



City of Biddeford Planning Board

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

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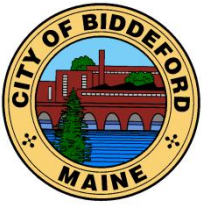
Meeting ID: 949 8353 1202

Passcode: 223739

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
3. Adjustment(s) to Agenda
4. Planner's Business
5. Consent Agenda
 - 5.a Review and approval of Meeting Minutes from July 16, 2025
6. Unfinished Business
7. New Business
 - 7.a 2025.20 Conditional Use Permit request for Nicole & Scott Thibreau of Miles of Smiles Childcare Center to expand the daycare at 460 Elm Street (Tax Map 21, Lot 1) in the Business 2 Zone. The applicants would like to expand their license from 49-70 children.
 - 7.b 2025.11 The Biddeford Planning Board will review an amended Sketch Plan Request for Bedard Homes LLC . This proposal is to create 36 single-family home lots at 268 Pool Street (Tax Map 8, Lot 52-1) in the SR1 Zone.
 - 7.c 2024.34 Final review of site plan application and shoreland permits for a proposed research pier and floats at 11 Hills Beach Road for the University of New England. The project is located in the city Institutional (IN) zone and the Limited Residential District shoreland zone.
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

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

Planning Board Meeting

Meeting Minutes

DRAFT

Date: July 16, 2025
Time: 6:00 PM
Location: Council Chambers & Zoom

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
Quorum Present: Alexa Plotkin, Chair, Larry Patoine, Susan Deschambeault, Roch Angers, Matt Dubois, & Kayla Lewis (Alternate Member)
Board Members Absent: Steve Beaudette
Staff Present: David Galbraith, Adi Iriqat & Attorney Harry Center
The chair called the meeting to order at 6:00 PM
3. Adjustments to the Agenda
Item 7b for Chick-fil-A asked to be tabled
4. Planner's Business
George Gervais (the Director of Planning & Development) resigned, his last day will be July 31, 2025
5. Consent Agenda
5.A. Approval of Meeting Minutes from July 2 & 9, 2025
MOTIONS:
Dubois-change there was no vote noted in the minutes for July 2, 2026, minutes need to be updated
Motion-Roch – Approval of meeting minutes with previously mentioned change
Second- Patoine
Vote- Motion passed unanimously
6. Unfinished Business-N/A
7. New Business
7.a 2025.19 Review of a Shoreland Zoning Application for Brian T. Anderson to rebuild his house & attached garage at 49 Mile Stretch Road (Tax Map 62, Lot 29-32) in the Coastal Residential and Shoreland Overlay Zone. This request was approved in 2021, but the approval expired when there was no construction.
 - Iriqat introduced the project
 - Werner T. Gilliam of Walsh Engineering represented the applicant.
 - Existing non-conforming family home.
 - Applicant would like re-approval by the board

- Applicants have acquired Permit-By-Rule through DEP.
 - 19% footprint expansion, they would be able to go to 30% and remain in compliance.
 - Reduction in lot coverage from 9.6% to 9.00%
- NO PUBLIC COMMENTS**
- Patoine, no changes except it shrank a little bit and the flow through has been added
 - Angers-why did the project not start with original approval? Applicants opted not to do the project at that time.

MOTIONS: 6:27 PM

Motion-Angers- Motion to Approve Case #2025.19 Greatest Practical Extent Determination for Walsh Engineering, INC., on behalf of Brian T. Anderson (Tax Map 62, Lot 29- 32) in the Coastal Residential Zoning District with the listed Conditions of Approval.

Second-Patoine

Vote-Motion passed unanimously

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 7-16-26.

7.b. 2025.07 Review of an application for Site Plan Review for Bohler c/o Chick-fil-A to construct a 4900±SF restaurant with a drive-thru at 150 Shops Way (Tax Map 2, Lot 24) in the Business 2 (B2) Zone. TABLED AT THE REQUEST OF APPLICANT

7.c. 2024.55 Review of Final Subdivision for 3 Lincoln, LLC for the proposed redevelopment of 3 Lincoln Street, (Pearl Street Lot 3) Tax Map 71, Lot 2) in the MSRD 3 zone and shoreland overlay. This applicant wishes to amend the previous Major Site Plan and Subdivision Approval (2022.02) from 3 buildings on Lot 3 to 4. The amendment includes the addition of five (5) town homes and revises Building A From 85 residential units to up to 52 units, Building B from 129 units to up to 85 units, and Building C will remain as a restaurant with approximately 154 total seats.

- Galbraith introduced the project.
- Marieke Thormann from 3 Lincoln LLC and Peter Heil from Acorn represented the applicant
- Thormann went over a presentation of Lot 3, overview of their vision of Lot 3
- Heil went over the changes in the project from the original beginning to today.
- Dubois asked how the structures have changed. Thormann explained it was reduced due to construction costs.

- Plotkin asked if they have always been condos, yes
- Patoine asked about the MDOT shared costs with One Diamond. The costs are still shared but the three developments are at different stages. This project will need a Traffic Movement Permit.
- Heil stated all proposed changes have been made.
- He talked about the requested waivers
- Amendments have been requested of DEP & SRCC
- NO PUBLIC COMMENTS
- Plotkin told the applicant that this application will be considered as a Sketch Plan due to the expiration of approval and changes being presented.
- Patoine, Angers & Deschambault agreed this being Sketch Plan
- Thormann asked how this would affect their process and the building permit they have applied for
- Galbraith said it would be a month and a half as this will go back for preliminary & final.
- Plotkin feels that the changes have been in the works for a while but now that they are in a hurry they want to rush it through the Planning Board.
- Patoine asked for a copy of the original plan
- Thormann wants to make sure the Planning Board understands they have no issues with the process they just want to understand
- Angers wants to make sure projects aren't being watered down as other projects withdraw. Galbraith not watered down.
- Angers where is the money coming from? We got a grant and some of the public works team.
- Angers wants to make sure there is enough money to fix everything. Galbraith said that is what we have to work around.
- Angers-if other projects keep pulling out the roadways are going to get watered down. Galbraith not at all.
- Deschambault-will be watching this carefully. This land was purchased by the taxpayers and are indebted until 2033. She feels like she is getting more information at the City Council meetings than she gets at the Planning Board. She is not committed yet but will continue to listen and ask questions.
- Dubois-is this grant separate from the impact fee? Yes
- Plotkin-She is not thrilled that cars have to go down Pearl Street to enter the project. She would like the building flipped so that the traffic is going by the fire lane. Thormann answered if they did that they would have to eliminate parking there.
- Dubois understands where Plotkin but has a different opinion. As a property manager and a condo owner in the area it is part of urban living.
- The fire lane is owned and maintained by the City.
- Will snow removal have any impact on the parking garage? This will change the snow removal process for the garage and there are details and cost sharing that will need to be worked out.
- Deschambault explained the plowing differences in the area between the City and developers.

- Patoine is concerned about someone driving along and they open the car door and get bombarded by a snow pile.
- Heil said they will have to consider this as part of the conversation with the garage.
- There will be signage saying resident and delivery access only
- They will continue working with the City on wayfinding.
- Dubois said the summer planters are helpful, but he sees people still parking there so it is a concern
- Patoine suggested a site walk
- Alexa said this is a good idea and to remember 2 years ago the open space requirement was waived.
- Angers confirmed that because this is a sketch plan, waivers need to be re-approved. He is skeptical, not a fan of the project. He is not convinced. He thinks perhaps they should have a site walk. He wants to think about it.
- Thormann said they are open to a site walk but wants the Board to remember that if they do not get the open space waiver approved they will not be able to build anything. She hopes the original collaboration with the City will be honored.
- Patoine would like a new application
- Angers would like to see how the applicant will react to what has been said he would like to see a little more “umph” to it. He is still not convinced and hopes that at the next meeting the applicant will be able to answer his questions better.
- Lewis this is the first time she has heard of a woonerf and would like a better explanation.
- Deschambault is concerned about the parking situation. Each applicant says they have 50 spaces that they have secured with the parking garage. She is afraid it is the same 50 spaces and that space will run out.
- Thormann said they work very closely with Premium Parking
- Dubois feels positively about the project and explained his concerns that he thinks the site walk will help clear things up.
- Thormann will provide the Board with their timeline.
- Deschambault would like the Deputy Fire Chief to attend the site walk
- Center thinks it would help to invite the Council

The Board agrees

No vote on this tonight. Site Walk to be scheduled.

7.d. 2024.35 Review of site plan application and shoreland permits for a proposed research pier and floats at Hills Beach.

MOTION

Patoine -Motion to remove the item from the table

Second-Angers

Motion carried unanimously

- Plotkin stated that the applicant does not need to present again, that they will go directly to comments
- Public comments will be limited and if it is something that has been said previously please do not say it again.

- Galbraith began the comments. He asked the Board for some latitude to clear a few things up. He has faced personal attacks that are offensive, wrong and untrue. He has gone out of his way to be open and accommodating for this project. Videos that have been cobbled together, Planner puts heavy thumb on scale for the pier review. He has no control over the vote. He has been accused of manufacturing an agreement between the fire department and UNE, not true, he followed up with Chief Best on a question about the department parking a fire boat at the pier, he was not manufacturing an agreement. Galbraith read the emails between he and Chief Best. Galbraith was accused of restricting what the Board can ask regarding this project. He would never restrict what the Board asks unless he is afraid they will get in legal trouble. Decisions should be based on the ordinances adopted. Galbraith was accused of scheduling a site walk when he knew 3 people couldn't make it. Galbraith explained what happened and even scheduled a second site walk to accommodate others. Galbraith has never seen this behavior and his integrity is more important than any development.
- Plotkin explained that all members of the Board saw the comments and emails, and this does not sit well with the Board. This is not the type of conversation we wish to have in Planning it helps no one's cause. Keep things above board.
- Deschambault explained that Planning is a small department, she explained the ups and downs of the department. What has been said is sad and the Board members are volunteers, and they still have to defend what they do. Deschambault mentioned she knows UNE and many of the staff. Deschambault explained how she researches her position in projects. She spoke about the Saco River Corridor Commission (SRCC) and read their findings of fact from the report about UNE. She explained what the SRCC took into consideration in their decision.
- Deschambault showed the Comprehensive Plans for the City and UNE.
- Deschambault discussed the Department of Environmental Protection (DEP) Clean Water Act that UNE filed. She read the history of UNE with DEP. UNE has a strong positive history of permitting with DEP.
- Deschambault then went on to talk about the Army Corp of Engineers approvals.
- Galbraith added that the Code Enforcement Director has sent Galbraith an email regarding his permit process. He ensured David that he does his due diligence to make sure he is in compliance when issuing a permit also.
- Lewis talked about the "foundation" of the project has been faulty causing the community to be unhappy. She wants to acknowledge the public's concerns. She is saddened that it has gotten to the point of character assassination. There is foundation erosion, and she is sorry that it got to this point. The problem is the root of this project causing tension. She hears and acknowledges it. The Board is aware that there are problems.
- Angers has problems with the whole process it has nothing to do with the Planner; he commends the Planner. The problem is the process. Did DEP ever speak to the public. Were the fishermen and the public involved? If the public were not involved then we would have a problem. Why wasn't UNE more subjective to bring in the neighbors to come in and look at the water. We get a list of things from the city solicitor saying they can only look at certain

parameters. He has never looked at the flip side. He's looking at what he can do, what about safety? He says the solicitor says he can't look at that as a reason to make his determination. He is very concerned. He brought the Biddeford Planning Board book, and he believes the Code of Ethics in this book is very important. He feels they should take a look at these things. He read from the Code of Ethics and considering all sides of the issue. The public pays the taxes and should be heard. The situation of the Harbormaster really bothers him. Who is the harbormaster? Why was he stopped from participating? A Railroad engineer took the place of the harbormaster. The Council oversees the harbormaster. Should the harbormaster be making this decision not the railroad engineer make the decision? He wants UNE to have a pier, the opposing parties agree, but the question is where. Did the three entities look at the other location?

- Attorney Center answered Angers questions. He referenced the written materials he submitted to the Planning Board on June 9th. If someone appeals the decision he will have to go to the Superior Court and defend the decision. He then talked about the Shoreland Zone, there is no criteria for safety or fishermen. If it is denied due to one of those reasons a judge will ask him where this criterion is in writing. Maine Supreme Court says you cannot make up mandates. Nothing in the ordinance says to consider an alternative location or water depth. Findings and conclusions must be in the ordinance. If we do not follow the ordinance and we go to court we will lose. A huge red flag is that the Planning Board members are talking amongst themselves through email. That is not in the record. The harbormaster is not in front of you. He has the policy committee meeting where Council President asked the Chair of the Harbor Commission "So the harbormaster is the one who issues the permit" Answer: "absolutely not the case! The harbormaster is nothing but a facilitator to facilitate the application through the process." He makes sure all other entities have signed off. The City Manager's actions have been documented; this concept is not before you. The harbormaster cannot dictate where piers are to be placed. He is not trying to limit you; he is trying to keep you within the ordinance and standards.
- Angers received from Sue the Harbormaster ordinance. What supersedes Title 38? Center-nothing. Angers what about the training? He read required training from Title 38. Did this individual go through this training? Center no, he is an engineer, he was a temporary reviewer to make sure our ordinance was being followed. Anger, shouldn't he have taken this training? Attorney Center answered that this issue is not before the Planning Board. Someone should have challenged the City Manager at that time but that is not the role of the Planning Board. A citizen or UNE could have challenged it at the time, but it is not part of the Planning Board's role. Whether or not the engineers are qualified is not something that is relevant to the Planning Board's jurisdiction and review of this pier. You may as well argue that UNE should have free tuition, it has nothing to do with the pier either. There is no criteria in the ordinance for this.
- Lewis stated that the system has not communicated in a way that the community understands. She encourages the public to look at the system to see what is upsetting people and when and how they should have taken action.

- Attorney Center read the last line of the Harbormaster Ordinance that the Harbormaster will guide the applicant through the system.
- Lewis-your concerns are valid, but this is not the best place to have them addressed.
- Galbraith pointed out that it is similar to the site walks. We were accused of UNE running the site walks that is not the case and accused the Planning staff of trying to silence the majority. We are trying to follow the rules. He reminded the Board that this is for preliminary review.
- Plotkin said they had been asked what would happen to the moorings, she asked Center to discuss it.
- Attorney Center reminded the Board that they are an administrative body. You are like judges and must follow the law. There is nothing in site review or shoreland ordinance that you have to worry about mooring owners. The application says the location is subject to change at the discretion of the harbormaster or his deputy. The mooring owners own the block and chain not the location. The contract is good for 1 year only. Moorings are not a criterion that is in the ordinances. This will be a separate issue, but it is not up to the Planning Board.
- Lewis understands this is highly emotional and very intense. Maybe this highlights what is not in the ordinance. This may lead to changes that the community would like to see.
- Deschambault this is for another day.
- Plotkin invited UNE to come to the podium to speak, they do not need to speak at this time.

PUBLIC

- Walter Alexander Ward 1
- Carol Alexnder Ward 1
- Paul Brady Ward 1 (565 Pool Street)
- John Schafer Ward 1
- Kyle Noble Ward 1
- Kris Stone 272 Hills Beach Road
- Joe Emmons Ward 1

MOTION

Motion-Anger-to extend the time of the meeting past 9:30 PM

Second-Dubois

Motion passed unanimously

MOTIONS:

Motion-Patoine-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.

Second-Deschambault

Vote-Motion passed 3-2 (Plotkin, Patoine & Deschambault in favor, Angers & Dubois against)

Motion-Patoine- Motion to approve waiver for 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 vertically 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 side slopes.

Second-Deschambault

Vote- Motion passed 3-2 (Plotkin, Patoine & Deschambault in favor, Angers & Dubois against)

Motion-Patoine Motion to approve waiver for Article VI. Section 26.F.:

No cut or fill slopes that exceed 3 horizontals to 1 vertical. See above for justification.

Second-Deschambault

Vote- Motion passed 3-2 (Plotkin, Patoine & Deschambault in favor, Angers & Dubois against)

Motion-Patoine-Motion to approve 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.

Second-Deschambault

Vote- Motion passed 3-2 (Plotkin, Patoine & Deschambault in favor, Angers & Dubois against)

Motion- Patoine-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.

Second-Deschambault

Vote- Motion passed 3-2 (Plotkin, Patoine & Deschambault in favor, Angers & Dubois against)

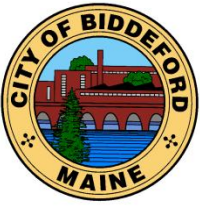
8. Other Business-N/A

9. Adjourn 9:44 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.



CITY OF BIDDEFORD

Planning and Development Department

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PLANNING BOARD STAFF REPORT

TO: Chair Plotkin and Members of the Biddeford Planning Board

FROM: Adi Iriqat, Assistant City Planner

DATE: July 30, 2025

RE: 2025.20 Conditional Use Permit: for Nicole & Scott Thibeu to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone.

MEETING DATE: August 6, 2025, at 6:00 PM

1) INTRODUCTION

On November 8, 2017, the applicant appeared before the Planning Board to propose a change of use of the former office building into a children's day care center. They were expected to be licensed for up to 49 children. At a ratio of 1 space/4 children, this would require 13 parking spaces. The applicant at that time did express the intention to have up to 80 children in the future.

2) PROJECT DATA/INFORMATION

1.	Applicant:	Miles of Smiles Children's Center 460 Elm Street Biddeford, ME 04005
2.	Owner of Property:	Nicole & Scott Thibeu 15 Deer Run Dive Biddeford, ME 04005
3.	Agent:	Same as Applicant
4.	Engineer/ Surveyor:	N/A
5.	Project Location:	460 Elm Street
6.	Project Tax Map & Lot:	Tax Map 21, Lot 1
7.	Lot Size:	.4 acres or 17,424' ±
8.	Base Zoning:	B-2
9.	Overlay Zoning:	None
10.	Existing Use:	Children's Daycare

2025.20 Conditional Use Permit: for Nicole & Scott Thibeau to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone.

11.	Proposed Use:	Expansion from 49 to 70 Children
12.	Approvals Required:	Conditional Use Permit
13.	Uses in the Vicinity:	Various Commercial and Residential
14.	Number of Lots in Subdivision:	N/A
15.	Minimum Lot Size Required: Provided:	10,000 sf Same as Existing - .4 aces or 17,424' ±
16.	Frontage Required: Provided:	150' 90'± (pre-existing lot of records)
17.	Front Setback Required: Provided	30' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
18.	Side Setback Required: Provided	10' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
19.	Rear Setback Required: Provided	10' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
20.	Height Requirements: Provided:	35' N/A – Existing Building
21.	Water Supply:	Public Water
22.	Sewage Disposal:	Private Sewer
23.	Solid Waste Disposal:	Public Trash
24.	Fire Protection:	City of Biddeford
25.	Parking Spaces Required:	18
26.	Parking Spaces Provided (total):	28 spaces (10 for staff)
27.	Ownership of Road:	Elm Street is a Public Road
28.	Waivers Needed:	Full Site Plan Review
29.	Waivers Granted:	N/A
30.	Fees Paid:	Yes
31.	Planning Board Review History:	August 6, 2025

3) Existing Conditions

The site is currently developed and mostly impervious. It has an automobile car wash to the north, two residential properties to the west, and a screen-printing shop to the south.

4) Proposed Project

Motivated by the unfortunate closure of the Leap N Learn Daycare on July 31, 2025, in Saco, the applicant is coming back to increase their Children's Day Care Facility from 49 to 70 children. The photo below demonstrates how the applicant was able to increase the number of parking spaces since their opening in 2018. That was achieved by working with Thyng Paving to repave the lot and with Mike Perone & Co. to stripe it, resulting in six new parking spaces. Additionally, with Brady Screenprint & Embroidery's (see figure 2) permission to utilize up to five extra spaces as needed, they now have a total of 11 more parking spaces. This expansion allows them to accommodate up to 21 more children, all without requiring an increase in staff or staff parking.

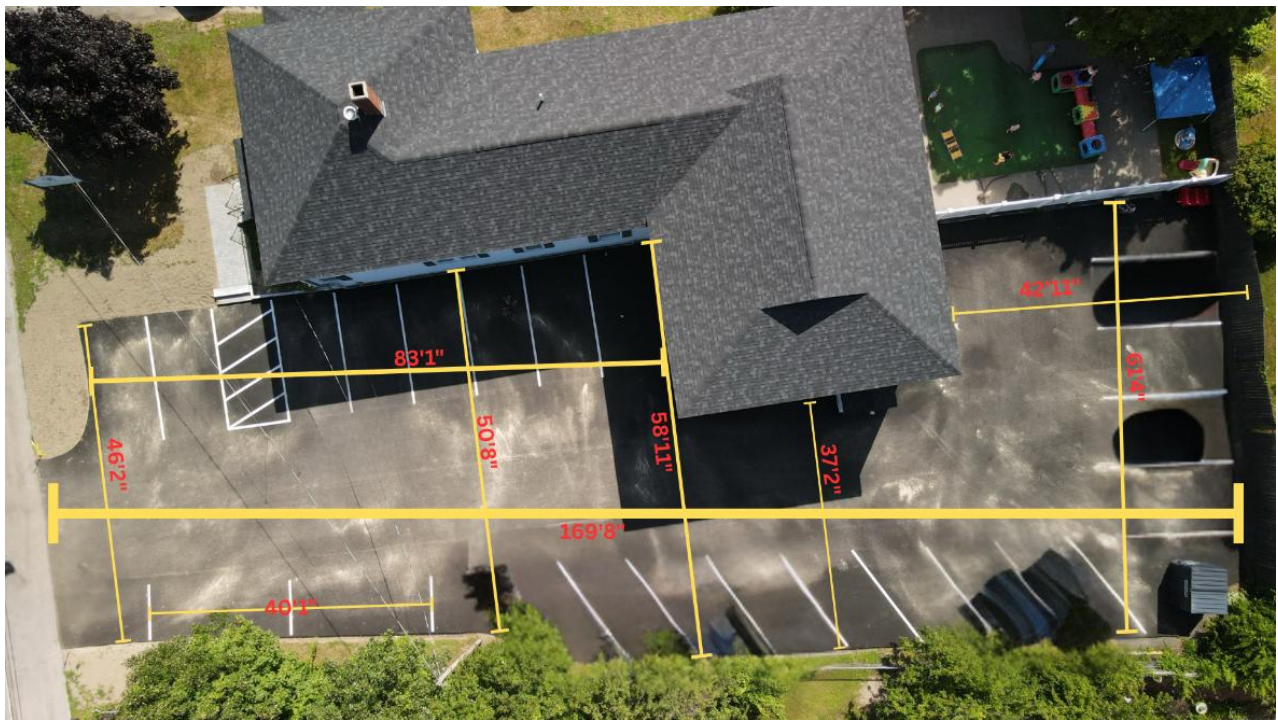


Figure 1 Parking Dimensions

2025.20 Conditional Use Permit: for Nicole & Scott Thibeau to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone.

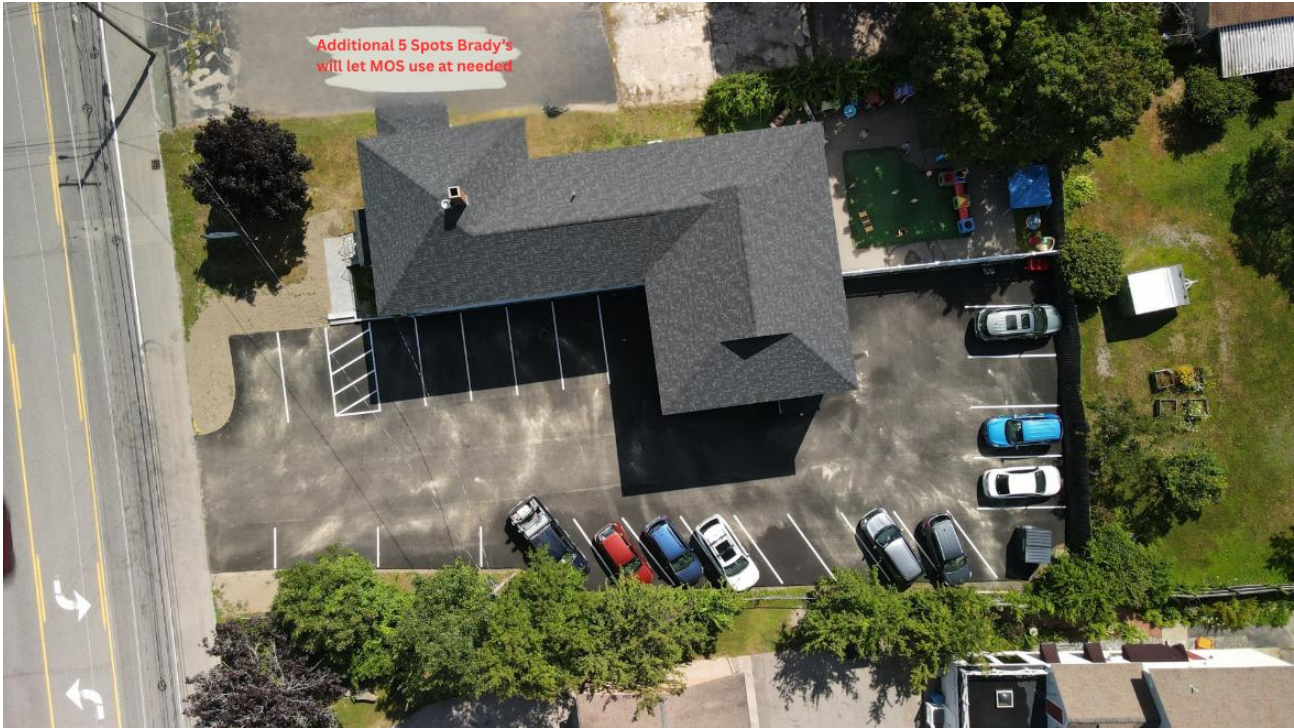


Figure 2 Brady's 5 spaces

2025.20 Conditional Use Permit: for Nicole & Scott Thibeu to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone.

The below figure is a written confirmation from Brady Screenprint & Embroidery located at 464 Elm St, stating that the applicant can utilize 4-5 of their parking spaces as needed:

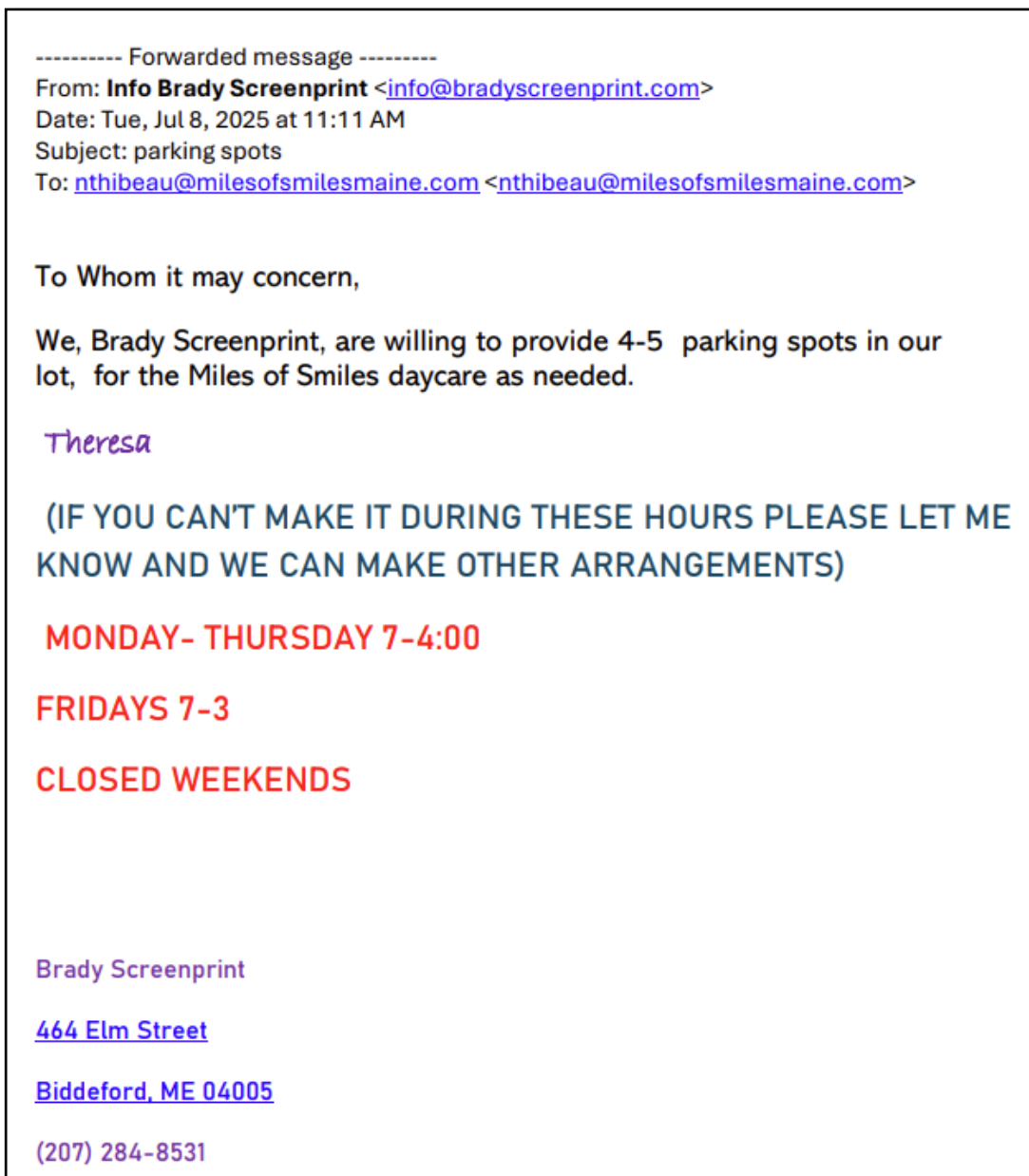


Figure 3 Written Confirmation from Brady's

2025.20 Conditional Use Permit: for Nicole & Scott Thibeaup to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone.

STAFF REVIEW

Waivers: Full Site Plan review

Staff Recommendation

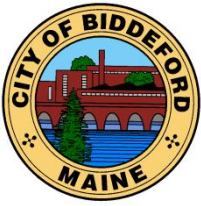
If the Board approves the project, Staff recommends doing so with the following Conditions of Approval attached separately in the FOF-COA.

SAMPLE MOTIONS

A. **Motion to Approve** Case #2025.20 Conditional Use Permit: for Nicole & Scott Thibeaup to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone with the requested Site Plan Review Waiver.

B. **Motion to Table** Case #2025.20 Conditional Use Permit: for Nicole & Scott Thibeaup to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone, for the following reasons:
1) _____
2) _____
3) _____

C. **Motion to Deny** #2025.20 Conditional Use Permit: for Nicole & Scott Thibeaup to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone, for the following reasons:
1) _____
2) _____
3) _____



FINDINGS OF FACT AND CONCLUSIONS OF LAW

Miles of Smiles Children's Center
Conditional Use Permit
460 Elm Street (Tax Map 21, Lot 1)
August 06, 2025

RE: 2025.20 Conditional Use Permit for Nicole & Scott Thibeu to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone

Under 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:	Miles of Smiles Children's Center 460 Elm Street Biddeford, ME 04005
2.	Owner of Property:	Nicole & Scott Thibeu 15 Deer Run Dive Biddeford, ME 04005
3.	Agent:	Same as Applicant
4.	Engineer/ Surveyor:	N/A
5.	Project Location:	460 Elm Street
6.	Project Tax Map & Lot:	Tax Map 21, Lot 1
7.	Lot Size:	.4 acres or 17,424' ±
8.	Base Zoning:	B-2
9.	Overlay Zoning:	None
10.	Existing Use:	Children's Daycare
11.	Proposed Use:	Expansion from 49 to 70 Children
12.	Approvals Required:	Conditional Use Permit
13.	Uses in the Vicinity:	Various Commercial and Residential
14.	Number of Lots in Subdivision:	N/A

2025.20 Conditional Use Permit for Nicole & Scott Thibeaue to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone

15.	Minimum Lot Size Required: Provided:	10,000 sf Same as Existing - .4 acres or 17,424' ±
16.	Frontage Required: Provided:	150' 90'± (pre-existing lot of records)
17.	Front Setback Required: Provided	30' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
18.	Side Setback Required: Provided	10' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
19.	Rear Setback Required: Provided	10' No Building/ Structures Proposed within rear Setbacks (existing lots of record)
20.	Height Requirements: Provided:	35' N/A – Existing Building
21.	Water Supply:	Public Water
22.	Sewage Disposal:	Private Sewer
23.	Solid Waste Disposal:	Public Trash
24.	Fire Protection:	City of Biddeford
25.	Parking Spaces Required:	17
26.	Parking Spaces Provided (total):	28 (10 for staff)
27.	Ownership of Road:	Elm Street is a Public Road
28.	Waivers Needed:	Full Site Plan Review
29.	Waivers Granted:	N/A
30.	Fees Paid:	Yes
31.	Planning Board Review History:	August 6, 2025

2. CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements outlined in this ordinance and would comply with applicable state or federal laws.
2. The proposed use would not create fire safety hazards by providing adequate access to the site or the buildings for emergency vehicles. It would not develop 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, is adequate for the safety of occupants or users of the site, or would not damage the value and diminish the usability of neighboring properties.

2025.20 Conditional Use Permit for Nicole & Scott Thibeu to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone

4. The provisions for buffers and on-site landscaping adequately protect neighboring properties from the development's detrimental or unsightly features.
5. The proposed use would not significantly affect the use and peaceful enjoyment of abutting property due to noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes.
6. The provisions for vehicular loading, unloading, parking, and vehicular and pedestrian circulation on the site and 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, would not create unreasonable traffic hazards, 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 reasonably modifying the proposal.
9. The proposed use would not adversely impact 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 comply with Biddeford's Comprehensive Plan.
11. The proposed use would not adversely impact 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 site's design 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 disposing of wastewater or solid waste or for preventing 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 adversely impact scenic vistas, significant wildlife habitat, wetland areas, or 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.

3. APPROVAL GRANTED

Based on the evidence and conclusions above, the Biddeford Planning Board approves the proposed project summarized within the attached Staff report. Under 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 Conditional Use Permit and Site Plan Review Waiver for Miles of Smiles (Tax Map 21, Lot 1) to expand their Childcare Center to 70 children and approves the recommended Findings of Fact (FOF) with the following Conditions of Approval (COA):

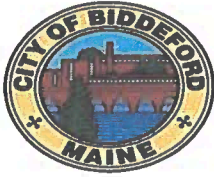
1. Standard Conditions of Approval apply.
2. The applicant must comply with all directives from the following departments: Engineering, Fire, Codes, and Planning.
3. If applicable, submit a letter of evidence of a lead inspection and abatement to the satisfaction of either a State of Maine licensed lead inspector or the Department of Health and Human Services.
4. A compliance inspection needs to occur by the Planning/Engineering Department to verify the parking lot is properly striped (meeting all dimensional requirements for the stalls), that the accessible parking space has been striped properly (8' stall, 5' clear zone), and that all site improvements associated with this approval were completed satisfactorily.
5. This approval is for up to 70 children. If a change in the status of the DHHS certificate occurs, the applicant shall submit a copy of the new certificate to the City Planner's office within 30 days of receipt. Suppose the change of status represents an increase in the allowable number of children. In that case, this Conditional Use Permit must be reviewed and approved by the Staff Review Committee and/or Planning Board.
6. Upon application for renewal of the DHHS certificate, the applicant shall submit a copy of the application to the City Planner's office within 30 days of submittal to the DHHS.
7. Upon receipt of the renewed DHHS certificate, the applicant shall submit a copy to the City Planner's office within 30 days.
8. All outside play equipment shall be located inside or rear yards and shall meet the required side and rear setback requirements. The applicant, at their own cost, shall have a licensed surveyor mark out the property lines and mark out the limits of the play area such that it is 10 feet from any side or rear property line.
9. Operation of the children's day-care center or home day care and maintenance of that portion of the building or residence dedicated to the children's day-care center or home day care shall be as set forth in 10-148 CMR Chapter 32, Rules for the Licensing of Child Care Facilities, of the Maine Department of Health and Human Services.
10. That portion of the building or residence dedicated to children's day-care center or home day care shall have provisions for the secured storage of household chemicals, cleaning agents, and all other potentially harmful substances. The Code Enforcement Officer shall be responsible for ensuring that said secured storage is adequate prior to the children's day-care center or home day care opening for business.

11. No trash is permitted to be placed at the curb for City pickup. Trash pickup and disposal, for all units associated with this approval or previous approvals, is the responsibility of the applicant.
12. Backing in and out of Elm Street is not permitted.
13. Modifications to Approved Development Plans: The project shall be constructed according to the approved development plans. If any changes are needed, the applicant must submit a letter requesting a "Minor Modification" to the approved development plans. The applicant must adequately justify the reasons for those deviations. The narrative shall include the current approved plans and the proposed modifications, which the City Planner shall agree to in writing before construction. Changes beyond the authority of the City Planner shall be reviewed and approved by the Planning Board.
14. Once the As-Built drawings are submitted to the Planning Department (clearly identifying what 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.
15. Sewer Permits must be finalized and paid before a Building Permit is issued; payment will go through the Engineering Department.
16. Required Inspections:
 - i. **Erosion & Sediment Control Inspections**
 1. It needs to be completed by a city-approved third-party Inspector and paid by the Applicant via the inspection fee escrow held by the city.
 2. Initial, monthly, and final inspections.
 3. At a minimum, the City's Engineering Department shall be notified for an initial E&S inspection before breaking ground.
 - ii. **Right-of-way Inspections**
 1. Needs to be completed by the City Engineering Department.
 2. For all public roads, storm, and sewer connections.
 3. **Private right-of-way inspections:** The design engineer shall complete private right-of-way/road and utility inspections and certify that they have been constructed as approved before the full or partial release of established bonding.
 - iii. **Stormwater BMP Installation Inspections**
 1. Needs to be completed by the design engineer.
 2. Confirming stormwater facilities are installed correctly per design.
 3. Inspection reports need to be submitted to the Engineering Department.
 - iv. **Post-construction BMP Maintenance Annual Inspections**
 1. Needs to be completed annually by the design engineer or 3rd third-party inspector.
 2. Needs to assess the current condition of each BMP, what repairs are needed, and confirm ongoing maintenance has occurred.
 3. Upon completing each inspection, copies of all inspection reports must be submitted to the Engineering Department.

2025.20 Conditional Use Permit for Nicole & Scott Thibeu to operate a Child Care Center located at 460 Elm Street (Tax Map 21, Lot 1) in the B-2 zone

Alexa Plotkin, Planning Board Chair

Date



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: Miles of Smiles Childcare Center
 Mailing Address: 460 Elm St.
 Telephone: 207-209-4260
 Email: NThibeau@miles of smiles maine.com

What is your legal interest in the property?

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

Owner's Information:

Name: Nicole Thibeau & Scott Thibeau
 Mailing Address: 15 Deer Run Dr.
 Telephone: 207-229-0969
 Email: NThibeau@miles of smiles maine.com

Agent's Information:

Name: _____
 Mailing Address: _____
 Telephone: _____
 Email: _____

Engineer/Surveyor's Information:

Name: _____
 Mailing Address: _____
 Telephone: _____
 Email: _____

Project Location and Lot Information:

Street Address: 460 Elm St. Drainage Watershed: _____
Tax Map: 21 Lot: 1
Current Zoning: Bvs. Dist Shoreland Zoning: NO
 Size of Lot: 0.4 (X) acres () s.f. Lot Frontage: _____
 Existing Use of Property: Childcare 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:

Current use of Childcare Center

Property to be Serviced by:

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

Limits of Disturbance: _____ () acres () s.f.

Net change in impervious cover: _____ () 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%): _____

Percent of structure expansion (Max 30%): _____

___ 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: _____

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? ___(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: Nicole Thibeau Date 4/24/25

Signature of Property Owner: Nicole Thibeau Date 4/24/25

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

To Whom it May Concern ~

Since opening our doors in 2018, **Miles of Smiles Childcare Center** has been more than just a licensed childcare provider—we've become a trusted partner to families and a cornerstone of early childhood development in Biddeford. What began as a vision to create a safe, nurturing, educational environment for young children has evolved into a thriving center where **49 children** currently **learn, grow, and experience the world around them** each day.

Our current enrollment includes:

- **3 infants** under the age of 1,
- **32 toddlers** aged 1 to 3, and
- **17 preschoolers** aged 4 to 5.

On April 2, 2025, Chad Charland, Public Service Inspector from the State of Maine Fire Marshall Office assessed the facility and determined a max capacity of 74 children per sq footage however we are only requesting a maximum capacity of 70 children.

Today, the demand for quality childcare in Biddeford is higher than ever. We have a **growing waitlist of families** eager to enroll their children at Miles of Smiles, and we are at a point where we're prepare, operationally and logistically to responsibly expand.

We are formally requesting that our license be increased from **49 to 70 children**.

Our center operates on a **structured curriculum and a 10-hour day** that naturally staggers drop-off and pick-up times. This staggered scheduling has consistently prevented parking congestion and traffic issues. We currently experience **smooth transitions during peak hours**, with parents typically spending no more than 10 minutes onsite for sign-in or sign-out. Even at full enrollment, we anticipate this efficiency will continue.

To accommodate the license increase, the only facility upgrade necessary will be a **modification to the front door**, changing its swing from inward to outward in alignment with safety protocols and pedestrian flow.

Regarding parking, we remain confident in our current setup:

- Ample parking has always been available for staff and families.
- Additionally, our neighbor, **Brady's**, has generously granted us access to **four adjacent parking spaces** in their lot, should the need arise.

This license expansion is not just a procedural step, it's a reflection of our **commitment to meet the needs of working families**, help bridge the childcare gap in our city, and continue providing a **safe, enriching environment** for the next generation.

Thank you for your consideration and continued support.

With gratitude,
Scott & Nicole Thibeau
Co-Owners, Miles of Smiles Childcare Center

There will be a weekly \$25.00 discount for self-pay families with more than one child enrolled FULL TIME.

Miles of Smiles Childcare Center has a \$75.00 enrollment startup fee and a \$50.00 re-registration fee to be charged on the anniversary of their enrollment date.

There is a deposit of one week's tuition to be applied towards your child's last week of childcare.

The enrollment fee and the deposit are due upon receipt of application and are non-refundable.

Miles of Smiles Childcare Center hours run from 7:00 am to 5:00 pm. Your family will be allotted up to 9.5 contracted hours of childcare a day. These hours cannot be changed daily and are not flexible. If you need your contracted hours to change permanently, please contact the director. The hours are as follows:

7:00 – 4:30

7:30 – 5:00

There is a charge of \$2.00 per minute for any time exceeding your contracted hours. We recognize that unforeseen circumstances can arise, and as such, we permit two exceptions per year, each for a maximum of ten minutes. However, any time beyond this allowance will incur a fee that must be settled before additional childcare services can be rendered.

**KEEP DROP OFF AND PICK UP TIMES TO A MAXIMUM OF TEN MINUTES
AS PARKING SPOTS ARE LIMITED**

In the case of state-funded children, if payments are overdue by more than 30 days, the parent or guardian is obligated to make weekly payments until the state's outstanding fees are settled. All payments made by the parent or guardian will be refunded once the state payment is received.

All payments are due in advance. Payment is due by Friday for the following week.

Childcare will not be provided on Monday morning if your tuition is not paid.

Name of responsible person(s) who can be contacted if parent / guardian cannot be reached and who are authorized to pick up the child from the childcare center.

Name:

Relationship to child:

Phone:

Name:

Relationship to child:

Phone:

Hours needed for Childcare:

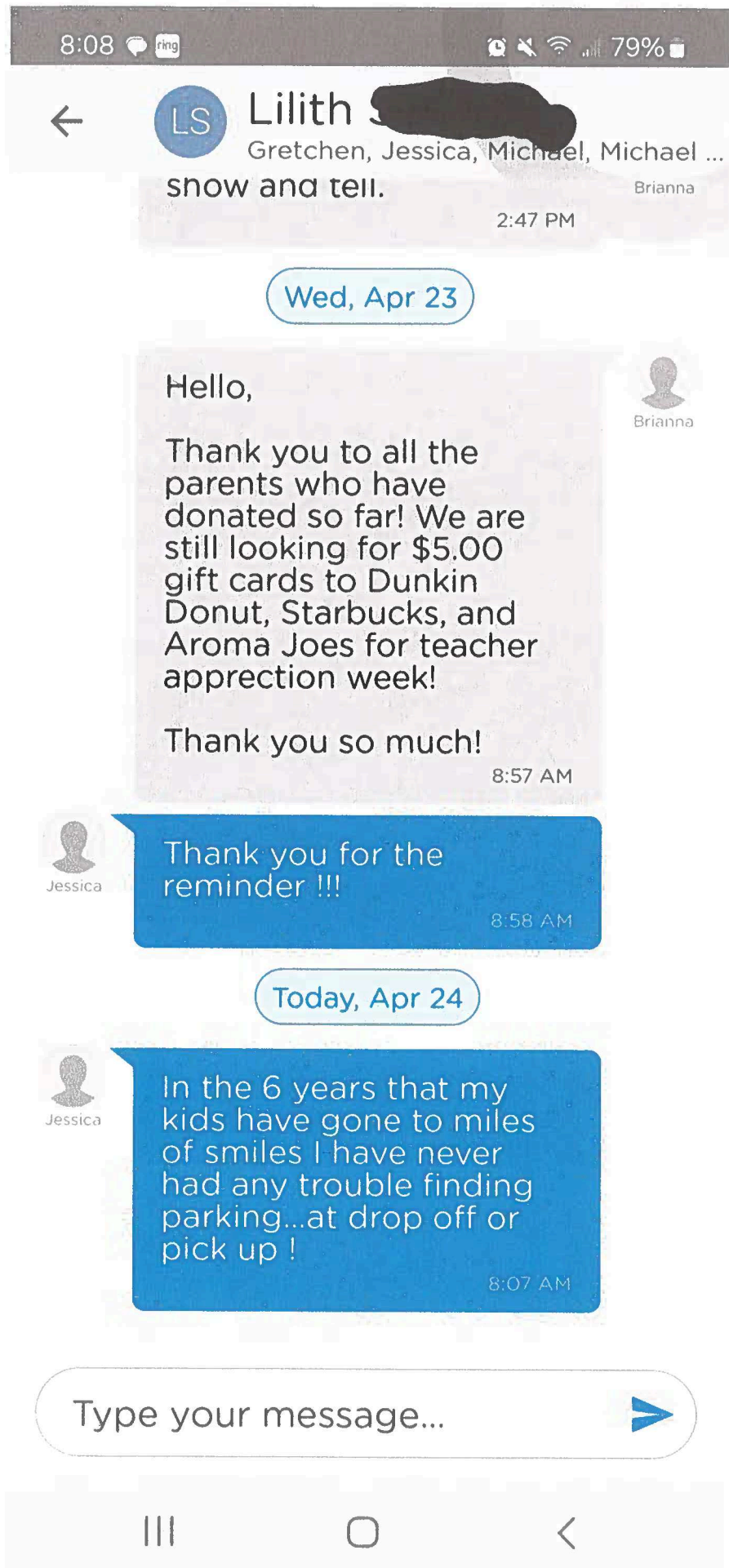
You agree not to drop off any earlier or pick up any later than your contracted hours.

7:00-4:30 ☐

7:30-5:00 ☐

Monday – Friday ☐

Part time: M ☐ T ☐ W ☐ T ☐ F ☐



8:24



75%



Ronin

Ashley, Stephen & Stan

parents who have
donated so far! We are
still looking for \$5.00
gift cards to Dunkin
Donut, Starbucks, and
Aroma Joes for teacher
appreciation week!

Thank you so much!

8:57 AM

Today, Apr 24



Ashley

I personally think the
parking lot at miles of
smiles is perfectly fine.
I've seen daycare centers
where there is only street
parking, meaning I have
to pay extra attention to
on coming traffic.
The comfort and ease
of the parking lot gives
me some peace of mind
when putting my children
into the car.
Of course everyone could
use more space but the
space given at miles
of smiles is more than
enough to maneuver
your vehicle in and out
safely.

8:21 AM

Type your message...



9:06

69%

**Caleb Herrick**

Jamie, Jennifer, Jerome & Staff

on Monday, April 21st, for
Patriots Day.

1:13 PM

Thu, Apr 17

Tomorrow is letter Yy
show and tell.

2:47 PM



Brianna

Wed, Apr 23

Hello,

Thank you to all the
parents who have
donated so far! We are
still looking for \$5.00
gift cards to Dunkin
Donut, Starbucks, and
Aroma Joes for teacher
appreciation week!

Thank you so much!

8:57 AM



Brianna

Today, Apr 24



Jamie

I have had no issues with
the parking.

9:02 AM

Type your message...



8:20 ring

    76% 

Shelby [REDACTED]

Bob, Gary, Gordon, Hannah, Susan ...

Thu, Apr 17

Tomorrow is letter Yy
show and tell.

2:47 PM



Brianna

Wed, Apr 23

Hello,

Thank you to all the
parents who have
donated so far! We are
still looking for \$5.00
gift cards to Dunkin
Donut, Starbucks, and
Aroma Joes for teacher
appreciation week!

Thank you so much!

8:57 AM



Brianna

Today, Apr 24



Hannah

The school parking lot
has multiple efficient
parking spots

8:16 AM

Great!

Okay

Oh, okay

Type your message...



Janet T. Mills
Governor



Maine Department of Public Safety
State Fire Marshal's Office
45 Commerce Drive, Suite 1
Augusta, ME 04330



Michael Sauschuck
Commissioner

Phone: (207) 626-3880
Fax: (207) 287-6251

Shawn Esler
State Fire Marshal

Updated Statement of Deficiencies and Plan of Corrections

Facility Name: MILES OF SMILES CHILDCARE
Location: 460 ELM ST
BIDDEFORD, ME 04005-4126

Owner Name: ADMINISTRATOR
Address: 460 ELM ST
BIDDEFORD, ME 04005-4126

Telephone: +1 (207) 209-4260
Facility Type: DCC
File Number: 84183
Resource ID: 737278

RECEIVED

APR 09 2025

BY: _____

OK TO ISSUE

APR 09 2025

SCOTT A. CYR

During an inspection of your facility a certified State Inspector has found the following violations:		In this right-hand column, you are required to indicate how and when (<u>specific dates</u>) you will have these violations corrected. Complete this information and return this "Plan of Correction" to the above address <u>within 10 days</u> of receipt of this statement.
1. VIOLATION	Violations found as described Front entrance doors required to swing outward with an occupant load of 50 or more. Door leaves in horizontal exits shall be required to swing in the direction of egress travel. -Unacceptable- Provide a copy of the door(s) order with estimated delivery date from vendor and provide a completion date from the contracted installer.	Door has been ordered and was told it's about a week and a half out. Contractor will have all work completed by 6/2/2025.

***PLEASE SIGN AND DATE YOUR PLAN OF CORRECTION.**

Date of Inspection: 4/2/2025
Inspector: CHAD CHARLAND
Date Sent: 4/8/2025

Owner/Occupant Signature: _____

Date: _____

Nicole Thibault

4/9/2025

----- Forwarded message -----

From: **Info Brady Screenprint** <info@bradyscreenprint.com>

Date: Tue, Jul 8, 2025 at 11:11 AM

Subject: parking spots

To: nthibeau@milessofsmilesmaine.com <nthibeau@milessofsmilesmaine.com>

To Whom it may concern,

We, Brady Screenprint, are willing to provide 4-5 parking spots in our lot, for the Miles of Smiles daycare as needed.

Theresa

(IF YOU CAN'T MAKE IT DURING THESE HOURS PLEASE LET ME
KNOW AND WE CAN MAKE OTHER ARRANGEMENTS)

MONDAY- THURSDAY 7-4:00

FRIDAYS 7-3

CLOSED WEEKENDS

Brady Screenprint

[464 Elm Street](#)

[Biddeford, ME 04005](#)

(207) 284-8531

**Additional 5 Spots Brady's
will let MOS use at needed.**

Volumes/Network Files/CJAB/PROJECTS/B COMMERCIAL STUDIO/1 Current Projects/17-C-019_460 Elm Street - Miles of Smiles Daycare - Current 2.5.19

DOOR SCHEDULE												
ID	Qty	Type	Nom. Size	Frame	Material	Fire Rating	Manufacturer	Door Finish	Glazing	Hdw Set	Hdw Finish	Notes
D1	2	New Door to ADA Bath, Standard 6 Panel	3'-0"×6'-8"	Wood	Solid Core Wood	None	TBD, By Tenant	PTD or wood to match adjacent	None	HDW-1	TBD, Match Adjacent	
D2	3	New 60m Fire Door at Modified Stair Enclosure, Standard 6 Panel	3'-0"×6'-8"	Rated Metal	Hollow Metal	60m	TBD, By Tenant	PTD or wood to match adjacent	None	HDW-2	TBD, Match Adjacent	Provide panic hardware per schedule
D3	1	Door to Classroom, Relocated from Demo, see plans	3'-0"×6'-8"	Wood	Existing	None	Existing	Existing	None	Existing		
D4	1	New 45m Fire Door at Mech/Boiler Room	2'-6"×6'-8 1/2"	Rated Metal	Hollow Metal	45m	BD, By Tenant	PTD or wood to match adjacent	None	By Installer	TBD, Match Adjacent	Provide positive latching and closer
D5	1	Existing Door to be flipped/replaced so that door swings out for new panic hardware	2'-11 1/2"×6'-8 1/2"							See Notes		Provide panic hardware to existing door
ETR-A	1	Existing to Remain	3'-0"×6'-8"							See Notes		Provide panic hardware to existing door
ETR-B	1	Existing to Remain	2'-6"×6'-8 1/2"							ETR		
ETR-C	1	Existing to Remain	2'-11 1/2"×6'-8 1/2"							See Notes		Provide panic hardware to existing door
ETR-D	1	Existing to Remain	2'-2"×6'-8 1/2"							ETR		
ETR-E	12	Existing to Remain	2'-8"×6'-6"							ETR		
ETR-F	3	Existing to Remain	2'-6"×6'-8 1/2"							ETR		
ETR-G	8	Existing to Remain	2'-8"×6'-8"							ETR		
ETR-H	9	Existing to Remain	2'-6"×6'-8 1/2"							ETR		
ETR-I	3	Existing to Remain	2'-8"×6'-8"							ETR		
ETR-J	1	Existing to Remain	3'-0"×6'-6"							ETR		
ETR-K	1	Existing to Remain	3'-1"×6'-7"							ETR		

HARDWARE SETS

Basis of Design. Verify with Tenant

HDW-1 - Closer, ADA compliant lever style privacy lock by Schalge or equal.

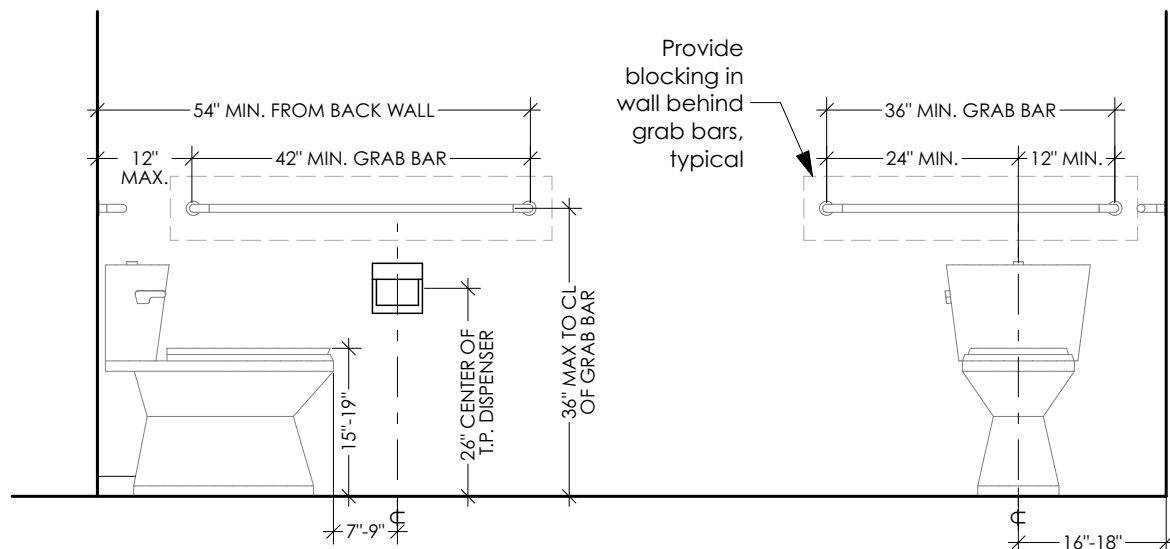
Ensure pin outside unlock function is also specified in accordance with NFPA 101 16.2.2.2.6 due to child use

HDW-2 - Closer, ADA compliant lever style passage lock by Schalge or equal. Provide Panic Hardware on egress side

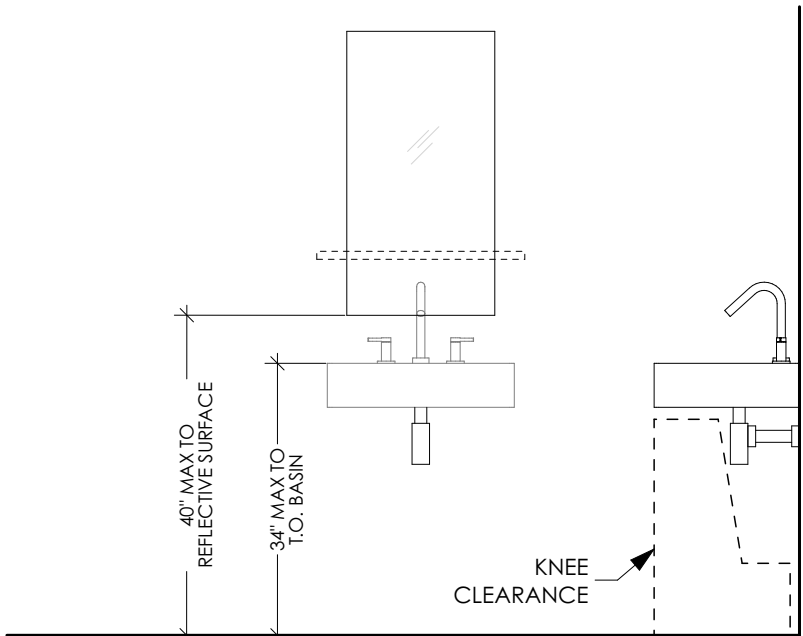
and ADA compliant Lever on ingress side

Existing Closet Doors = Contractor to verify that all existing or new closet doors have a latch that can open the door from the inside in accordance with NFPA 101 16.2.2.2.5

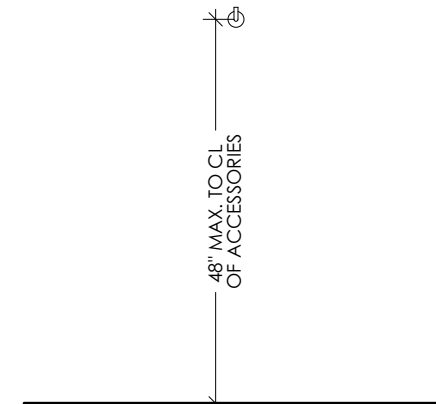
DOOR ELEVATIONS			
ID	D1	D2	D3
Elevation View			
Description	New Door to ADA Bath, Standard 6 Panel	New 60m Fire Door at Modified Stair Enclosure, Standard 6 Panel	Door to Classroom, Relocated from Demo, see plans



ADA WATER CLOSET



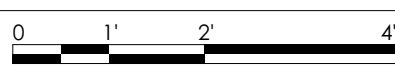
ADA WALL HUNG SINK



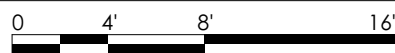
ADA BATHROOM ACCESSORIES

PLUMBING FIXTURE SCHEDULE				
ID	Qty	Name	Manufacturer	Notes
SNK-1	2	ADA compliant wall hung sink	TBD by Tenant	Faucets to be ADA compliant lever type. Mirror above sink to be located so reflective surface is no higher than 40" above floor
TOL-1	2	ADA-compliant floor mount elongated toilet	TBD by Tenant	

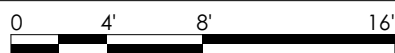
2 ADA MOUNTING HEIGHTS
SCALE: 1/2" = 1'-0"



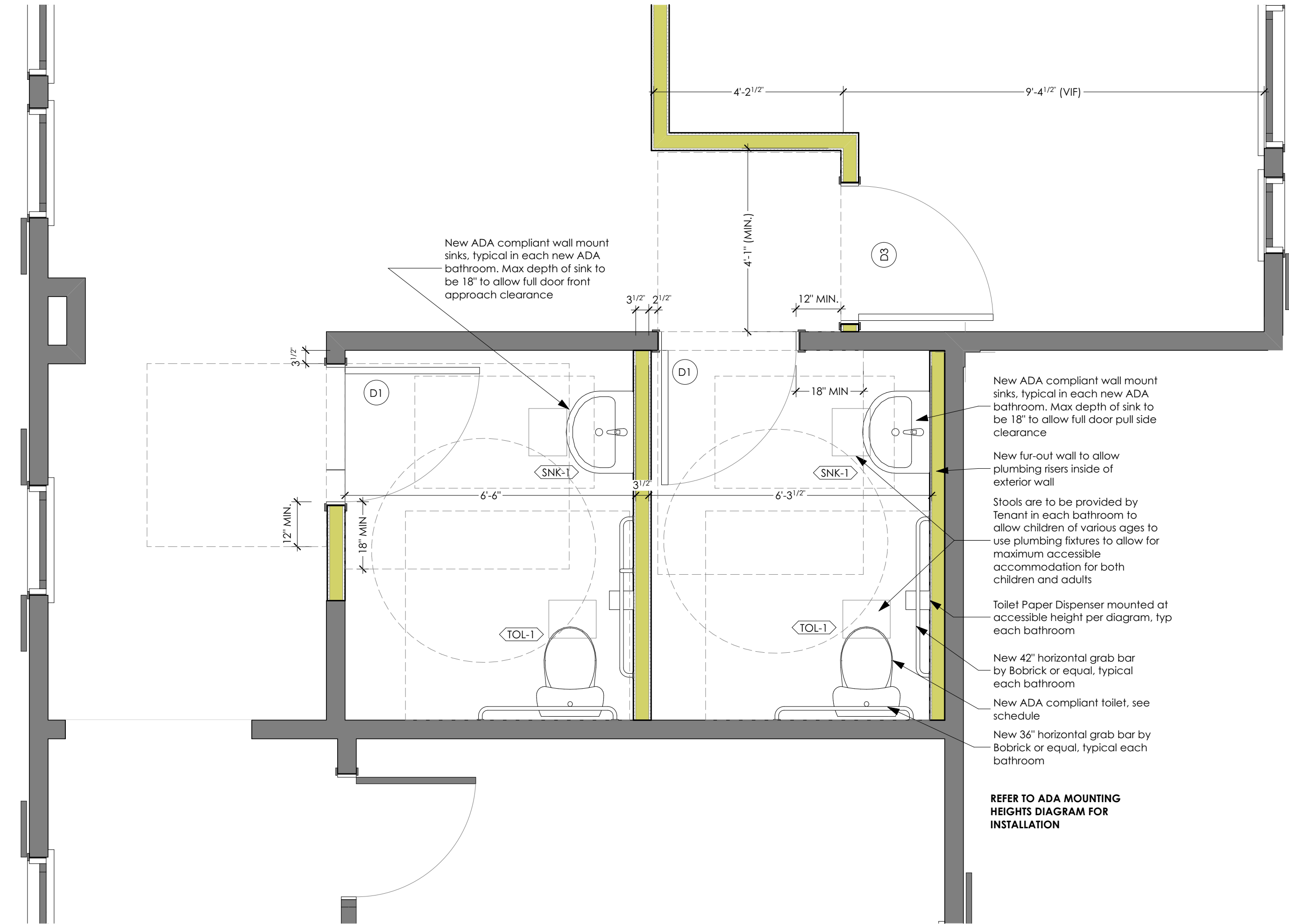
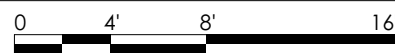
D2 DEMOLITION 2ND FLOOR PLAN
SCALE: 1/8" = 1'-0"



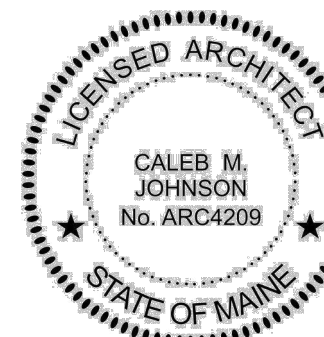
D1 DEMOLITION 1ST FLOOR PLAN
SCALE: 1/8" = 1'-0"



D0 DEMOLITION BASEMENT
SCALE: 1/8" = 1'-0"



1 ENLARGED 1ST FLOOR PROPOSED PLAN
SCALE: 1/2" = 1'-0"



NEW BATHROOM
ENLARGEMENTS, SCHEDULES
AND DETAILS

PERMIT SET

Miles of Smiles Daycare

Miles of Smiles Day Care
460 Elm Street Biddeford ME 04005

DRAFTER/PERSON:
Patrick Boath, AIA

DATE OF ISSUE:
10/27/17

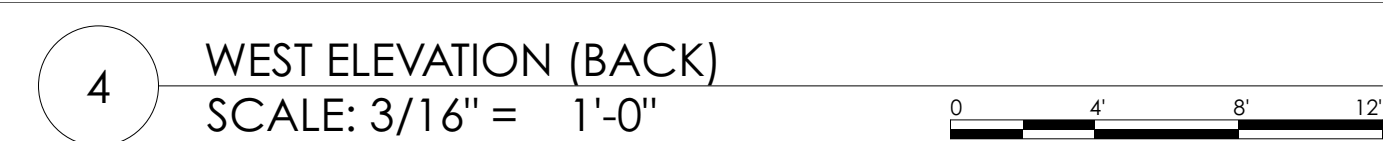
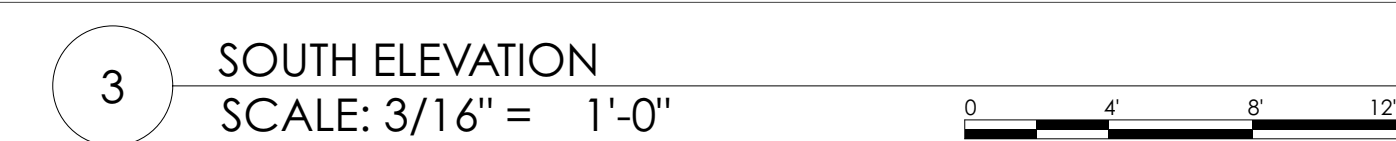
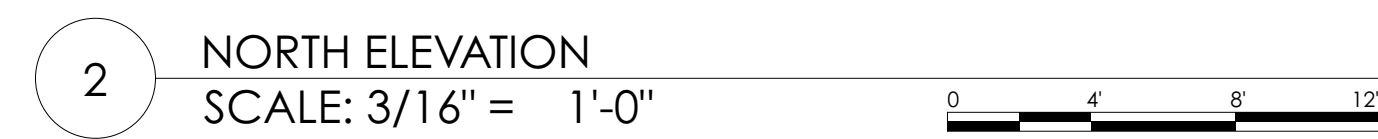
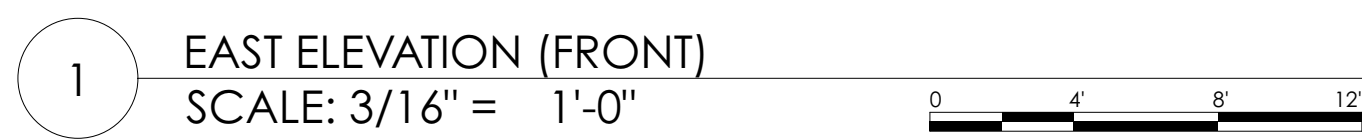
PROJECT STATUS:
Permit Drawings

CHANGES THIS ISSUE		ISSUE NUMBER	DESCRIPTION
ID	DESCRIPTION	DATE	BY
CH-01	Door Schedule Updates	10/27/17	CAJ
CH-02	Door Schedule Updates	10/27/17	CAJ
CH-03	Door Schedule Updates	10/27/17	CAJ
CH-04	Added Note for Closet Doors	10/27/17	CAJ

DATE	10/27/17
ISSUE	02
DATE	10/27/17
ISSUE	02

CALEB JOHNSON
STUDIO

110 EXCHANGE STREET 2ND FLOOR PORTLAND, ME 04101
207.453.9777
calebjohnsonstudio.com

[illegible]

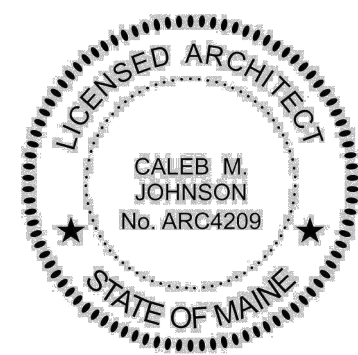
DRAFTSPERSON:
Patrick Boothe, AIA
DATE OF ISSUE:
1/8/18
PROJECT STATUS:
Permit Drawings

PERMIT SET

Miles of Smiles Daycare
Miles of Smiles Day Care
460 Elm Street Biddeford ME 04005

EXISTING ELEVATIONS

A2.1





Leap N Learn Childcare

Important Update

After 15 years of nurturing and educating the children of our community, Leap N Learn has made the incredibly difficult decision to close our doors, effective July 31, 2025.

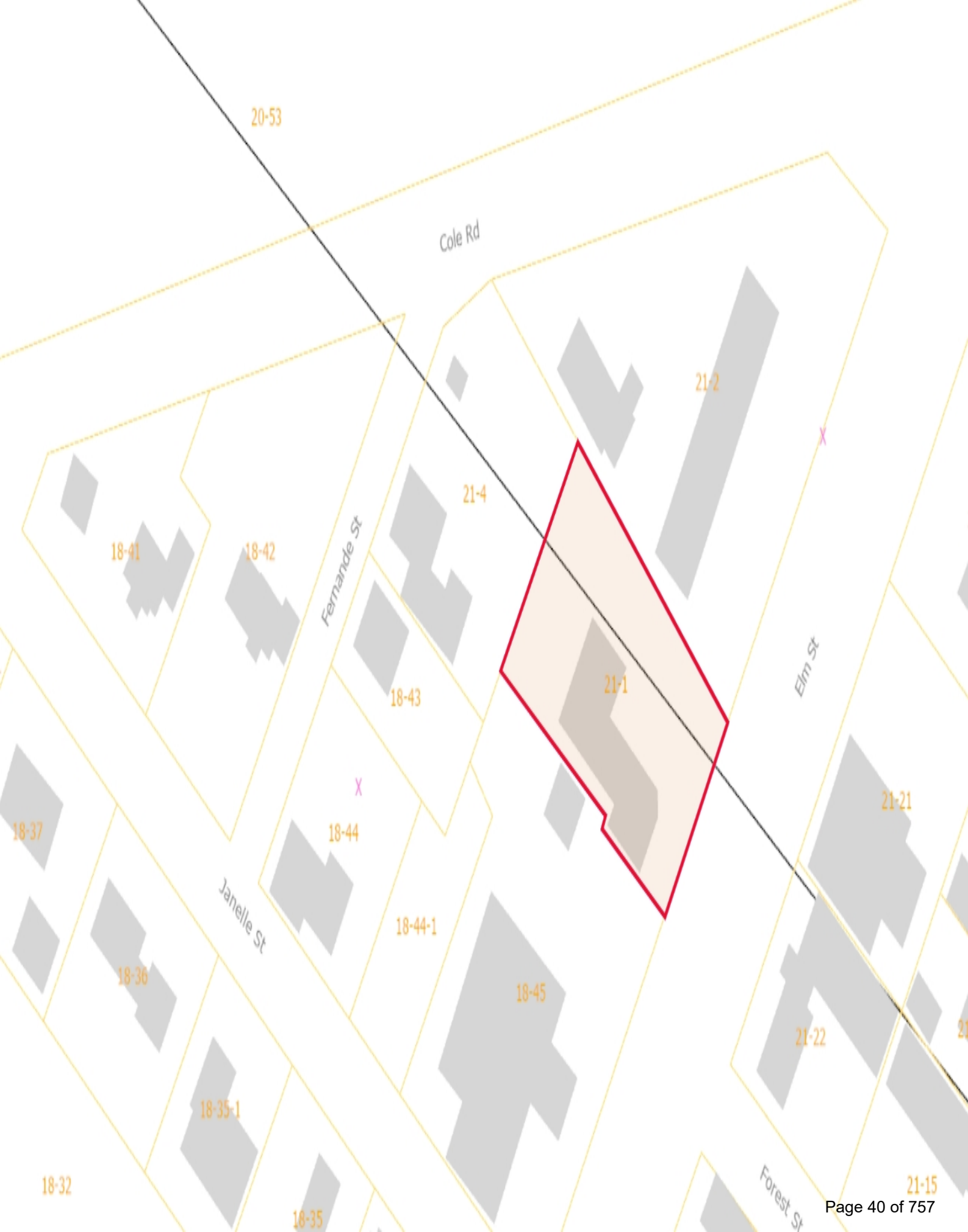
This decision follows careful consideration and months of exploring all possible avenues to remain open. Despite the dedicated efforts of our staff and leadership, the rising cost of quality child care—particularly increasing wage requirements and operational expenses—has made it financially unsustainable to continue.

Serving the families of this community has been an absolute honor. Watching your children grow, learn, and thrive in our care has brought us endless joy. We've celebrated countless milestones together, and the relationships we've built with families will stay with us forever.

Leap N Learn extends its deepest gratitude to the parents, caregivers, and supporters who have trusted us over the years.

To the community that has supported Leap N Learn for over a decade: thank you for being part of this extraordinary journey.

With deepest appreciation,
Leap N Learn











----- Forwarded message -----

From: Iriqat, Adi <adi.iriqat@biddefordmaine.org>

Date: Mon, May 5, 2025 at 4:52 PM

Subject: Incomplete Application – Additional Information Required for Miles of Smiles
Childcare Center

To: nthibeau@milesosmilesmaine.com <nthibeau@milesosmilesmaine.com>

CC: Galbraith, David <David.Galbraith@biddefordmaine.org>, Whitten, Nan

<Nan.Whitten@biddefordmaine.org>, Gervais, George

<George.Gervais@biddefordmaine.org>

Hello Nicole & Scott,

After reviewing your submittal, I found that your application is incomplete. Under the City of Biddeford's Code of Ordinances, your proposal is subject to **Site Plan Review** (if no significant site changes are being proposed, you may request a Site Plan Review Waiver. Please indicate this in your response if applicable.) You may review the applicable standards by clicking [here](#).

To move forward, please provide the following items for a complete application:

Required Documentation

Items you have already submitted are struck through:

- ~~Application~~
- Stamped survey (**Requested a Site Plan Review Waiver**)
- **Site plan and fixture count:**
 - Will there be any changes to the fixed interior layout to accommodate the proposed increase in capacity, other than the door movement? **No**
 - If not, please submit a **floor plan** that reflects the existing conditions and proposed use. **Attached (See floors 1 and 2) no changes**
 - The floor plan should also include **fixture counts**, such as the number and location of toilets and sinks. **Two toilets and sinks on 1st floor, two toilets and sinks on 2nd Floor. No change since we opened and were approved. Existing fixture counts meets state requirements for the total number children to be enrolled**
- ~~Hours of operation~~
- **Parking & Traffic:** More children may mean increased traffic, pick-up/drop-off needs, and possibly additional parking requirements. A signed letter from your neighbor confirming access to the four adjacent parking spaces noted in your application. **The parking lot has been redesigned and repaved and striped which added an additional 6 parking spaces totaling 23 from the old configuration of 17. We also have an email from our neighbor Brady's Screen Printing allowing us to use 4-5 spots as needed and is included in this response**
- Your application stated that a State of Maine Fire Marshal letter confirming compliance was made available. Please provide that to us. **Attached with this response.**

Additional Information Needed

- Are there any physical changes proposed on-site? **No** For example:

Physical Space Requirements

- Indoor:
 - Do you have a commercial kitchen on-site? **No**
 - There should be sufficient restrooms on site, considering the size increase. How many restrooms do you have? **Sited in Fixture count above. According to State of Maine Licensing Rule Code 10-148 Chapter 32, one toilet and wash basin is required for every 20 children. We have 30 children enrolled on the first floor and 19 on the second floor totaling 49. We have been approved by DHS and State Fire Marshall for 74, however we are only going to 70. An additional 21 would be dispersed between the two floors with a max of 40 on the first floor and the difference would be on the second floor.**
- Outdoor:
 - Will the playground area be expanded? **No**
 - Where is the dumpster located? **Back right-hand corner of the lot. The Dumpster does not take up a parking space and Casella comes to empty it every other Thursday before we open. It has been like this since 2018**
- Age-appropriate and accessible restroom facilities must be available. **They are!**

Safety & Emergency Planning

- Confirm compliance with **egress and fire safety codes** (consult the Fire Department), since there may be a need to update evacuation and emergency plans to reflect the larger group size. **Completed. State Fire Marshall Office Approved.**

Staffing & Operations

- Will you bring any additional qualified staff to help you with the increased workload? **None needed, we already have staff to maintain ratios required by DHS**
- Clarification regarding the submitted screenshots: What purpose do they serve beyond indicating parking availability? **Just to let the city know that our parents wanted to let you know that have never had an issue with pick up or drop off due to parking and now that we added an additional 6 spots onsite and up to 5 as needed by our abutting neighbor "Brady's Screen Printing, there is plenty of spaces available to accommodate 21 additional children**

Please don't hesitate to contact me if you have any questions.

Thank you,

Adi Iriqat | Assistant City Planner

City of Biddeford

205 Main Street, P.O. Box 586 | Biddeford, ME 04005

207-284-9115 | adi.iriqat@biddefordmaine.org



INSPECTION SHEET
STATE OF MAINE - DEPARTMENT OF PUBLIC SAFETY
OFFICE OF STATE FIRE MARSHAL

FIRE MARSHAL'S OFFICE INSPECTIONS

INSPECTION: MAC806574 - MILES OF SMILES CHILDCARE

Inspection Start : 03/25/2025 Req'd By: 04/25/2025 Status: INSPECTION HAS BEEN REQUESTED
Type: STATE INSPECTION
Location: 460 ELM ST County: YORK
BIDDEFORD, ME 04005-4126 Phone: +1 (207) 209-4260

Directions: 209-4260 OR 229-0969 OR 604-8166 OR 831-4454

Territory: CHAD CHARLAND Req'd Insp Attributes: Rec'd DHHS Date: 03/24/2025
Field date: 03/25/2025
Inspection type: RENEWAL
System - DO NOT CHANGE: MACWIS

Attributes (General):

File Number: 84183
DHHS Provider: 737278
Size: 49
Type of facility: Day Care Center - 13 or more Children

Contacts:

PAGLIO (DHHS) Phone: +1 (207) 624-7900
CENTRAL OFFICE, ME

Date/Insp.	Code	Violation
		Change egress door swing on front of building
		Increase to 74 children

Email SOFD to : nthibeau@milessofsmolesmaine.com

OK to Issue: ☐

Date of Inspection: 04.02.2025

Plan of Correction required: ☒

Date of Revisit:

Revisit is required before approval: ☐

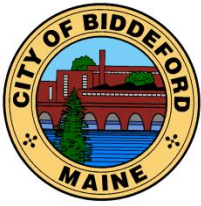
Exit Interview w/: Nicole Thibeau

Inspector:

(signature of owner or rep.)

Date Printed: 03/27/2025

Kiddie Corner #2 23x10
Kiddie Cove 16x10 10.5x10.5
Kiddie City 32x30 9x6
Waddler Way 35x13
Little Learners Lane 23x13
Lullaby Lane 25x13
Tender Terrace 17x10 11x11



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.

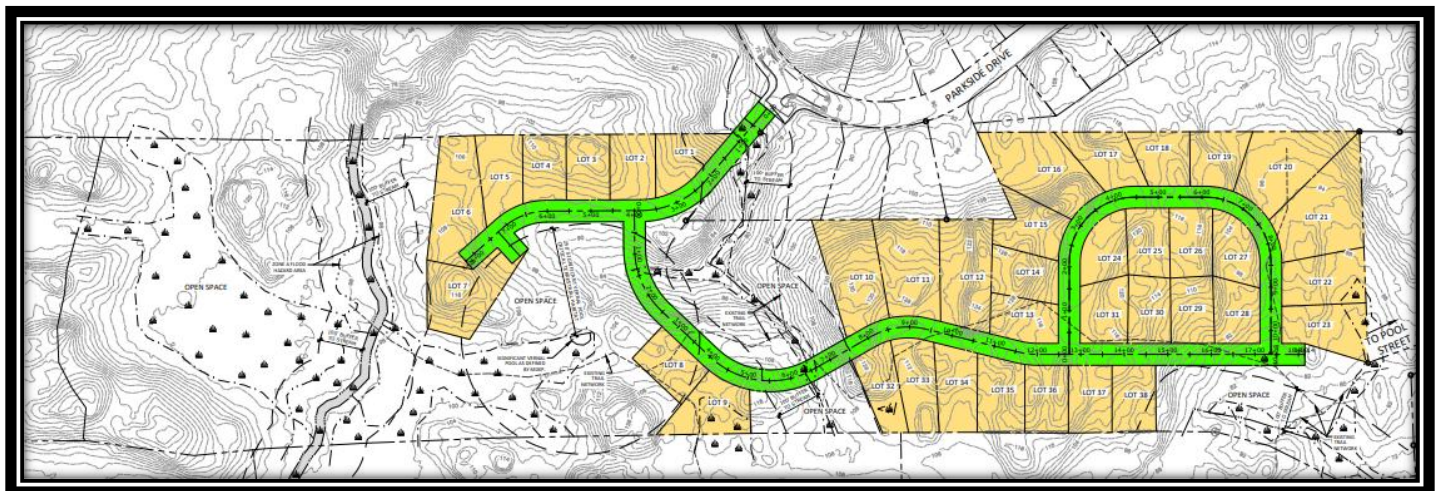
DATE: July 30, 2025

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: August 6, 2025, 6:00 PM

1. INTRODUCTION

This project was last before the Planning Board on April 2, 2025, for "Sketch Plan" review. The Application was also scheduled for a second "Sketch Plan Review" at the June 18, 2025, Planning Board meeting, where the Applicant requested the application be tabled while they were consulting with Inland Fisheries and Wildlife (IF&W). At this time, the Applicants are seeking the item to be *removed from the table* so that they can present their revised site/subdivision plans. 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:

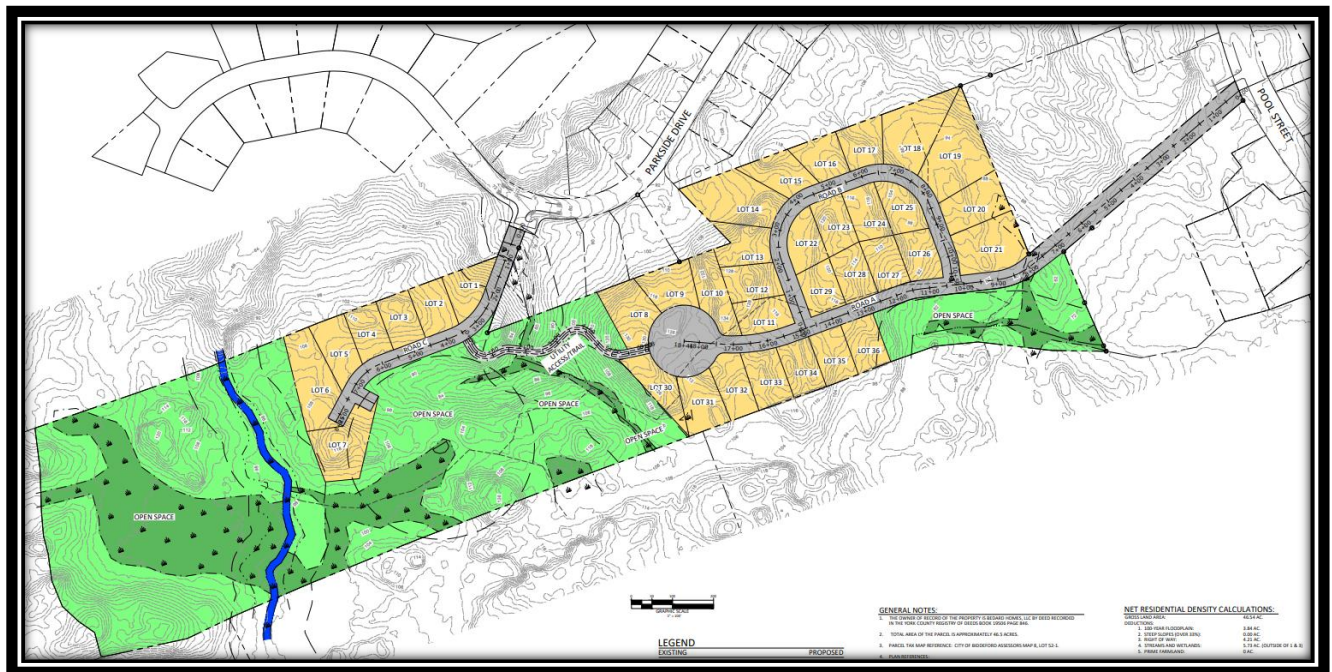


Proposed 38-lot Single-Family Subdivision off Parkside Drive and Pool Street

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: August 6, 2025, at 6:00 PM

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 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 first amended plan is shown below, which incorporates the design elements discussed with the Board.

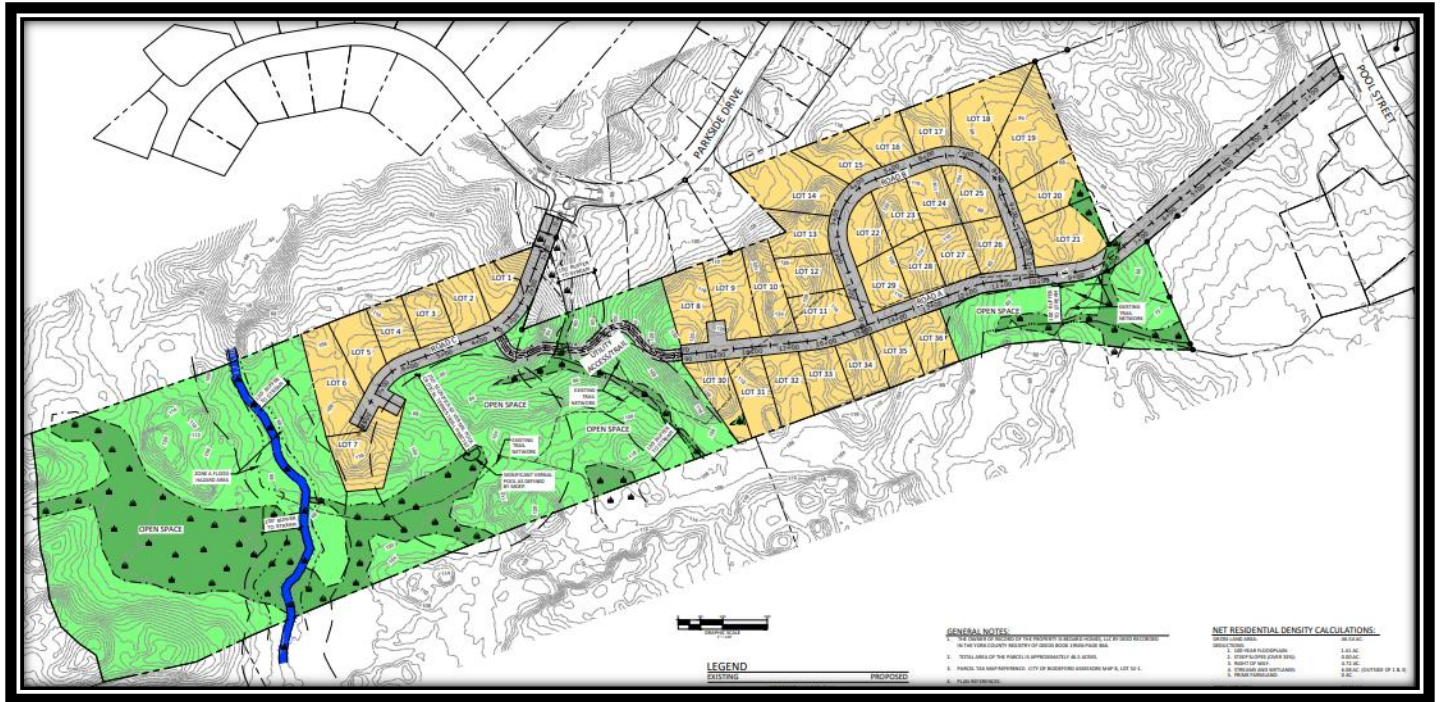


1st AMENDED Subdivision / 36-lot Single-Family Subdivision off Parkside Drive and Pool Street

The above plans followed the Planning Board's suggestions and separated the subdivision into two distinct developments removing the need for all of the lots to access Parkside Drive. Staff further worked with the development team in a slightly revised subdivision plan which maintains the design of the above plan while reducing impervious surface by eliminating the proposed cul-de-sac and replacing it with a "hammer-head" turn-around for emergency access / maneuvering. The most recent development design is shared below:

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: August 6, 2025, at 6:00 PM



2nd AMENDED Subdivision / 36-lot Single-Family Subdivision off Parkside Drive and Pool Street



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

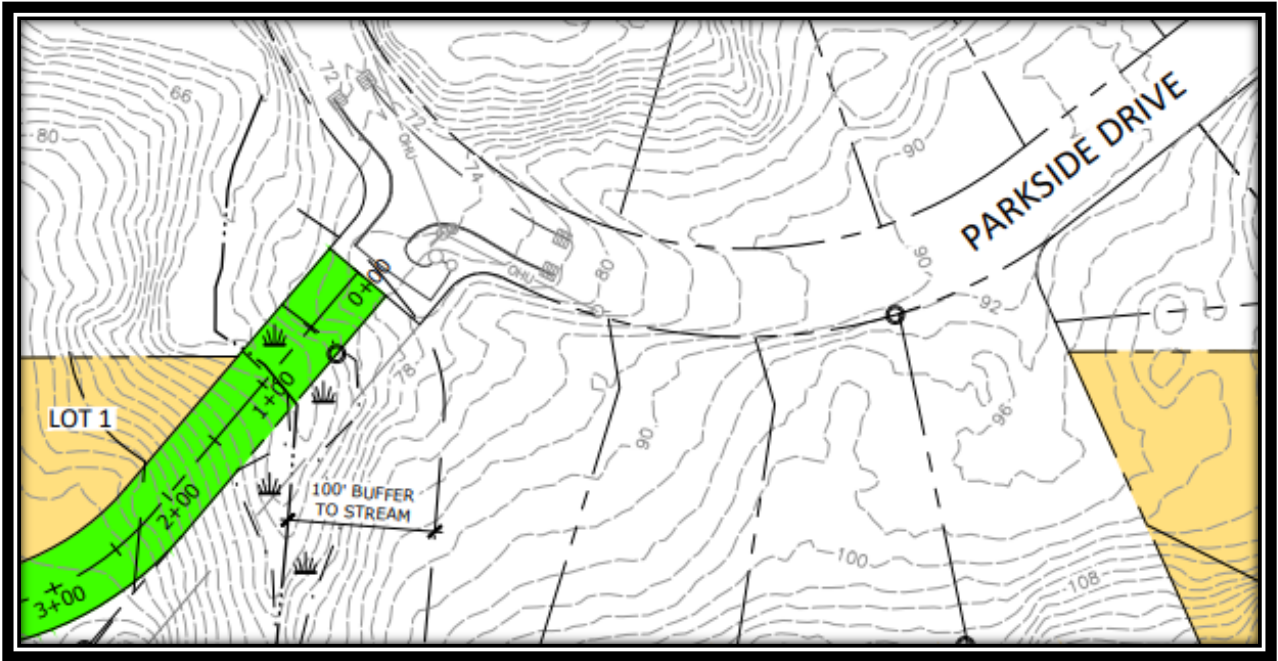
The proposed subdivision has direct street frontage on Pool Street and Parkside Drive. The revised plans propose seven (7) house lots being accessed via Parkside Drive and lots # 8-36 being accessed via Pool Street. This modification was made due to the Parkside Drive neighborhood's concerns with increased 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

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MEETING DATE: August 6, 2025, at 6:00 PM

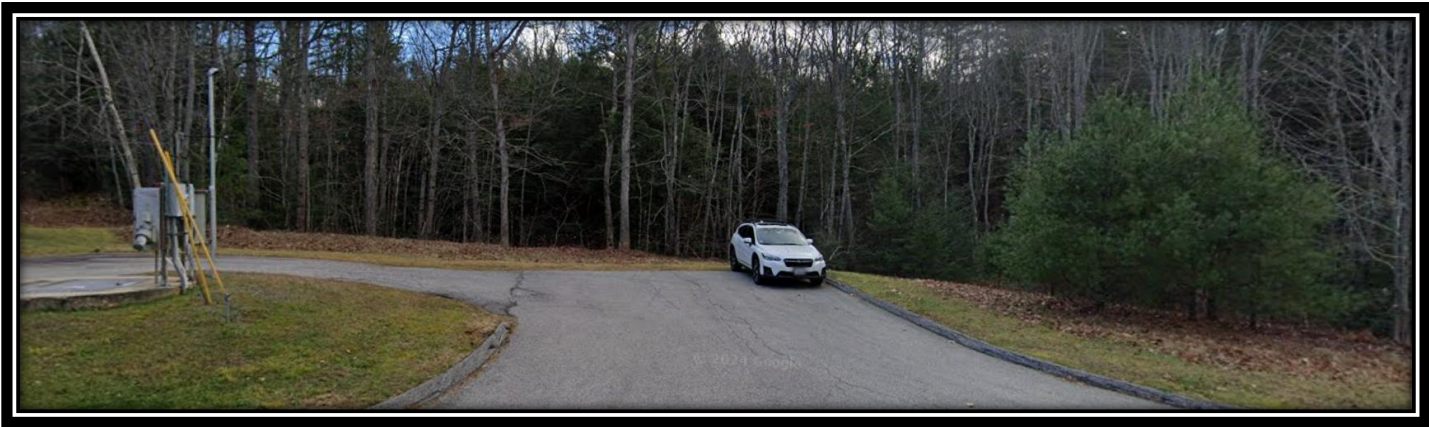
Parkside Drive. The Applicant does not own or control these lots so has no control what will be proposed at this location

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.



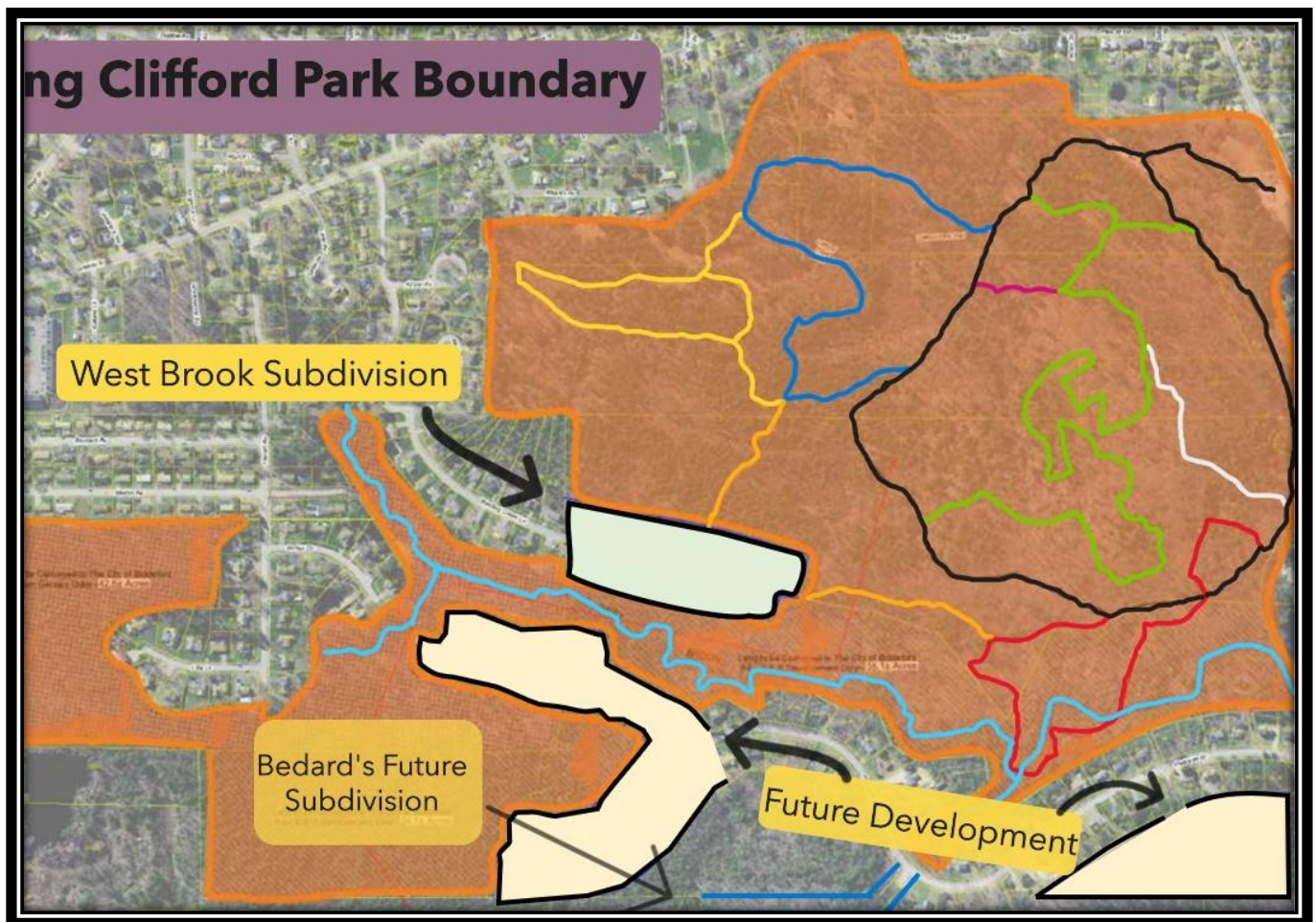
Future access point for the proposed Lots # 1-7 for single-family homes

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: August 6, 2025, at 6:00 PM

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 Applicants 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 has issued a “Ability to Serve” letter.



Clifford Park Existing Boundary illustrated in orange – Bedard Subdivision bottom middle of image

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: August 6, 2025, at 6:00 PM

The above map illustrates the existing stream in light blue; existing trails shown in black, green, red, white and yellow and future development areas illustrated in cream.

During the review of this subdivision, Staff has been aware of the environmental impact issues, protecting the natural environment while allowing for the development of private property. The above map illustrates Clifford park boundaries in orange, while also showing currently vacant development parcels which, once proposed, will have their street access directly onto Parkside Drive. Staff and the Applicants have also been working on the most environmentally sensitive land are they are proposing to gift to the City so that it can add an additional 25 acres of land to Clifford Park. We continue to work together in a mutually beneficial way. Staff have also reached out to the owners of the two vacant development lots at the end of Parkside Drive, who are receptive to dedicating additional land that would connect the dedicated Bedard dedicated land directly to Clifford Park. I believe this conservation of the proposed 25 acres is a win for the developers, “the City”, and surrounding neighborhoods.

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
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

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: August 6, 2025, at 6:00 PM

		Sketch Plan Review 2 – June 18, 2025. Sketch Plan Review 3 – August 6, 2025.
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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 permitted use within the district.
- **REVIEW STANDARDS:**

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

- **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).

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.

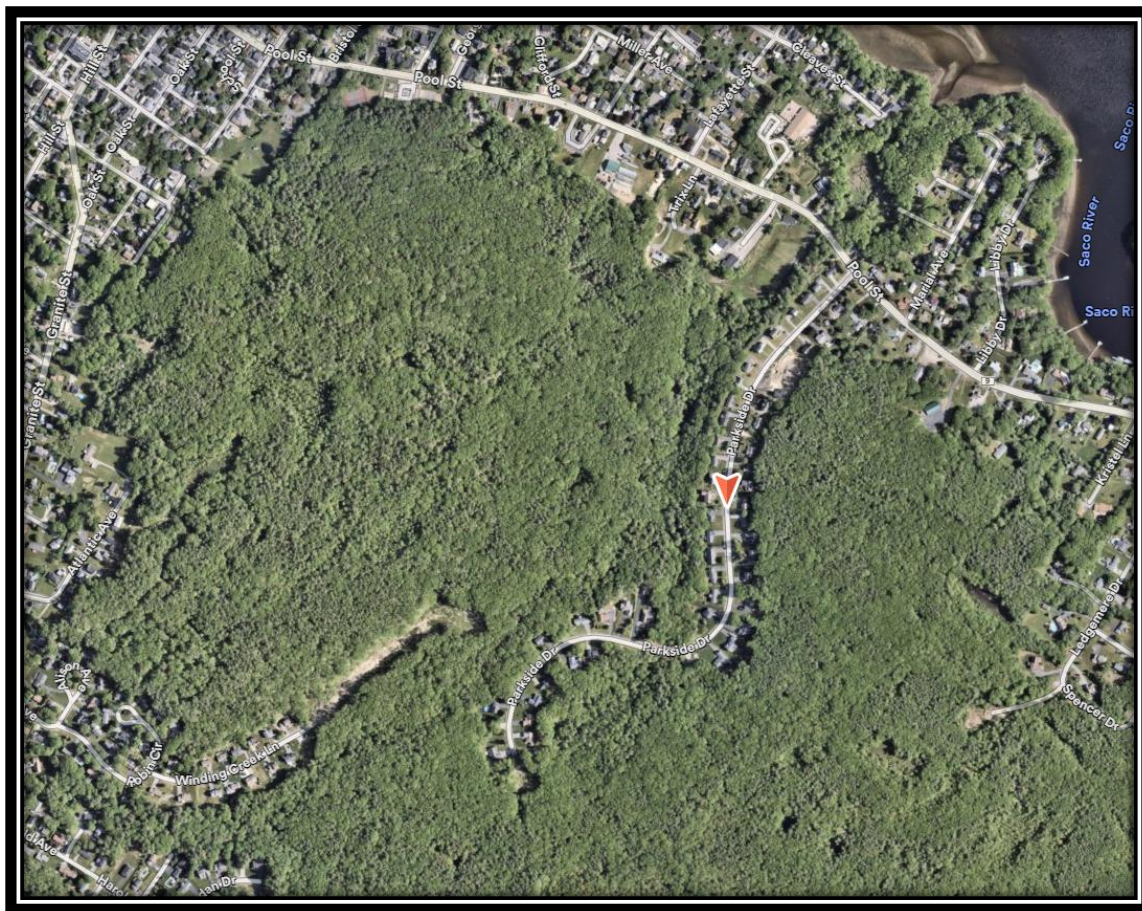
MEETING DATE: August 6, 2025, at 6:00 PM



- 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 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.

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: August 6, 2025, at 6:00 PM



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

B. Fire Department Comments:

- 1). Formal submittal plans shall include roadway dimensions particularly at the proposed "hammer-head" turn-around.
- 2) All proposed hydrants shall be shown on formal development plans.

C. Code Enforcement Comments:

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

D. Engineering Department Comments:

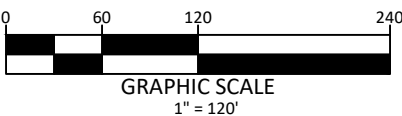
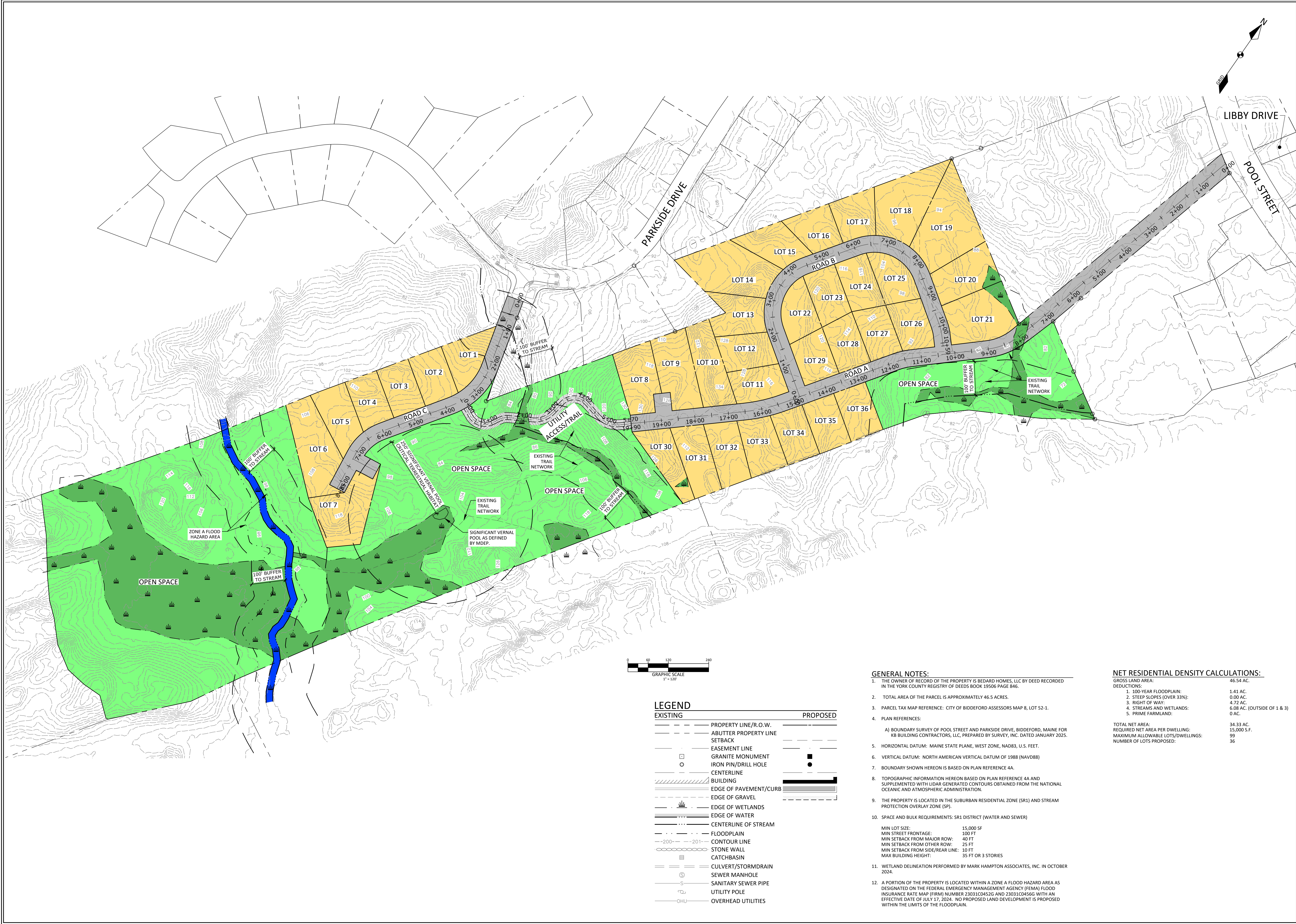
- 1) Attached

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: August 6, 2025, at 6:00 PM

5. 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.



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:	1.41 AC.
2. STEEP SLOPES (OVER 33%):	0.00 AC.
3. RIGHT OF WAY:	4.72 AC.
4. STREAMS AND WETLANDS:	6.08 AC. (OUTSIDE OF 1 & 3)
5. PRIME FARMLAND:	0 AC.
TOTAL NET AREA:	34.33 AC.
REQUIRED NET AREA PER DWELLING:	15,000 S.F.
MAXIMUM ALLOWABLE LOTS/DWELLINGS:	99
NUMBER OF LOTS PROPOSED:	36

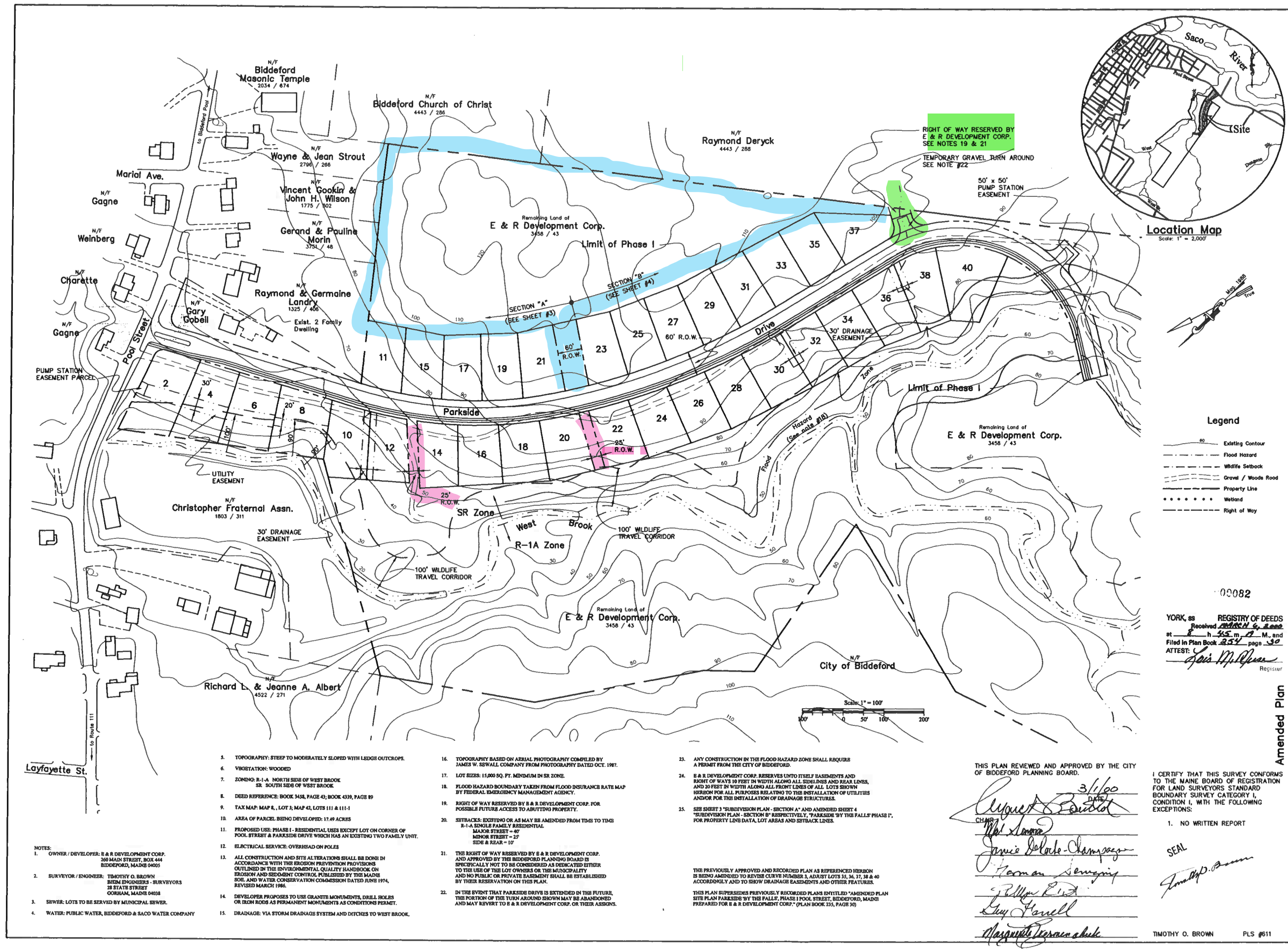
PRELIMINARY
NOT FOR
CONSTRUCTION

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
B	5-7-25	JRH	REVISED SKETCH PLAN BASED ON CITY 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" = 120'
SCALE:
5-7-2025
DATE:
SHEET 1 OF 1
SK-2

[illegible]

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BH2M
 Berry • Huff • McDonald • Milligan Inc.
 ENGINEERS • SURVEYORS • PLANNERS
 28 State Street, Graham, Maine 04038, (207) 839-2771

E & R Development, Corp.
280 Main Street
Billerica, MA 01821

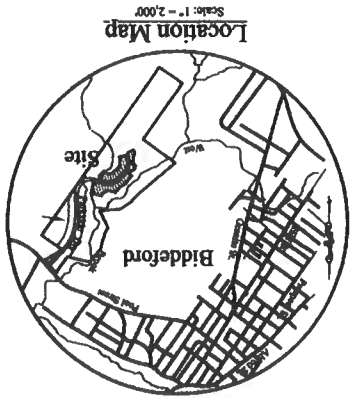
Site Plan
Parkside 'By the Falls'
Phase I
Pool Street, Biddeford, Maine
Prepared for:
E & R Development corp.
Biddeford, Maine

DESIGNED	DATE
W. Whitten	Jan. 2000
DRAWN	SCALE
W. Whitten	1" = 100'
CHECKED	JOB. NO.
B. Thompson	99-110

Amended
1 of 14

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EXPRESSED WRITTEN CONSENT OF
BHEM INC. IS PROHIBITED

- E & R Development Corp.



SYMBOL	DESCRIPTION
①	5/8" IRON ROD W/ CAP TO BE SET
②	GRANITE MONUMENT TO BE SET
③	IRON PIPE FOUND
---	PROPERTY LINE
---	SETBACK LINE
---	100 YEAR FLOOD BOUNDARY
---	LIMIT OF MUDPIECE CORRIDOR
.....	LIMIT OF WETLANDS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
ROBERT C. LIBBY JR.
JAN 27 1990

000064

Scale: 1" = 2,000'

LOCATION MAP


BH2M

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

28 State Street
Cochran, Maine 04608

Tel. (207) 839-2777
Fax (207) 839-8254

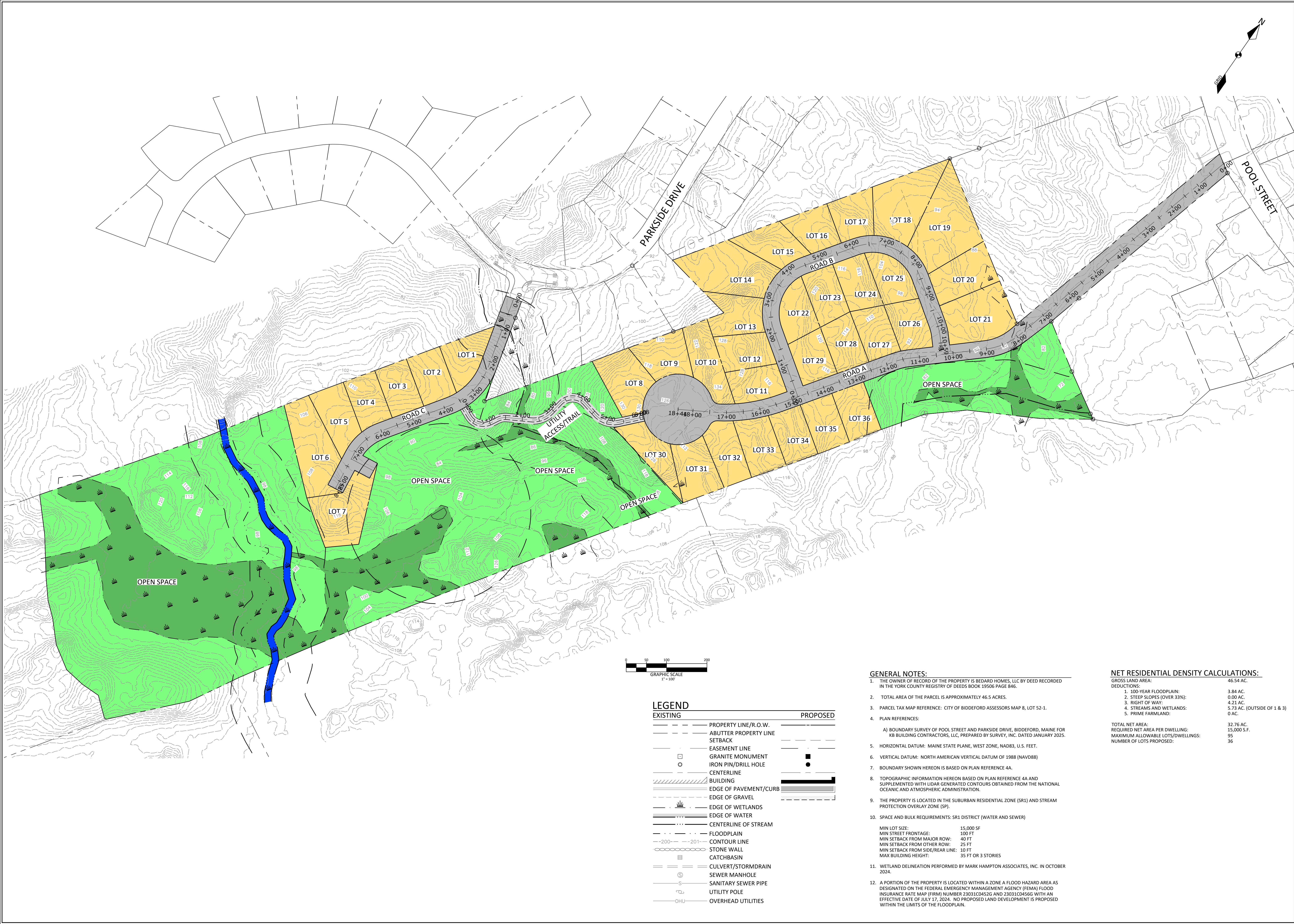
FOR
E & R Development Corp.
260 Main Street
Bridleford, Maine

AMENDED
FINAL SUBDIVISION
PLAN
PARKSIDE BY THE FALLS
PHASE II
POOL STREET
BIDDEFORD, MAINE

DESIGNED	W. Thompson
DRAWN	Dept.
CHECKED	W. Thompson
JOB. NO.	99110A/mend

2
SHEET

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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

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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

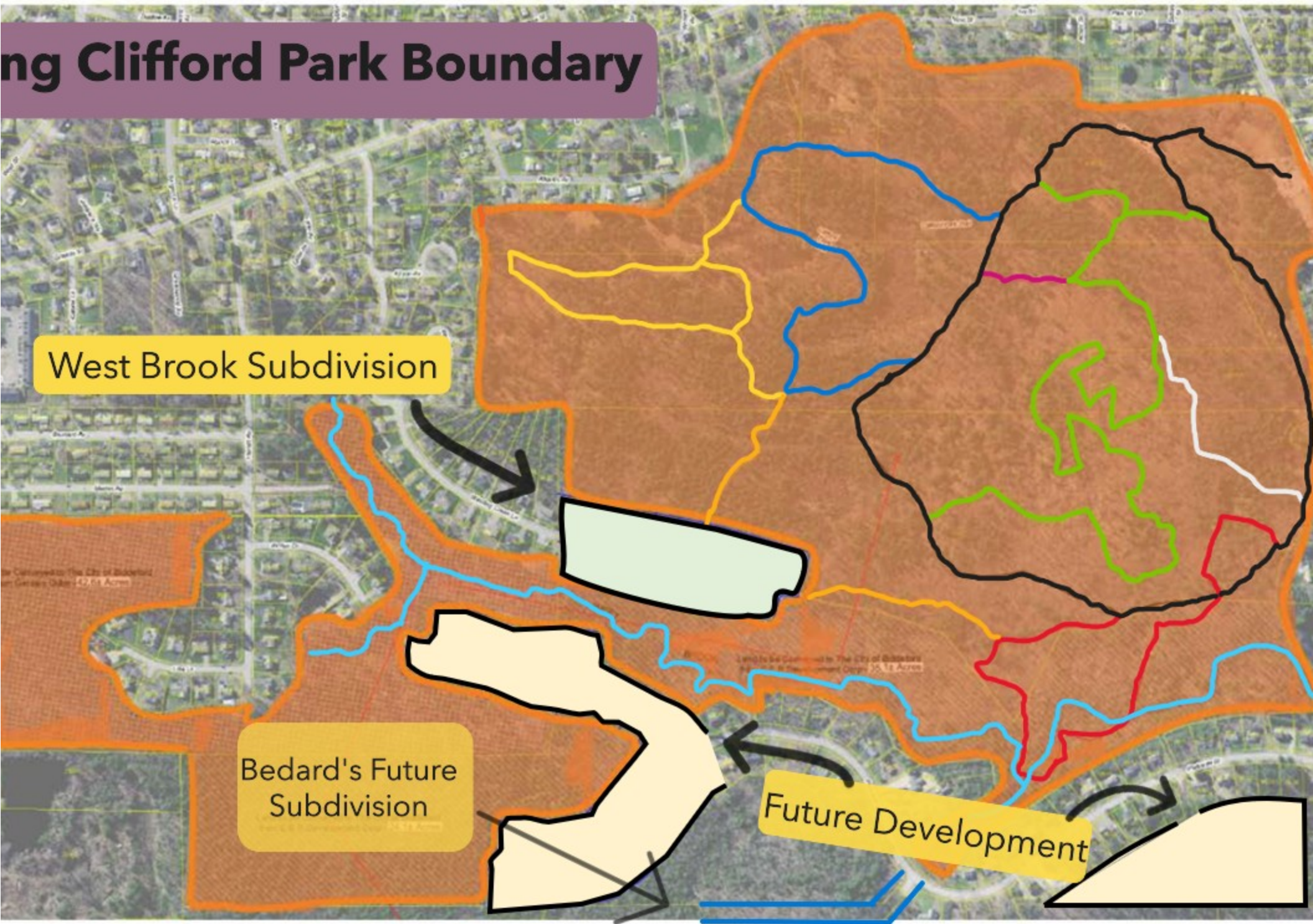
Existing Clifford Park Boundary

West Brook Subdivision

Bedard's Future
Subdivision

Future Development

ing Clifford Park Boundary





City of Biddeford, Maine
Public Works Department
371 Hill Street Biddeford, Maine 04005

June 26th, 2025

To: **Kevin Bedard; Bedard Homes**
Jayson Haskell; DM Roma
David Galbraith; City Planner

From: **Jeff Demers, Public Works Director**
Craig Chekan, City Engineer

Re: **268 Pool Street/Parkside Drive Subdivision – Ability-to-Serve Letter**

1. Project Description: 36-Lot Residential Subdivision
2. Estimated Flow Request: 10,530-gallons per day
3. Determination:
 - a. Sewer from this proposed residential development will tie into the City's existing sewer infrastructure within Parkside Drive and will flow from:
 - i. Parkside #2 Pump Station, to
 - ii. Parkside #1 Pump Station (@ Pool Street), to
 - iii. Lafayette Pump Station, to
 - iv. City's Wastewater Treatment Plant (Water Street)
 - b. Utilizing a private-consultant (Wright-Pierce) and their formal hydraulic sewer model, they have determined that there is limited capacity remaining in the Parkside #1 Pump Station (31,100-gpd).
 - i. Once capacity is reached at the Parkside #1 Pump Station, it would trigger major upgrades to both the Parkside #1 Pump Station and the Lafayette Pump Station (\$\$\$)
 - c. The City is aware of additional development being considered in the Parkside Drive sewershed; however, they have not begun the formal planning board process (which this 36-lot subdivision has)
 - d. Therefore, **the City will reserve 10,530-gpd sewer capacity for this 36-lot subdivision, pending the following:**
 - i. This ability-to-serve letter is only valid for one year from the date listed in the letterhead (06/26/2026)
 1. Final Planning Board Approval must be acquired & the first building permit must be pulled by this date
 - ii. Because sewer capacity is limited in this sewershed, no future Accessory Dwelling Units (ADUs) will be allowed on this subdivision
 - iii. No roof drains, existing or proposed, or other sources of non-sanitary wastewater shall be discharged into the sewer system
 - iv. A sewer permit utilizing this City's current impact fees ([Section 70-141](#)) will need to be paid prior to building permits

A handwritten signature in black ink, appearing to read "Jeff Demers".

Jeff Demers
Public Works Director

A handwritten signature in blue ink, appearing to read "Craig Chekan".

Craig Chekan, PE
City Engineer

May 24, 2025

Members of the Biddeford Conservation Commission-

I am writing to share my ecological concerns for the residential subdivision as proposed by Bedard Homes LLC. The ***footprint of the proposed development fails to fully take into account the adverse impacts on wildlife habitat within the ecologically unique Biddeford-Kennebunkport Vernal Pool Complex***—a Focus Area of Statewide Significance. This project, especially when viewed in conjunction with other forthcoming projects associated with the Clifford Park land swap, like the extension of Winding Creek Lane (West Brook Subdivision) and future extensions of Parkside Drive (Fig. 1), will penetrate into the interior of the West Brook Habitat Block and dramatically shrink the already narrow habitat corridor that links Clifford Park, and the wildlife within it, with the rest of the habitat block.

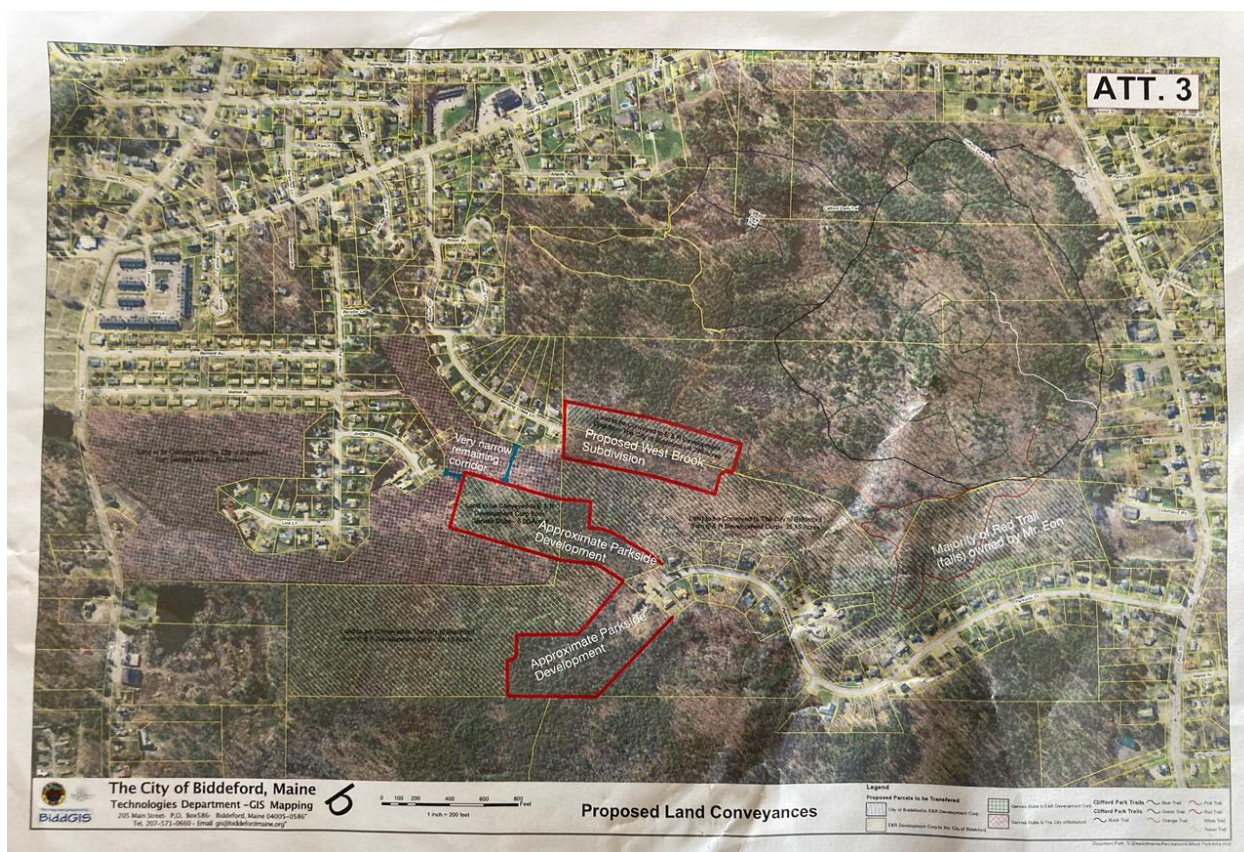


Figure 1. Map indicating proposed developments in the West Brook Habitat Block associated with the Clifford Park land swap that will adversely impact wildlife habitat and isolate Clifford Park from the rest of the habitat block.

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.

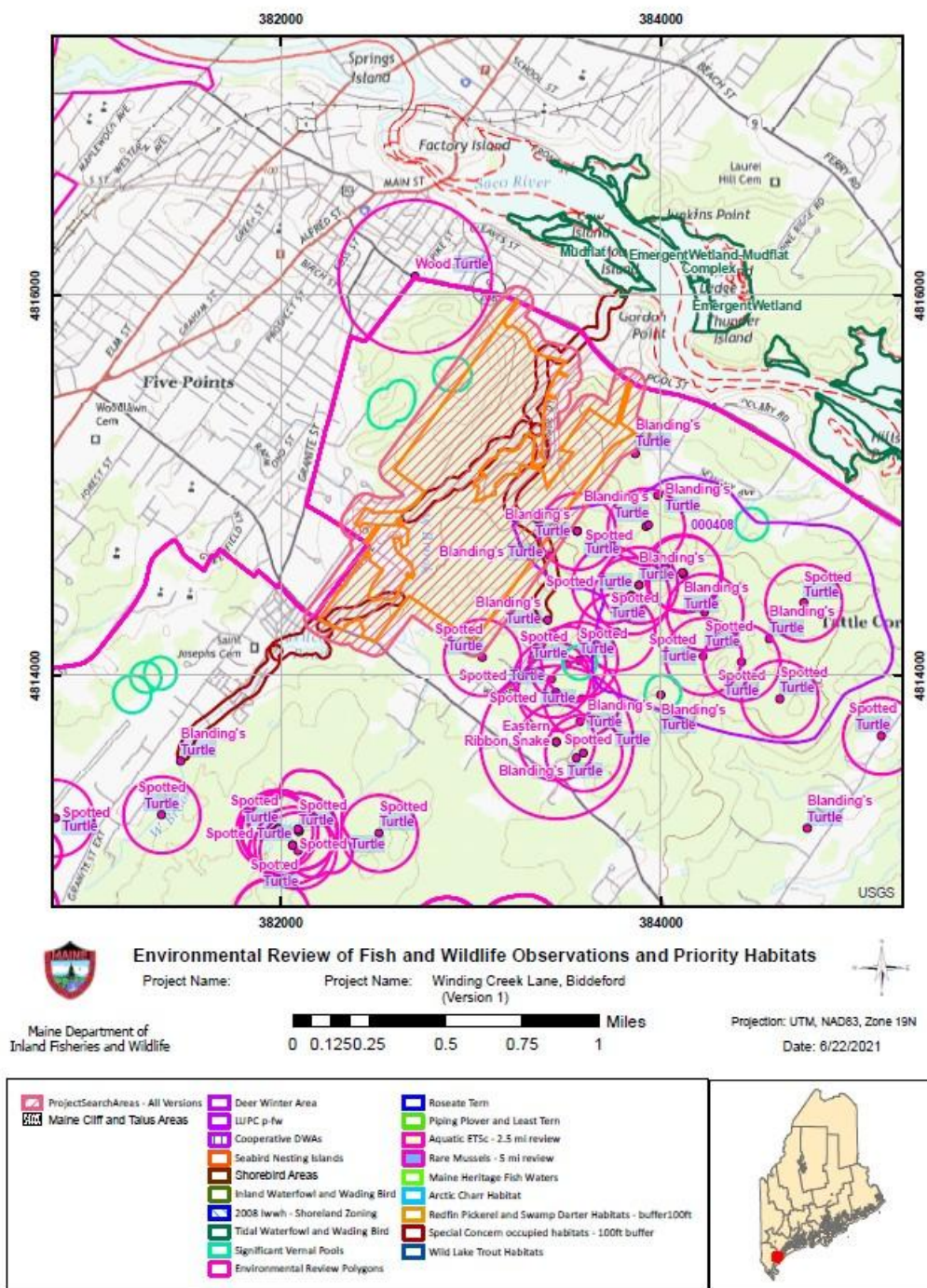
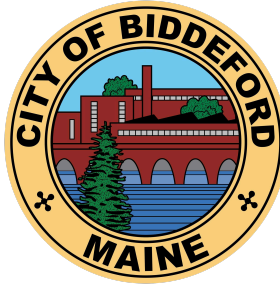


Figure 3. Map of significant wildlife observations provided by MDIFW in the BRI report to the City of Biddeford in 2021.



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.



Erik Heumiller | Secretary
Conservation Commission
City of Biddeford

Attention: Developer/Applicant/Agent
Subject: Proposed Bedard Subdivision (268 Pool St)
Date: July 30th, 2025

Greetings Kevin, Victoria, and Jayson,

This document has been prepared on behalf of the Biddeford Conservation Commission in regards to your recent sketch plan submitted for the Bedard Subdivision in Biddeford, Maine.

The parcel for this proposed development is located within the Biddeford-Kennebunkport Vernal Pool Complex, and while we recognize that you've altered the sketches once already to remove the road that penetrated the 250-ft buffer around the Significant Vernal Pool, we still have concerns about the impacts of the proposed "Road C" and "Lots #1-7" in your sketch.

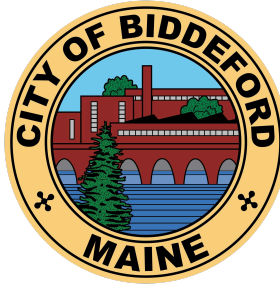
As a whole, the Vernal Pool Complex in Biddeford sees a great deal of development pressure from multiple parcels in the area. Further fragmenting wetland and upland areas in any one parcel compounds the negative impacts on wildlife, habitat, and water quality in this area of Biddeford, which has ramifications beyond a single parcel.

While you don't have control over the other developments in this area, we do see an opportunity for you to further revise your sketch plan to avoid negative impacts on water quality and rare, threatened, and endangered species recognized by Inland Fisheries & Wildlife and others.

While the ultimate decision about your sketch plan rests with the Biddeford Planning Board, we ask that you consider the suggestions and proposed alterations to your sketch plan (page 2) to address habitat concerns and the greater needs of Biddeford's ecosystem.

We encourage you to reach out to us with any questions, and we thank you in advance for your consideration and for this opportunity to collaborate on protecting habitat in our city.

Sincerely,
The Biddeford Conservation Commission

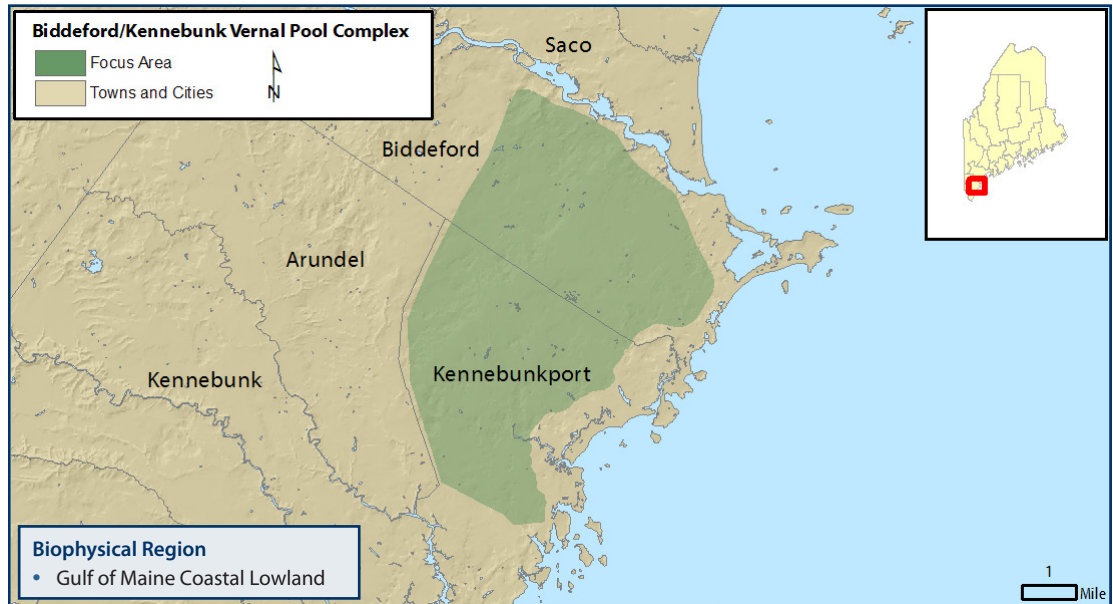


Erik Heumiller | Secretary
Conservation Commission
City of Biddeford

Conservation Commission Recommendations & Concerns

- 1. We would like to see this sketch plan remove "Road C" and "Lots #1-7" entirely, and focus all development in the clustered section closer to Pool Street.**
 - a. This clusters development and avoids fragmenting sensitive habitat areas.
 - b. It would reduce pressures/impacts on the Significant Vernal Pool and the water quality of West Brook.
 - c. This still provides for the development of 29 Lots and would hopefully streamline development for you by removing the need for multiple roads/utility paths.
- 2. Should Lots #1-7 be pursued, we feel there will be a negative impact on both the Significant Vernal Pool (wildlife and habitat) and the water quality in West Brook.**
 - a. The grade of the terrain where "Lots #1-7" are sited in your sketch would see any fertilizer, sediment, and other runoff created by development and residential activities heading directly down the steep grade to West Brook.
 - b. Roadway contaminants (salt, vehicle fluids, etc.) from the impervious surfaces of "Road C" will likely find their way into the Significant Vernal Pool and impact spawning habitat.
- 3. While the Significant Vernal Pool buffer is meant to protect critical spawning habitat, the upland areas around the pool/wetlands are just as critical — as this is where wildlife often migrate for the majority of the year.**
 - a. "Road C" would bisect the upland area between West Brook and the Significant Vernal Pool — situation the homes in prime habitat for two wetland areas.
 - b. This would likely see a significant amount of wildlife crossings that would likely lead to increased mortality of threatened species.
 - c. Additionally, the increased activity and human presence in this critical habitat area could lead to already diminished populations of rare turtles looking elsewhere for spawning habitat, further increasing the chance of roadway mortality as they migrate in search of new habitat.

Biddeford/Kennebunkport Vernal Pool Complex



WHY IS THIS AREA SIGNIFICANT?

The Biddeford/Kennebunkport Vernal Pool Complex Focus Area includes thousands of acres of undeveloped forest and wetlands in Biddeford and Kennebunkport. The biological significance of this area is primarily a result of the high concentration of pocket swamps and vernal pools in an undeveloped landscape, an increasingly rare occurrence in Maine. The swamps and vernal pools provide habitat to rare species, most notably to Blanding's and spotted turtles, both species found primarily in the southern most part of the state where increasing development is contributing to fragmentation and loss of habitat.

OPPORTUNITIES FOR CONSERVATION

- » Work with willing landowners to permanently protect remaining undeveloped areas and significant features.
- » Encourage towns to improve approaches to development that may impact focus area functions, including approaches to limit roads and habitat fragmentation.
- » Encourage enhanced riparian buffers and best management practices for forestry, vegetation clearing, and soil disturbance activities near wetlands and other significant features.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: www.beginningwithhabitat.org/toolbox/about_toolbox.html.

Rare Animals

Saltmarsh Sharp-tailed Sparrow
Spotted Turtle
Blanding's Turtle
Wood Turtle
Eastern Ribbon Snake

Rare Plants

Small Reed-grass
Button Sedge

Rare and Exemplary Natural Communities

Salt-hay Saltmarsh

Significant Wildlife Habitats

Inland Waterfowl and Wading Bird Habitat
Deer Wintering Area
Significant Vernal Pool

Public Access Opportunities

- » Kennebunk Greenbelt
- » Rachel Carson NWR, USFWS

Photo credits, top to bottom: MDIFW, MNAP, MDIFW, MNAP, MDIFW



Vernal Pool, Maine Department of Inland Fisheries and Wildlife

FOCUS AREA OVERVIEW

The Biddeford/Kennebunkport Focus Area covers 16,000 acres and includes thousands of acres of undeveloped forest and wetlands located in eastern Biddeford and northern Kennebunkport. The biological significance of this area is due to the high concentration of pocket swamps and vernal pools. The area is underlain by glacial till including moraine formations and by glacio-marine deposits including clay, both of which impede drainage and help create this unusual high density of swamps, vernal pools, and small streams. Concentrations of pocket swamps and vernal pools in undeveloped landscapes are becoming increasingly rare in Maine.

Although the focus area is bisected by a number of roads, it is likely that the interior of each of the remaining unfragmented forested blocks has never been cleared for farming due to the poor quality of the soils. The forest through much of the area is dominated by oak and pine, and the wetlands are largely dominated by red maple. Timber harvesting has probably been the primary historical use of these lands.

CHARACTERISTIC SPECIES

Vernal pools are ephemeral wetlands that typically fill with water from snow melt and spring run-off and often dry out over the course of the summer. They offer critical breeding

habitat for some species of amphibians and invertebrates such as wood frogs, spotted and blue salamanders, and fairy shrimp. The seasonal nature of the temporary pools maintains a fishless environment conducive to the successful breeding of these animals. Vernal pools are also used as feeding and breeding habitat by many other animals such as spring peepers, grey tree frogs, and other common amphibians, as well as by several rare species. The amphibians and aquatic invertebrates that are dependent on these ponds for survival are an important food resource for forest dwellers such as turtles, snakes, birds, and small mammals. The vegetated condition of vernal pools varies from completely vegetated, usually with sedges, grasses, ferns, and scattered shrubs, to non-vegetated, with only dead leaves on the pool bottom.

The vernal pools, wetlands and uplands in this focus area support the state Threatened **spotted turtle** (*Clemmys guttata*) and the state Endangered **Blanding's turtle** (*Emys blandingii*). Spotted and Blanding's turtles are generally found only in the southern most part of the state where increasing development contributes to loss of habitat, habitat fragmentation, and loss of individuals at road crossings. Spotted and Blanding's turtles are most frequently associated with complexes of small, acidic wetlands and vernal pools in large, intact forested landscapes.

They also use small streams, shrub swamps, and wet meadows. Although these turtles spend most of their time in the water, they readily travel overland between wetlands during the spring and summer months. Upland habitats are critical for basking, aestivating (a period of late summer inactivity), nesting, and as travel corridors between wetlands.

Spotted and Blanding's turtles have evolved relatively long adult life spans to offset the long time it takes to reach reproductive maturity and to offset high levels of nest mortality. Because of this unusual life history, spotted and Blanding's turtle populations are at low densities, and thus populations are extremely vulnerable to any human sources of adult mortality. Road mortality and collecting for pets, for example, can be deleterious as the attrition of just a few individuals every year can lead to the long-term decline and extinction of a local population. The secondary effects of human development – increased predator populations (i.e., domestic cats, and raccoons), pollution, filling of small wetlands, and blocking upland travel corridors – also limit populations. Spotted and Blanding's turtles are strictly protected from take (collecting, killing or possession) by the Maine Endangered Species Act.

Vernal pools and pocket swamps are sometimes habitat for rare plant species in the southern most part of the state; however there has only been limited rare plant inventory within this focus area. Two rare plants, **small reed grass** (*Calamagrostis cinnoides*) and **button sedge** (*Carex bullata*), have been documented from specific locations within the focus area.

The Biddeford/Kennebunkport Vernal Pool Complex Focus Area also supports **Deer Wintering Areas** including those mapped along portions of the upper Batson River, Little River, north of Lord's Pond, the Round Swamps area, and the largest that extends northwest from Tattle Corner and includes the upper watershed of Dungeon Brook. High to moderate value



Spotted Turtle, Maine Department of Inland Fisheries and Wildlife

Ecological Services of the Focus Area

- Retains sediments and nutrients
- Stores and conveys floodwaters
- Contributes to regional biodiversity by providing high quality habitat for rare species
- Protects water quality

Economic Contributions of the Focus Area

- Provides recreational opportunities such as hunting, fishing, hiking, and wildlife watching
- Recharges groundwater
- Provides forest products

Inland Waterfowl and Wading Bird Habitats have been mapped along portions of the Batson River and Bush Brook as well. Both Deer Wintering Areas and Inland Waterfowl and Wading Bird Habitats are Significant Wildlife Habitat identified under the Natural Resources Protection Act.

CONSERVATION CONSIDERATIONS

- » Further fragmentation of the large forested blocks that make up this site will gradually lead to a decline in habitat suitability for certain area-sensitive species, and will increase road mortality for rare turtles.
- » Coastal towns in southern Maine have experienced rapid growth in the last decade, and many upland areas near the coast are under increasing threat. Unmanaged growth and sprawl can contribute to habitat fragmentation, introduction of invasive plant populations, and water quality degradation through pollution from storm water runoff and private sewage systems.
- » Inappropriate off road vehicle (ORV) use can degrade wetlands and directly contribute to reptile and amphibian mortality. Existing roads and trails should be reviewed with particular recreation and access needs in mind, and trails closed if they run counter to protection needs. Fragmenting features should be minimized where possible.
- » Avoid road improvement projects (e.g. paving, widening) that may lead to increased traffic volume and speed within ¼ mile of known turtle wetlands. Water crossing structure repair, maintenance and installation projects should follow guidelines for aquatic species passage in order to avoid further fragmentation of aquatic and riparian habitats.
- » No activities should be permitted that could lead to the loss

or degradation of wetlands, regardless of size, including filling, dredging, sedimentation, or changing hydrology unless the activity is reviewed by MDIFW.

- » A minimum 250-foot forested buffer zone should be maintained around wetlands hosting known rare animal locations.
- » Impervious surfaces, yards, buildings and roads should comprise no more than 20% of the landscape within ¼ mile of rare animal wetlands. Natural forest habitat should dominate the landscape around these wetlands. Intensive developments, including subdivisions and service centers, that concentrate human populations within ¼ mile of turtle wetlands should be avoided.
- » Towns should strive to maintain important habitat areas identified by MDIFW in low density, rural settings by identifying these habitat areas in comprehensive plans and zoning accordingly.
- » Low-intensity cutting (single tree or small group selection, firewood harvest) within riparian buffers is compatible as long as operators avoid wetlands. Winter harvests are recommended to minimize impacts to turtles, amphibian prey, and wetland condition. Close adherence to Best Management Practices for forestry activities near vernal pools (available from Maine Audubon Society at 207-781-6180 ext. 222) will generally ensure the protection of all major wetland habitats.
- » Invasive plants and aquatic organisms have become an increasing problem in Maine and a threat to the state's natural communities. Disturbances to soils and natural vegetation and introductions of non-native species to terrestrial and aquatic habitats can create opportunities for colonization. Landowners and local conservation groups should be made aware of the potential threat of invasive species, of methods to limit establishment, and/or of appropriate techniques for removal. For more information on invasive plants visit: <http://www.maine.gov/doc/nrimc/mnap/features/invasives.htm>.
- » With expected changes in climate over the next century, plant and wildlife species will shift their ranges. Maintaining landscape connections between undeveloped habitats will provide an important safety net for biodiversity as species adjust their ranges to future climate conditions.



Blanding's Turtle, Maine Department of Inland Fisheries and Wildlife

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Saltmarsh Sharp-tailed Sparrow	<i>Ammodramus caudacutus</i>	SC	S3B	G4
	Spotted Turtle	<i>Clemmys guttata</i>	T	S3	G5
	Blanding's Turtle	<i>Emys blandingii</i>	E	S2	G4
	Wood Turtle	<i>Glyptemys insculpta</i>	SC	S4	G4
	Eastern or Northern Ribbon Snake	<i>Thamnophis sauritus</i>	SC	S3	G5
Plants	Small Reed-grass	<i>Calamagrostis cinnoides</i>	SC	S3	G5
	Button Sedge	<i>Carex bullata</i>	SC	S2	G5
Natural Communities	Salt-hay Saltmarsh	<i>Spartina saltmarsh</i>		S3	G5

State Status*

E	Endangered: Rare and in danger of being lost from the state in the foreseeable future, or federally listed as Endangered.
T	Threatened: Rare and, with further decline, could become endangered; or federally listed as Threatened.
SC	Special Concern: Rare in Maine, based on available information, but not sufficiently rare to be Threatened or Endangered.

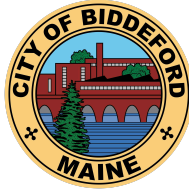
*State status rankings are not assigned to natural communities.

State Rarity Rank

S1	Critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
S2	Imperiled in Maine because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
S3	Rare in Maine (on the order of 20–100 occurrences).
S4	Apparently secure in Maine.
S5	Demonstrably secure in Maine.

Global Rarity Rank

G1	Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation.
G2	Globally imperiled because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
G3	Globally rare (on the order of 20–100 occurrences).
G4	Apparently secure globally.
G5	Demonstrably secure globally.



Conservation Commission
City of Biddeford

Subject: Habitat Protections for Rare/Threatened Turtle Populations

This document seeks to summarize the importance of the habitat within the Biddeford-Kennebunkport Vernal Pool Complex, to aid in the City's consideration of proposed development in parcels that fall within this habitat block.

Quote from a turtle conservation research paper:

Successful conservation programs for semiaquatic organisms (Blanding's and spotted turtles) will require broad-scale protection of wetlands of all sizes and protection of substantial areas of terrestrial habitats. Unless the size of protection zones are determined from documentation of biologically based core areas, inadequate protection zones will give the appearance of protecting wetland communities while the integrity of core areas degrade and populations decline. (Congdon et al. 2011).

1. Biology Basics

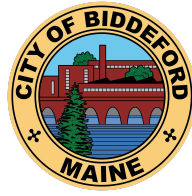
Blanding's and Spotted turtles are long-lived with delayed sexual maturity and small clutch sizes, which means that adults must reproduce over a number of years to maintain stable populations. This makes populations particularly susceptible to small numbers of adult losses.

Blanding's and Spotted turtles are semi-aquatic and are known to use a variety of wetlands throughout the active season. They also make significant use of upland habitat to move between wetlands, for nesting by females, and for estivation (dormancy) in the summer.

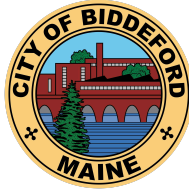
2. Threats

The biggest threats to these species include:

- A. Habitat Loss
- B. Habitat Fragmentation
- C. Road Mortality



Conservation Commission
City of Biddeford



Conservation Commission
City of Biddeford

3. Site Specifics

It is our position that when a Site Plan indicates a significant vernal pool that may be impacted by a proposed development, that a formal request for survey work for turtles be completed in this vernal pool before development/design approval is granted.

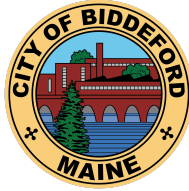
While there are specific criteria and triggers for mandatory site-law review, we believe the Planning Board has the authority to request additional reviews as desired, and this should be considered for all development within the Vernal Pool Complex in Biddeford.

4. Map

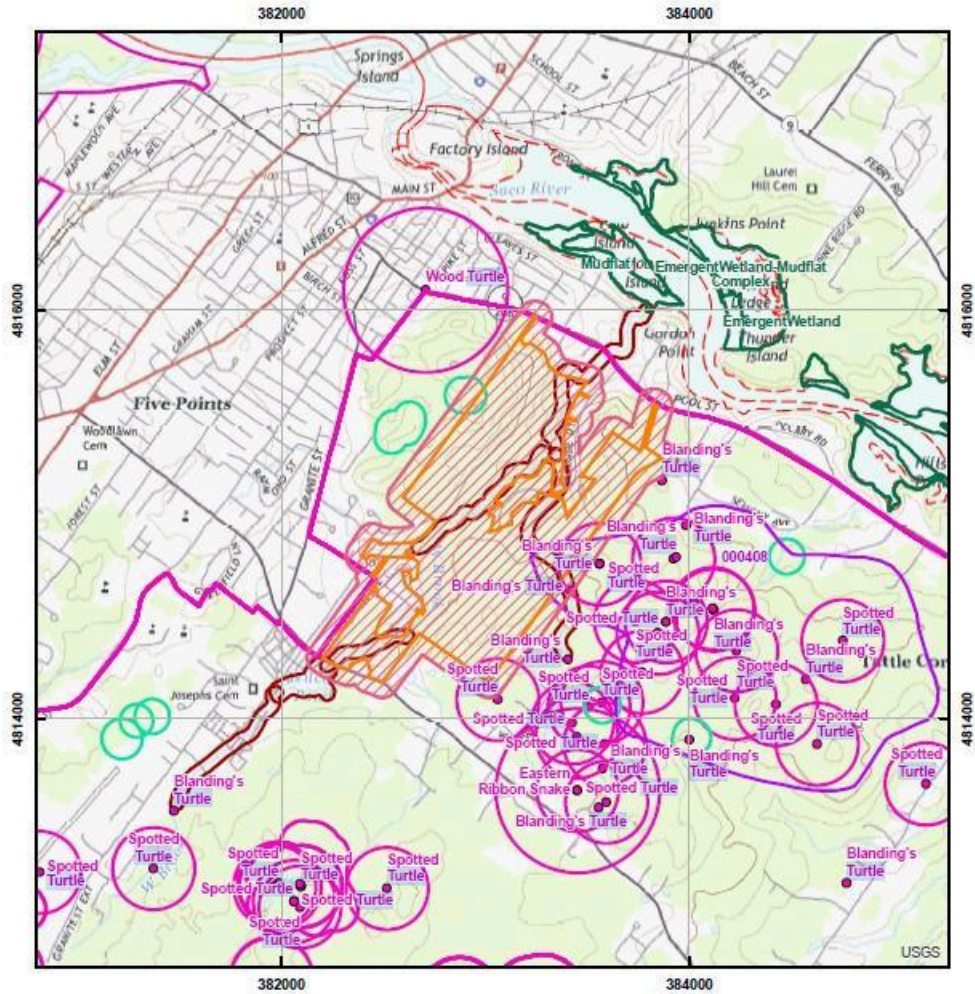
The map below (page 3) was originally included in the Biodiversity Research Institute's report on the Winding Creek development proposal after they received it from IFW.

It's a few years old, but it shows the general pattern of the distribution of turtle records in this habitat block.

Use this map to help make your case that these plans need to be reviewed by IFW.



Conservation Commission City of Biddeford



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name:

Project Name: Winding Creek Lane, Biddeford
(Version 1)



Maine Department of
Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N
Date: 8/22/2021



Whitten, Nan

From: Loren McCready <loren@bscatmaine.org>
Sent: Tuesday, August 5, 2025 2:34 PM
To: Planning Board
Subject: BSCAT Public Comment: Bedard Subdivision

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

Dear Members of the Planning Board,

The Biddeford-Saco Climate Action Team would like to express serious concerns about the proposed Bedard Subdivision, which would bring large-lot residential development to the edge of the **West Brook Habitat Block and the Biddeford-Kennebunkport Vernal Pool Complex**—one of the most ecologically significant areas remaining in our region.

Earlier this year, I requested that the developer submit a **clustered subdivision design** to reduce the overall footprint, preserve sensitive habitat, and allow for a broader mix of homes at more accessible price points. **The Board discussed this option at length and showed clear interest in reviewing a clustered alternative.**

Yet the revised application fails to include a clustered site plan. There is no explanation for why this request was disregarded, nor any mention of it in the city planner's staff report. Instead, **the report highlights the project's "open space" as a public "win"—a tactic also used during the West Brook Subdivision to greenwash a project that ultimately degrades sensitive habitat.** In that case, the Planning Board approved the subdivision despite clear violations of local, state, and federal law, including improper land use and flawed municipal procedures. These issues were raised repeatedly by residents, third-party experts, and even contract city staff, yet **the Board sided with the developer's narrative rather than enforcing the law.** That precedent should serve as a serious warning against repeating the same mistakes.

Just as troubling is the **mismatch between this proposal and the broader goals outlined in Biddeford's 2023 Comprehensive Plan.** While this area is technically considered a growth area, the plan emphasizes that growth must be directed in a way that protects natural resources, preserves forested land, and aligns with smart infill strategies. The plan also calls for updated cluster and net density standards to better safeguard these natural assets. **Notably, the State rejected Biddeford's Comprehensive Plan for failing to include implementation steps**—specifically, for not identifying how and when the City would carry out its own growth policies or evaluate whether development is actually happening in alignment with them. This lack of enforcement and follow-through is exactly what allows projects like this—conventional sprawl-style subdivisions in ecologically sensitive areas—to move forward unchecked.

This proposal is the direct result of that failure. And the homes proposed here, likely priced between \$600,000 and \$700,000 based on lot sizes and recent comparables, do little to meet the urgent demand for smaller, more attainable homes that align with LD 2003 and the City's housing equity goals.

The Planning Board has a clear opportunity to correct course. At minimum, **the developer should be required to submit a clustered alternative that reduces the overall footprint, preserves sensitive habitat, and introduces a broader range of housing options.** However, it's clear that Biddeford's current cluster subdivision standards still require relatively large lot sizes in this zone, limiting their effectiveness. To truly align development with the goals of the Comprehensive Plan, **the City should create a conservation overlay district in this area—one that prioritizes natural resource protection and mandates more**

compact, environmentally sensitive site design. Without this kind of structural change, we'll continue to see the same outcome: low-density subdivisions that sprawl across our remaining green spaces and deepen the affordability crisis.

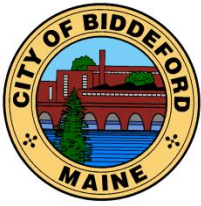
Thank you for your time and continued service to our community.

--

Loren McCready (he/him)

Biddeford-Saco Climate Action Team

bscatmaine.org



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: July 28, 2025

RE: **2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

1. REVIEW HISTORY:

The subject application has had the following hearings/meetings:

Planning Board Review History:

Sketch Plan Review - May 21, 2025;

Site Walk June 9, 2025;

Preliminary Review (Tabled)- June 18, 2025;

Site Walk #2 – July 9, 2025;

Preliminary Review (#2) – July 16, 2025 – Preliminary Approval and Waivers approved.

Final Plan Review – August 6, 2025.

This project was last discussed during the July 16, 2025, Planning Board meeting where the project was granted preliminary plan approval. During the same hearing the Applicant requested four (4) waivers which were also granted by the Board. The requested / granted waivers are outlined below:

Waivers Requested / Granted:

- 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).
- C. Article VI. Section 26.F.: (cut or fill slopes that exceed 3 horizontals to 1 vertical).
- D. Article XIV. Section 15.H.4. (Road and driveway banks shall be no steeper than a slope of 2 horizontal to 1 vertical).

The Site Plan and Shoreland Zoning approval and the four (4) requested waivers were approved by a 3-2 vote by the Board with members Plotkin, Patoine and Deschambault voting in the affirmative and two (2) members voting in the negative (Angers and Dubois).

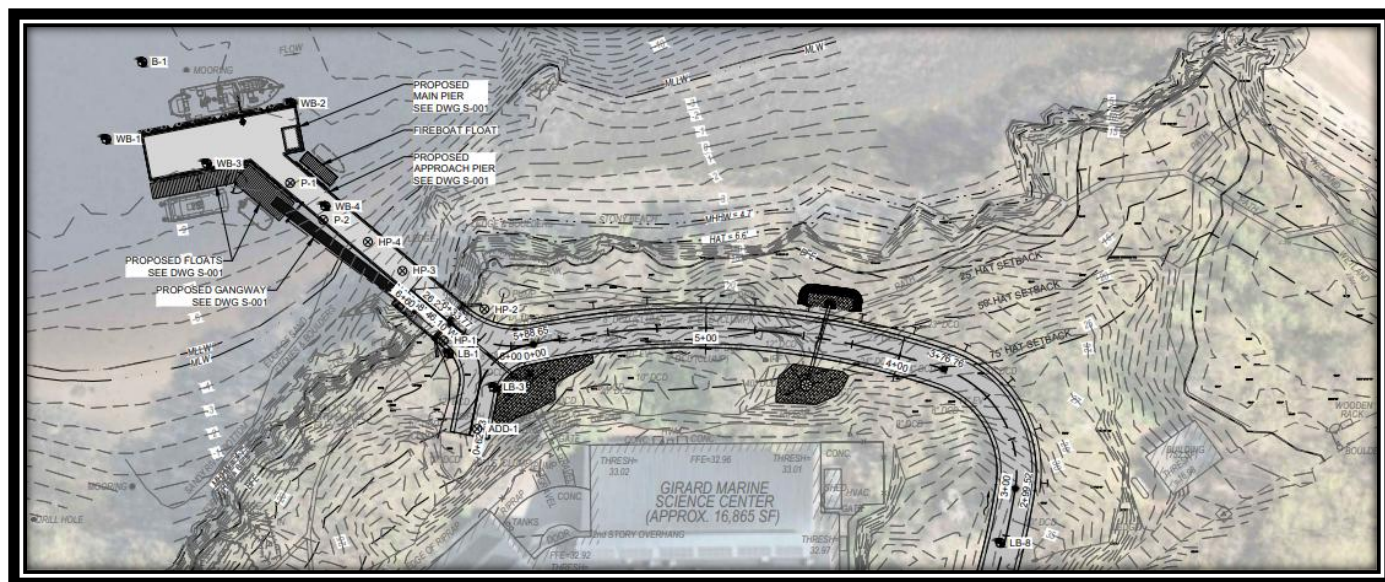
The application before the Planning Board is a request for Final Plan Approval.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

2. INTRODUCTION

Tom Saucier, PE of Site Design Associates, is representing the University of New England (UNE) who is applying for Final 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 achieving the design that is being proposed.



Proposed Marine Science Center Research Pier

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 have been consistently forwarded to the Planning Board and the University New England and have been maintained by the Planning Department.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

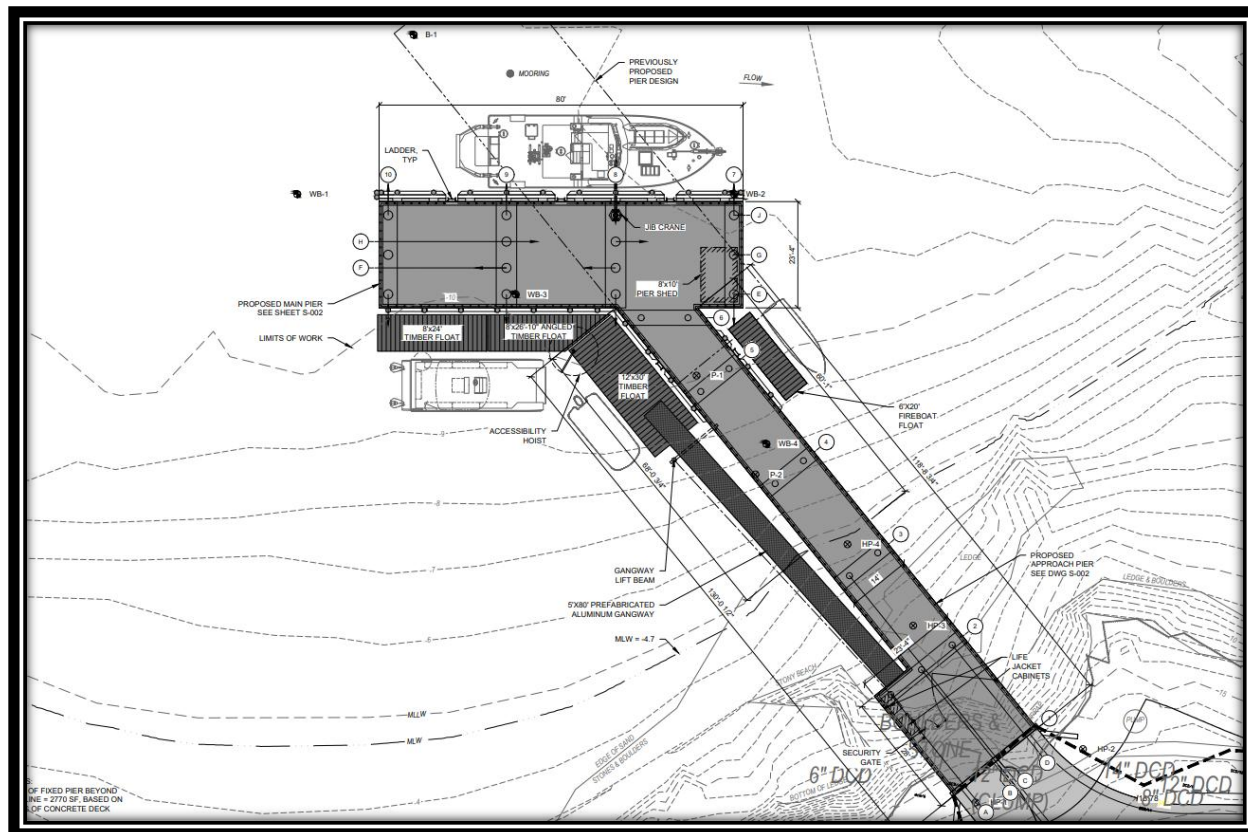


University of New England (UNE) – proposed Marine Science Center Research Pier

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 Final Plan Review – 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: August 6, 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.
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.

RE: **Case # 2024.34 Final Plan Review – 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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These proposed improvements will result in a total increase in the impervious area totaling 0.249 acres. The increase in the 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.

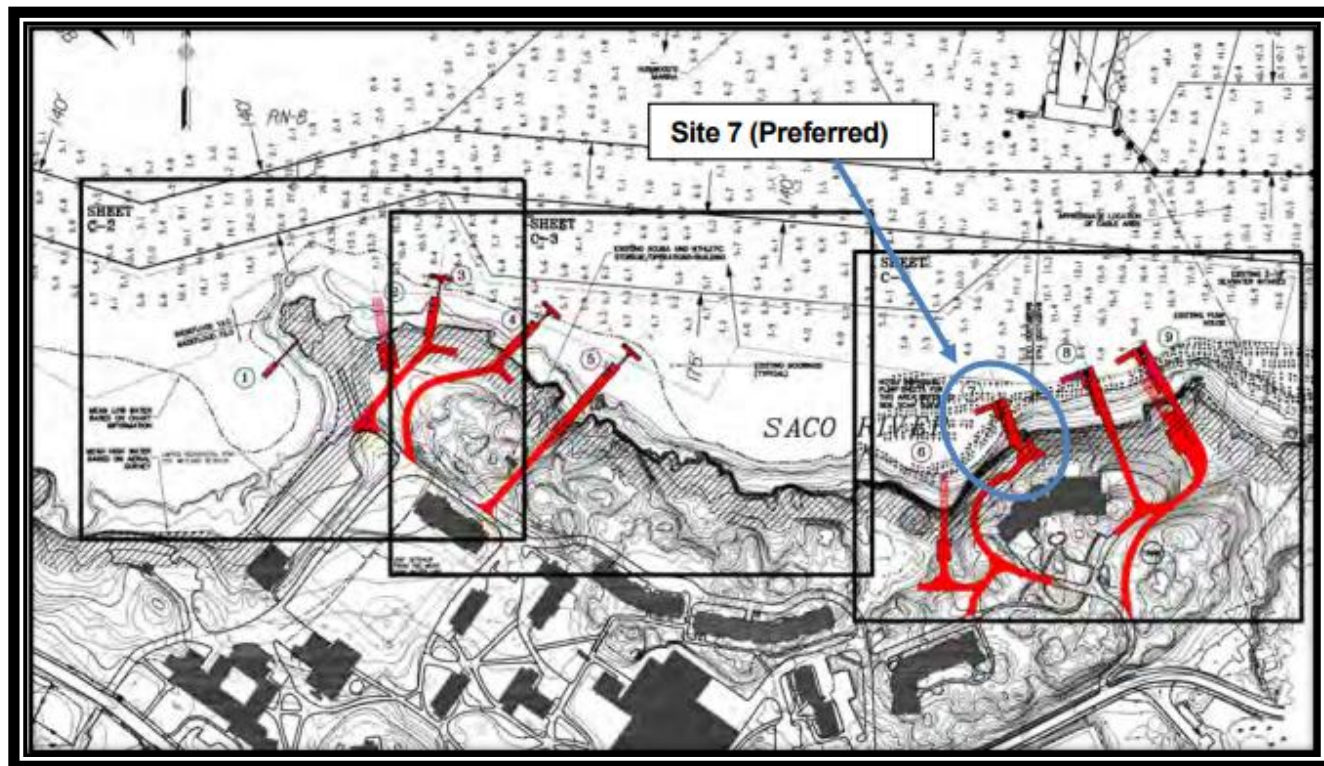


Fig. 1 – Alternative Sites Evaluated in 2008-2010 Study

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 an alternative layout, 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

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MEETING DATE: August 6, 2025, at 6:00 PM

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.

3. 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 Requested:	E. Article XI.II. Section 5.B.1.a. (post development runoff) F. Article XI.II. Section 5.B.1.e.3. (Slopes steeper than 2:1 in ledge). G. Article VI. Section 26.F.: (cut or fill slopes that exceed 3 horizontals to 1 vertical). H. Article XIV. Section 15.H.4. (Road and driveway banks shall be no steeper than a slope of 2 horizontal to 1 vertical).

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

18.	Waivers Granted on July 16, 2025.	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). C. Article VI. Section 26.F.: (cut or fill slopes that exceed 3 horizontals to 1 vertical). D. Article XIV. Section 15.H.4. (Road and driveway banks shall be no steeper than a slope of 2 horizontal to 1 vertical).
22.	Other Non-City Permits Required:	N/A
23.	LDR Attachment A: Fees Paid:	Yes
25.	Planning Board Review History: Sketch Plan Review - May 21, 2025; Site Walk June 9, 2025; Preliminary Review (Tabled)- June 18, 2025; Site Walk #2 – July 9, 2025; Preliminary Review (#2) – July 16, 2025 – Preliminary Approval and Waivers approved. Final Plan Review – August 6, 2025.	

4. 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.

5. SITE PLAN APPROVAL / SITE DESIGN CRITERIA: Below are the specific Site Review Criteria from the City of Biddeford’s Code of Ordinances, Part III Land Development Regulations - Article XI Site Plan Review - Section 5 Site design and development criteria:

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

Site design criteria. The design standards presented here are minimum in nature; the applicant may provide further details to the presented plan. At the same time, some of these standards may not apply to a specific project; the applicant may request in writing waivers from any point following. All waivers must be added as notes to the approved plan and shall be considered conditions of approval.

Besides, the following standards projects presented under this article shall be subject to the performance standards specified in Article VI of this ordinance (Note: Article VI does not contain any additional performance standards for “piers or docks”).

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.
- b. A written engineering report describing the impacted watershed area, projected runoff, and any projected downstream impact shall be required.
- 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.
- 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.
- e. Development in specific areas of concern shall provide detailed information and address specific issues in relation to drainage:

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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

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.*

Staff Comment: *The above standards have / are being met, as the project complies with the Maine Department of Environmental Protection (DEP) Basic and General standards and permits from the agency.*

2. Utilities.

- a. All utilities, including electric, gas, water/sewer, shall be shown on the plat, and separate detail sheets as needed.
- b. Accessways, storage, and parking areas shall be graded and improved with pavements, curbs, gutters, sidewalks, storm drainage facilities, outdoor lighting, etc.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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

Staff Comment: *Power will be fed underground to the pier from the Girard Marine Science Center. The proposed utilities address and meet this standard.*

3. Parking.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

- 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.
- b. No on-street parking, delivery or loading is permitted, except where specifically allowed by the Planning Board.
- 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.
- d. In the case of multifamily projects the number of required parking spaces should be increased 5% to allow for visitor parking.
- e. Parking lots shall be landscaped and/or screened to provide for a pleasing visual effect and blending in with the surrounding area.
- f. Lots shall be illuminated for security purposes. The lighting shall be designed in such a way that off-site glare is minimized.
- g. Adequate space shall be allowed for the accumulation of snow during the winter plowing months.

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.***

- 4. Structural layout and design. All proposed structures or additions to existing structures shall address the following items:
 - 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

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

older structures. A photograph, architectural rendering or other representation of the proposed structure must accompany the application for site review.

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.

Staff Comment: *No buildings are being proposed with the exception of the small storage shed located on the proposed pier. The project is also not located within the I-3 area so brick and / or masonry standards do 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.

Staff Comment: *The research pier is sited in conformance with all setback requirements. The proposed pier meets all setbacks.*

- c. Fire protection.

1. All proposed structures and additions to existing buildings must be designed to meet existing fire protection standards.
2. Fire hydrants and fire escapes must be clearly presented on plats.
3. Clear ways around buildings must be maintained to provide for 360° access to structures.
4. Areas in front of structures must be kept clear of parking spaces to allow for emergency access.
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.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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.
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.
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.

Staff Comment: *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. The only concern raised to date is the Fire Departments turn-around at the head of the pier. The Applicants have agreed that once constructed the BFD will bring their largest apparatus to the side to verify that the turn-around constructed meets the BFD needs. If the turn-around needs to be modified, the BFD will require minor adjustments to the turn-around to the satisfaction of the Fire Chief. A condition has been added to the recommended Conditions of Approval (COA).*

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.
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.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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

Staff Comment:

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.

Staff Comment: 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.*
- *The applicants are proposing the removal of invasive plant species and a complete replanting of the disturbed areas with native Maine species which Staff believes meet the above standards*

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

The proposed development meets these standards.

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.
2. Proposed utility elements shall be adequately screened; and, if producing sound, baffled upon Planning Board request.
3. Trash receptacles, dumpsters, storage sheds, etc., shall be shown on plat.

Staff Comment: *The research pier includes a small storage shed for equipment associated with the pier. The pier storage is the only storage / service area. The proposed storage / utility areas are minimal in size but are large enough to accommodate the storage needs of pier related activities.*

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;
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.

Staff Comment: *No parking is being planned for the proposed pier. This standard is not applicable.*

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.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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

Staff Comment: *The proposed research pier is handicapped accessible. The project meets this standard.*

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.
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.

Staff Comment: *No loading areas are being proposed as part of the pier project. This standard does not apply.*

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

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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.
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.

Staff Comment: *The proposed development does not include new parking areas. 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. New landscaping is being proposed in all areas being disturbed by the pier construction as discussed within this document and Applicants development plans. The project meets this standard.*

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

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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

Staff Comment: *The proposed development does not include any residential uses but has been designed around the natural environment. Areas of disturbance will be replanted with natural Maine species and graded to support the proposed pier and it’s access. The project meets the above standards.*

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.

Staff Comment: *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. The project meets these standards.*

l. Signs.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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.

Staff Comment: *No new signage is being proposed for this project. Any proposed signs shall meet the City’s Sign Ordinance.*

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.

Staff Comment: *See attachment 10 for a letter from the Maine Historic Preservation Commission clearing the project. The proposed development meets this standard.*

6. **Shoreland Zoning Land Use Standards:** In addition to the Site Plan Approval / Site Design Criteria outlined above, the project is required to comply with the applicable standards of Article XIV. Section 15.C. which are 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.*

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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 with the activity and be consistent with the surrounding character and uses of the area. A temporary pier, dock, or wharf in non-tidal 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.*

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.

RE: **Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

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.

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 these standards.***

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:*

Staff Comment: *The proposal is for a dock/pier, so the above standards related to “decks” are not applicable. **Standard not applicable.***

8. **FINDINGS OF FACT:** *The proposed project will need to meet the standards below at Final 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;*

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

- 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, odors, 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 the 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;

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

- 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.

Staff Comment: *In reviewing the application, Staff finds that the application satisfies the City’s Shoreland Zoning Ordinance and Site Plan criteria.*

9. 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 Final 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, with the adoption of the Findings of Fact (FOF) and recommended Conditions of Approval (COA).

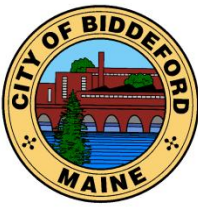
- B. Motion to Deny I motion to DENY Case # 2024.34 Final Plan – Site Plan and Shoreland Zoning Review for the University of New England (UNE) / Proposed Construction of a Marine Science Center Research Pier to be located at 11 Hills Beach Road (Map #52, Lot 4) located in the City’s Institutional (IN) Zoning District, for the following reasons:
 - 1) _____.
 - 2) _____.
 - 3) _____.

- C. Motion to Table: I motion to TABLE Case # 2024.34 Final 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) _____.

RE: Case # 2024.34 Final Plan Review – 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: August 6, 2025, at 6:00 PM

3) _____.



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

Planning Board Case #2024.34
Final Plan Review – University of New England (UNE)
Site Plan and Shoreland Zoning Review
Proposed Construction of a Marine Science Center Research Pier
11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.
Date: August 6, 2025

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article XI (Site Plan Review), and Article XIV (Shoreland Zoning Ordinance), 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:	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 Requested:	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).

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Planning Board Case #2024.34

Final Plan Review – University of New England (UNE)

Site Plan and Shoreland Zoning Review

Proposed Construction of a Marine Science Center Research Pier

11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.

Date: August 6, 2025

		C. Article VI. Section 26.F.: (cut or fill slopes that exceed 3 horizontals to 1 vertical). D. Article XIV. Section 15.H.4. (Road and driveway banks shall be no steeper than a slope of 2 horizontal to 1 vertical).
18.	Waivers Granted - July 16, 2025.	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). C. Article VI. Section 26.F.: (cut or fill slopes that exceed 3 horizontals to 1 vertical). D. Article XIV. Section 15.H.4. (Road and driveway banks shall be no steeper than a slope of 2 horizontal to 1 vertical).
22.	Other Non-City Permits Required:	N/A
23.	LDR Attachment A: Fees Paid:	Yes
25.	Planning Board Review History: Sketch Plan Review - May 21, 2025; Site Walk June 9, 2025; Preliminary Review (Tabled)- June 18, 2025; Site Walk #2 – July 9, 2025; Preliminary Review (#2) – July 16, 2025 – Preliminary Approval and Waivers approved. Final Plan Review – August 6, 2025.	

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;

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Planning Board Case #2024.34

Final Plan Review – University of New England (UNE)

Site Plan and Shoreland Zoning Review

Proposed Construction of a Marine Science Center Research Pier

11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.

Date: August 6, 2025

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;
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;

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Planning Board Case #2024.34

Final Plan Review – University of New England (UNE)

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Proposed Construction of a Marine Science Center Research Pier

11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.

Date: August 6, 2025

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 XIV (Shoreland Zoning), the Biddeford Planning Board has approved the application # 2024.34 Final Plan Review – 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, with the attached 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 and bulk standards, performance standards, use standards and other zoning type requirements.
2. Standard Conditions of Approval apply.
3. 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.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Planning Board Case #2024.34

Final Plan Review – University of New England (UNE)

Site Plan and Shoreland Zoning Review

Proposed Construction of a Marine Science Center Research Pier

11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.

Date: August 6, 2025

4. 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
5. Prior to any ground disturbance, the applicant shall establish a construction inspection account equal to: \$2,500.00.
6. 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.
7. Contact the Department of Public Works for driveway location permits, curb cut permits and/or street opening permits prior to the start of construction.
8. 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 Board approved development plans shall be reviewed and approved by the City Planner prior to being made, including any "field changes".
9. 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.
10. 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.
11. 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.

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Planning Board Case #2024.34

Final Plan Review – University of New England (UNE)

Site Plan and Shoreland Zoning Review

Proposed Construction of a Marine Science Center Research Pier

11 Hills Beach Road (Map #52, Lot 4) located in the City's Institutional (IN) Zoning District.

Date: August 6, 2025

12. 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 approved development plans and all applicable City Ordinances.
13. 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.
14. 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.**
15. 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.**
16. 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.**
17. As agreed during the public hearing process, the University of New England (UNE) shall be responsible for the reasonable costs, as applicable, for the relocation of all impacted moorings displaced by the construction of the UNE research pier.
18. Fire Department Requirements:
 - A. The Applicant shall schedule an on-site inspection with the Biddeford Fire Chief to verify that the emergency vehicle turn-around can accommodate the largest vehicle in their fleet to the Department's satisfaction. Any necessary modifications shall be coordinated with the City Planner and constructed to the Fire Chief's satisfaction.

Alexa Plotkin Planning Board Chair

Date

**APPLICATION FOR MAINE
DEPT OF ENVIRONMENTAL PROTECTION
NATURAL RESOURCES PROTECTION ACT
AND
ARMY CORPS OF ENGINEERS PERMITS
FOR
RESEARCH PIER AND FLOATS**

Applicant:

**UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH ROAD
BIDDEFORD, MAINE 04005**

June 17, 2024

Prepared by:

**Site Design Associates
23 Whitney Way
Topsham, Maine 04086
Ph: 207-449-4275
Email: info@sitedesignassociates.biz**

TABLE OF CONTENTS

**APPLICATION FOR
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL RESOURCES PROTECTION ACT
AND
ARMY CORPS OF ENGINEERS PERMIT**

NRPA Permit Application Form

Letter of Agent Authorization

Deed

Attachment 1: Activity Description

Attachment 2: Alternatives Analysis

Attachment 3: Location Map

Attachment 4: Photos

Attachments 5/6: Plans

Attachment 7: Construction Plan

Attachment 8: Erosion Control Plan

Attachment 9: Wetland Delineation Report/Coastal Wetland Characterization Appendix B

Attachment 10: Notice of Intent to File

Attachment 11: MHPC and TRIBE Correspondence

Attachment 12: MDEP Visual Evaluation Field Survey Checklist Appendix A

Attachment 13: Appendix D – Project Description Worksheet

Attachment 14: Species List, MA Consistency Letter, and Correspondence with USFW regarding the Northern Long-eared Bat.

Attachment 15: Abutter Notifications

Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-7688

FOR DEP USE

ATS # _____
L- _____
Total Fees: _____
Date Received: _____

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

→ PLEASE TYPE OR PRINT IN **BLACK INK ONLY**

1. Name of Applicant: University of New England, Andrew Philippe		5. Name of Agent: Tom Saucier, Site Design Associates							
2. Applicant's Mailing Address: 11 Hills Beach Road		6. Agent's Mailing Address: 23 Whitney Way Topsham, Maine 04086							
3. Applicant's Daytime Phone #: 602-2365		7. Agent's Daytime Phone #: 207-449-4275							
4. Applicant's Email Address (Required from either applicant or agent): aphilippe@une.edu		8. Agent's Email Address: tsaucier@sitedesignassociates.biz							
9. Location of Activity: (Nearest Road, Street, Rt.#) 11 Hills Beach Road		10. Town: Biddeford	11. County: York						
12. Type of Resource: (Check all that apply)	☐ River, stream or brook ☐ Great Pond ☒ Coastal Wetland ☐ Freshwater Wetland ☐ Wetland Special Significance ☐ Significant Wildlife Habitat ☐ Fragile Mountain		13. Name of Resource: Saco River						
	☐ Forested ☐ Scrub Shrub ☐ Emergent ☐ Wet Meadow ☐ Peatland ☐ Open Water ☒ Other Ledge and soil below HAT		14. Amount of Impact: (Sq.Ft.) Fill: 84 sf Dredging/Veg Removal/Other: NA						
15. Type of Wetland: (Check all that apply)		FOR FRESHWATER WETLANDS <table border="1"> <thead> <tr> <th>Tier 1</th> <th>Tier 2</th> <th>Tier 3</th> </tr> </thead> <tbody> <tr> <td> ☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft ☐ 10,000-14,999 sq ft </td> <td> ☐ 15,000 – 43,560 sq. ft. </td> <td> ☐ > 43,560 sq. ft. or smaller than 43,560 sq. ft., not eligible for Tier 1 </td> </tr> </tbody> </table>		Tier 1	Tier 2	Tier 3	☐ 0 - 4,999 sq ft. ☐ 5,000-9,999 sq ft ☐ 10,000-14,999 sq ft	☐ 15,000 – 43,560 sq. ft.	☐ > 43,560 sq. ft. or smaller than 43,560 sq. ft., not eligible for Tier 1
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16. Brief Activity Description:		Construction of a research pier, floats, and gangway. See plans and narratives.							
17. Size of Lot or Parcel & UTM Locations:		☐ _____ square feet, or ☒ 8.6 acres UTM Northing: _____ UTM Easting: _____							
18. Title, Right or Interest:		☒ own ☐ lease ☐ purchase option ☐ written agreement							
19. Deed Reference Numbers:		Book#: 1484 Page: 0145 20. Map and Lot Numbers: Map #: 52 Lot #: 4							
21. DEP Staff Previously Contacted:		Alison Sirois 22. Part of a larger project: ☐ Yes ☒ No After-the-Fact: ☐ Yes ☒ No							
23. Resubmission of Application?:		☐ Yes → ☒ No If yes, previous application # _____ Previous project manager: _____							
24. Written Notice of Violation?:		☐ Yes → ☒ No If yes, name of DEP enforcement staff involved: _____ 25. Previous Wetland Alteration: ☐ Yes ☒ No							
26. Detailed Directions to the Project Site:		Route 9 from Biddeford to Hills Beach Road. Proceed on Hills Beach Road for 0.7 miles to the Girard Science center. Drive will be on the left.							
27. TIER 1		TIER 2/3 AND INDIVIDUAL PERMITS							
☐ Title, right or interest documentation ☐ Topographic Map ☐ Narrative Project Description ☐ Plan or Drawing (8 1/2" x 11") ☐ Photos of Area ☐ Statement of Avoidance & Minimization ☐ Statement/Copy of cover letter to MHPC		☒ Title, right or interest documentation ☒ Topographic Map ☒ Copy of Public Notice/Public Information Meeting Documentation ☒ Wetlands Delineation Report (Attachment 1) that contains the information listed under Site Conditions ☒ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized ☒ Erosion Control/Construction Plan ☐ Functional Assessment (Attachment 3), if required ☐ Compensation Plan (Attachment 4), if required ☒ Appendix A and others, if required ☒ Statement/Copy of cover letter to MHPC ☐ Description of Previously Mined Peatland, if required							
28. FEES Amount Enclosed:		\$611 paid on line							

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fined not more than \$10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."


SIGNATURE OF AGENT/APPLICANT

Date: 4/11/24

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

(pink)

State of Maine DEP Payment Receipt

Contact Inform

Thomas Saucier - 23 Whitney Way, Topsham, ME, 04086
(207) 449-4275
tsaucier@sitedesignassociates.biz

Product	Reference Number	Customer Number	Payment Amount	Comments
Natural Resources Protection Act (Individual Permit)	New Application		\$651.00	Processing and licensing fee

Receipt ID: 5822

Transaction Date: 6/17/2024 4:06:45 PM

Transaction Summary

Payment	\$651.00
Service Fe	\$2.00
Total	\$653.00

Thank you for your successful transaction.

If you have questions or concerns, please call (207) 287-7688

or Email: Payments.DEP@maine.gov

Print



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 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 initial "A" and a long, horizontal flourish extending to the right.

Alan Thibeault
Vice president for University Operations

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:

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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 parcel 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:

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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 hundred (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 1 – Activity Description

The Biddeford Campus of the University of New England (UNE), Maine's largest private university, is positioned at 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 on its Biddeford campus

UNE's School of Marine and Environmental Programs, housed in the Girard Marine Science Center, 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 national 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.

The University of New England (UNE) campus is located along the Saco River in Biddeford, ME. The Marine Science Center (MSC) at UNE is located on the waterfront at the easterly end of campus approximately opposite Camp Ellis in Saco. UNE is proposing to construct a pier from the shore into the Saco River to support MSC research activities and provide an all-tide access facility for small and shallow draft vessels.

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 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.

The total direct impact from all the piles that makeup the pier structure is 84 square feet. The total indirect impact from the pier footprint beyond the HAT line is 3,579 square feet.

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 total indirect impact from the floating dock system is 848 square feet.

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 Buildings

Two pier buildings are proposed to be located on the pier head. At the southeast corner of the pier head is an 8-foot by 10-foot pier shed. 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. A 16-foot by 20-foot covered outdoor classroom is proposed on the west end of the pier head. This structure will provide a covered area for students and staff to carry out educational programming on the pier while protected from direct rain or sun exposure.

Access Road

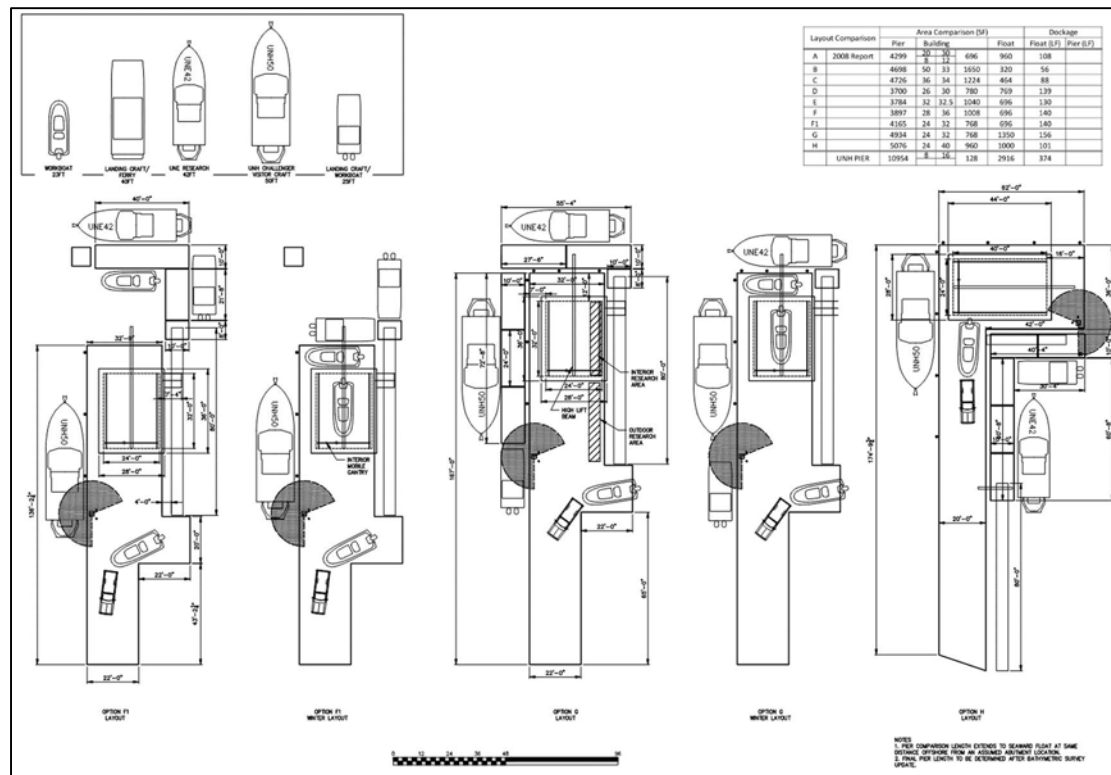
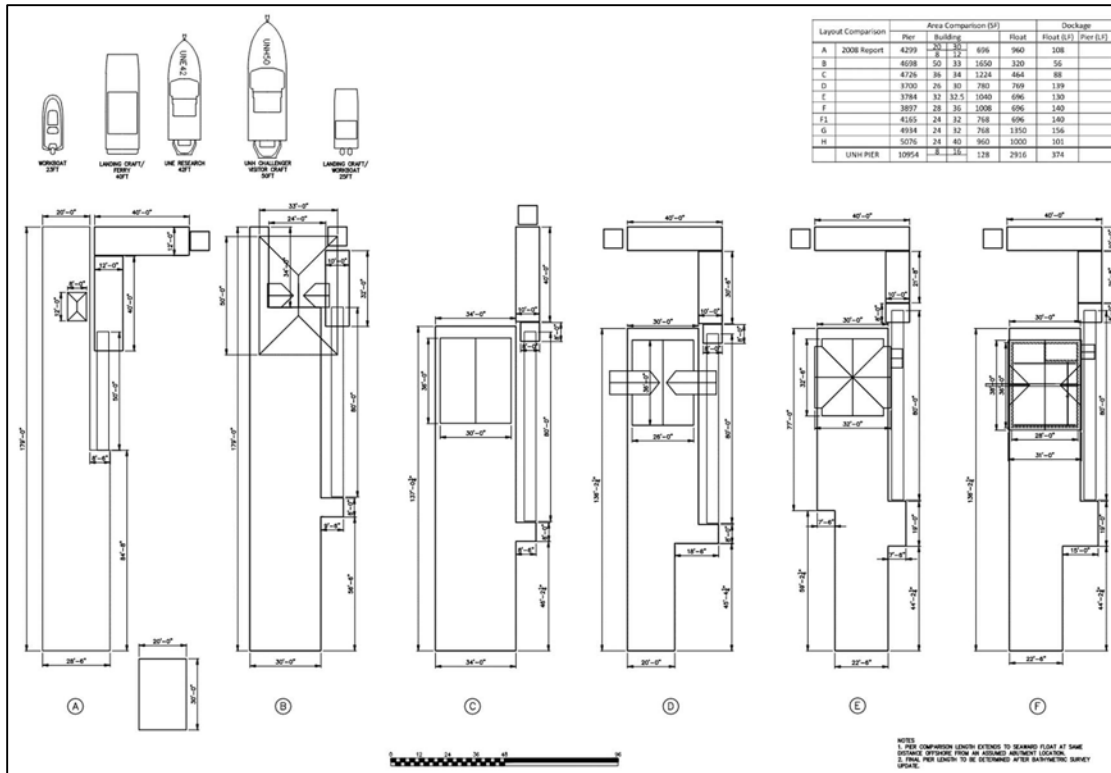
Vehicular and pedestrian access to the pier will be provided by a new single-lane access road that will extend from the existing MSC access road and parking area, around the east side of the MSC building, and to the end of the pier approach. The access road has a 20-foot paved width with a single 16-foot wide lane and 2-foot wide paved shoulders. A turnaround area is provided adjacent 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 parking will use the existing parking spaces adjacent to the MSC 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.

Summary of Impacts

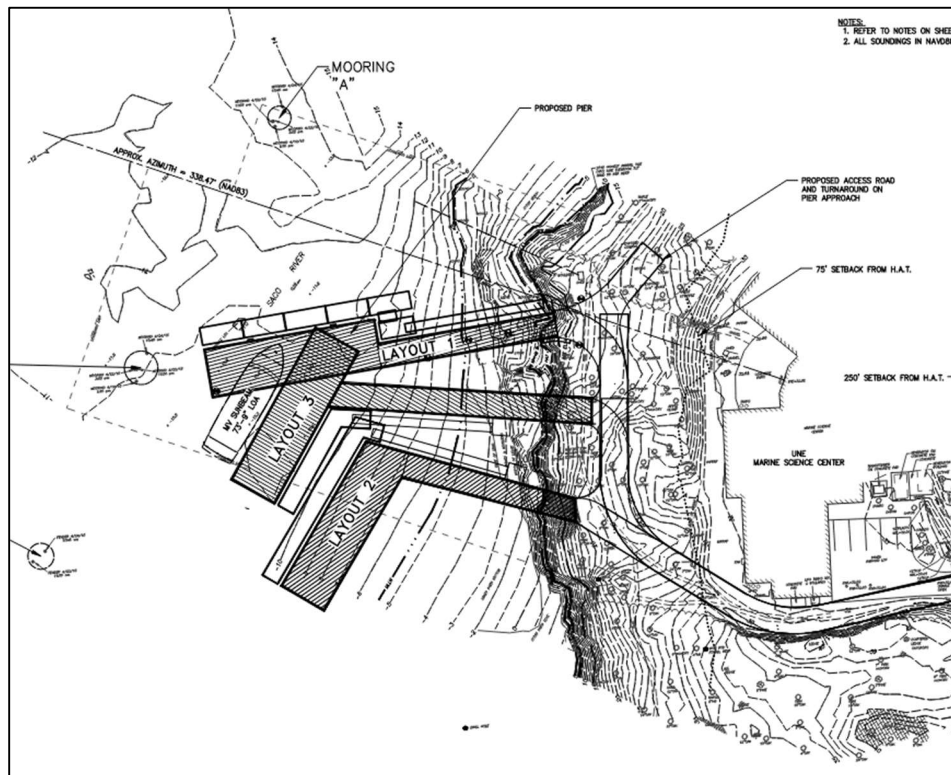
Table 1 provides a tabulation of direct and indirect impacts associated with the proposed facility.

Item		Indirect Impact (SF)	Direct Impact (SF)
1	Pier Structure		
	Pier Support Piles	---	59.3
	Fender Piles	---	24
	Gangway Lifting Beam Support Pile	---	0.6
	Pier Footprint Beyond HAT Line	3579	---
	Total	3579	84
2	Floating Dock System		
	8-foot by 24-foot float	192	---
	8-foot by 26-foot 10-inch angled float	175	---
	12-foot by 30-foot float	360	---
	6-foot by 20-foot fireboat float	120	---
	Total	848	---
3	Gangway		
	5-foot by 80-foot gangway	357	---
	Total	357	---
TOTAL IMPACT AREA		4784	84



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.

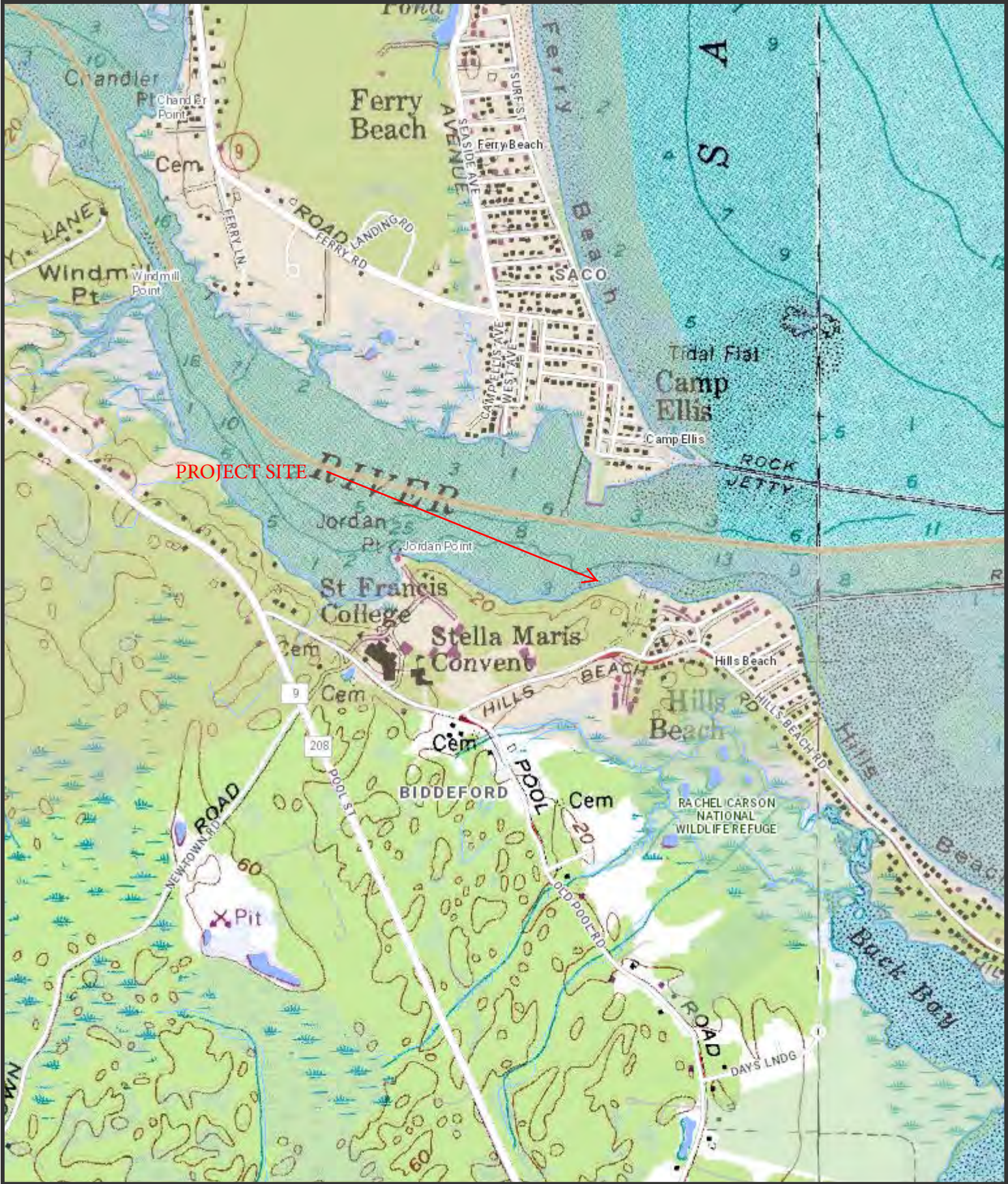
The preferred alternative as currently presented represents a facility of the smallest dimensions possible to provide a functional facility that provides all-tide access for the range of vessels anticipated to use the facility, and ADA compliant access to the floating dock and gangway system and berthed 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.

ATTACHMENT 3 – LOCATION MAP

ATTACHMENT 3 - 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.

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1 inch = 0.28 miles

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ATTACHMENT 4 – PHOTOS



Looking down river



Looking down river.



At site.

ATTACHMENT 5/6 – PLANS

Attachment 7 – Construction Plan

Construction Access

The project occurs on a waterfront site along the Saco River. The proposed activities will require construction access by land and from water. Access by land will be by roads on the UNE campus. The new pier access road will be roughed-in early in the construction to provide an upland route for construction access, material deliveries, and staging. Access to the site by water will be by barge from the Saco River. The contractor will be directed to avoid impacts to the nearby federal navigation channel and adjacent waterfront facilities during site access. Short-term temporary impacts to the federal channel and adjacent facilities may be necessary during various stages of the project. The contractor will be directed to coordinate impacts with adjacent facility owners, the Biddeford and Saco Harbormasters, the Coast Guard, and the Army Corps of Engineers.

Construction Notices

The owner and/or owner's agent will notify abutting property owners when the work starts and will keep them informed of changes in project schedule.

Method of Construction

The work will require mobilization of marine construction equipment (barge, crane, tug, work boat), and upland construction equipment (earthmoving, concrete placement, paving). The pier design uses pre-fabricated components to the greatest extent possible to minimize the required onsite construction time. A summary of the construction process is provided below:

1. Contractor mobilization for upland construction.
2. Rough-in access road and install temporary erosion and sedimentation control measures.
3. Construct concrete pier abutment.
4. Contractor mobilization for marine construction.
5. Drive steel pipe piles.
6. Install precast concrete pile caps using barge mounted crane.
7. Install precast concrete deck planks using barge mounted crane.
8. Install timber fender piles and associated fendering components.
9. Install floating docks and gangway.
10. Complete construction of pier topside components including timber curbs, metal handrails, utilities, pier buildings, jib crane, and ancillary features.
11. Complete construction of access road including paving and permanent erosion and sedimentation control measures
12. Demobilize from site.

Construction Schedule

The construction is proposed to take place during winter 2024-2025. The construction is estimated to take 8-9 months to complete. It is anticipated that the start of upland construction will be scheduled in early fall to allow the access road to be roughed-in prior to the start of marine construction. Marine

construction will be completed in compliance with the standard November 8-April 9 in-water work window. All in-water work will be completed within this window. Topside work on the pier may extend beyond the end of the in-water work window. Final completion of the upland access road is anticipated to be in late spring to early summer 2025, as this will need to be timed to consider local road postings that may impact construction equipment and material access to the site.

ATTACHMENT 8 – EROSION CONTROL PLAN

Erosion control details and specifications are included on the project plans.

**ATTACHMENT 9 – WETLAND DELINEATION REPORT/COASTAL WETLAND
CHARACTERIZATION APPENDIX B**

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
U.N.E. - BIDDEFORD, MAINE

Prepared for

SITE DESIGN ASSOCIATES



Prepared by

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WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
U.N.E. - BIDDEFORD, ME.

REPORT CONTENT

- 1.0 PROJECT INTRODUCTION
- 2.0 PROJECT METHODOLOGY
- 3.0 PROJECT SUMMARY

- APPENDIX A: PLAN (REDUCED)
- APPENDIX B: WETLAND TOPOGRAPHIC PLAN (REDUCED)
- APPENDIX C: PHOTOGRAPHS
- APPENDIX D: NATIONAL WETLANDS INVENTORY MAP
- APPENDIX E: NRCS SOIL MAP
- APPENDIX F: F.E.M.A. FLOOD MAP
- APPENDIX G: HIGHEST ASTRONOMICAL TIDE MAP
- APPENDIX H: COASTAL SAND DUNE MAP

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April 9, 2023

Mr. Thomas Saucier
Site Design Associates
23 Whitney Way
Topsham, ME. 04086

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
U.N.E. - BIDDEFORD, ME.

Tom,

Please review the following updated Wetland Report for the proposed Pier at the University of New England (UNE) Marine Science Center.

1.0 **PROJECT INTRODUCTION**

As requested, this report is a summary of a 2023 review of prior wetland surveys for the proposed permanent Pier location at the UNE Marine Science Center in Biddeford originally completed on September 3 and 23, 2015. We have revisited the area several times since the first wetland survey for various efforts and the site is generally unchanged from the 2015 survey. We understand that the current proposed Pier location has shifted alignment slightly toward the northwest from the previous proposed alignment back in 2015. In 2023 the project area was expanded southerly of the 2015 wetland survey to the northerly end of Hill's Beach. We added Wetland D at the transition point from the rocky Saco River ledges to the sandy outwash of Hill's Beach. These areas are not in the immediate vicinity of the proposed Pier and should not be impacted by its construction.

The project area generally consists of uplands with shallow soils over bedrock above short and steep bedrock exposures (ledges) leading down and into the Saco River at some locations. Areas of shaly/gravelly soil exposures are intermixed with silty/sandy flats that are exposed at low tide along the base of these bedrock faces. We did not identify any wetland colonies within the proposed Pier limits however two small colonies of coastal wetland plants (Wetlands A & B) are located in the rocky beach along the original southerly project limits. There is a small "perched" wetland (Wetland C) lying in a narrow shelf of the bedrock cliff northerly of the proposed Pier location.

This spring (2023) we delineated a Coastal Wetland (Wetland D) southerly of the original survey area that was added to the original survey limits and approximately six hundred feet ($\pm 600'$) distant from the

proposed Pier Project. Wetland D is located at the northerly end of Hill's Beach at the transition spot from rocky shoreline along the Saco River to the sandy Hill's Beach.

Lastly, we also noted a small "pocket" of coastal wetlands approximately three hundred feet ($\pm 300'$) northerly of the original survey area. The National Wetlands Inventory (NWI) mapping closely resembles the wetland areas in this area and further described in the following.

2.0 PROJECT METHODOLOGY

We reviewed the Medium Intensity Soil Survey by the Natural Resource Conservation Service (NRCS), Maine G.I.S. website for Aerial Photography, Shorebird Feeding Habitat, Shorebird Roosting Habitat, U.S. Fish & Wildlife's National Wetland Inventory Maps, Topographic/Soundings Survey by Statewide Surveys, Inc and Owen Haskell, Inc, Wetlands/Deep Water Classifications by Cowardin and The Identification and Management of Significant Fish and Wildlife Resources in Southern Maine by the Maine Inland Fisheries and Wildlife and the Coastal Sand Dune Geology Map by the Maine Geological Survey prior to conducting the Wetland Survey.

The project limits were defined by Site Design Associates in 2015 and redefined in 2023. Relative site features were located within the project area using a Trimble® Geo-XH Global Positioning Unit (GPS). The wetlands were reviewed again during topographical and bathymetric surveys. We surveyed the site at low tide conditions during both visits in the spring of 2023 and back in 2015 to thoroughly examine and photograph the site within project limit for wetlands.

We also used hand tools to observe the limited soils available in both the uplands and river floodplain. We documented any clams, mussels and marine worms where soils were observed at intermittent locations within the Low, Mid and High Intertidal Zones. We did not identify any wetland vegetation within the proposed location for the new Pier. However, small wetland communities were documented and mapped where present within the project limits.

Typically, three wetland parameters are required with the Routine Method described in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual and its Regional Supplement: North-Central and Northeast Region (Version 2). These environmental parameters include: the presence of hydric soils¹, the predominance of hydrophytes² and evidence of wetland hydrology³.

1. "Hydric" soils formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NEIWPCC).

2. "Hydrophytes" are plants growing in wetlands that have adapted in one way or another to life in permanently or periodically inundated or saturated soils (USACE).

3. "Hydrology" is permanent or periodic inundation, or soil saturation to the surface, at least seasonally is the driving forces behind wetland formation (USACE).

The project area was expanded in 2023 to include more area southerly of the proposed pier site. We delineated a coastal wetland (Wetland D) along the southerly limits of the newly expanded project area. These coastal wetlands have alluvial and "hydric" soil conditions, presence of hydrology and a prevalence of hydrophytes thereby meeting the required wetland criteria identified in the USACE manual.

The three parameters are not all present at the proposed Pier location and we understand the site would

meet the Maine Department of Environmental Protection (MDEP) Shoreland Zoning-Coastal Wetlands. Specifically, lands below the HAT Line which is determined by elevation 6.6' NAVD-88. A wrack line is evident in the field which is a visual indicator of the daily high tide limits and likely slightly below the HAT elevation.

Coastal Wetlands are defined as: All tidal and sub-tidal areas, including all areas below any identifiable debris line left by tidal action; all areas with vegetation present that is tolerant of saltwater and occurs primarily in a salt water or estuarine habitat and any swamps, marsh, bog, beach, flat or other contiguous lowland which is subject to tidal action during the maximum spring tide level as identified in the tide tables published by the National Ocean Service (38 MRSA 480-B).

The 2015 Wetland Survey found small colonies of vegetation commonly found in Coastal Wetlands within the project limits, however these areas are not within the area for the proposed Pier. We designated these areas as Wetlands A, B and C and are all located below the HAT Line within the intertidal zone. We revisited the site in 2023 on two occasions to review wetlands in the expanded area lying southerly of the original project area. We added Coastal Wetlands "D" during these visits and the limits were located during topographical survey work.

Wetlands A & B

Both Wetland A (55 ft²) & Wetland B (107ft²) are two small stands of sparsely populated plant colonies that are nearly connected and located in the rocky beach southerly of the project area. The sparsely populated plant species included the sea lettuce (*Ulva lactuca*) along the water's edge, smooth cordgrass, a few orachs (*Atriplex* sp.), sea-shore goldenrods (*Solidago sempervirens*) with some scattered sea plantain. These areas are shallow to refusal in the rocky substrate with less than seven inches of alluvium (<7") consisting of shaly very dark graying brown sandy loams and loamy sands. Both areas are below the HAT line.

Wetland C

Wetland C (41 ft²) is a small "perched" wetland located on a "shelf" in the ledge exposure northerly of the proposed pier location in the project area. The small area is also below the HAT Line and inhabited with a sparse plant community underlain with shallow alluvial soils. The small colony of herbaceous halophytes and/or hydrophytes are rooted into the shallow alluvial soils with daily tidal inundation being located below the obvious high tide line. The sparse and intermixed vegetation considered hydrophytes and halophytes included: sea lavender (*Limonium carolinianum*), smooth cordgrass (*Spartina alterniflora*), seaside goldenrod (*Solidago sempervirens*) and rockweed. This narrow area was not "flagged" for environmental reasons being underwater at times and flagging will not stand the tidal currents. Please see attached map for wetlands location.

Wetland D

Wetland D is a narrow Coastal Wetlands area along the Back Sand Dune of the reaches of Hill's Beach. This open ended area marginal wetland was added in 2023 with the expansion of the overall Project Limit. Wetland D has an evident wrack line with sparsely populated individual sea-shore goldenrods (*Solidago sempervirens*), cordgrass (*Spartina alterniflora*), american beach grass (*Amnophila breviliquata*) and raspberry (*Rubus* sp.) stems between the wrack line and upland vegetation. This area has slight characteristics of a back sand dune environment. The sparse vegetation is mainly between the principle

wrack line and the apparent HAT Line. This open ended wetland area begins where the rocky shoreline of the Saco River meets with the flat sands of the northern end of Hills Beach. Our first visit in 2023 found the area saturated from the previous high tide cycle and the wetland limits were readily apparent to the upland vegetation edge. The upland edges are inhabited with freshwater (palustrine) species including: sumac (*Rhus* sp.), honeysuckle (*Lonicera* sp.) and oaks (*Quercus* spp.).

Upland Characteristics

The site is generally gently sloping downward in an easterly direction toward the Saco River. We found the adjacent uplands to be consistent with the NRCS Soil Map where the NRCS identified the area with Lyman Rock-Outcrop Complex in the Soil Survey of York County, Maine. The upland soils are shallow to hard bedrock intermixed with bedrock exposures or outcroppings.

Mature trees are sparsely inhabiting the land in front of the Marine Science Center and the proposed Pier location. These trees include white oak (*Quercus alba*), red oak (*Quercus rubrum*) and shagbark hickories (*Carya ovata*). These hardwoods appear to be mature, however also appear somewhat stunted growth likely from the limited availability of nutrients in the shallow soils.

We did not observe any wildlife in the upland areas during the 2023 review, however there is evidence of remnant squirrel nut casings under the oak trees. In 2015 we observed some bird and animal species using the Saco River while on-site collecting data for the wetlands including: belted kingfisher (*Ceryle alcyon*), ring billed gull (*Larus delawarensis*), great commorant (*Phalacrocorax carbo*) and a least sand piper (*Calidris minutilla*). We also observed some invasive green crabs (*Carcinus maenas*) and sand shrimp (*Crangon septemspinosa*) in the shallow water along the river's edge. We only observed a breeding (presumed) pair of canadian geese and a loon with winter plumage in 2023.

We did not identify any special wildlife resources such as nesting, rookeries, nesting sites, seal haul outs etc. We reviewed the MDEP website for Shorebird Feeding and Roosting Habitats. None were listed or identified at the proposed project area. Additionally, we referred to The Identification and Management of Significant Fish and Wildlife Resources in Southern Coastal Maine for resources in this area. The document identifies the mouth of the Saco River with Shorebird Feeding and Roosting Areas which is southerly of the project location.

3.0 PROJECT SUMMARY

The 2023 realignment location for the proposed Pier is very close to the 2015 area and along the same ledges as the original location. The 2023 alignment appears to be better positioned in relation to the shoreline and the Saco River flow from our site observations. The site generally consists of bedrock controlled uplands leading down to short steep bedrock cliffs and the rocky shoreline of the Saco River. We reviewed the project study area for wetland habitats as shown on the survey plan. The approximate high tide line is very evident with its intermittent "wrack" or debris line along the bedrock cliff exposures representing fluctuating water levels and tidal events.

The footprint area for the proposed Pier is nearly void of any vegetation except some rockweed (*Fucus vesiculosus*) along the lower parts of the rocky ledges in the mid-intertidal zone and above the Saco River and the low intertidal zone. The natural scouring effect of the fluctuating tides apparently limits plants with

an opportunity to anchor in the lower-intertidal zone or the subtidal river bottom.

We observed some very dark, mixed alluvial soils (deposited materials) below the apparent high tide lines and along the bottom of the bedrock cliffs and the Saco River's edge. Most of the alluvial soils where present are subtidal or just above being completely submerged at low tide and considered as hydric under flooded conditions. There are also small areas with shallow soil "pockets" that are intermixed among boulders and stones along the bedrock cliffs that "grade" down to mixed coarse and fine shales, gravels, sands and silts of the unconsolidated Saco River bottom.

We did not identify any typical coastal wetlands vegetation within the footprint area for the proposed Pier alignment. We understand that wetland regulations are in effect below the Highest Annual Tide of 6.6' NAVD-88 Datum where typical wetland vegetation is not present. We also understand regulatory setbacks (buffers) including the Shoreland Zone would originate above the HAT Line.

We noted another coastal wetland in the intertidal zone to the north of the project limits and not shown. This small wetland colony should not be impacted from the Pier installation. The NWI maps indicated these findings as well with coastal wetlands located both to the north and south of this project area. Both the north and southerly coastal wetlands have been designated as E2AB1N (Estuarine, intertidal, algae aquatic bed, regularly flooded & tidal fluctuation) on the NWI maps. The Saco River is designated as E1UBL (Estuarine, subtidal with unconsolidated bottom).

The project is subject to regulatory review being located within the Saco River floodplain and the Shoreland Zone at the State & Federal Level by the MDEP and the USACE. We understand regulatory setbacks would be measured from the HAT Line per elevation 6.6' NAVD-88 without a coastal wetland boundary to measure from. We also understand, permitting with the MDEP would be with the Mandatory Shoreland Zoning Act (MSZA) and typically required within 250' of the high water mark of a great pond or river, upland edge of a coastal wetland. We further understand that state regulations are in effect within 75' or 100' of the HAT line depending on the type and size of any proposed impacts to these areas.

We recommend reviewing the MDEP Natural Resources Protection Act (NRPA) Permit Applications and scheduling a Pre-Application meeting with the regulatory agencies to determine the required permits for the proposed permanent Pier. We understand that Resource Permits will be required for the permanent Pier within the intertidal zone and below the HAT Line. Areas below the HAT Line at the site meet the definition for Coastal Wetlands. Coastal Wetlands are also considered as "Wetlands of Special Significance" with the MDEP. Impacts to "Wetlands of Special Significance" could require offsetting mitigation depending on the size and type of impact. Lastly, additional permits with the MDEP are likely for any impacts are proposed in and adjacent to the Sand Dunes at Hill's Beach.

Wetlands are regulated also by the USACE under the provisions of Section 404 of the Clean Water Act below the HAT Line and navigable waters of the United States. The USACE may also review permit applications resulting from wetland impacts. We understand permits will be required to alter the wetland resources on-site below the HAT Line. The Corps will evaluate the Pier project and determine the appropriate permit/s required for impacts to Coastal Wetlands whether they are "Wetlands of Special Significance" or not with the MDEP.

The City of Biddeford also has a Code of Ordinances in effect with regulations over resources including the Saco River. The City should be consulted with regarding any local permits that may be required for work in or adjacent to the resource. This may require a UNE Representative to sign local permitting applications. A

MDEP or USACE or Biddeford Official may be required or helpful to determine the permit/s needed for the proposed project along the Saco River shoreline and working within the Shoreland Zone and its buffer. We can assist with environmental meetings with the City, MDEP or USACE if needed.

We further recommend contacting Dig-Safe for underground utility locations. An independent contractor may be necessary to mark utilities on private property. Lastly, we always recommend implementing Best Management Practices (BMP's), especially for stormwater and erosion control during and after construction until the site becomes stabilized and compliance with all environmental regulations during site work.

In the event you have any questions or need further assistance, please contact me using the office addresses provided or the office number at 207-767-4200.

Respectfully Submitted,

Dale A. Brewer

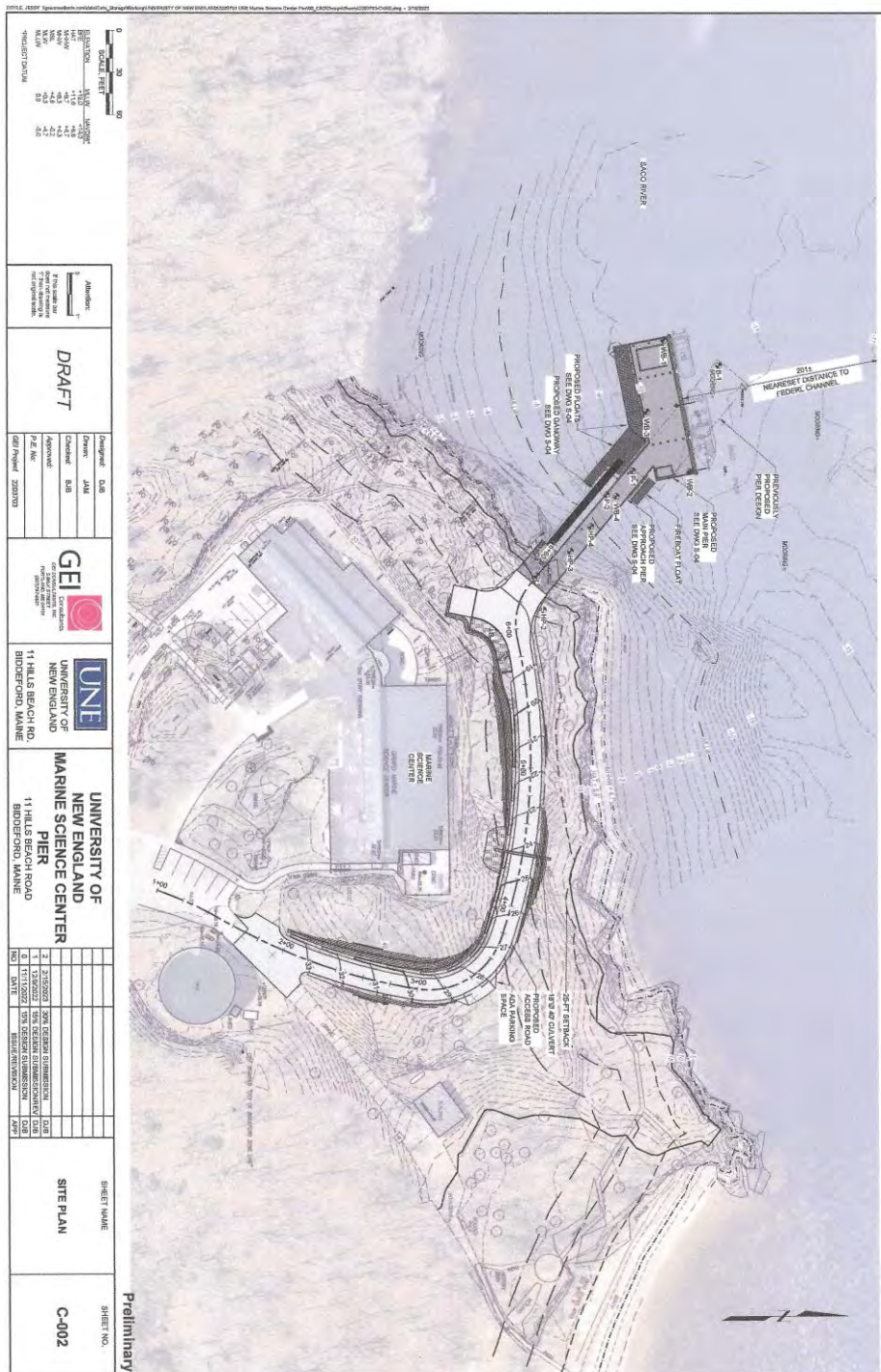
STATEWIDE SURVEYS, INC

Dale A. Brewer LSS/PLS

President

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - A
PROPOSED PIER PLANS
(REDUCED)



WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - B
WETLAND SURVEY PLAN
(REDUCED)

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - C
PHOTOGRAPHS



Photograph One. Photograph of the “perched” Wetland “A” located on a “shelf” in the side of the bedrock cliff. Photograph date: 09/03/2015.



Photograph Two. A westerly view of the original site for the proposed pier in 2015. Note the rocky shoreline transitions into a small gravelly sandy flat. The coastal low marsh wetlands in the background are beyond the survey area. Photo date: 09/03/2015.



Photograph Three. An easterly view of Wetland Plant Colony B and the rocky beach. Note the sparsely populated colonies of sea lavender, smooth cordgrasses, plantains, bladder rockweeds. Photograph date 09/03/2015.



Photograph Four. A photo from Wetland Plant Colony C and the rocky beach along the project limits. Note the sparsely populated colonies of sea plantains and Orachs. Photograph date 09/03/2015.



Photograph Five. A northwesterly view of the location for the proposed Pier. Note the line of tidal action on the ledges which is the approximate HAT Line. A narrow band of rockweeds along the bottom ledges and rocky shoreline. Photograph date 04/08/2023.



Photograph Six. A photo looking south at the proposed Pier location and lower, mid and high intertidal zones from the Saco River edge. Note the Girard Marine Science Center in the background. Photograph date 04/08/2023.



Photograph Seven. The mixed coarse and fines along the base of ledges at the proposed Pier site in the lower intertidal zone and above the silty sandy unconsolidated substrate of the Saco River. Photograph date 04/08/2023.



Photograph Eight. A photo of the mixed silty sandy gravelly (unconsolidated) Saco River bottom at the proposed Pier location in the subtidal zone. und. Photograph date 04/08/2023.



Photograph Nine. A easterly view along the Saco River and Wetland Plant Colony A at low tide along the shoreline. This area is approximately 200' southerly from the proposed Pier and should not be impacted from the Pier. Photograph date 04/08/2023.



Photograph Ten. A photo looking northwesterly at a portion of Coastal Wetland D along the back Sand Dune of the northern end of Hills Beach. Photograph date 04/08/2023.



Photograph Eleven. A soft shelled clam was found in the sandy cove approximately 100' northerly of the proposed Pier. This specimen was among other visible siphon breathing holes. Photograph date 04/08/2023.



Photograph Twelve. A marine worm found in the sandy cove approximately 100' northerly of the proposed Pier. This specimen was among other visible clam siphon breathing holes. Photograph date 04/08/2023.

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - D
NATIONAL WETLANDS INVENTORY
MAP



U.S. Fish and Wildlife Service National Wetlands Inventory

UNE PIER

Sep 21, 2015



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

Riparian Status

- Digital Data

User Remarks:

This map is for general reference only. The U.S. Fish and Wildlife Service is not responsible for any errors or omissions in the data. Wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - E
NRCS SOIL MAP



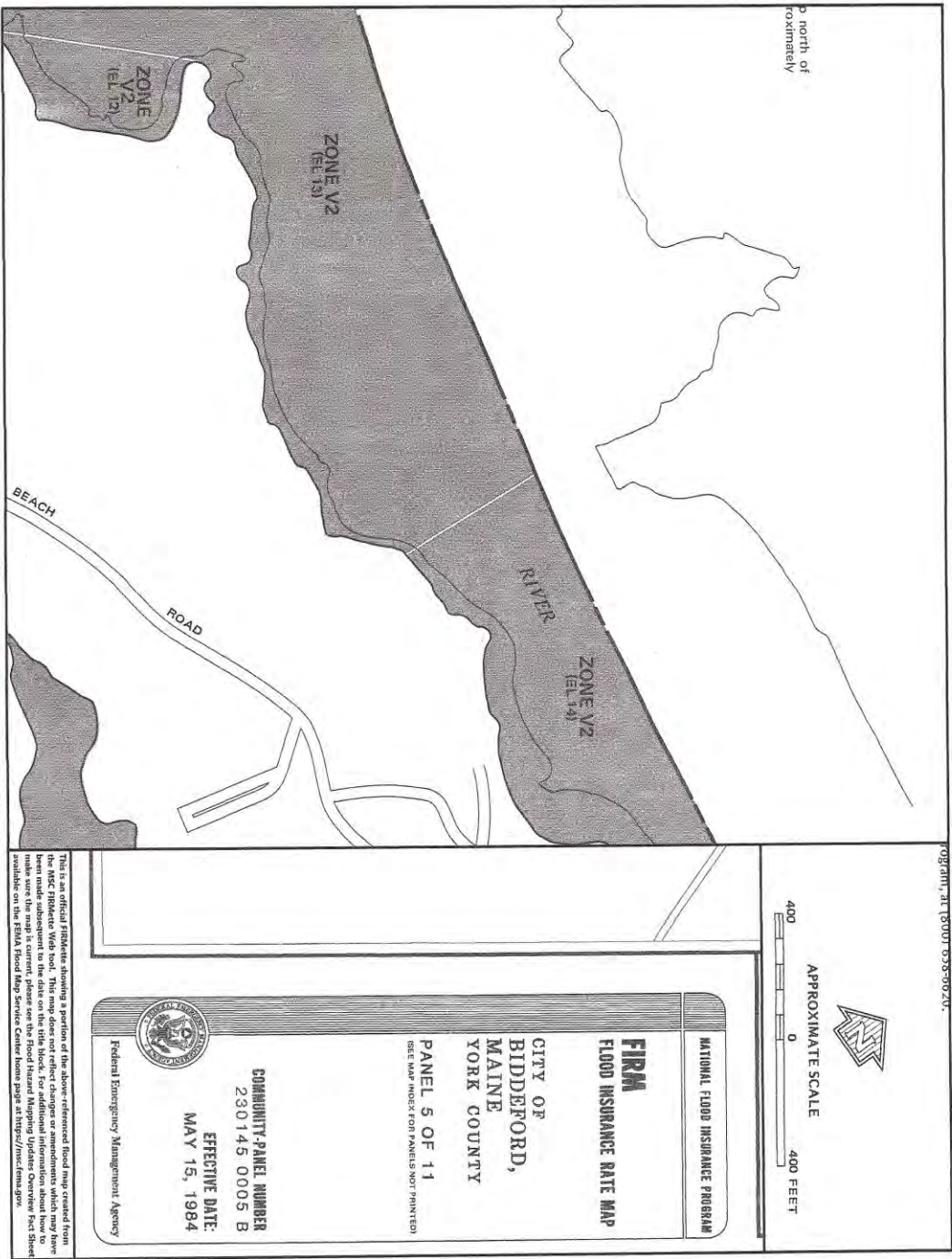
**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

4/13/2023
Page 1 of 3

WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - F
FLOOD MAP



WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - G
HIGHEST ASTRONOMICAL TIDE
MAP

Highest Astronomical Tide Line

To determine the estimated Highest Astronomical Tide elevation (in feet, NAVD88) and the tidal station used, simply click on coastline of interest.



WETLAND SURVEY UPDATE
PROPOSED PIER MARINE SCIENCE CENTER
UNIVERSITY OF NEW ENGLAND
HILL'S BEACH ROAD, BIDDEFORD, ME.

APPENDIX - H
COASTAL SAND DUNE GEOLOGY



Maine Geological Survey

Address: 22 State House Station
Augusta, Maine 04333

Telephone: 207-287-2801

E-mail: mgs@maine.gov

Home page: <http://www.maine.gov/doc/nrimc/nrimc.htm>

See back for description of map units.

Coastal Sand Dune Geology Hills Beach, Saco River, Biddeford, Maine

by Peter A. Slovinsky and Stephen M. Dickson

Open-File No. 11-107

2011

**APPENDIX B: MDEP COASTAL WETLAND CHARACTERIZATION:
INTERTIDAL & SHALLOW SUBTIDAL FIELD SURVEY CHECKLIST**

NAME OF APPLICANT: UNIVERSITY NEW ENGLAND PHONE: 207 602 2253

APPLICATION TYPE: N.R.P.A.

ACTIVITY LOCATION: TOWN: BIDDEFORD COUNTY: YORK

ACTIVITY DESCRIPTION: ☐ fill ☒ pier ☐ lobster pound ☐ shoreline stabilization
☐ dredge ☐ other: PERMANENT PIER FOR RESEARCH

DATE OF SURVEY: 3/21/23 & 4/8/23 OBSERVER: DALE BAEWER

TIME OF SURVEY: 7:00 - 8:15 A.M. TIDE AT SURVEY: LOW

SIZE OF DIRECT IMPACT OR FOOTPRINT (square feet):

Intertidal area: ± 1302 FT² Subtidal area: ± 5797 FT²

SIZE OF INDIRECT IMPACT, if known (square feet): ESTIMATED

Intertidal area: ± 221 FT² Subtidal area: ± 797 FT²

HABITAT TYPES PRESENT (check all that apply):

☐ sand beach ☒ boulder/cobble beach ☐ sand flat ☒ mixed coarse & fines ☐ salt marsh
☒ ledge ☒ rocky shore ☒ mudflat (sediment depth, if known:)

ENERGY: ☐ protected ☐ semi-protected ☐ partially exposed ☒ exposed

DRAINAGE: ☐ drains completely ☐ standing water ☐ pools ☒ stream or channel

SLOPE: ☐ >20% ☒ 10-20% ☐ 5-10% ☐ 0-5% ☐ variable

SHORELINE CHARACTER:

☒ bluff/bank (height from spring high tide: 6') ☐ beach ☒ rocky ☐ vegetated

FRESHWATER SOURCES: ☐ stream ☒ river ☐ wetland ☒ stormwater

MARINE ORGANISMS PRESENT:

	absent	occasional	common	abundant
mussels	☒	☐	☐	☐
clams	☒	☐	☐	☐
marine worms	☒	☐	☐	☐
rockweed	☐	☐	☒	☐
eelgrass	☒	☐	☐	☐
lobsters	☒	☐	☐	☐
other	☒	☐	☐	☐

SIGNS OF SHORELINE OR INTERTIDAL EROSION? ☐ yes ☒ no

PREVIOUS ALTERATIONS? ☐ yes ☒ no

CURRENT USE OF SITE AND ADJACENT UPLAND:

☒ undeveloped ☐ residential ☐ commercial ☐ degraded ☐ recreational

PLEASE SUBMIT THE FOLLOWING:

☒ Photographs ☒ Overhead drawing

(pink)

ATTACHMENT 10 – NOTICE OF INTENT TO FILE

Portland Press Herald
EST. 1862
Maine Sunday Telegram
pressherald.com

Classified Advertising Proof

Tom Saucier
Site Design Associates
23 Whitney Way

Topsham
Maine
04086
+1 (207) 449-4275

Thank you for placing your advertisement with us.

Your order information and a preview of your advertisement are attached below for your review. If there are changes or questions, please contact the classified department at (207) 791-6100

Thank you

(207) 791-6100

jjensen@mainetoday.com

Monday – Friday 8:00 am – 5pm

Order Number	0503081	Order Price	\$458.75
Sales Rep.	Joan Jensen	PO No.	Notice of Intent to File / Tom Saucier
Account	30243	Payment Type	Invoice
Publication	Portland Press Herald	Number of dates	1
First Run Date	06/14/2024	Last Run Date	06/14/2024
Publication	Online Upsell PPH	Number of dates	1
First Run Date	06/14/2024	Last Run Date	06/14/2024

Public Notice

**NOTICE OF
INTENT TO FILE**

Please take notice
that University of New
England, 11 Hills Beach
Road, Biddeford, Maine
04005 is intending to
file a Natural Resources
Protection Act permit
application with the
Maine Department
of Environmental
Protection pursuant

to the provisions of 38 M.R.S. §§ 480-A thru 480-BB on or about June 17, 2024. The application is for a permanent research pier with a ramp and floats at the following location: 11 Hills Beach Road, Biddeford, Maine 04005. A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application. For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456. The application will be filed for public inspection at the Department

of Environmental Protection's office in Portland during normal working hours. A copy of the application may also be seen at the municipal offices in Biddeford, Maine. Written public comments may be sent to the regional office in Portland where the application is filed for public inspection:

ATTACHMENT 11 – MHPC AND TRIBE LETTERS



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

U.S. Postal Service
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Postage \$0.87

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Perry, ME 04667

City, State, ZIP+4®

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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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Postage \$0.87

Total Postage THPO \$8.37

Sent To Penobscot Nation
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Indian Island, ME 04468

City, State, ZIP+4®

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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☐ Adult Signature Restricted Delivery \$0.00

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PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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

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.

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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

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.

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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

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.

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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

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.

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Sincerely,

Site Design Associates



Tom Saucier, P.E.
President

Enclosures



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

ATTACHMENT 12 – MDEP VISUAL EVALUATION FIELD SURVEY CHECKLIST
APPENDIX A

APPENDIX A: MDEP VISUAL EVALUATION FIELD SURVEY CHECKLIST

(Natural Resources Protection Act, 38 M.R.S. §§ 480 A - Z)

Name of applicant: University of New England Phone: 207-602-2365

Application Type: NRPA

Activity Type: (brief activity description) Pier, gangway and float

Activity Location: Town: Biddeford County: York

GIS Coordinates, if known: _____

Date of Survey: 05/01/23 Observer: Tom Saucier Phone: 207-449-4275

	Distance Between the Proposed Visibility Activity and Resource (in Miles)		
	0-1/4	1/4-1	1+
1. Would the activity be visible from:			
A. A National Natural Landmark or other outstanding natural feature?	☐	☐	☒
B. A State or National Wildlife Refuge, Sanctuary, or Preserve or a State Game Refuge?	☐	☐	☒
C. A state or federal trail?	☐	☐	☒
D. A public site or structure listed on the National Register of Historic Places?	☐	☐	☒
E. A National or State Park?	☐	☐	☒
F. 1) A municipal park or public open space?	☐	☐	☒
2) A publicly owned land visited, in part, for the use, observation, enjoyment and appreciation of natural or man-made visual qualities?	☐	☐	☒
3) A public resource, such as the Atlantic Ocean, a great pond or a navigable river?	☒	☐	☐
2. What is the closest estimated distance to a similar activity?	☒	☐	☐
3. What is the closest distance to a public facility intended for a similar use?	☐	☐	☒
4. Is the visibility of the activity seasonal? (i.e., screened by summer foliage, but visible during other seasons)		☐ Yes	☒ No
5. Are any of the resources checked in question 1 used by the public during the time of year during which the activity will be visible?		☒ Yes	☐ No

A listing of National Natural Landmarks and other outstanding natural features in the State of Maine can be found at: www.nature.nps.gov/nnl/Registry/USA_map/states/Maine/maine.htm . In addition, unique natural areas are listed in the Maine Atlas and Gazetteer published by DeLorme.

(pink)

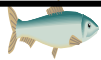
ATTACHMENT 13 – PROJECT DESCRIPTION WORKSHEET APPENDIX D

Natural Resource Protection Act Application

APPENDIX D: Project Description Worksheet for a Dock, Pier or Wharf Application.



Help us process your application more efficiently by completing this worksheet, which is supplemental to a NRPA application for a dock, pier or wharf. A completed Appendix D may be substituted for Block 14 of the application page.



THIS IS AN APPLICATION FOR A.....

☐ Commercial wharf

If yes, indicate type of commercial activity: _____

License number: _____

Number of fishermen using this wharf: _____

☐ Public pier, dock or wharf

☐ Common or shared recreational pier, dock or wharf

☐ Private recreational pier, dock or wharf

☐ Expansion or modification of an existing structure

☒ Other, please indicate: Research pier, gangway, and floats



TELL US ABOUT YOUR BOAT....

My boat(s) requires a draft of up to 5 feet.

My boat(s) is 60' max feet long.



TELL US ABOUT YOUR PROJECT SITE.... For coastal piers and wharves, please complete Appendix B of the NRPA application. For freshwater docks, please describe the substrate and any vegetation: See appendix B



SCENIC CONSIDERATIONS...Please complete Appendix A of the NRPA application.



WHAT FACILITIES ARE NEARBY?

The nearest public boat launch is located in Biddeford approximately 2 miles from the project location.
(town) (distance)

The nearest public, commercial, or private marina is located in Saco approximately 0.04 miles from the project location.
(distance) (town)

☐ I have inquired about slip or mooring availability at the nearest marina or public facility.

☐ Yes, a slip or mooring is available. ☐ No, a slip or mooring is not available.

Approximate expected time on waiting list: _____

☒ I have contacted the local Harbor Master.

Name: University of New England Phone: 207-602-2365

I currently use the following for my boat: ☐ Mooring ☐ Marina



TELL US ABOUT YOUR PROPOSED PIER, DOCK OR WHARF...

MATERIALS:

- ☒ The structure will be supported by pilings.
_____ 14 pilings of _____ 24 inches in diameter
and 11 pilings of 16 inches in diameter
- ☐ The structure will be supported by stacked, flow-through granite cribs.
_____ blocks, measuring _____ feet by _____ feet
- ☐ The structure will be supported by solid fill.
_____ square feet of solid fill
- ☒ Other: (30) 12" diameter timber fender piles will be installed around perimeter of pier head,
and (1) 10.75" diameter steel pile will support the outer side of the gangway lifting gantry

DIMENSIONS:

Length of fixed section:

Width of fixed section:

Length of ramp:

Dimensions of float:

Distance the structure will extend below mean low water (MLW): _____ +/-115 feet

Depth of water at the fixed end of the structure: _____ +/-5 to 6 feet

Depth of water at the float at low tide: _____ +/-3.5 to 5 feet

Depth of water at the float at high tide: _____ +/-13.2 to 14.7 feet

Dimensions of any proposed buildings (e.g. bait shed):

<12 feet high by 8 feet wide by 12 feet long storage shed
<20 feet high by 16 feet wide by 30 feet long outdoor covered classroom

ACCESS:

During construction, my project site will be accessed via:

- ☒ Land
- ☐ Beach/intertidal area
- ☒ Water/barge

**ATTACHMENT 14 – Species List, MA Consistency Letter, and Correspondence with
USFW regarding the Northern Long-eared Bat.**



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:

04/03/2024 12:50:39 UTC

Project Code: 2023-0081325

Project Name: University of New England Pier Revised

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 IPaC 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 [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

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

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: 2023-0081325

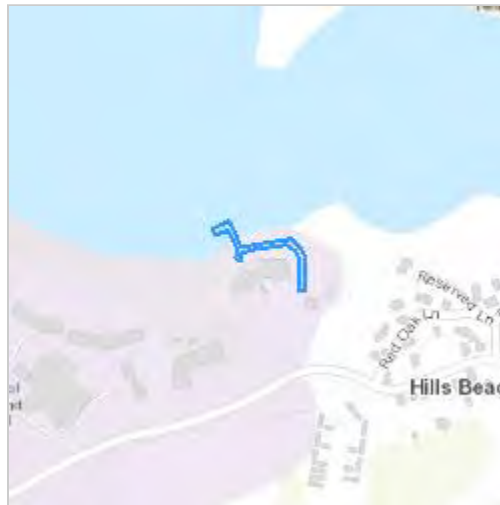
Project Name: University of New England Pier Revised

Project Type: Boatlift/Boathouse/Dock/Pier/Piles - New Construction

Project Description: The project involves construction of a permanent pier on the Saco River and an access road to support the University of New England Marine Sciences program. The project will involve clearing approximately 0.3 acres of mixed forested upland and disturbance of 85 square feet intertidal and deep water habitat for pier piles.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.4599768,-70.38240099961078,14z>



Counties: York County, Maine

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 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
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
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

BIRDS

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Roseate Tern <i>Sterna dougallii dougallii</i> Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered
Rufa Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

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.

IPAC USER CONTACT INFORMATION

Agency: Department of Commerce
Name: Ian Broadwater
Address: 18 Grand Street
City: South Portland
State: ME
Zip: 04106
Email: ian@broadwaterenvironmental.com
Phone: 2075239029

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Commerce



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:

Project code: 2023-0081325

Project Name: University of New England Pier Revised

May 12, 2023

Federal Nexus: yes

Federal Action Agency (if applicable): Department of Commerce

Subject: Technical assistance for 'University of New England Pier Revised'

Dear Ian Broadwater:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on May 12, 2023, for "University of New England Pier Revised" (here forward, Project). This project has been assigned Project Code 2023-0081325 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (Dkey), invalidates this letter. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat.

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a proposed action "is

not likely to adversely affect (NLAA)" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Piping Plover (<i>Charadrius melodus</i>)	Threatened	No effect
Red Knot (<i>Calidris canutus rufa</i>)	Threatened	No effect
Roseate Tern (<i>Sterna dougallii dougallii</i>)	Endangered	May affect

Consultation with the Service is not complete. Further consultation or coordination with the Service is necessary for those species or designated critical habitats with a determination of "May Affect". Please contact our Maine Ecological Services Field Office to discuss methods to avoid or minimize potential adverse effects to those species or designated critical habitats.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Monarch Butterfly *Danaus plexippus* Candidate
- Northern Long-eared Bat *Myotis septentrionalis* Endangered

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the Maine Ecological Services Field Office and reference the Project Code associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

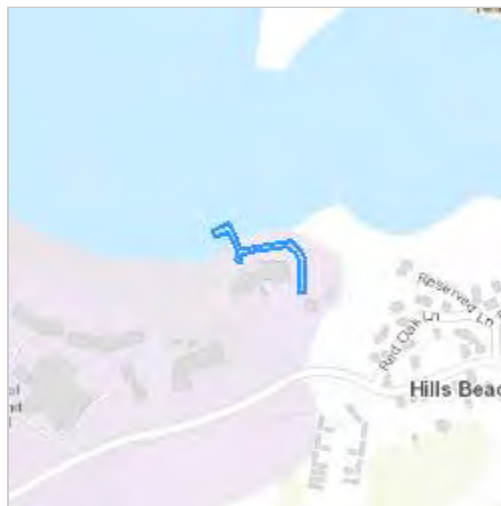
University of New England Pier Revised

2. Description

The following description was provided for the project 'University of New England Pier Revised':

The project involves construction of a permanent pier on the Saco River and an access road to support the University of New England Marine Sciences program. The project will involve clearing approximately 0.3 acres of mixed forested upland and disturbance of 85 square feet intertidal and deep water habitat for pier piles.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.4599768,-70.38240099961078,14z>



QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

Yes

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

Note: This question 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

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

No

5. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

Note: If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

Yes

6. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

Yes

7. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)?

No

8. Will the proposed project involve the use of herbicide where listed species are present?

No

9. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

No

10. Does any component of the project associated with this action include structures that may pose a collision risk to **birds** (e.g., land-based or offshore wind turbines, communication towers, high voltage transmission lines, any type of towers with or without guy wires)?

Note: For federal actions, 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

11. Does any component of the project associated with this action include structures that may pose a collision risk to **bats** (e.g., land-based wind turbines)?

Note: For federal actions, 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

12. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

No

13. Will the proposed project affect wetlands where listed species are present?

This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

Yes

14. Will the proposed project activities (including upland project activities) occur within 0.5 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

Yes

15. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary where listed species may be present?

Yes

16. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream where listed species may be present?

No

17. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds) where listed species may be present?

No

18. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining where listed species may be present?

No

19. Will the proposed project involve the creation of a new water-borne contaminant source where listed species may be present?

Note New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

No

20. Will the proposed project involve perennial stream loss, in a stream or tributary of a stream where listed species may be present, that would require an individual permit under 404 of the Clean Water Act?

No

21. Will the proposed project involve blasting where listed species may be present?

No

22. Will the proposed project include activities that could result in an increase to recreational fishing or potentially affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage)?

No

23. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream or tributary of a stream where listed species may be present?

Note Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

Yes

24. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank where listed species may be present?

Yes

25. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

Yes

26. Will the proposed project result in changes to beach dynamics that may modify formation of habitat over time?

Note: Examples of projects that result in changes to beach dynamics include 1) construction of offshore breakwaters and groins; 2) mining of sand from an updrift ebb tidal delta; 3) removing or adding beach sands; and 4) projects that stabilize dunes (including placement of sand fences or planting vegetation).

No

27. [Hidden Semantic] Is the project area located within the piping plover AOI?

Automatically answered

Yes

28. If you have determined that the piping plover is unlikely to occur within your project's action area or that your project is unlikely to have any potential effects on the piping plover, you may wish to make a "no effect" determination for the piping plover. Additional guidance on how to make this decision can be found in the project review section of your local Ecological Services Field Office's website. CBFO: <https://www.fws.gov/office/chesapeake-bay-ecological-services/project-review> ; MEFO: <https://www.fws.gov/office/maine-ecological-services> ; NJFO: <https://www.fws.gov/office/new-jersey-ecological-services/new-jersey-field-office-project-review-guide> ; NEFO: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review#Step5> ; WVFO: <https://www.fws.gov/office/west-virginia-ecological-services/project-planning>. If you are unsure, answer "No" and continue through the key.

Would you like to make a no effect determination for the piping plover?

Yes

29. [Hidden Semantic] Is the project area located within the piping plover AOI?

Automatically answered

Yes

30. [Hidden Semantic] Is the project area located within the red knot AOI?

Automatically answered

Yes

31. If you have determined that the red knot is unlikely to occur within your project's action area or that your project is unlikely to have any potential effects on the red knot, you may wish to make a "no effect" determination for the red knot. Additional guidance on how to make this decision can be found in the project review section of your local Ecological Services Field Office's website. CBFO: <https://www.fws.gov/office/chesapeake-bay-ecological-services/project-review> ; MEFO: <https://www.fws.gov/office/maine-ecological-services> ; NJFO: <https://www.fws.gov/office/new-jersey-ecological-services/new-jersey-field-office-project-review-guide> ; NEFO: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review#Step5> ; WVFO: <https://www.fws.gov/office/west-virginia-ecological-services/project-planning>. If you are unsure, answer "No" and continue through the key.

Would you like to make a no effect determination for the red knot?

Yes

32. [Hidden Semantic] Is the project area located within the roseate tern AOI?

Automatically answered

Yes

33. If you have determined that the roseate tern is unlikely to occur within your project's action area or that your project is unlikely to have any potential effects on the roseate tern, you may wish to make a "no effect" determination for the roseate tern. Additional guidance on how to make this decision can be found in the project review section of your local Ecological Services Field Office's website. CBFO: <https://www.fws.gov/office/chesapeake-bay-ecological-services/project-review> ; MEFO: <https://www.fws.gov/office/maine-ecological-services> ; NJFO: <https://www.fws.gov/office/new-jersey-ecological-services/new-jersey-field-office-project-review-guide> ; NEFO: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review#Step5> ; WVFO: <https://www.fws.gov/office/west-virginia-ecological-services/project-planning>. If you are unsure, answer "No" and continue through the key.

Would you like to make a no effect determination for the roseate tern?

No

34. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

Automatically answered

No

35. [Semantic] Does the project intersect the Indiana bat critical habitat?

Automatically answered

No

36. [Semantic] Does the project intersect the candy darter critical habitat?

Automatically answered

No

37. [Semantic] Does the project intersect the diamond darter critical habitat?

Automatically answered

No

38. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

Automatically answered

No

39. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

Automatically answered

No

40. Do you have any other documents that you want to include with this submission?

Yes

SUBMITTED DOCUMENTS

- *UNE MSC APPENDIX B.pdf* <https://ipac.ecosphere.fws.gov/project/5OEXZ4IMIRGHTN6NWQ6DFNIBIY/projectDocuments/126368373>
- *Photos of bank and shore at pier.pdf* <https://ipac.ecosphere.fws.gov/project/5OEXZ4IMIRGHTN6NWQ6DFNIBIY/projectDocuments/126368441>

PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?

0.3

2. Approximately how many total acres of disturbance are within the disturbance/ construction limits of the proposed project?

0.3

3. Briefly describe the habitat within the construction/disturbance limits of the project site.

The access road area is forested upland with sparse ground cover and trees generally between 3 inches and 10 inches in diameter. The upland comes to a rock face with a drop of approximately 6 to 8 feet high to a cobble beach below that is within the intertidal zone. The cobbles are covered with rock weed growing between the cobbles. Photos of the upland and cobble intertidal zone have been uploaded.

IPAC USER CONTACT INFORMATION

Agency: Department of Commerce
Name: Ian Broadwater
Address: 18 Grand Street
City: South Portland
State: ME
Zip: 04106
Email: ian@broadwaterenvironmental.com
Phone: 2076538737

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Commerce

Tom Saucier

From: Ian <ian@broadwaterenvironmental.com>
Sent: Friday, May 19, 2023 9:58 AM
To: Tom Saucier
Subject: FW: [EXTERNAL] UNE Pier Project

From: Mahaney, Wende <wende_mahaney@fws.gov>
Sent: Friday, May 19, 2023 8:34 AM
To: Ian <ian@broadwaterenvironmental.com>
Cc: Glon, Mael G <mael_glon@fws.gov>
Subject: Re: [EXTERNAL] UNE Pier Project

Hi Ian,

So I looked at the letter you generated from using the NLEB determination key. You reached a "not likely to adversely affect" determination, which would then have to be "submitted" to USFWS by the Corps project manager through IPaC once you submit the permit application and supporting materials.

But, you really could have made a "no effect" determination at Question 2 in the dkey since NLEB really are not expected to occur at the project site. I suspect the Corps PM may change the answers in the dkey and go that route. That's their decision to make. You can leave things as is in IPaC and let the Corps make the final decision on no effect or not likely to adversely affect. Either way, section 7 consultation for the NLEB can be completed quickly by the Corps through use of IPaC.

Thanks for your coordination.

Wende



Wende S. Mahaney, C.W.B. (she/her/hers)
U.S. Fish and Wildlife Service
Maine Field Office
P.O. Box A (mailing address)
306 Hatchery Road (physical address)
East Orland, Maine 04431

Telephone: (207) 902-1569 (direct line)

Fax: (207) 902-1588

Cellular Phone: 207-944-2991

From: Ian <ian@broadwaterenvironmental.com>

Sent: Thursday, May 18, 2023 11:20 AM

To: Mahaney, Wende <wende_mahaney@fws.gov>

Subject: [EXTERNAL] UNE Pier Project

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Wende,

I have revised the iPAC for this project. I added "revised" onto the title and will archive the old version. I needed to revise some answers that I couldn't edit in the old version. I also added additional information that I gathered from the engineer and by visiting the site in person. In the revised iPAC we have the Rosate tern and NLEB showing up as "may effect".

When I visited the site, I took pictures from the approximate center of the pier looking down at the shore. They are attached. The shore is all intertidal where the pier is going. The intertidal zone meets a vertical rock face of 6 to 8 feet high. At this location, the intertidal zone has cobbles covering 80% of the area and rock weed covering much of the cobbles (and non-cobble areas). Due to this condition, we felt that the Piping plover and the Red knot would not frequent nor nest in this type of setting. We did feel like there was a potential for the Rosate tern to potentially nest in the rock face. The rock face does face north and does not receive much in the way of sun. The upland at the top of the rock face is forested with a sparse herbaceous cover.

We were wondering if you can take a look at the revised iPAC and give us advice on how to proceed. I have added you to the project. Evidently, the permit application is going in next week.

Thanks in advance,

Ian

Ian Broadwater MECSS, MELSE, NHCWS

Broadwater Environmental, LLC

1-207-653-8737

www.broadwaterenvironmental.com



Photo 1-Upalnd at center of proposed pier

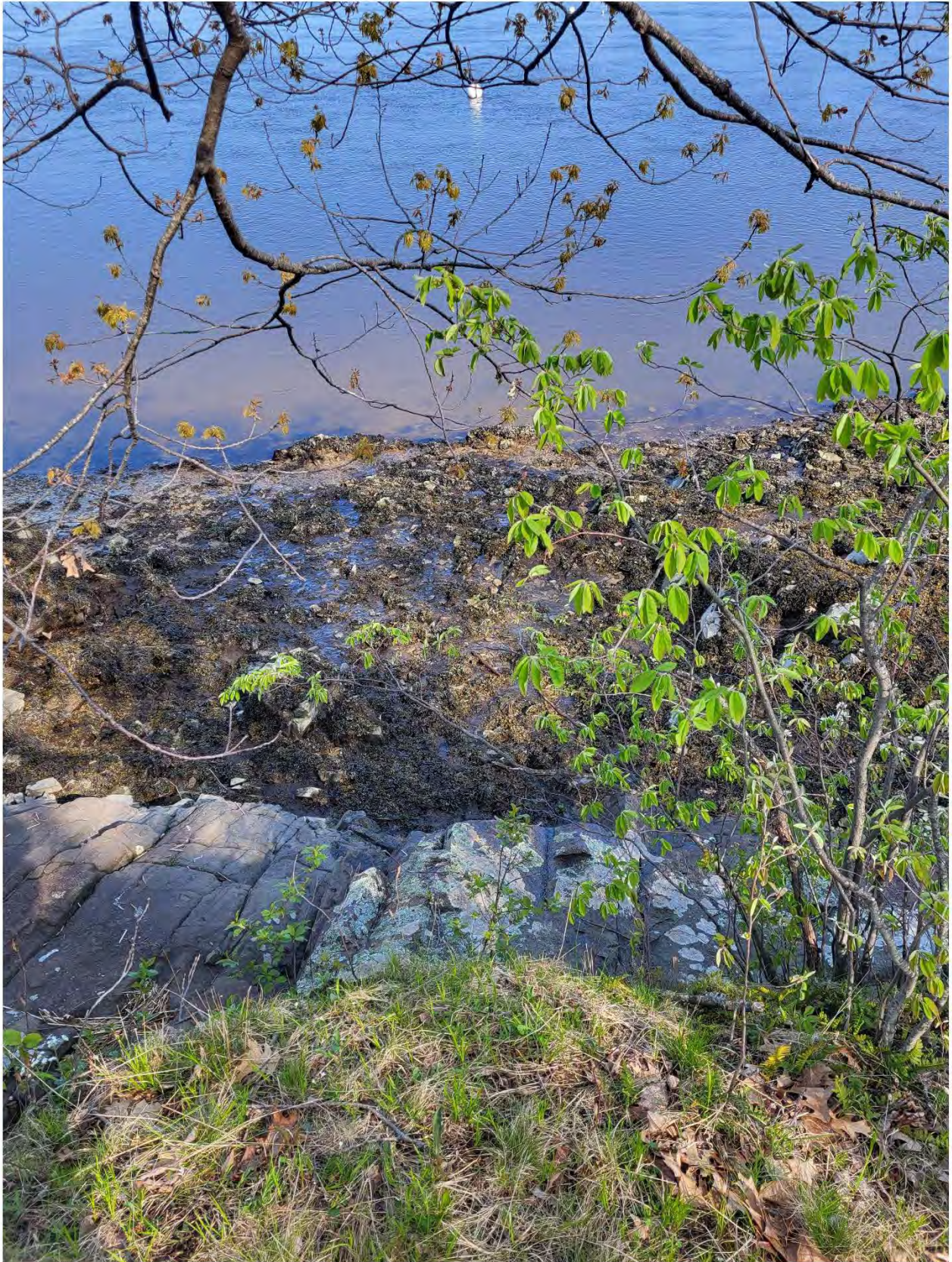


Photo 2-Rocky shore at center of proposed pier



Photo3-Looking east at point from center of pier



Photo 4-Looking west from center of proposed pier

ATTACHMENT 15 – ABUTTER NOTIFICATIONS

7022 1670 0001 0356 1867

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Total Post \$8.73

Sent To Julie J. Vogel
Street 11 Seabreeze Ave
City, State Biddeford, ME 04005

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Postage \$0.68

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Sent To Wermenchuk Realty Trust
Street and Bernice G. Wermenchuk, Trustee
City, State 2 Old Pool Road
Biddeford, ME 04005

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Sent To John Paul and Agnes Boucher
Street and 26 Reserved Lane
City, State Biddeford, ME 04005

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Postage \$0.68

Total Post \$8.73

Sent To Kelly E. Grasso
Street 9 Red Oak Lane
City, State Biddeford, ME 04005

PS Form 3800, April 2015 PSN 7530-02-000-9047

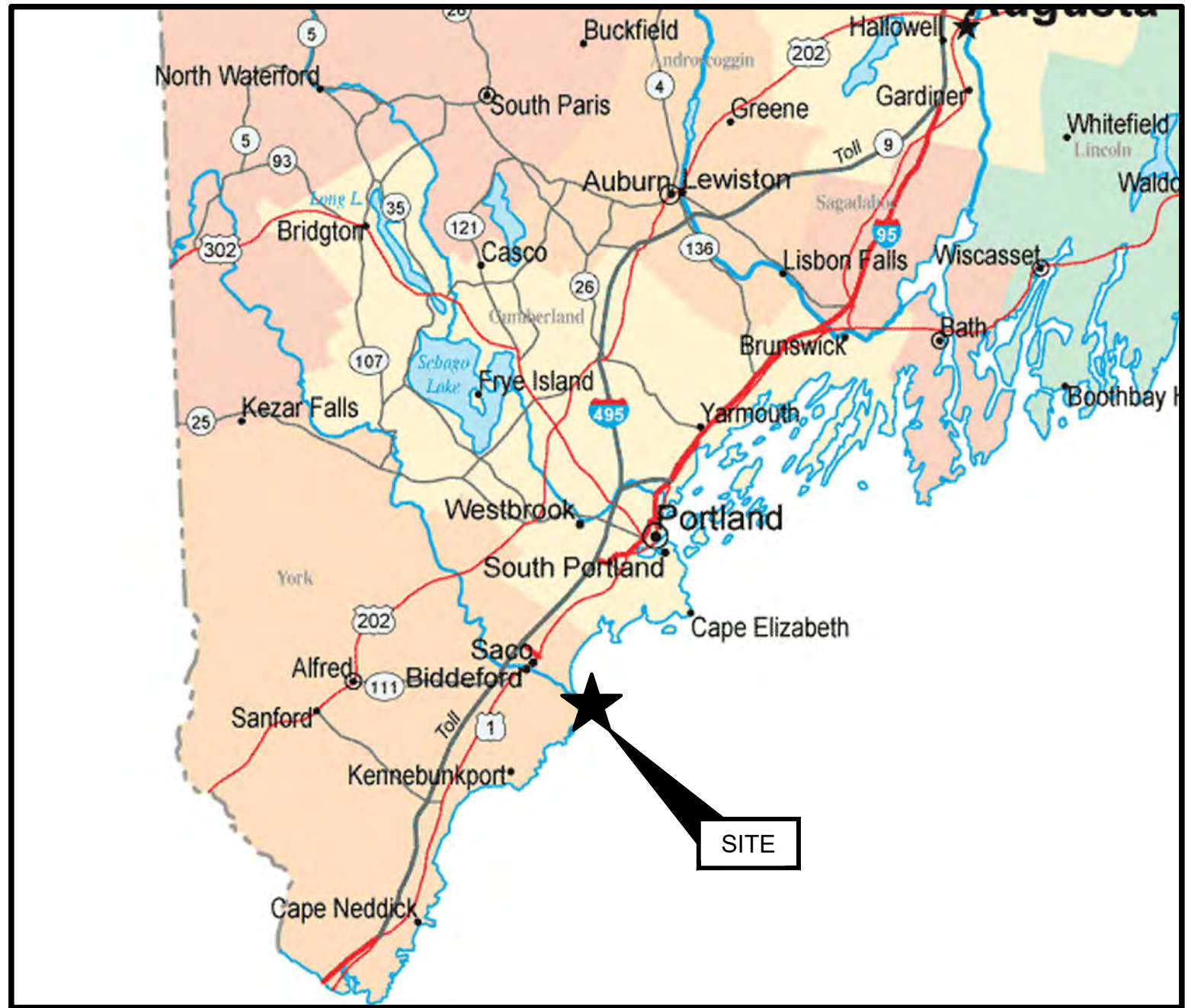
See Reverse for instructions

7022 1670 0001 0356 1829

7022 1670 0001 0356 1850

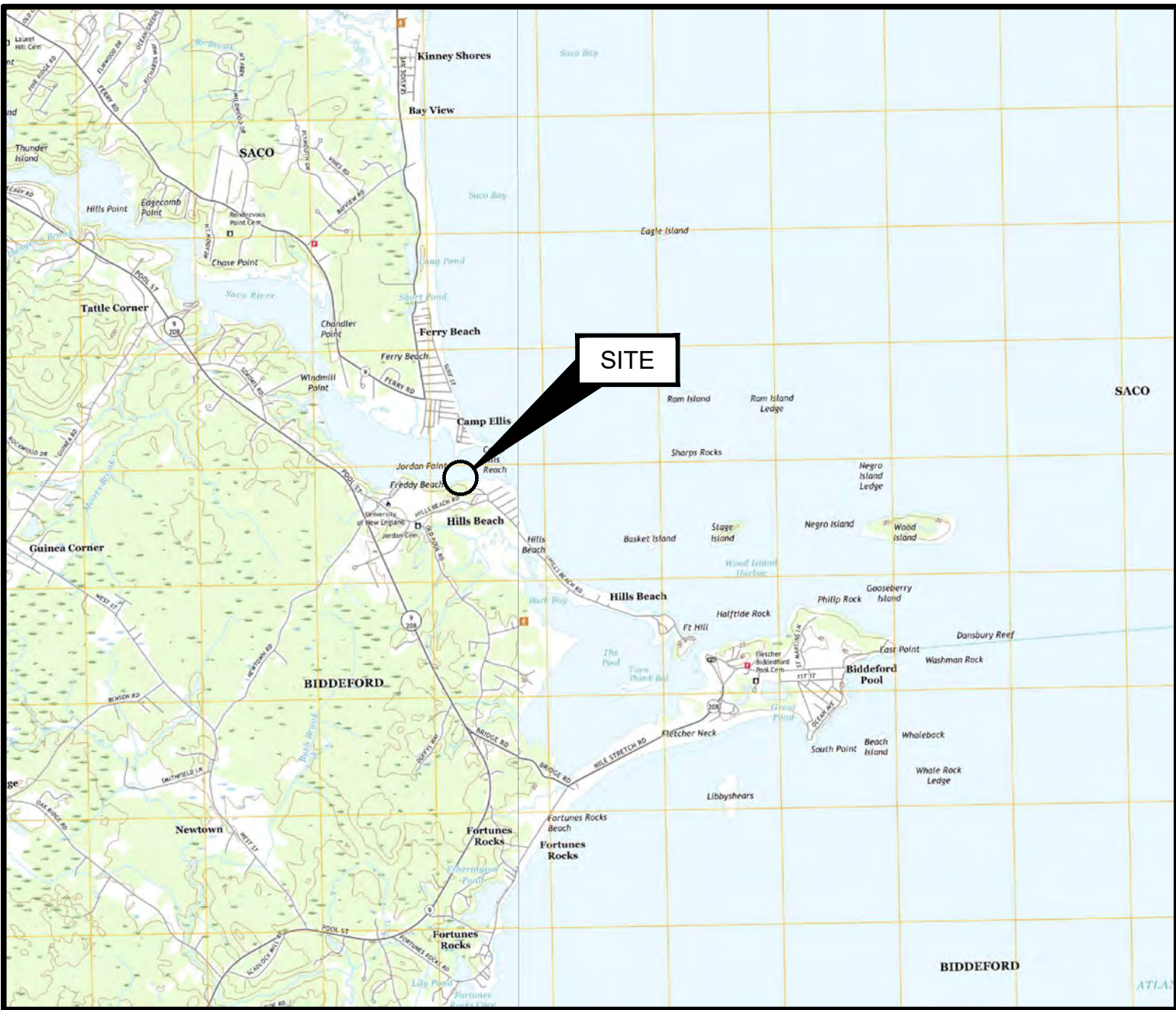
UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER

BIDDEFORD, MAINE



SOURCE:
MAINE ROAD MAP, GOOGLE IMAGES, ACCESSED SEPTEMBER 2023.

STATE MAP
(NOT TO SCALE)



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	C-006	ACCESS ROAD PLAN AND PROFILE STA 1+00 TO MATCHLINE STA 4+00
15	C-007	ACCESS ROAD PLAN AND PROFILE MATCHLINE STA 4+00 TO STA 6+60
16	C-008	ACCESS ROAD TYPICAL SECTION
17	C-009	ACCESS ROAD SECTIONS 2+00 TO 3+75
18	C-010	ACCESS ROAD SECTIONS 4+00 TO 5+75
19	C-011	SITE DETAILS I
20	C-012	EROSION CONTROL NOTES
21	C-013	EROSION CONTROL DETAILS I
22	C-014	EROSION CONTROL DETAILS II
23	S-001	PIER LAYOUT PLAN
24	S-002	PIER PLANS AND ELEVATIONS
25	S-003	TYPICAL PIER SECTIONS (1 OF 2)
26	S-004	TYPICAL PIER SECTIONS (2 OF 2)
27	S-005	PILE PLAN
28	S-006	PRECAST PILE CAP PLAN (1 OF 2)
29	S-007	PRECAST PILE CAP PLAN (1 OF 2)
30	S-008	PRECAST DECK PLANK PLAN
31	S-009	MISCELLANEOUS DETAILS (1 OF 5)
32	S-010	MISCELLANEOUS DETAILS (2 OF 5)
33	S-011	MISCELLANEOUS DETAILS (3 OF 5)
34	S-012	MISCELLANEOUS DETAILS (4 OF 5)
35	S-013	MISCELLANEOUS DETAILS (5 OF 5)
36	S-014	ABUTMENT DETAILS
37	F-001	FLOAT PLAN AND DETAILS

PRELIMINARY - NOT FOR CONSTRUCTION - FOR PERMIT

4	9/14/2023	DEP PERMIT SET	DJB		DWG. NO. G-001
3	6/28/2023	75% DESIGN SUBMISSION	DJB		
2	2/15/2023	30% DESIGN SUBMISSION	DJB		
1	12/9/2022	15% DESIGN SUBMISSION, REV	DJB		SHEET NO.
0	11/11/2022	15% DESIGN SUBMISSION	DJB		1 OF 37
NO.	DATE	ISSUE/REVISION	APP		



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GEI PROJECT NO. 2203703

MORCI, ANTHONY | geiconsultants.com\data\Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\03_CADD\Design\Sheets\2203703-G-002.dwg - 9/14/2023

- 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/ESCBMP'S](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, BOOMS, 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 INSTALL AND MAINTAIN A SILTATION BOOM AROUND THE PERIMETER OF THE WORK AREA FOR THE NEW PIER FOR THE DURATION OF WORK.
 - 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:
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 - 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	fc
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 $\frac{3}{4}$ 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 0.80 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 PILES 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
- FLOAT 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 WCLB 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 $\frac{1}{2}$ ".
 - 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 1/360
 - 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	
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 SUBMISSION/REV	DJB		
0	11/11/2022	15% DESIGN SUBMISSION	DJB		
NO	DATE	ISSUE/REVISION	APP		

MORCI, ANTHONY | gci@geiconsultants.com | Data, Storage | Working | UNIVERSITY OF NEW ENGLAND | 2203703 | UNE Marine Science Center | Plan 003 | CAD | Design | Sheet 2203703-B-001 | Aug - 9/14/2023

- 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

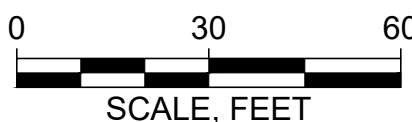
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
B-1	228639.4694	2895328.6104	W70.2258652	N43.2737588
LB-1	228491.1316	2895484.7460	W70.2256530	N43.2736127
LB-3	228473.9539	2895507.7880	W70.2256217	N43.2735958
LB-8	228394.7680	2895765.9460	W70.2252714	N43.2735182
WB-1	228600.2367	2895310.1868	W70.2258901	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

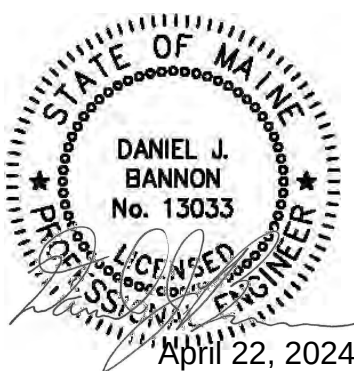
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
ADD-1	228452.7149	2895499.3250	W70.2256331	N43.2735748
ADD-8	228365.9058	2895759.6110	W70.2252799	N43.2734897
ADD-9	228340.5054	2895746.7690	W70.2252972	N43.2734646
HP-1	228497.6520	2895482.1026	W70.2256566	N43.2736191
HP-2	228513.6726	2895503.0285	W70.2256283	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.



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

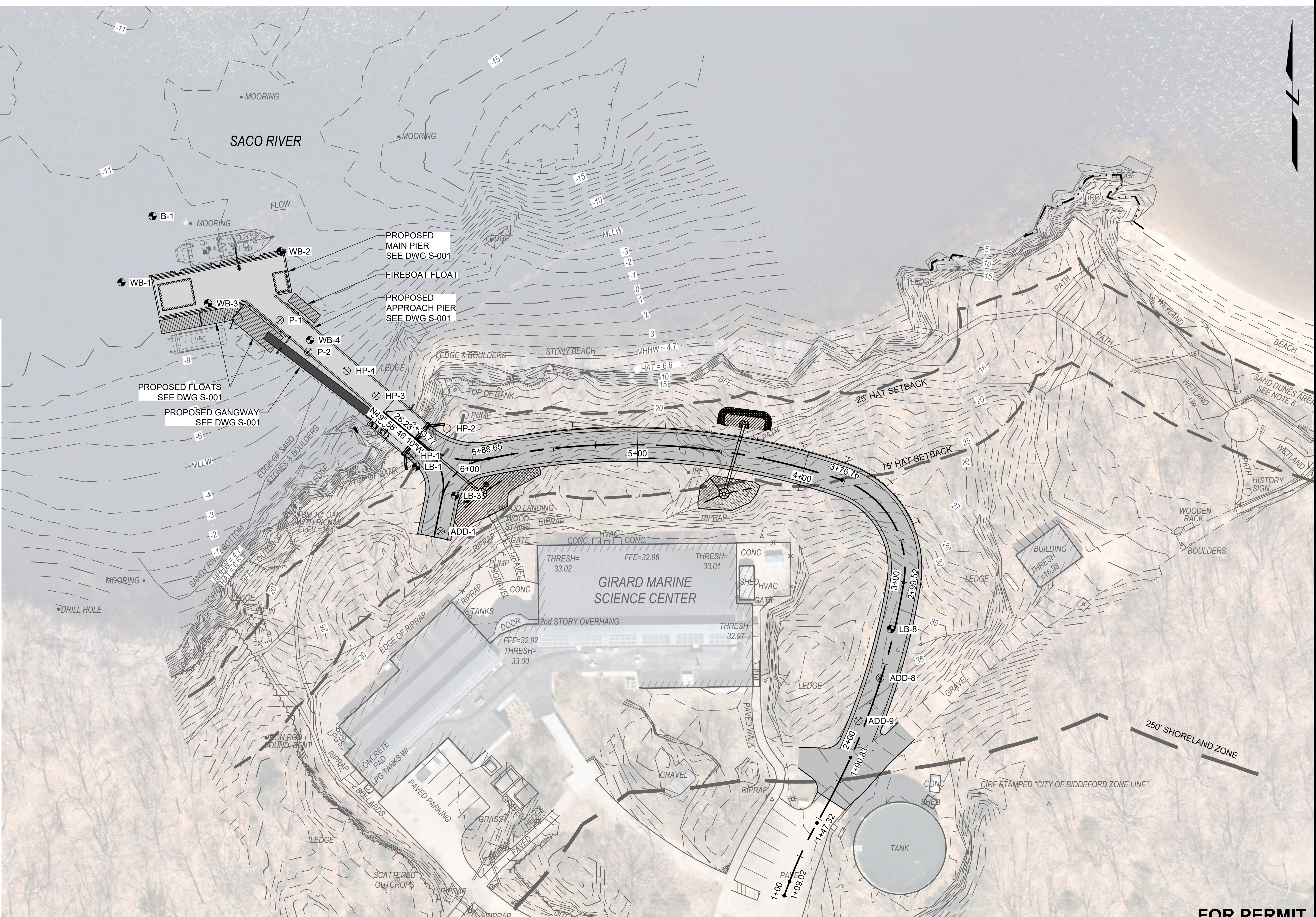
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

NO	DATE	ISSUE/REVISION	APP
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1	12/9/2022	15% DESIGN SUBMISSION REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME
**BORING LOCATION
PLAN**

SHEET NO.

B-001



FOR PERMIT

MORCI, ANTHONY | gciiconsultants.com\data\Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\03_CADD\Design\Sheet\2203703-C-001.dwg - 9/14/2023

LEGEND:

- EXISTING CONTOUR
- - - HAT SETBACK
- - - MLLW
- - - MHHW
- - - HAT
- - - BFE
- - - 250' SHORELAND ZONE
- - - TOP OF BANK
- - - LEDGE
- - - STRUCTURES

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- BENCHMARKS:



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MHHW	+9.7	+4.7
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MLLW	0.0	-5.0

*PROJECT DATUM

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Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
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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

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NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**EXISTING CONDITIONS
PLAN**

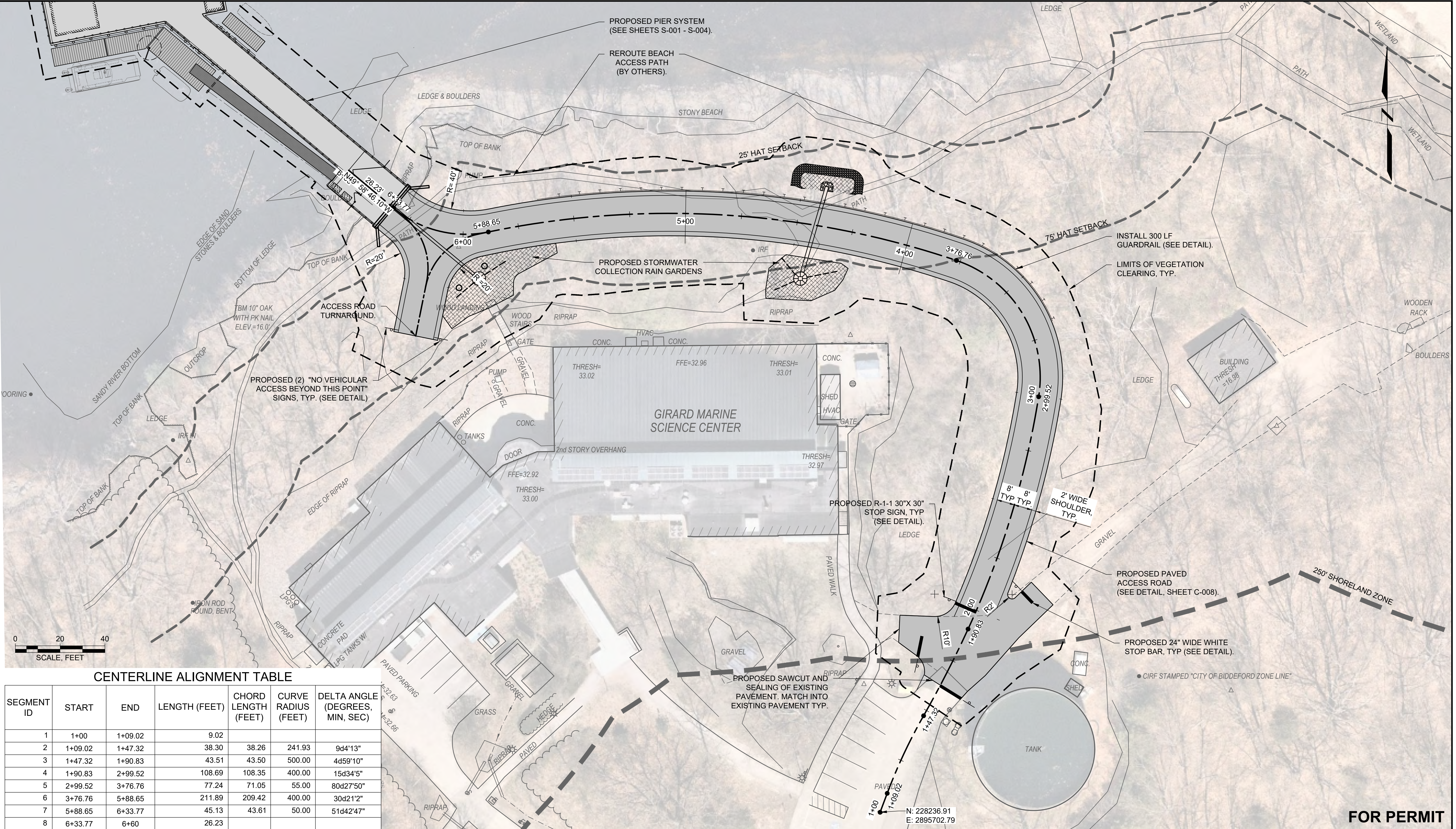
SHEET NO.

C-001



FOR PERMIT

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CENTERLINE ALIGNMENT TABLE						
SEGMENT ID	START	END	LENGTH (FEET)	CHORD LENGTH (FEET)	CURVE RADIUS (FEET)	DELTA ANGLE (DEGREES, MIN, SEC)
1	1+00	1+09.02	9.02			
2	1+09.02	1+47.32	38.30	38.26	241.93	9d4°13"
3	1+47.32	1+90.83	43.51	43.50	500.00	4d59°10"
4	1+90.83	2+99.52	108.69	108.35	400.00	15d34°5"
5	2+99.52	3+76.76	77.24	71.05	55.00	80d27°50"
6	3+76.76	5+88.65	211.89	209.42	400.00	30d21°2"
7	5+88.65	6+33.77	45.13	43.61	50.00	51d42°47"
8	6+33.77	6+60	26.23			

ELEVATION	MLLW	NAVD88*
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MLLW	0.0	-5.0

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STATE OF MAINE

DANIEL J. BANNON

No. 13033

APR 22, 2024

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

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

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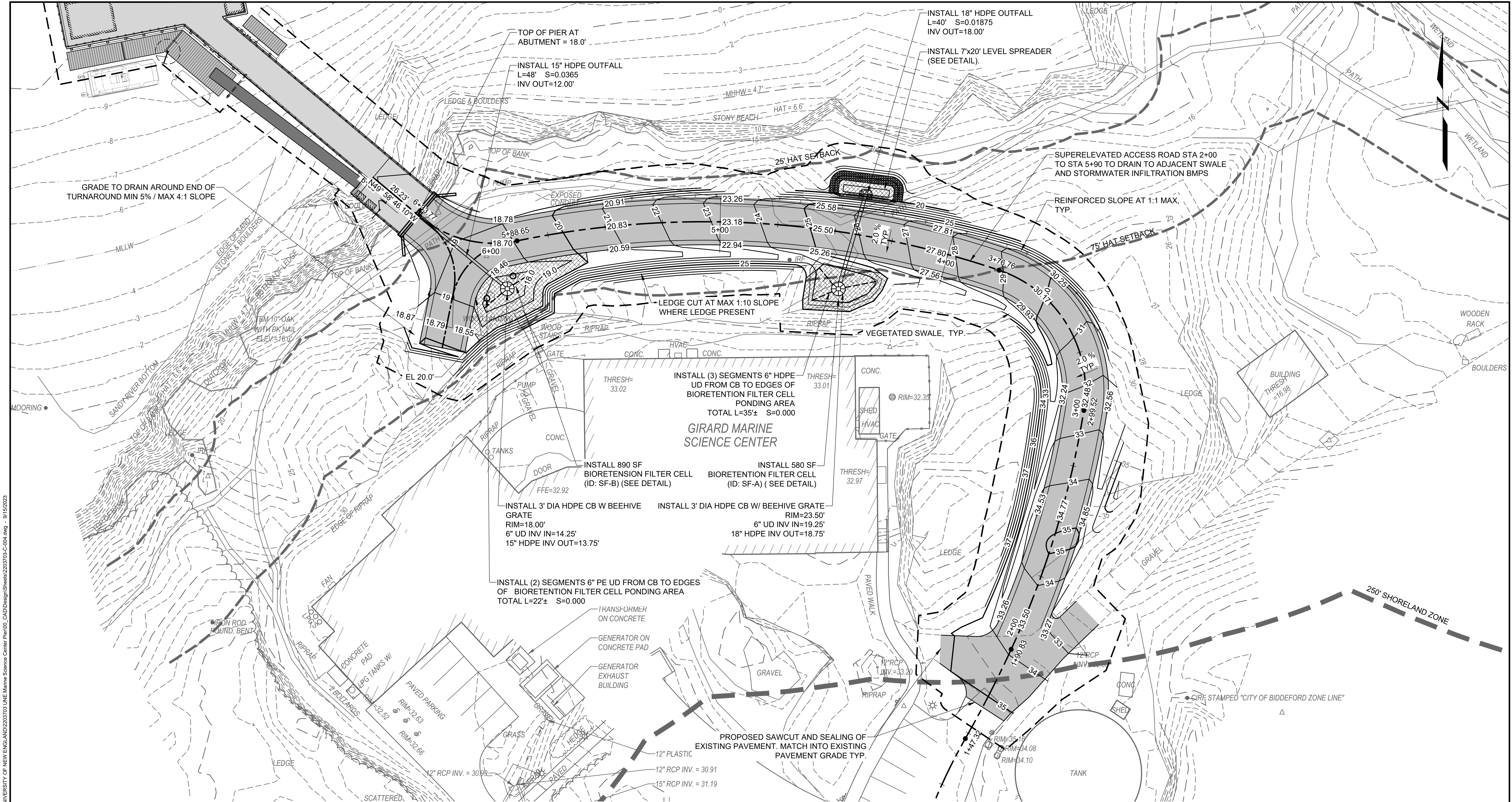
SHEET NAME

SITE PLAN

SHEET NO.

C-003

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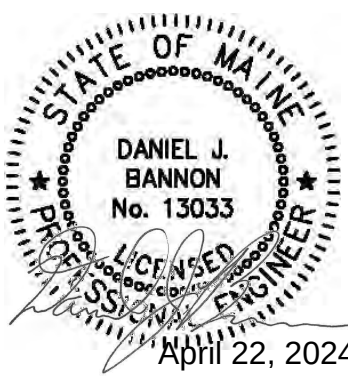


PLAN

SCALE: 1" = 20'



Attention:
0 1"
If this scale bar
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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
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

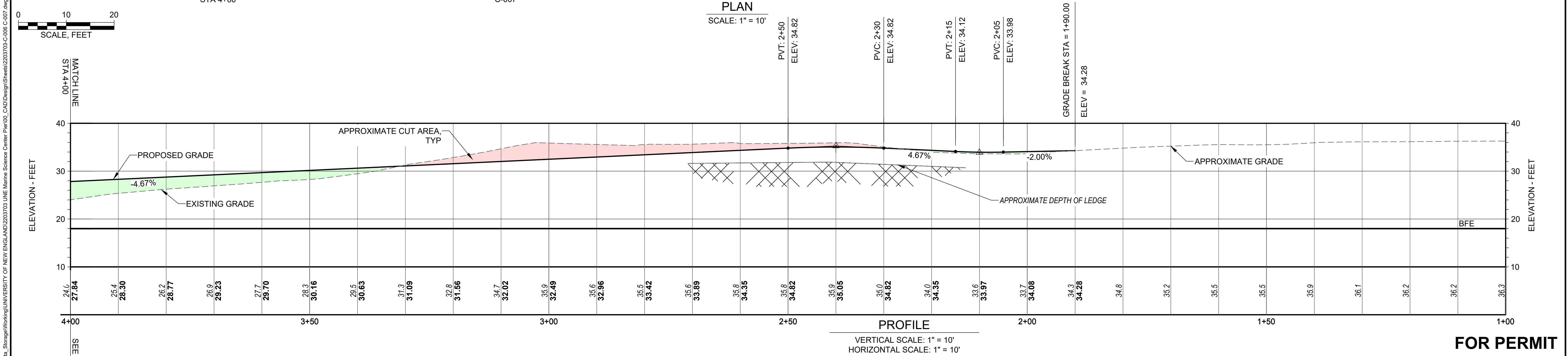
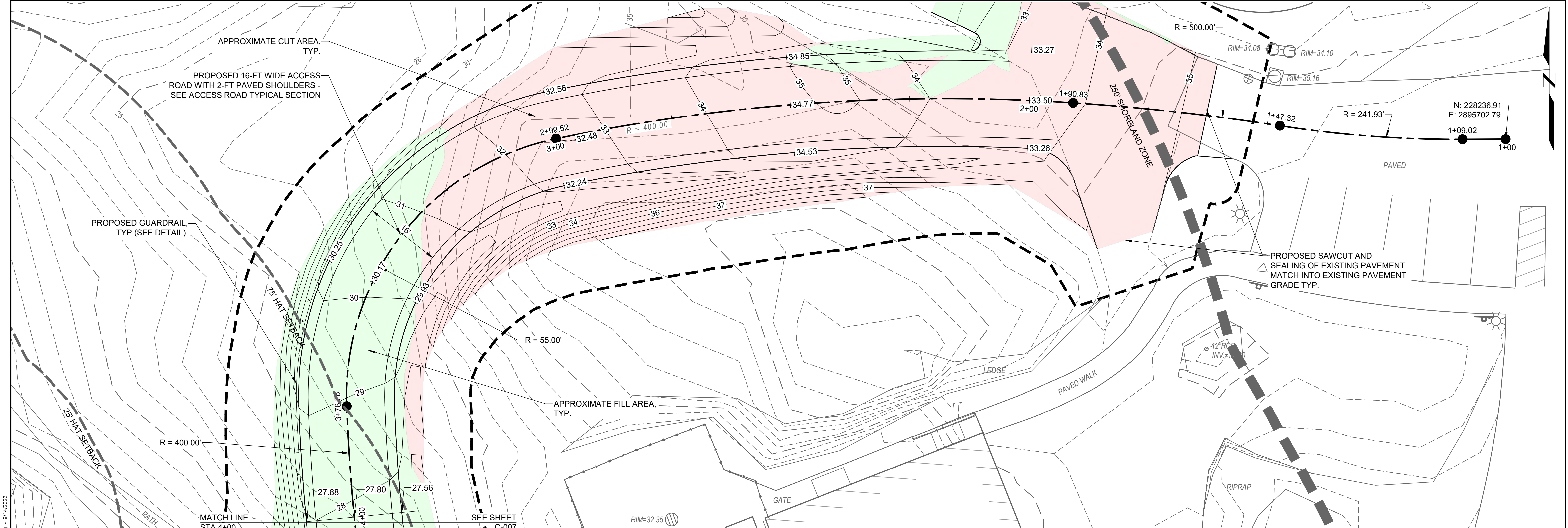
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**GRADING AND
DRAINAGE PLAN**

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C-004

FOR PERMIT

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0 1"

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STATE OF MAINE

DANIEL J. BANNON

No. 13033

DESIGNER

April 22, 2024

Designed: DJB

Drawn: JAM

Checked: BJB

Approved: BMM

P.E. No: 13033

GEI Project 2203703

GEI Consultants

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UNE

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BIDDEFORD, MAINE

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11 HILLS BEACH ROAD

BIDDEFORD, YORK COUNTY, MAINE

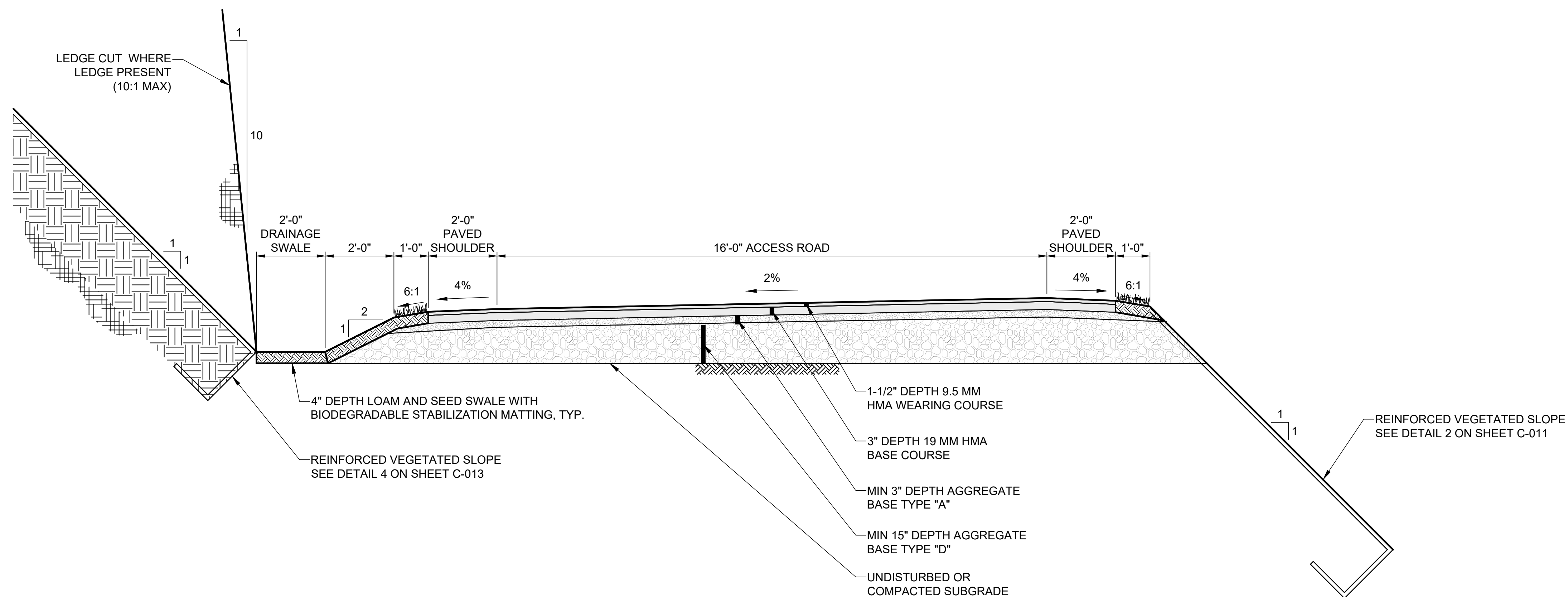
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SHEET NAME

ACCESS ROAD PLAN AND PROFILE STA 1+00 TO 4+00

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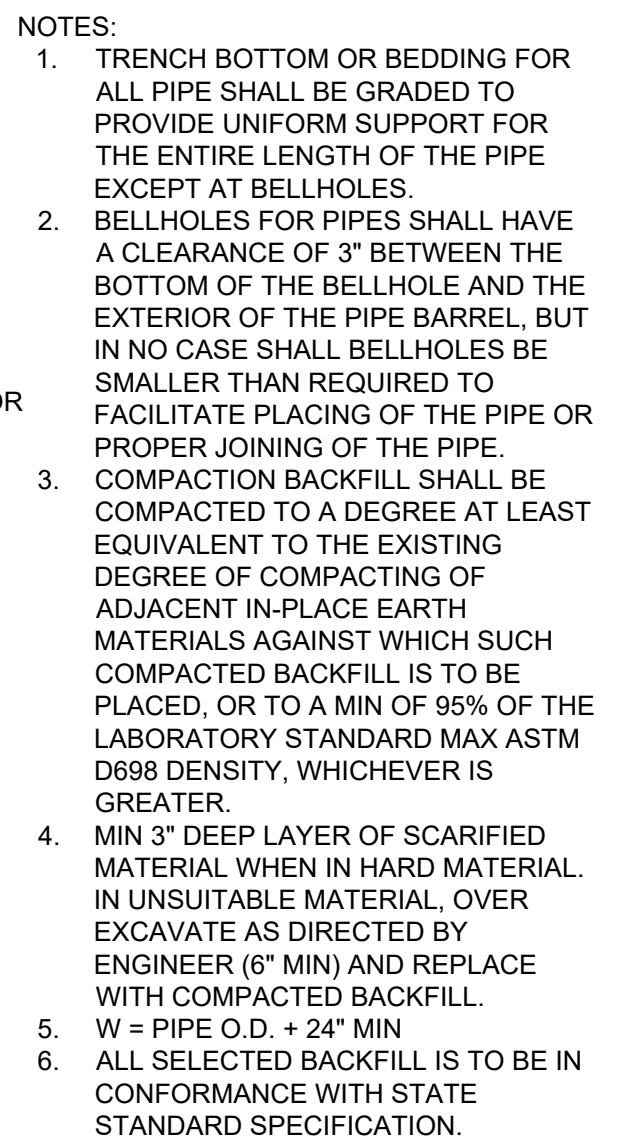
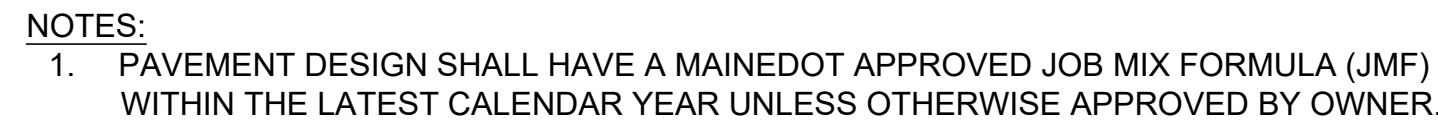


TYPICAL ACCESS ROAD SECTION

SCALE: NTS

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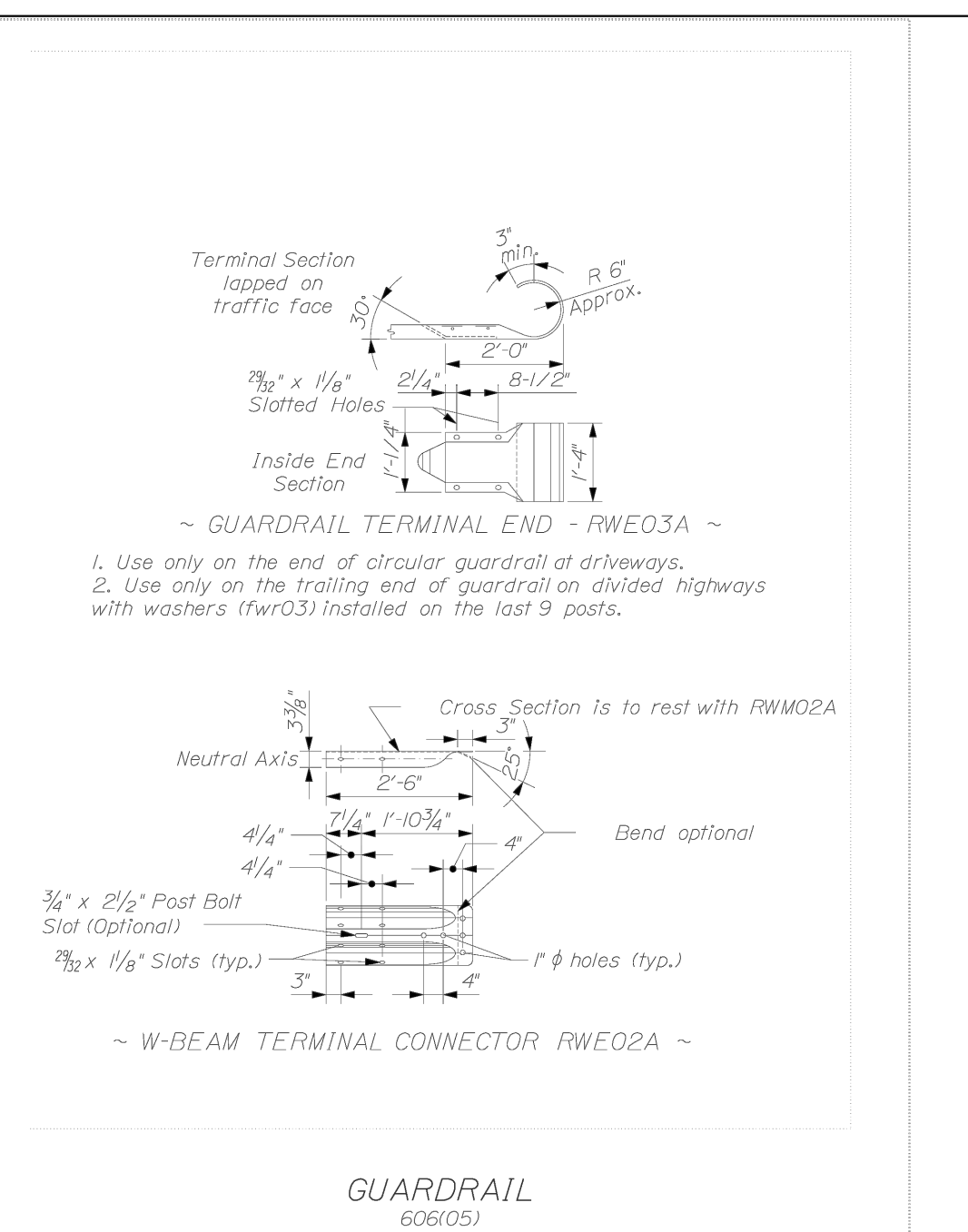
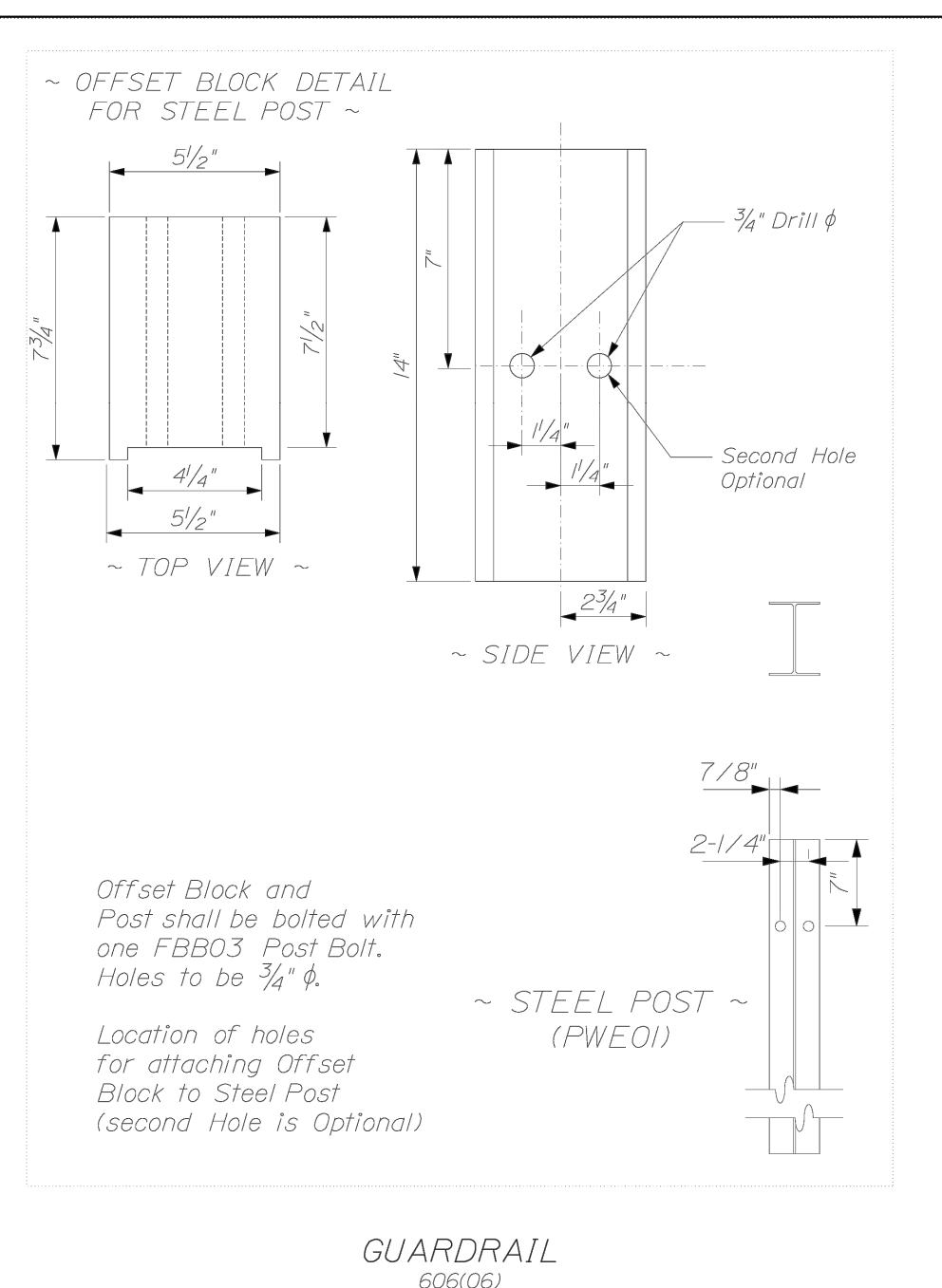
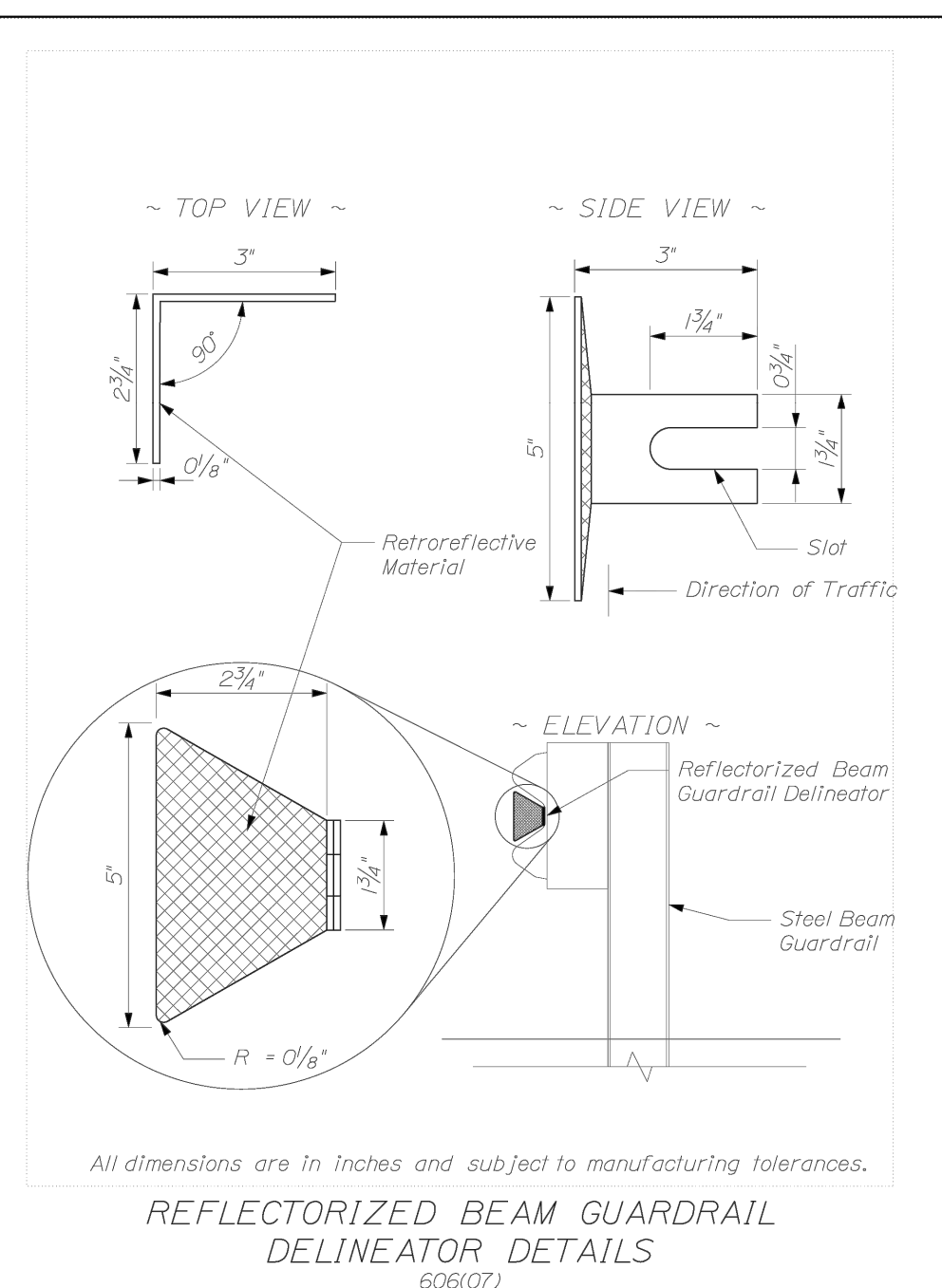
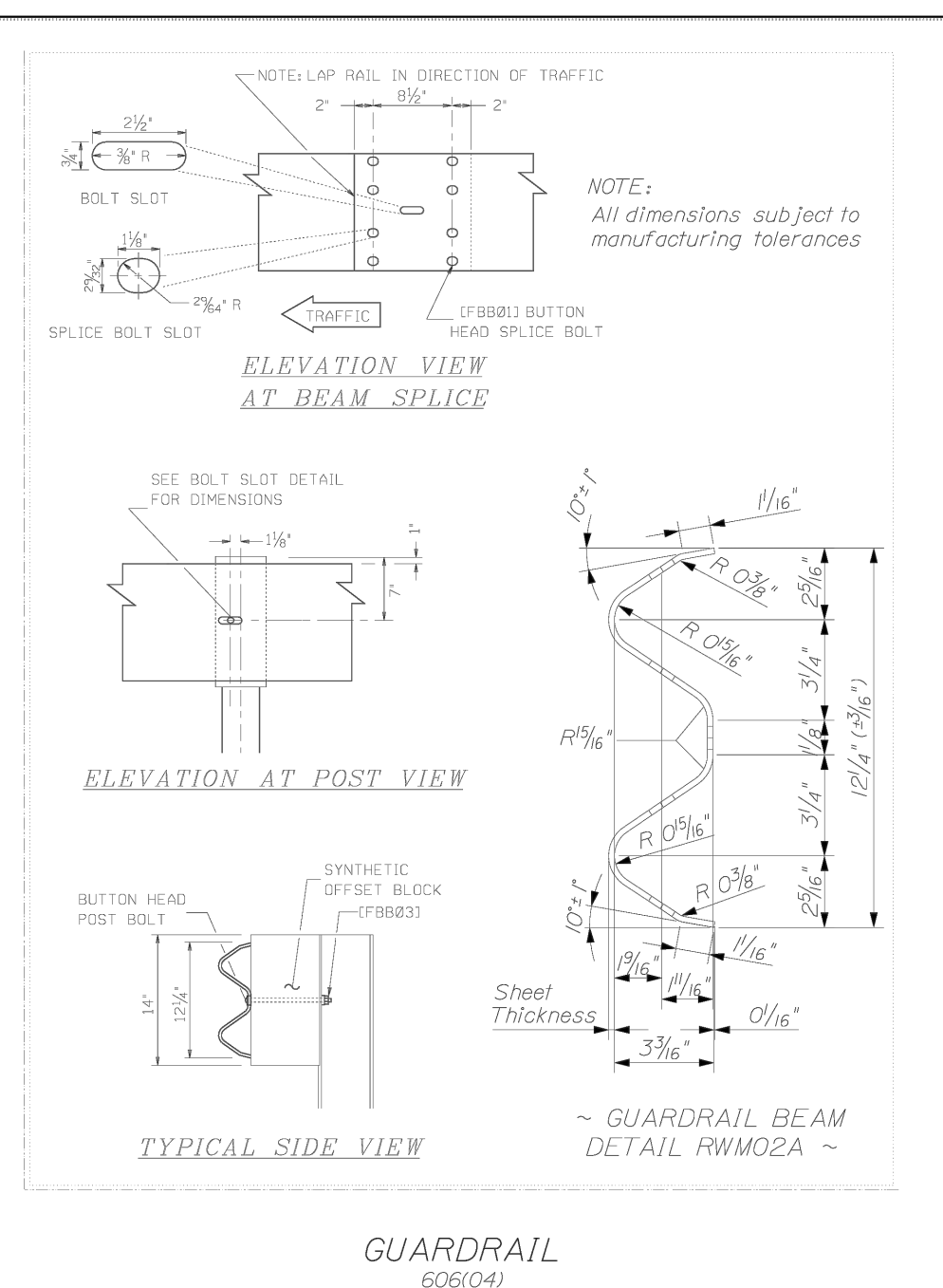
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		Drawn: JAM									
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		Approved: BMM				3	6/28/2023	75% DESIGN SUBMISSION	DJB		
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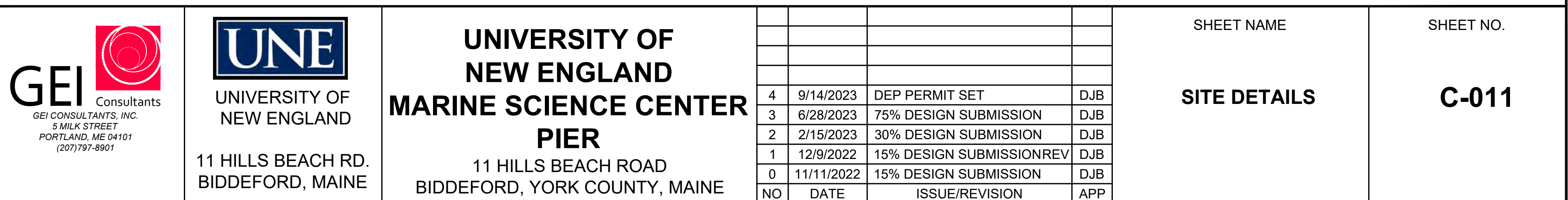
NOTES:

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..

3 TRENCH



FOR PERMIT



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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 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/)
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, BOOMS, 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 INSTALL AND MAINTAIN A SILTATION BOOM AROUND THE PERIMETER OF THE WORK AREA FOR THE NEW PIER. FOR THE DURATION OF WORK.
7. THE CONTRACTOR SHALL TAKE CARE TO LIMIT THE AREA OF SOIL DISTURBANCE TO THE MINIMUM NECESSARY TO COMPLETE THE WORK.
8. 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.
9. 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. SEEDED 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. SEEDED WITH CONSERVATION MIX OF PERENNIAL RYE GRASS (1.0 LBS/1000 SQ.FT.) AND MULCHED IMMEDIATELY. FROM 10/1 TO 4/15, 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 SEEDED 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 SLOPE 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 SEEDED 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

- C. 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 IS IN PLACE. STONE AND SEDIMENT FROM THE CONSTRUCTION ENTRANCE SHALL BE REDISTRIBUTED TO AN AREA UNDERGOING GRADING OR REMOVED AND RELOCATED OFFSITE.
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, SEEDED 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 ANY 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 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: [HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPIILLSRESP/](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, SEEDED 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:

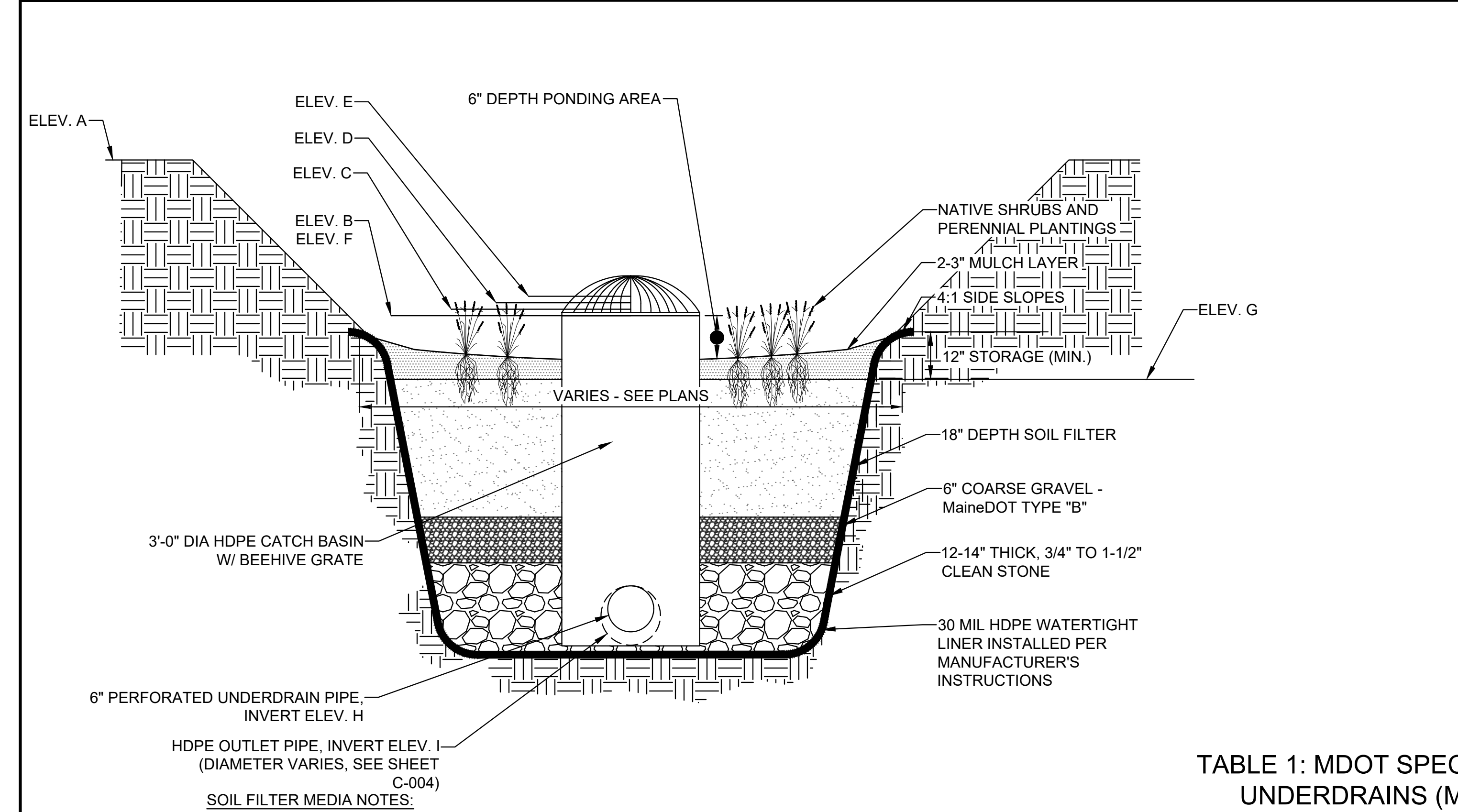
- SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
- PERFORM 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.		
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MORICI, ANTHONY | g:\projects\university_of_new_england\2203703 UNE Marine Science Center Plan\03 CAD\Design\Sheet\2203703-C-DETAILS.dwg - 9/15/2023



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.

GRASSED UNDERDRAINED SOIL FILTER SCHEDULE

GRASSED UNDERDRAINED SOIL FILTER ID	EMBKM.T. 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:

If this scale bar does not measure 1" then drawing is not original scale.

DESIGNED BY: **DJB**
DRAWN BY: **JAM**
CHECKED BY: **BJB**
APPROVED BY: **BMM**
P.E. No: **13033**
GEI Project: **2203703**



11 HILLS BEACH RD.
BIDDEFORD, MAINE

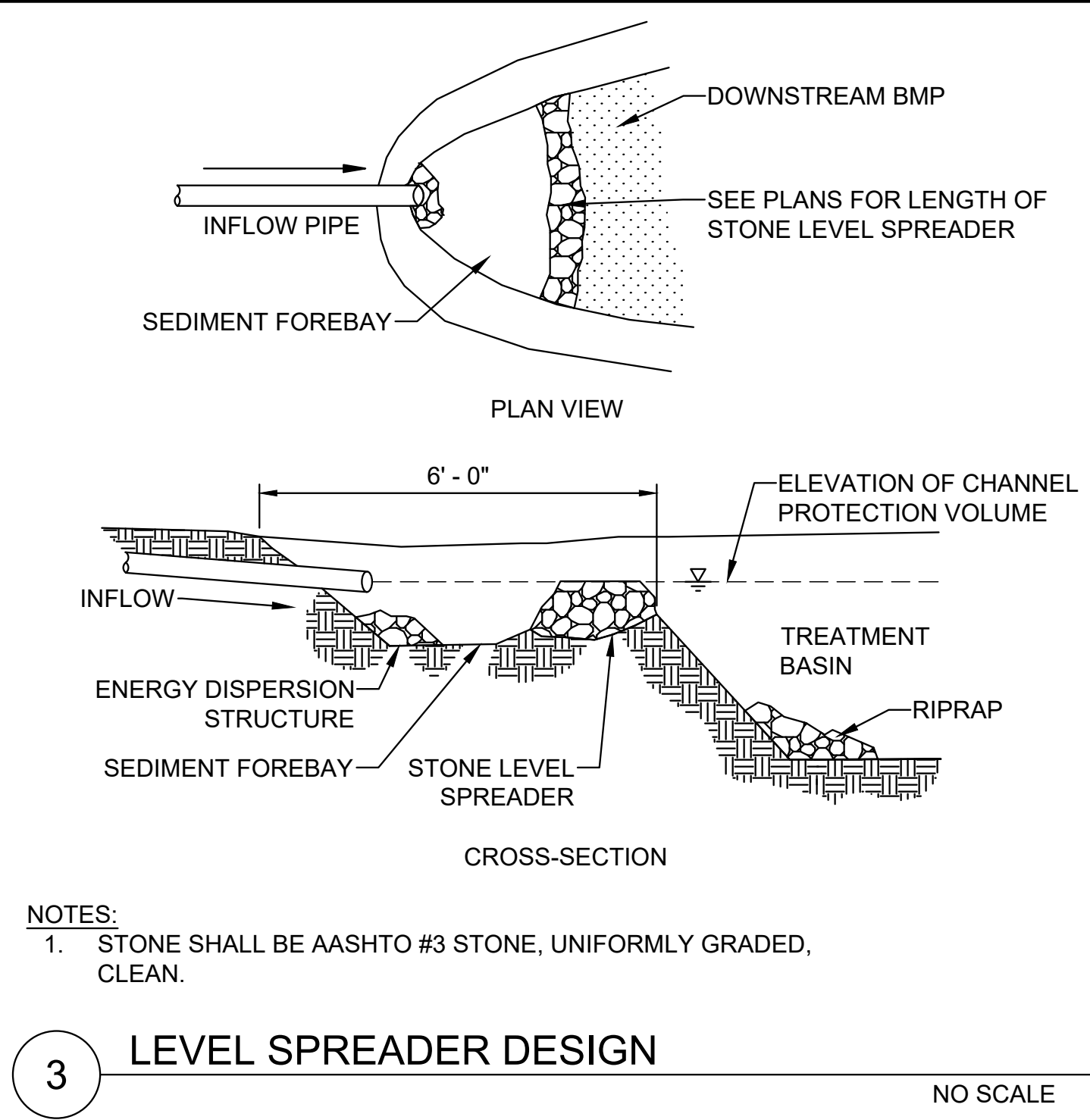
UNIVERSITY OF
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MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**EROSION CONTROL
DETAILS I**

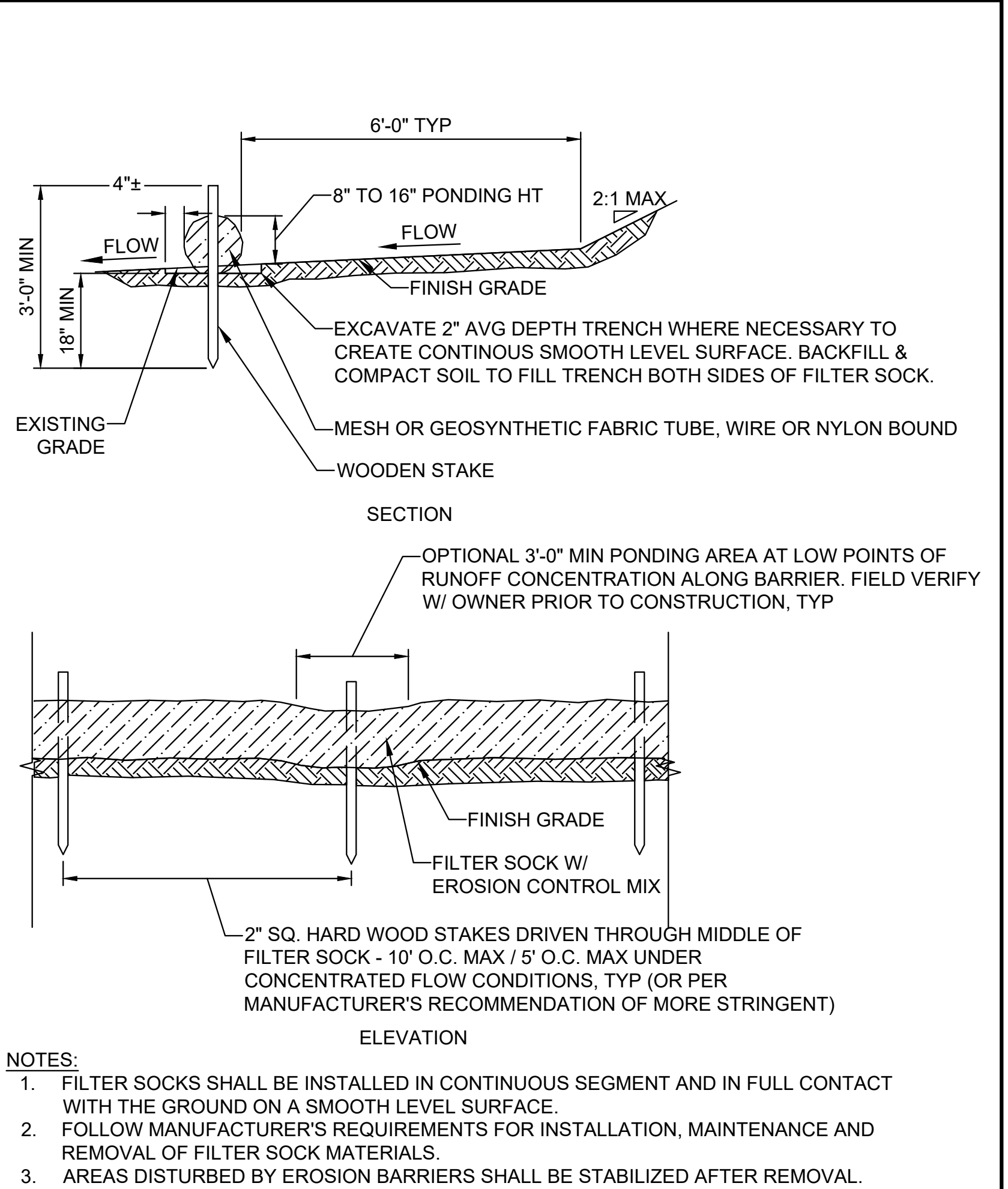
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3 LEVEL SPREADER DESIGN

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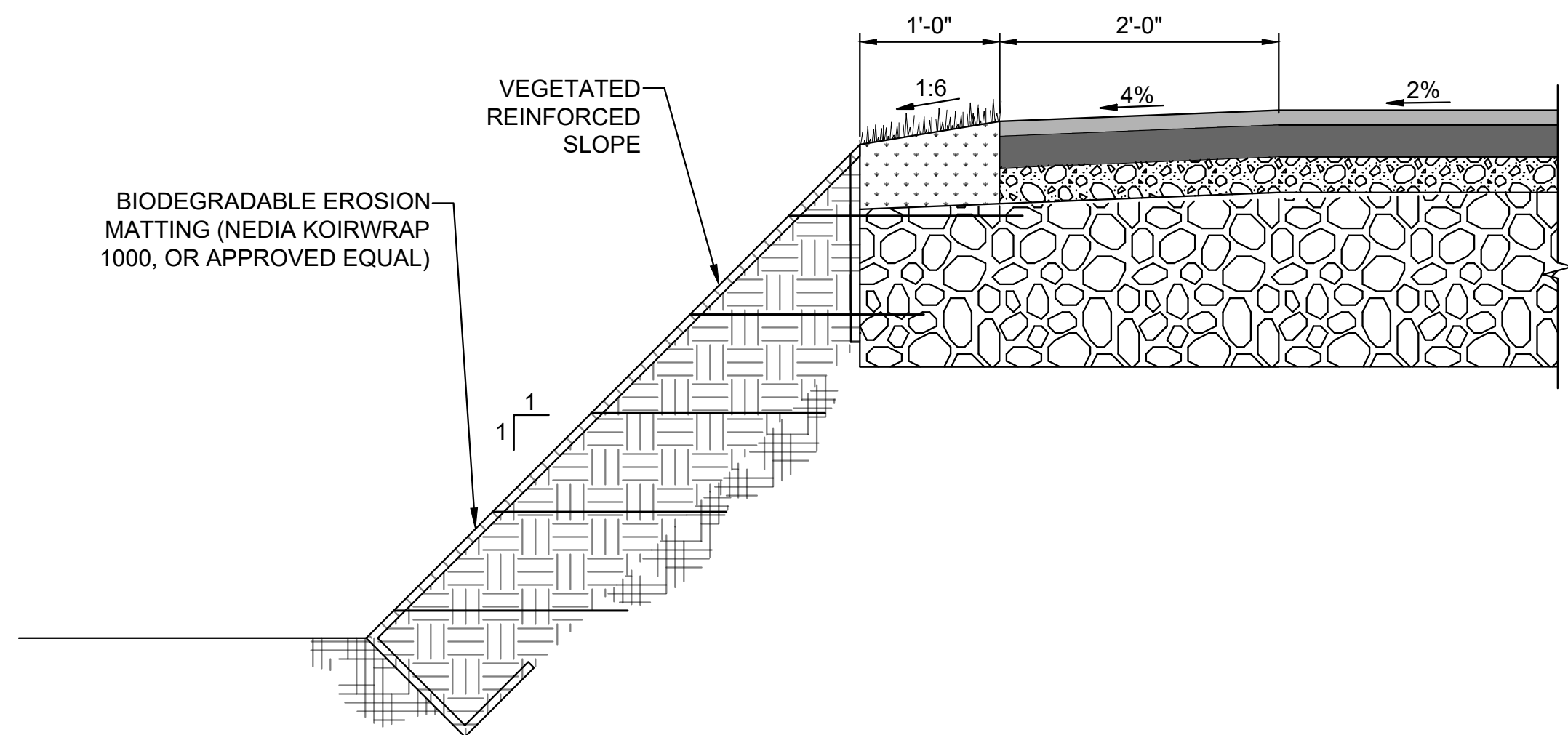


NOTES:

- 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

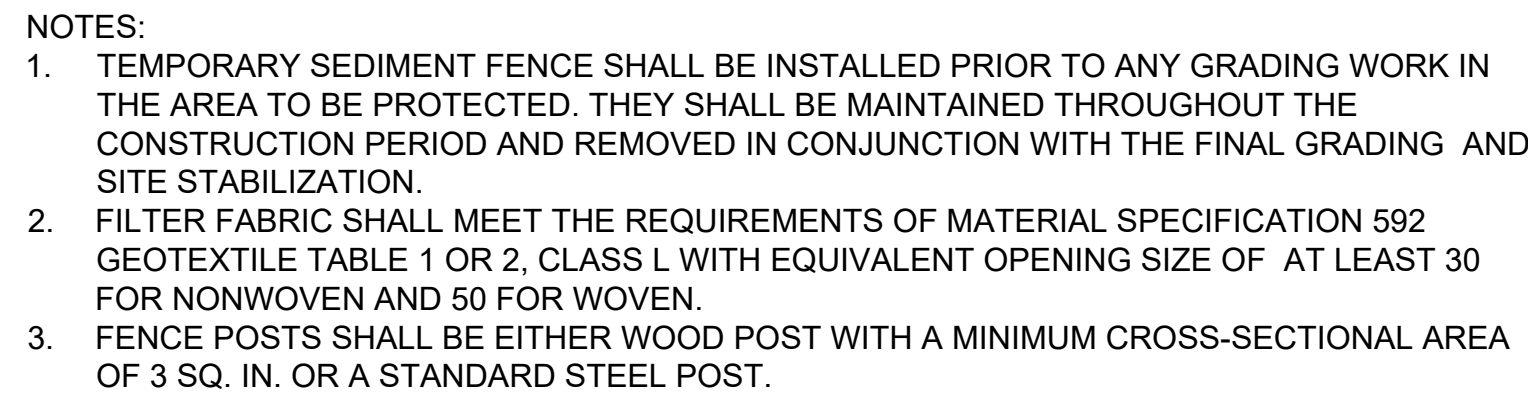
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4 1:1 VEGETATED REINFORCED SLOPE

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FOR PERMIT



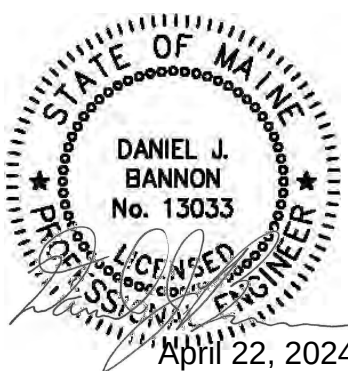
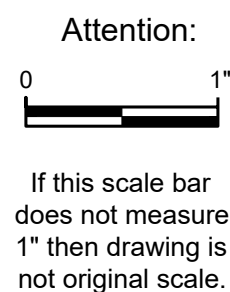
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STABILIZED CONSTRUCTION ENTRANCE

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



<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

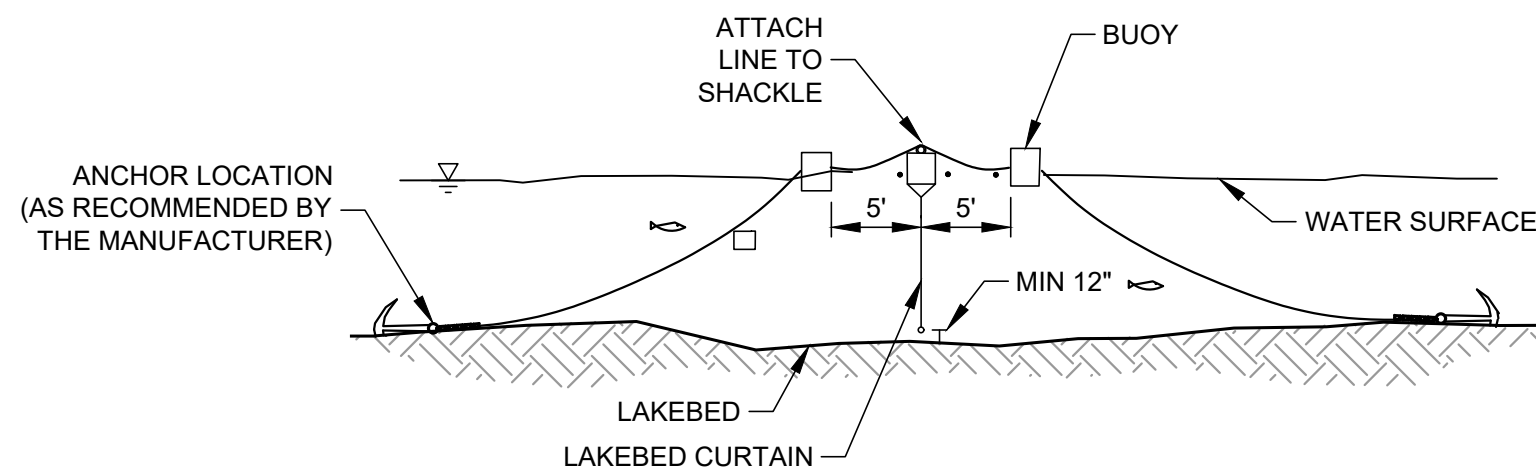
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BIDDEFORD, YORK COUNTY, MAINE



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.

c SILT SACK INLET PROTECTION

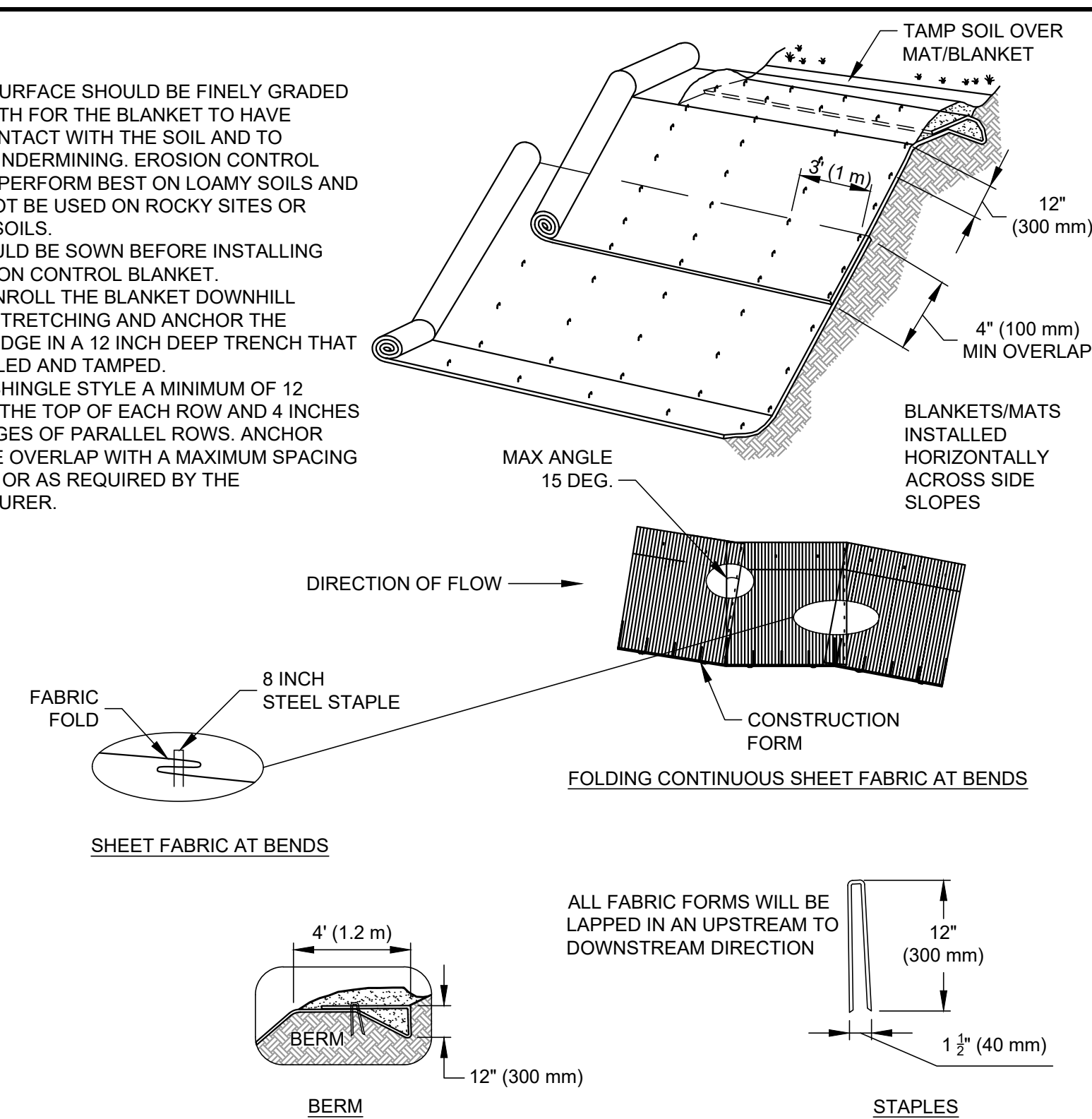
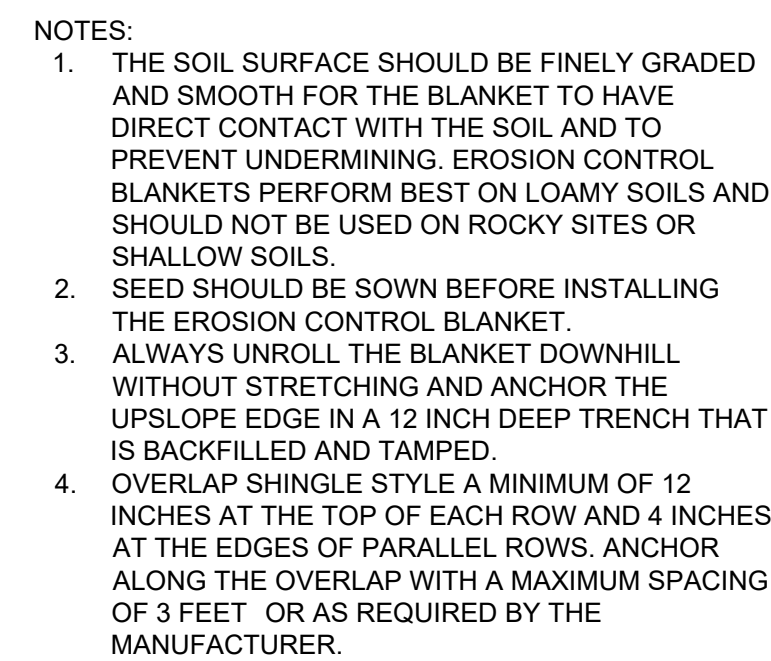
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- NOTES:
1. FLOATING TURBIDITY BARRIER CONSTRUCTION SHALL CONFORM WITH RELEVANT LOCAL AND STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL.
 2. FLOATING TURBIDITY BARRIER WILL BE INSPECTED AND MAINTAINED DAILY.

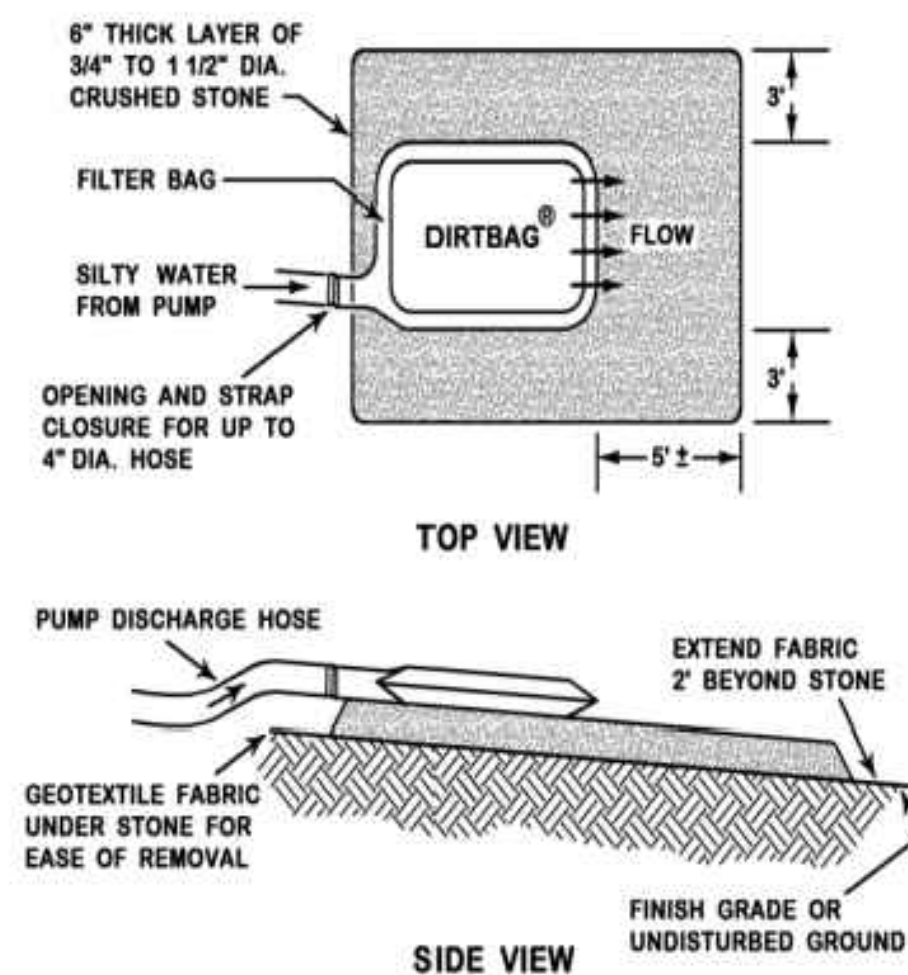
FLOATING TURBIDITY BARRIER

SCALE: N.T.S.



7 BIODEGRADABLE STABILIZATION MATTING

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.

10 GEOTEXTILE FILTER BAG

NO SCALE

FOR PERMIT

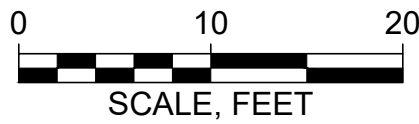
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NO	DATE	ISSUE/REVISION	APP

EROSION CONTROL DETAILS II

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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:
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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

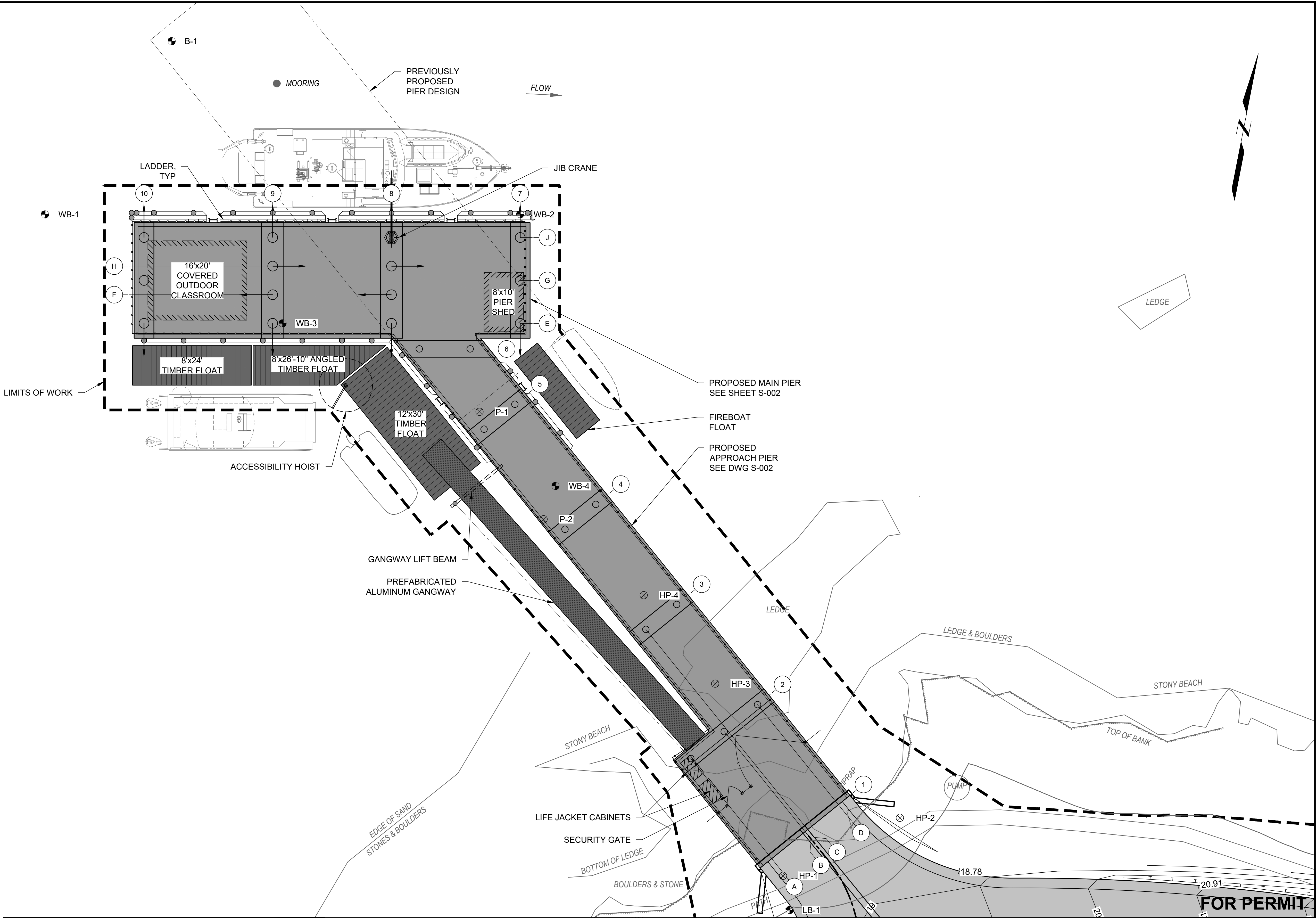
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

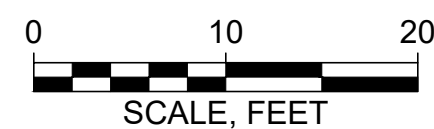
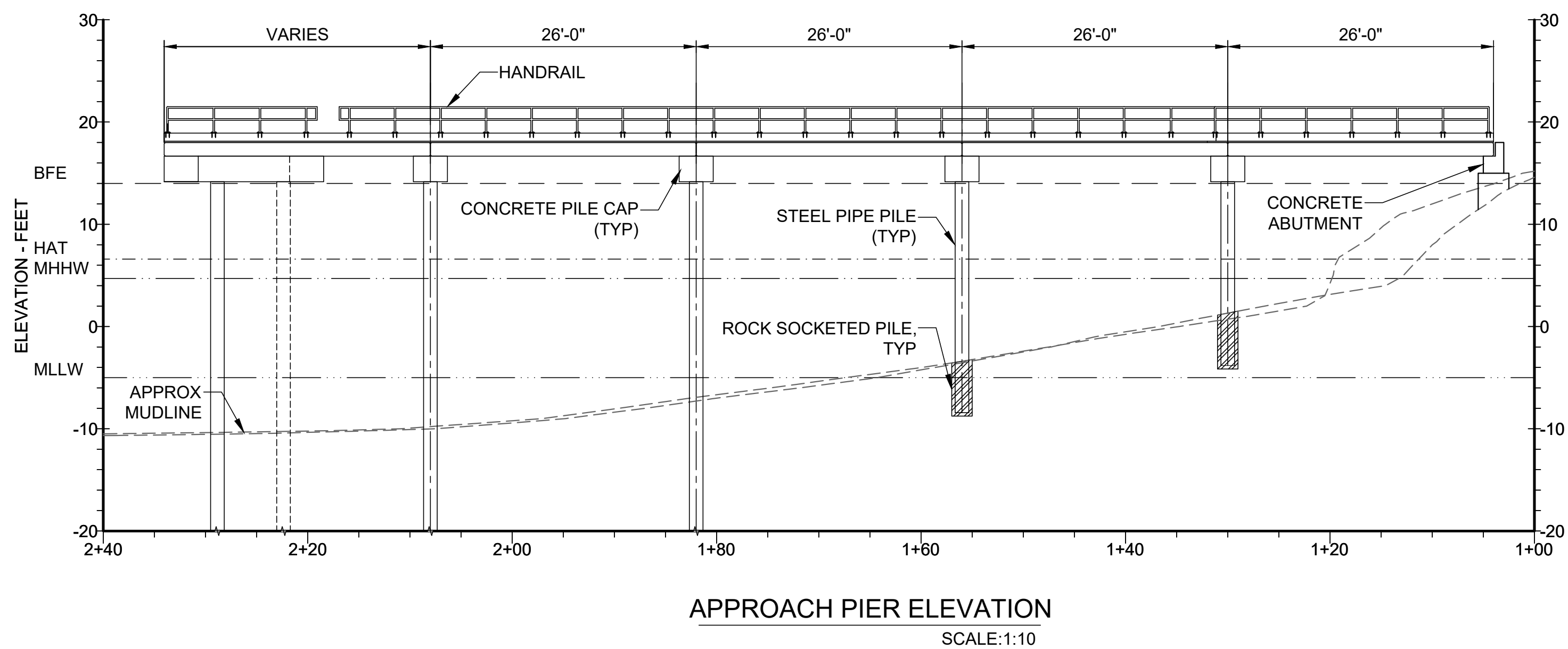
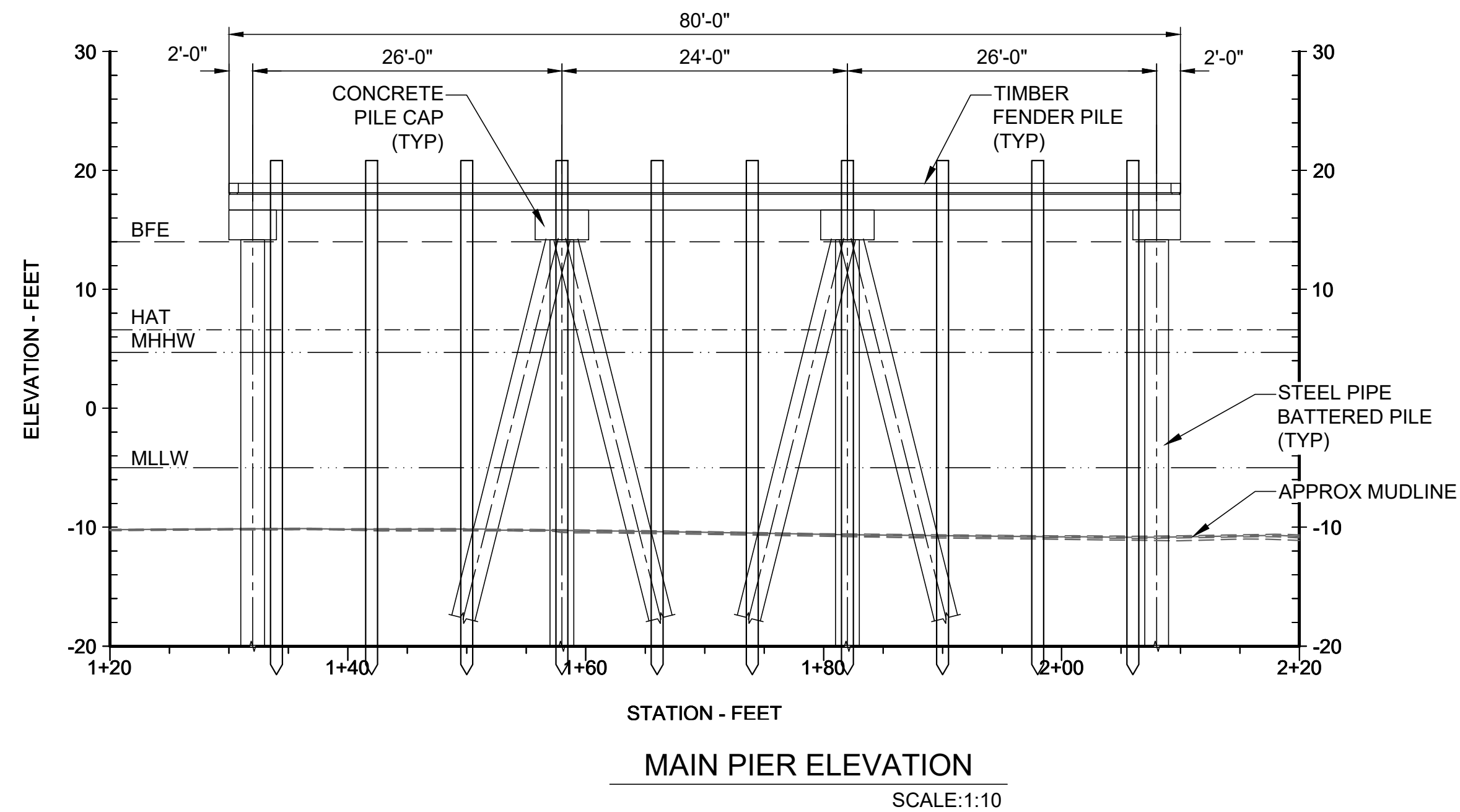
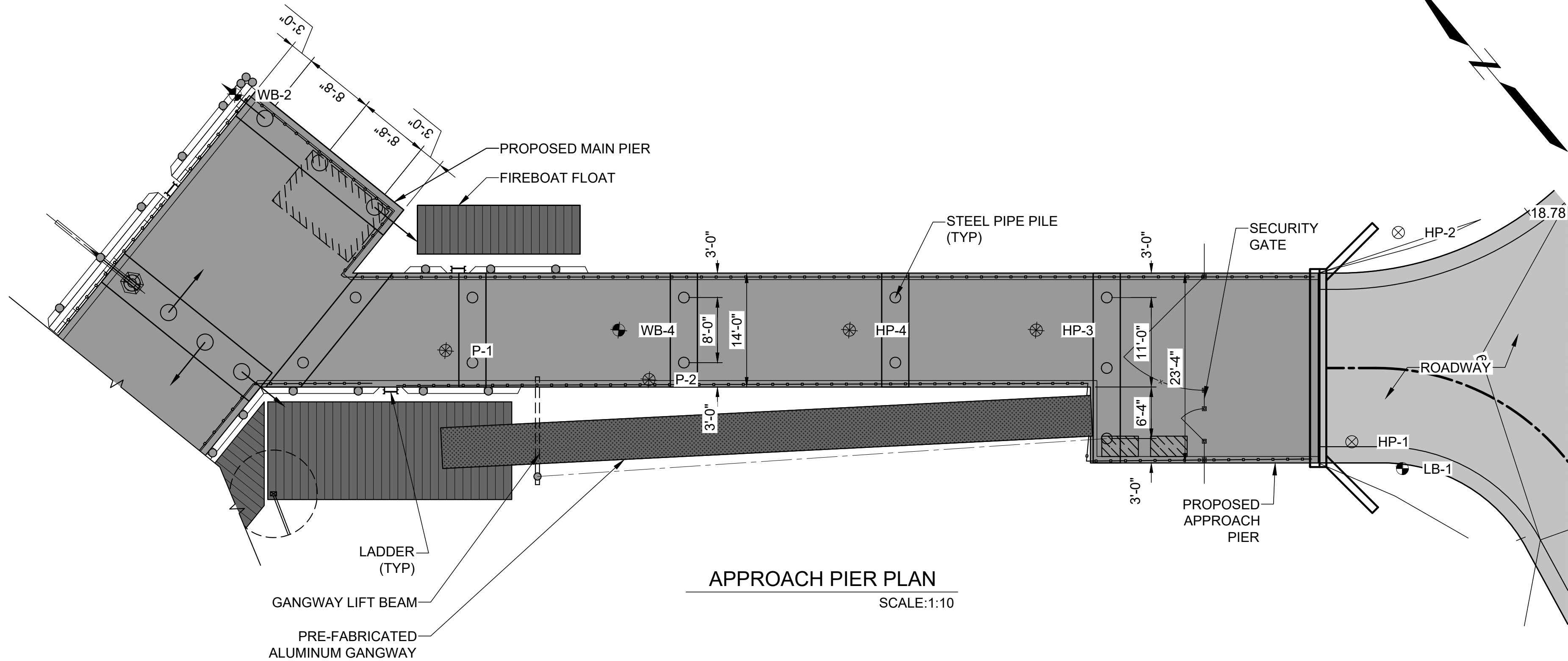
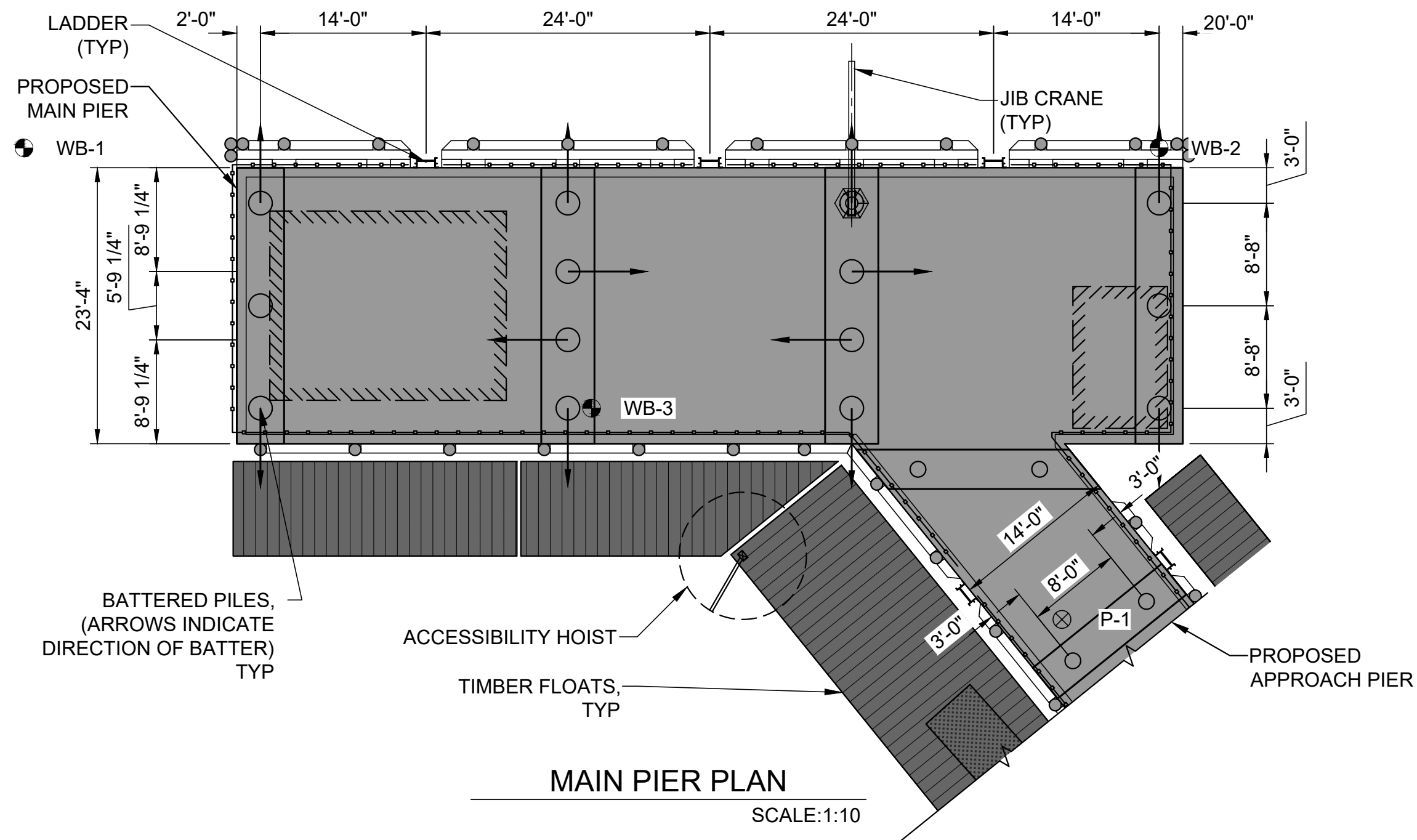
NO	DATE	ISSUE/REVISION	APP
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUBMISSION	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME
PIER LAYOUT PLAN

SHEET NO.
S-001



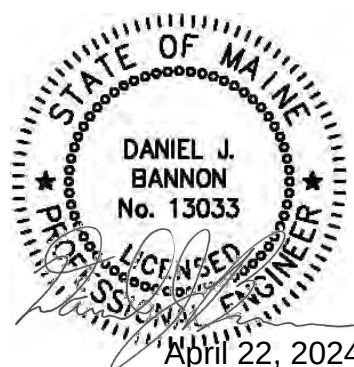
MORCI, ANTHONY | giconsultants.com/Data, Storage/Working/UNIVERSITY OF NEW ENGLAND/2203703 UNE Marine Science Center Pier/03_CADD/Design/Sheet/S-002.dwg - 9/14/2023



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

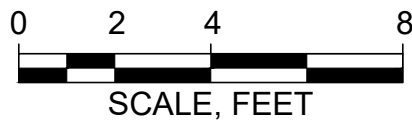
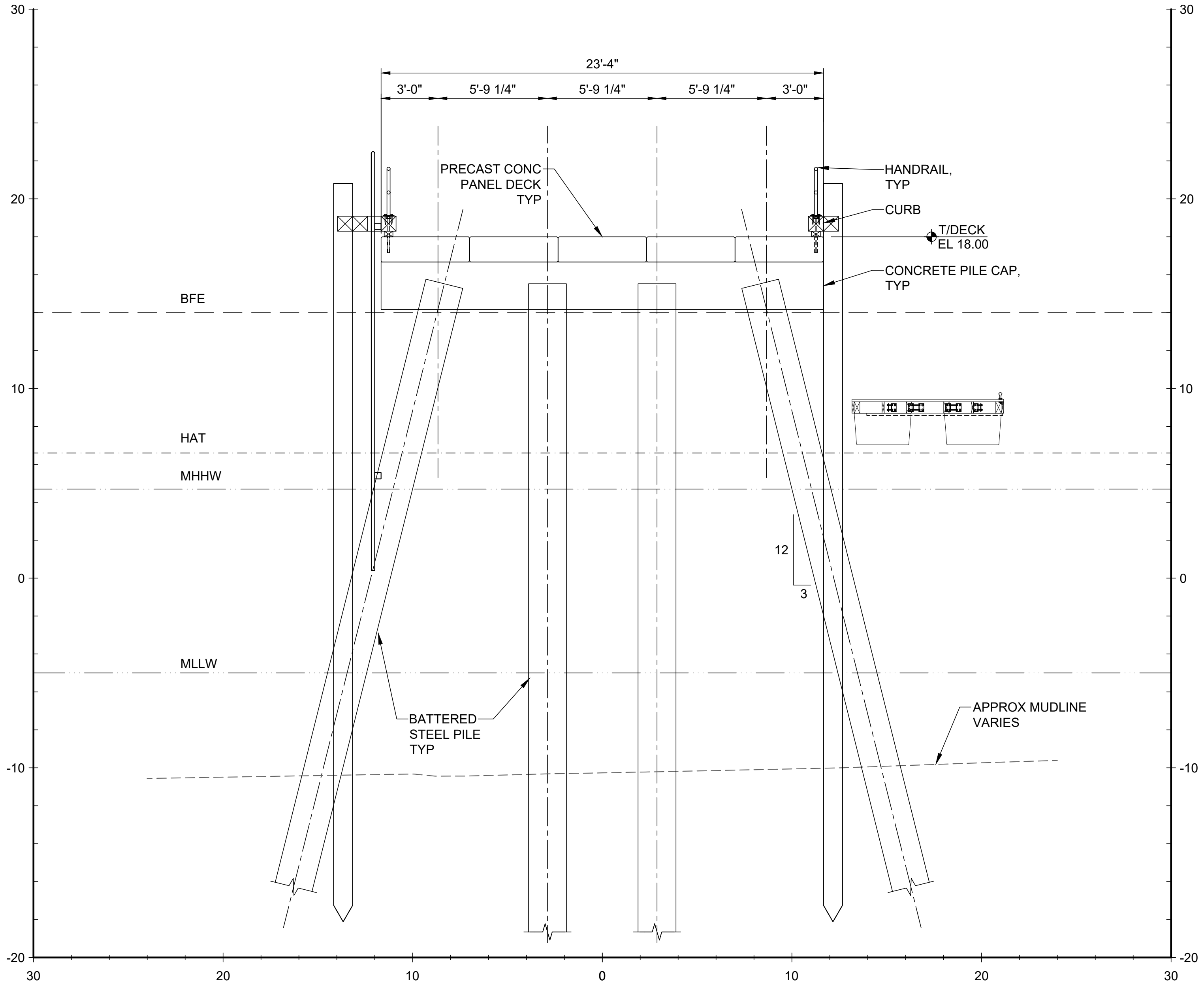
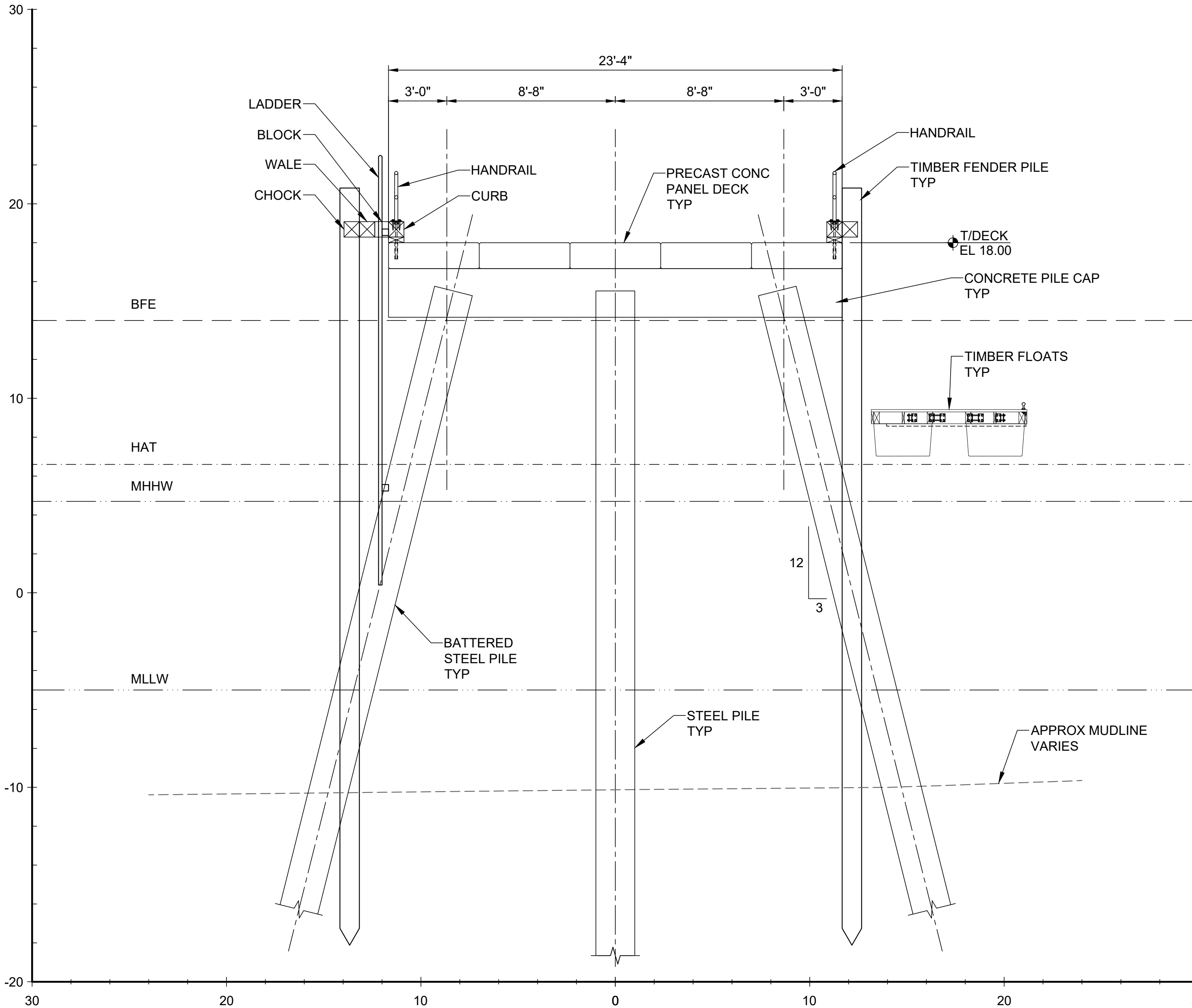
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2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUBMISSION	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME
**PIER PLANS
AND
ELEVATIONS**

SHEET NO.
S-002

FOR PERMIT

\\MORCI\ANTHONY\geiconsultants.com\data\Drawings\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Plan\03_CAD\Design\Sheet\2203703-S-003.dwg - 9/14/2023



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

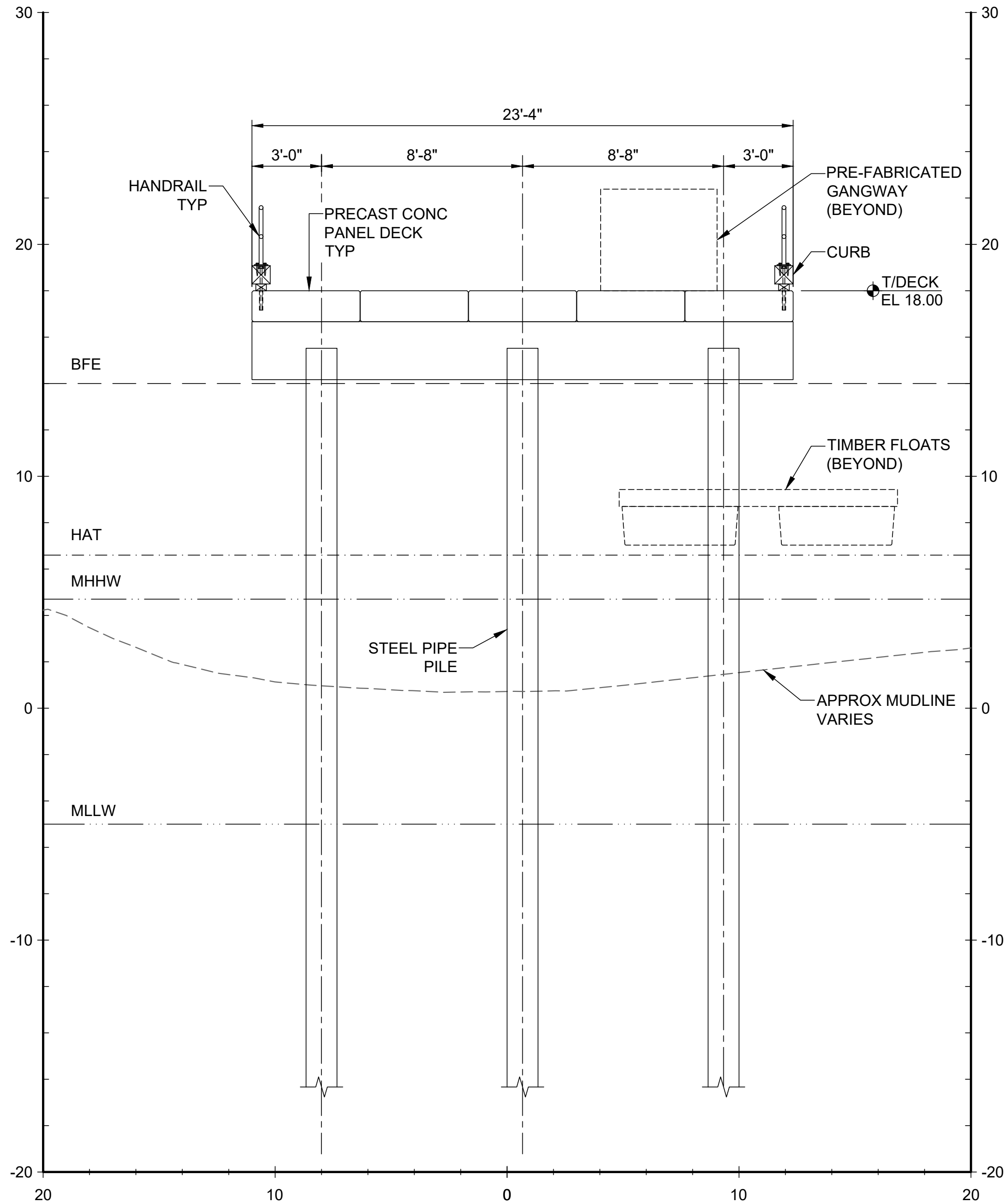
UNIVERSITY OF
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MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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
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NO	DATE	ISSUE/REVISION	APP

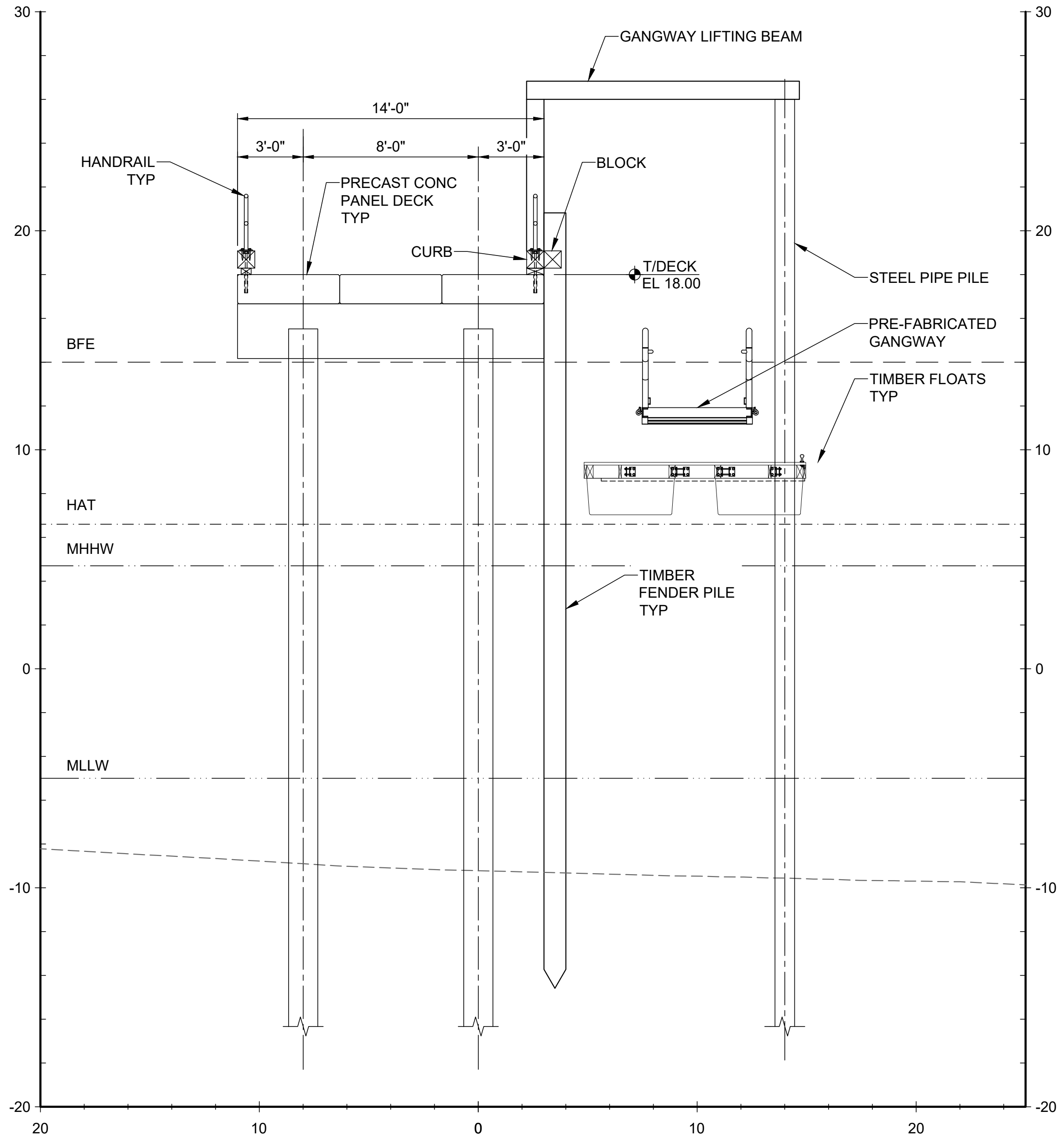
SHEET NAME
**TYPICAL PIER SECTIONS
(1 OF 2)**

FOR PERMIT
SHEET NO.
S-003

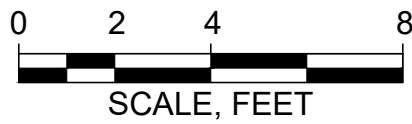
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SECTION
28' WIDE APPROACH PIER AT BENT 2 SCALE: 1"=4'



SECTION
14' WIDE APPROACH PIER AT GANGWAY HOIST SCALE: 1"=4'

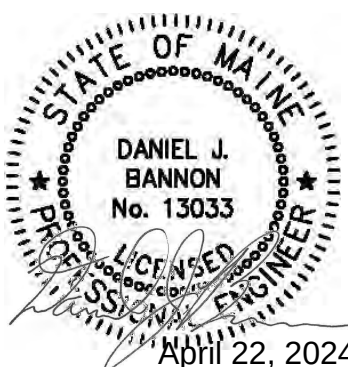


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*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

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PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

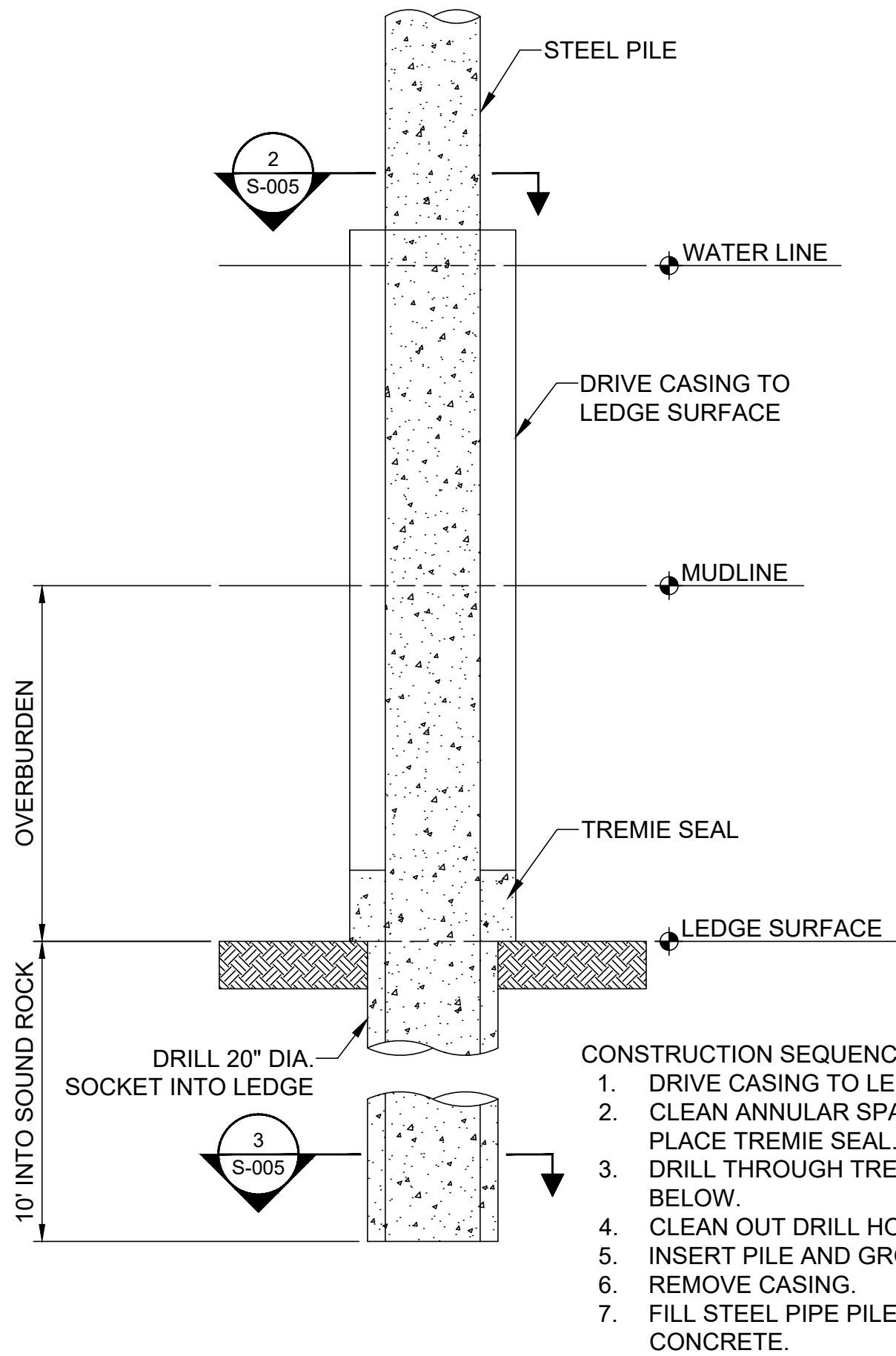
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUBMISSIONREV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**TYPICAL PIER SECTIONS
(2 OF 2)**

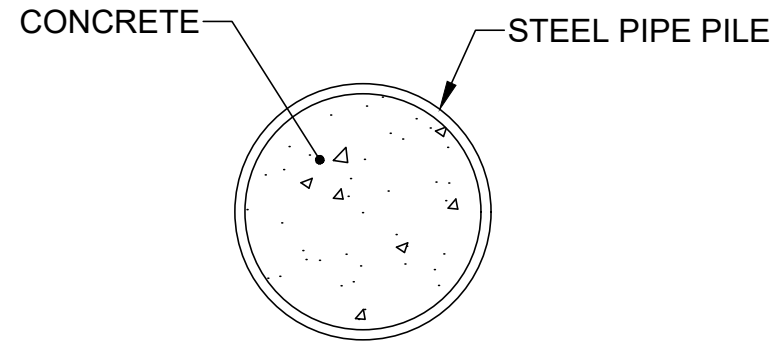
SHEET NO.
S-004

FOR PERMIT

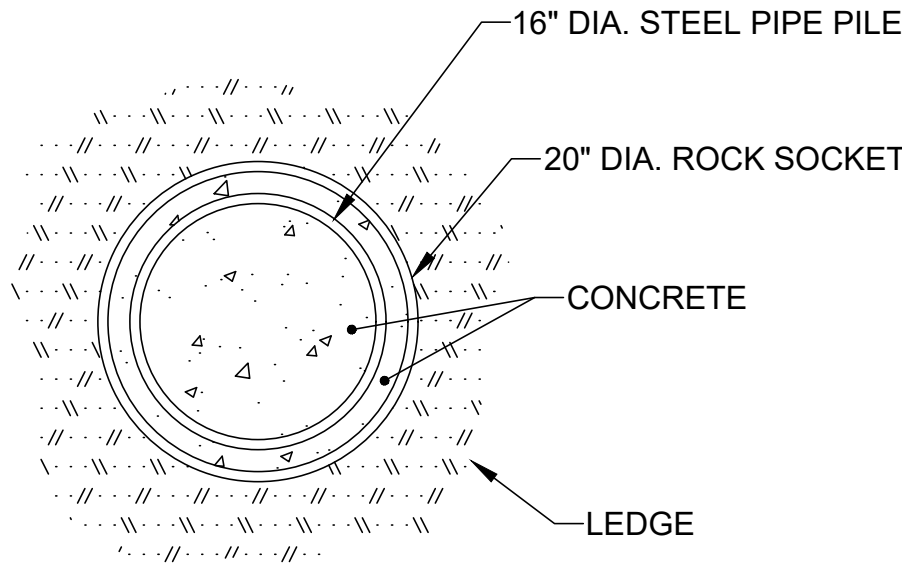
MORCI, ANTHONY | giconsultants.com\data, Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\03_CAD\Design\Sheet\2203703-S-005.dwg - 9/14/2023



1 DETAIL
PILE SOCKET SCALE: 1" = 2'



2 SECTION
CONCRETE FILLED SCALE: 1" = 1'
STEEL PIPE PILE



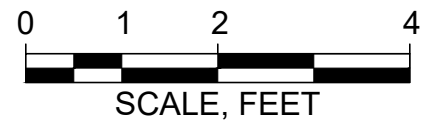
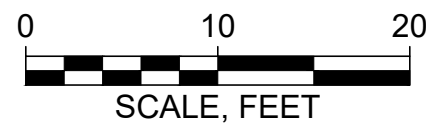
3 SECTION
ROCK SOCKET SCALE: 1" = 1'

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:
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

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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
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1	12/9/2022	15% DESIGN SUBMISSION	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME

PILE PLAN

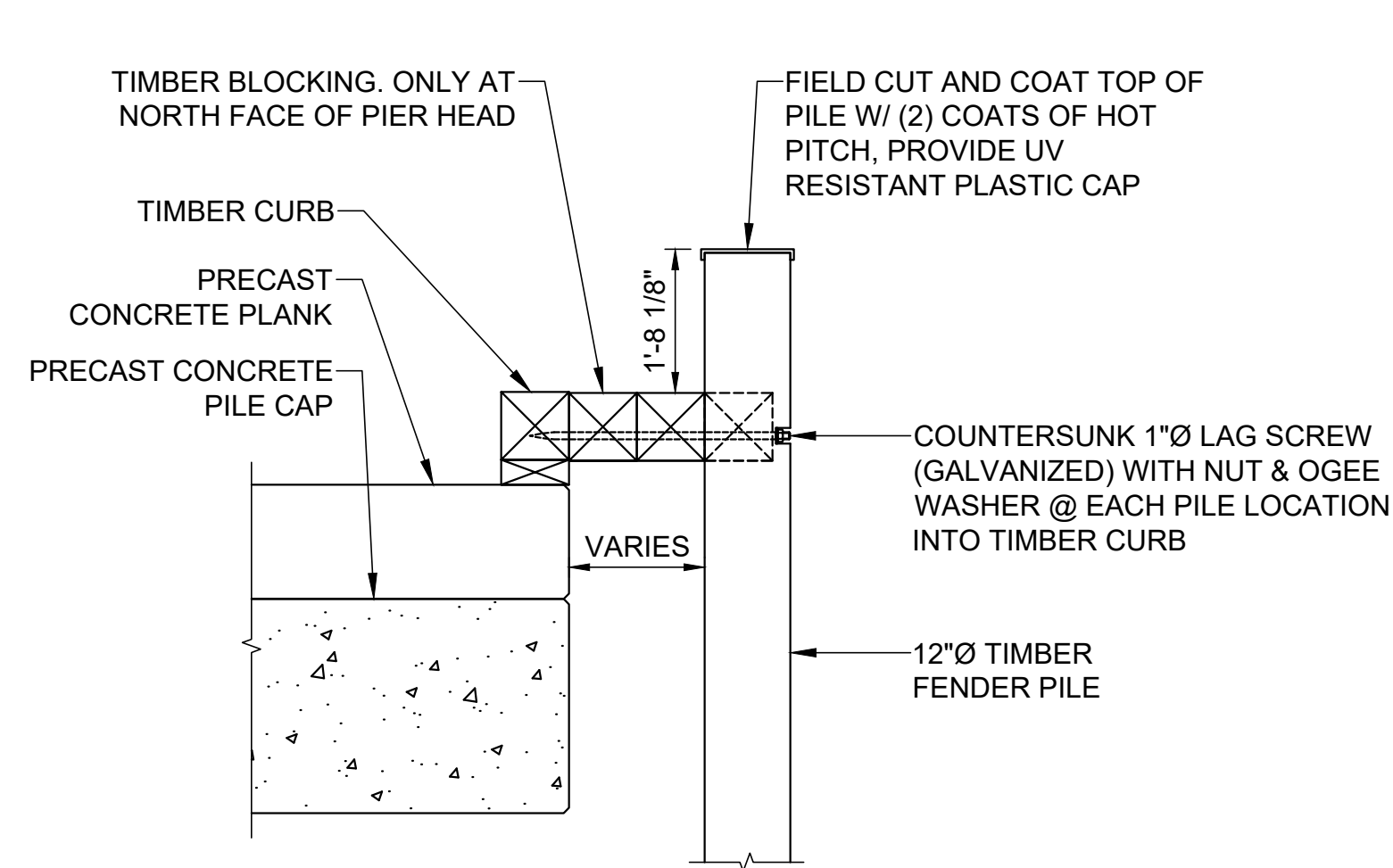
SHEET NO.

S-005

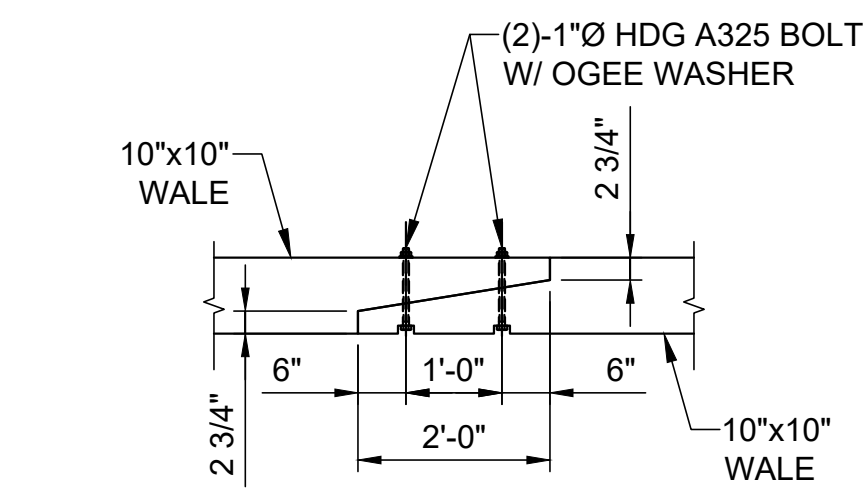
DETAIL
MAIN PIER SCALE: 1" = 10"

GANGWAY LIFTING BEAM
SUPPORT PILE

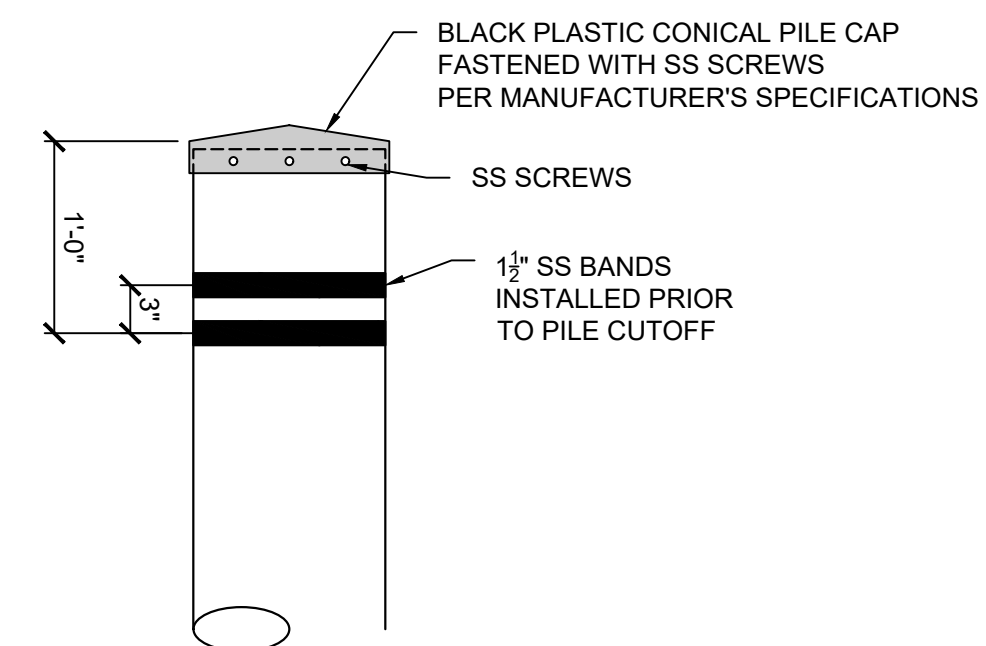
FOR PERMIT



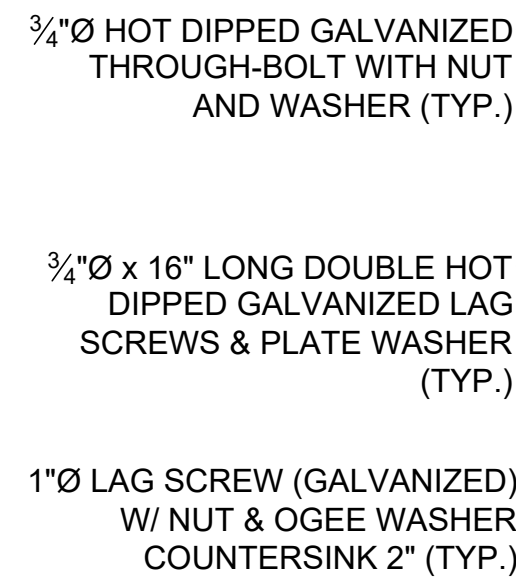
C FENDER PILE CONNECTION SCALE: 1/2" = 1'-0"



D **WALE SPLICE DETAIL**
SCALE: 1/2" = 1'-0"

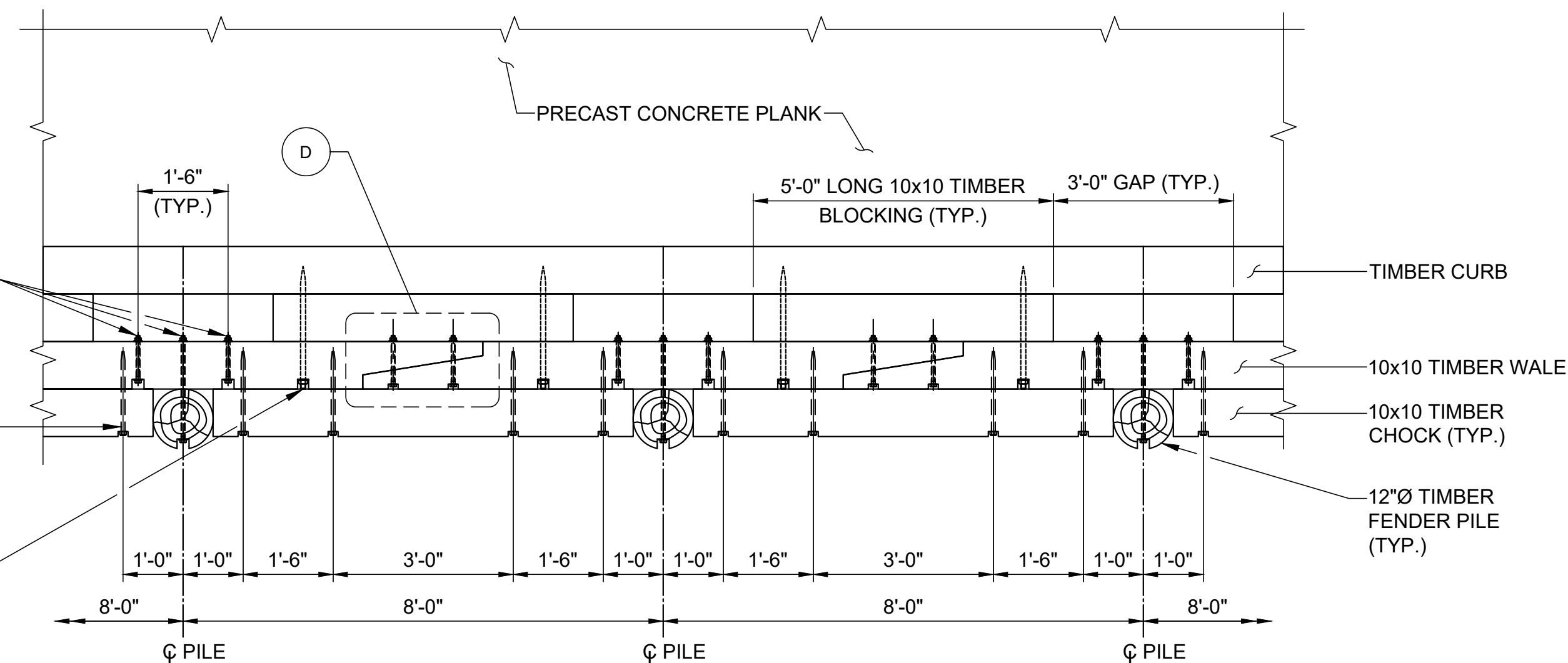


E PILE BANDING DETAIL
SCALE: 1" = 1'-0"



TIMBER FENDER DETAIL

TIMBER FENDER SECTION
SCALE: 1/4" = 1'-0"



B **TIMBER FENDER PARTIAL PLAN**
SCALE: 1/2" = 1'-0"

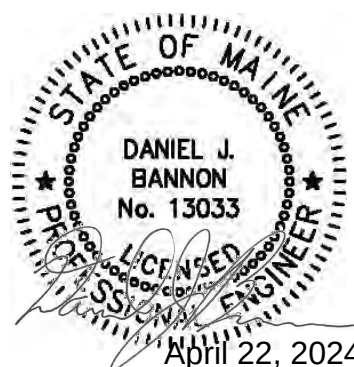
ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:

1"

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

UNIVERSITY OF
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BIDDEFORD, MAINE

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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

4	9/14/2023	DEP PERMIT SET	DJB
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1	12/9/2022	15% DESIGN SUBMISSION/REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APPR

SHEET NAME

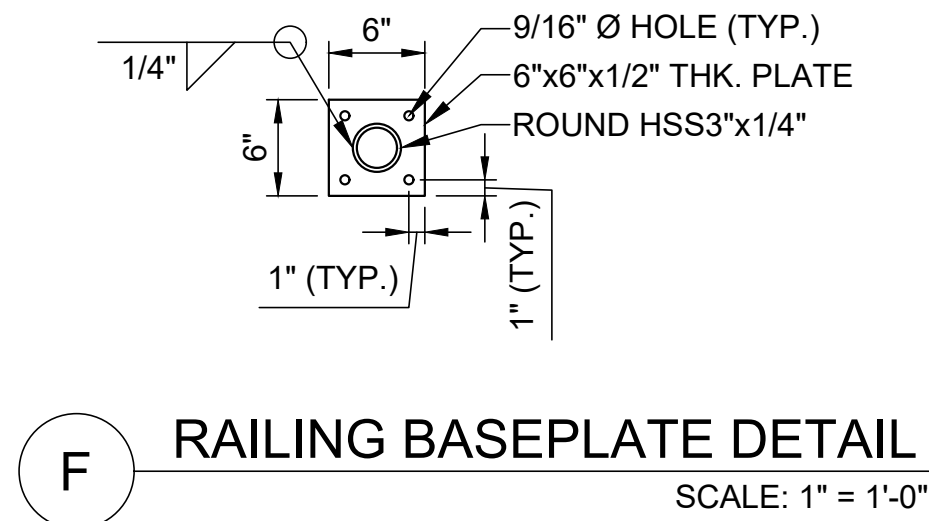
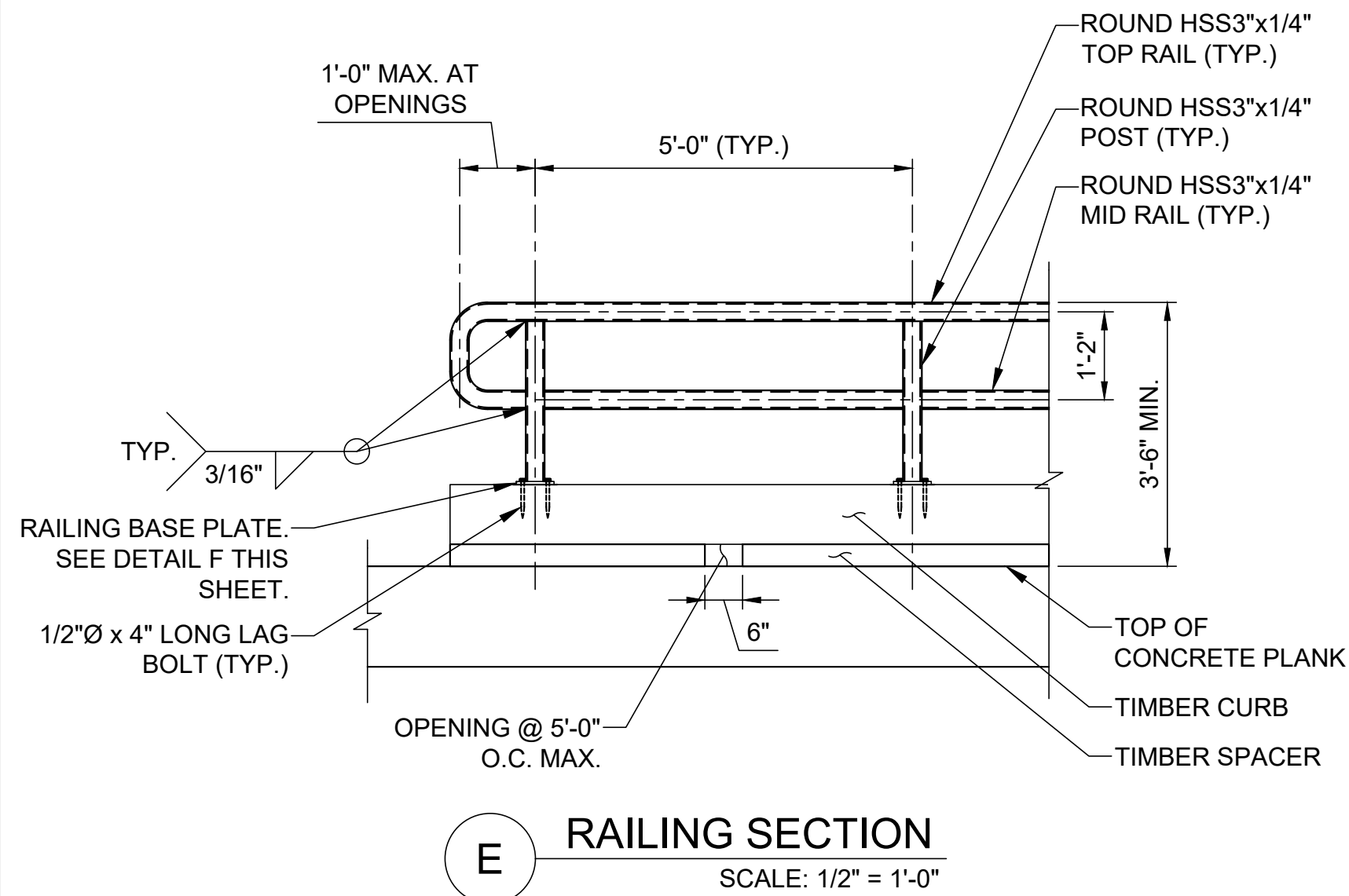
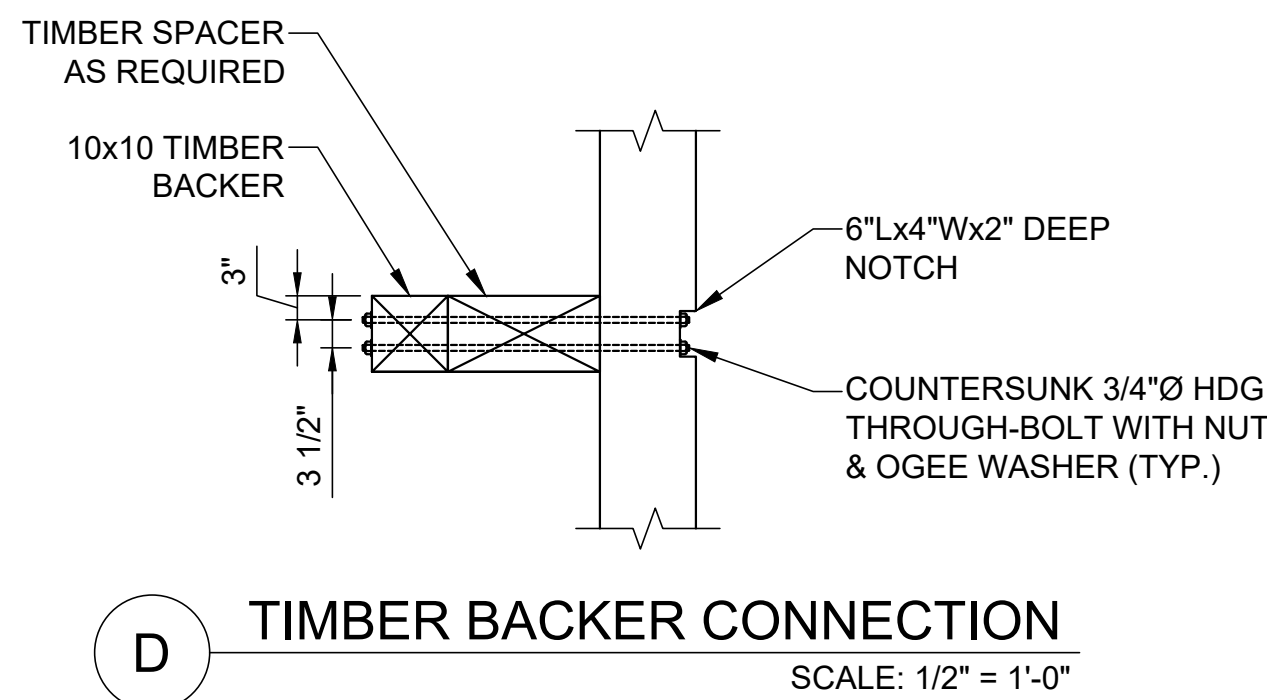
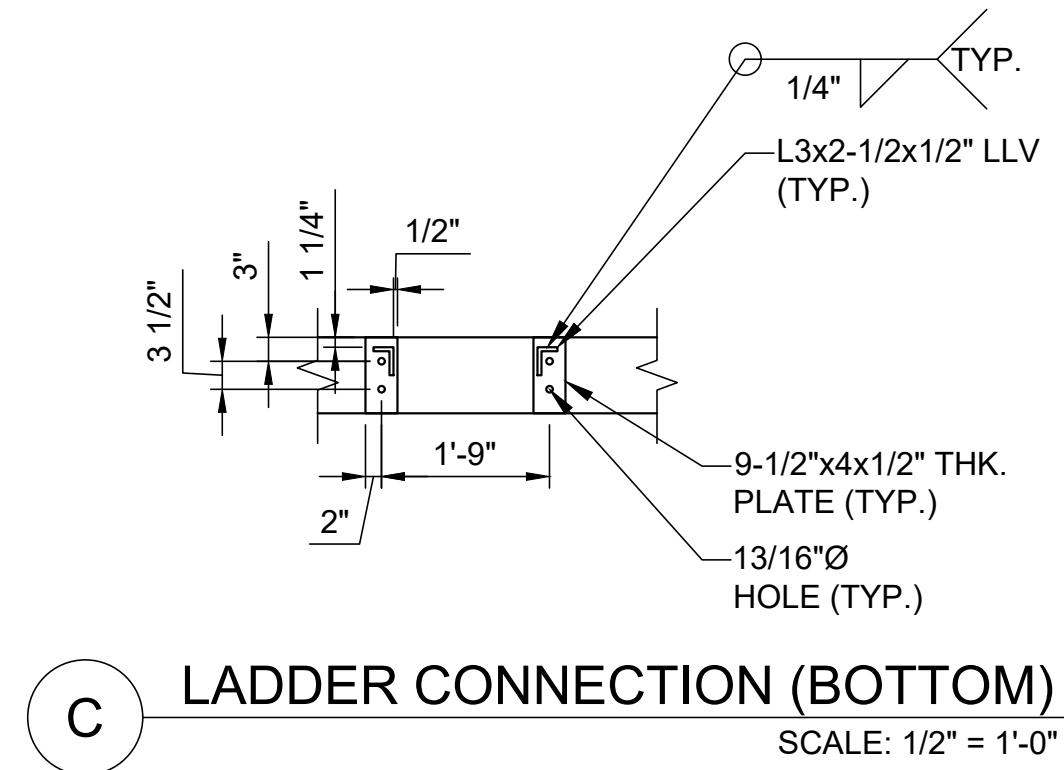
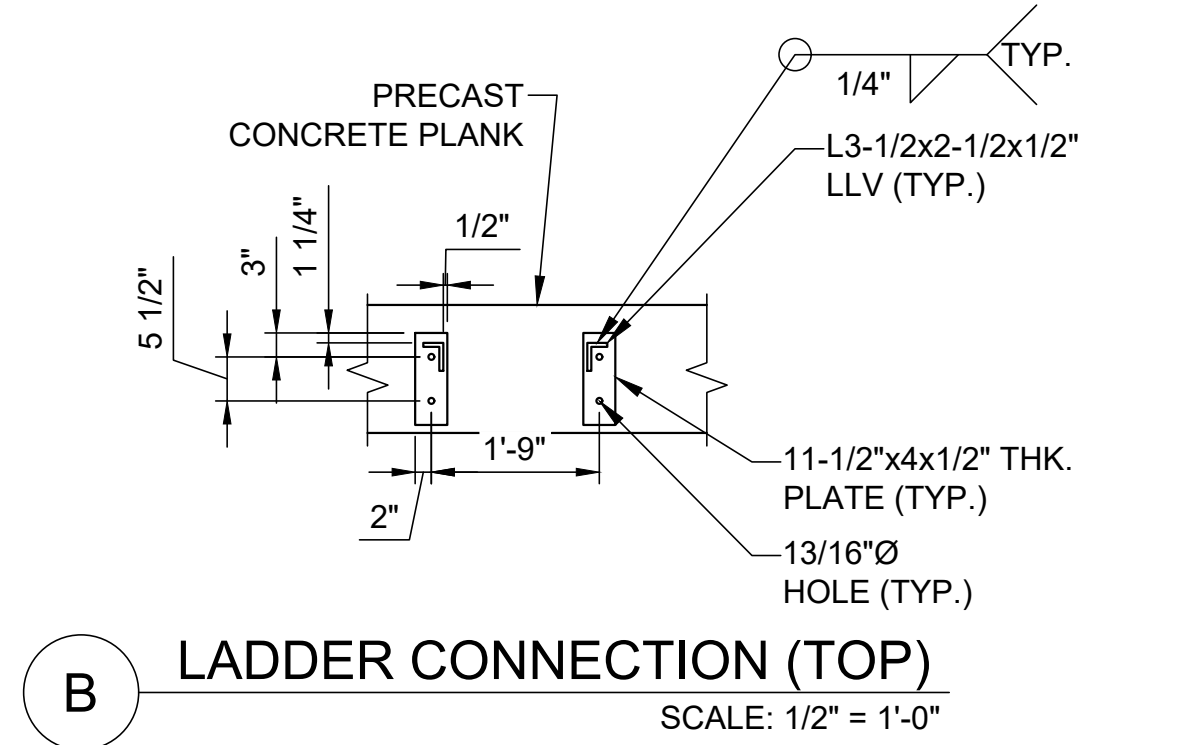
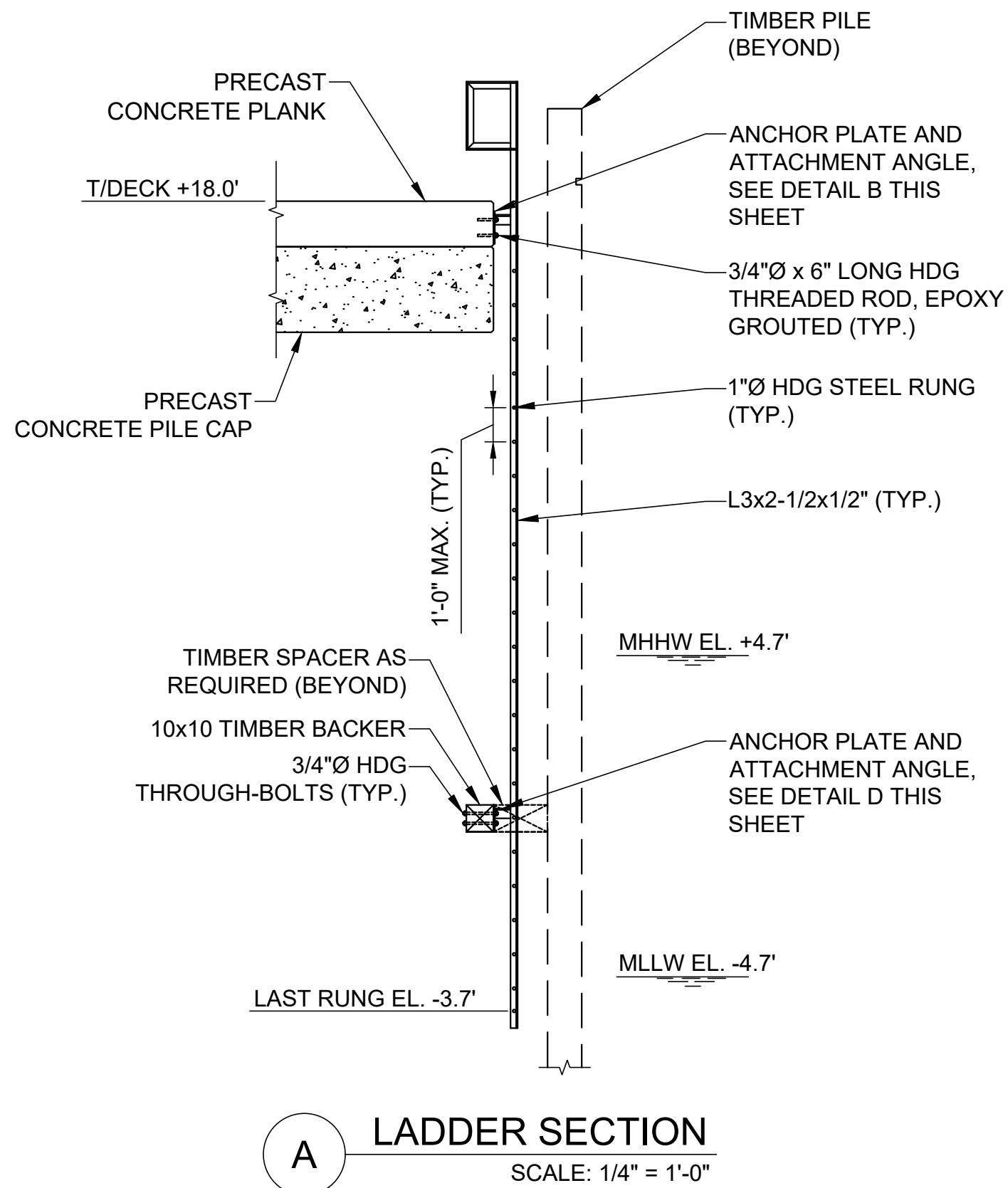
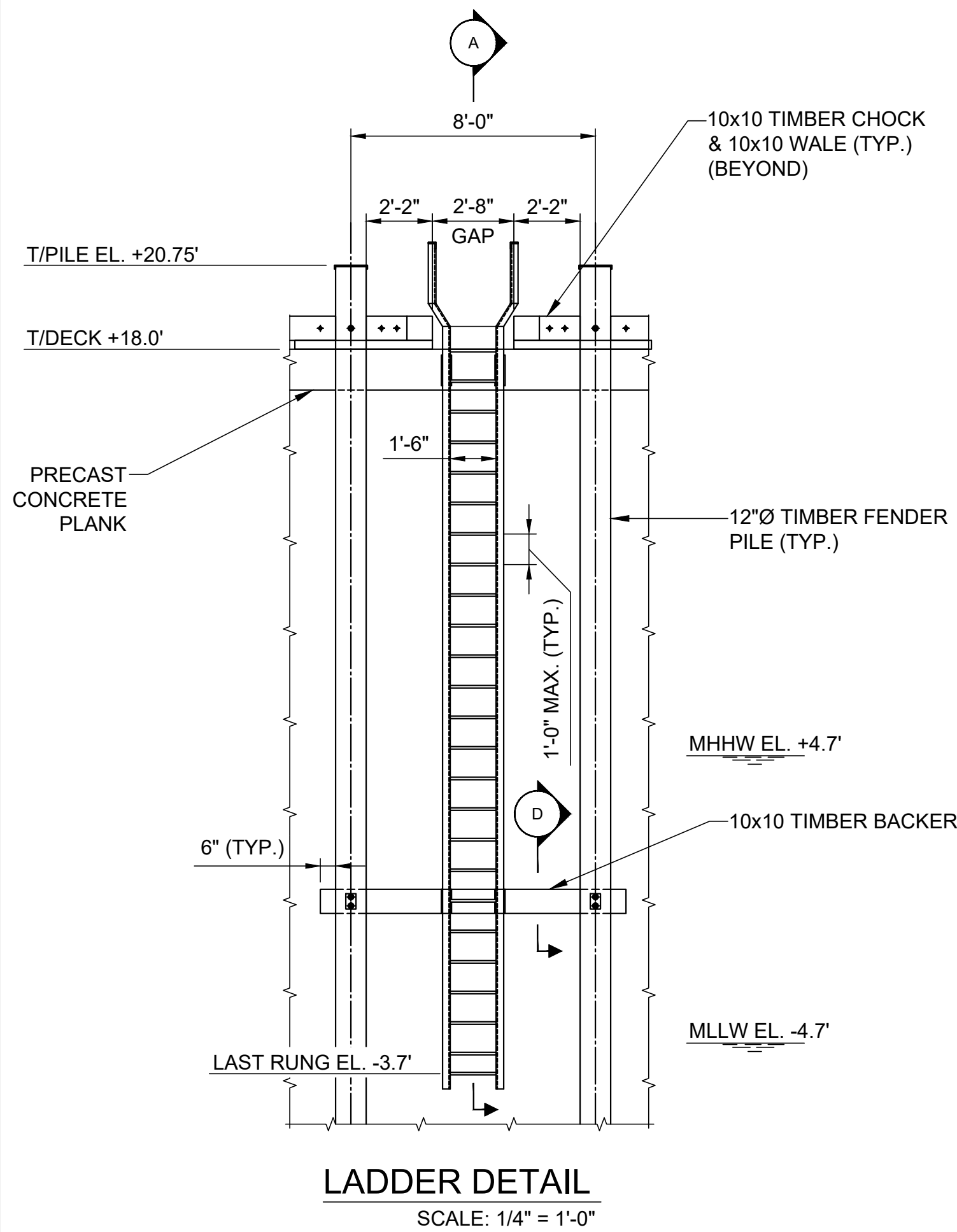
**MISCELLANEOUS
DETAILS (1 OF 5)**

FOR PERMIT

SHEET NO.

S-009

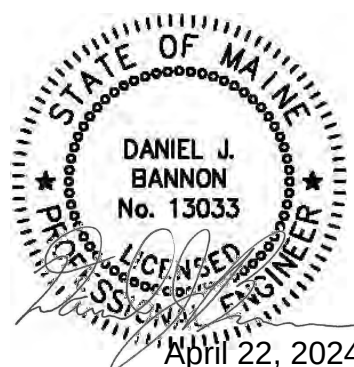
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ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*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



11 HILLS BEACH RD.
BIDDEFORD, MAINE

**UNIVERSITY OF
NEW ENGLAND
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BIDDEFORD, YORK COUNTY, MAINE

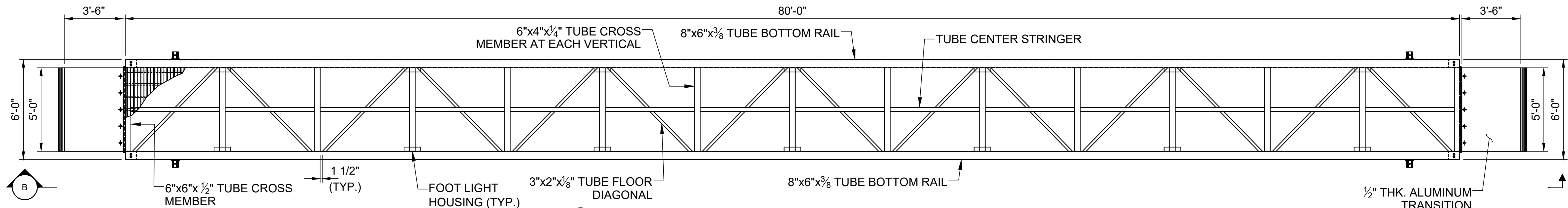
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2	2/15/2023	30% DESIGN SUBMISSION	DJB
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0	11/11/2022	15% DESIGN SUBMISSION	DJB

SHEET NAME
**MISCELLANEOUS
DETAILS (2 OF 5)**

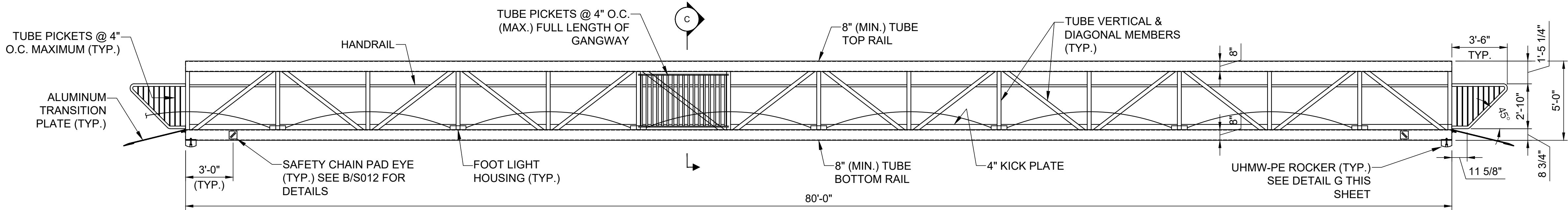
SHEET NO.
S-010

FOR PERMIT

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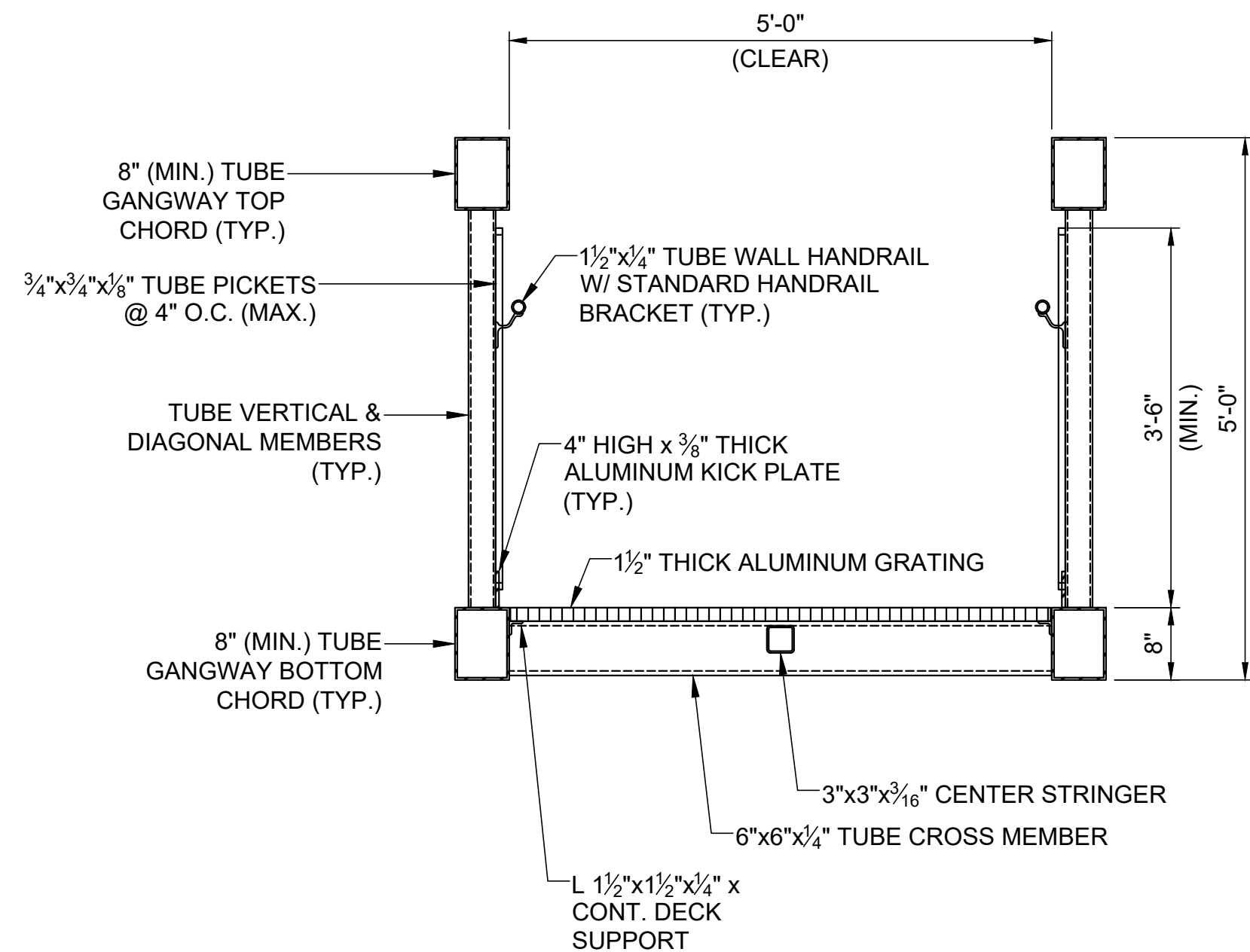


5'-0" (CLEAR) x 80'-0" GANGWAY PLAN
SCALE: 1/4" = 1'-0"



GANGWAY ELEVATION

SCALE: 1/4" = 1'-0"



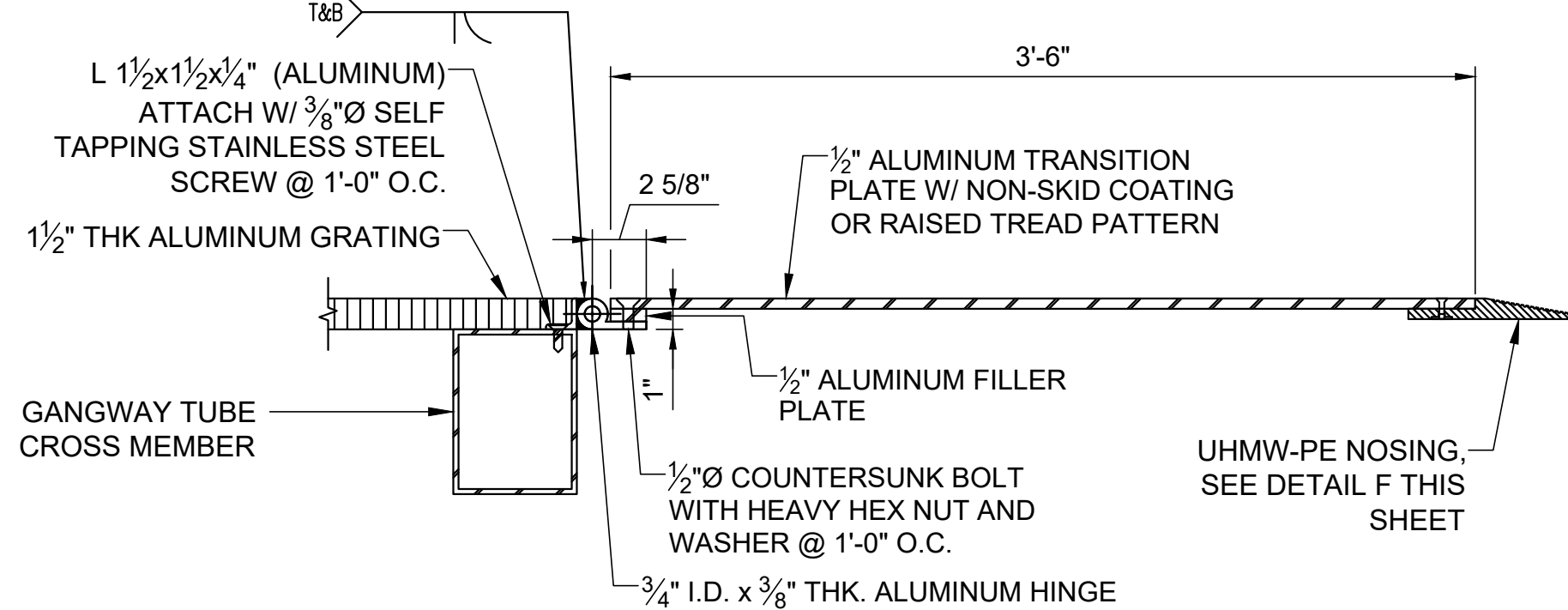
TYPICAL GANGWAY SECTION
SCALE: 3/4" = 1'-0"

- NOTE(S):
- CONTRACTOR AND GANGWAY MANUFACTURER SHALL DETERMINE FINAL GANGWAY MEMBER SIZES AND SUBMIT TO ENGINEER FOR REVIEW AND APPROVAL.
 - ALUMINUM GRATING SHALL MEET ADA REQUIREMENTS.

TRANSITION PLATE DETAIL

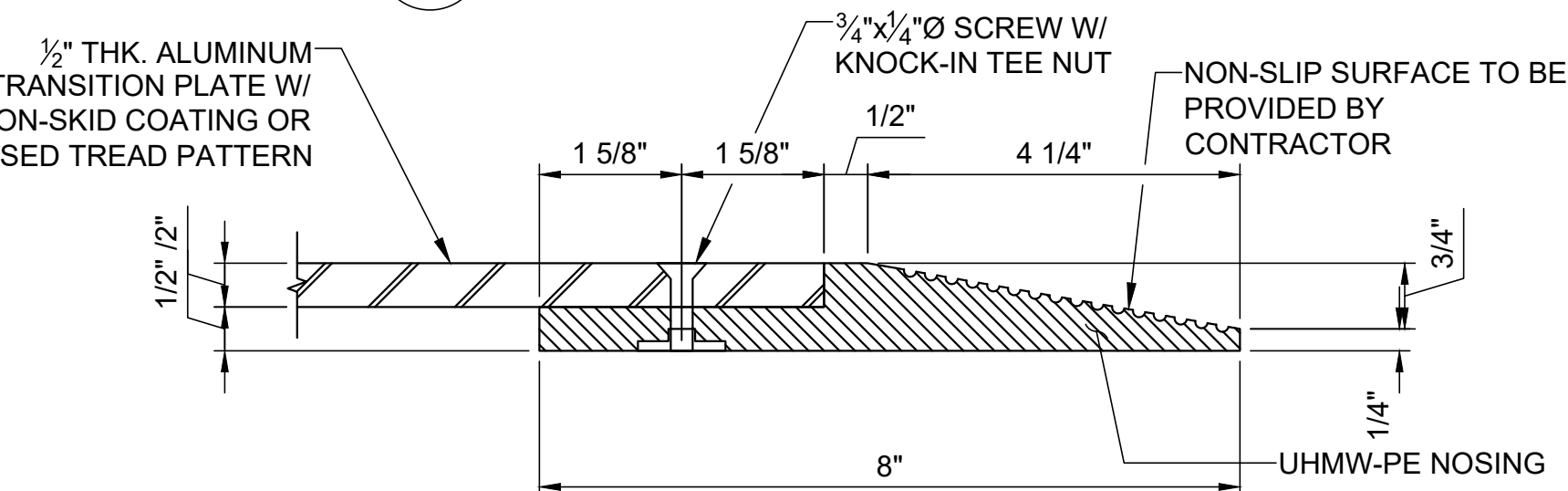
SCALE: 3/4" = 1'-0"

- NOTES:
- CONTRACTOR SHALL DETERMINE FINAL GANGWAY MEMBER SIZES. MEMBERS ONLY SHOWN SCHEMATICALLY FOR REFERENCE.
 - CONTRACTOR SHALL SUBMIT FINAL GANGWAY SHOP DRAWINGS AND CALCULATION PACKAGE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MAINE.
 - ALL GANGWAY TUBE MEMBERS SHALL BE 6061-T6 ALUMINUM.
 - ALL GANGWAY TUBE MEMBERS SHALL BE CAPPED AND SEALED W/ ALUMINUM PLATES AT EXPOSED ENDS.



GANGWAY TRANSITION PLATE SECTION

SCALE: 1-1/2" = 1'-0"



UHMW-PE NOSING DETAIL

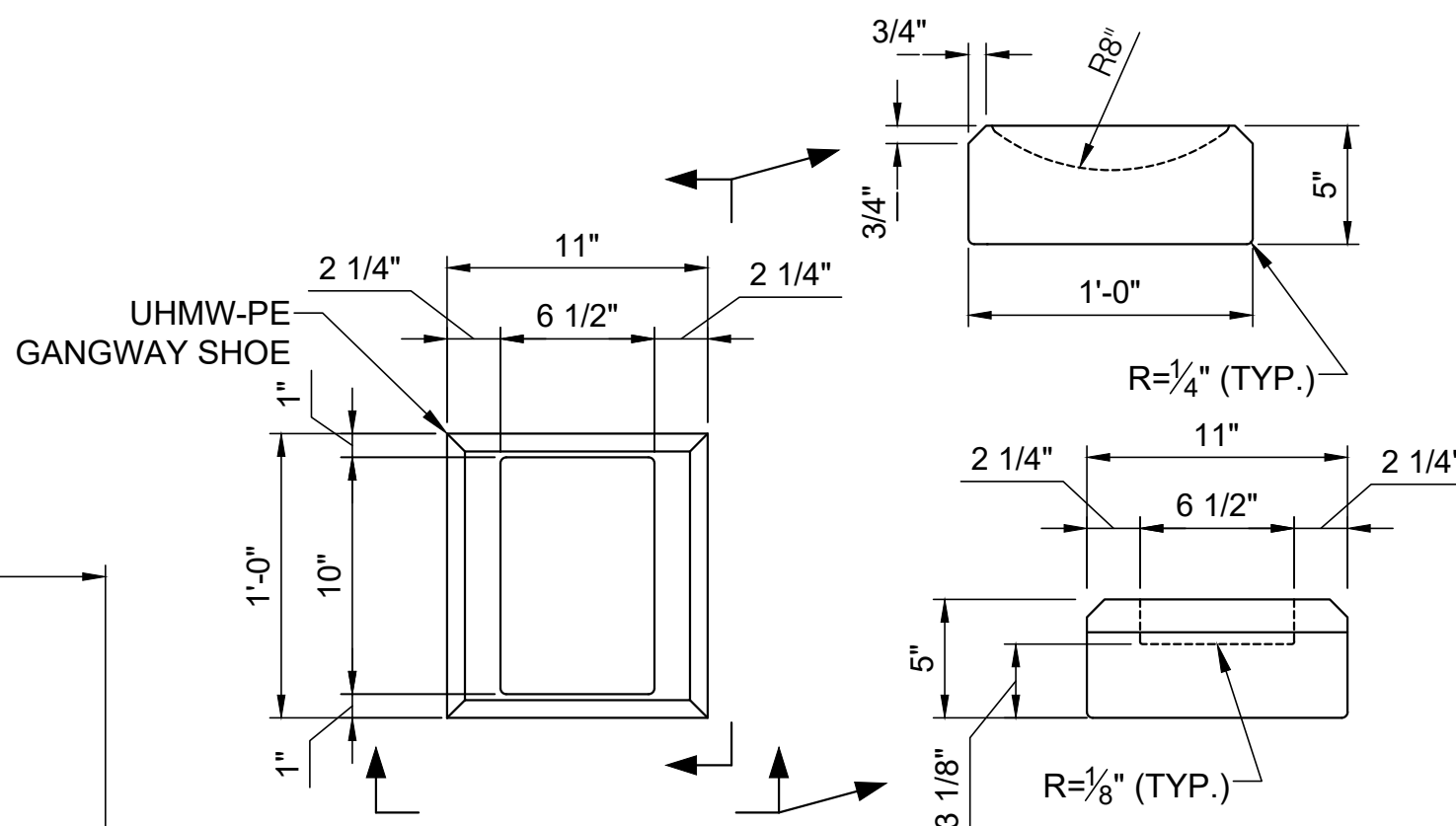
SCALE: 6" = 1'-0"

- NOTE(S):
- 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.
 - UHMW-PE NOSING DETAILS TO BE DETERMINED AFTER TRANSITION PLATE INSTALLATION AND SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN ADA.

GANGWAY ROCKER DETAIL

SCALE: 1-1/2" = 1'-0"

- NOTES:
- ROCKER MATERIAL SHALL BE VIRGIN UHMW-PE, BLACK IN COLOR.
 - ALUMINUM BACKER PLATE PLAN DIMENSIONS SHALL MATCH ROCKER PLAN DIMENSIONS.



GANGWAY SHOE DETAIL

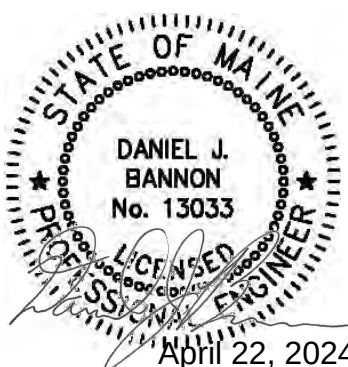
SCALE: 1-1/2" = 1'-0"

NOTE: SHOE MATERIAL SHALL BE VIRGIN UHMW-PE, BLACK IN COLOR.

ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+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
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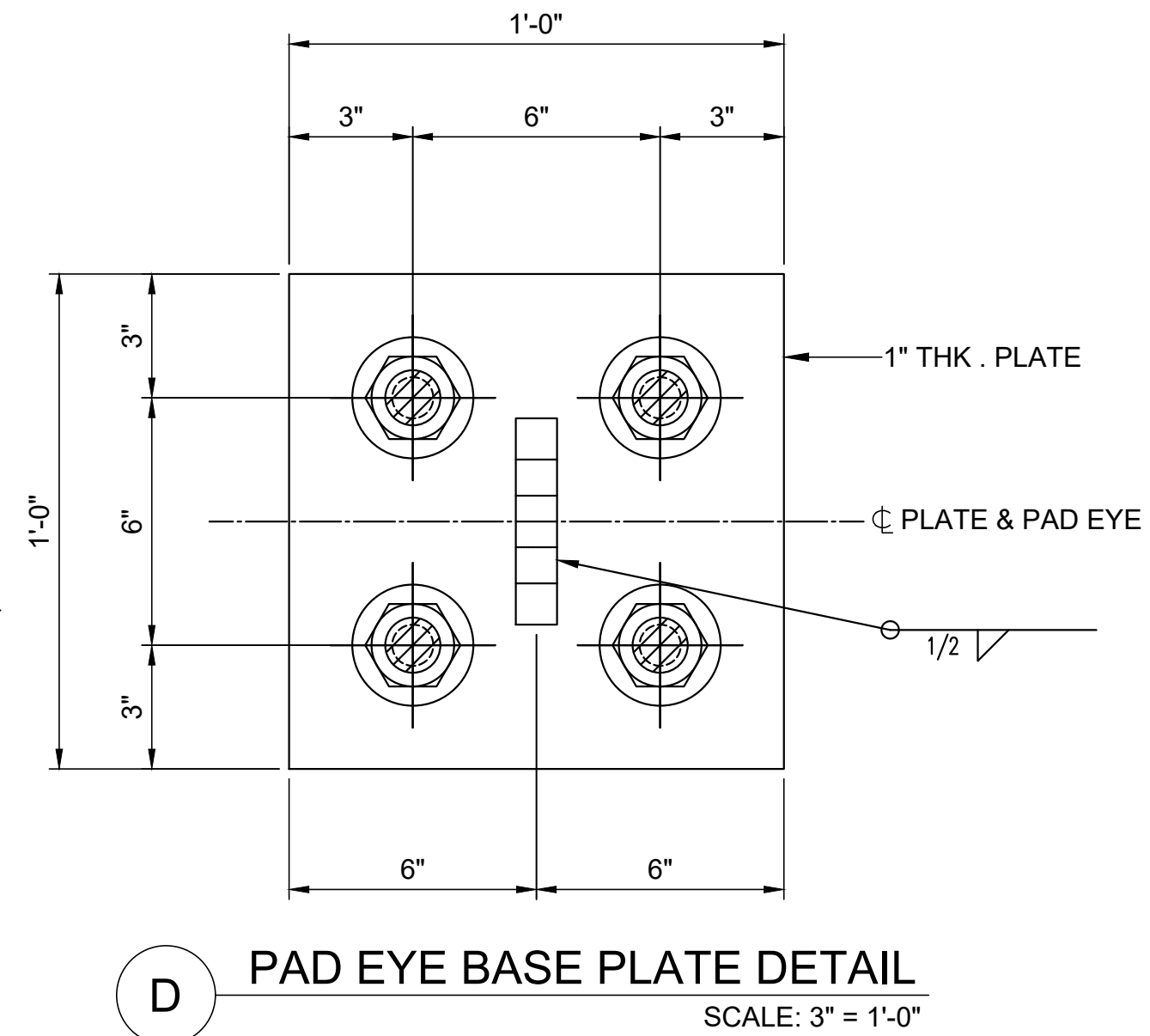
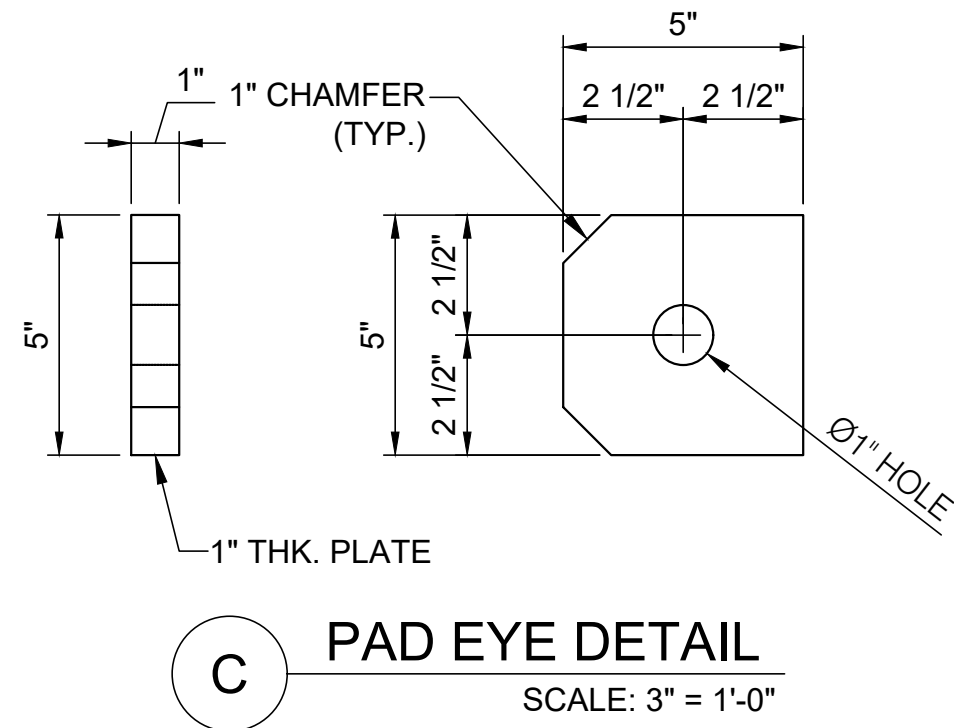
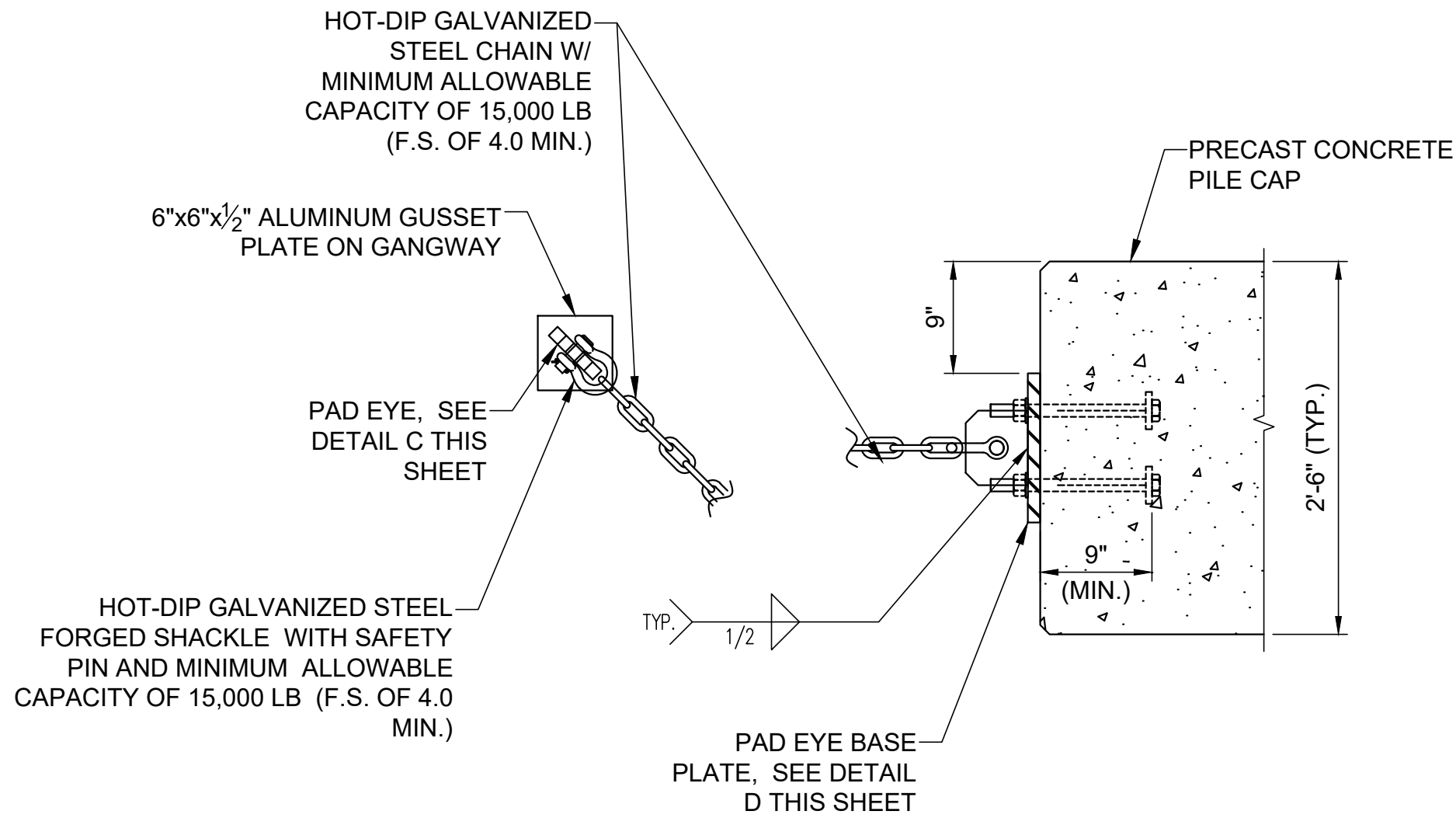
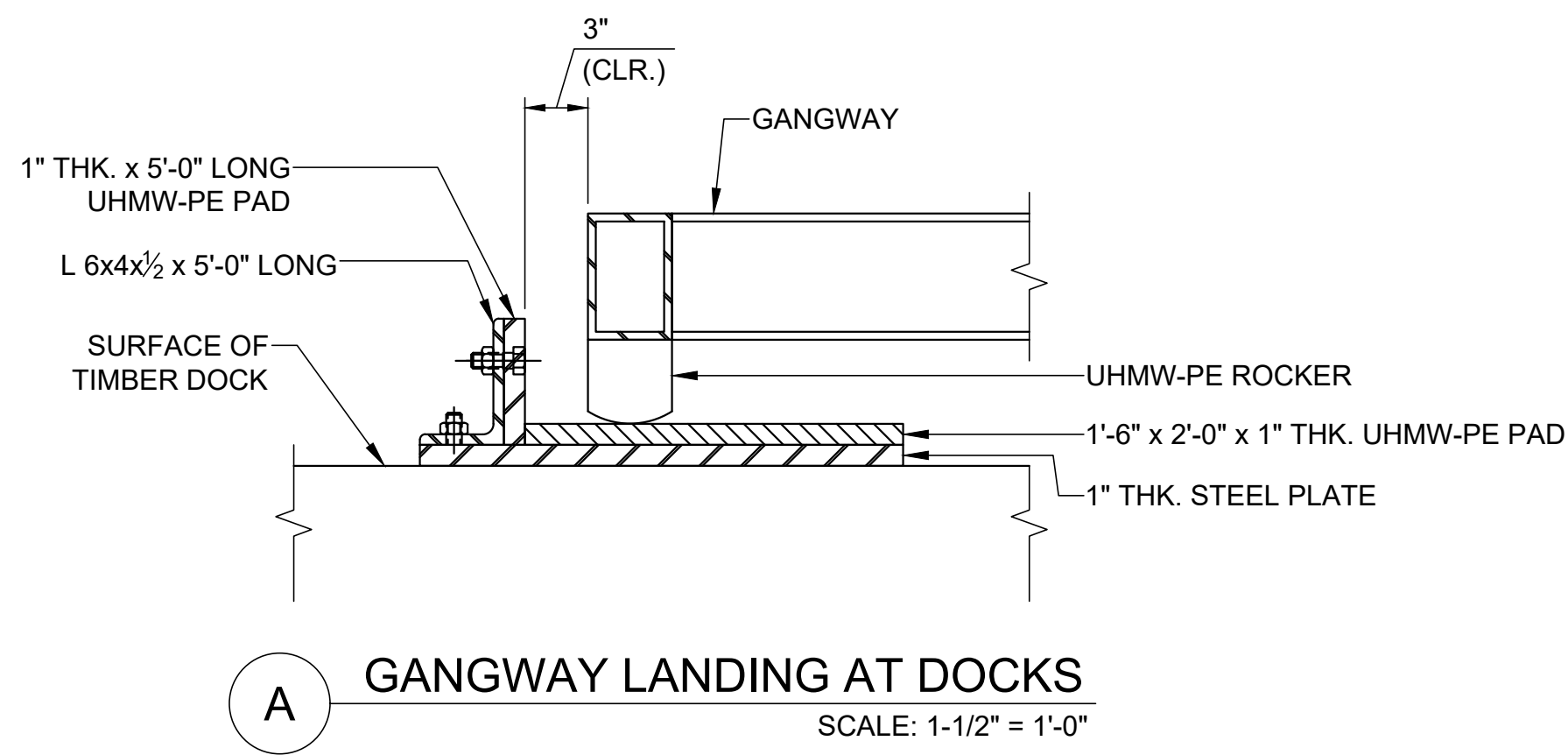
**UNIVERSITY OF
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PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

4	9/14/2023	DEP PERMIT SET	DJB
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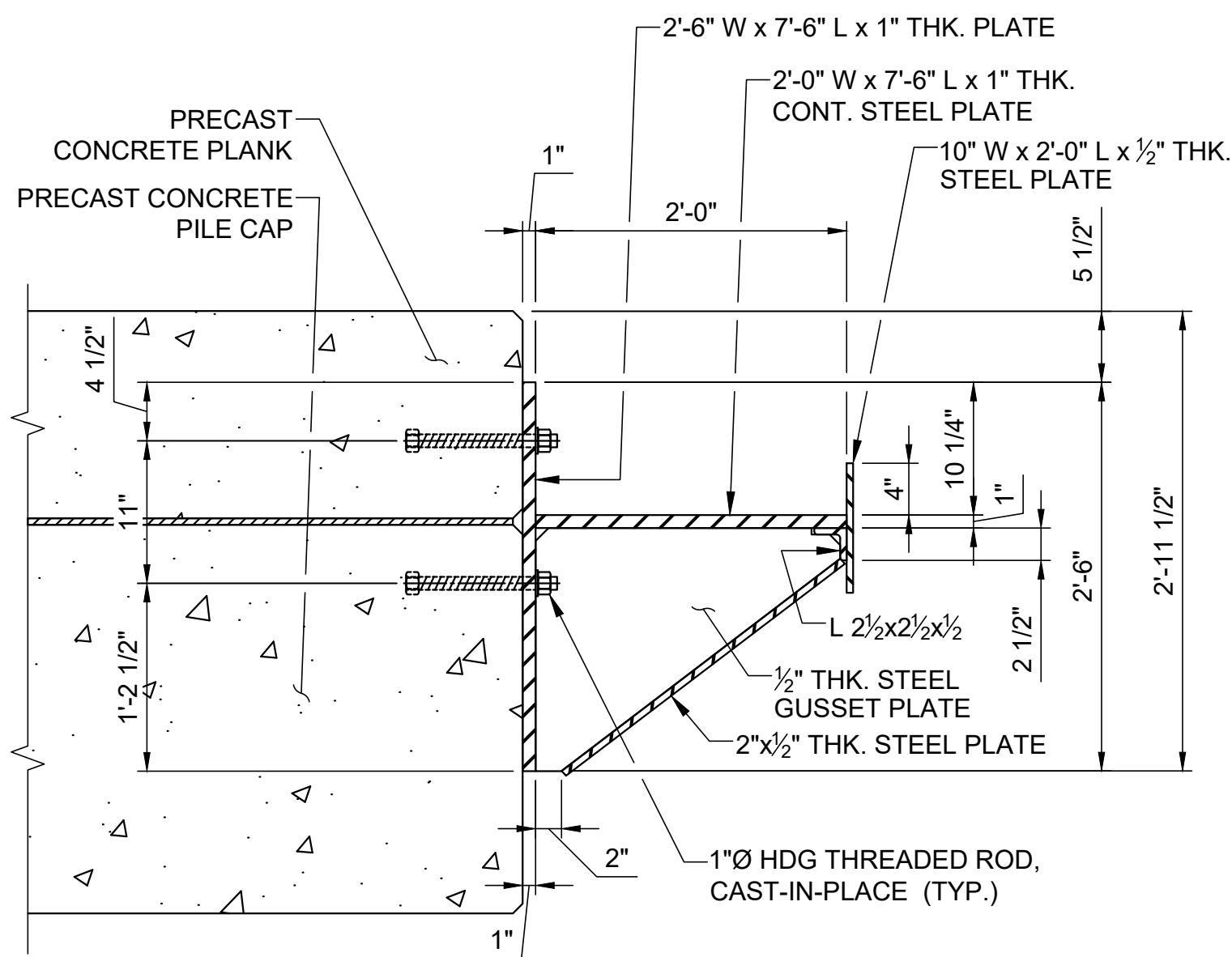
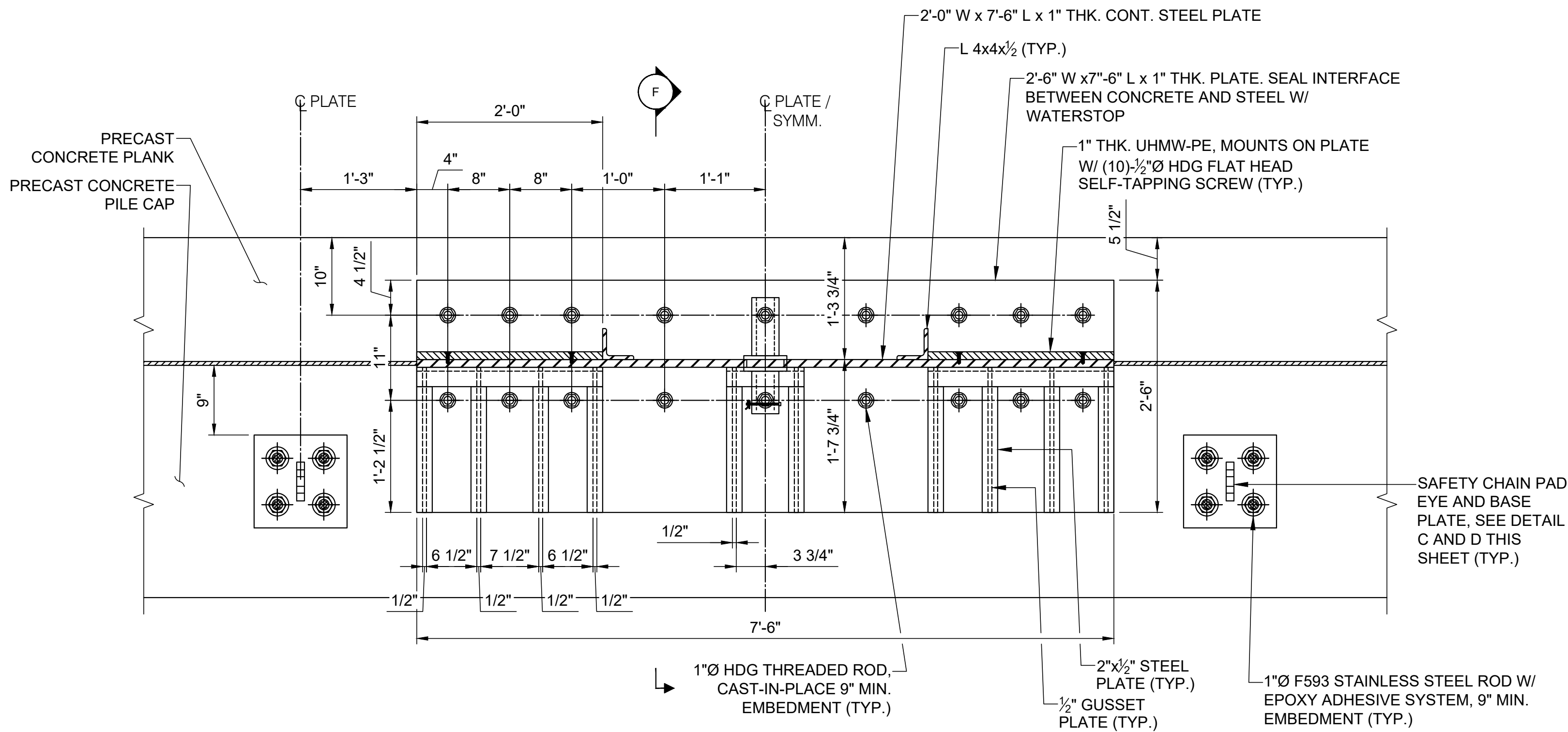
SHEET NAME	SHEET NO.
MISCELLANEOUS DETAILS (3 OF 5)	S-011

FOR PERMIT

MORCI, ANTHONY | User: s02Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703-S-012.dwg - 9/14/2023



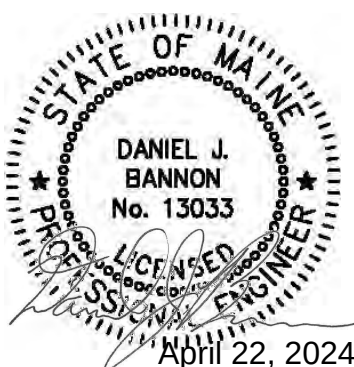
NOTE: CONTRACTOR TO DETERMINE ASSEMBLY LENGTH BASED ON PAD EYE LOCATION ON GANGWAY SUCH THAT UHMW-PE SHOE CANNOT MOVE OFF THE SUPPORTING PLATE.



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

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Designed: DJB
Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

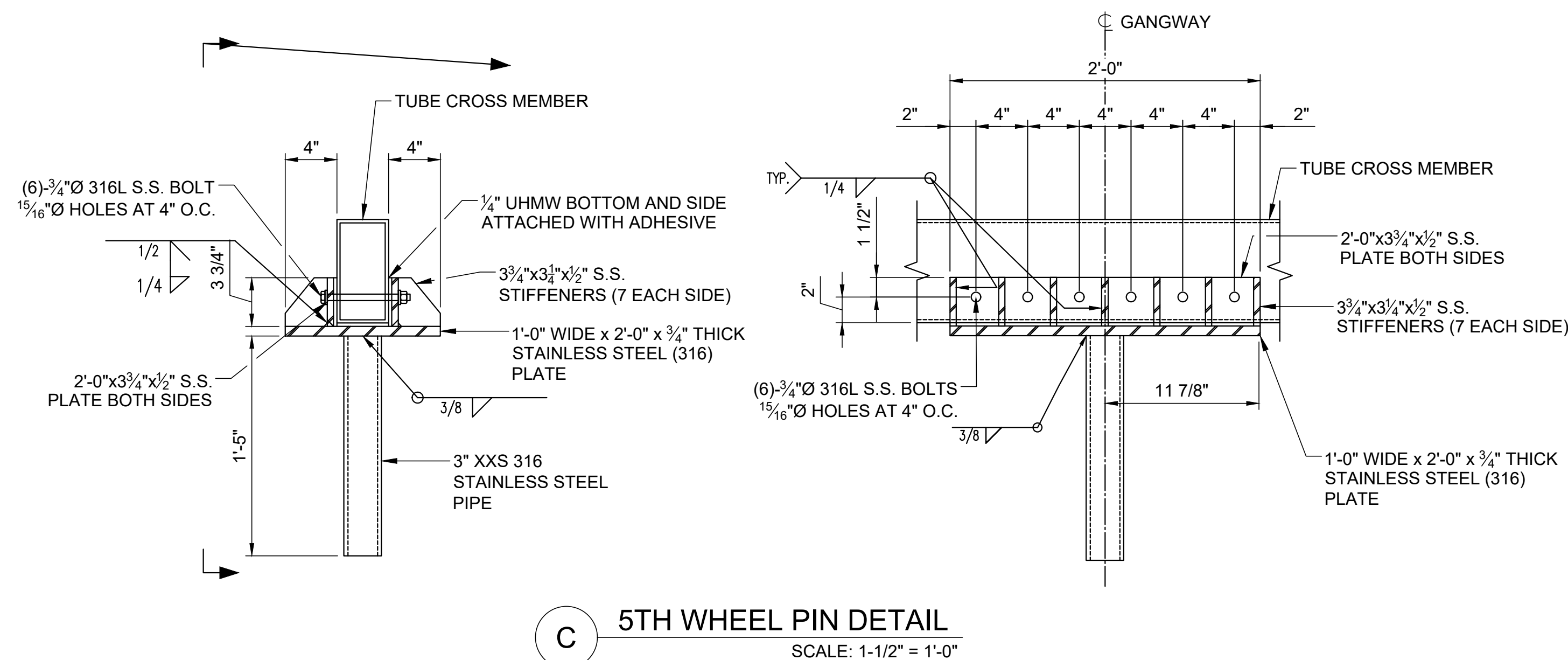
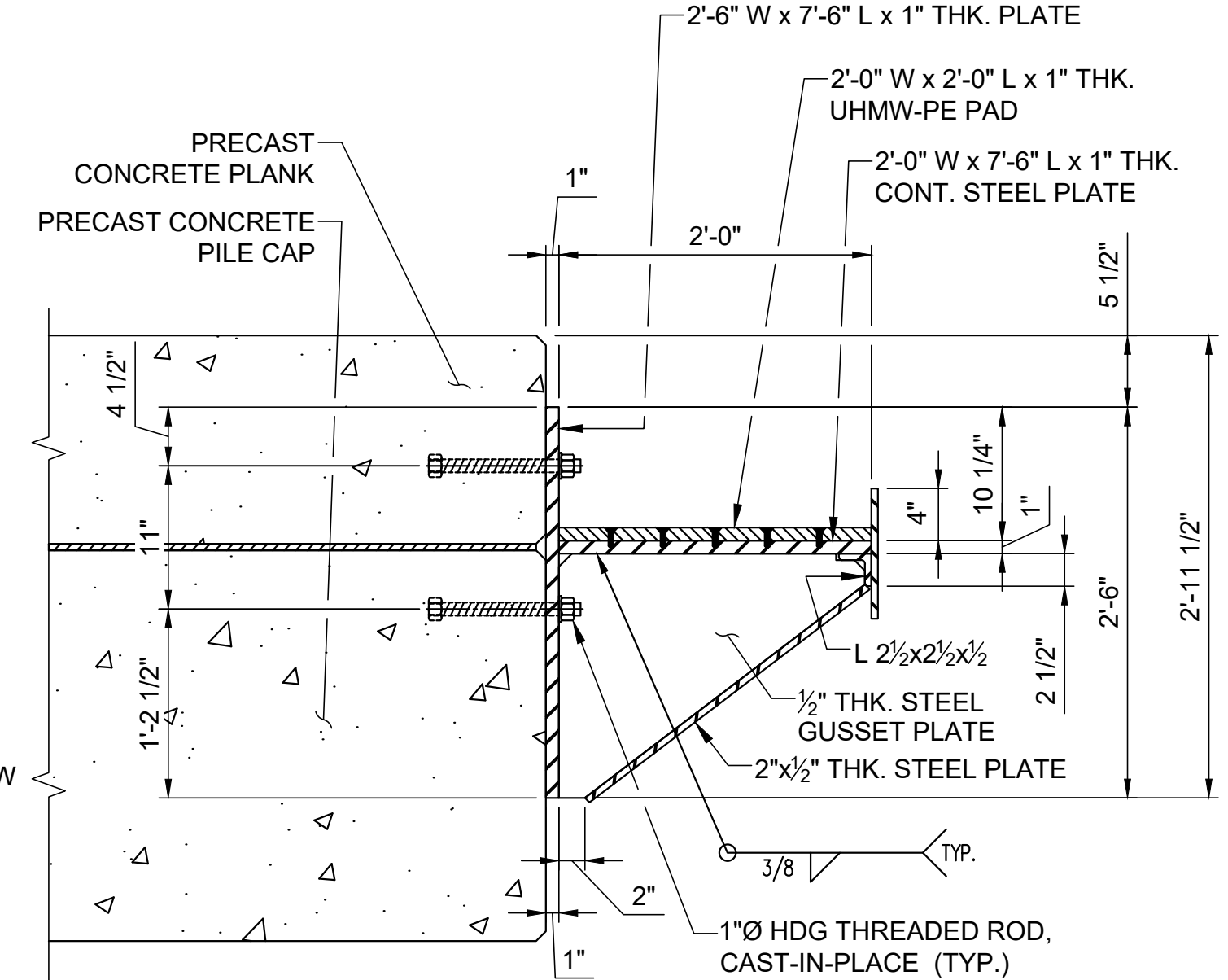
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SHEET NAME
MISCELLANEOUS
DETAILS (4 OF 5)

SHEET NO.
S-012

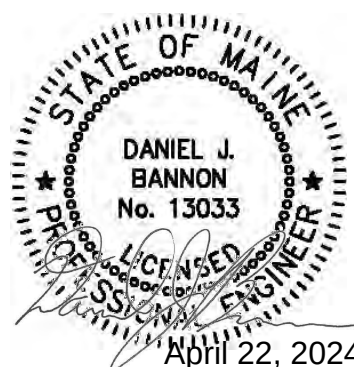
FOR PERMIT

*PROJECT DATUM

Attention:



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<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



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NO	DATE	ISSUE/REVISION		APR

SHEET NAME

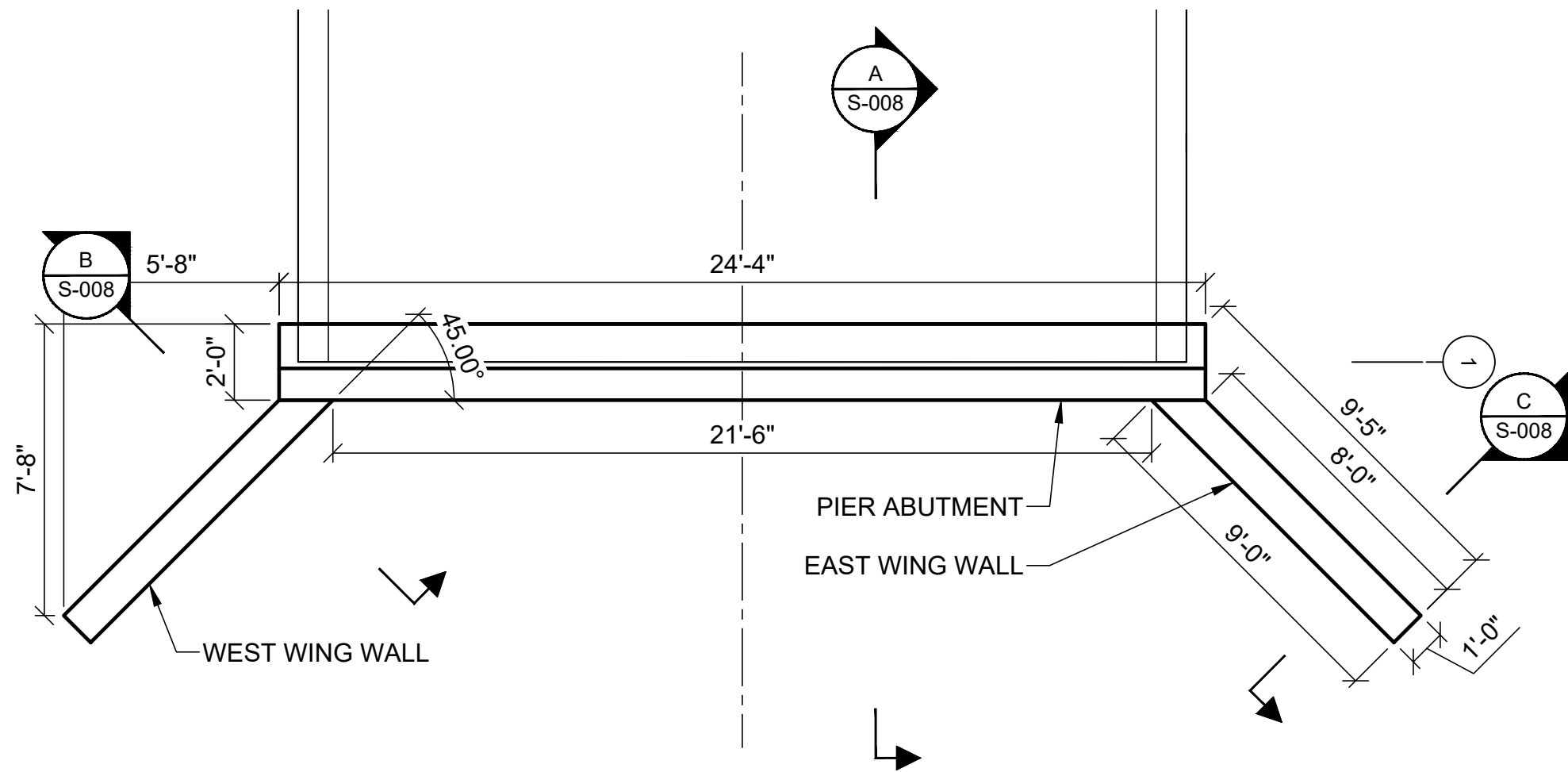
**MISCELLANEOUS
DETAILS (5 OF 5)**

SHEET NO.

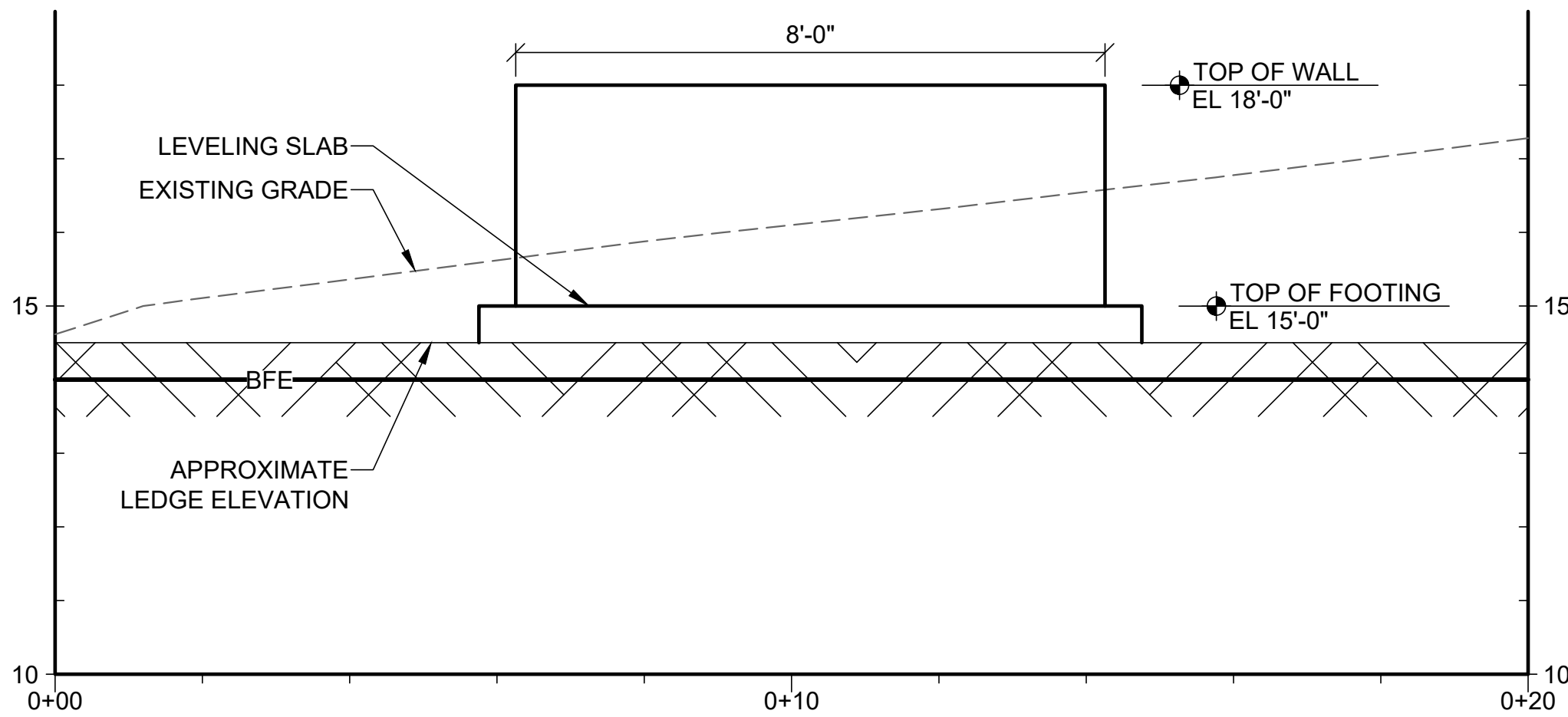
S-013

FOR PERMIT

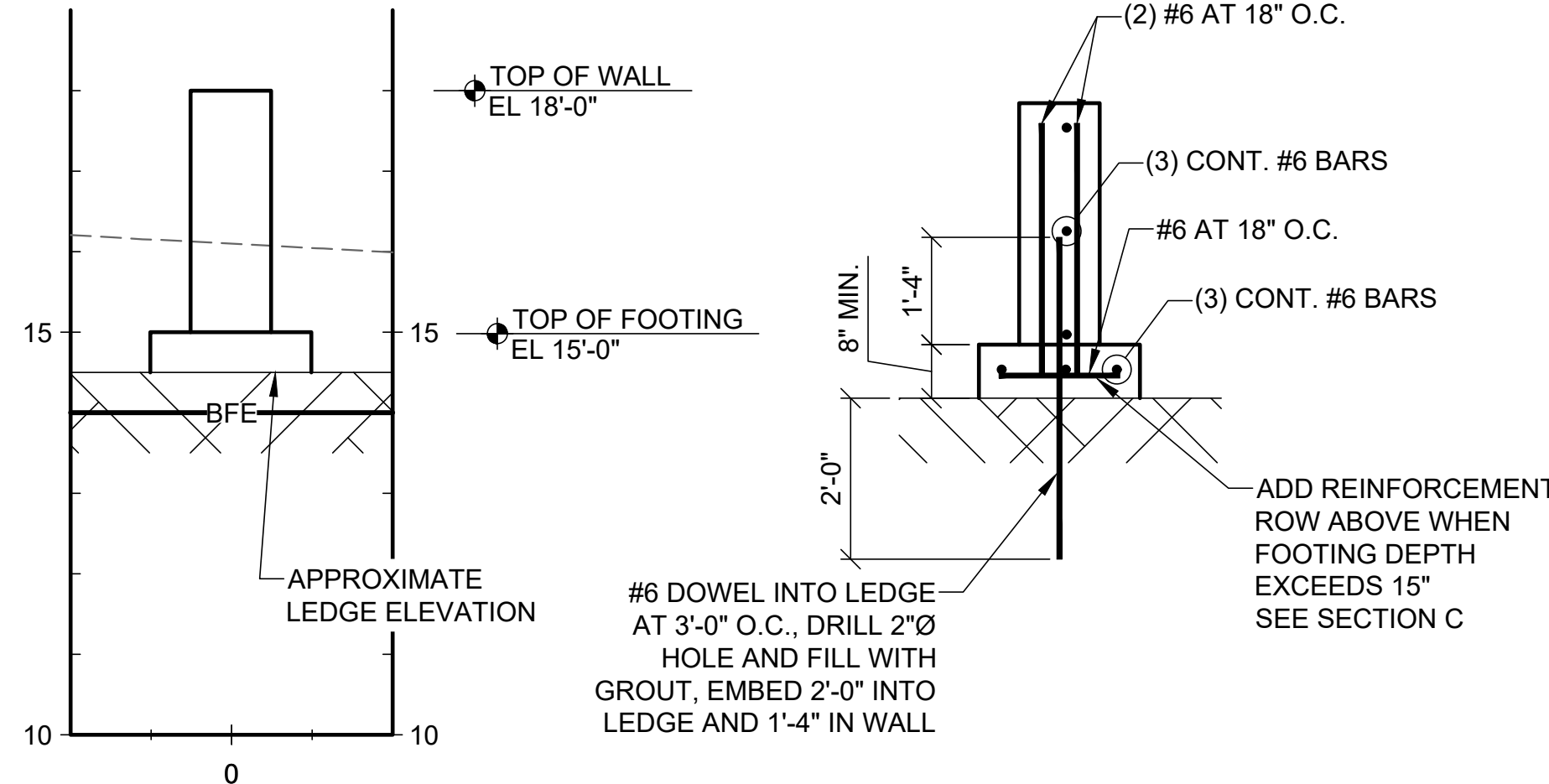
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MORCI, ANTHONY User:14502Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703_014.dwg - 9/14/2023



ABUTMENT PLAN
SCALE: SCALE: 3" = 1'-0"

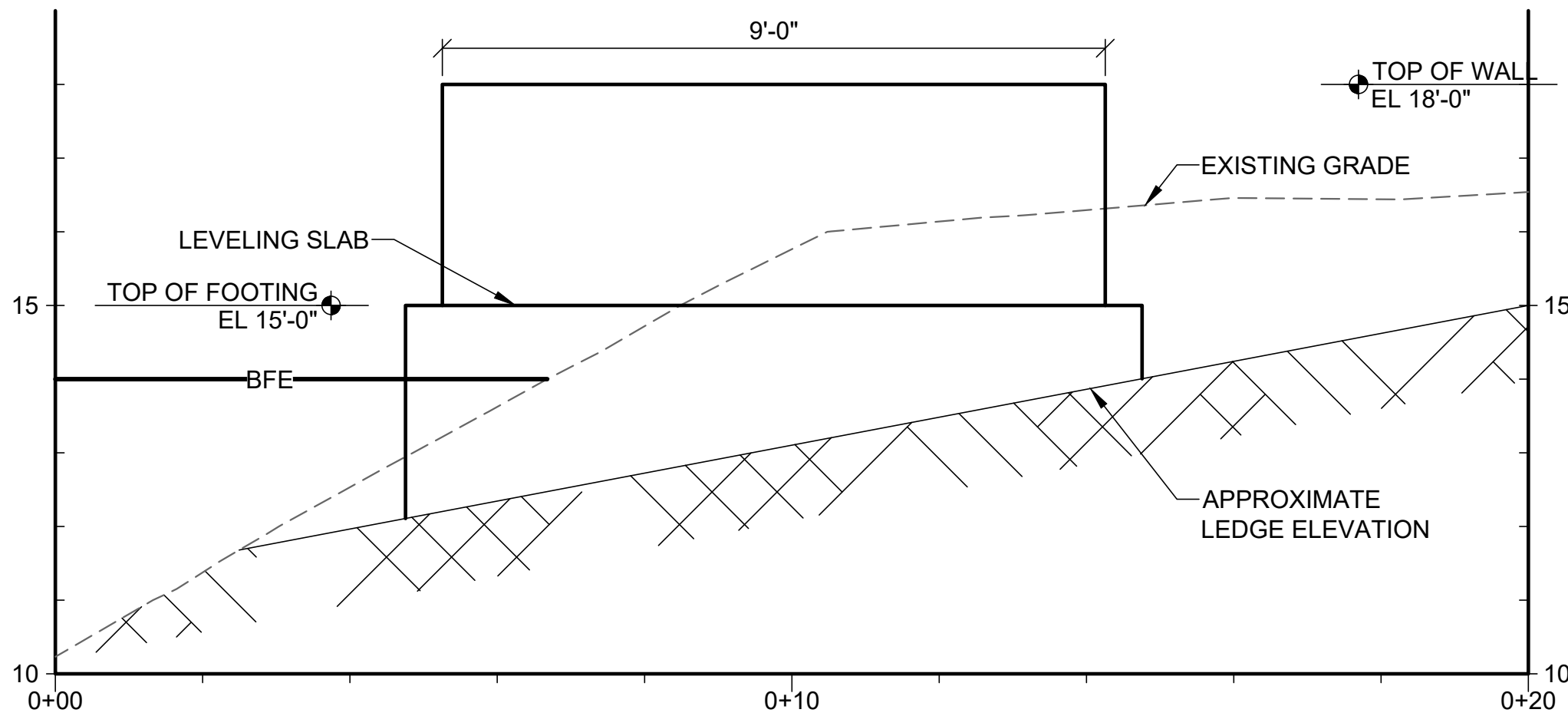


WEST WING WALL ELEVATION
SCALE: 6" = 1'-0"

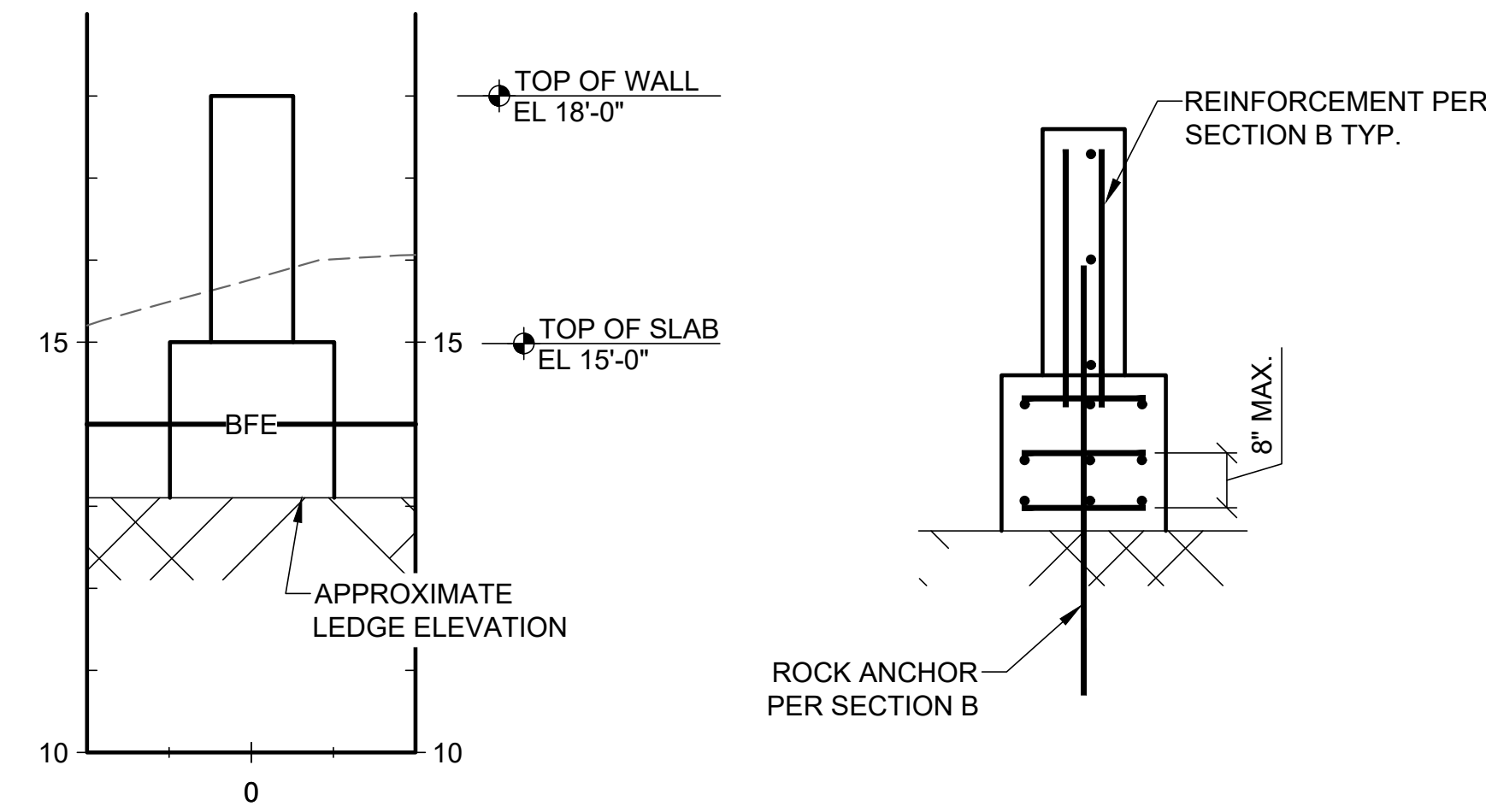


WEST WING WALL SECTION B
SCALE: 6" = 1'-0"

SECTION B
WEST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"

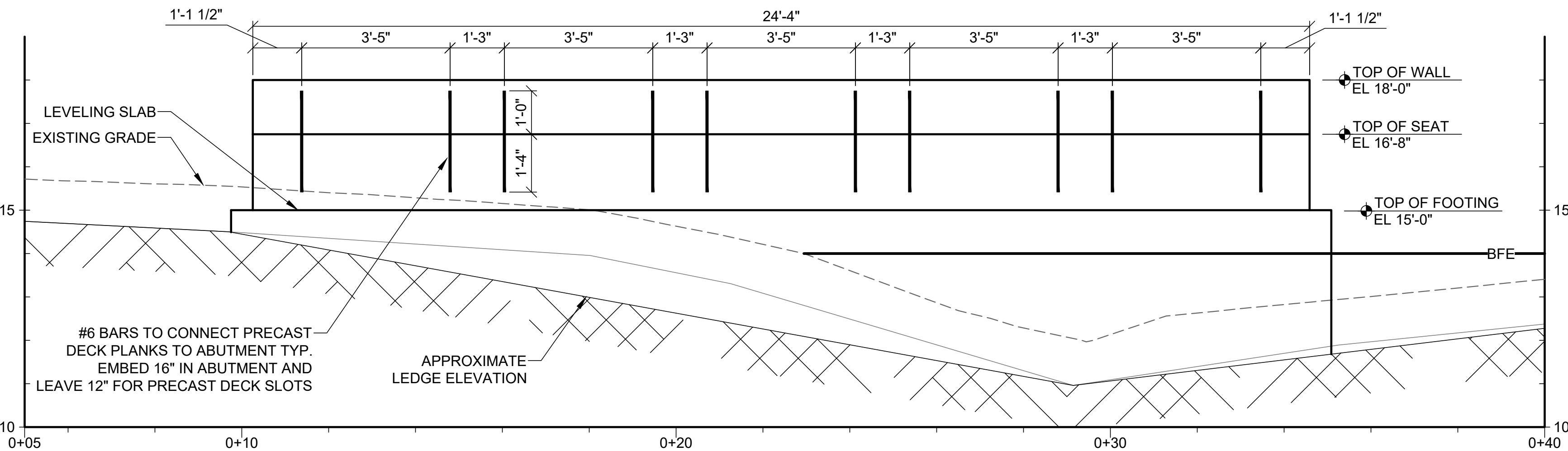


EAST WING WALL ELEVATION
SCALE: 6" = 1'-0"

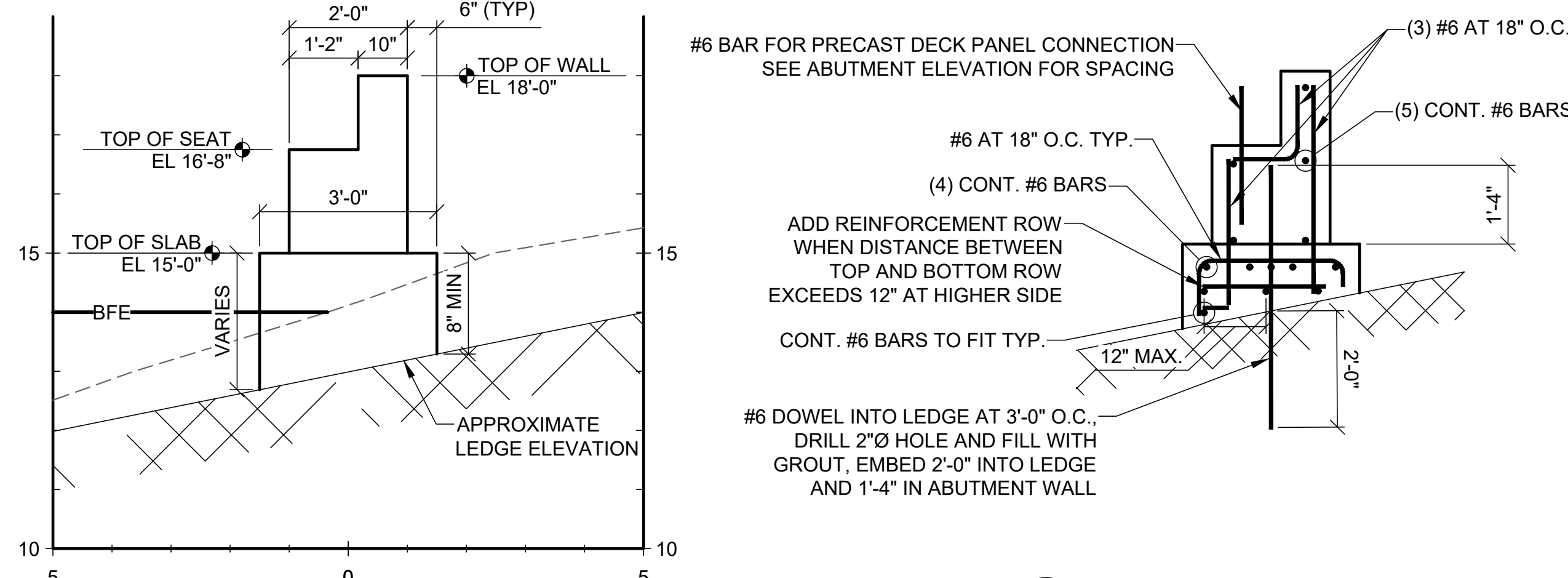


EAST WING WALL SECTION C
SCALE: 6" = 1'-0"

SECTION C
EAST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"



ABUTMENT ELEVATION A
SCALE: 3" = 1'-0"



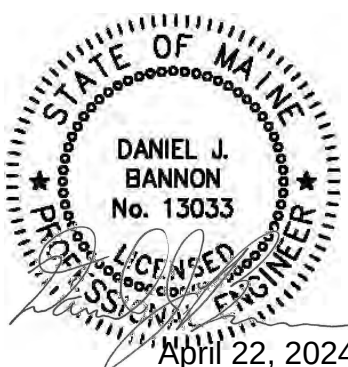
ABUTMENT SECTION A
SCALE: 6" = 1'-0"

SECTION A
ABUTMENT REINFORCEMENT
SCALE: 6" = 1'-0"

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

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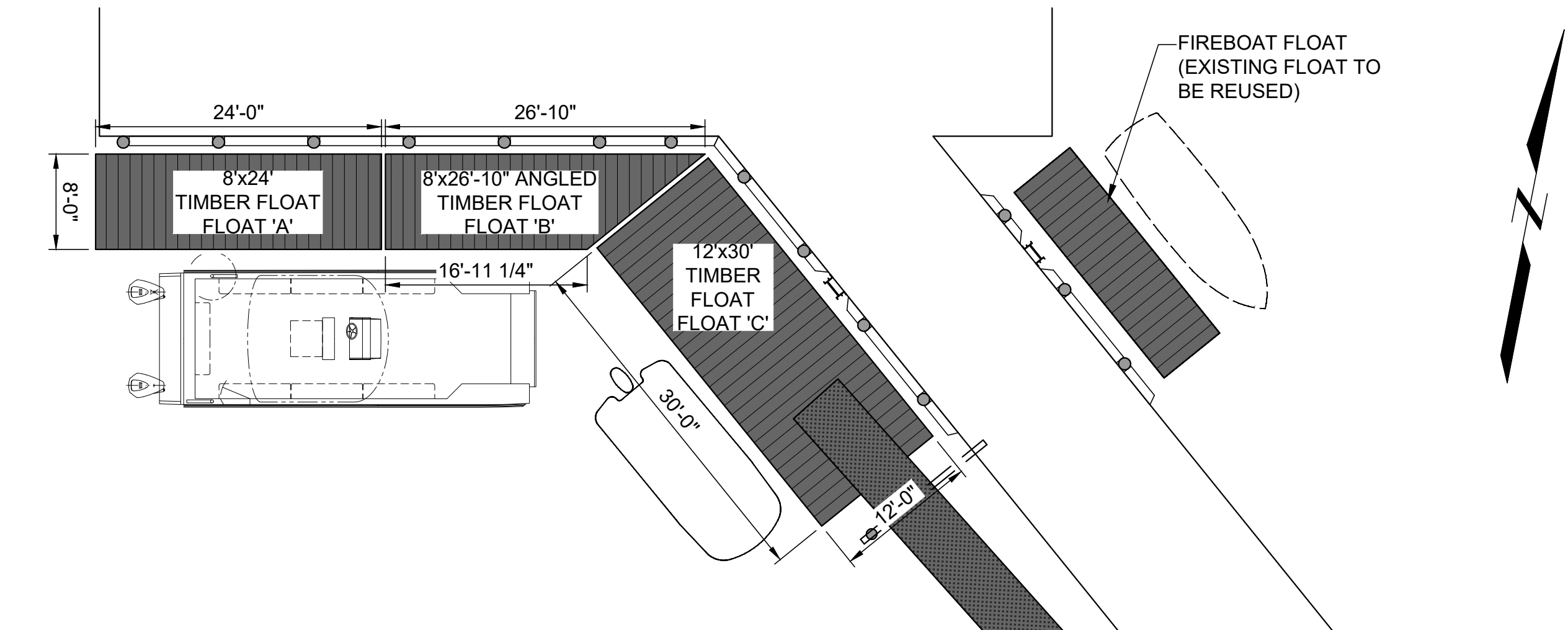
SHEET NAME
ABUTMENT DETAILS

SHEET NO.

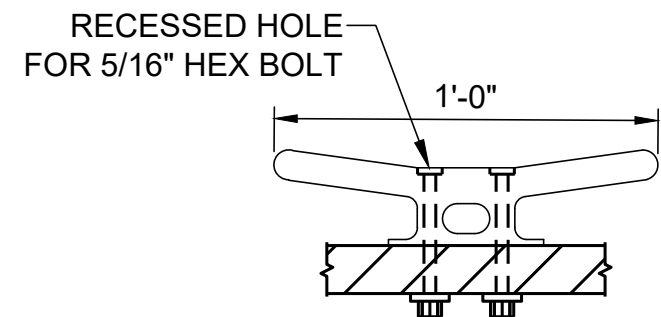
S-014

FOR PERMIT

MORCI, ANTHONY | g:\projects\university_of_new_england\2203703 UNE Marine Science Center Pier\03 CAD\Design\Sheet\2203703-F-001.dwg - 9/14/2023

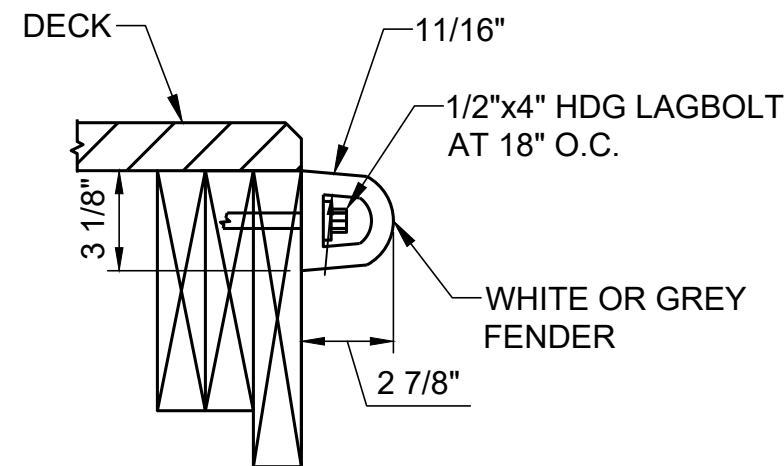


1 PLAN
FLOAT LAYOUT SCALE: 1" = 10'

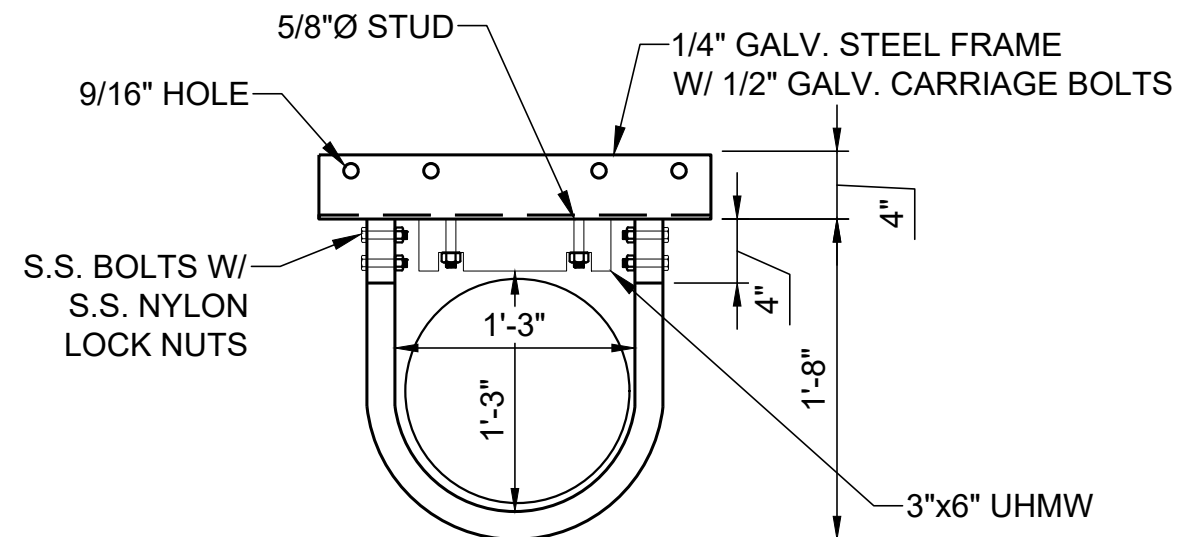


CLEAT LAYOUT:
FLOAT 'A' (4) @ EQ. SP ON SOUTH FACE
FLOAT 'B' (3) @ EQ. SP ON SOUTH FACE
FLOAT 'C' (4) @ EQ. SP ON WEST FACE

4 DETAIL
12" CLEAT SCALE: 2:1

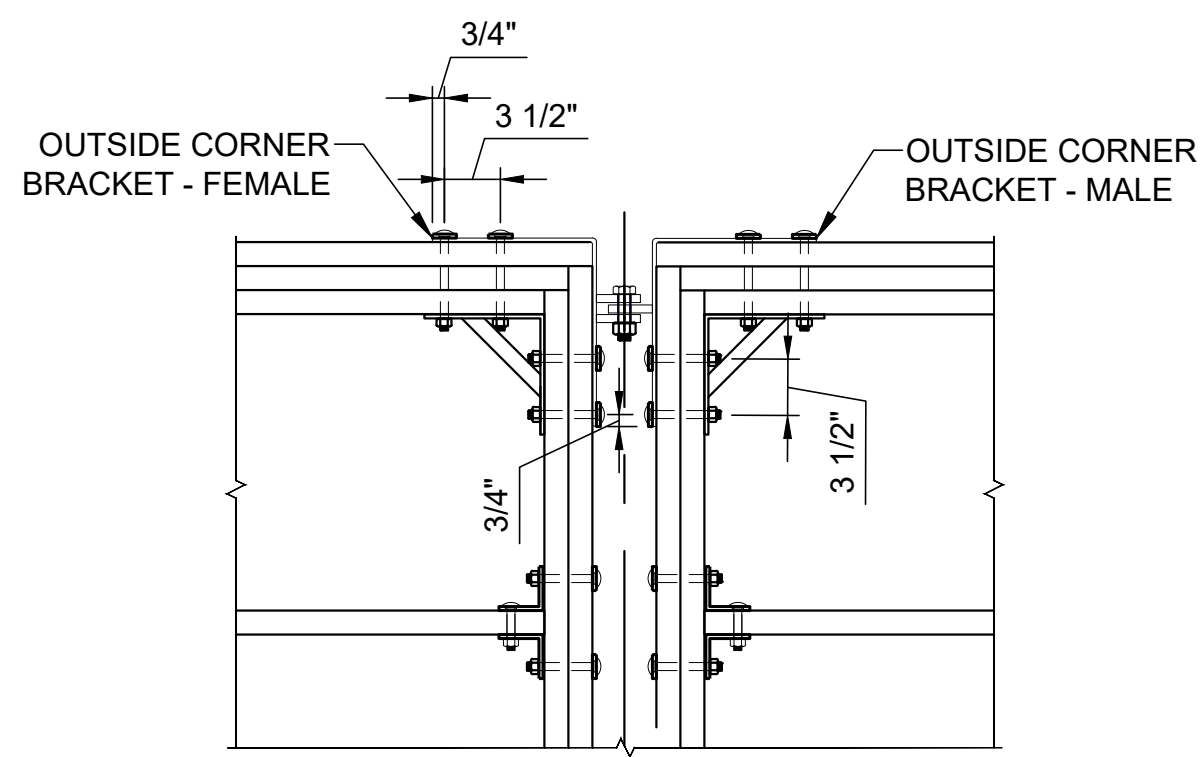


5 DETAIL
DOCK FENDER SCALE: 2:1

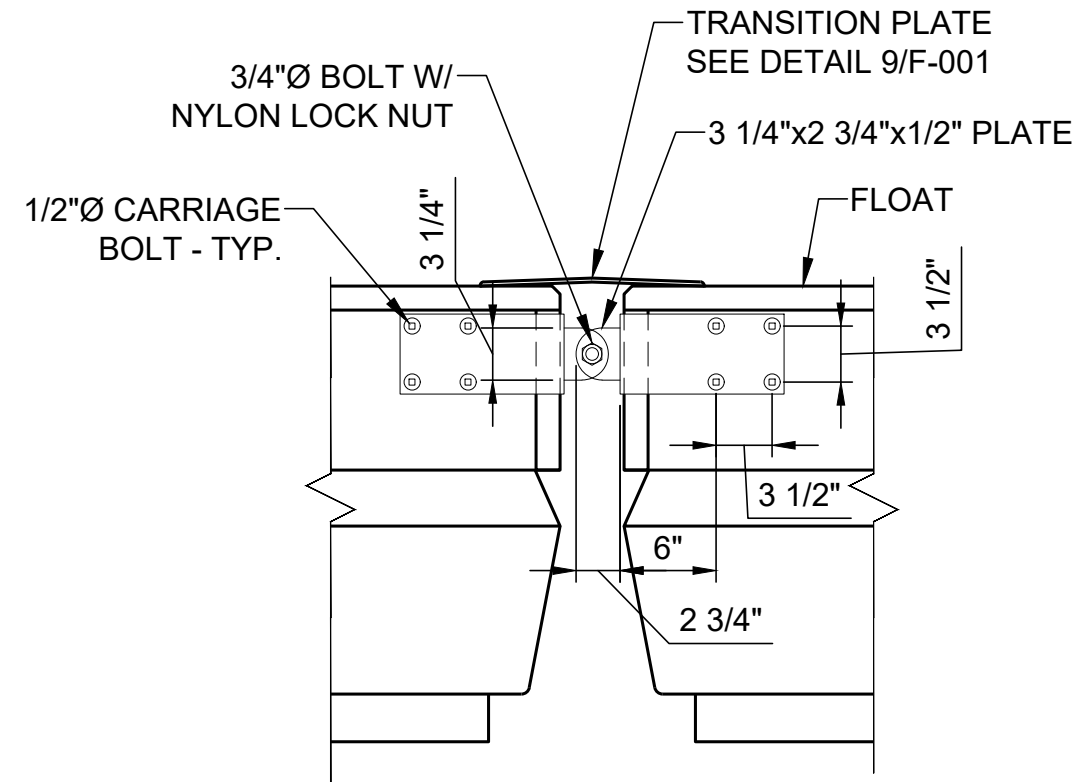


PILE GUIDE LAYOUT:
PROVIDE PILE GUIDES AT ALL TIMBER PILE LOCATIONS
FLOAT 'A' (3) REQ
FLOAT 'B' (4) REQ
FLOAT 'C' (4) REQ

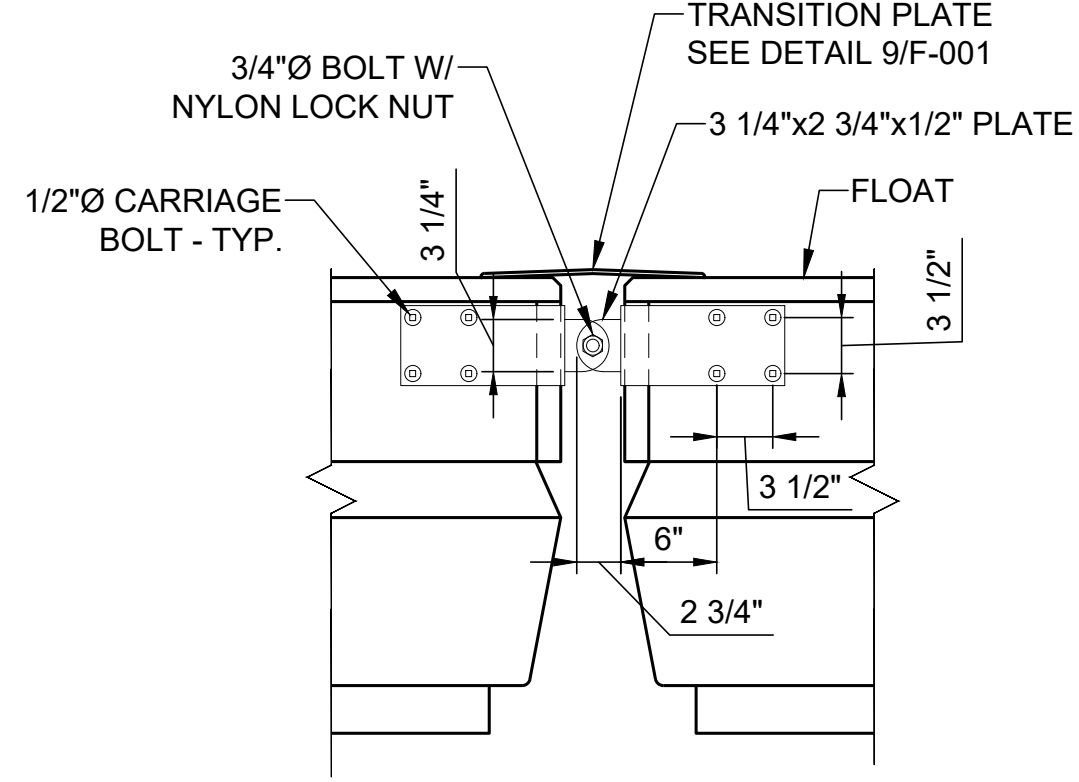
6 DETAIL
PILE GUIDE SCALE: 1:1



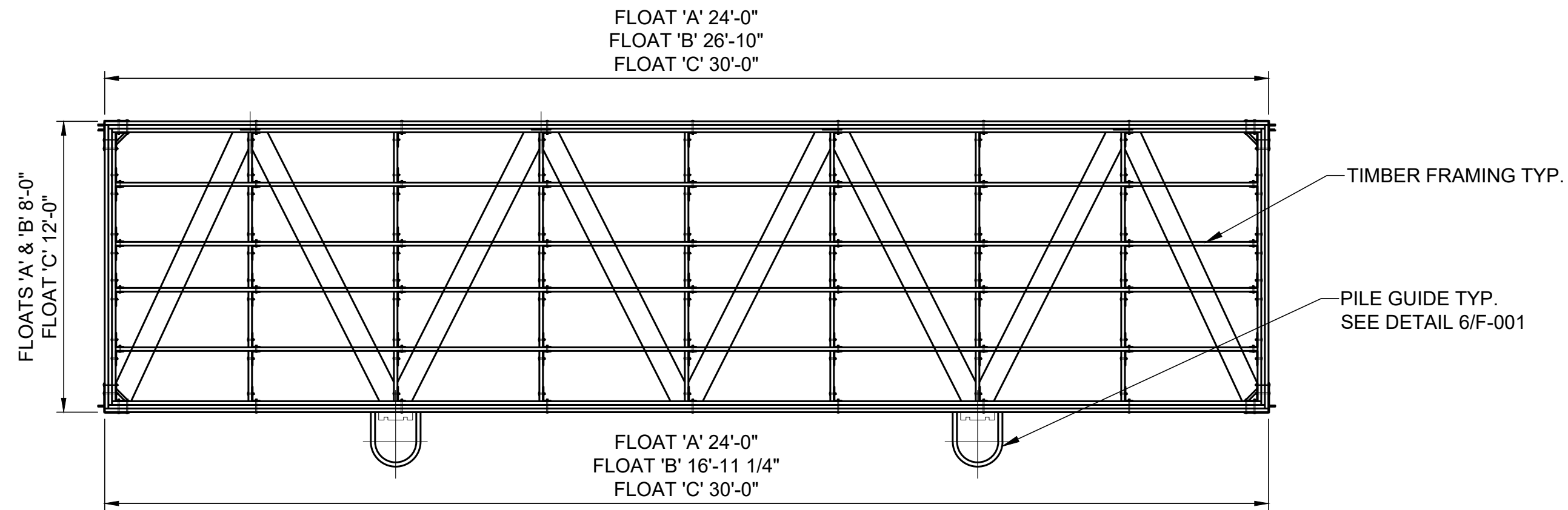
7 DETAIL
FLOAT CONNECTION SCALE: 1:1



8 SECTION
FLOAT CONNECTION SCALE: 1:1

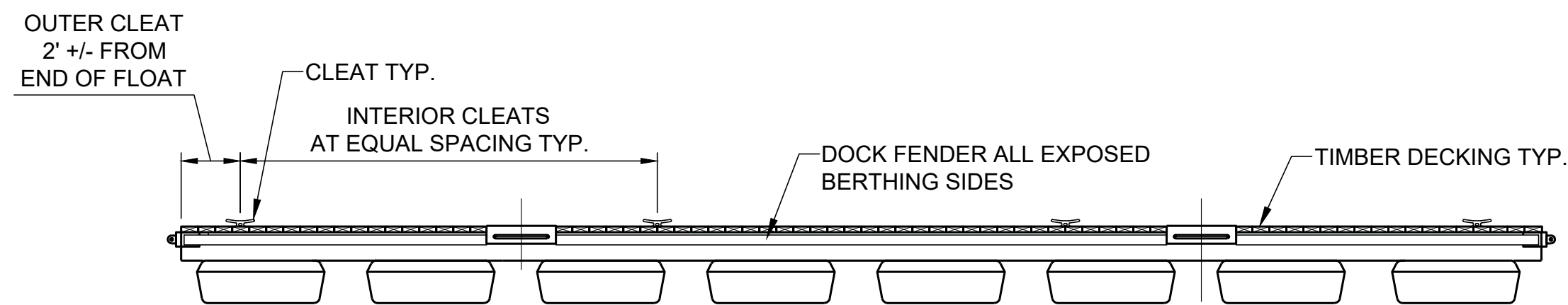


9 DETAIL
TRANSITION PLATE SCALE: 1:1



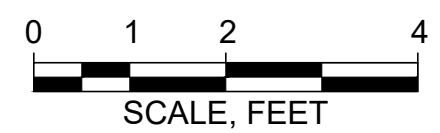
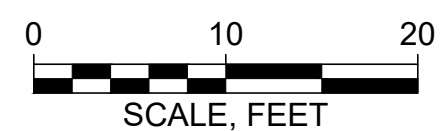
NOTES:
1. CONTRACTOR/FABRICATOR TO DETERMINE ACTUAL MEMBER SIZES PER LOADING REQUIREMENTS.

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.

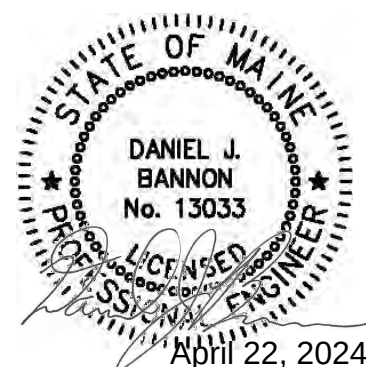
3 ELEVATION
TYP. FLOATING DOCK SCALE: 1" = 4'



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
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*PROJECT DATUM

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SHEET NAME
FLOAT PLAN AND
DETAILS

SHEET NO.
F-001

FOR PERMIT

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 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 labeled 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 labeled 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

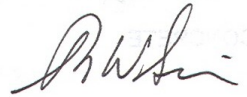
minimize impacts of construction on adjacent areas. Based on our experience the ledge in the area is stable at steeper slopes. Turf reinforcement matting specifically designed to stabilize steeper slopes will be utilized along the drive sideslopes.

- 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.

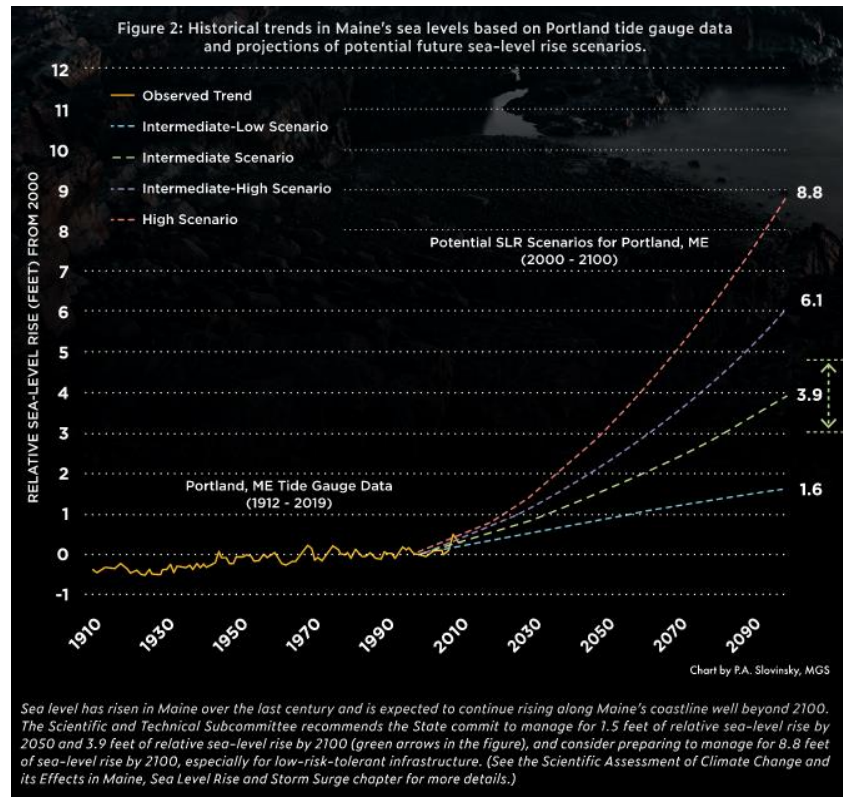
In regards to compliance with section R, Coastal Floodplains:

- 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:

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Comment:

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Response:

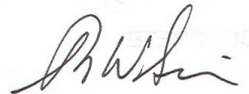
We will be requesting that the planning board condition any approval on receiving a submerged lands lease from the Submerged Lands Program.

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

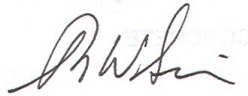
On behalf of our client, University of New England (UNE), we are assisting with the preparation of Maine Department of Environmental Protection Natural Resources Protection Act and U.S. Army Corps of Engineers Permit applications. The applications are for the installation of a permanent pier and float 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

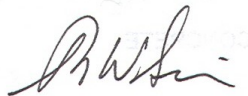
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Site Design Associates



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

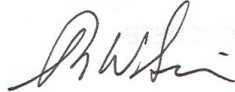
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Site Design Associates



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

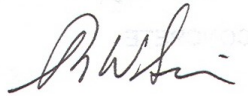
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Site Design Associates



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

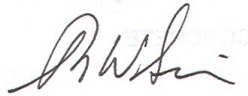
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Site Design Associates



Tom Saucier, P.E.
President

Enclosures

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 Pleasant Point Reservation
 PO Box 343
 Perry, ME 04667

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Total	\$8.37

Sent To
 Aroostook Band of Micmacs
 7 Northern Road
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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

7022 1670 0001 0356 2161

U.S. Postal Service™
CERTIFIED MAIL® RECEIPT
 Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

OFFICIAL USE

Princeton, ME 04668

Certified Mail Fee	\$4.15
Extra Services & Fees (check box, add fee as appropriate)	\$3.35
☐ 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

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

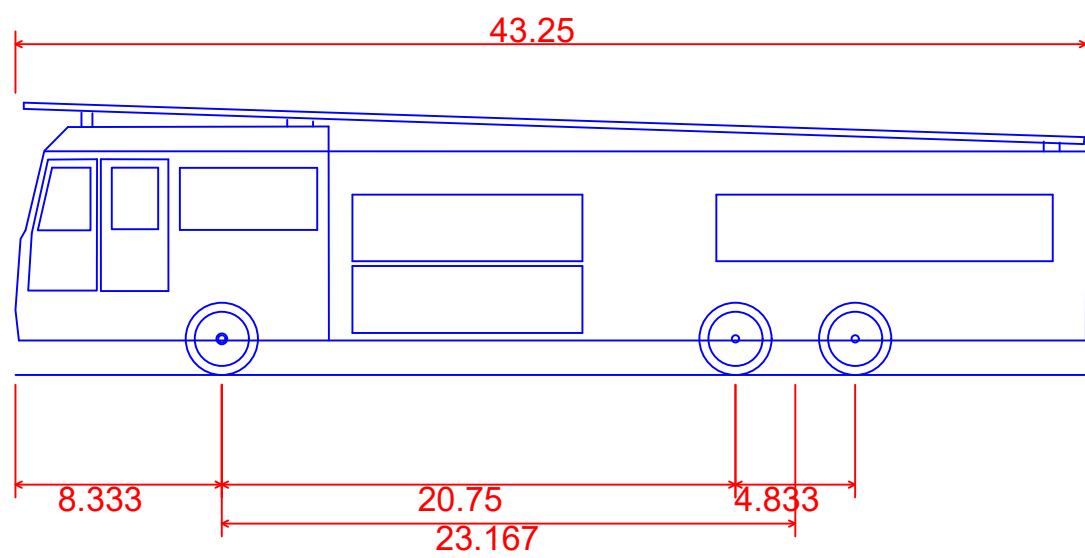
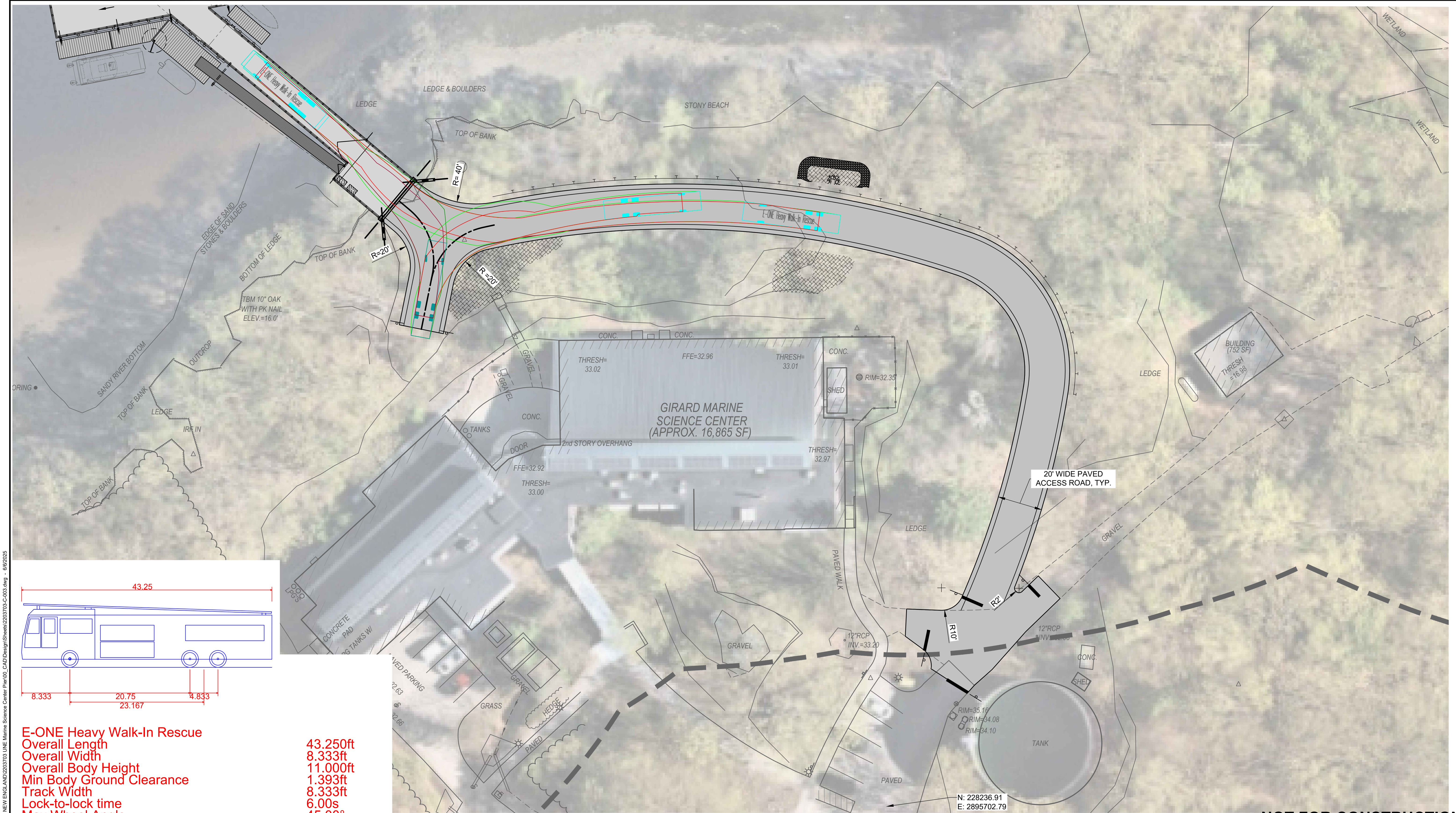
Dear Tom;

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



E-ONE Heavy Walk-In Rescue
Overall Length 43.250ft
Overall Width 8.333ft
Overall Body Height 11.000ft
Min Body Ground Clearance 1.393ft
Track Width 8.333ft
Lock-to-lock time 6.00s
Max Wheel Angle 45.00°

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									
0											
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,



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

Caution: This is an external email. Please take care when clicking links or opening attachments. When in doubt, contact the IT Department

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>

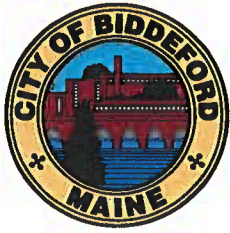
Sent: Thursday, May 22, 2025 2:32 PM

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

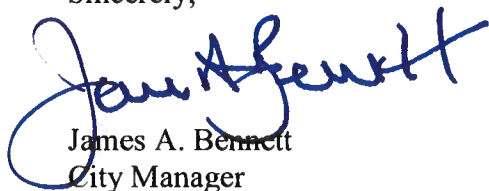
*The City of Biddeford is an equal opportunity provider. To file a complaint, write to
Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

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

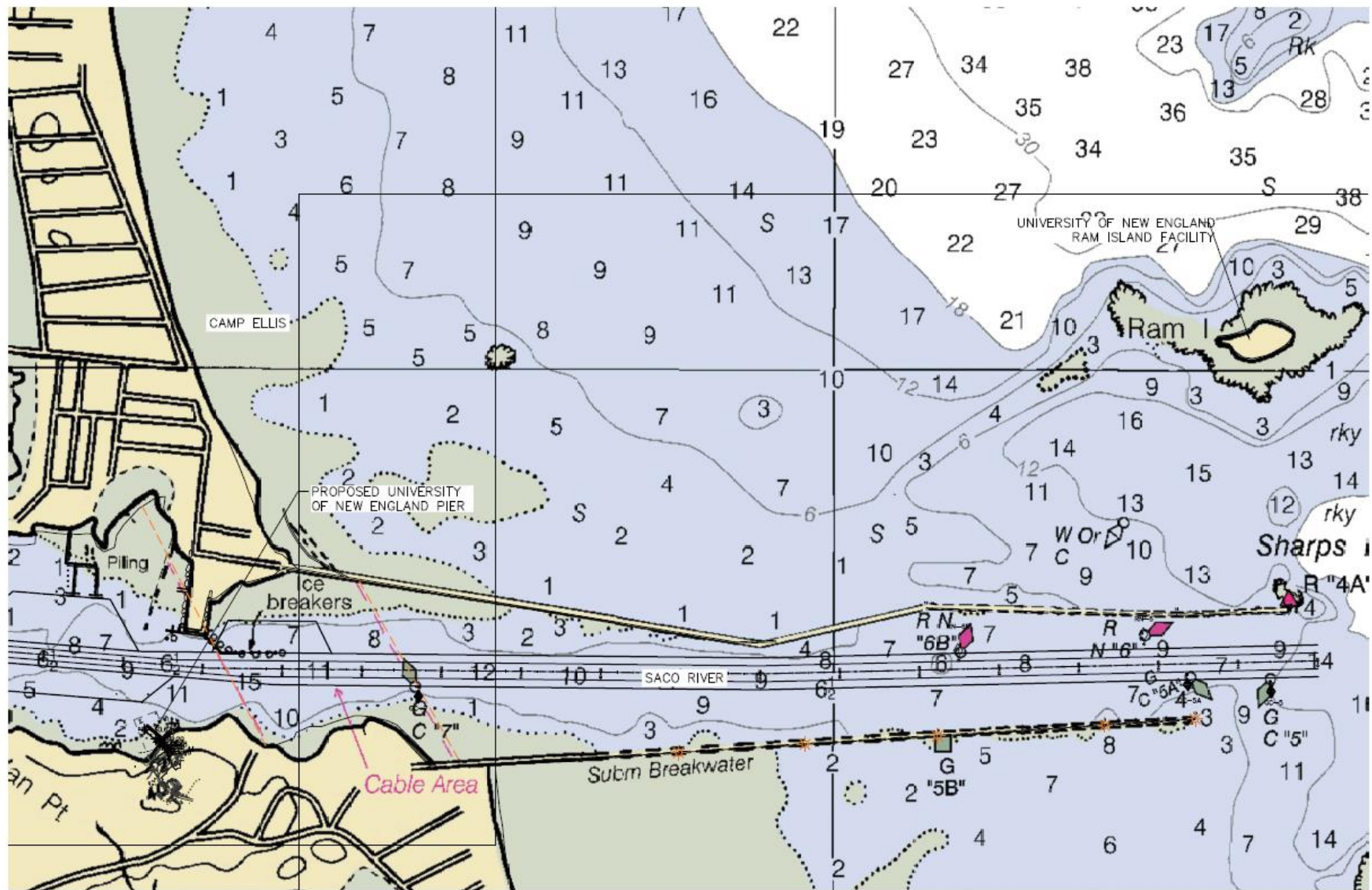


Baker Design Consultants
Civil, Marine & Structural Engineering
7 Spruce Road, Freeport, ME 04032
b.baker@bakerdesignconsultants.com

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 • 207-633-1000 • www.bakerdesign.com

DESIGNED BY:	JAC	CHECKED BY:	BUB	SCALE:	AS SHOWN
DRAWN BY:					

PROJECT VICINITY PLAN
UNIVERSITY OF NEW ENGLAND
PROJECT: UNE MSC WATERFRONT
BOROUGH, MAINE

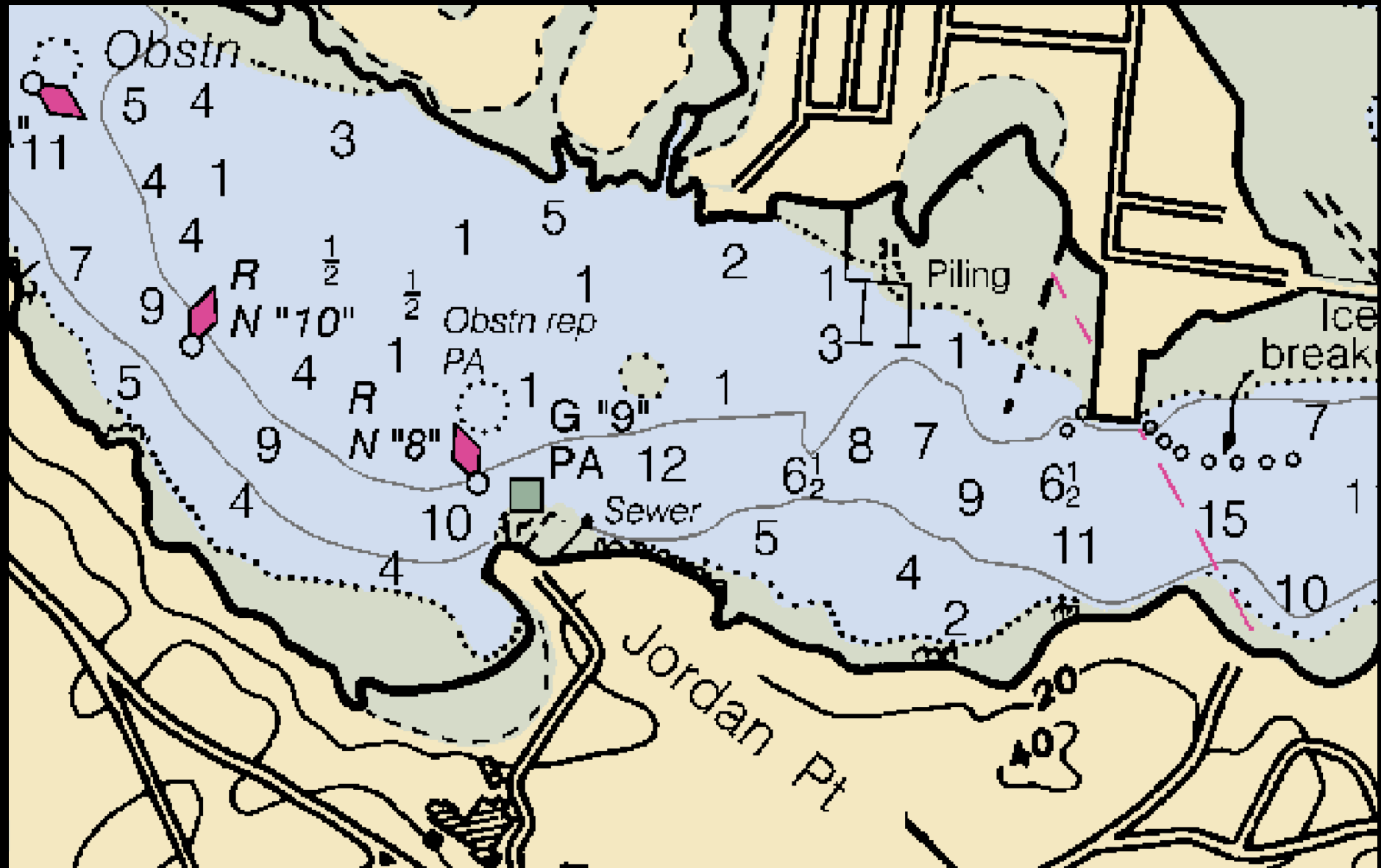
DATE:	FEBRUARY 2015
CONTRACT NO.:	15-07
SHEET NO.:	SK-1
REV.:	A

Page 301 of 767

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

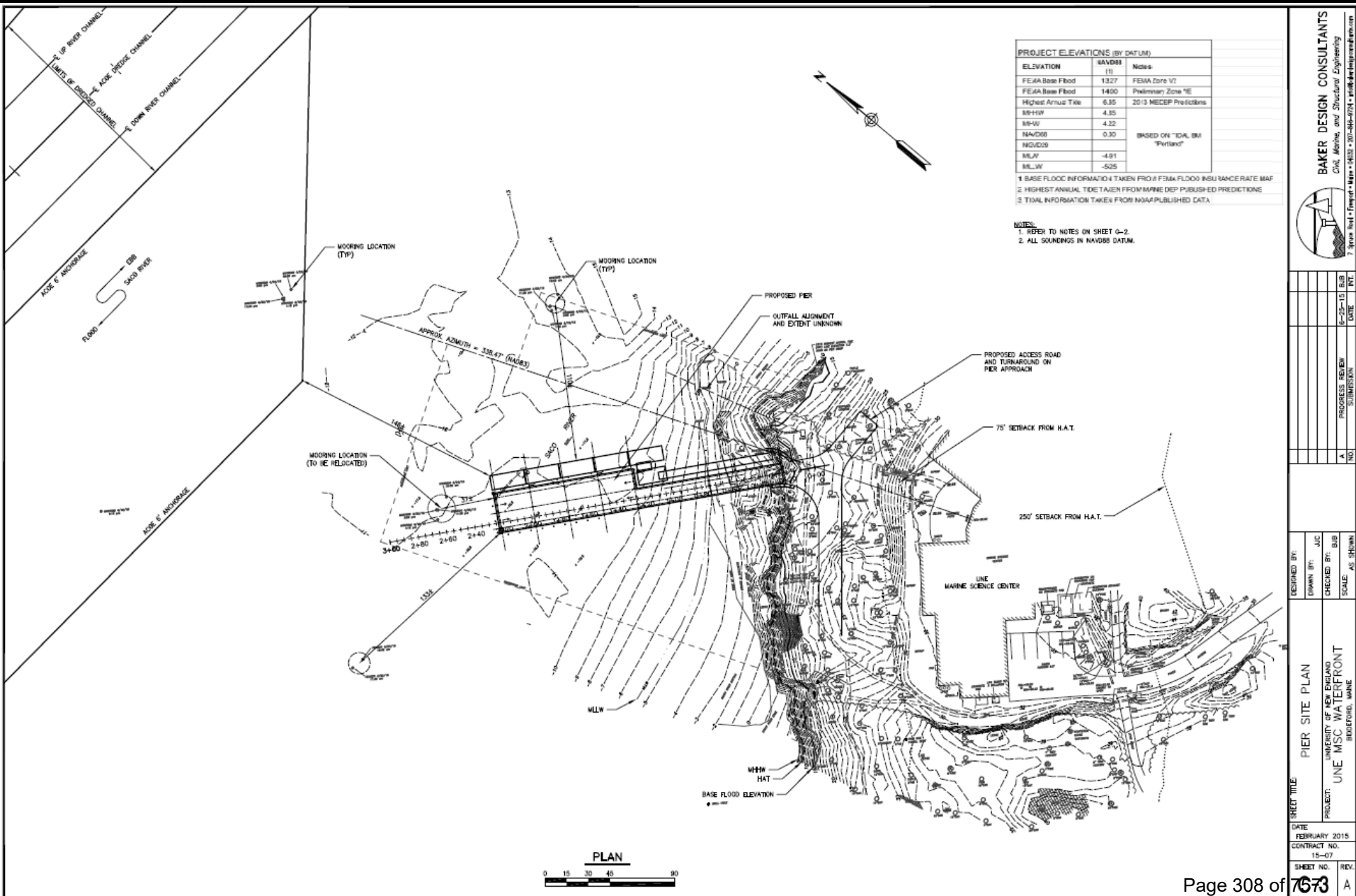
Site Selection Study

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	\$63,000.00	NA	NA	NA	\$63,000.00	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



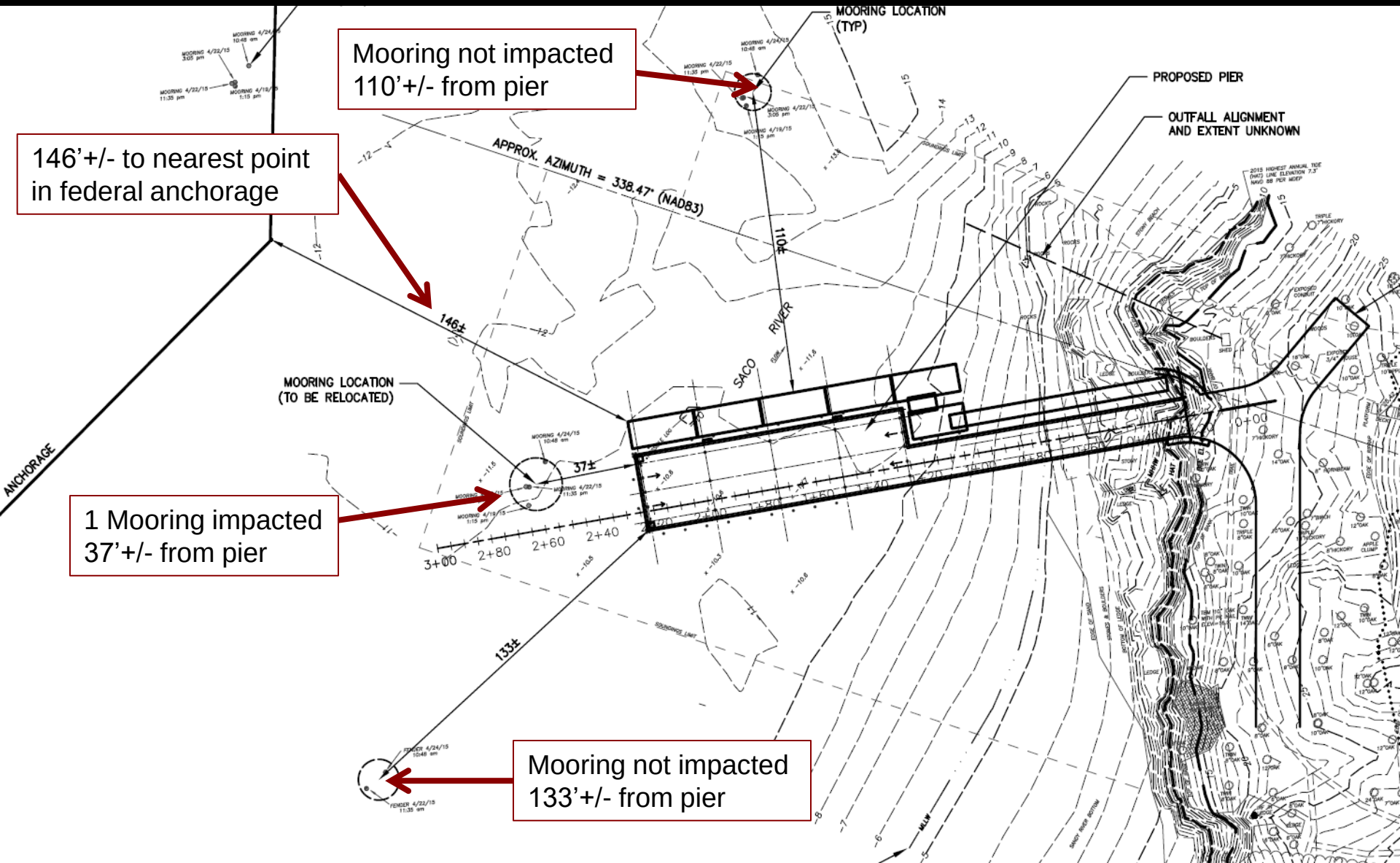
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 Civil, Marine, and Structural Engineering
 7 Grove Street - Portland, ME 04101 - 207-486-0044 - info@bakerdesign.com

DESIGNED BY: JJC
DRAWN BY: JJC
CHECKED BY: JJC
SCALE: AS SHOWN

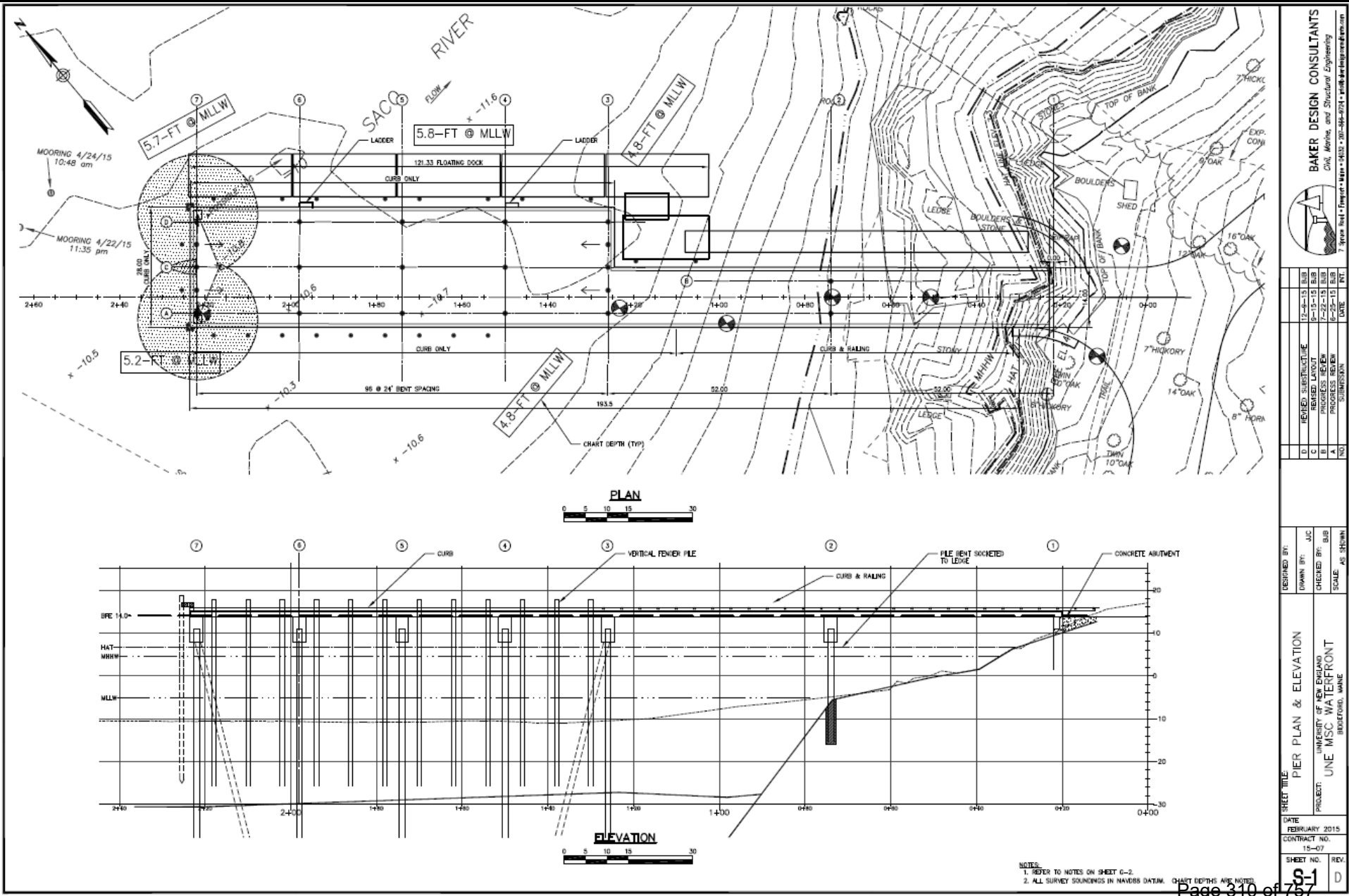
PROJECT: UNIVERSITY OF NEW ENGLAND
PROJECT: UME MSC WATERFRONT
PROJECT: BRIDGEMOOR, MAINE

SHEET TITLE: PIER SITE PLAN
DATE: FEBRUARY 2015
CONTRACT NO.: 15-07
SHEET NO.: 15-07
REV.: A

Pier Site Plan - Impacts



Pier Plan & Elevation



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D	REVIEW SUBSTRUCTURE	12-8-15	BLB	
C	REVISED LAYOUT	9-15-15	BLB	
B	PROGRESS REVIEW	7-22-15	BLB	
A	PROGRESS REVIEW	6-23-15	BLB	
NO.	NO.	DATE	BY	INT.

DESIGNED BY:	JAC
DRAWN BY:	JAC
CHECKED BY:	BLB
SCALE:	AS SHOWN
SHEET TITLE:	PIER PLAN & ELEVATION
PROJECT:	UNIVERSITY OF NEW ENGLAND
LOCATION:	UNE MSC WATERFRONT
CITY:	BRIDGEFORD, MAINE
DATE:	FEBRUARY 2015
CONTRACT NO.:	15-07
SHEET NO.:	9.1
REV.:	D

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

Pine 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

N

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

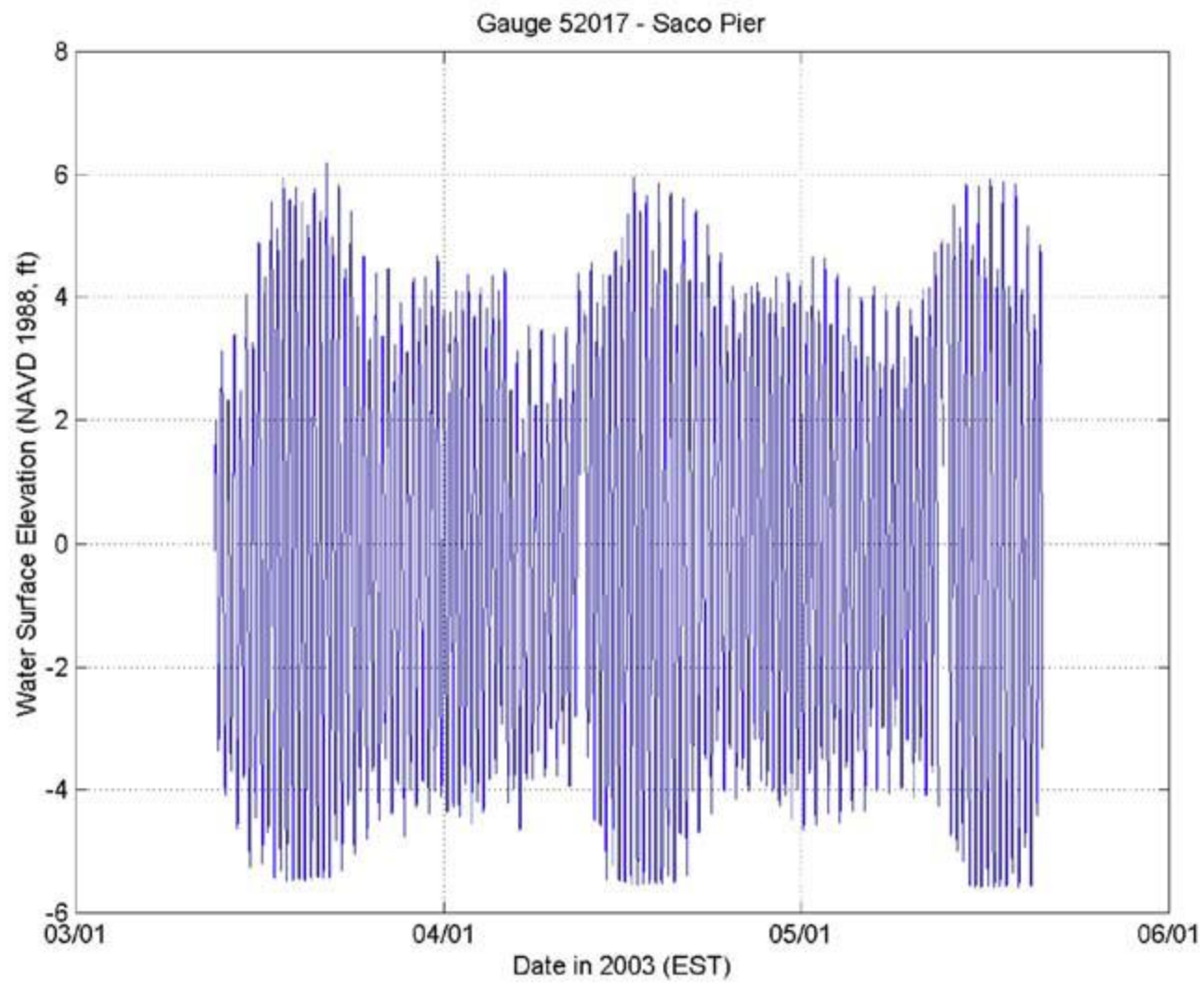


Photo Date: 11/9/2015

Tidal & Current Study

Source:

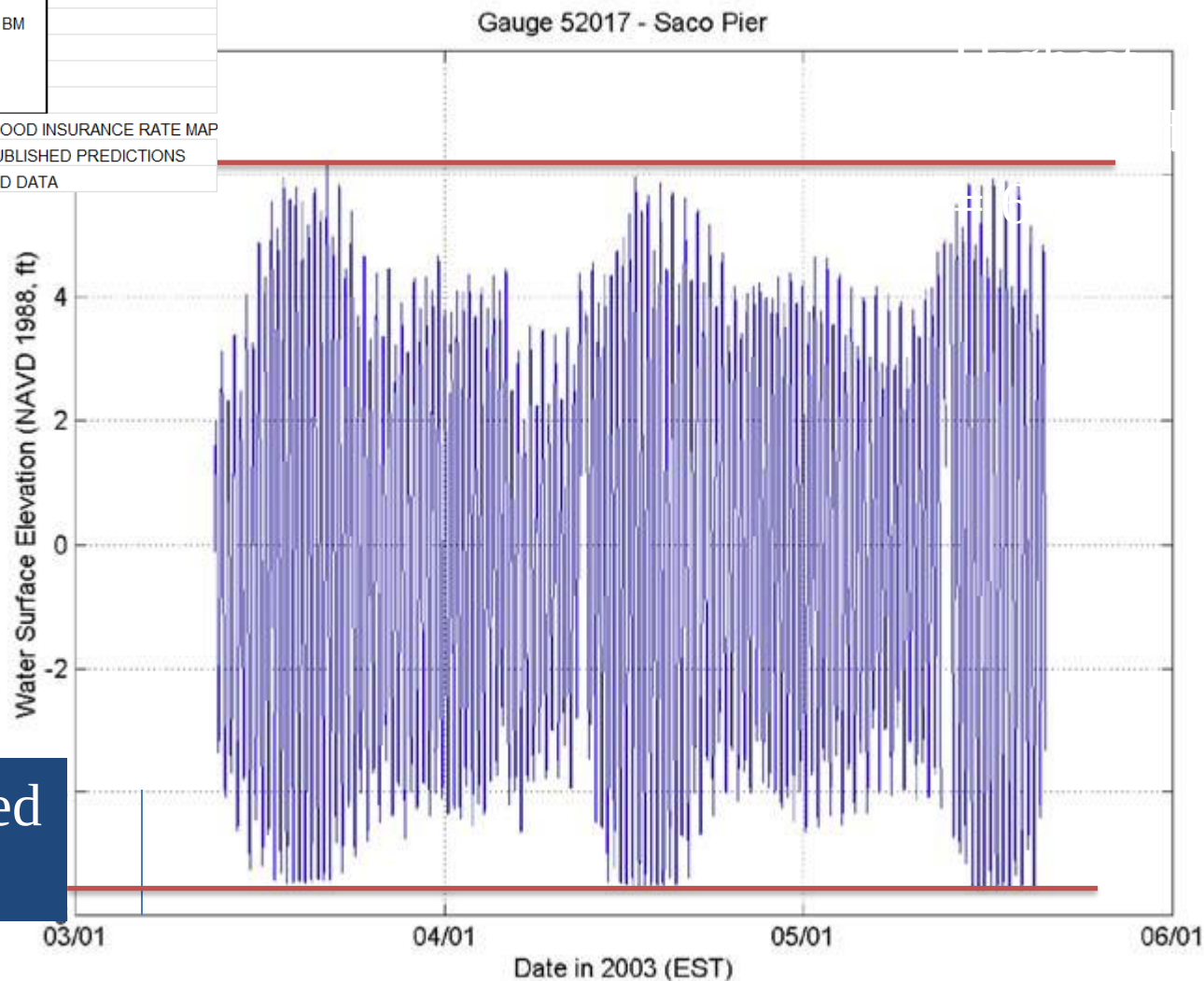
Saco River and Camp Ellis Beach Section 111 Shore Damage Mitigation Study, Appendix C – Data Collection and Modeling Report, prepared by Woods Hole Group and Aubrey Consulting for the US Army Corps of Engineers, October 2006



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

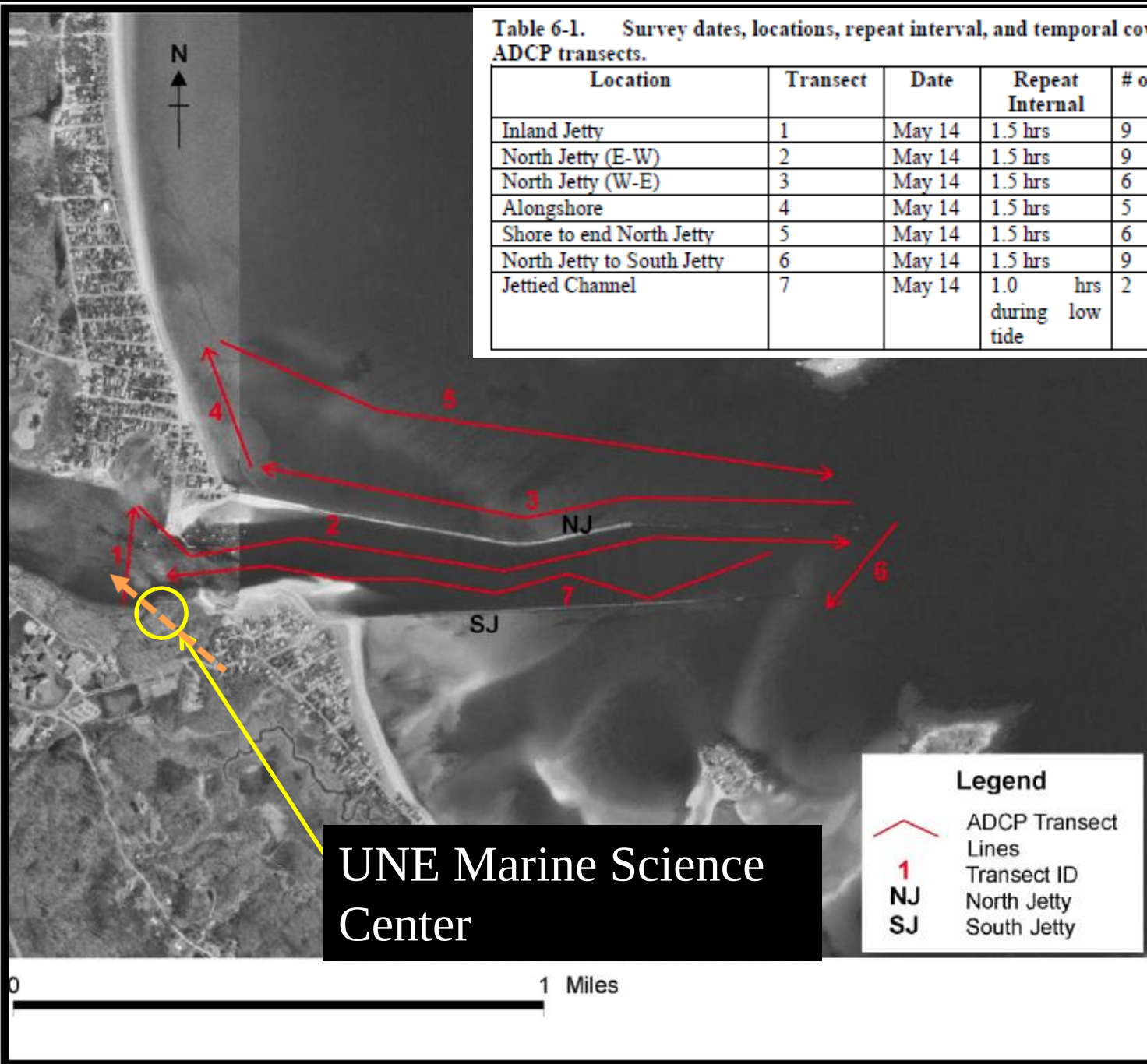
Observations suggest that this location on the Saco River at times sees higher highs and lower lows than the Portland gage for a given tide cycle, possibly due to river influence.

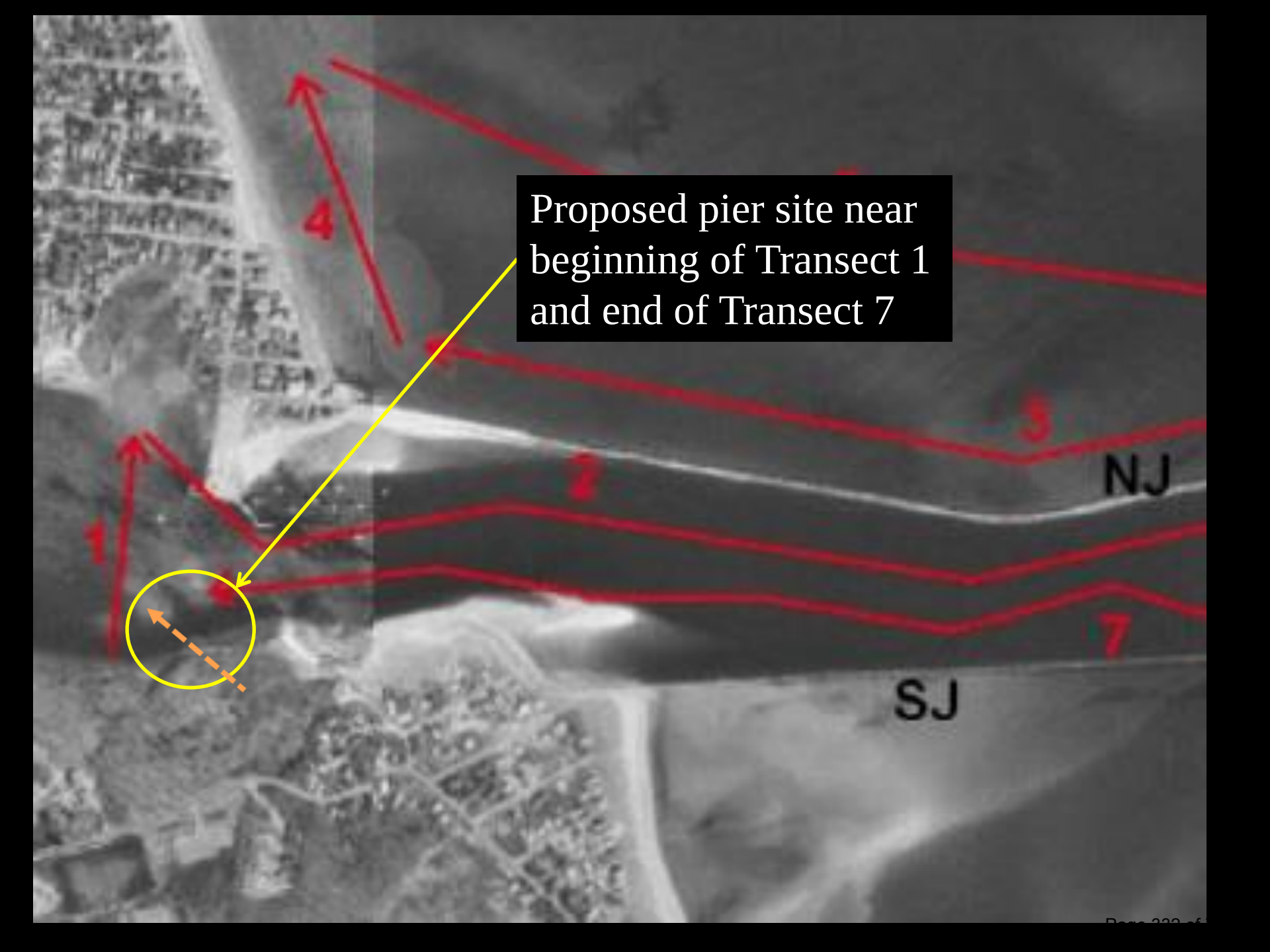


Lowest Observed
Tide = -5.6

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





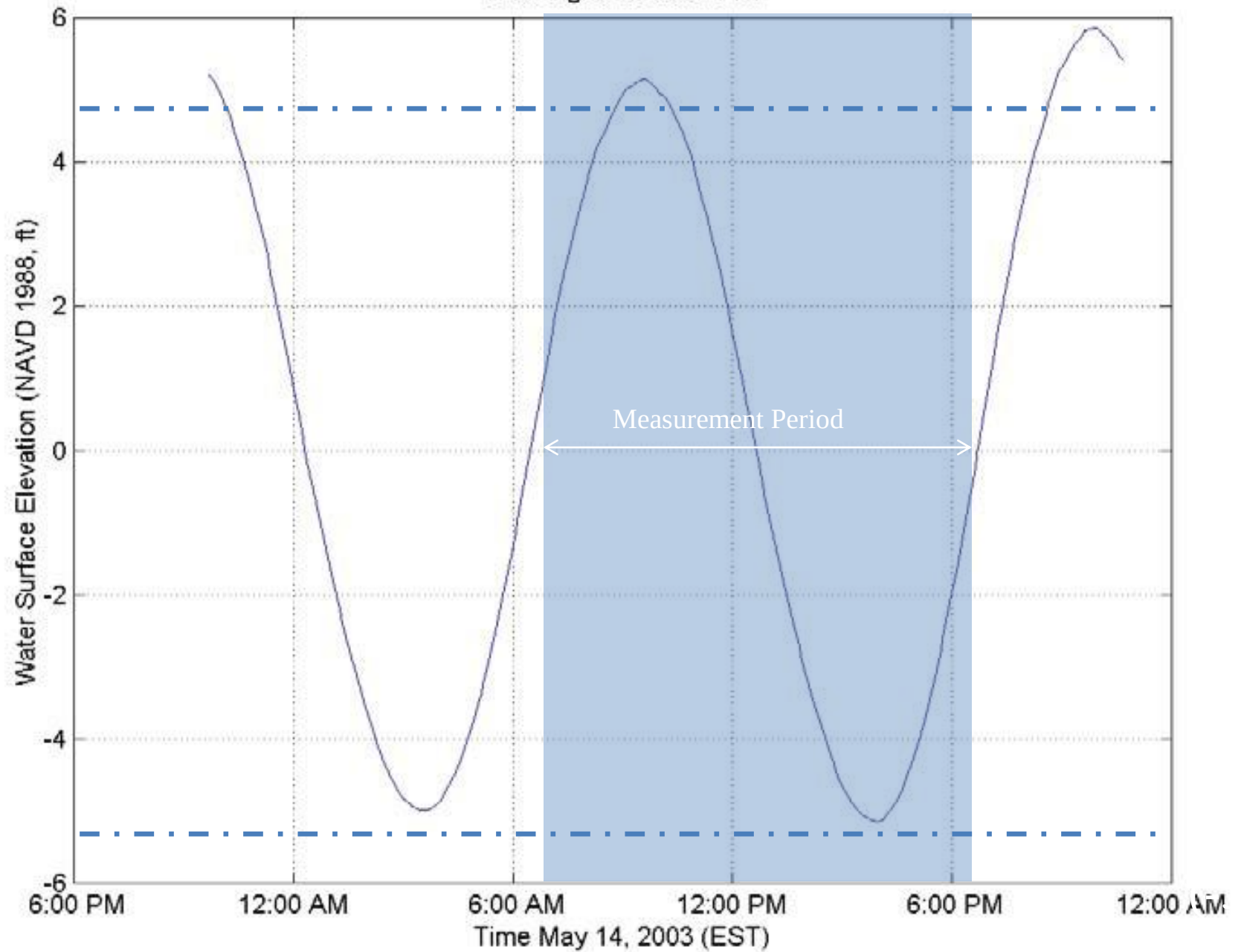
This is an aerial photograph overlaid with a map. Seven red lines, labeled 1 through 7, represent transects. Line 1 is a vertical line on the left. Lines 2, 3, 4, 5, 6, and 7 are roughly horizontal, extending from the left towards the right. A yellow circle is located near the bottom left, containing a dashed orange arrow pointing towards the top right. A yellow arrow points from a text box to a red dot on line 1, which is the proposed pier site. The labels 'NJ' and 'SJ' are visible on the right side of the map.

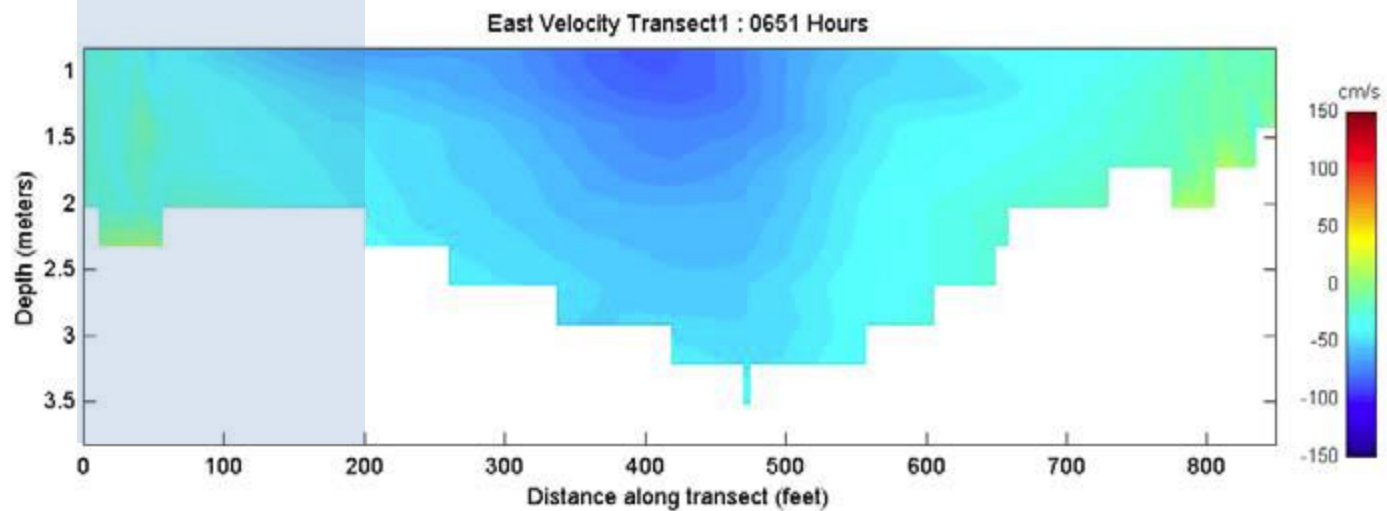
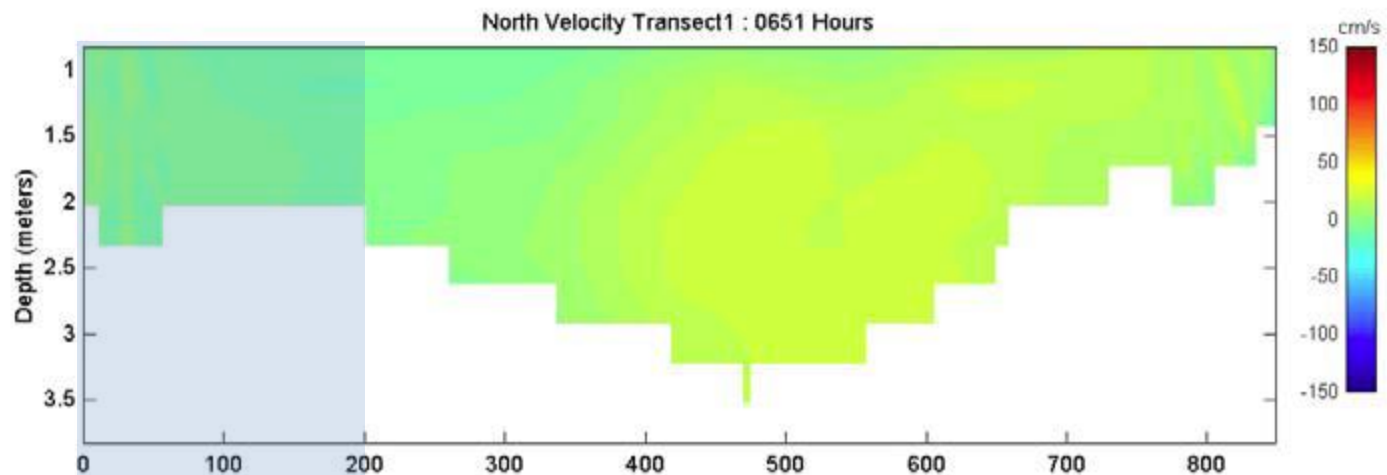
Proposed pier site near
beginning of Transect 1
and end of Transect 7

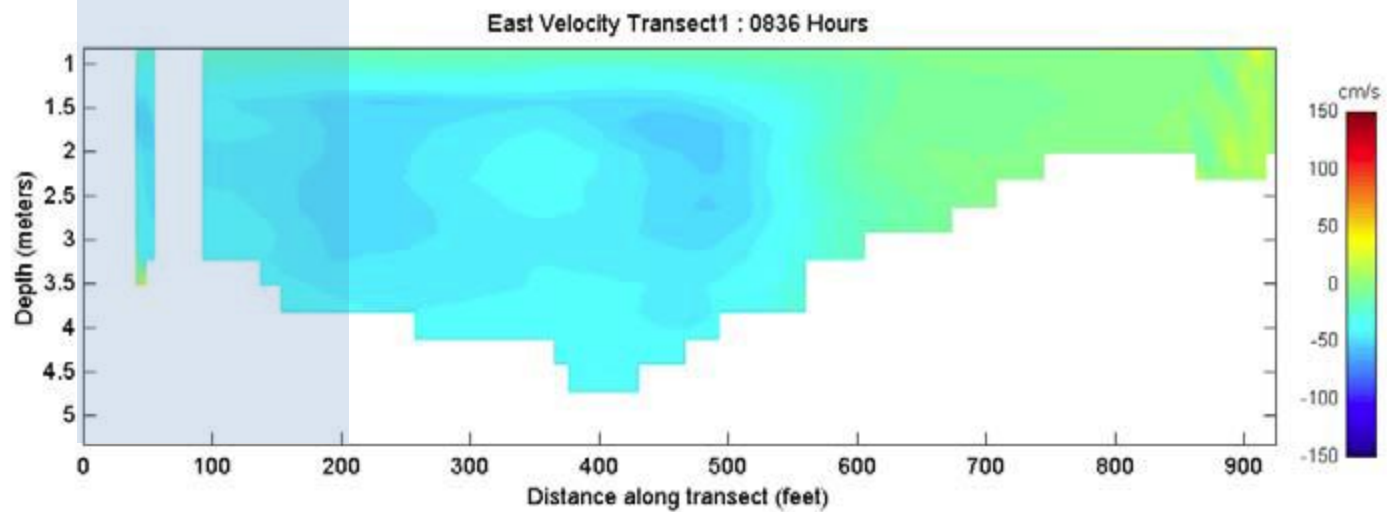
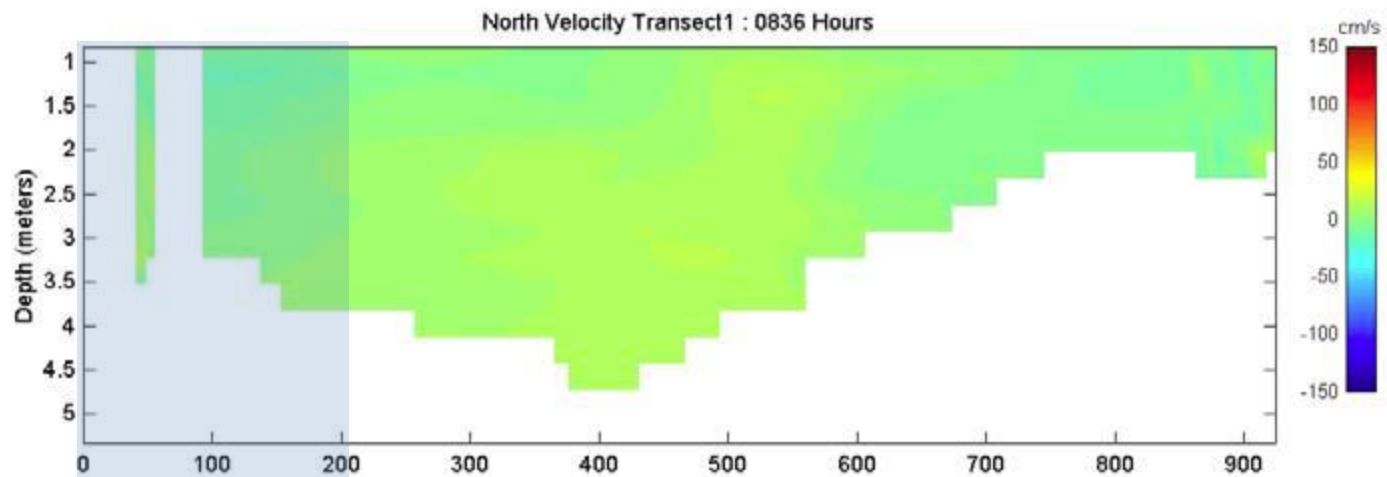
NJ

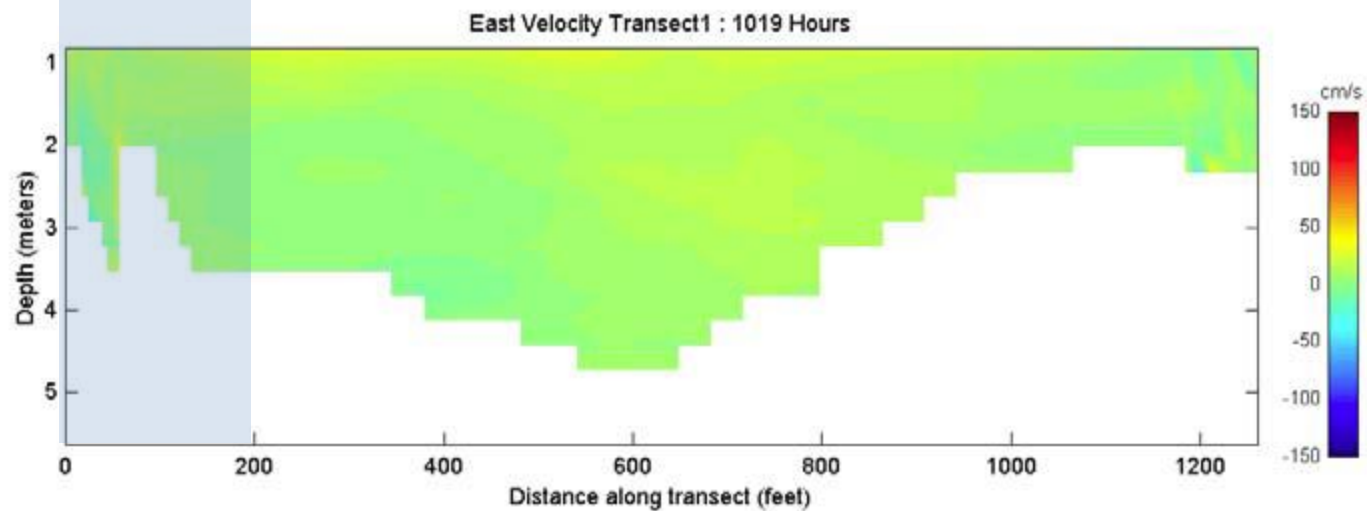
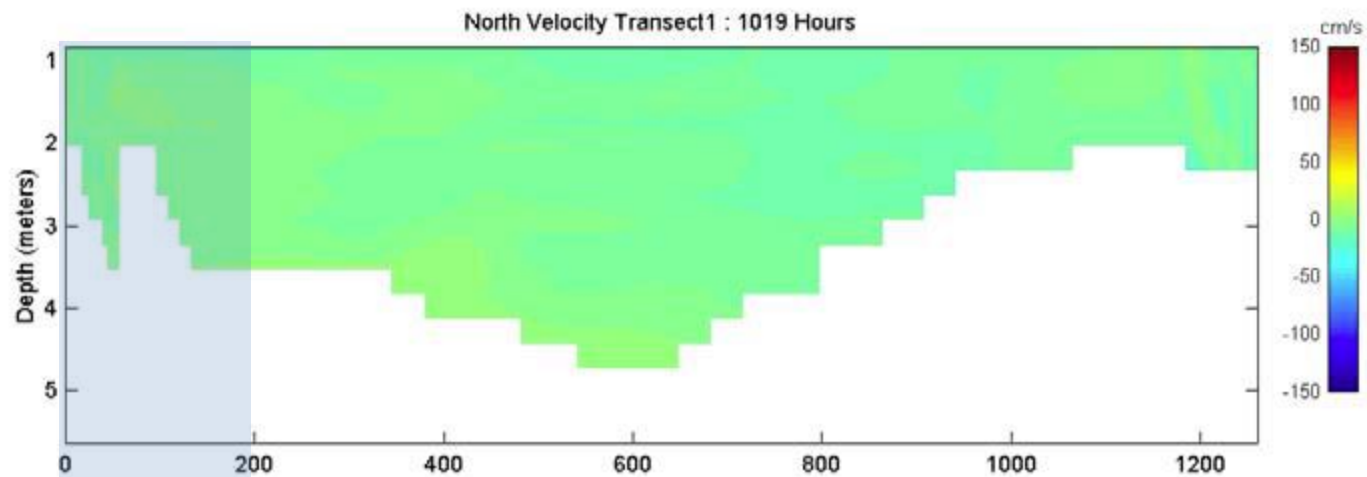
SJ

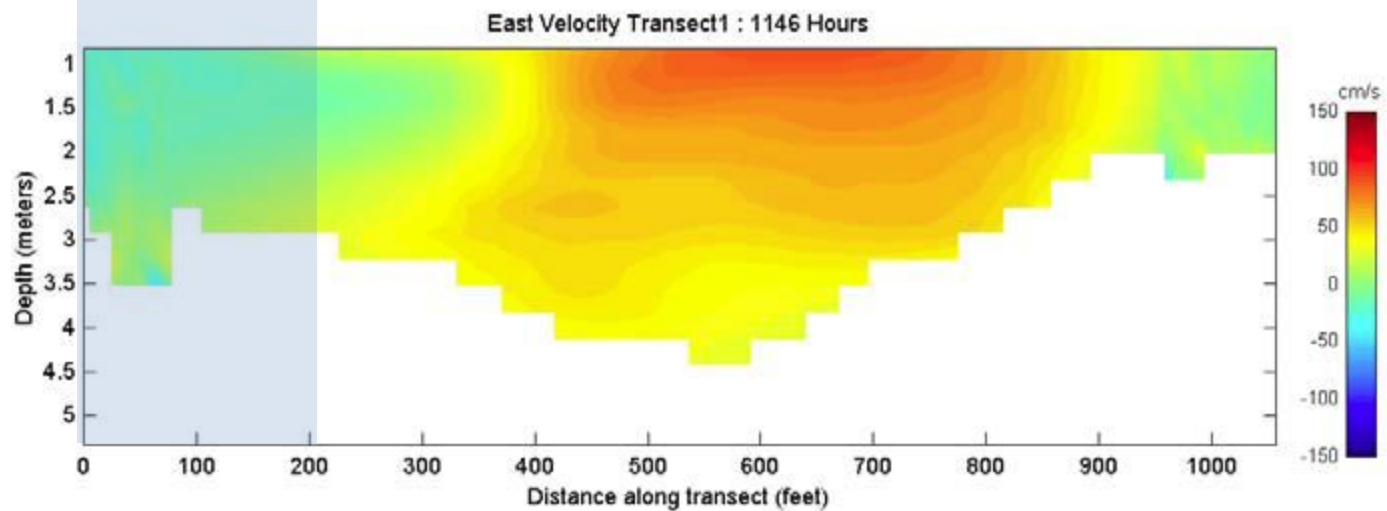
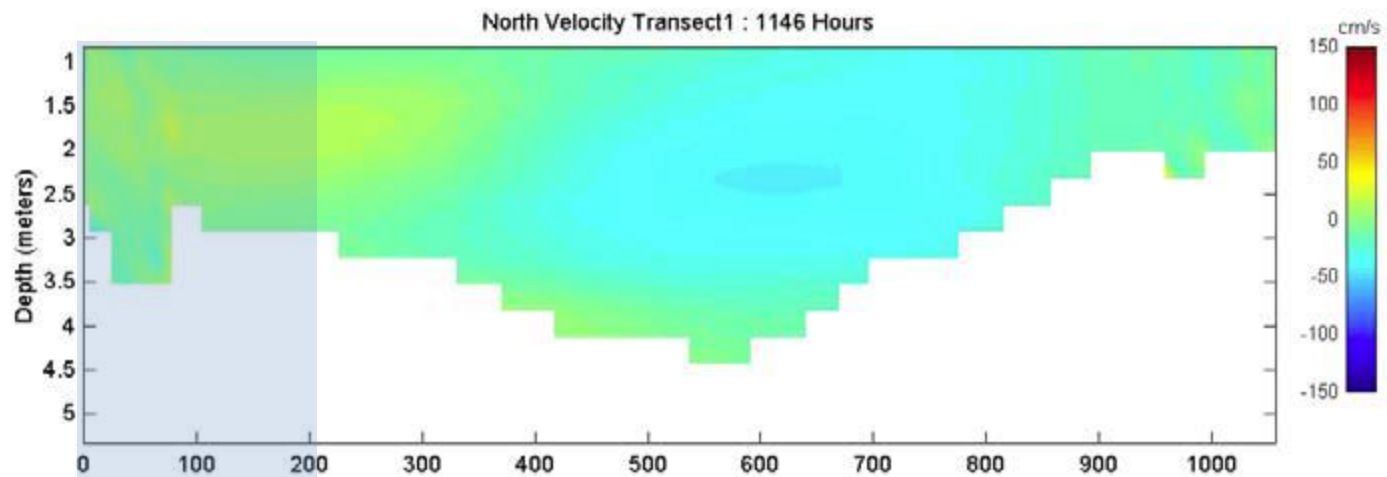
Tidal Signal at Saco Pier

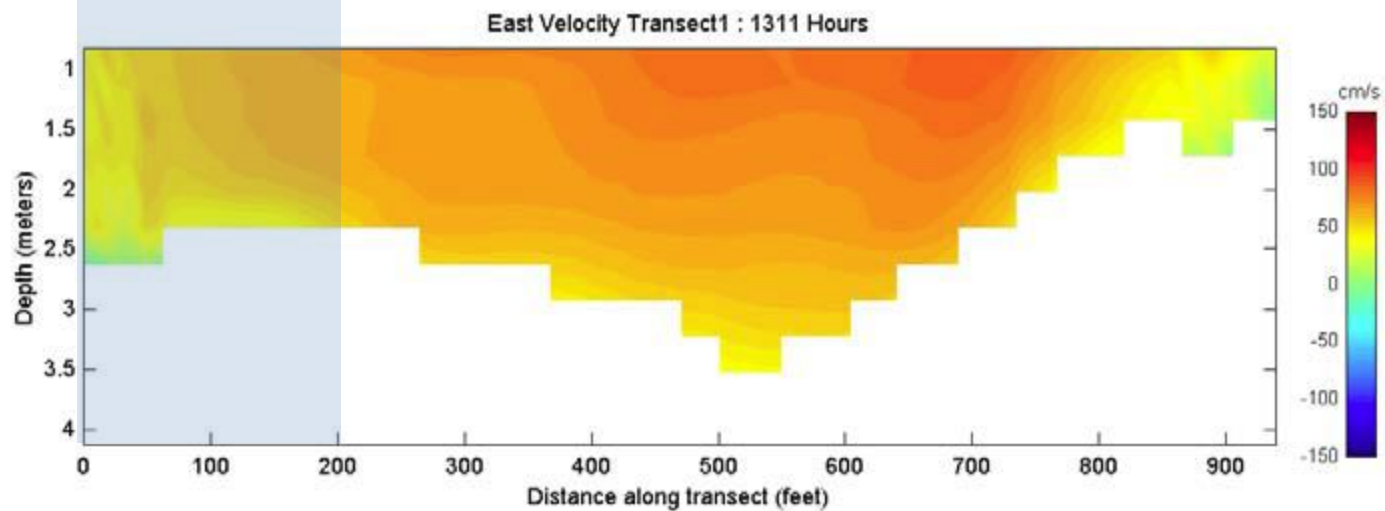
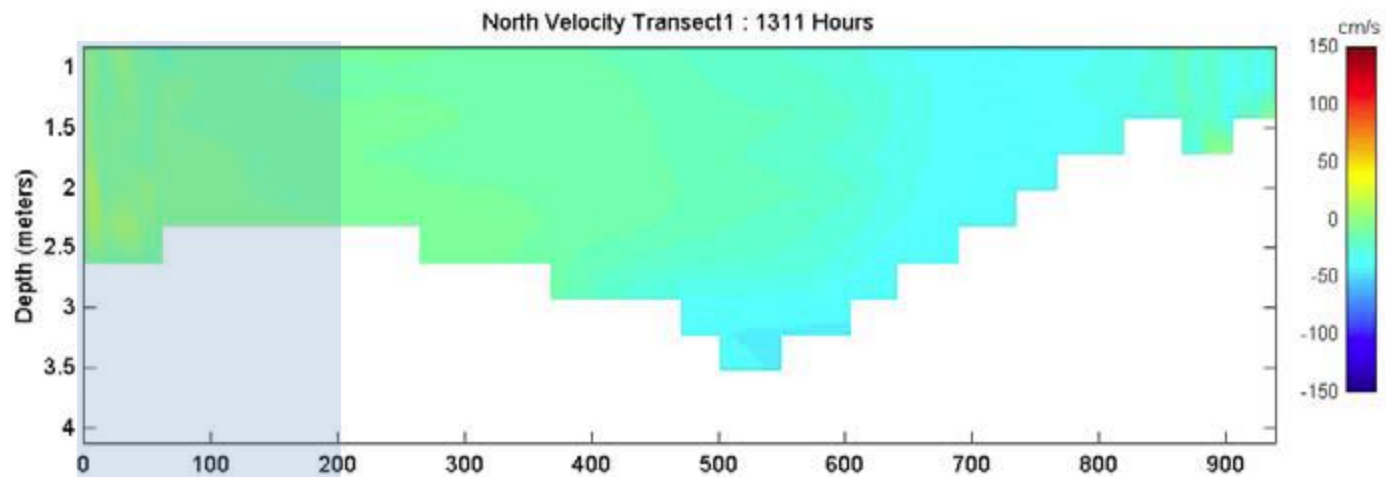


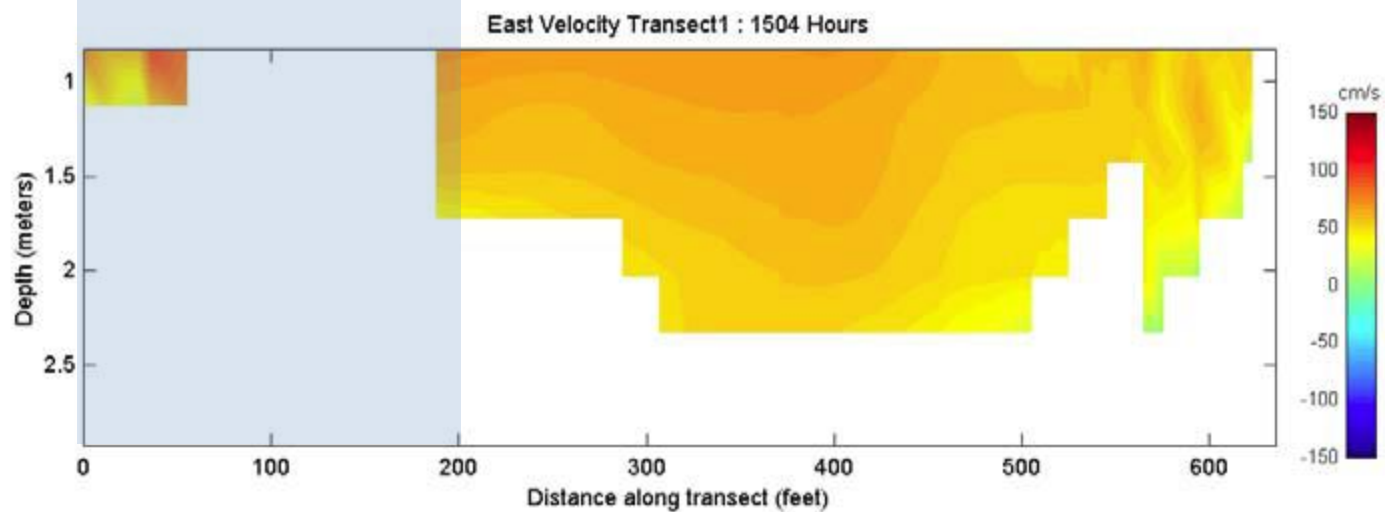
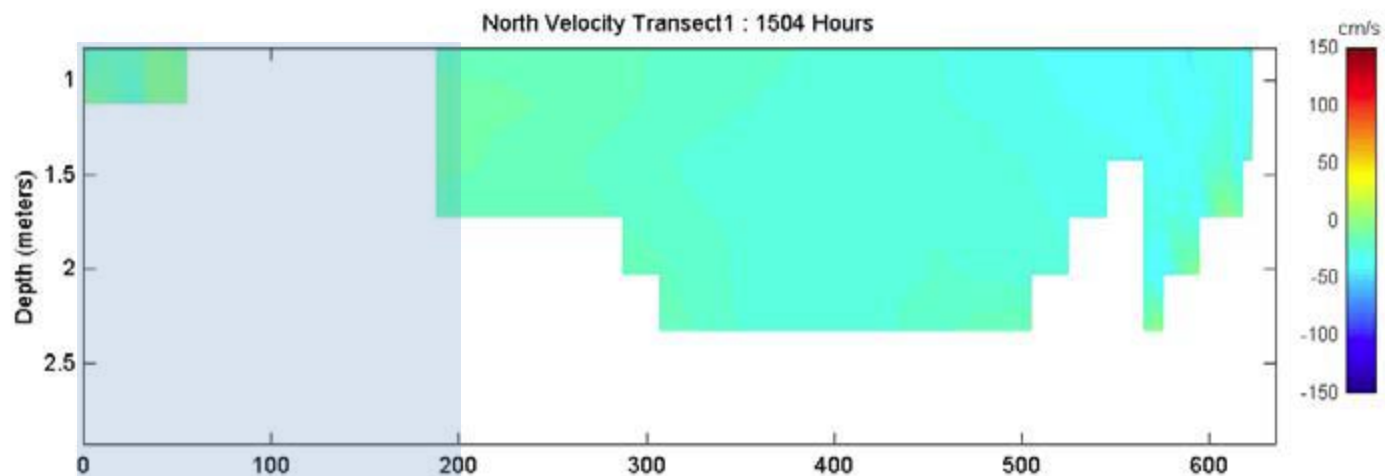


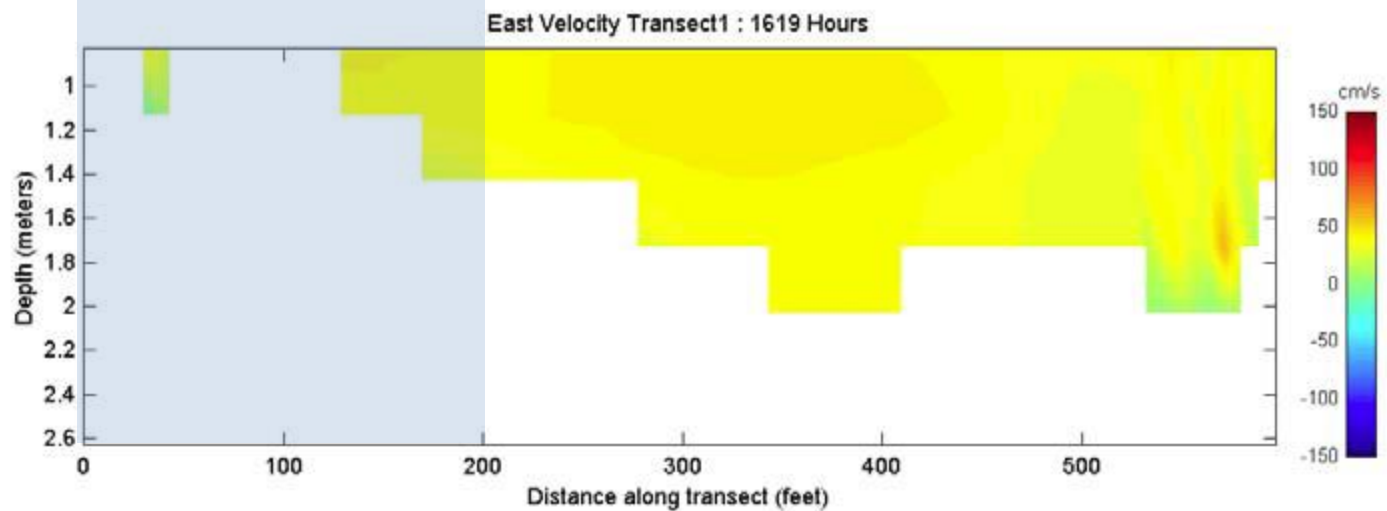
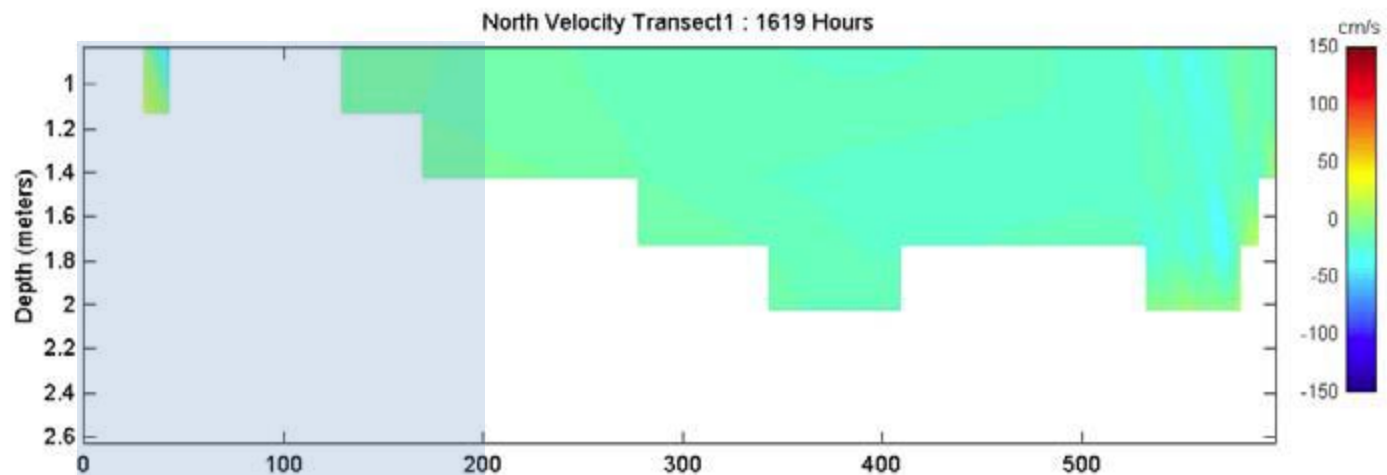


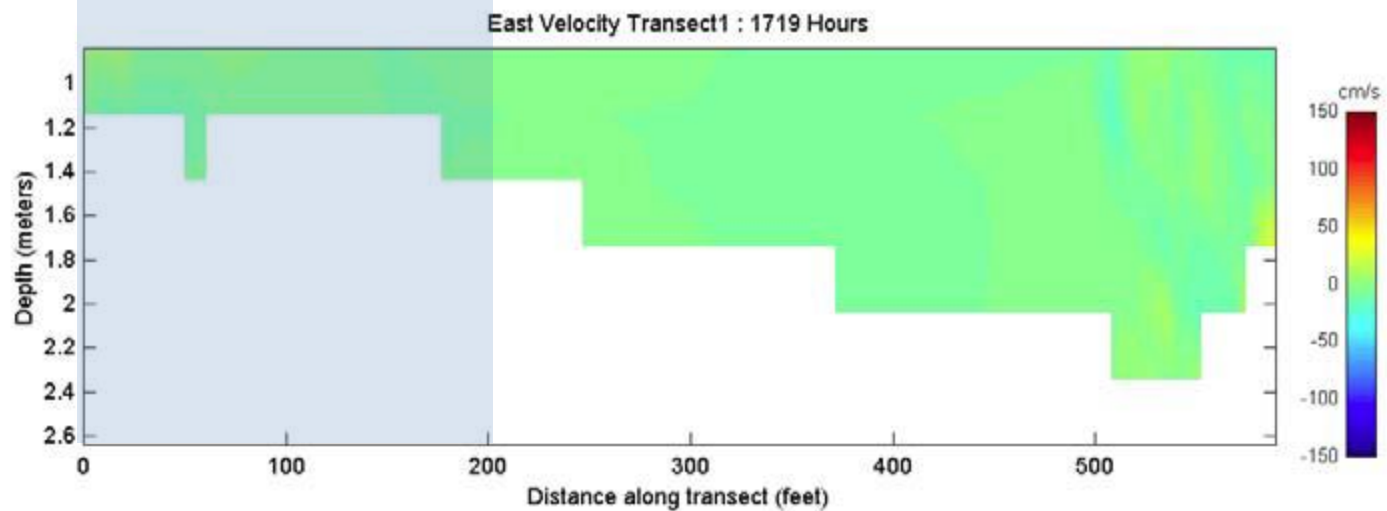
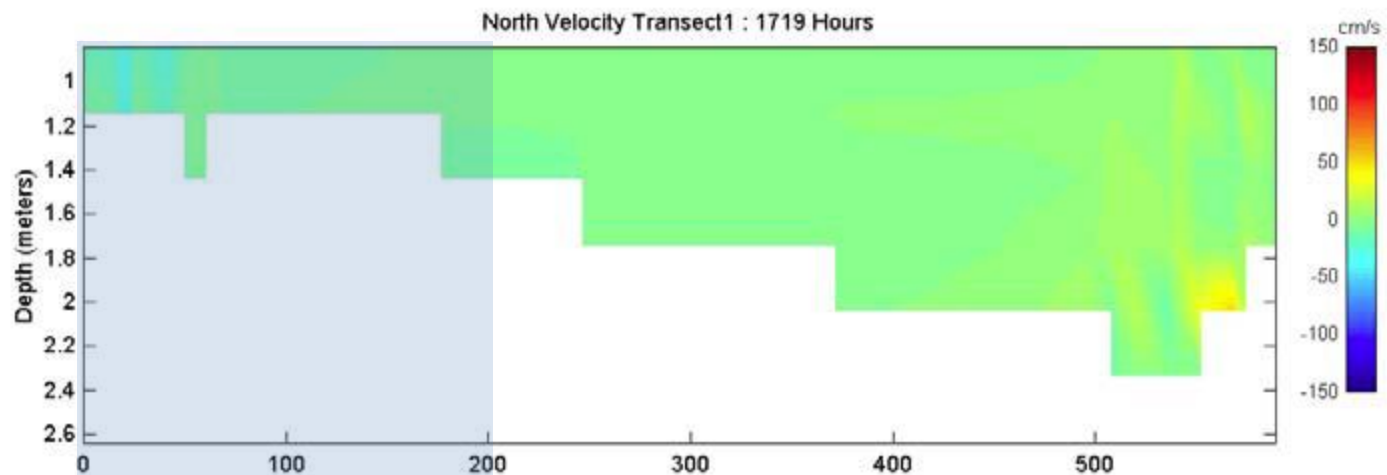


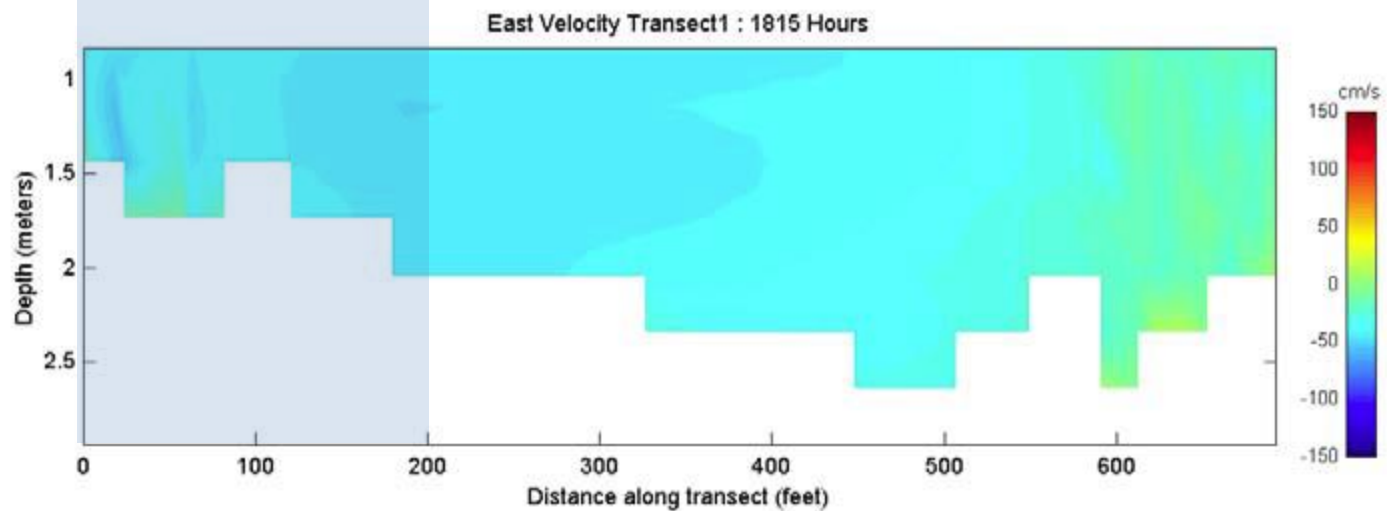
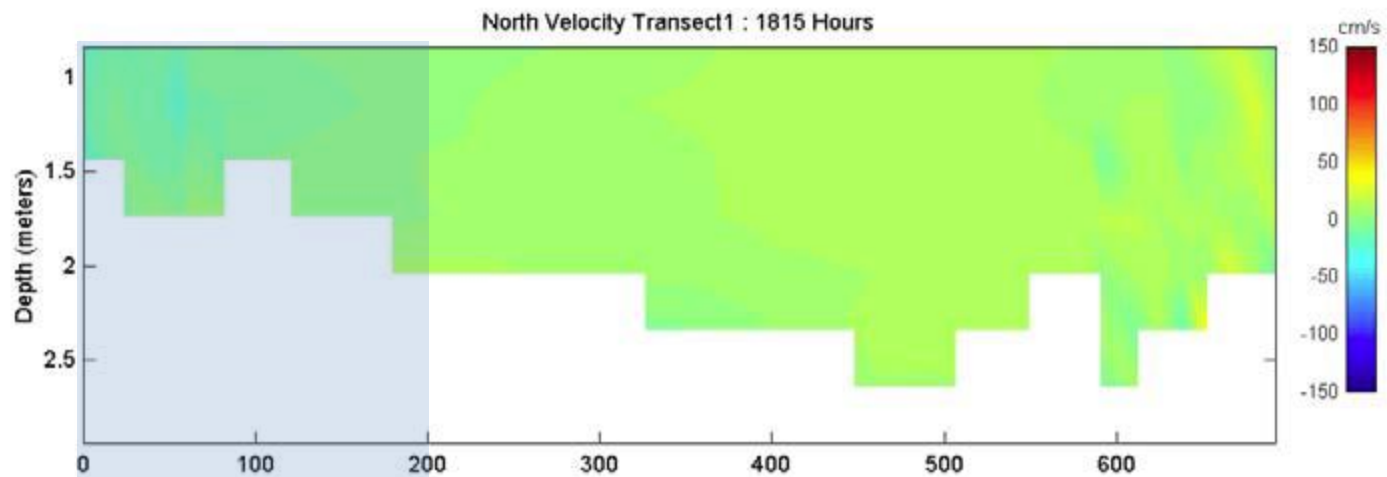




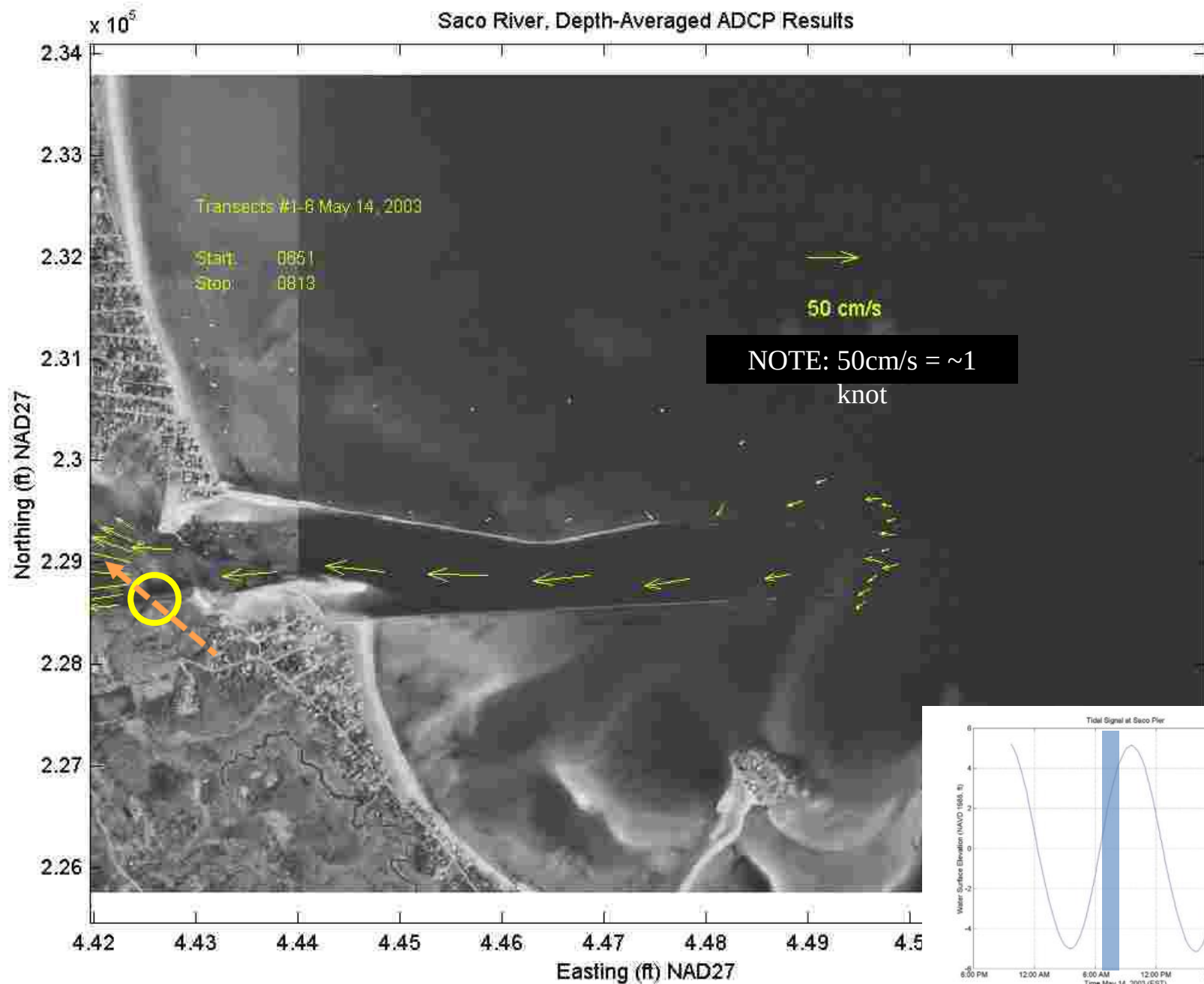




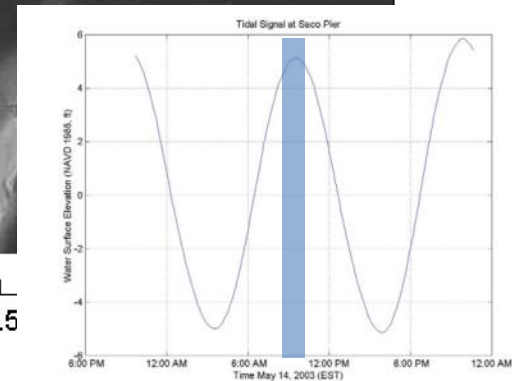
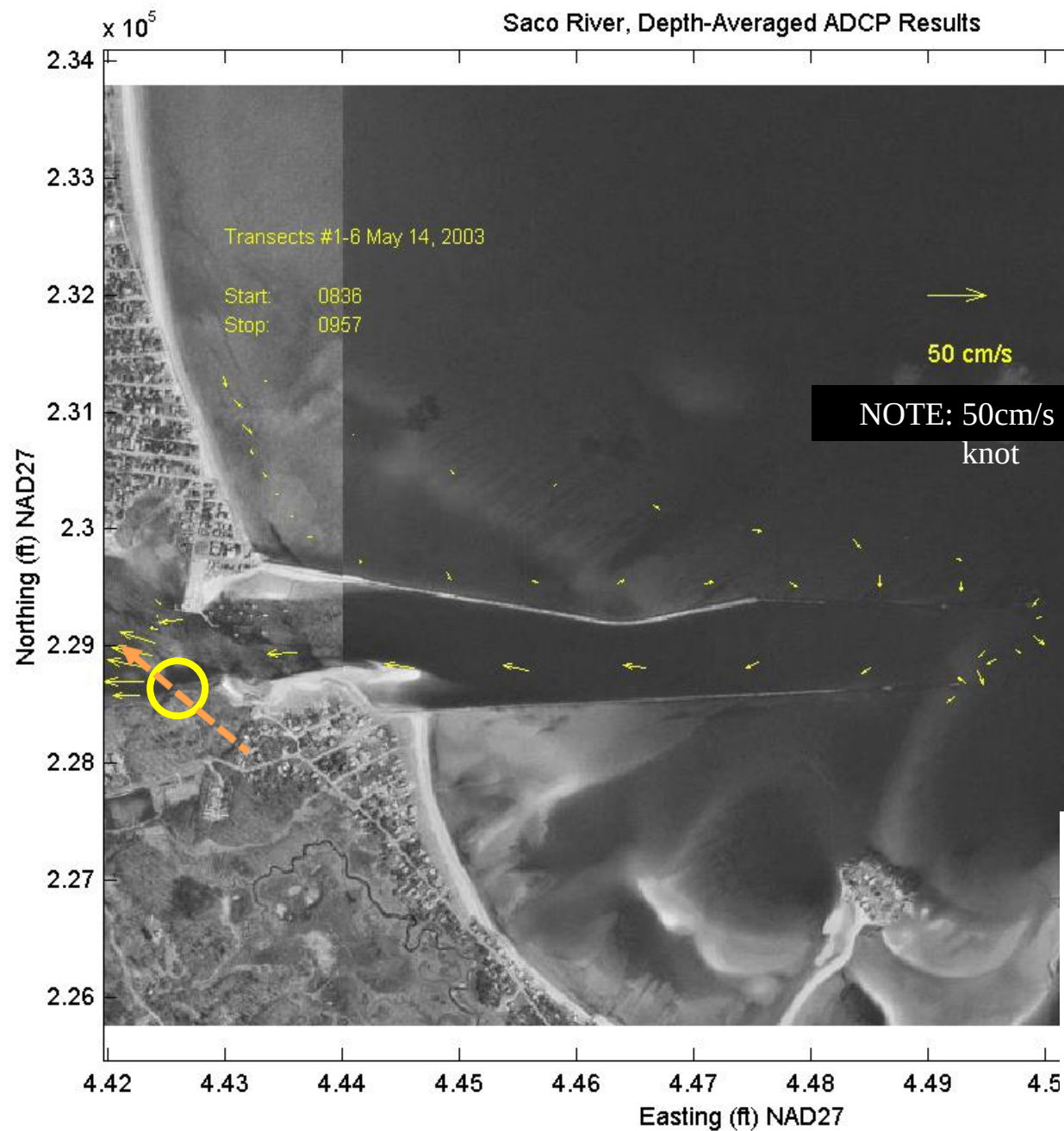




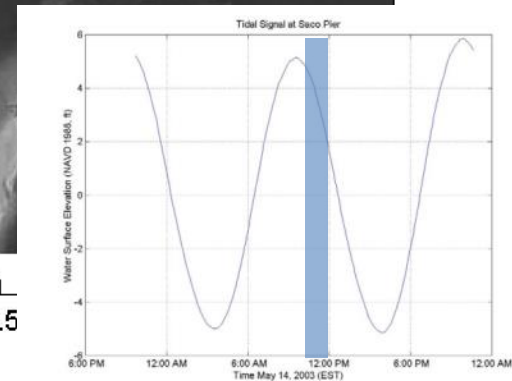
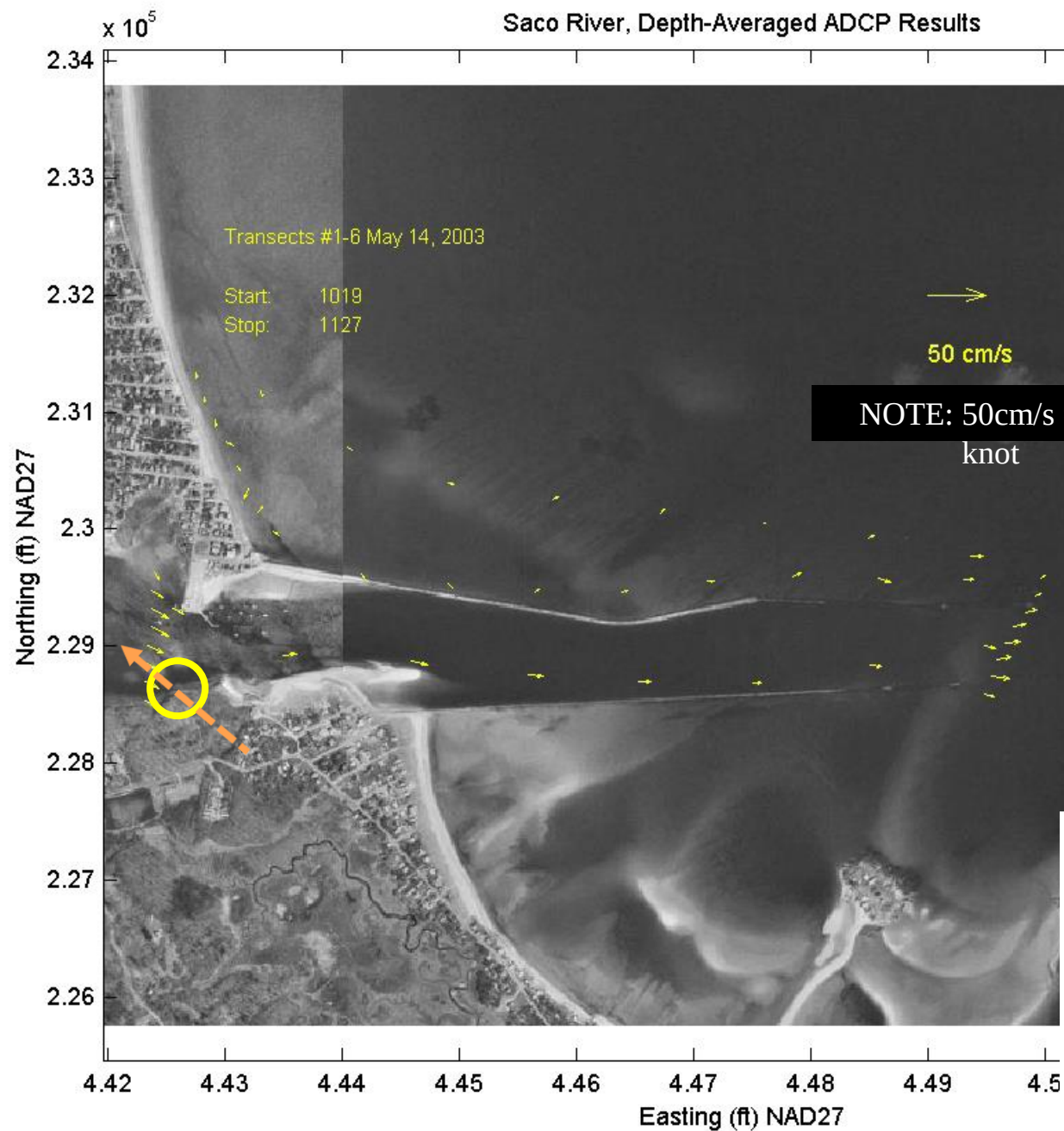
Saco River, Depth-Averaged ADCP Results



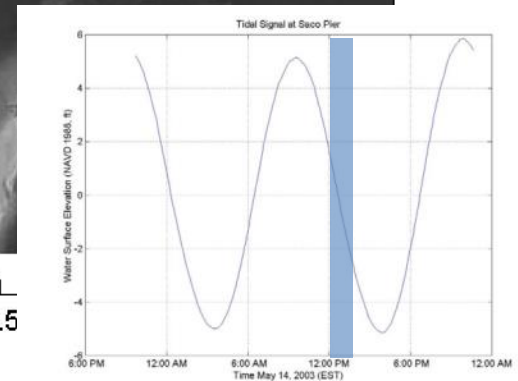
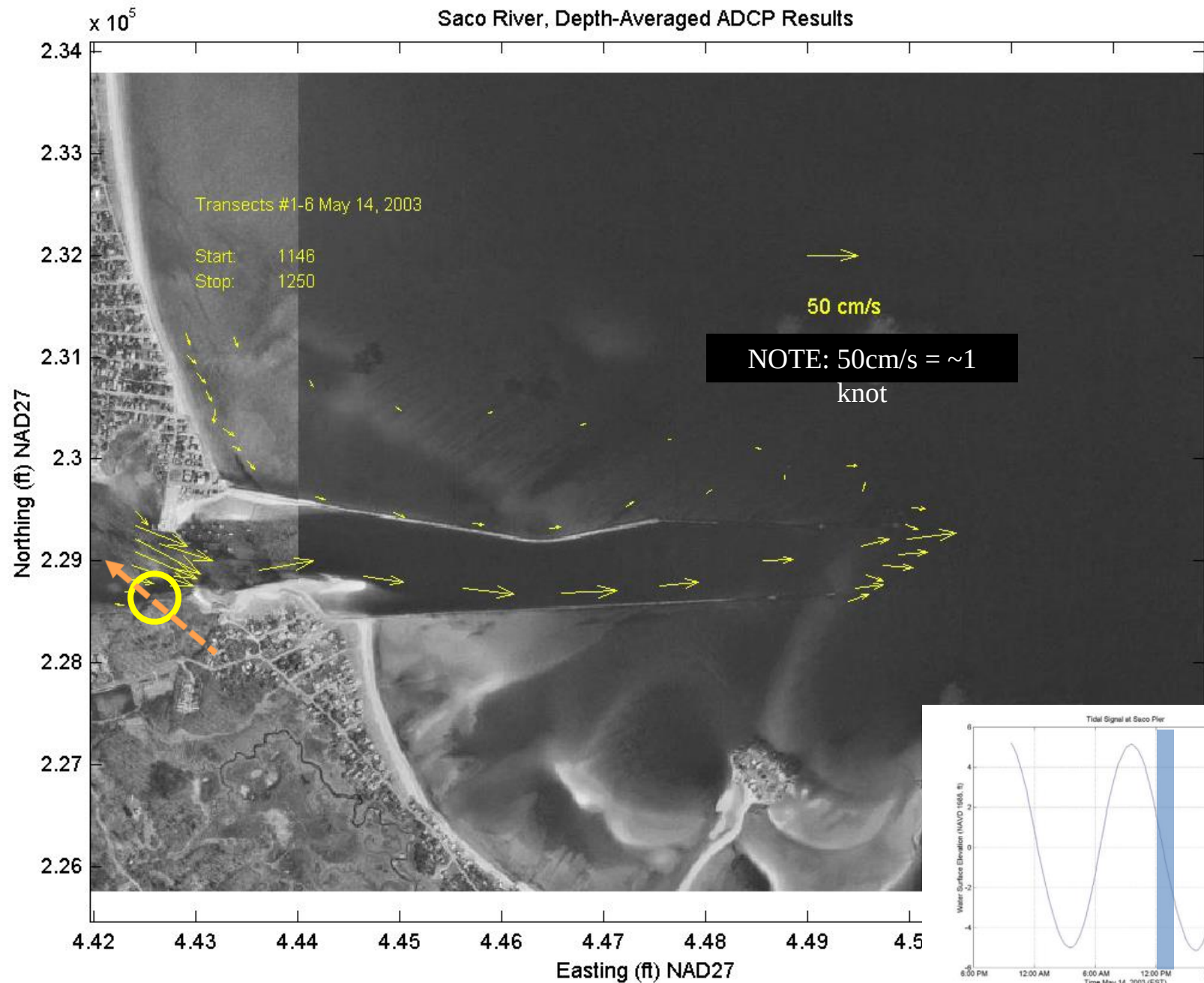
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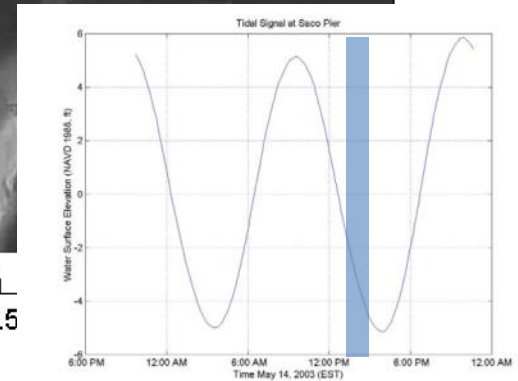
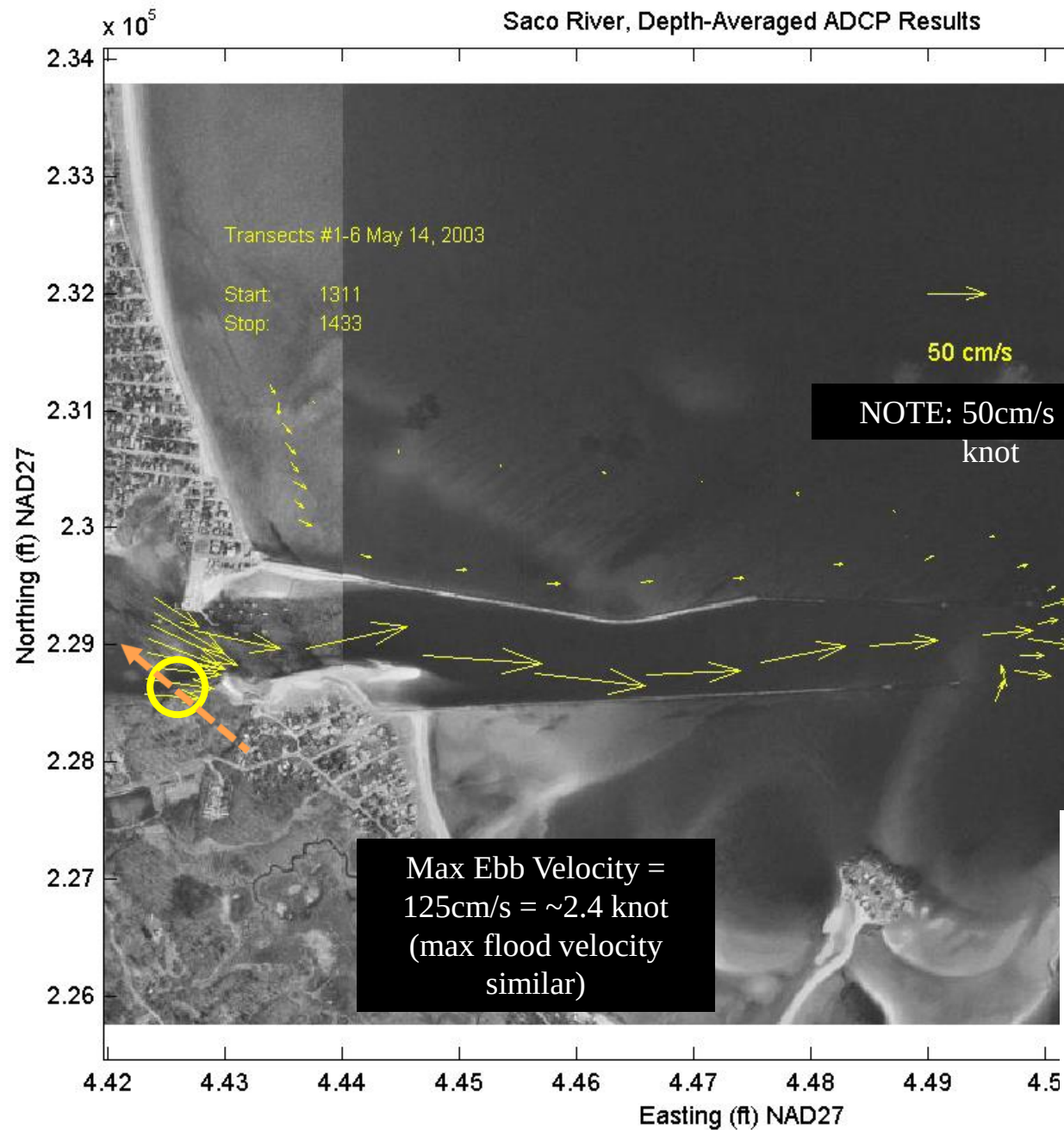
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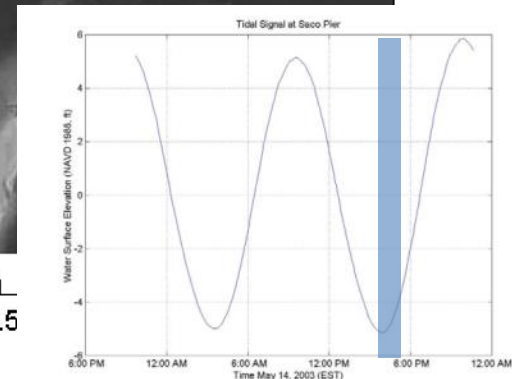
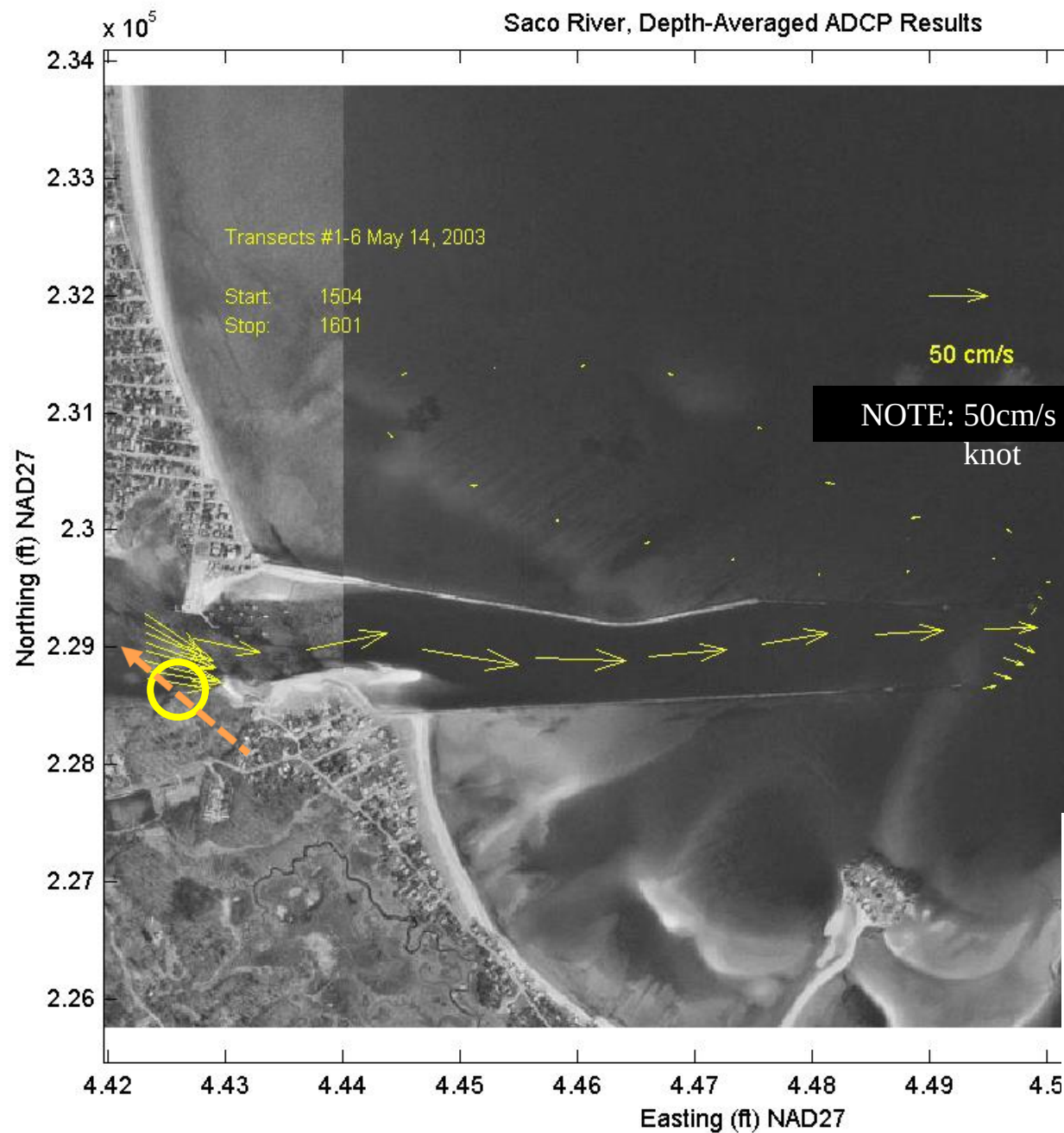
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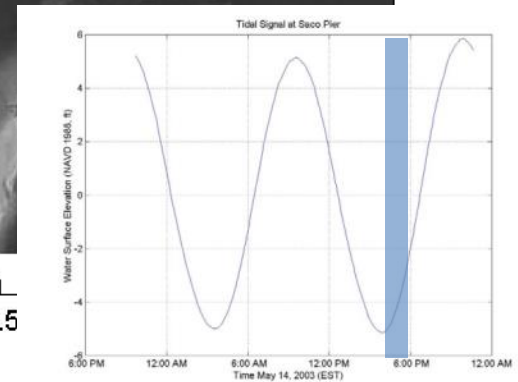
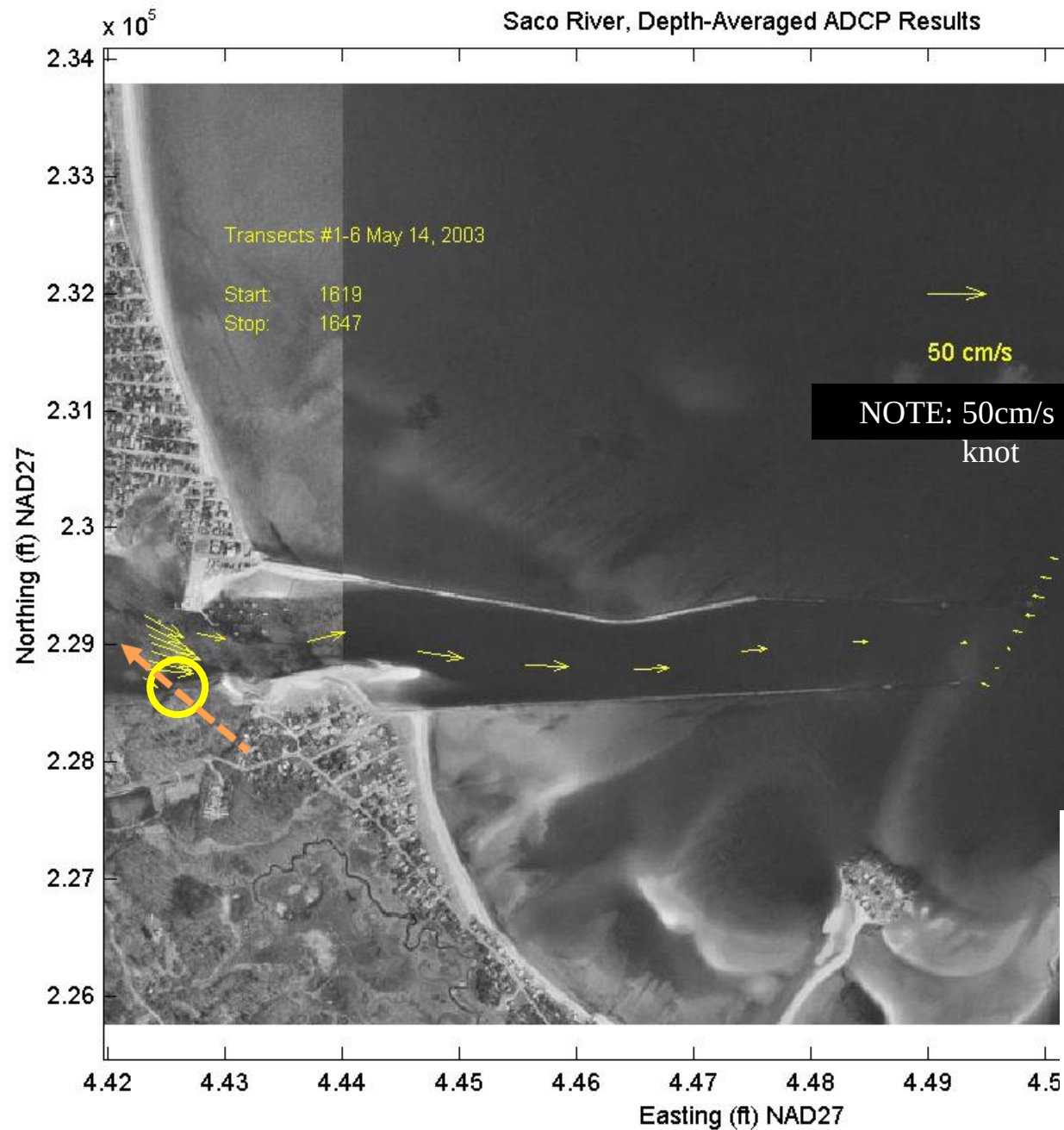
Saco River, Depth-Averaged ADCP Results



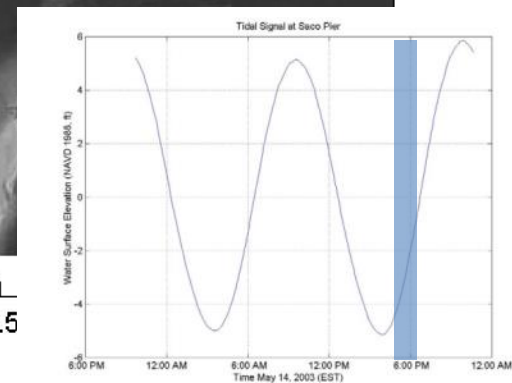
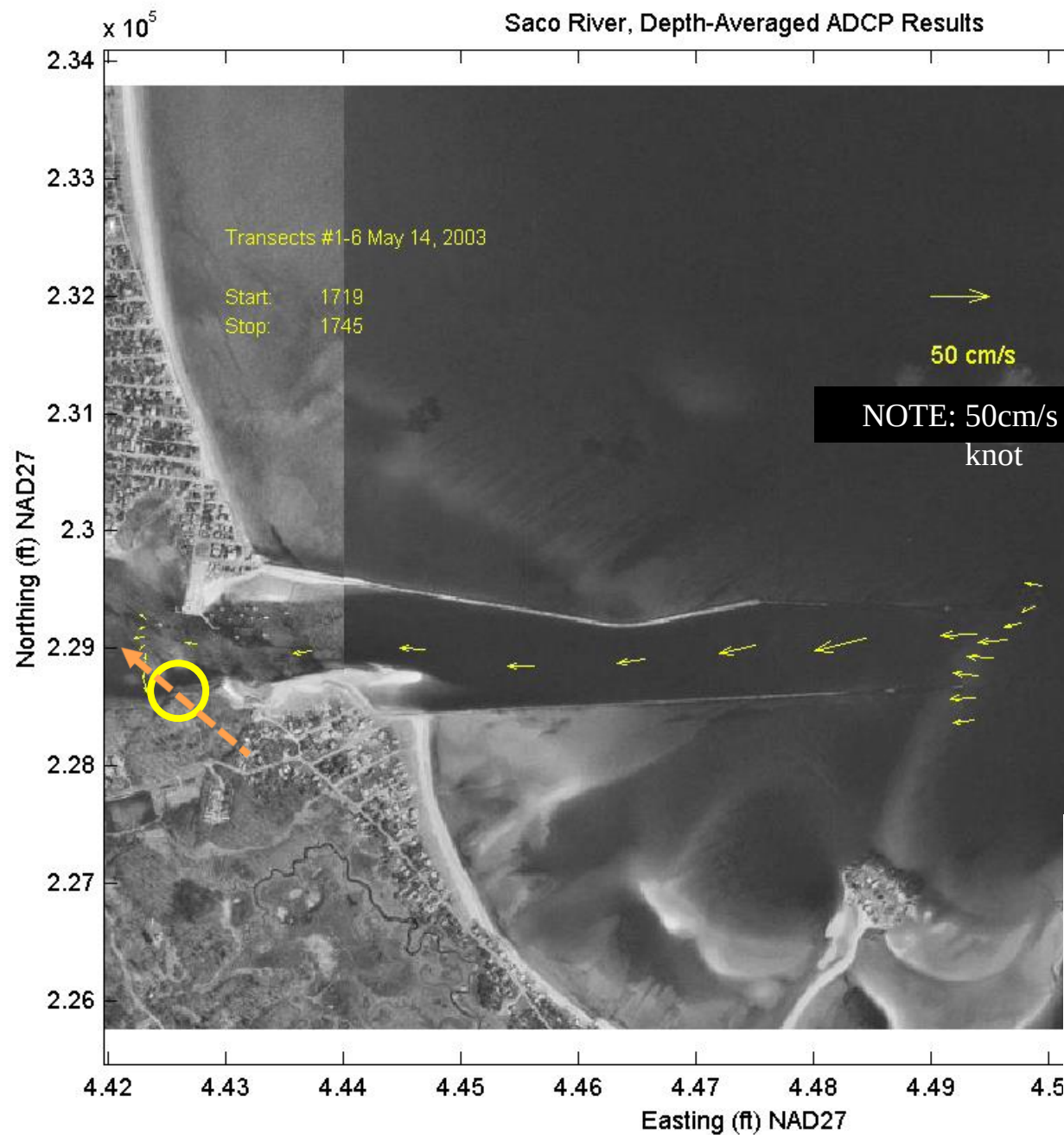
Saco River, Depth-Averaged ADCP Results



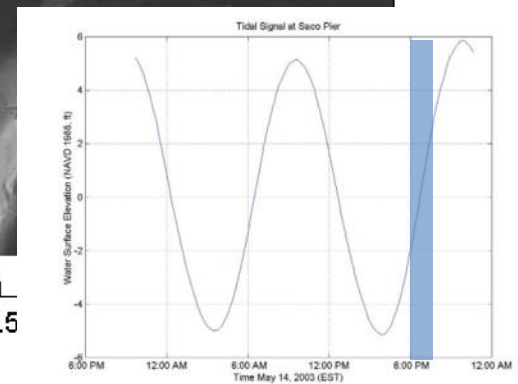
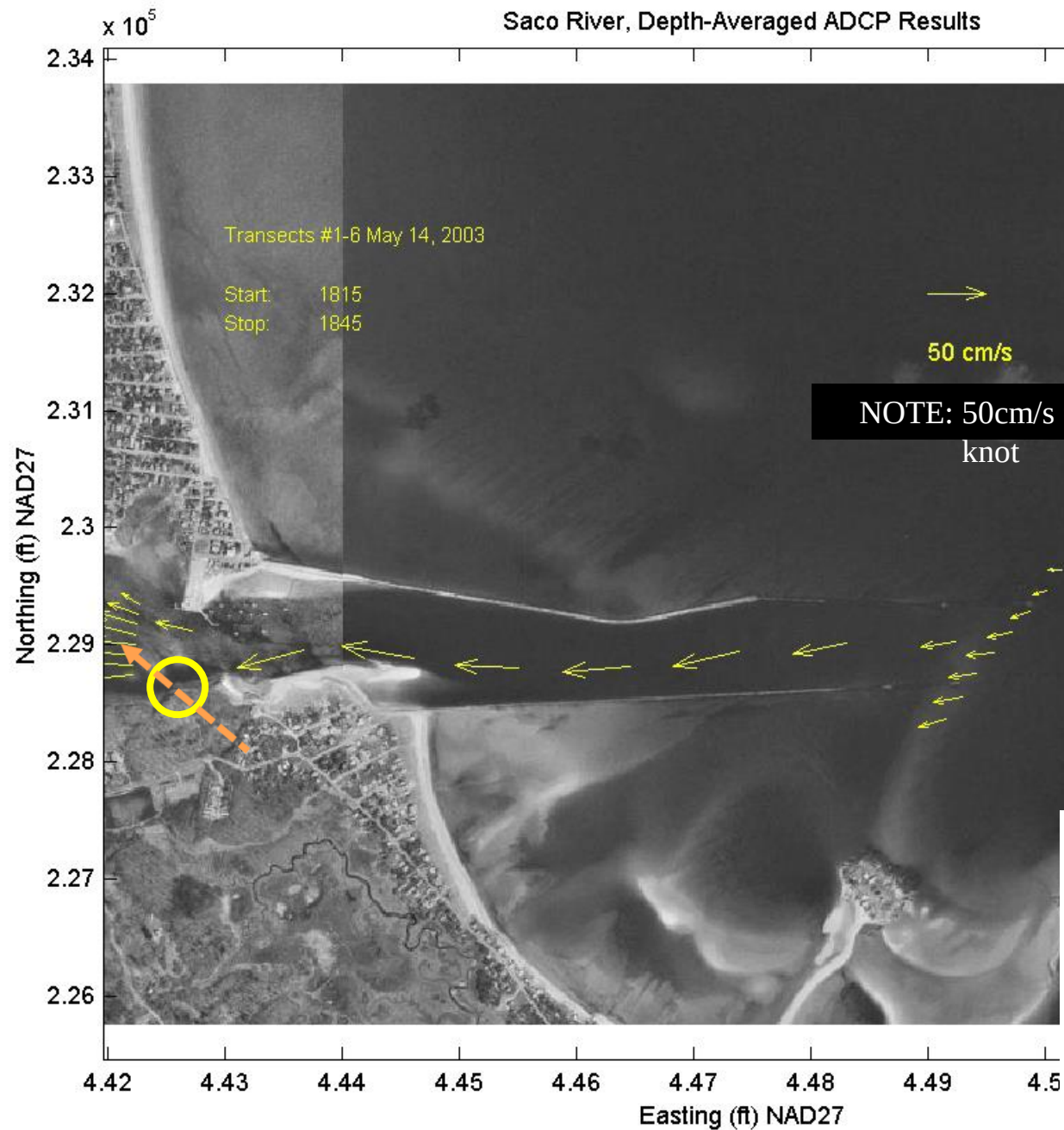
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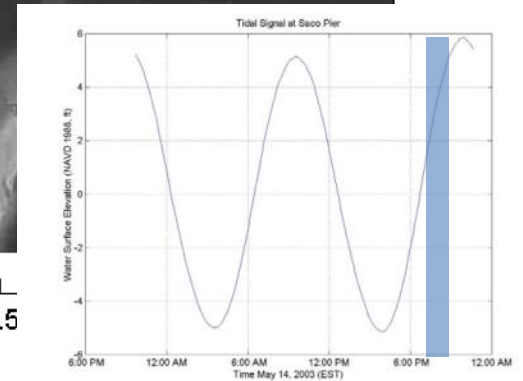
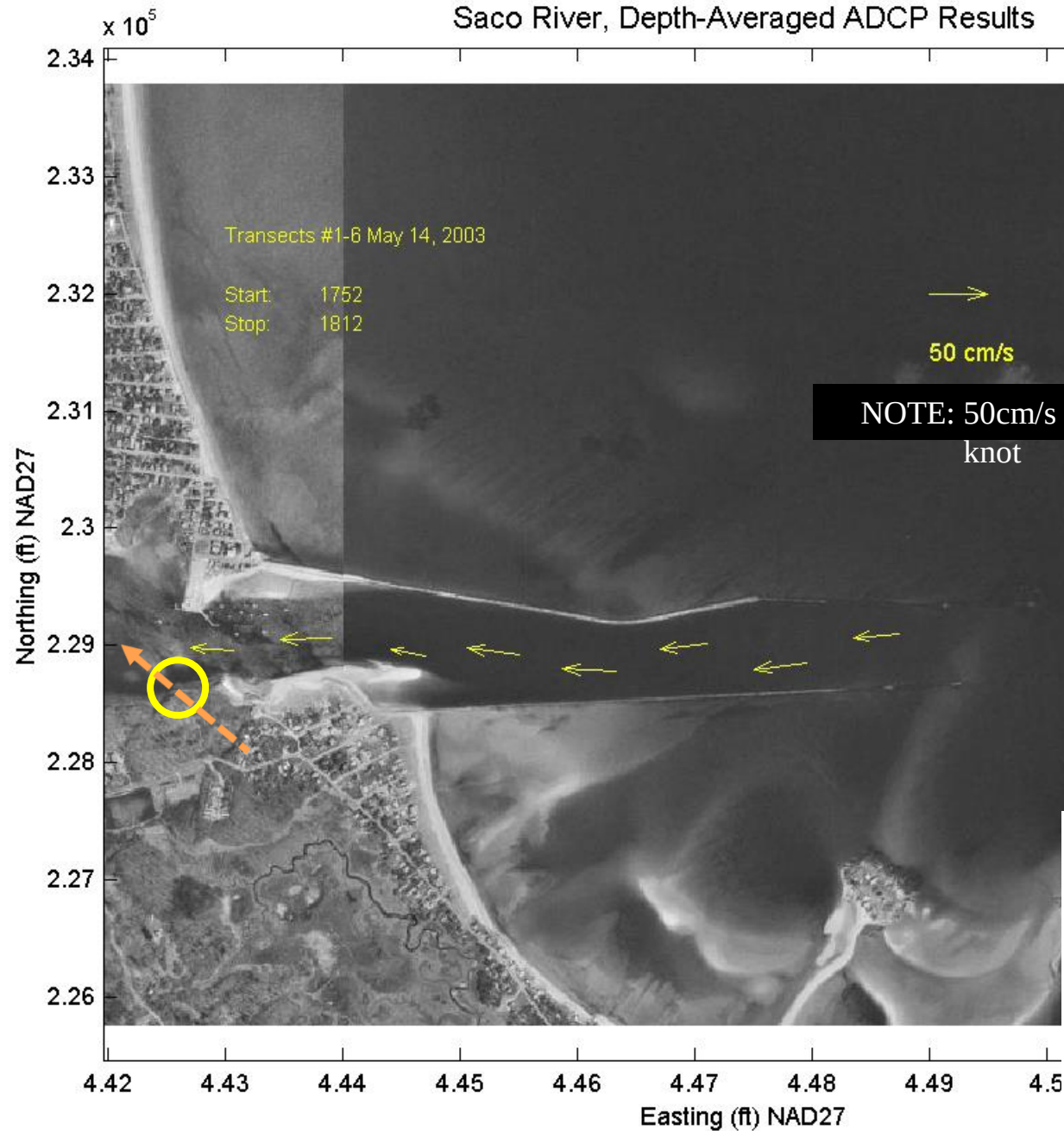
Saco River, Depth-Averaged ADCP Results



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:

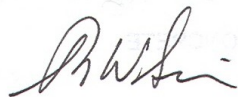
By signing this application, as the foresaid applicant or authorized agent:

- 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)

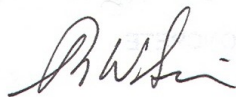
- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

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.

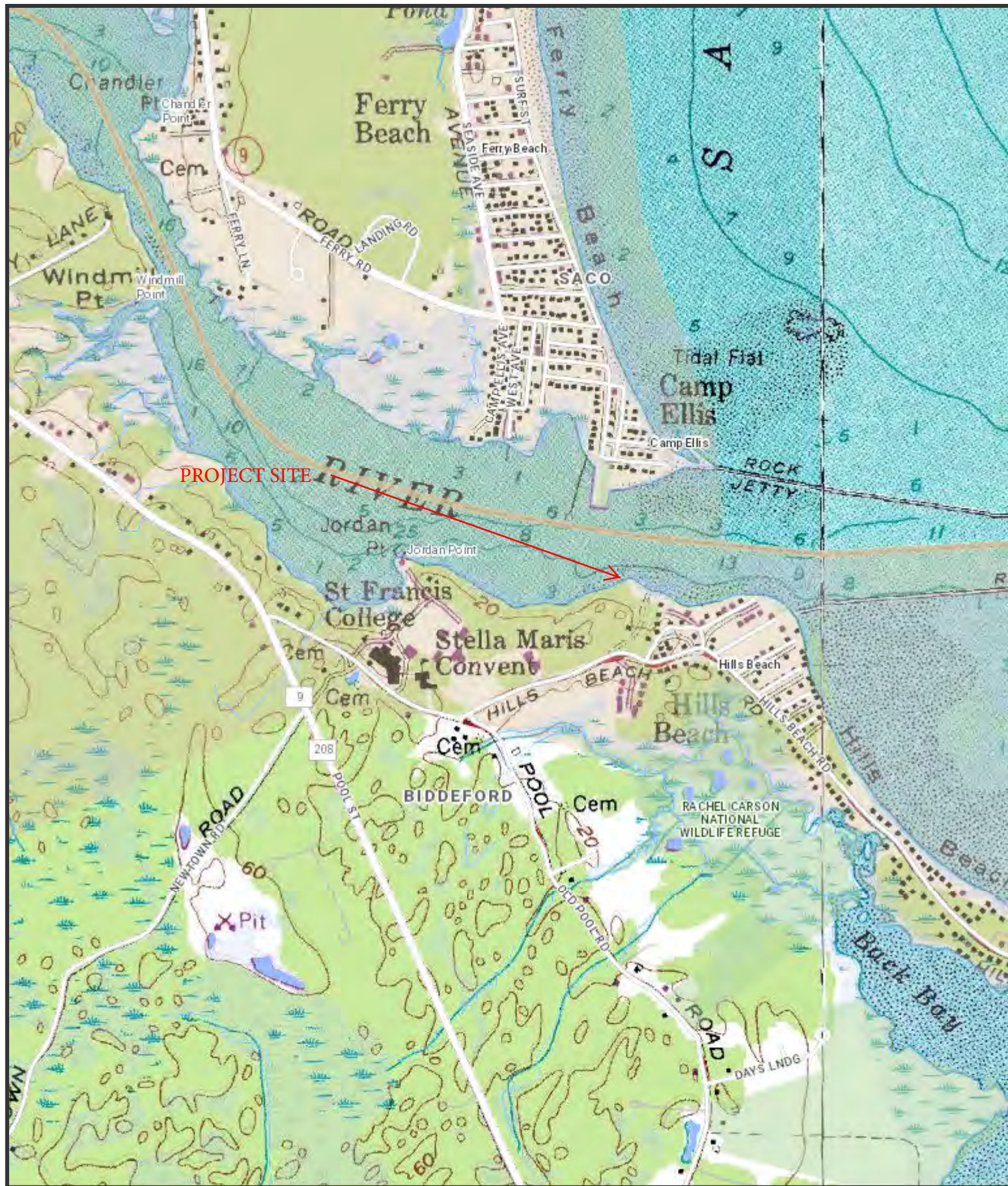
SUBMITTAL INFORMATION - TO BE FILLED OUT BY APPLICANT	
Project Name:	University of New England (UNE) Marine Science Center Research Pier
Planning Board # (if available):	2024.34
Applicant Name/Info:	University of New England
Submittal #/Type (Prelim/Final):	Preliminary
Submittal Date:	6/10/2025

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, 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 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

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One
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and
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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:

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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 parcel 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:

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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 hundred (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

Book 1484

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 that reads "Alan Thibeault". The signature is written in a cursive style with a large, sweeping initial "A".

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

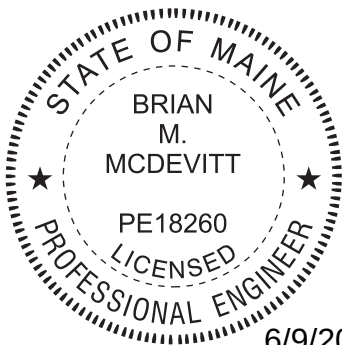
Submitted by:

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

Table of Contents

1.	Introduction	2
2.	Methodology	5
3.	Pre-Development Conditions	6
4.	Post-Development Conditions	8
5.	Stormwater Management	10
6.	Conclusions	14

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.

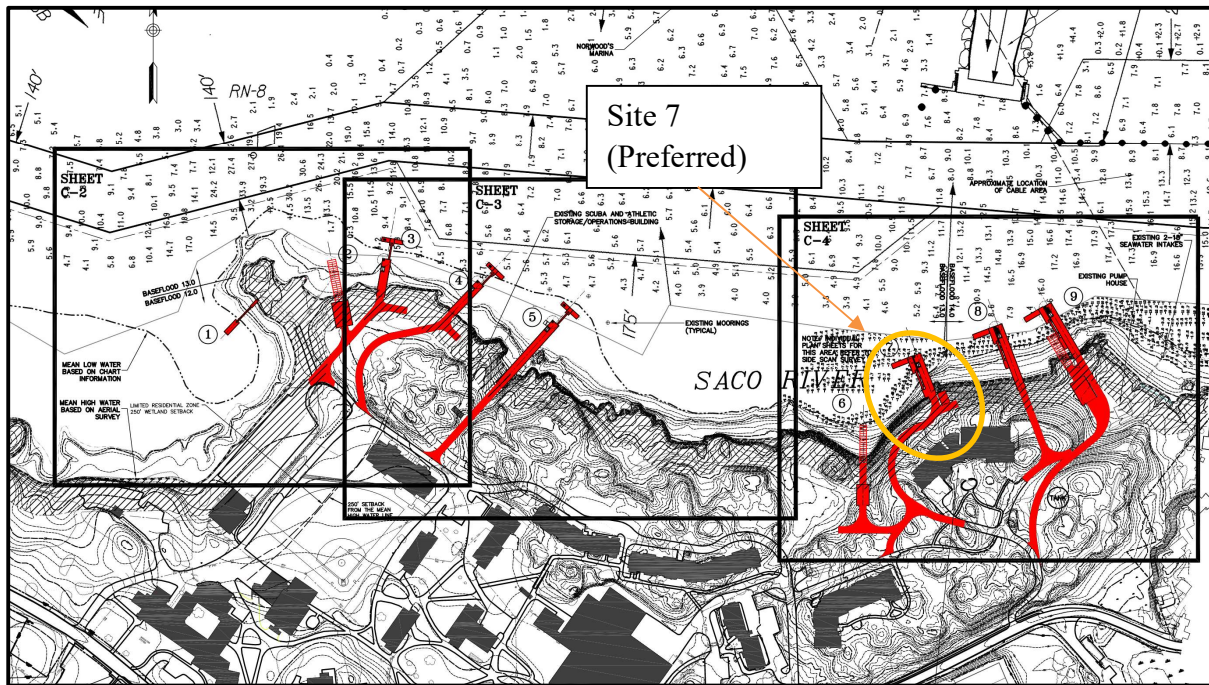


Fig. 2. Pier Location Alternatives from BDC Feasibility Study

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.

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

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
York County, Maine.....	13
Ba—Beaches, sand.....	13
LyC—Lyman-Rock outcrop complex, 8 to 15 percent slopes.....	13
LyE—Lyman-Rock outcrop complex, 15 to 80 percent slopes.....	15
UH—Urban land-Hooksan complex, 0 to 8 percent slopes.....	17
W—Water bodies.....	18

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

Custom Soil Resource Report

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

Custom Soil Resource Report

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

Custom Soil Resource Report

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.

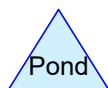
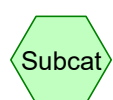
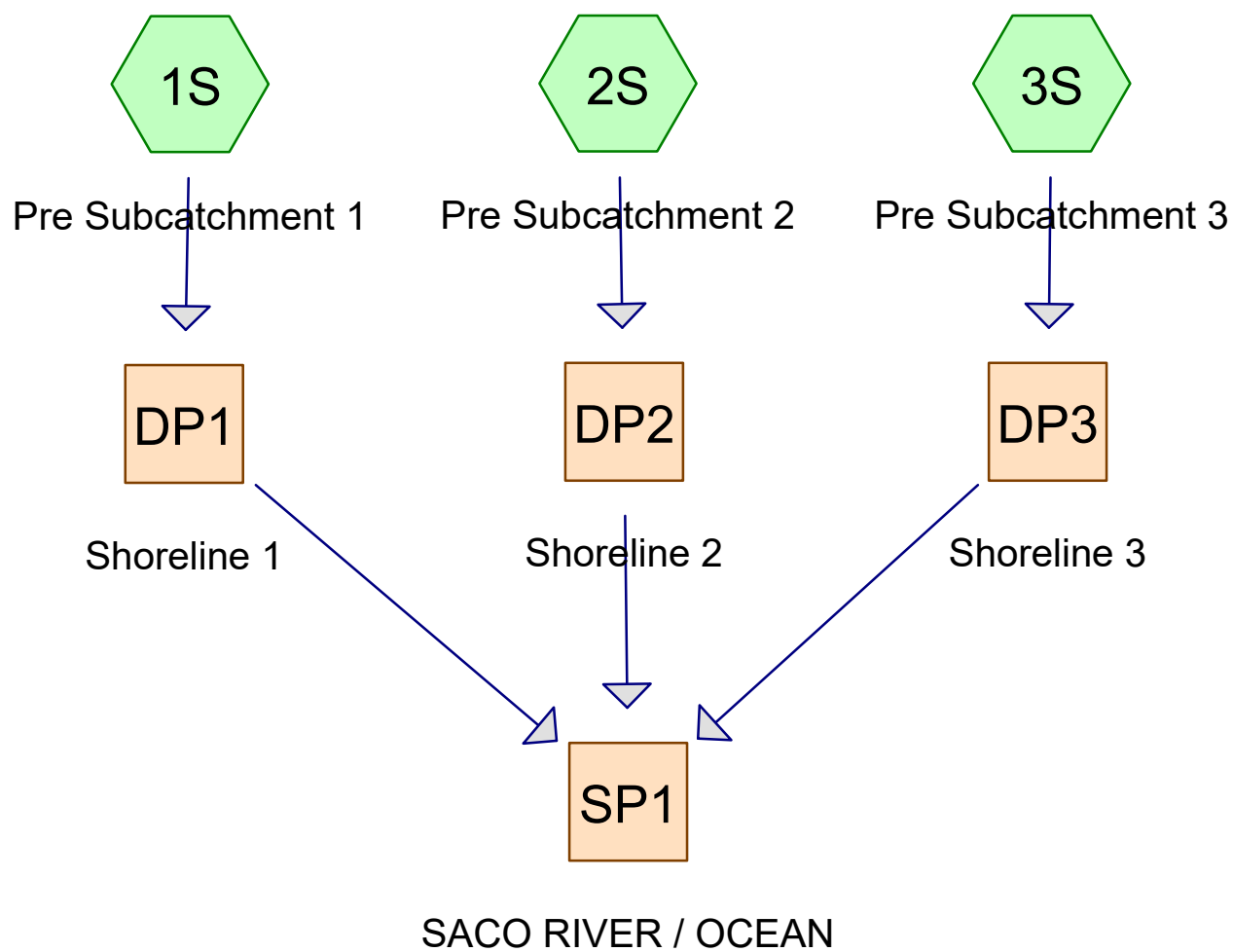
Description of Water

Setting

Landform: Hills

Appendix B

Pre Development HydroCAD Calculations



Routing Diagram for UNE-PreDrainage
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UNE-PreDrainage

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Page 2

Project Notes

Defined 3 rainfall events from ME-York IDF

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Page 3

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

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Page 4

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

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Page 5

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

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Page 6

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	

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Type III 24-hr 2-yr Rainfall=3.30"

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Page 7

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

UNE-PreDrainage

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Type III 24-hr 2-yr Rainfall=3.30"

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Page 8

Summary for Subcatchment 1S: Pre Subcatchment 1

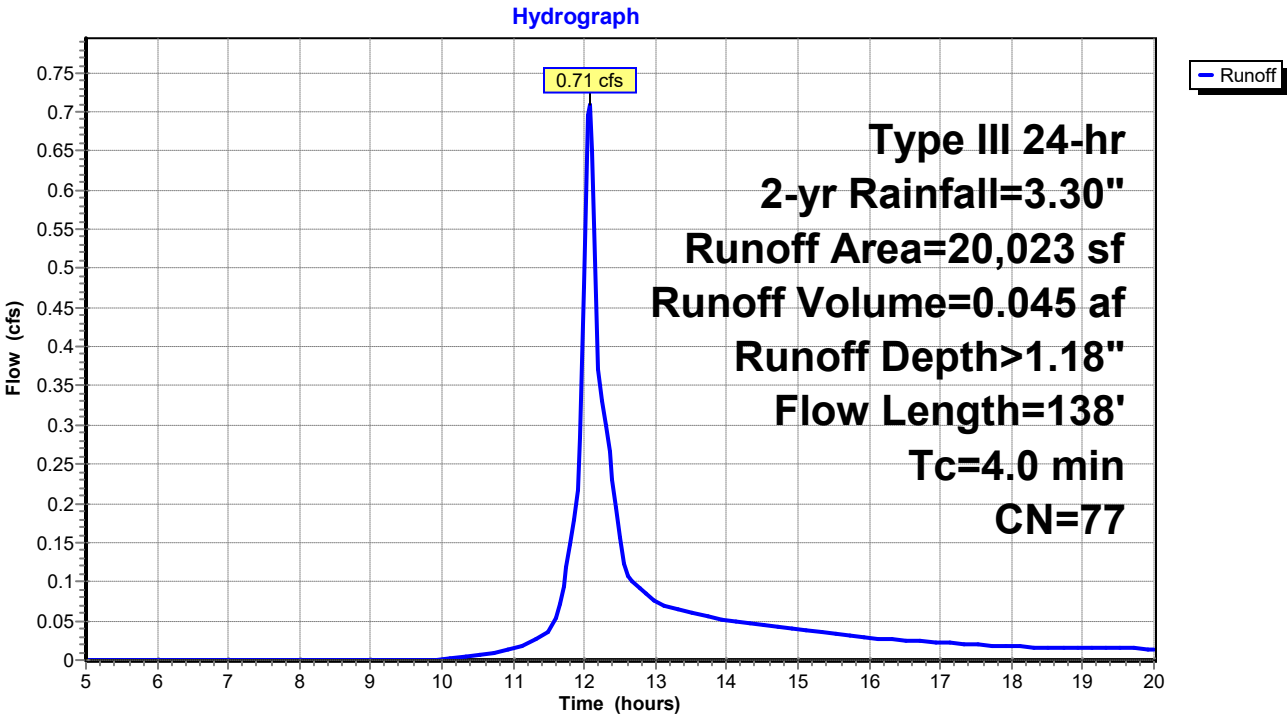
Runoff = 0.71 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 1.18"
Routed to Reach DP1 : Shoreline 1

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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Page 9

Summary for Subcatchment 2S: Pre Subcatchment 2

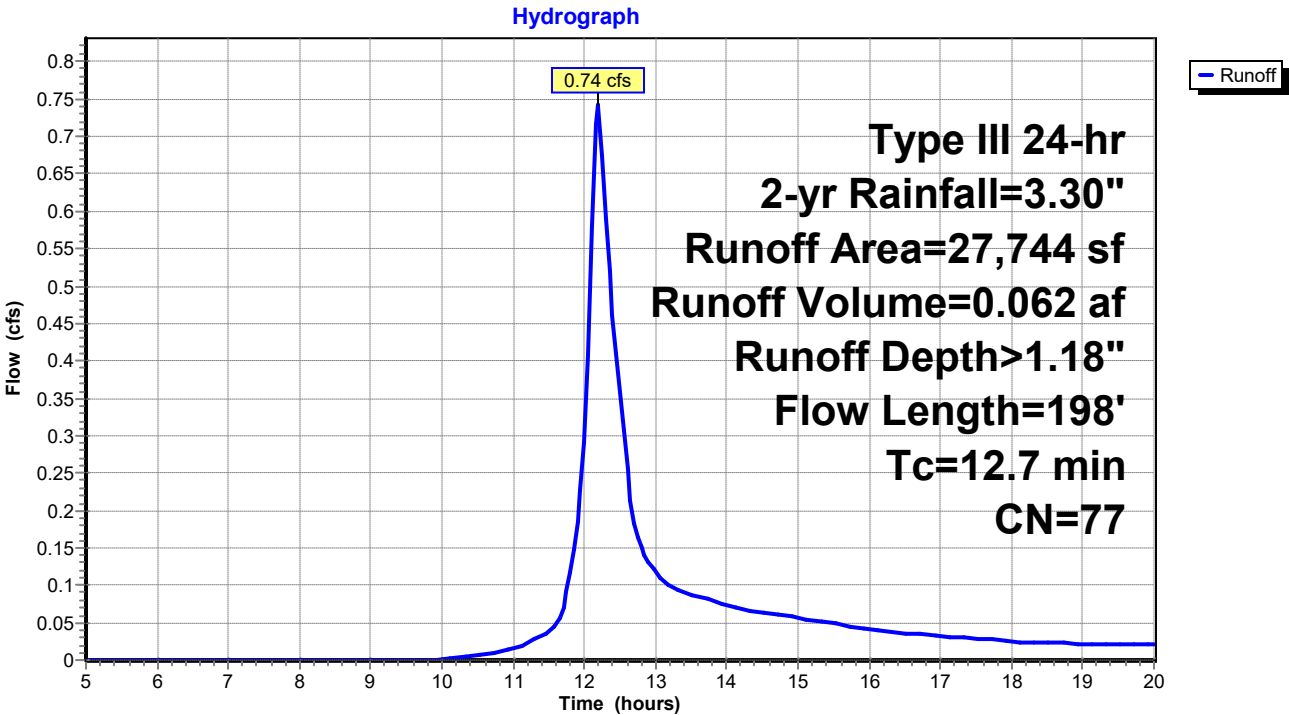
Runoff = 0.74 cfs @ 12.19 hrs, Volume= 0.062 af, Depth> 1.18"
Routed to Reach DP2 : Shoreline 2

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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Page 10

Summary for Subcatchment 3S: Pre Subcatchment 3

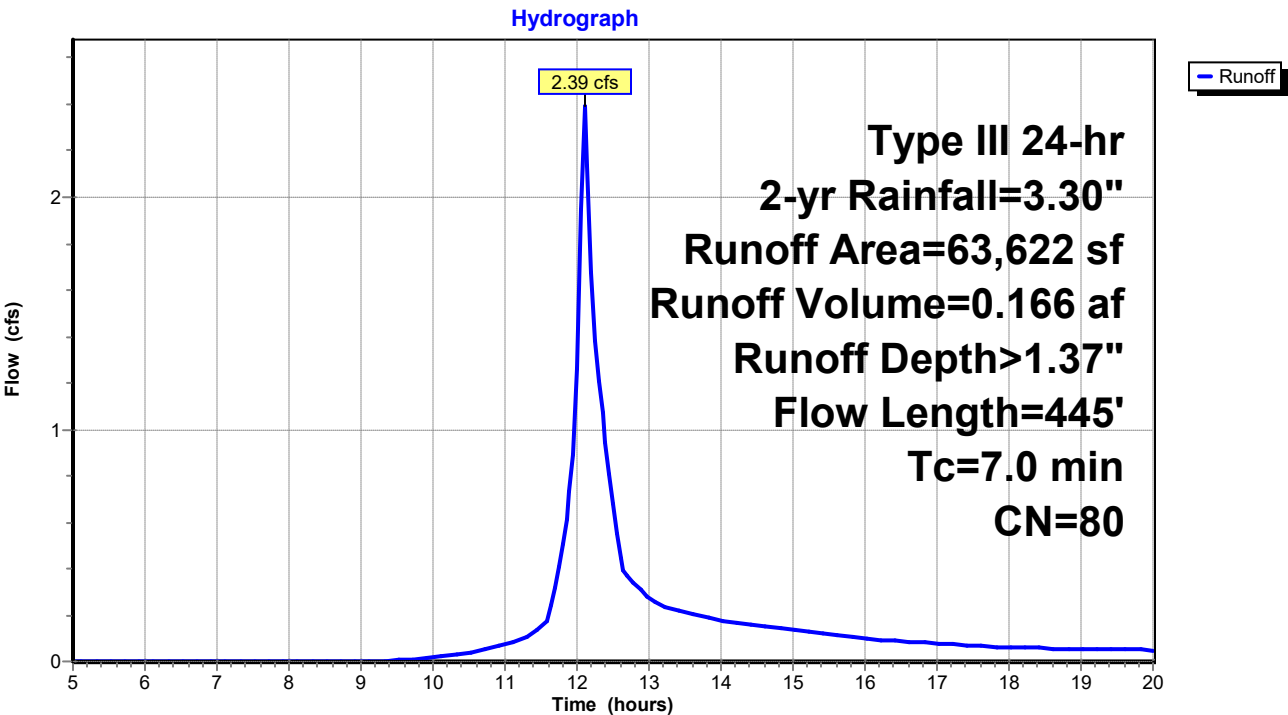
Runoff = 2.39 cfs @ 12.11 hrs, Volume= 0.166 af, Depth> 1.37"
 Routed to Reach DP3 : Shoreline 3

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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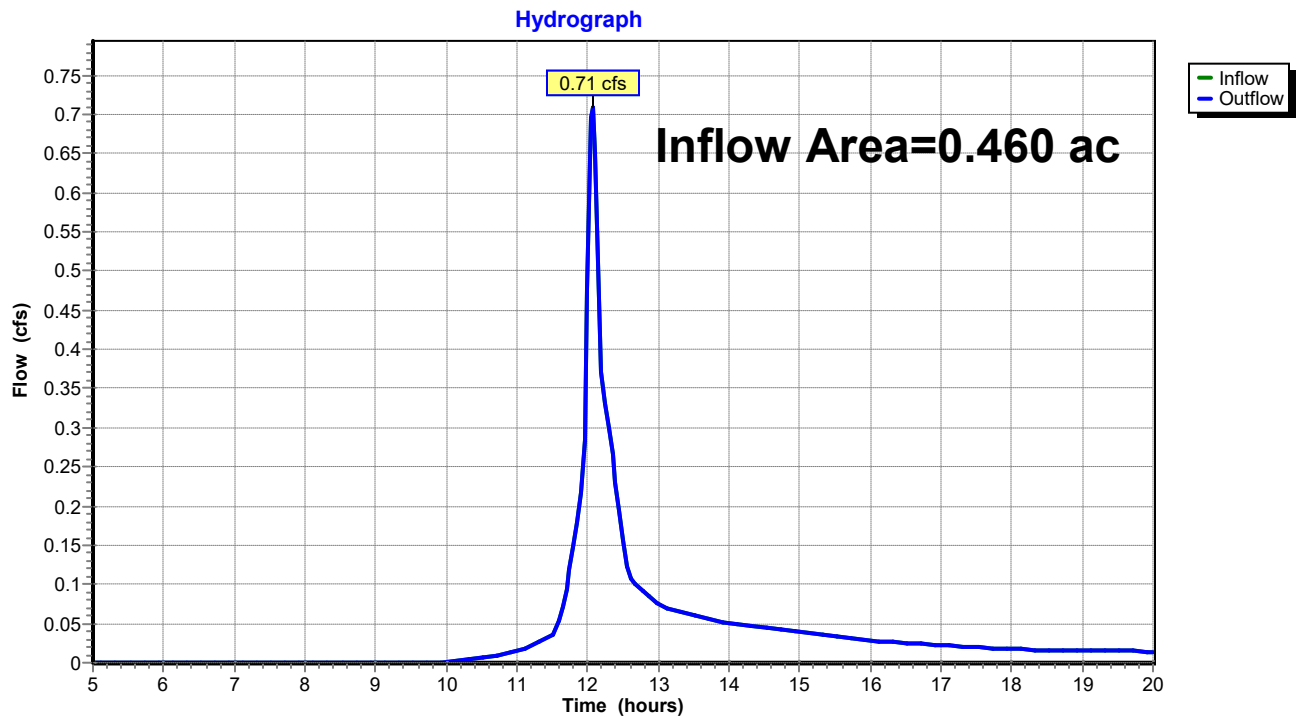
Page 12

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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Page 13

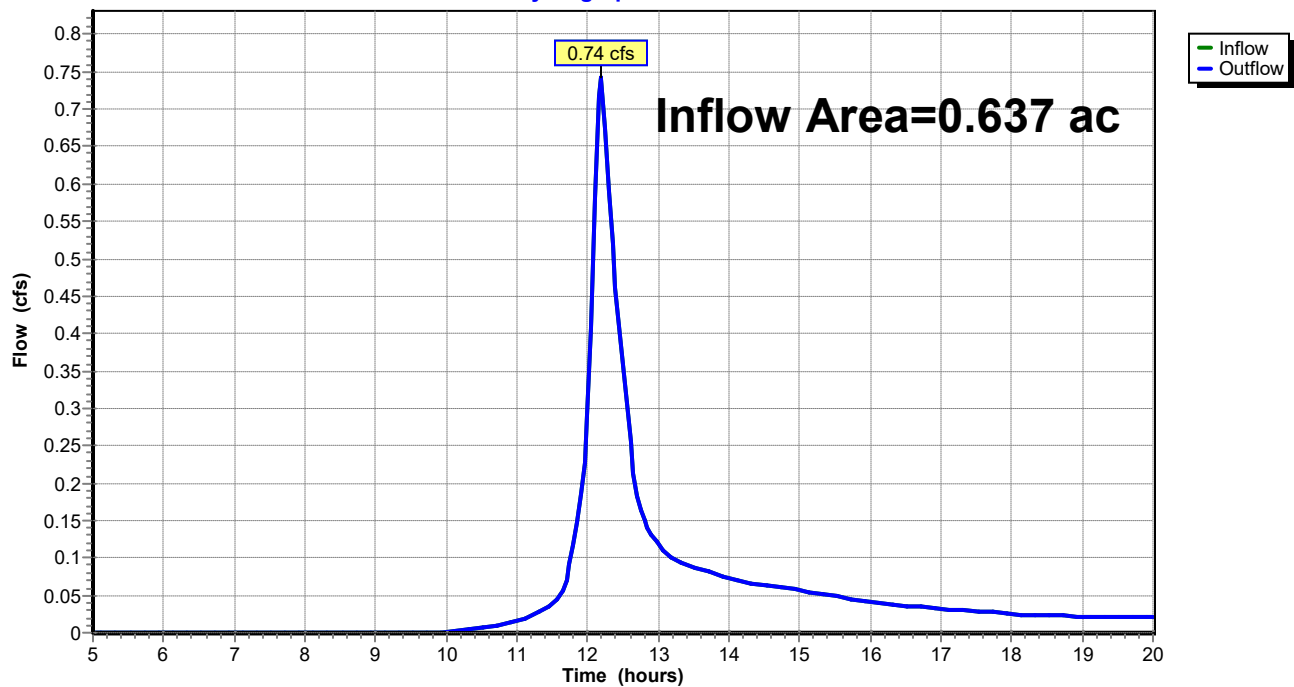
Summary for Reach DP2: Shoreline 2

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



UNE-PreDrainage

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Type III 24-hr 2-yr Rainfall=3.30"

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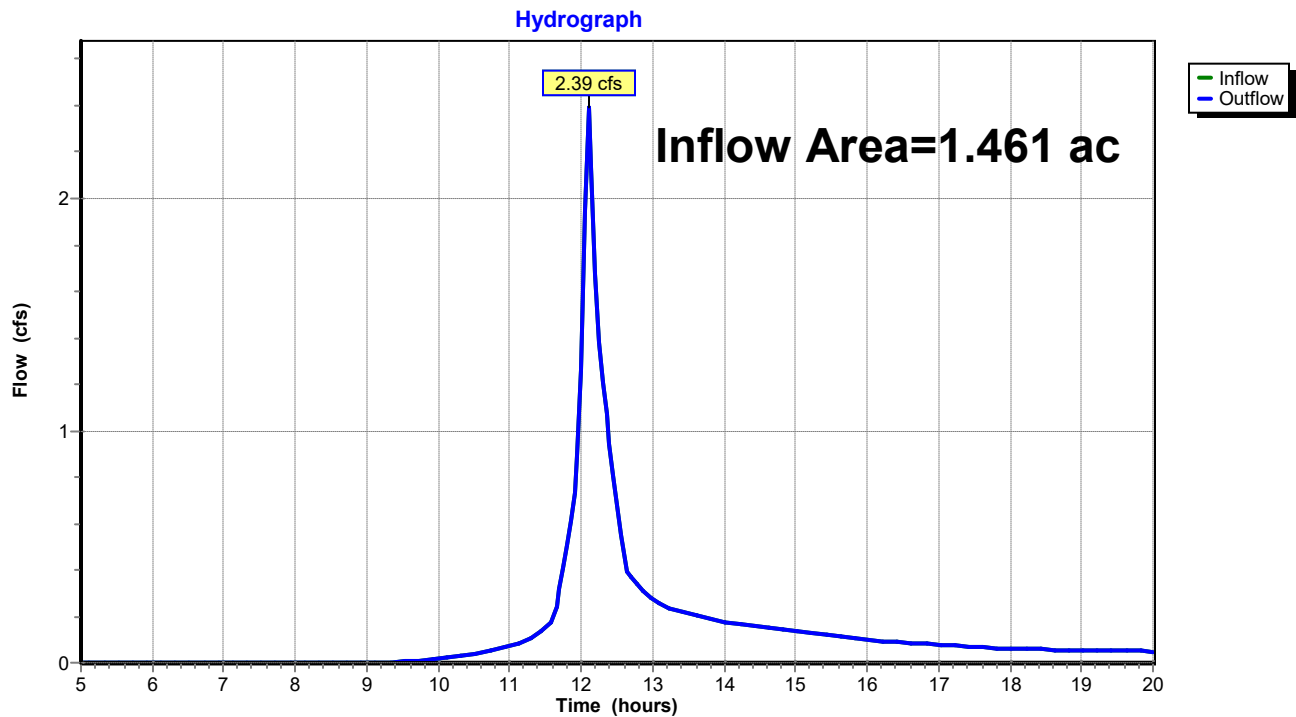
Page 14

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



UNE-PreDrainage

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Type III 24-hr 2-yr Rainfall=3.30"

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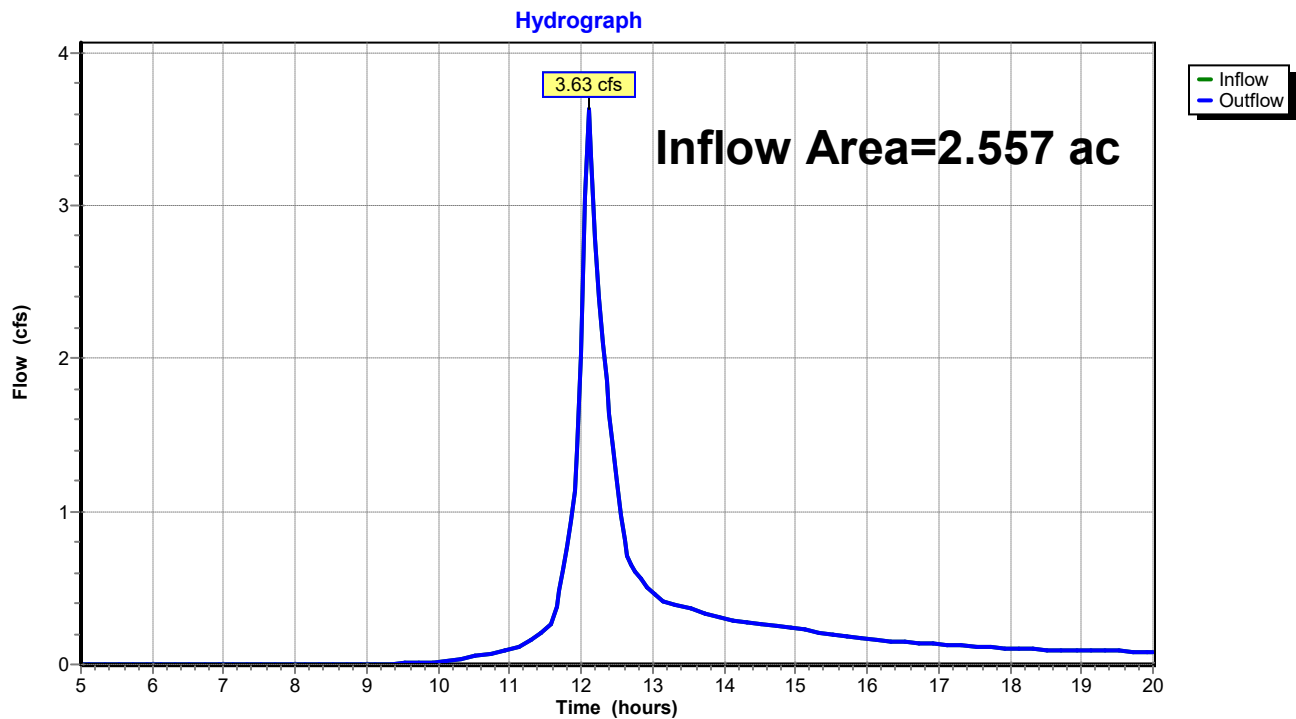
Page 15

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



UNE-PreDrainage

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Type III 24-hr 10-yr Rainfall=4.90"

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Page 16

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

UNE-PreDrainage

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Type III 24-hr 10-yr Rainfall=4.90"

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Page 17

Summary for Subcatchment 1S: Pre Subcatchment 1

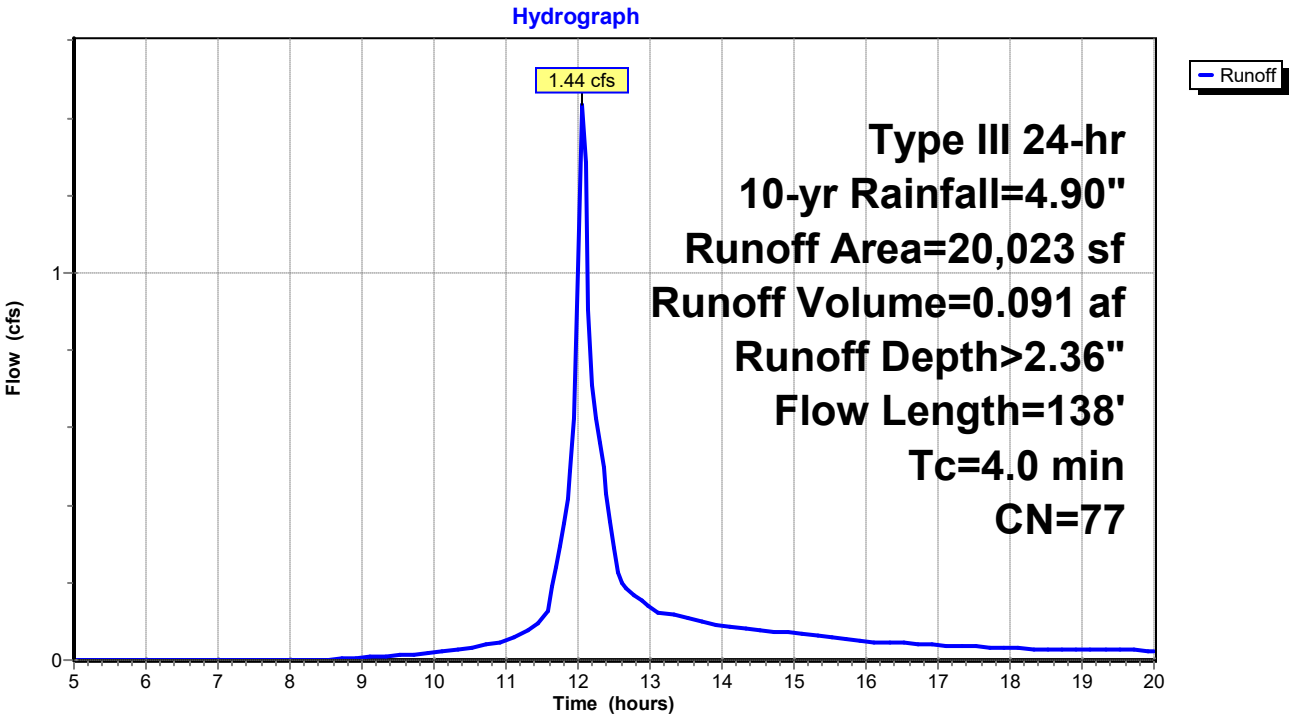
Runoff = 1.44 cfs @ 12.06 hrs, Volume= 0.091 af, Depth> 2.36"
Routed to Reach DP1 : Shoreline 1

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
					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 10-yr Rainfall=4.90"

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Page 18

Summary for Subcatchment 2S: Pre Subcatchment 2

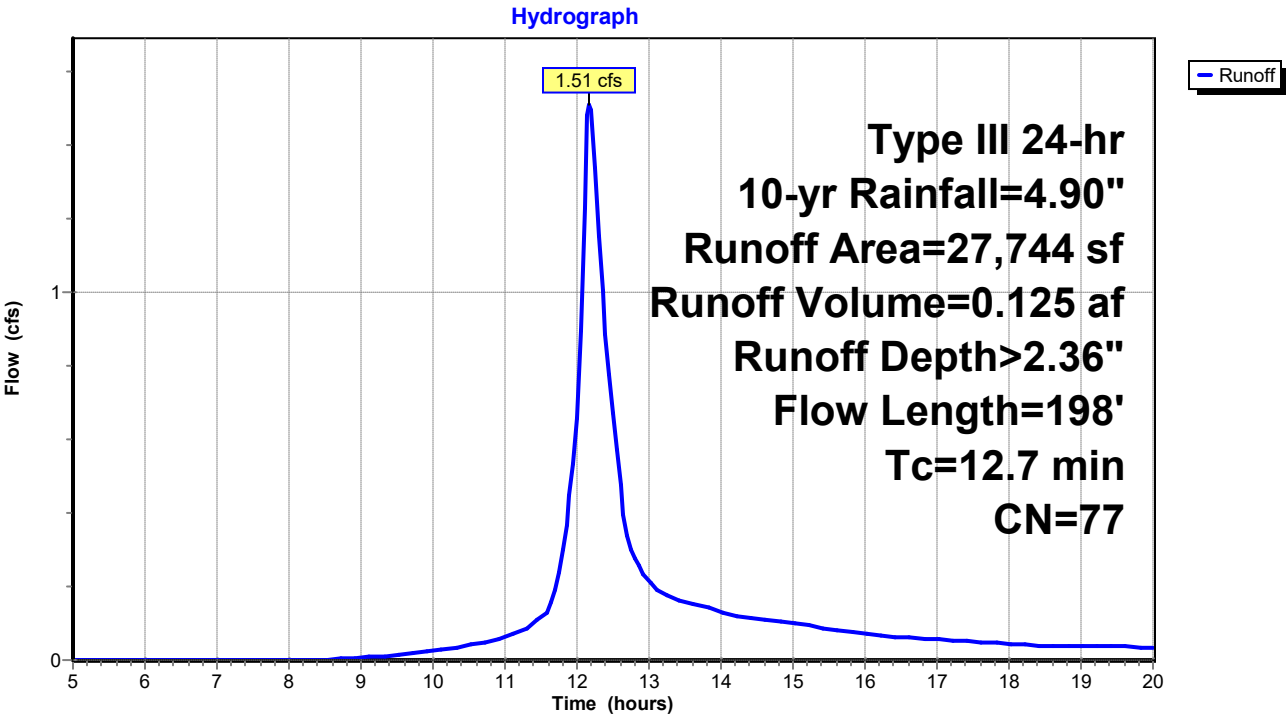
Runoff = 1.51 cfs @ 12.18 hrs, Volume= 0.125 af, Depth> 2.36"
Routed to Reach DP2 : Shoreline 2

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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Page 19

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			

UNE-PreDrainage

Prepared by GEI Consultants

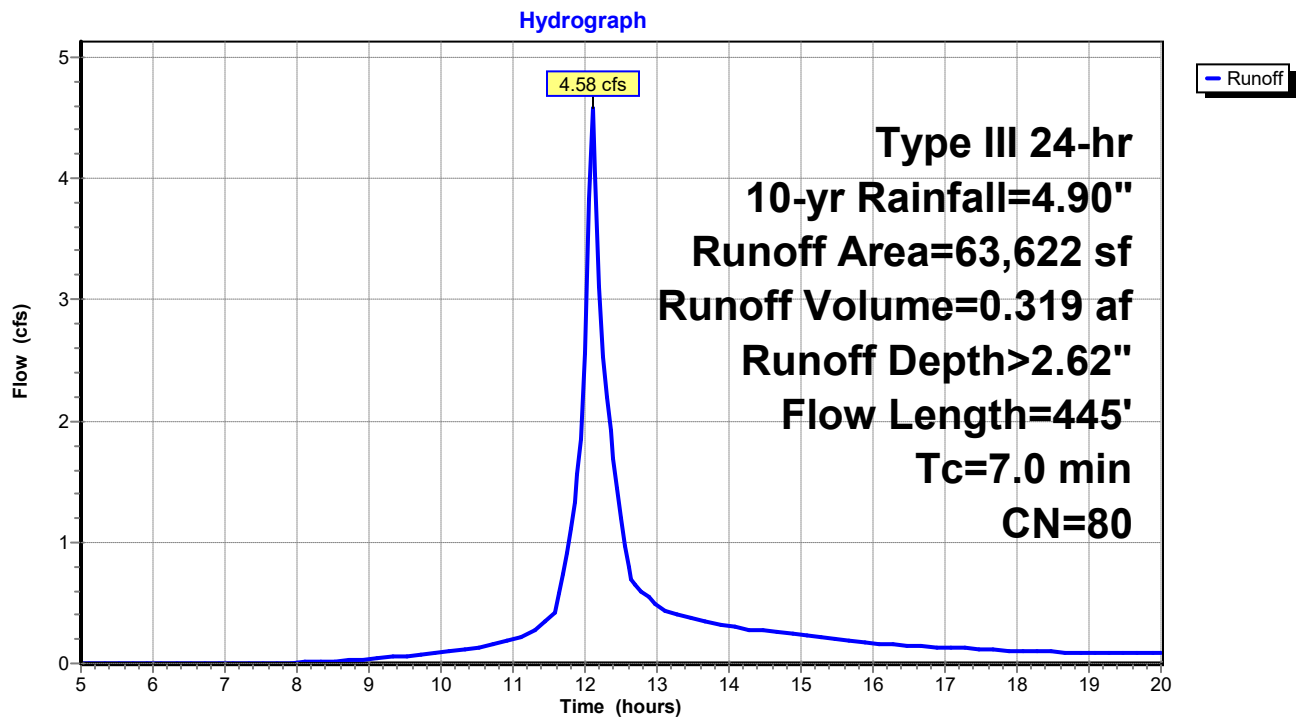
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Type III 24-hr 10-yr Rainfall=4.90"

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Page 20

Subcatchment 3S: Pre Subcatchment 3



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Type III 24-hr 10-yr Rainfall=4.90"

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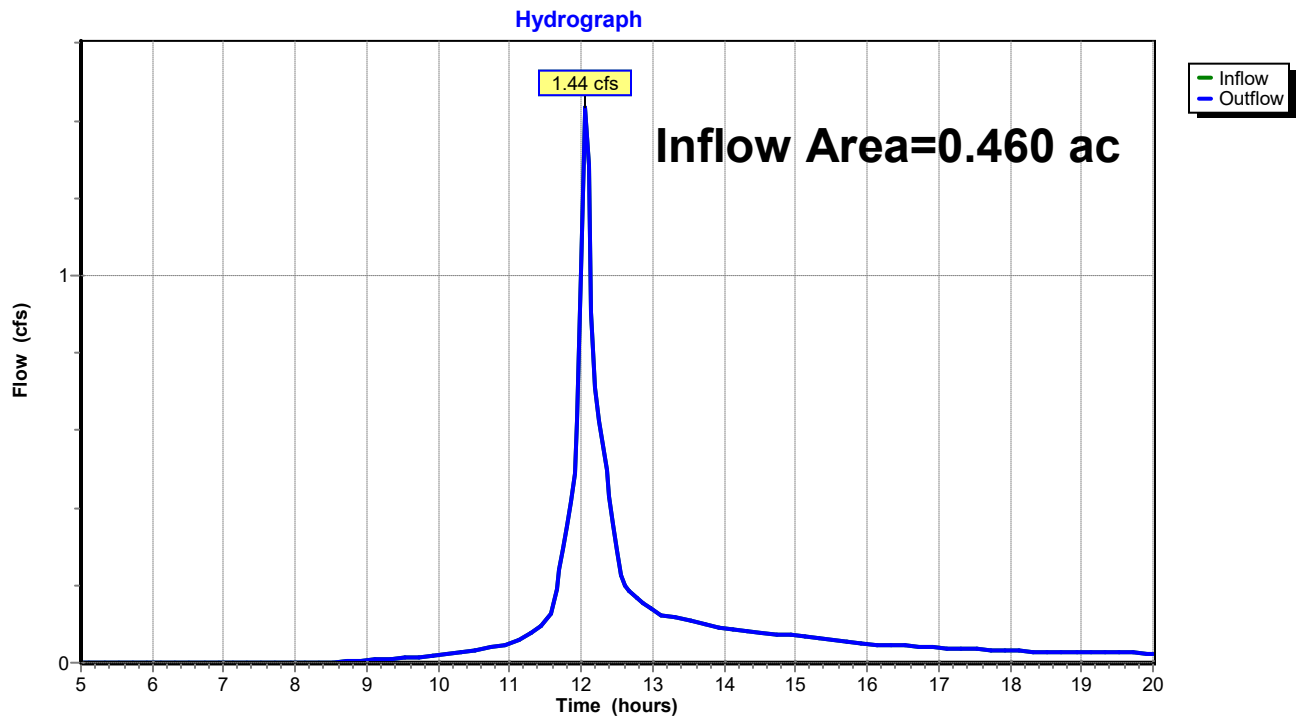
Page 21

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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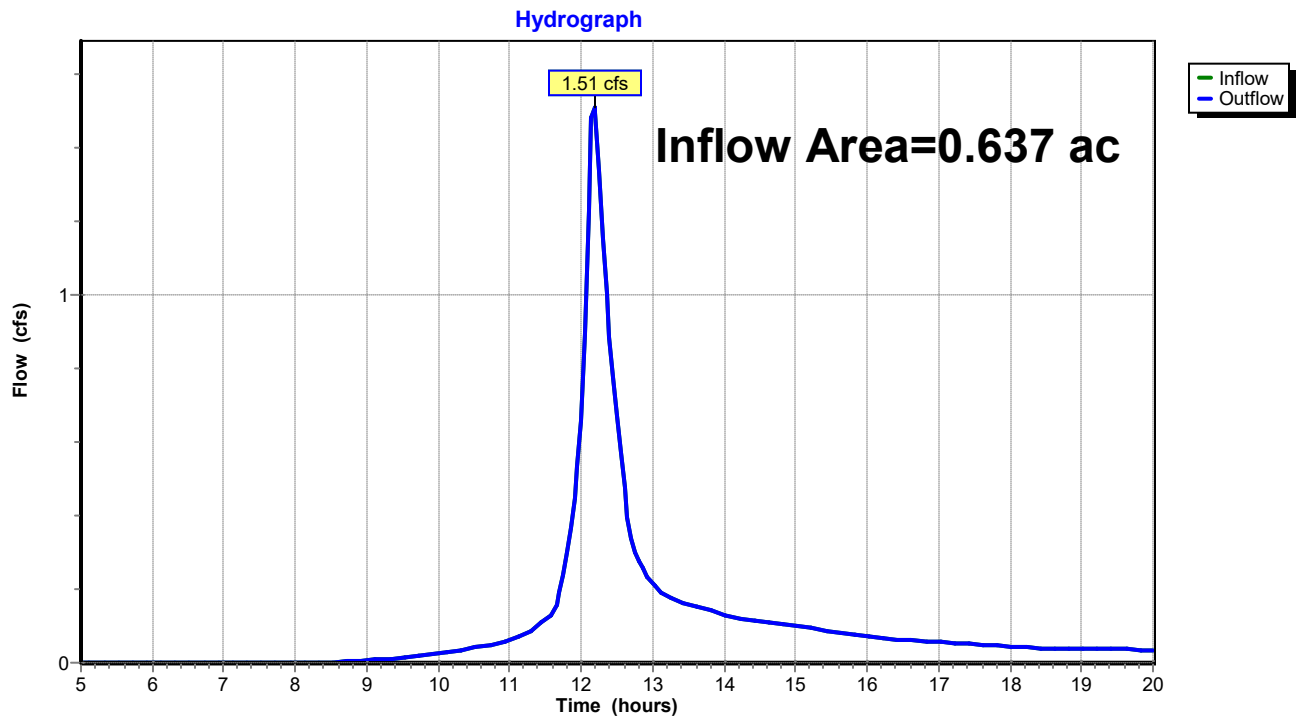
Page 22

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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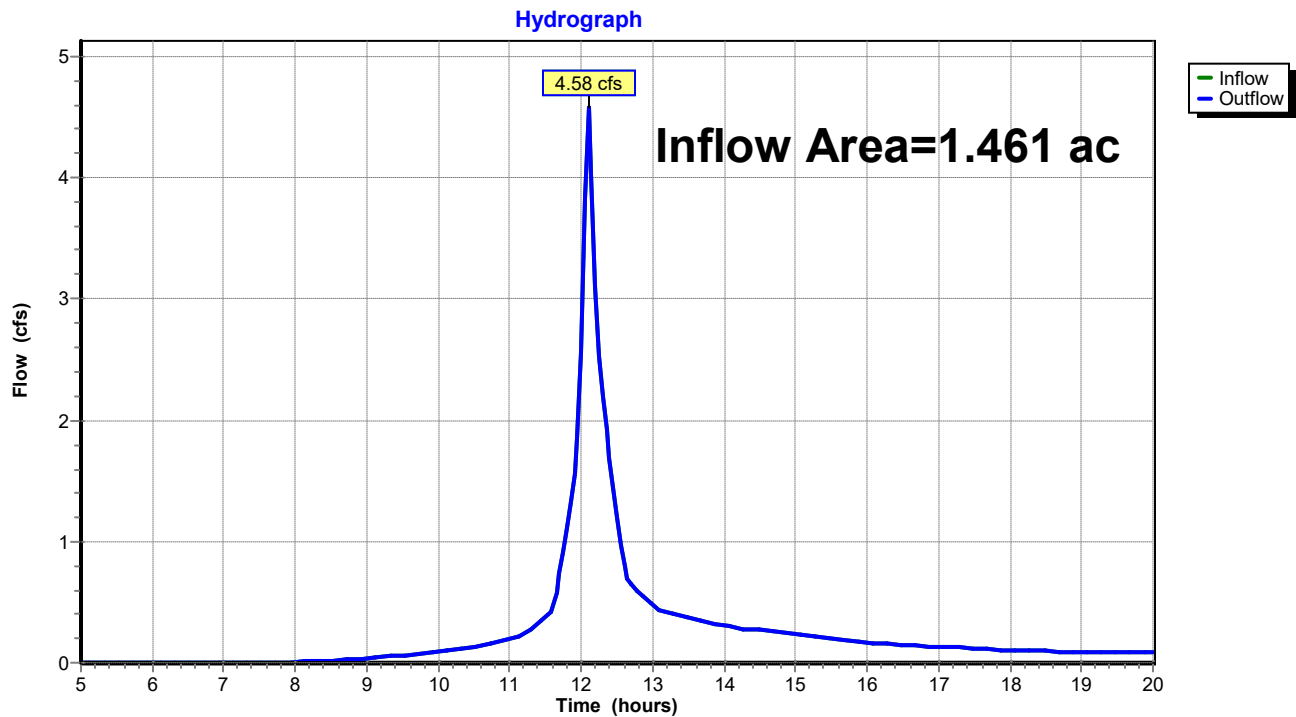
Page 23

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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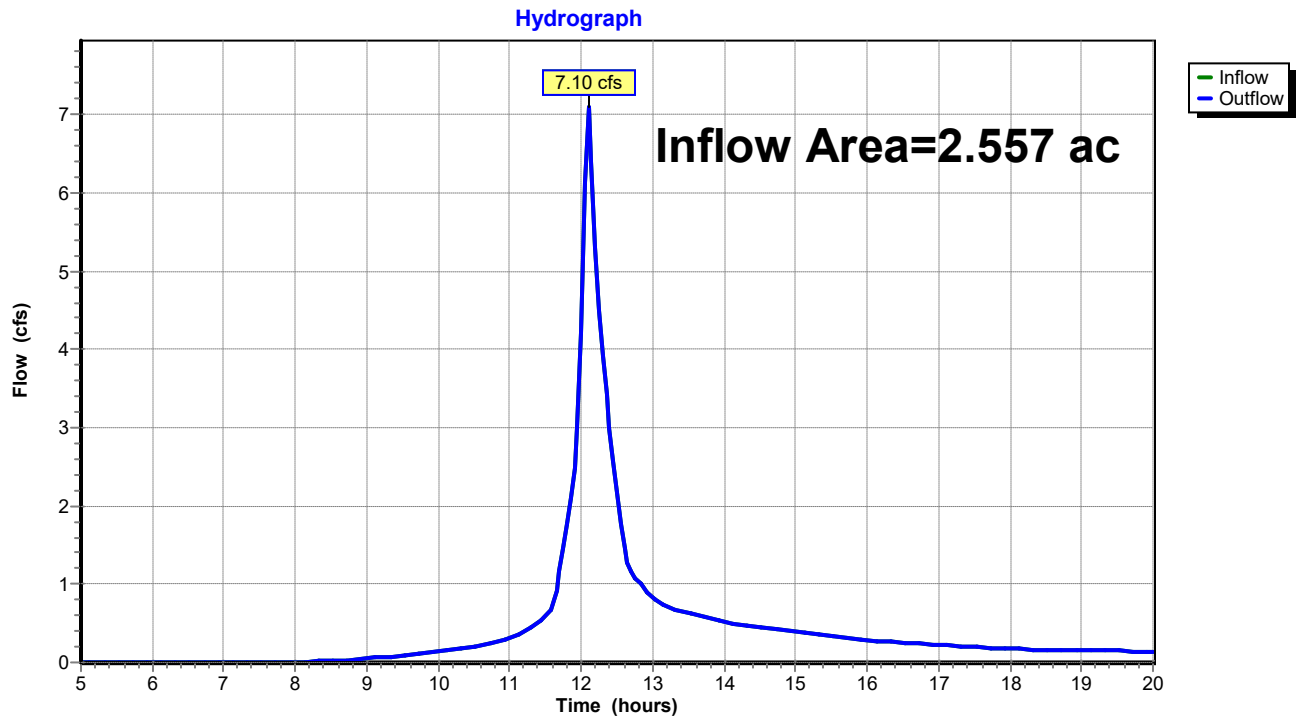
Page 24

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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Page 25

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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Page 26

Summary for Subcatchment 1S: Pre Subcatchment 1

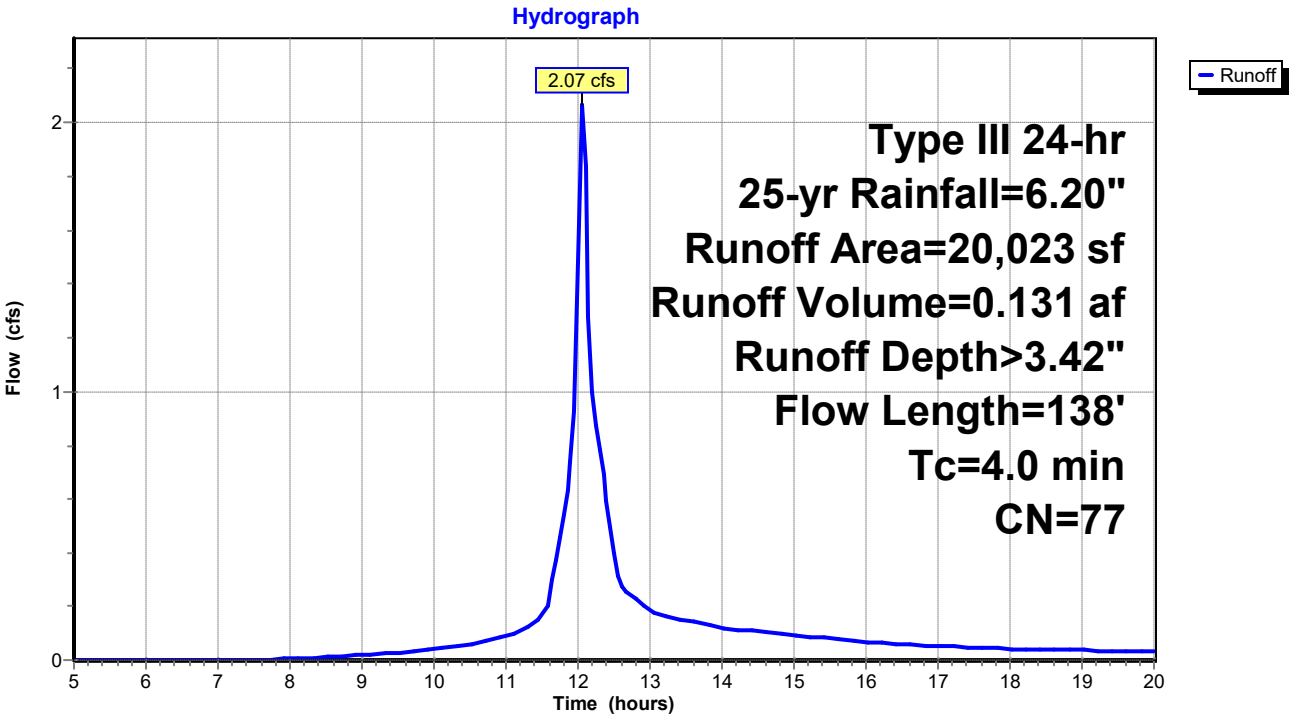
Runoff = 2.07 cfs @ 12.06 hrs, Volume= 0.131 af, Depth> 3.42"
Routed to Reach DP1 : Shoreline 1

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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Page 27

Summary for Subcatchment 2S: Pre Subcatchment 2

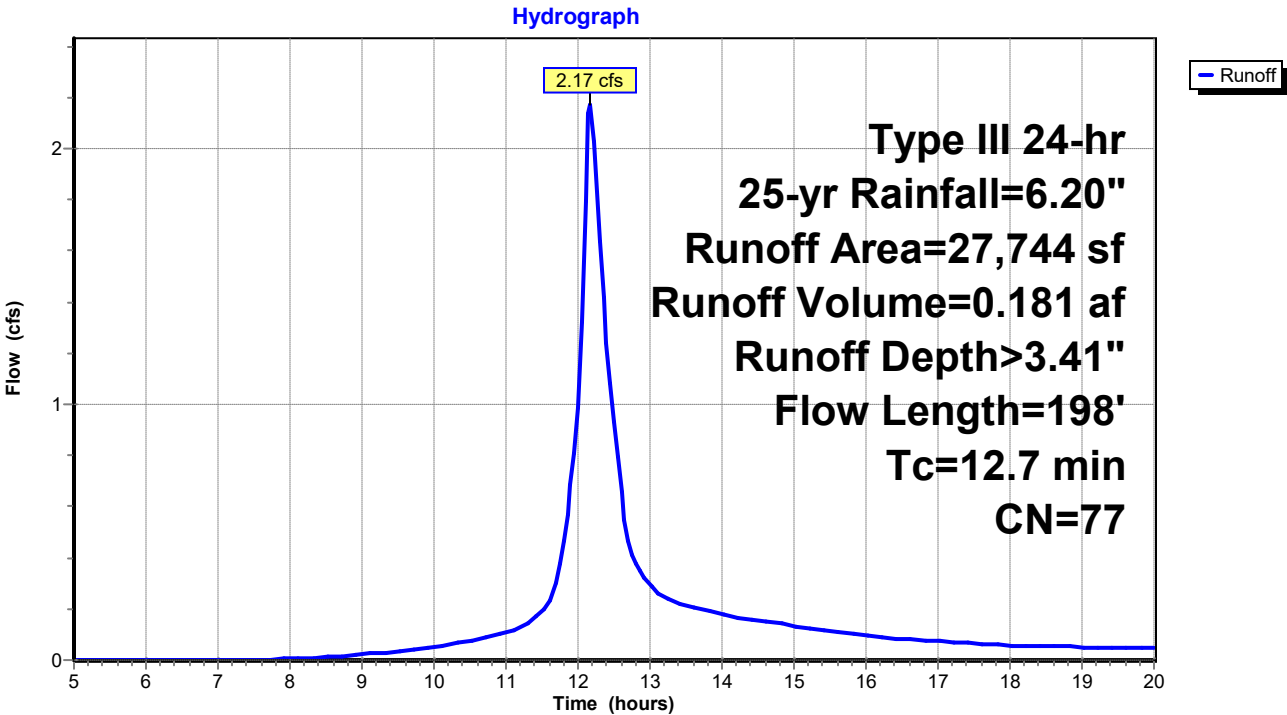
Runoff = 2.17 cfs @ 12.18 hrs, Volume= 0.181 af, Depth> 3.41"
Routed to Reach DP2 : Shoreline 2

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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Page 28

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			

UNE-PreDrainage

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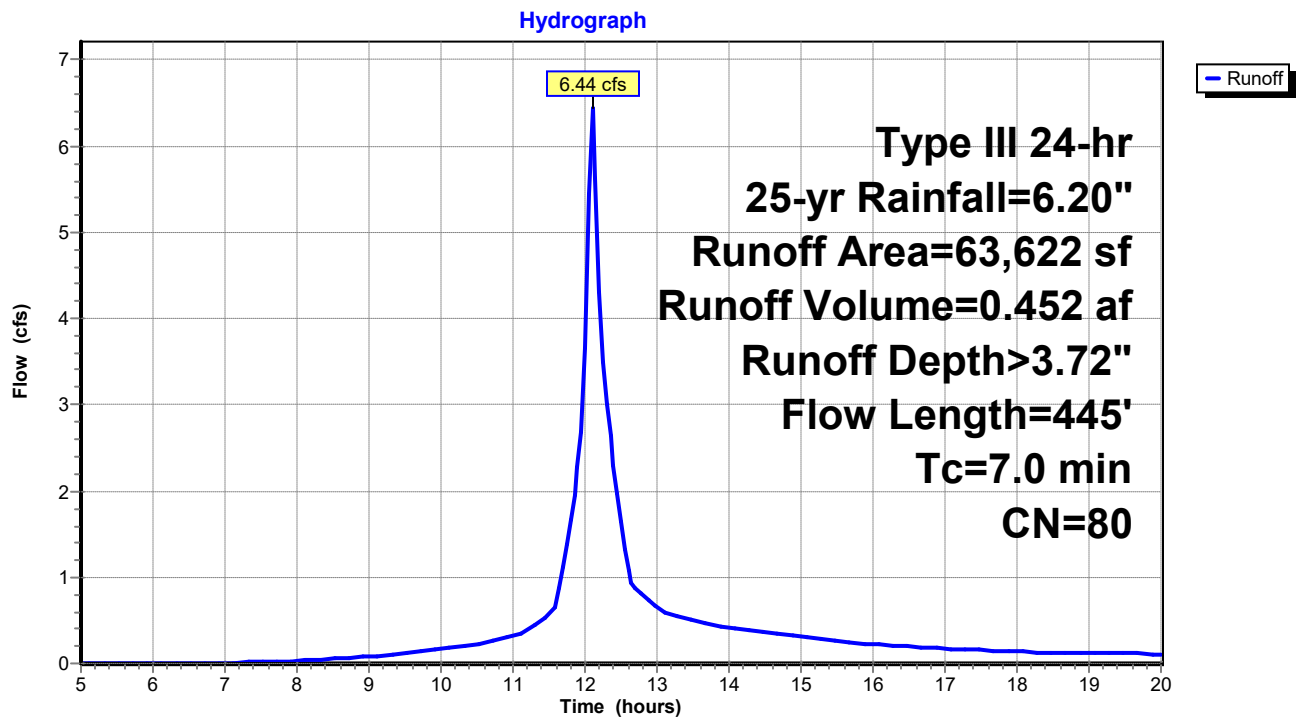
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Page 29

Subcatchment 3S: Pre Subcatchment 3



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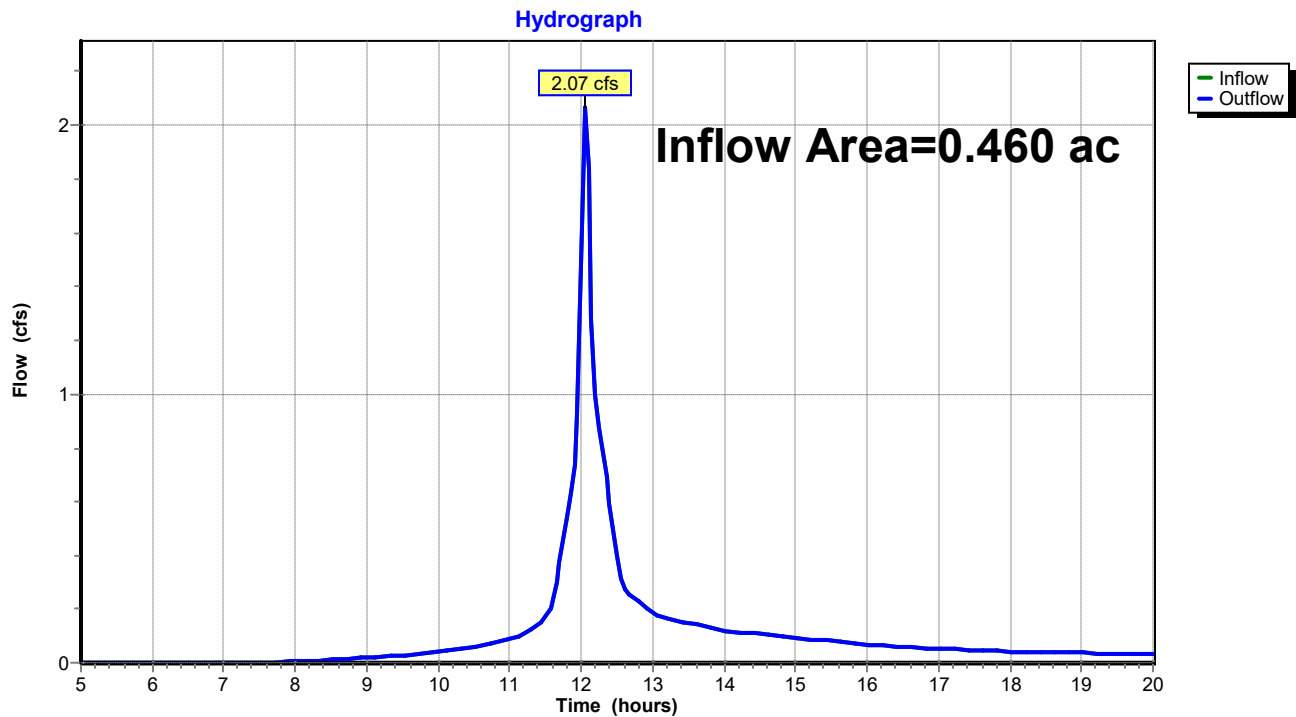
Page 30

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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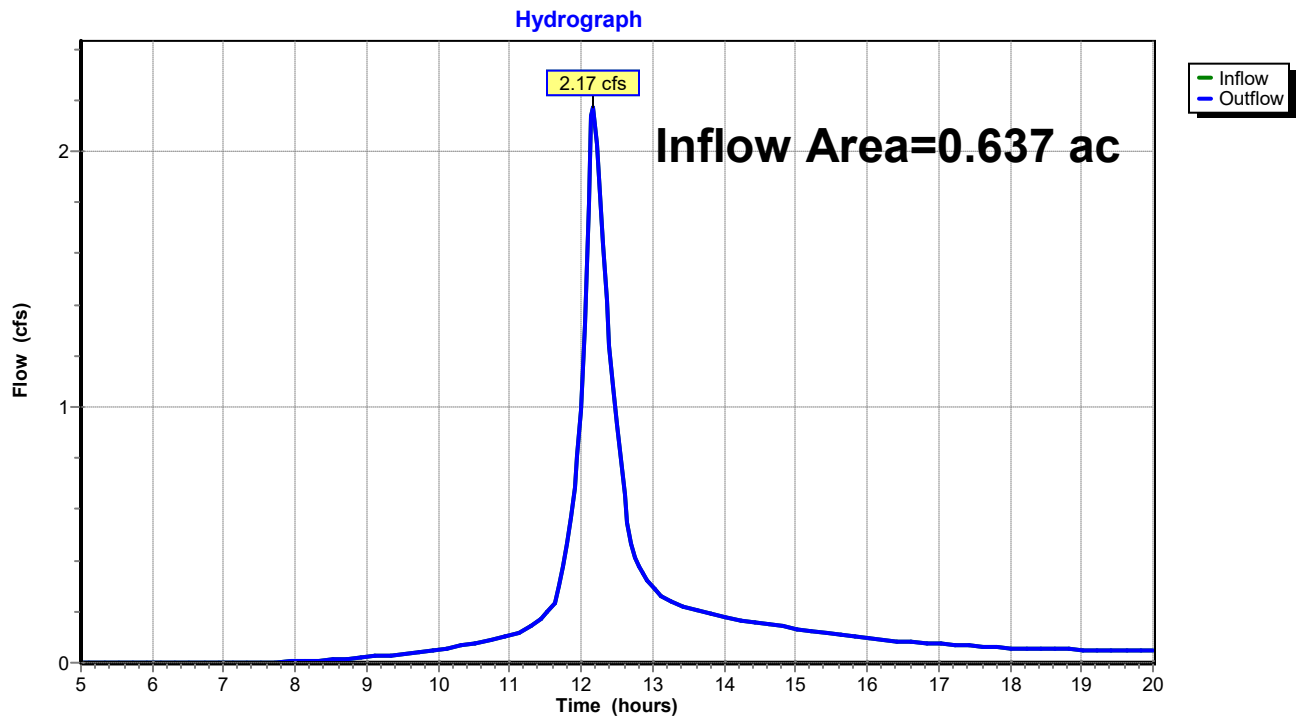
Page 31

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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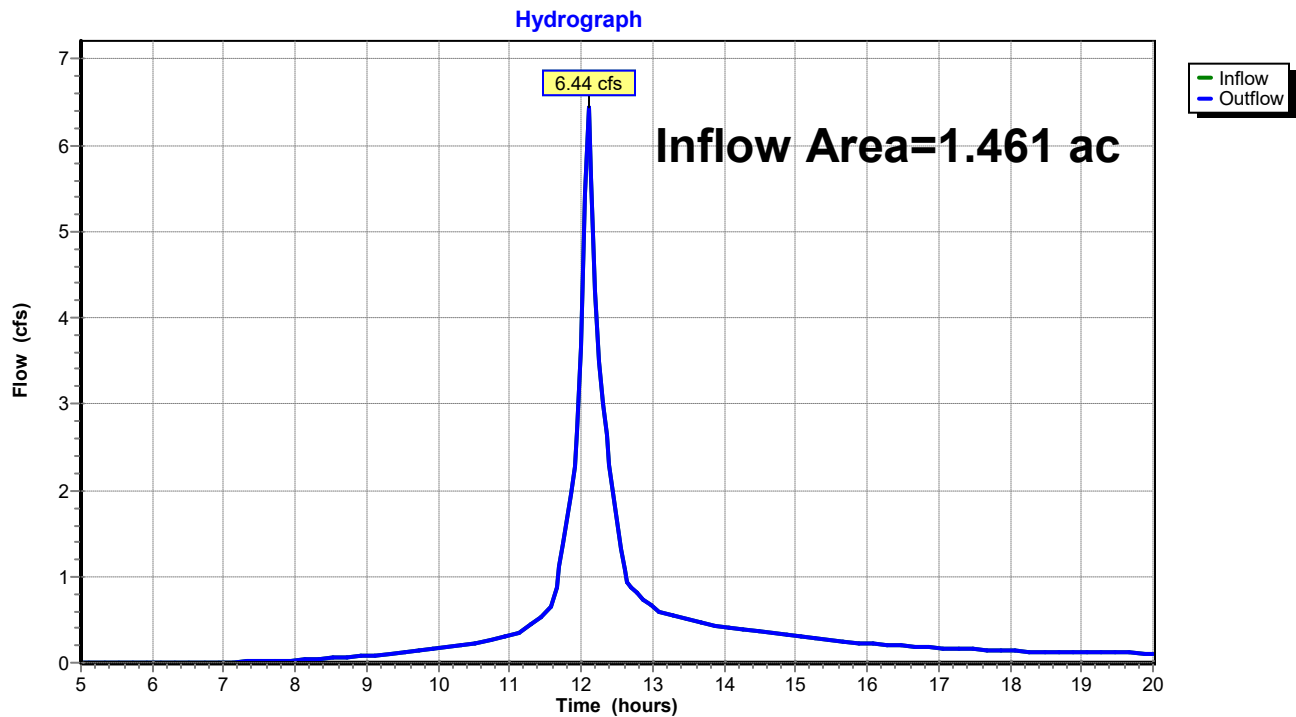
Page 32

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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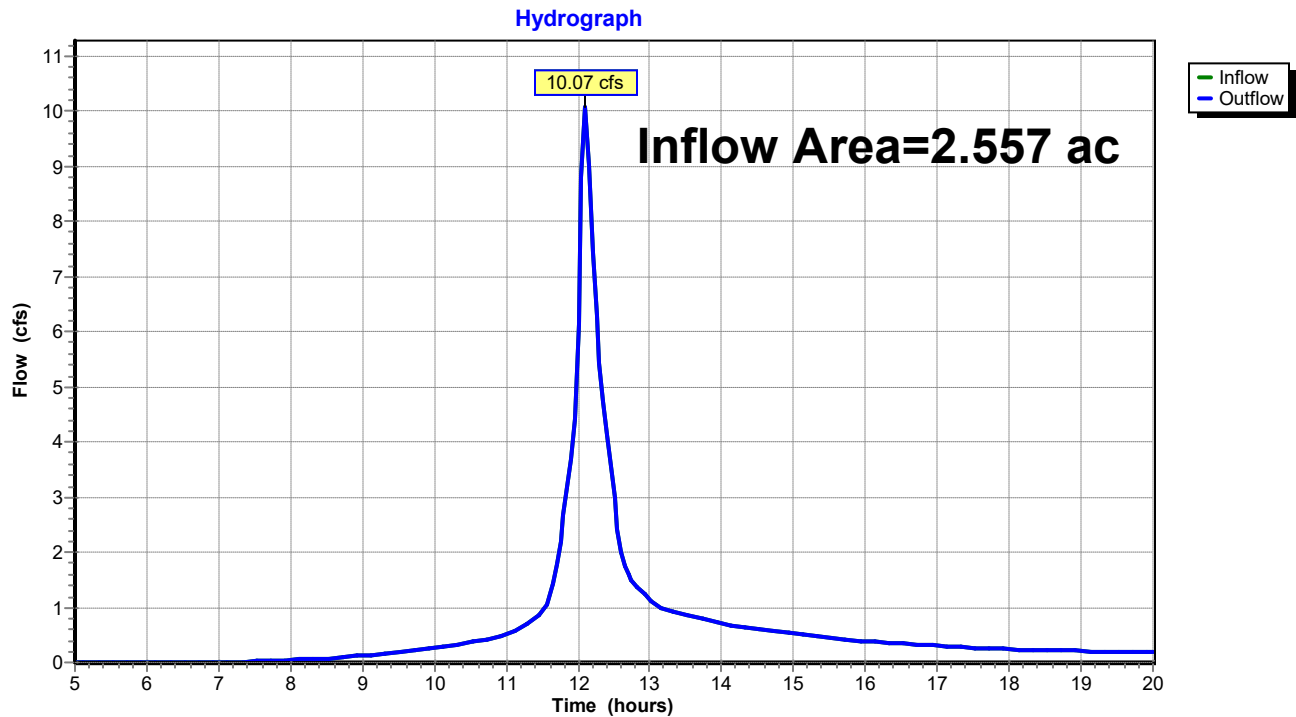
Page 33

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



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Type III 24-hr 100-yr Rainfall=8.70"

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Page 34

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

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Type III 24-hr 100-yr Rainfall=8.70"

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Page 35

Summary for Subcatchment 1S: Pre Subcatchment 1

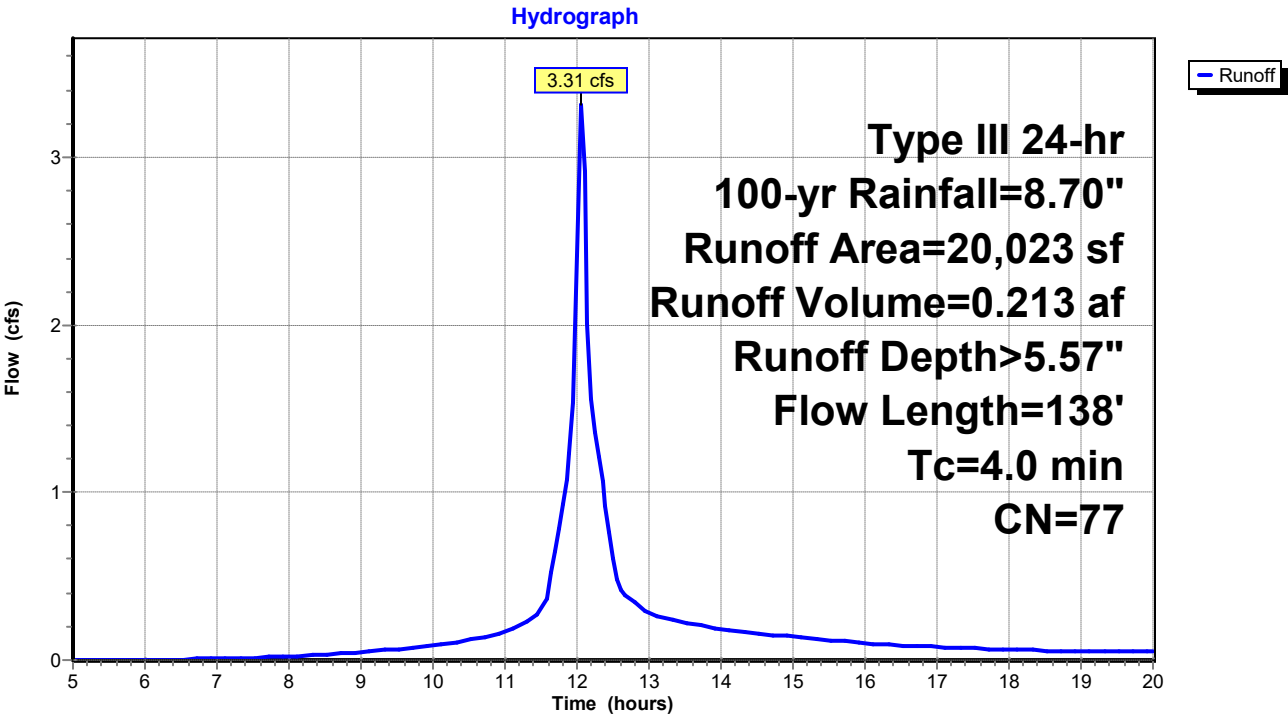
Runoff = 3.31 cfs @ 12.06 hrs, Volume= 0.213 af, Depth> 5.57"
Routed to Reach DP1 : Shoreline 1

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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Page 36

Summary for Subcatchment 2S: Pre Subcatchment 2

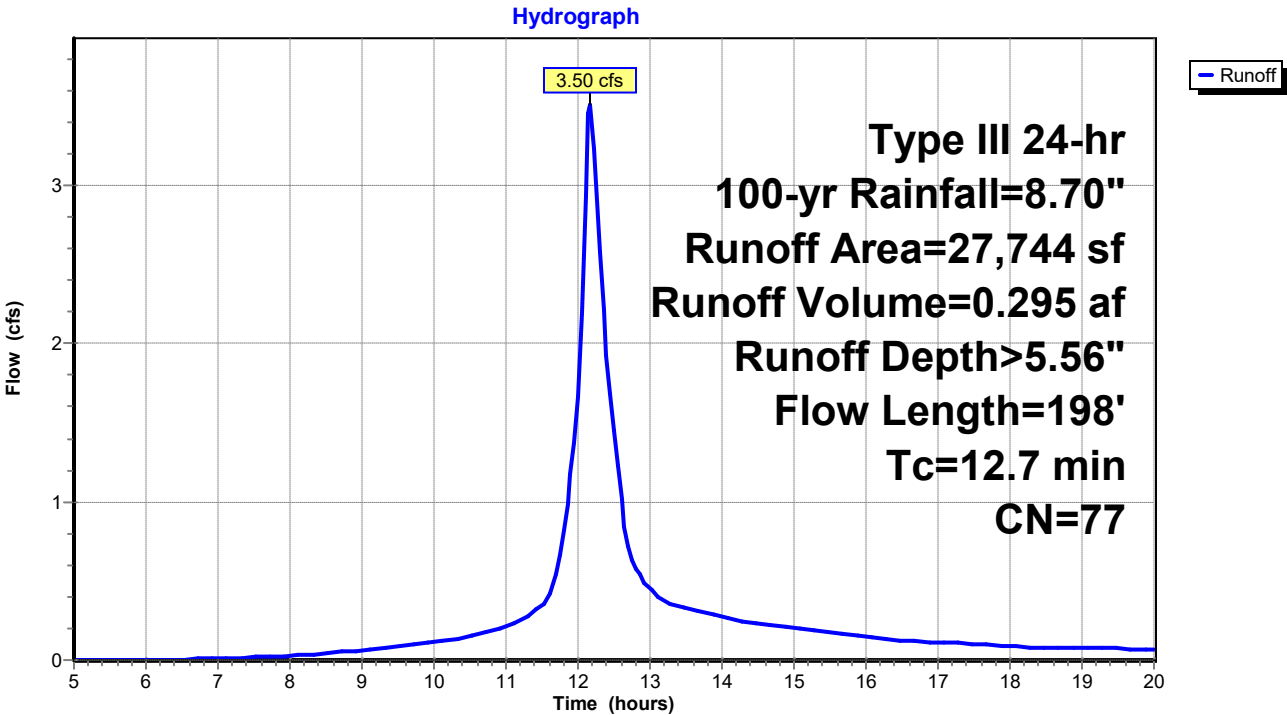
Runoff = 3.50 cfs @ 12.17 hrs, Volume= 0.295 af, Depth> 5.56"
Routed to Reach DP2 : Shoreline 2

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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Page 37

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			

UNE-PreDrainage

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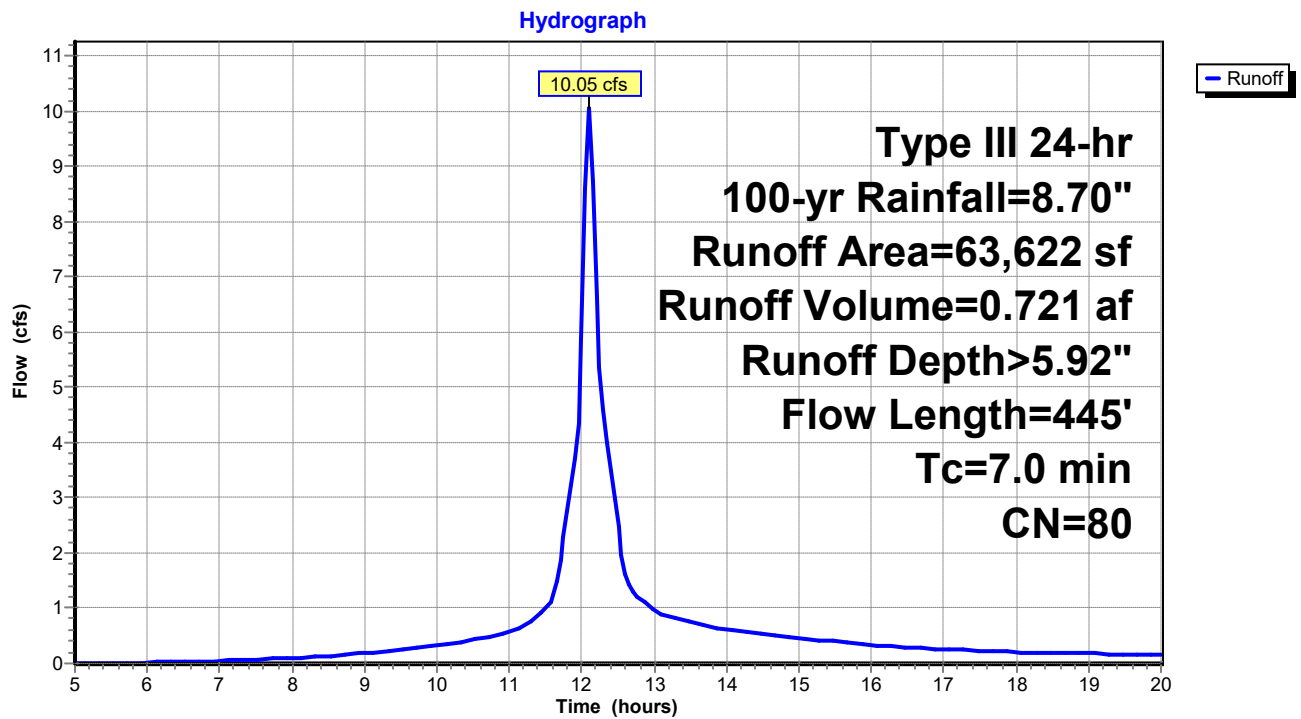
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Type III 24-hr 100-yr Rainfall=8.70"

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Page 38

Subcatchment 3S: Pre Subcatchment 3



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Type III 24-hr 100-yr Rainfall=8.70"

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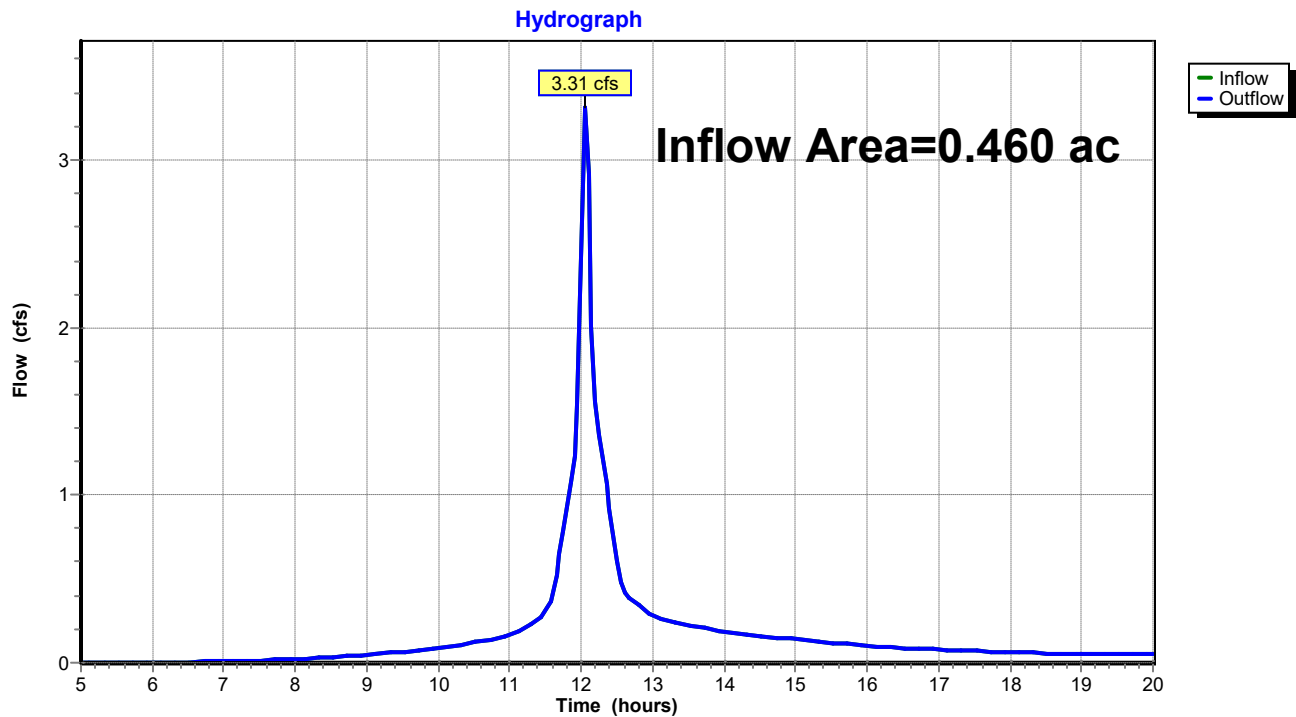
Page 39

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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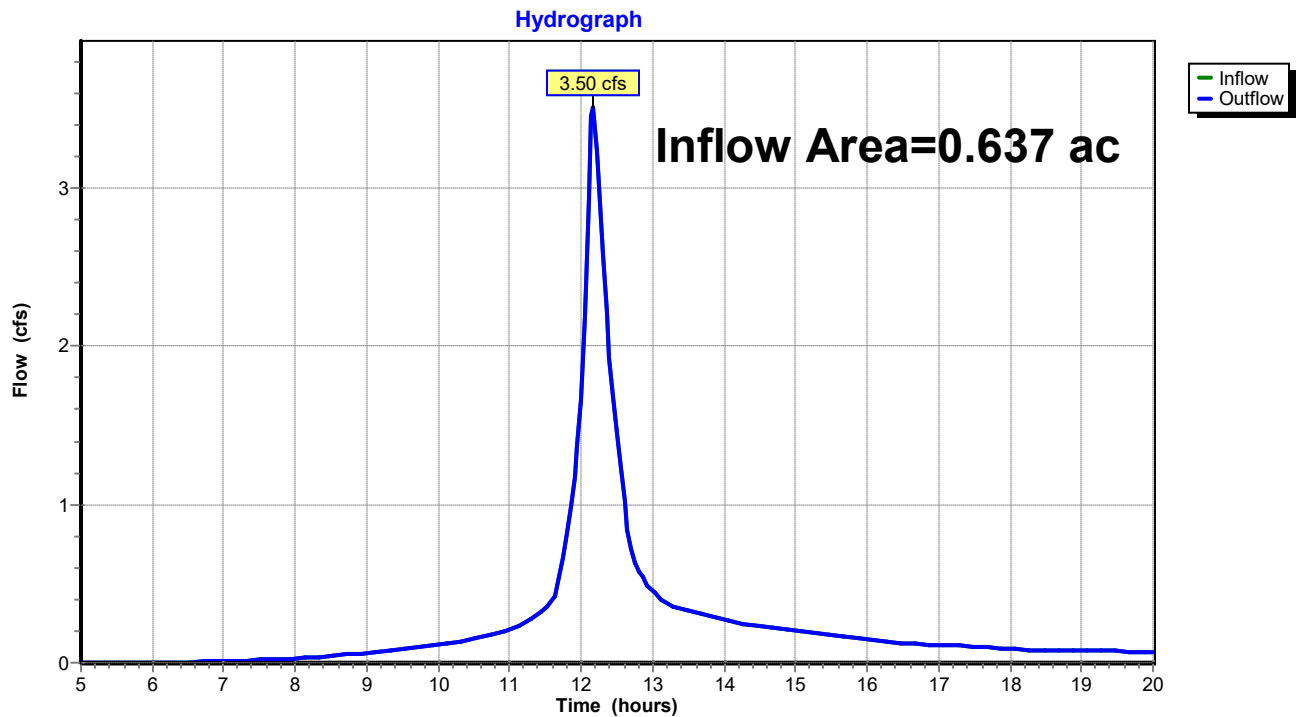
Page 40

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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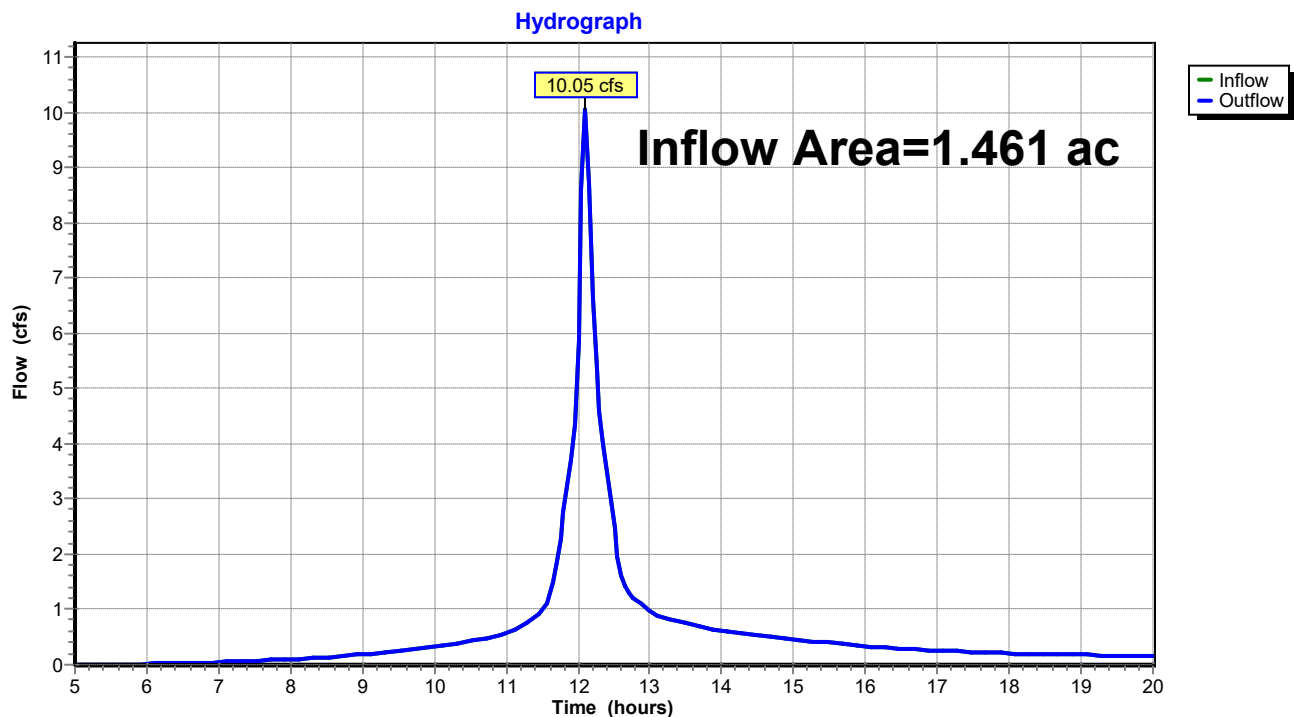
Page 41

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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Page 42

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

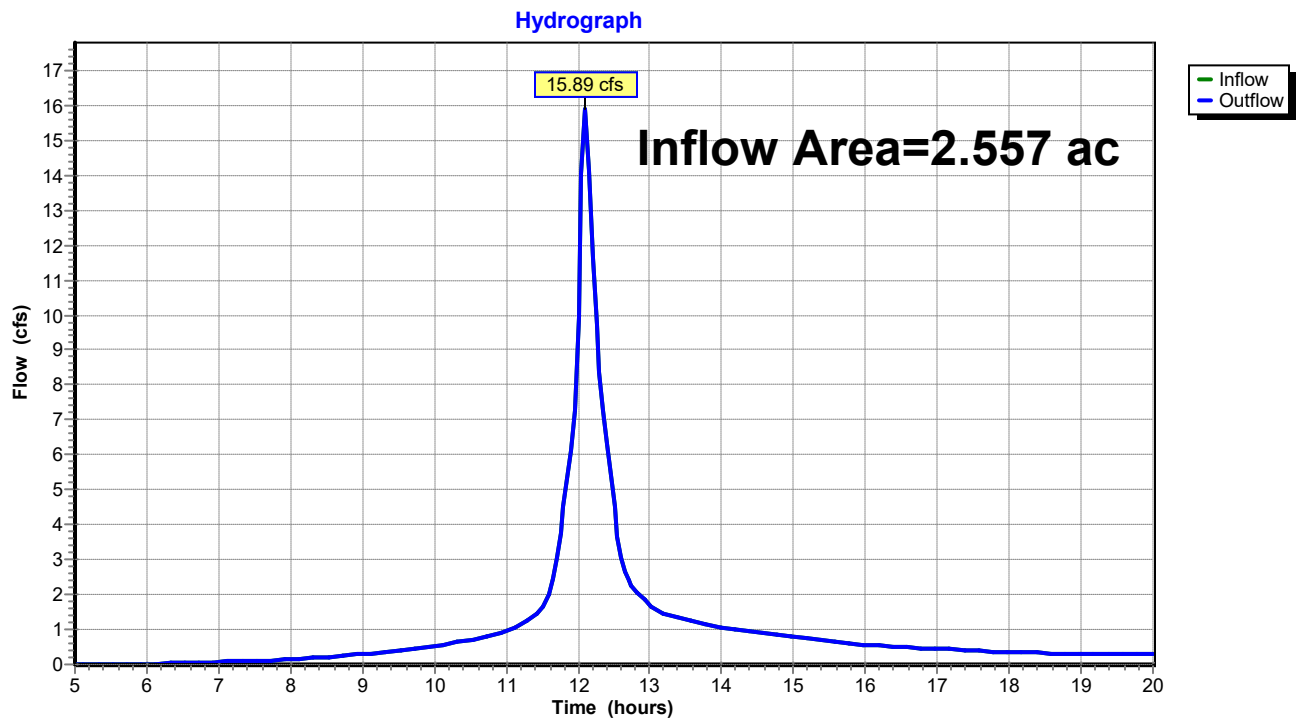


TABLE OF CONTENTS**Project Reports**

- 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)

2-yr Event

- 7 Node Listing
- 8 Subcat 1S: Pre Subcatchment 1
- 9 Subcat 2S: Pre Subcatchment 2
- 10 Subcat 3S: Pre Subcatchment 3
- 12 Reach DP1: Shoreline 1
- 13 Reach DP2: Shoreline 2
- 14 Reach DP3: Shoreline 3
- 15 Reach SP1: SACO RIVER / OCEAN

10-yr Event

- 16 Node Listing
- 17 Subcat 1S: Pre Subcatchment 1
- 18 Subcat 2S: Pre Subcatchment 2
- 19 Subcat 3S: Pre Subcatchment 3
- 21 Reach DP1: Shoreline 1
- 22 Reach DP2: Shoreline 2
- 23 Reach DP3: Shoreline 3
- 24 Reach SP1: SACO RIVER / OCEAN

25-yr Event

- 25 Node Listing
- 26 Subcat 1S: Pre Subcatchment 1
- 27 Subcat 2S: Pre Subcatchment 2
- 28 Subcat 3S: Pre Subcatchment 3
- 30 Reach DP1: Shoreline 1
- 31 Reach DP2: Shoreline 2
- 32 Reach DP3: Shoreline 3
- 33 Reach SP1: SACO RIVER / OCEAN

100-yr Event

- 34 Node Listing
- 35 Subcat 1S: Pre Subcatchment 1
- 36 Subcat 2S: Pre Subcatchment 2
- 37 Subcat 3S: Pre Subcatchment 3
- 39 Reach DP1: Shoreline 1
- 40 Reach DP2: Shoreline 2
- 41 Reach DP3: Shoreline 3

UNE-PreDrainage

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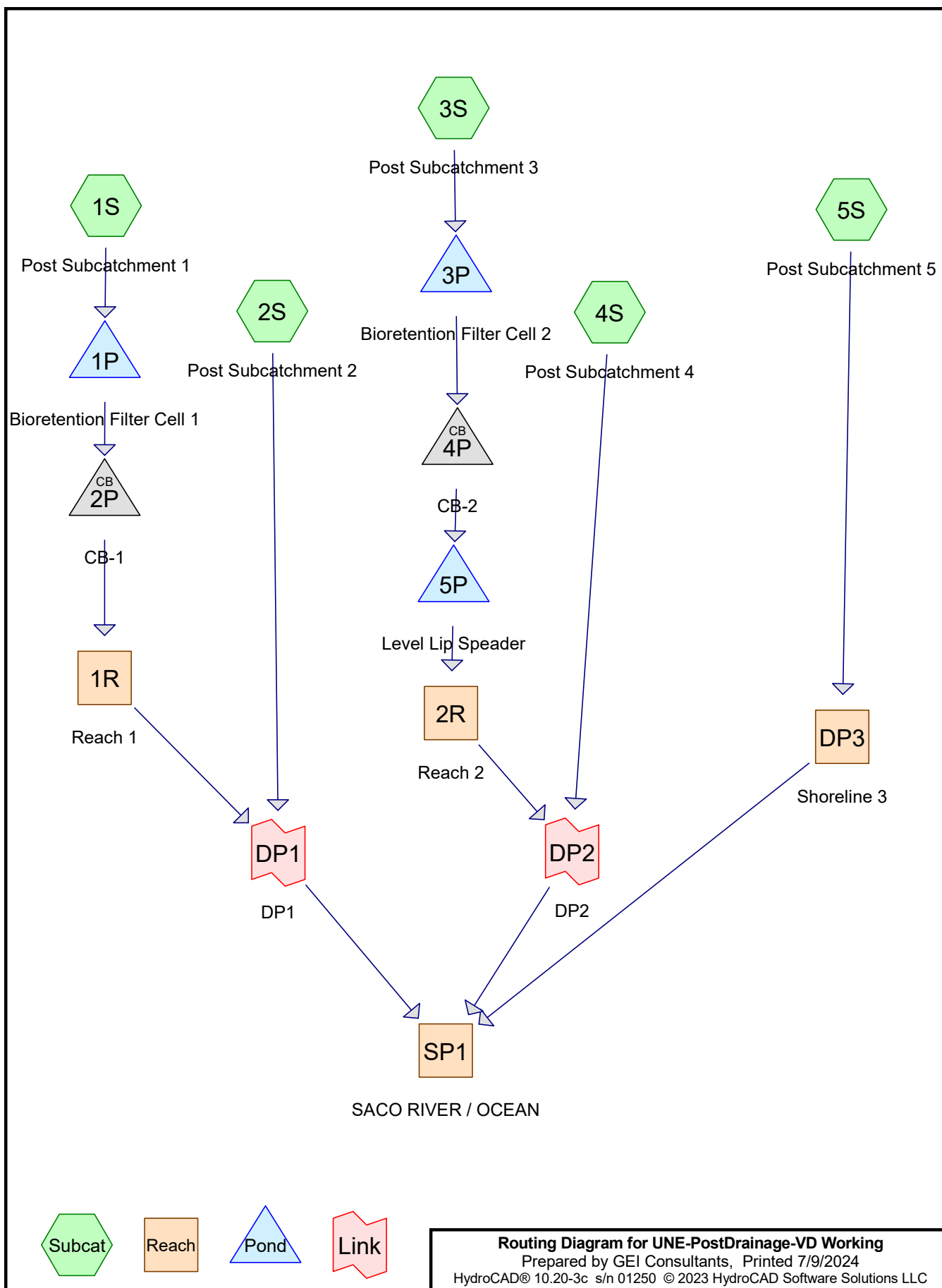
Table of Contents

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42 Reach SP1: SACO RIVER / OCEAN

Appendix C

Post Development HydroCAD Calculations



Project Notes

Defined 3 rainfall events from ME-York IDF

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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

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Page 4

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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Page 5

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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Page 6

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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Page 7

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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Page 8

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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Page 9

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

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Type III 24-hr 2-yr Rainfall=3.30"

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Page 10

Summary for Subcatchment 1S: Post Subcatchment 1

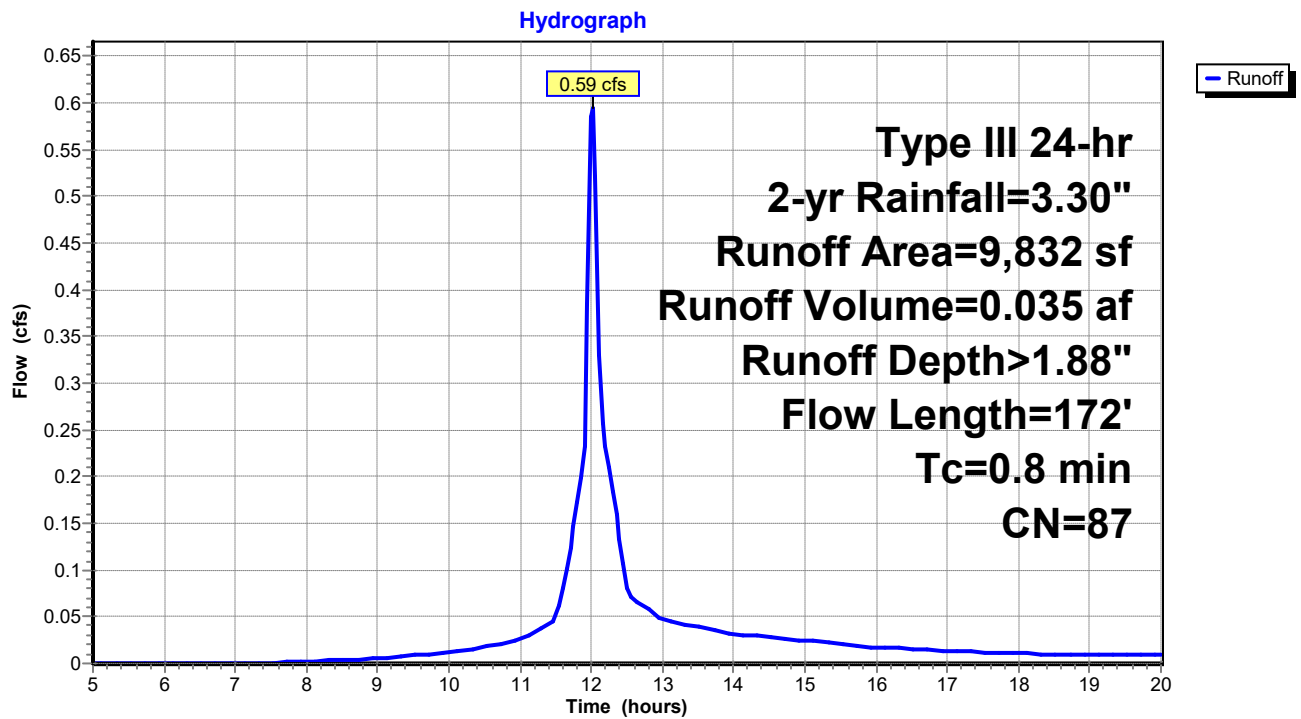
Runoff = 0.59 cfs @ 12.01 hrs, Volume= 0.035 af, Depth> 1.88"
 Routed to Pond 1P : Bioretention Filter Cell 1

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



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Type III 24-hr 2-yr Rainfall=3.30"

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Page 12

Summary for Subcatchment 2S: Post Subcatchment 2

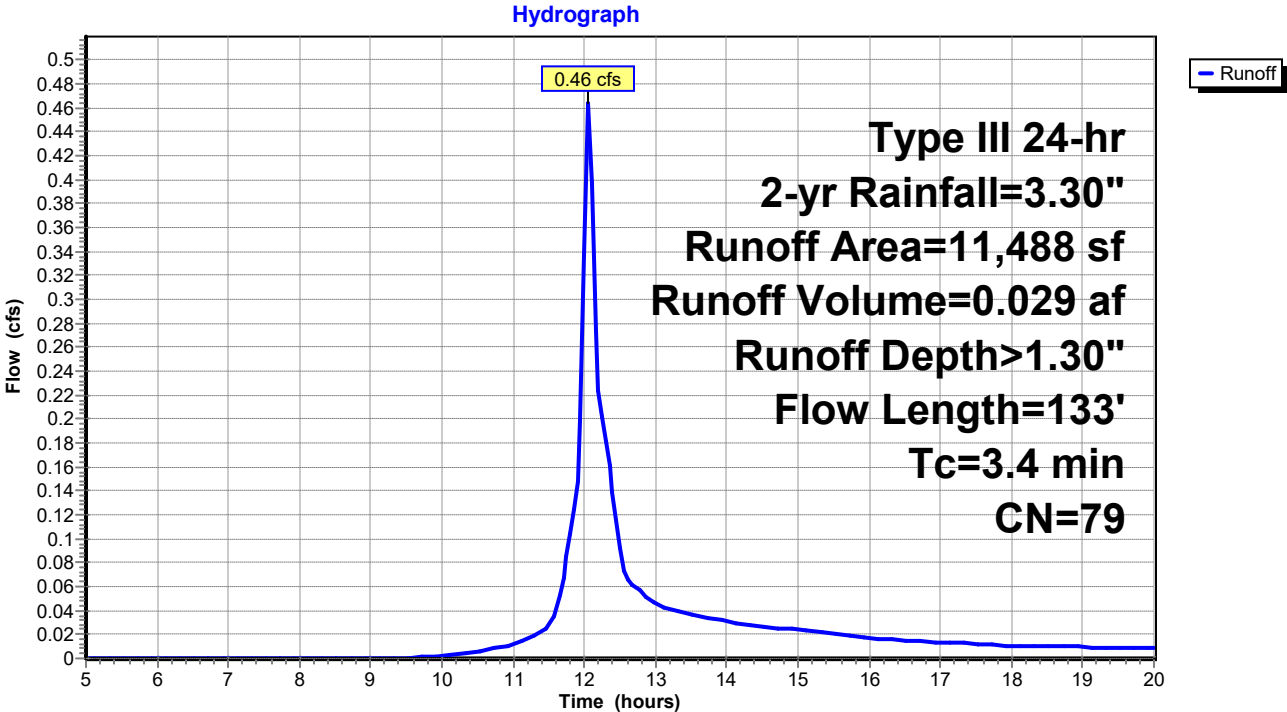
Runoff = 0.46 cfs @ 12.06 hrs, Volume= 0.029 af, Depth> 1.30"
Routed to Link DP1 : DP1

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



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Type III 24-hr 2-yr Rainfall=3.30"

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Page 13

Summary for Subcatchment 3S: Post Subcatchment 3

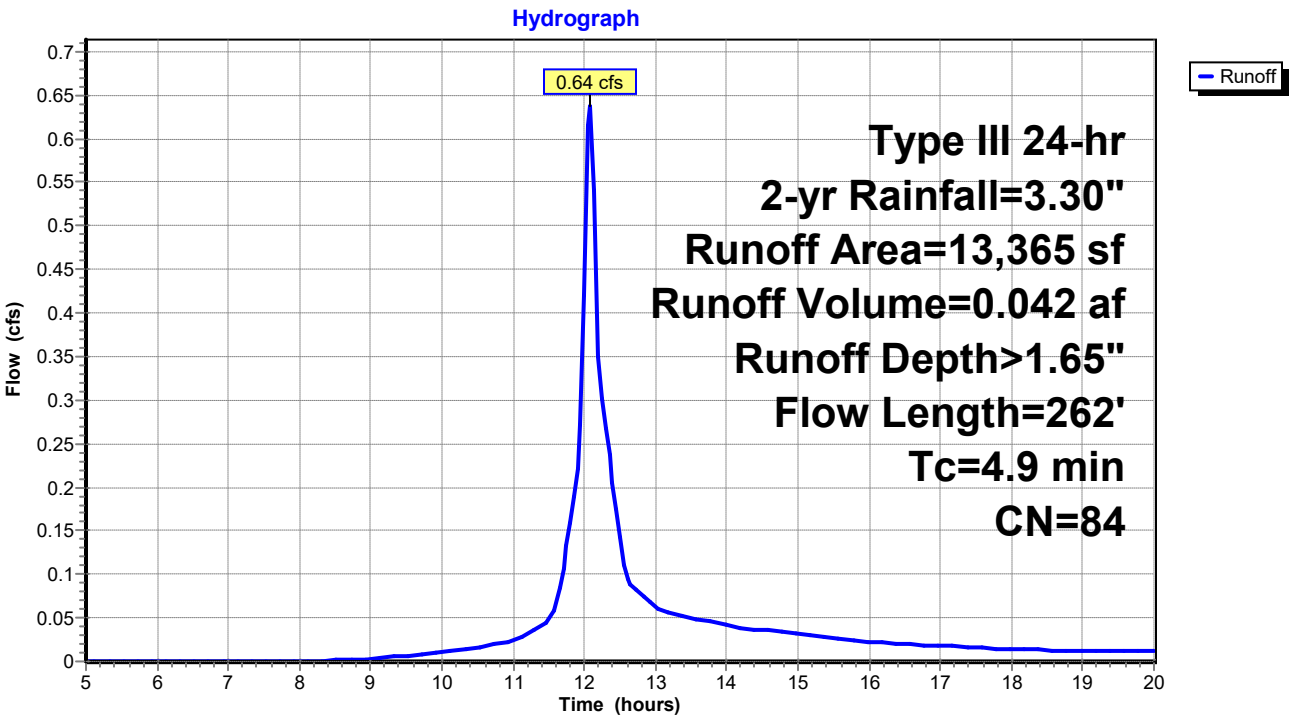
Runoff = 0.64 cfs @ 12.08 hrs, Volume= 0.042 af, Depth> 1.65"
 Routed to Pond 3P : Bioretention Filter Cell 2

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



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Type III 24-hr 2-yr Rainfall=3.30"

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Page 15

Summary for Subcatchment 4S: Post Subcatchment 4

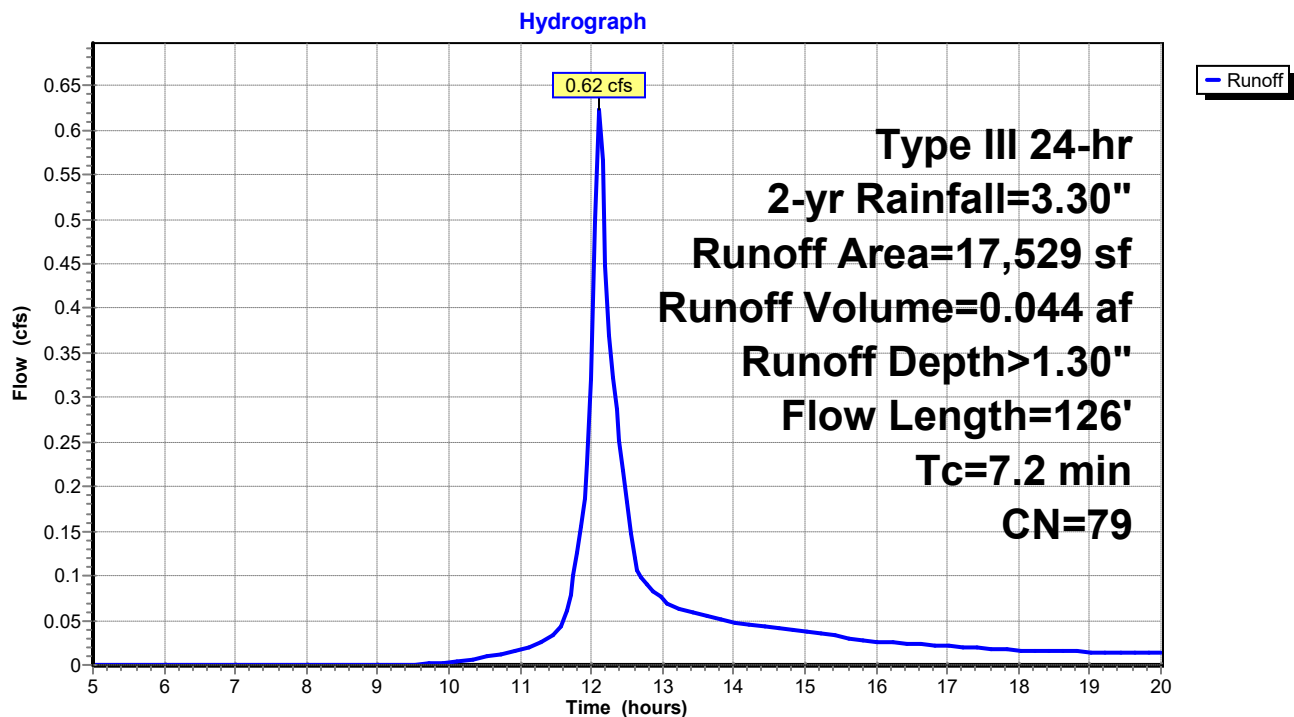
Runoff = 0.62 cfs @ 12.11 hrs, Volume= 0.044 af, Depth> 1.30"
Routed to Link DP2 : DP2

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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Page 16

Summary for Subcatchment 5S: Post Subcatchment 5

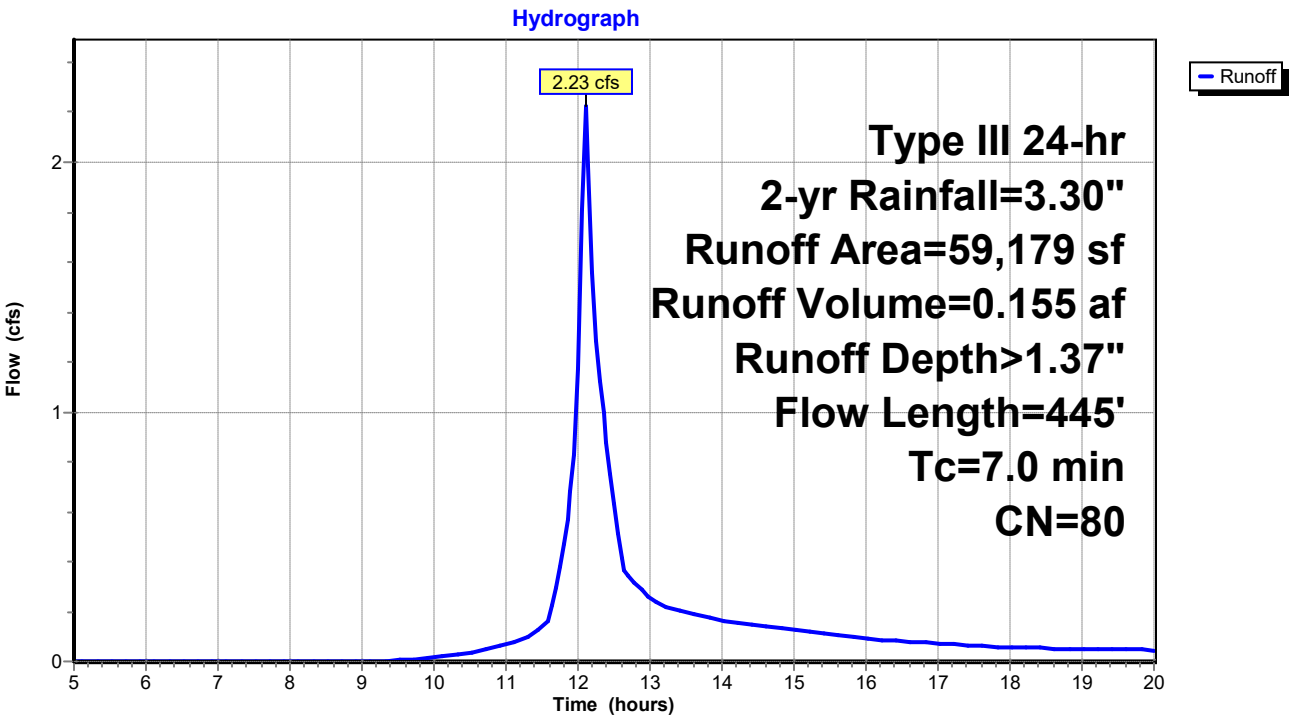
Runoff = 2.23 cfs @ 12.11 hrs, Volume= 0.155 af, Depth> 1.37"
 Routed to Reach DP3 : Shoreline 3

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



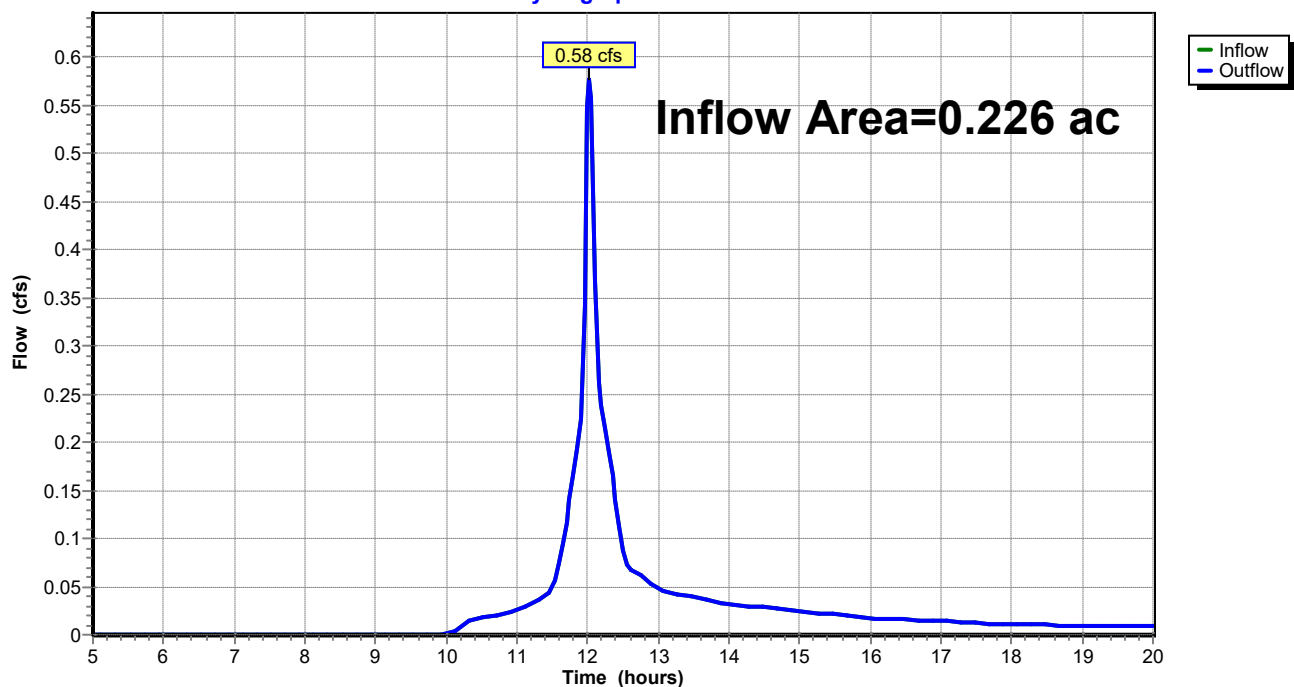
Summary for Reach 1R: Reach 1

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



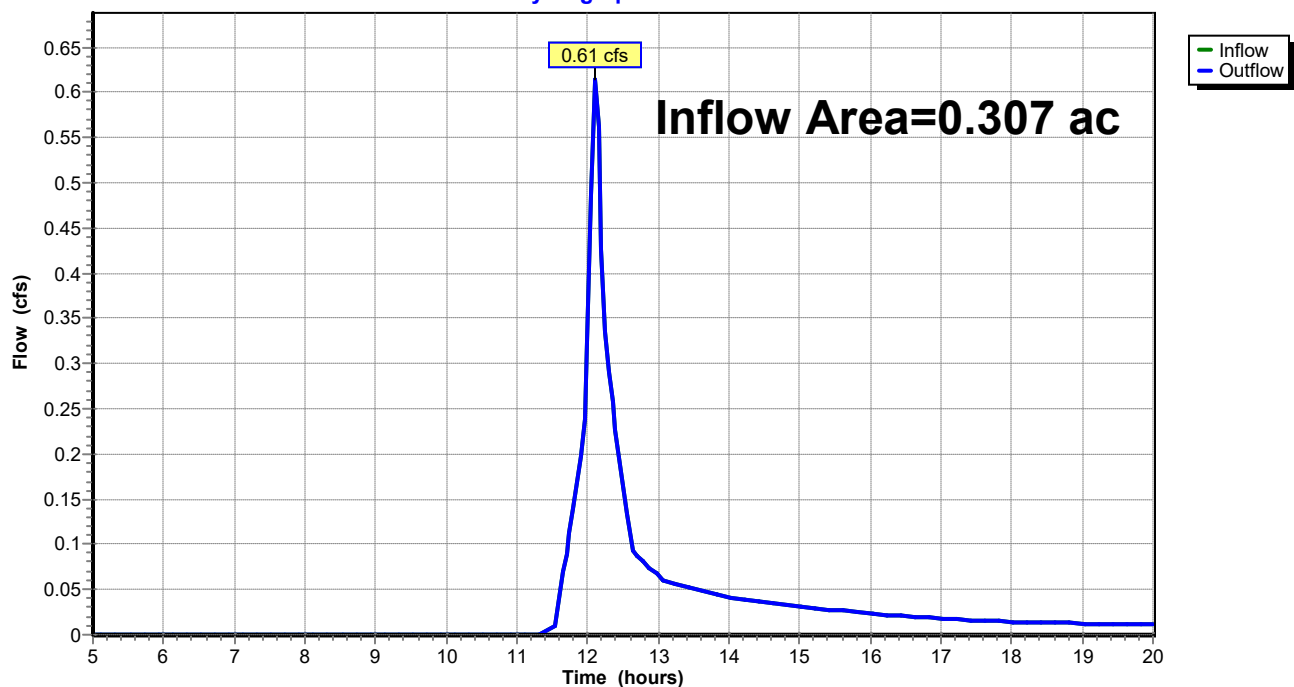
Summary for Reach 2R: Reach 2

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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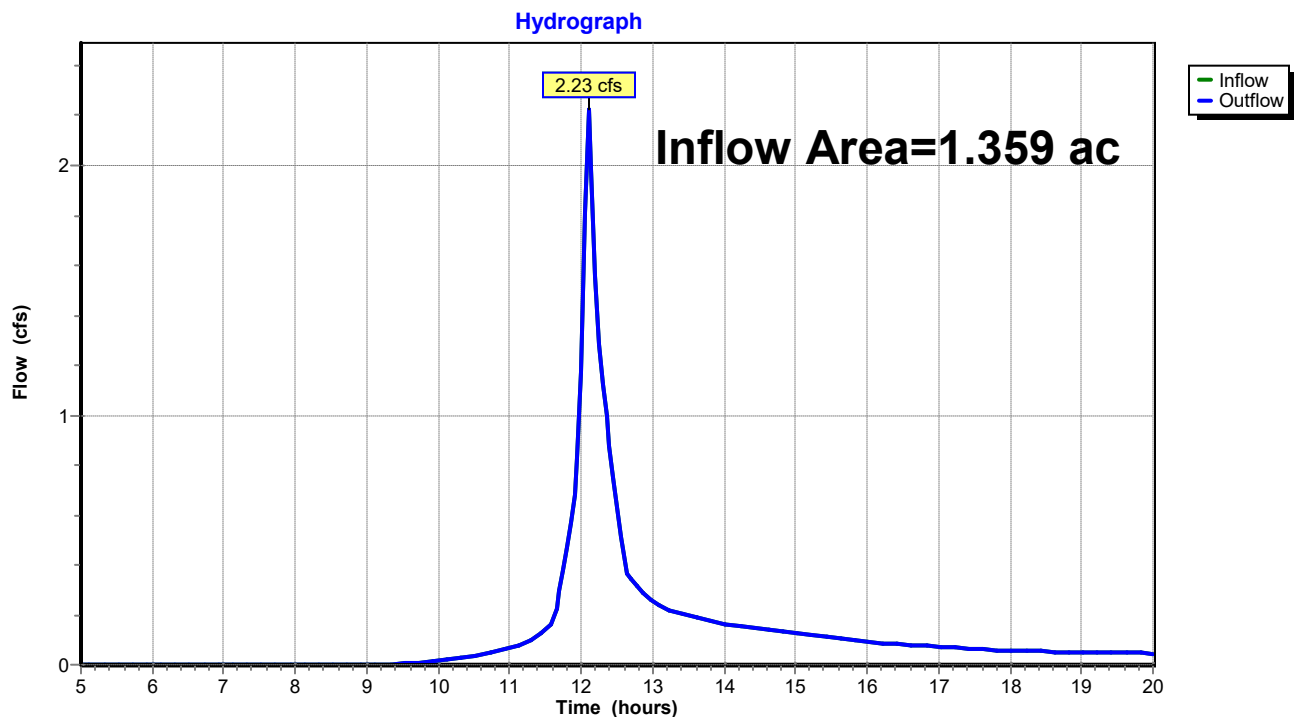
Page 20

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

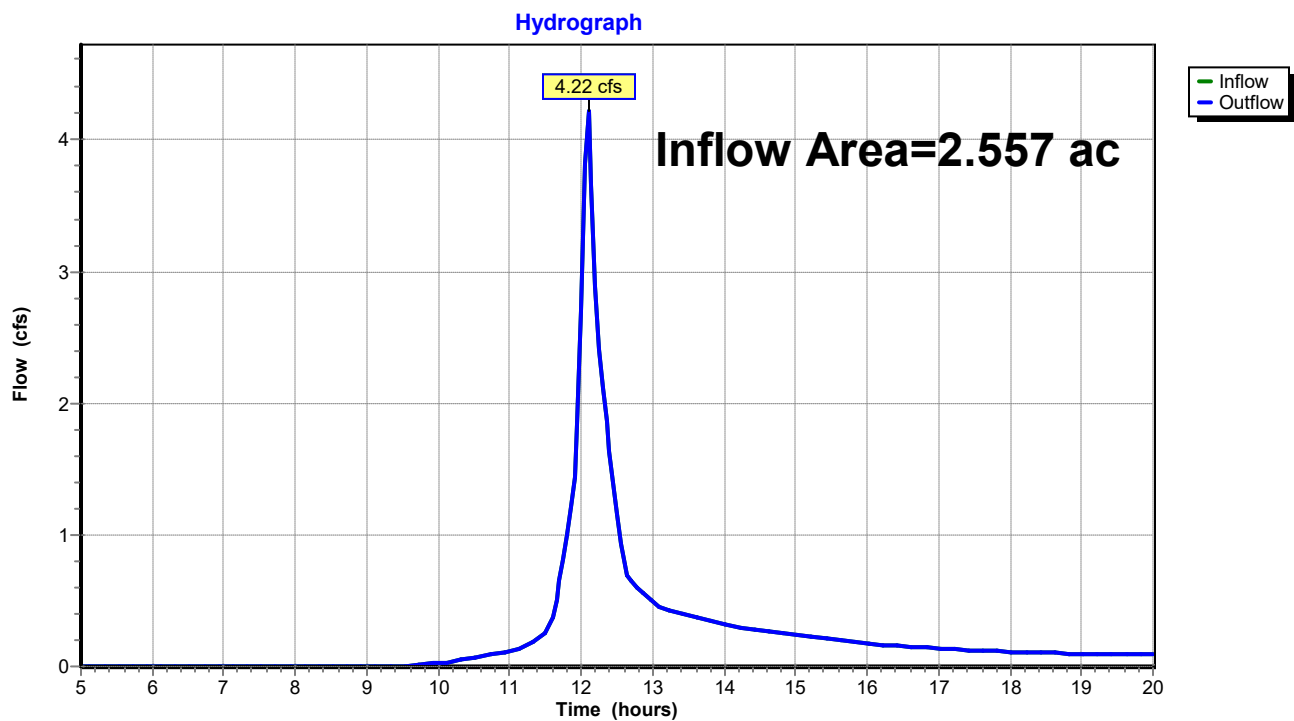


Summary for Reach SP1: SACO RIVER / OCEAN

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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Page 22

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)

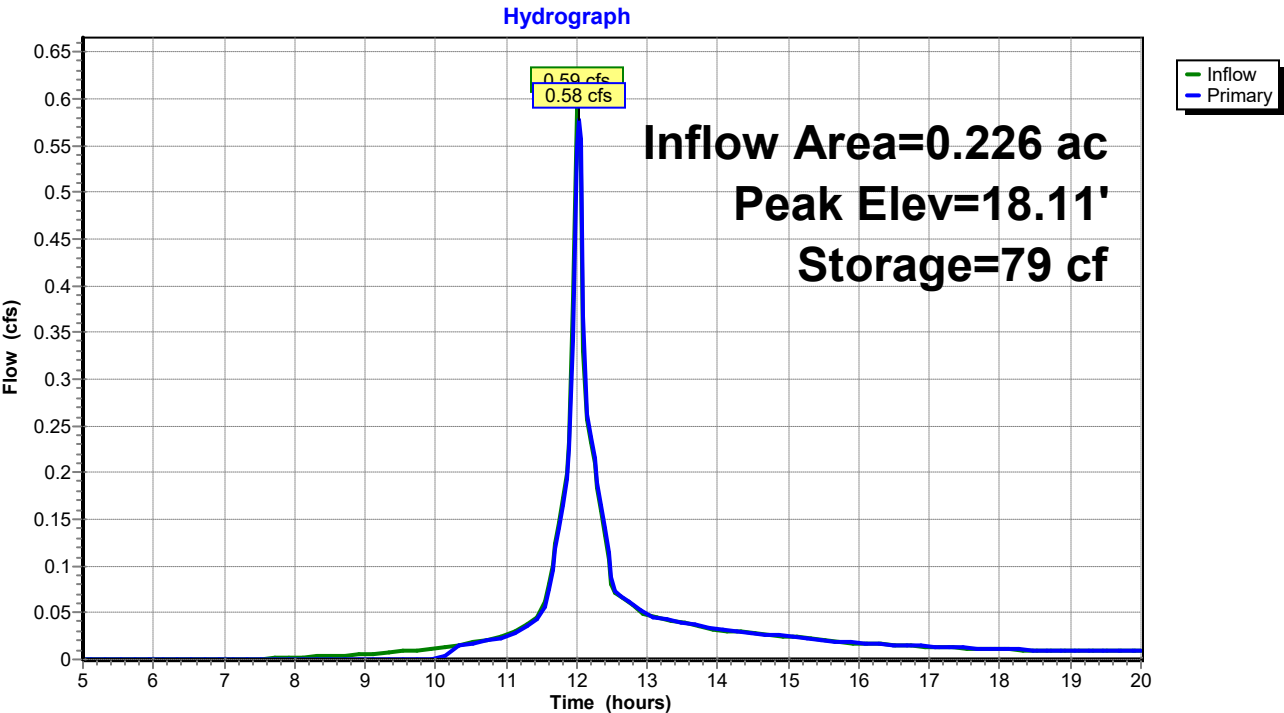
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 24

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

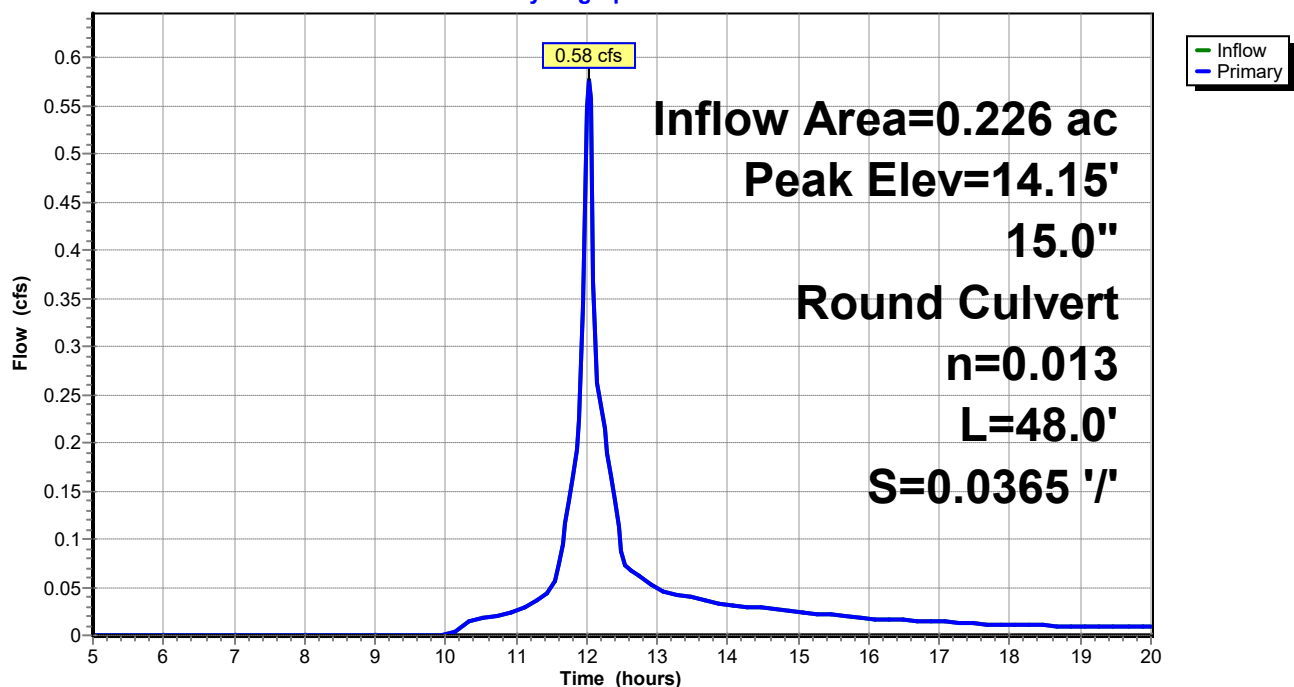
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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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Page 25

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)

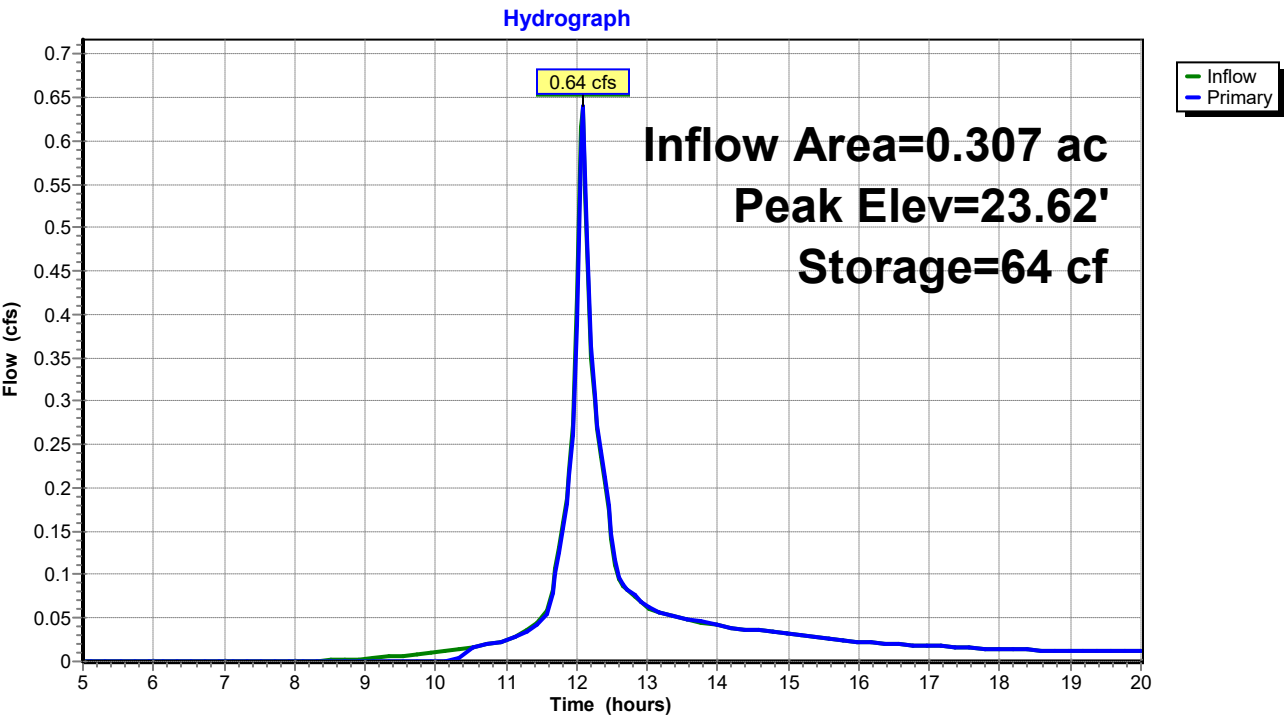
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 27

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

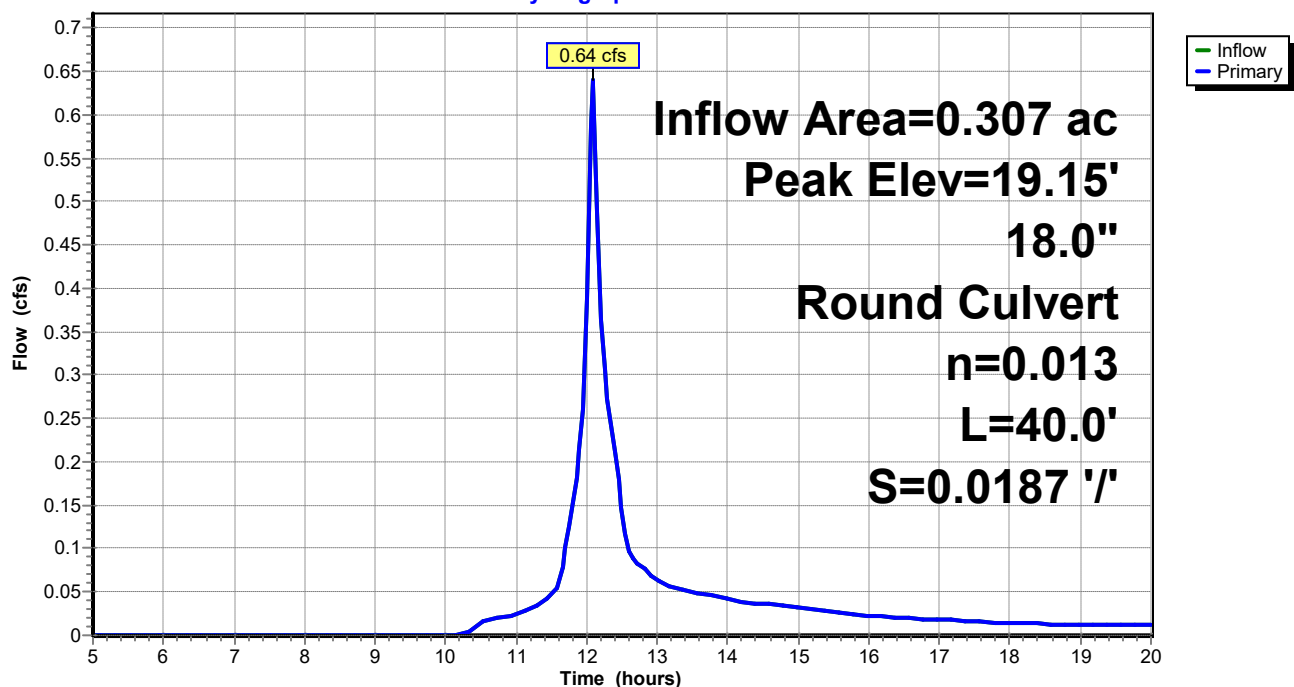
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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



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Type III 24-hr 2-yr Rainfall=3.30"

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Page 28

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

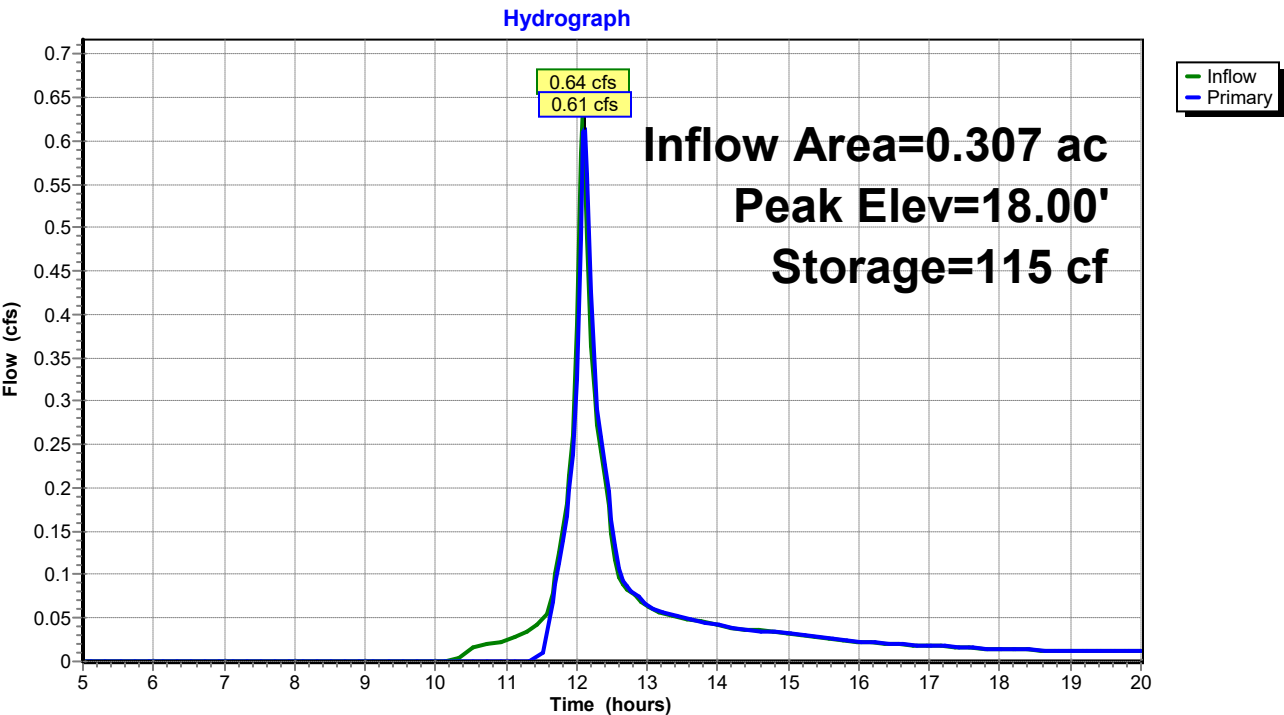
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.00' @ 11.60 hrs Surf.Area= 168 sf Storage= 115 cf
 Flood Elev= 20.00' Surf.Area= 168 sf Storage= 115 cf

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



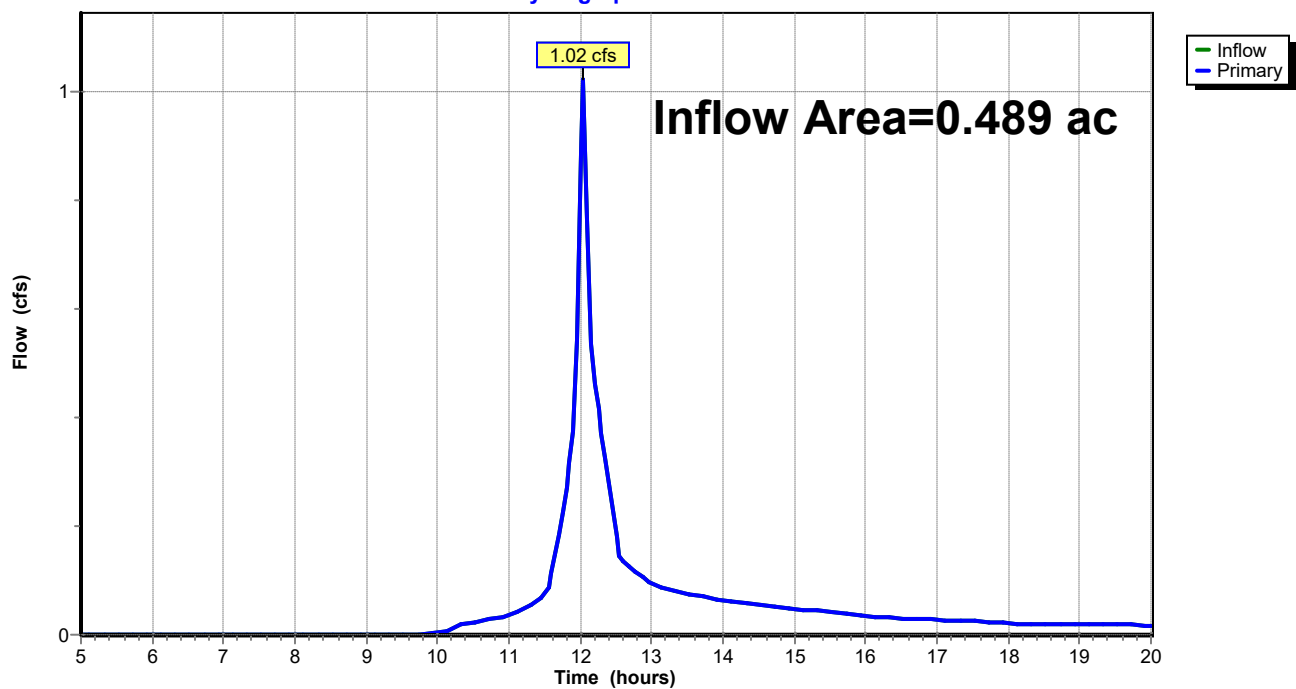
Summary for Link DP1: DP1

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



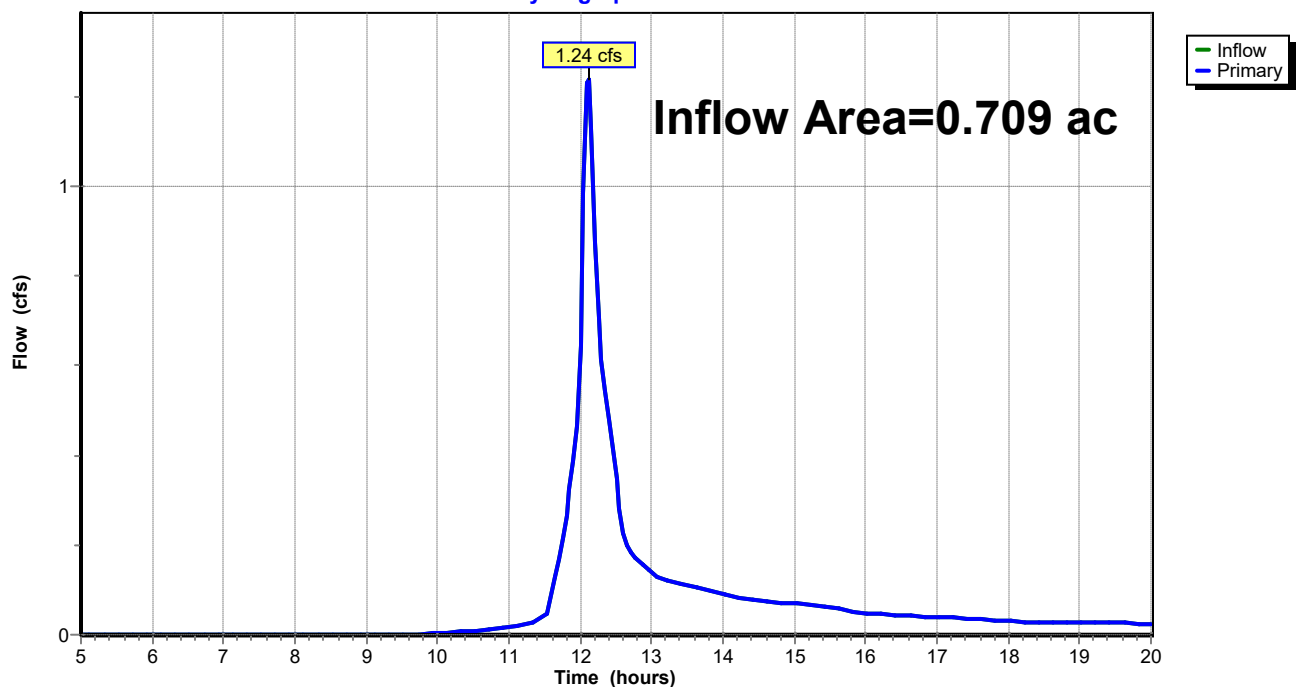
Summary for Link DP2: DP2

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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Page 32

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

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Type III 24-hr 10-yr Rainfall=4.90"

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Page 33

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

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Type III 24-hr 10-yr Rainfall=4.90"

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Page 34

Summary for Subcatchment 1S: Post Subcatchment 1

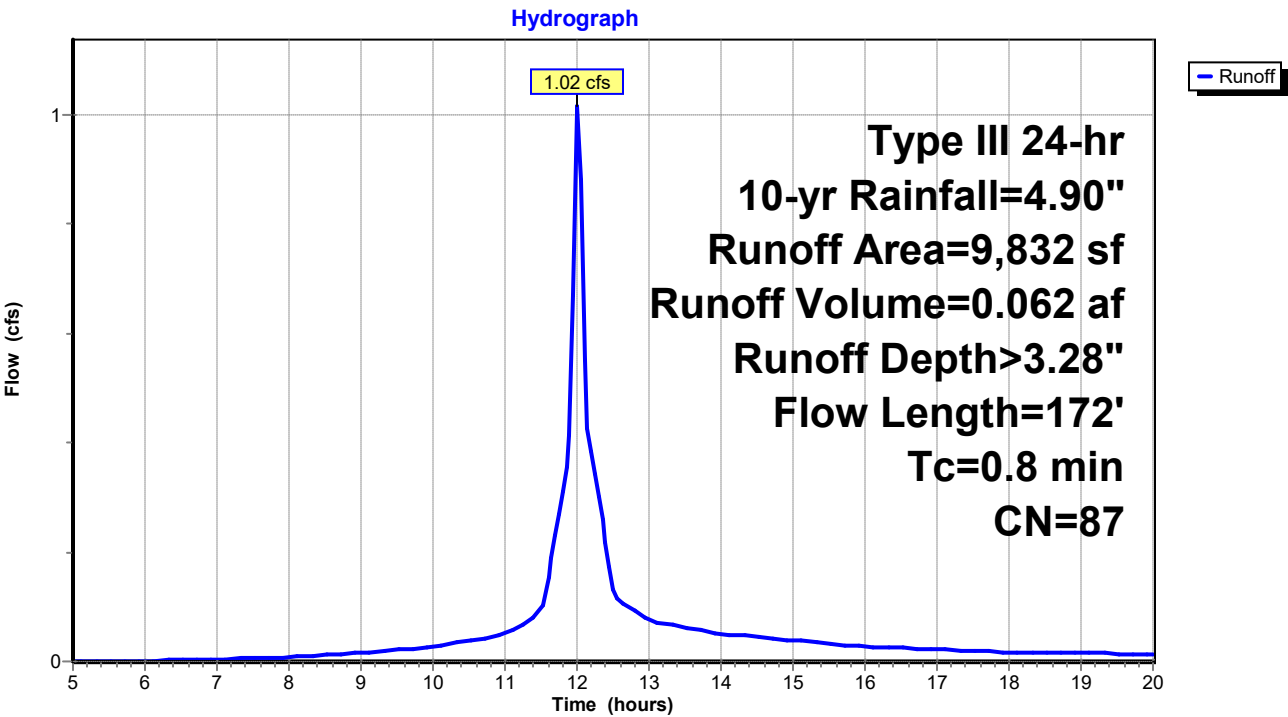
Runoff = 1.02 cfs @ 12.01 hrs, Volume= 0.062 af, Depth> 3.28"
 Routed to Pond 1P : Bioretention Filter Cell 1

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



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Type III 24-hr 10-yr Rainfall=4.90"

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Page 36

Summary for Subcatchment 2S: Post Subcatchment 2

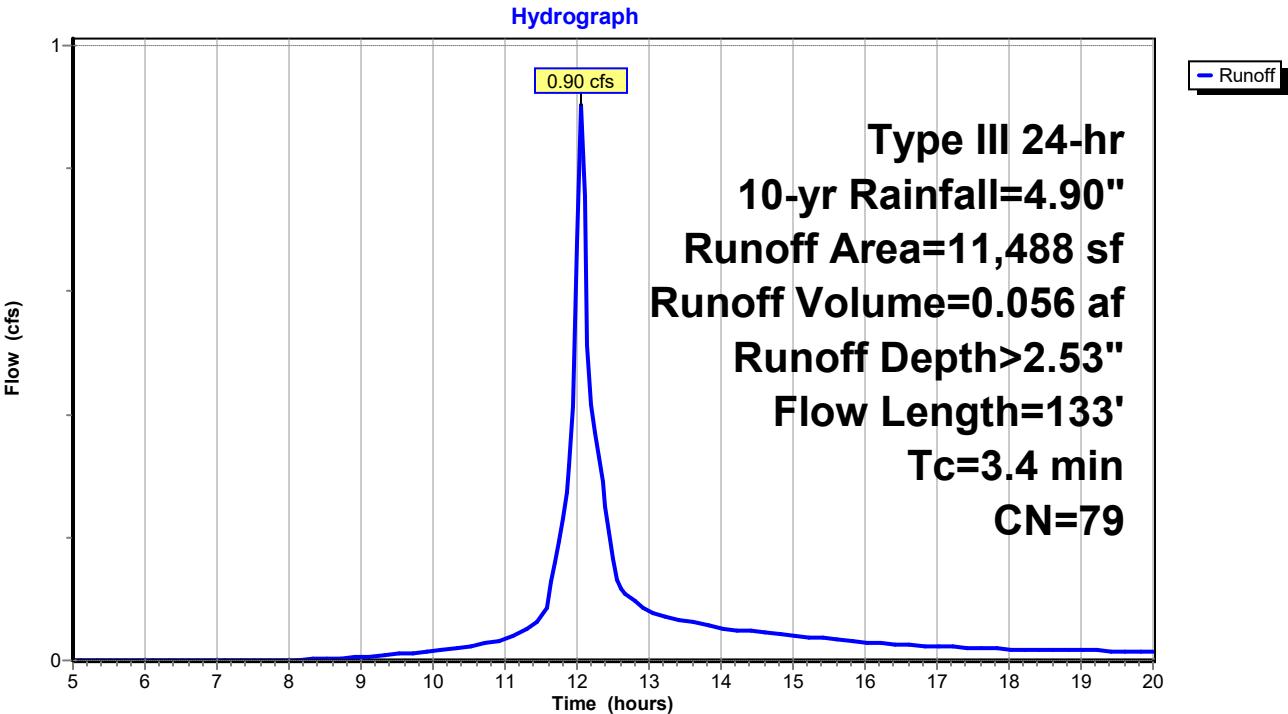
Runoff = 0.90 cfs @ 12.06 hrs, Volume= 0.056 af, Depth> 2.53"
Routed to Link DP1 : DP1

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



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Type III 24-hr 10-yr Rainfall=4.90"

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Page 37

Summary for Subcatchment 3S: Post Subcatchment 3

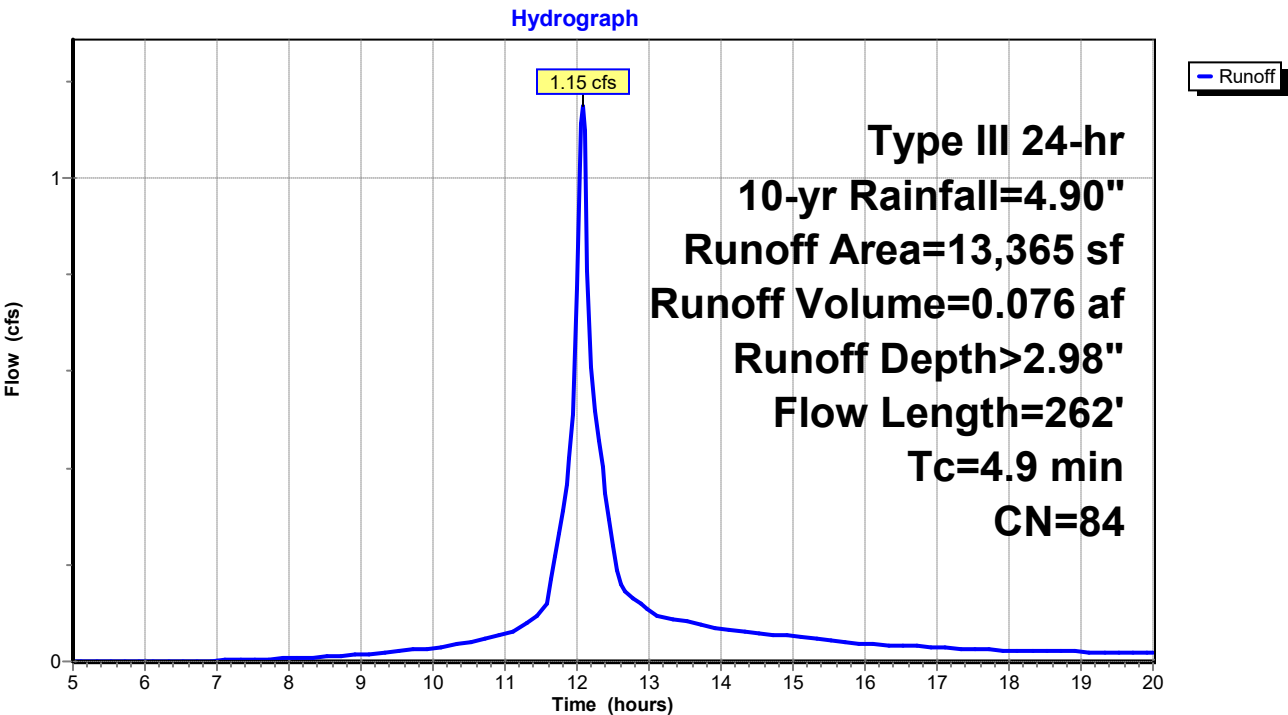
Runoff = 1.15 cfs @ 12.07 hrs, Volume= 0.076 af, Depth> 2.98"
 Routed to Pond 3P : Bioretention Filter Cell 2

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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Page 39

Summary for Subcatchment 4S: Post Subcatchment 4

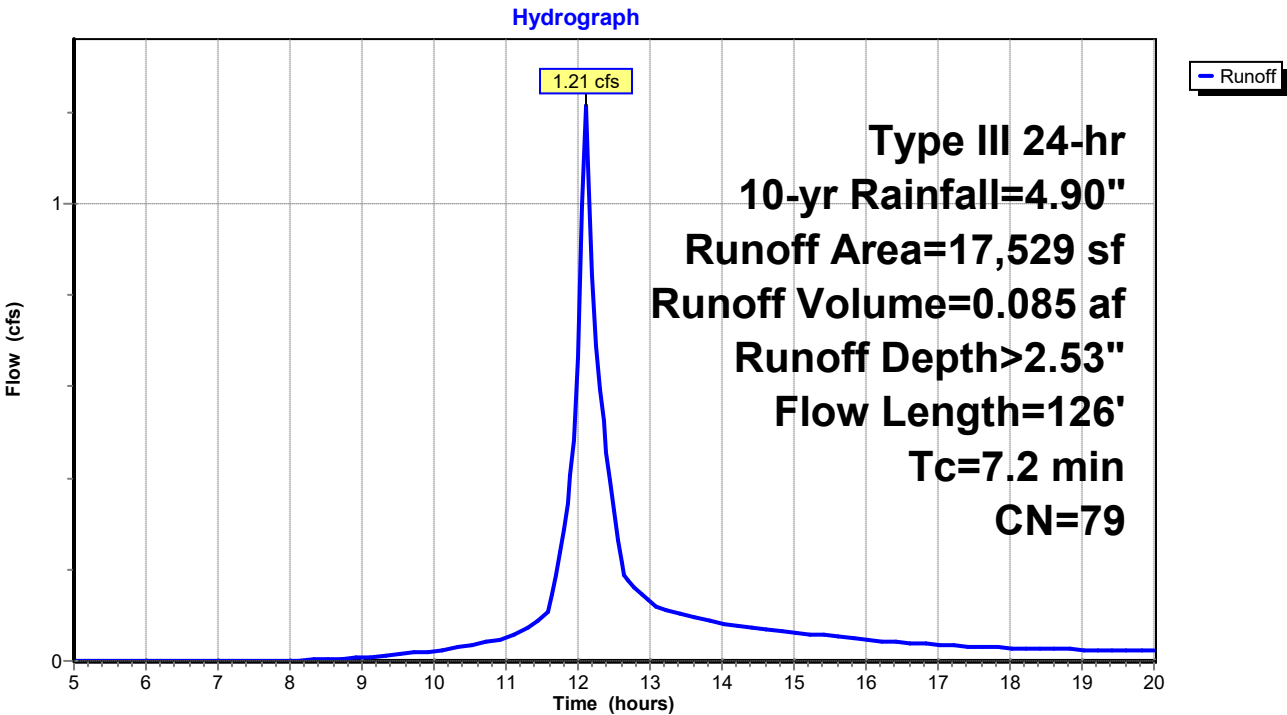
Runoff = 1.21 cfs @ 12.11 hrs, Volume= 0.085 af, Depth> 2.53"
Routed to Link DP2 : DP2

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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Page 40

Summary for Subcatchment 5S: Post Subcatchment 5

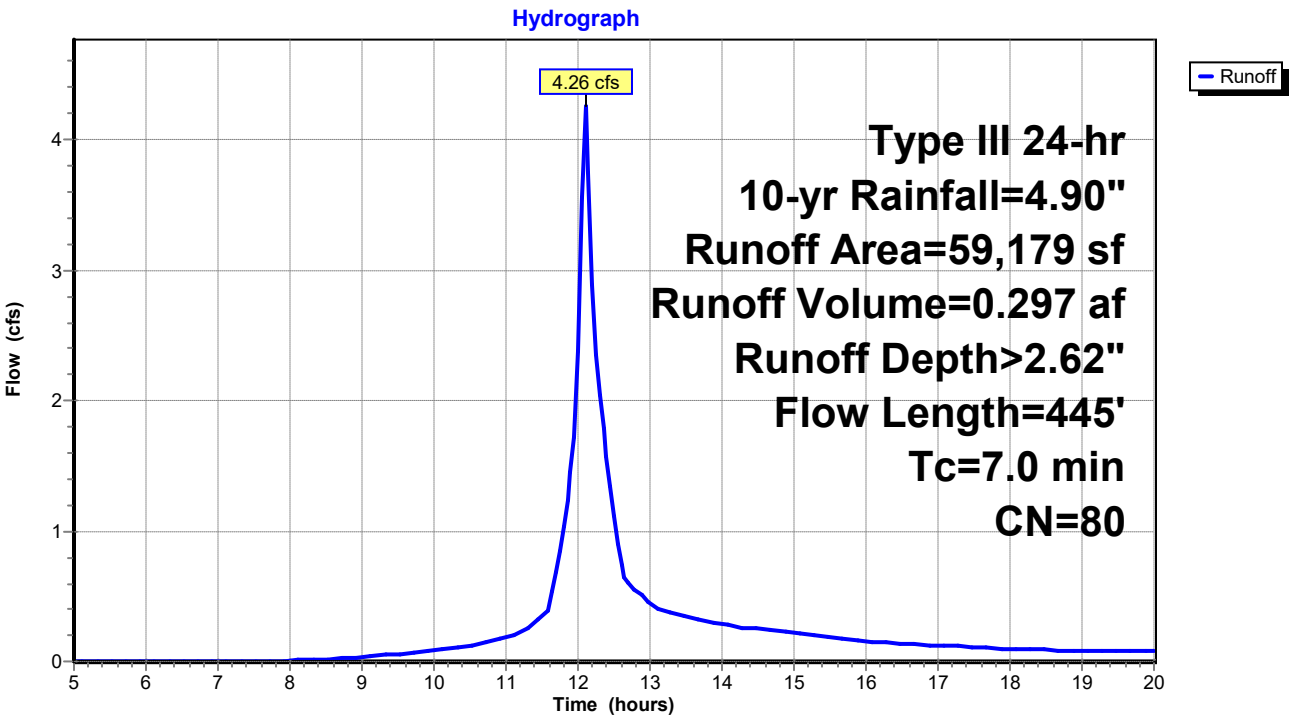
Runoff = 4.26 cfs @ 12.10 hrs, Volume= 0.297 af, Depth> 2.62"
 Routed to Reach DP3 : Shoreline 3

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



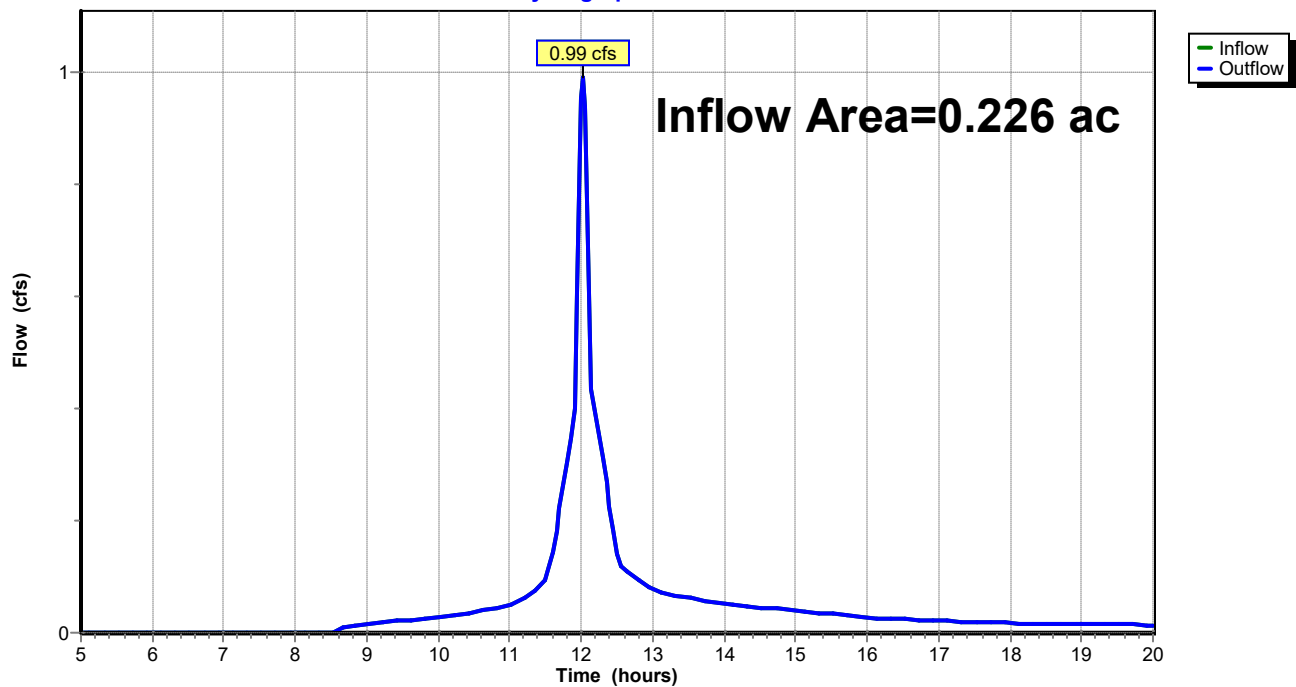
Summary for Reach 1R: Reach 1

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



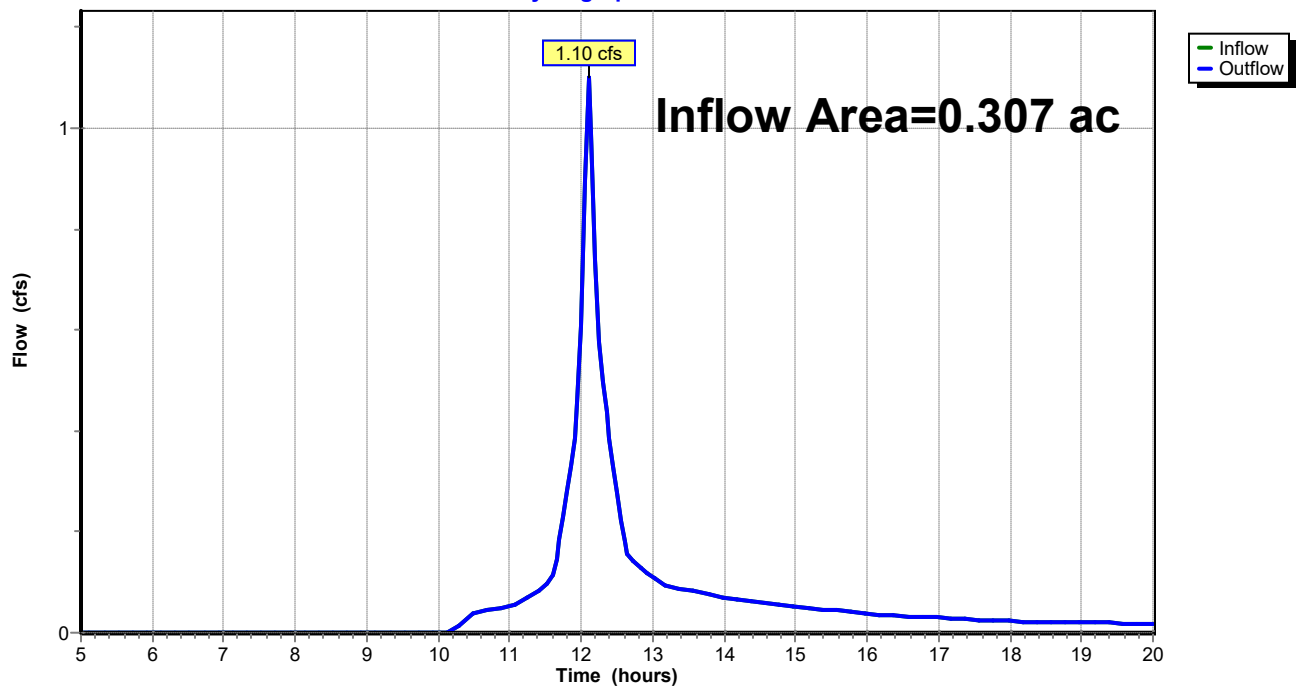
Summary for Reach 2R: Reach 2

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



UNE-PostDrainage-VD Working

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Type III 24-hr 10-yr Rainfall=4.90"

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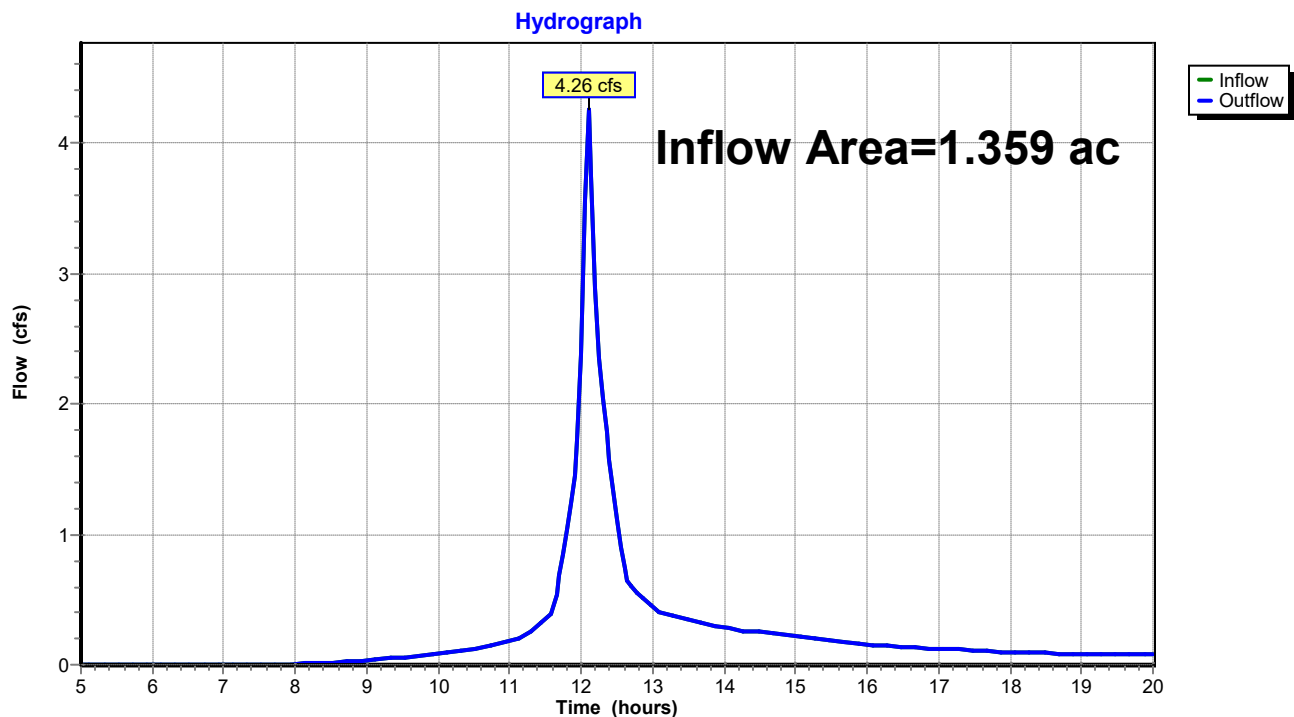
Page 44

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

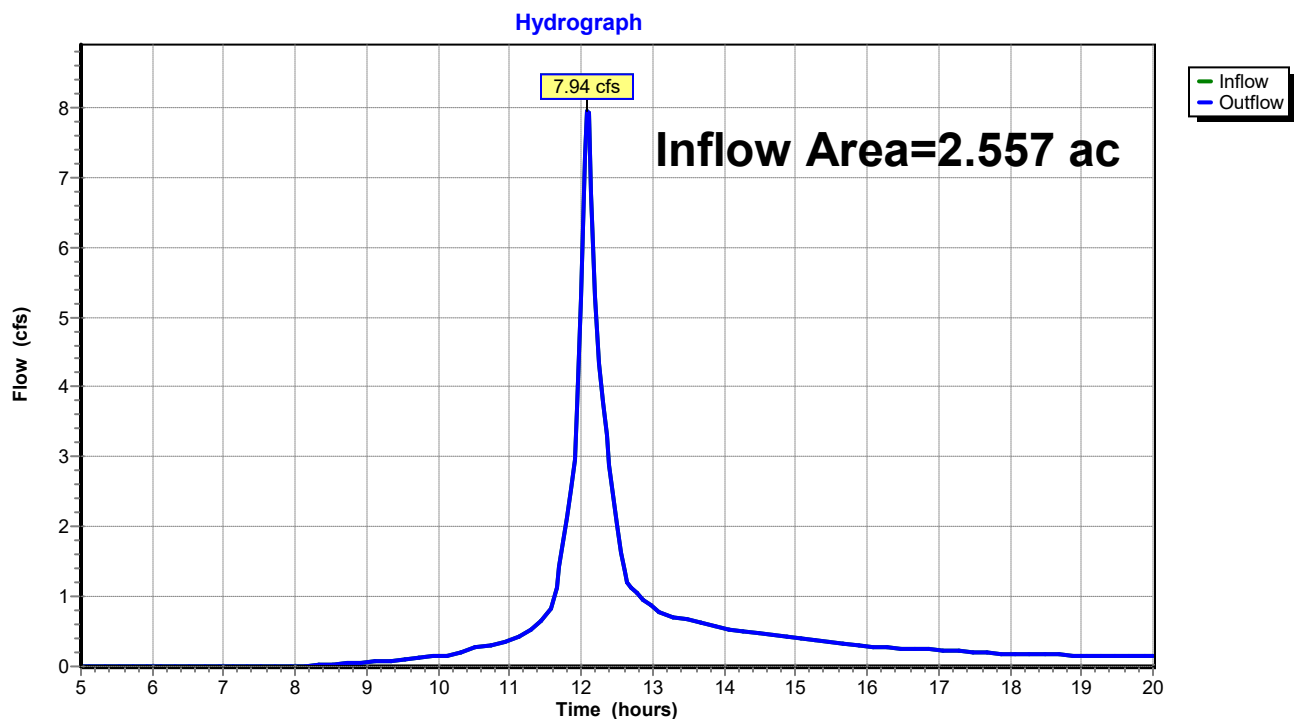


Summary for Reach SP1: SACO RIVER / OCEAN

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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Page 46

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

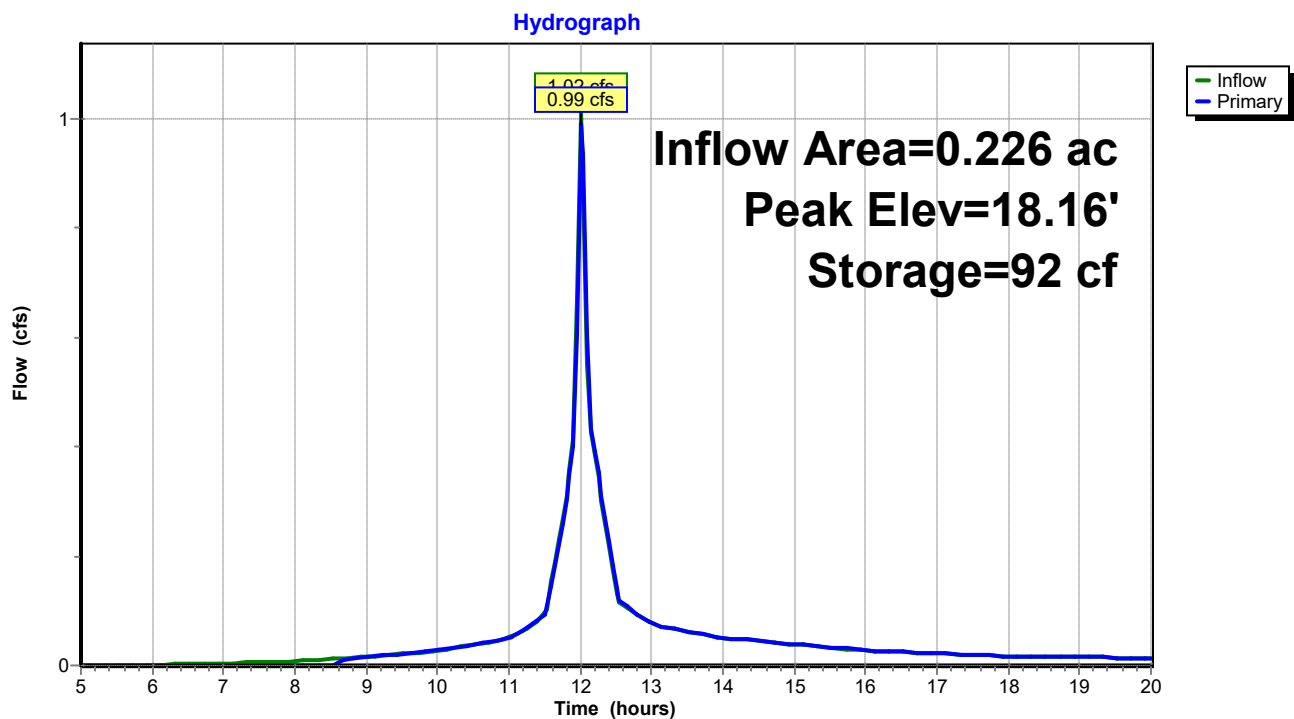
Plug-Flow detention time= 15.2 min calculated for 0.060 af (98% of inflow)
Center-of-Mass det. time= 7.1 min (773.3 - 766.2)

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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Page 48

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

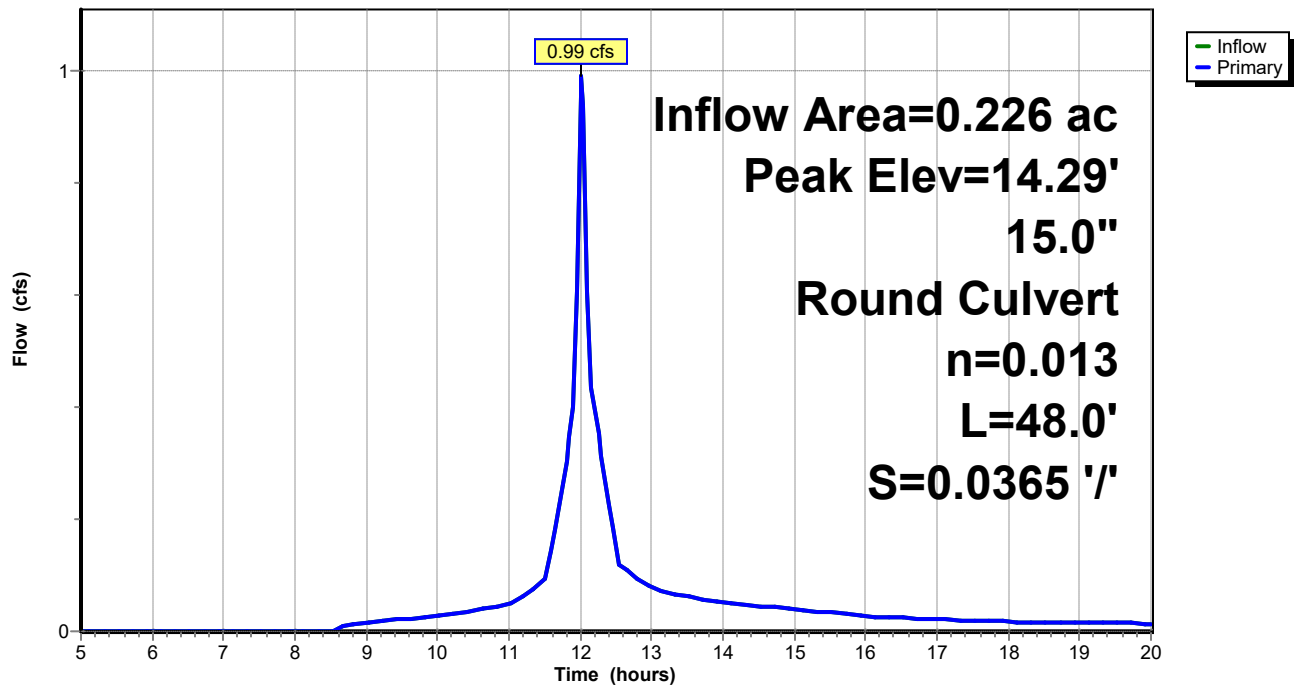
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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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Page 49

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)

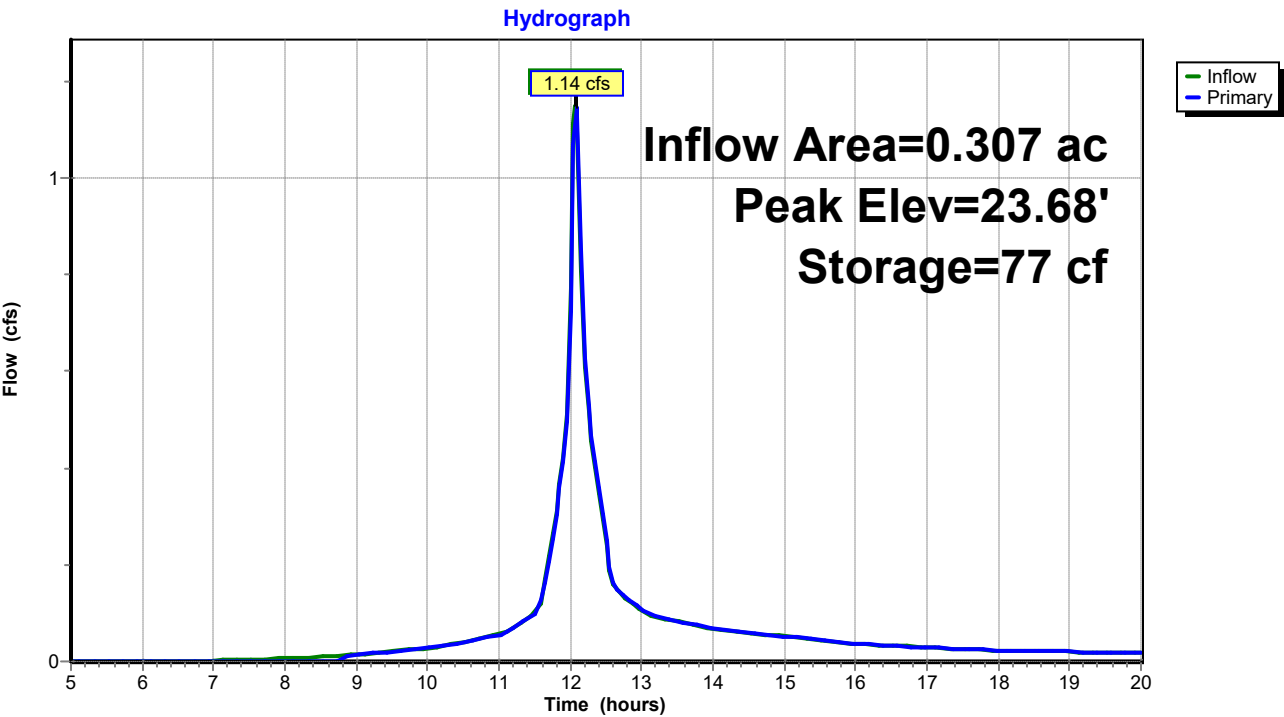
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 51

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

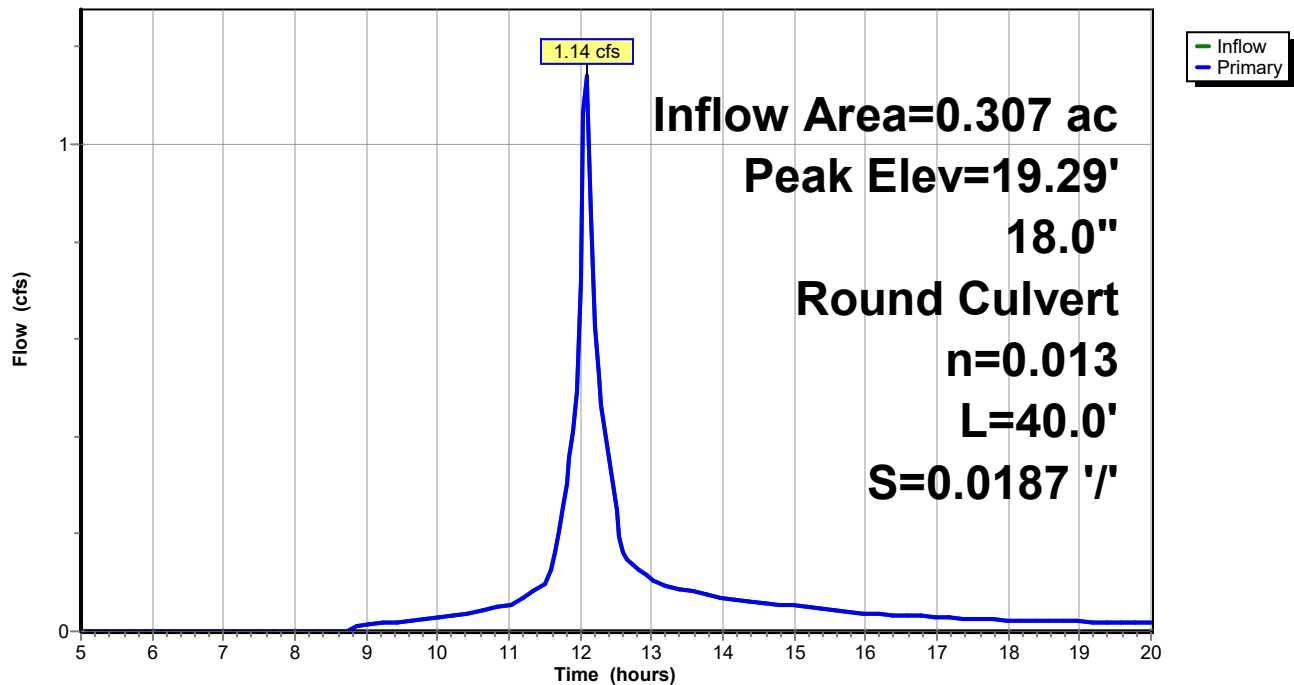
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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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Page 52

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

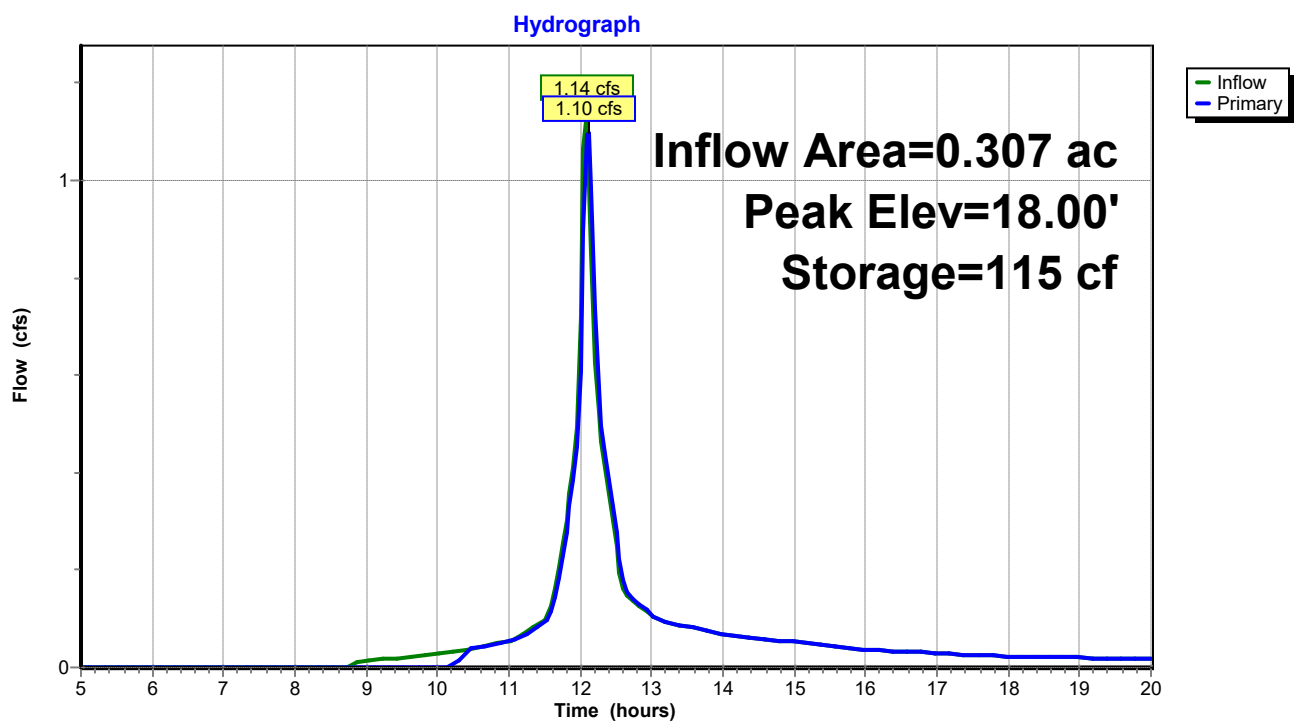
Plug-Flow detention time= 21.7 min calculated for 0.072 af (96% of inflow)
 Center-of-Mass det. time= 8.6 min (790.4 - 781.8)

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



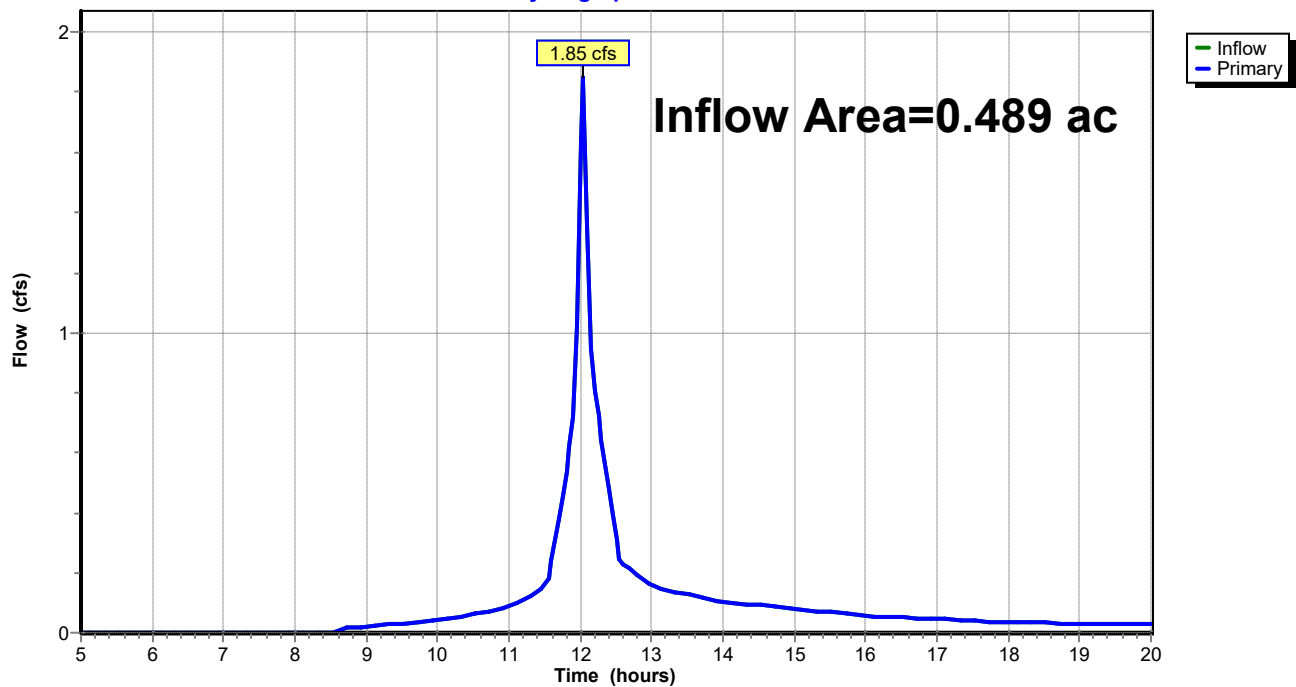
Summary for Link DP1: DP1

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

Hydrograph



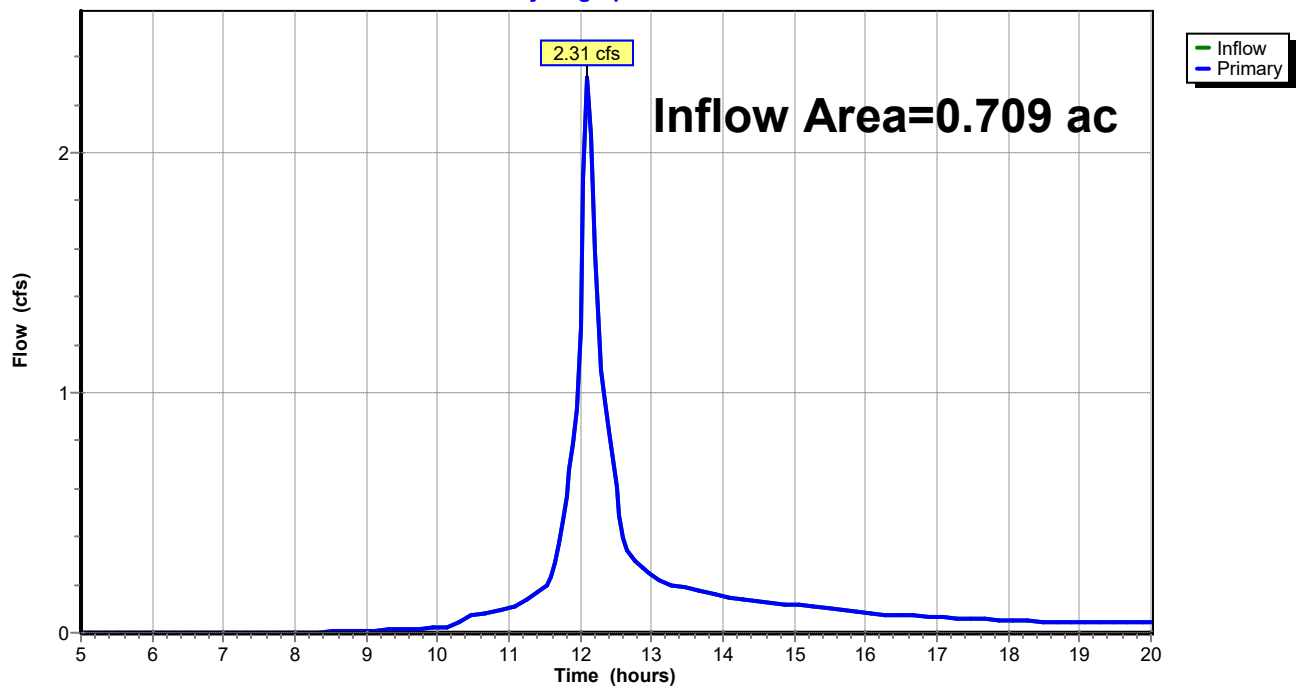
Summary for Link DP2: DP2

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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Page 56

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

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Type III 24-hr 25-yr Rainfall=6.20"

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Page 57

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

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Type III 24-hr 25-yr Rainfall=6.20"

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Page 58

Summary for Subcatchment 1S: Post Subcatchment 1

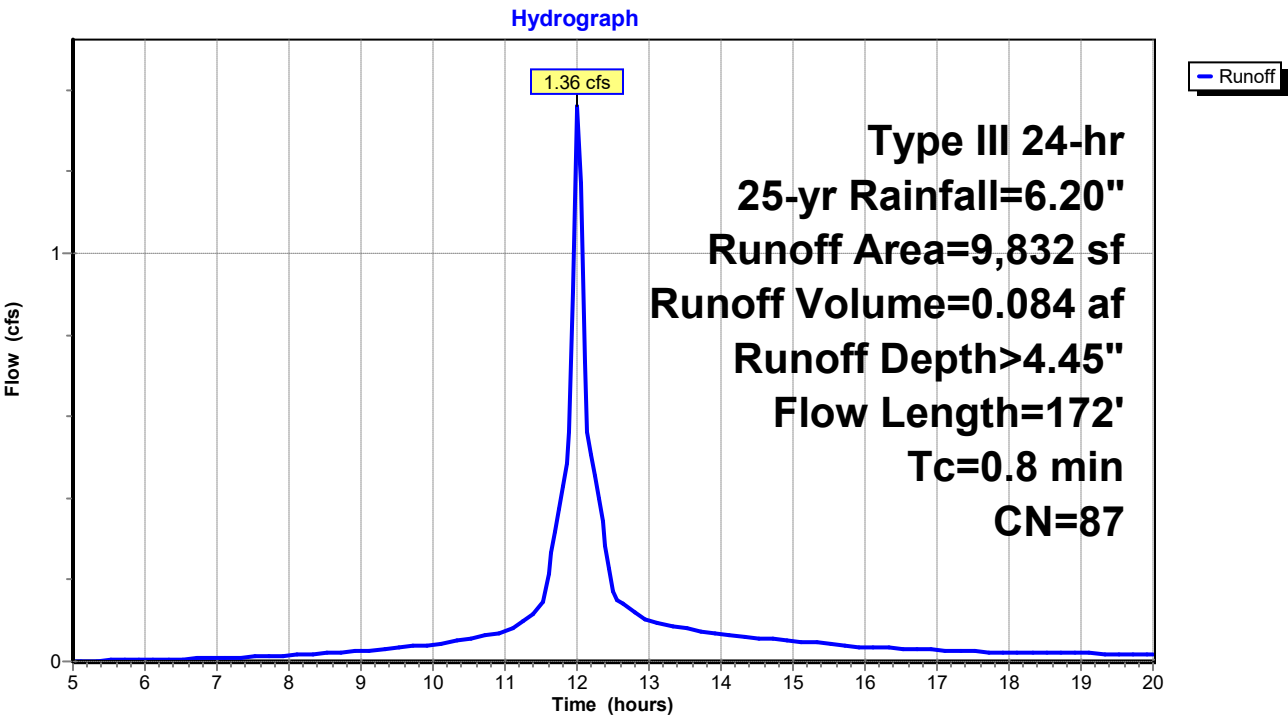
Runoff = 1.36 cfs @ 12.01 hrs, Volume= 0.084 af, Depth> 4.45"
 Routed to Pond 1P : Bioretention Filter Cell 1

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



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Type III 24-hr 25-yr Rainfall=6.20"

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Page 60

Summary for Subcatchment 2S: Post Subcatchment 2

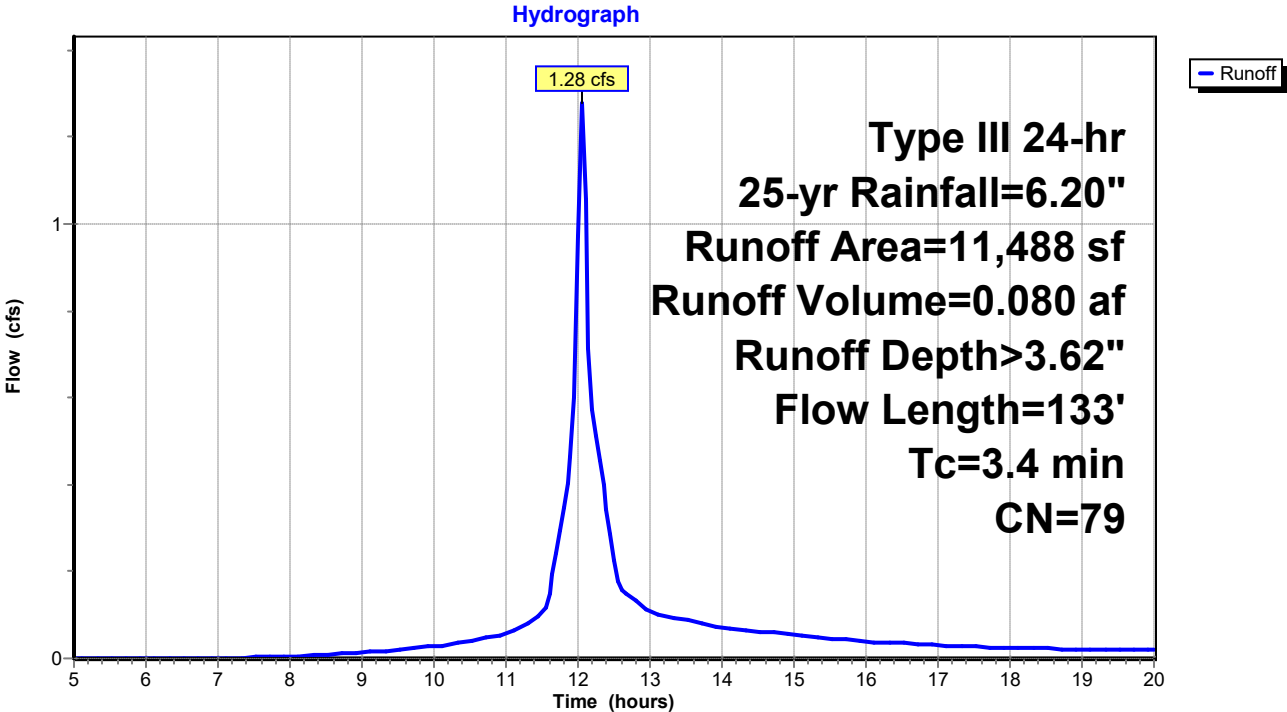
Runoff = 1.28 cfs @ 12.05 hrs, Volume= 0.080 af, Depth> 3.62"
Routed to Link DP1 : DP1

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
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 25-yr Rainfall=6.20"

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Page 61

Summary for Subcatchment 3S: Post Subcatchment 3

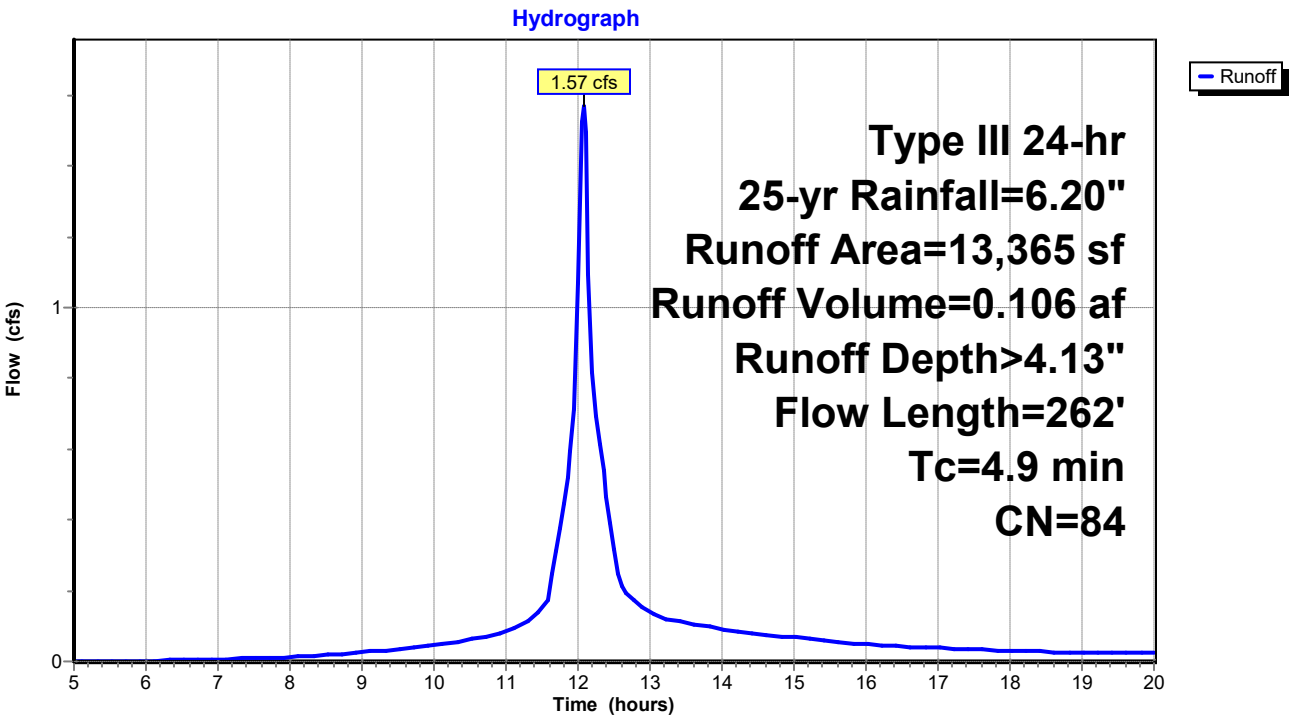
Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.106 af, Depth> 4.13"
 Routed to Pond 3P : Bioretention Filter Cell 2

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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Page 63

Summary for Subcatchment 4S: Post Subcatchment 4

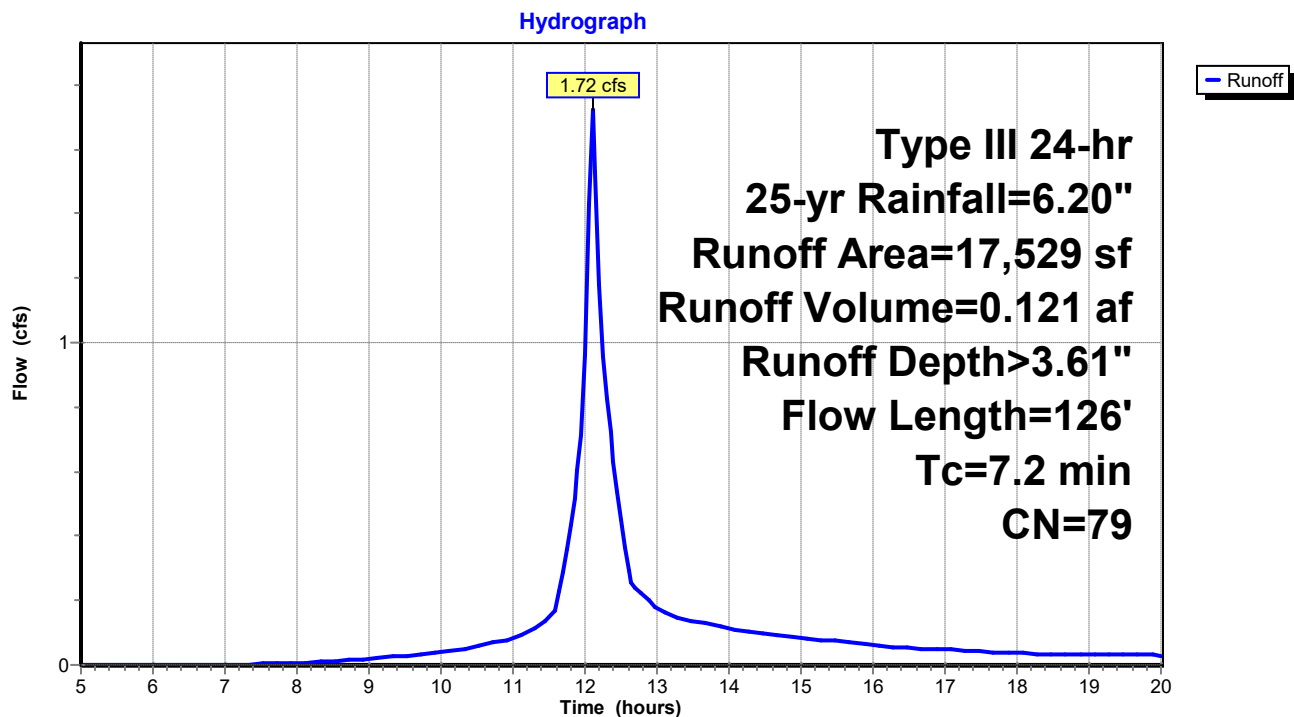
Runoff = 1.72 cfs @ 12.11 hrs, Volume= 0.121 af, Depth> 3.61"
Routed to Link DP2 : DP2

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



UNE-PostDrainage-VD Working

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Type III 24-hr 25-yr Rainfall=6.20"

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Page 64

Summary for Subcatchment 5S: Post Subcatchment 5

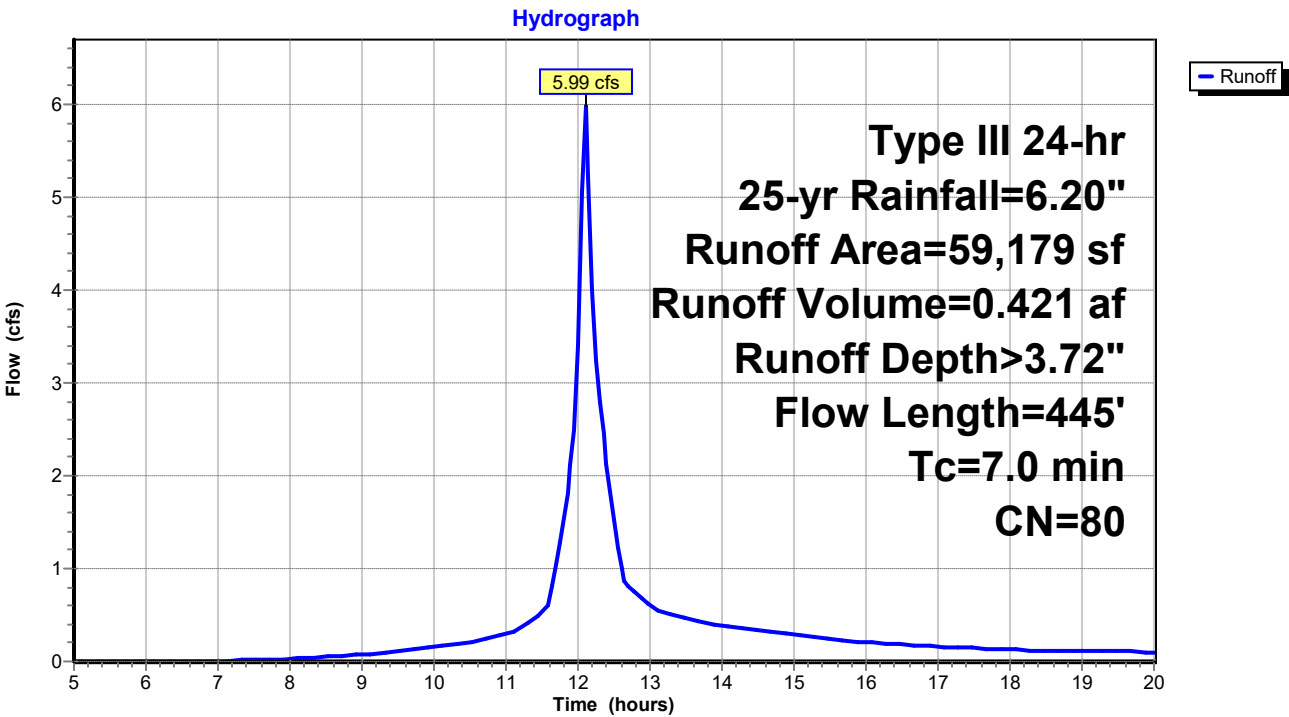
Runoff = 5.99 cfs @ 12.10 hrs, Volume= 0.421 af, Depth> 3.72"
 Routed to Reach DP3 : Shoreline 3

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



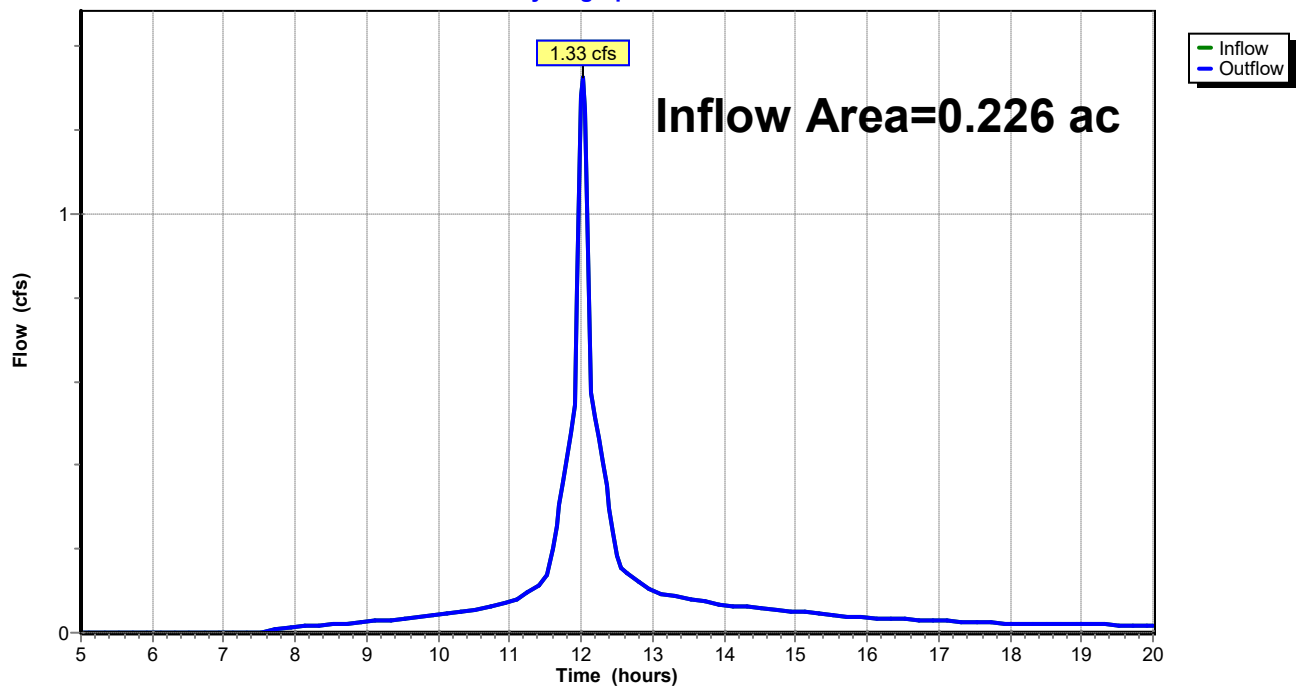
Summary for Reach 1R: Reach 1

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



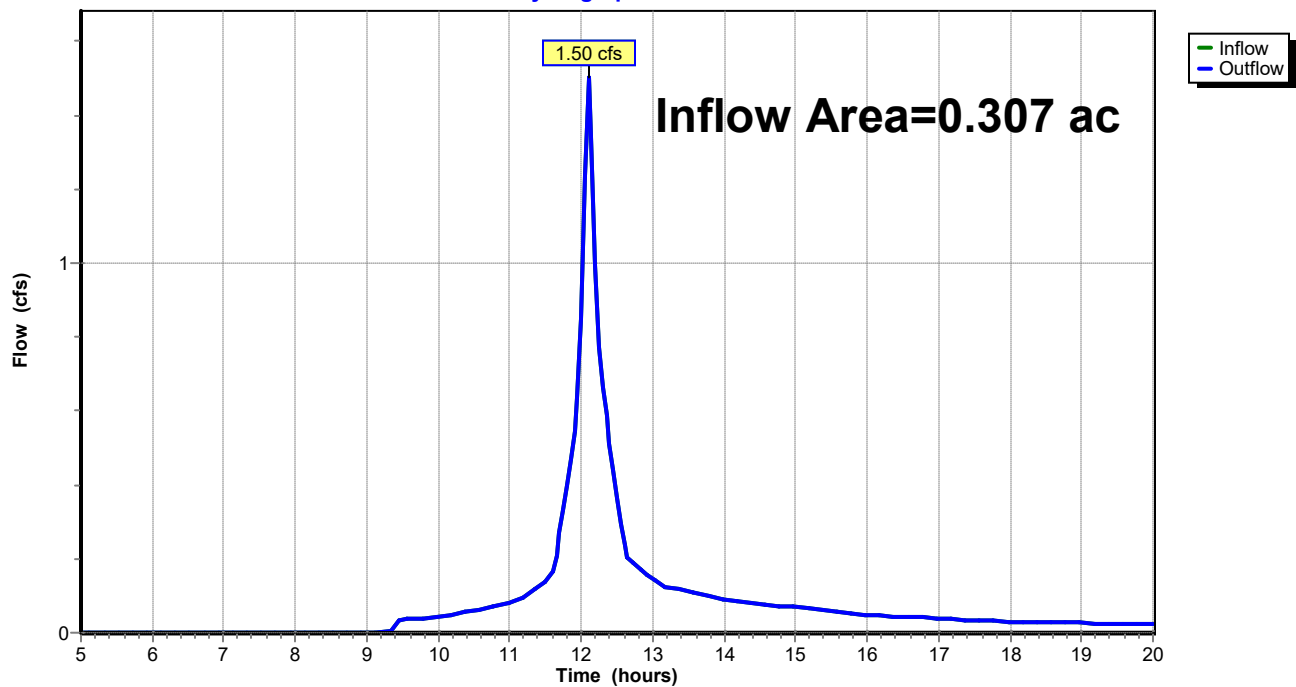
Summary for Reach 2R: Reach 2

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



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Type III 24-hr 25-yr Rainfall=6.20"

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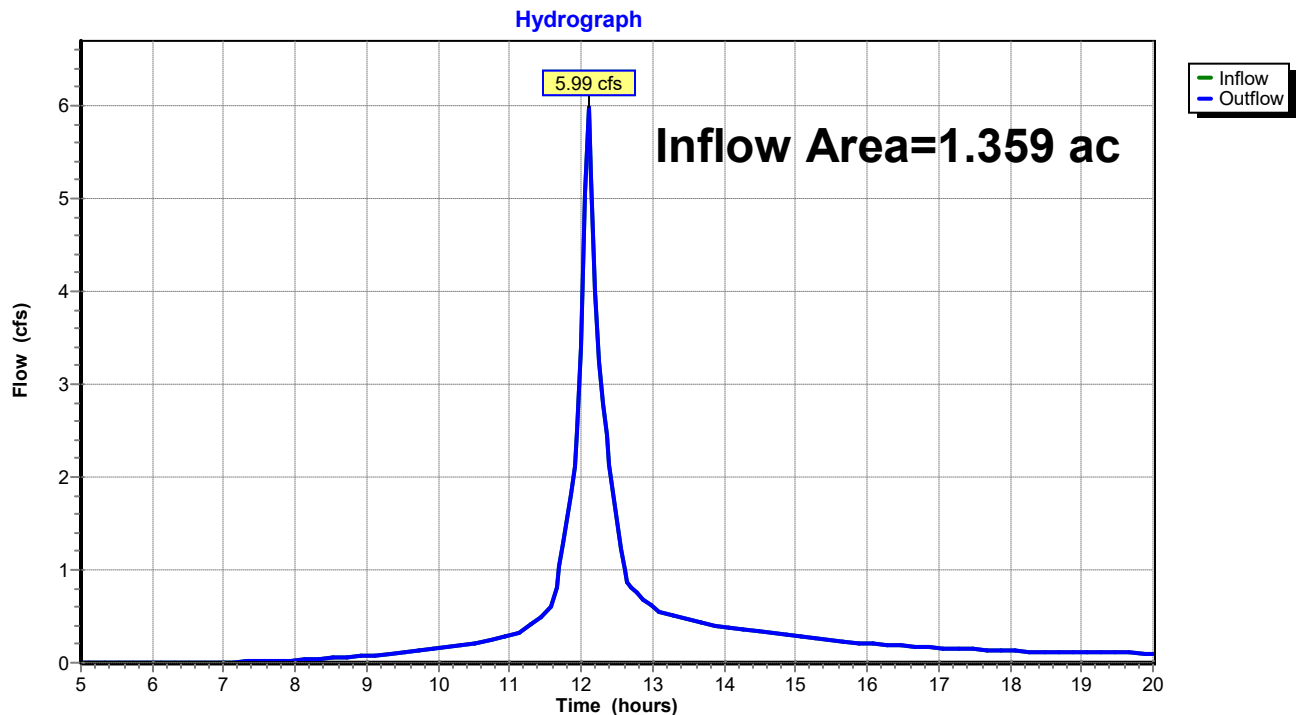
Page 68

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

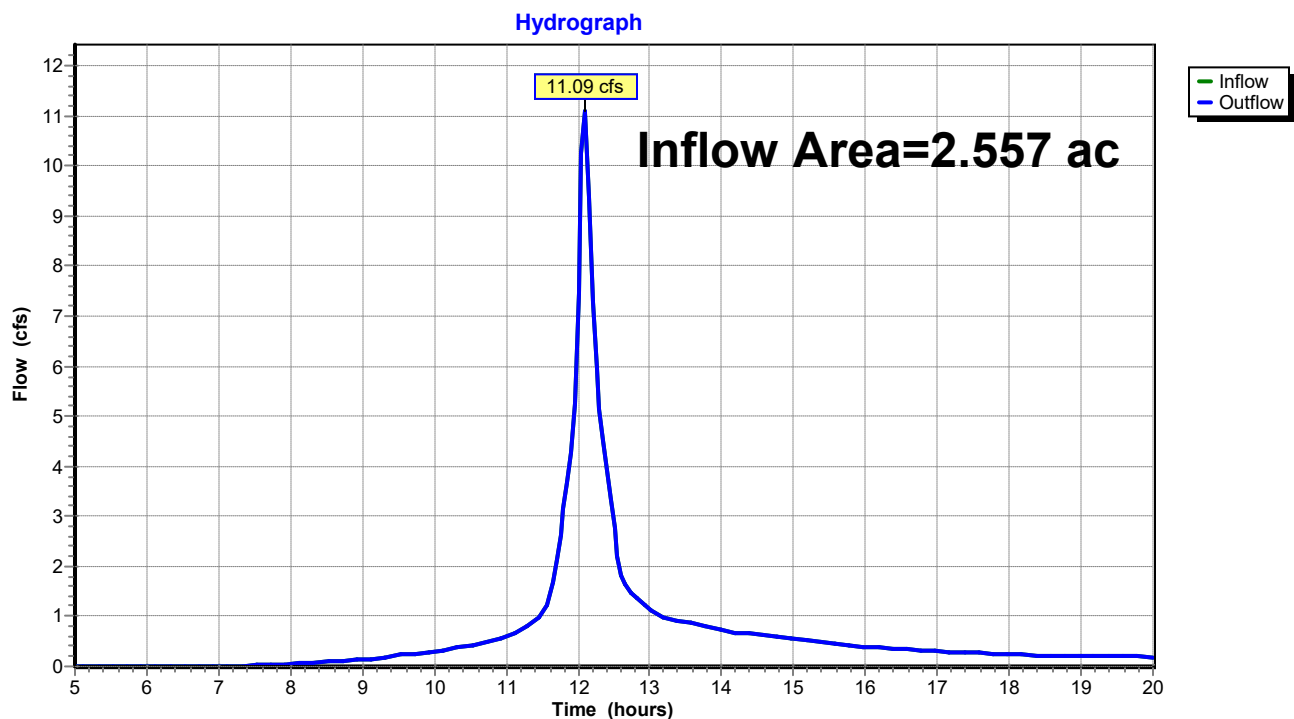


Summary for Reach SP1: SACO RIVER / OCEAN

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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Page 70

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)

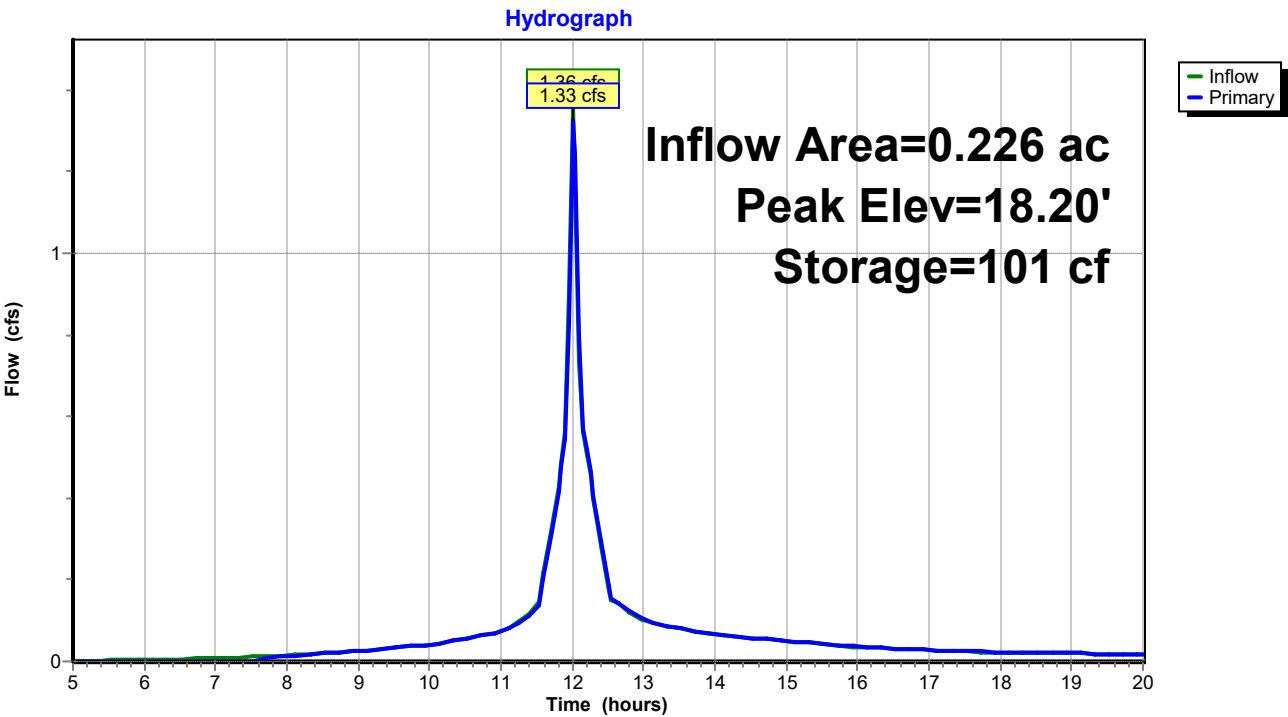
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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



UNE-PostDrainage-VD Working

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Type III 24-hr 25-yr Rainfall=6.20"

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Page 72

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

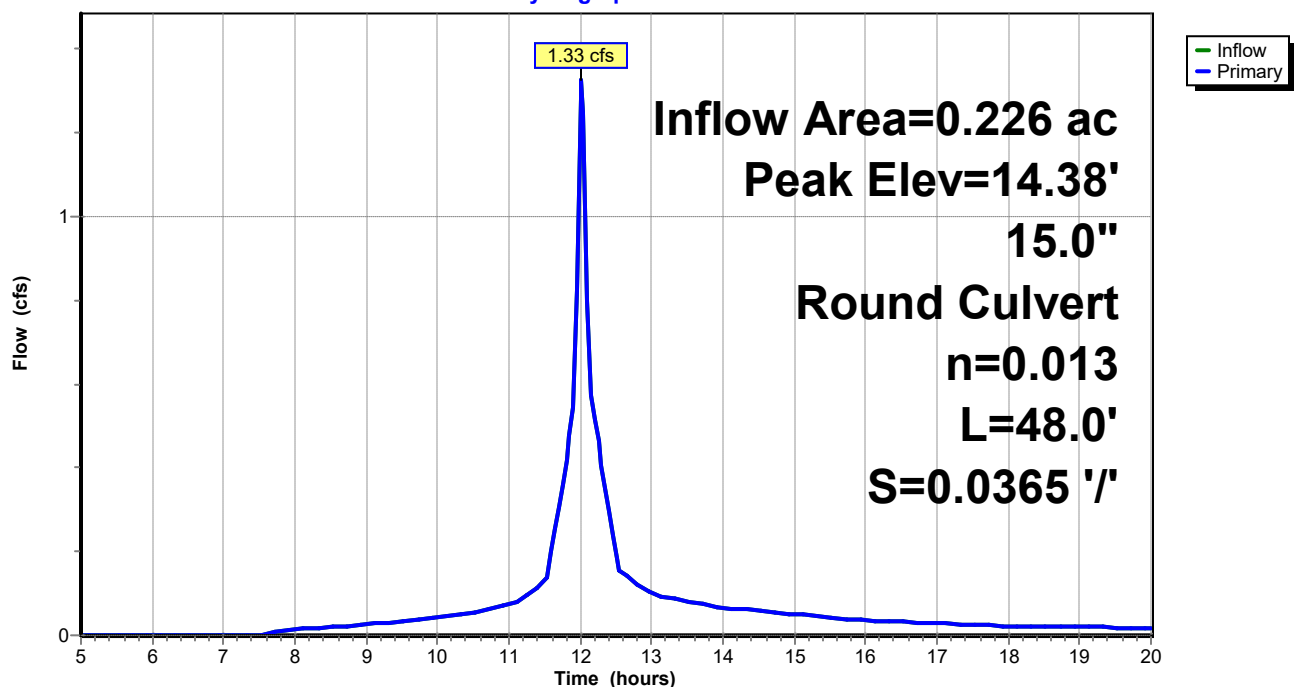
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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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Page 73

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)

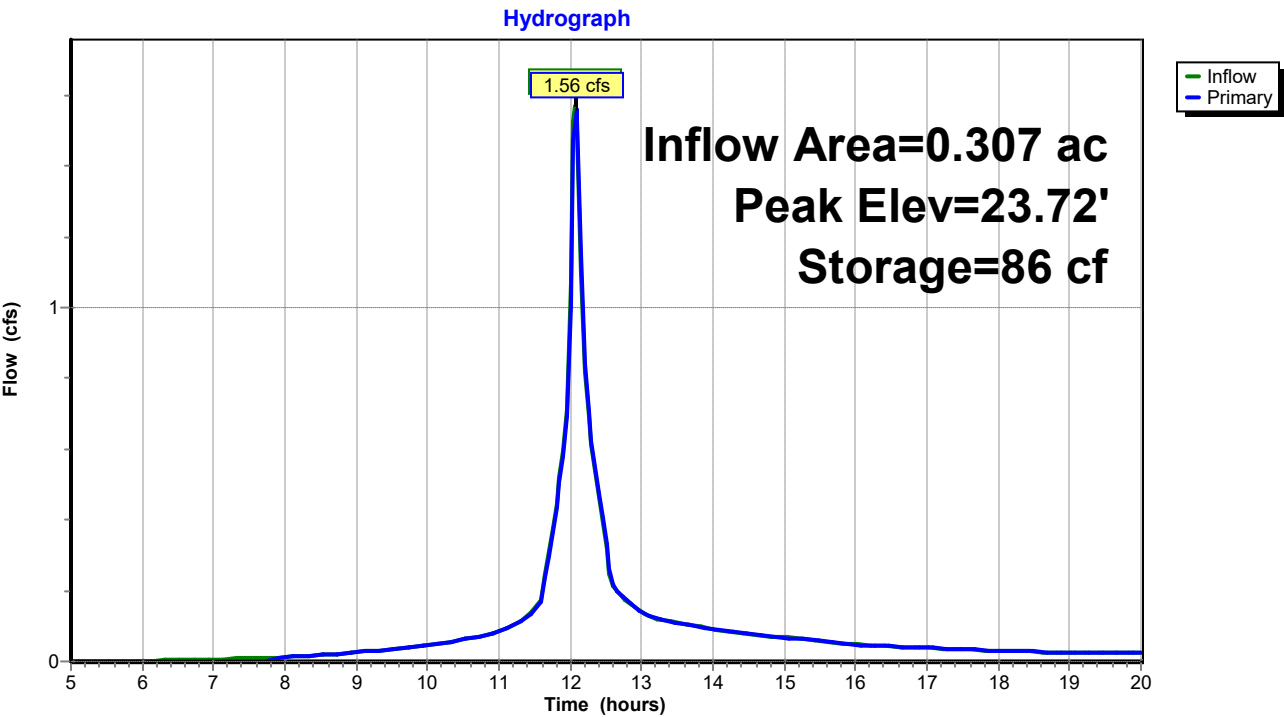
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 75

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

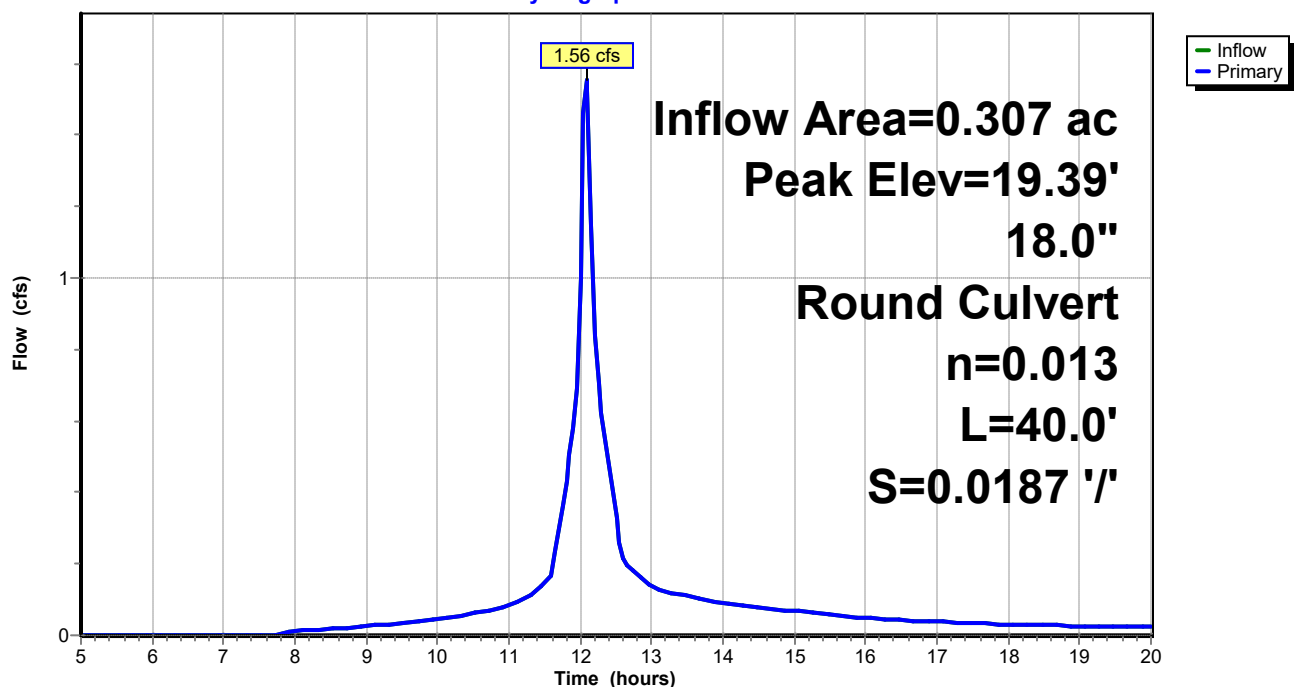
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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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Page 76

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)

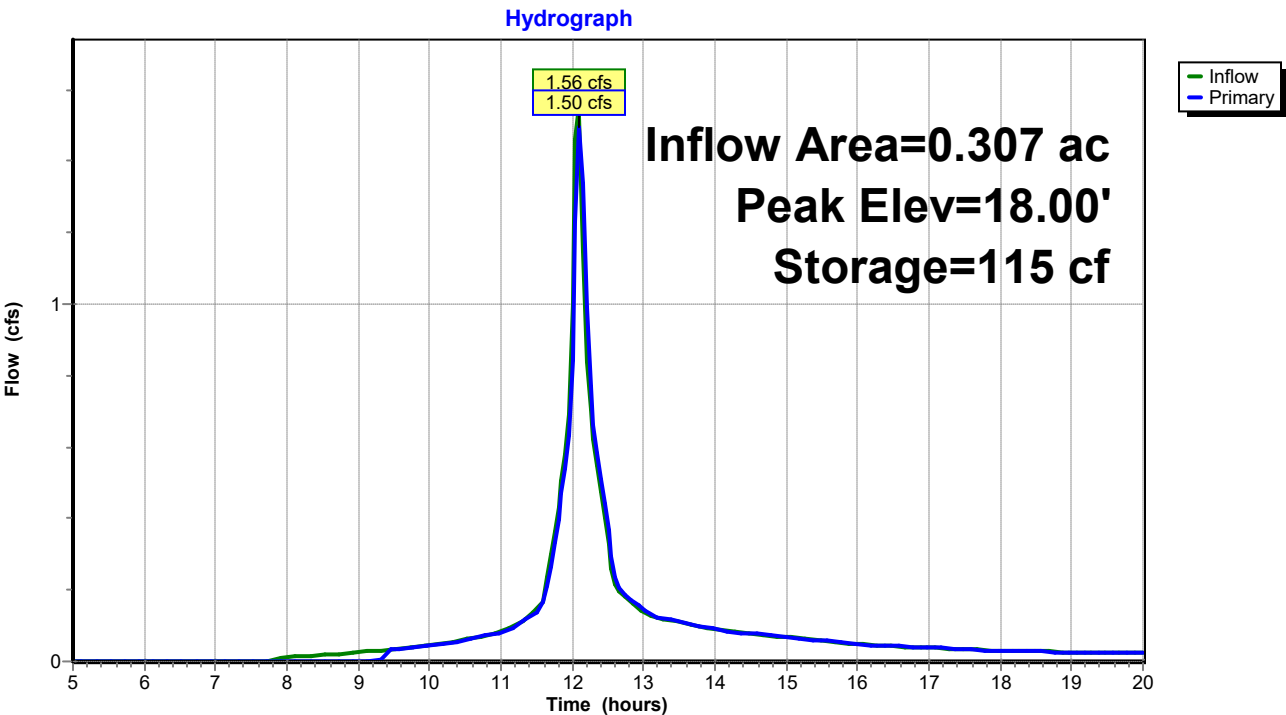
Center-of-Mass det. time= 7.7 min (781.2 - 773.5)

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



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Type III 24-hr 25-yr Rainfall=6.20"

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Page 78

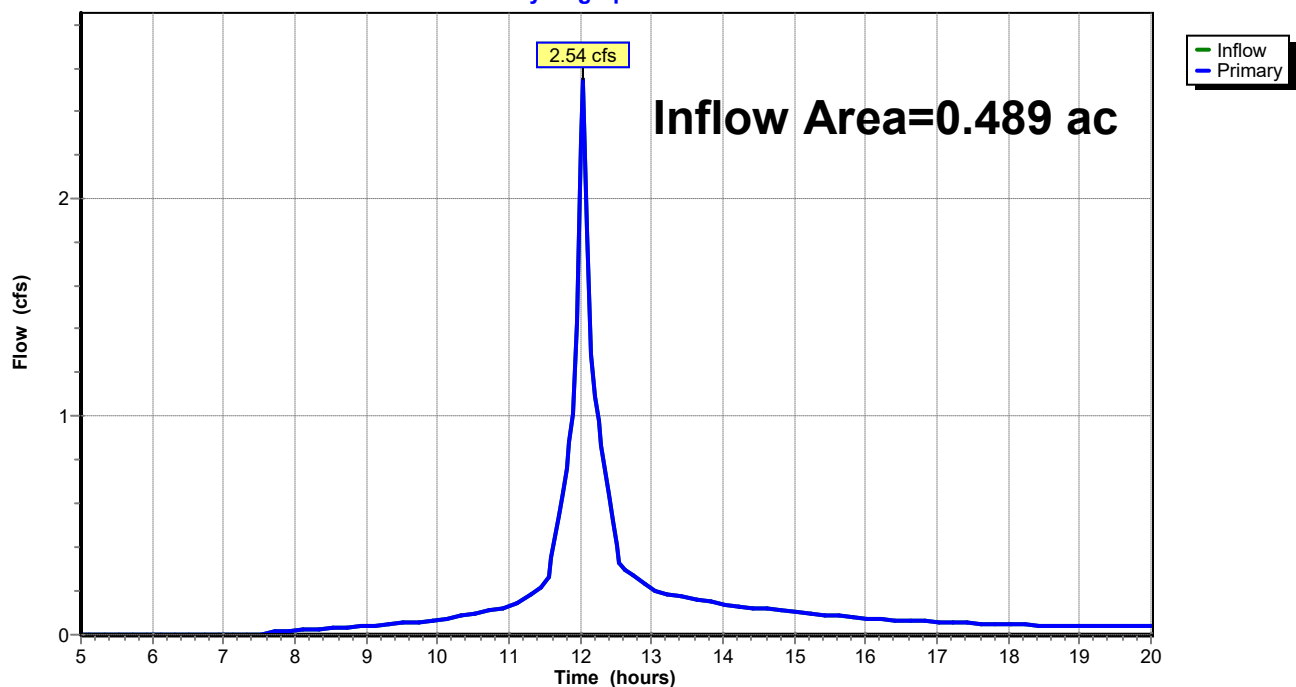
Summary for Link DP1: DP1

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



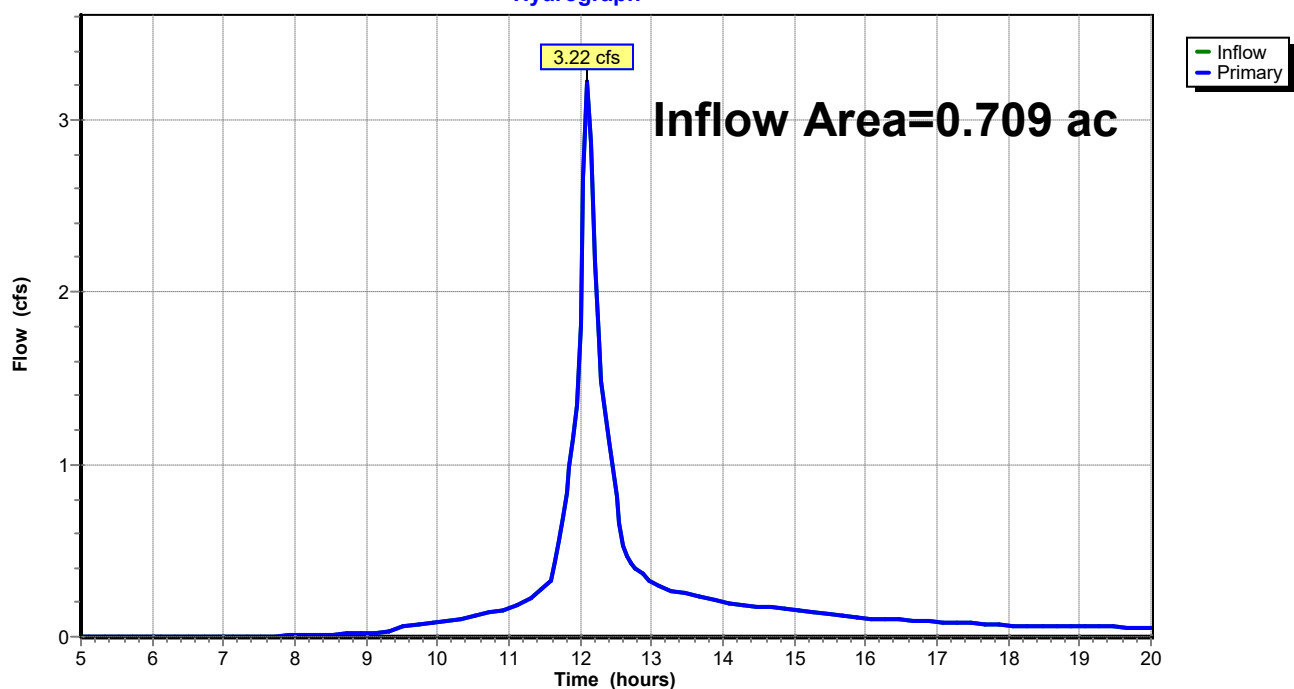
Summary for Link DP2: DP2

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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Page 80

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

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Type III 24-hr 100-yr Rainfall=8.70"

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Page 81

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

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Type III 24-hr 100-yr Rainfall=8.70"

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Page 82

Summary for Subcatchment 1S: Post Subcatchment 1

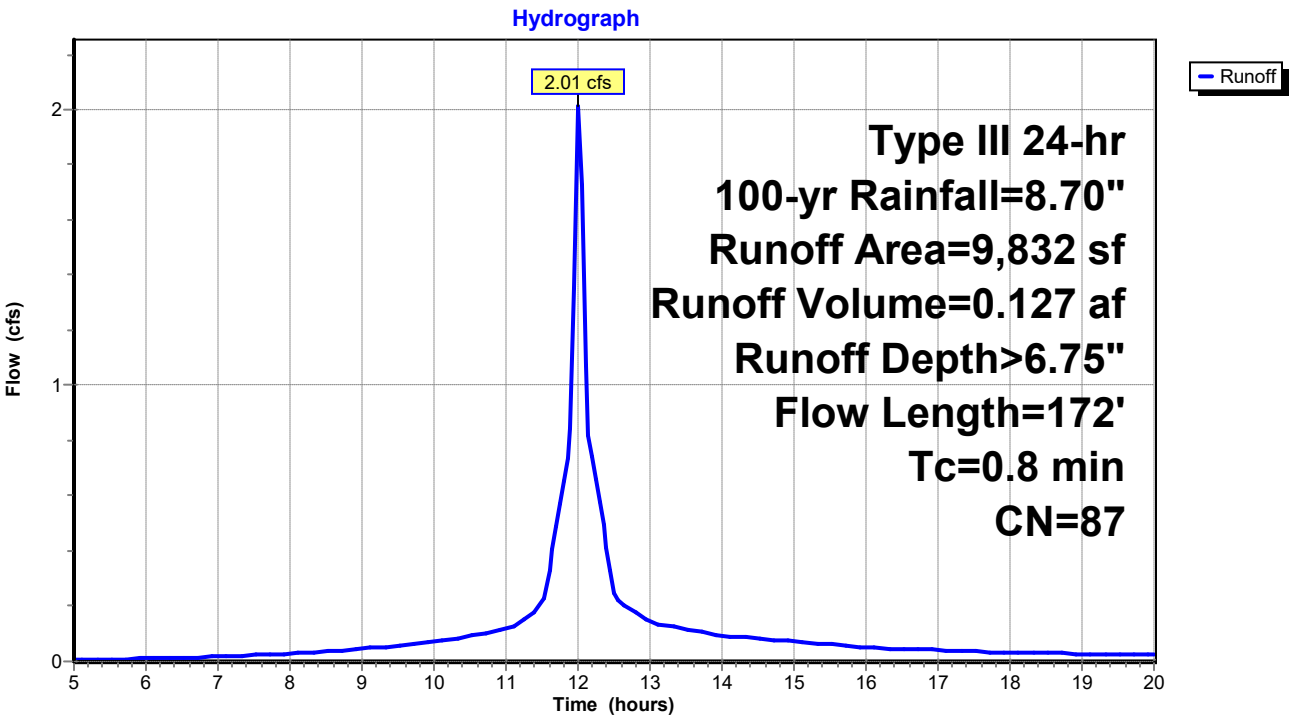
Runoff = 2.01 cfs @ 12.01 hrs, Volume= 0.127 af, Depth> 6.75"
 Routed to Pond 1P : Bioretention Filter Cell 1

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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Page 84

Summary for Subcatchment 2S: Post Subcatchment 2

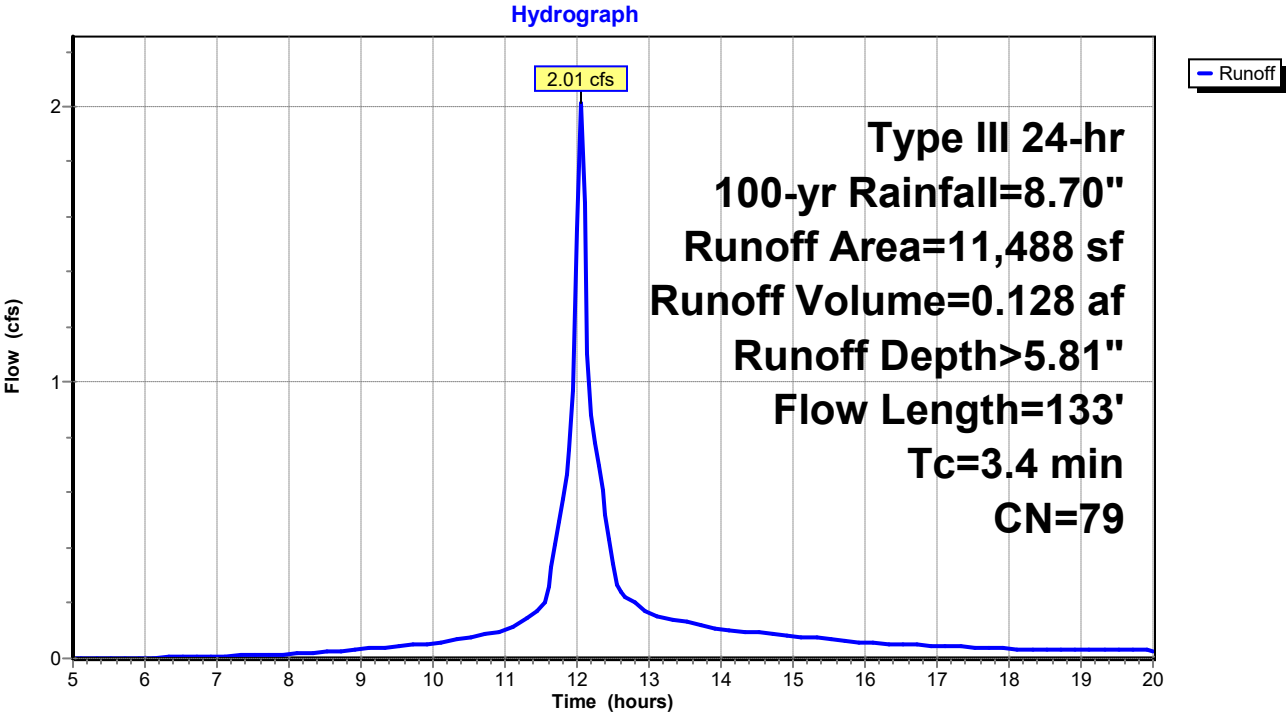
Runoff = 2.01 cfs @ 12.05 hrs, Volume= 0.128 af, Depth> 5.81"
Routed to Link DP1 : DP1

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



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Type III 24-hr 100-yr Rainfall=8.70"

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Page 85

Summary for Subcatchment 3S: Post Subcatchment 3

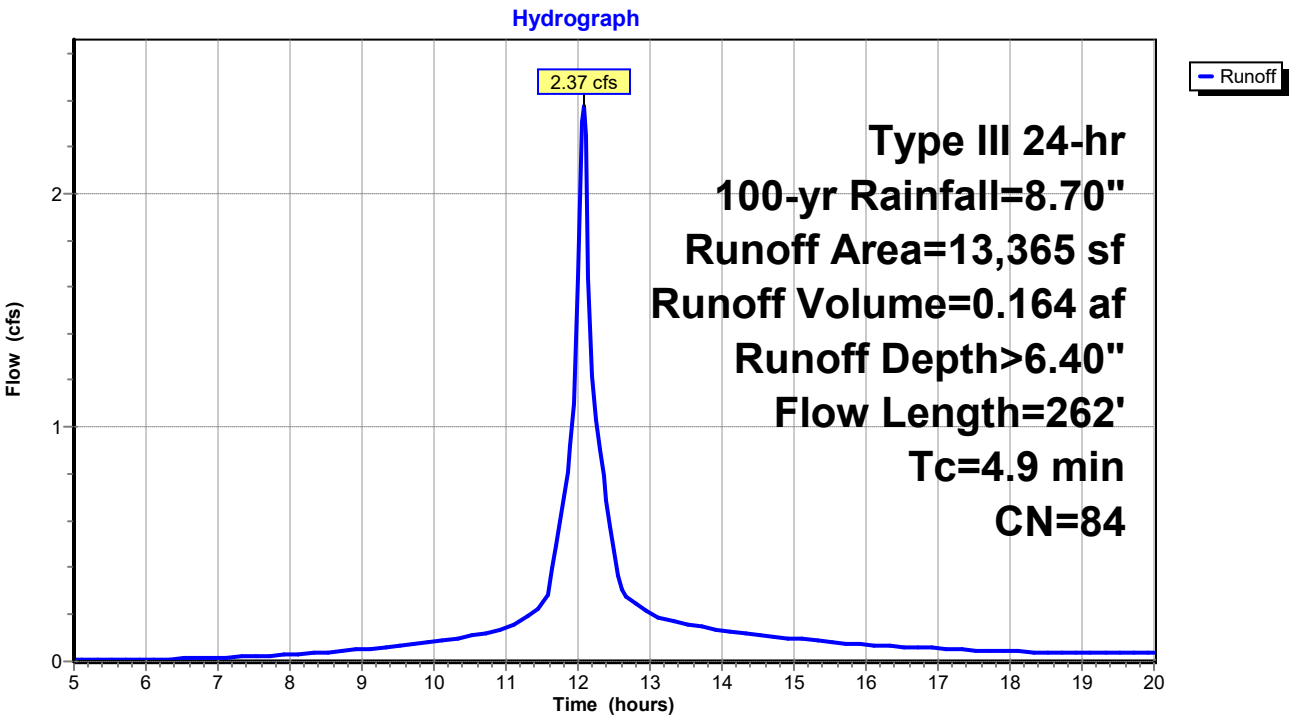
Runoff = 2.37 cfs @ 12.07 hrs, Volume= 0.164 af, Depth> 6.40"
 Routed to Pond 3P : Bioretention Filter Cell 2

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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Page 87

Summary for Subcatchment 4S: Post Subcatchment 4

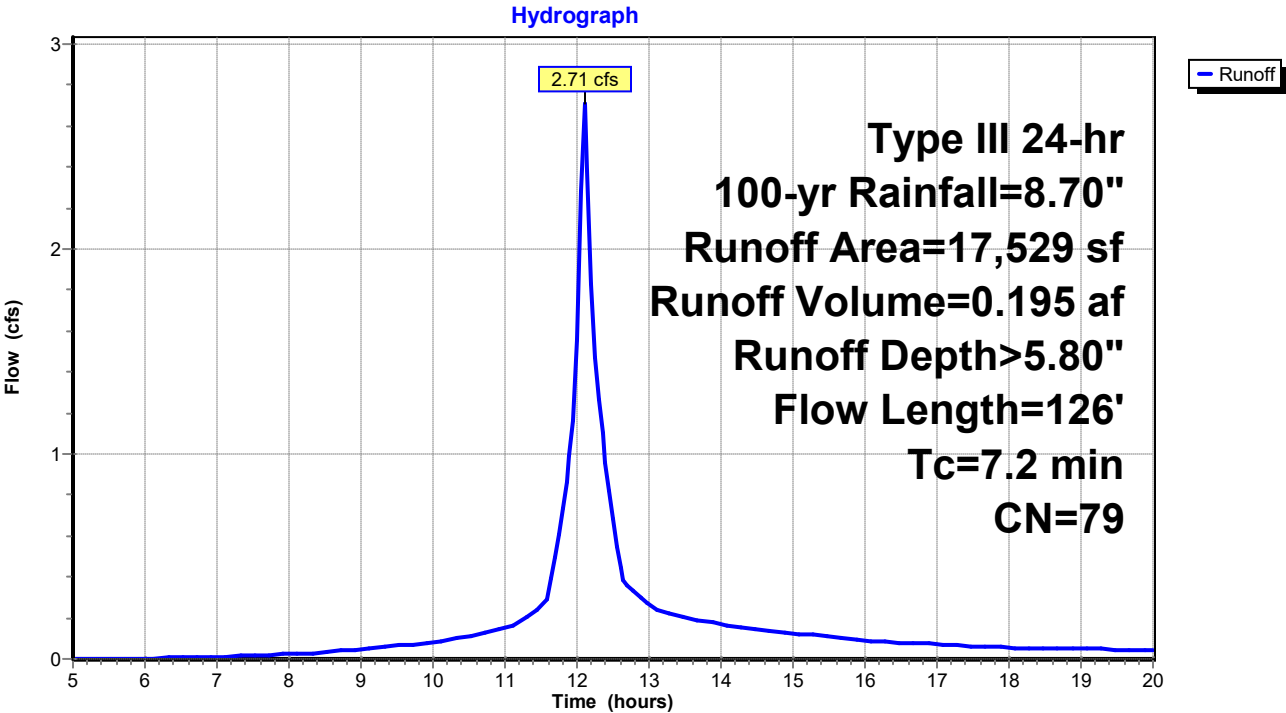
Runoff = 2.71 cfs @ 12.10 hrs, Volume= 0.195 af, Depth> 5.80"
Routed to Link DP2 : DP2

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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Page 88

Summary for Subcatchment 5S: Post Subcatchment 5

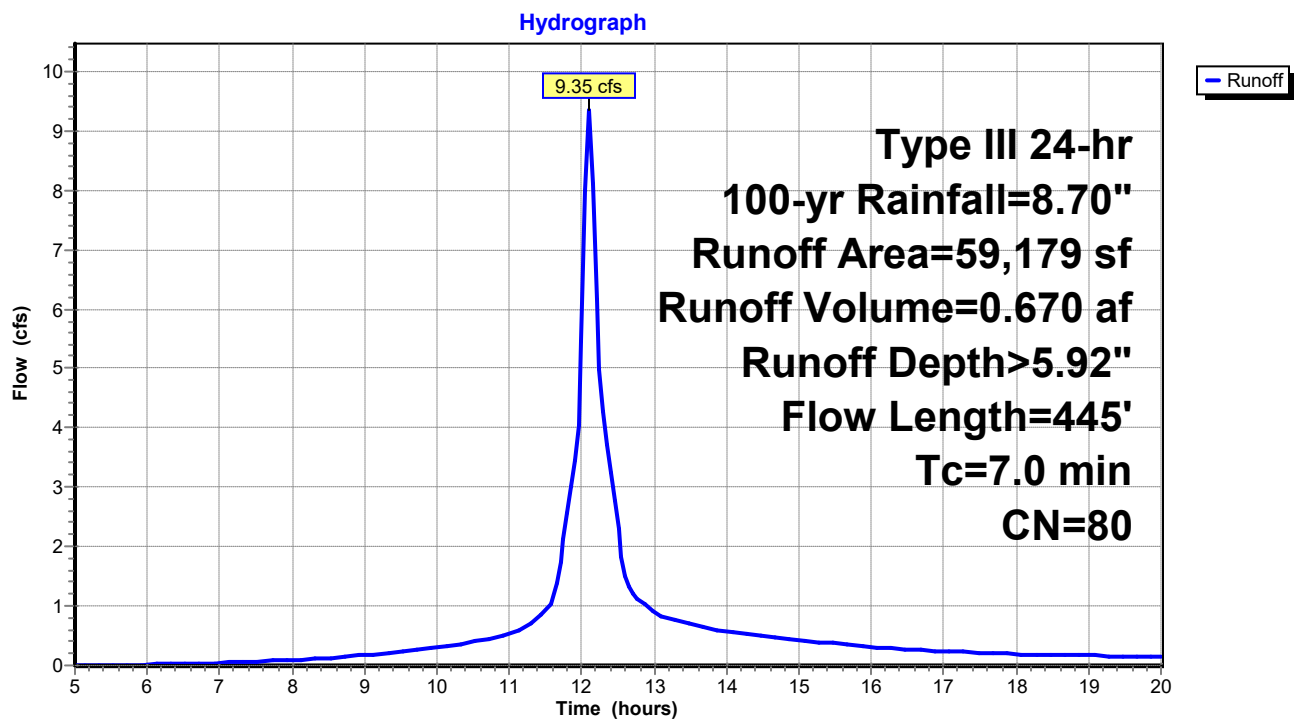
Runoff = 9.35 cfs @ 12.10 hrs, Volume= 0.670 af, Depth> 5.92"
 Routed to Reach DP3 : Shoreline 3

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



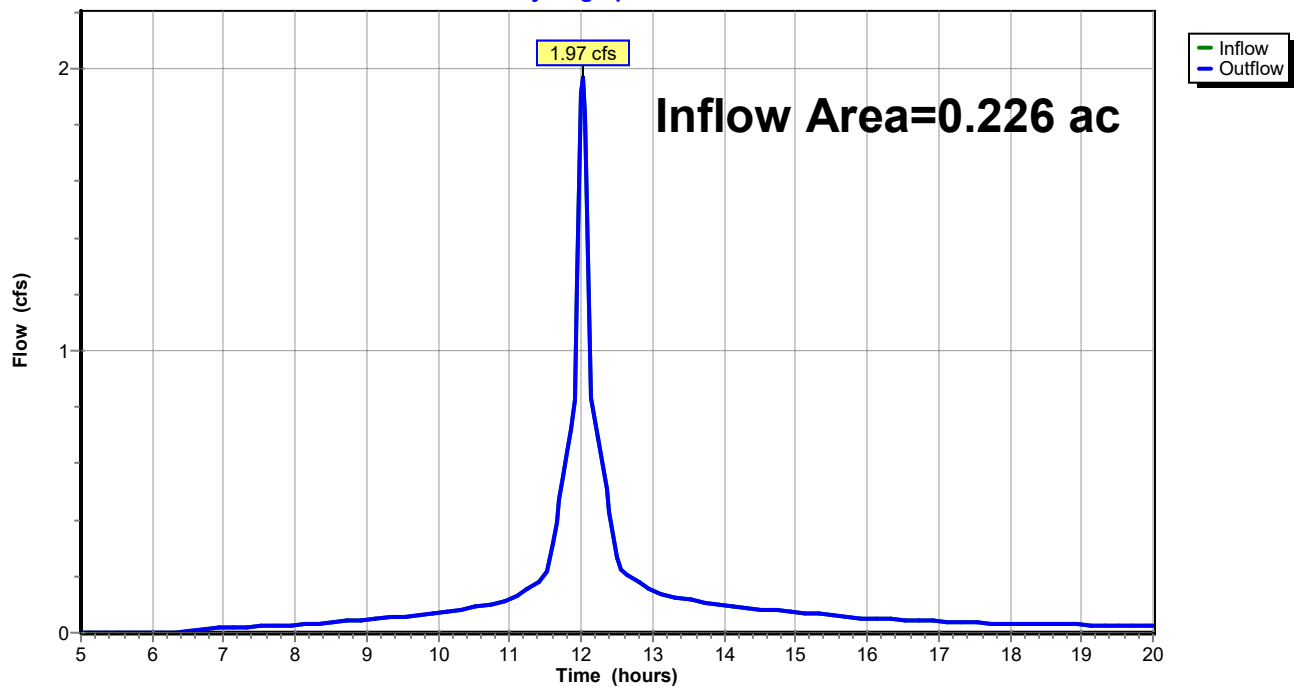
Summary for Reach 1R: Reach 1

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



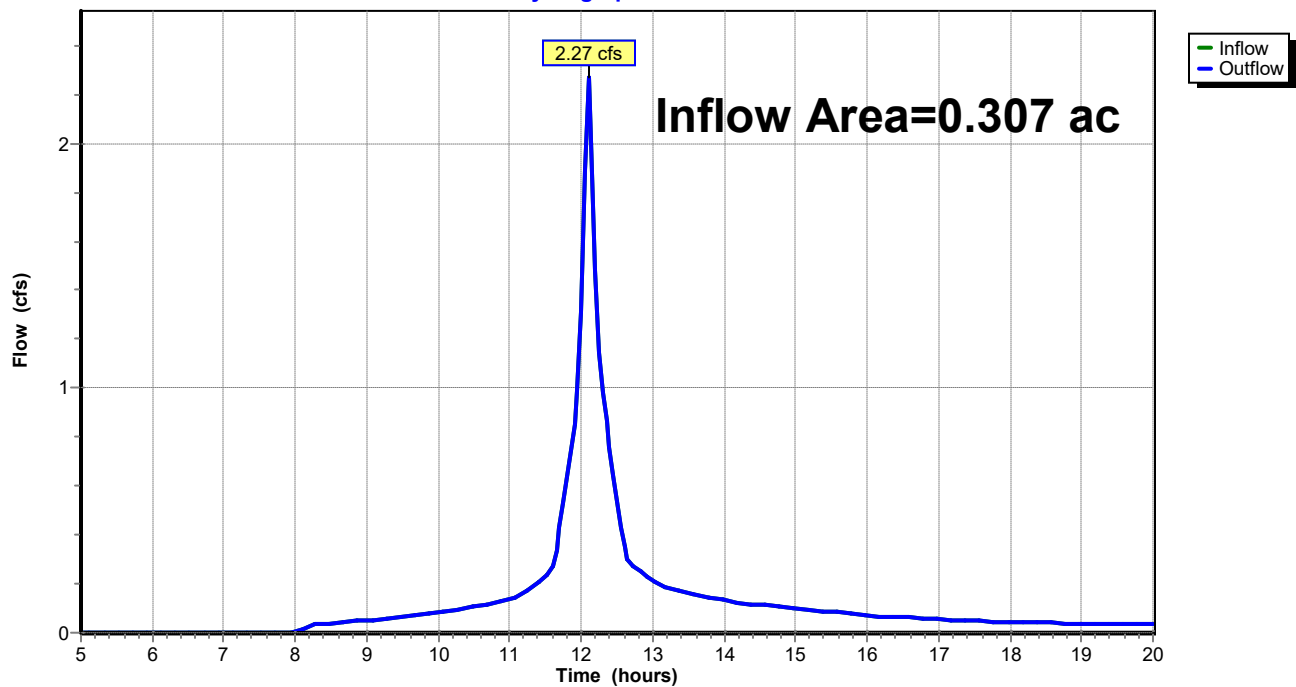
Summary for Reach 2R: Reach 2

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

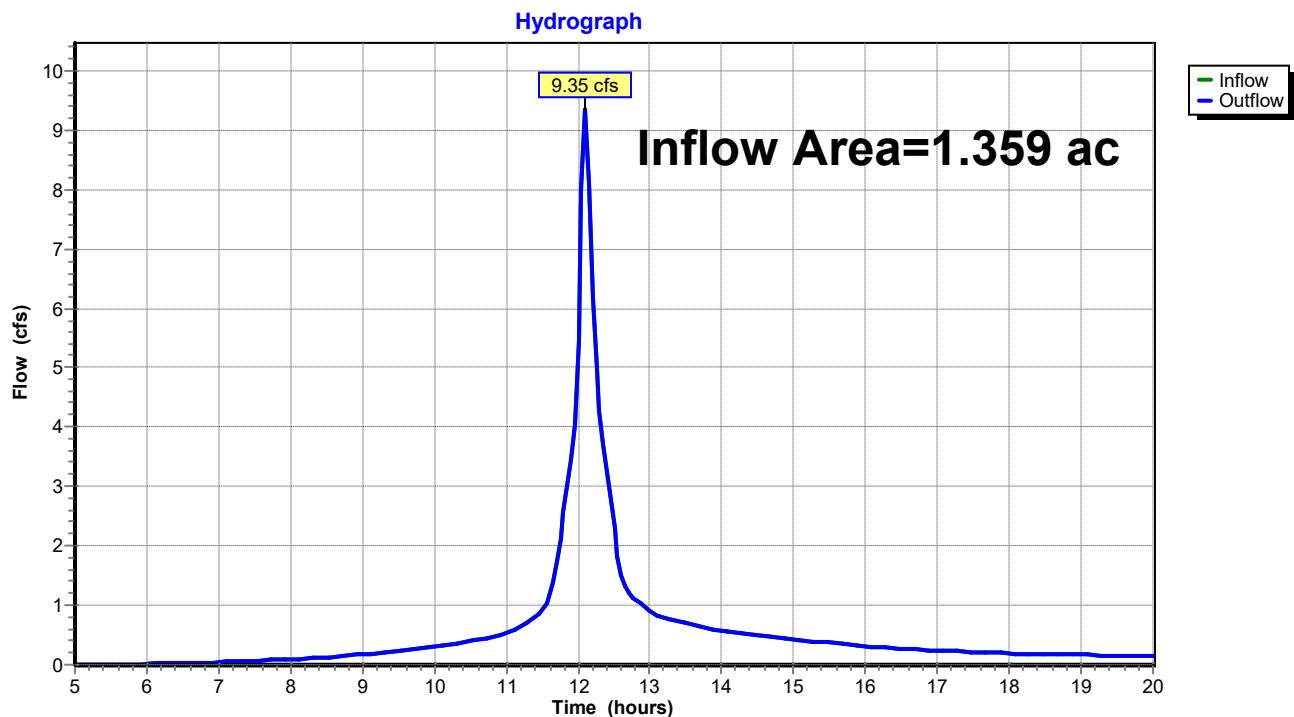


Summary for Reach DP3: Shoreline 3

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

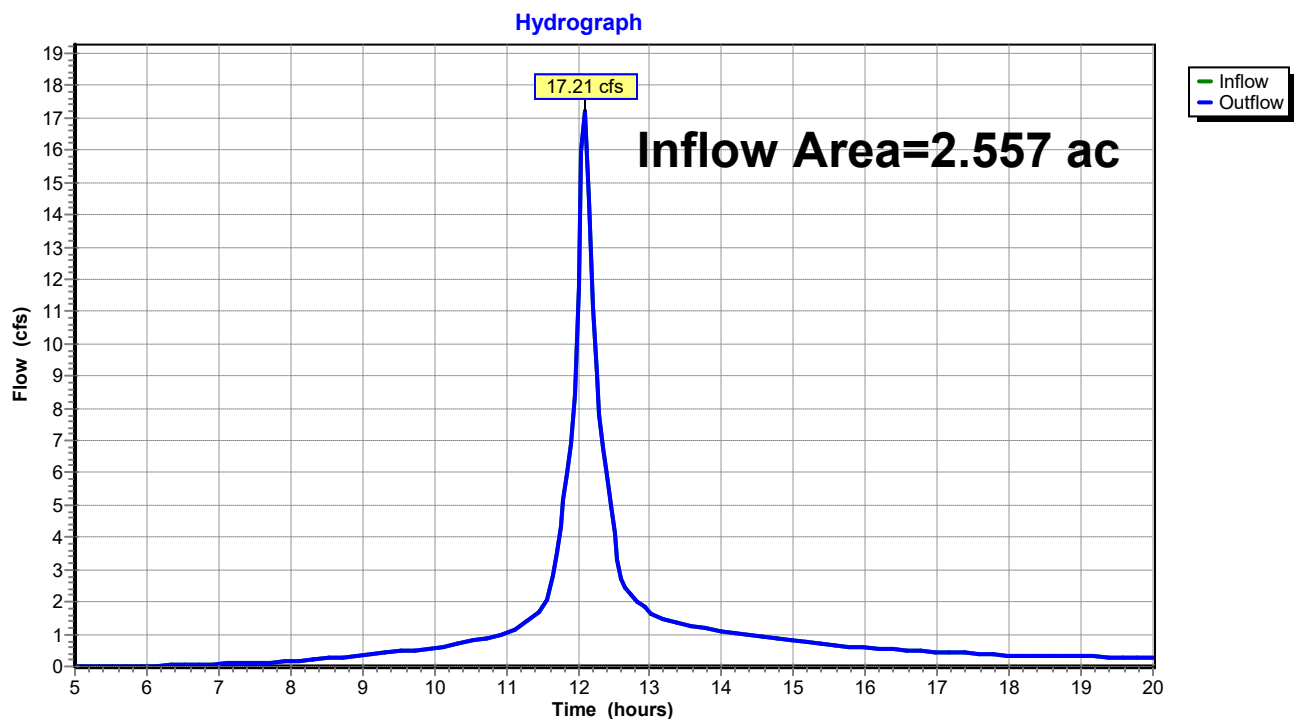


Summary for Reach SP1: SACO RIVER / OCEAN

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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Page 94

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)

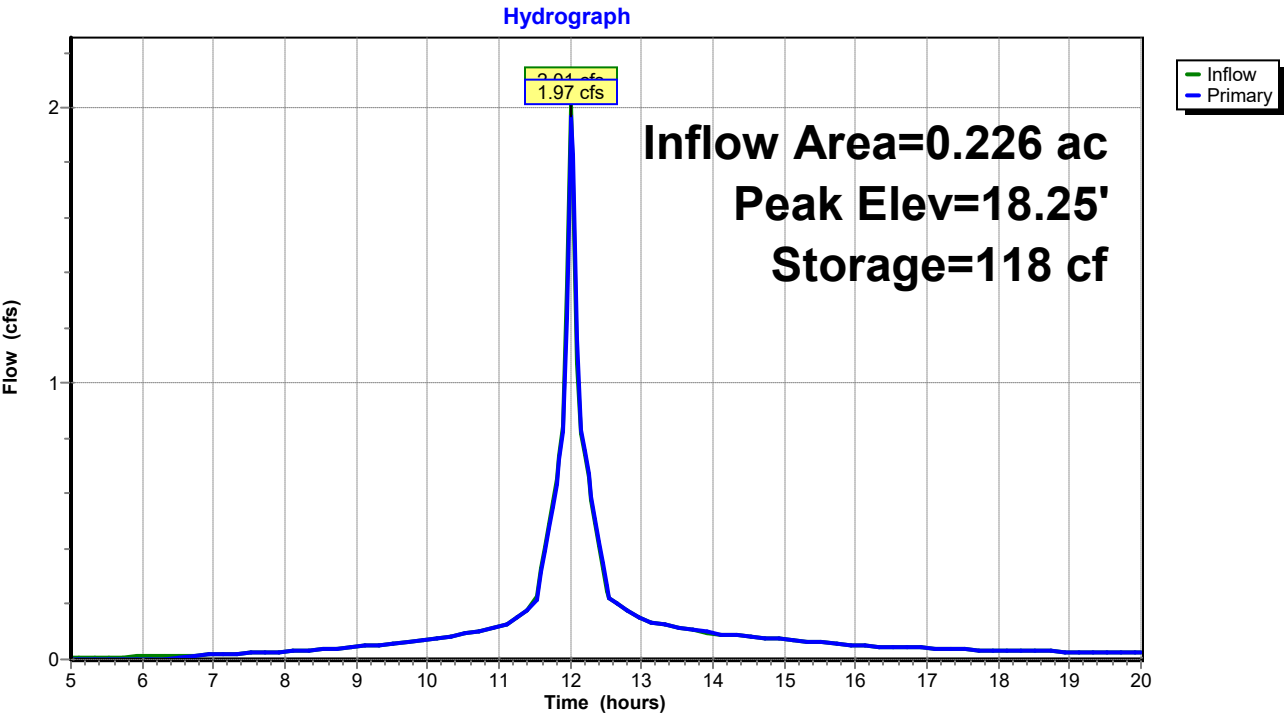
Volume	Invert	Avail.Storage	Storage Description
#1	17.50'	200 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 96

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

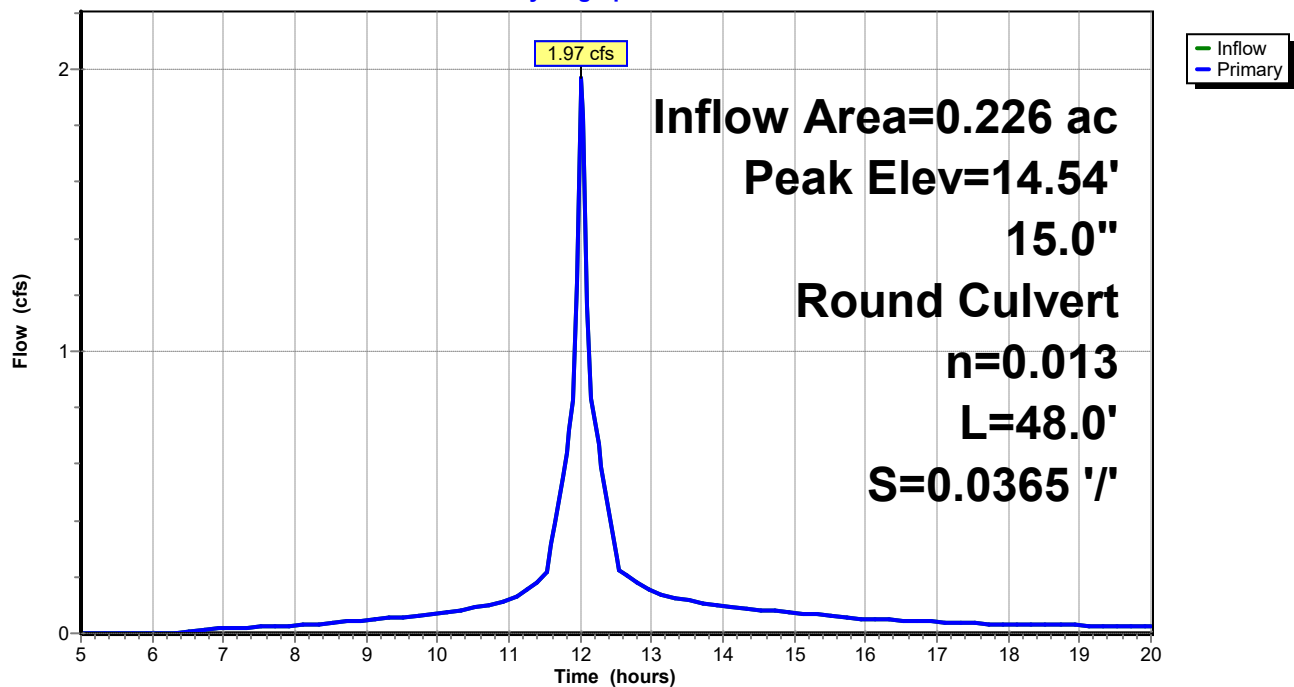
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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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Page 97

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)

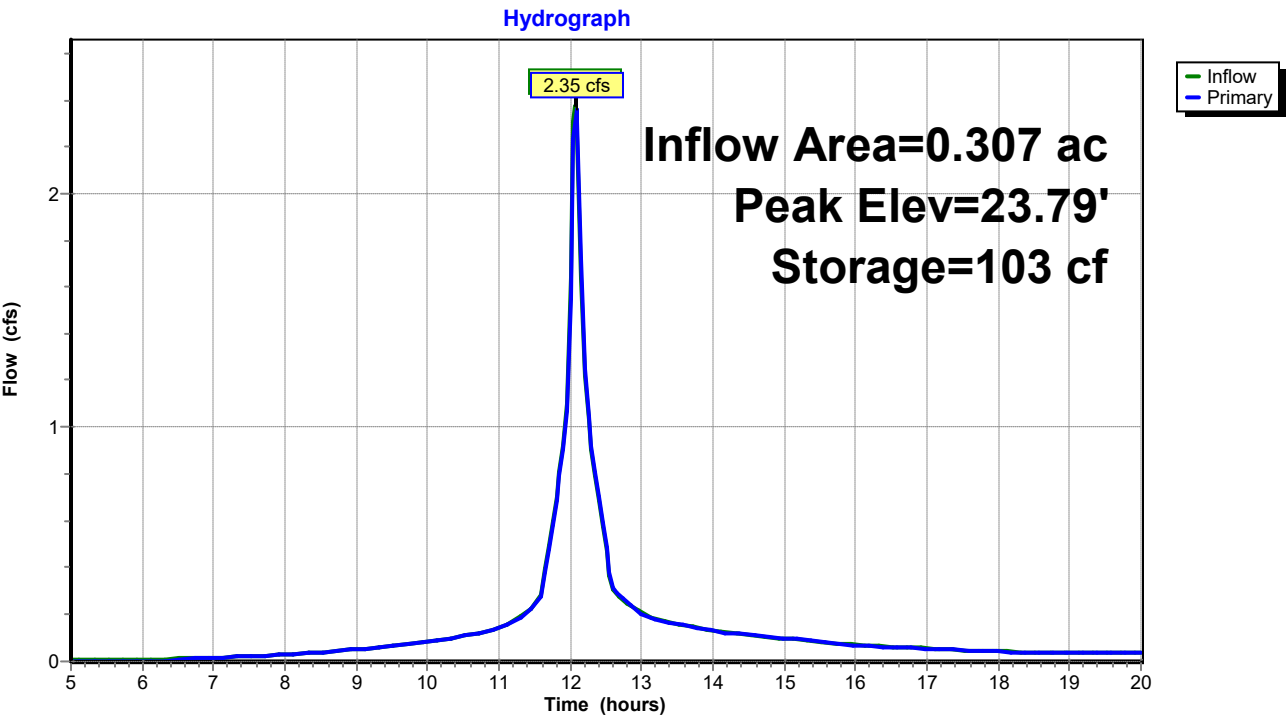
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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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Page 99

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

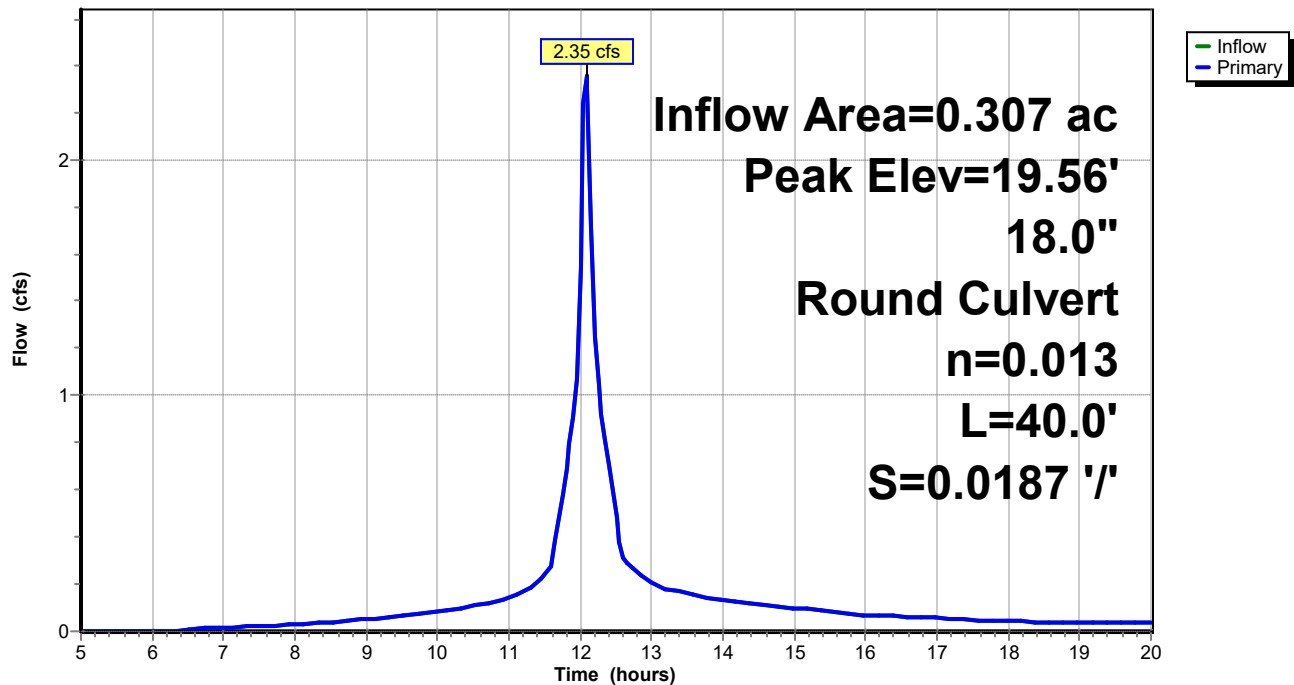
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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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Page 100

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)

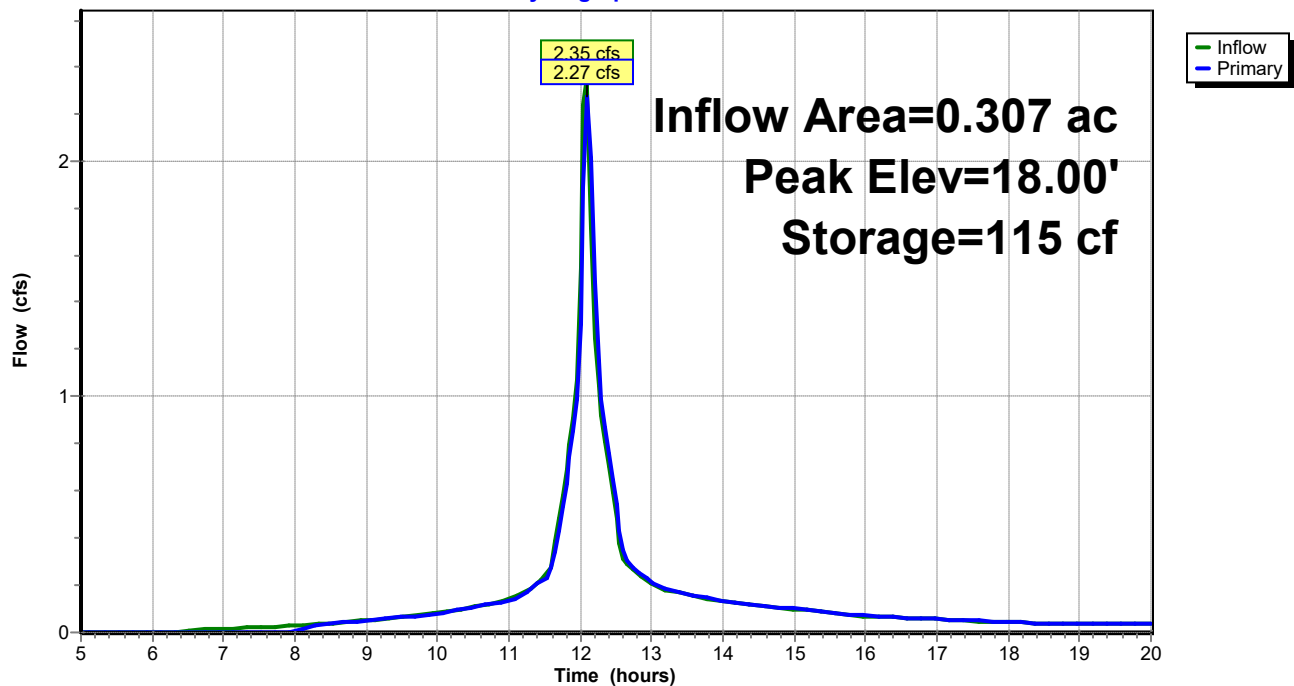
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

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



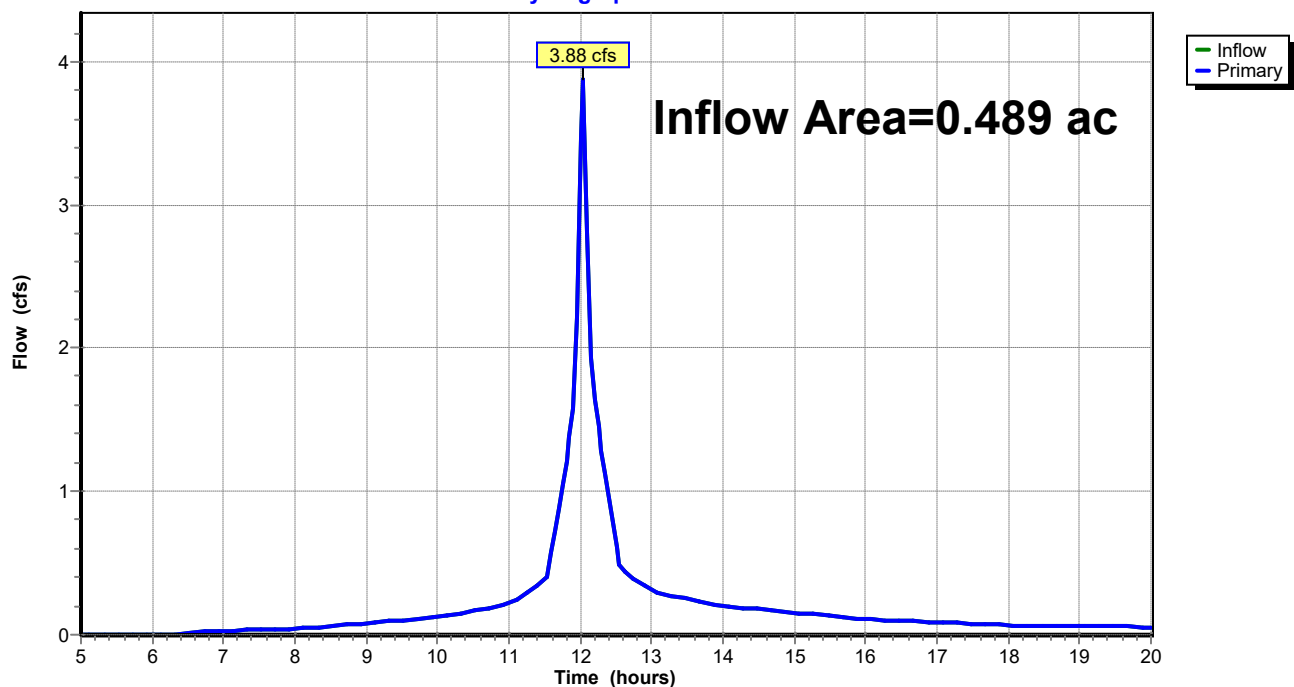
Summary for Link DP1: DP1

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



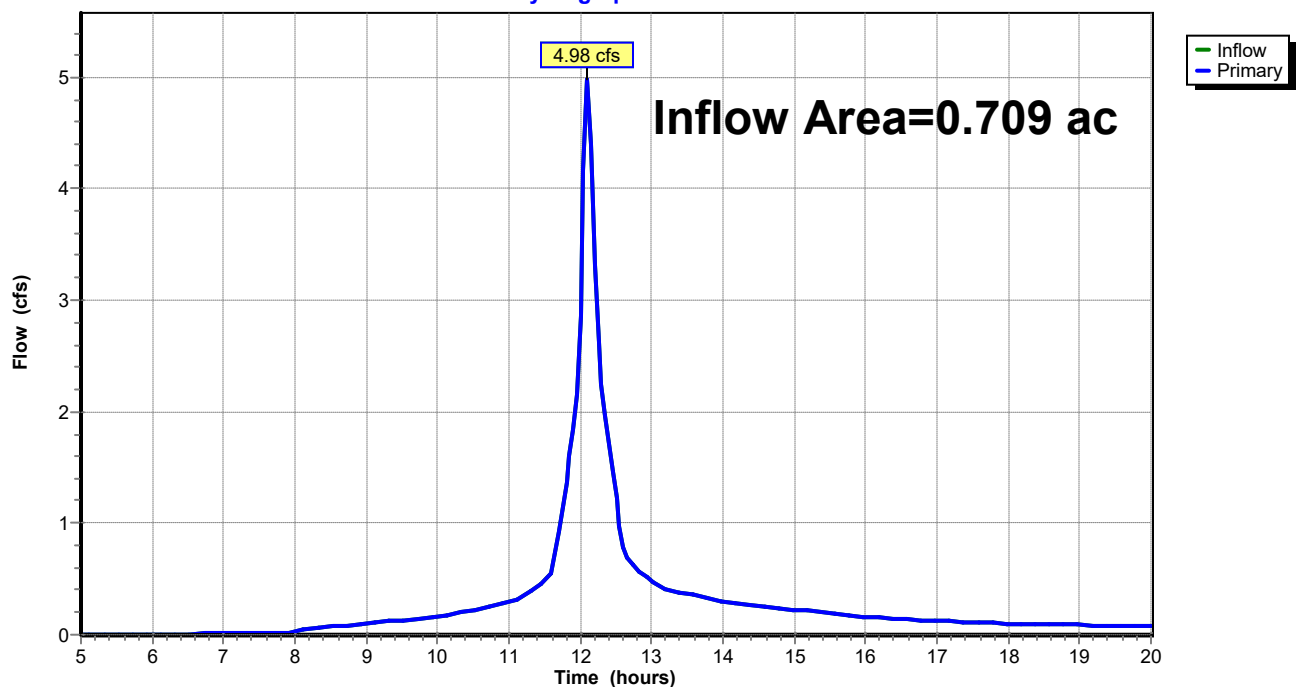
Summary for Link DP2: DP2

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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Page 104

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

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Type III 24-hr WQ Rainfall=1.00"

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Page 105

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

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Type III 24-hr WQ Rainfall=1.00"

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Page 106

Summary for Subcatchment 1S: Post Subcatchment 1

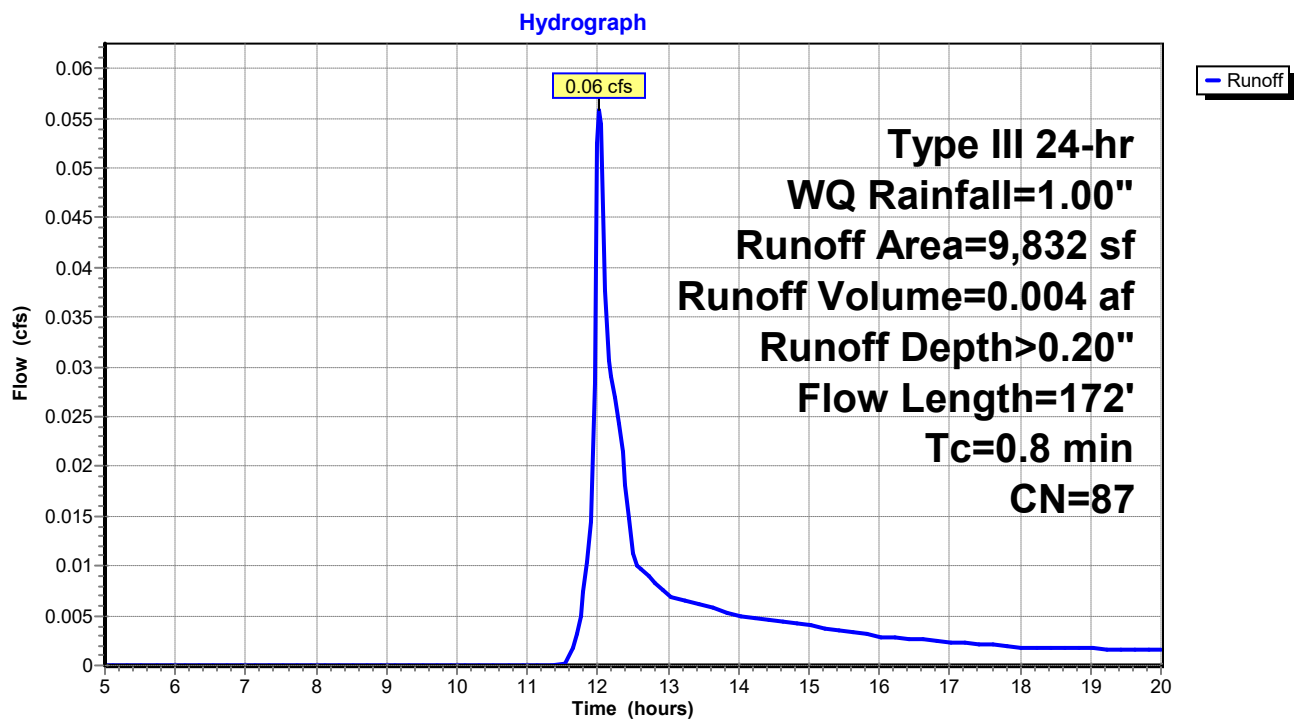
Runoff = 0.06 cfs @ 12.03 hrs, Volume= 0.004 af, Depth> 0.20"
 Routed to Pond 1P : Bioretention Filter Cell 1

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



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Type III 24-hr WQ Rainfall=1.00"

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Page 108

Summary for Subcatchment 2S: Post Subcatchment 2

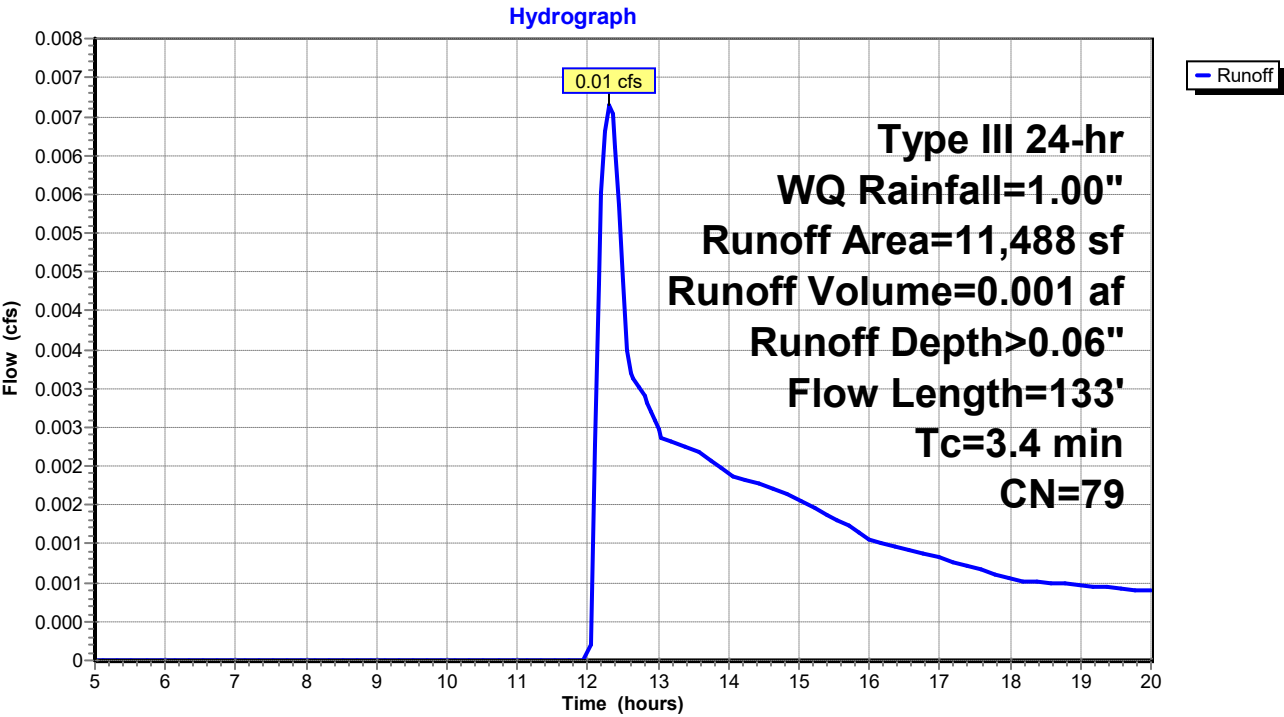
Runoff = 0.01 cfs @ 12.31 hrs, Volume= 0.001 af, Depth> 0.06"
Routed to Link DP1 : DP1

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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Page 109

Summary for Subcatchment 3S: Post Subcatchment 3

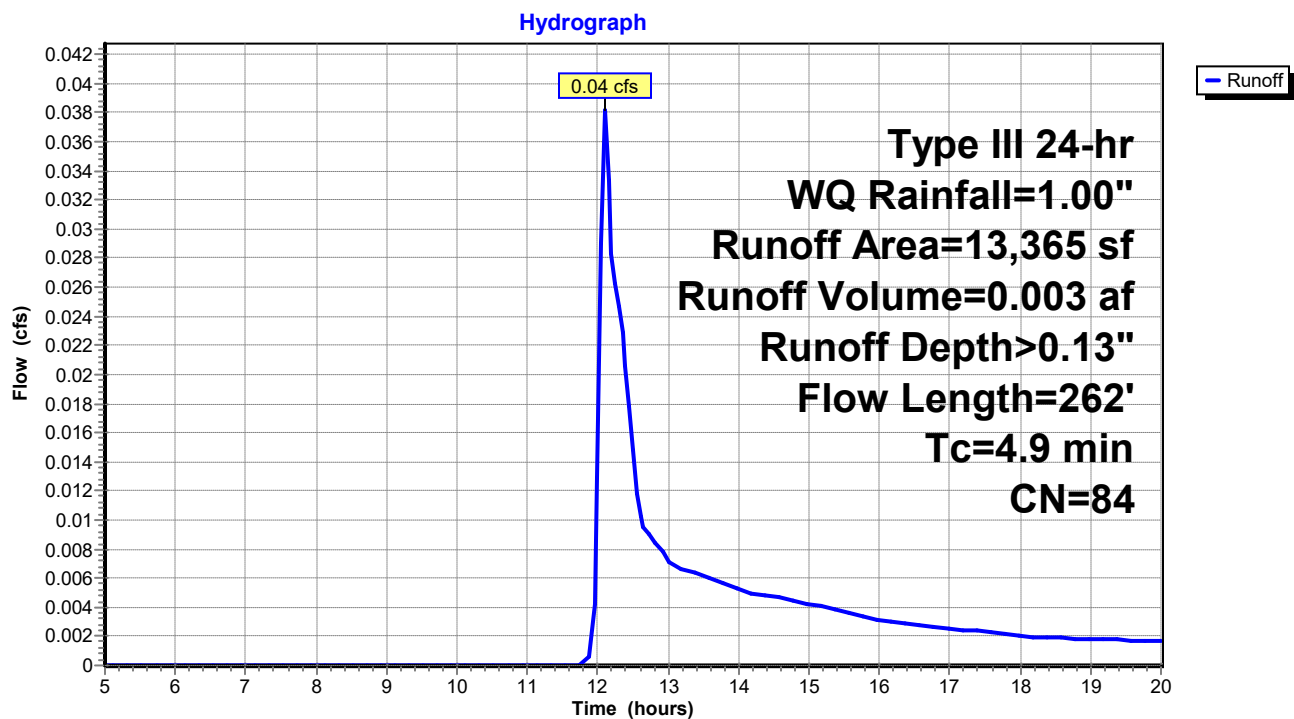
Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.003 af, Depth> 0.13"
 Routed to Pond 3P : Bioretention Filter Cell 2

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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Page 111

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

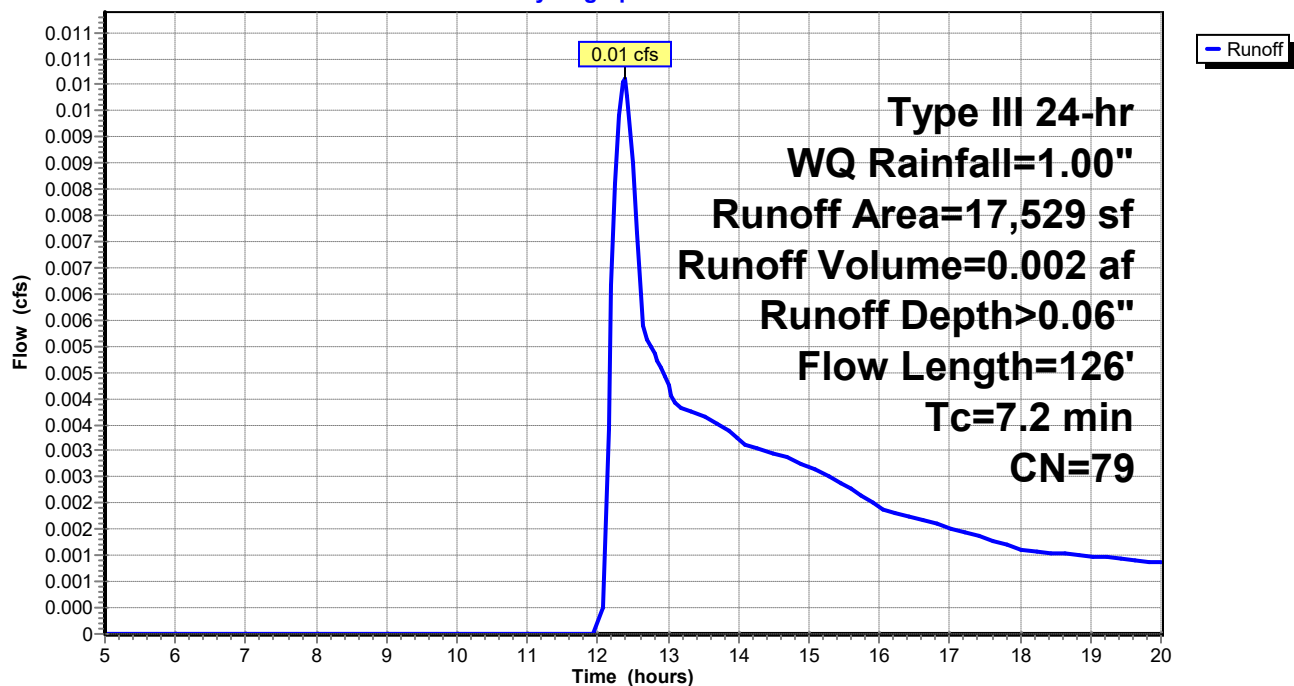
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

	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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Page 112

Summary for Subcatchment 5S: Post Subcatchment 5

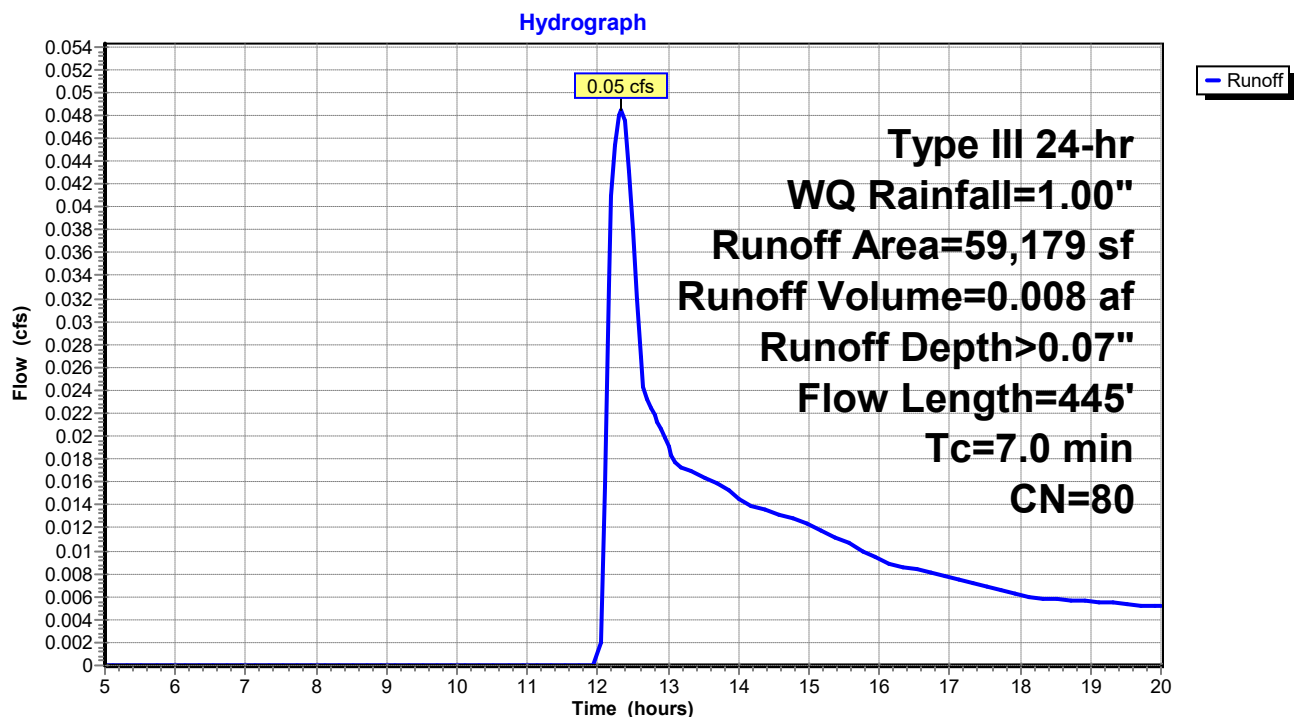
Runoff = 0.05 cfs @ 12.34 hrs, Volume= 0.008 af, Depth> 0.07"
 Routed to Reach DP3 : Shoreline 3

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



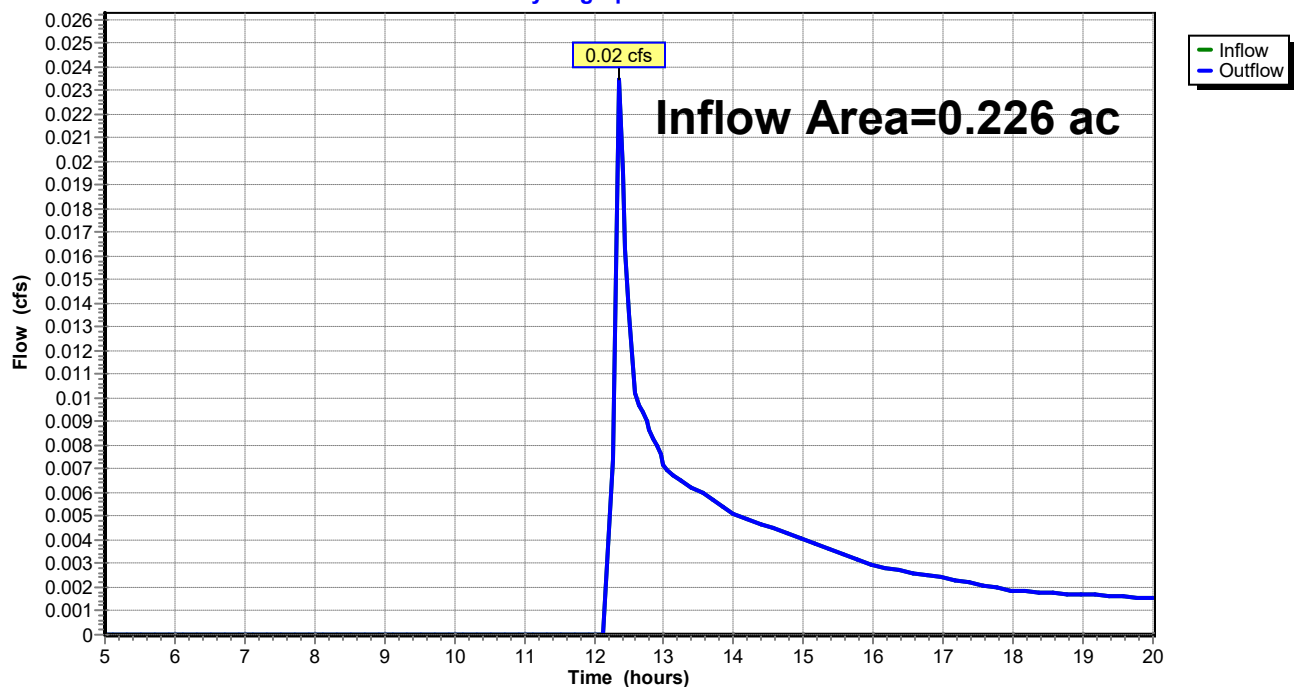
Summary for Reach 1R: Reach 1

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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Page 115

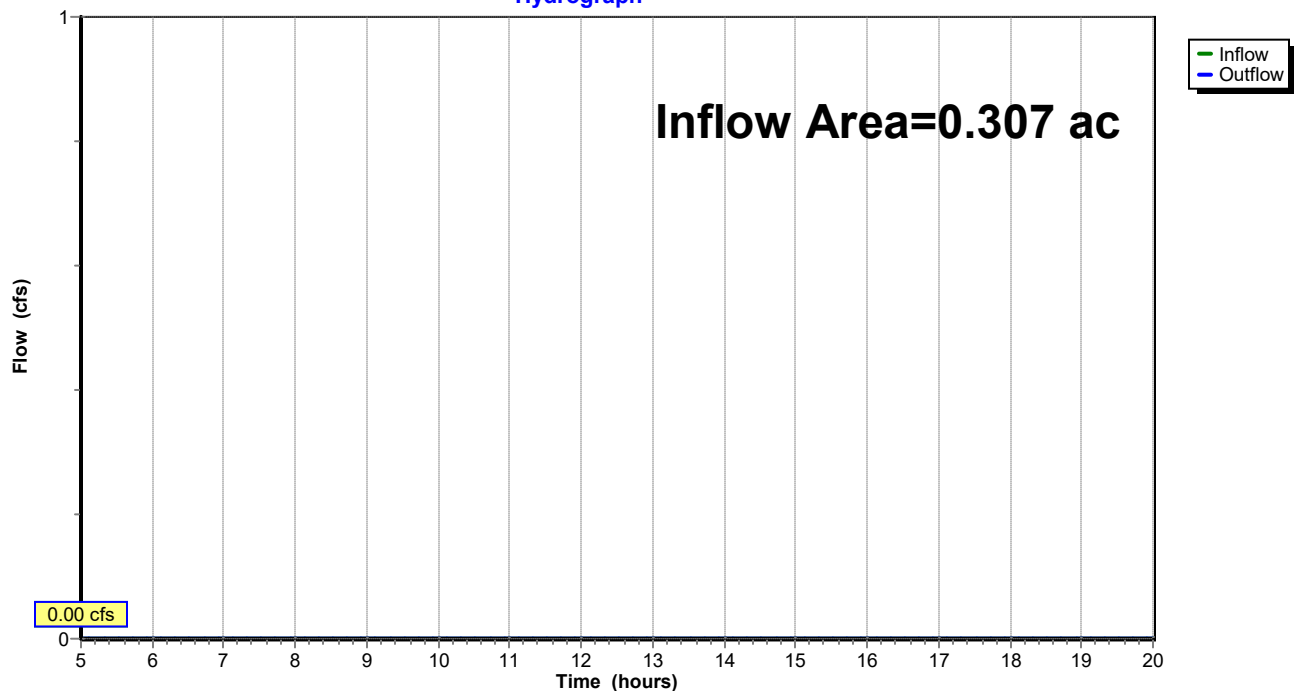
Summary for Reach 2R: Reach 2

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

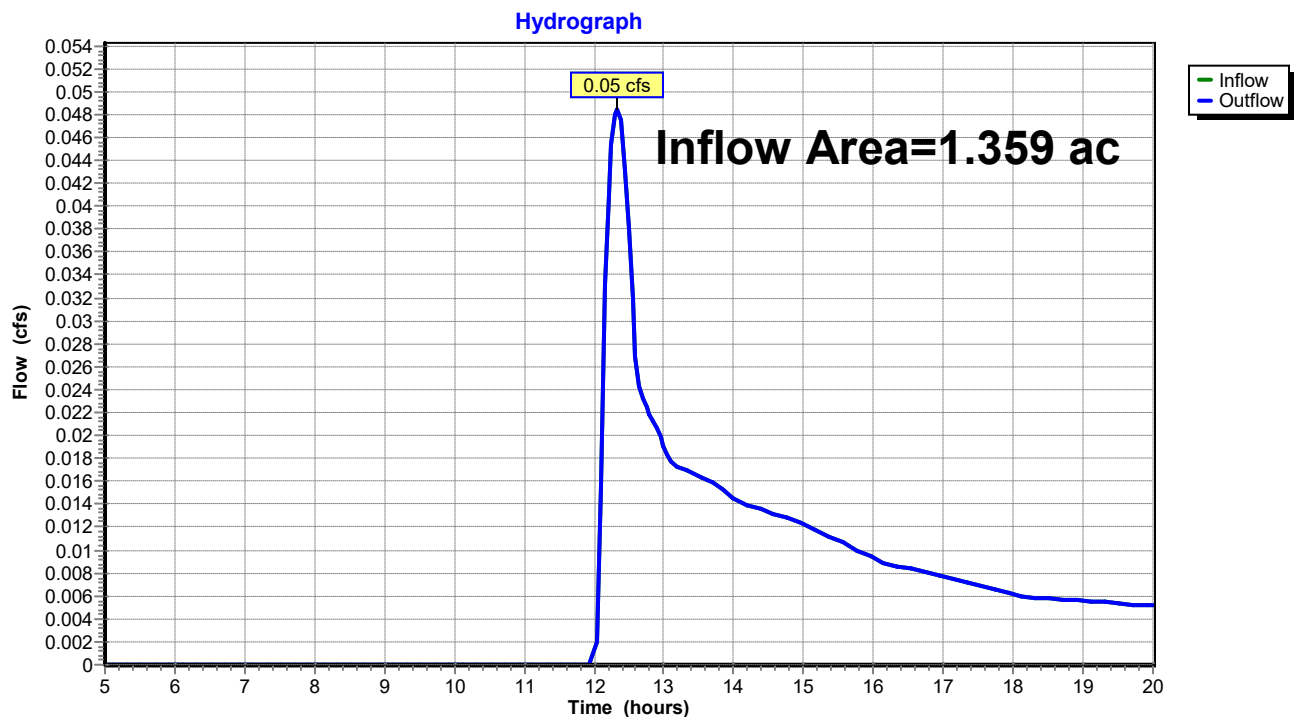


Summary for Reach DP3: Shoreline 3

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

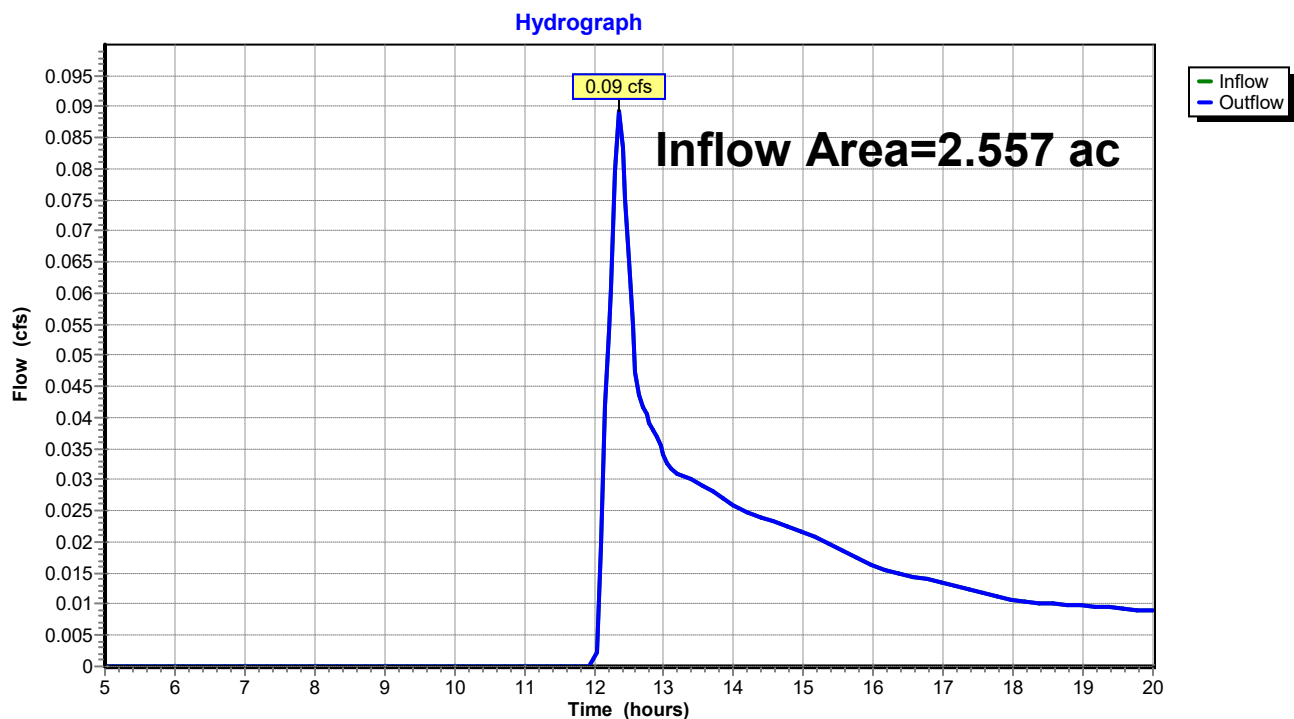


Summary for Reach SP1: SACO RIVER / OCEAN

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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Page 118

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)

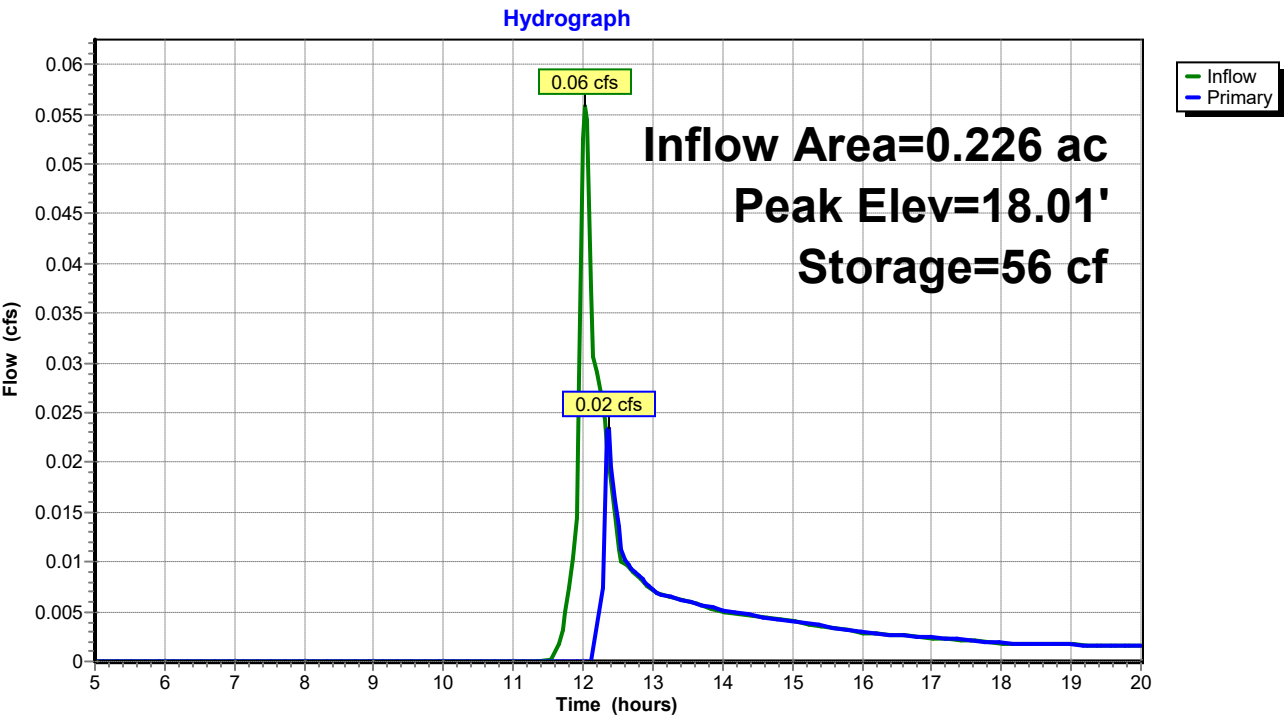
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	0	0	0
18.00	213	53	53
18.50	372	146	200

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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Page 120

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

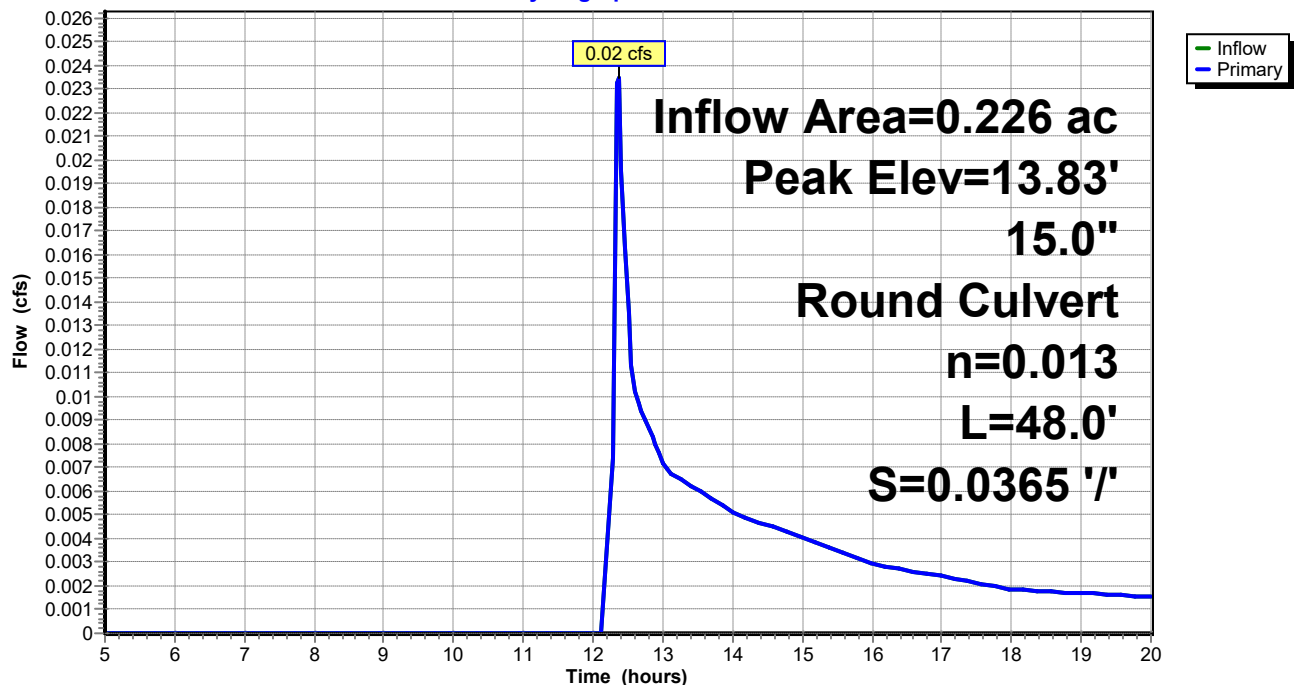
Device	Routing	Invert	Outlet Devices
#1	Primary	13.75'	15.0" Round Culvert L= 48.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 13.75' / 12.00' S= 0.0365 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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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Page 121

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)

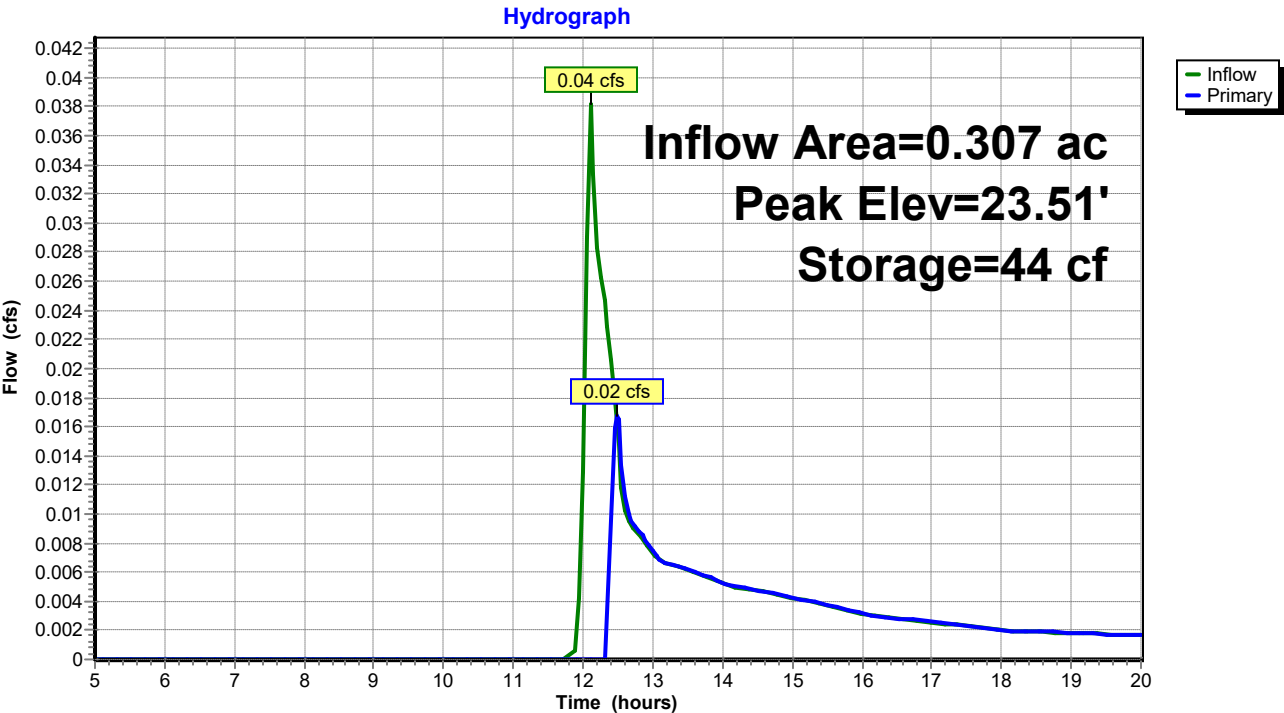
Volume	Invert	Avail.Storage	Storage Description
#1	23.00'	380 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

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



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Type III 24-hr WQ Rainfall=1.00"

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Page 123

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

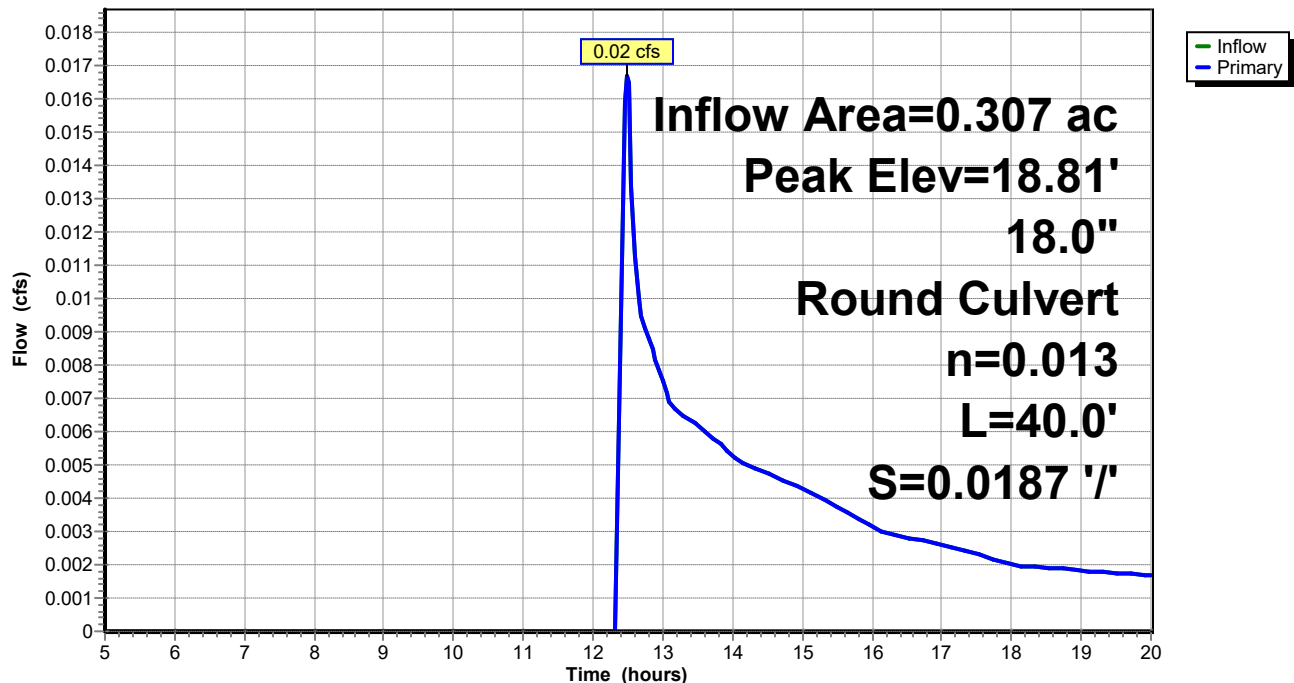
Device	Routing	Invert	Outlet Devices
#1	Primary	18.75'	18.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 18.75' / 18.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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



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Type III 24-hr WQ Rainfall=1.00"

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Page 124

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)

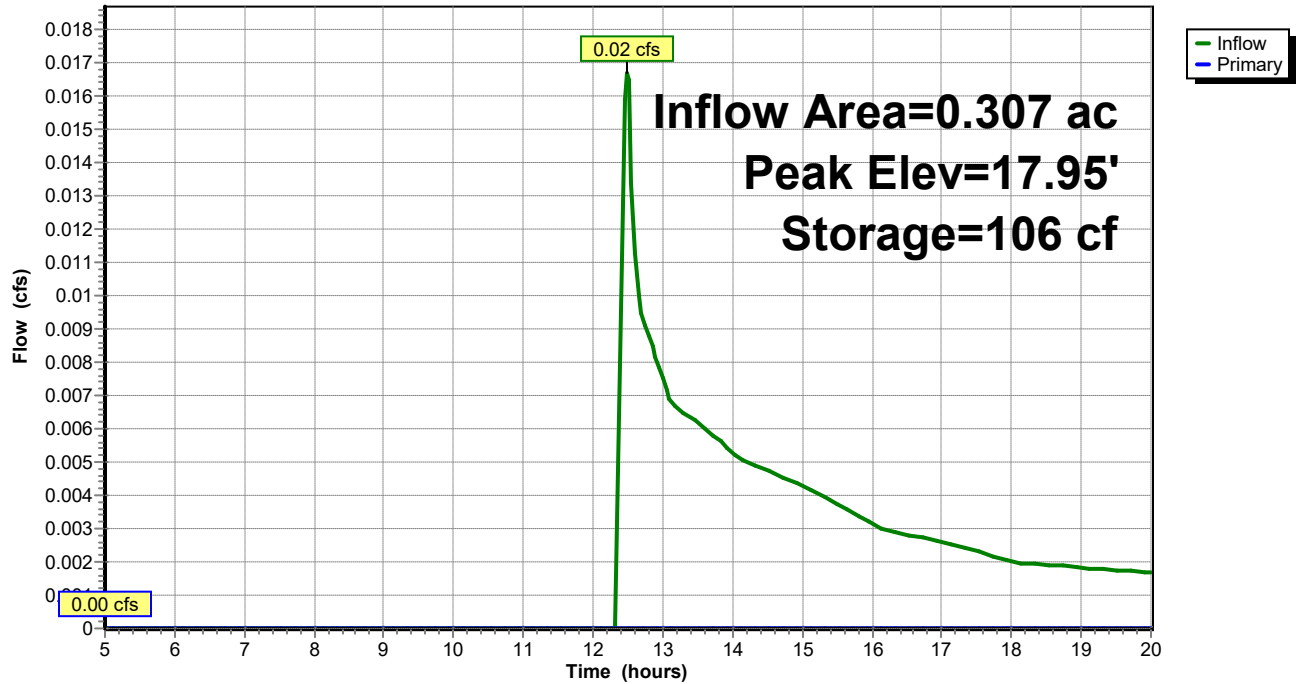
Volume	Invert	Avail.Storage	Storage Description	
#1	17.00'	115 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.00	61	0.0	0	0
18.00	168	100.0	115	115

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



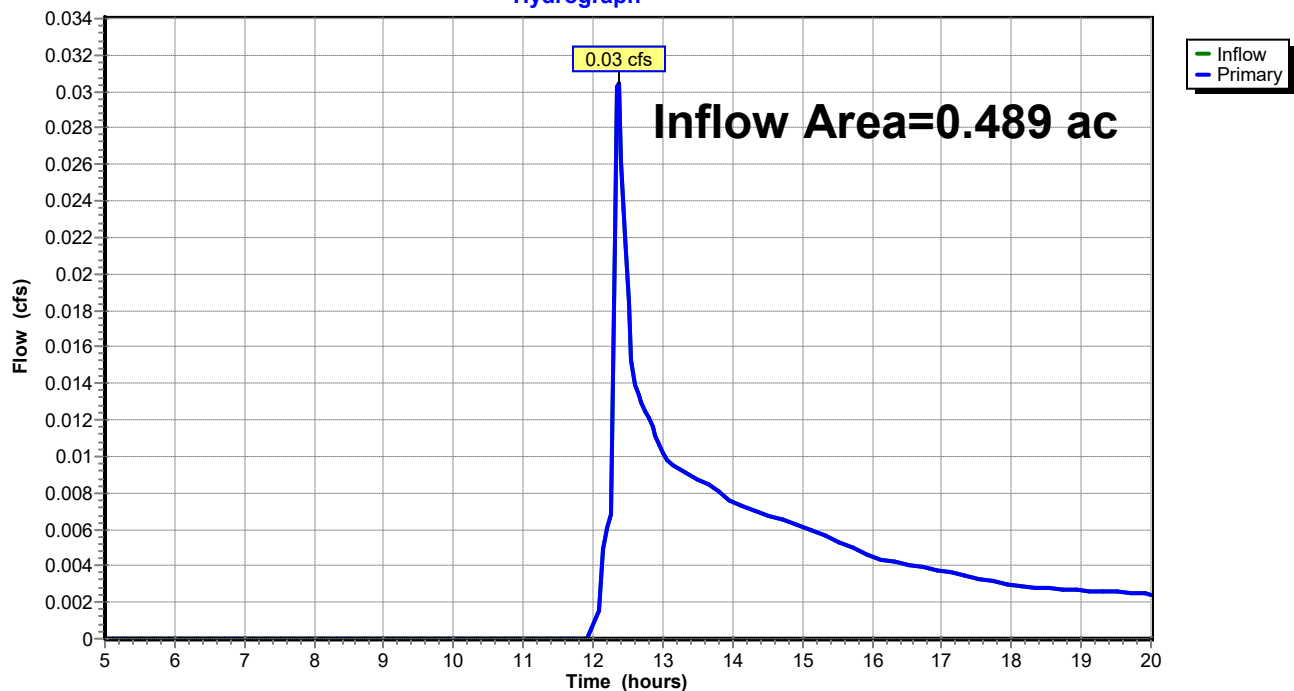
Summary for Link DP1: DP1

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

Hydrograph



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

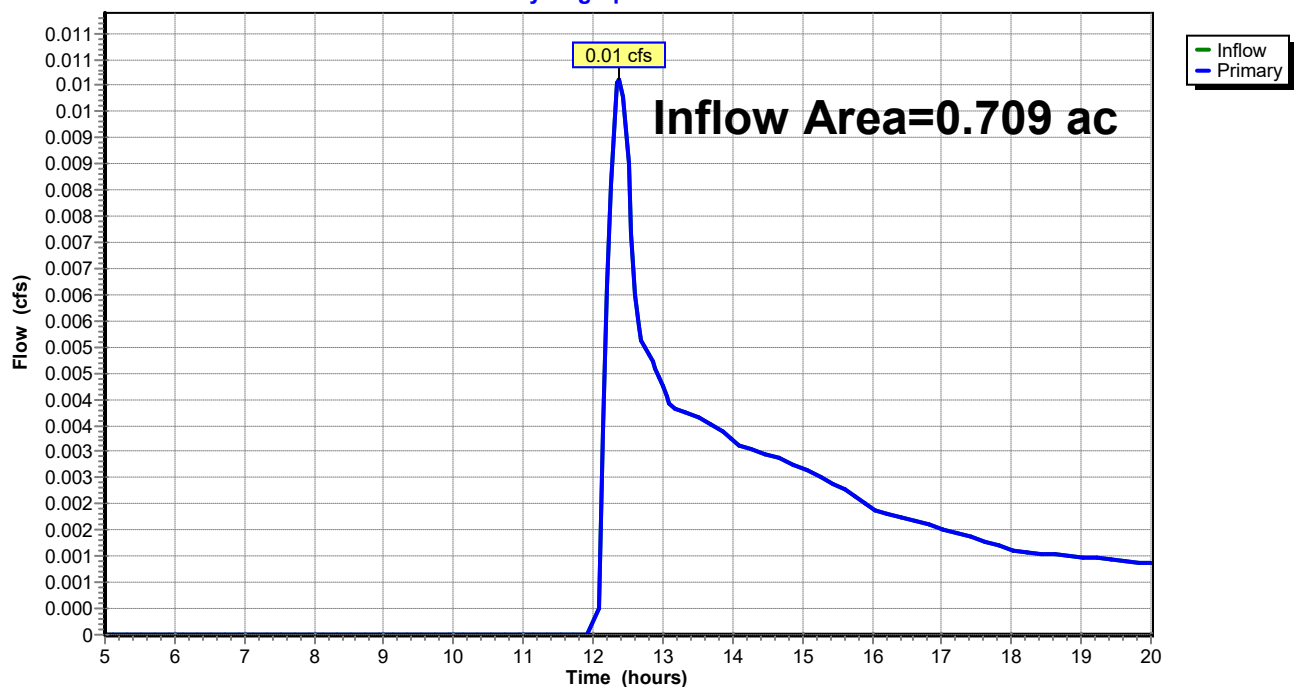


TABLE OF CONTENTS**Project Reports**

- 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
- 22 Pond 1P: Bioretention Filter Cell 1
- 24 Pond 2P: CB-1
- 25 Pond 3P: Bioretention Filter Cell 2
- 27 Pond 4P: CB-2
- 28 Pond 5P: Level Lip Spreader
- 30 Link DP1: DP1
- 31 Link DP2: DP2

10-yr Event

- 32 Node Listing
- 34 Subcat 1S: Post Subcatchment 1
- 36 Subcat 2S: Post Subcatchment 2
- 37 Subcat 3S: Post Subcatchment 3
- 39 Subcat 4S: Post Subcatchment 4
- 40 Subcat 5S: Post Subcatchment 5
- 42 Reach 1R: Reach 1
- 43 Reach 2R: Reach 2
- 44 Reach DP3: Shoreline 3
- 45 Reach SP1: SACO RIVER / OCEAN
- 46 Pond 1P: Bioretention Filter Cell 1
- 48 Pond 2P: CB-1
- 49 Pond 3P: Bioretention Filter Cell 2
- 51 Pond 4P: CB-2
- 52 Pond 5P: Level Lip Spreader
- 54 Link DP1: DP1
- 55 Link DP2: DP2

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Table of Contents

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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
- 68 Reach DP3: Shoreline 3
- 69 Reach SP1: SACO RIVER / OCEAN
- 70 Pond 1P: Bioretention Filter Cell 1
- 72 Pond 2P: CB-1
- 73 Pond 3P: Bioretention Filter Cell 2
- 75 Pond 4P: CB-2
- 76 Pond 5P: Level Lip Spreader
- 78 Link DP1: DP1
- 79 Link DP2: DP2

100-yr Event

- 80 Node Listing
- 82 Subcat 1S: Post Subcatchment 1
- 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
- 91 Reach 2R: Reach 2
- 92 Reach DP3: Shoreline 3
- 93 Reach SP1: SACO RIVER / OCEAN
- 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

WQ Event

- 104 Node Listing
- 106 Subcat 1S: Post Subcatchment 1
- 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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Table of Contents

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117	Reach SP1: SACO RIVER / OCEAN
118	Pond 1P: Bioretention Filter Cell 1
120	Pond 2P: CB-1
121	Pond 3P: Bioretention Filter Cell 2
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					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 (%)	Vel 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

CATCH BASINS, FIELD INLETS, AND DRAIN MANHOLES

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
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[illegible]

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

[illegible]

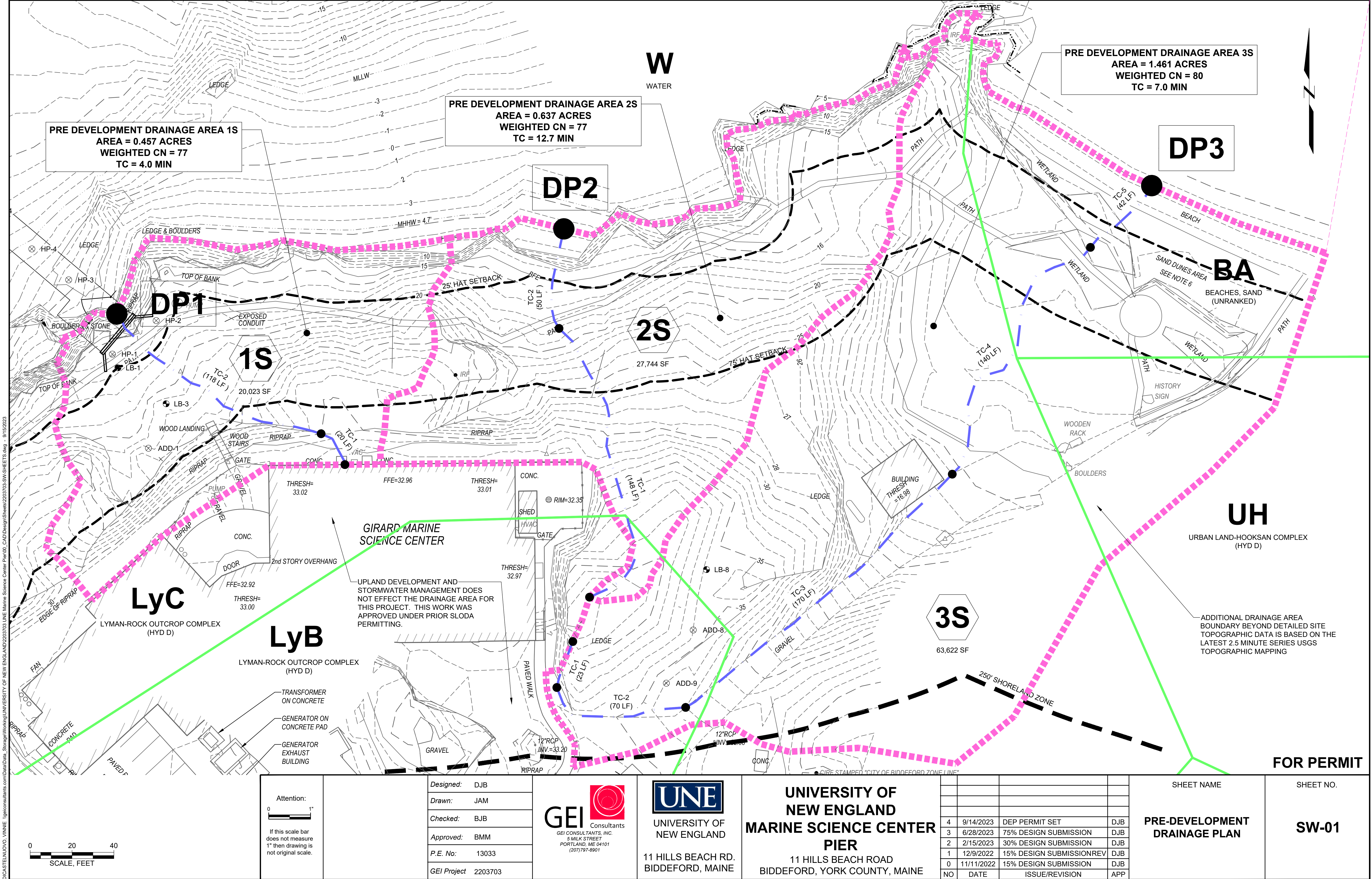
UNIVERSITY OF NEW ENGLAND**BIDDEFORD, MAINE****INSPECTION / MAINTENANCE LOG****BIORETENTION FILTER CELLS****I: INSPECTED - C: CLEANED - R: REPAIRED**

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.

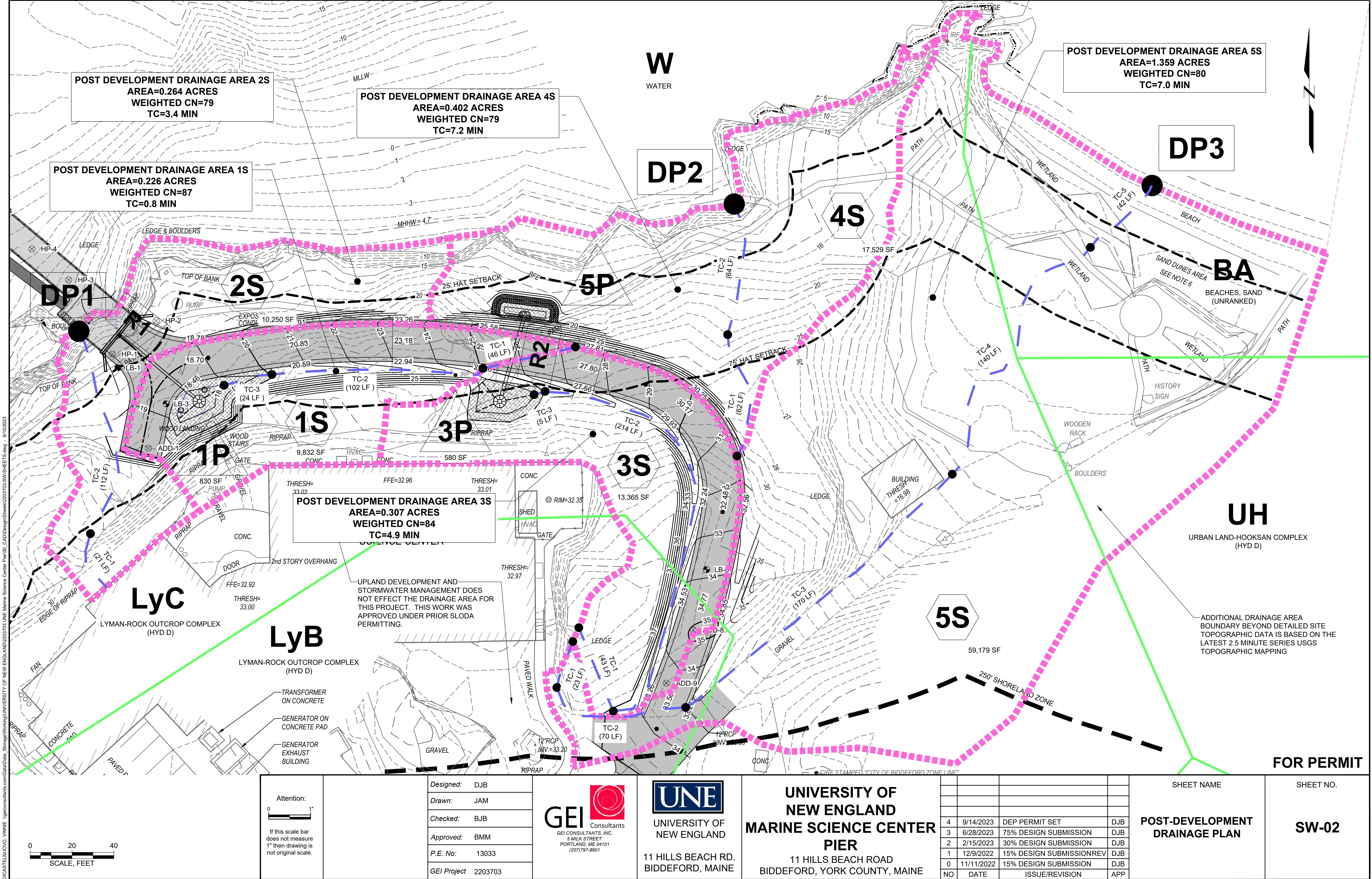
**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

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

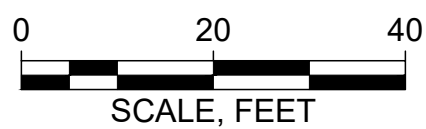
POST DEVELOPMENT DRAINAGE AREA 1S
AREA=0.226 ACRES
WEIGHTED CN=87
TC=0.8 MIN

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



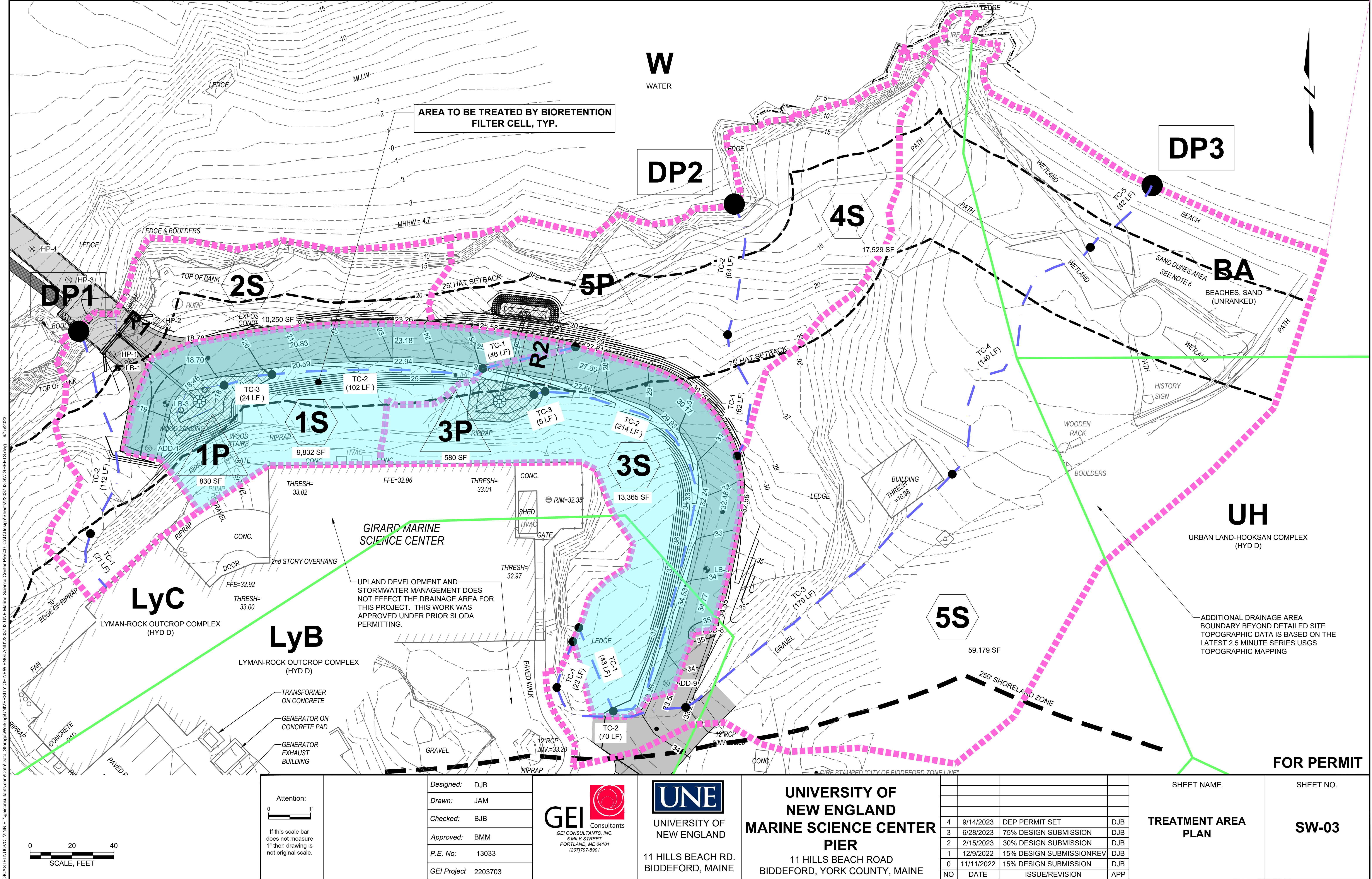
UNE
UNIVERSITY OF
NEW ENGLAND
11 HILLS BEACH RD.
BIDDEFORD, MAINE

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



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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
**TREATMENT AREA
PLAN**

SHEET NO.
SW-03

FOR PERMIT

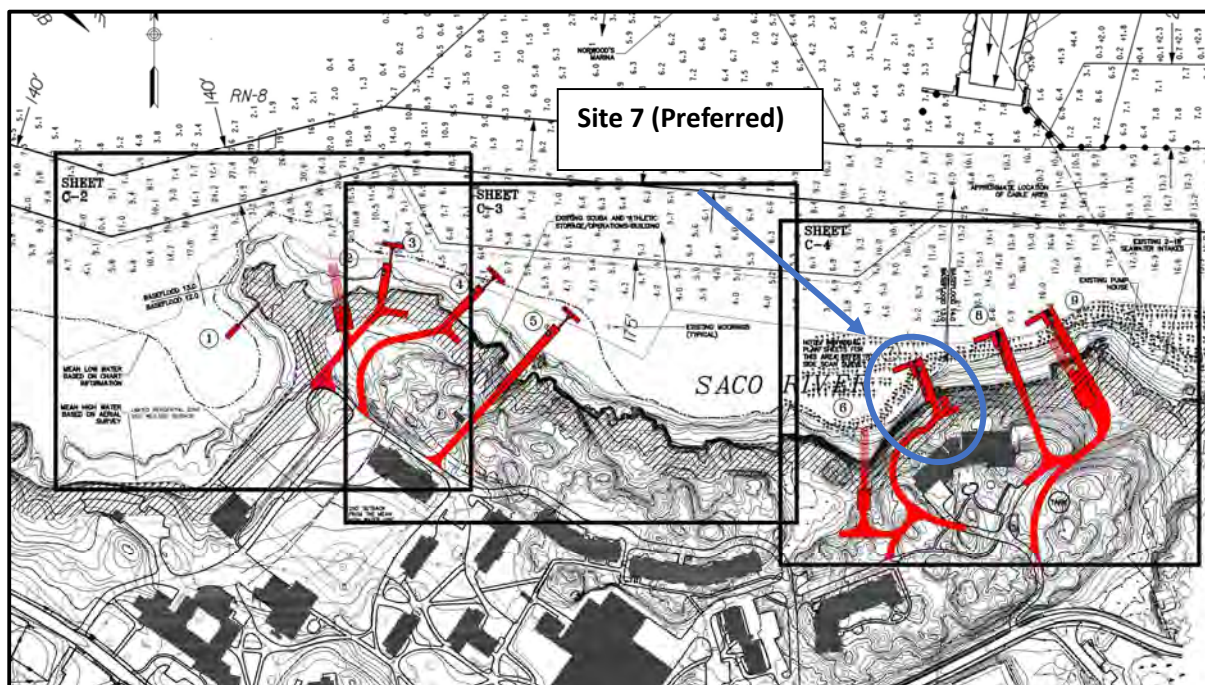
**Attachment 8
Alternatives Analysis
and Memo**

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.

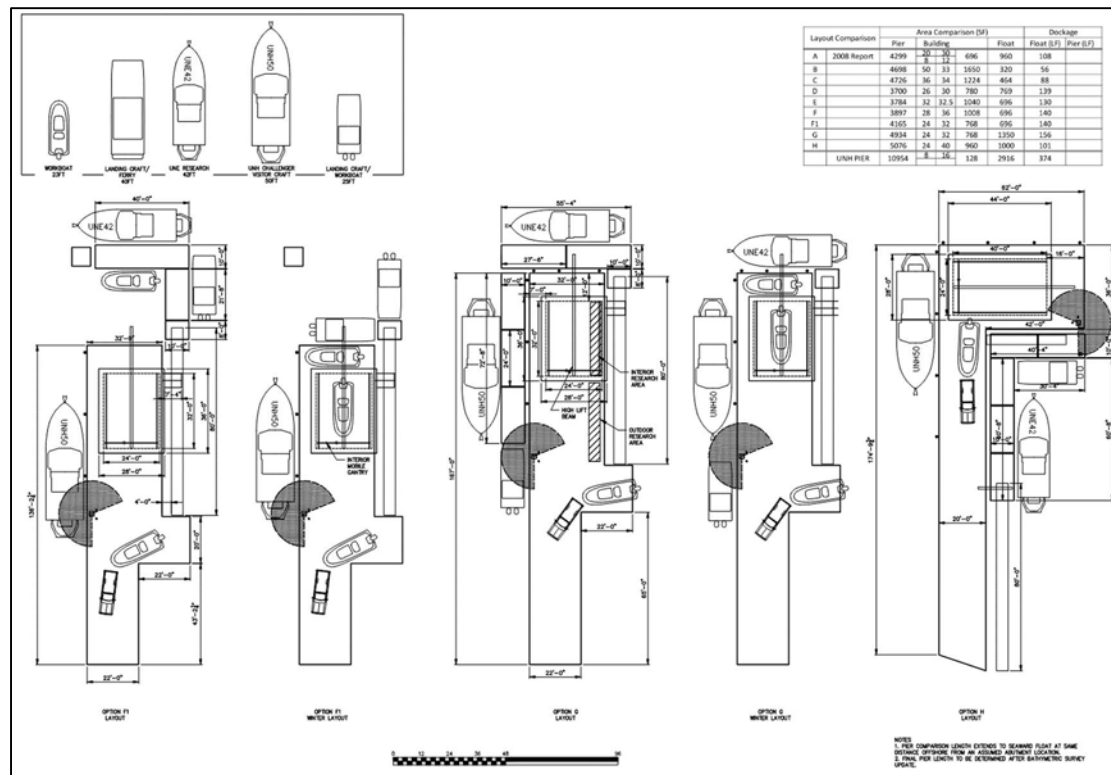
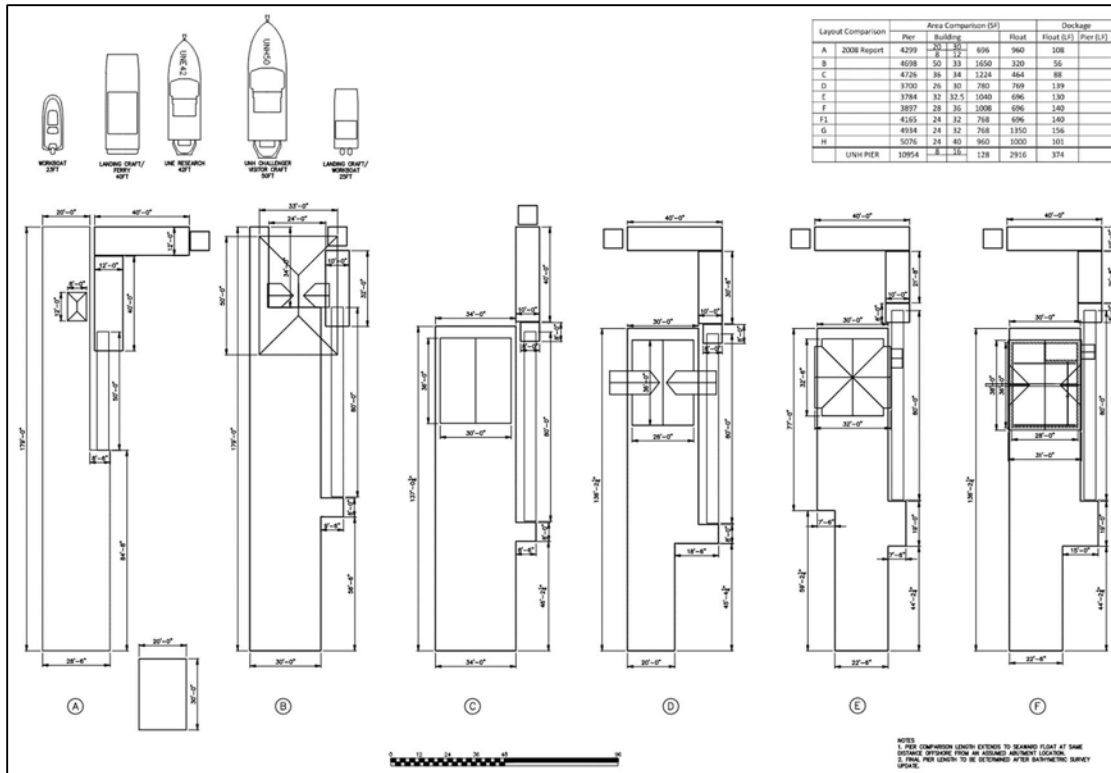
2008-2010 Pier Feasibility Study

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.



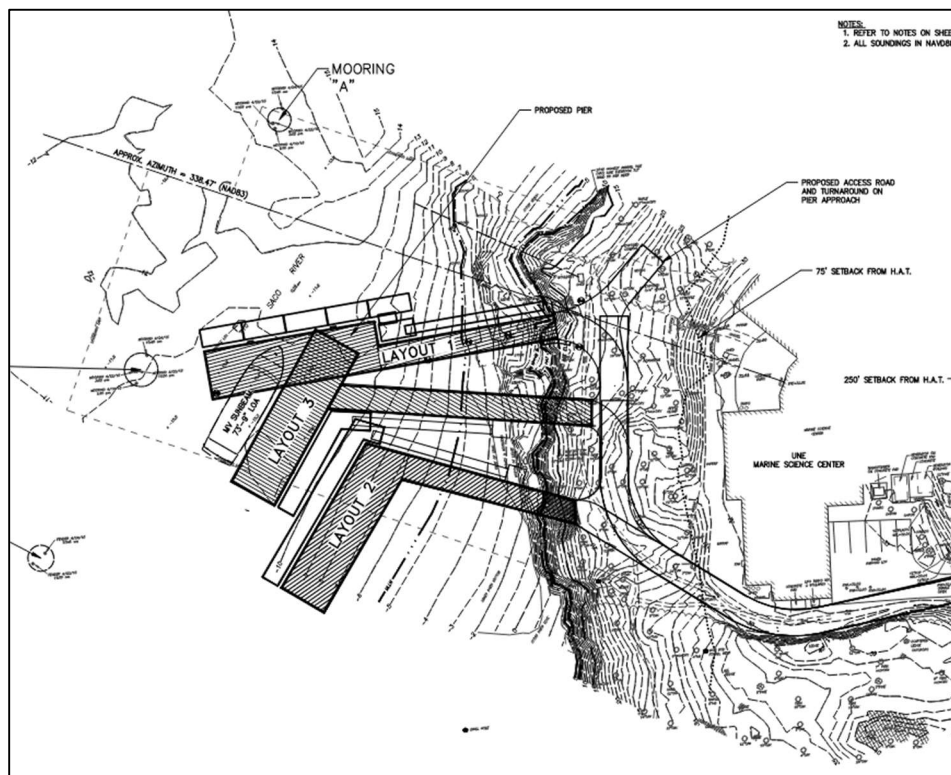
2015-2016 Pier Layout Study

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.

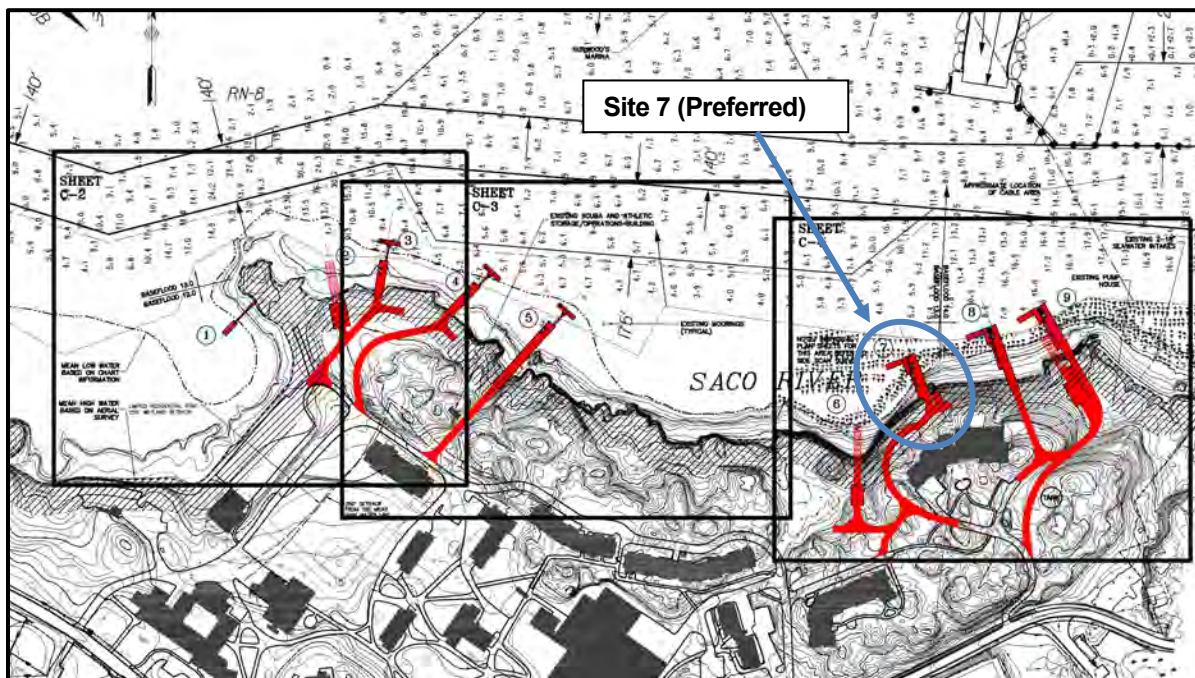


Fig. 1 – Alternative Sites Evaluated in 2008-2010 Study

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.

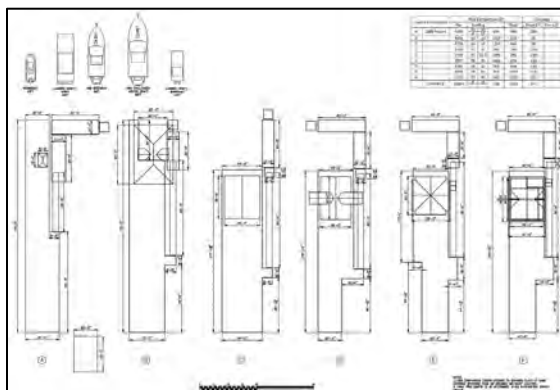


Fig. 2 – Sample of pier layout alternatives evaluated in 2015-2016 (1 of 2)

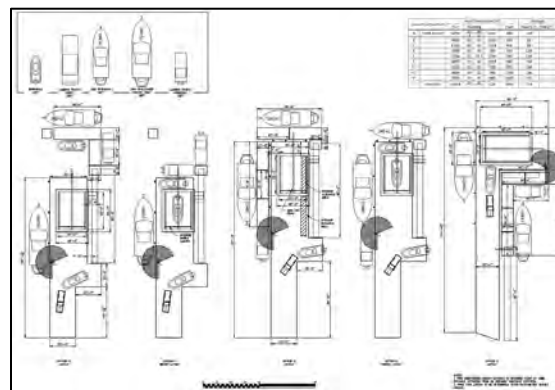


Fig. 3 – Sample of pier layout alternatives evaluated in 2015-2016 (2 of 2)

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”.

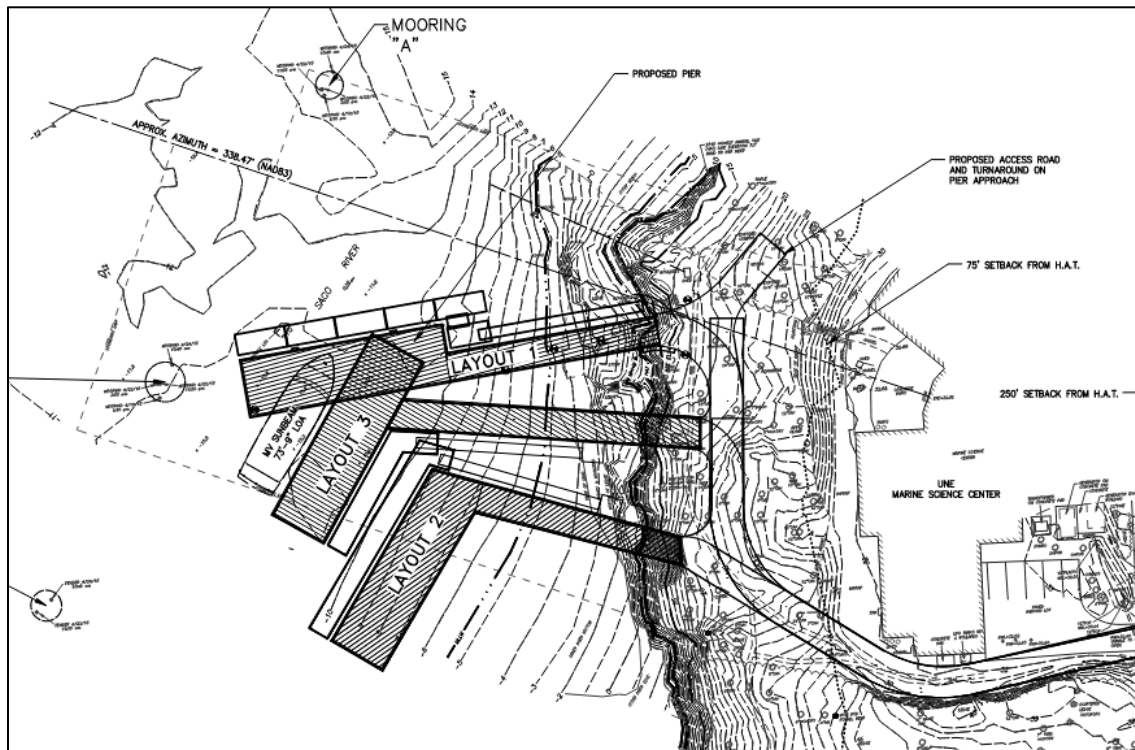


Fig. 4 – Pier layout alternatives developed in 2016 to address Harbormaster feedback

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.



Fig. 5 – Proposed Pier Layout Vicinity Plan

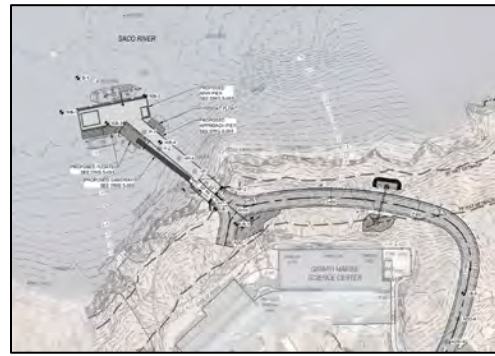


Fig. 6 – Proposed Pier Layout Site Plan

Alternative Location Analysis

In October 2023, UNE staff held a meeting to review the project with several key local stakeholders. During this meeting, the Biddeford and Saco Harbormasters suggested an alternative concept for the pier location that would relocate the pier further downstream from the proposed location as approximately shown in Fig. 7. In support of this alternative location, the Harbormasters cite deeper water, less impact to existing moorings, a location with more favorable water currents, and concerns of sediment deposition and potential need for dredging in the proposed pier location. Additionally, the Harbormasters have raised concerns about potential ice exposure given the history of icing issues at the Camp Ellis Pier directly across the River.

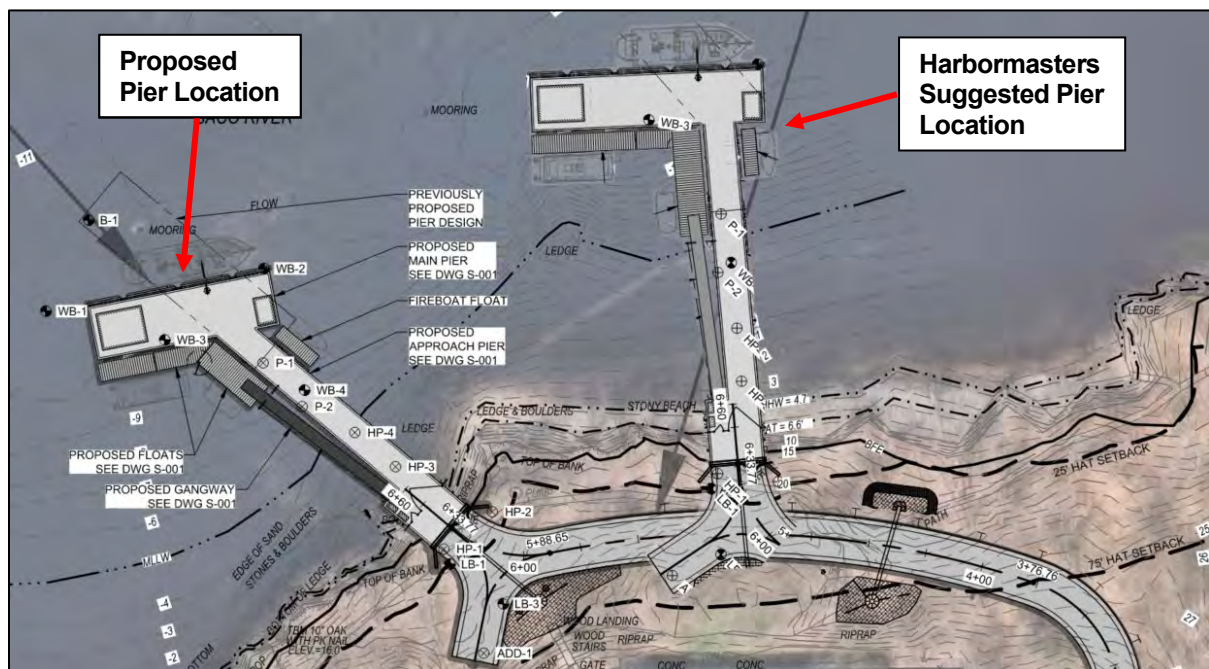


Fig. 7 – Alternative Suggested Pier Location

Review of Suggested Alternative Location

GEI has reviewed the suggested alternative layout and provided an evaluation of factors relating to the advantages and disadvantages of the proposed design versus the suggested alternative.

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

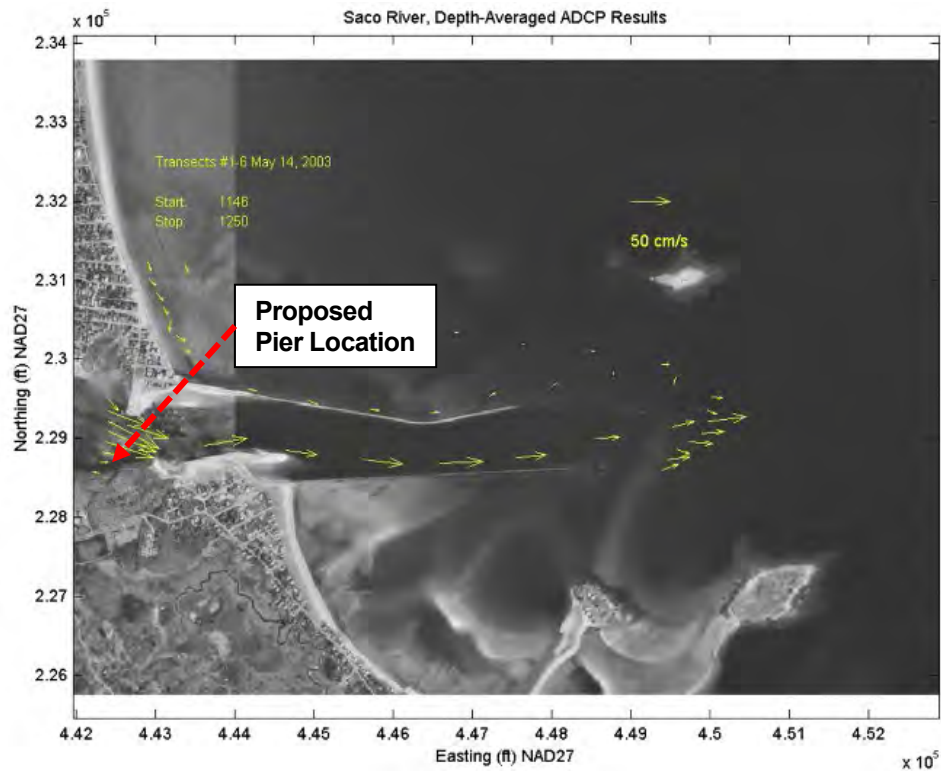


Fig. 8 – Sample of USACE Current Monitoring Data

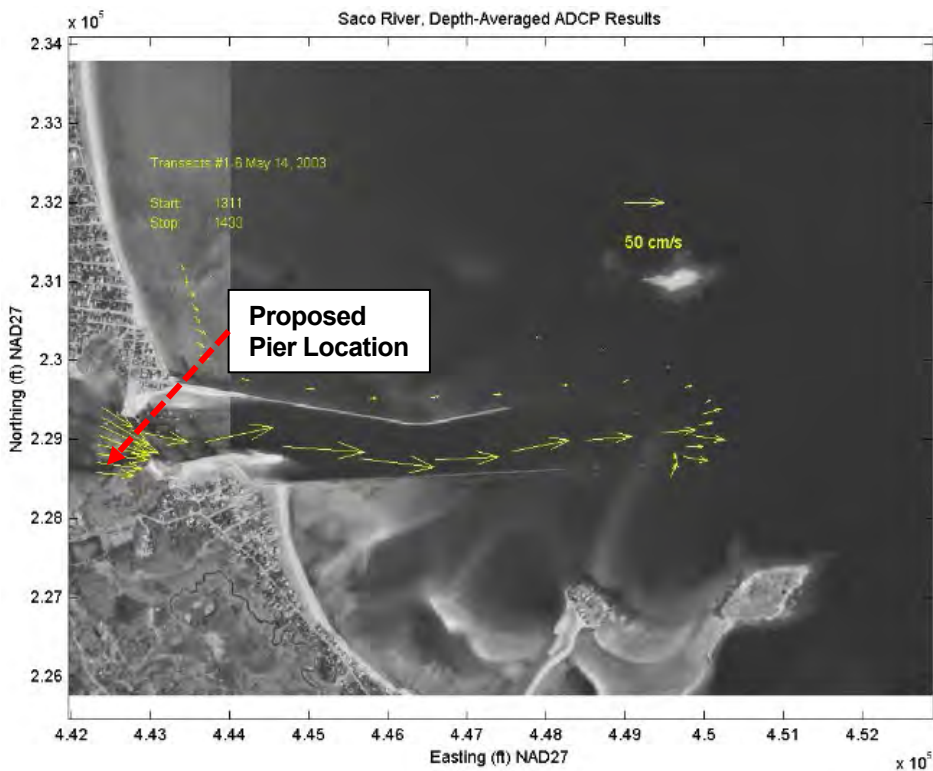


Fig. 9 – Sample of USACE Current Monitoring Data

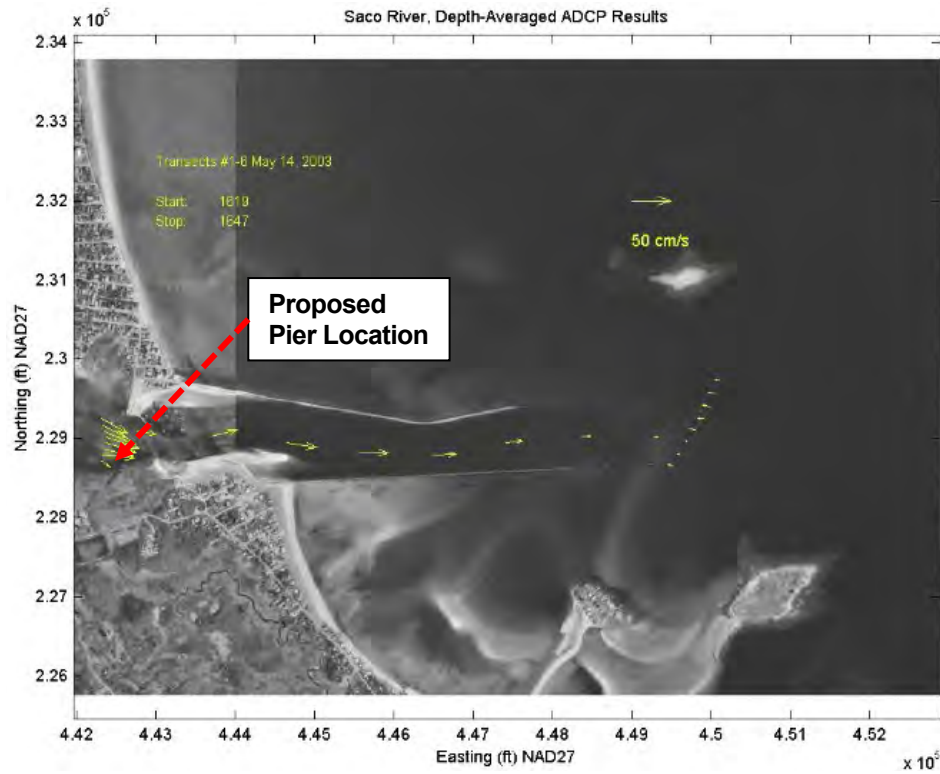


Fig. 10 – Sample of USACE Current Monitoring Data

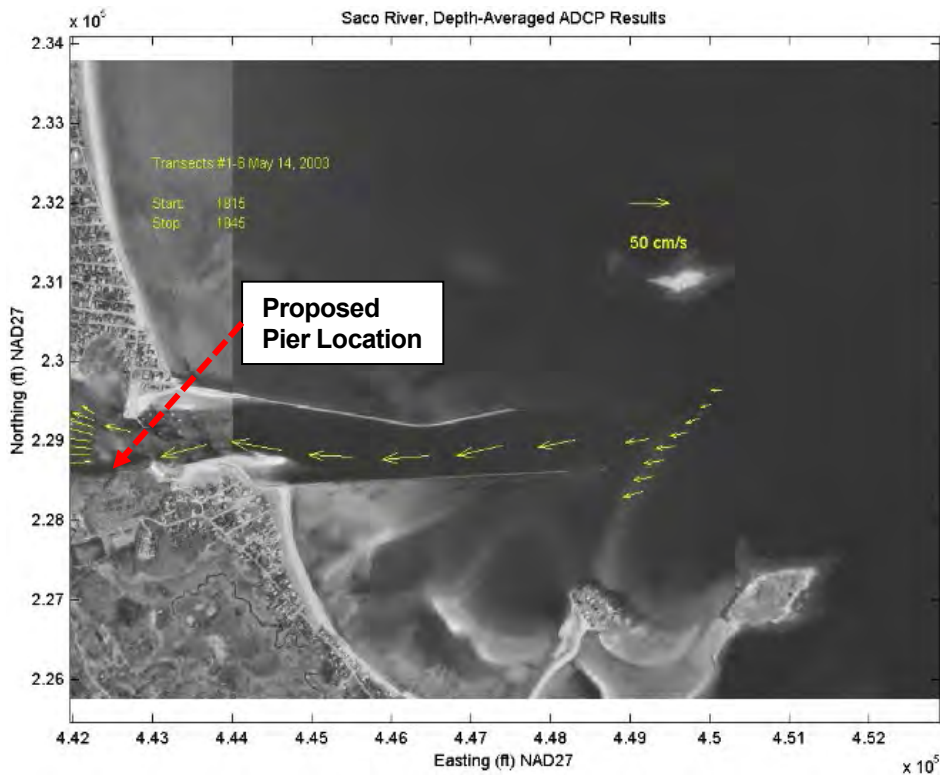


Fig. 11 – Sample of USACE Current Monitoring Data

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.

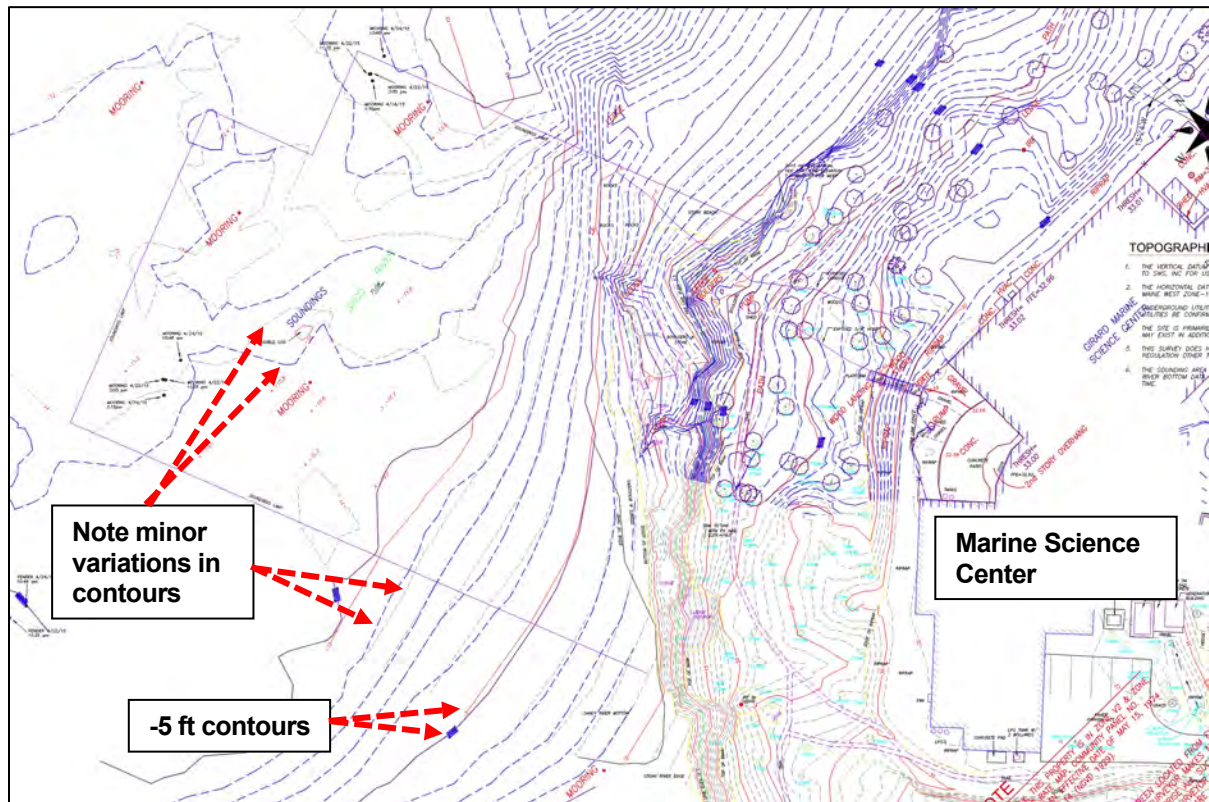


Fig. 12 – Comparison of 2022 (blue) and 2015 (grey and red) bathymetric contours

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.

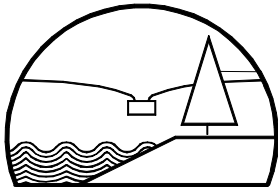
Attachment

DJB:BJB:bdp

\\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

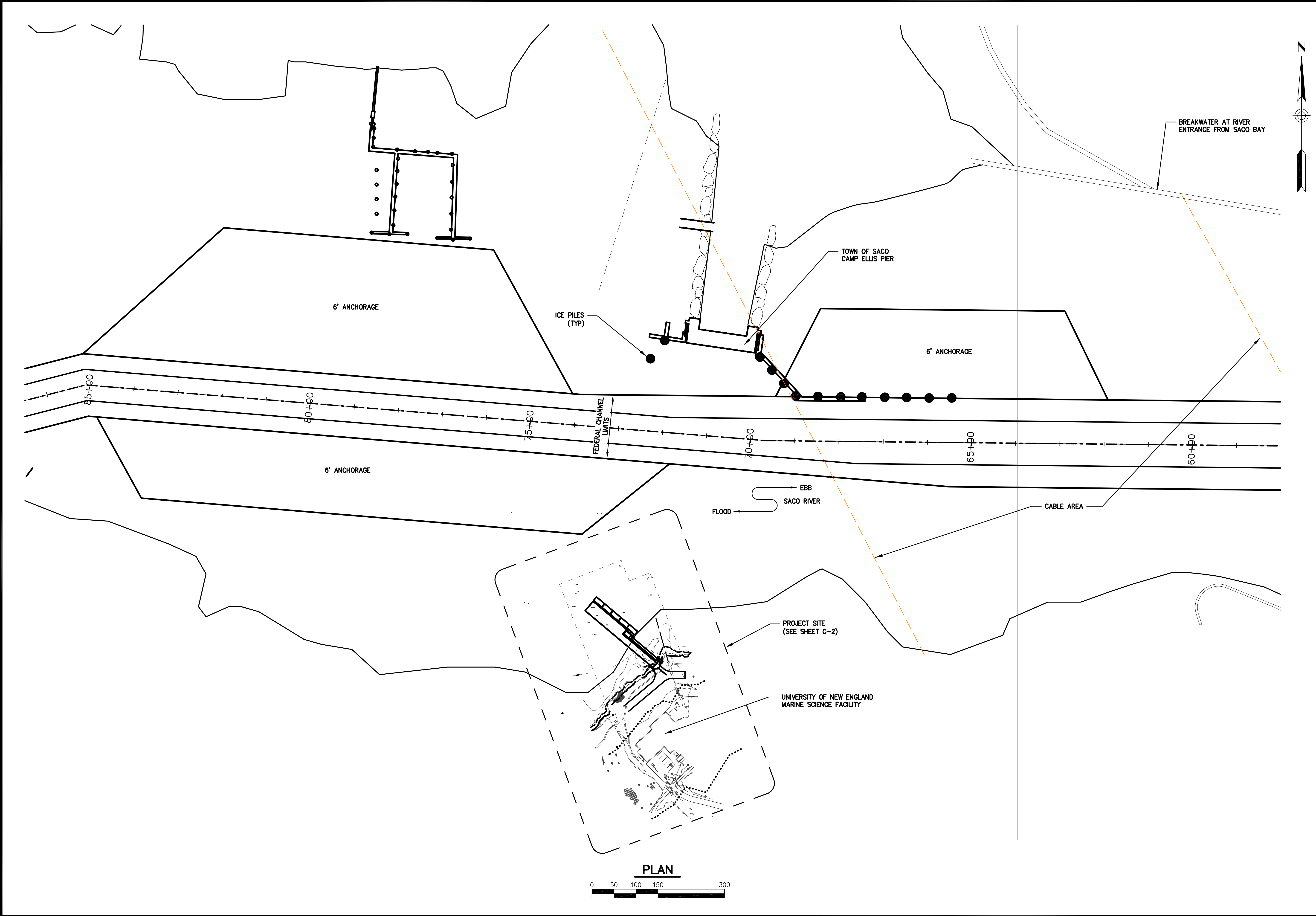
Table 1 – Pier Layout Alternatives Comparison

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.

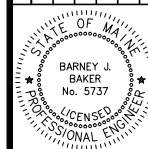
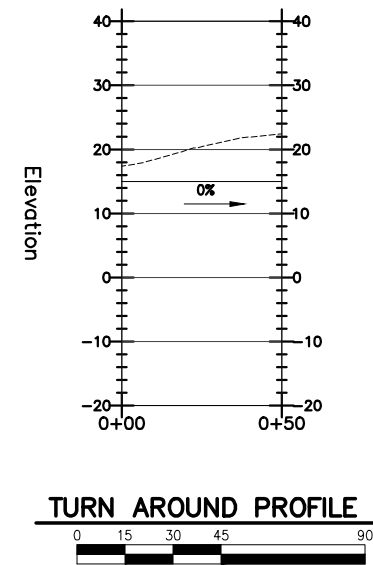
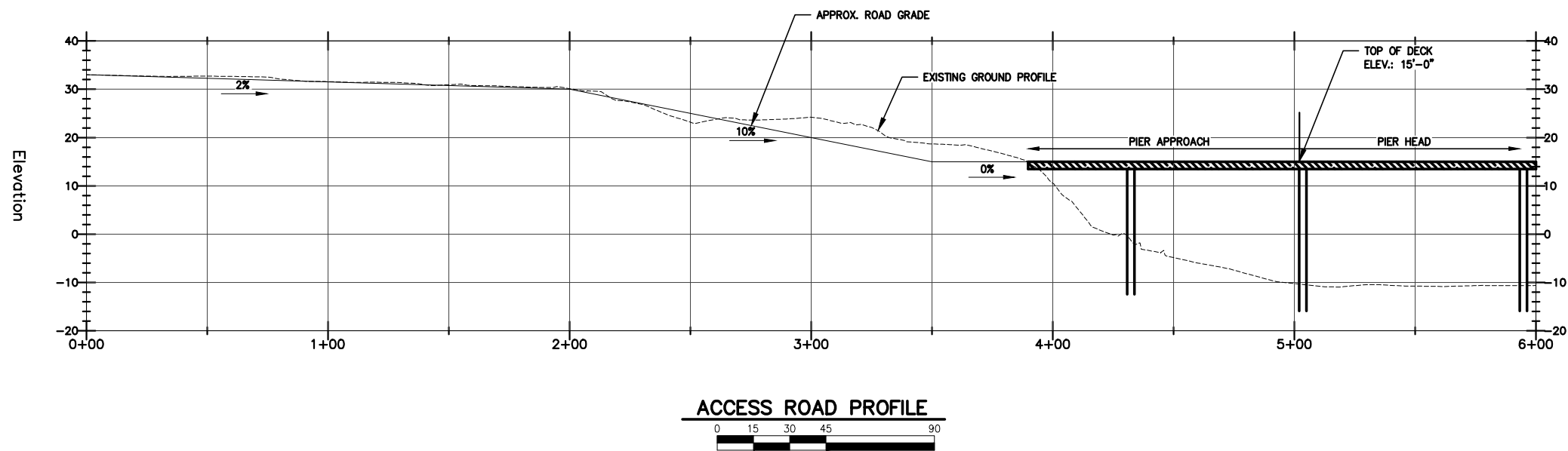
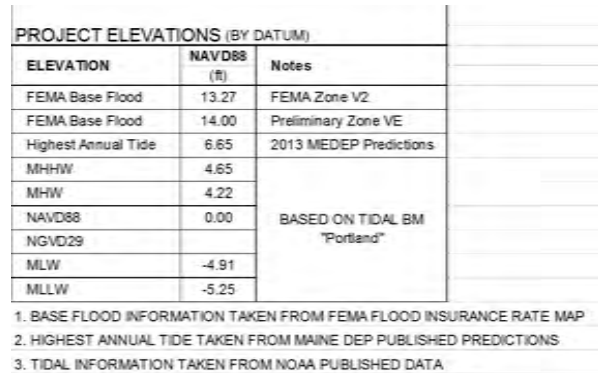
	LAYOUT 1 Proposed Design	LAYOUT 2 Alternate	LAYOUT 3 Alternate
Outer face of Pier, Distance from HAT	193'	110'	152'
Orientation of Berth	40 DEG WNW	10 DEG WSW	11 DEG WSW
Setback to nearest mooring	A - 110' B - 37' C - 133'	A - 176' B - 120' C - 127'	A - 121' B - 76' C - 117'
Impacted moorings	B	None	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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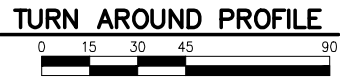
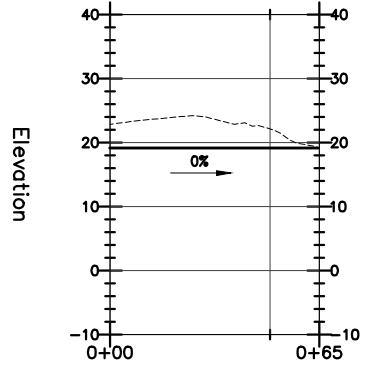
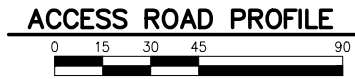
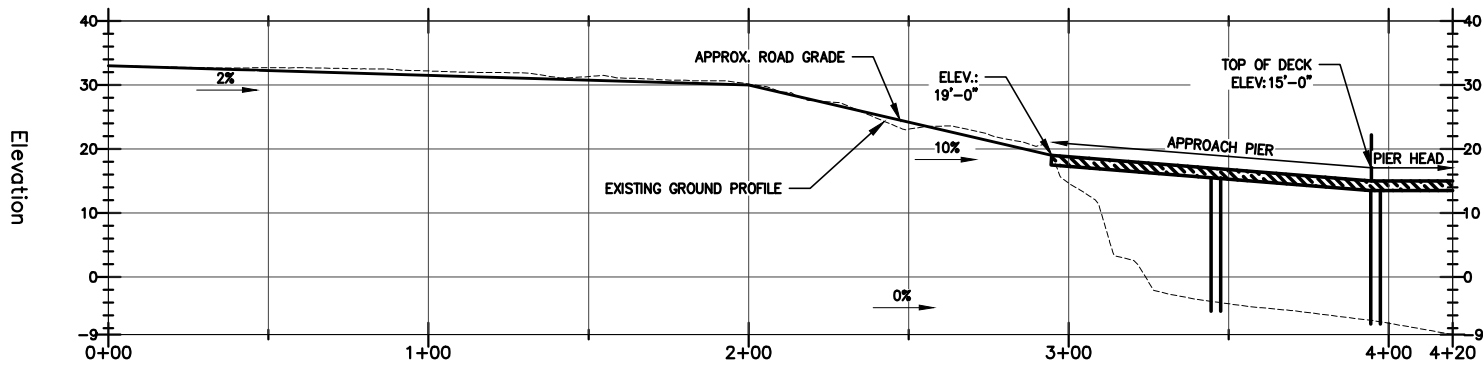
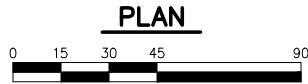
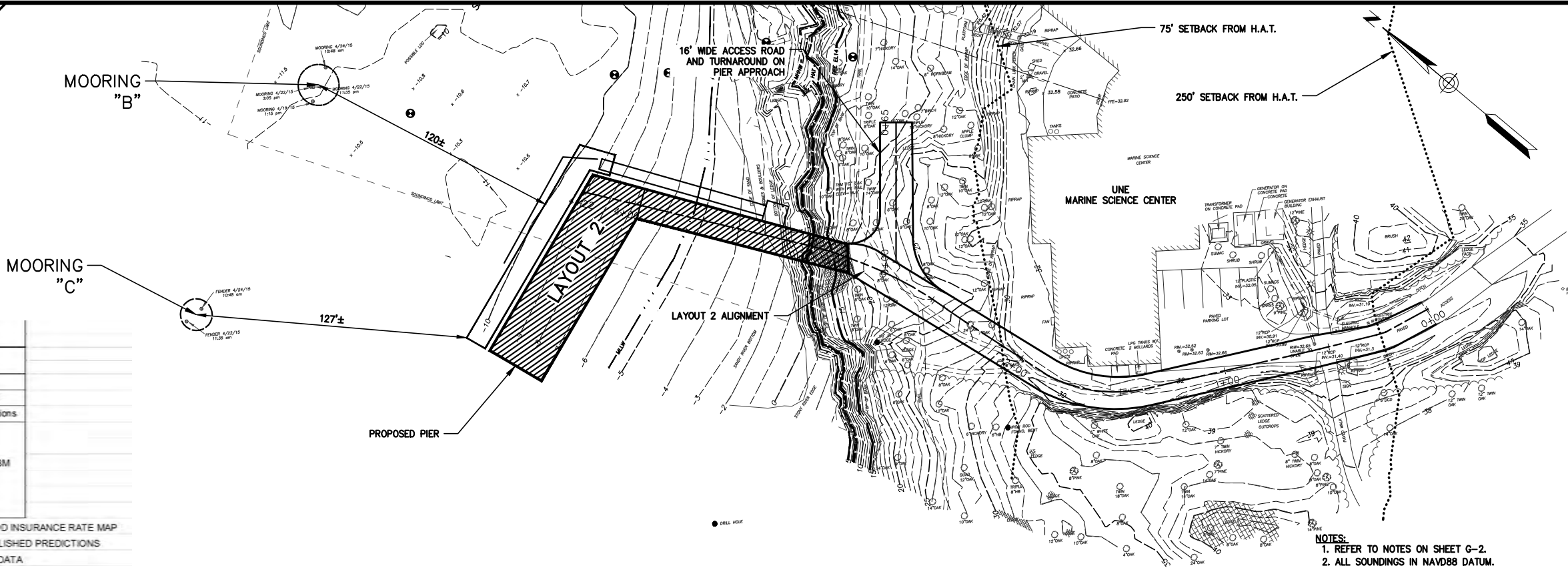
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PROJECT ELEVATIONS (BY DATUM)		
ELEVATION	NAVD88 (ft)	Notes
FEMA Base Flood	13.27	FEMA Zone V2
FEMA Base Flood	14.00	Preliminary Zone VE
Highest Annual Tide	6.65	2013 MEDEP Predictions
MHHW	4.65	BASED ON TIDAL BM "Portland"
MHW	4.22	
NAVD88	0.00	
NGVD29		
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



BAKER DESIGN CONSULTANTS
Civil, Marine, and Structural Engineering
7 Geneva Road • Portland, ME 04103 • 917.846.9774 • info@bakerdesign.com

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

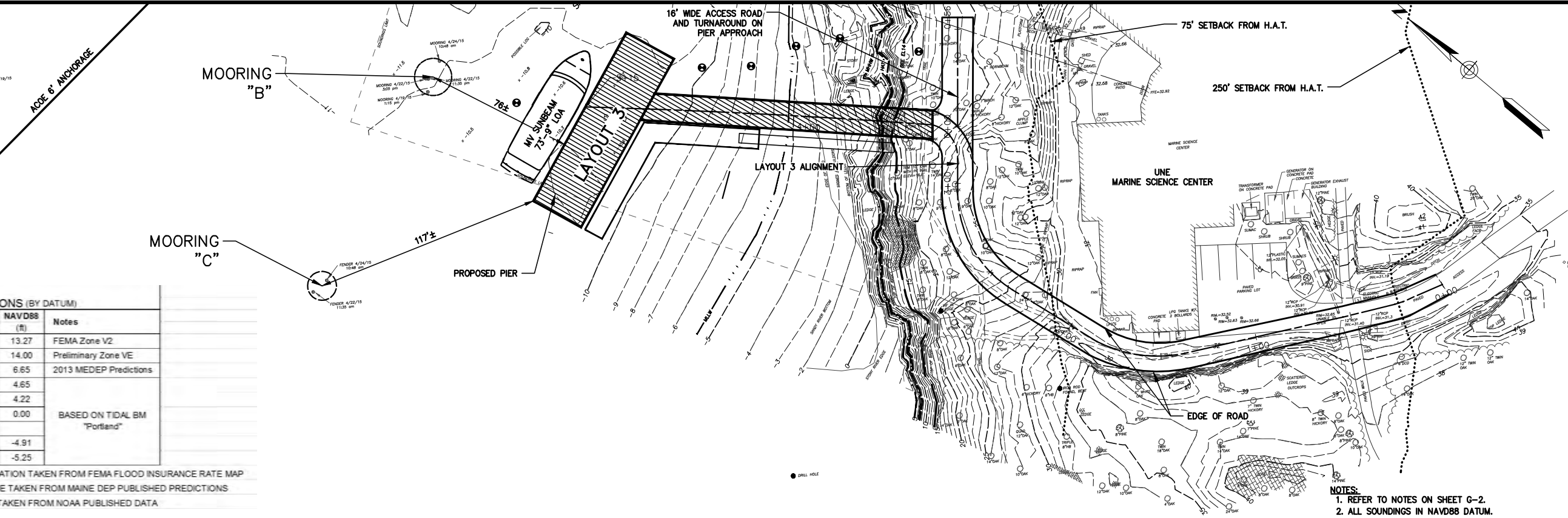
\\bdc-srv\projects\15\15-07 une msc waterfront\cad\15-07 une msc waterfront civil3d (alternate design review).dwg 3/22/2016

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	

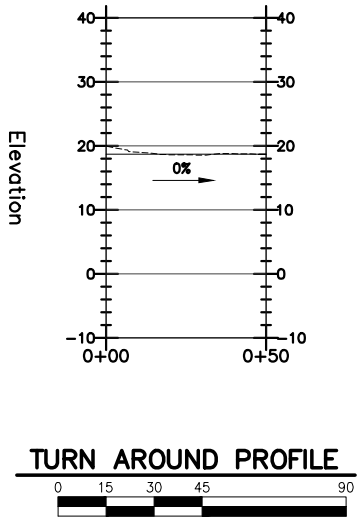
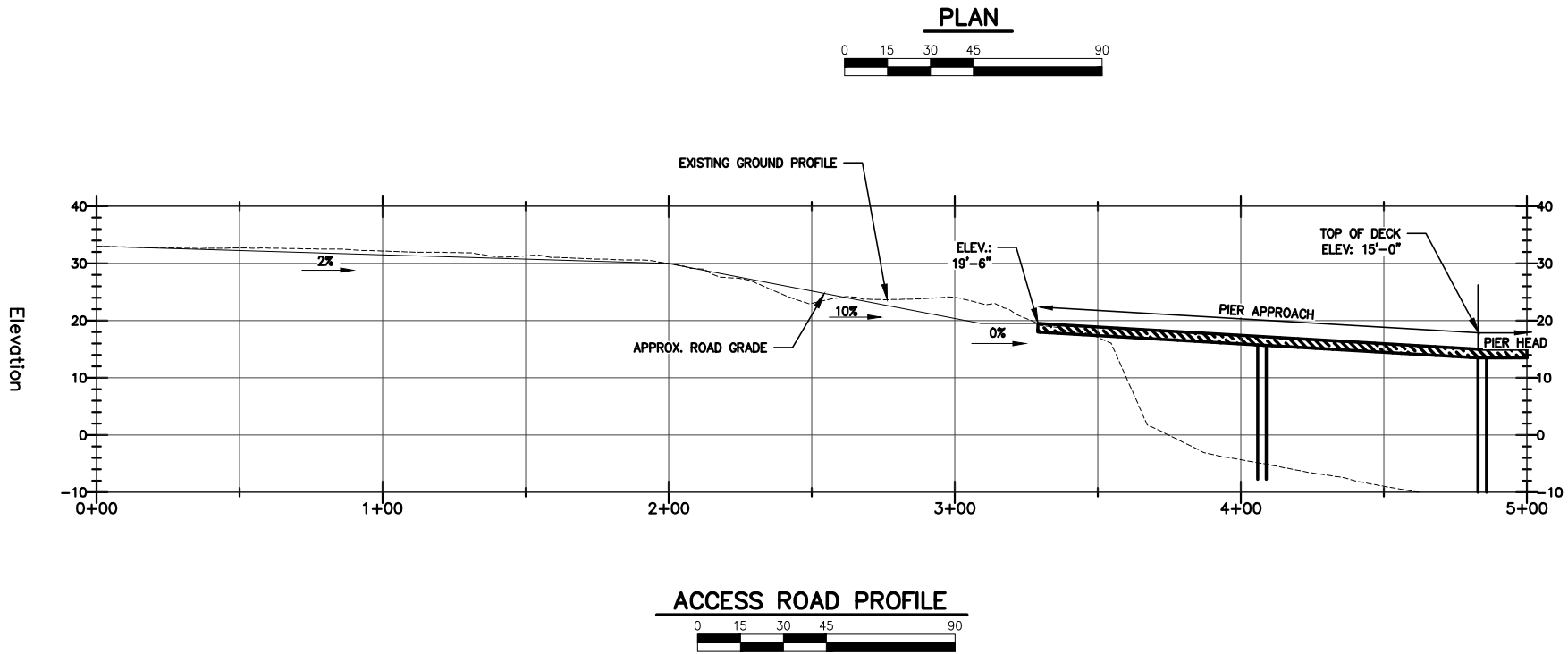
1. BASE FLOOD INFORMATION TAKEN FROM FEMA FLOOD INSURANCE RATE MAP

2. HIGHEST ANNUAL TIDE TAKEN FROM MAINE DEP PUBLISHED PREDICTIONS

3. TIDAL INFORMATION TAKEN FROM NOAA PUBLISHED DATA



NOTES:
1. REFER TO NOTES ON SHEET G-2.
2. ALL SOUNDINGS IN NAVD88 DATUM.



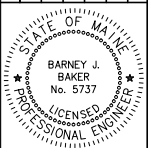
SHEET TITLE: PIER SITE PLAN LAYOUT 3 SKETCH		DATE MARCH 2016	
PROJECT: UNIVERSITY OF NEW ENGLAND UNE MSC WATERFRONT BIDDEFORD, MAINE		CONTRACT NO. 15-07	
SHEET NO. 3 OF 4		REV. A	
DESIGNED BY: DJB	DRAWN BY: KET	CHECKED BY: DJB	SCALE: AS SHOWN
STATE OF MAINE BARNEY J. BAKER No. 5737 LICENSED PROFESSIONAL ENGINEER			
ALTERNATIVES MEMO SUBMISSION		3-15-16	B/B
NO.		DATE	INT.
BAKER DESIGN CONSULTANTS Civil, Marine, and Structural Engineering 7 Spruce Road • Freeport • Maine • 04032 • 207-846-9724 • info@bakerdesignconsultants.com			

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

NOTES:

1. REFER TO NOTES ON SHEET G-2.
2. ALL SOUNDINGS IN NAVD88 DATUM.

[illegible]

DESIGNED BY:	BJB
DRAWN BY:	KET
CHECKED BY:	BJB
SCALE:	AS SHOWN

SHEET TITLE:	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

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

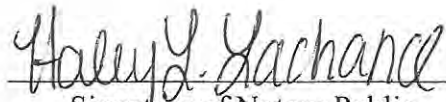
Saco River Corridor Commission Permit #20-491 University of New England

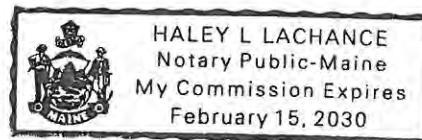
Acknowledgment

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.

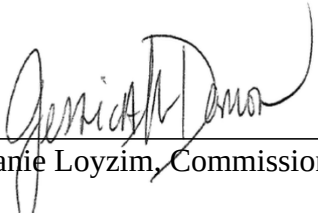
2. The applicant shall take all necessary measures to ensure that their activities or those of their agents do not result in measurable erosion of soil on the site during the construction of the project covered by this approval.
3. Severability. The invalidity or unenforceability of any provision, or 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

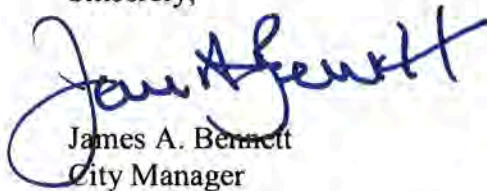
*The City of Biddeford is an equal opportunity provider. To file a complaint, write to
Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

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



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

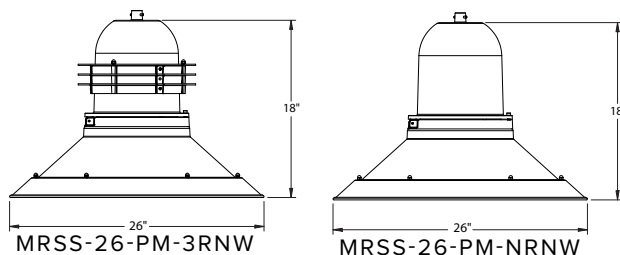
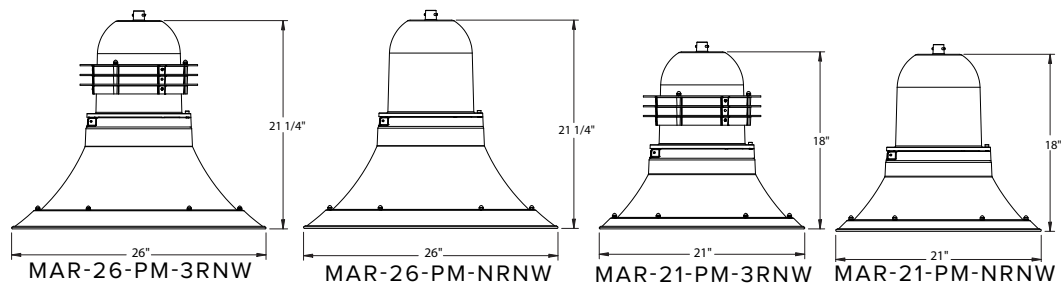
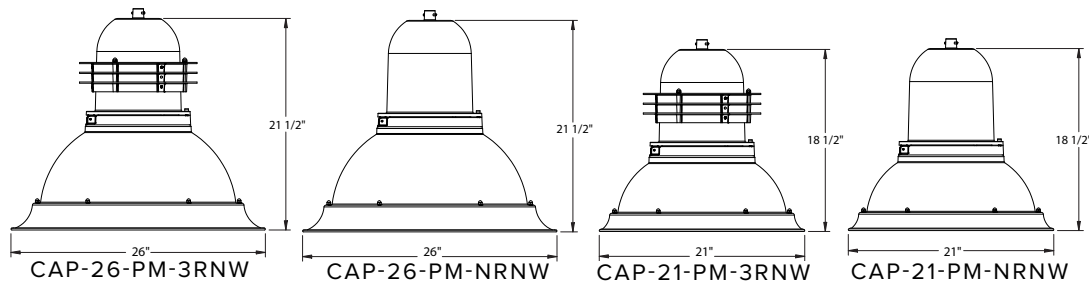
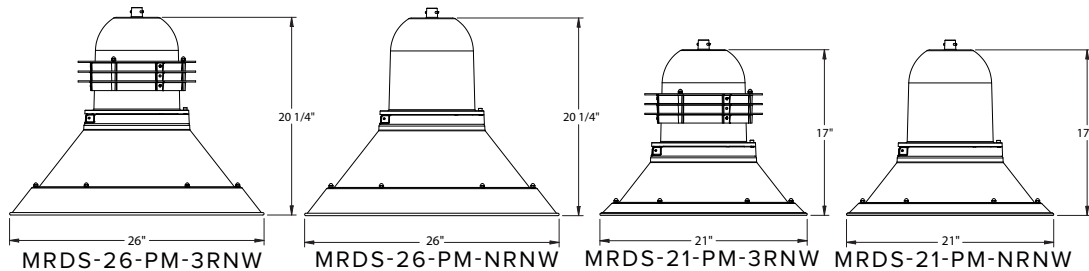
4 This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available on our website.



URBAN SERIES

URBAN LUMINAIRE

PENDANT MOUNT



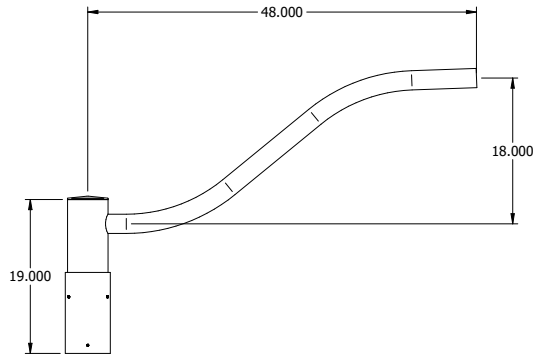


URBAN SERIES

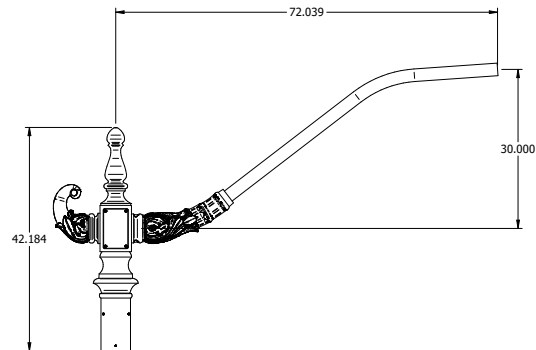
URBAN LUMINAIRE

SIDE MOUNT

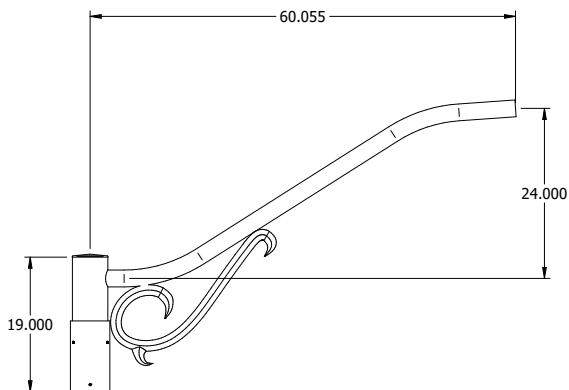
* Arms ordered separately, arms mount over an open top pole, they do not mount to a tenon.



AA-10 COBRA



AA-10B COBRA BALBOA



AA-10S COBRA SCROLL

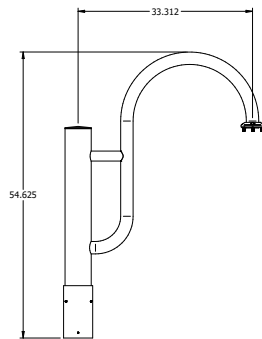


URBAN SERIES

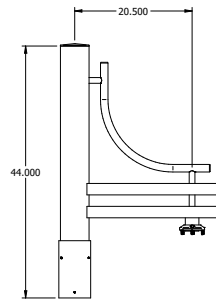
URBAN LUMINAIRE

PENDANT MOUNT

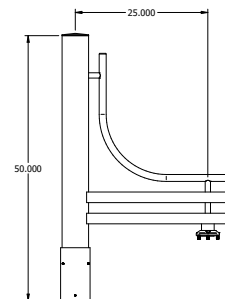
* Arms ordered separately, arms mount over an open top pole, they do not mount to a tenon.



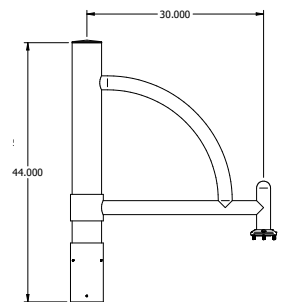
AA-41 RAILROAD STRAP



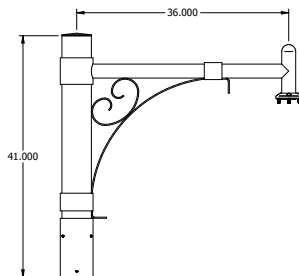
AA-10 SMALL PIERWALK



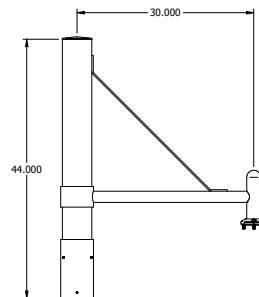
AA-38 LARGE PIERWALK



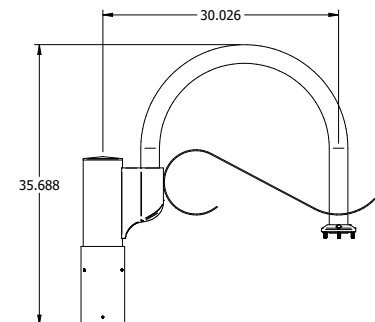
AA-49 RADIUS



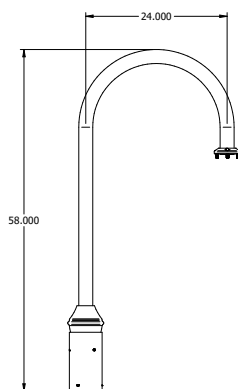
AA-27 STRATFORD



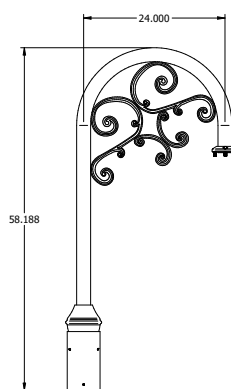
AA-44 STRUT



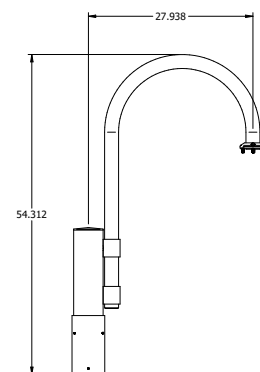
AA-45 TWIN EAGLES



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:

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- * 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 the base 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](#)



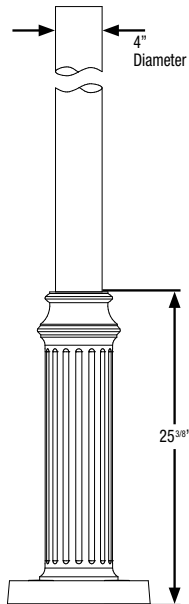
RSA-B-KENS Series Poles

ROUND STRAIGHT ALUMINUM

DATE: _____ LOCATION: _____

TYPE: _____ PROJECT: _____

CATALOG #: _____



APPLICATIONS

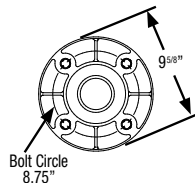
- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

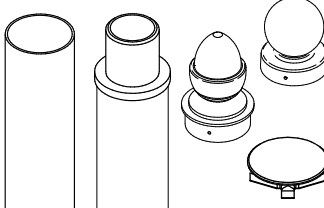
- SHAFT: One-piece straight aluminum with fluted or smooth cross section; Extruded shafts of 6061-T6 aluminum in 1/8", 3/16", or 1/4" thickness. Decorative base of 356 cast aluminum.
- POLE CAP OR FINALS: Cap or decorative finials available for side mounted luminaires. Open top or tenons provided for 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

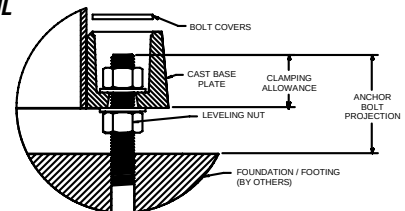
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint finish coat available in twelve standard colors; Custom colors available; RAL number preferable.



TENONS & POLE CAPS



BASE DETAIL

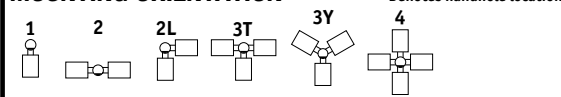


ORDERING EXAMPLE:

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 ORIENTATION



1 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

Submitted by Swaney Lighting		Catalog Number: RSAB-KENS-S12-40B-OT-BLS	Type: A
		Notes:	SLA24-58713



RSA-B-KENS Series Poles

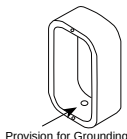
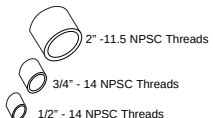
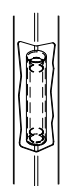
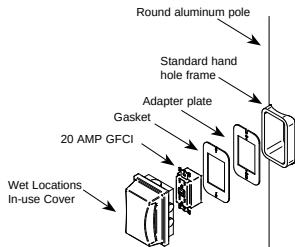
ROUND STRAIGHT ALUMINUM

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

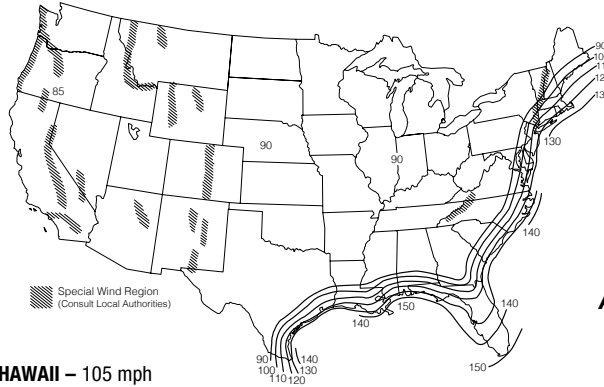
ROUND STRAIGHT ALUMINUM

DATE: LOCATION:

TYPE: PROJECT:

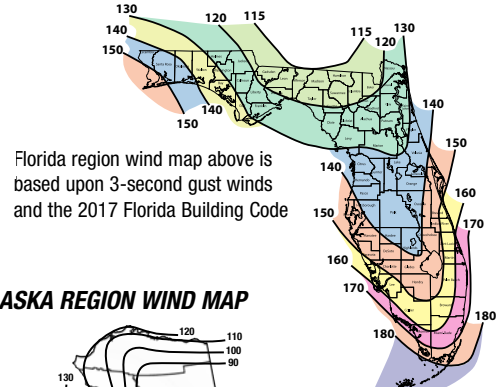
CATALOG #:

ASCE7-05 WIND MAP

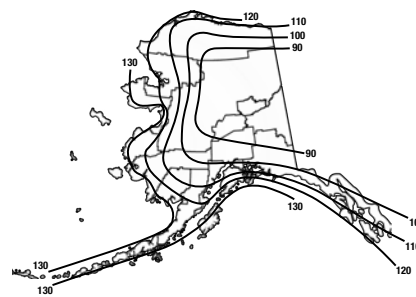
HAWAII – 105 mph
PUERTO RICO – 145 mph

*PRINTED WITH PERMISSION FROM ASCE

FLORIDA REGION WIND MAP



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**

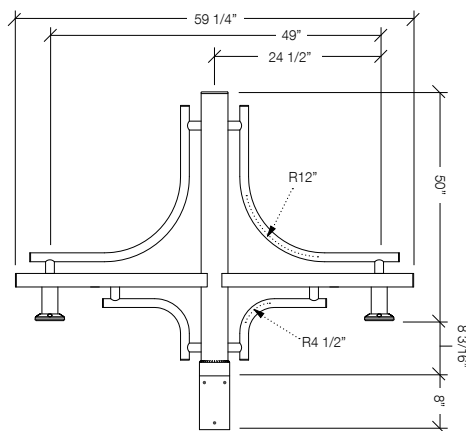
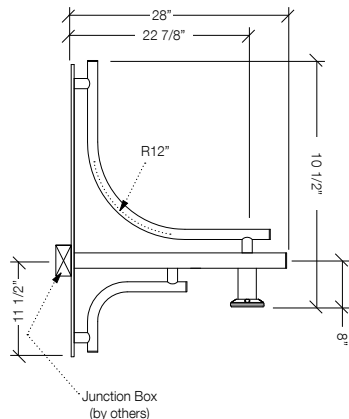
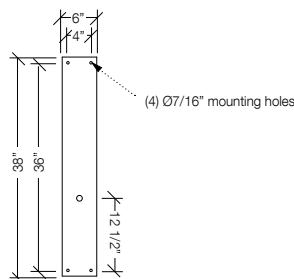
ARMS

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** pendant**F. 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

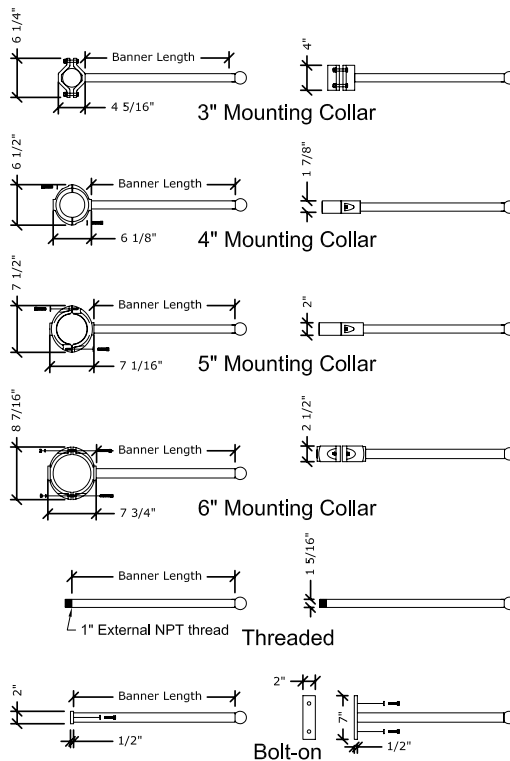


Banner Arms

ARMS

DATE: _____ LOCATION: _____
TYPE: _____ PROJECT: _____
CATALOG #: _____

Banner Arm Mounting Styles



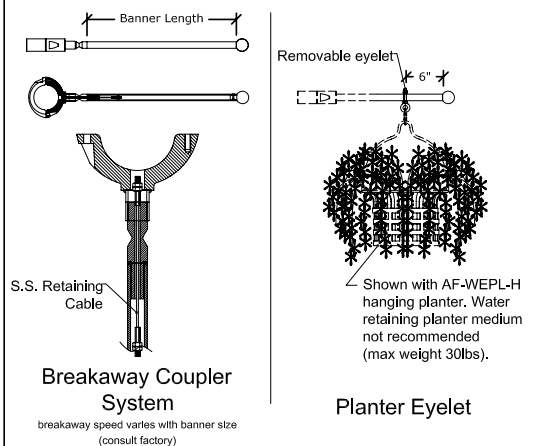
Specifications

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"	☐ 3"MTC mounting collar for 3" shaft	☐ BA breakaway coupler system*	☐ BB black
☐ 20 20"	☒ 4"MTC mounting collar for 4" shaft	☐ PA removable planter eyelet*	☐ BZ bronze
☐ 22 22"	☐ 5"MTC mounting collar for 5" shaft	☐ 2X two banner arms at 180°	☐ BG green
☐ 24 24"	☐ 6"MTC mounting collar for 6" shaft		☐ BW white
☐ 30 30"	☐ BO bolted connection		☐ BY gray
	☐ TO threaded connection		☐ 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: _____

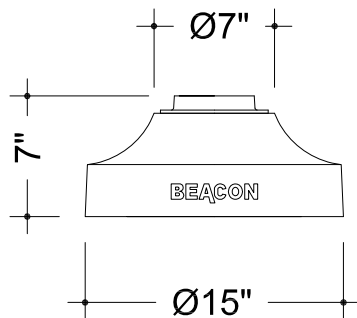
TYPE: _____ PROJECT: _____

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.

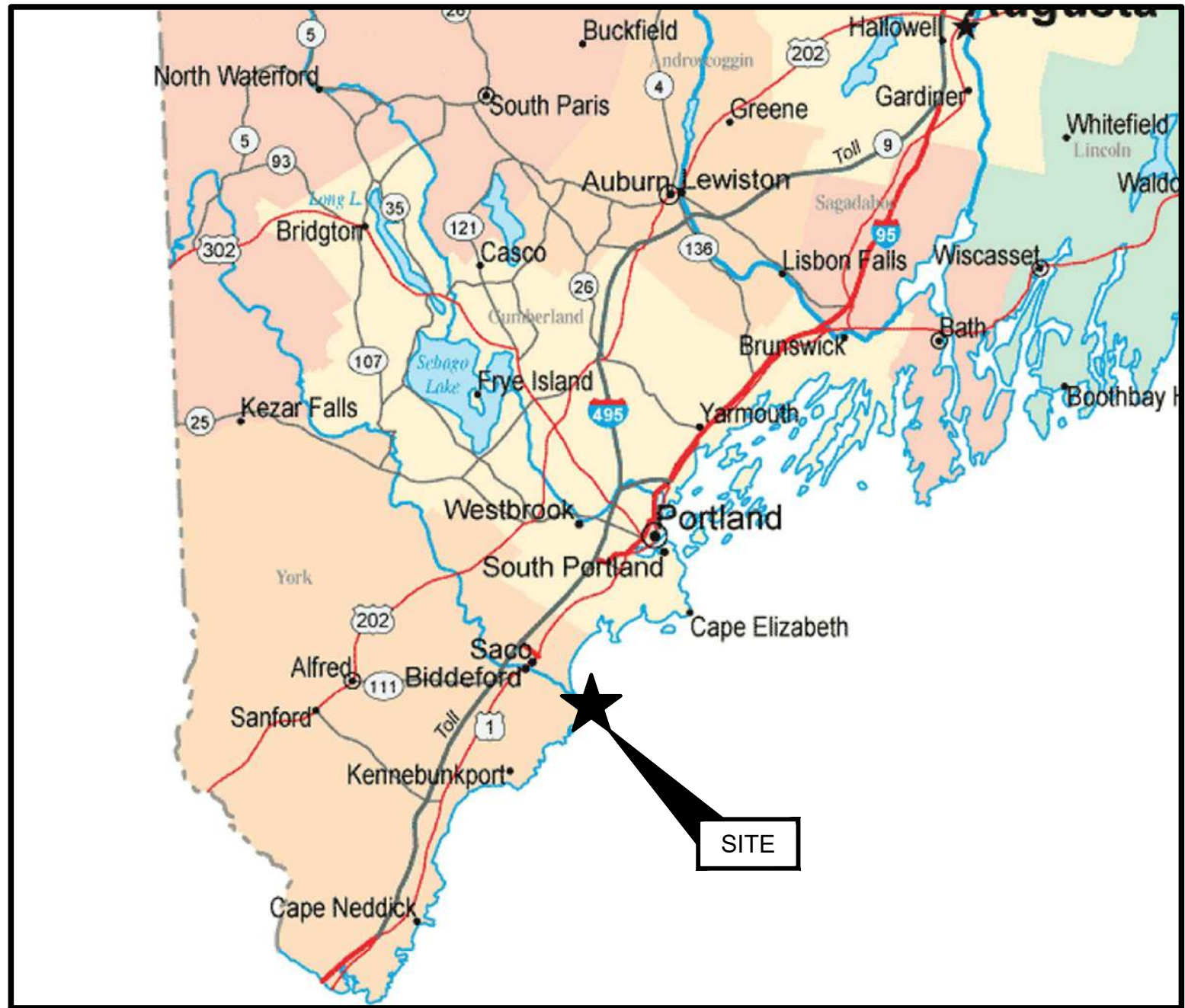
Limited Warranty: Beacon Products warrants its products, to the original purchaser, against defects in materials and workmanship for proper usage for a period of 5 years after date of production, when properly installed, maintained and appropriately specified.

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

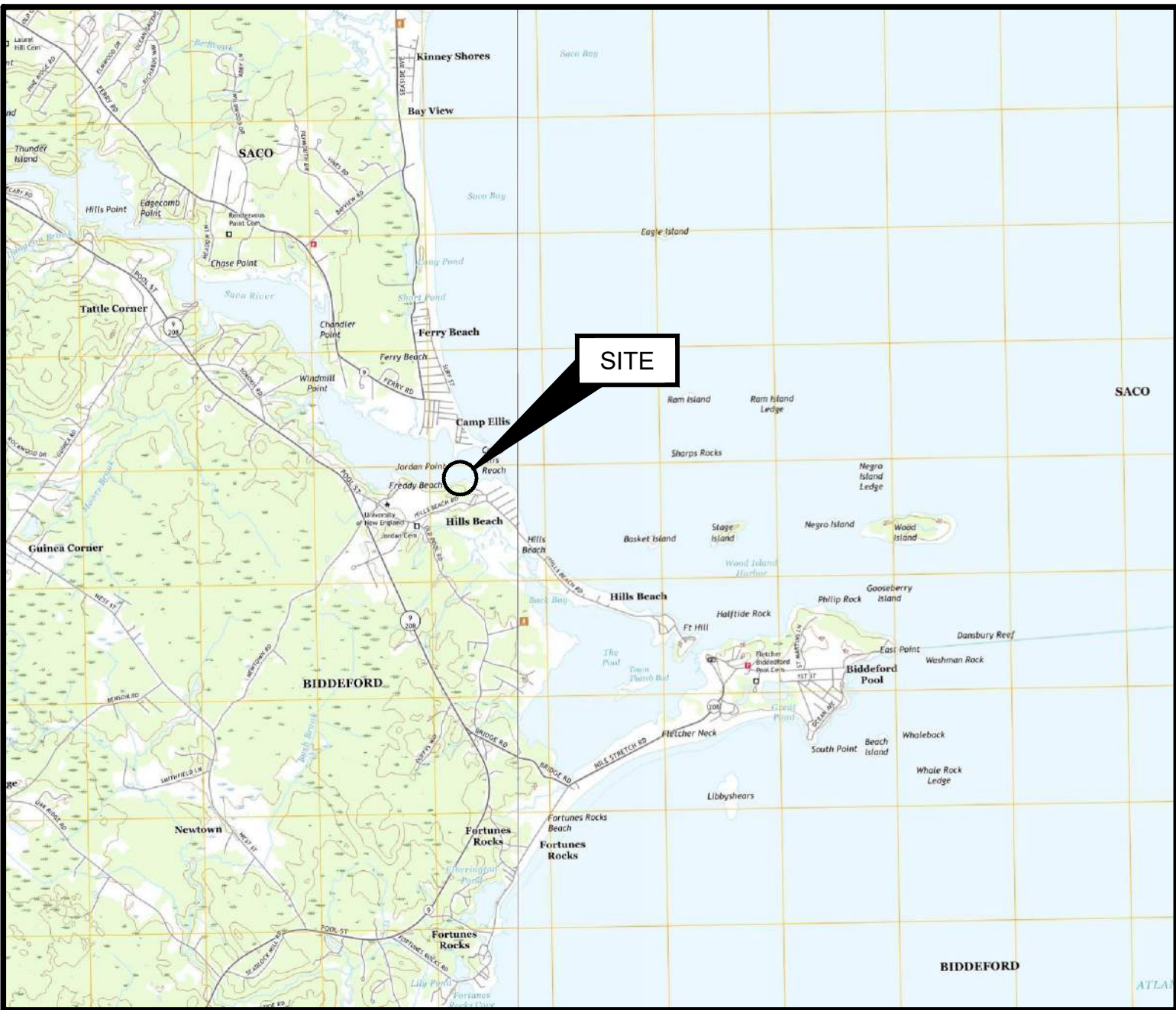
BUILDING ROOF SQUARE FOOTAGE=751 WITHIN LIMIT OF DISTURBANCE

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.
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB		G-001
6	9/17/2024	REVISED PERMIT SET	DJB		SHEET NO. 1 OF 39
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
- FLOAT 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'.

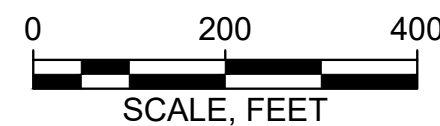
- ALUMINUM GANGWAY
- GANGWAY MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A MAINE LICENSED PROFESSIONAL ENGINEER. MANUFACTURER SHALL BE RESPONSIBLE FOR FINAL DETERMINATION OF GANGWAY FRAMING AND CONFIGURATION TO MEET STRUCTURAL, PERFORMANCE, AND ACCESSIBILITY REQUIREMENTS 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	



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Attention:
0 1" = 100'
If this scale bar does not measure 1" then drawing is not original scale.

STATE OF MAINE
BRIAN M. MCDEVITT
PE 18260
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
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	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

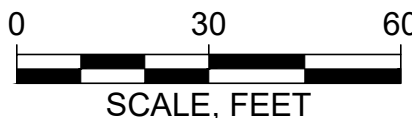
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
B-1	228639.4694	2895328.6104	W70.2258652	N43.2737588
LB-1	228491.1316	2895484.7460	W70.2256530	N43.2736127
LB-3	228473.9539	2895507.7880	W70.2256217	N43.2735958
LB-8	228394.7680	2895765.9460	W70.2252714	N43.2735182
WB-1	228600.2367	2895310.1868	W70.2258901	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

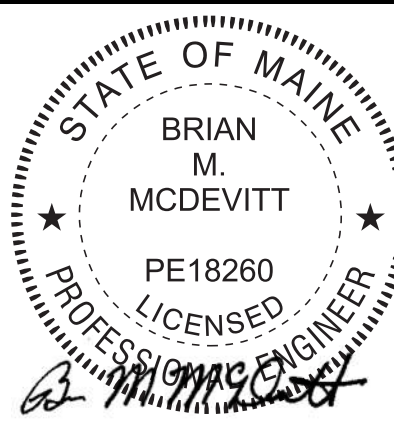
BORING ID	NORTHING	EASTING	LONGITUDE	LATITUDE
ADD-1	228452.7149	2895499.3250	W70.2256331	N43.2735748
ADD-8	228365.9058	2895759.6110	W70.2252799	N43.2734897
ADD-9	228340.5054	2895746.7690	W70.2252972	N43.2734646
HP-1	228497.6520	2895482.1026	W70.2256566	N43.2736191
HP-2	228513.6726	2895503.0285	W70.2256283	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



11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF NEW ENGLAND MARINE SCIENCE CENTER PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

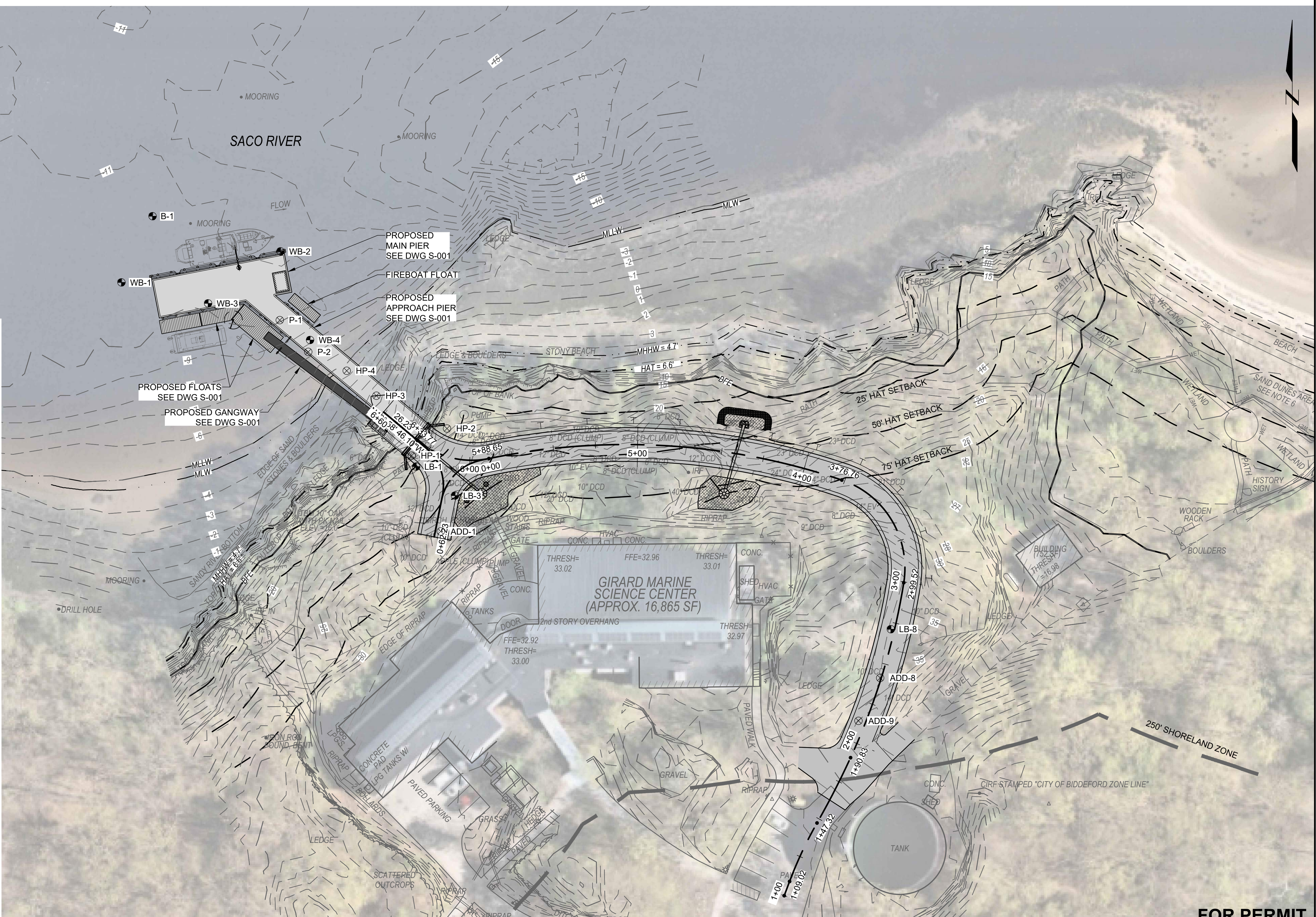
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7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME

**BORING LOCATION
PLAN**

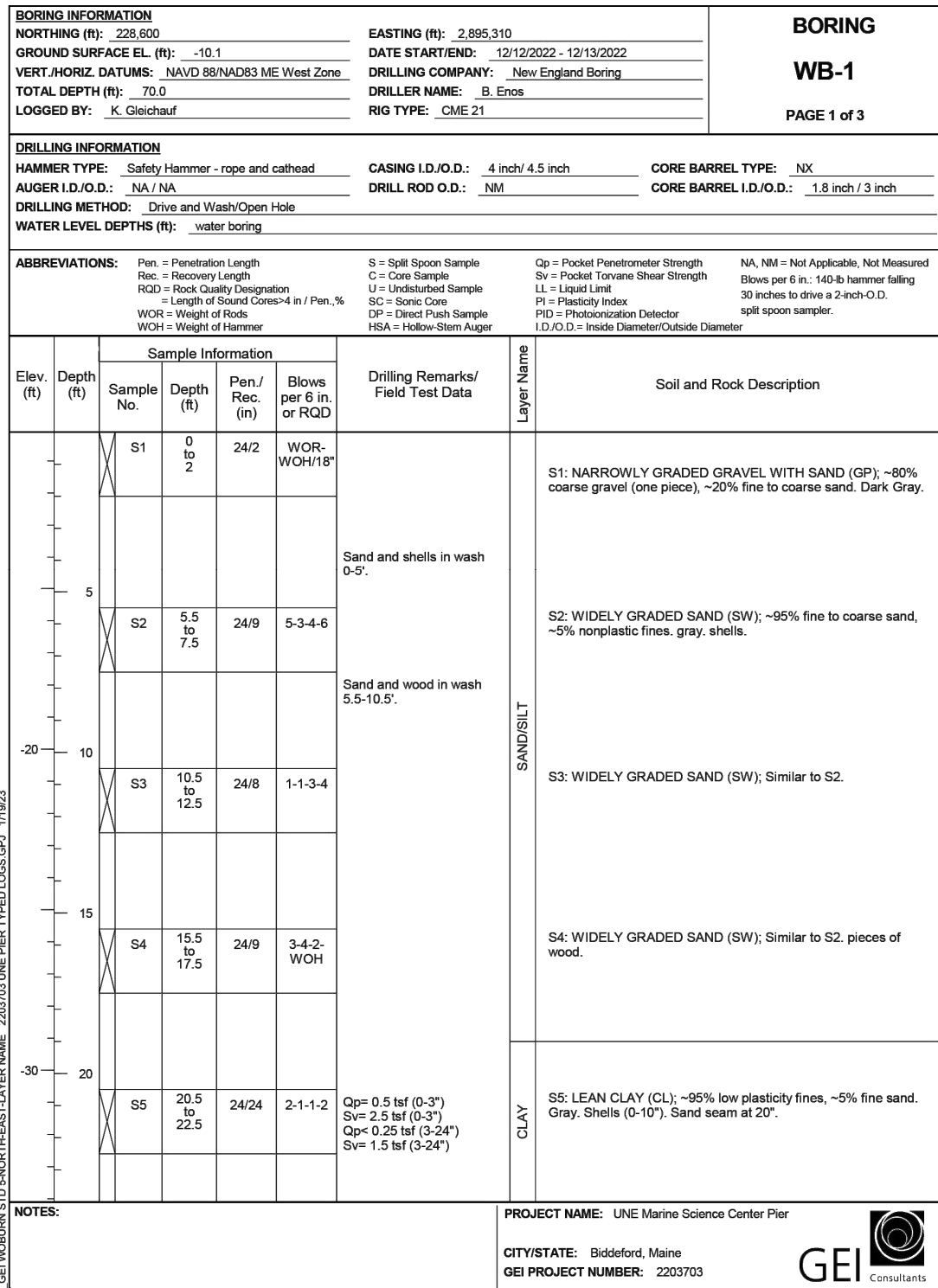
SHEET NO.

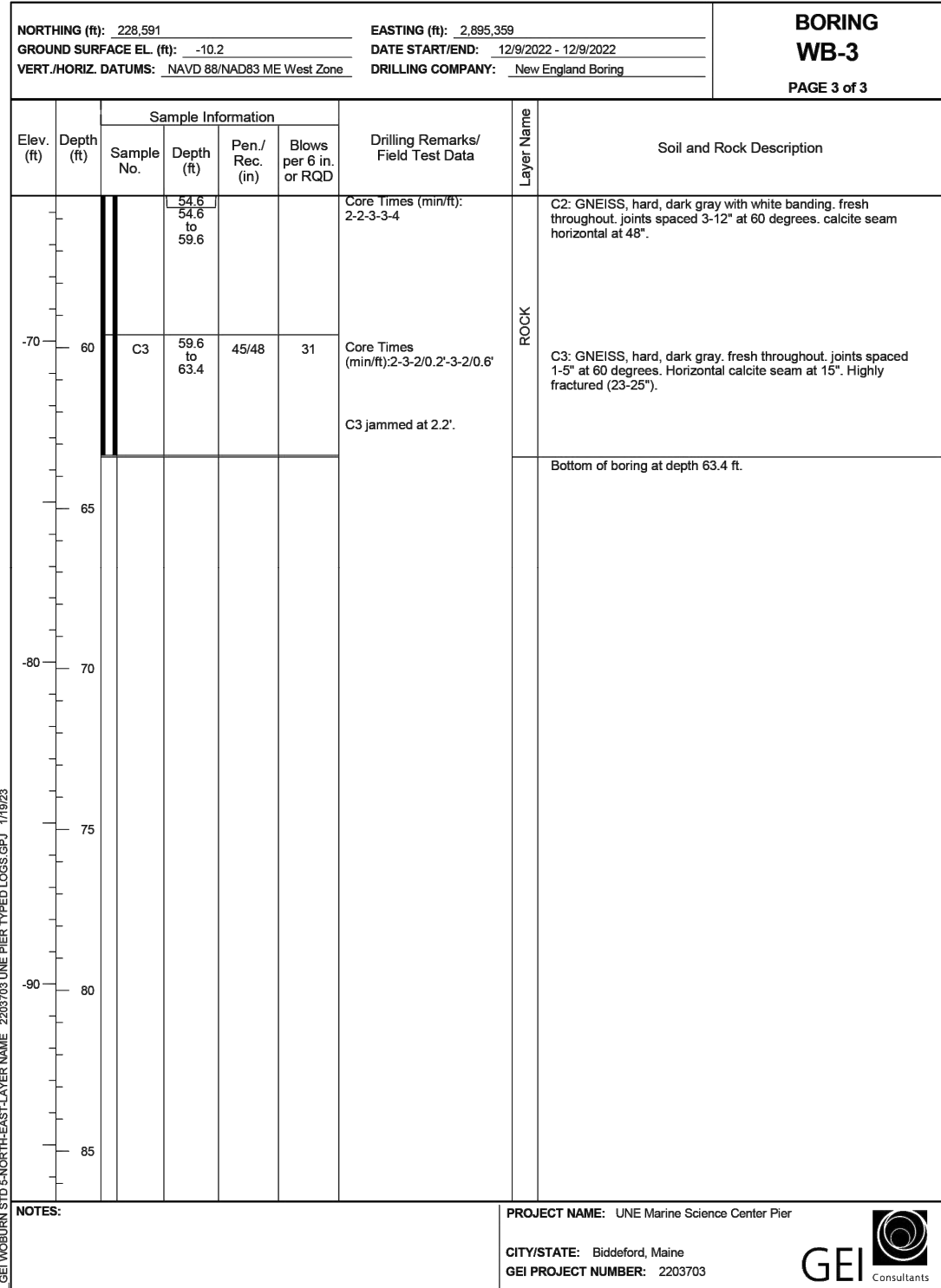
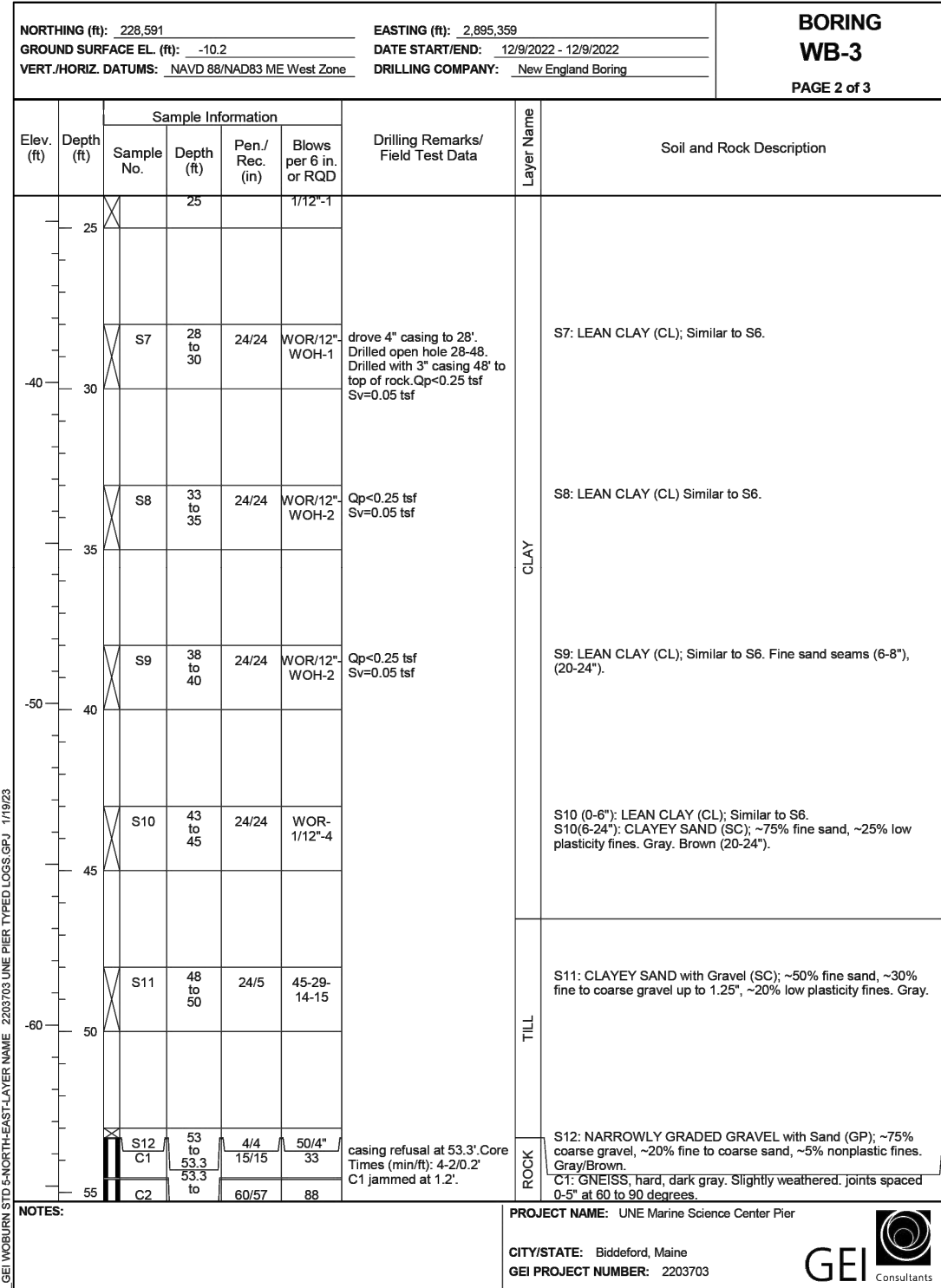
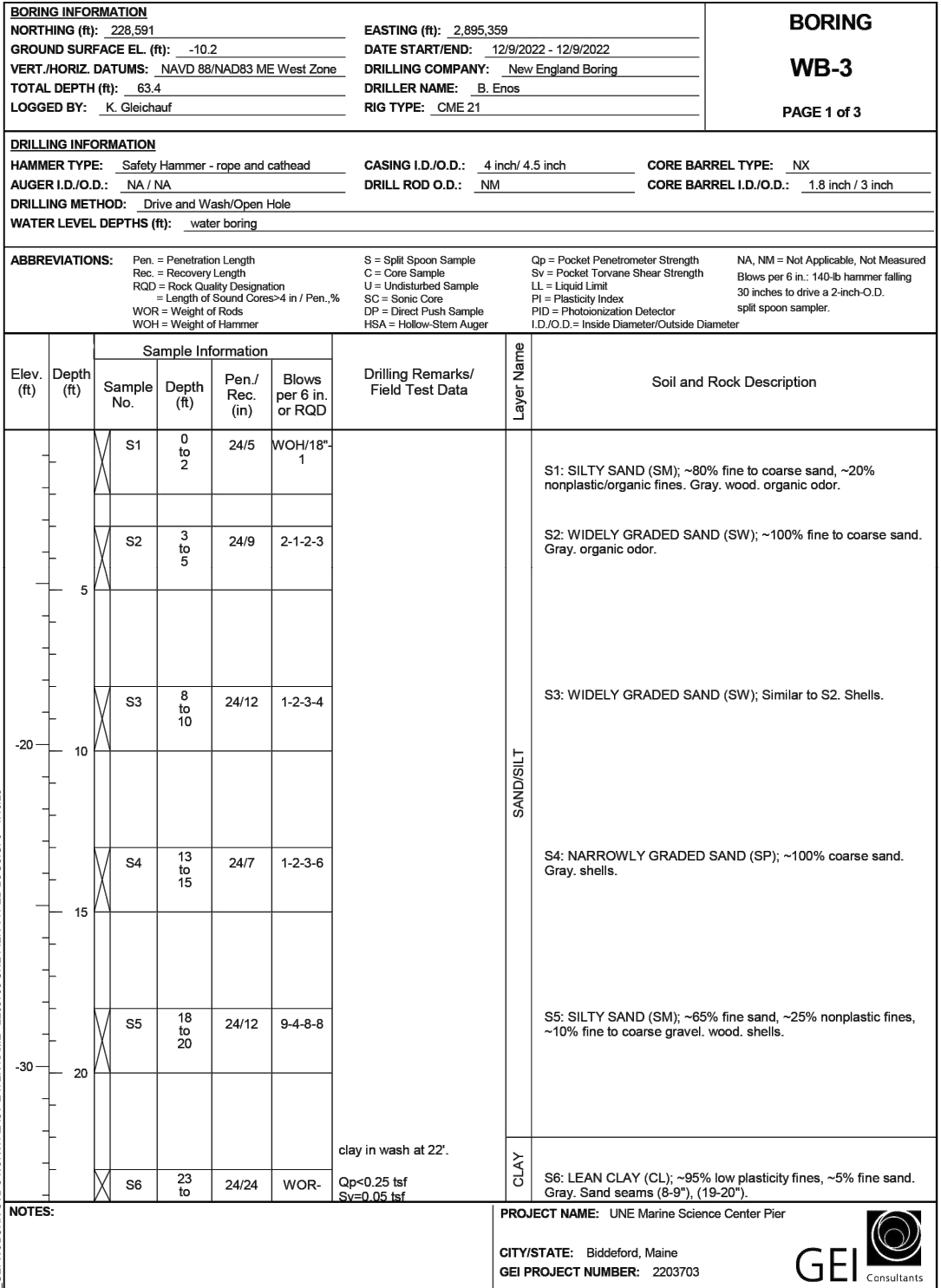
B-001



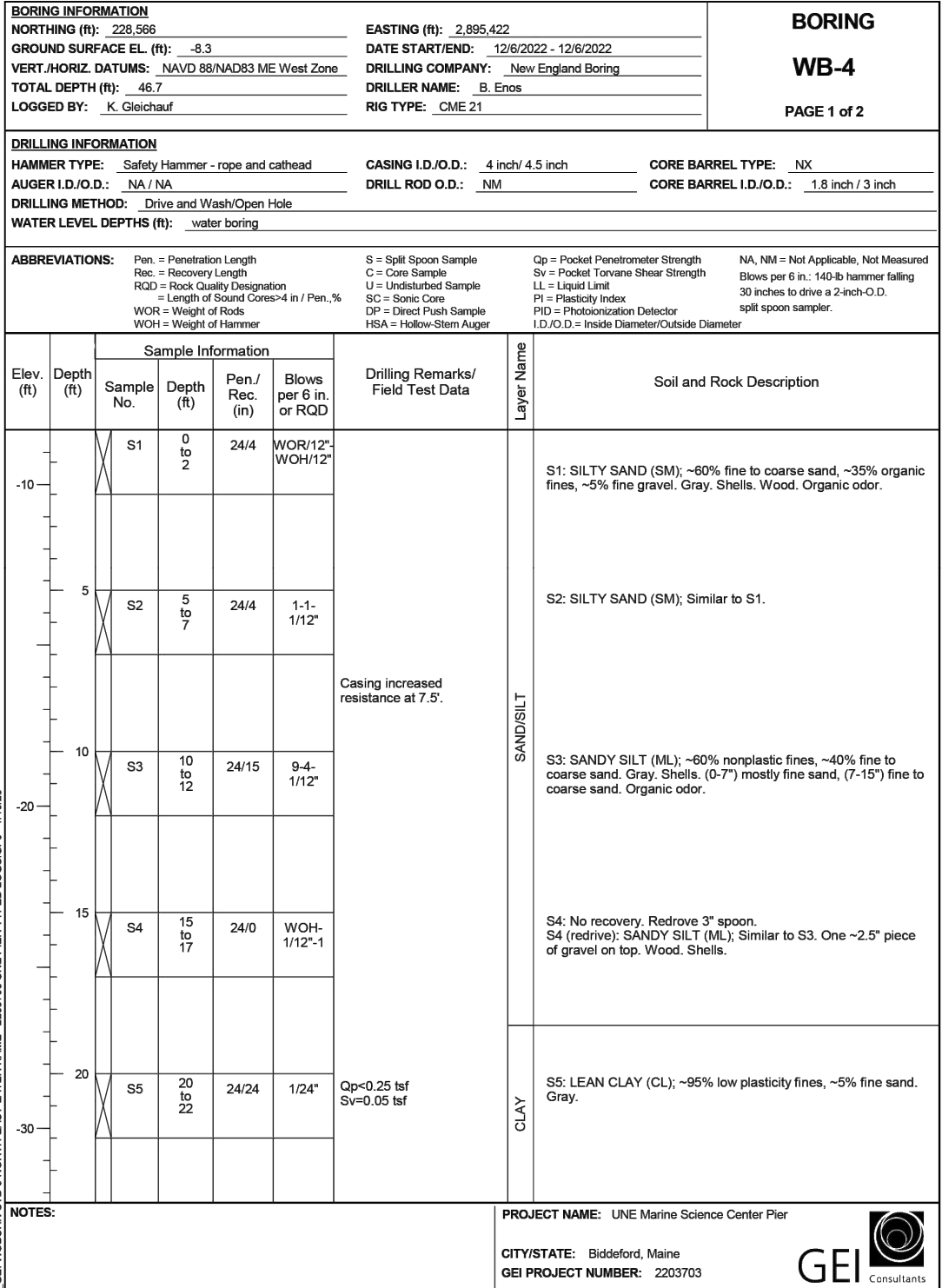
FOR PERMIT

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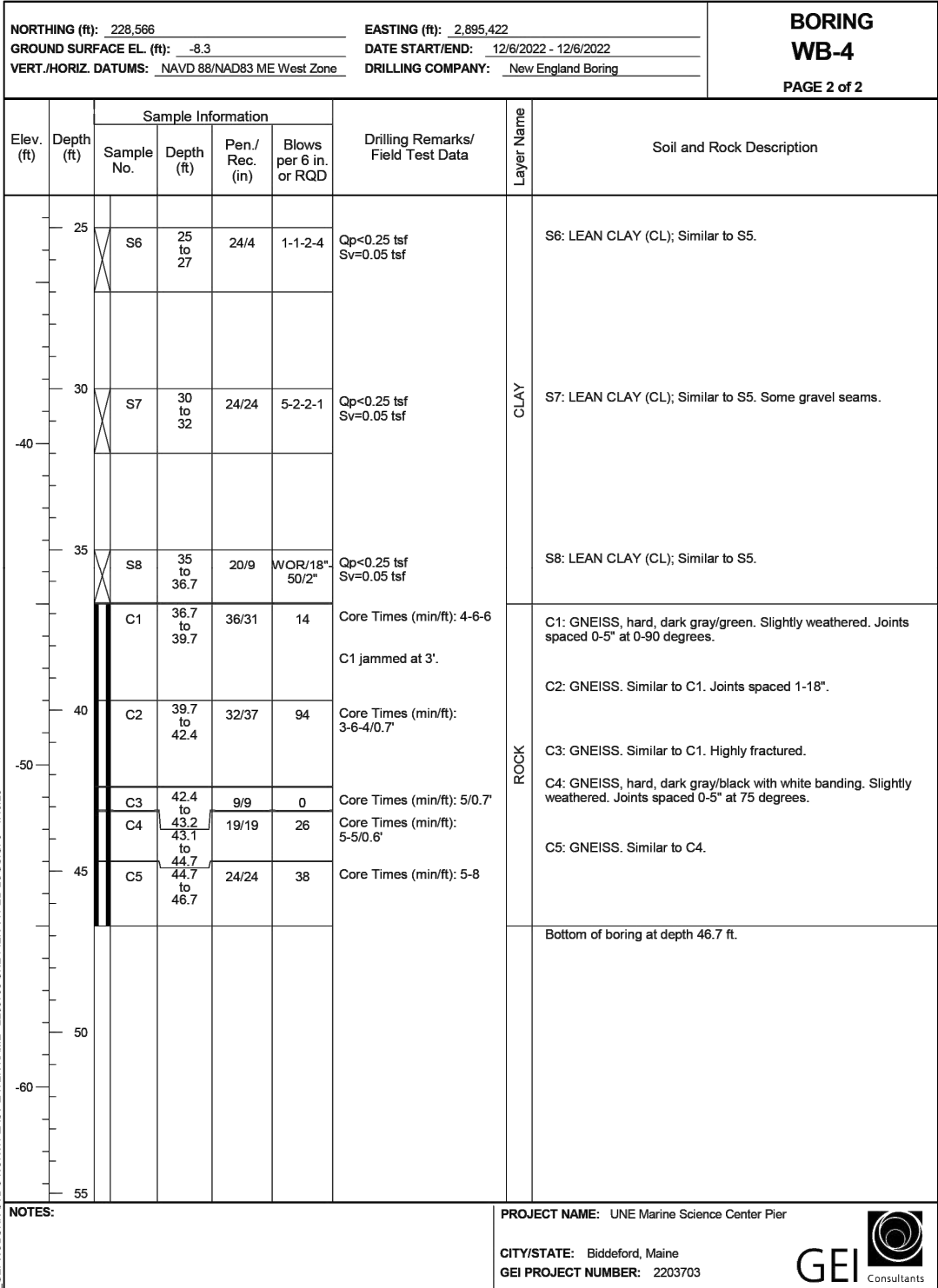




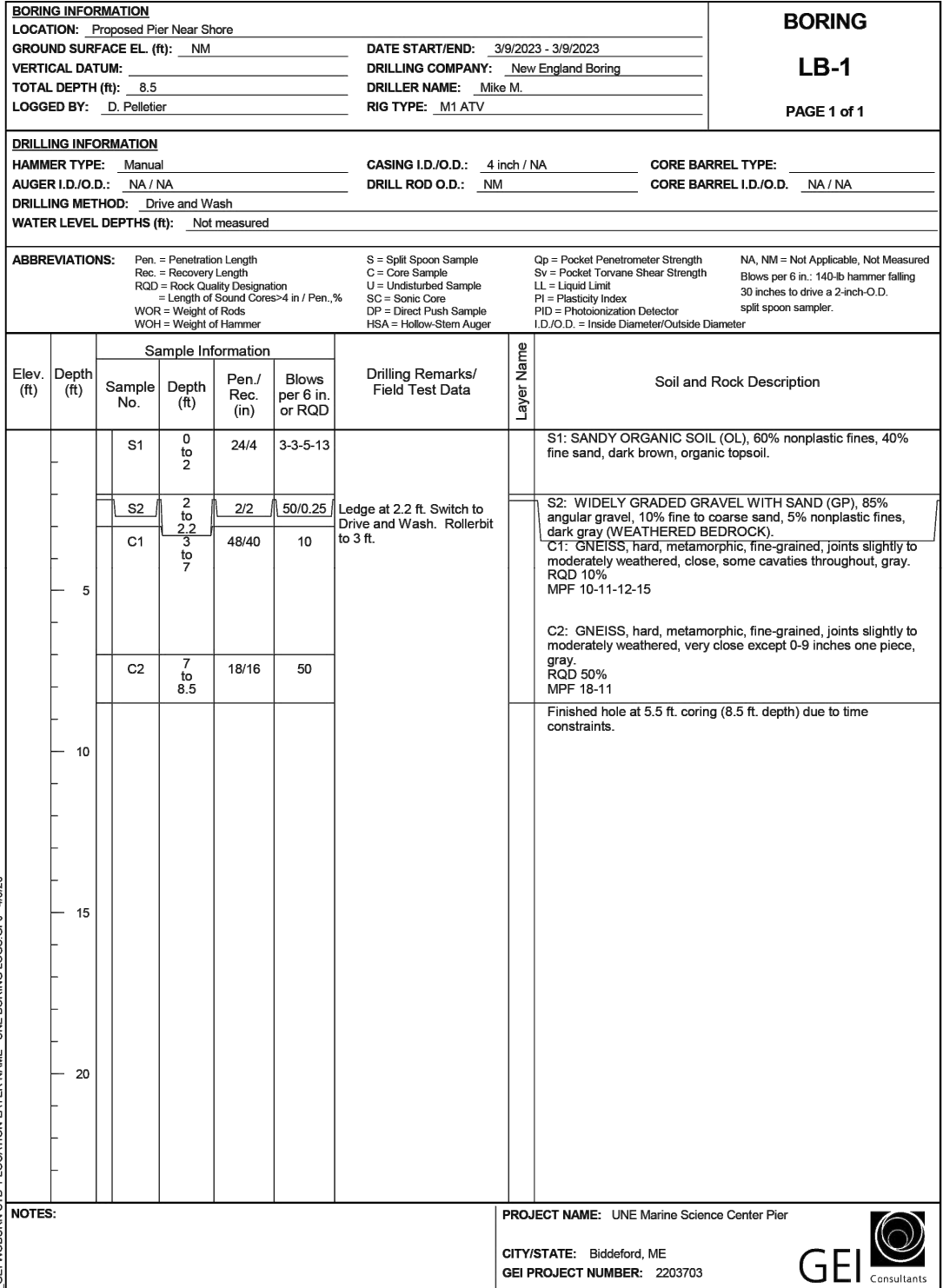
2022 BORING WB-3



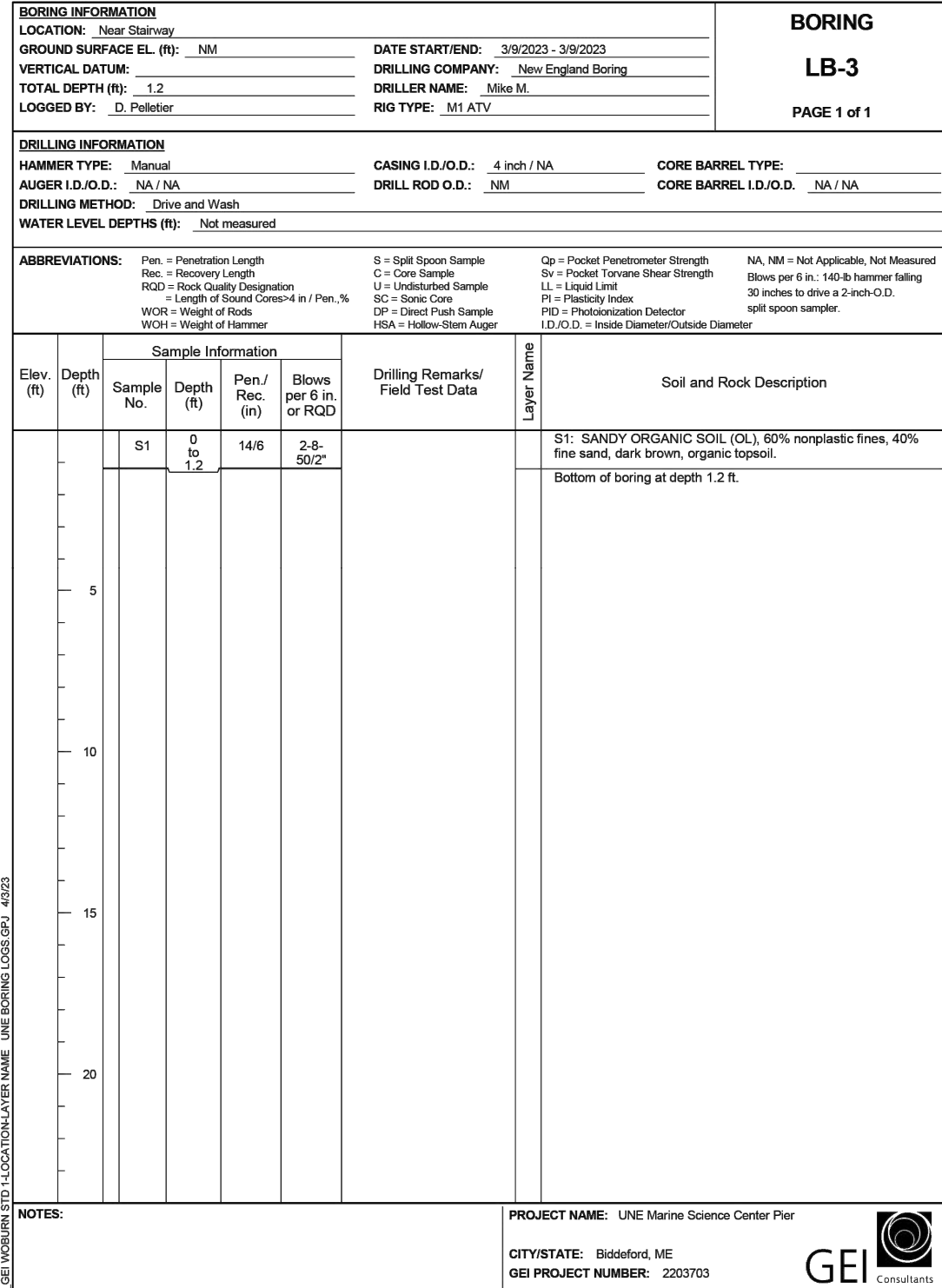
2022 BORING WB-4



2023 BORING LB-1



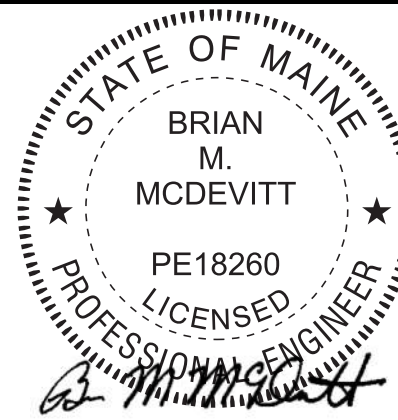
2023 BORING LB-3



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



UNIVERSITY OF NEW ENGLAND
11 HILLS BEACH RD.
BIDDEFORD, MAINE

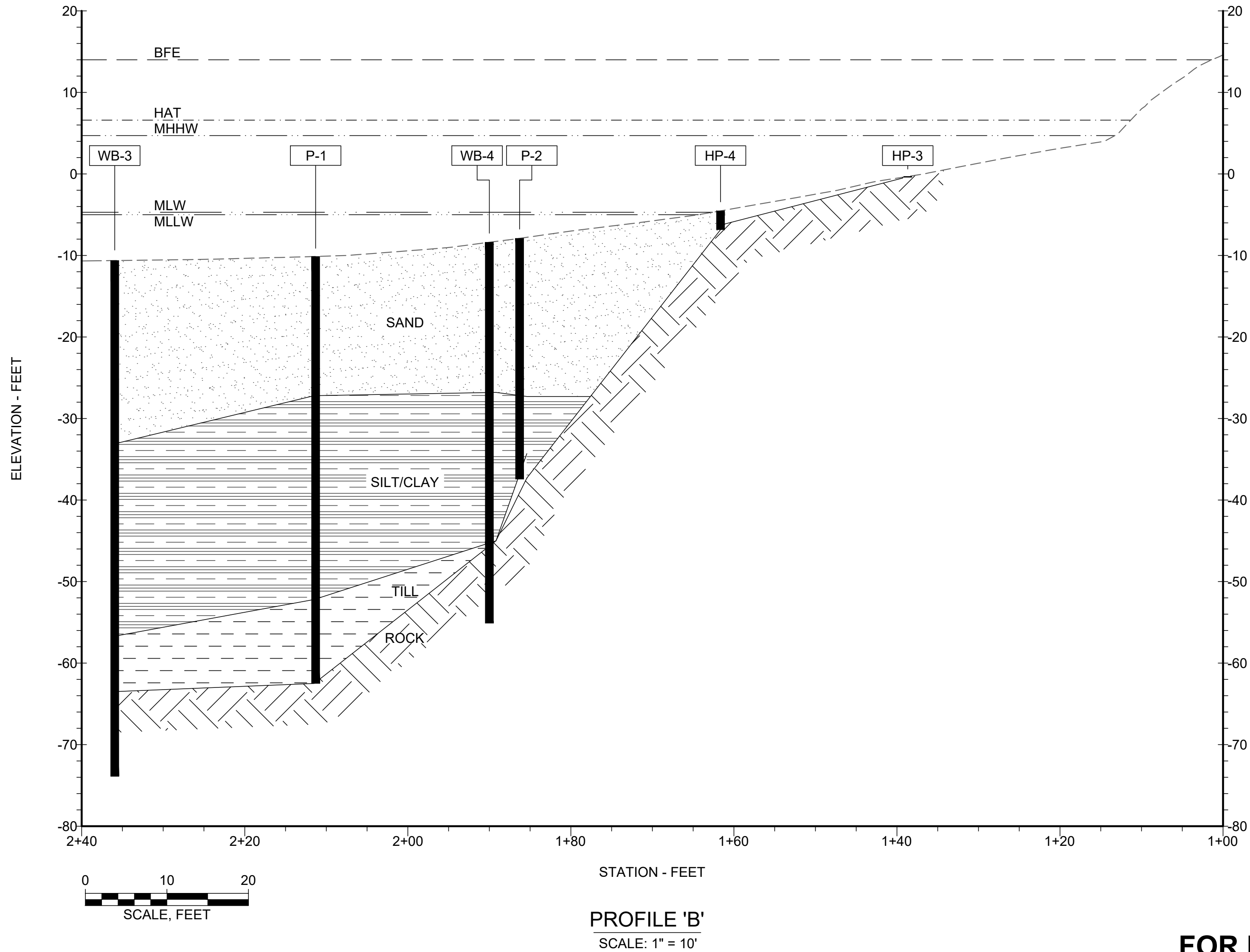
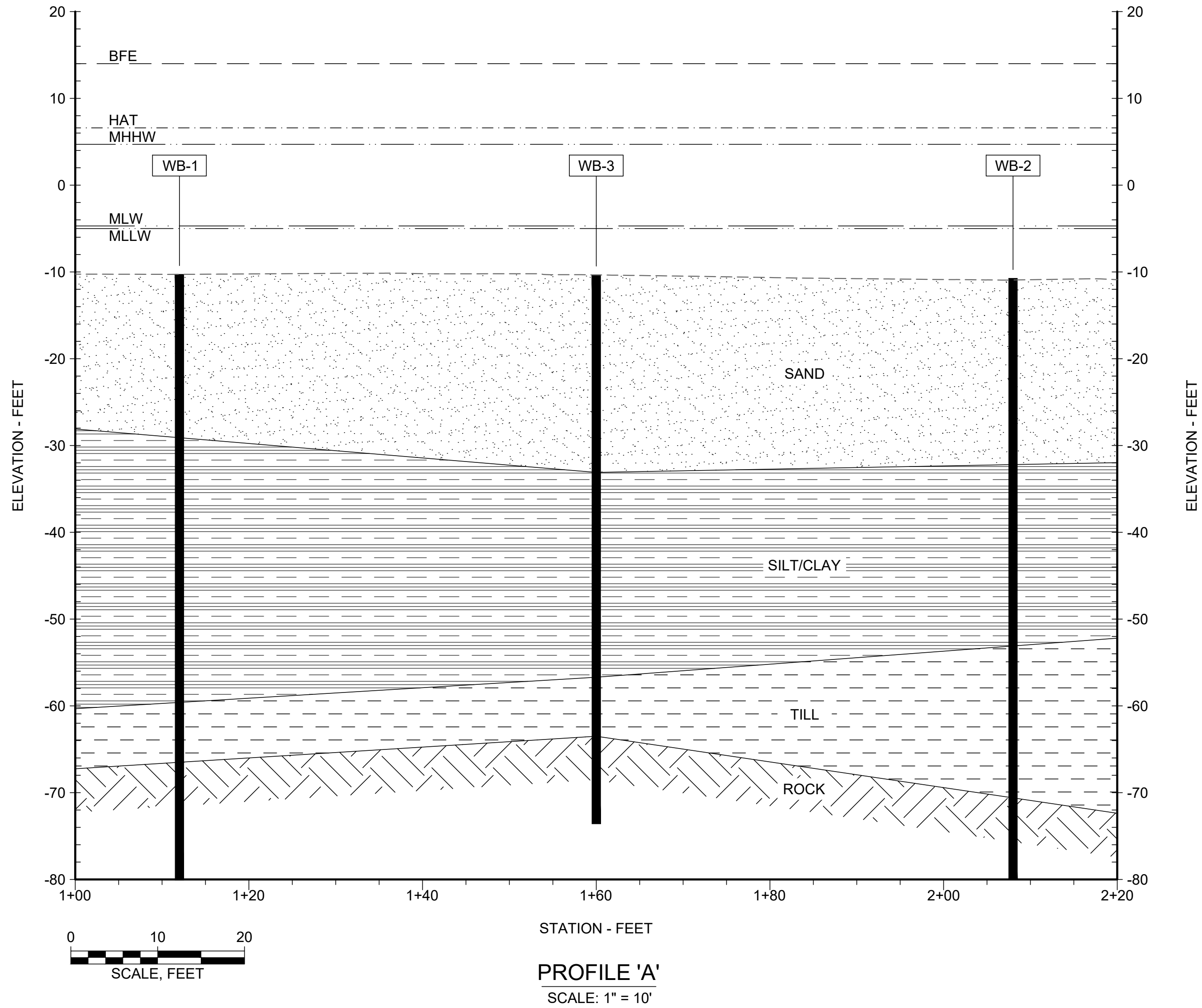
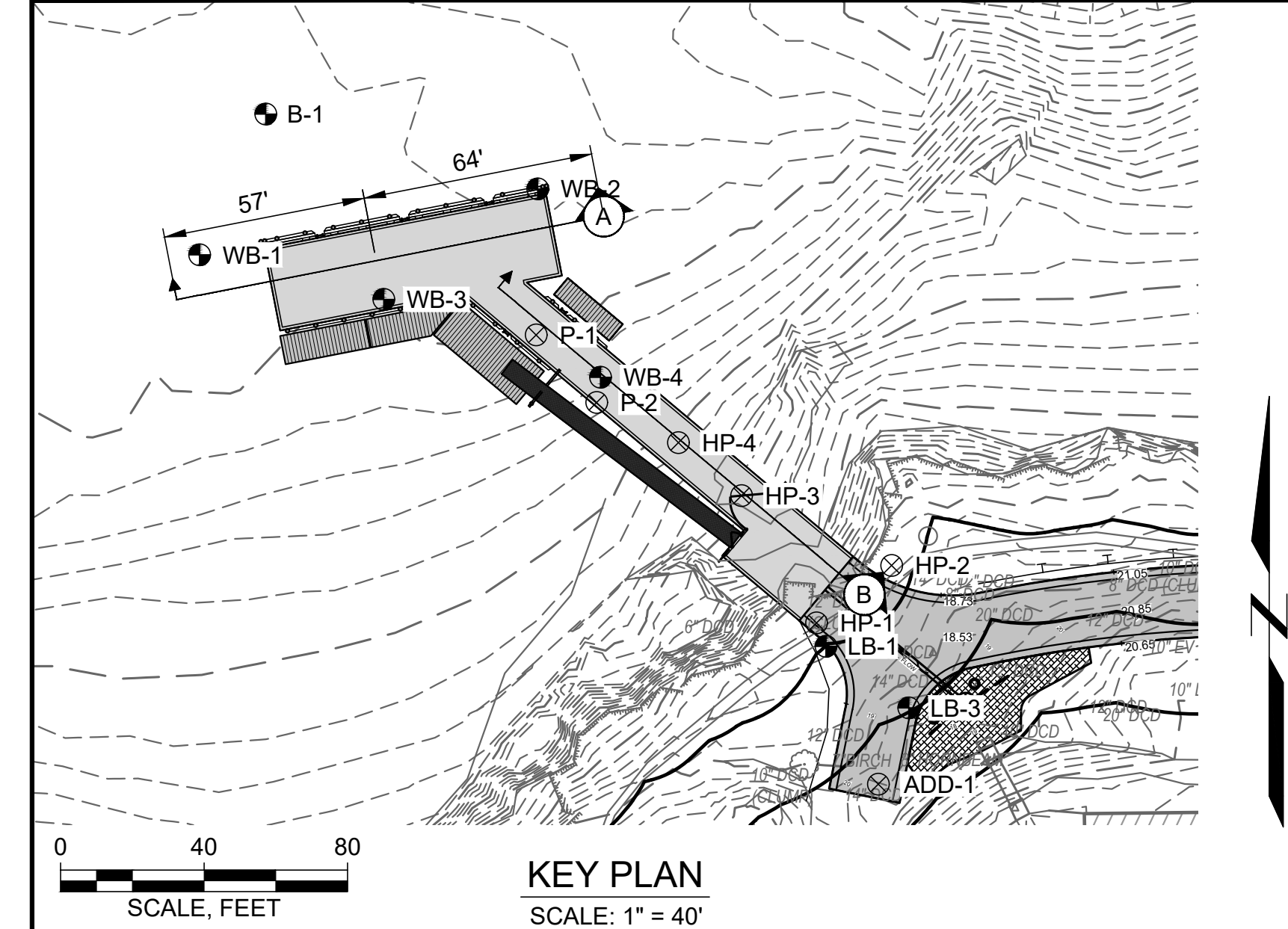
UNIVERSITY OF NEW ENGLAND
MARINE SCIENCE CENTER PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
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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
BORING LOGS (SHEET 3 OF 3)

SHEET NO.
B-004

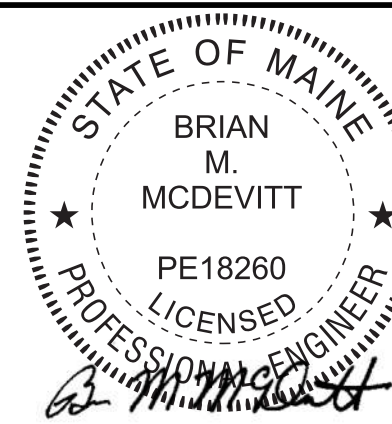
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ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*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
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	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
**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:

1. 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.

2. 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.

3. 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.

4. HYDROGRAPHIC DATA DEPICTED HEREON IS BASED ON 2022 SURVEY BY OWEN HASKELL SURVEY.

5. 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.

6. HORIZONTAL COORDINATES ARE BASED ON NAD83 MAINE STATE PLANE WEST ZONE-1801 AND ARE EXPRESSED IN FEET. ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.

7. 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.

8. 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.

9. 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.

10. BENCHMARKS:

03060

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:

01"

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

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

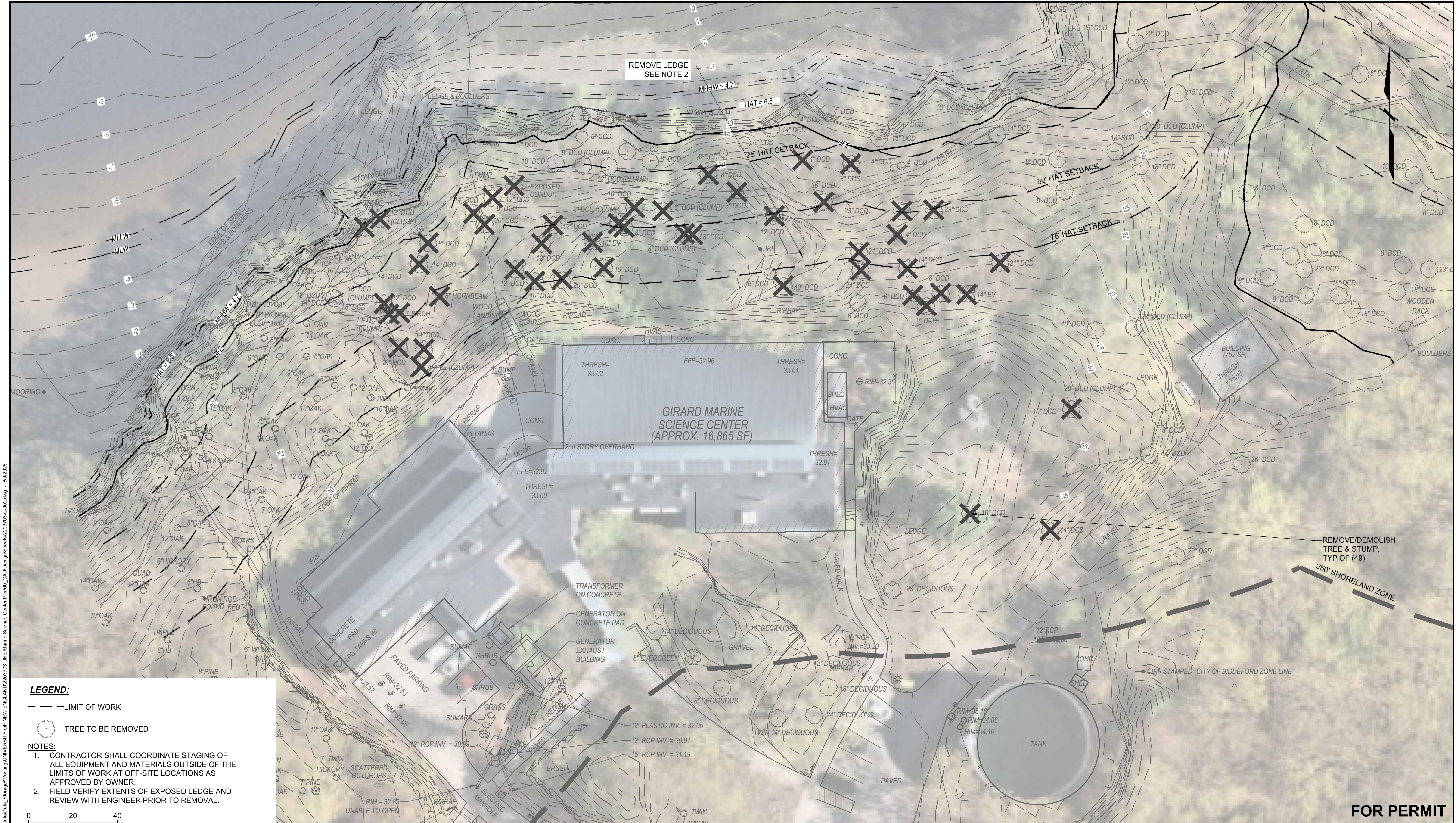
BIDDEFORD, YORK COUNTY, MAINE

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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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

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LEGEND:

--- LIMIT OF WORK

○ TREE TO BE REMOVED

NOTES:

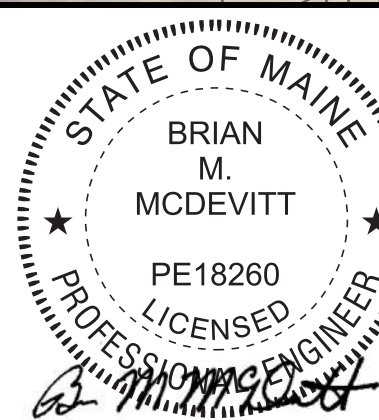
1. CONTRACTOR SHALL COORDINATE STAGING OF ALL EQUIPMENT AND MATERIALS OUTSIDE OF THE LIMITS OF WORK AT OFF-SITE LOCATIONS AS APPROVED BY OWNER.
2. FIELD VERIFY EXTENTS OF EXPOSED LEDGE AND REVIEW WITH ENGINEER PRIOR TO REMOVAL.



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.



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
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB

**DEMOLITION AND
CONSTRUCTION
STAGING**

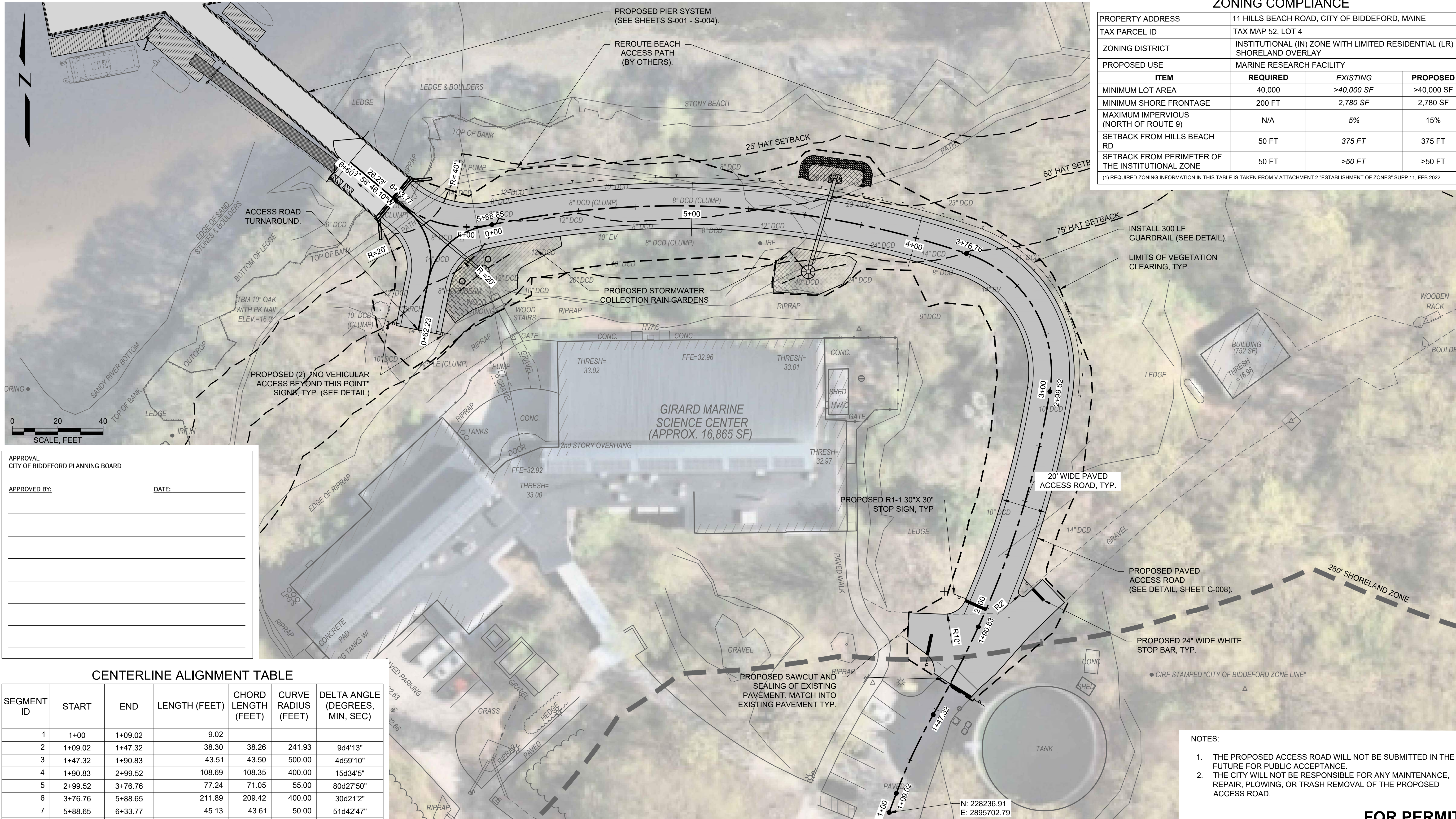
SHEET NAME

SHEET NO.

C-002

FOR PERMIT

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ZONING COMPLIANCE

PROPERTY ADDRESS	11 HILLS BEACH ROAD, CITY OF BIDDEFORD, MAINE		
TAX PARCEL ID	TAX MAP 52, LOT 4		
ZONING DISTRICT	INSTITUTIONAL (IN) ZONE WITH LIMITED RESIDENTIAL (LR) SHORELAND OVERLAY		
PROPOSED USE	MARINE RESEARCH FACILITY		
ITEM	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	40,000	>40,000 SF	>40,000 SF
MINIMUM SHORE FRONTAGE	200 FT	2,780 SF	2,780 SF
MAXIMUM IMPERVIOUS (NORTH OF ROUTE 9)	N/A	5%	15%
SETBACK FROM HILLS BEACH RD	50 FT	375 FT	375 FT
SETBACK FROM PERIMETER OF THE INSTITUTIONAL ZONE	50 FT	>50 FT	>50 FT

(1) REQUIRED ZONING INFORMATION IN THIS TABLE IS TAKEN FROM V ATTACHMENT 2 "ESTABLISHMENT OF ZONES" SUPP 11, FEB 2022

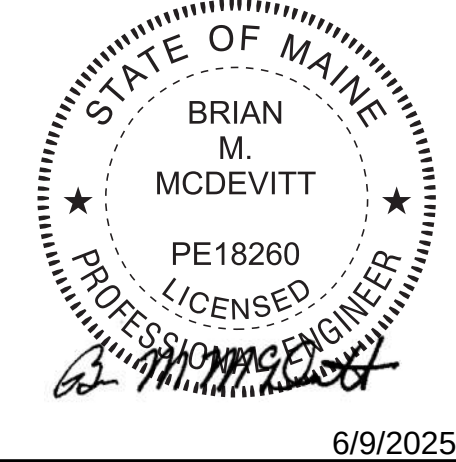
CENTERLINE ALIGNMENT TABLE

SEGMENT ID	START	END	LENGTH (FEET)	CHORD LENGTH (FEET)	CURVE RADIUS (FEET)	DELTA ANGLE (DEGREES, MIN, SEC)
1	1+00	1+09.02	9.02			
2	1+09.02	1+47.32	38.30	38.26	241.93	9d4'13"
3	1+47.32	1+90.83	43.51	43.50	500.00	4d59'10"
4	1+90.83	2+99.52	108.69	108.35	400.00	15d34'5"
5	2+99.52	3+76.76	77.24	71.05	55.00	80d27'50"
6	3+76.76	5+88.65	211.89	209.42	400.00	30d21'2"
7	5+88.65	6+33.77	45.13	43.61	50.00	51d42'47"
8	6+33.77	6+60	26.23			

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
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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

NOTES:

- THE PROPOSED ACCESS ROAD WILL NOT BE SUBMITTED IN THE FUTURE FOR PUBLIC ACCEPTANCE.
- THE CITY WILL NOT BE RESPONSIBLE FOR ANY MAINTENANCE, REPAIR, PLOWING, OR TRASH REMOVAL OF THE PROPOSED ACCESS ROAD.

FOR PERMIT

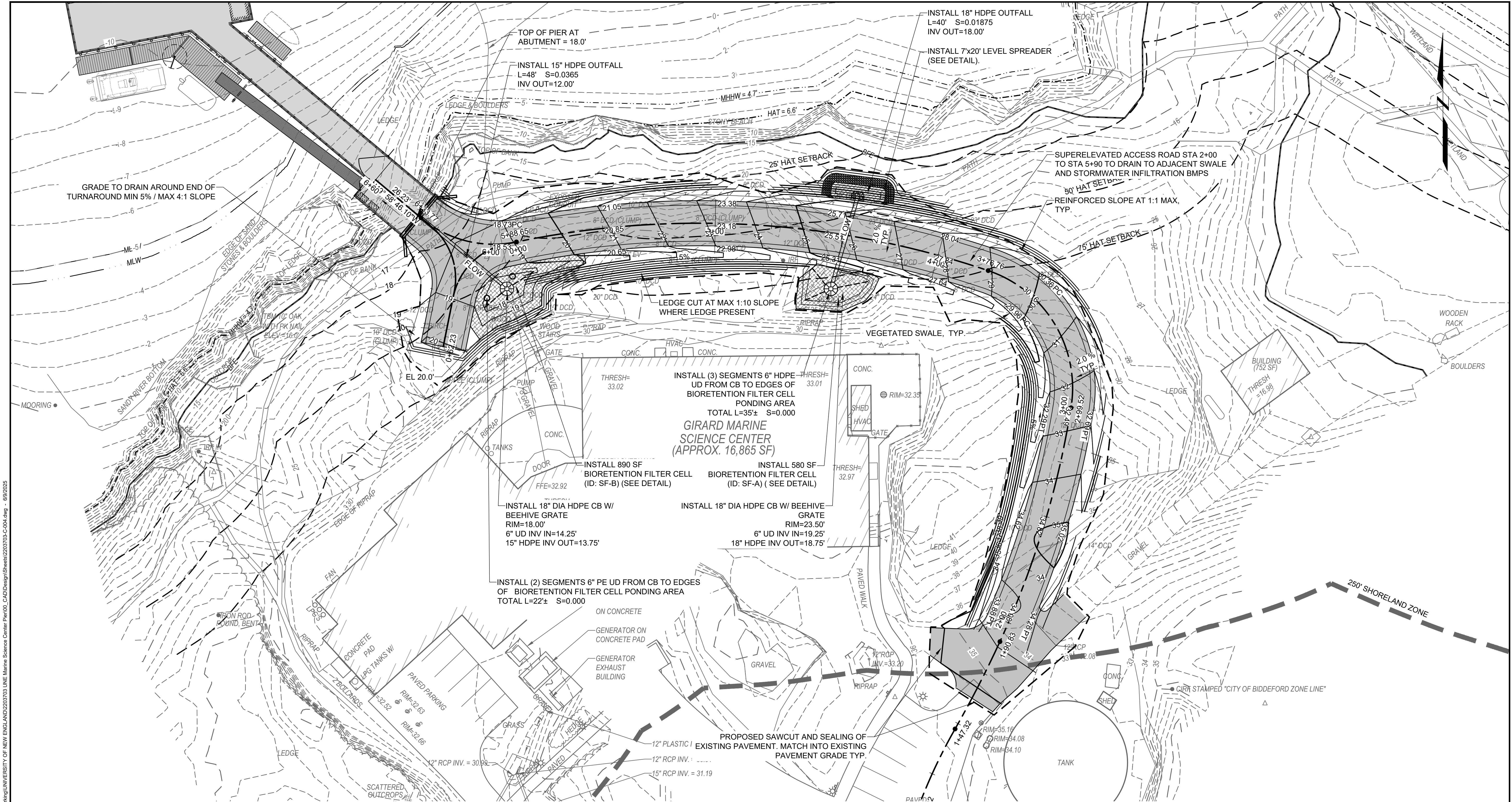
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SITE PLAN

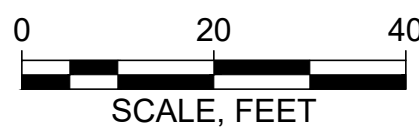
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C-003

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PLAN
SCALE: 1" = 20'



Attention:

0 20 40

SCALE, FEET

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



11 HILLS BEACH RD.
BIDDEFORD, MAINE

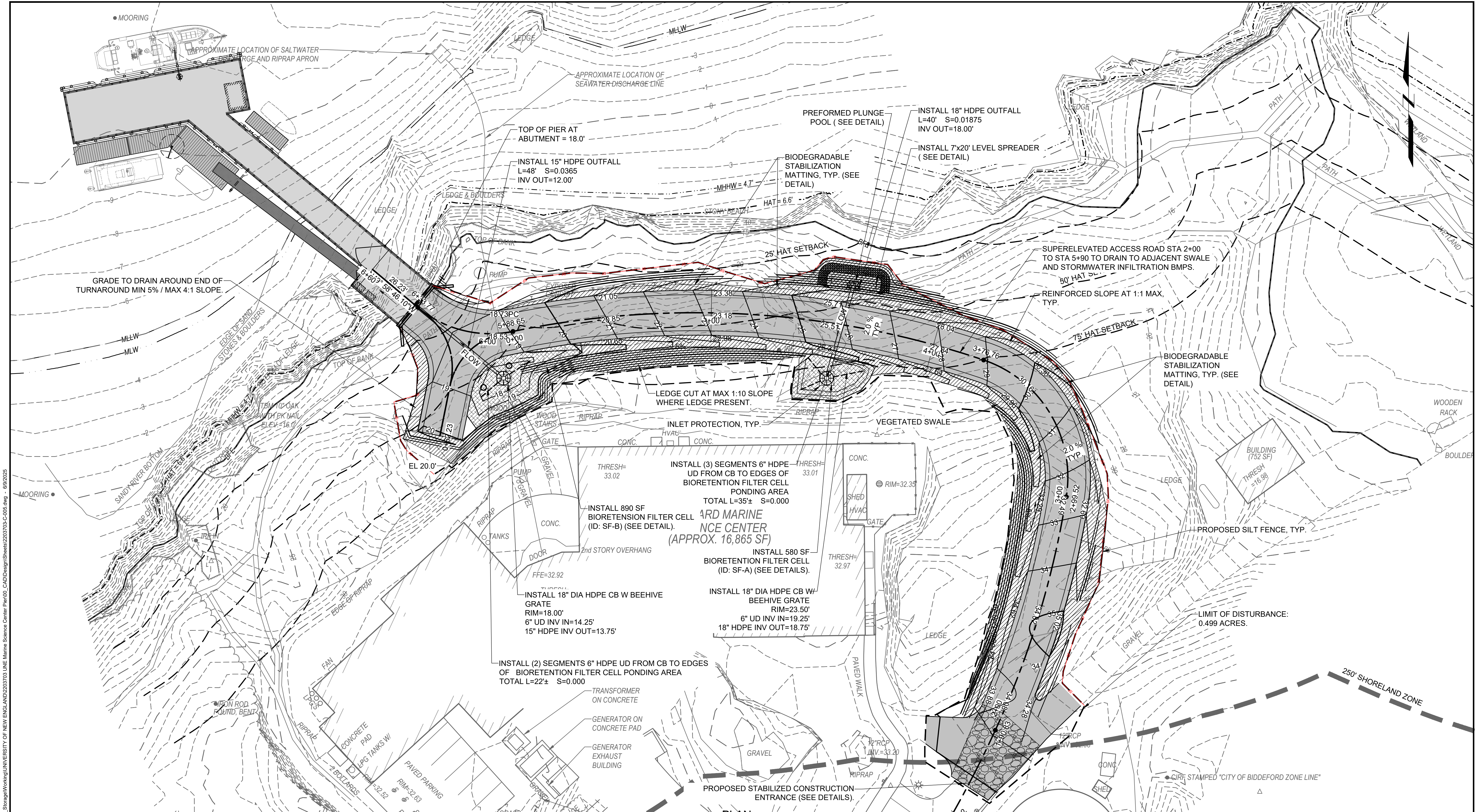
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PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
GRADING AND DRAINAGE PLAN	C-004

FOR PERMIT

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PLAN
SCALE: 1" = 20'

FOR PERMIT

NOTE:
CONTRACTOR SHALL INSTALL BIODEGRADABLE STABILIZATION MATTING WHEREVER PROPOSED SLOPES EXCEED 5H:1V.

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



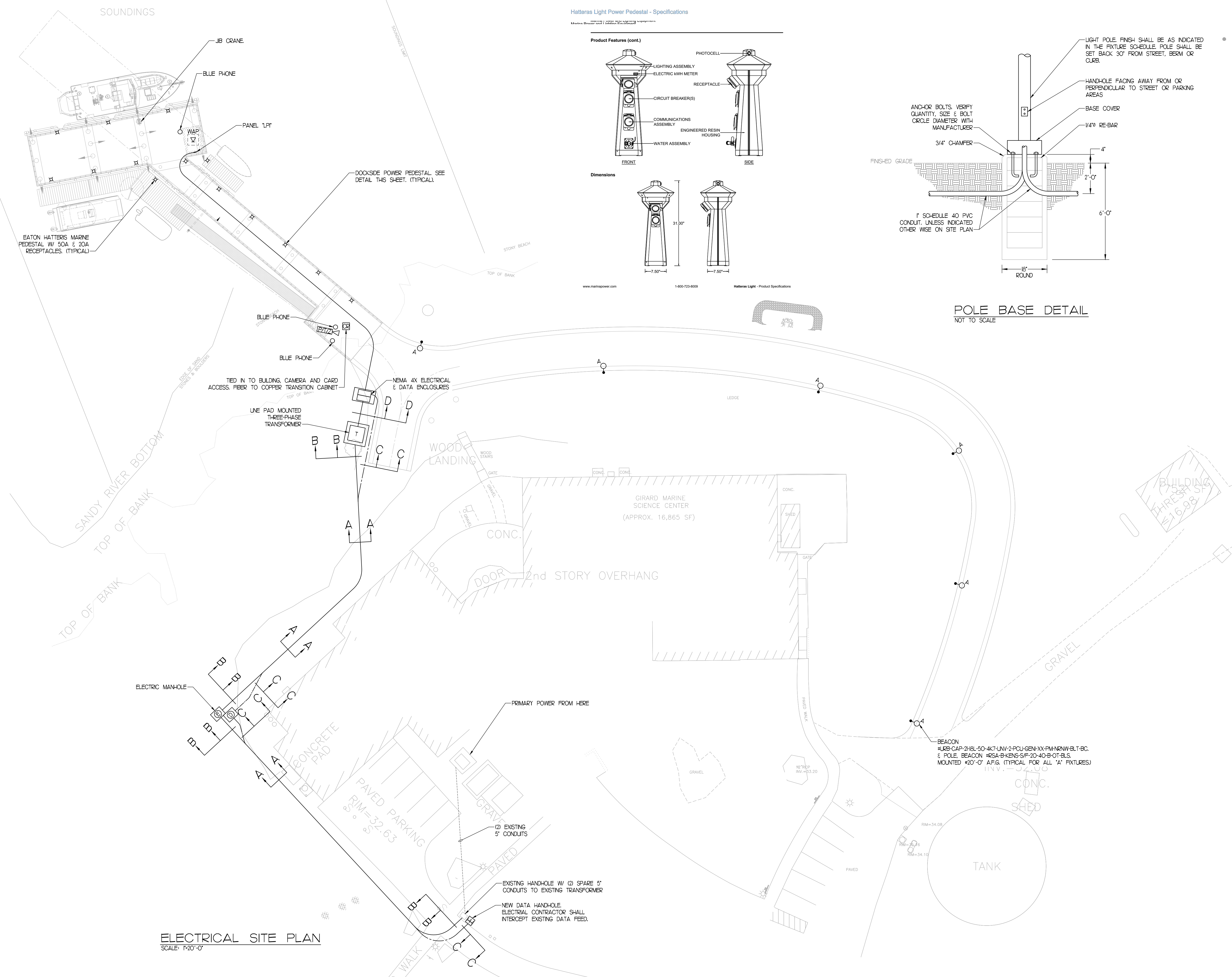
11 HILLS BEACH RD.
BIDDEFORD, MAINE

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MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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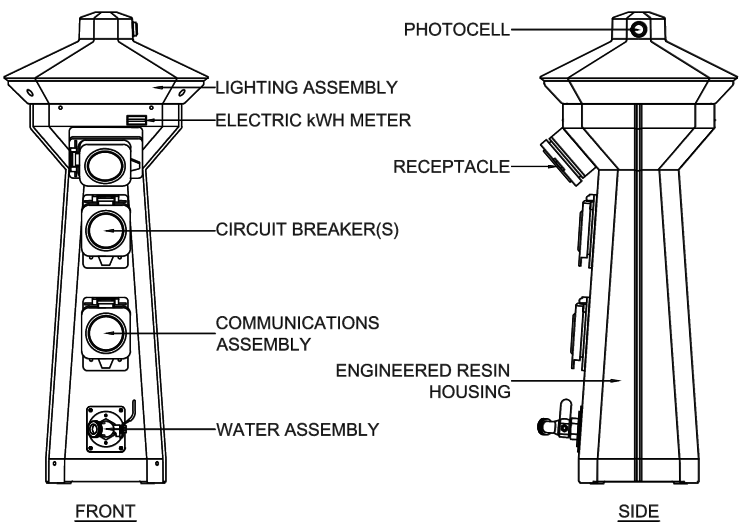
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EROSION CONTROL PLAN	C-005



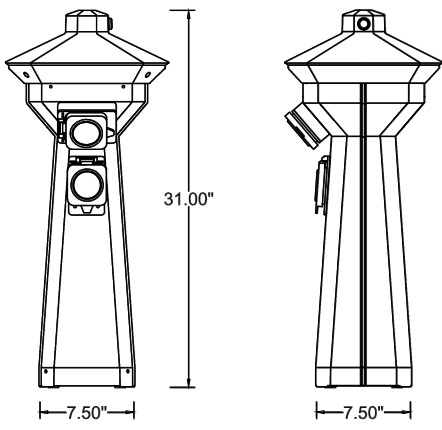
Hatteras Light Power Pedestal - Specifications

www.hatteraspower.com

Product Features (cont.)



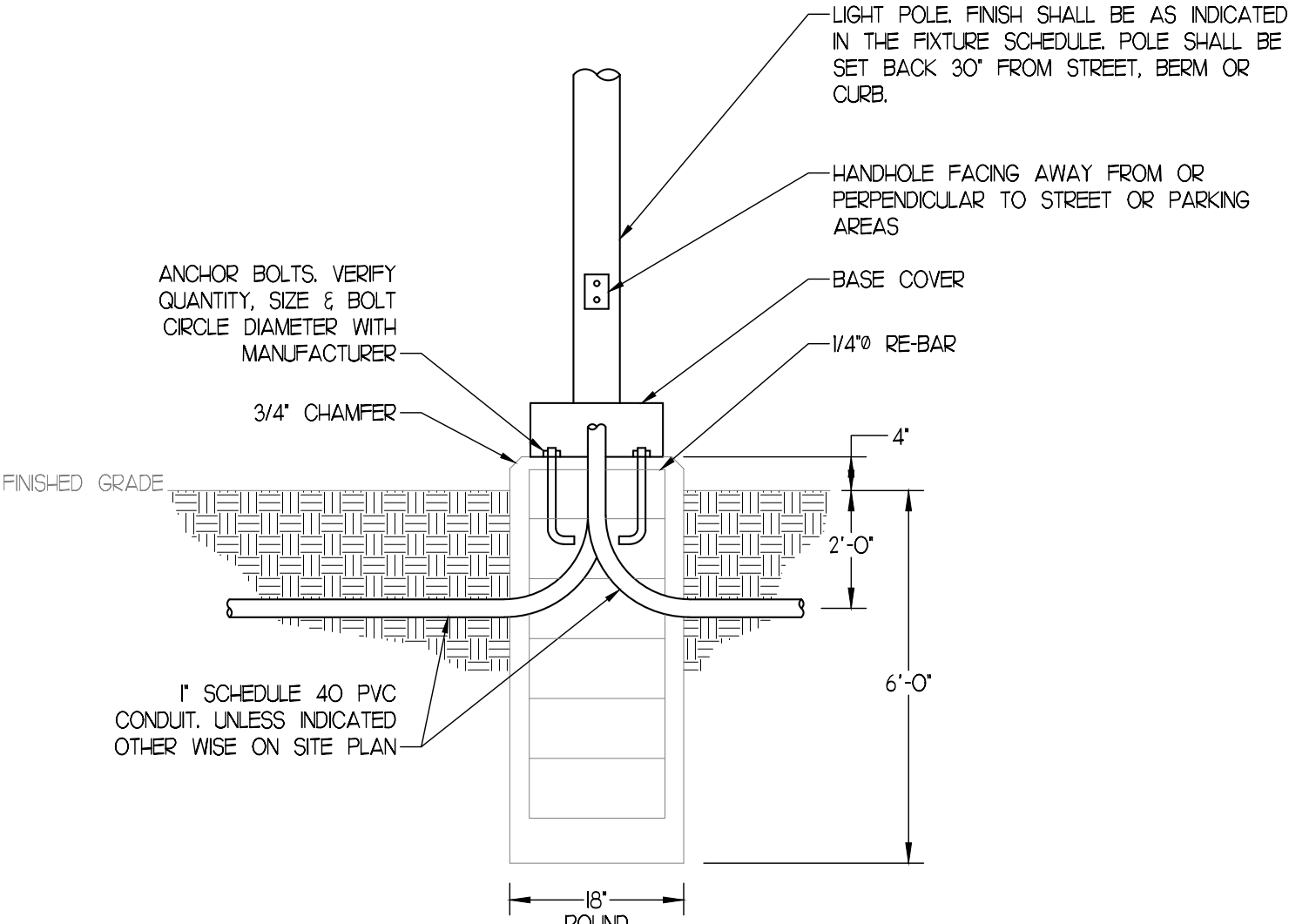
Dimensions



www.hatteraspower.com

1-800-723-8009

Hatteras Light - Product Specifications

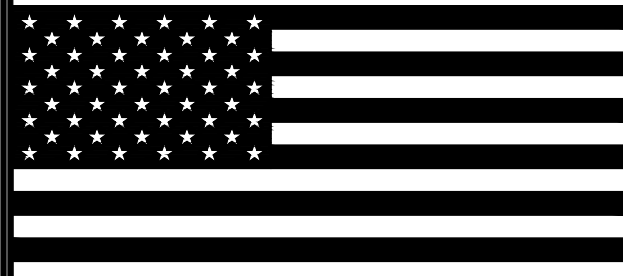


POLE BASE DETAIL
NOT TO SCALE

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

DRAWING TITLE

ELECTRICAL SITE PLAN

DRAWN:

CWQ

CHECKED:

VAD Jr

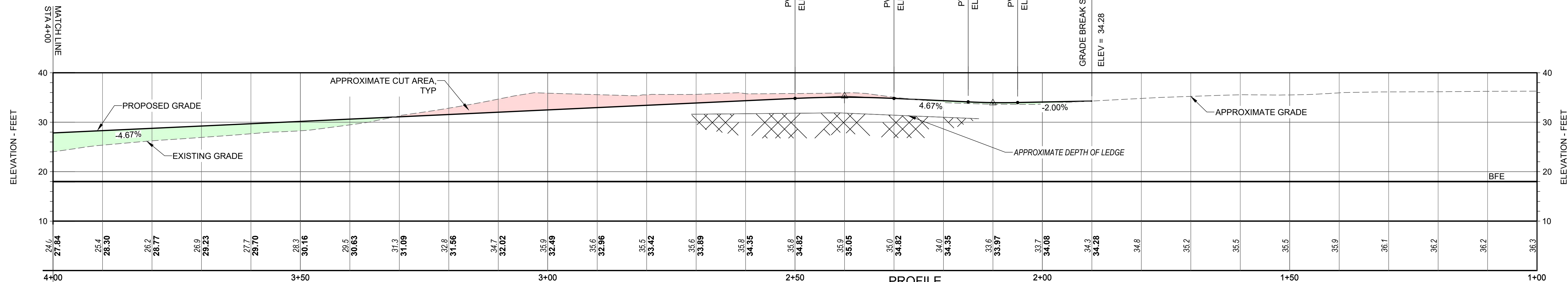
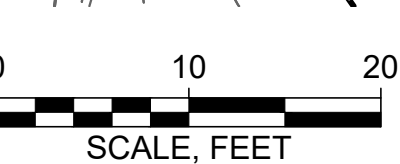
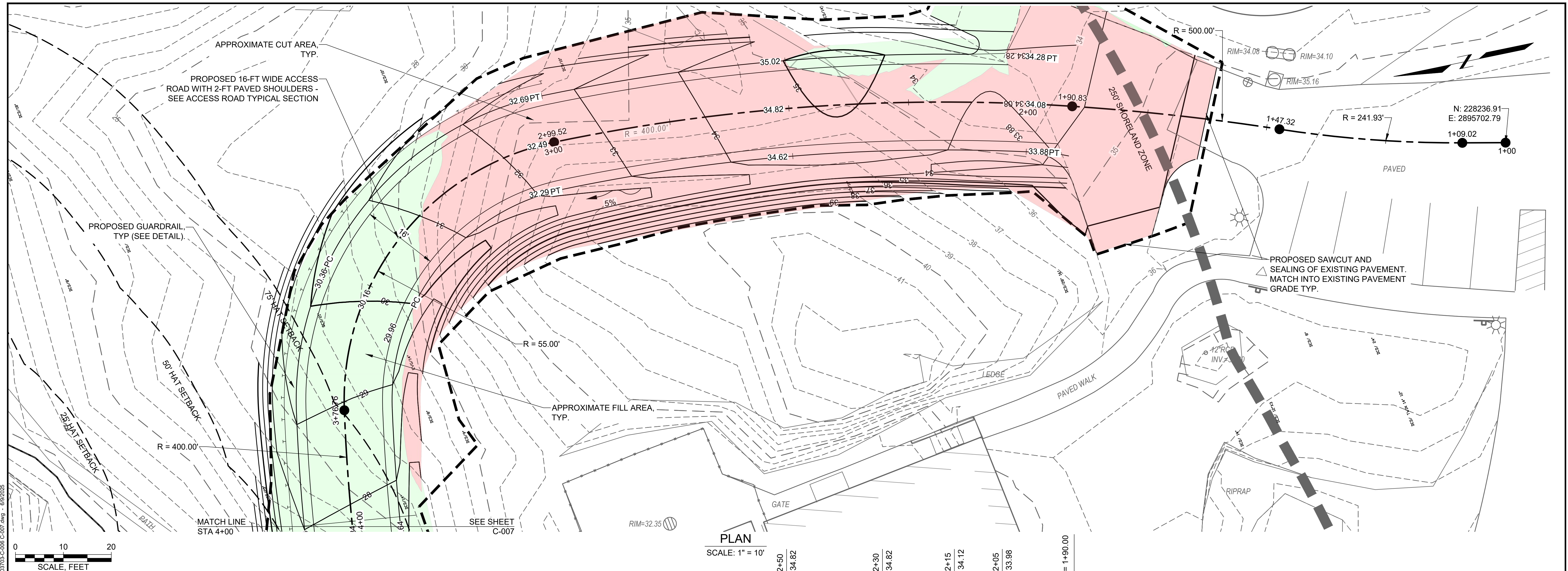
SCALE:

AS INDICATED

DATE:

APRIL 15, 2025

ES1.1

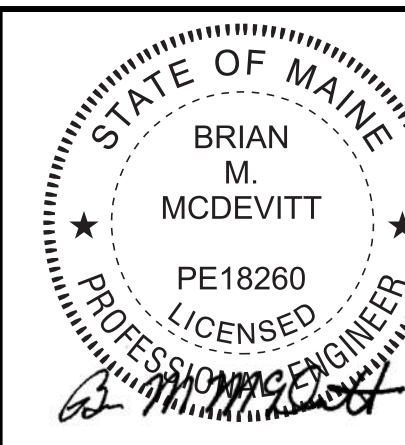


VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" = 10'

CUT/FILL ANALYSIS	
STRUCTURE	QUANTITY (CY)
CUT	2174.50
FILL	782.30
NET (FILL)	1392.20

Attention:

If this scale bar does not measure 1 inch, 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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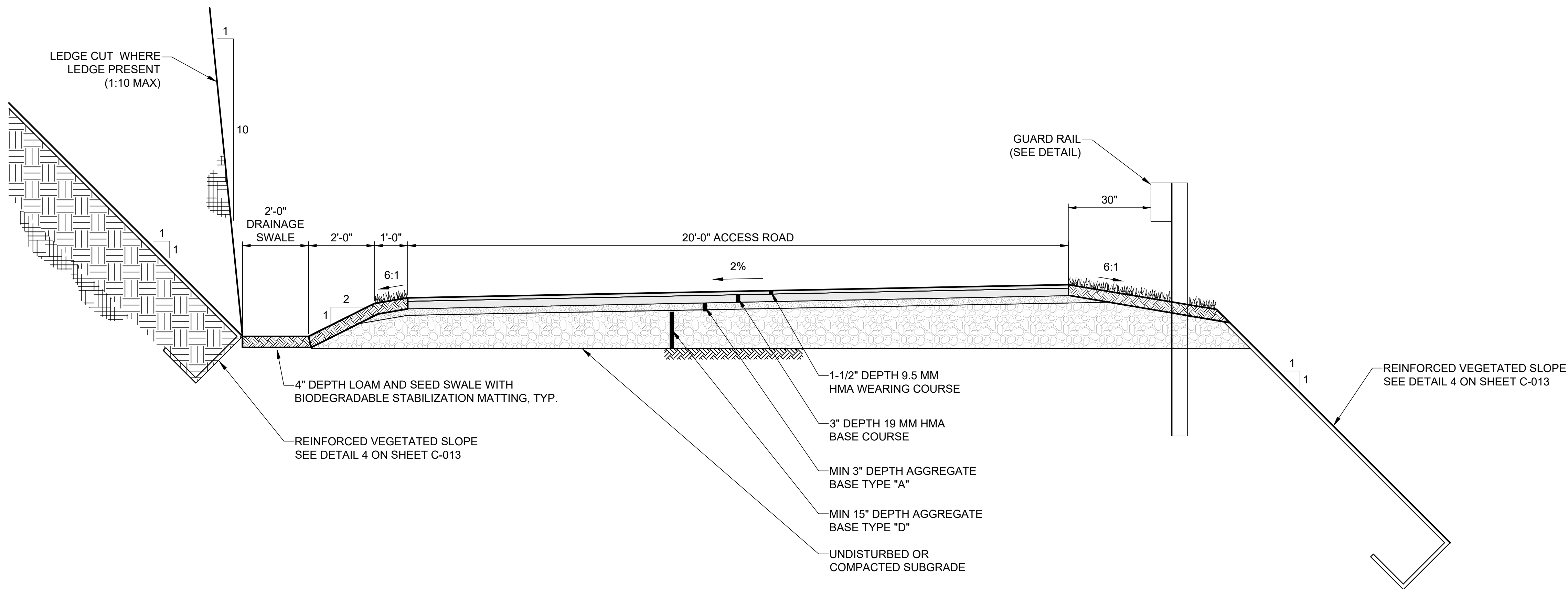
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**ACCESS ROAD
PLAN AND PROFILE
STA 1+00 TO 4+00**

SHEET NO.

C-006

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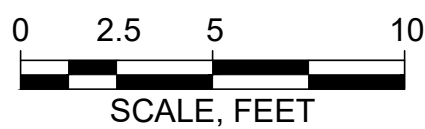
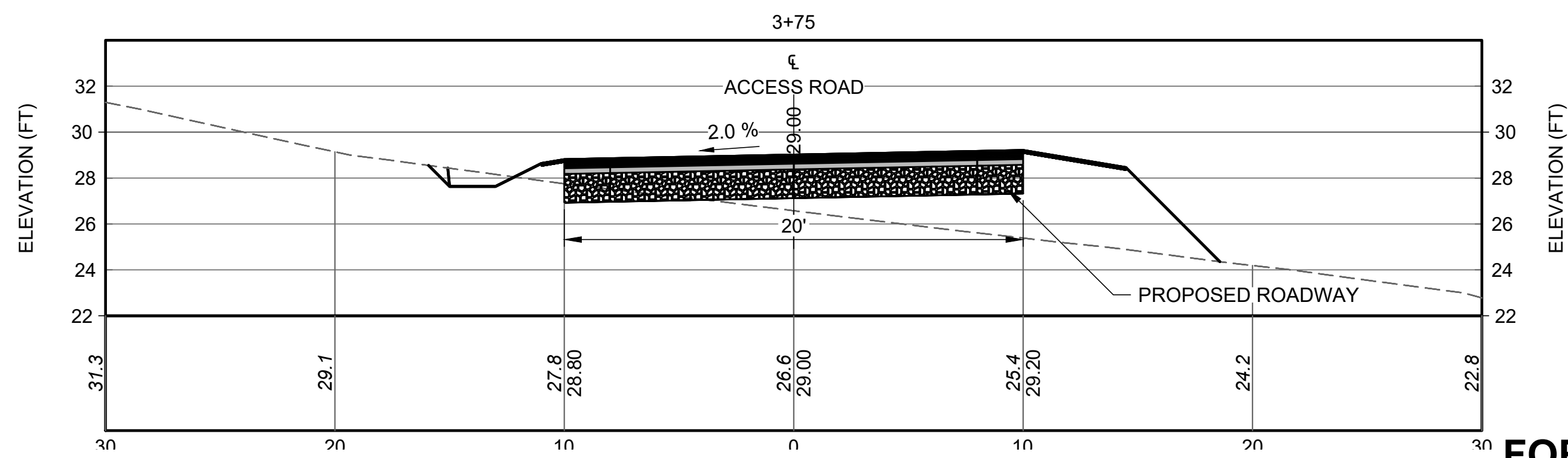
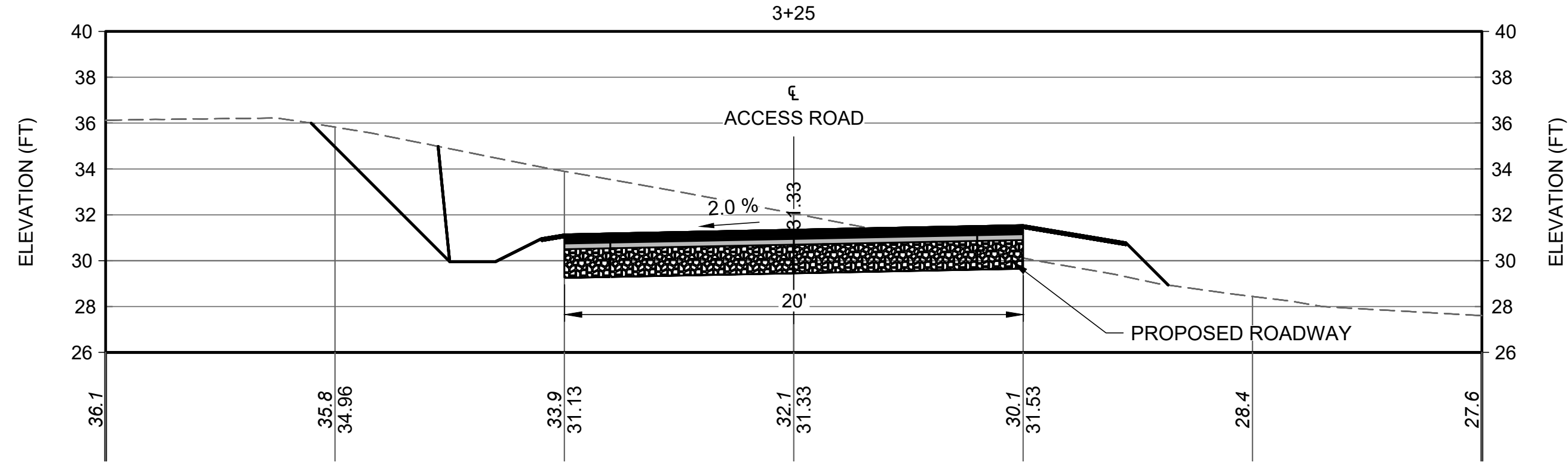
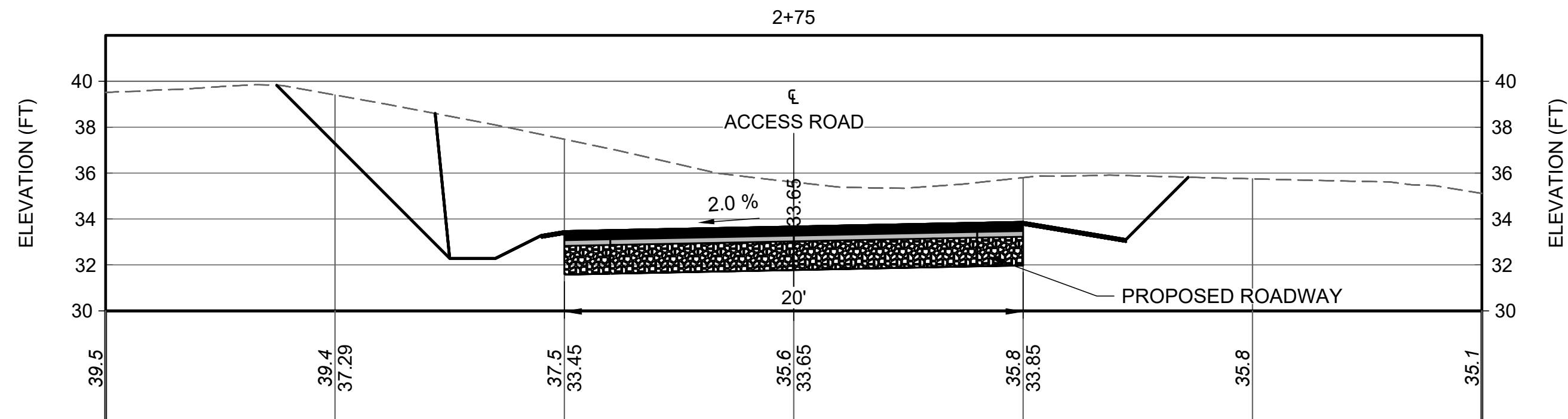
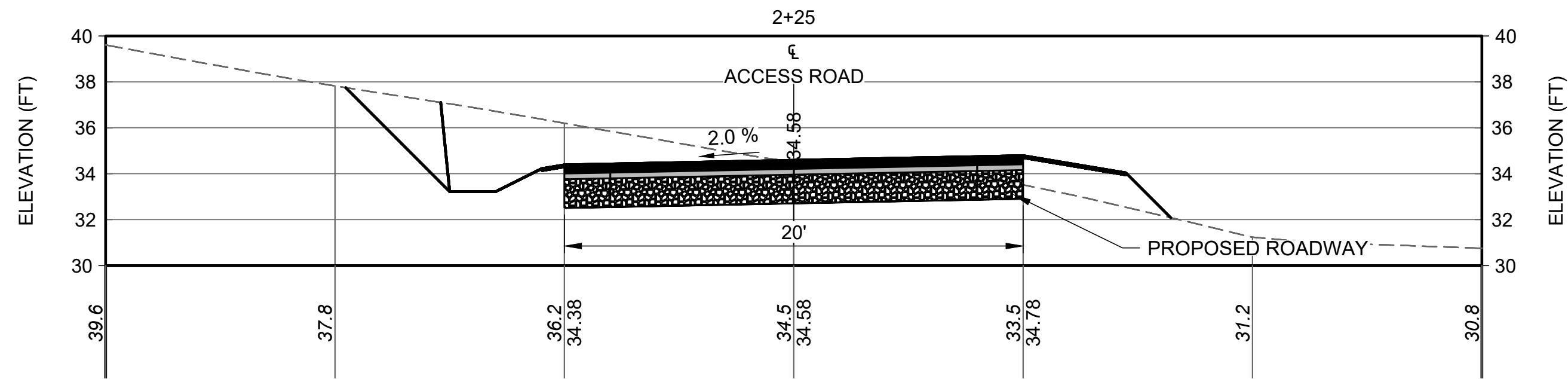
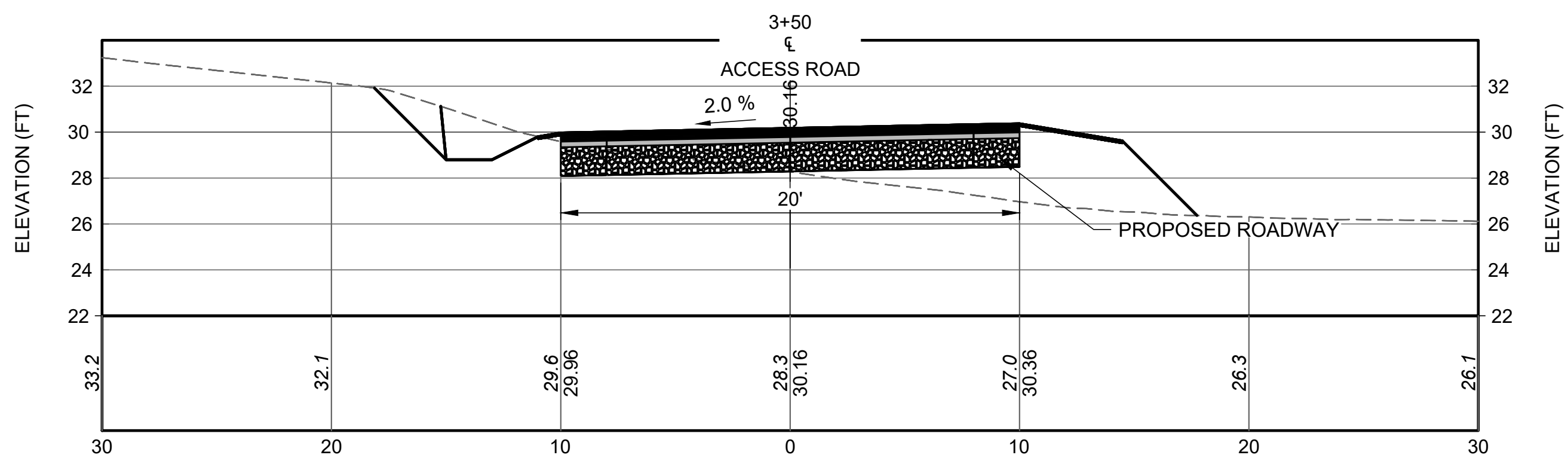
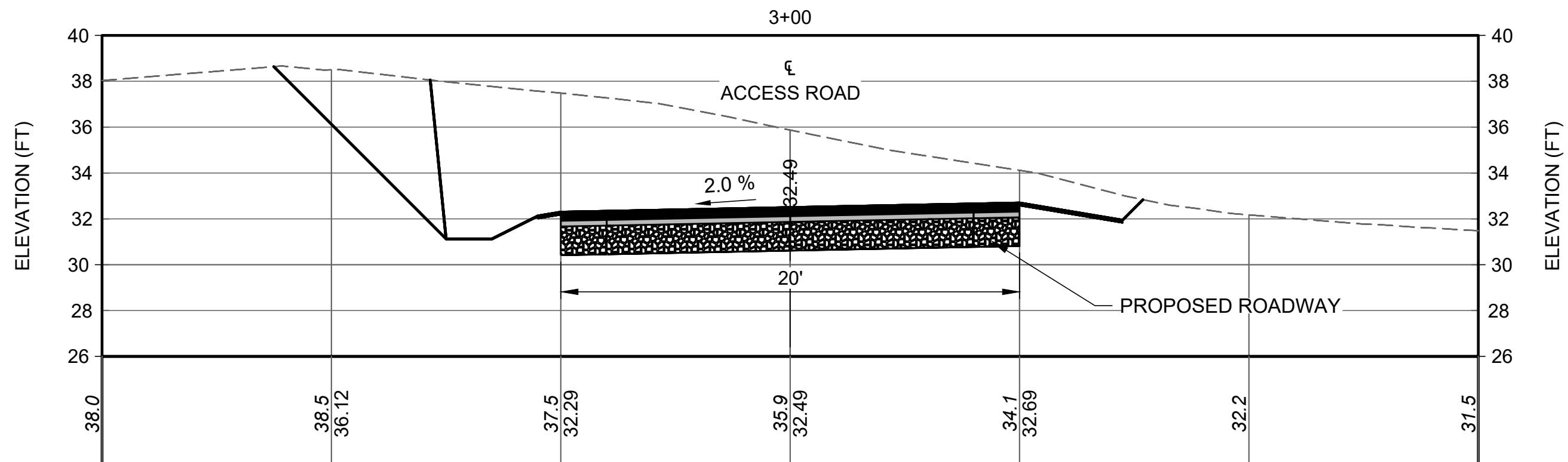
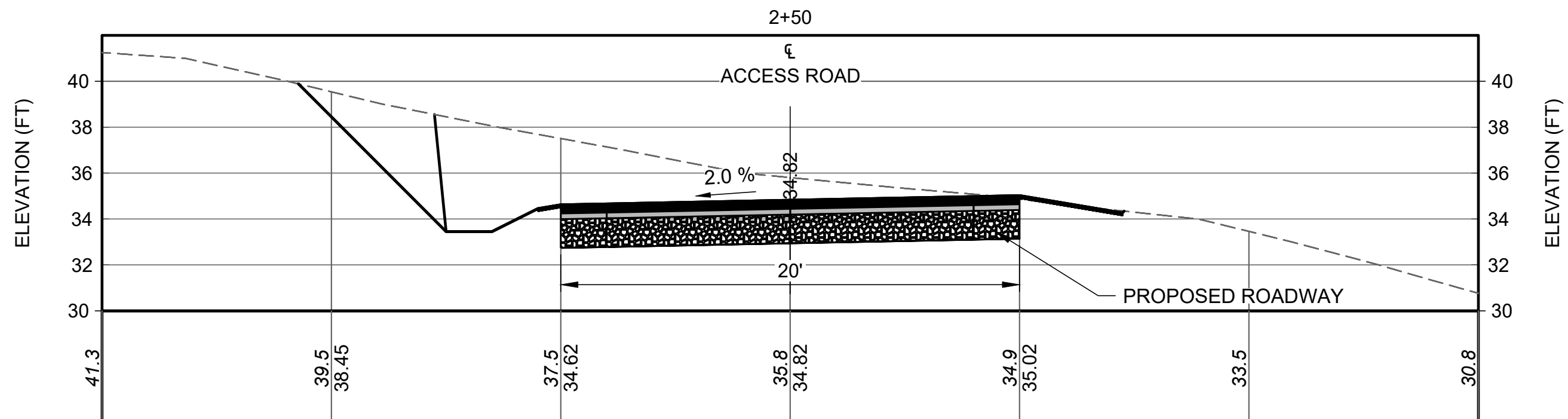
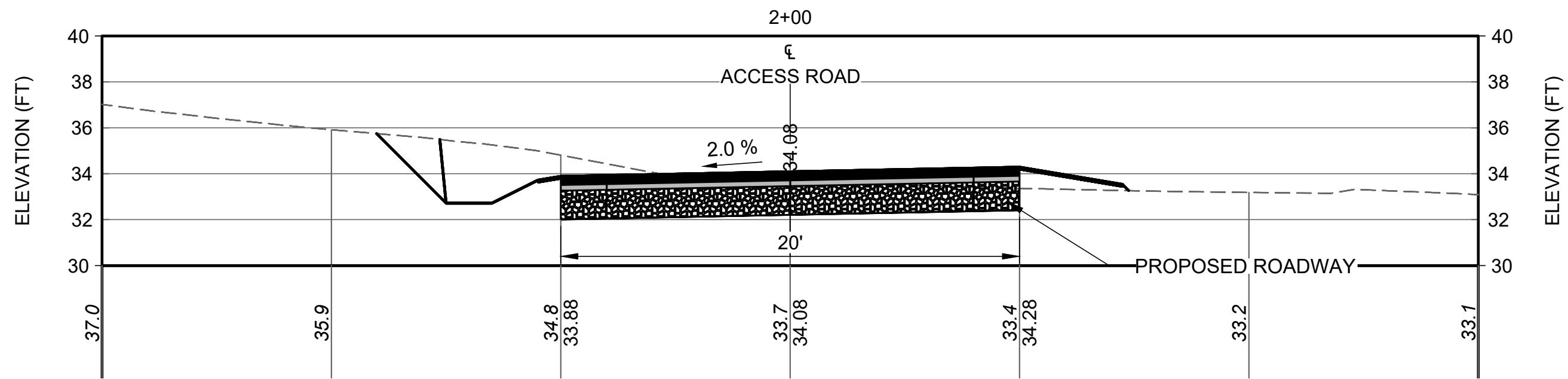


TYPICAL ACCESS ROAD SECTION
SCALE: NTS

FOR PERMIT

Attention: 01" 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 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 74/16/2025BIDDEFORD PERMIT APP. 69/17/2024REVISED PERMIT SET 56/27/2024REVISED PERMIT SET 49/14/2023DEP PERMIT SET 36/28/202375% DESIGN SUBMISSION 22/15/202330% DESIGN SUBMISSION 112/9/202215% DESIGN SUB REV 011/11/202215% DESIGN SUBMISSION NO DATEISSUE/REVISION APP	SHEET NAME ACCESS ROAD TYPICAL SECTION	SHEET NO. C-008
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Attention:
0 2.5 5 10
SCALE, FEET

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

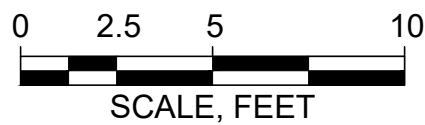
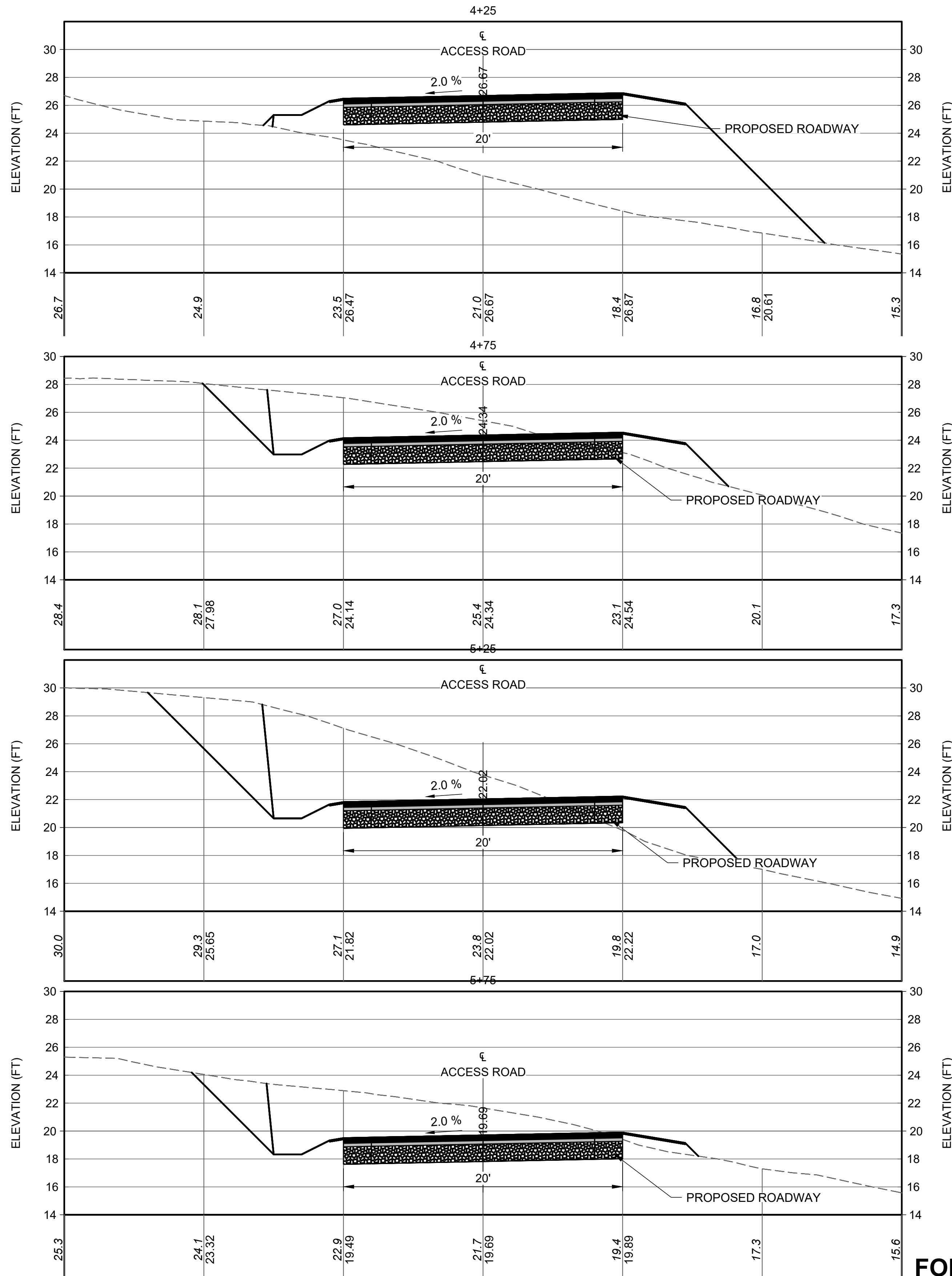
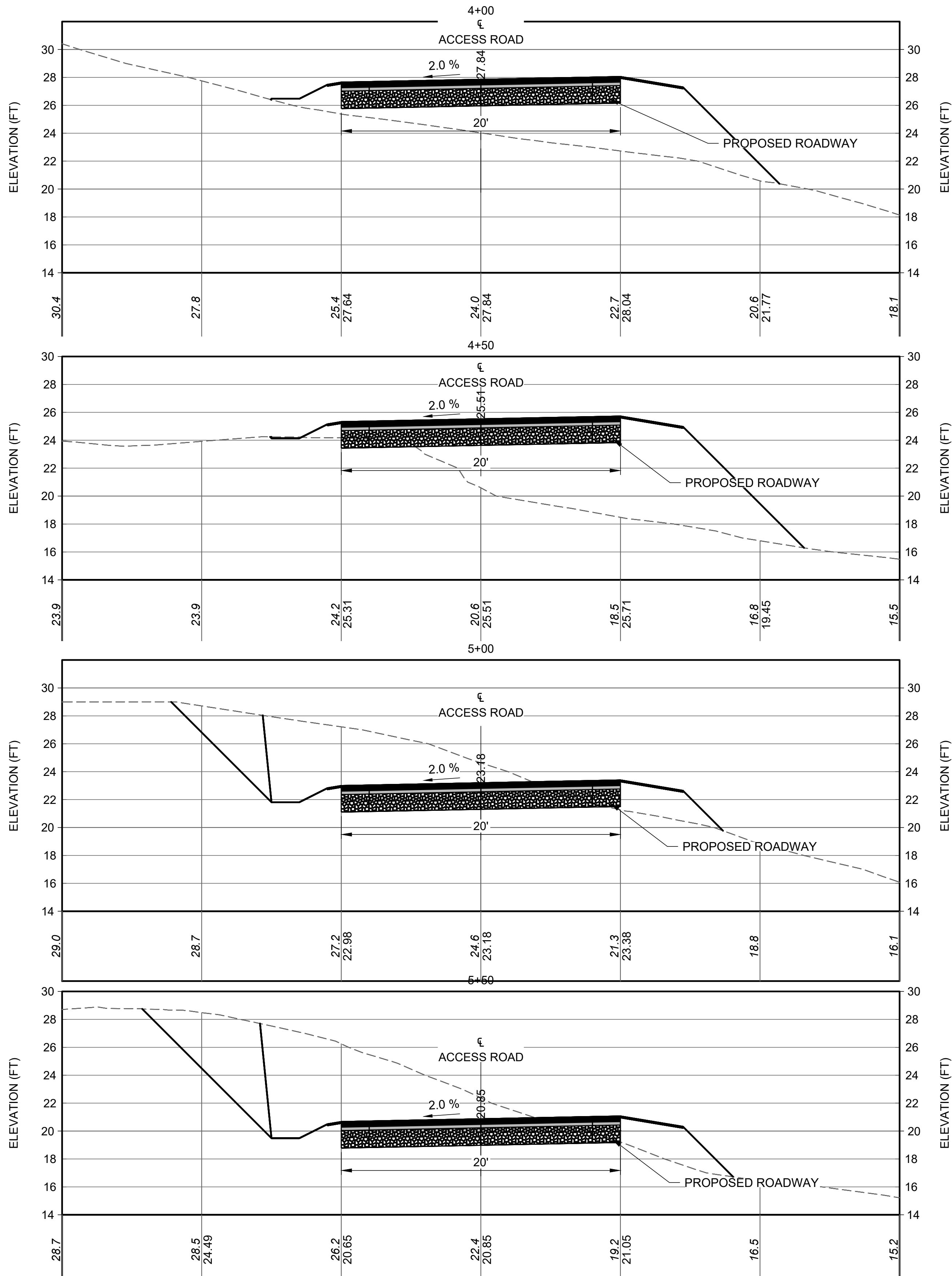
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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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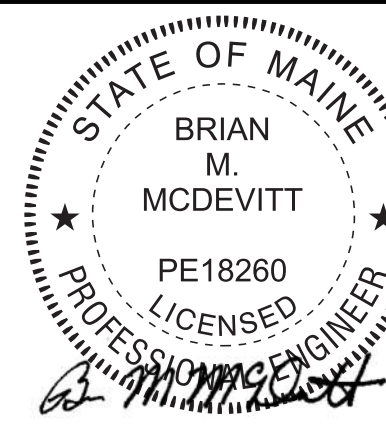
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ROAD ACCESS
SECTIONS STA
2+00 TO 3+75
SHEET NO.
C-009

FOR PERMIT

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Attention:
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SCALE, FEET
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Drawn: JAM
Checked: BJB
Approved: BMM
P.E. No: 13033
GEI Project 2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

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11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

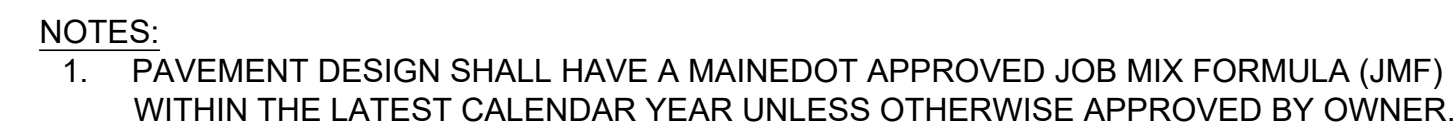
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SHEET NAME
ROAD ACCESS
SECTIONS STA
4+00 TO 5+75

FOR PERMIT

SHEET NO.

C-010



1 HMA TRAVELWAY/SHOULDER TYPICAL SECTION

The diagram illustrates a cross-section of a pavement repair. It shows an existing pavement structure with a surface course and a base. A new repair is being constructed. The repair area is defined by a saw cut in the existing pavement. The repair consists of a proposed surface course and a proposed base. The existing surface course is ground down to a depth of 18 inches. The existing base is ground down to a depth of 6 inches. The repair area is then filled with the proposed base and surface materials. The diagram is labeled with the following components:

- GRIND EXISTING SURFACE COURSE
- 18"
- 6"
- EDGE OF EXISTING PAVEMENT
- PROPOSED SURFACE PAVEMENT
- PROPOSED BASE PAVEMENT
- SAW CUT EXISTING PAVEMENT
- EXISTING SURFACE PAVEMENT
- EXISTING BASE PAVEMENT

4 HMA PAVEMENT BUTT JOINT

SIZE	RIPRAP SIZING (D₅₀)	WIDTH At the narrow end of pipe	LENGTH For slow flows (no pressure head)	LENGTH For high flows (with pressure head)
12"	5"	3-4'	4-6'	8-10'
18"	8"	4-6'	6-8'	12-18'
24"	10"	6-8'	8-10'	18-22'
30"	12"	8-10'	12-14'	22-28'
36"	14"	10-12'	14-16'	28-32'

The diameter of the largest stone size in the mix should be about 1.5 times the D₅₀ and the smallest one about one half the size. The thickness of riprap should never be less than 2 times the rock D₅₀.

FOR PAVING SECTION, SEE DETAIL

2'-6" MIN

BACKFILL COMPACTED TO 95% OF PROCTOR

SELECTED BACKFILL
SEE NOTE 6

EXCAVATION SIDE SLOPES
TO BE IN ACCORDANCE W/
OSHA REQUIREMENTS

BELLHOLE AS
REQUIRED

O.D.

I.D.

W/2

W

BACKFILL
COMPACTED
TO 90% OF
PROCTOR

SEE NOTE 4

- NOTES:
1. TRENCH BOTTOM OR BEDDING FOR ALL PIPE SHALL BE GRADED TO PROVIDE UNIFORM SUPPORT FOR THE ENTIRE LENGTH OF THE PIPE EXCEPT AT BELLHOLES.
 2. BELLHOLES FOR PIPES SHALL HAVE A CLEARANCE OF 3" BETWEEN THE BOTTOM OF THE BELLHOLE AND THE EXTERIOR OF THE PIPE BARREL, BUT IN NO CASE SHALL BELLHOLES BE SMALLER THAN REQUIRED TO FACILITATE PLACING OF THE PIPE OR PROPER JOINING OF THE PIPE.
 3. COMPACTION BACKFILL SHALL BE COMPACTED TO A DEGREE AT LEAST EQUIVALENT TO THE EXISTING DEGREE OF COMPACTING OF ADJACENT IN-PLACE EARTH MATERIALS AGAINST WHICH SUCH COMPACTED BACKFILL IS TO BE PLACED, OR TO A MIN OF 95% OF THE LABORATORY STANDARD MAX ASTM D698 DENSITY, WHICHEVER IS GREATER.
 4. MIN 3" DEEP LAYER OF SCARIFIED MATERIAL WHEN IN HARD MATERIAL. IN UNSUITABLE MATERIAL, OVER EXCAVATE AS DIRECTED BY ENGINEER (6" MIN) AND REPLACE WITH COMPACTED BACKFILL.
 5. $W = \text{PIPE O.D.} + 24"$ MIN
 6. ALL SELECTED BACKFILL IS TO BE IN CONFORMANCE WITH STATE STANDARD SPECIFICATION.

3 TRENCH

- NOTES:**
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 PLUNGE POOL

Diagram illustrating the typical section of a highway bridge, showing dimensions and labels:

- TERMINAL OR APPROACH UNIT LISTED ON MINIMUM QUALIFIED PRODUCTS LIST** (indicated by a bracketed area on the left).
- PAY LIMITS FOR STANDARD SECTION** (indicated by a bracketed area in the middle).
- FREE OF CURBROAD AS SHOWN ON THE TYPICAL SECTION** (indicated by a bracketed area on the right).
- Dimensions:**
 - 6'-3" (TYP.)
 - 3'-15"
 - 12'-0" (SHOWING)
 - 3'-15"
 - 4'-5 1/2"
- Labels:**
 - DEVELOPED CURB
 - DEVELOPED CURB

NOTE: LAP RAIL, IN DIRECTION OF TRAFFIC

2 1/2" 2" 8 1/2" 2"

BOLT SLOT

SPlice BOLT SLOT

NOTE: All dimensions subject to manufacturing tolerances

FBBB) BUTTON HEAD SPLICE BOLT

ELEVATION VIEW AT BEAM SPLICE

PLAN

2'-3"

31"

3" (STANDARD) - 7' POSTS
2" (REDUCED) - 8' POSTS

VARIABLE SLOPE

7'-8' POSTS

6"x3/8" OR W 6x8.5" STEEL POST WITH 6' x 8" WOOD
FFSET BLOCK OR OTHER B' BLOCK LISTED ON
MINNETO QUALIFIED PRODUCTS LIST (TYP.)

31' TYP.

W-BEAM

SHOULDER GRADE AT
EDGE OF PAVEMENT

ELEVATION

SEE BOLT SLOT DETAIL FOR DIMENSIONS

1 1/4"

2"

7"

ELEVATION AT POST VIEW

Diagram illustrating the typical side view of the Synthetic Offset Block (FSB03). The diagram shows a cross-section of the block with a button head post bolt passing through it. The dimensions are indicated as 14" for the total height and 12 1/2" for the offset distance. The components are labeled: BUTTON HEAD POST BOLT, SYNTHETIC OFFSET BLOCK, and FSB03.

~ GUARDRAIL BEAM DETAIL R/MOZA ~

~ TOP VIEW ~

3'

5'

90°

0 7/8'

Retr reflective Material

~ SIDE VIEW ~

3'

5'

1 3/4'

0 3/4'

1 3/4'

Slot

Direction of Traffic

~ ELEVATION ~

5'

0 3/4'

R = 0 7/8'

Reflectorized Beam Guardrail Delineator

Steel Beam Guardrail

~ OFFSET BLOCK DETAIL FOR STEEL POST ~

Top View Dimensions:

- Overall Width: $5\frac{1}{2}"$
- Overall Height: $7\frac{1}{2}"$
- Inner Width: $4\frac{1}{4}"$
- Inner Height: $5\frac{1}{2}"$

Side View Dimensions:

- Overall Height: $14"$
- Overall Width: $2\frac{3}{4}"$
- Offset Distance: $1\frac{1}{4}"$
- Drill Hole Diameter: $\frac{3}{4}"$ Drill
- Second Optional

The drawing shows a cross-section of a guardrail terminal end. The top view (labeled 'Terminal Section lapped on traffic face') shows a semi-circular end with a radius of 3' and a 6' lap. The side view (labeled 'Inside End Section') shows a cross-section with a 2 1/4" gap between slatted poles, a 6-1/2" total width, and a 1-1/4" offset. The drawing is labeled 'R.F.W.O.3' and 'Approx.'.

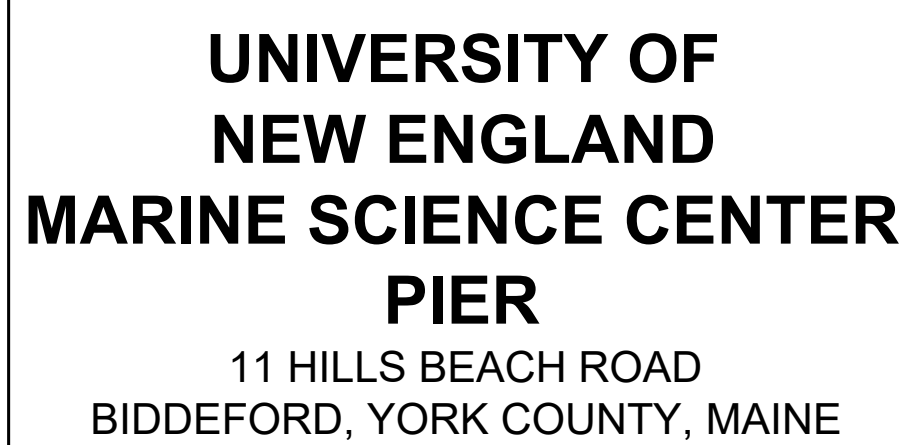
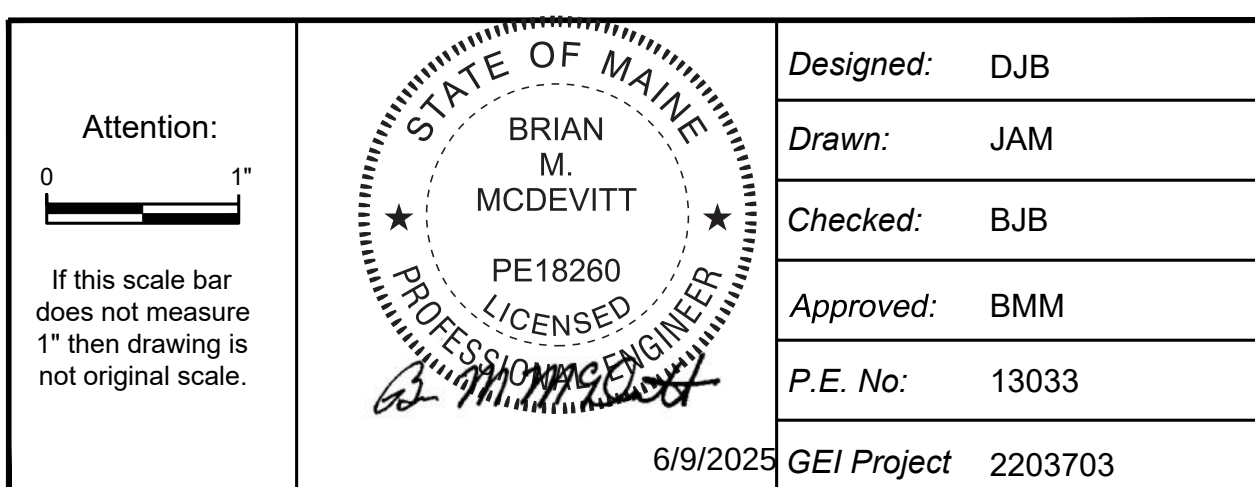
~ GUARDRAIL TERMINAL END - R.F.W.O.3A ~

1. Use only on the end of circular guardrail at driveways.
2. Use only on the trailing end of guardrail on divided highway with washers (R.F.W.O.3 installed on the last 9 posts.

[illegible]

GUARDRAIL
606(05)

5 GUARD RAIL DETAILS



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	SHEET NO.
SITE DETAILS	C-011

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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 DOWNGRAIENT 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 DOWNGRAIENT 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

SWEEP 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 SWEEP 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 SWEEP 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:

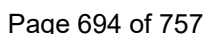
- AFTER THE THE FILTER HAS BEEN CONSTRUCTED TO SUBGRADE.
- AFTER INSTALLATION OF THE FILTER LINER.
- AFTER INSTALLATION OF THE UNDERDRAIN PIPES HAVE BEEN INSTALLED BUT NOT BACKFILLED.
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA.
- AFTER THE SOIL FILTER 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.

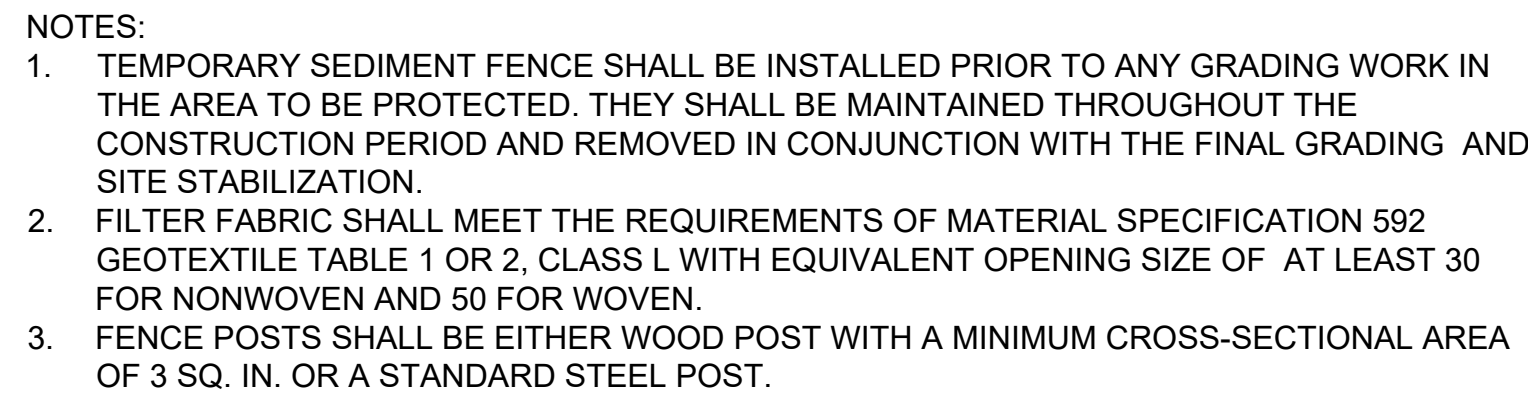
TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:

- 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: 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 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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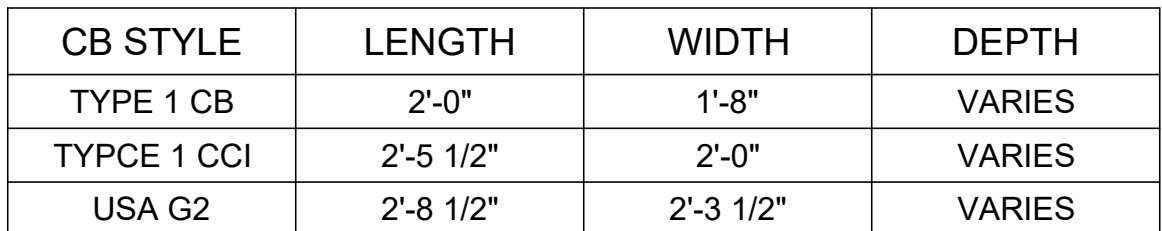


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1. THE ENTRANCE/EXIT PAD SHOULD HAVE A LENGTH OF 50 FEET OR MORE AND A 12-FOOT MINIMUM WIDTH (OR AS APPROPRIATE TO CONTAIN THE WHEEL BASE OF CONSTRUCTION VEHICLES PLUS 3 FEET ON EITHER SIDE).
2. THE PAD SHOULD BE 6 INCHES OR MORE THICK WITH ANGULAR 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



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.



NO SCALE



NO SCALE



SIDE VIEW

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

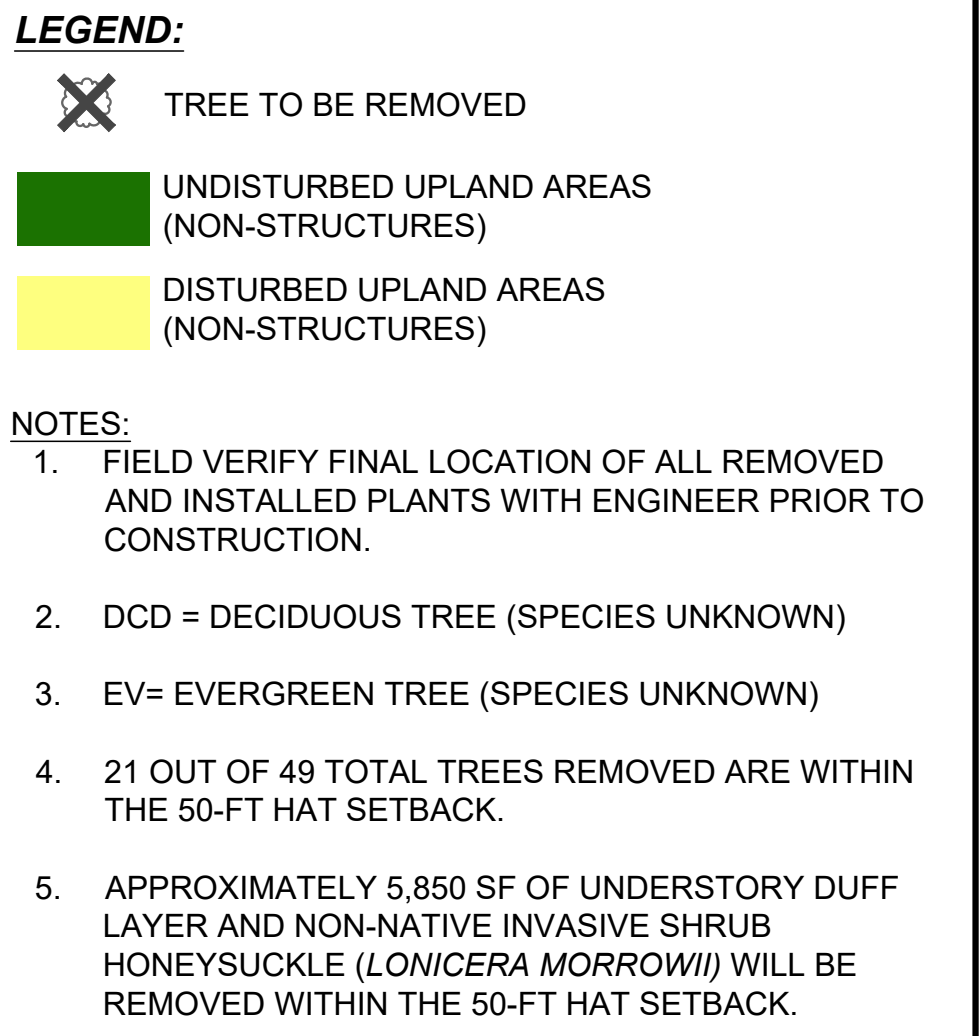
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SHEET NAME

**EROSION CONTROL
DETAILS II**

SHEET NO

C-014



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:

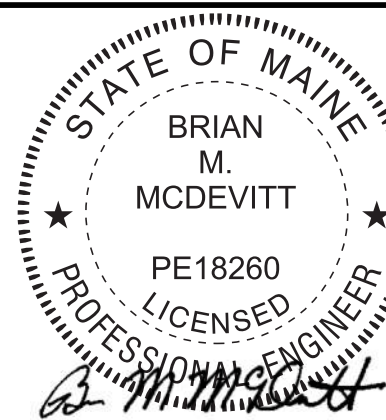
- THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE VEGETATION WITHIN THE CONSTRUCTION AREA UNLESS NOTED TO BE REMOVED, LIMBED OR PRUNED. THIS MAY REQUIRE HAND EXCAVATION WITHIN TREE DRIPLINES.
- ALL PLANT MATERIAL SELECTIONS SHALL BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.
- ALL NEW PLANTING MATERIAL 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



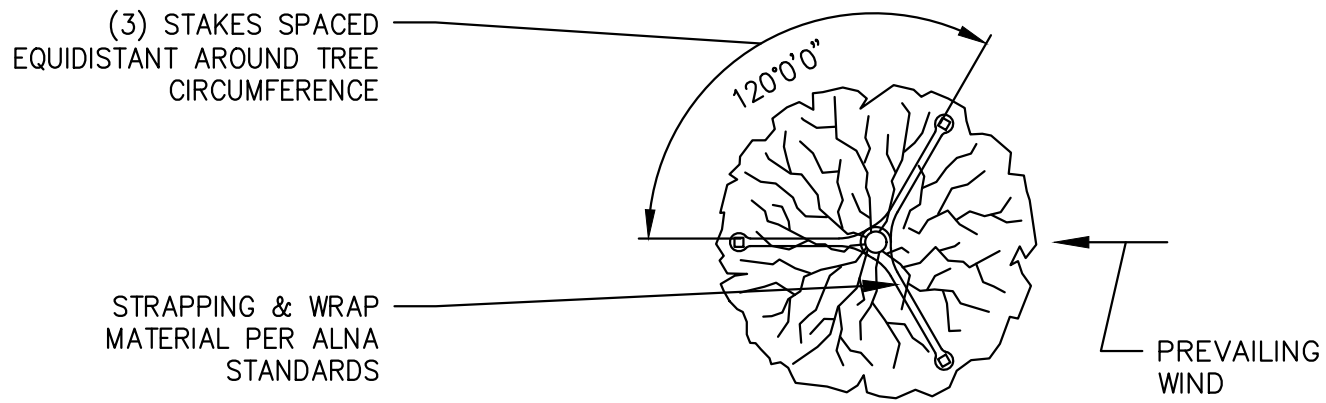
11 HILLS BEACH RD.
BIDDEFORD, MAINE

UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

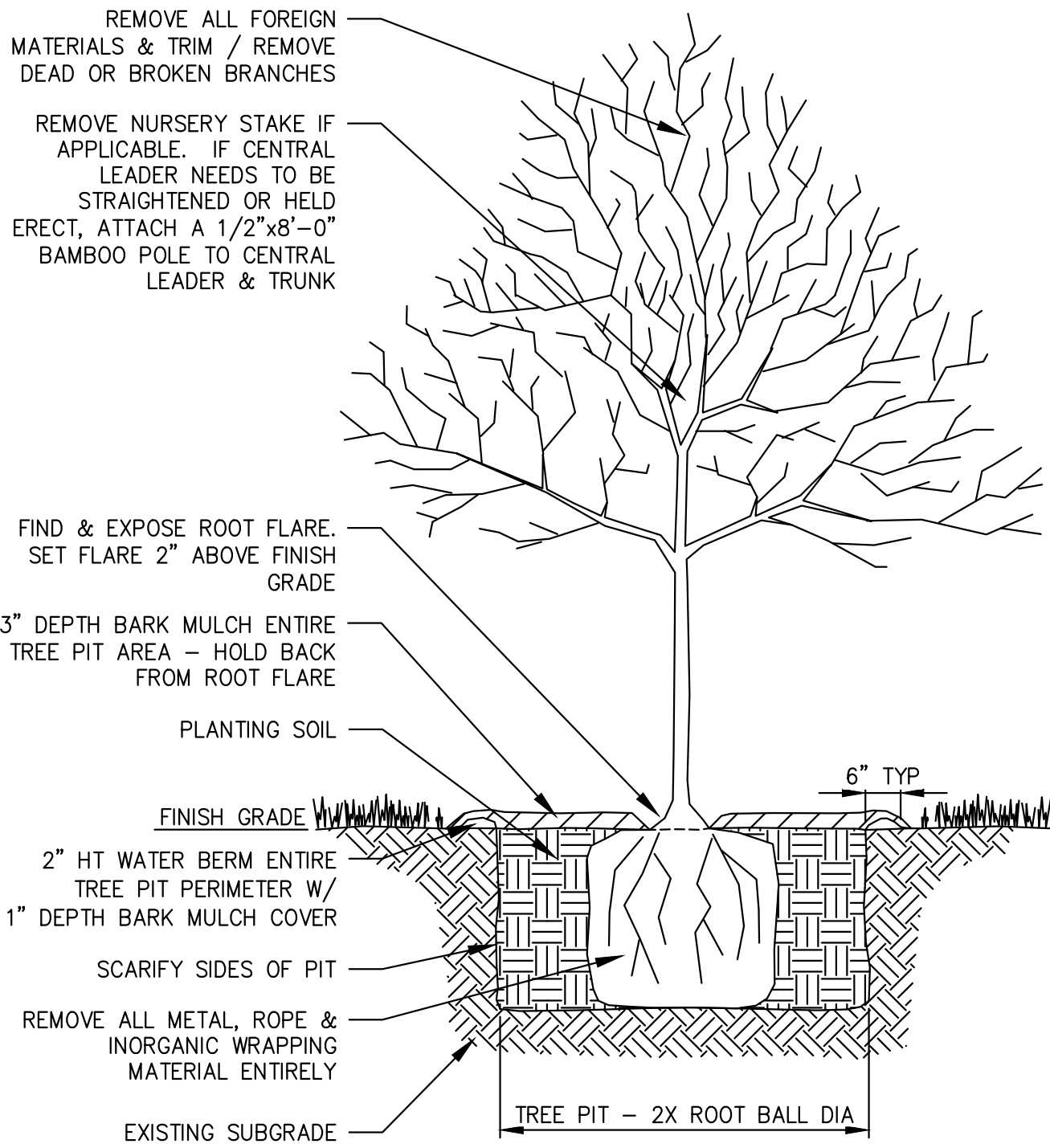
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
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SHEET NAME
**REVEGETATION
NOTES, DETAILS
AND SCHEDULES**

SHEET NO.
C-016

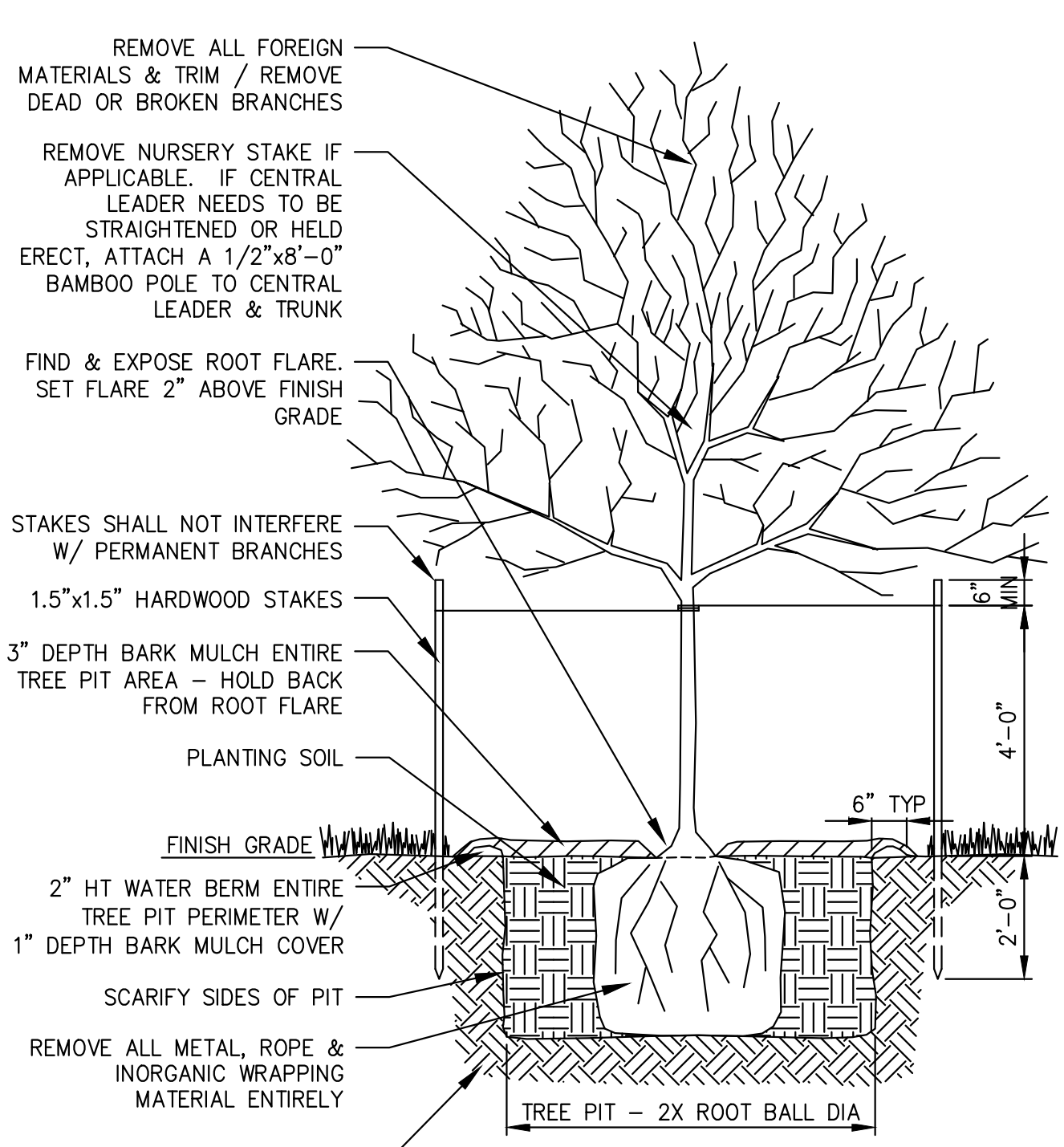


PLAN



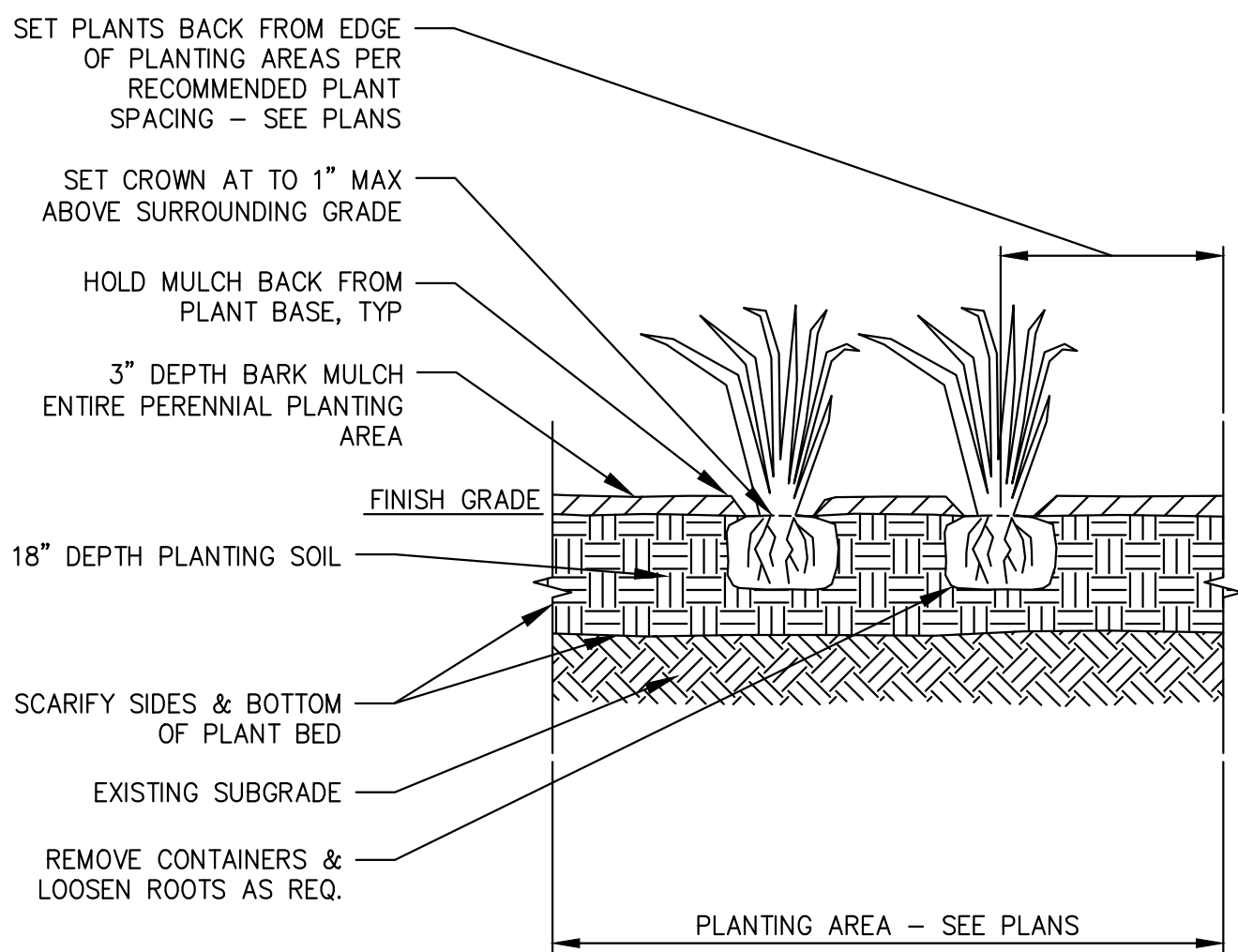
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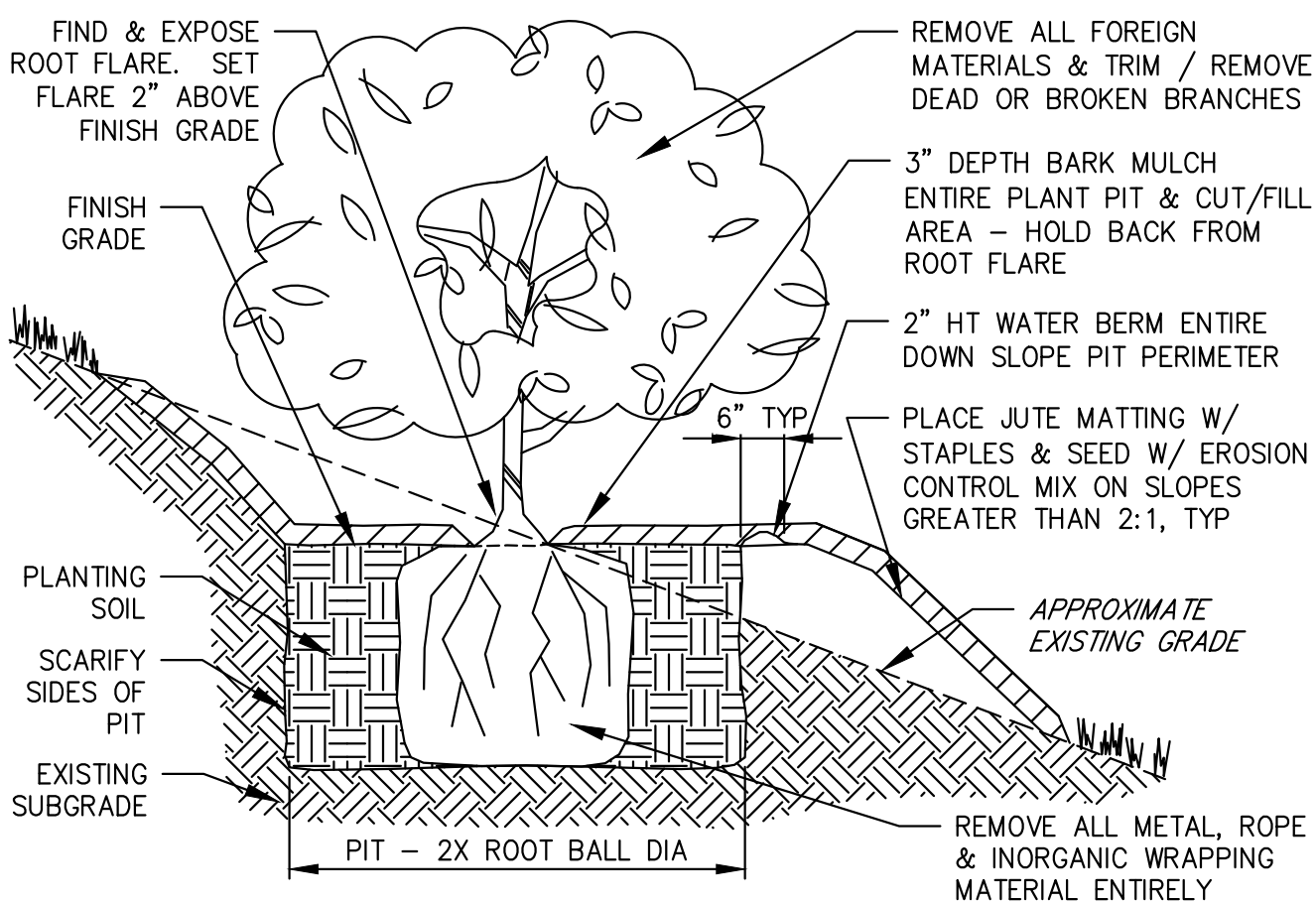
TREE INSTALLATION > 10-FT

NOT TO SCALE



PERENNIAL INSTALLATION

NOT TO SCALE

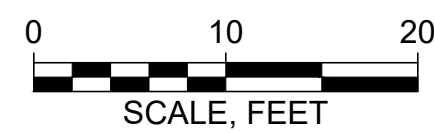
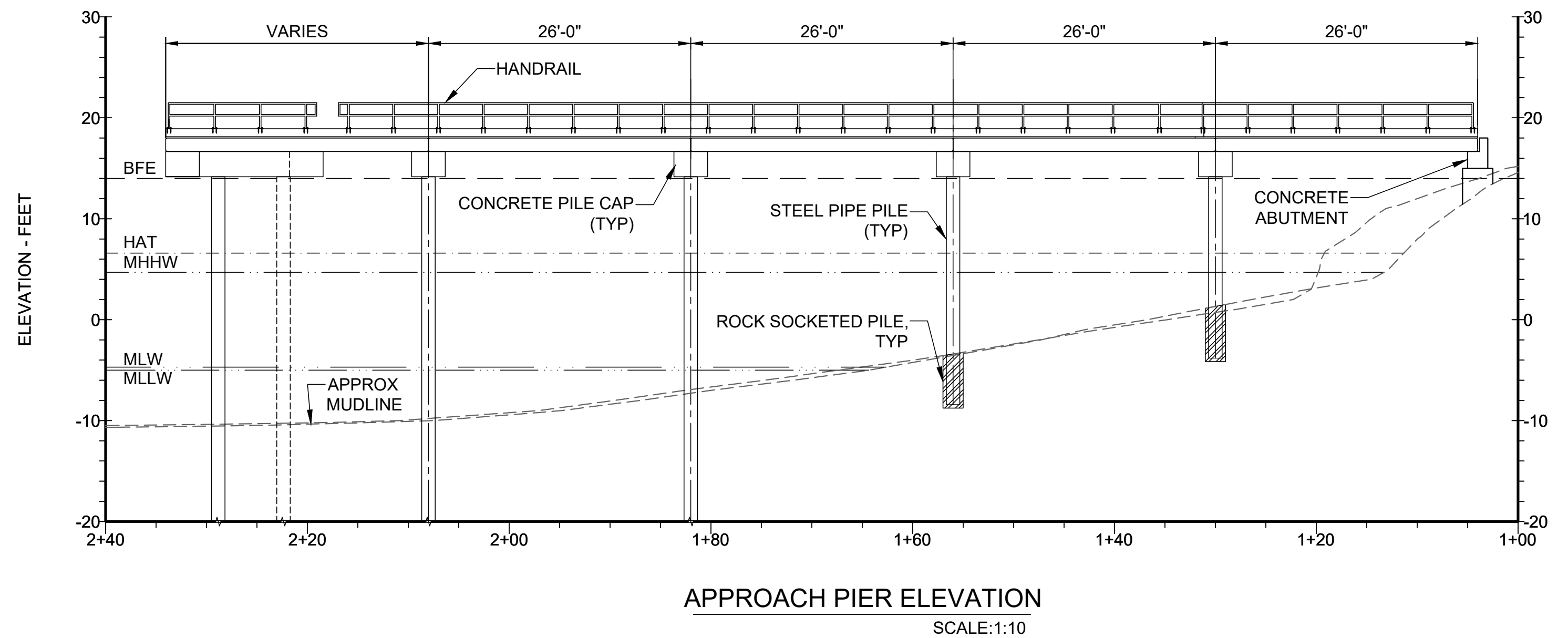
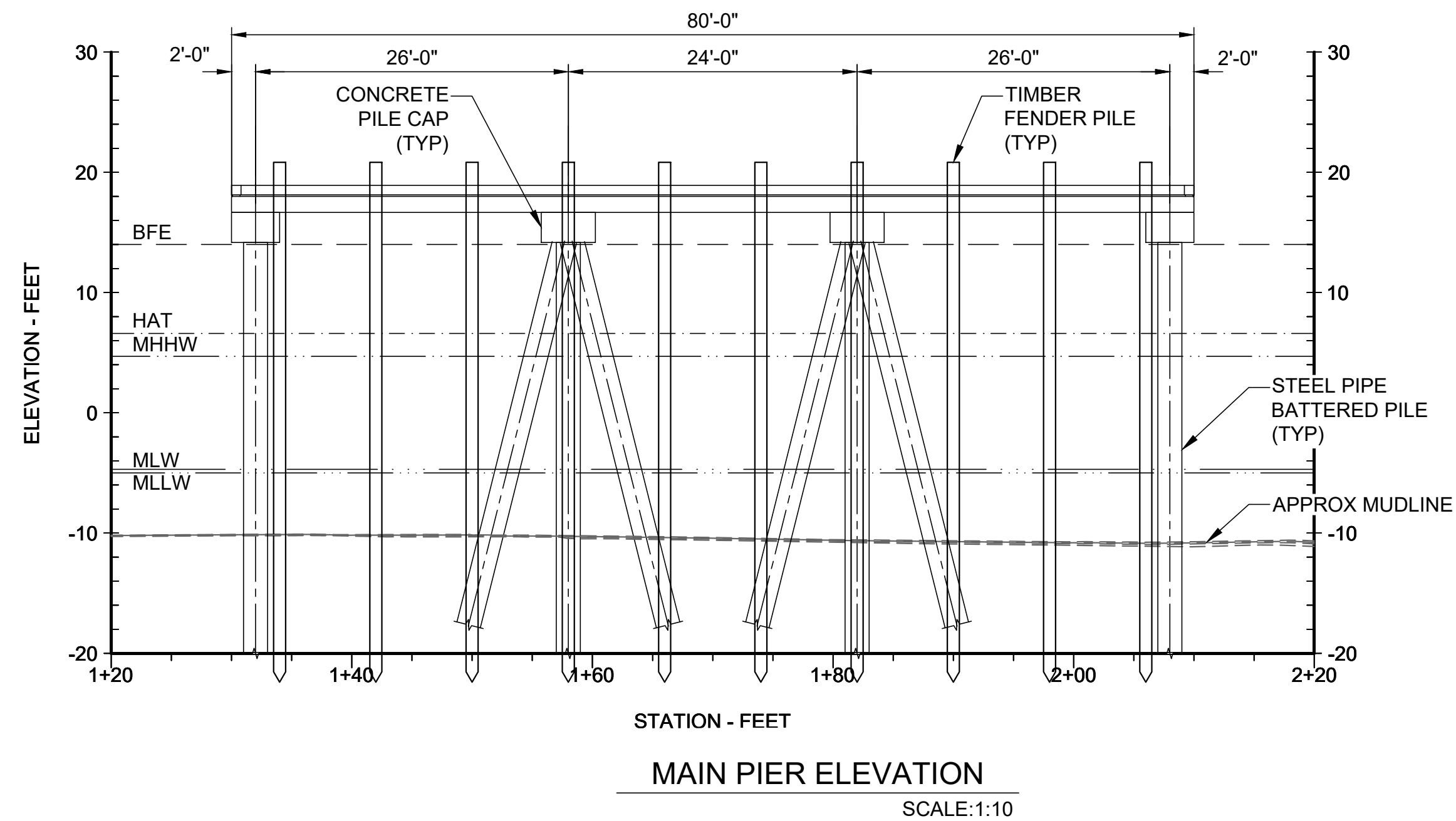
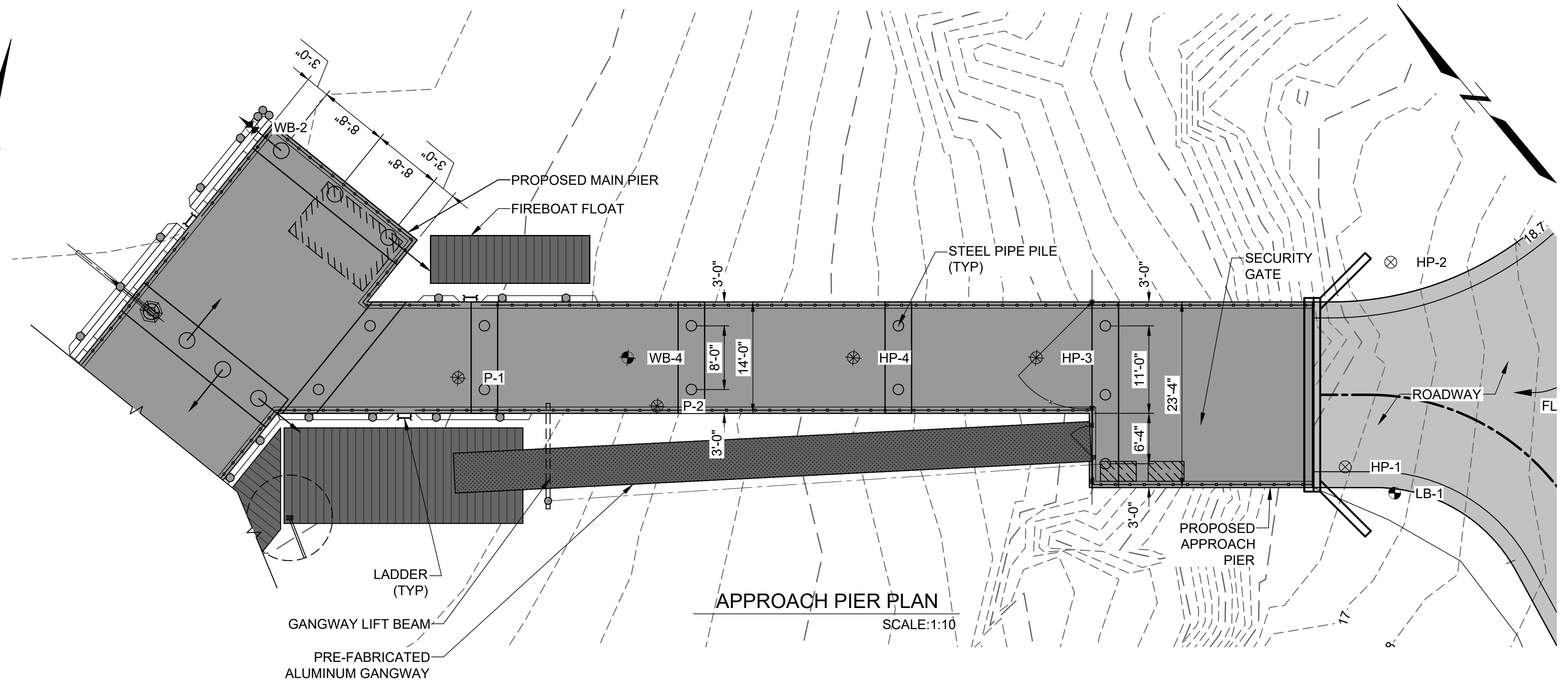
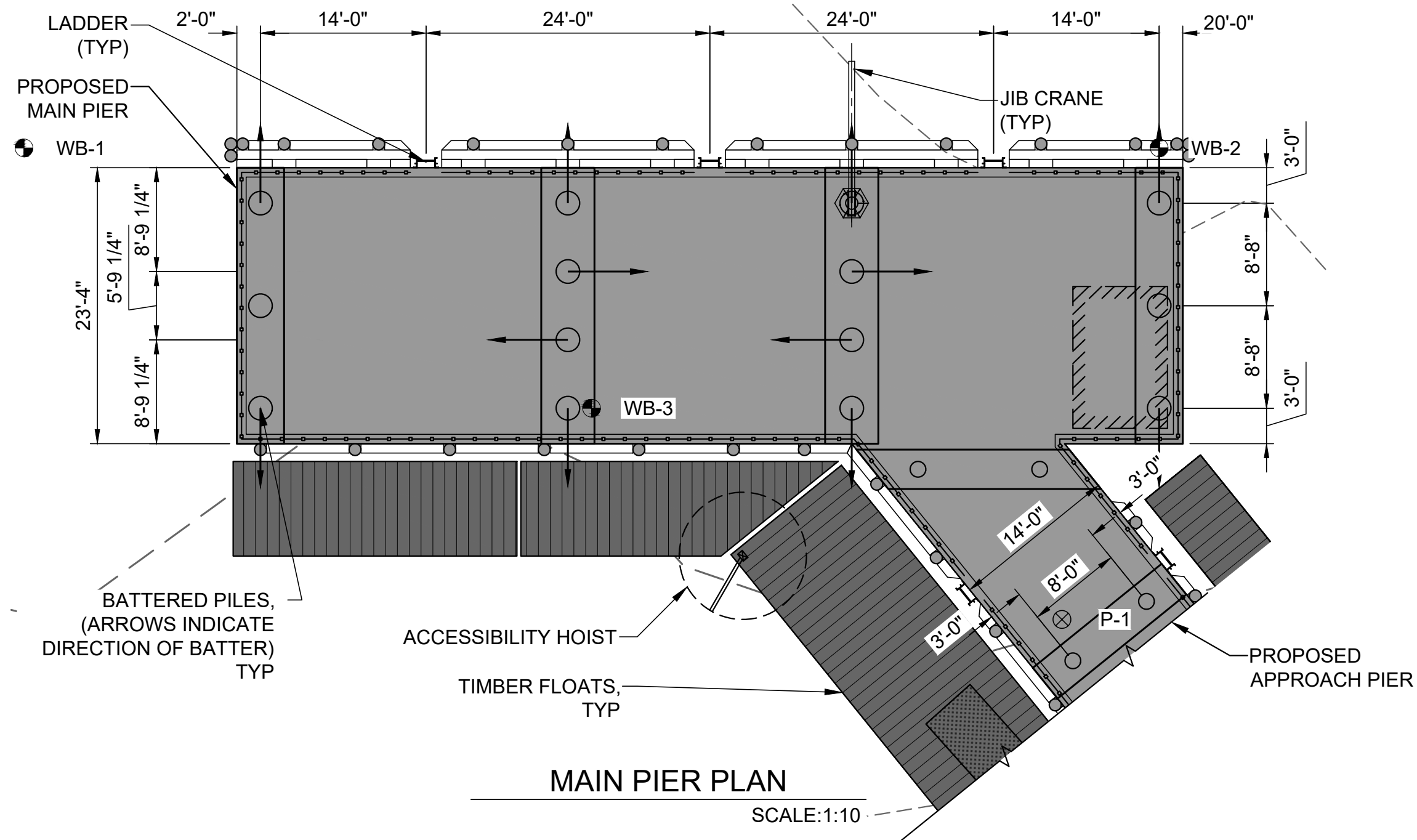


SHRUB INSTALLATION ON SLOPE

NOT TO SCALE

FOR PERMIT

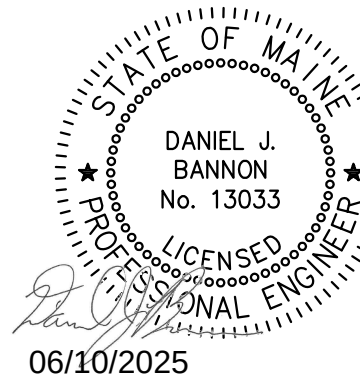
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ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*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

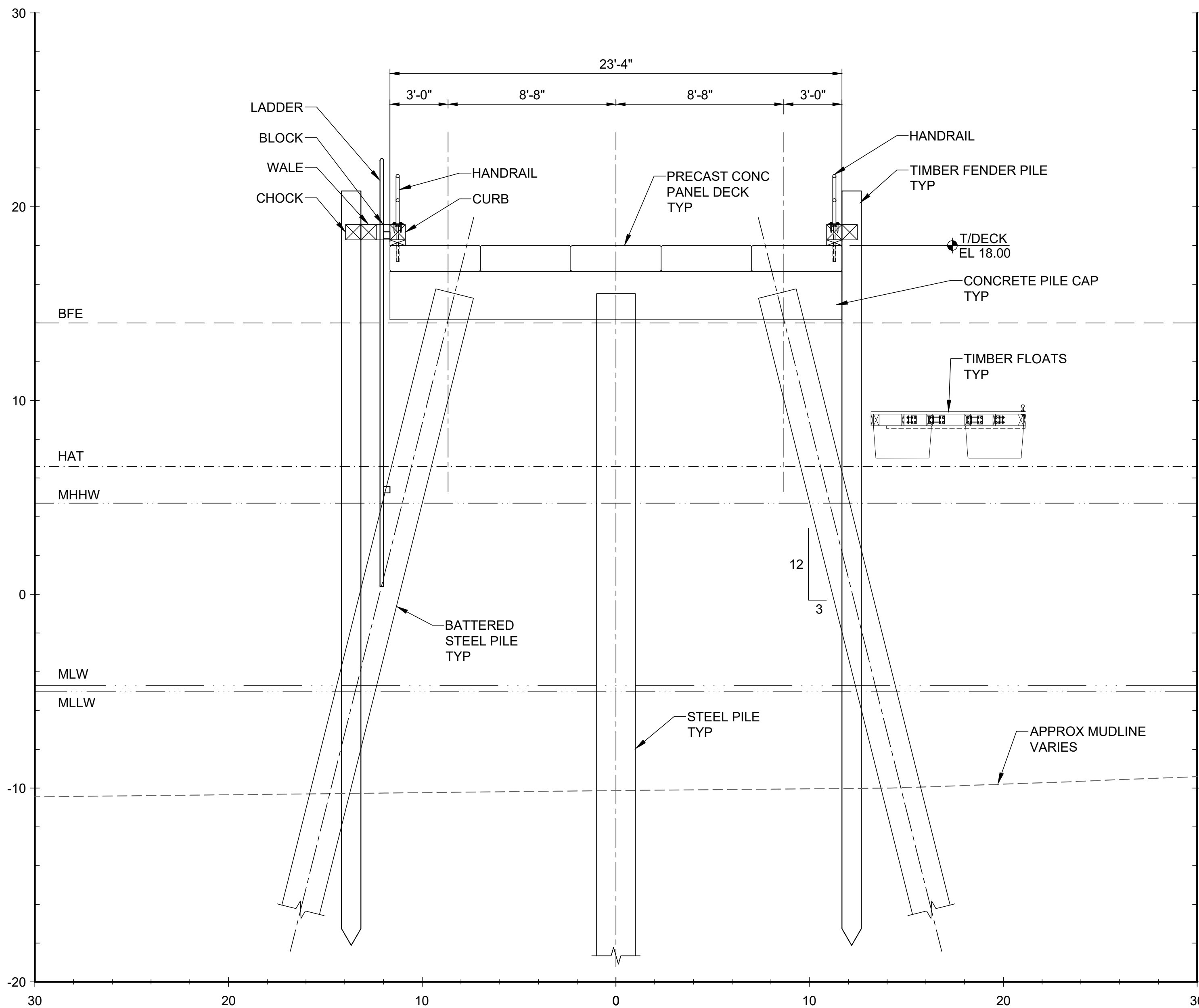
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7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**PIER PLANS
AND
ELEVATIONS**

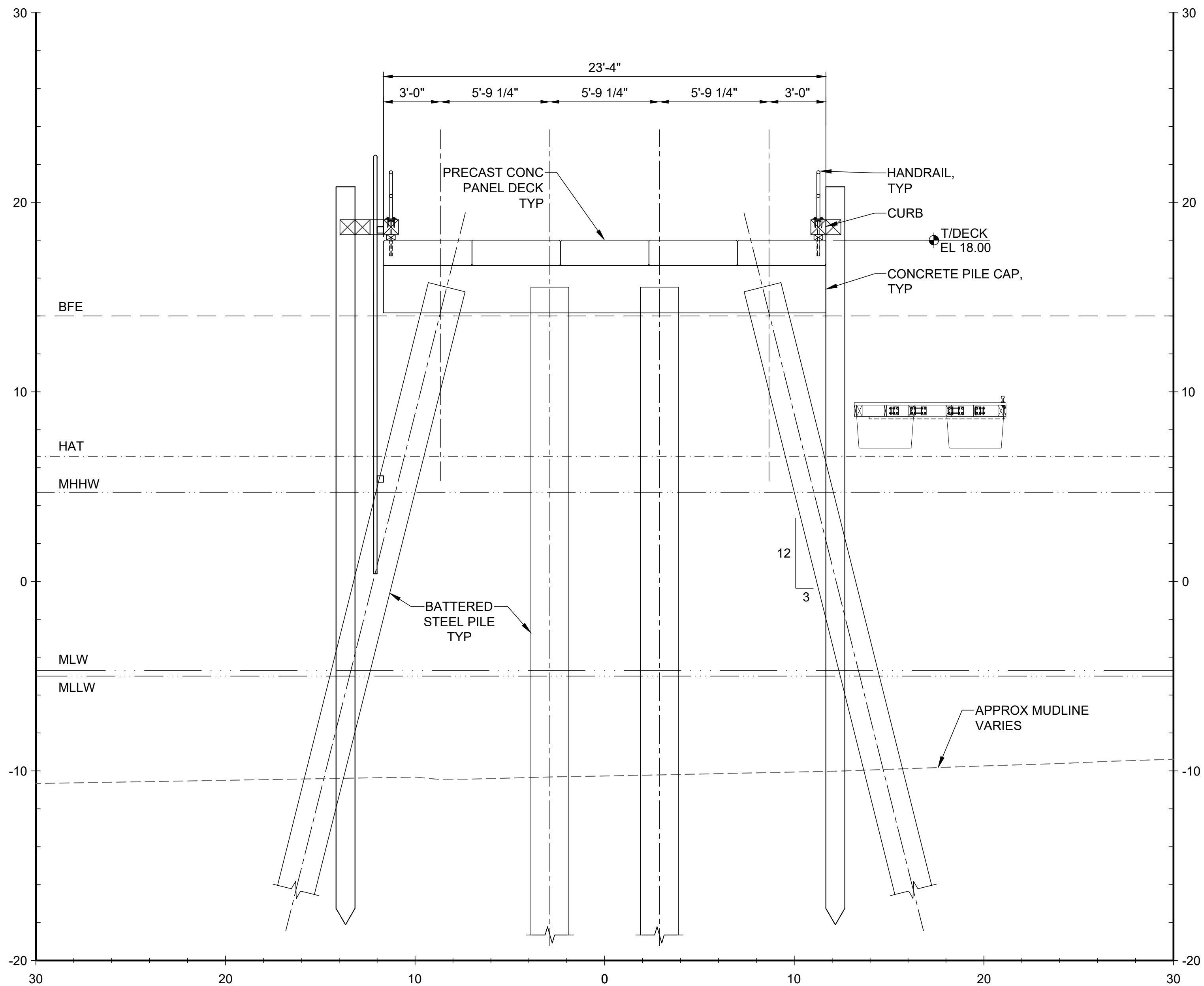
SHEET NO.
S-002

FOR PERMIT

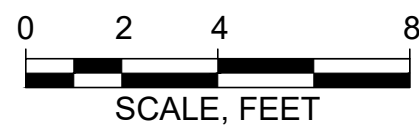
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SECTION
MAIN PIER AT BENT 10
SCALE: 1"=4'



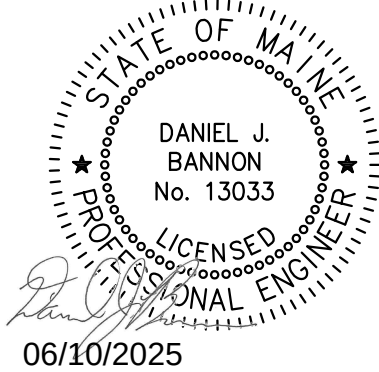
SECTION
MAIN PIER AT BENT 9
SCALE: 1"=4'



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:
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

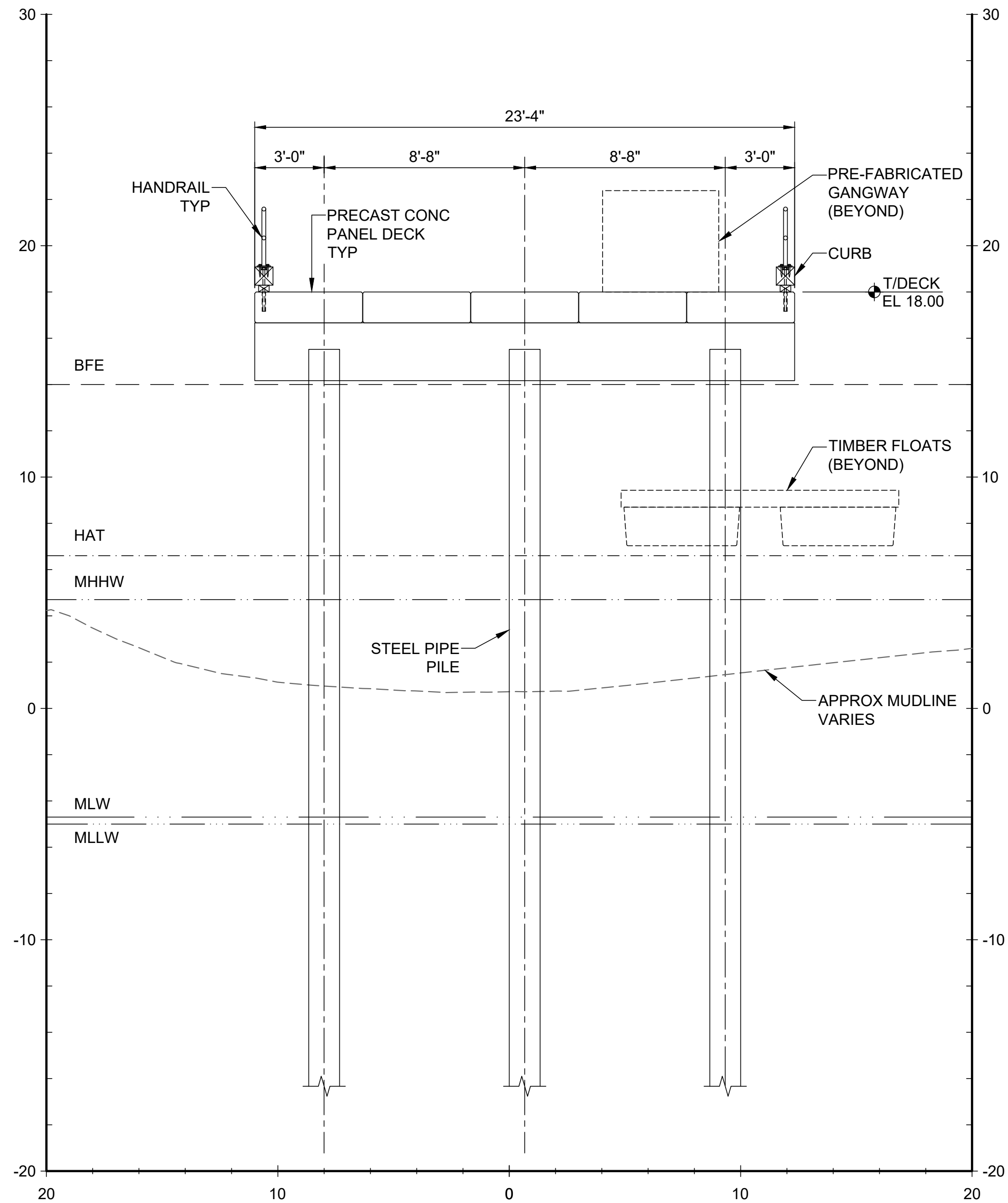
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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
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

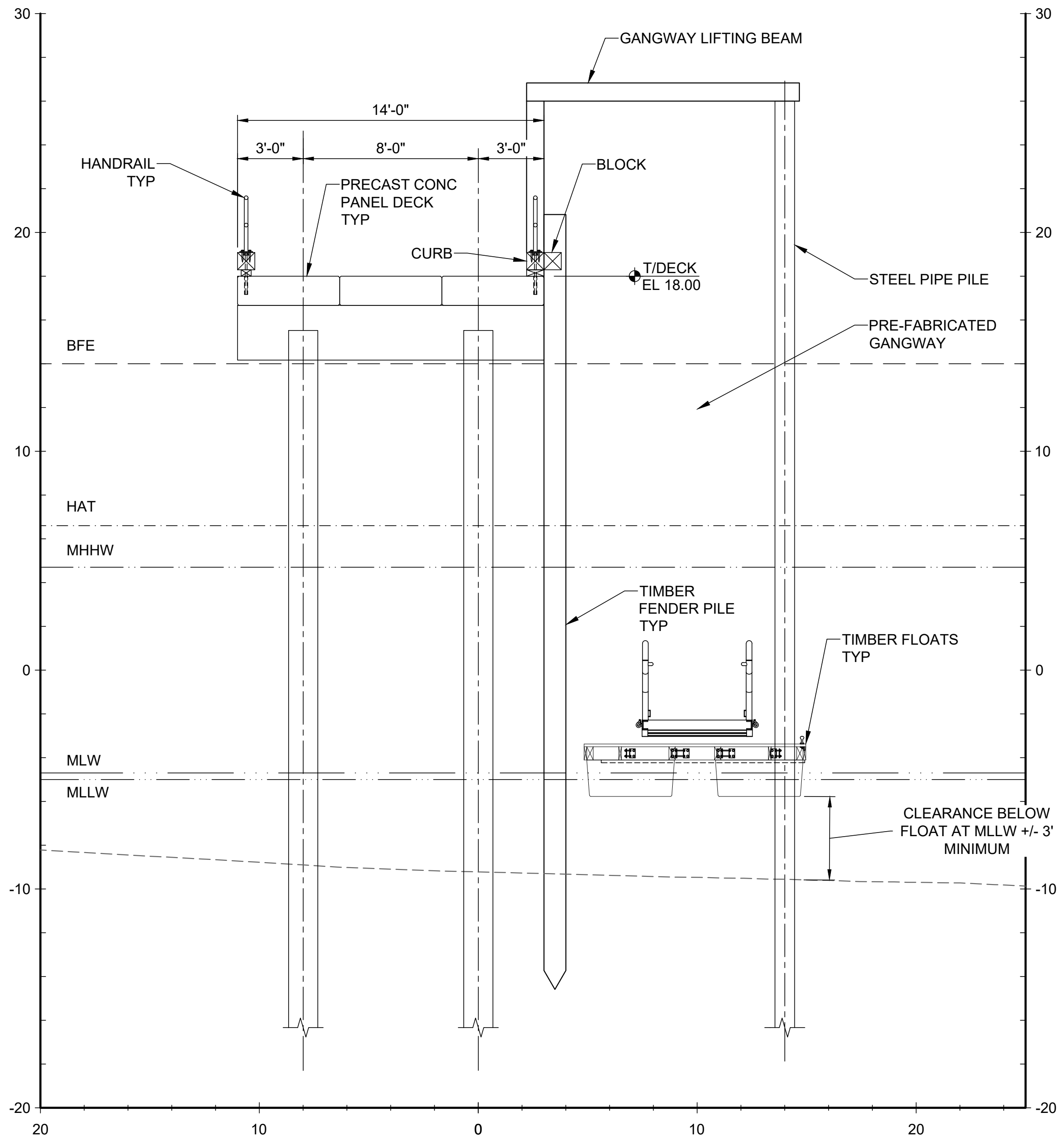
SHEET NAME
**TYPICAL PIER SECTIONS
(1 OF 2)**

FOR PERMIT
SHEET NO.
S-003

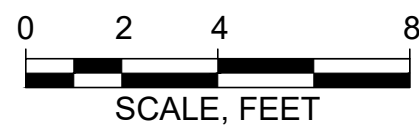
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SECTION
28' WIDE APPROACH PIER AT BENT 2 SCALE: 1"=4'



SECTION
14' WIDE APPROACH PIER AT GANGWAY HOIST SCALE: 1"=4'

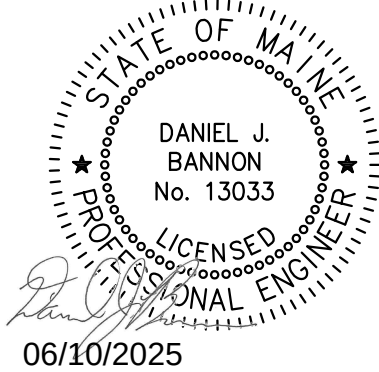


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*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

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

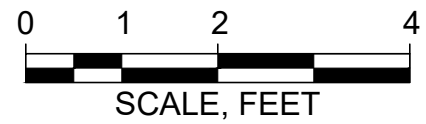
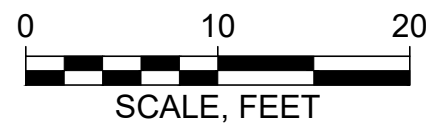
**TYPICAL PIER SECTIONS
(2 OF 2)**

SHEET NO.

S-004

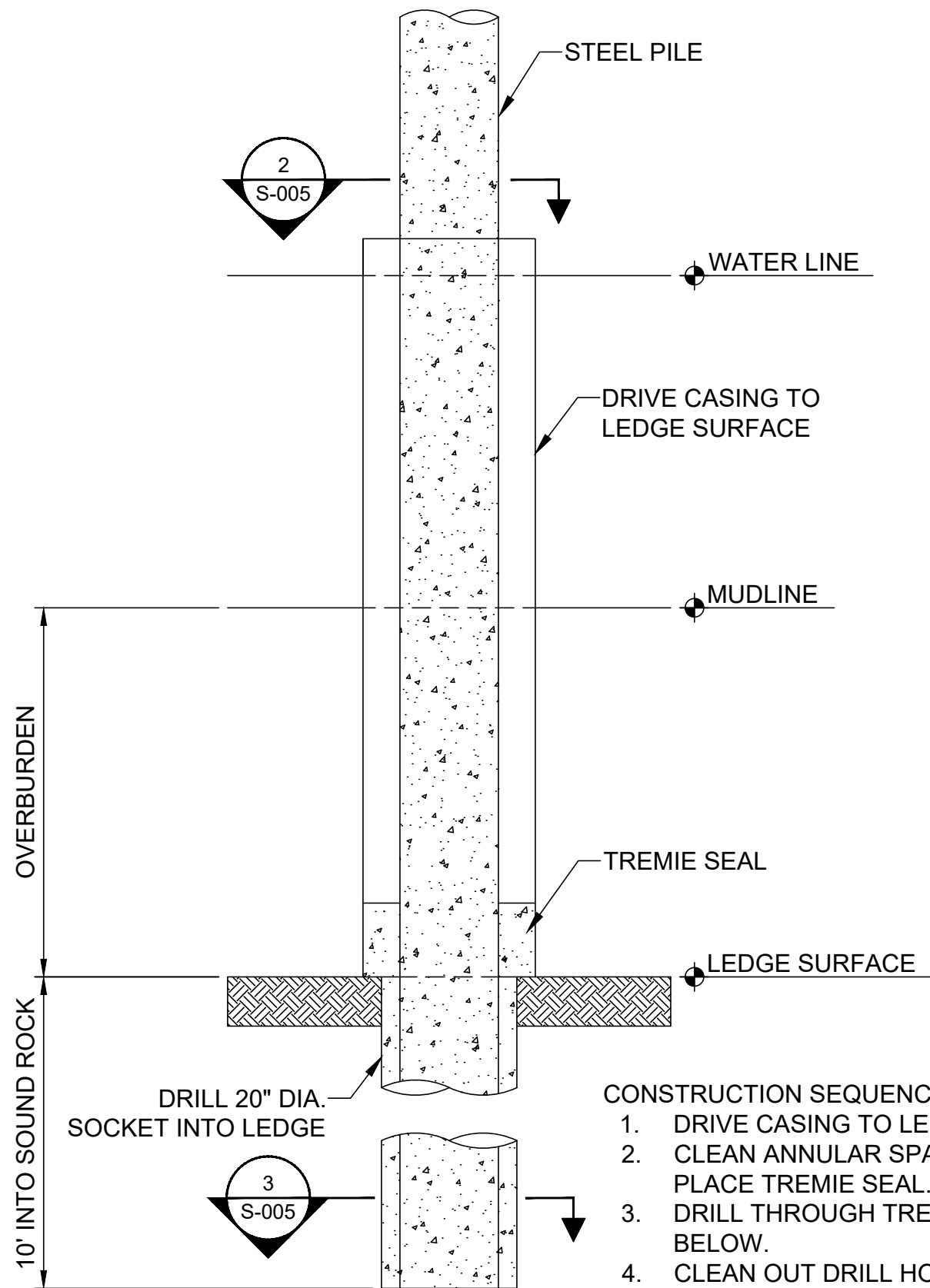
FOR PERMIT

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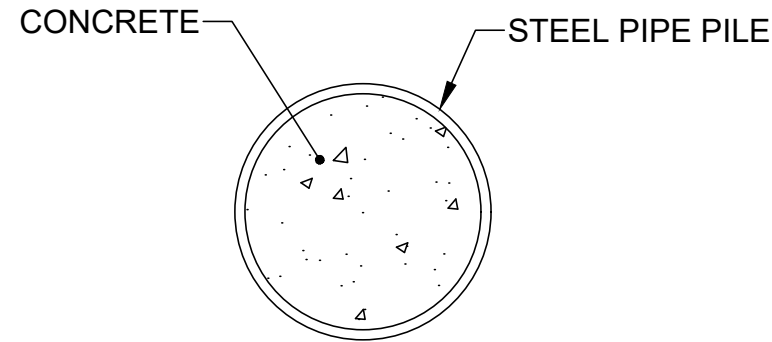
ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

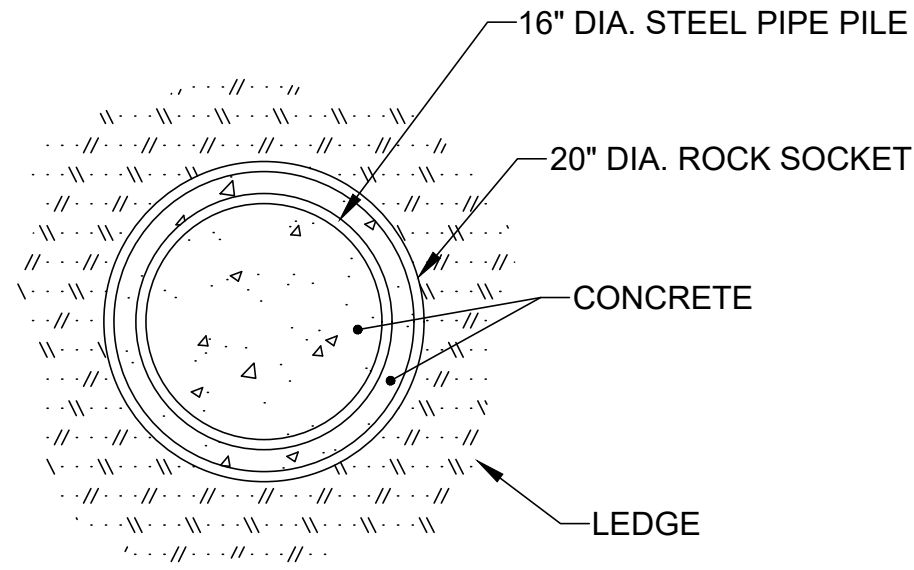


1 DETAIL
PILE SOCKET SCALE: 1" = 2'

- CONSTRUCTION SEQUENCE
1. DRIVE CASING TO LEDGE SURFACE.
 2. CLEAN ANNULAR SPACE TO LEDGE SURFACE, PLACE TREMIE SEAL.
 3. DRILL THROUGH TREMIE INTO SOUND ROCK BELOW.
 4. CLEAN OUT DRILL HOLE.
 5. INSERT PILE AND GROUT TO SURFACE.
 6. REMOVE CASING.
 7. FILL STEEL PIPE PILE TO TOP WITH CONCRETE.



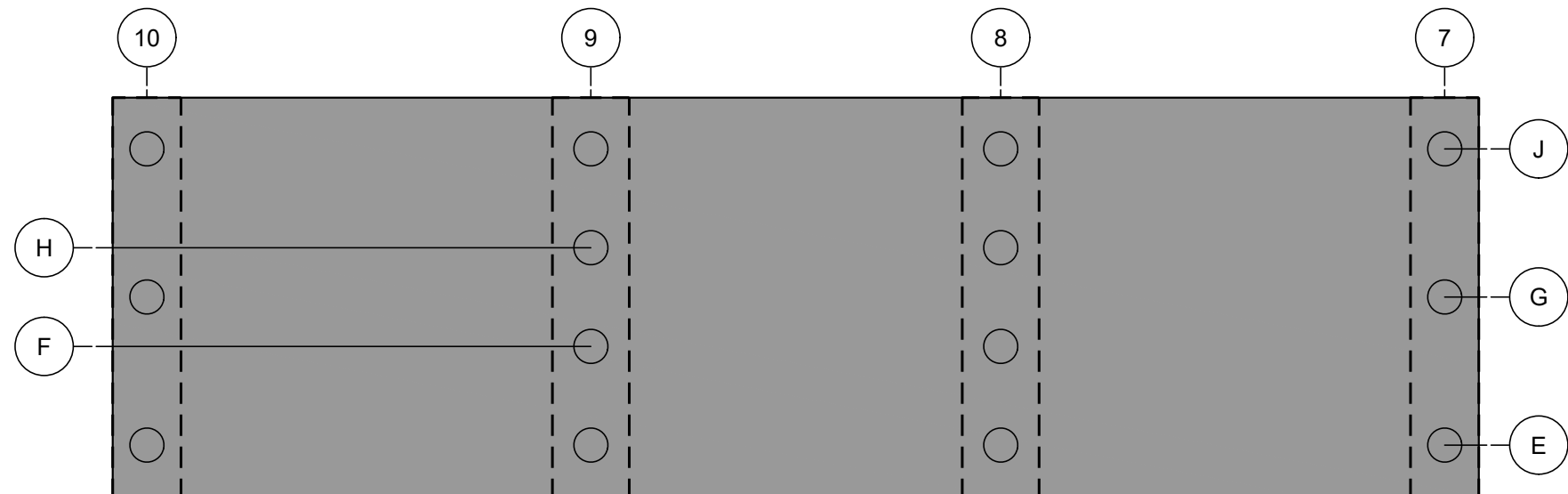
2 SECTION
CONCRETE FILLED SCALE: 1" = 1'
STEEL PIPE PILE



3 SECTION
ROCK SOCKET SCALE: 1" = 1'

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.



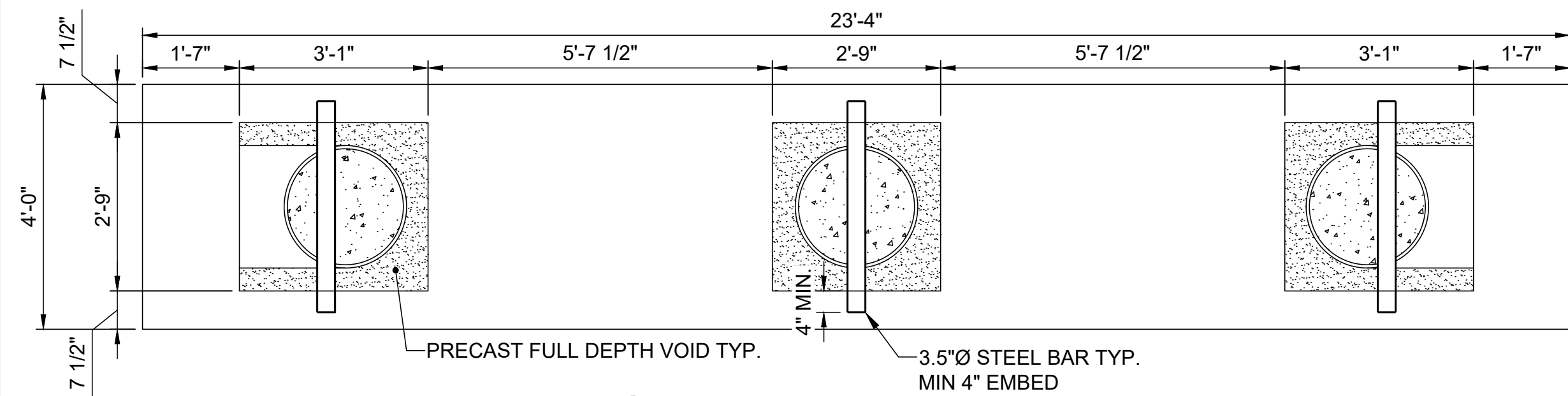
GANGWAY LIFTING BEAM
SUPPORT PILE

DETAIL
MAIN PIER SCALE: 1" = 10"

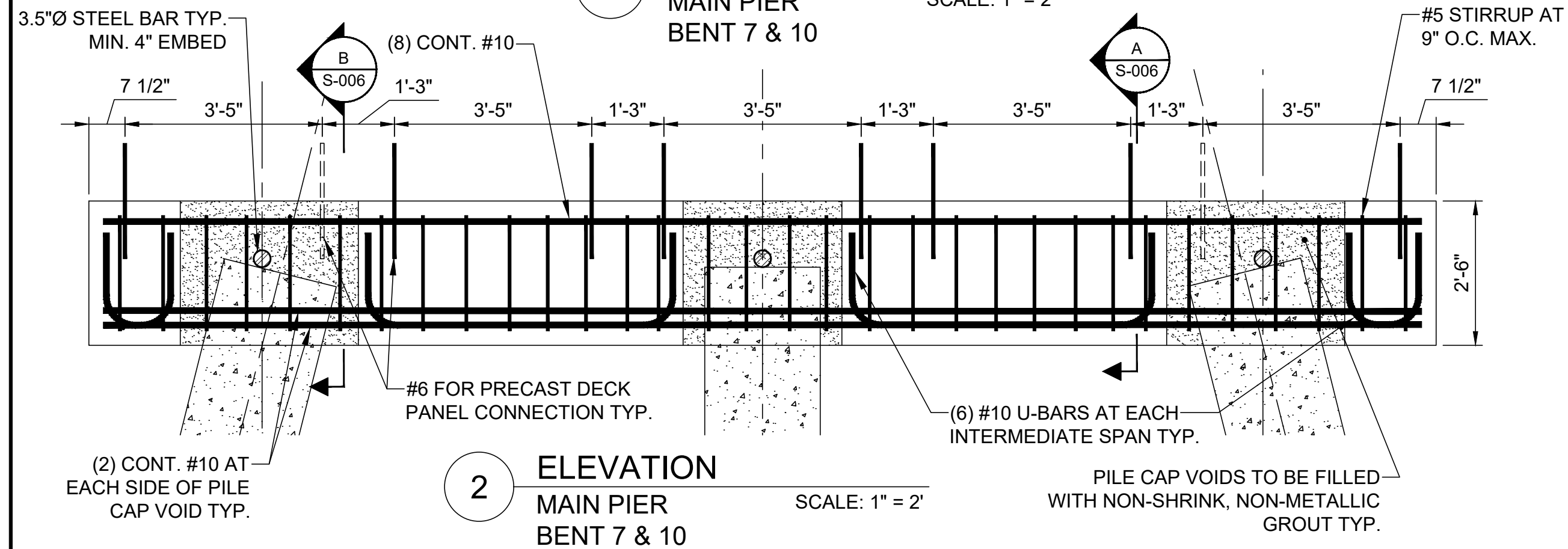
FOR PERMIT

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 PILE PLAN	SHEET NO. S-005
		Drawn: JAM			74/16/2025BIDDEFORD PERMIT APP.	DJB		
		Checked: BJB			69/17/2024REVISED PERMIT SET	DJB		
		Approved: BMM			56/27/2024REVISED PERMIT SET	DJB		
		P.E. No: 13033			49/14/2023DEP PERMIT SET	DJB		
		GEI Project 2203703			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		

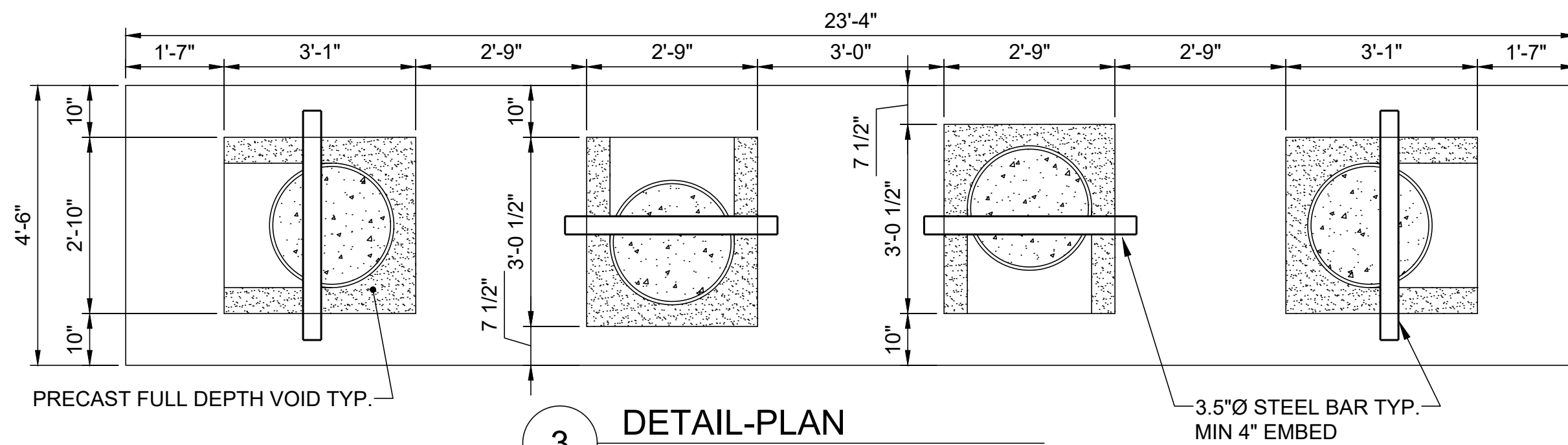
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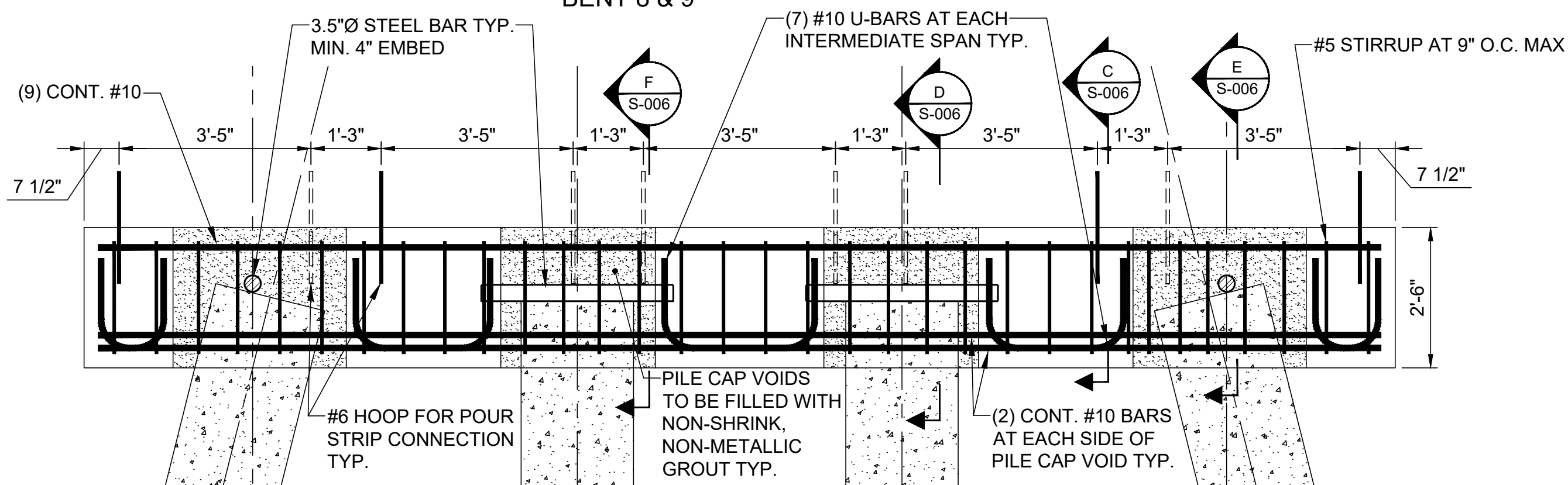
1 DETAIL-PLAN
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



2 ELEVATION
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



3 DETAIL-PLAN
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



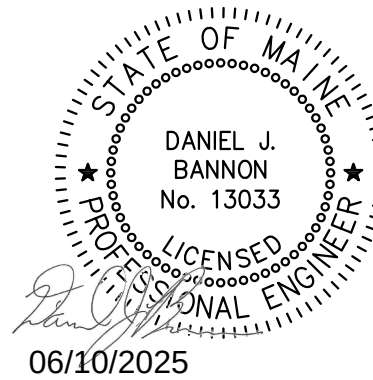
4 ELEVATION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



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

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

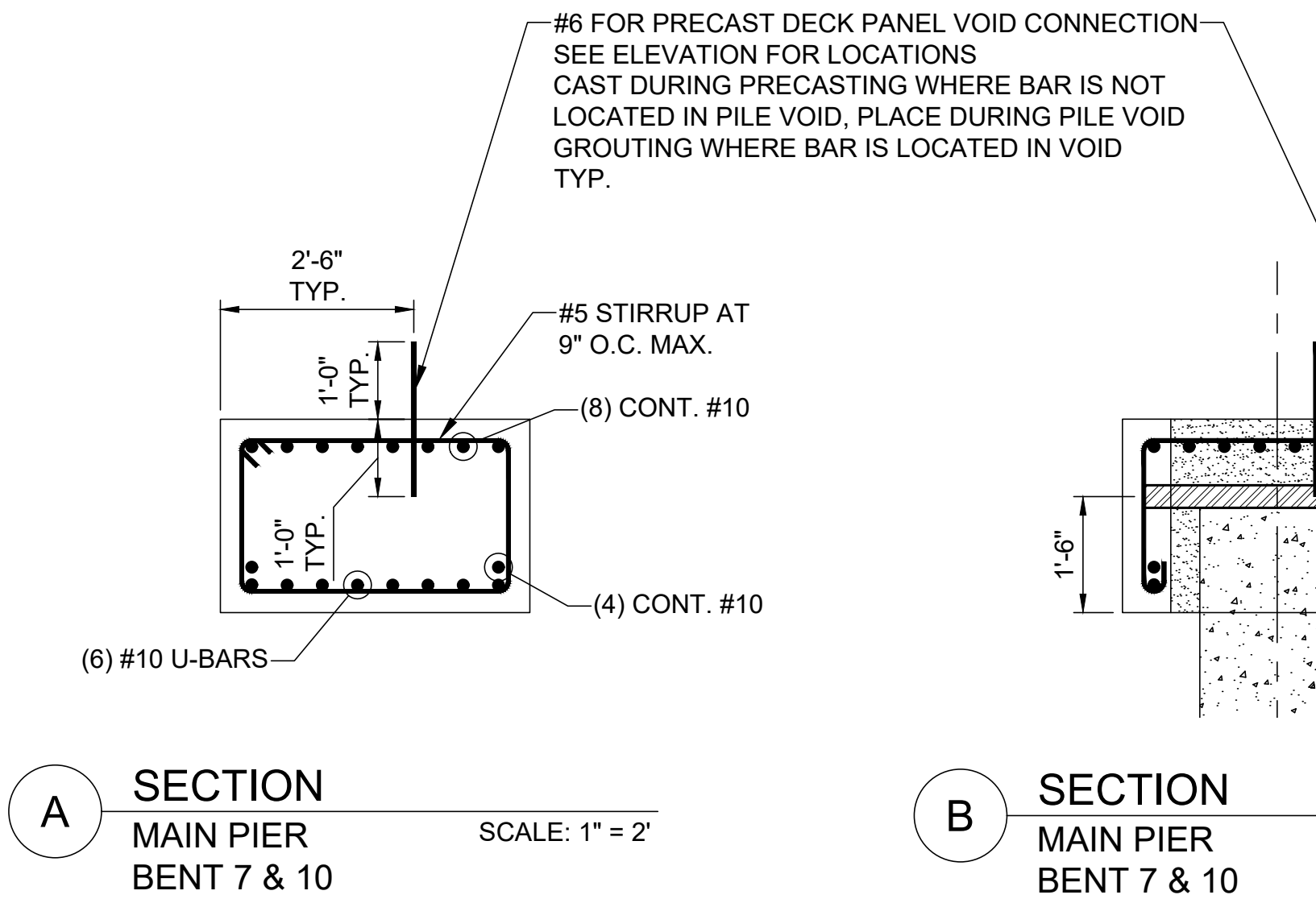


Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703

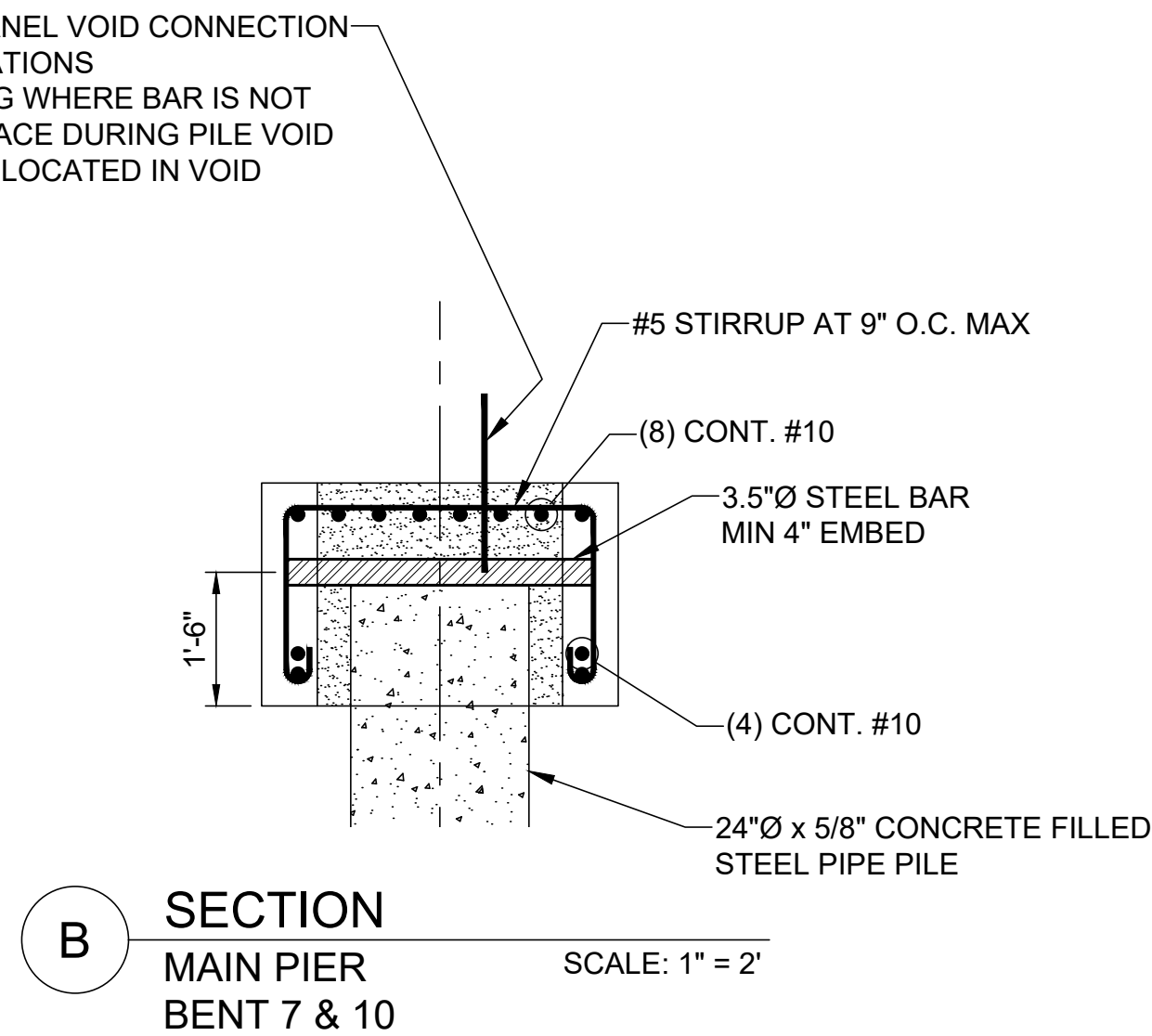


11 HILLS BEACH RD.
BIDDEFORD, MAINE

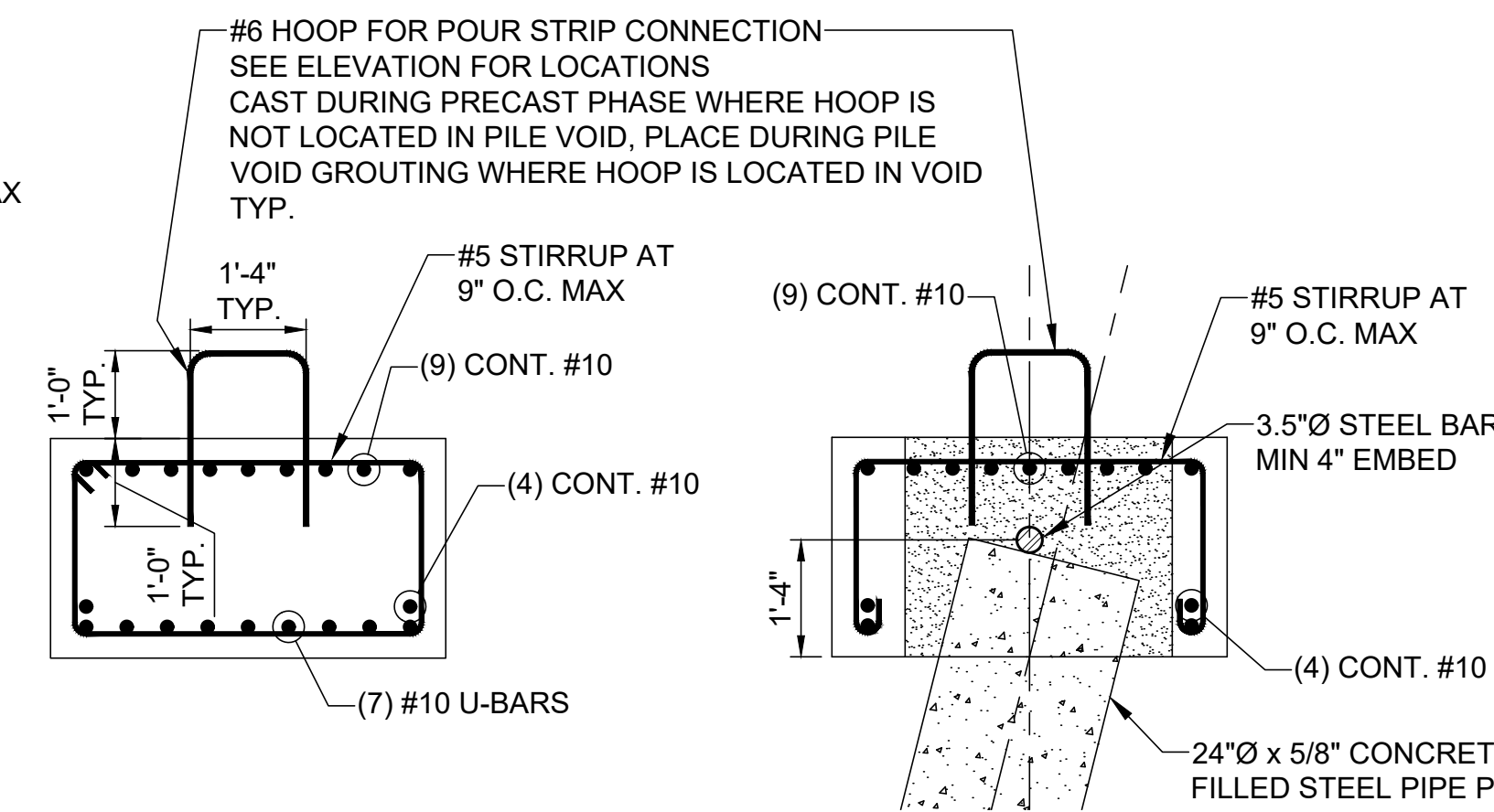
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE



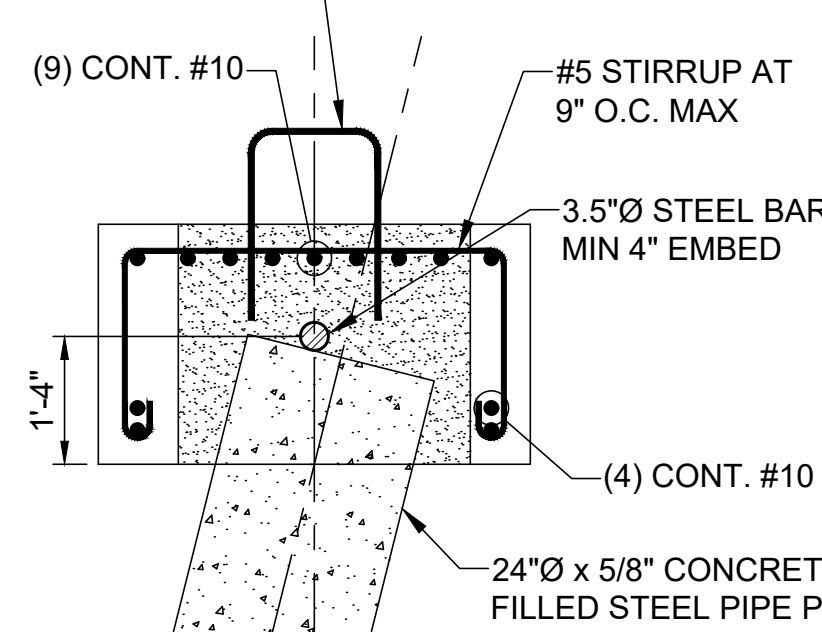
A SECTION
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



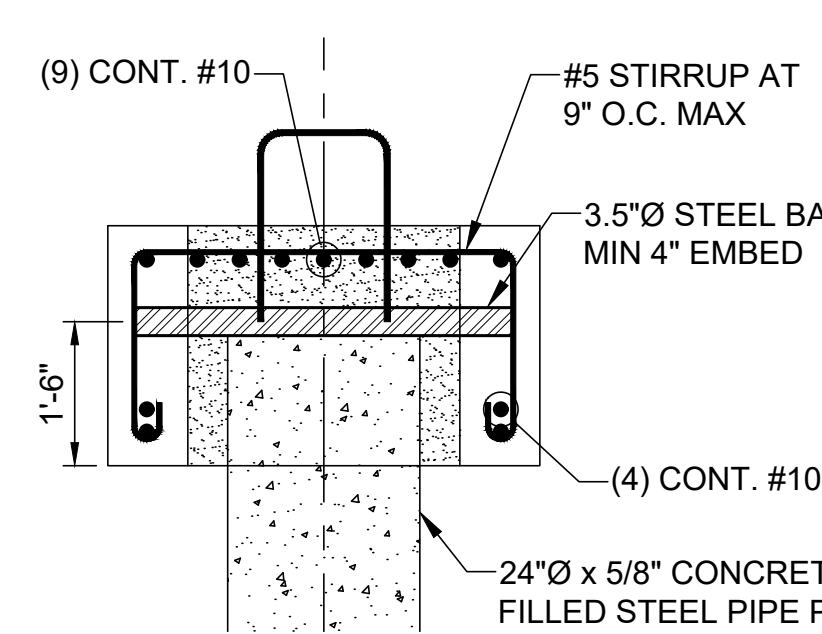
B SECTION
MAIN PIER
BENT 7 & 10
SCALE: 1" = 2'



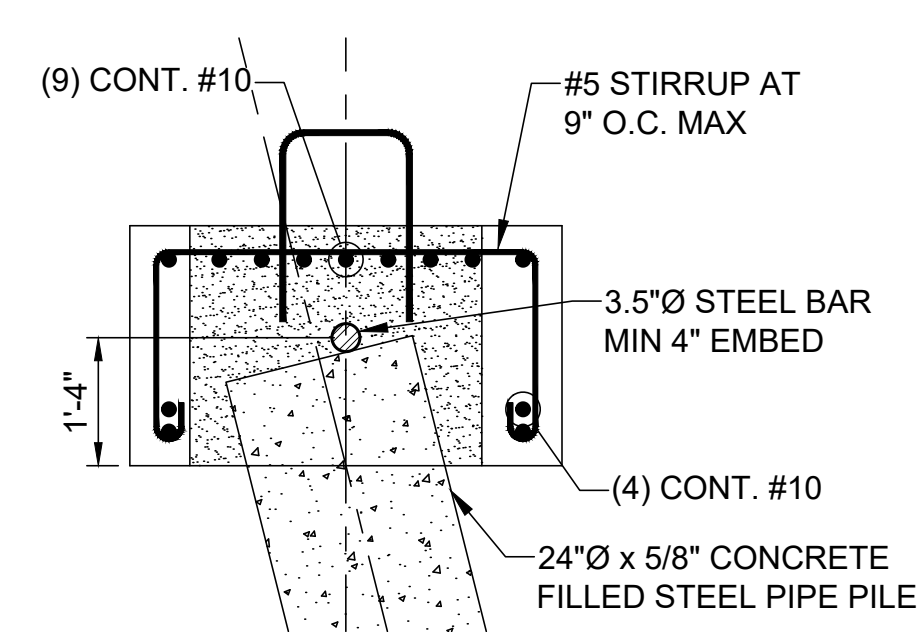
C SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



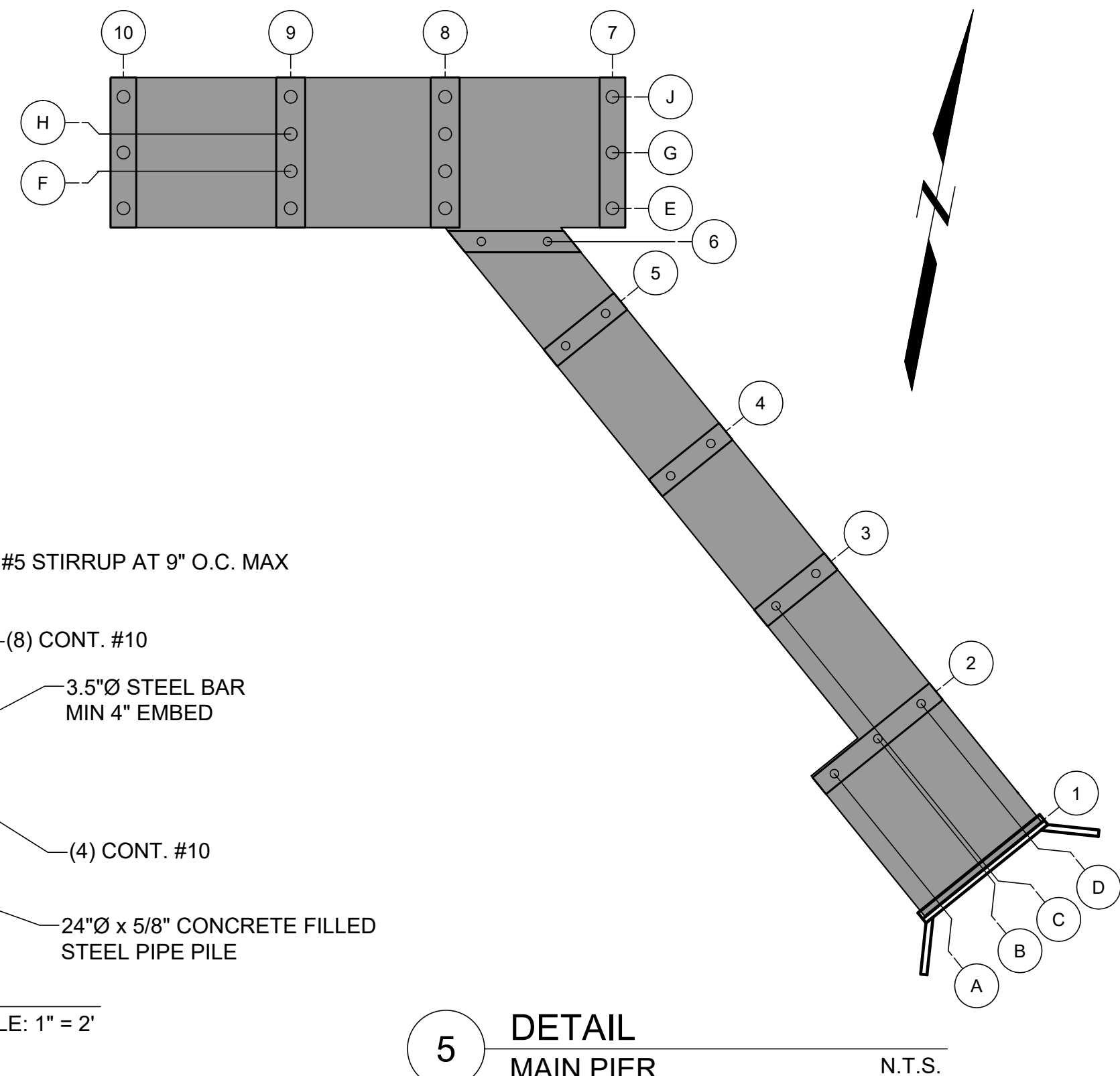
D SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



E SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



F SECTION
MAIN PIER
BENT 8 & 9
SCALE: 1" = 2'



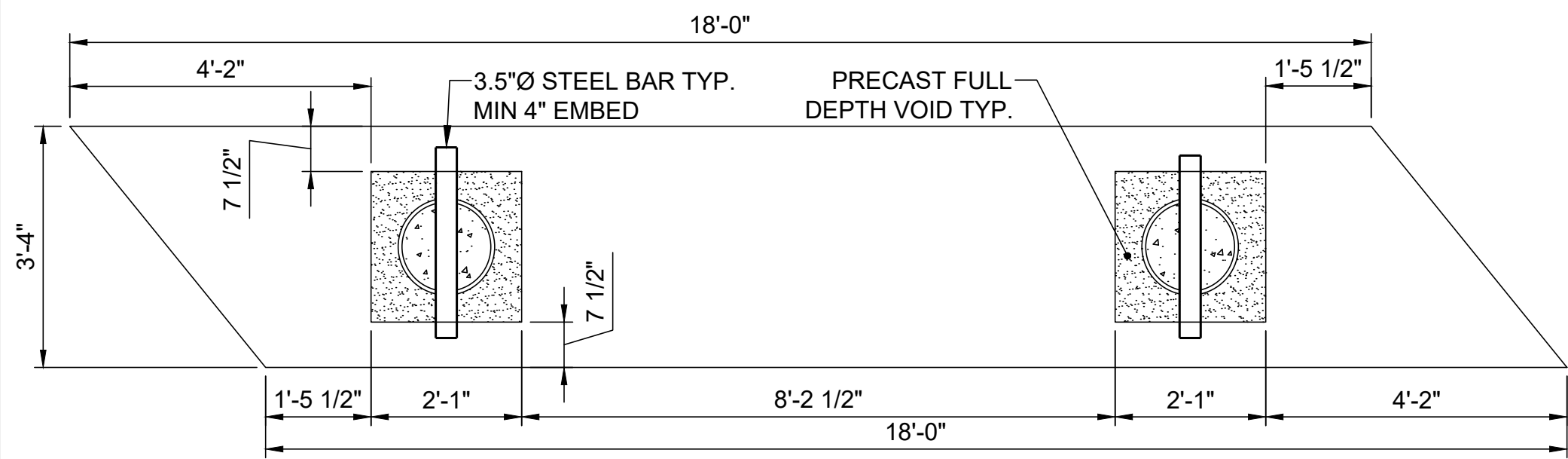
5 DETAIL
MAIN PIER
N.T.S.

FOR PERMIT

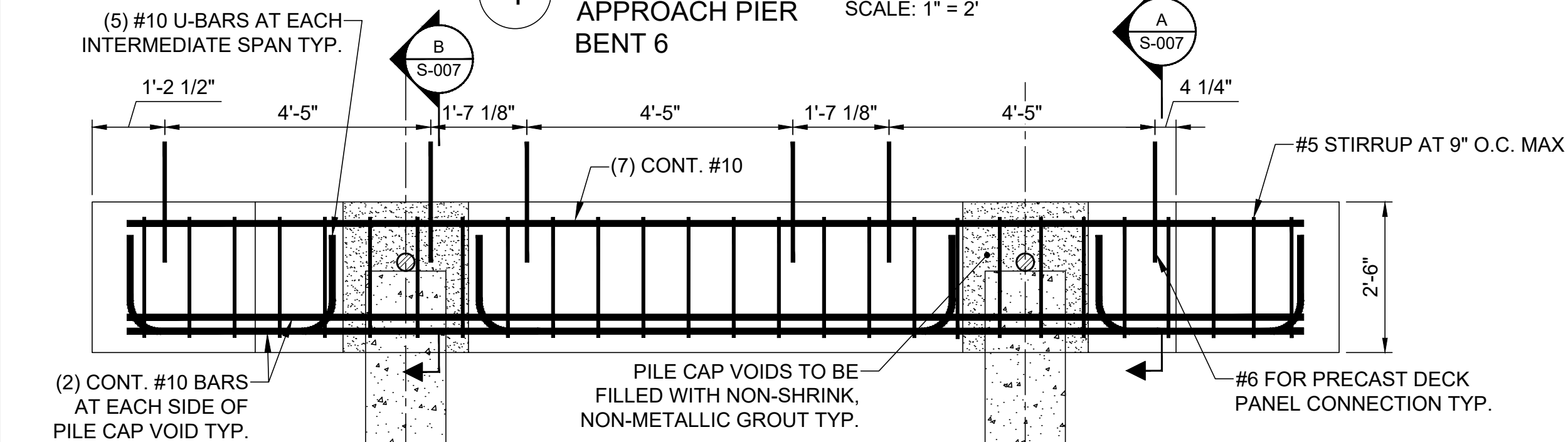
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7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
PRECAST PILE CAP PLAN AND SECTIONS 1 OF 2	S-006

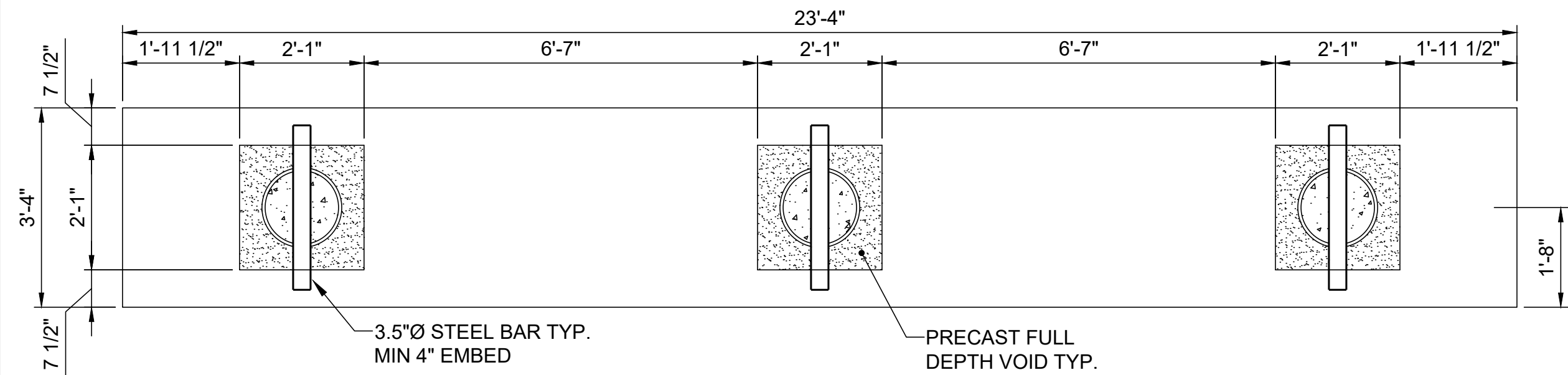
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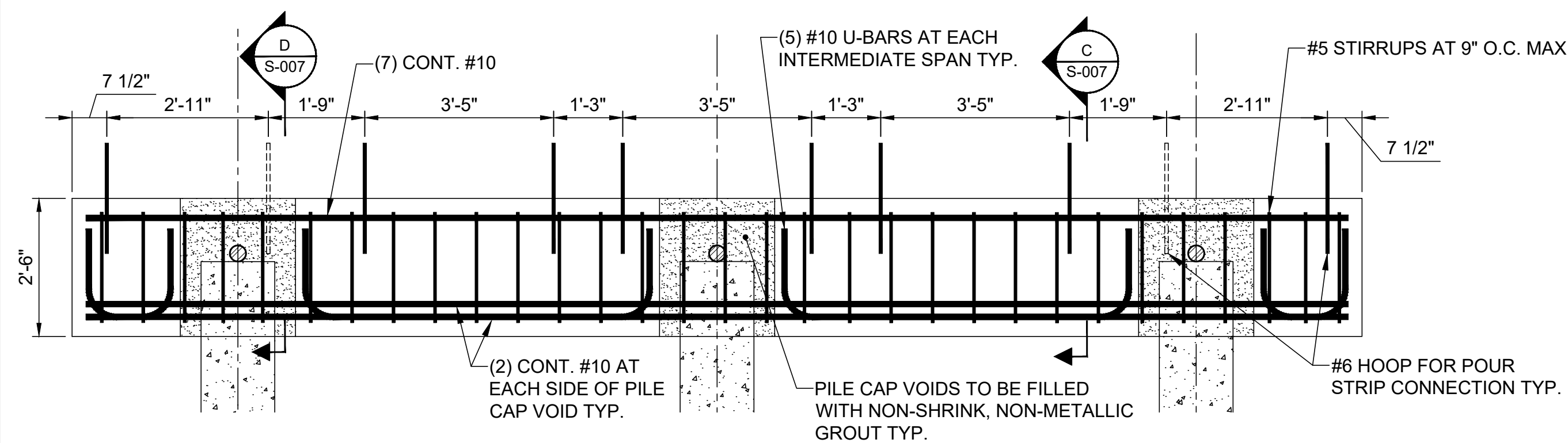
1
DETAIL-PLAN
APPROACH PIER
BENT 6
SCALE: 1" = 2'



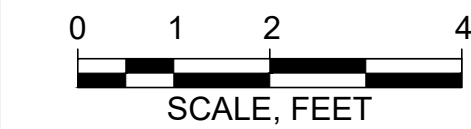
2
ELEVATION
APPROACH PIER
BENT 6
SCALE: 1" = 2'



3
DETAIL-PLAN
APPROACH PIER
BENT 2
SCALE: 1" = 2'



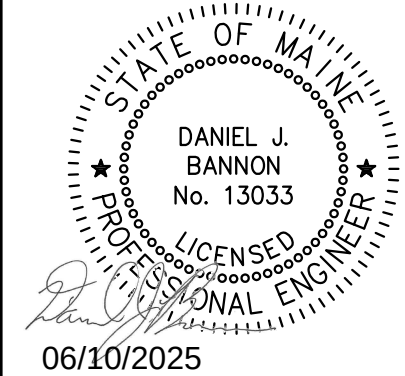
4
ELEVATION
APPROACH PIER
BENT 2
SCALE: 1" = 2'



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" SCALE
If this scale bar does not measure 1" then drawing is not original scale.



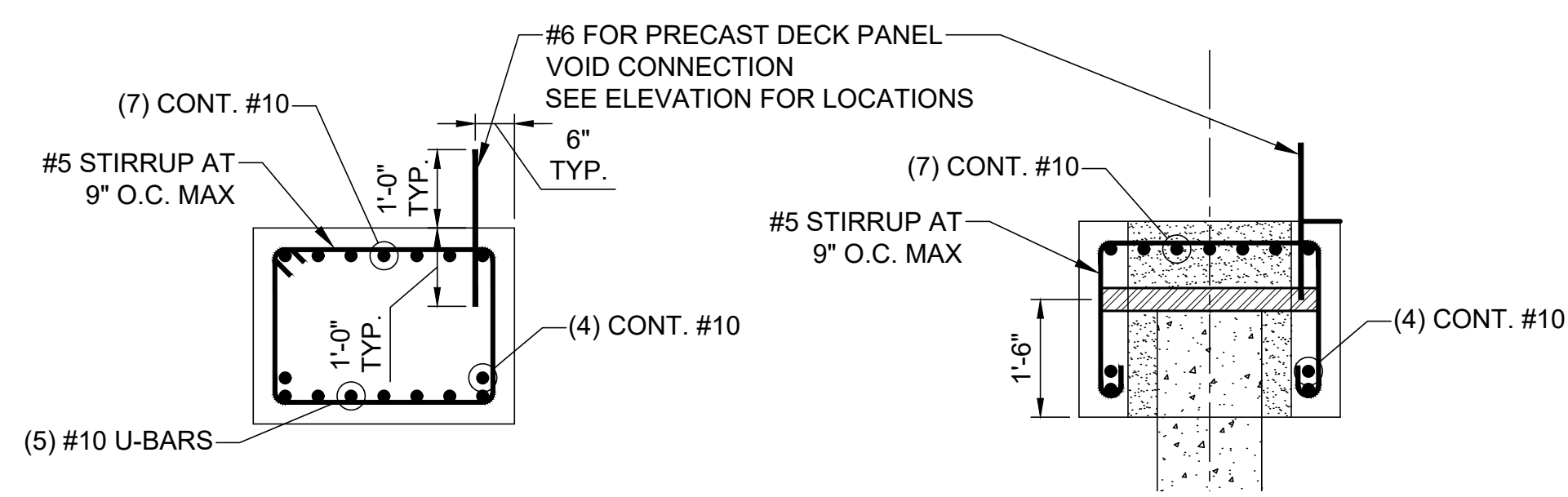
Designed:	DJB
Drawn:	JAM
Checked:	BJB
Approved:	BMM
P.E. No:	13033
GEI Project	2203703



11 HILLS BEACH RD.
BIDDEFORD, MAINE

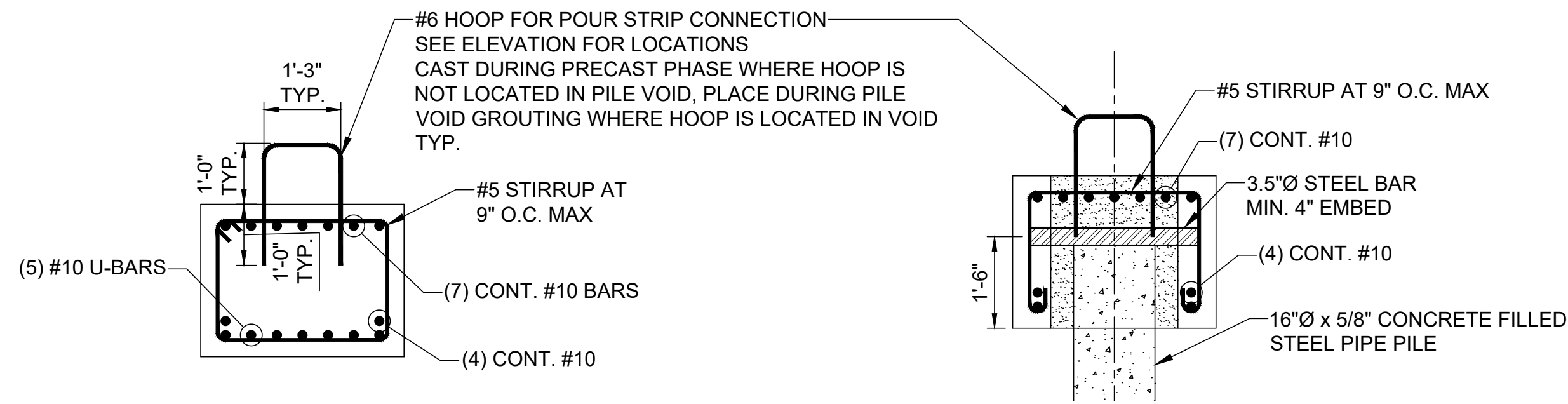
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER

11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE



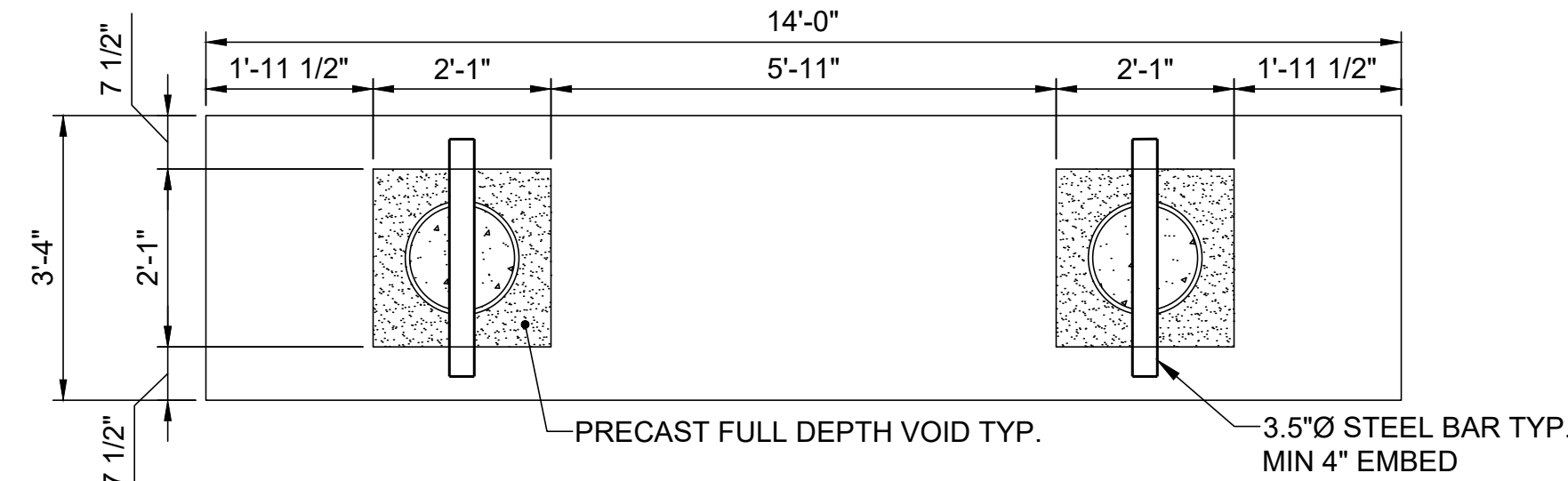
A
SECTION
APPROACH PIER
BENT 6
SCALE: 1" = 2'

B
SECTION
APPROACH PIER
BENT 6
SCALE: 1" = 2'

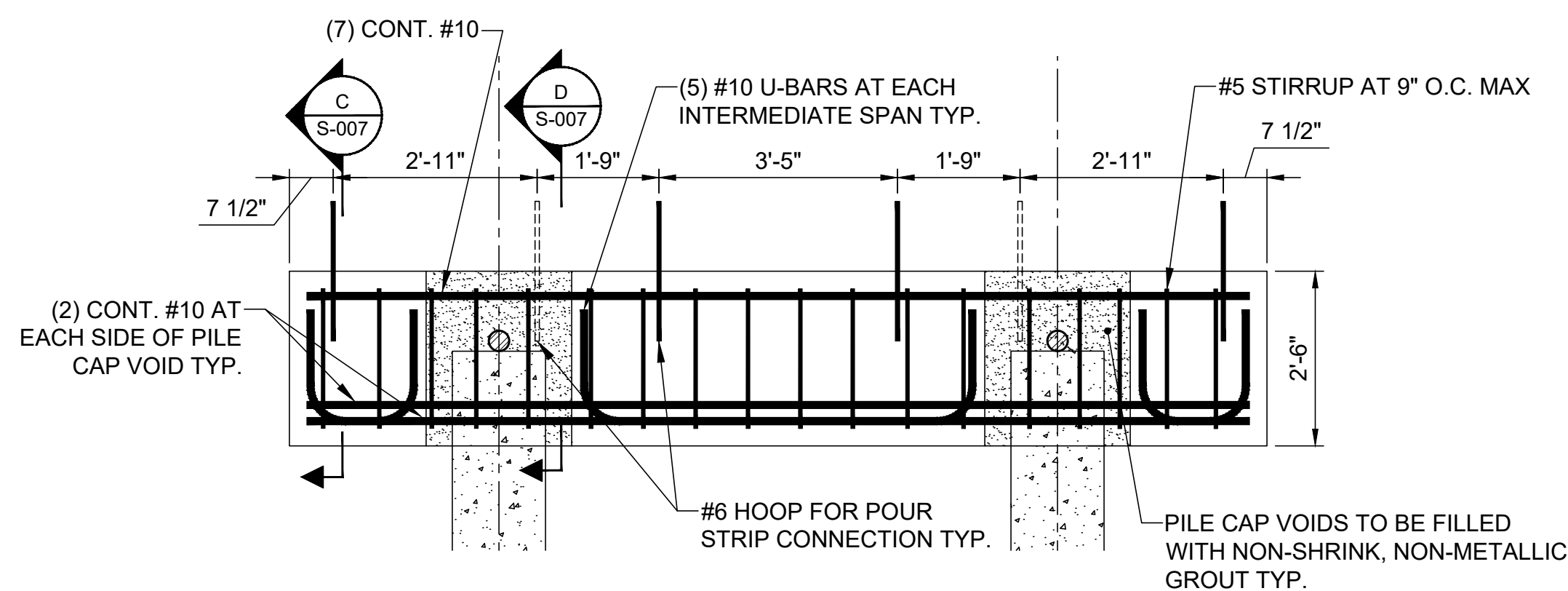


C
SECTION
APPROACH PIER
BENTS 2-5
SCALE: 1" = 2'

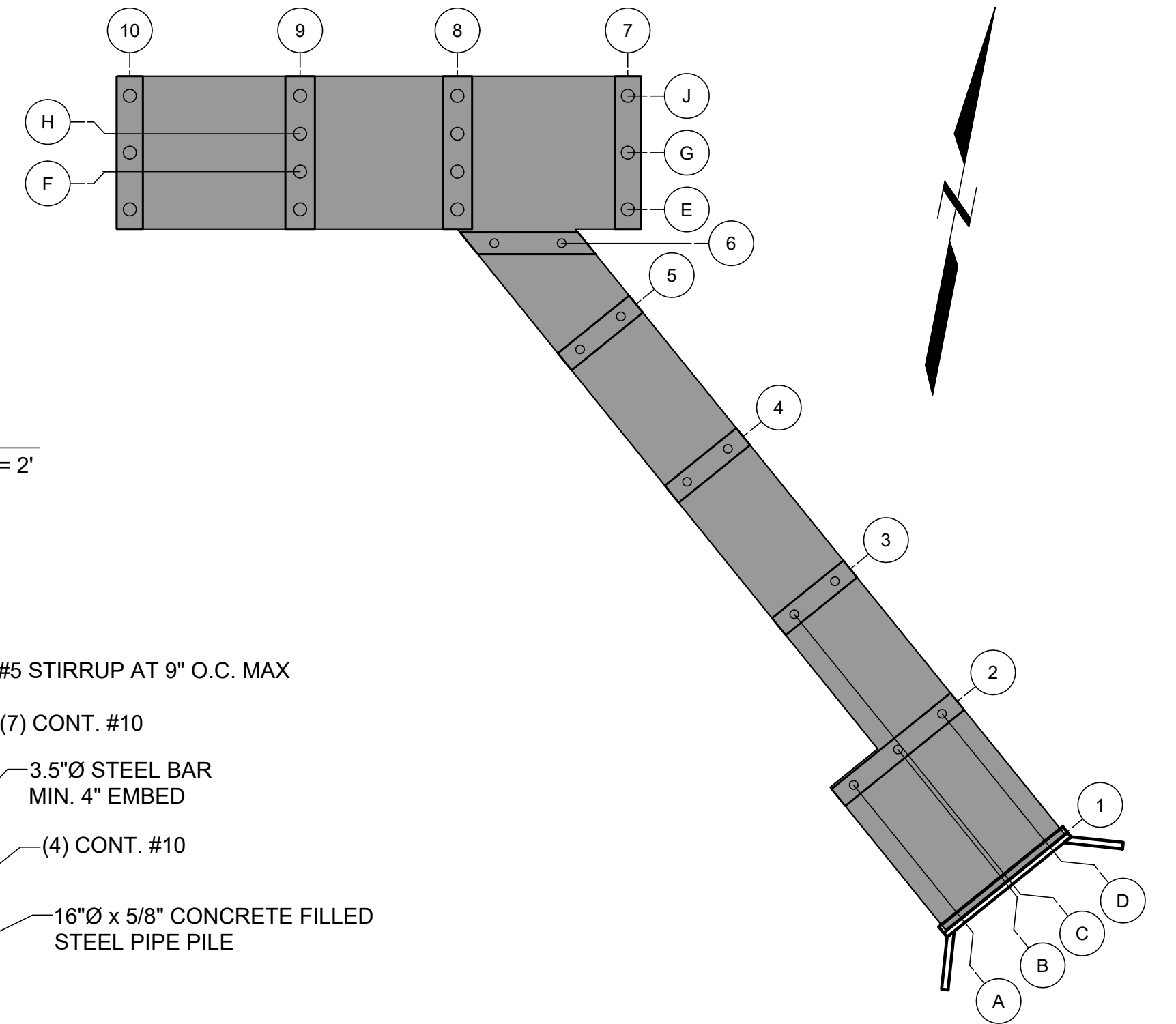
D
SECTION
APPROACH PIER
BENTS 2-5
SCALE: 1" = 2'



5
DETAIL-PLAN
APPROACH PIER
BENTS 3-5
SCALE: 1" = 2'



6
ELEVATION
APPROACH PIER
BENTS 3-5
SCALE: 1" = 2'



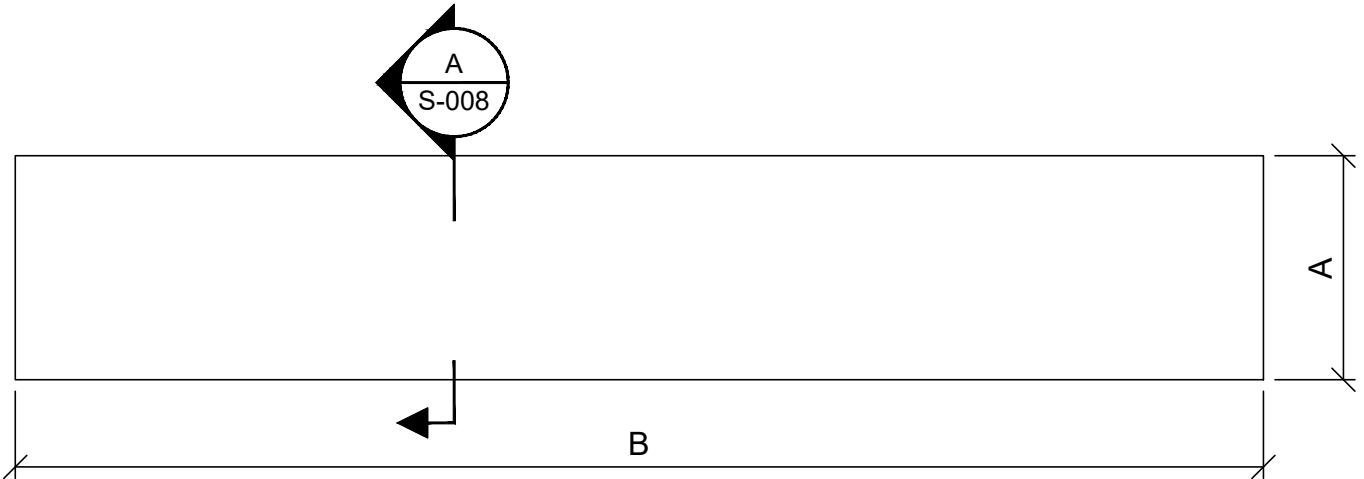
7
DETAIL
MAIN PIER
N.T.S.

FOR PERMIT

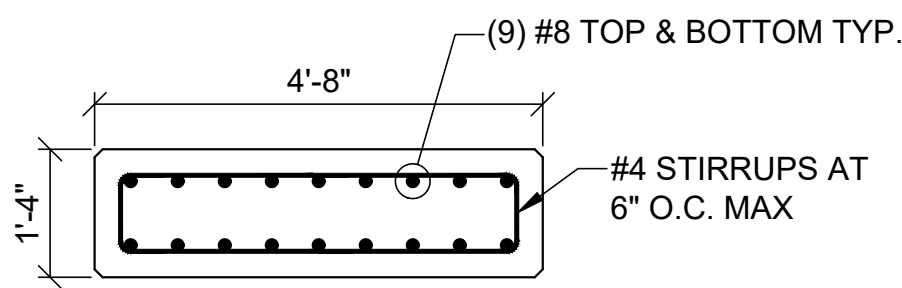
SHEET NAME		SHEET NO.	
PRECAST PILE CAP PLAN AND SECTIONS		S-007	
2 OF 2			
NO	DATE	ISSUE/REVISION	APP
8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	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

D:\CASTELNUOVO, VINNE - Iltast\452Data_Storage\Working\UNIVERSITY OF NEW ENGLAND\2203703 UNE Marine Science Center Pier\00_CAD\Design\Sheets\2203703-S-008.dwg - 6/5/2025

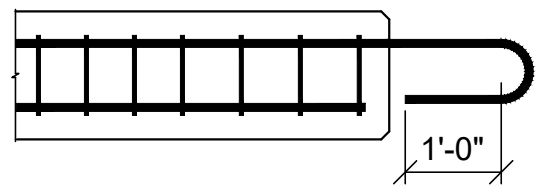
PRECAST DECK PANEL SCHEDULE					
PANEL ID	A	B	C	D	QTY.
A	4'-8"	25'-2"	-	-	5
B	4'-8"	24'-3"	-	-	9
C	4'-8"	-	13'-3"	17'-0"	1
D	4'-8"	-	17'-0"	20'-9 1/2"	1
E	4'-8"	-	20'-9 1/2"	24'-7"	1
F	4'-8"	26'-0"	-	-	10
G	4'-8"	22'-0"	-	-	5



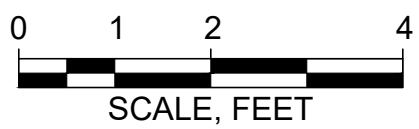
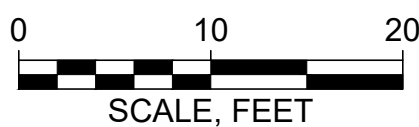
1 DETAIL-PLAN
PRECAST DECK PANEL SCALE: 1"=4'



A SECTION
PRECAST DECK PANEL SCALE: 1"=2'

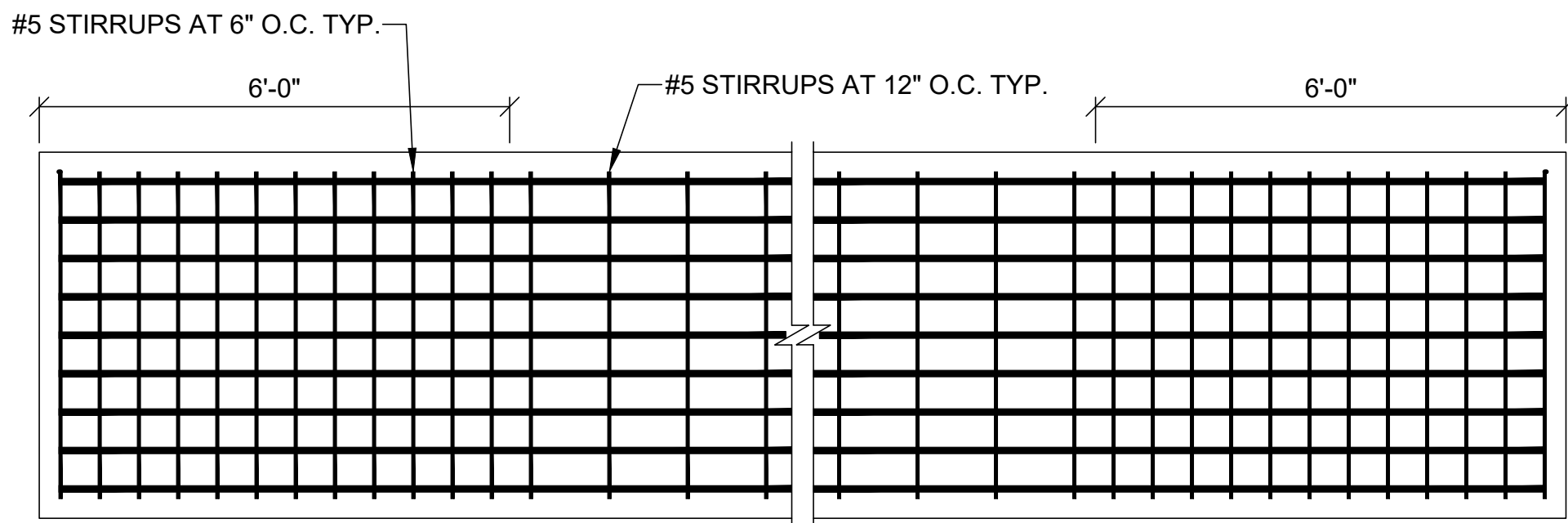


B SECTION
PRECAST DECK PANEL
CONNECTION END 2 & 3 SCALE: 1"=2'

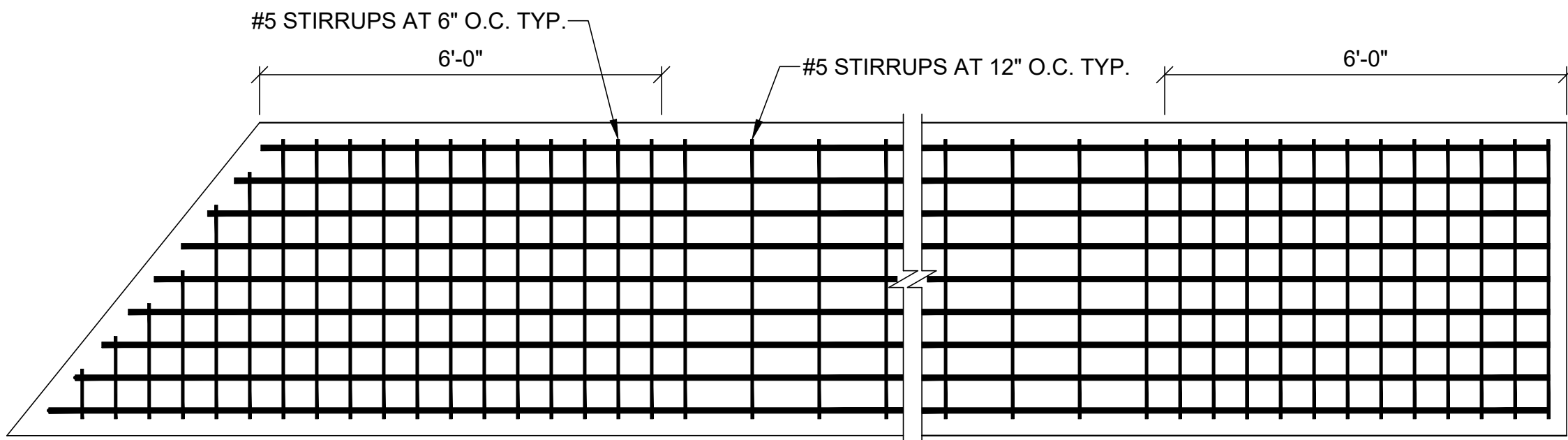


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

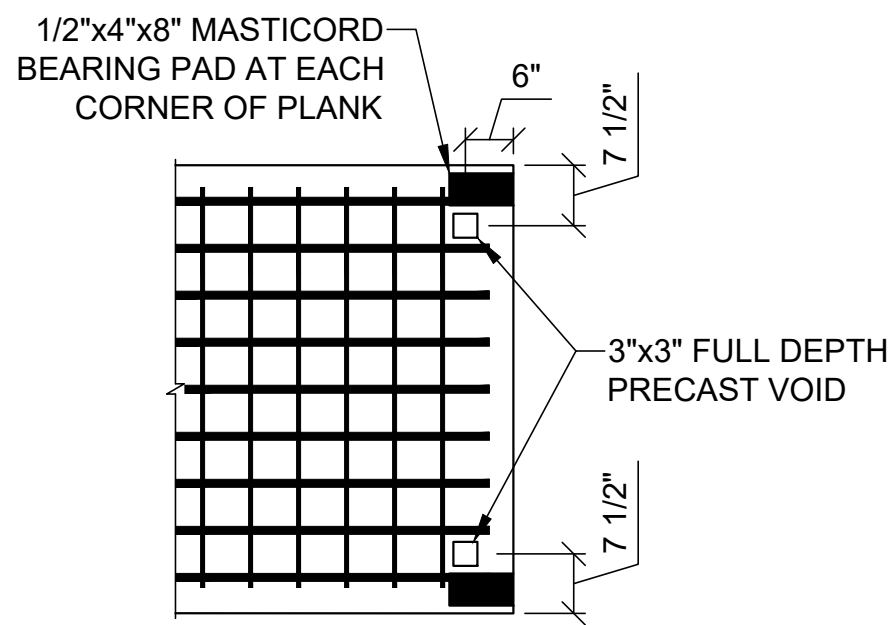
*PROJECT DATUM



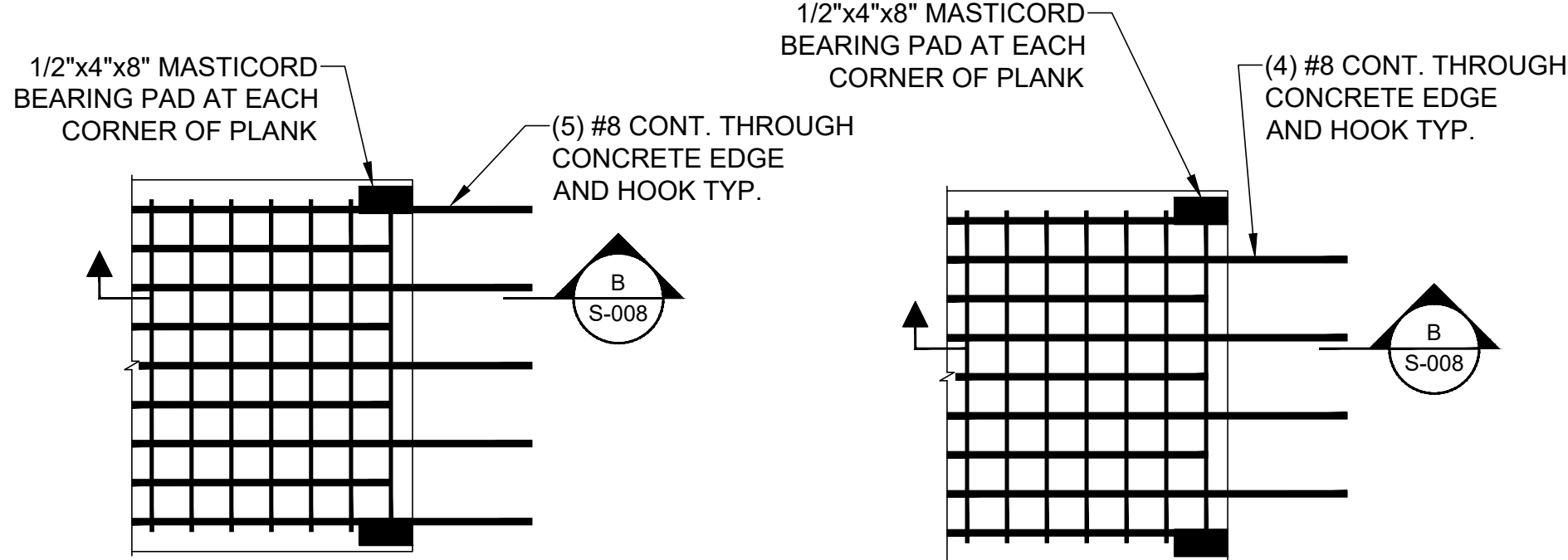
3 DETAIL-PLAN PLANKS A, B, F, & G
PRECAST DECK PANEL
STIRRUP SPACING SCALE: 1"=2'



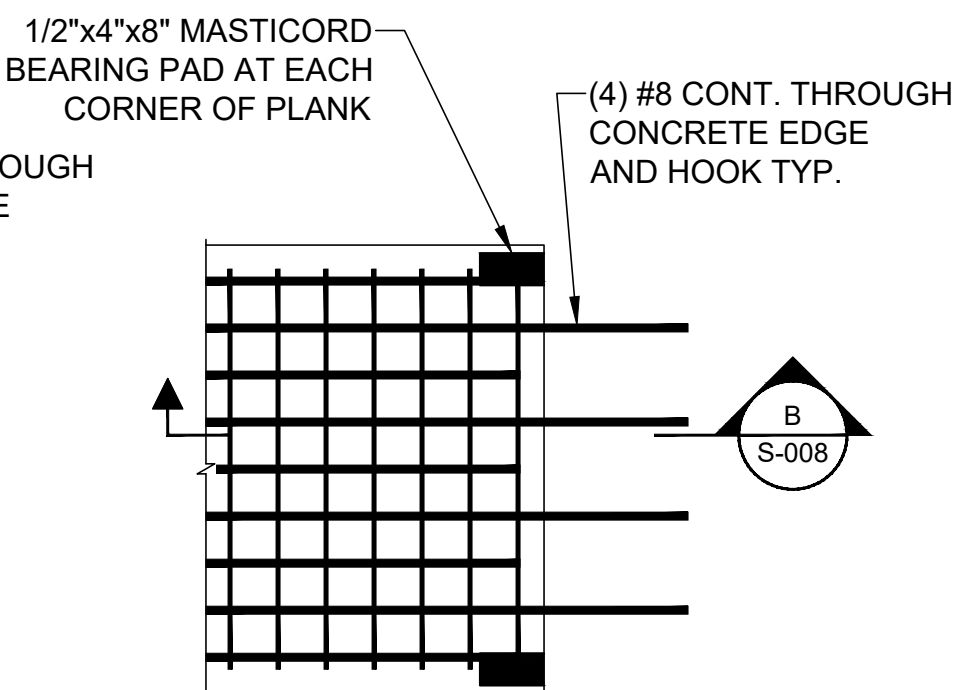
4 DETAIL-PLAN PLANKS C, D, & E
PRECAST DECK PANEL
STIRRUP SPACING SCALE: 1"=2'



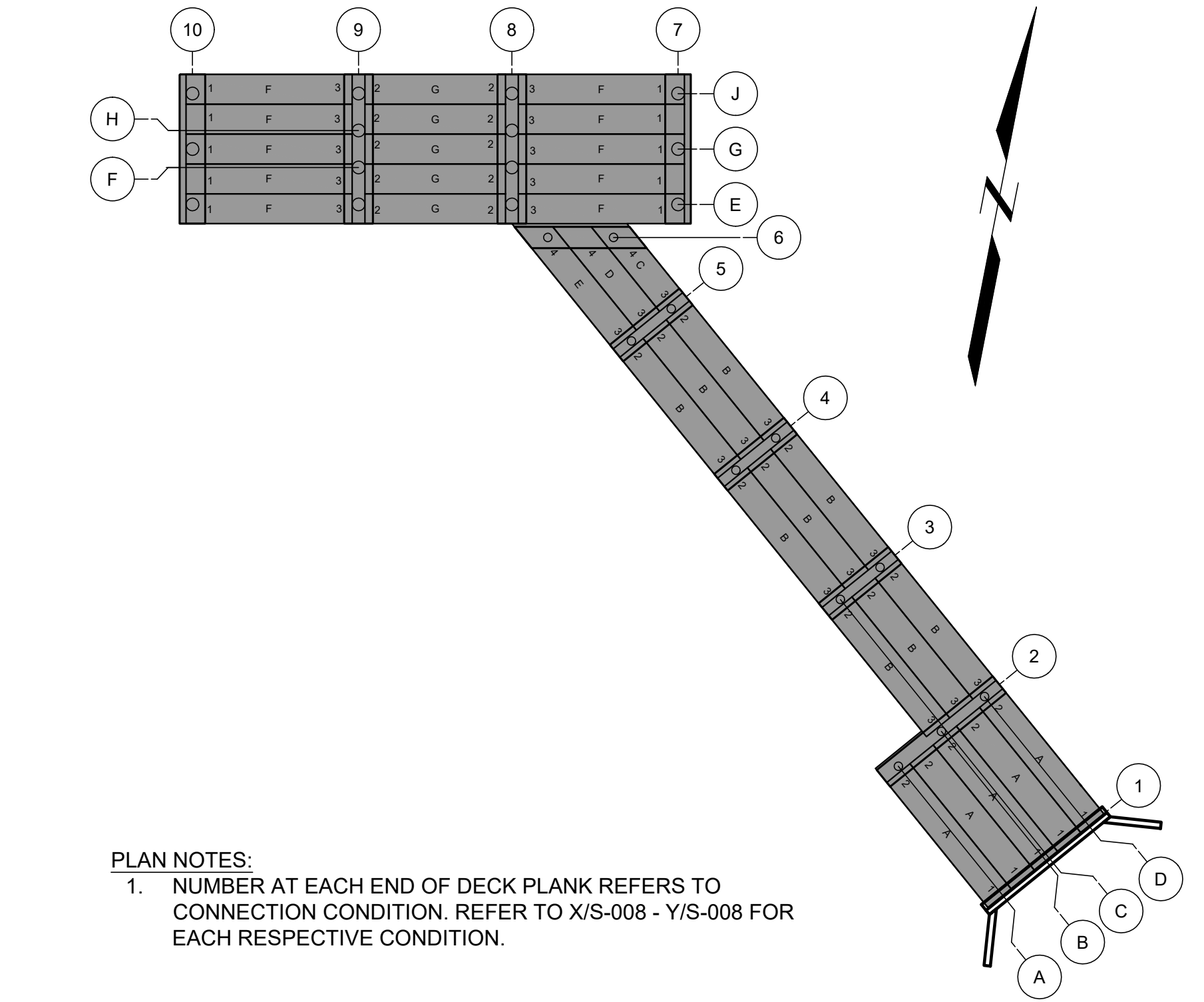
5 DETAIL - PLAN
DECK PANEL
CONNECTION 1 SCALE: 1"=2'



6 DETAIL - PLAN
DECK PANEL
CONNECTION 2 SCALE: 1"=2'

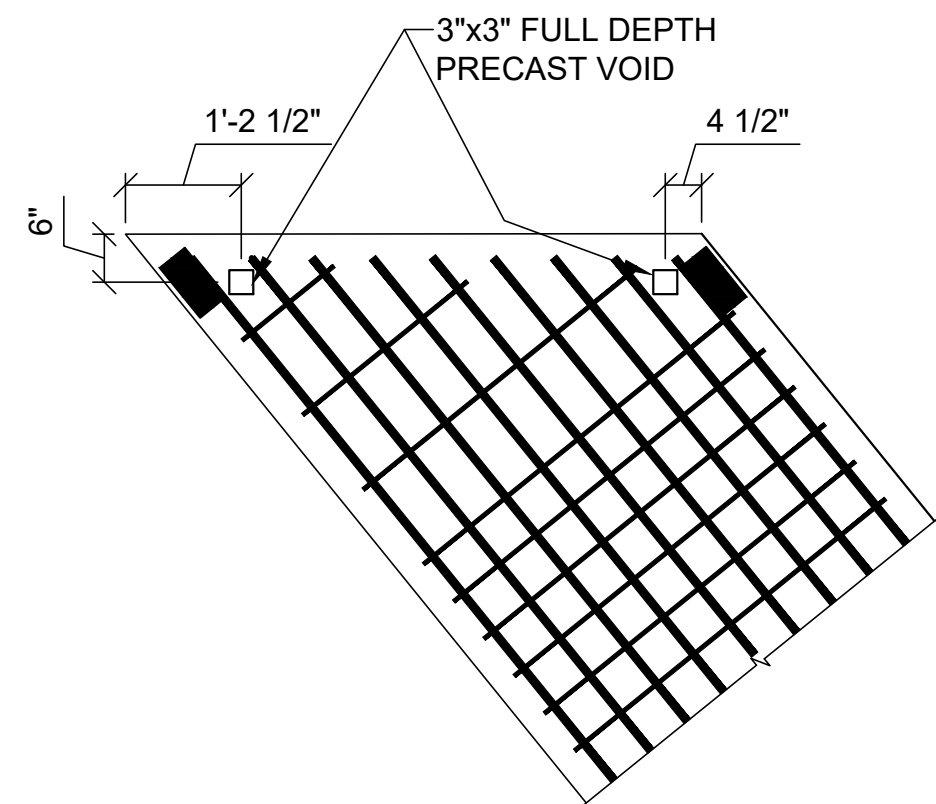


7 DETAIL - PLAN
DECK PANEL
CONNECTION 3 SCALE: 1"=2'



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.

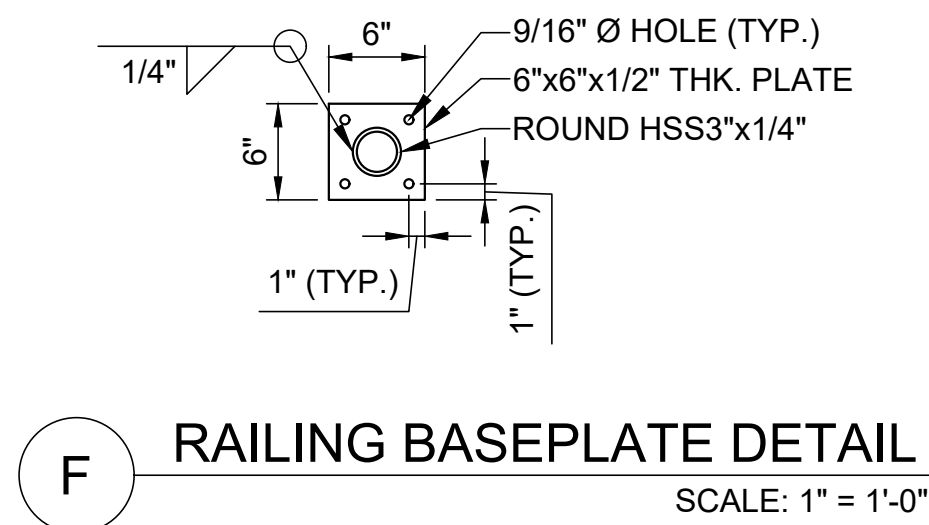
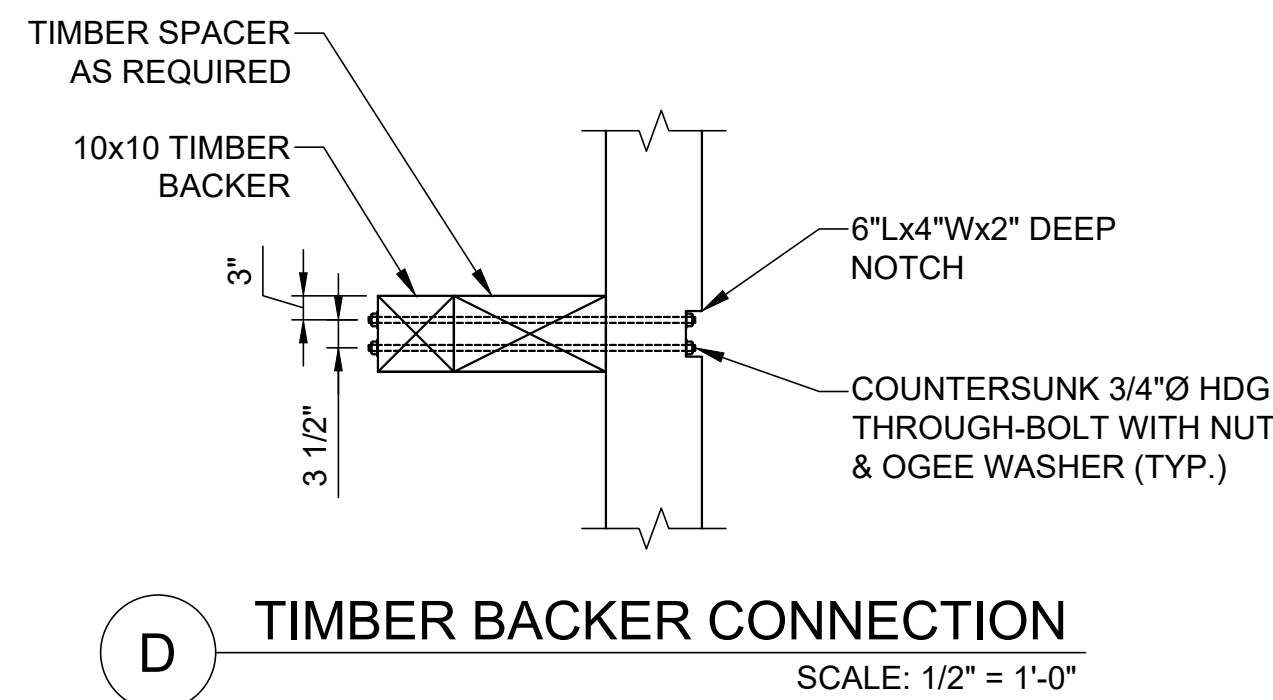
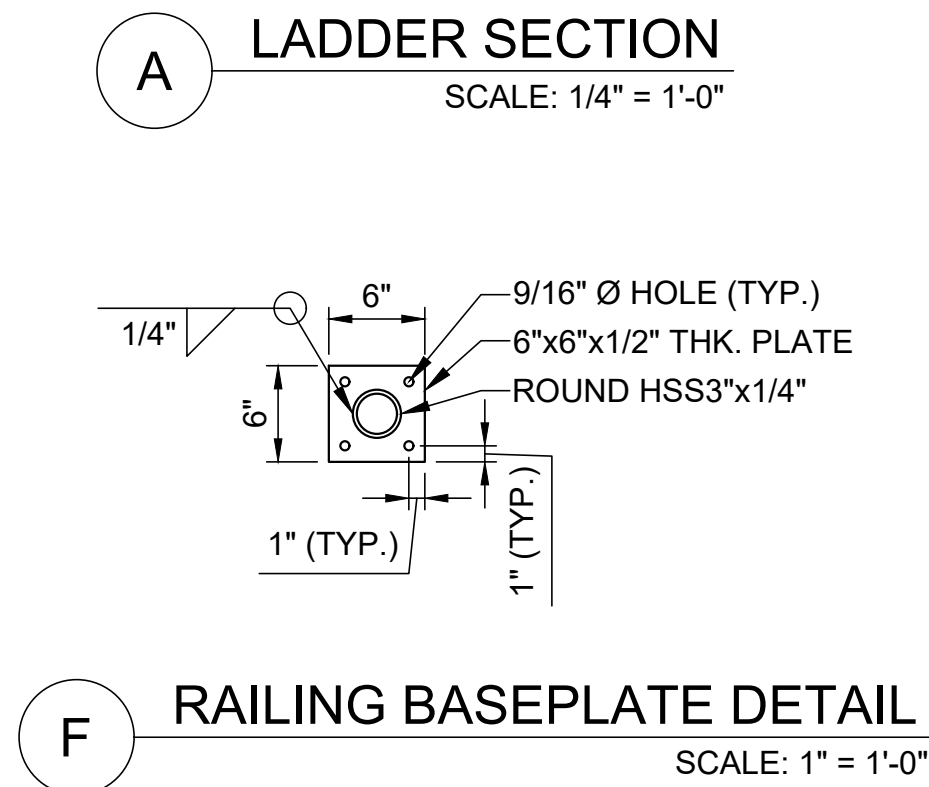
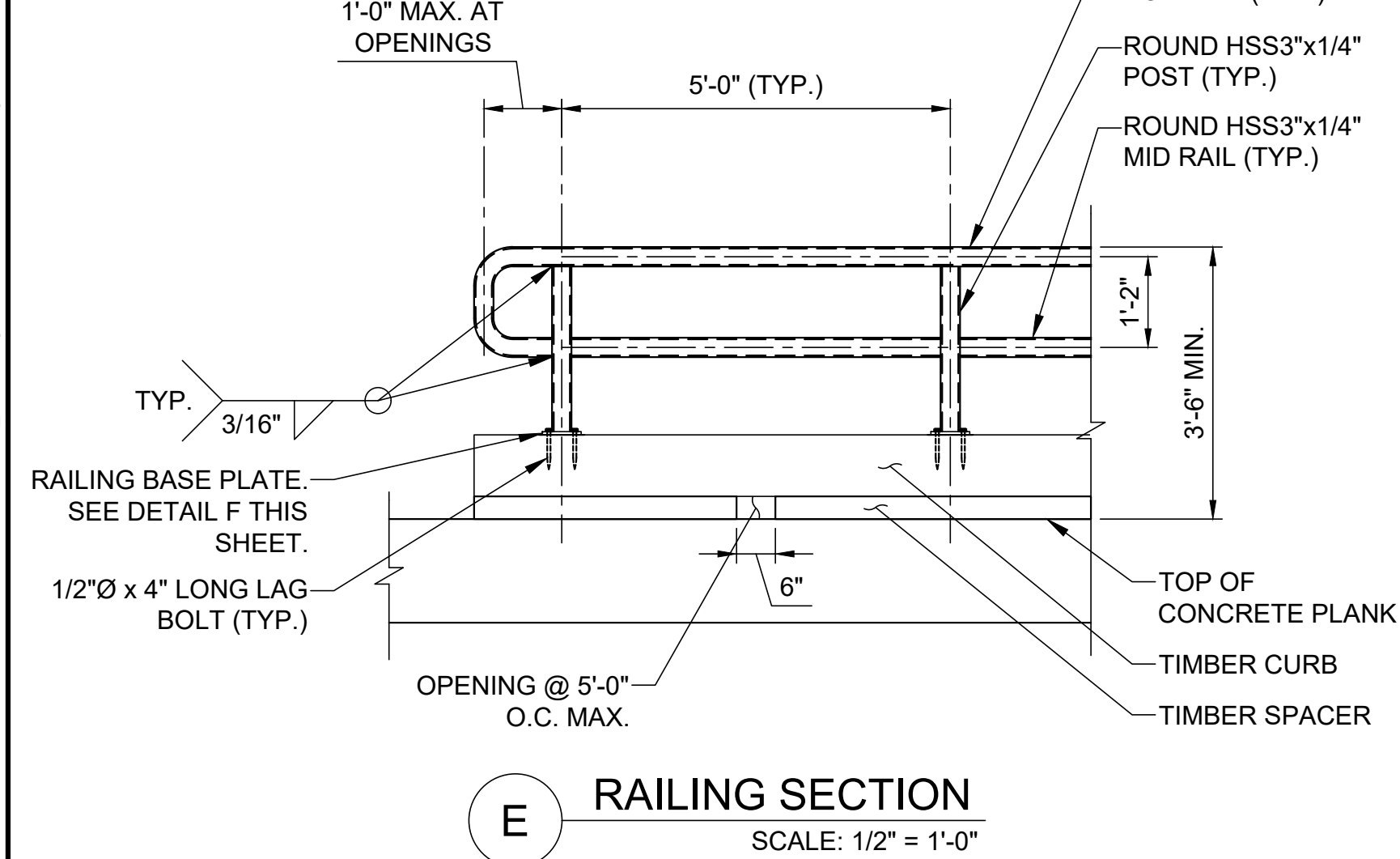
9 DETAIL
PIER DECK PANELS N.T.S.



8 DETAIL - PLAN
DECK PANEL
CONNECTION 1 SCALE: 1"=2'

FOR PERMIT

Attention:  If this scale bar does not measure 1" then drawing is not original scale.		Designed: DJB	 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	8	6/5/2025	ADDRESS PB COMMENTS	DJB	SHEET NAME PRECAST DECK PANEL PLAN	SHEET NO. S-008
		Drawn: JAM				7	4/16/2025	BIDDEFORD PERMIT APP.	DJB		
		Checked: BJB				6	9/17/2024	REVISED PERMIT SET	DJB		
		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						
		1	12/9/2022	15% DESIGN SUB REV	DJB						
		0	11/11/2022	15% DESIGN SUBMISSION	DJB						
		NO	DATE	ISSUE/REVISION	APP						

*PROJECT DATUM

STATE OF MAINE
DANIEL J. BANNON
No. 13033
LICENSED PROFESSIONAL ENGINEER
06/10/2025

GEI Consultants
GEI CONSULTANTS, INC.
5 MILK STREET
PORTLAND, ME 04101
(207)797-8901

11 HILLS BEACH RD.
BIDDEFORD, MAINE

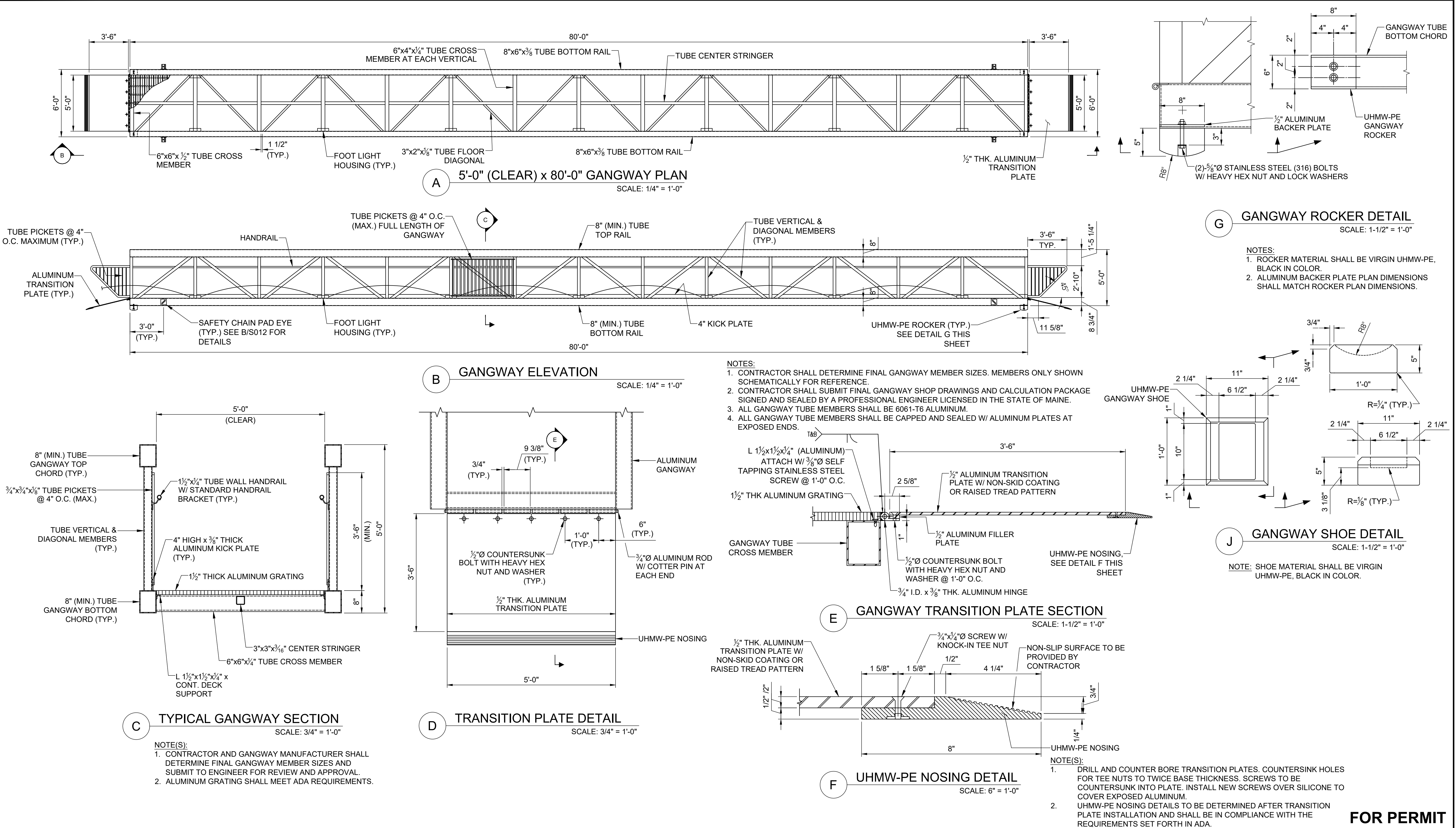
8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORWARD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
4	9/14/2023	DEP PERMIT SET	DJB
3	6/28/2023	75% DESIGN SUBMISSION	DJB
2	2/15/2023	30% DESIGN SUBMISSION	DJB
1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NO.

S-010

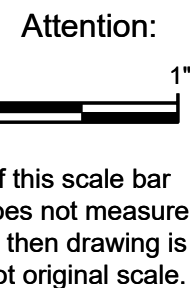
Page 707 of 75

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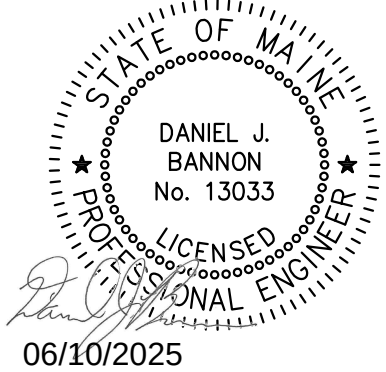


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.5	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM



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

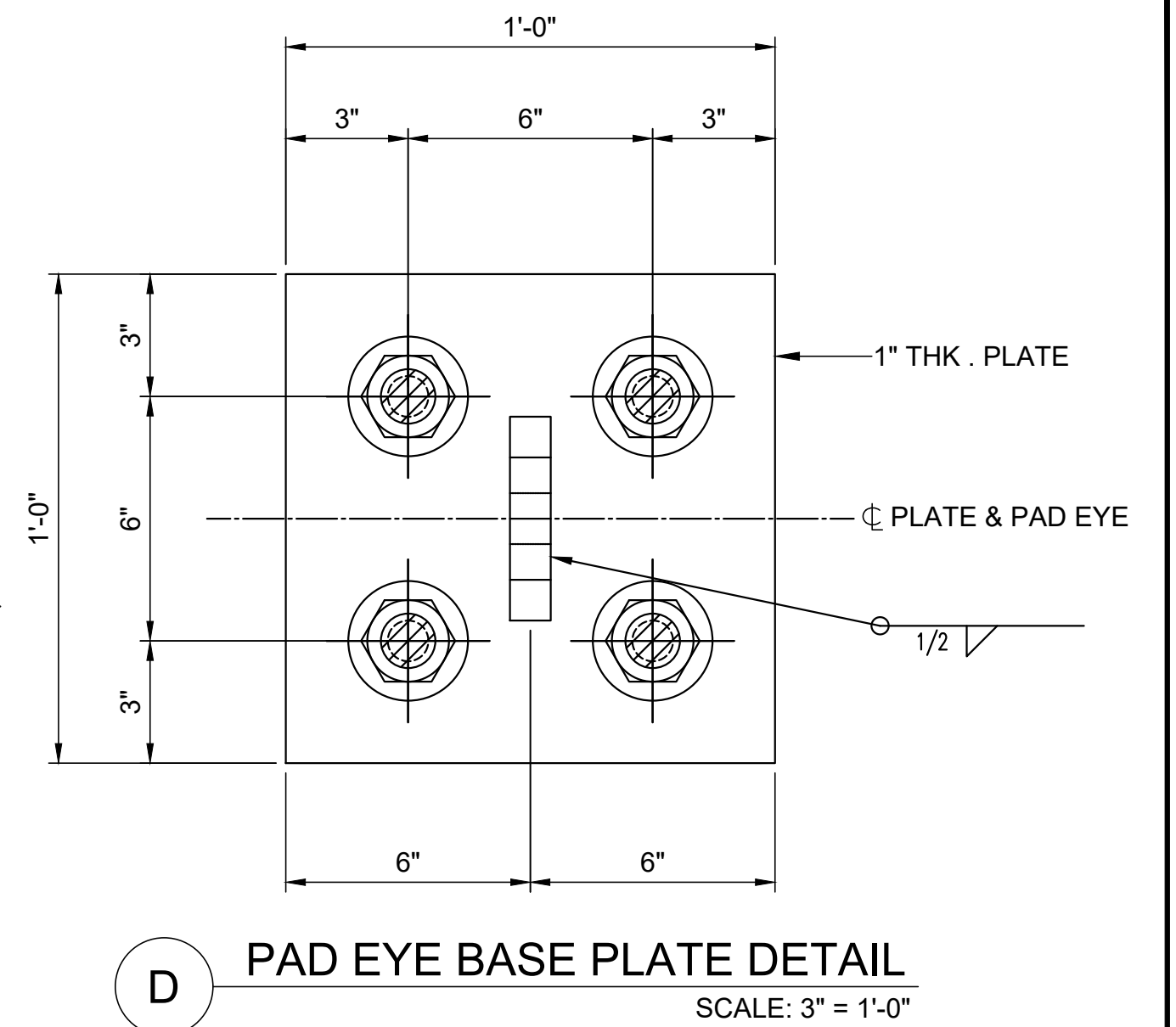
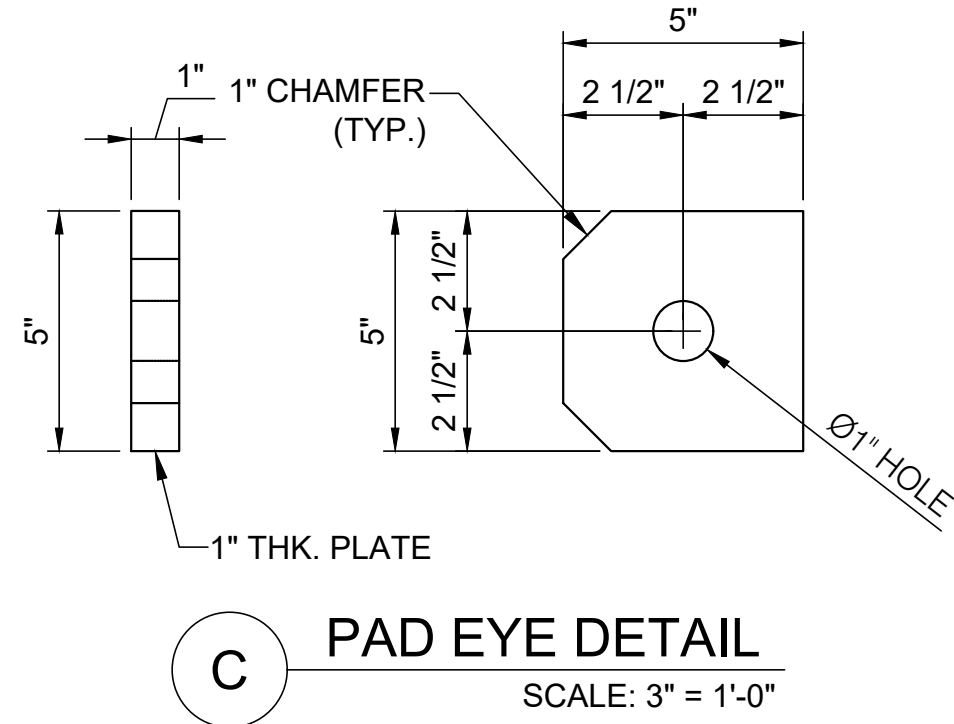
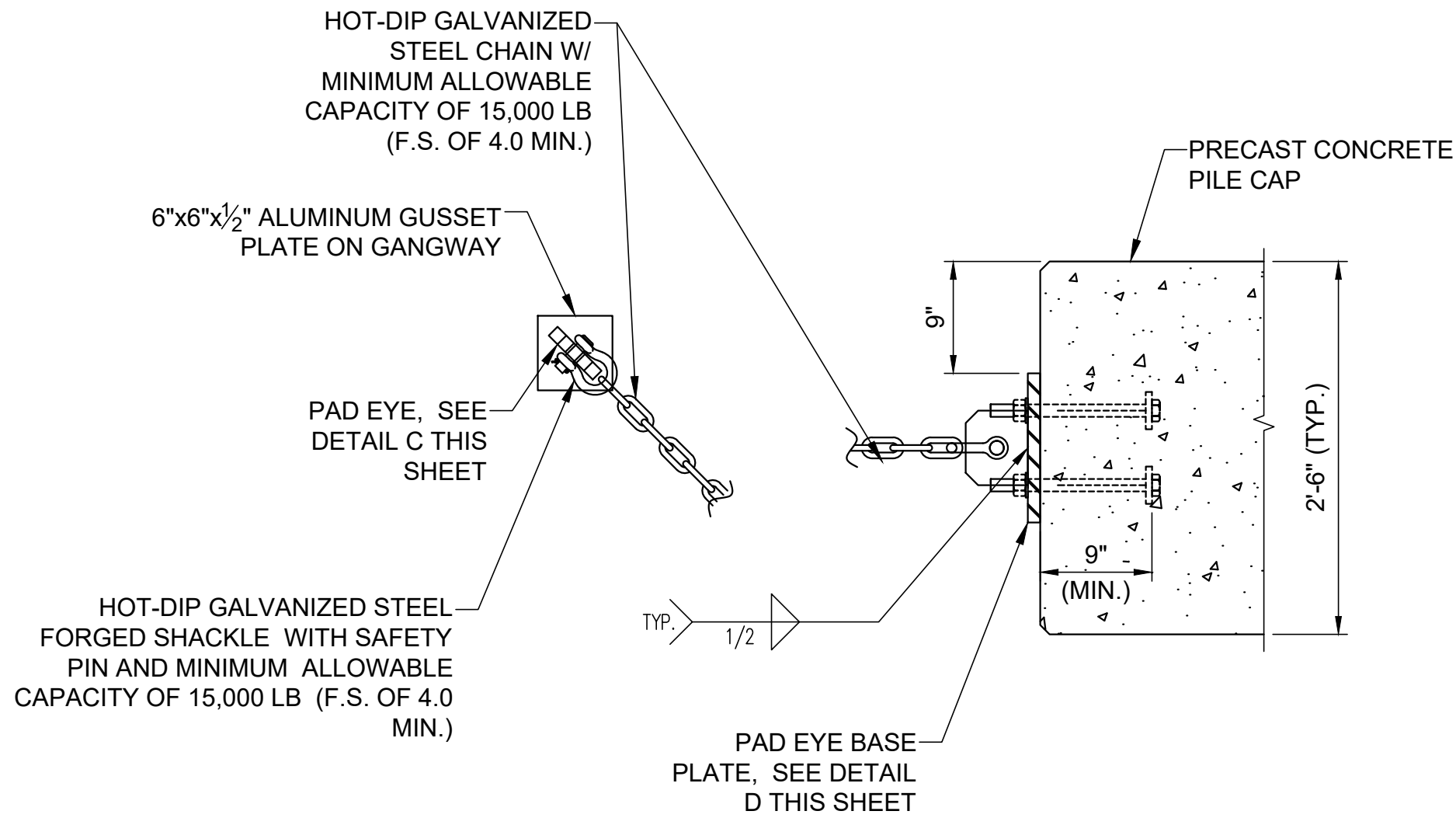
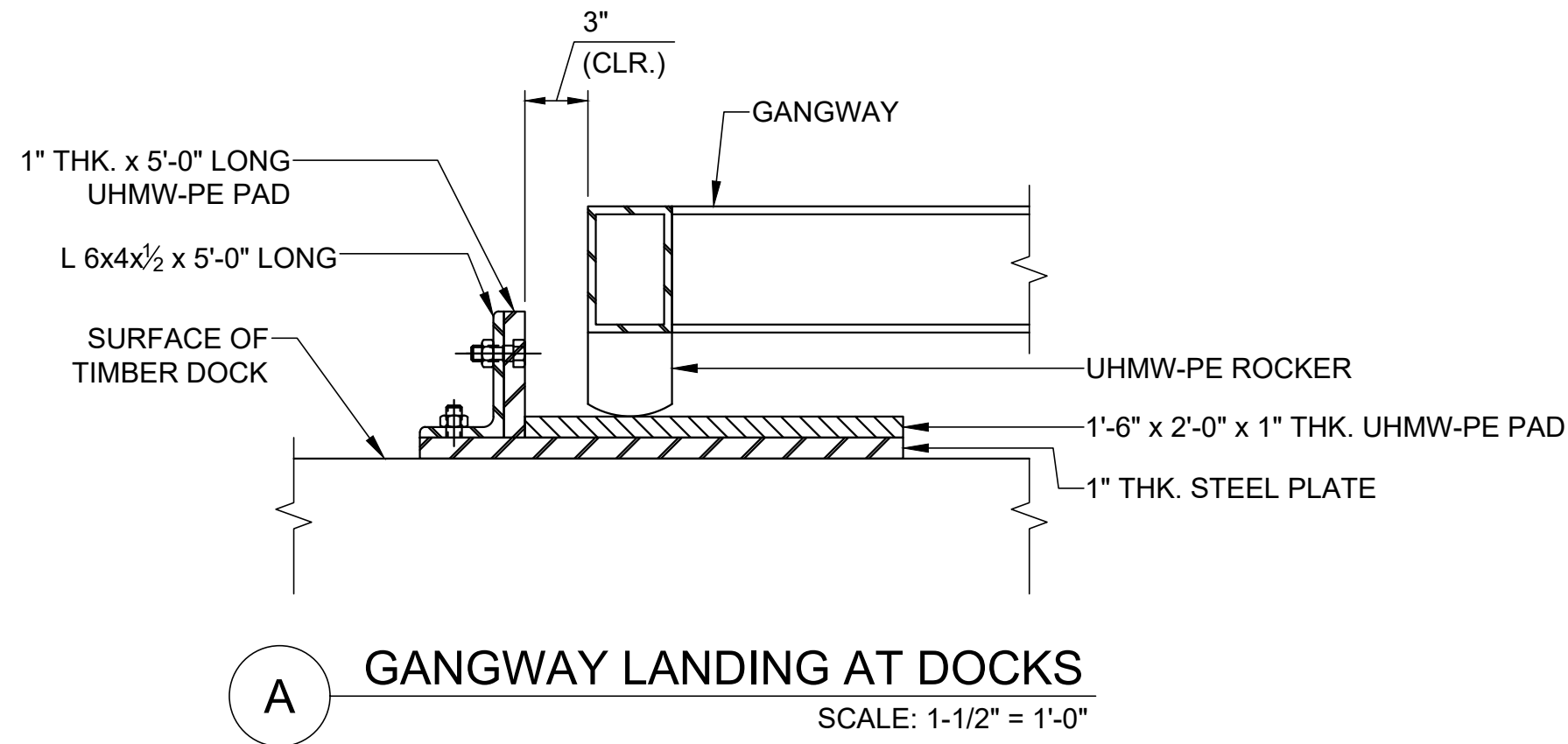
8	6/5/2025	ADDRESS PB COMMENTS	DJB
7	4/16/2025	BIDDEFORD PERMIT APP.	DJB
6	9/17/2024	REVISED PERMIT SET	DJB
5	6/27/2024	REVISED PERMIT SET	DJB
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3	6/28/2023	75% DESIGN SUBMISSION	DJB
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1	12/9/2022	15% DESIGN SUB REV	DJB
0	11/11/2022	15% DESIGN SUBMISSION	DJB
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
**MISCELLANEOUS
DETAILS (3 OF 5)**

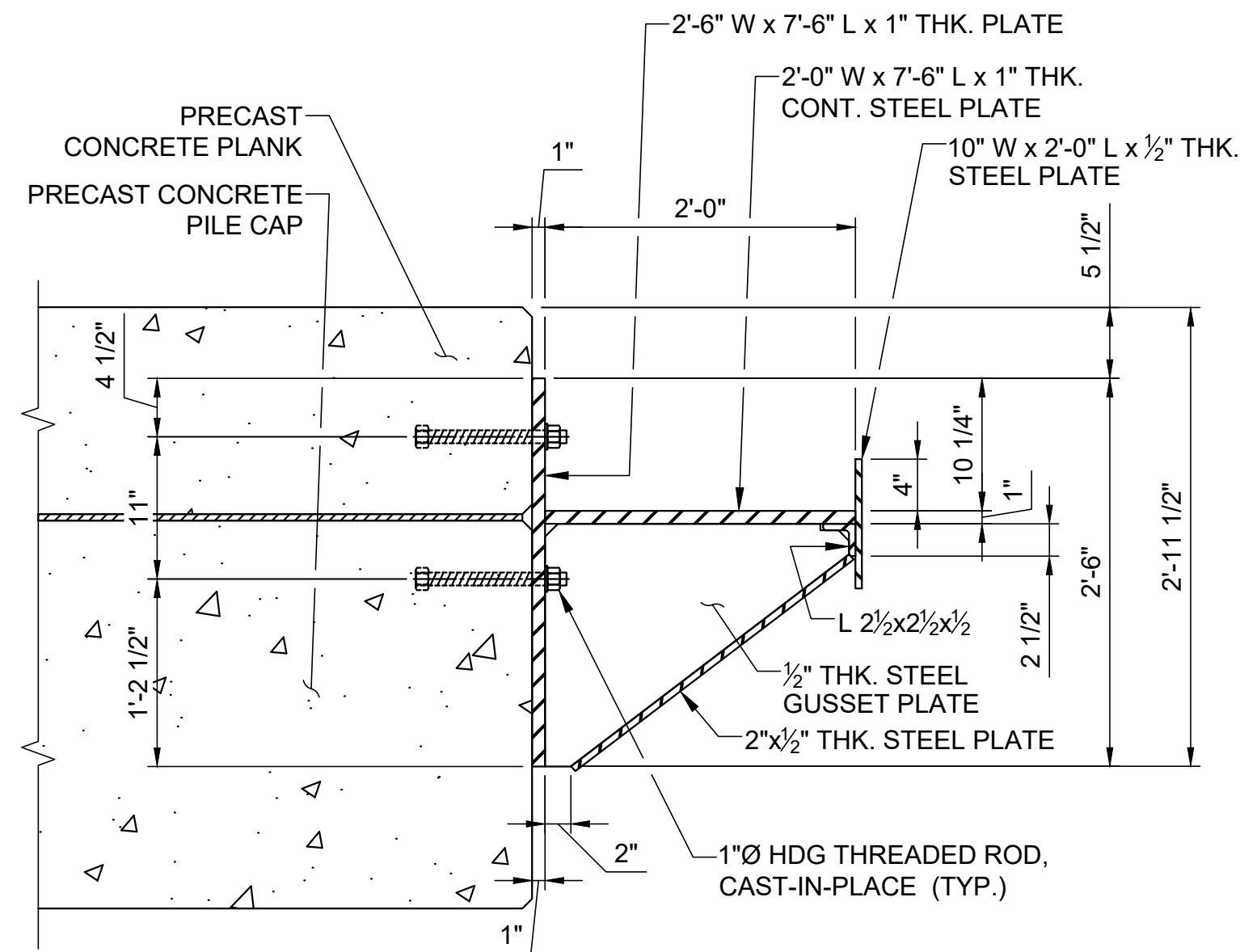
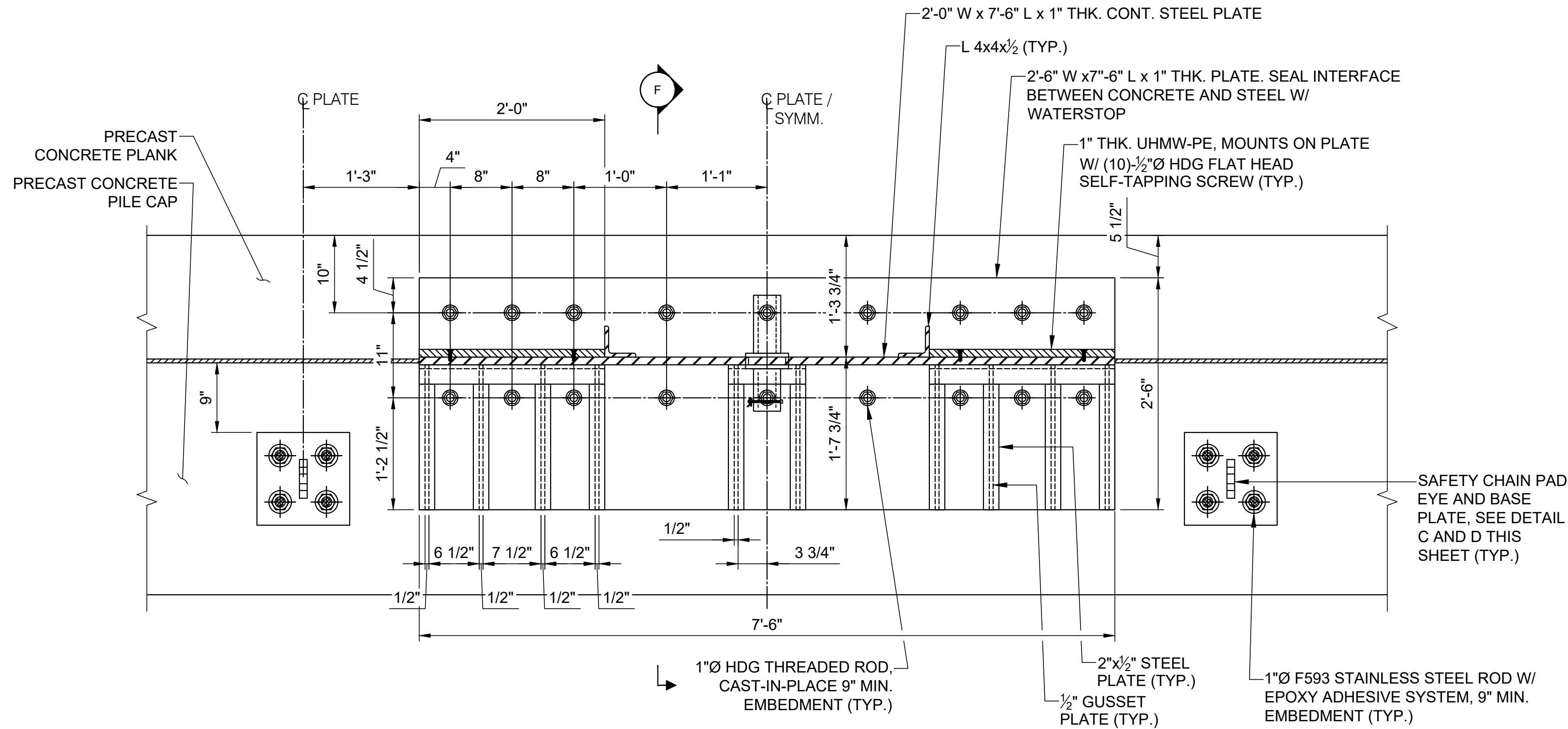
SHEET NO.
S-011

FOR PERMIT

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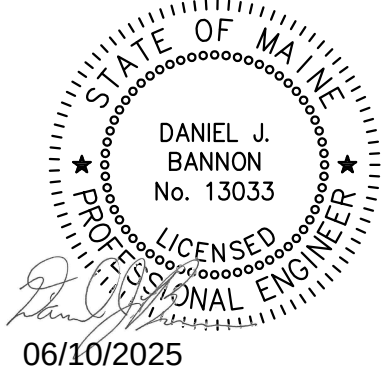
NOTE: CONTRACTOR TO DETERMINE ASSEMBLY LENGTH BASED ON PAD EYE LOCATION ON GANGWAY SUCH THAT UHMW-PE SHOE CANNOT MOVE OFF THE SUPPORTING PLATE.



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

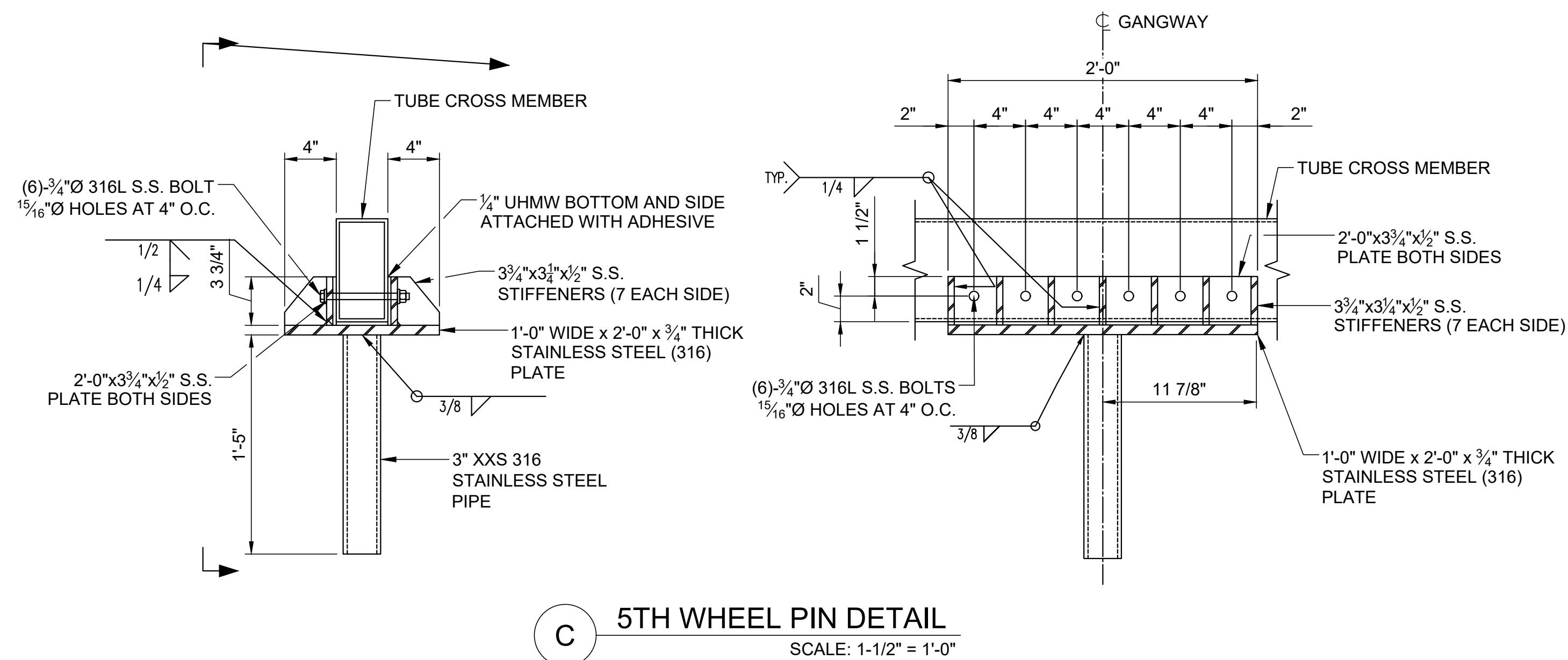
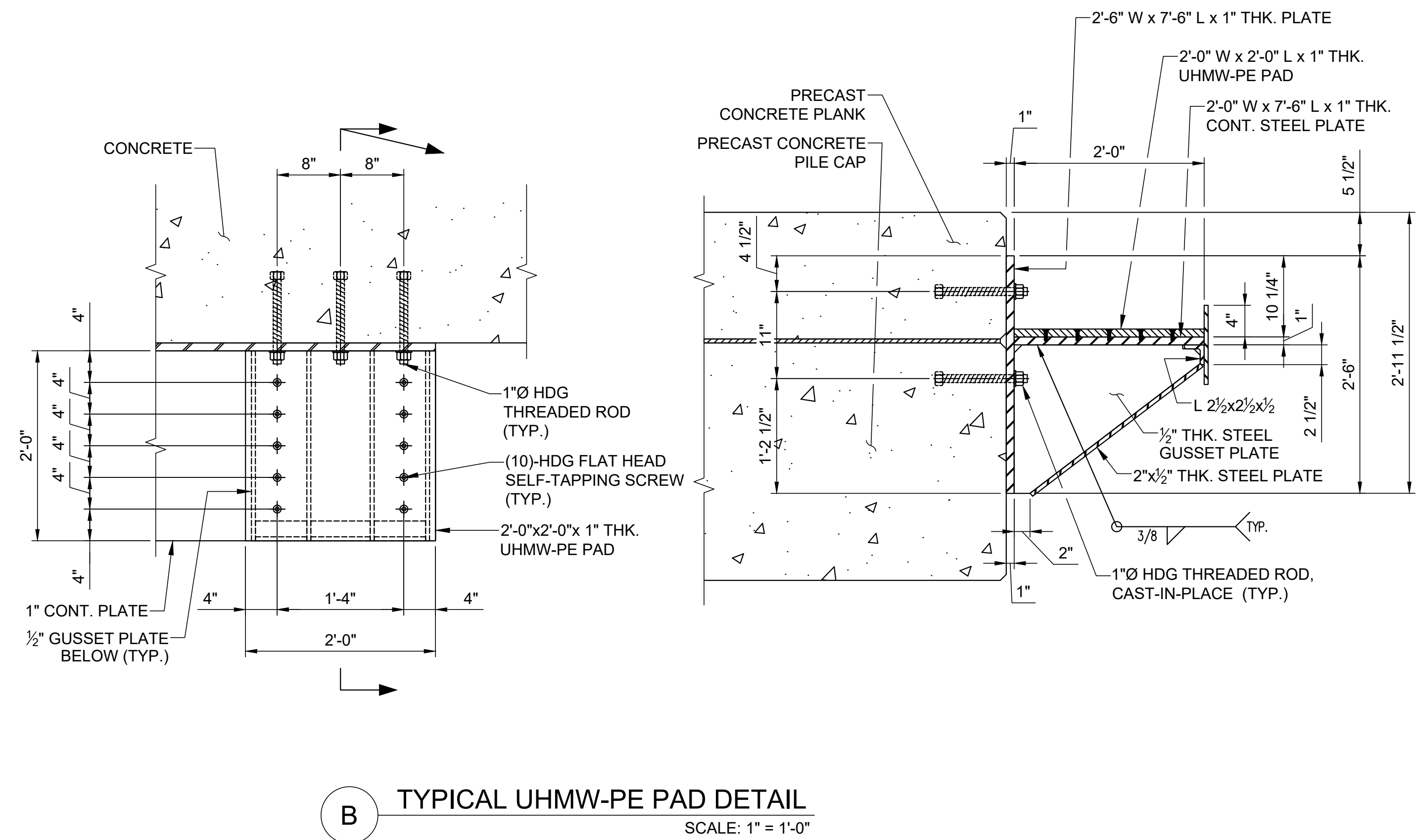
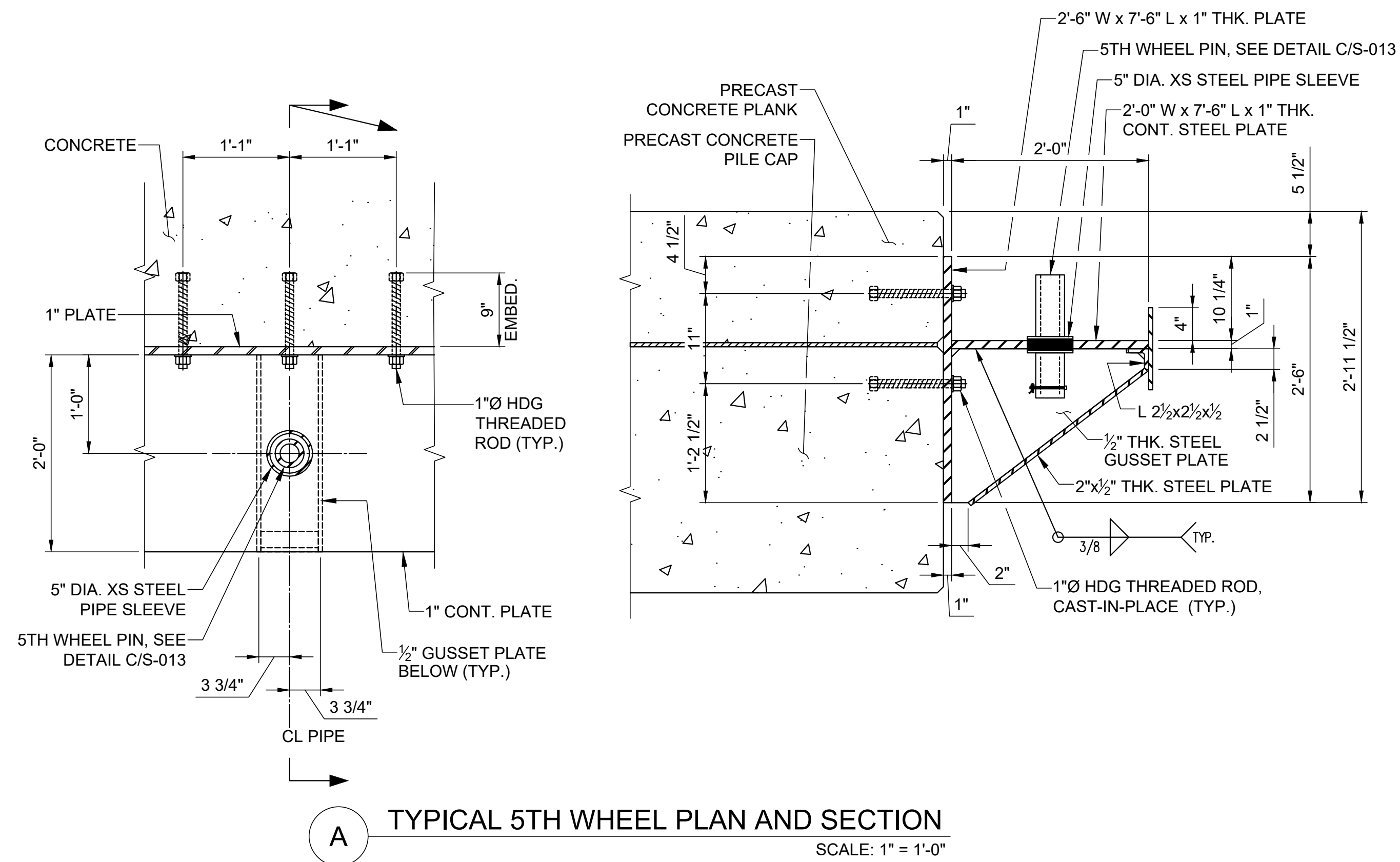
UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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
MISCELLANEOUS
DETAILS (4 OF 5)

SHEET NO.
S-012

FOR PERMIT

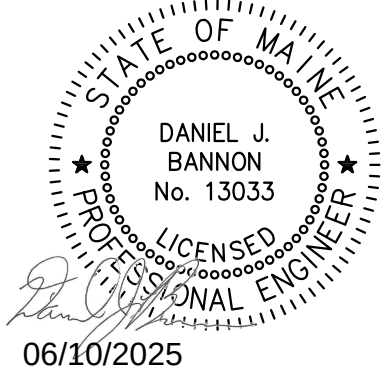


ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

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

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

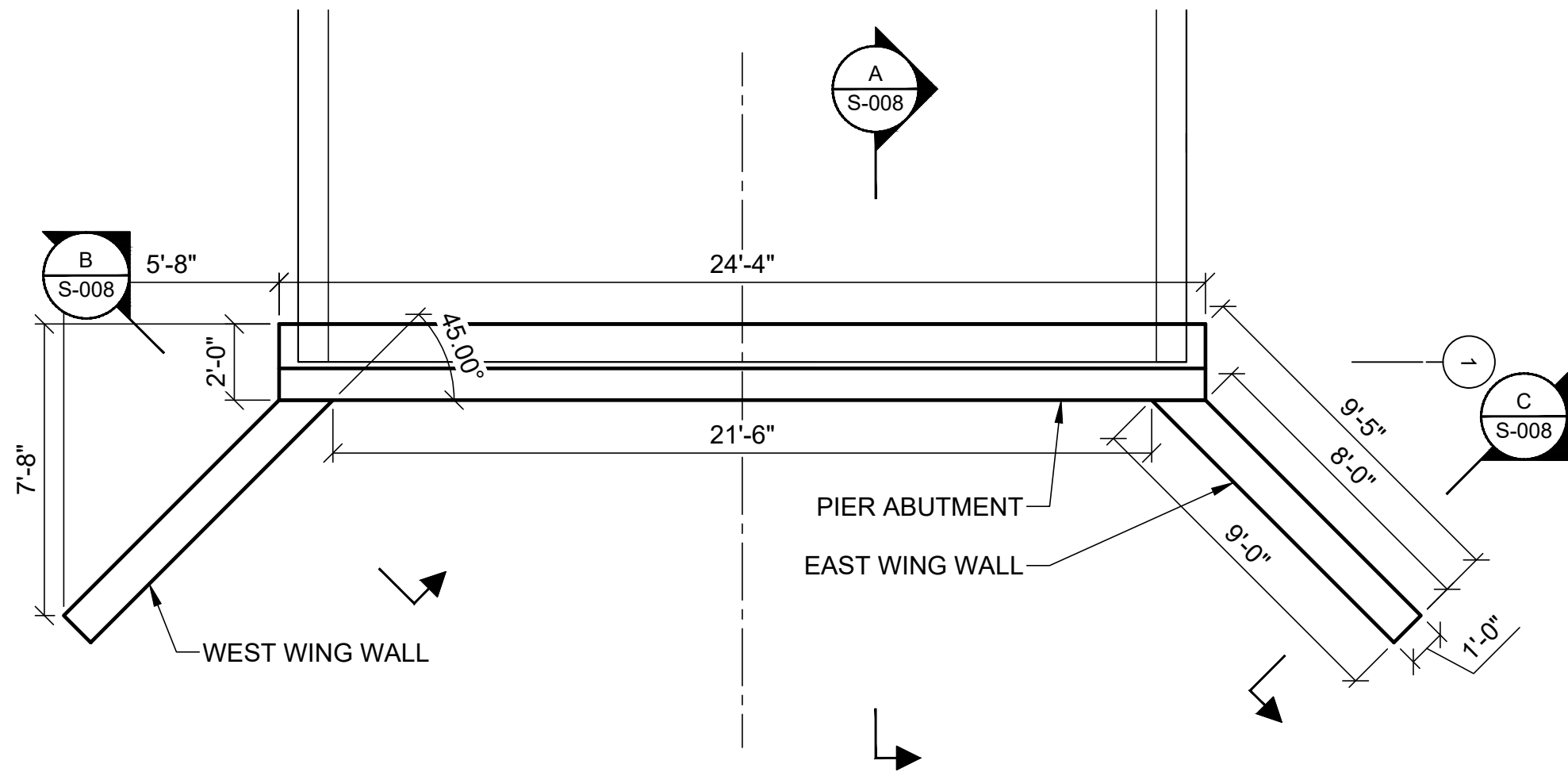
**MISCELLANEOUS
DETAILS (5 OF 5)**

SHEET NO.

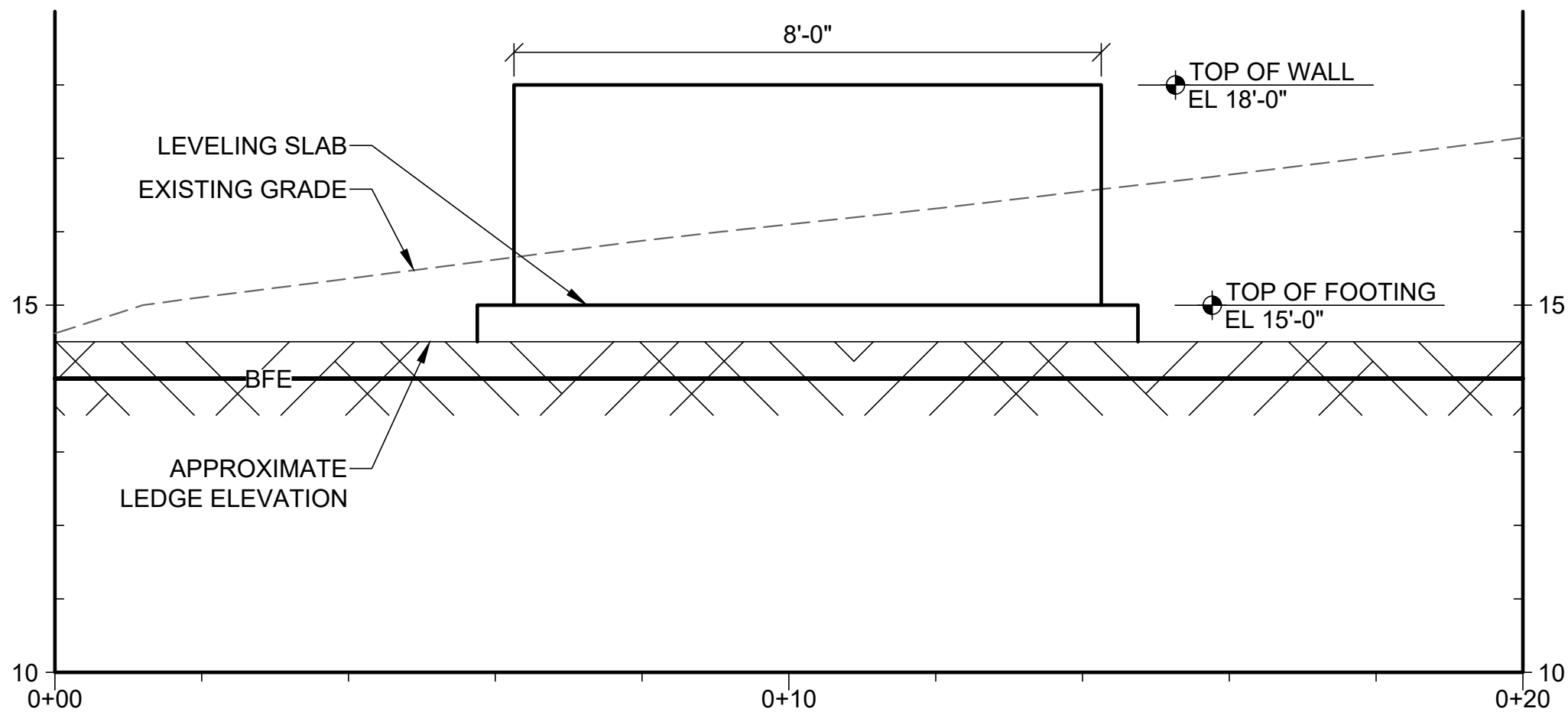
S-013

FOR PERMIT

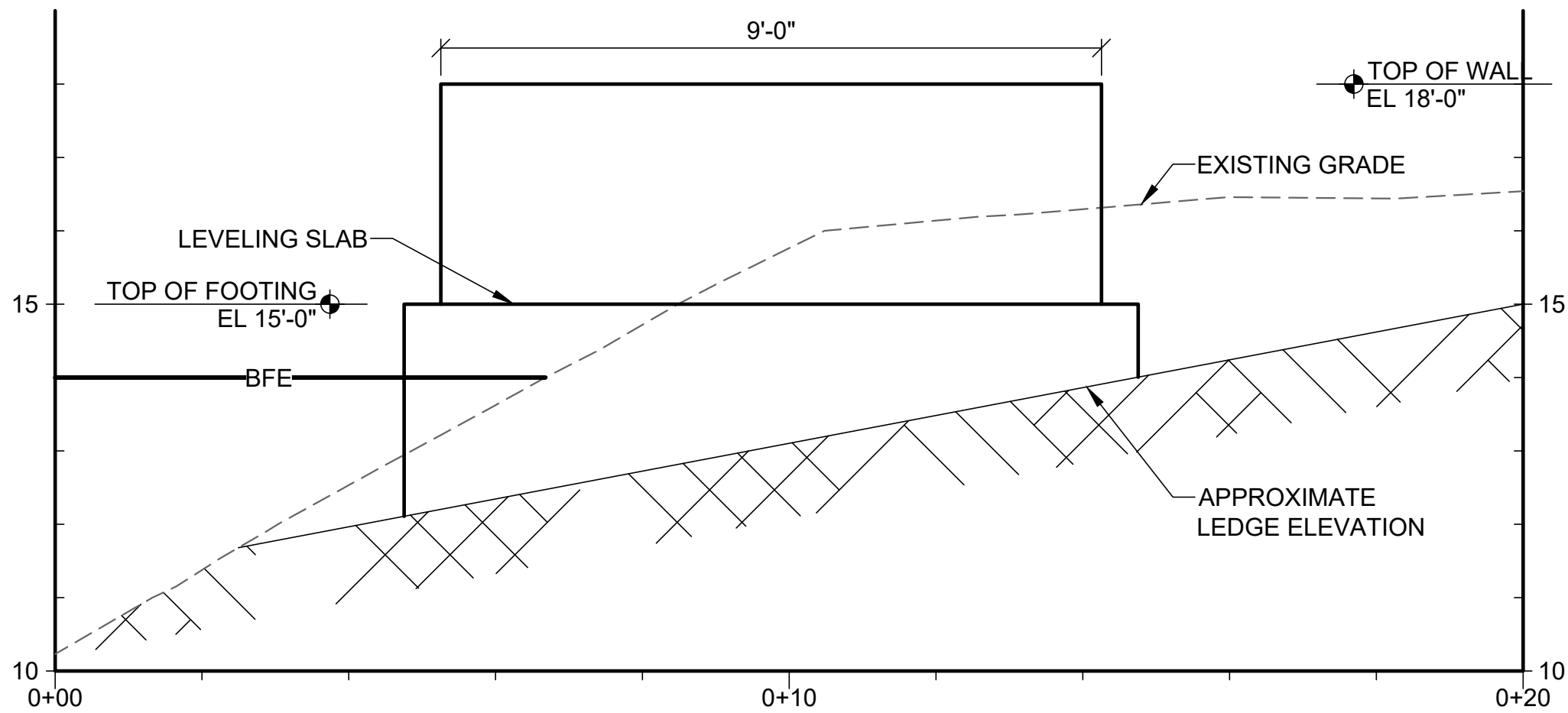
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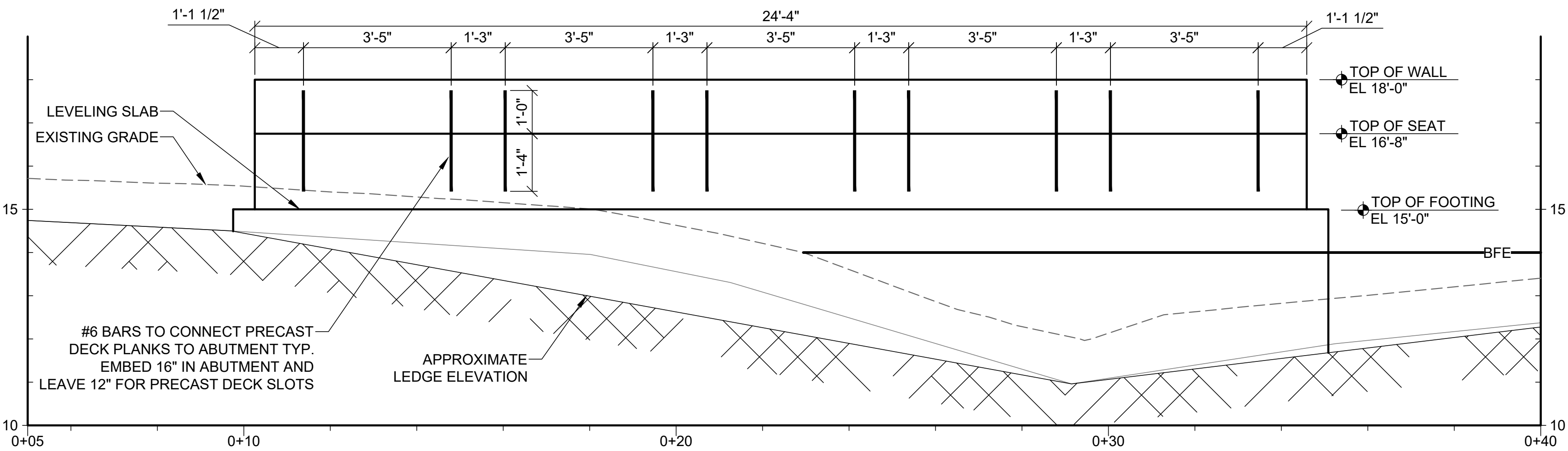
ABUTMENT PLAN
SCALE: SCALE: 3" = 1'-0"



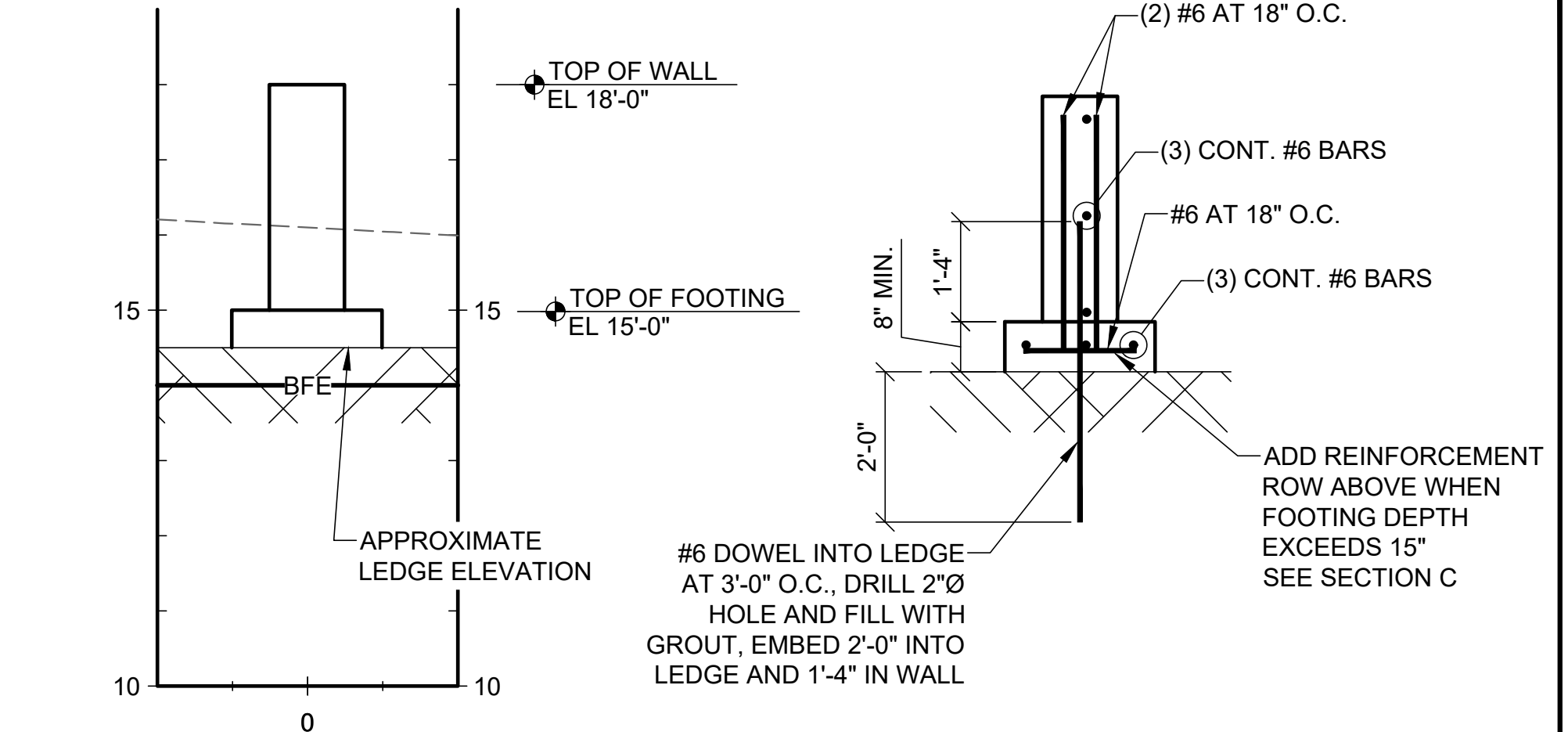
WEST WING WALL ELEVATION
SCALE: 6" = 1'-0"



EAST WING WALL ELEVATION
SCALE: 6" = 1'-0"

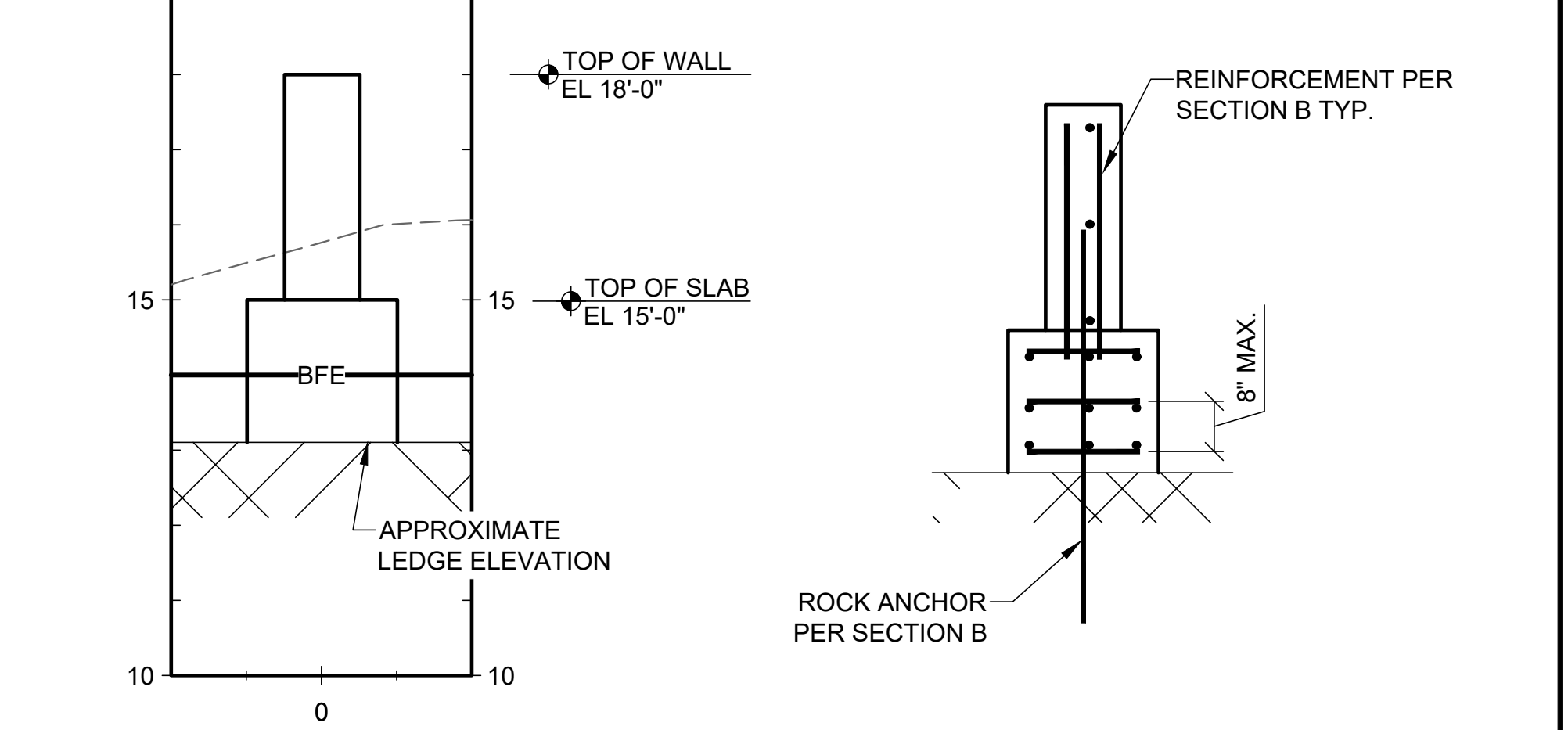


ABUTMENT ELEVATION A
SCALE: 3" = 1'-0"



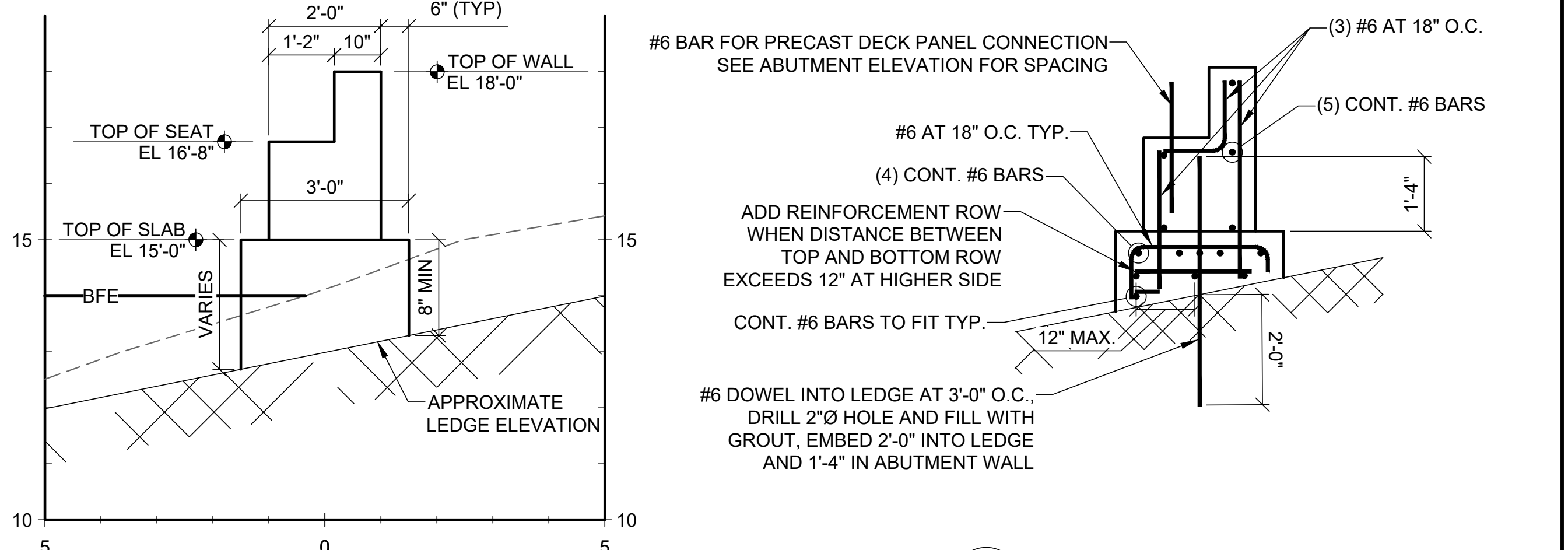
WEST WING WALL SECTION
SCALE: 6" = 1'-0"

SECTION
WEST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"



EAST WING WALL SECTION
SCALE: 6" = 1'-0"

SECTION
EAST WING WALL REINFORCEMENT
SCALE: 6" = 1'-0"



ABUTMENT SECTION
SCALE: 6" = 1'-0"

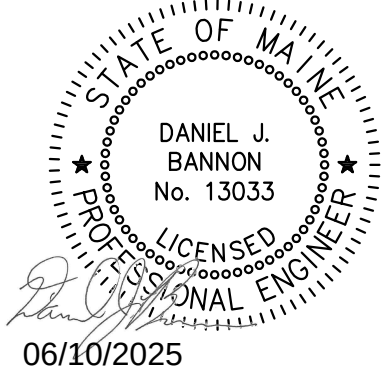
SECTION
ABUTMENT REINFORCEMENT
SCALE: 6" = 1'-0"

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

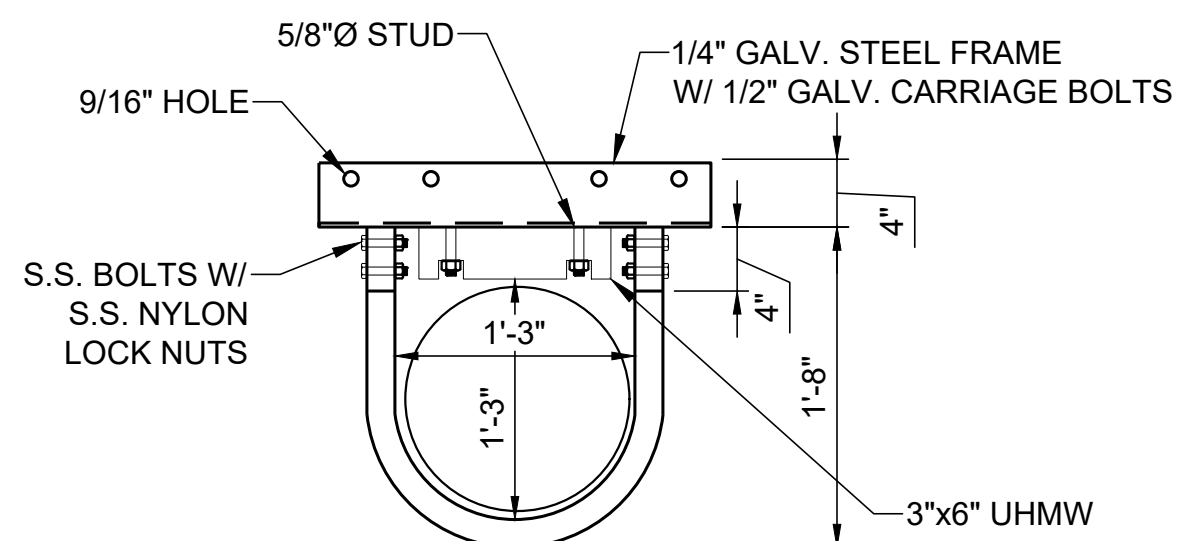
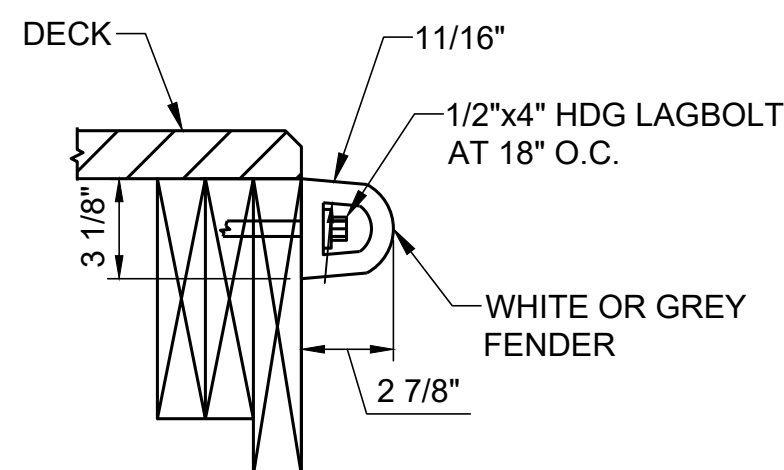
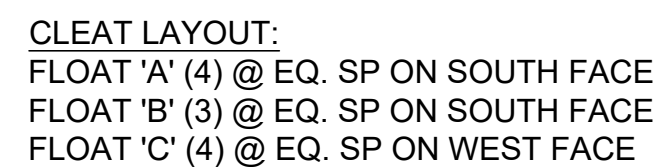


11 HILLS BEACH RD.
BIDDEFORD, MAINE

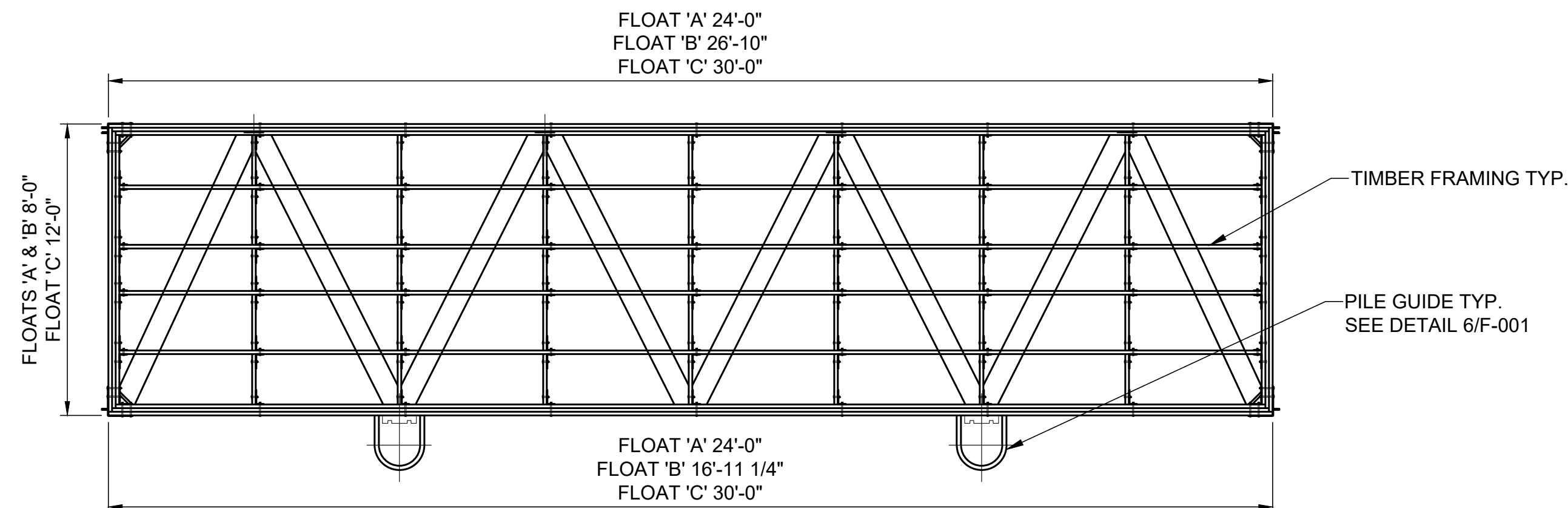
**UNIVERSITY OF
NEW ENGLAND
MARINE SCIENCE CENTER
PIER**
11 HILLS BEACH ROAD
BIDDEFORD, YORK COUNTY, MAINE

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

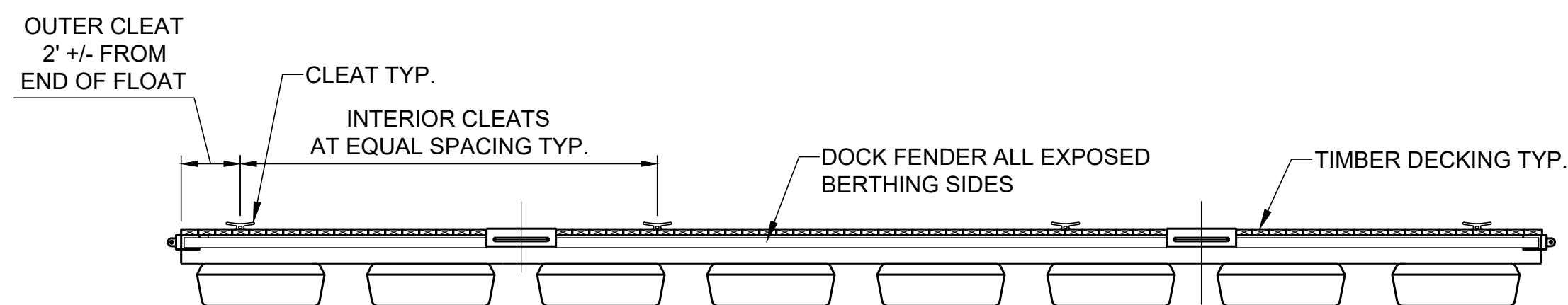
SHEET NAME	SHEET NO.
ABUTMENT DETAILS	S-014



PILE GUIDE LAYOUT:
 PROVIDE PILE GUIDES AT ALL TIMBER PILE LOCATIONS
 FLOAT 'A' (3) REQ
 FLOAT 'B' (4) REQ
 FLOAT 'C' (4) REQ

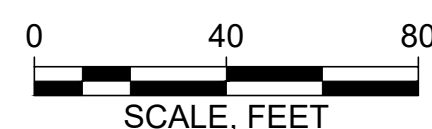
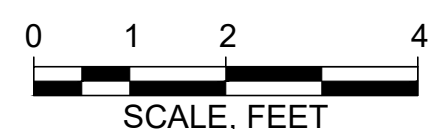
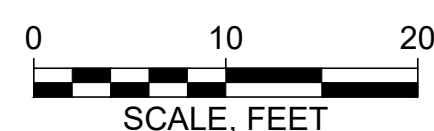
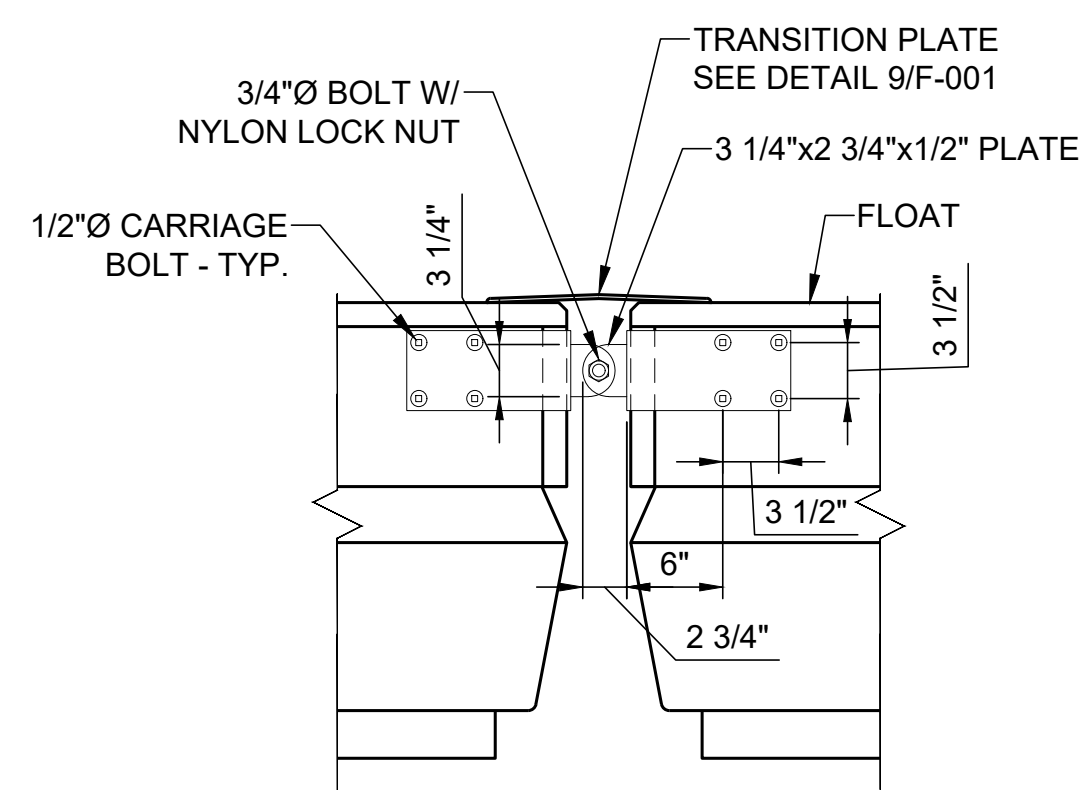
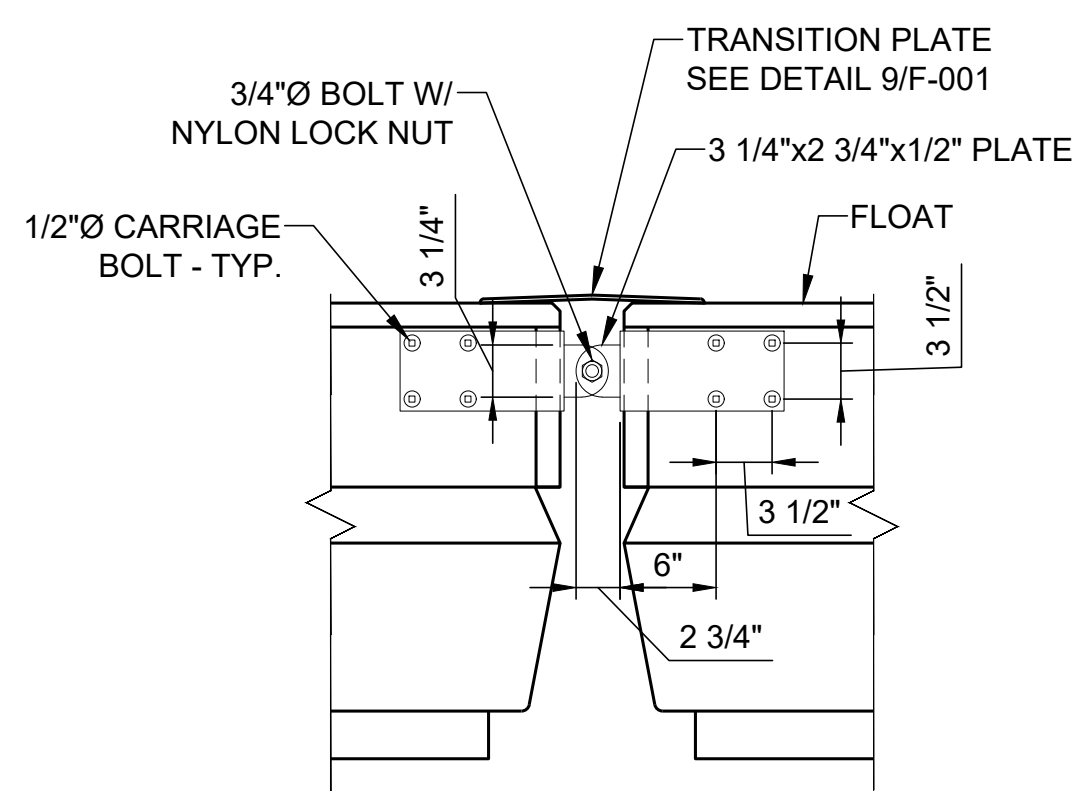
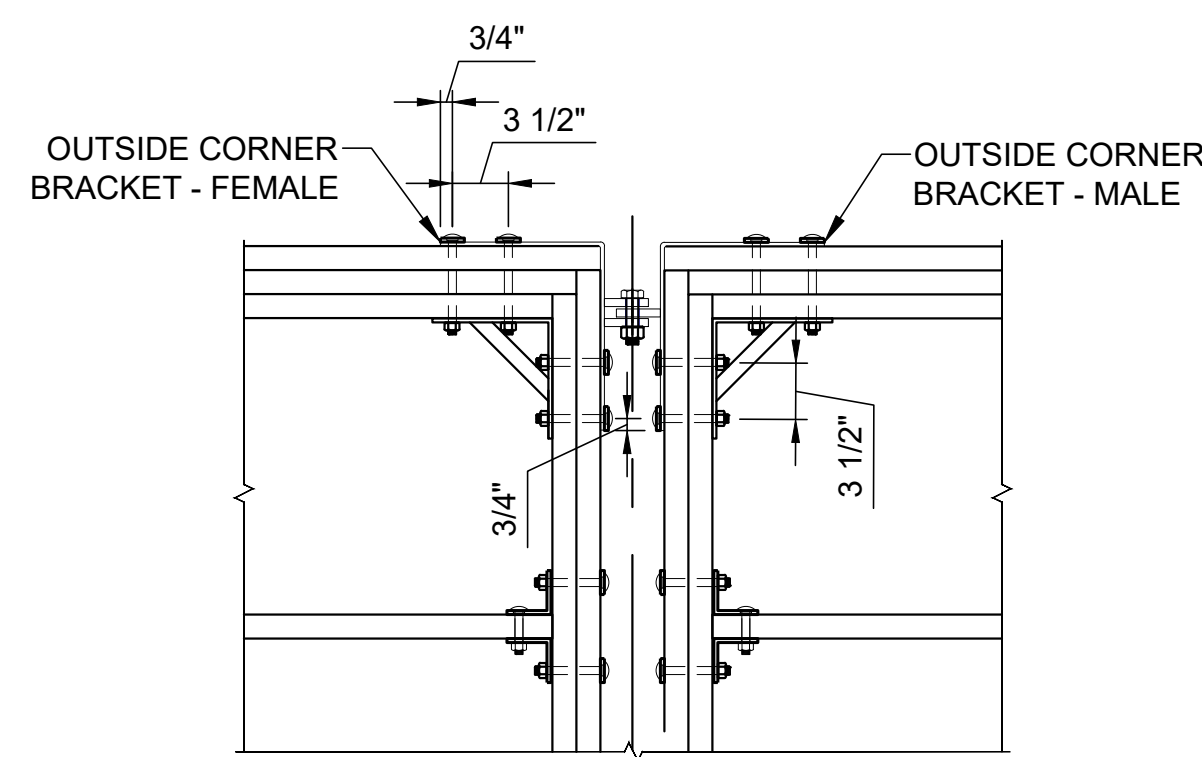


NOTES:
1. CONTRACTOR/FABRICATOR TO DETERMINE ACTUAL MEMBER SIZES PER LOADING REQUIREMENTS.



NOTES:

1. FLOTATION UNITS SHOWN ARE FOR GRAPHIC REPRESENTATION ONLY, CONTRACTOR/MANUFACTURER SHALL DETERMINE SIZE AND QUANTITY PER LOADING REQUIREMENTS.



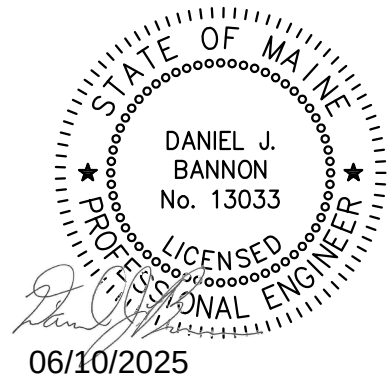
ELEVATION	MLLW	NAVD88*
BFE	+19.0	+14.0
HAT	+11.6	+6.6
MHHW	+9.7	+4.7
MHW	+9.3	+4.3
MSL	+4.8	-0.2
MLW	+0.3	-4.7
MLLW	0.0	-5.0

*PROJECT DATUM

Attention:

1"

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

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
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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

**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 to 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.

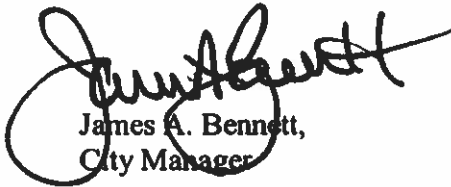
I have also notified the Assistant Harbormaster, by copy of this communication, that he, because of the close working relationship and your admitted role of training him, that he will not be able to be the administrative hearing officer in this matter.

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,



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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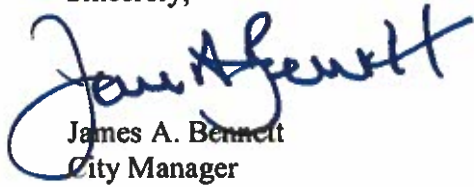
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Diana Depaolo, Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

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

**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:	
MAILING ADDRESS	CELL TEL:	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 *180* DATE RECEIVED _____ NEXT INSPECTION DUE DATE _____

BY _____

CHECK/MONEY ORDER # _____ CASH

Whitten, Nan

From: Fishing Woes <fishingwoes@gmail.com>
Sent: Monday, July 28, 2025 12:12 PM
To: attorney.general@maine.gov
Subject: UNE's desired pier location unavailable

Caution: This is an external email. Please take care when clicking links or opening attachments.
When in doubt, contact the IT Department

----- Forwarded message -----

From: Fishing Woes <fishingwoes@gmail.com>
Date: Mon, Jul 28, 2025 at 12:06 PM
Subject: UNE's desired pier location unavailable
To: <jherbert1@une.edu>
Cc: <wmtw@wmtw.com>, <tvmail@wgme.com>, <desk@newscentermaine.com>, <srichelieu@metln.org>, <dinamendros@gmail.com>, <newsdesk@sacobaynews.com>

Mr. Herbert:

On May 27, 2025, you sent a broadcast email to the community asking that we contact you “with any questions” about UNE’s pier application. The mooring owners wrote to you in early July with one question. Consistent with how UNE treats this community, you did not reply.

Mooring owners have been told by city officials that there are no plans to relocate any moorings. Mooring owners informed UNE several times that they are not moving. That remains true. The place on the Saco River that you want for your new pier remains unavailable to you.

Alan Thibeault recently told a reporter that Biddeford now needs to “work with mooring owners to relocate the two impacted moorings.”

That won’t be happening. And so therefore the president of UNE is asked once again. When, against whom, and on what legal basis will you be filing litigation to bulldoze mooring owners out of the way?

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Thursday, July 24, 2025 9:47 AM
To: Grohman, Martin
Cc: Randy Seaver; srichelieu@metln.org; Dina Mendros; newsdesk@sacobaynews.com
Subject: UNE pier: two final questions

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Good morning, Mayor Grohman.

As you know, I resigned from the harbor commission just over a year ago, seeking more transparency in the regulatory review of UNE's proposed pier for the Saco River. At one point you invited me to your office to discuss the matter, along with the city attorney. Thank you for that opportunity.

The planning board will soon vote to grant final approval to UNE's application. The result of that impending decision is that no professional, who knows the river and works for the city, ever approved this application after personally getting onto the river to evaluate current, river depth, wind, extreme storms, tides, other moorings, and so forth. (Nor did any state or federal regulator.) That was a gaping hole in the Biddeford's regulatory process. You are probably aware that UNE neighbors and those who use the river, both in Biddeford and Saco, are now bitter and angry about the flawed regulatory process that actively excluded local knowledge of the river. They are especially upset about the former city manager's role in facilitating events that gifted UNE the upper hand. It's hard to believe that's the way things were allowed to happen, right to the very end. As you prophesied in the Saco Bay News a year ago, "At this point they (UNE) are holding all the cards."

I read in the Biddeford Gazette that you are running for re-election. Congratulations. Coincidentally, your first mayoral term ran almost concurrently with the UNE controversy from start to finish. A few days ago, in anticipation of final success before the planning board, Alan Thibeault told the Saco Bay News, "...the city will then need to work with mooring owners to relocate the two impacted moorings." I am winding down my personal involvement in this issue, but before I (eagerly) retire as a community organizer, I have two questions to ask on behalf of my friends and neighbors.

As Biddeford's top government leader, you have been privy to policy and strategy discussions during the last two years. As I understand the current situation the mayor has no power, we don't have a city manager, the former city manager obliterated the relevance of the harbormaster, the assistant harbormaster, and the harbor commission, and the mooring owners have made it clear that they're not going to move. UNE holds all the cards and wants to start construction this fall. Can you tell me (and the voters) what person now working for the city will boot the mooring owners from the spots on the river that they have lawfully held for many years? The second question is, what city authority will direct the city's agent to take that action, and give those mooring locations to UNE?

Thank you very much. I ask these two questions not only as the former chair of the now crippled and dormant harbor commission, but as a voter who proudly displayed a “Grohman For Mayor” sign on my lawn in the Fall of 2023. I look forward to your reply.

Sincerely,

John Schafer
Hills Beach, Biddeford, Maine

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Wednesday, July 23, 2025 9:17 AM
To: Lewis, Kayla; Angers, Roch; Beaudette, Stephen;
susan.deschambault@biddefordmaine.org; Patoine, Larry; Plotkin, Alexa; Dubois,
Matthew; Galbraith, David
Cc: Whitten, Nan; Randy Seaver; srichelieu@metln.org; Dina Mendros;
newsdesk@sacobaynews.com
Subject: UNE pier: final submitted comments

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Dear Biddeford Planning Board:

I have written and sent this email to you on Wednesday, July 23, 2025. As of this morning, no future Planning Board meeting is scheduled on the city's website. Encouraged by Mr. Galbraith's articulation of his department's complete transparency at the last Planning Board meeting, I would like to respectfully make a request.

At the future Planning Board meeting during which UNE will seek final approval for its new pier, could Mr. Galbraith, the Chair, or a Member of the Board please read my remarks into the record, so that those watching at home can know that the Board is fully aware of this information before it votes. Thank you very much for the consideration. My testimony:

Preparation of litigation against the City of Biddeford, to be filed after the Planning Board grants final approval to the University of New England (UNE) for a new marine sciences research pier, is easily based on an undisputed set of facts.

It is the duty of each Member to fully review all information and testimony supplied to the Board. Therefore, all three Members of the Planning Board who voted to grant preliminary approval to UNE's application were aware of these facts on July 16, because they were available in emails and documents contained in the packets of information that were supplied to the Board, and in public testimony given to the Board.

On July 16, 2025, the three Members who voted in the affirmative knew each of the following to be true.

1. Mr. Patoine requested a copy of the application that UNE filed with NIST, and UNE refused to provide it.
2. Daryen Granata, Vice President & Training Coordinator for the Maine Harbor Masters Association, wrote to the city manager on June 4, 2024, "Section 74-35b of the Biddeford Harbor Ordinance 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.”

3. In the same email, Mr. Granata wrote, “We recommend that you work within the review hierarchy laid out in your harbor ordinance.”
4. In the same email Mr. Granata laid out the normal “chain of command” for municipal regulatory review of UNE’s application: harbormaster, or assistant harbormaster, or finally, the harbor commission. None of these regulatory entities reviewed or approved UNE’s application.
5. In the same email, Mr. Granata described the city manager’s plan to circumvent normal regulatory review as “inconsistent with the prevailing law.”
6. On July of 2025, Mr. Granata confirmed in writing that, “The Maine Harbor Masters Association has no record of Mr. Wayne Duffett attending Basic Harbor Master Training and Certification.” In other words, the vendor that Jim Bennett hired while trying to circumvent Biddeford’s municipal regulatory process, as outlined in Section 74-35b of the Biddeford Harbor Ordinance, is not a certified harbormaster in the State of Maine.
7. On June 11, 2025, Alan Thibeault of UNE confirmed in a letter to the city planner, “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.”
8. In the same memo, Mr. Thibeault cited language from Section 74-35(d) and wrote “...the Harbormaster shall...sign off that all regulatory approvals have been obtained for construction.” Wayne Duffett is not a harbormaster in Biddeford, or anywhere. Paul Lariviere remains Biddeford’s harbormaster. Mr. Lariviere has not “signed off” on any such document.
9. On June 25, 2024, Heather Stukas of the U.S. Army Corps of Engineers instructed her colleagues to “follow-up” to make sure the latest UNE location and design was acceptable to Biddeford’s harbormaster, and that never happened.
10. In its application UNE argued strenuously that pier location was previously approved by virtue of a previous Board’s approval of a Master Plan. UNE’s argument was specious. Everyone knows approval of a conceptual Master Plan is not Planning Board approval of a specific application.
11. There can be no doubt about the previous fact. That’s why the city manager wrote to UNE on August 19, 2024, “While I don’t believe it is necessary, let me emphatically 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.”
12. Finally, the three Board members voting to approve the application on July 16, 2025 knew that Biddeford’s delegate to the Saco River Corridor Commission abstained from all discussion and voting on the application, leaving Biddeford residents completely unrepresented. The DEP Commissioner refused a request for a public hearing. No certified harbormaster reviewed or approved the application. UNE made sure the public was not invited to the site survey it conducted for the Bureau of Submerged Lands. Perhaps most maddening of all, the U.S. Army Corps of Engineers notified Biddeford residents that voluminous testimony and documentation that had been submitted to that agency was summarily discarded.

The items listed above are a set of facts, not opinions. Included in that set of facts is the conclusion by the Maine Harbor Masters Association that Biddeford's intentional deviation from its harbor ordinance was "inconsistent with the prevailing law." To use language that is more direct, it was illegal.

The Planning Board was specifically warned not to deny the application based on currents, tides, water depth, and so forth. That is understood and not in dispute. But the Planning Board also knows that no independent professional has looked at these things, either. Therefore, we all know when the Board grants final approval tonight, nobody who knows the river will have considered those critical factors. Through no fault of its own, the only information the Planning Board had was submitted by UNE's paid engineers, sitting behind computers.

The Code of Ethics guides the Board to "explicitly evaluate all facts, alternatives, means, and consequences relevant to its decisions." One of those facts is that the Planning Board knows that no professional who knows the river, working for the city, has ever approved this application after evaluating current, river depth, tides, other moorings, and so forth. Nor has any state or federal regulator. That is a gaping hole in the regulatory process. Any proof of such a critical examination of those physical realities, by a certified and experienced independent authority, is missing from the application. The Board is aware of this.

Nevertheless, the vote tonight won't be to table the application until that gaping hole is filled. It will be --- knowing what the Board knows --- to approve the application. That needs to be made clear to all parties concerned, especially the people of Biddeford. I appreciate you introducing this set of facts into the public record.

In conclusion, I thank each Planning Board Member for your public service, and I also thank all Saco & Biddeford residents who have been relaying their concerns to me since the beginning of 2024. Those who actually know the river have a lot of practical wisdom.

Respectfully,

John Schafer
Hills Beach, Biddeford

Whitten, Nan

From: Public Affairs <publicaffairsinfo@gmail.com>
Sent: Tuesday, July 15, 2025 9:36 AM
To: randyseaver01@gmail.com; wmtw@wmtw.com; desk@newscentermaine.com; tvmail@wgme.com
Subject: River mariners challenge UNE president to reveal pier lawsuit

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River mariners challenge UNE president to reveal pier lawsuit

July 15, 2025

MEDIA CONTACT, MOORING OWNERS:

1. Capt. Shawn Tibbetts, captshawntibbets@gmail.com, 207-502-0368
2. Michael Ramunno, mramunno@maine.rr.com, 207-423-3650

(Biddeford, Maine) Because the spot on the Saco River that the University of New England (UNE) wants for a new pier is unavailable, to seize it the university will have to file a lawsuit to expel current mooring holders. Those who own the moorings want university president James Herbert to be transparent about the issue at a planning board meeting tomorrow night.

“We’re not moving, and we are certain the city will take no action to forcibly remove us from the moorings we’ve held for many years, in good standing and in good faith,” said Shawn Tibbetts, a commercial fisherman who owns a mooring on the river. “UNE has to stop tap dancing around this issue, and address it head on in front of the planning board.”

UNE wants to build a new marine sciences research pier on the lower Saco River, near where the river empties into the Atlantic Ocean. With the help of U.S. Senator Collins, UNE secured a \$3.5 million grant from the National Institute of Standards and Technology (NIST), to help with construction. But the local mooring holders already occupy UNE’s preferred location, and have for years.

Herbert wrote a broadcast email to the coastal community on May 27 and promised to answer “any question” about UNE’s pier proposal. The mooring holders wrote to Herbert about ten days ago and asked, “when, against whom, and on what legal basis will you be filing litigation to bulldoze mooring owners out of the way?”

Biddeford’s harbormaster says he has no plans to move any current moorings. That’s why Tibbetts and his fellow mooring holders are adamant that UNE can’t have the location they want. If the university fails to detail a plan to forcibly remove moorings, then UNE’s planning board application is incomplete. Tibbetts said an incomplete application is likely to be denied, and UNE can’t dodge the issue any longer.

“It is improper procedure to expect the planning board to approve an application in a location that is off limits. UNE has no power to assign, remove, replace or commandeer moorings, and Mr. Herbert has been aware of this issue since May 14th. The university’s had more than eight weeks to come up with a plan, and they haven’t done it. They have to answer the question --- who are they going to sue?”

The Biddeford Planning Board meets tomorrow, Wednesday, July 16, at Biddeford City Hall. The meeting begins at 6:00 p.m.

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Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Friday, July 25, 2025 9:31 AM
To: Randy Seaver; srichelieu@metln.org; Dina Mendros; newsdesk@sacobaynews.com; cfox@metln.org
Subject: Fw: A message to Ms. Plotkin & the Board

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I would like to thank our local reporters who worked so diligently to report on this story for the last year and a half. My final effort, to the Biddeford Planning Board this morning, is copied below.

Regards,

John Schafer
Hills Beach, Biddeford, Maine

----- Forwarded Message -----

From: Hills Beach John <hillsbeachjohn@yahoo.com>
To: alexa.plotkin@biddefordmaine.org <alexa.plotkin@biddefordmaine.org>
Cc: stephen.beaudette@biddefordmaine.org <stephen.beaudette@biddefordmaine.org>; roch.angers@biddefordmaine.org <roch.angers@biddefordmaine.org>; susan.deschambault@biddefordmaine.org <susan.deschambault@gmail.com>; kayla.lewis@biddefordmaine.org <kayla.lewis@biddefordmaine.org>; larry.patoine@biddefordmaine.org <larry.patoine@biddefordmaine.org>; matthew.dubois@biddefordmaine.org <matthew.dubois@biddefordmaine.org>
Sent: Friday, July 25, 2025 at 09:17:42 AM EDT
Subject: A message to Ms. Plotkin & the Board

Good morning, Alexa.

With this message, I conclude my personal involvement trying to bring sunlight and open discussion to the UNE pier issue.

I want to apologize to you personally for losing my cool at the July 16 planning board meeting. I'm sure you could see that something got under my skin, but...no excuse. I put you in a tough spot, and I didn't mean for that to happen. Further, I cost myself the opportunity to support the astute observations of Members Angers and Lewis about the fundamental flaws in this particular regulatory review process. I apologize to both of them as well for being of little help on that particular evening.

At the end of my three minutes at the podium I had intended to make what I felt were some important and honest comments. Although I sharply disagree with the logic articulated that evening in favor of the application's approval, I would like to deliver my comments to you now. They still hold true. And they apply to the entire planning board, and certainly to you as Chair.

Your process was the most democratic thing I've seen in a long, time. That's democratic with a small "d." Right at the start we heard about your Code of Ethics. Everything was transparent, and

participation by local folks was amazing. Everyone who wanted to do so was allowed to supply information, and felt very welcomed to approach the podium. All planning board members were paying attention, and I strongly believe all members researched and deliberated with integrity.

In the democratic process with a small “d,” everyone gets to say their piece and then a decision is made. Although your decision did not go the way I had hoped, I certainly respect it. Because what you folks put together was an inclusive model exercise in local democracy. You were the only regulatory agency to welcome and seriously consider citizen input, and that is to your credit.

I wish you and each planning board member the best, and I hope you all enjoy what remains of this fabulous summer weather.

Sincerely,

John Schafer
Hills Beach, Biddeford, Maine

Whitten, Nan

From: Hills Beach John <hillsbeachjohn@yahoo.com>
Sent: Wednesday, July 30, 2025 10:02 AM
To: Grohman, Martin
Cc: Randy Seaver; tvmail@wgme.com; wmtw@wmtw.com; desk@newscentermaine.com; newsdesk@sacobaynews.com; sean.a.murphy@charter.com; josh@themainemonitor.org; kate@themainemonitor.org; micaela@themainemonitor.org
Subject: Official request for "credible news" about UNE pier

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Dear Mayor Grohman,

This is Day 7, and no answers. I'm astonished that your choice, as a declared candidate for office, was to just ignore the two questions I posed to you a week ago.

On May 5, 2025, the Biddeford Gazette published an article, "Mayor defends city review of UNE pier proposal." That review purposefully excluded the professional knowledge of local experts who know the river, and you aren't on the record anywhere as having argued that local knowledge of the Saco River should have been considered. You and your Administration successfully pulled the right levers leading to final approval for the pier, and I've got to tip my hat to you. You outmaneuvered local opposition to UNE's preferred location, and we were no match for you.

Of course, the only thing you can't do now is run away from your success. On behalf of the community members to whom I report, I repeat two questions to the man who wants to be re-elected to Biddeford's top leadership position.

1. What person now working for the city will boot the mooring owners from the spots on the river that they have lawfully held for many years?
2. What city authority will direct the city's agent to take that action, and hand over those mooring locations to UNE?

This is not some theoretical exercise. These are two legitimate and pressing questions that need to be answered now, because Alan Thibeault told the Saco Bay News that UNE wants to begin construction this fall. Your job is to sweep those mooring owners out of the way, and soon.

Hard to believe, but at the symposium on local news last night at McArthur Library you said, "I'm constantly looking for credible news. With so many different things online, it can be difficult to find credible news." This is your opportunity to relay credible news to your constituents. You have been asked two questions, and I look forward to passing on your answers to those who want to stay informed.

Sincerely,

John Schafer
Hills Beach, Biddeford, Maine

P.S. I have made sure to copy The Maine Monitor and the Saco Bay News to this email.

Whitten, Nan

From: Angers, Roch
Sent: Tuesday, August 5, 2025 7:51 PM
To: Planning Board; Center, Harry; Galbraith, David; Whitten, Nan; Iriqat, Adi; Grohman, Martin; LaFountain, Liam; Lessard, Marc; Ortiz, Doris; Emhiser, William; Whiting, Scott; Beaupre, Rogerp; Doughty, Dylan; Gross, Neva; Belanger, Norman; Phinney, Brian
Cc: angersroch@gmail.com
Subject: My statement at the council meeting on Tuesday night

Good Evening: My name is Roch Angers and I live at 26 Cathedral Oaks Drive in Biddeford.

Some of you may know me but others may not. I was a former city councilor & volunteered & appointed to the Planning Board by this present Mayor and this council. My term expires in 17 months. I want to make sure that you know that I am not representing the planning board but giving you my own opinion and only my opinion.

I would like to bring something up about the Pier project at UNE. This project I believe has some real hard questions to be answered and I believe it is tainted. UNE as far as I am concerned has not been transparent with the public and the mooring owners and have not been given the time of day during this whole process.

Why was UNE so quiet in its presentation to the Army Corp of engineering? Nobody got notified and found out later that no public comment was to be allowed. Why were they not up front about the DEP presentation and letting people know they were going to present their plans about the Pier? Saco River Corridor had their meeting and lo and behold the members from the City of Biddeford and the alternate were not present to vote on this matter. Something fishy!!!! Don't you think?

The Code of ordinances States in Chapter 74 Waterways Article 2 Harbor Division 2. Harbor-master Section 74-51 Criteria.

The Criteria for the Harbormaster is as follows

- 1. Must be a voting resident of five years**
- 2. Must have at least five years of marine experience with a minimum of two years on the ocean**
- 3. Must attend annual Maine Harbormasters Association training seminar.**

The Harbormaster in the city website is Mr. Lariviere. He was removed by the City manager on the pier issue as he was told that he was biased on the UNE project and that someone else would make the decision in his place.

Well lo and behold the City manager at the time appointed a railroad engineer in his place to become the facilitator of this project. This person does not meet the criteria of the code of Ordinance for the city of Biddeford Chapter 74 Article 2, Harbor Division 2 Harbormaster Waterways or State of Maine MRS Title 38 Chapter 10 operations of Vessels of the State of Maine. I was told by our City Solicitor Harry Center that the railroad engineer was not a voting resident of five years, and he did not have five years of Marine experience with a minimum of two years on the ocean and never attended Annual Maine Harbormaster

Association training seminar. I was told this 2 weeks ago at the planning Board meetings and documented in the minutes of the meeting. These are the Biddeford codes of ordinances & Maine State Title 38 Subsection 2 that you as council members must follow and the planning board should follow also. These statutes from Maine and the ordinances are not written on a whim!! They were written for a purpose to follow the law. We are supposed to follow those LAWS.

Tomorrow night at the planning board meeting I am going to try to table this vote on the UNE Pier. My reasoning is this as I think that the council should be making this decision as a whole as you are the representative of the city and you are the ones who make policy decisions and make sure laws are abided to. I am not trying to tell you what to do but asking that if and maybe if this passes at the Planning Board that you take a hard look at this Pier project and ask yourself if everything is on the up and up. I cannot understand why you as council members were never informed about this project. It should have started with you as a council and not just the Mayor. Thank you for letting me speak in front of you tonight with my concerns. Speaking as a taxpayer of the City of Biddeford.

Thanks for your time

Roch A Angers

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Whitten, Nan

From: matthew1@maine.rr.com
Sent: Tuesday, August 5, 2025 3:26 PM
To: Whitten, Nan; Plotkin, Alexa
Subject: UNE comments
Attachments: COB final.docx

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I am submitting the following for the 8/6 planning board meeting regarding the UNE project.

I have spoken regarding the UNE project 3 times and have yet to receive a single answer to any of my questions. I am again requesting the Board, who are the final decision makers to answer these questions related to Biddeford's Shore land zoning ordinance:

Section 1. Purposes. [Ord. of 9-15-1998(4)]

The purposes of this ordinance are to:

to protect fish spawning grounds, aquatic life, bird and other wildlife habitat;

to protect commercial fishing and maritime industries; This project does not help me as a Maine guide or any of the working fisher people. It will negatively impact us.

to conserve shore cover, and visual as well as actual points of access to inland and coastal waters; to conserve natural beauty and open space; We all use this area to access the river, the beach and the fish. **How does this project conserve natural beauty and open space?**

SZO sec 15 part C 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

The site walk was helpful to appreciate the size and scale of this project. Speaking of scale, this site walk confirmed that the numerous regulatory requirements make this so massive it is no longer meet Sec 15c. **What is the next largest privately owned dock comparable in size that supports this requirement under the ordinance? ON what basis does the UNE project meet this standard?**

Sec 15 sec 10a 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.

The entrance will be a 20' road (not ` 12 per the law), combined with the turn around and the building as a backdrop will rip open the vegetation to a massive scale. Fire department requirements conflict with an ordinance, the ordinance-the law- still stands. **How is the project in compliance with this requirement? How is the city reconciling the SRCC approval of a 16' road, vs the 20' road being proposed?**