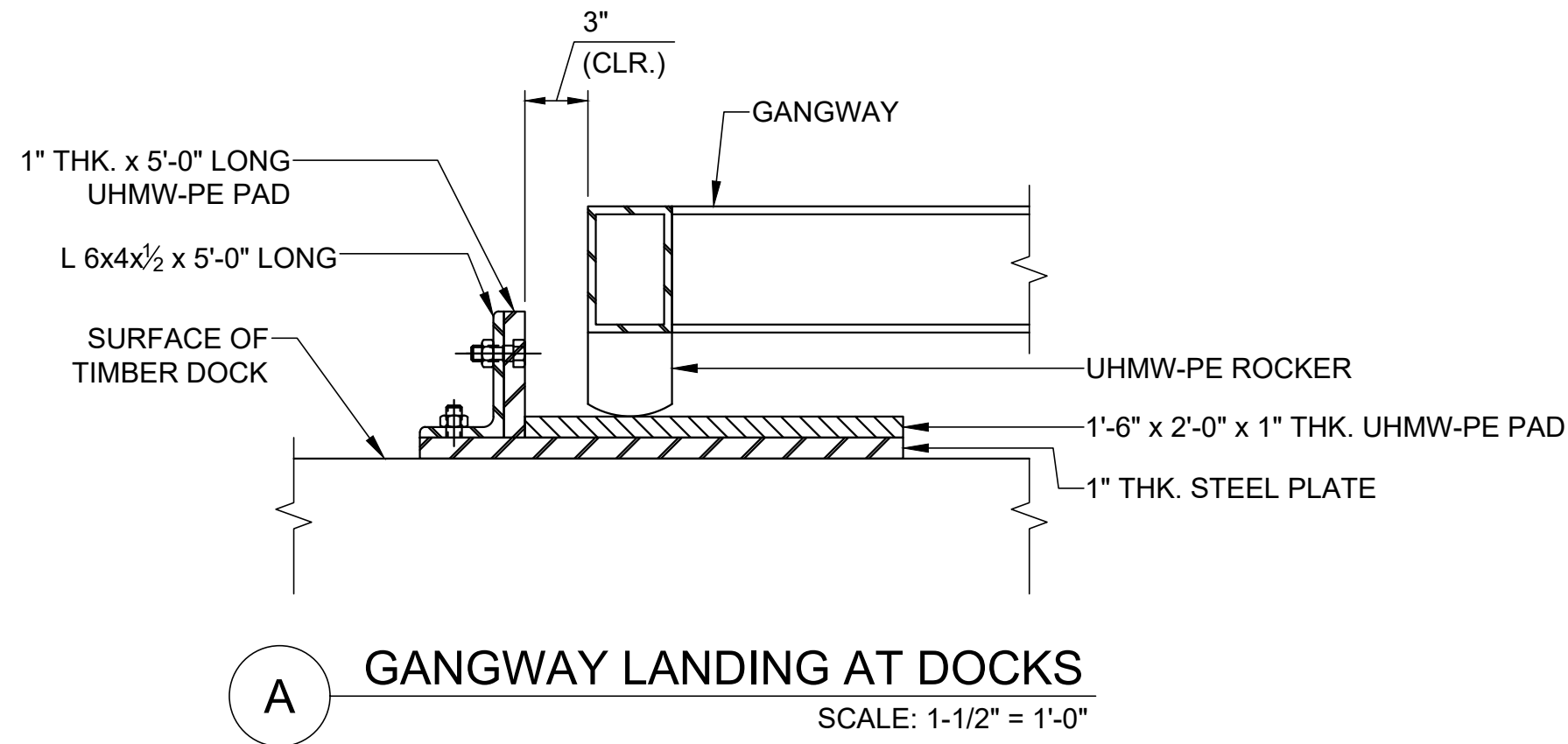
**UNIVERSITY OF
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MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
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0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

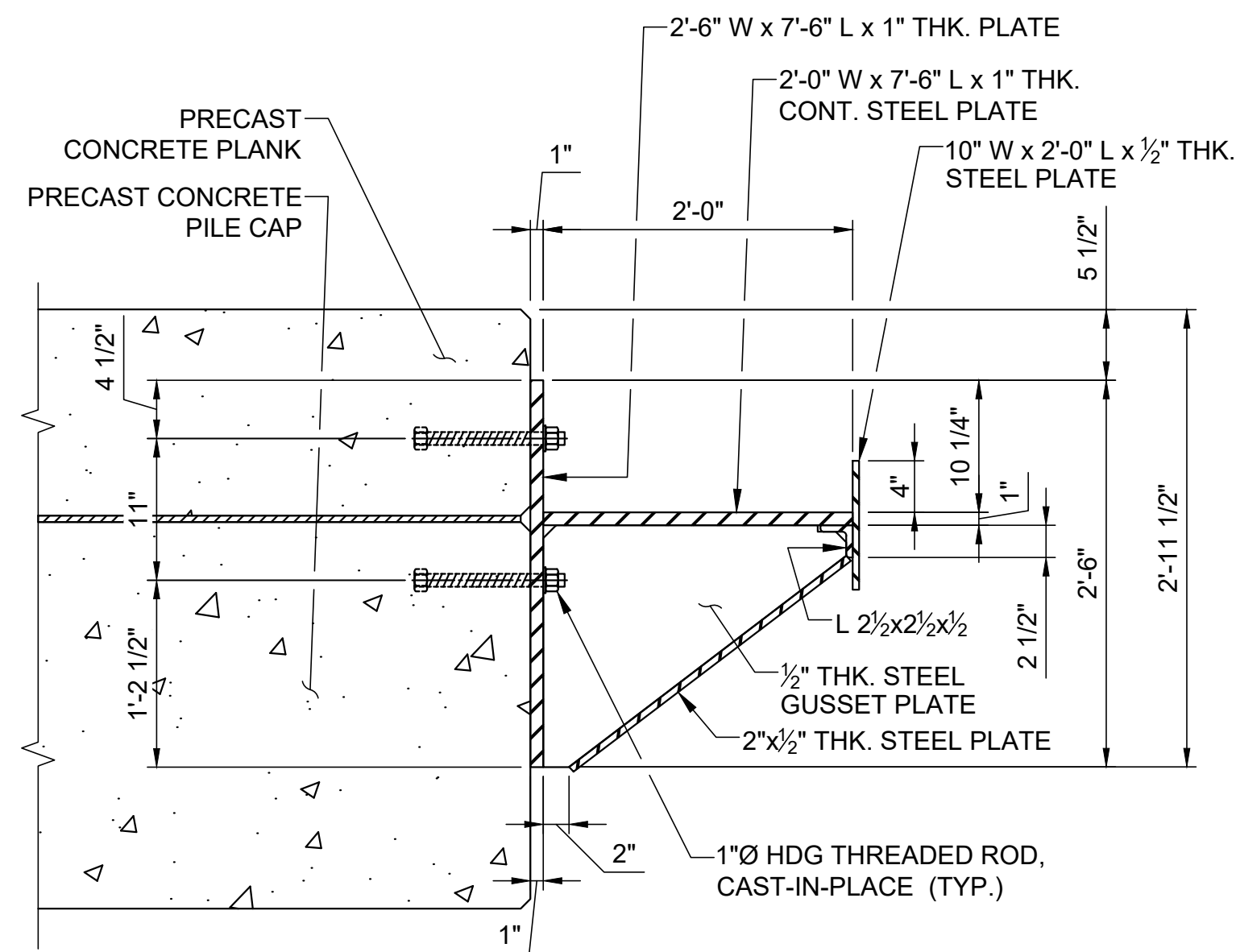
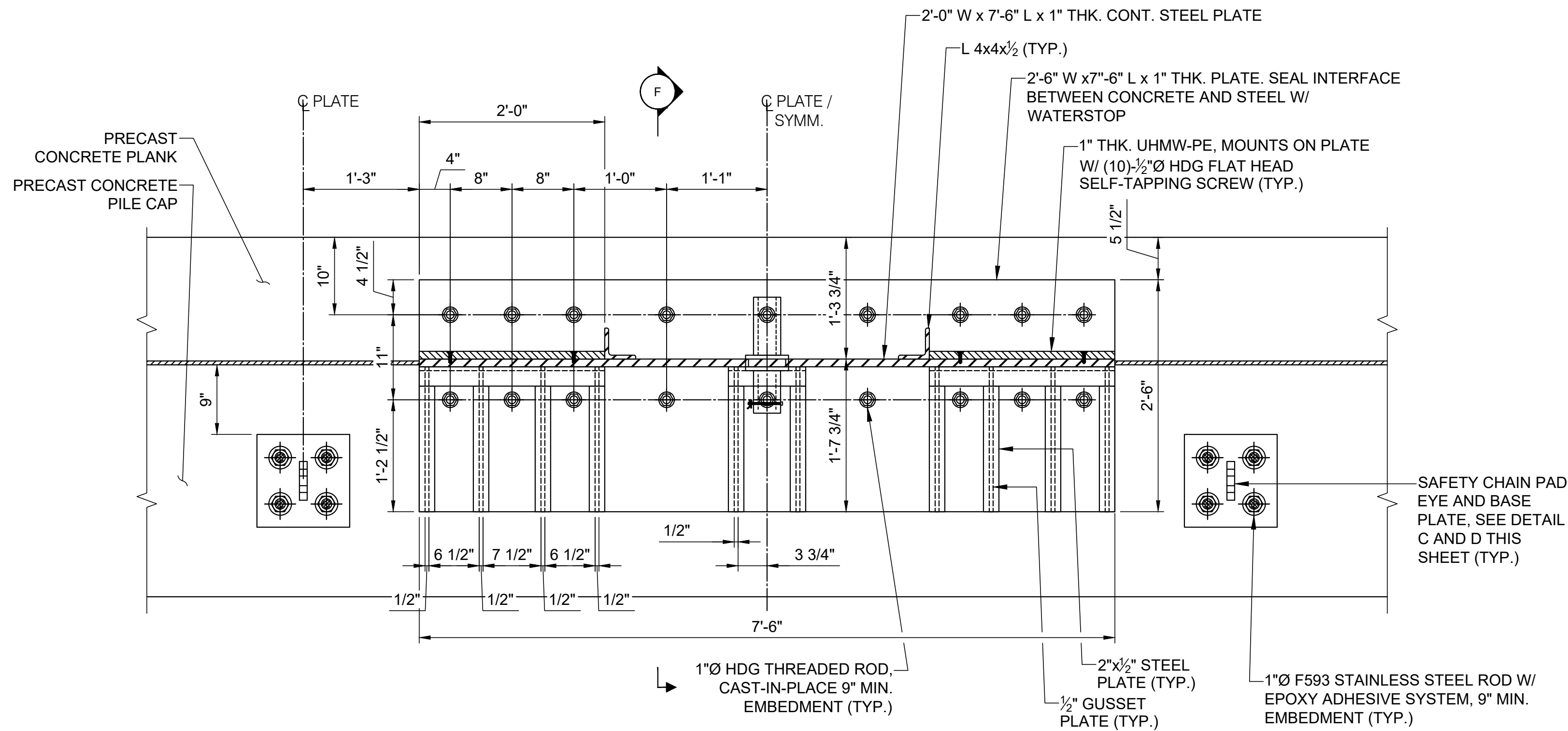
SHEET NAME	SHEET NO.
MISCELLANEOUS DETAILS (3 OF 5)	S-011

FOR PERMIT

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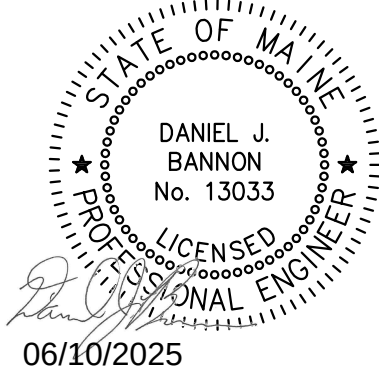
NOTE: CONTRACTOR TO DETERMINE ASSEMBLY LENGTH BASED ON PAD EYE LOCATION ON GANGWAY SUCH THAT UHMW-PE SHOE CANNOT MOVE OFF THE SUPPORTING PLATE.



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

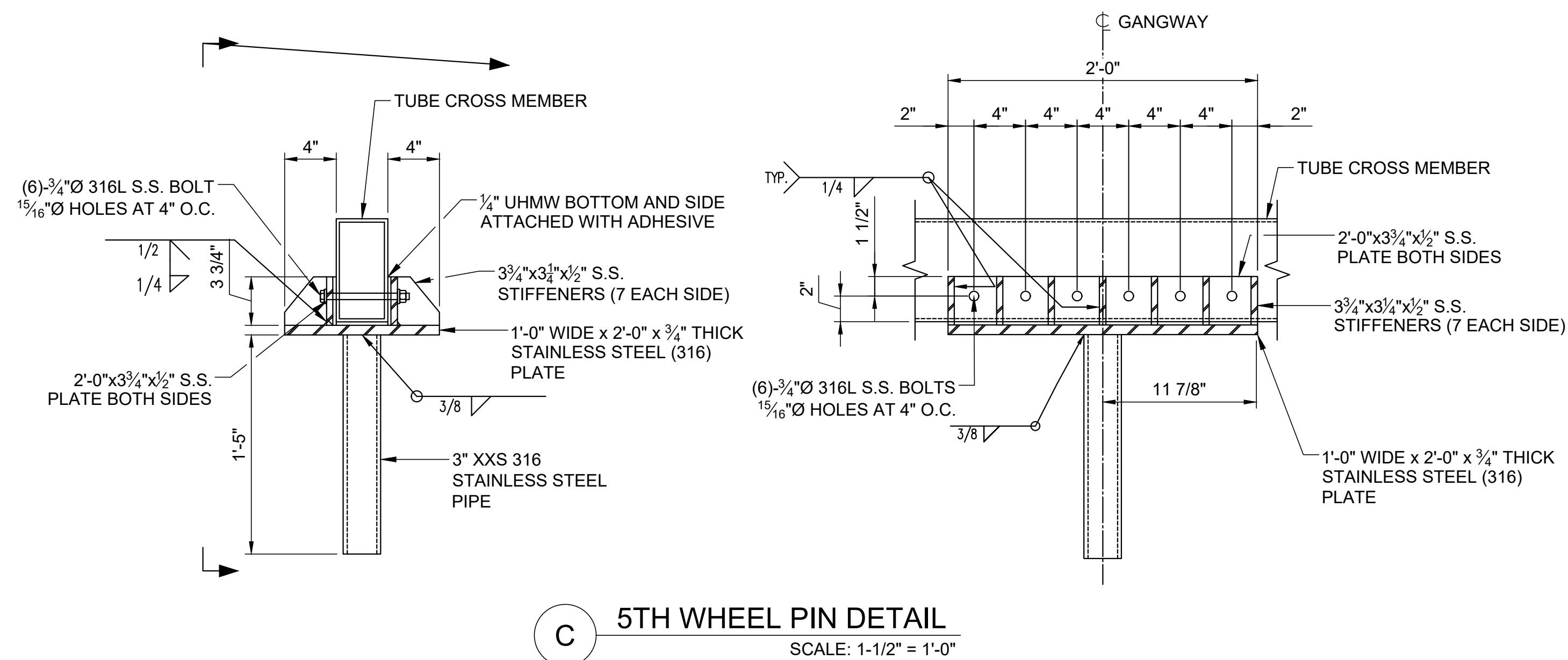
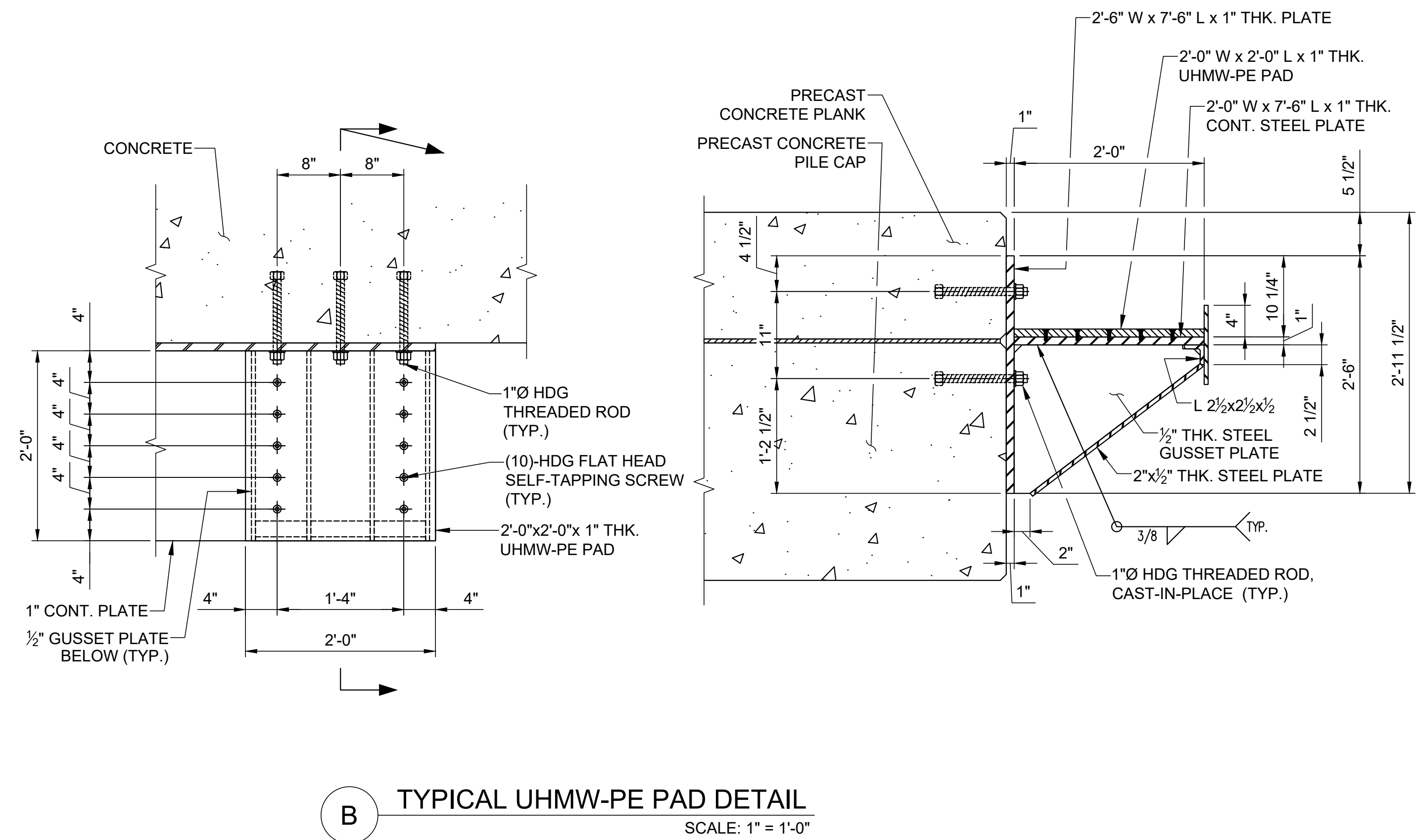
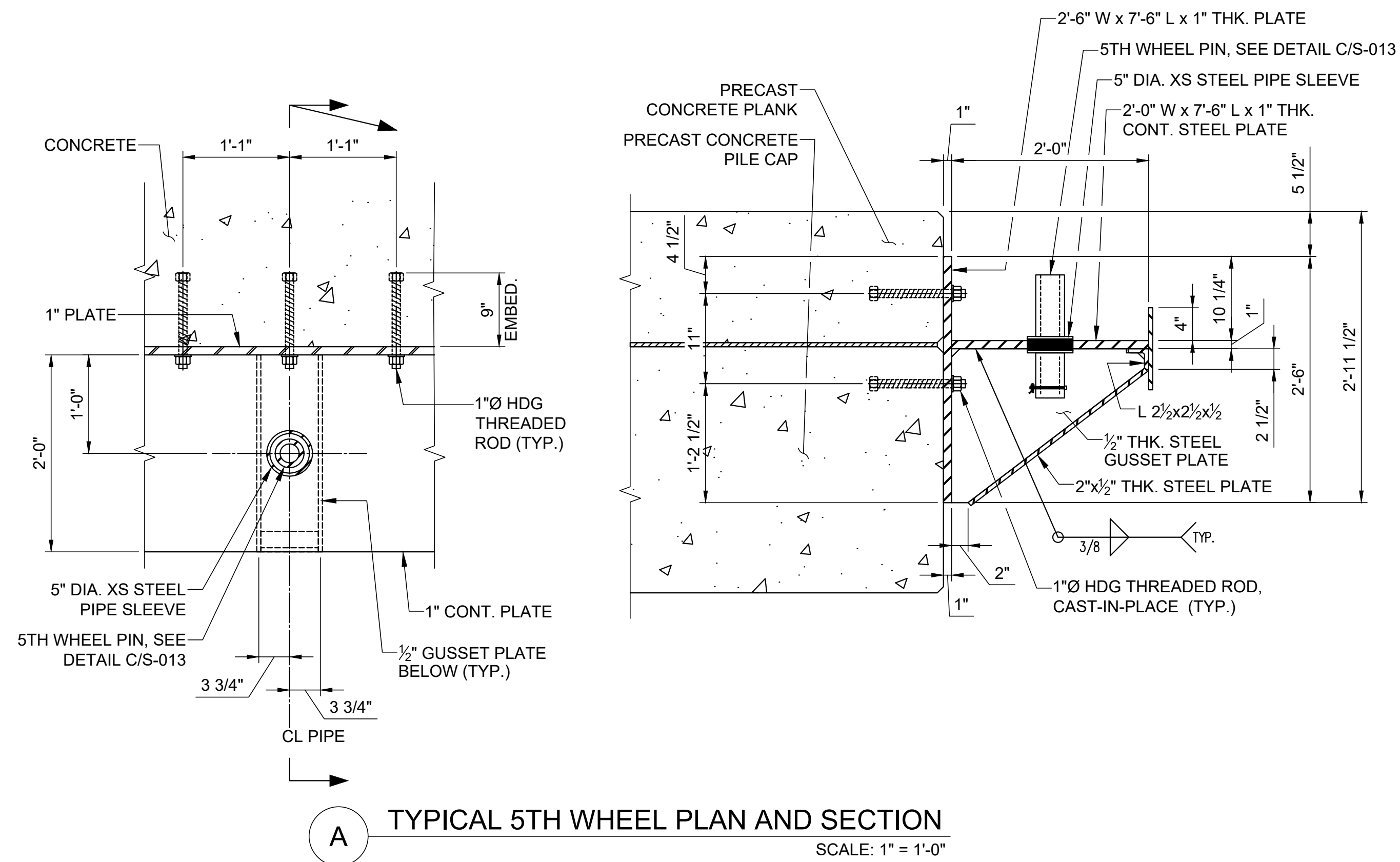
**UNIVERSITY OF
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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**MISCELLANEOUS
DETAILS (4 OF 5)**

SHEET NO.
S-012

FOR PERMIT

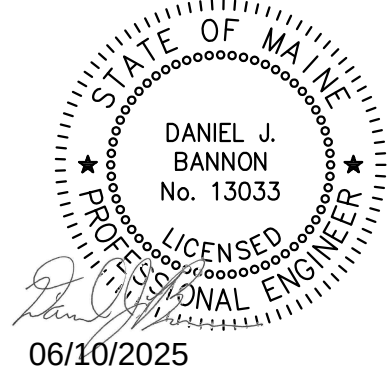


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

Attention:



If this scale bar does not measure 1" then drawing is not original scale.



<i>Designed:</i>	DJB
<i>Drawn:</i>	JAM
<i>Checked:</i>	BJB
<i>Approved:</i>	BMM
<i>P.E. No:</i>	13033
<i>GEI Project</i>	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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5	6/27/2024	REVISED PERMIT SET	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME

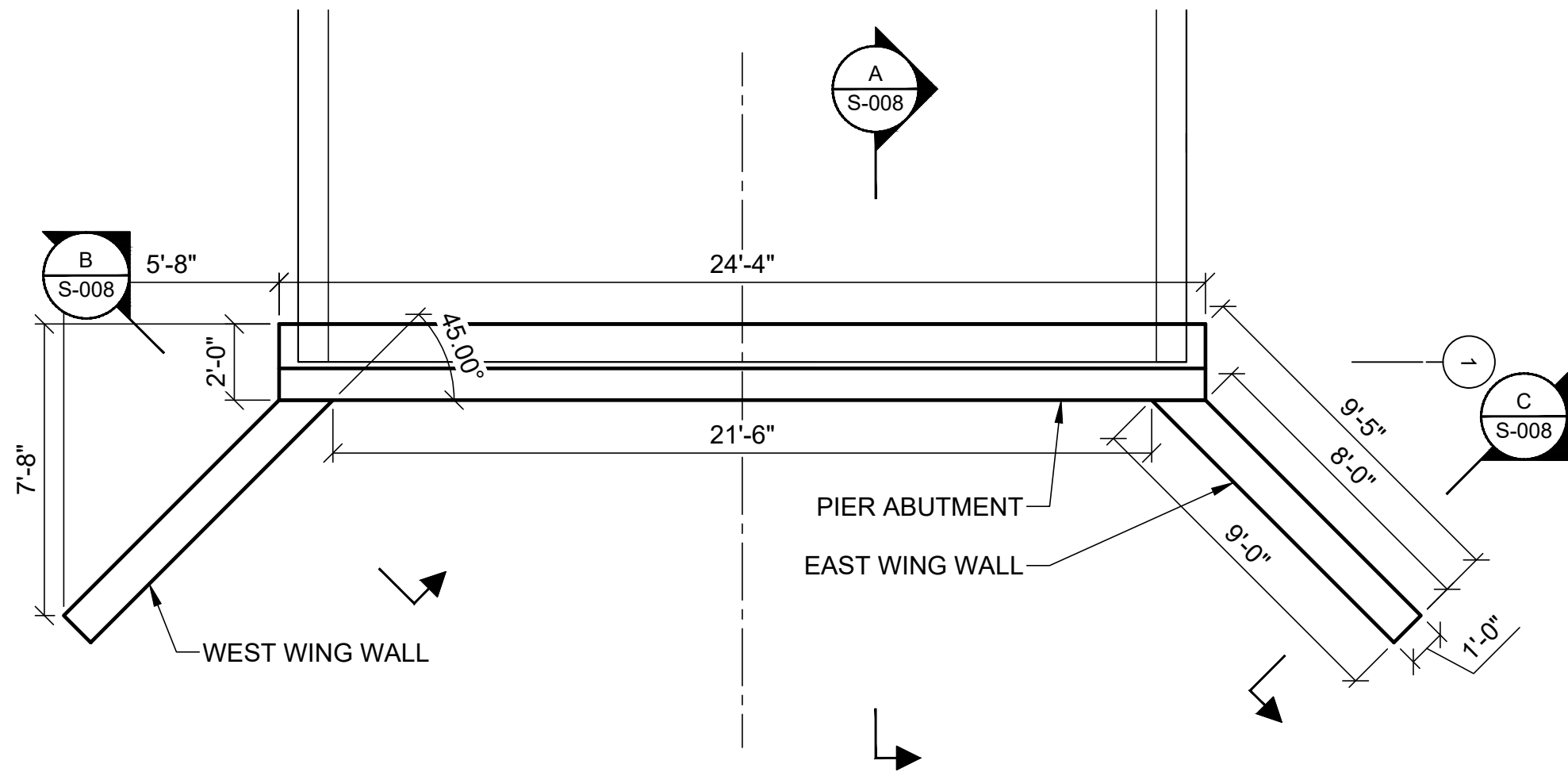
**MISCELLANEOUS
DETAILS (5 OF 5)**

SHEET NO.

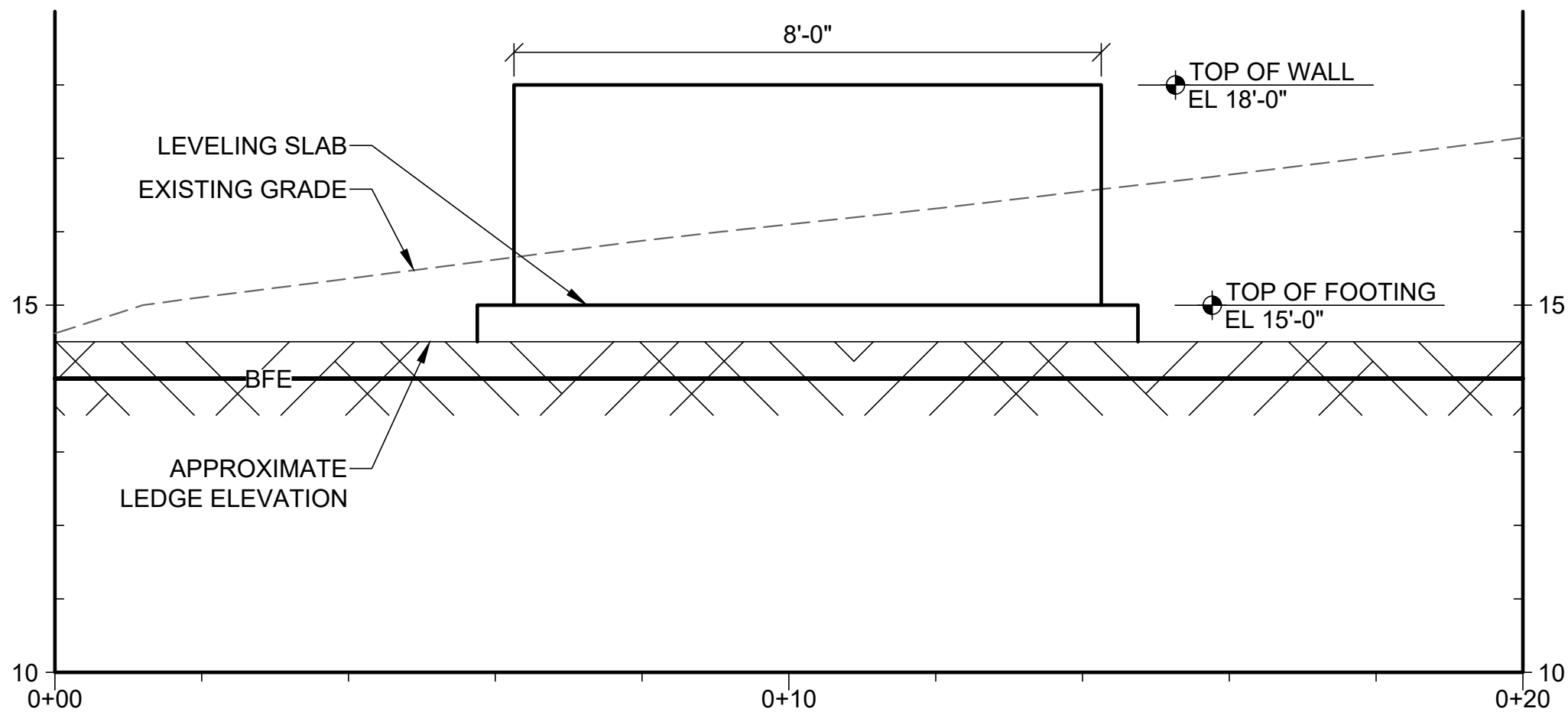
S-013

FOR PERMIT

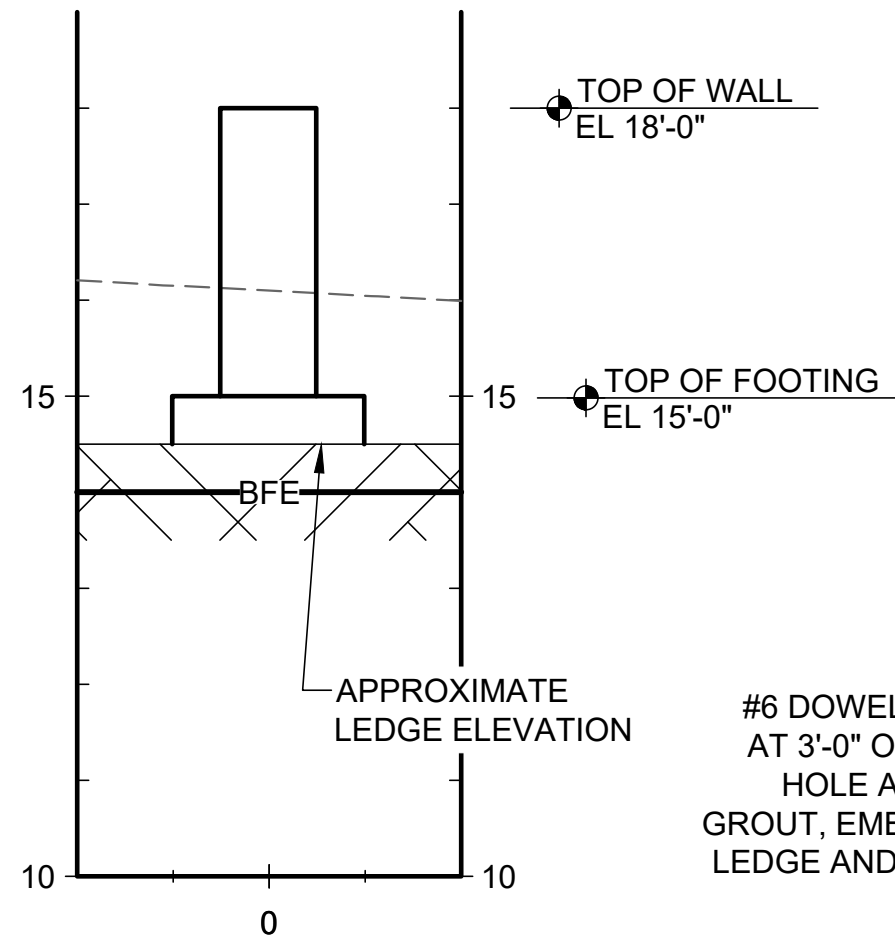
D:\CASTELNUOVO, VINNE - Iltast\452\Draw - Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\00_CAD\Design\Sheets\2203703-S-014.dwg - 6/5/2025



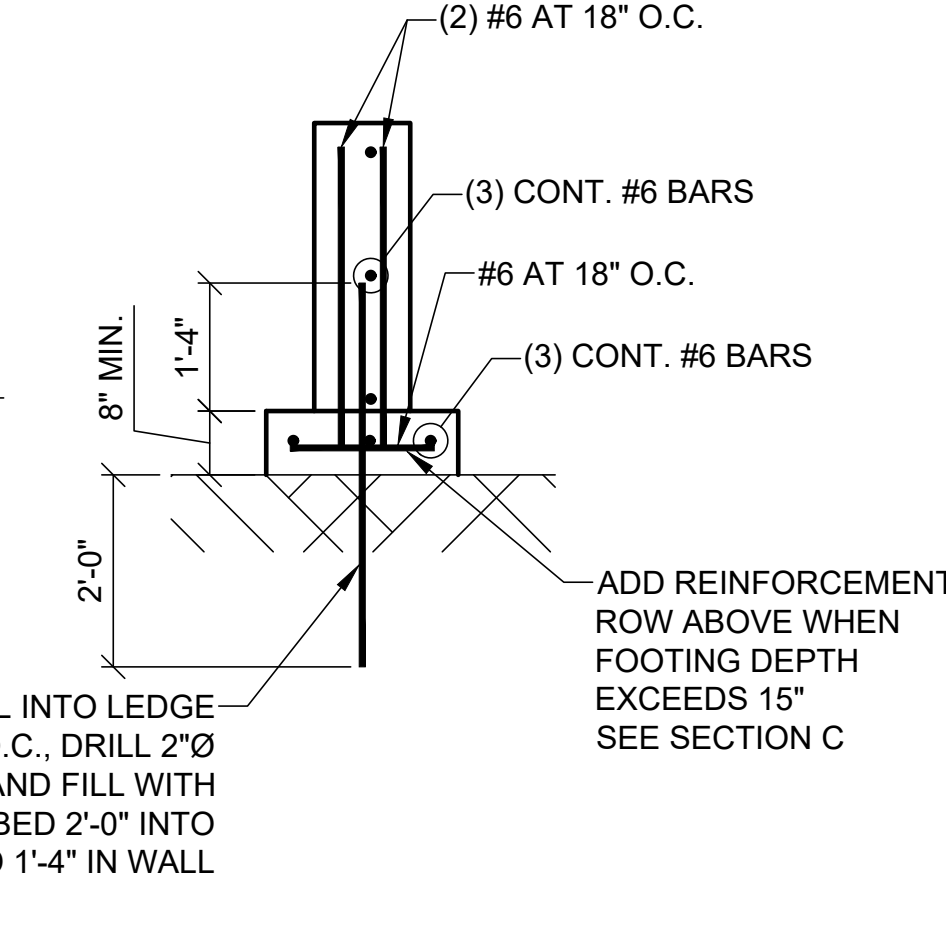
ABUTMENT PLAN
SCALE: SCALE: 3" = 1'-0"



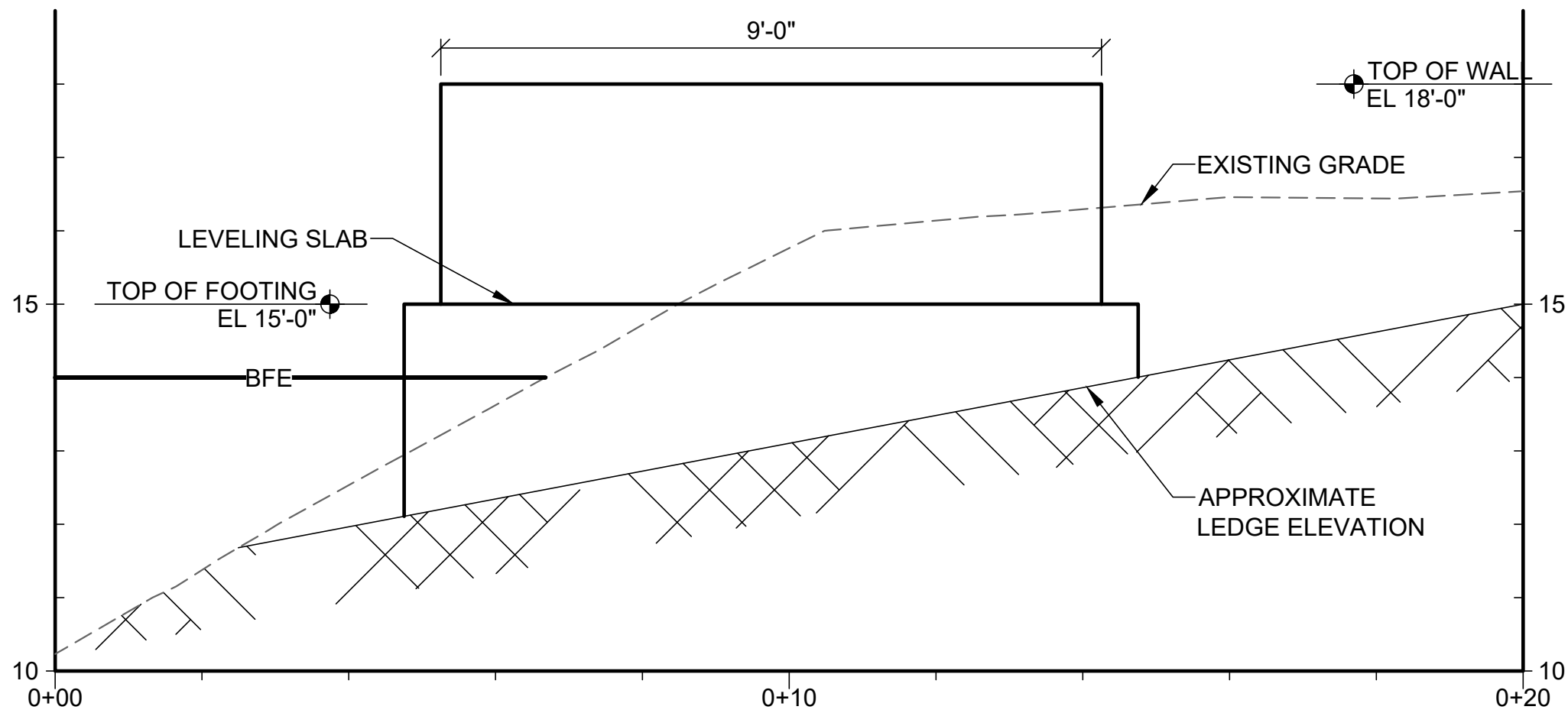
WEST WING WALL ELEVATION
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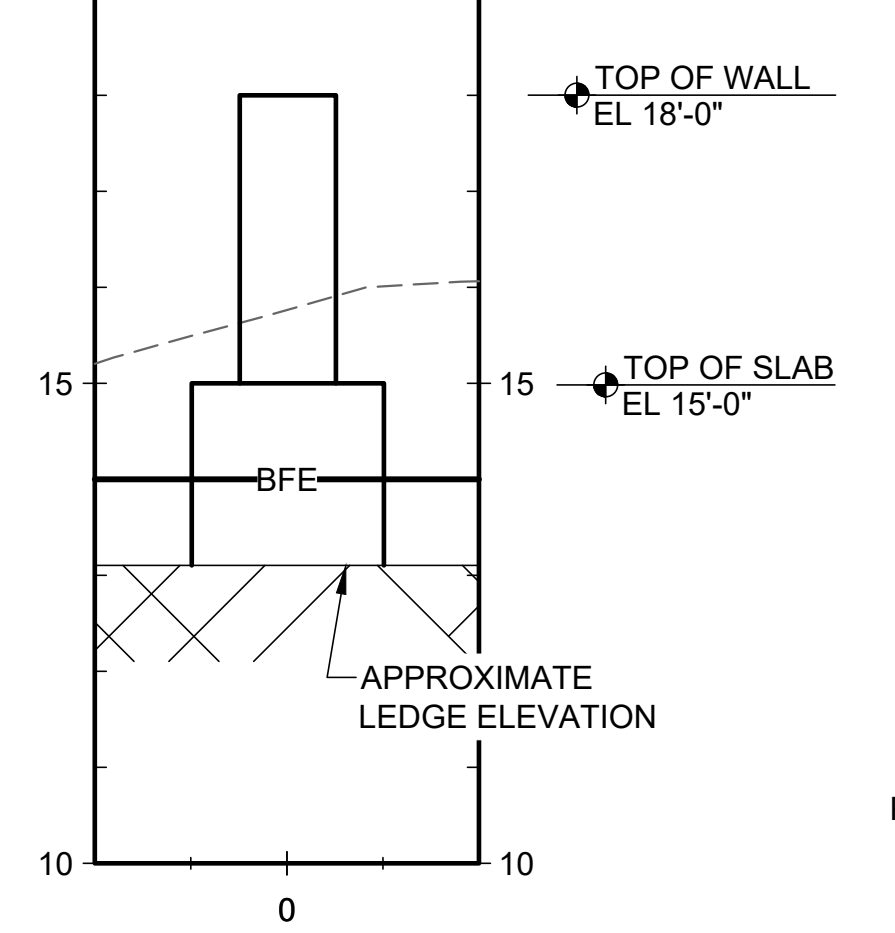
WEST WING WALL SECTION
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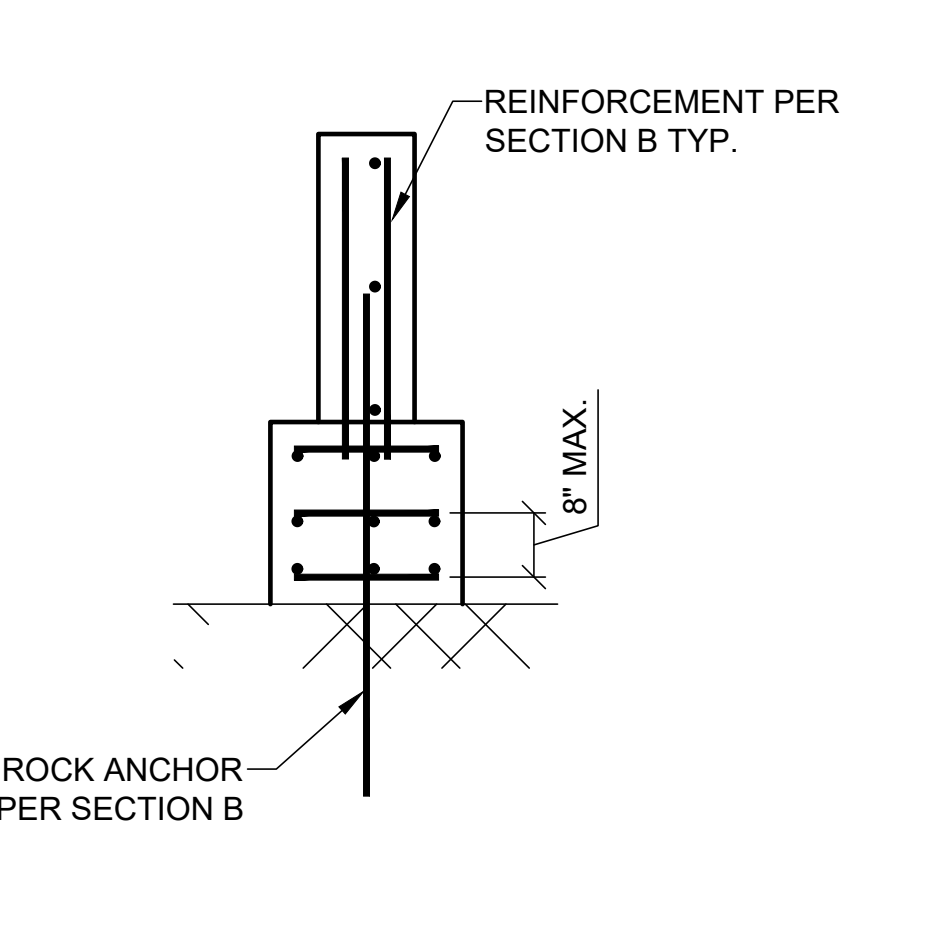
SECTION
WEST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"



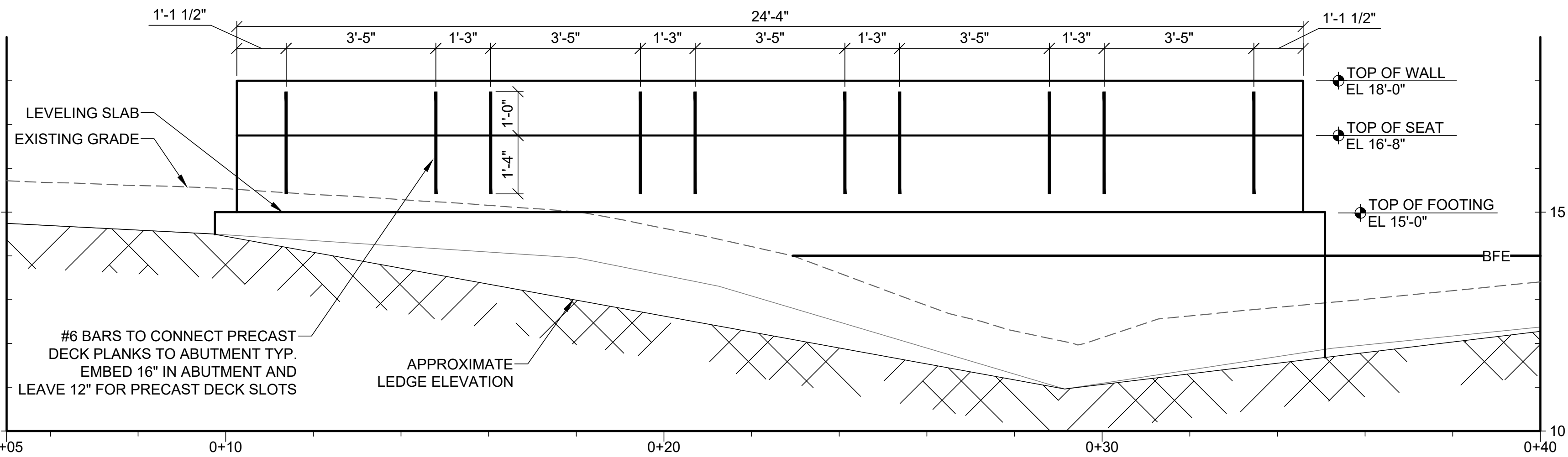
EAST WING WALL ELEVATION
SCALE: 6" = 1'-0"



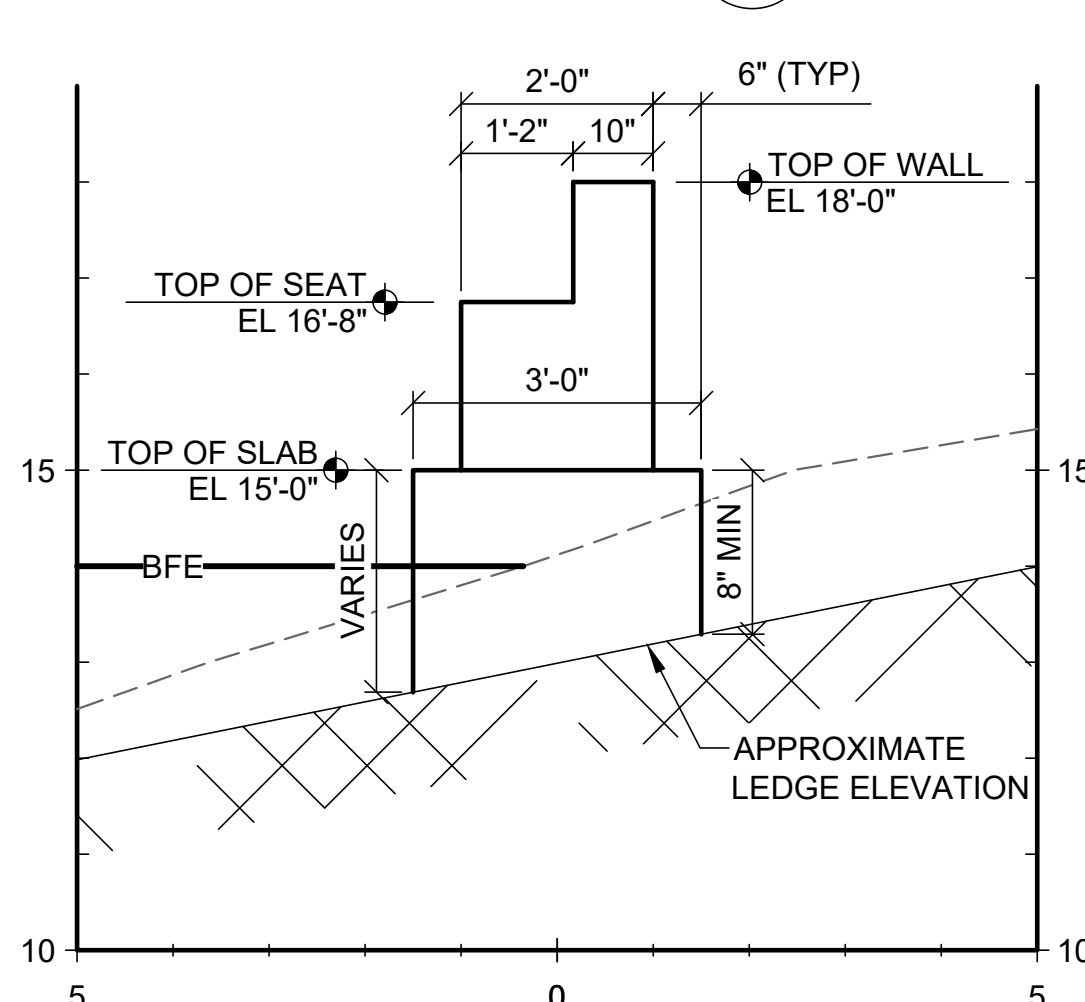
EAST WING WALL SECTION
SCALE: 6" = 1'-0"



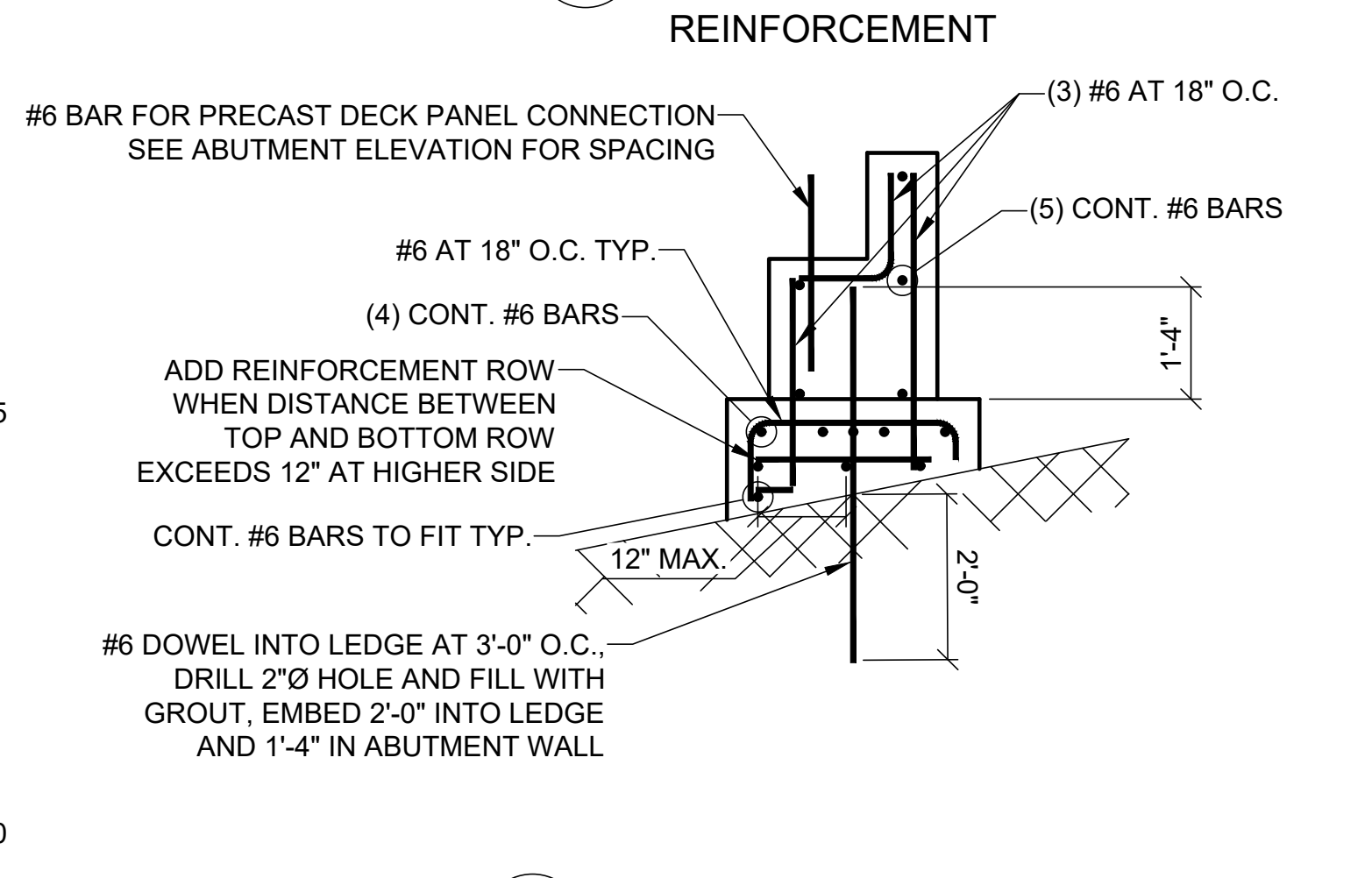
SECTION
EAST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"



ABUTMENT ELEVATION A
SCALE: 3" = 1'-0"



ABUTMENT SECTION
SCALE: 6" = 1'-0"



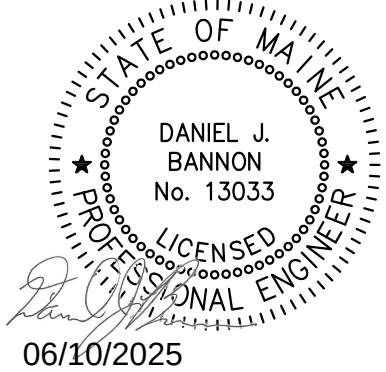
SECTION
ABUTMENT REINFORCEMENT
SCALE: 6" = 1'-0"

FOR PERMIT

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.



Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



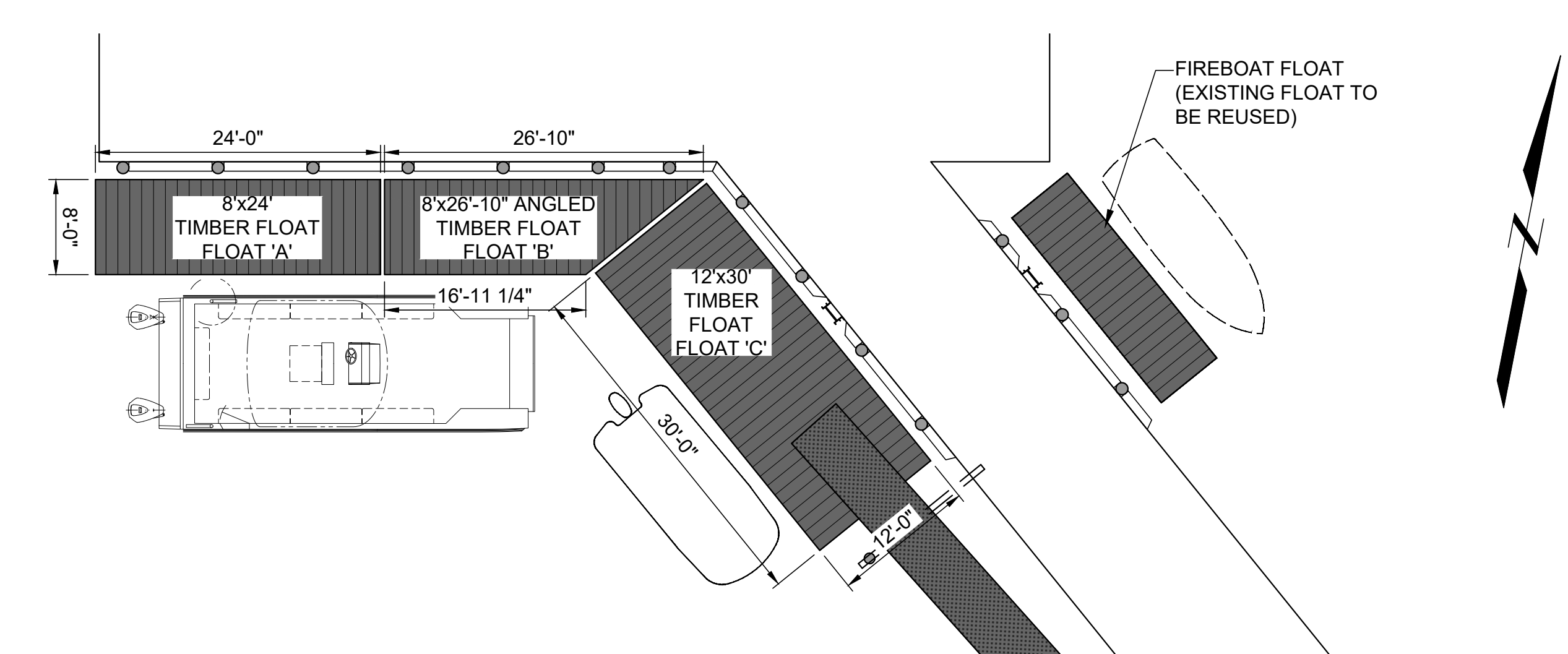
11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

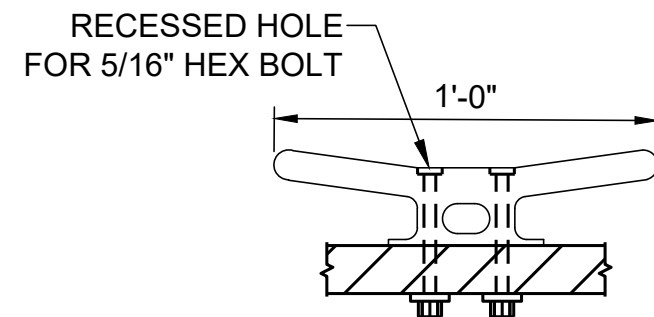
NO	DATE	ISSUE/REVISION	APP
8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME	SHEET NO.
ABUTMENT DETAILS	S-014

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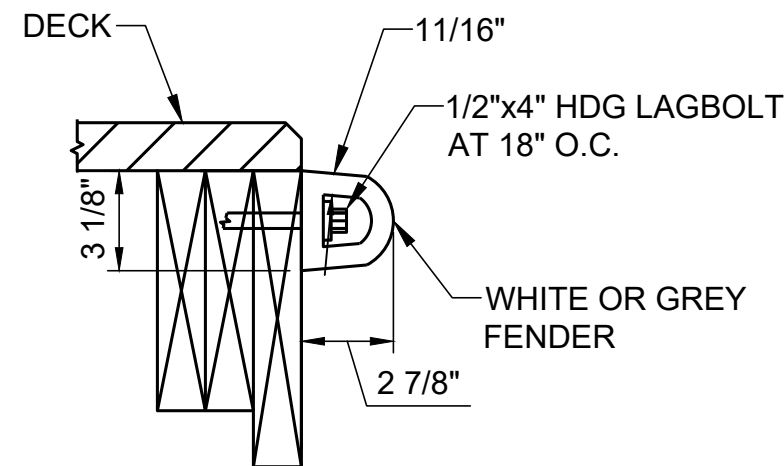


1 PLAN
FLOAT LAYOUT SCALE: 1" = 10'

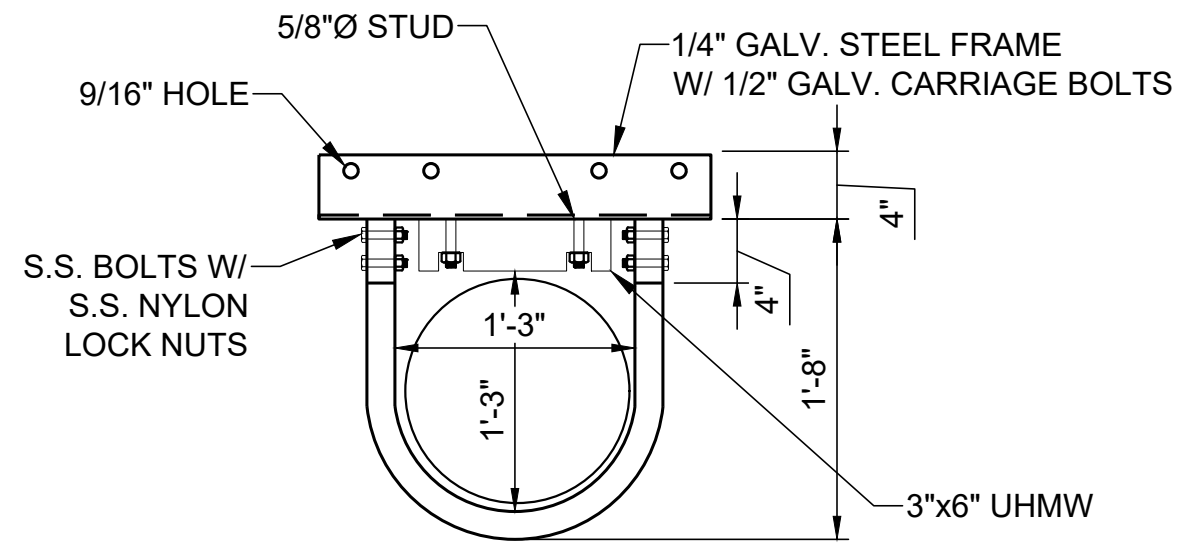


CLEAT LAYOUT:
FLOAT 'A' (4) @ EQ. SP ON SOUTH FACE
FLOAT 'B' (3) @ EQ. SP ON SOUTH FACE
FLOAT 'C' (4) @ EQ. SP ON WEST FACE

4 DETAIL
12" CLEAT SCALE: 2:1

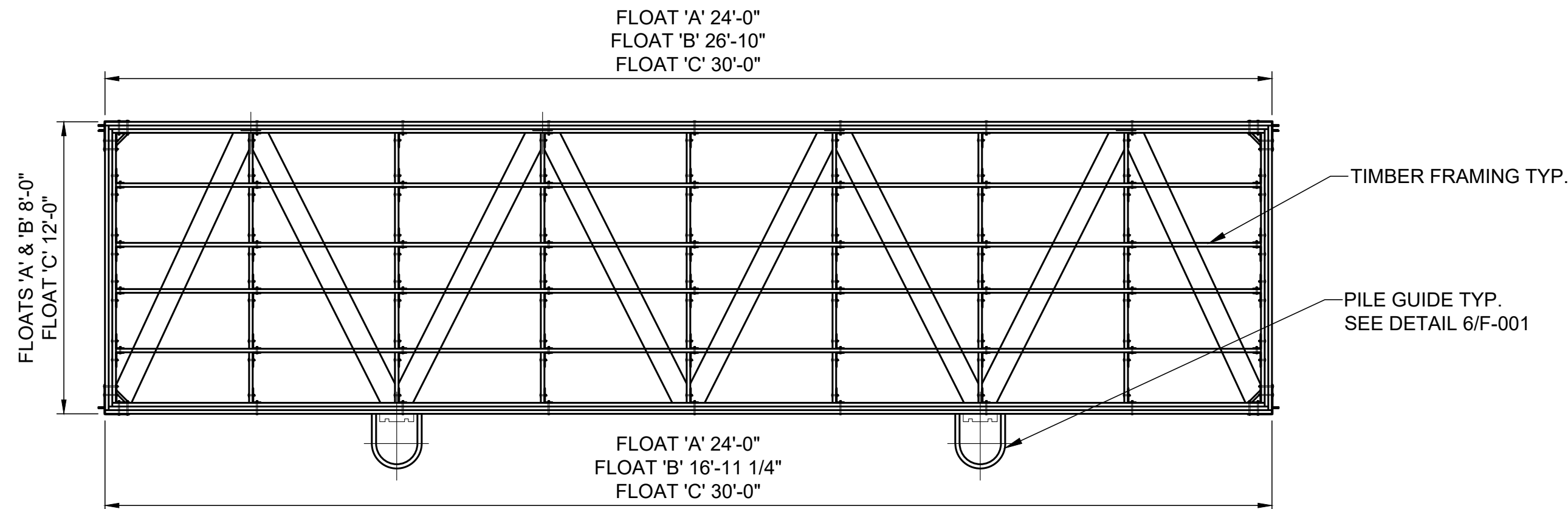


5 DETAIL
DOCK FENDER SCALE: 2:1



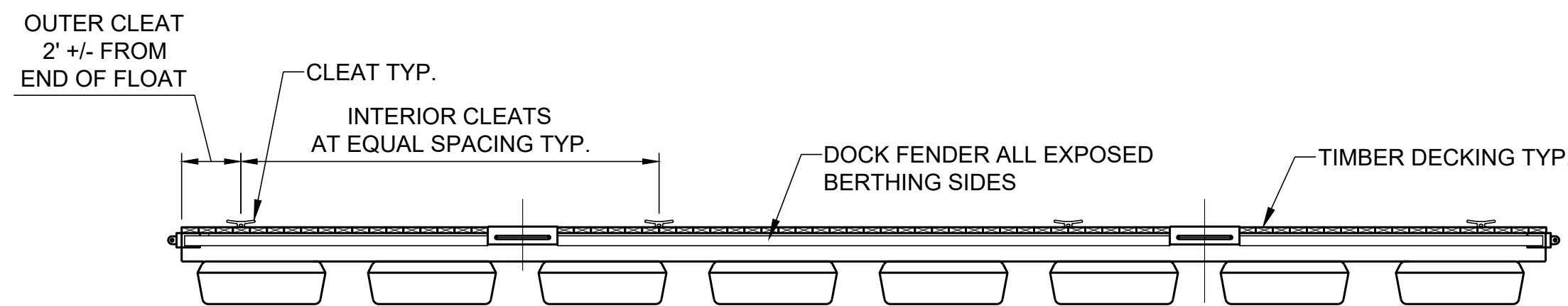
PILE GUIDE LAYOUT:
PROVIDE PILE GUIDES AT ALL TIMBER PILE LOCATIONS
FLOAT 'A' (3) REQ
FLOAT 'B' (4) REQ
FLOAT 'C' (4) REQ

6 DETAIL
PILE GUIDE SCALE: 1:1



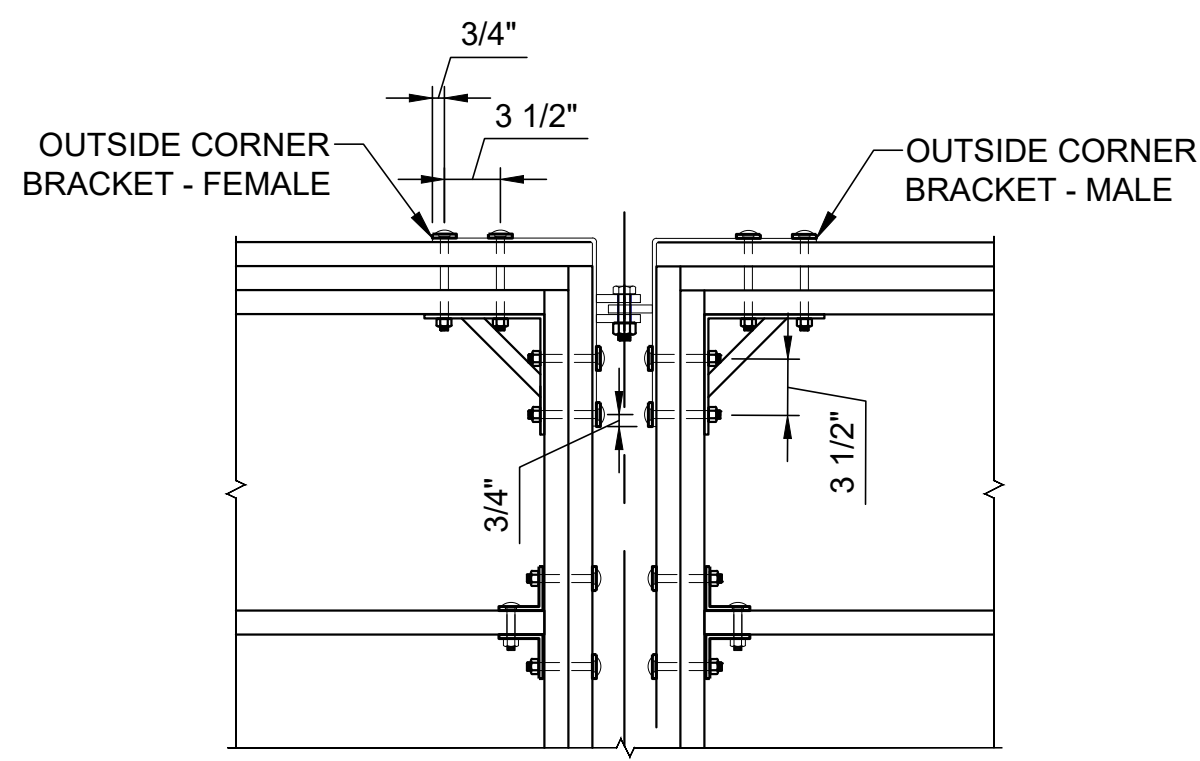
NOTES:
1. CONTRACTOR/FABRICATOR TO DETERMINE ACTUAL MEMBER SIZES PER LOADING REQUIREMENTS.

2 PLAN
TYP. FLOATING DOCK SCALE: 1" = 4'

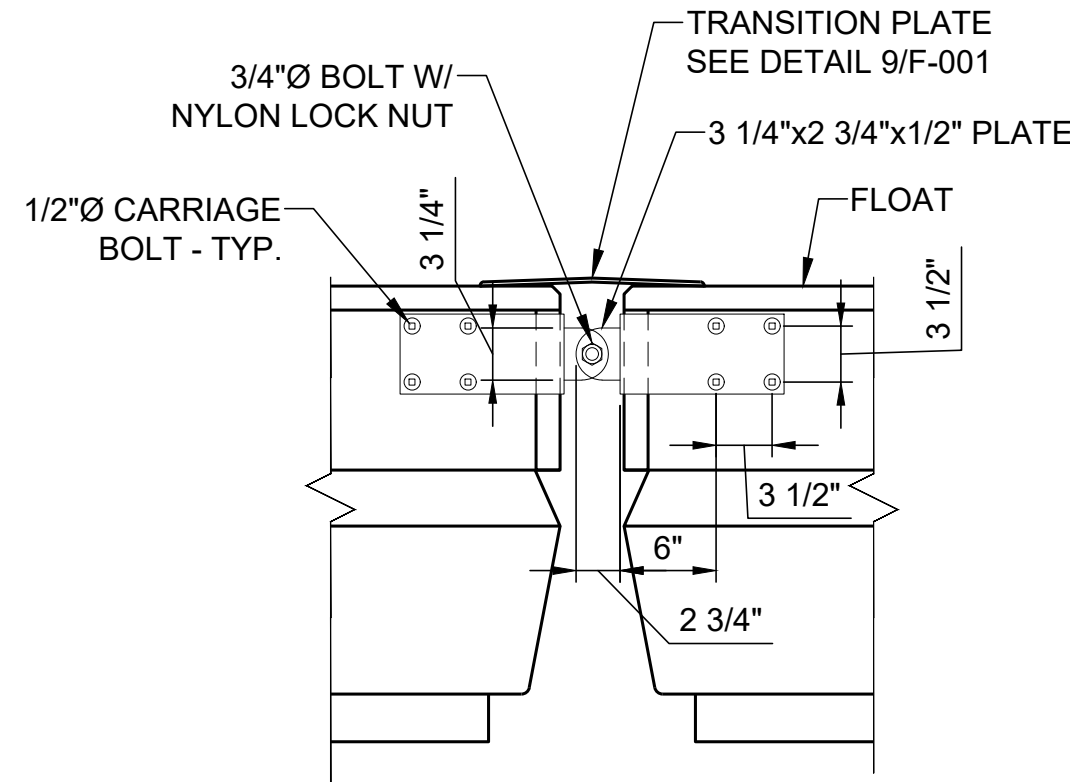


NOTES:
1. FLOTATION UNITS SHOWN ARE FOR GRAPHIC REPRESENTATION ONLY, CONTRACTOR/MANUFACTURER SHALL DETERMINE SIZE AND QUANTITY PER LOADING REQUIREMENTS.

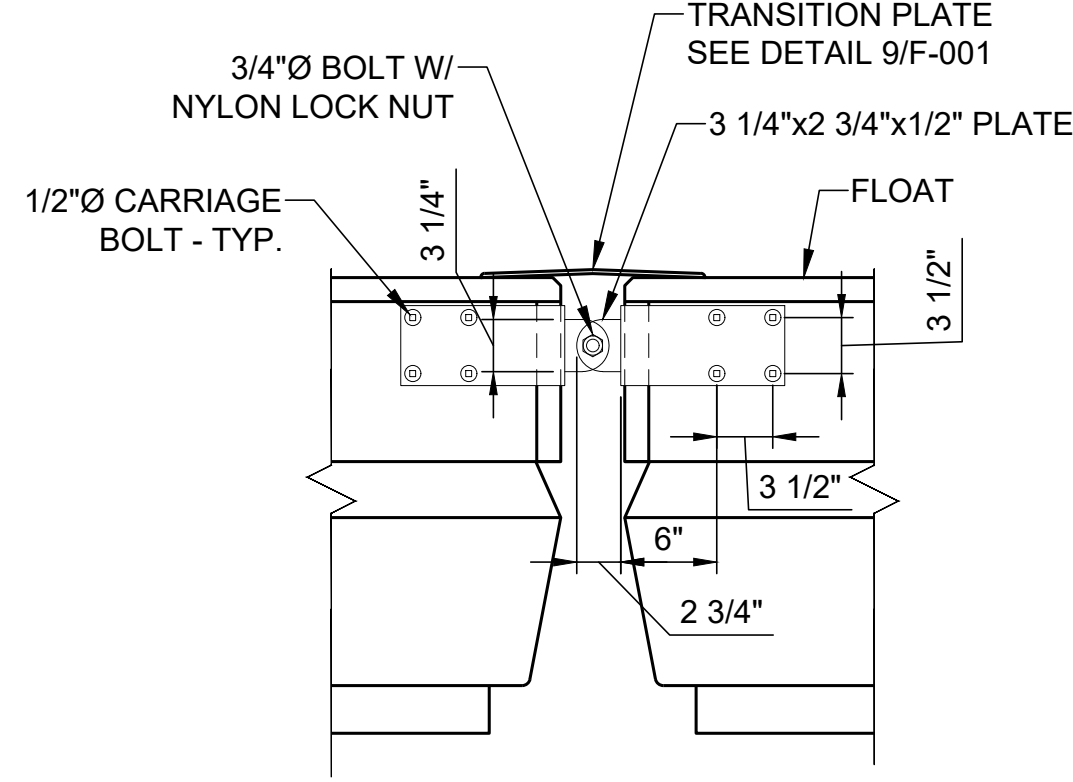
3 ELEVATION
TYP. FLOATING DOCK SCALE: 1" = 4'



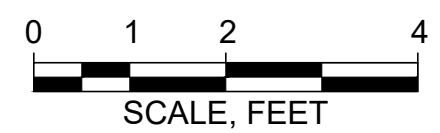
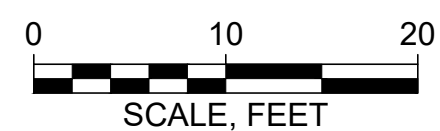
7 DETAIL
FLOAT CONNECTION SCALE: 1:1



8 SECTION
FLOAT CONNECTION SCALE: 1:1



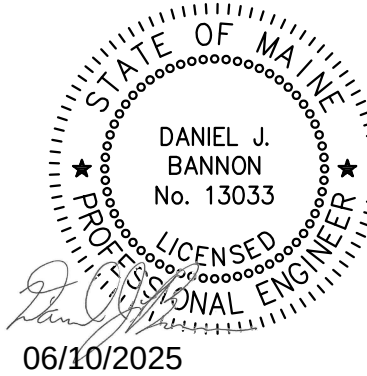
9 DETAIL
TRANSITION PLATE SCALE: 1:1



ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:
0 1" SCALE BAR
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Designed:	DJB
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Approved:	BMM
P.E. No:	13033
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0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
FLOAT PLAN AND
DETAILS

FOR PERMIT

SHEET NO.

F-001

Whitten, Nan

From: Norm Labbe <norm.labbe@gmail.com>
Sent: Thursday, June 12, 2025 11:01 AM
To: Whitten, Nan; Galbraith, David; Plotkin, Alexa; Patoine, Larry; Dubois, Matthew; Lewis, Kayla; Beaudette, Stephen; susan.deschambault@gmail.com; Angers, Roch
Subject: Planning Board site visit to UNE on 6-9-25

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Dear Planning Board,

Thank you for the opportunity to attend the Planning Board's June 9th site visit of UNE's proposed pier location. As stated by the Board at the beginning of the tour, the public was to refrain from commenting to or asking UNE representatives any questions and to submit them in writing to the Board within a few days, in order for the Board to get them to UNE to answer at the upcoming Board meeting on the 18th. Accordingly, the following are observations and questions that came to mind during the site walk.

1. During the site walk UNE stated it was very concerned about minimizing environmental impacts, in particular those relating to the access road (e.g., minimizing width of impact by proposing to cut into bedrock vertically rather than at a slope, etc.). It became obvious while walking to UNE's proposed Pier location 7 that Pier location 8 (which is in the general area of the Harbormasters' recommended location) is a couple hundred feet closer to the beginning of the proposed access road. Wouldn't this result in location 8 requiring considerably less access road – and less environmental impact and less cost – than would location 7? A simple yes or no answer would be appreciated.
2. UNE's proposed \$3 + million pier will apparently be paid for in large part by our tax dollars. As such, did UNE consider other potential beneficial uses for the pier? How about the ability to accommodate larger - deeper draft - boats? It appears that the largest boat being considered is the University of New Hampshire's Gulf Challenger, which has a draft of 5 feet (which is potentially problematic given location 7's approximate 6 foot depth at mean low tide). Being that the city of Biddeford has no deep water pier with ocean access, wouldn't the community benefit from the ability to accommodate other ships for things such as emergency response, civil defense or maybe even special events to celebrate the City's nautical heritage? More specific questions on this topic are: Will UNE's Gulf Challenger be able to safely tie up to the proposed pier at a lower than normal (-1.5 ft.) tide? Also, did UNE seriously consider the ability to accommodate boats with more than a five foot draft? A yes or no answer to both of these specific questions would be appreciated.

Thank you for the opportunity to present these observations and questions. I look forward to UNE's responses at your upcoming meeting on January 18. More importantly, I appreciate the Planning Board's insistence on transparency, and the need for the application you are reviewing to be fully documented.

Sincerely,

Norm Labbe
8 Eagle Rock Point
207-229-6324

Whitten, Nan

From: Andrea Delorge <andreacdelorge@gmail.com>
Sent: Thursday, June 12, 2025 11:11 AM
To: Planning Board; Whitten, Nan; Galbraith, David
Subject: a question for UNE to answer next week

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I read in the Biddeford Gazette that the mooring owners where UNE wants to build their pier have said that they won't move. To me that seems like an obstacle that the university cannot overcome, unless somebody sues somebody. How can the Planning Board approve their application if somebody else is already there?

At next week's meeting I'd like UNE to explain what's going to happen. An answer that they'll persuade the mooring owners to move, and pay for it, is not good enough. Please have UNE explain --- in detail --- what steps they will take to free up that location for building a pier, given what they know now, that the mooring owners won't move.

Thank you for your continued work on this complex project. You are helping the community.

ANDREA

Whitten, Nan

From: Laura Anderson <laurainbuxton@gmail.com>
Sent: Wednesday, June 11, 2025 12:43 PM
To: Plotkin, Alexa; Patoine, Larry; Dubois, Matthew; Lewis, Kayla; Beaudette, Stephen; susan.deschambault@gmail.com; Deschambault, Susan; Planning Board
Subject: Really bad legal advice

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The City will be sued immediately if UNE's pier application is approved under the current set of "facts." TEC Associates is not a certified Harbormaster in the State of Maine. All you have to do is be in touch with the Maine Harbor Masters Association to find the truth.

I was at the planning board meeting a couple weeks ago when the lawyer told you that a Harbormaster working for Biddeford has approved UNE's application. I saw your planner nodding along in agreement. That's simply not true. The city's own website says about TEC Associates, "The firm will not be selecting or commenting on the site of the pier." How embarrassing.

It's too bad that the planning board has been so poorly advised by the professionals that are supposed to be helping you. Hopefully board members themselves can insist that the truth be established and the record corrected.

Laura Anderson

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Wednesday, June 11, 2025 8:28 AM
To: Plotkin, Alexa; Patoine, Larry; Dubois, Matthew; Lewis, Kayla; Beaudette, Stephen; susan.deschambault@gmail.com; Deschambault, Susan
Cc: Whitten, Nan; Galbraith, David; Randy Seaver; newsdesk@sacobaynews.com; srichelieu@metln.org; ggraham@pressherald.com; Planning Board
Subject: Transparency at the 6/18 Planning Board meeting

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Dear Biddeford Planning Board,

By next week's Planning Board meeting, UNE will have had a full month to supply documentation missing from their application, and to address concerns raised by Planning Board members and the public.

1. Mr. Patoine asked to see a copy of the application that UNE filed with NIST.
2. Mr. Dubois requested evidence that UNE provided Maine's Native American Tribes with final pier design and proper notice.
3. The public requests evidence of an Agreement between the City and UNE that justifies the need for pier design to include a fireboat.
4. The public asks why UNE's existing classroom space at the university is insufficient, and why a classroom intruding onto the river is necessary.
5. The public requests documentation that a directive by U.S. Army Corps engineer Heather Stukas was honored. She wrote in 2024 that the Corps must "follow-up with the Biddeford Harbormaster to ensure the new concept is acceptable."
6. The public requests documentation that Wayne Duffett, P.E., president of TEC Associates, approved the location and design of UNE's proposed pier, as claimed by the City Attorney.
7. The public asks for documentation as to when the City of Biddeford formally appointed Wayne Duffett, P.E. as Harbormaster.
8. The public requests documentation that Wayne Duffett, P.E. is a Harbormaster, or is currently training to be certified as a Harbormaster, as specifically mandated by Maine Title 38, Section 1-A.
9. Mooring holders have been clear that they are not moving from the spot in which UNE wants to build a pier. Therefore, the university is inappropriately asking the Planning Board to approve an application at a location that is unavailable. The public requests that during the approaching June 18,

2025 meeting, the Board thoroughly question UNE representatives about their plan to forcibly expel current mooring holders from their locations on the river. The public has a right to know what legal steps UNE will be taking, and when those legal actions will begin.

Once again, we thank the Board for their clear statements about mission, ethics, transparency, and the need for documentation to be complete. The Biddeford Planning Board is the only regulatory agency that has honorably encouraged transparency and public input.

JS

John Schafer

Former Chair, Biddeford Harbor Commission
Hills Beach, Biddeford

Whitten, Nan

From: kbuechs@earthlink.net
Sent: Wednesday, June 11, 2025 10:10 AM
To: Hills Beach John; Plotkin, Alexa; Patoine, Larry; Dubois, Matthew; Lewis, Kayla; Beaudette, Stephen; susan.deschambault@gmail.com; Deschambault, Susan
Cc: Whitten, Nan; Galbraith, David; Randy Seaver; newsdesk@sacobaynews.com; srichelieu@metln.org; ggraham@pressherald.com; Planning Board
Subject: Additional comments/questions for 6/18 Planning Board meeting

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Nan, et al: Please insure this email has gotten to the right channels and add my comments and questions to the package for next week's Planning Board agenda: 1. Given that the Saco River, especially with regard to the location of the pier proposal, is the dividing property line between Saco and Biddeford, **why isn't Saco, as an "abutter," part of the approval process?** More specifically, why isn't the Saco Harbor Master and the Saco Planning Board part of the review process? I have read that this proposal was, at one time on the Saco Planning Board agenda and was unexplicitly removed prior to their meeting. **Note:** when the original Factory Island project was proposed in Saco, our City Manager and the Biddeford Conservation Commission both added written comments to the Saco Planning Board reviews. 2. The Saco River Corridor Commission has apparently approved the proposal. Biddeford has two approved representative positions, primary and alternate, on the SRCC. Biddeford did not cast their vote! When I asked why, the Mayor said he was asked by the primary representative if he should be recused because his wife is employed by UNE and they agreed he should recuse himself. Biddeford has no alternate. The Mayor added that he has not appointed an alternate and was having difficulty finding someone to accept that position. **So, ironically, Biddeford did not even vote on this very important proposal.** 3. If approved by the Biddeford Planning Board, may their decision be challenged through an appeal before the Biddeford Zoning Board (ZBA)? Kenneth Buechs Ward 1282-3954

Whitten, Nan

From: Geoffrey Bove <geoffreybove@gmail.com>
Sent: Monday, June 9, 2025 9:34 AM
To: Whitten, Nan
Cc: Galbraith, David
Subject: Re: Sorry to ask...

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Thank you Nan. I have made a comment to this effect on "UNE Pier Review." I hope that it goes well.
Geoff

On Mon, Jun 9, 2025 at 9:20 AM Whitten, Nan <Nan.Whitten@biddefordmaine.org> wrote:

Good Morning Geoff

This evening's site walk is more like a workshop for our Planning Board. The public is welcome to attend but only to listen, in a workshop we cannot take questions or comments from the public.

David Galbraith, the Planner, will go over this code of conduct at the beginning of the meeting and we hope all will respect that.

Thank you for reaching out.

Please let us know if you have any questions.

Nan.

From: Geoffrey Bove <geoffreybove@gmail.com>
Sent: Monday, June 9, 2025 5:54 AM
To: Whitten, Nan <Nan.Whitten@Biddefordmaine.org>
Subject: Sorry to ask...

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When in doubt, contact the IT Department

Hi,

I seem to have some moderating influence on issues like the current UNE one by helping people stick to facts. For today's site visit, it seems by some publicity that this will be somewhat of a public forum. My question is- will members of the public be allowed to ask questions to UNE or Planning Board members? If not, I'll respond to the FaceBook posts about this.

Even better, is there a written "code of conduct" for this sort of meeting? I could post that.

I think that it has potential to turn into a circus. I'm very unlikely to attend

Thank you!

Geoff

Geoffrey Bove, DC PhD
dba Bove Consulting
27 Nettie Lane
Kennebunkport ME 04046
207 590 8949

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Thursday, June 5, 2025 8:30 AM
To: Planning Board
Cc: Whitten, Nan; Galbraith, David; Randy Seaver; srichelieu@metln.org; dmendros@metln.org; ggraham@pressherald.com; newsdesk@sacobaynews.com
Subject: Important clarification before Monday's site walk

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Dear Planning Board,

Since City Hall is closed tomorrow, and the site survey at UNE is on Monday, it occurred to me that I need to send this email today. Hopefully you'll get it in time.

The FAQ that UNE rushed out after the May 21 meeting of the Biddeford Planning Board is in error, and I wanted you to have this information before you look at Site 7 and Site 8 on Monday.

The FAQ states definitively, "Opponents to the Site 7 location are now advocating for an alternative design," and it also states that critics have proposed "a 200-foot pier head." The piece then goes into a lengthy dissertation of why our design is inferior to UNE's preferred design.

The problem with that wordsmithing is that it's completely misleading. Our community group has never produced a design *of any sort*. Nor will we ever produce a pier and dock design. Proposing the best design and location is UNE's job. Not ours, not the Harbormaster's and not anyone else's. But what our neighborhood group *has* done is produce conclusive evidence that shows UNE's argument that Site 7 is the only possibility is flimsy.

Their argument has been advanced in public and false statements to the media and to Biddeford's city attorney by their lawyer and their PR person. Their argument against the *general area* recommended by the Harbormaster, Site 8 or what we call The Forbidden Zone, is that deep enough water does not exist there. They have been adamant about inadequate depth there --- and they're wrong. A GEI memo in the Planning Board's packet confirms that they're wrong. Yet the statements by the lawyer and their PR department have neither been retracted nor corrected. Those false statements remain on the public record, and frankly that seems to be intentional.

Opponents of Site 7 have been quite clear: Almost everyone agrees UNE should have a new pier. As you are looking out at Site 8 on Monday, please keep in mind we are certain that UNE's talented engineering vendors could easily design an innovative pier system in that general area, recommended by local river experts, that at low tide has twice the depth of water that Site 7 does.

"Look at the deep water at Site 8" is our position, plain and simple. It's unfortunate that UNE falsely alleges we have proposed a pier design. It's important for the Planning Board to know that we haven't, and that we won't. We appreciate and applaud the Planning Board's clear intent to consider all information objectively.

Respectfully,

JS
John Schafer

From: Public Affairs <publicaffairsinfo@gmail.com>
Sent: Monday, June 9, 2025 7:31 AM
To: Emily.Horton@mail.house.gov; Sarah_St Stanley@king.senate.gov
Subject: Biddeford mooring holders to UNE: "Announce your pier lawsuit tonight"

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PRESS RELEASE

Biddeford mooring holders to UNE: "Announce your pier lawsuit tonight"

(Biddeford, Maine) Private mooring holders on the Biddeford side of the lower Saco River say that at a planned site walk tonight, the University of New England (UNE) should announce when and on what legal basis the university will sue the city.

"We legally hold moorings where they want to build a pier, and we've already told them that we're not moving," said Shawn Tibbets, a local commercial fisherman. "But UNE never listens, so here's the deal. They have to sue Biddeford to force the city to move our moorings, and that's just for starters. So make the announcement tonight, to the planning board, that you're filing a lawsuit to push us out. That's the only possible way UNE gets rid of us, but their chances are slim to none."

Biddeford's planning board is attending a site walk tonight at 5:00 p.m. on the UNE campus. It will tour "Site 7," where UNE wants to build a new marine sciences research pier. With the help of U.S. Senator Collins, UNE has secured a \$3.5 million grant from the National Institute of Standards and Technology (NIST), to help with pier construction. But those with local knowledge of how the river flows say there's a better site choice very close by.

Residents packed a planning board meeting on May 21 to oppose the sketch plan for the pier's design and location. Not one person spoke in favor of the university's proposal, while more than a dozen aired complaints about a lack of transparency and UNE's arrogance in ignoring local expertise. Failing to sense the mood after the meeting, university president James Herbert made things worse by broadcasting an email on May 27 in which he accused local residents of making "outright false statements."

Mooring holders don't own the submerged land on which their mooring are placed, but their mooring locations are legally assigned by Biddeford's harbormaster. UNE has no power at all to assign, remove or replace moorings. Tibbets and others say the only way for UNE to get their coveted pier location is to ask a court to make Biddeford expel the people who are already there.

The Maine Harbor Masters Association has reminded the city that according to its own ordinance, "permission for the construction of any new wharf or pier within the jurisdictional limits of the City shall not be granted without approval of the Harbormaster." Earlier this year, several mooring owners expressed concern to Biddeford's harbormaster that they would lose their moorings.

He wrote in reply, “I am writing to let you know that, as Harbormaster, I have no plans to remove or relocate any existing mooring. My records indicate that you are a mooring owner in good standing, your fees are paid up to date, and there have been no navigation issues connected to your boating activities on the river.”

UNE downplays the moorings issue by saying that only one or two mooring are affected. However, those two mooring owners are part of the group that steadfastly refuses to move. Tibbetts said UNE circulated a public relations FAQ sheet a few days after the May 21 planning board meeting in which they wrote, “UNE will pay to relocate” moorings affected by the new pier.

“I guess they don’t understand the English language over there at the college. We’re not moving. The site they want for their pier is unavailable to the University of New England,” Tibbetts said.

###

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Tuesday, June 3, 2025 1:26 PM
To: Planning Board; Galbraith, David; Whitten, Nan
Cc: Randy Seaver; wmtw@wmtw.com; tvmail@wgme.com; desk@newscentermaine.com; srichelieu@metln.org; ggraham@pressherald.com; dmendros@metln.org; newsdesk@sacobaynews.com
Subject: UNE pier: an ill-advised change in course

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

Dear Planning Board,

After many encouraging comments by several Members during your May 21 meeting about transparency and openness, I have no choice but to strenuously object that an email sent by the university's Alan Thibeault has had undue influence on the scheduling of a site survey on the UNE campus. Yes, I learned this morning that UNE butted in and the site survey will now be rushed to take place on June 9th after all.

In their recent FAQ, the university wrote that federal funding is "not contingent on location or on a specific timeline..."

Get the facts --- there is no rush!

The Planning Board had started confidently down the road to full transparency and openness, until Mr. Thibeault sent his email with text highlighted in red. Now the City has caved and reversed course.

Mr. Angers wanted to be on the site survey. Mr. Patoine specifically asked that a system be in place for measuring depth at various locations. Now neither of those can happen. Further, there will be plenty of low tides this summer, after the normal workday is done, and with plenty of daylight left. I understand that a commercial fisherman formally offered to organize an expedition from the Camp Ellis pier for the Board, on boats with depth finders. That would have satisfied Mr. Patoine's curiosity about depths. NONE of that information can be collected by walking along the shore. Why even bother?

There was PLENTY of time to organize this outing correctly, because UNE's federal funds are not in any danger whatsoever. But UNE wants this pier approved quickly, facts be damned.

This is an extremely unfortunate turn of events. Mr. Thibeault should not have sent that email. The university wrote in its FAQ, "UNE has responded to all questions posed by the various regulatory agencies. As noted above, UNE is happy to meet with any interested community members to address questions about the proposed pier."

BALONEY.

If UNE was “happy” with the fact-finding process, they would not have torpedoed the attempts by Mr. Patoine, Mr. Angers, and the rest of the Board to fully inform themselves.

Despite this bad news, my neighbors and I continue to hope that the Board is determined to make sure the application is complete, and to be guided by a Code of Ethics in doing so. Thank you for hearing me out on UNE’s latest attempt to subvert the regulatory process.

Respectfully,

JS

From Mark Robinson, Biddeford resident, May 20, 2025

LETTER RE: proposal by the University of New England, new research pier

Dear Biddeford Planning Board,

I submit this letter as comment about UNE's proposal to build a new marine research pier on the Saco River.

I start by presenting you excerpts from a Maine Sunday Telegram article about how MERC came to be, published on February 27, 2000 and written by reporter Kelley Bouchard.

"The cities were impressed by a proposal from the newly formed Kuhr Technologies Inc. (KTI) and General Electric to form the Maine Energy Recovery Co.

"In October, local businessman and former state legislator Plato Truman gave Biddeford Mayor Robert Farley a petition signed by 800 residents. They wanted a nonbinding referendum on the Lincoln Street site.

"The people, who are proud of their city, are horrified that a project of this magnitude could be put in this location and affect people for the next hundred years,' Truman told Biddeford councilors at the time.

"The council killed the referendum for fear it might jeopardize the project."

I worked for 13 years to help create the political conditions necessary to empower Biddeford's elected leaders to act decisively and remove MERC from Biddeford's downtown. (As they did.) In that 13 years I can't tell you how many times I heard, as MERC was still on the drawing board, how impressed local officials were by the fact that the great and powerful GE was willing to do business with the City of Biddeford. "It's GE, how can we go wrong!" How could we possibly question their extraordinary expertise, went the thinking.

Well, let's not forget that the "experts" are not always right, as Biddeford found out to our deep dismay once MERC started operating. I see distinct parallels with this pier situation. UNE is an impressive institution, yes, but there is no law saying we have to swallow every last bite they try to feed us.

From what I have read in all the media reports, this project has benefitted from an unusual set of circumstances, and its journey to approval seems to have had an exceptionally smooth ride so far. Certain elements of a "normal" review seem to be missing.

I do not know the river well, and so I will withhold any specific critique. I have noticed, however, that many of my friends and neighbors have said they don't oppose a pier for UNE.

What they want to make sure of is that it's built in the right location. That seems eminently reasonable to me.

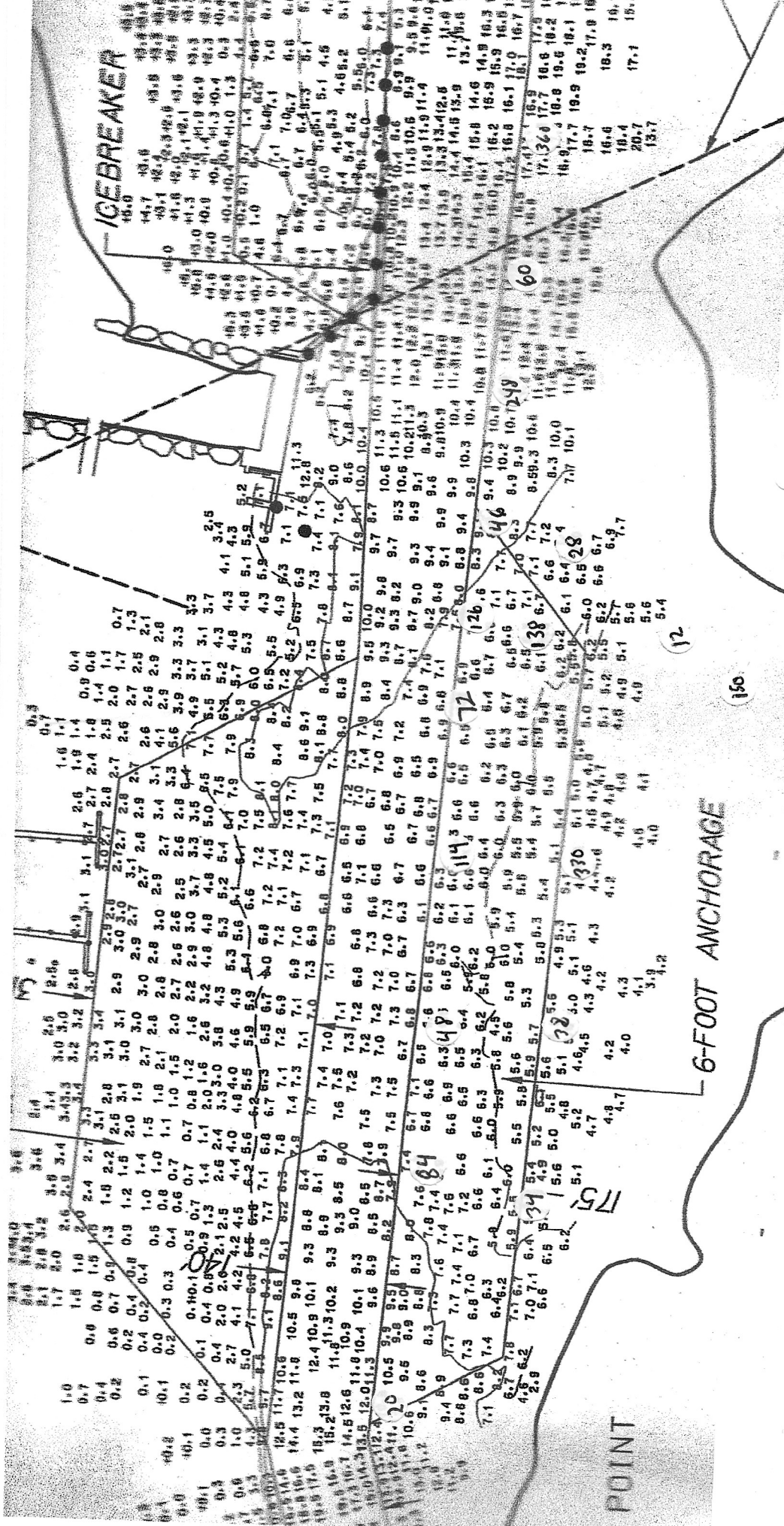
You cannot go wrong carefully considering information from all sources. I know several members of the current Planning Board, and therefore have the highest confidence in the Board's integrity and its commitment to transparency. Thank you in advance for letting people know that you welcome public input. I have a feeling you might get a lot of it.

There are some very smart people in this community, and they don't all work for engineering firms. Good luck in your deliberations.

Sincerely,

A handwritten signature in black ink that reads "Mark D. Robinson". The signature is written in a cursive, flowing style.

Mark Robinson
128 Fortunes Rocks Road
Biddeford, Maine 04005
207-332-3798



6-FOOT ANCHORAGE

48	Beagan	Michael	20 Whitewater Dr	Biddeford	781.696.2552
114	Bergeron	Seth	5 Judge St	Biddeford	207.590.8637
150	Bracket	Robert	97 Sherborne St	Springvale	207.206.5388
126	Brownell	Megan	1655 Post Rd	Wells	603.498.6424
28	Coomer	Patrick	36 Portland Ave	OOB	207.590.5833
60	Gagnon	Michael	23 Middle Rd	Kennebunk	207.985.3094
248	Gobell	Steven	205 Blueberry Rd	Waterboro	207.229.2120
126	Hatch	Thomas	187 Hills Beach Rd	Biddeford	
72	McLaskey	Edward	120 Whitten Hill Rd	Kennebunkport	207.284.3168
138	McPhearson	Gregg	388 Cape Rd	Hollis	207.899.7093
46	Ramunno	Michael	2 Fieldcrest Dr	Biddeford	207.423.3650
360	Thibeault	John	487 Seaside Ave	Saco	207.776.0123

Shawn Tibbets 207.502.0368

UNE 34
UNE 38
UNE 330
Bove 20 5908949
Hebert 84 Ashore

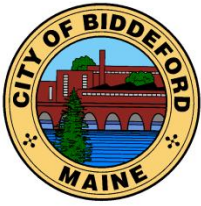
pattickcoomer@yahoo.com

ateaseofishing@gmail.com

miramunno@mahe.ir.com

captain@sacodaysails.com

mebeagan@gmail.com



CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, City Planner & Deputy Director of the Planning & Development Dept.

DATE: June 18, 2025

RE: 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Protection-1 Shoreland Zone.

MEETING DATE: June 18, 2025, 6:00 PM

1. INTRODUCTION

On behalf of the applicant, Richard P. Potvin II, this letter accompanies an *After-the-Fact* subdivision application for property located on Wadlin Road, Biddeford, Maine. The application seeks two determinations from the Planning Board:

1. **Confirmation that the project qualifies as a “Minor Subdivision”** under Biddeford City Ordinance §§ 66-1 and 66-32; and
2. **Simultaneous Preliminary and Final Approval** of that Minor Subdivision, together with waivers of §§ 66-35 through 66-38, consistent with the Board’s authority under § 66-33(a).

In **2003**, Heather Wilson constructed her primary residence on the parent parcel. A **2010** “Division of Land for Heather Wilson” created three conforming roadside lots; City Code Enforcement Officer Roby Fecteau has confirmed in writing that no subdivision was created at that time. Subsequent conveyances in **2016** (to Clement) and **2019** (to Mr. Potvin) likewise left three stand-alone lots, each with the required frontage and direct access to Wadlin Road.

Mr. Potvin transferred one lot to his daughter, who then conveyed it to Nicholas and Nicole Peloquin in **2025**. As a result of a recent title examination initiated by the Peloquins, title certification was denied due to the examiner’s interpretation that the prior conveyances constituted “three transfers within five years,” thereby prompting this *After-the-Fact* application. Hence, the record reflects the City’s long-held position: the lots remain conforming, and any subdivision that might be deemed to exist is, by definition, a Minor Subdivision.

RE: 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Protection-1 Shoreland Zone.

MEETING DATE: June 18, 2025, at 6:00 PM

2. PROJECT DATA/INFORMATION

1.	Applicant:	Richard P. Potvin, II 17 Wadlin Road, Biddeford, Maine 04005
2.	Owner of Property:	Same as Applicant
3.	Agent:	Harry B. Center, II 2234 Maine Street Biddeford, Maine 04005
4.	Surveyor:	N/A
5.	Project Location:	17 Waldin Road, 6 Waldin Road, and 8 Grateful Way, Biddeford, ME
6.	Project Tax Map #/Lot #:	Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1
7.	Lot Size:	6.58.+ acres
8.	Base Zoning:	Rural-farm Zone (RF)
9.	Overlay Zoning:	Resource Protection- 1
10.	Existing Use:	Tax Map 1, Lot 37-5 & Map 1, 37-1 are developed single-family residences, while Map 1, Lot 37-6 is undeveloped.
11.	Proposed Use:	Formal recognition of three existing lots of record.
12.	Approvals Required:	After the Fact Subdivision Approval
13.	Uses in the Vicinity:	Residential
14.	Waivers Needed:	1. 66-33 (a) 2. 66-35 through 66-38
15.	Waivers Granted:	N/A
16.	Other Non-City Permits Required:	a. See below section # 3
17.	Fees Paid:	Yes
18.	Planning Board Review History:	Tiered Plan Review (simultaneously Preliminary and Final approval) - June 18, 2025

3. REVIEW PROCESS

Per City Ordinance, this application is subject to the City of Biddeford Code of Ordinances, Land Development Regulations, Article XI – (Site Plan Review), and Chapter 66 (Subdivisions). The review process for this project involves a tiered Plan Review (simultaneously Preliminary and Final approval), followed by a Planning Board determination of the subdivision as a Minor Subdivision.

4. PROPOSED USE OF THE PROJECT

RE: 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Protection-1 Shoreland Zone.

MEETING DATE: June 18, 2025, at 6:00 PM

The applicant is not proposing any commercial, multifamily, or mixed-use development. The three lots mirror the pattern of frontage lots that line Wadlin Road; recognition of this Minor Subdivision will not change traffic volumes, visual character, or municipal service demand.

The proposal is limited to formal recognition of three existing single-family residential lots:

Lot	Size (± acres)	Current / Proposed Use	Access	Utilities
1 (Wilson Residence)	3.5	Existing single-family home	Direct driveway to Wadlin Rd	Private well & septic
2 (Peloquin Lot)	2.2	New single-family home (construction loan approved)	Direct driveway to Wadlin Rd	Private well & septic
3 (Potvin Lot)	2.0	Future single-family home for applicant or family member	Direct driveway to Wadlin Rd	Private well & septic

Because the lots are already developed or committed for single-family use and no further division is contemplated, the applicant respectfully requests:

1. Minor Subdivision classification under § 66-32(b);
2. Simultaneous Preliminary and Final approval, as the project meets § 66-33(b) criteria for minimal neighborhood impact; and
3. Waivers of §§ 66-35 – 66-38, as allowed by § 66-33(a), permitting the Board to accept the 2010 recorded “Division of Land” survey and current Tax Map as the subdivision plan of record.

Formalizing the lots in this manner will **(a)** clear the title cloud for the Peloquins’ home-construction financing, **(b)** document the City’s long-standing interpretation, **(c)** and close the matter without additional disturbance to the site or burden on municipal resources.

4. GENERAL REVIEW COMMENTS:

- **APPLICATION COMPLETENESS:** This application is for preliminary/ final plan review, so the purpose of this memorandum is not only to introduce the project to the Board, but to grant preliminary and final approval, and that the subdivision is classified as a Minor Subdivision, pursuant to § 66-33(b).
- **ZONING:** The subject property is zoned **Rural-Farm Zoning District**, and the proposed use is a permitted use within the district. The property is also located within the Shoreland Overlay District.
- **REVIEW STANDARDS:**

Staff found that the Preliminary/Final Plan Application satisfied City site plan requirements.

3. **WAIVERS:** 66-33 (a) and 66-35 through 66-38

5. STAFF REVIEW COMMENTS:

The City’s Director of Code Enforcement and the City Planner have reviewed the land divisions that have occurred over time and independently determined that a “subdivision” under state and local ordinance is

RE: 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Peottection-1 Shoreland Zone.

MEETING DATE: June 18, 2025, at 6:00 PM

not required. However, in order to clear the title to the properties, Staff is processing this “subdivision” as an after the fact approval.

6. STAFF RECOMMENDATION

Staff are supportive of the proposed project and granting the Preliminary Site and Subdivision Plan Approval.

Planning Board Sample Motions:

- A. Motion to Approve: I motion to APPROVE Case # 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Shoreland Zone along with the requested waivers above.

- B. Motion to Deny I motion to DENY Case # 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Peottection-1 Shoreland Zone for the following reasons:
 - 1) _____.
 - 2) _____.
 - 3) _____.

- C. Motion to Table: I motion to TABLE Case # 2025.23 After The Fact Approval Subdivision Review for Rochard P. Potvin, II, within the alleged Subdivision on Waldin Road at 17 Waldin Road and 8 Grateful Way (Tax Map 1, Lot 37-5, Map 1, Lot 37-6, Map 1, 37-1) in the Rural-Farm Zoning District and within the Resource Peottection-1 Shoreland Zone, for the following reasons:
 - 1) _____.
 - 2) _____.
 - 3) _____.

WOODMAN EDMANDS

ATTORNEYS-AT-LAW

ROBERT B. WOODMAN
THOMAS DANYLIK
RICHARD A. HULL, III
HARRY B. CENTER, II
JEFFREY S. ZDUNCZYK
KALEIGH M. GORMAN
STEPHEN C. PERRUZZA

234 MAIN STREET
P.O. BOX 468
BIDDEFORD, ME 04005-0468
TELEPHONE: 207-284-4581
FAX: 207-284-2078
www.woodedlaw.com

Retired
RALPH W. AUSTIN
KEITH R. JACQUES

June 9, 2025

Biddeford Planning Board
P.O. Box 586
Biddeford, ME 04005

RE: 17 Wadlin Road, Wadlin Road, and 8 Grateful Way
After-the-Fact Subdivision Approval
Lot 1-37-1, Lot 1-37-6, Lot 1-37-6, Biddeford, ME

Dear Planning Board Members:

This letter is attached to an application by Richard P. Potvin, II, for an After-the-Fact approval on an alleged Subdivision on the Wadlin Road. In addition, this letter is also a request to have the application be treated as a Minor Subdivision under the definition provided in Biddeford City Ordinance §§ 66-1 and 66-32.

In 2003, a person named Heather Wilson built a home on the large tract of land which was her primary residence. In 2010 she decided to divide her land into three parcels, which is depicted in the attached 2010 survey "Division of Land for Heather Wilson". This did NOT create a subdivision and that position is supported by Roby Fecteau, and his correspondence on this matter is attached. Then, as Roby explains, Mrs. Wilson's 2016 transfer to one Clement DID NOT create a new lot. In 2019, Mrs. Wilson conveyed lot 3 to the applicant, Richard Potvin, who split that lot. Note that all of these are conforming residential lots, each with their own frontage and accessibility directly off the Wadlin Road.

Richard Potvin initially transferred one of the lots to a blood relative, his daughter. In 2025, his daughter sold for consideration to one Nicholas Peloquin and one Nicole Peloquin. A title search was performed by a local law firm and no concerns about creation of a subdivision were raised. Then last month, the Peloquins went to obtain a construction loan, which was approved and contractors were lined up to build them a residence, a title attorney refused to certify title, claiming that Mrs. Heather Wilson's 2016 transfer of her long established residence along with the 2019 conveyance of the two remaining lots to Richard Potvin constituted "3 transfers within 5 years". Which is true, however, this does not create a subdivision for the reasons stated above as well as the reasoning outlined in Roby

Departments, there are simply three conforming contiguous lots along the Waldin Road. To resolve this issue, we request that the Planning Board make a determination during their review that the Subdivision is classified as a Minor Subdivision, pursuant to § 66-33(b), since the impact that the proposal will have on abutting parcels and the neighborhood in general will be minimal. In addition, we respectfully request that the Planning Board grant simultaneously preliminary and final approval for the Minor Subdivision, on a finding of a clear case where the purposes of the Subdivision Ordinance will not be reduced.

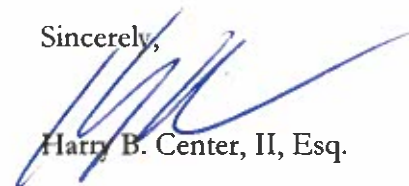
In making this proposal, Applicant would like to request a waiver of the requirements of Biddeford City Ordinance § 66-35 through § 66-38, pursuant to the Planning Board's power to waive said requirements as noted in Biddeford City Ordinance § 66-33(a). In requesting these waivers, Applicant notes the following:

1. That this application is made after the fact, and all development or changes to the parcels have since occurred;
2. That the Biddeford Code Enforcement Officer and Biddeford Planner agree with the Applicant that no subdivision was created because of the divisions; and
3. That had the 2003 division not created an exempt lot, any divisions or subdivision, if actually created, meets the definition of a Minor Subdivision.

In addition, the Applicant requests that the Planning Board allow for the provided copy of a Division of Land Survey and accompanying Tax Map to serve as reference to the divided lots, and to satisfy any requirements of a Subdivision Plan for the proposal. The Division of Land Survey attached is a copy of the recorded plan for the lots. We have contacted the original land surveyor and he is no longer working, no longer licensed and does not have access to reprint the original survey.

Thank you for your review of this project. If you need any additional information, please let us know.

Sincerely,

A handwritten signature in blue ink, appearing to read "Harry B. Center, II", is written over the typed name.

Harry B. Center, II, Esq.

Harry Center

From: Fecteau, Roby <Roby.Fecteau@Biddefordmaine.org>
Sent: Thursday, May 22, 2025 5:16 PM
To: Paul Weinstein
Cc: Harry Center; Galbraith, David
Subject: Wadlin Road
Attachments: 2010 Wadlin road Plan.pdf; Lot 1 Wadlin road 2010.pdf; Lot 2 Wadlin road 2010.pdf; Lot 3 Wadlin road 2010.pdf; Lot 2 wadlin road Transfer 2016.pdf; Lot 3 Wadlin road transfer Vaction Prop.pdf; Lot 3 (portion) wadlin road Transfer Potvin.pdf

Good Afternoon Paul.

I had a meeting with Harry Center today regarding a possible illegal subdivision located on wadlin road. We did speak to Attorney Dresser in your office, and she presented her position to me. I got thinking about it and something isn't making sense. So, I did a little research of my own. Above a series of attachments and below is a snippet of subdivision law. Lets start with the snippet.

4. Subdivision. "Subdivision" means the division of a tract or parcel of land into 3 or more lots within any development, buildings or otherwise. The term "subdivision" also includes the division of a new structure or structures units on a single tract or parcel of land and the division of an existing structure or structures previously used for commercial purposes.

A. In determining whether a tract or parcel of land is divided into 3 or more lots, the first dividing of the tract or parcel to create a 3rd lot, unless:

(1) Both dividings are accomplished by a subdivider who has retained one of the lots for the subdivider's own use; or

(2) The division of the tract or parcel is otherwise exempt under this subchapter. [PL 2001, c. 359, §104, Pt. C, §10 (NEW) .]

B. The dividing of a tract or parcel of land and the lot or lots so made, which dividing or lots when made are not subject to the provisions of this subchapter. The municipal reviewing authority shall consider the existence of the previously created lot or lots in determining whether a tract or parcel of land is divided into 3 or more lots.

This clearly states that subdivision is a tract of land into 3 or more lots and a "Division" is "accomplished" by sale, lease development, building or otherwise. A division means breaking up the land correct?

Here is my position on why this is not an illegal subdivision.

In 2003 Ms. Wilson built a single- family home which she lived on the entire tract land.

In 2010 she decided to subdivide the land into 3 divisions of land. See attached wadlin road plan.

Ms. Wilson recorded deeds for all 3 divisions of land. Deeds attached.

Lot 1 (Vacation Properties)
Lot 2 (Her Homestead)

Lot 3 (Vacant land)

Pursuant to subdivision law, she is allowed to do this. I believe Attorney Dresser agrees that this did not create the subdivision.

Its what happens after these divisions, is where I don't believe an illegal subdivision occurred.

In 2016 Ms. Wilson sold her division of land to Clement (Deed Attached Lot 2 Transfer)
This division already occurred in 2010. This sale wasn't a new lot, it merely a transfer of her lot 2, that she created in 2010.

4. Subdivision. "Subdivision" means the division of a tract or parcel of land into 3 or more lots within any 5 development, buildings or otherwise. The term "subdivision" also includes the division of a new structure or structures

The first sentence in subdivision law stats a "division"

In 2019, Ms. Wilsons decides to sell Lot 3 into 2 portions.

- 1 Portion to Vacation Properties
- 2 Portion to Potvin.

At this point, 2 divisions took place on lot 3. I believe they reference as lots A & B.

These two divisions are acceptable by subdivision law because they occurred 9 years after the 2010 division.

The simple fact that lot 2 (already a division in 2010) sells in 2016 and 2 newly created lots from lot 3 sell in 2019, doesn't mean an illegal subdivision occurred. It's the time of the division not the sale.

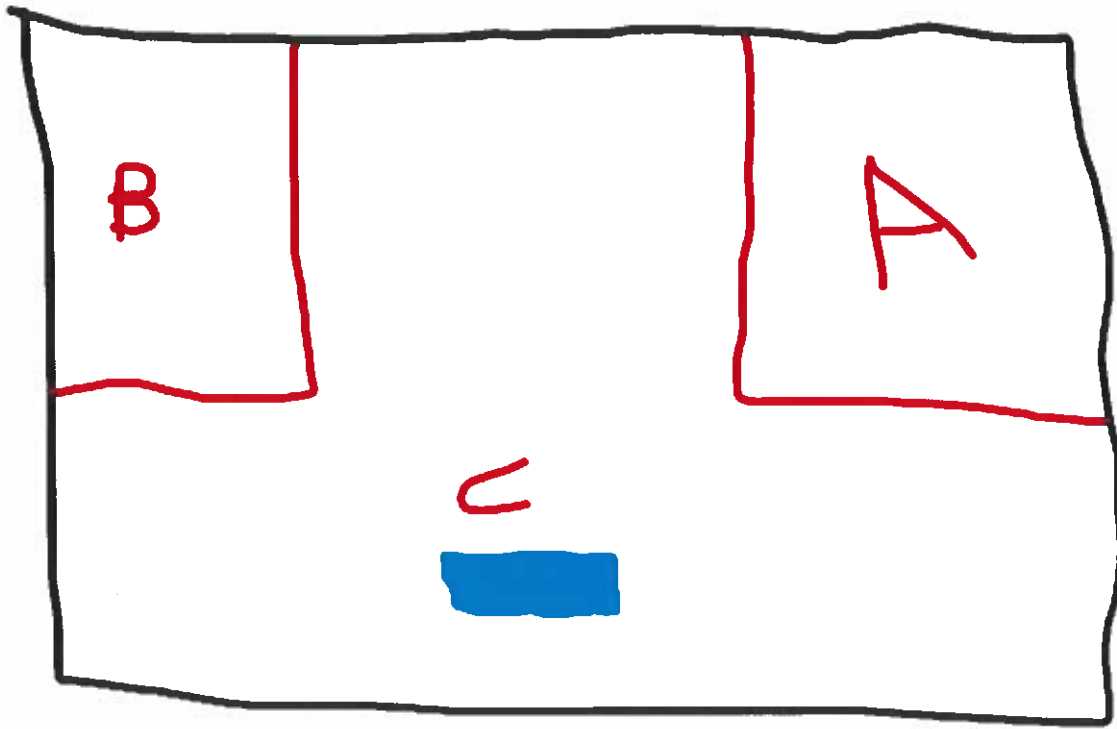
Lot 2 should be exempt from the determination because it was created in 2010. The sale does not matter because the lot existed.

To further clarify my point:

If someone owned lot c completely and they have lived in the house for 10 years. Then they decided to split lot A off after 5 years of owning it and then decided to split off Lot B 5 years later.

You now have 3 divisions of land. It doesn't matter if they are in in the same name as long as they meet minimum zoning requirements. All 3 of these lots can be transferred within five years and it doesn't create a an illegal subdivision in my opinion because the divisions occurred over time. The simple sale of a division of land that complies with the time restraints set by law for the creation of lots, should not be considered.

Now if you selling 3 existing dwelling within a single building, that is completely different.



Roby Fecteau
Director of Code Enforcement &
Emergency Management
City of Biddeford
205 Main Street Suite 104
Monday- Tuesday 7:00 am – 5:00 pm
Wednesday- Thursday 8:00 am- 4:00 pm
Friday- Closed



City of Biddeford – Planning Department

Planning Board Application

P.O. Box 586, 205 Main Street Biddeford, Maine 04005

207-284-9115

Revised: June 6, 2025

Type of Application:

☐ Shoreland Zoning Permit

☐ Site Plan Review (Please include checklist)

☐ Extraction

☐ Conditional Use Permit

☒ Subdivision (Please include Checklist)

☐ Private Way

☐ Other: _____

Applicant Information:

Name: Richard P. Potvin, II

Mailing Address: 17 Wadlin Road, Biddeford, ME 04005

Telephone: 207-294-1431

Email: apotvin@maine.rr.com

What is your legal interest in the property?

☒ Owner ☐ Potential Buyer with Contract ☐ Lease/Rental Agreement

Owner's Information:

Name: Same as Applicant

Mailing Address: _____

Telephone: _____

Email: _____

Agent's Information:

Name: Harry B. Center, II

Mailing Address: 234 Main Street, Biddeford, ME 04005

Telephone: 207-284-4581

Email: hcenter@woodedlaw.com

Engineer/Surveyor's Information:

Name: _____

Mailing Address: _____

Telephone: _____

Email: _____

Project Location and Lot Information:

Street Address: 17 Wadlin Road

Drainage Watershed: Swan Pond Brook

Tax Map: 1

Lot: 37

Current Zoning: Rural-Farm Zone (RF)

Shoreland Zoning: RP-1

Size of Lot: 6.58 Acres +- () acres () s.f.

Lot Frontage: _____

Existing Use of Property: 17 Wadlin Road, Map 1, Lot 37, Sublot 5 is developed with a Single Family Residence

Map 1, Lot 37, Sublot 6 Wadlin Road is undeveloped. 8 Grateful Way is developed with a Single Family Residence

Property currently serviced by:

☒ City Road ☐ Public Sewer ☐ Public Water ☐ Public Trash

☐ Private Road ☐ Septic System ☐ Private Well ☐ Private Hauler

Slope Conditions in Area of Construction (if applicable):

☒ Flat (0-3% slope) ☐ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ☐ (Yes) ☒ (No) if yes attach information

Is the project within the 100-year floodplain? ☐ (Yes) ☒ (No) if yes attach information

Do you plan to bring fill onto the lot? ☐ (Yes) ☒ (No) If yes attach information

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance? ___(Yes) ☒ (No)

- If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of Applicant:

Richard Potter

Date

6/10/2025

Signature of Property Owner:

Richard Potter

Date

6/10/2025

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

- A) PDF OF SIGNED APPLICATION
- B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

- A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

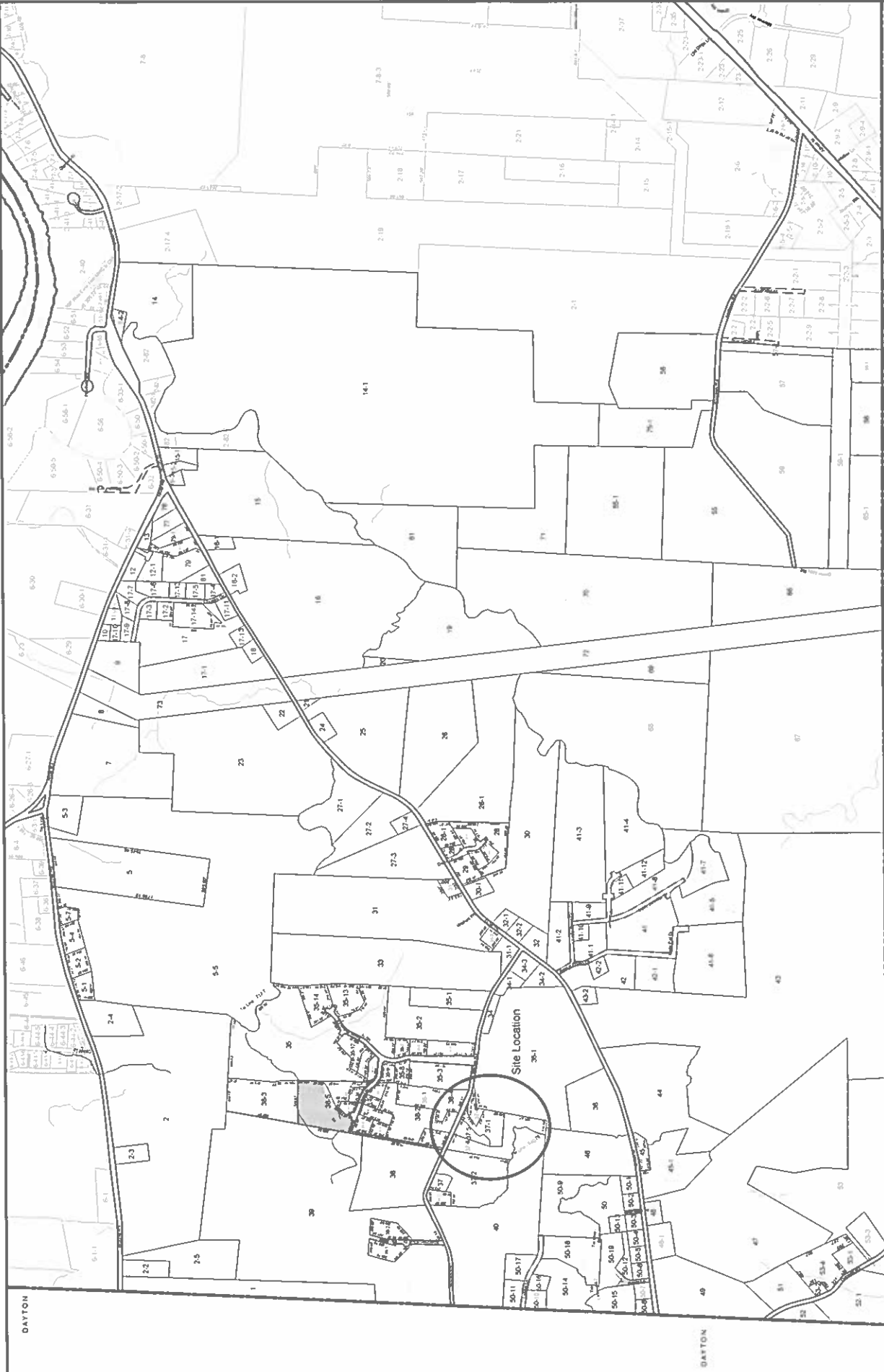
DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)
 - Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVIDUAL DRAWING NAME.pdf'
- B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.
- C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)
 - All drawings & CAD reference files must be to-scale and within the following coordinate systems:
 - MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

- A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIDUAL DRAWINGS REQUIRING BOARD SIGNATURE
- B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION



After recording return to:
Bergen & Parkinson, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

DLN 2099084

Space Above This Line For Recording Data

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, that **MORGAN MARIE PLANTE** f/k/a **MORGAN MARIE POTVIN AND BENJAMIN JOSEPH PLANTE**, of Biddeford, Maine FOR CONSIDERATION PAID, hereby grant to **NICHOLAS PELOQUIN AND NICOLE PELOQUIN**, of 4 Forest Street South, Biddeford, ME 04005, with WARRANTY COVENANTS, as joint tenants, a certain lot or parcel of land, together with any improvements thereon and all rights appurtenant thereto, located in the City of Biddeford, York County, Maine; being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND
INCORPORATED HEREIN BY REFERENCE

{SIGNATURE PAGE FOLLOWS}

Maine R.E. Transfer Tax Paid

EXHIBIT A

A certain lot or parcel of land lying on the southwesterly sideline of the Wadlin Road in the City of Biddeford, the County of York in the State of Maine being and being a portion of Lot 3 as shown on plan entitled "A DIVISION OF LAND FOR HEATHER WILSON ON WADLIN ROAD IN BIDDEFORD, MAINE" dated January 2, 2010 by John E. Perry Jr. PLS #2127 being more particularly described as follows:

Beginning at a set #5 rebar with cap marked John Perry Jr. PLS# 2127 lying on the said sideline of the Wadlin Road said point marking the northerly corner of lot 3 on said plan said point also marking the easterly corner of land now or formerly of Grandmaison.

Thence, S59°17'43"W along said land of said Grandmaison for a distance of seven hundred sixty-four and one hundredths (764.01') feet, to a #5 rebar with cap marked John Perry Jr. PLS# 2127 as shown on said plan.

Thence, continuing the same course for a distance of twenty (20'±) feet, the center of the Wadlin Brook and land of Girard.

Thence, generally in a southeasterly and southwesterly direction following the center of said brook, width of said brook varies, for a distance eight hundred ninety (890'±) feet, to a rebar with cap in center of said brook said rebar having a tie line with said last rebar a bearing of S15°47'48"W and a distance of five hundred forty and seventy-six hundredths (540.76') feet, and land now or formerly of Atherton.

Thence, S34°28'10"E along said land of Atherton and land now or formerly Sahagian for a distance of one hundred seventy-four and ten hundredths (174.10') feet, to a found ¾" iron pipe in base of tree and land of said Sahagian.

Thence, N60°09'05"E along land of said Sahagian and general following a barbed wire fence for a distance of five hundred twenty and forty-seven hundredths (520.47') feet, to a #5 rebar with cap marked John Perry Jr. PLS# 2127 and land now or formerly of Clement and lot 2 as shown on said plan.

Thence, N35°39'38"W along said lot 2 for a distance of four hundred seven and twenty-nine hundredths (407.29') feet, to a found #5 rebar with cap marked John Perry Jr. PLS# 2127.

Thence, N48°46'29"E along said lot 2 for a distance of one hundred forty-four and seventy hundredths (144.70') feet, to a found #5 rebar with cap marked John Perry Jr. PLS #2127.

Thence, S68°49'14"W along remaining land of grantor for a distance of four hundred sixty-seven and eighty-one hundredths (467.81') feet, to a found #5 rebar with cap marked John Perry Jr. PLS #2127.

Thence, N14°59'20"W along said sideline of the Wadlin Road for a distance of two hundred six and sixty-eight hundredths (206.68') feet, to the point of beginning.

Title reference is hereby made to a certain deed from Heather L. Wilson-Labbe (f/k/a Heather L. Wilson) to Morgan Marie Potvin and Benjamin Joseph Plante dated November 15, 2019 and recorded at the York County Registry of Deeds in Book 18103, Page 690.

1001640007801

WARRANTY DEED

Heather L. Wilson-Labbe, f/k/a Heather L. Wilson, whose mailing address is 21 Labbe lane, Biddeford, ME 04005, for consideration paid, **GRANTS to Paul W. Clement and Jessica F. Clement**, husband and wife, both with a mailing address of 296 Elm Street, Apt. 1, Biddeford, ME 04005, with **WARRANTY COVENANTS, as joint tenants**, the land, together with any buildings and improvements thereon, situate in Biddeford, County of York, State of Maine, bounded and described as follows, to wit:

A certain lot or parcel of land lying on the southwesterly sideline of the Wadlin Road in the City of Biddeford, the County of York in the State of Maine being and being shown as Lot 2 on plan entitled "A DIVISION OF LAND FOR HEATHER WILSON ON WADLIN ROAD IN BIDDEFORD, MAINE" dated January 2, 2010 by John E. Perry Jr. PLS #2127, and recorded on or near this same date, being more particularly described as follows:

Beginning at a set #5 rebar with cap marked John Perry Jr. PLS 2127 lying on the said Wadlin Road said rebar marking the easterly corner of lot 1 on said plan said rebar also marking the easterly corner of land now or formerly of Sahagian.

Thence, N36°32'56"W along said lot 1 for a distance of one hundred forty-six and forty-four hundredths (146.44) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127.

Thence, N74°31'38"W along said lot 1 for a distance of one hundred eighty-four and fifty-one hundredths (184.51) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127.

Thence, S13°59'53"E along said lot 1 for a distance of two hundred thirty-one and eighty-three hundredths (231.83) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127 and land now or formerly of Sahagian.

Thence, S60°09'05"W along land of said Sahagian and general following a barbed wire fence for a distance of two hundred forty-three and fifty-five hundredths (243.55) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127 and remaining land of Heather Wilson and lot 3 as shown on said plan.

Thence, N35°39'38"W along said land of Heather Wilson and lot 3 for a distance of four hundred seven and twenty-nine hundredths (407.29) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127.

Thence, N48°46'29"E along said land of Heather Wilson and lot 3 for a distance of one hundred forty-four and seventy hundredths (144.70) feet, to a set #5 rebar with cap marked John Perry Jr. PLS 2127.

MAINE REAL ESTATE
TRANSFER TAX PAID

Said above described easement is the centerline and to be ten feet (10') in width. Easement is for maintenance and repair of an existing underground utility.

EASEMENT #2

Beginning at a point lying on the southwesterly sideline of the Wadlin Road said point being eighty-nine and one tenths (89.1±) feet, more or less southeasterly from the southeasterly corner of lot #3 as shown on said plan of Heather Wilson.

Thence S5°26'W for a distance of fifty and seven tenths (50.7±) feet, more or less to a point and parcel herein conveyed.

Said above described easement is the centerline and to be ten feet (10') in width. Easement is for maintenance installation and repair of a proposed underground utility.

EASEMENT #3

Grantor herein grants to Grantee, its heirs and assigns, the right to enter upon a portion of Grantor's remaining land (Lot #2) described more or less as follows:

Commencing at the northeasterly most corner of the parcel herein conveyed (Lot 1) where Lot 1 meets with the sideline of Wadlin Road, at a point with a set #5 rebar with cap marked John Perry Jr. PLS 2127; thence N36°32'56"W along said parcel herein conveyed for a distance of one hundred forty-six and forty-four hundredths (146.44) feet to a second set #5 rebar with cap marked John Perry Jr. PIS 2127; then turning and running S74°31'38"E approximately forty-eight (48) feet, more or less, to the sideline of the Wadlin Road; thence turning and running southerly approximately seventy-five (75) feet, more or less, along said Wadlin Road to point of beginning, as more or less illustrated on page 4 of the Deed recorded in Book 15894, Page 50.

The purpose of the easement is for landscaping purposes only which landscaping is limited to the planting and maintenance of shrubs, flowers, grass and/or trees. All trees and shrubbery planted within the easement area become a part of the real property and may not later be removed without the permission of the Grantor, her heirs or assigns. Unless expressly agreed to by the Owner of Lot 2, there may be no additional non-vegetation objects placed, installed or constructed in the easement area such as, but not inclusive of, fencing, walls, ponds, lighting fixtures, or underground wiring (except within the area depicted in Easement 2, above, which overlaps with this easement). Landscaping within the easement area may be maintained, including the removal of fallen trees, branches and/or leaves or other detritus. Living or dead trees within the easement area may not be cut or removed without permission of Owner of Lot 2, except as is reasonably necessary for power line construction. In the event the owner of Lot 1 does not maintain the easement area, Grantor retains the right to reasonably maintain that area.

Being the same premises as described in the deed from Heather L. Wilson to Heather L. Wilson, dated July 8, 2010 and recorded in Book 15894 Page 50, York County Registry of Deeds.

WITNESS my hand and seal this 27 day of May, 2016.

Signed, Sealed and Delivered
In Presence Of

Sarah Hodges

Heather L. Wilson-Labbe

STATE OF MAINE

COUNTY OF York

May 27, 2016

Personally appeared the above named Heather L. Wilson-Labbe and acknowledged the foregoing instrument to be her free act and deed.

Before me,

Sarah Hodges
Notary Public/Attorney at law

SARAH W. HODGES
NOTARY PUBLIC
State of Maine
My Commission Expires
May 22, 2018



Space above for recording information

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL MEN BY THESE PRESENTS that **VACATION PROPERTIES, INC.**, a Maine corporation with a principal place of business in Biddeford, York County, Maine, for consideration paid, grants to **RICHARD P. POTVIN, II** and **ANGELIQUE L. POTVIN**, with a mailing address of 150 Guinea Road, Biddeford, Maine 04005, with warranty covenants, as joint tenants, the land in Biddeford, in the County of York and State of Maine, described as follows:

*SEE EXHIBIT "A" ATTACHED HERETO
AND INCORPORATED HEREIN BY REFERENCE.*

IN WITNESS WHEREOF the said VACATION PROPERTIES, INC. has caused this instrument to be executed by Richard P. Potvin, II, its President, duly authorized, this 8th day of June, 2020.

VACATION PROPERTIES, INC.

Lucy M. Burrell
WITNESS

By: [Signature]
Richard P. Potvin, II, President

STATE OF MAINE
YORK, ss.

June 8, 2020

Then personally appeared the above-named RICHARD P. POTVIN, II, President of Vacation Properties, Inc. and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said corporation,

Before me,

Lucy M. Burrell
Notary Public/~~Attorney-at-Law~~

LUCY M. BURNELL
NOTARY PUBLIC
STATE OF MAINE
MY COMMISSION EXPIRES
MAY 29, 2022

WOODMAN EDMANDS DANYLEK AUSTIN
SMITH & JACQUES, P.A.
P.O. BOX 468
BIDDEFORD, ME 04005-0468
(207) 284-4581

SUT

E

SEAL

BILL OF SALE

SUPHAB, INC. a Maine corporation with a mailing address of 37 Western Avenue #2, Kennebunk, Maine 04043, (hereinafter *Grantor*), for consideration paid by **S & P THAI, INC.**, a Maine corporation with a mailing address of 84 Ash Tree Trail, Wells, Maine 04090 (hereinafter *Grantee*), the receipt and sufficiency of which is hereby acknowledged, does hereby *grant, sell, transfer and deliver* unto Grantee, the following goods and chattels:

SEE SCHEDULE A ATTACHED AND INCORPORATED HEREIN BY REFERENCE

To have and to hold said goods and chattels to the Grantee, its successors and assigns, to their own use and behoof forever. And, Grantor hereby covenants with Grantee that Grantor is the lawful owner of said goods and chattels, free from all encumbrances; and has good right to sell the same as aforesaid; and that Grantor will warrant and defend the same unto the said Grantee, its successors or assigns, against the lawful claims and demands of all persons.

The goods and chattels hereby conveyed are sold "as is, where is," and Grantor makes no representations or warranties to the Grantee, either express or implied (other than as set forth above), including but not limited to merchantability, design, condition, defects (whether latent or patent), quality, workmanship, or fitness for a particular purpose.

Witness this 9th day of June, 2025

SUPHAB, INC.

WITNESS

By: Suphab Thakong, President

STATE OF MAINE
YORK, ss.

June 9, 2025

Then personally appeared the above-named Suphab Thakong, President of Suphab, Inc., and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of said Corporation, before me,

Before me,

Notary Public

SCHEDULE A

The following described properties and assets associated with the business of Grantor known as “Mekhong Thai Restaurant” located at 37 Western Avenue #2, Kennebunk, Maine 04043 (the “Business”) are hereby conveyed to the Grantee:

- i. All machinery, equipment, telephone systems, trade fixtures and all other fixtures of any kind, nature or description whatsoever used or useful in the operation of the Grantor’s Business (the “Equipment”).
- ii. All Grantor’s inventory of products and supplies as of the Closing Date (“Inventory”).
- iii. The goodwill and any and all slogans, trademarks, or trade names used by Grantor in connection with the Grantor's Business, including but not limited to the name “Mekhong Thai Restaurant”, and all customer lists, books, records and correspondence relating to the present and former customers of the Grantor's Business (any and all such customers are hereinafter sometimes referred to as the "Customers").
- iv. Any and all files, papers, books, records, sales and advertising materials and records, technical and user manuals, sales and purchase correspondence, permits, licenses, and any other intangible property.
- v. Any and all right, title and interest of the Grantor in and to the telephone and fax numbers, websites, domain names, email addresses, social media accounts, other media, advertising copy, any licenses and commercially practiced patents, copyrights, trademarks, trademark registration applications (including all reissues, divisions, continuations and extensions thereof), patent applications and patent disclosures docketed, if any, relating to the Grantor's Business, including: NONE
- vi. Any and all right, title and interest of the Grantor in and to all intellectual property rights and proprietary expertise, including, without limitation, proprietary information, computer programs and data, security codes and credentials, passwords, licenses, and trade secrets, relating to the Grantor's Business.
- vii. Any and all permits, authorizations, approvals or indicia of authority to conduct the Grantor's Business as issued by any government branch, department, commission, board, bureau, agency or other authority of the United States or any state or political subdivision thereof or any foreign government, to the extent assignable.
- viii. All right, title and interest of Grantor in and to accounts, contract rights, contracts or leases, purchase orders and sales or purchase commitments of any kind, nature or description whatsoever relating to the Grantor's Business (the “Assumed Contracts”).

CITY OF BIDDEFORD - SITE PLAN & SUBDIVISION APPLICATION DRAWING CHECKLIST
CHECKLIST DIRECTIONS:

1. The following checklist must be completely filled out by the applicant and included on all preliminary and final Site Plan & Subdivision submittals. No checklist is required for sketch submittals.
2. Applicant to confirm all of the items listed are included within the submittal. Any missing items must have adequate reasoning to justify their absence.
3. City to review applicant's submittal and checklist responses. Projects missing substantial submittal information with non-acceptable reasoning will be rejected and required to resubmit.
4. Items in **BLACK** are required for 'Preliminary' approval & 'Final' approval.
5. Items in **BLUE** are only required for 'Final' approval.

LAST REVISED: 11/26/2024

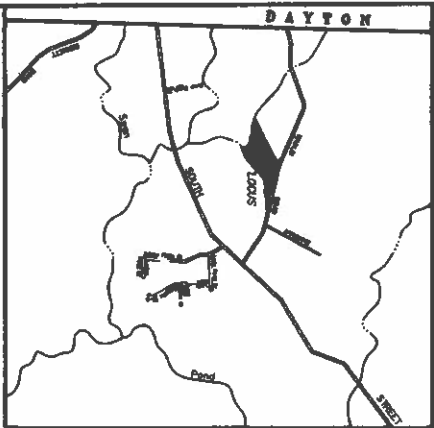
SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	
Planning Board # (if available):	
Applicant Name/Info:	
Submittal #/Type (Prelim/Final):	
Submittal Date:	

SUBMITTAL REQUIREMENT		APPLICANT RESPONSE			CITY REVIEW RESPONSE	
ITEM NUMBER	DESCRIPTION	INFORMATION PROVIDED (YES/NO)	LIST DRAWING SHEET NUMBER WHERE INFORMATION IS PROVIDED	REASON NOT PROVIDED/COMMENT	ACCEPTABLE (YES/NO-REVISE & RESUBMIT)	COMMENT
1	GENERAL PLAN REQUIREMENTS					
A	Drawing specific legends (linetypes, hatches, etc.)	NO		Plan provided is a Division of Land Plan		
B	Individual drawing layer control should be utilized: freeze/thawing, changing lineweights, and screening (i.e. screen existing layers on a proposed plan, freeze topography and underground utilities on a proposed site plan)	NO		Plan provided is a Division of Land Plan		
C	North arrows, standard engineering scale viewports, scale bars, dated revision blocks	YES				
D	All drawings and surveys must be in the following coordinate systems: NAD83 Maine State Plane West (Horizontal) and NAVD88 (Vertical)	NO		Drawing is in Magnetic North		
E	Drawings need to be designed, signed & sealed by a Maine licensed professional engineer (PE); all boundary survey data needs to be performed by a licensed professional land surveyor (PLS)	YES				
2	COVER SHEET					
A	Project Name & Property Address	YES				
B	Project Team Contact Information (Owner, Engineer, Contractor, etc.)	YES				
C	Site Location Map	YES				
D	Sheet Set List of Drawings	YES				
E	Tax Map and Lot ID	YES				
F	Zoning & Shoreland Zone Information	YES				
G	Existing Use Description	YES				
H	Proposed Use Description	YES				
I	Required Waiver/Variances (Yes/No); if yes, plan must clearly list waivers/variances requesting	YES		Plan does not list waivers requested. Separate writing attached for Waiver requests		
J	Name of Drainage Watershed	YES				
K	Within the MS4 Urbanized Area (Yes/No)	NO				
L	Natural resources (streams, wetlands, etc.) located on-site or adjacent to the property (Yes/No)	YES				
M	Within the 100-year Flood Zone (Yes/No)	NO				
N	Public Road Proposed (Yes/No)	NO				
O	Private Road Proposed (Yes/No)	NO				
P	Public Sewer Connection (Yes/No)	NO				
Q	Public Storm Drain Connection (Yes/No)	NO				
R	Limits of Disturbance in square feet and acres	YES				
S	Pervious Land Cover square footage, existing and proposed	YES				
T	Impervious Land Cover square footage (Pavement/Gravel), existing and proposed	YES				
U	Building Roof square footage, existing and proposed	YES				
V	Assigned Planning Board Number	N/A				
W	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	N/A				
3	EXISTING CONDITIONS PLAN					
A	Horizontal & Vertical Datums annotated (NAD83 & NAVD88)	NO		Not included on Plan		
B	Property & Right-of-Way Lines	YES		Note: Lot 3 has since been divided, see attached deeds		
C	Boundary line information (bearings, distances, etc.)	YES		Note: Lot 3 has since been divided, see attached deeds		
D	Property pin and monumentation locations	YES				
E	Existing easements with proper ownership identified	YES				
F	Road Names & Individual Lot Labels (Map, Lot, Owner, Acreage)	YES		Note: Lot 3 has since been divided, see attached deeds		
G	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	YES				
H	100-year Flood Zone Limits & Elevation	YES				
I	Existing contours with adequate contour labelling; minimum 1' contour interval	NO		Not included on plan		
J	Existing building FFEs annotated	YES		Existing building on Richard Potvin, II, Parcel is not listed on Plan		
K	Spot elevations for all tie-in locations (curb cuts, property line)	NO		Not included on plan		
L	Existing buildings & structures	NO		Existing building on Richard Potvin, II, Parcel is not listed on Plan		
M	Existing pavement areas & number of parking spaces	NO		Information on Richard Potvin, II, Parcel is not listed		
N	Existing ADA ramp geometry, detectable warning plates, and ADA parking spaces	YES		None listed and none located on parcels		
O	Existing site features (sidewalks, retaining walls, curbing, lightpoles, guide rails, dumpsters, fencing)	YES				
P	Existing signage and striping	YES				
Q	Existing underground utility locations (storm, sewer, force main, water, gas, elec, tele)	NO		Basic Notations included on plan		
R	Existing above-ground utility locations (manholes, catch basins, utility poles, hydrants, transformers, riprap)	NO		Basic notations included on plan		
S	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	NO		Basic notations included on plan		

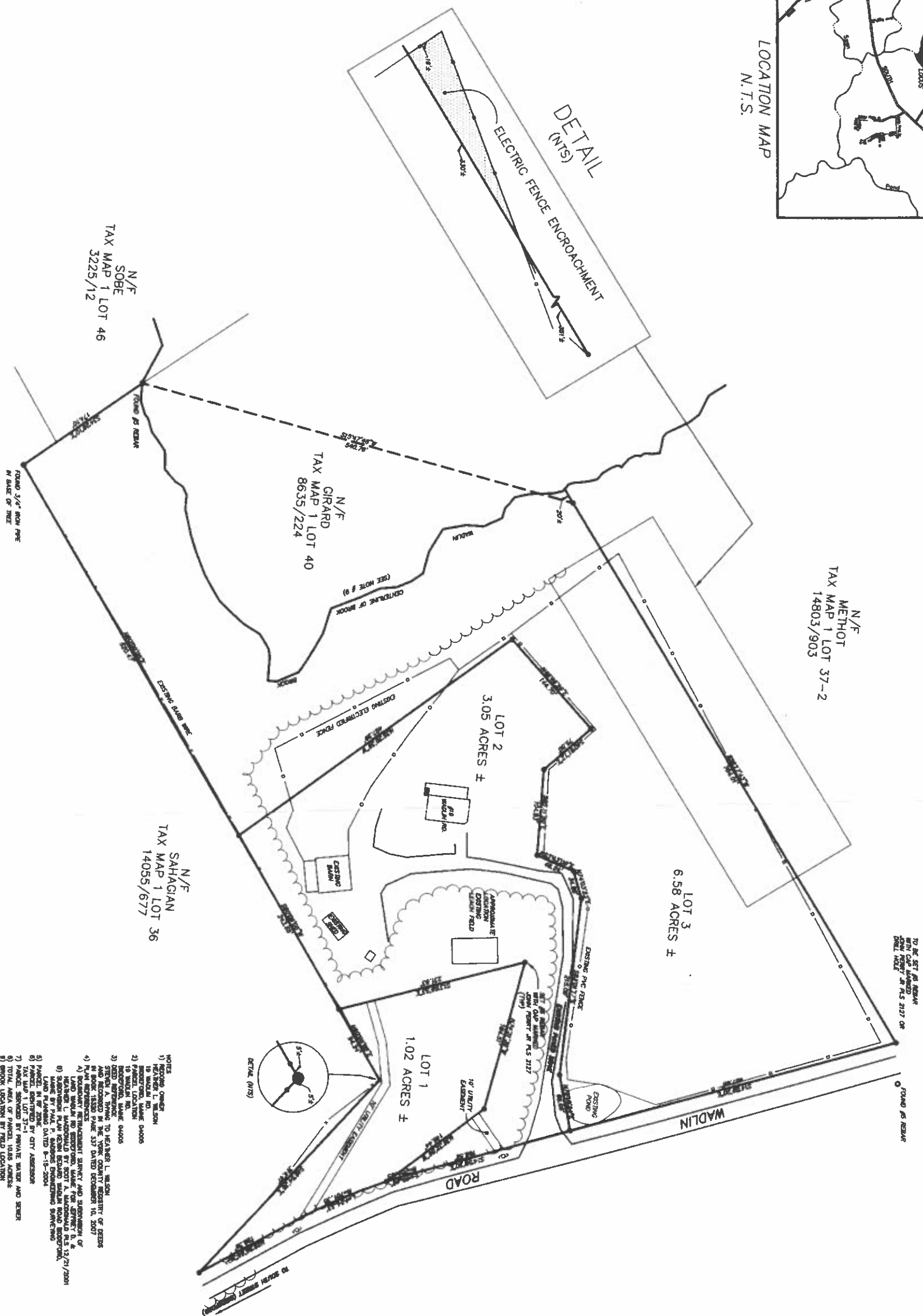
	T Existing tree lines, street trees, free-standing trees (12" or larger diameter at breast height), and vegetation	NO		Basic notations included on plan		
	U Location of any borings, drinking wells, and monitoring wells	NO		Basic notations included on plan		
4	SITE DEMOLITION & EROSION CONTROL (E&SC) PLAN					
A	Limits-of-disturbance outlined and acreage annotated	N/A		No site demolition or erosion control included or planned		
B	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	N/A		No site demolition or erosion control included or planned		
C	100-year Flood Zone Limits	N/A		No site demolition or erosion control included or planned		
D	Callout existing site features to be demolished/removed/replaced	N/A		No site demolition or erosion control included or planned		
E	Callout existing utilities to be demolished/removed/abandoned-in-place	N/A		No site demolition or erosion control included or planned		
F	Hatch existing buildings and pavement to be removed	N/A		No site demolition or erosion control included or planned		
G	Construction Entrance location(s)	N/A		No site demolition or erosion control included or planned		
H	Perimeter E&SC control location(s) (i.e. silt fence, erosion berm mix)	N/A		No site demolition or erosion control included or planned		
I	Stockpile and staging area(s) identified (with proper perimeter control)	N/A		No site demolition or erosion control included or planned		
J	Inlet protection location(s)	N/A		No site demolition or erosion control included or planned		
K	Note requiring contractor to implement dust control measures throughout construction	N/A		No site demolition or erosion control included or planned		
L	Note requiring contractor to pave utility trenches within right-of-way within 3 days of excavation or prior to any rain event	N/A		No site demolition or erosion control included or planned		
M	If groundwater expected, show dewatering/silt bag location(s); show temporary pumping routing	N/A		No site demolition or erosion control included or planned		
N	If large development is proposed with an extensive underground stormwater conveyance network, identify how SWM infrastructure and BMPs will be protected during construction and if sediment traps/basins are needed	N/A		No site demolition or erosion control included or planned		
5	SITE PLAN/SUBDIVISION PLAN	NO		Site Plan/Subdivision Plan not included		
A	Partial Site Plans needed for any viewport scale greater than 1"=20'	NO		Site Plan/Subdivision Plan not included		
B	Existing property and right-of-way lines	NO		Site Plan/Subdivision Plan not included		
C	Proposed subdivision lot lines and labels	NO		Site Plan/Subdivision Plan not included		
D	Required Zoning Setbacks shown with dimensions and annotation	NO		Site Plan/Subdivision Plan not included		
E	Bulk requirement summary table (zoning/parking calculations)	NO		Site Plan/Subdivision Plan not included		
F	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	NO		Site Plan/Subdivision Plan not included		
G	100-year Flood Zone Limits	NO		Site Plan/Subdivision Plan not included		
H	Proposed building outlines, door entrances and loading docks	NO		Site Plan/Subdivision Plan not included		
I	Proposed building labels	NO		Site Plan/Subdivision Plan not included		
J	Proposed road & sidewalk extents; provide clear annotation if roads will be public or private	NO		Site Plan/Subdivision Plan not included		
K	Proposed parking and accessible parking locations; annotate parking space counts	NO		Site Plan/Subdivision Plan not included		
L	Proposed signage, parking striping, and traffic striping	NO		Site Plan/Subdivision Plan not included		
M	Detailed ADA ramp geometry, detectable warning surfaces, and ADA parking striping/signage; existing & proposed	NO		Site Plan/Subdivision Plan not included		
N	Proposed site features (i.e. curbing, walls, fencing, guiderail, fire hydrant, transformers, light pole locations)	NO		Site Plan/Subdivision Plan not included		
O	Proposed landscaping; detailed landscaping design should be shown on separate plans	NO		Site Plan/Subdivision Plan not included		
P	Designated snow storage areas	NO		Site Plan/Subdivision Plan not included		
Q	Proposed dumpster locations and trash removal access	NO		Site Plan/Subdivision Plan not included		
R	Linear dimensions of all drive aisles, sidewalk widths, parking spaces, loading docks	NO		Site Plan/Subdivision Plan not included		
S	Radial dimensions for all curbs, landscaped islands, sidewalks	NO		Site Plan/Subdivision Plan not included		
T	Public/private road centerline stationing shown, labelled every 0+50' with curve data	NO		Site Plan/Subdivision Plan not included		
U	If Private Road is proposed, final recorded plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	NO		Site Plan/Subdivision Plan not included		
V	If Private Road is proposed, final recorded plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	NO		Site Plan/Subdivision Plan not included		
W	Planning Board signature block for final recording	NO		Site Plan/Subdivision Plan not included		
6	GRADING PLAN	N/A		No Grading Plan included		
A	Partial Grading Plans needed for any viewport greater than 1"=20'	N/A		No Grading Plan included		
B	Limits-of-disturbance outlined and acreage annotated	N/A		No Grading Plan included		
C	Proposed Building Labels with Individual Finished Floor Elevations (FFE)s	N/A		No Grading Plan included		
D	Existing contours with adequate contour labelling, screened; minimum 1' contour interval	N/A		No Grading Plan included		
E	Proposed contours with adequate contour labelling; minimum 1' contour interval	N/A		No Grading Plan included		
F	Detailed grading for all ditches, swales, outfalls, and riprap	N/A		No Grading Plan included		
G	All proposed contours tie-into existing contours at limits-of-disturbance outline	N/A		No Grading Plan included		
H	Existing spot elevations for all asphalt, curb, and SWM BMP tie-in locations	N/A		No Grading Plan included		
I	Location of any Natural Resources and their respective buffers (wetlands, streams, etc.)	N/A		No Grading Plan included		
J	100-year Flood Zone Limits	N/A		No Grading Plan included		
K	Proposed spot elevations for all important roadway geometric points (including but not limited to: parking/drive aisles, building corners/entrances, retaining walls, loading docks, FOP/curblines)	N/A		No Grading Plan included		
L	Proposed spot elevations for all ADA ramp/landing/parking stall geometry points	N/A		No Grading Plan included		
M	Proposed % slope arrows for all ADA parking spaces and sidewalks	N/A		No Grading Plan included		
N	Proposed longitudinal % slope arrows for drainage ditch centerlines	N/A		No Grading Plan included		
O	Proposed % slope arrows for roads, parking areas, and landscape tie-in areas	N/A		No Grading Plan included		
P	Estimated cut/fill earthwork volumes. If disturbing within the Flood Zone, a separate set of earthwork volumes required (overall site vs. within flood zone)	N/A		No Grading Plan included		
7	ROAD PROFILES (if public/private road proposed)	N/A		No public/private road proposed		
A	Existing surface; dashed and screened	N/A		No public/private road proposed		
B	Proposed surface; continuous and bold	N/A		No public/private road proposed		
C	Road design speed must be clearly identified	N/A		No public/private road proposed		

	D	Corresponding centerline stationing and curve data annotation	N/A		No public/private road proposed		
	E	All vertical curves must identify the proposed 'K' values and confirm they meet the minimum design speed thresholds listed in AASHTO's Green Book Tables 3-35 & 3-37	N/A		No public/private road proposed		
	F	Clear annotation if proposed road will be public or private	N/A		No public/private road proposed		
	G	If Private Road is proposed, plans must clearly note that proposed private roads will not be submitted in the future for public acceptance	N/A		No public/private road proposed		
	H	If Private Road is proposed, plans must clearly note that the City is not responsible for any maintenance, repair, plowing, or trash removal of proposed private roads	N/A		No public/private road proposed		
	8	UTILITY PLAN	N/A		No Utility Plan Included		
	A	Existing underground utility locations; screened (storm, sewer, force main, water, gas, electric, telecom)	N/A		No Utility Plan Included		
	B	Existing above-ground utility locations; screened (manholes, catch basins, utility poles, hydrants, riprap)	N/A		No Utility Plan Included		
	C	Rim, invert in, invert out, pipe size, cardinal direction (N, E, S, W) information for any existing utility infrastructure being tied into (upstream/downstream/outfalls)	N/A		No Utility Plan Included		
	D	Proposed underground utility locations; bold (storm, sewer, force main, water, gas, electric, telecom, lighting)	N/A		No Utility Plan Included		
	E	Proposed above-ground utility locations; bold (manholes, catch basins, utility poles, hydrants, transformers, riprap)	N/A		No Utility Plan Included		
	F	Proposed storm culverts, outfalls, and riprap locations and sizes	N/A		No Utility Plan Included		
	G	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	N/A		No Utility Plan Included		
	H	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	N/A		No Utility Plan Included		
	I	Flow directional arrows for storm & sewer pipes	N/A		No Utility Plan Included		
	J	Proposed & existing site features shown that could conflict with proposed utilities (trees, signs, lightpoles, bollards, foundations, guiderails)	N/A		No Utility Plan Included		
	K	All storm drains must be sized to convey the 25-year storm	N/A		No Utility Plan Included		
	L	Sewer force main sizes and invert elevations	N/A		No Utility Plan Included		
	M	Sewer pump station locations, model, rim, inverts, pipe sizes, cardinal directions (N,E,S,W); additional details and hydraulic calculations required for any Public pump station proposed.	N/A		No Utility Plan Included		
	N	Locations, sizes, and elevations of any: grease traps, oil-water separators, septic systems, drinking wells	N/A		No Utility Plan Included		
	O	Proposed water sizes labelled	N/A		No Utility Plan Included		
	9	UTILITY PROFILES	N/A		No Utility Profiles Included		
	A	Utility profiles required for all gravity storm drain and sewer pipes proposed: within the right-of-way, within private or public roads, for non-driveway culverts, and for any public infrastructure tie-ins	N/A		No Utility Profiles Included		
	B	Existing surface; dashed and screened	N/A		No Utility Profiles Included		
	C	Proposed surface; continuous and bold	N/A		No Utility Profiles Included		
	D	Storm/sewer structure labels must include: rim, inverts in, inverts out, pipe sizes, cardinal directions (N, E, S, W)	N/A		No Utility Profiles Included		
	E	Storm/sewer pipe labels must include: linear footage, pipe size, material, slope	N/A		No Utility Profiles Included		
	F	Existing and proposed gravity pipe crossings shown; sizes labelled and depths/clearance annotated	N/A		No Utility Profiles Included		
	G	Existing and proposed electric/water/telecom/gas crossings shown at approximate depths; sizes labelled and depths/clearance annotated	N/A		No Utility Profiles Included		
	10	DETAILS	N/A		No additional details included		
	A	Road section detail, including pavement/gravel depths & cross slopes	N/A		No additional details included		
	B	Sidewalk, paver, crosswalk, and any other pavement section details	N/A		No additional details included		
	C	Pavement sawcut & shiplap details	N/A		No additional details included		
	D	Utility trench/backfill detail	N/A		No additional details included		
	E	All site feature details; curbing, retaining walls, fencing, guiderails, dumpsters, etc.	N/A		No additional details included		
	F	Signage, striping, and ADA details	N/A		No additional details included		
	G	E&S notes and details	N/A		No additional details included		
	H	Utility structure details (manholes, cleanouts, fittings, handholes, transformer pads, hydrants)	N/A		No additional details included		
	I	Storm outfall & riprap details	N/A		No additional details included		
	J	Drainage ditch cross section identifying minimum depth, minimum bed width, and maximum side slopes	N/A		No additional details included		
	K	Pump station, grease trap, oil-water separator, septic, drinking well details	N/A		No additional details included		
	L	Conduit section details	N/A		No additional details included		
	11	LANDSCAPING, LIGHTING & PHOTOMETRIC PLANS					
	A	As required by ordinance; at a minimum: locations, counts, lighting models, and landscaping species must be identified	N/A				
	B	Landscaping & lighting details	N/A				
	12	DOCUMENTS/REPORTS/CALCULATIONS					
	A	On initial preliminary submittal applications, applicant must submit a development review and inspection fee. Applicant to coordinate fee amount with City Planner prior to submittal. This fee will be drawn against to cover the following type of services throughout the project life cycle (and may require replenishing): i. 3rd Party City Peer-Review ii. Site Inspections during the permitting process iii. Erosion & Sediment Control Inspections during construction iv. Right-of-Way Inspections during construction	YES				

B	Stormwater Management Report, including: 1. Predevelopment & Post-development Drainage Area Maps, including: a. Subdrainage areas delineated and labeled b. Points of Interest/Analysis shown and labeled c. Hatching for different land cover areas (impervious, pervious, gravel) within each applicable USDA soil boundary d. Time of concentration (Tc) paths & durations e. Four City-standardized stormwater summary tables 2. If any SWM water quality BMP or detention facility is proposed, hydrologic model exports/hydrographs must be submitted for the for the 2, 10, 25, & 100-year storm frequencies 3. Sizing calculations for any SWM water quality BMP or detention facility 4. A stormwater maintenance manual for any proposed SWM water quality BMP or detention facility, including: a. Annual maintenance requirements b. Annual inspection requirements by a licensed PE; noting that all inspection reports/logs need to be submitted to the Engineering Department by March 1st each following year, identifying what on-going maintenance has occurred and what remedial repairs are needed c. Signed Property Owner Agreement: including the current property owner’s contact information and signature; it must be noted that all stormwater BMP maintenance requirements are linked to the property for perpetuity and transfer to any new ownership	NO		not Included		
C	An approved ‘Sewer Ability-to-Serve Letter’ from the Engineering Department: i. Applicant to submit proposed sewer flow calculations per Maine’s Subsurface Wastewater Disposal Rules, Chapter 241, Section 4 (Tables 4A & 4C)	NO		not Included		
D	A Performance Guarantee Cost Estimate utilizing Planning’s template	N/A		not Included		
E	For any Site Location of Development (SLODA) project, the applicant's submittal must mimic a formal submittal to DEP. Submit must abide to DEP's SLODA application and include DEP's SLODA Submittal Checklist (Form D)	N/A		not Included		
F	25-year hydraulic calculations for all storm conveyance infrastructure (pipes, culverts, drainage ditches); starting tailwater conditions/documentation must be clearly identified	N/A		not Included		
K	Public sewer pump station sizing calculations and maintenance plan	N/A		not Included		
M	Grease trap sizing calculations	N/A		not Included		
N	Homeowner Association (HOA) agreement for any private road serving two (2) lots or more	N/A				
O	Summary list & copy of any required DOT/DEP/USACE permits & approvals	N/A		not Included		



LOCATION MAP
N.T.S.



- NOTES
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GRAPHIC SCALE

000169

YORK, REGISTRY OF DEEDS
RECEIVED
JAN 10 2010
FILED IN BOOK 10000, PAGE 3
ATTEST: Heather L. Wilson
Deputy

DIVISION OF LAND
FOR
HEATHER L. WILSON
AT
19 WADLIN RD.
BIDDEFORD, MAINE 04005

JOHN E. PERRY JR.
PLS #2127
6 GRAHAM STREET
BIDDEFORD, MAINE 04005

John E. Perry Jr.

No.	Revision	Date