

City of Biddeford

Planning Board

February 02, 2022 6:00 PM Zoom: Feb 2, 2022 06:00 PM Eastern Time (US and Canada)

Topic: Planning Board

Please click the link below to join the webinar:

<https://biddeford.zoom.us/j/96643944993?pwd=cTNkZUcycTBRSDdtTWxqQitGL1BrQT09>

Passcode: 561201

Or One tap mobile :

US: +13017158592,,96643944993# or +13126266799,,96643944993#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

**US: +1 301 715 8592 or +1 312 626 6799 or +1 646 558 8656 or +1 253 215 8782 or +1
346 248 7799 or +1 669 900 9128**

Webinar ID: 966 4394 4993

International numbers available: <https://biddeford.zoom.us/j/96643944993>

- 1. DECLARATION OF QUORUM/VOTING MEMBERS**
- 2. ADJUSTMENTS TO THE AGENDA**
- 3. PLANNER'S BUSINESS**
- 4. CONSENT AGENDA**
 - 4.A. Approval of Meeting Minutes of January 19, 2022
[PB Minutes 011922-DRAFT.pdf](#)
 - 4.B. Approval of Meeting Minutes of January 26, 2022
[PB Minutes 012622 Workshop-DRAFT.pdf](#)
- 5. UNFINISHED BUSINESS**
- 6. NEW BUSINESS**
 - 6.A. 2022.01 Conditional Use Permit & Shoreland Zoning Permit for The City of Biddeford for Replacement of a Pump Station at 432 Main St. & 20 Horrigan Ct (Tax Map 34, Lot 16 & 16-1) in the B1 & GD-2 Zones.

[1 2022.01 20 Horrigan Ct Pump Station SR.pdf](#)
[2 2022.01 20 Horrigan Ct Pump Station FOF.pdf](#)
[3 Horigan's Court Application and Supporting Docs.pdf](#)
[4 12223G-Combined100PercBid-20211217.pdf](#)
 - 6.B. 2021.31 Final Review of a 6-Lot Cluster Subdivision for Ginger Hill Design + Build at 918 Pool Street (Tax Map 4, Lot 48) in the Coastal Residential (CR) and Rural Farm (RF) Zones.
[1 Board Report - Pool St Final Subdv Plan \(Ginger Hill\).pdf](#)
[2 Draft FOF for 918 Pool Street \(Windward Ridge\).pdf](#)
[3 FW_ \[External Email\]Biddeford Planning Board and Subdivision projects.pdf](#)

[4 2022-01-12 Windward Final Submission.pdf](#)

- 6.C. 2021.30 Final Review of a 6-Lot Cluster Subdivision for Ginger Hill Design + Build at 158 Oak Ridge Road (Tax Map 4, Lot 57) in the Rural Farm (RF) Zone.

[1 Board Report - Oak Ridge Final Subdv Plan \(Ginger Hill\).pdf](#)

[2 Draft FOF for 158 Oak Ridge Road \(Leeward Meadows\).pdf](#)

[3 FW_ \[External Email\]Biddeford Planning Board and Subdivision projects.pdf](#)

[4 2022-01-12 Leeward Final Submission.pdf](#)

- 6.D. 2021.50 Conditional Use Permit for reconstruction/replacement of the existing substation for Central Maine Power Company at 466-468 South Street (Tax Map 2, Lot 40-1) in the SR1 Zone.

[1 Board Report - CMP Substation Final Plan.pdf](#)

[2 Draft FOF for CMP South St Substation.pdf](#)

[3 Biddeford Conditional Use Application 11-9-21 FULL APPLICATION FINAL.pdf](#)

[4 Biddeford Request for Information Response 01-11-22.pdf](#)

[5 EXH 4 General Arrangement Sections Full Set.pdf](#)

[6 2021-01-18_BPS_SWPPP Binder FINAL.pdf](#)

[7 LA Plan with Comments.pdf](#)

[RE_ 466-468 South Street CMP Electrical Substation Application \[Direct Abutter Response\].pdf](#)

- 6.E. 2022.02 Sketch Plan Review for 3 Lincoln, LLC to redevelop the former MERC site (3 Lincoln St.— Tax Map 71, Lot 2) in the MSRD-3 & GD-1 Zones.

[1 2022.02 3 Lincoln Street Concept SR.pdf](#)

[2 Application Submittal Combined.pdf](#)

[3 Architectural Building A & B.pdf](#)

[4 Architectural Building C.pdf](#)

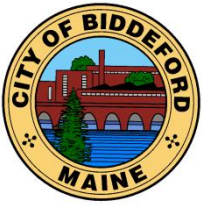
[5 Civil Set.pdf](#)

[6 Landscape Plan.pdf](#)

7. OTHER BUSINESS

8. 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

Greg Tansley, A.I.C.P.
City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 282-7119 or (207) 284-9115
Greg.Tansley@biddefordmaine.org

Planning Board Meeting Minutes

DRAFT

Date: January 19, 2022
Time: 6:00 PM
Location: REMOTE ACCESS MEETING (1MRSA § 403-A permits public proceedings through remote access during the declaration of state of emergency due to COVID-19).

1. Declaration of Quorum/Voting Members
Quorum Present: Bill Southwick (Chair), Bruce Benway, Roch Angers, Sean Tarpey, Spiros Droggitis and Alexa Plotkin (Alternate)
Staff Present: Greg Tansley (Planner), Hannah Bonine (Asst. Planner)
Chair Southwick opened the meeting at 6:00 PM
2. Adjustments to the Agenda
3. Planner's Business
5. Consent Agenda
 5. A. Approval of Planning Board Meeting Minutes from January 5, 2022
MOTIONS: 6:08 PM
Benway-Motion- to approve the Meeting Minutes from January 5, 2022
Angers-Second
Chair Southwick-Roll Call for Vote-Motion Passed, 4-0 (Angers, Benway, Tarpey & Droggitis)
6. Unfinished Business
7. New Business
 - A. Review & Discussion of January 11, 2022 joint meeting of the Planning Board & City Council.
 - Planning Board Members felt the meeting resulted in some positive outcomes.
 - The Planning Board Members appreciated getting the City Counselors' thoughts on the Comprehensive Plan process.
 - B. Review, Discuss & Approve Tentative Comp Plan Schedule
 - The Board discussed the different phases of the creation of the Comp Plan.
 - In particular, the procedures, process and timing were discussed in detail.
 - The Planning Board schedule was discussed in order to give the Board members time to focus on the Comp Plan.
 - It was decided to have a workshop on January 26, 2022 to work on the Comp Plan.

8. Other Business

- Planner Tansley opened a discussion about the upcoming budget process and whether the Board wants to request a budget from the Council. The consensus was that the Board would like a budget for independent studies and legal reference fees.
- Planner Tansley told the Board members that they might be given an email to be used for City business.

9. Adjourn

MOTIONS: 7:20

Benway-Motion-to adjourn

Angers-Second

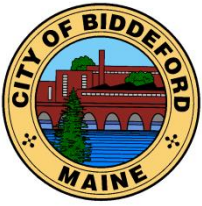
Chair Southwick-Roll Call for Vote-Motion Passed, 4-0 (Angers, Benway, Droggitis & Tarpey)

Meeting adjourned at 7:20 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

Greg Tansley, A.I.C.P.
City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 282-7119 or (207) 284-9115
Greg.Tansley@biddefordmaine.org

Planning Board Workshop Meeting Minutes (DRAFT)

Date: January 26, 2022
Time: 6:00 PM
Location: REMOTE ACCESS MEETING (1MRSA§ 403-B meeting).

Planning Board Attendees: Chairman Bill Southwick, Roch Angers, Bruce Benway, Sean Tarpey, Spiros Droggitis, Michael Cantara (Alternate Member) & Alexa Plotkin (Alternate Member)

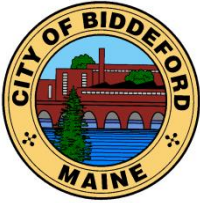
City Staff: Greg Tansley (Planner) & Hannah Bonine (Assistant Planner)

- Chair Southwick brought the meeting to order at 6:00 PM
- The Board discussed the Comprehensive Plan process & schedule.
- Dates were set for the next three Planning Board Meetings/Workshops and three Public Comp Plan Sessions in February.
- Proposed Meetings: February 2, 9 (Workshop) & 16.
- Proposed Public Comp Plan Sessions: February 22 @ 12:30-2:30 PM & 6:30-8:30 PM February 24 @ 6:30-8:30 all sessions remote access
- Meeting adjourned at 7:20 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

Hannah Bonine
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
Hannah.Bonine@biddefordmaine.org

PLANNING BOARD REPORT

TO: Chair Southwick and the Biddeford Planning Board

FROM: Hannah Bonine, Assistant City Planner *Hannah Bonine*

DATE: January 28, 2021

RE: 2022.01 Conditional Use Permit and Shoreland Zoning Permit for the City of Biddeford to replace and relocate the wastewater pump station at 20 Horrigan Court (Tax Map 37, Lot 16/16-1) in the Business (B-1) and General Development 2 Shoreland Overlay (GD-2) Zones.

MEETING DATE: Wednesday, February 2, 2022 @ 6:00 PM

PROJECT DESCRIPTION

The applicant, City of Biddeford, is seeking to replace a failing wastewater pump station located at 20 Horrigan Court, and relocate it outside of the 100-year floodplain. The site is in the B-1 zone, where "essential services" are a conditional use, and in a Shoreland Overlay zone (GD-2). Replacing the pump station will reduce the risk of future complications, increase the distance from the station to the Saco River, and create a visual and noise buffer for nearby residences. It will also better facilitate future RiverWalk expansion along the river to connect with the future Eastern Trail network at the railroad bridge over the river to the west.

The applicant has demonstrated that the new pump station will include underground components such as submersible pumps, a wet well and valve vault, and associated sewer piping manholes. A control building will be constructed above-ground. Stormwater runoff will be managed utilizing a bio-retention facility downstream of the pump station. In addition to the pump station relocation, the applicant proposes to convert the Horrigan Court loop into a T-turnaround and construct a new access drive to the site off of Main Street for maintenance traffic.

COMPLIANCE WITH CITY ORDINANCES

Conditional Use Permit

Article VI (Performance Standards), Section 27 (Essential Services and Water Supply Systems) requires that applications for Conditional Use Permits include an Environmental and Health Impact Assessment. The applicant provided such an analysis, considering aspects such as risks to the Saco River, damage due to environmental factors, and visual and noise buffering from abutting residences. The applicant has

shown that relocating the pump station will provide benefits to the structure itself, the environment, and neighboring residences.

Relocation of the pump station out of the 100-year floodplain will reduce the risk of flood damage, icing, and infiltration. With the existing site revegetated, this will allow the Riverwalk to continue along the banks of the Saco River and connect with the Eastern Trail as it crosses the river via the railroad bridge. Increased distance from residences along with a vegetated buffer will minimize any noise from the pump station, especially when being serviced, and make the structure less visible.

Shoreland Zoning Permit

As outlined in the City of Biddeford Shoreland Zoning Ordinance, Section 16 (Administration), applicants for a Shoreland Zoning Permit must demonstrate that their proposal will satisfy each of the following conditions [*words in italics are the applicant's response*]:

1. Will maintain safe and healthful conditions;
 - a. *See attached Environmental & Health Impact Assessment. The new pump station will better serve the entire western part of the City and will greatly reduce potential environmental impacts than the existing facility.*
2. Will not result in water pollution, erosion, or sedimentation to surface waters;
 - a. *Soil erosion & sediment control measures will be utilized and a bio-retention rain garden will be installed to treat stormwater runoff prior to leaving the site. A permit-by-rule permit will be obtained from Maine DEP. See drawings C-4 and C-9.*
3. Will adequately provide for the disposal of all wastewater;
 - a. *The main goal of this pump station replacement is to provide a safer and efficient wastewater conveyance facility.*
4. Will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;
 - a. *The existing pump station is directly adjacent to the Saco River and is within the 100-year floodplain. The new pump station will be relocated further away from the river and out of the floodplain. Per the attached 'Official Species List' from USFWS, there are no endangered species in this vicinity of this project.*
5. Will conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;
 - a. *No impact to the site's Saco River frontage is proposed.*
6. Will protect archaeological and historic resources as designated in the comprehensive plan;
 - a. *This site is not listed on the National Register of Historic Properties (see attached list). No impacts are expected.*
7. Will not adversely affect existing commercial fishing or maritime activities in a commercial fisheries/maritime activities district;
 - a. *No impact to the site's Saco River frontage is proposed, therefore no impacts to fishing and maritime activities is expected.*
8. Will avoid problems associated with floodplain development and use; and
 - a. *The project is relocating the existing pump station facility out of the 100-year floodplain. See attached FEMA maps and construction drawings.*
9. Is in conformance with the provisions of Section 15, Land Use Standards.
 - a. *This project shall be in conformance with the Land Use standards listed within the Shoreland Zoning Ordinance. Notable parameters associated with the project are that the new control building will be set ± 140 -LF from the HWL and have a finished floor elevation of EL 62 (4.4' above the 100-year base flood elevation 57.6)*

PROJECT DATA/INFORMATION

Note: Highlighted items are pending

	<i>SUBJECT</i>	<i>DATA/INFORMATION</i>
1	Applicant:	Tom Milligan, PE (City Engineer) 205 Main Street, 3 rd Floor Biddeford, ME 04005
2	Owner of Property:	City of Biddeford 205 Main Street Biddeford, ME 04005
3	Agent:	N/A
4	Engineer/Surveyor:	Ryan Wingard, PE c/o Wright-Pierce 11 Bowdoin Mill Island, Suite 140 Topsham, ME 04086
5	Project Location:	432 Main Street & 20 Horrigan Court
6	Project Tax Map #/Lot #:	Tax Map 37, Lot 16 & 16-1
7	Existing Zoning:	General Business (B-1)
8	Overlay Zoning:	General Development 2 (GD-2)
9	Existing Use:	Existing wastewater pump station on Lot 16-1. Lot 16 is currently vacant.
10	Proposed Use:	Essential Service – Wastewater Pump Station
11	City Approvals Required:	Conditional Use Permit, Shoreland Zoning Permit
12	Uses in the Vicinity:	Business, residential
13	Parcel Size:	1.67 Acres (total)
14	Water Supply:	Public water
15	Sewerage Disposal:	Public sewer
16	Solid Waste Disposal:	Independent trash removal
17	Fire Protection:	City of Biddeford
21	Estimated Site Development Costs:	TBD
22	Financial Capacity Letter:	TBD
23	Waivers Needed:	None
24	Waivers Granted:	None
25	Variances Needed for Approval:	None
26	Other Permits Obtained:	None
27	Other Non-City Permits Required:	• Saco River Corridor Commission (granted January XX, 2022) • Maine DEP NRPA Permit By Rule • Maine DEP Stormwater Permit By Rule
28	Covenants, By-laws, Restrictions Required by the Planning Board:	None
29	LDR Attachment A: Fees Paid:	All Planning fees have been paid.
30	Planning Board Review History: Final Review:	February 2, 2022

WAIVER REQUESTS

None.

OUTSTANDING ISSUES TO BE ADDRESSED PRIOR TO APPROVAL:

1. Provide a unit cost estimate for all site work.
2. Demonstrate financial capacity by demonstrating the breakdown of anticipated funding.

OUTSTANDING ISSUES WHICH CAN BE ADDRESSED FOLLOWING APPROVAL:

1. Add a signature block to sheet C-4 akin to the following:

YORK, ss. REGISTRY OF DEEDS
Received _____
at _____ h _____ m _____ A, and
Filed in Plan Book _____ Page _____
ATTEST: _____
Register

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO
SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE
BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY
THE INDIVIDUAL MEMBERS OF THE PLANNING BOARD EVIDENCING APPROVAL OF
THE FINAL PLANS.

2. From Tom Saucier, 3rd Party Review Engineer:
 - a. *Should an ADA tactile warning installation be installed on the east side of the new pump station drive at Main Street?*
 - b. *The grading plan reflects a cut slope along the west side of the new drive to the pump station. A concern may be stormwater concentrating along the edge of pavement resulting in erosion. The creation of a slight swale may reduce the potential for erosion.*
 - c. *The grading reflects the construction of a small berm with a top at elevation 68 southwesterly of the pump station site. It seems this berm will redirect stormwater runoff from the upgradient areas away from the current outlet location to a steep slope westerly of the pump station site. Two potential issues: one, the grade along the berm is very flat and it is possible that runoff from the upgradient areas may pond along the berm; two, redirecting the runoff to the steep slope may result in erosion. It appears it may be possible to pull the 67 contour back toward the berm and 68 contour, to provide more positive drainage. A level spreader could be installed at or prior to the top of the slope to reduce the potential for erosion.*
 - d. *A 1 ft deep +/- swale is being created along the easterly side of the new access drive to the pump station between the drive and the existing paved area on lot 16-2. Will the abutter want vehicular access to this area to remain? An easement is shown on the survey. Is this an access easement which benefits that parcel? Also, two dark dashed lines are shown perpendicular to and at the end of the granite curb on that side of the drive. What do those lines represent?*

- e. *It appears the dashed line adjacent to the stone berm level spreader northerly of lot 16-2 represents the 62 contour, based on the details. If so, it probably would be a good idea to label it as such or provide spot grades.*
- f. *Inverts for the 6 inch dia underdrain in the bioretention swale would be helpful.*
- g. *An existing low spot will remain in the vicinity of the intersection of the new 24" dia sewer and the 48" box culvert. Since alterations are proposed in this area, there may be an opportunity to install a catch basin inlet over the 48" culvert or a shallow culvert in this area to provide positive drainage.*
- h. *On drawing C-7 there are 8 notes associated with the bioretention filter detail. Several of the notes are not applicable to the swale as designed for this project, and may be confusing to potential bidders. We suggest that the non-applicable notes be removed.*

These comments have been provide to the applicant (City of Biddeford Engineering Department). Tom Saucier has indicated to Staff, and Staff agree, that these are detail related issues that can be addressed following approval of the project (see Conditions of Approval).

For example, the engineering department has acknowledged that all sidewalks will be brought into ADA compliance as part of this project:

- 1. *Site Plan Note #2 on Drawing C-3 requires the contractor to bring all sidewalks into ADA compliance. A flush curb accessible ramp is shown on the east side of the pump station road. Linework for a tactile warning strip and an applicable callout will be added to Drawing C-3 in this location.*

38 M.R.S. § 439-A(10) Photographic record required.

The following is not in Biddeford's current Shoreland Zoning Ordinance and appears to be designed to apply to *future* updates of municipal shoreland zoning ordinances. That said, Staff recommend that we begin requiring this for all Shoreland Zoning applications moving forward regardless.

From the Maine Department of Environmental Protection, Shoreland Zoning News, August 2021 (<https://content.govdelivery.com/accounts/MEDEP/bulletins/2ea5e9d>):

"A change in state statute was made in 2019 relating to Shoreland Ordinances and now requires municipal ordinances regulating the shoreland zone to adopt language requiring applicants developing within the shoreland zone to provide preconstruction and post construction photos of the shoreline vegetation and the developed site as part of the permitting process. The additional submission of the preconstruction photos will give property owners and municipal officials an established baseline and the post construction photos will document the conditions after construction. The addition of this photo requirement should provide a benefit to property owners and municipal officials in achieving desired compliance, as well as give the permitting body a better understanding of the preconstruction site conditions.

The specific language from Statute is as follows:

38 M.R.S. § 439-A(10) Photographic record required. A municipal ordinance adopted pursuant to this article must require an applicant for a permit for development within the shoreland zone to provide to the municipal permitting authority preconstruction photographs and, no later than 20 days after

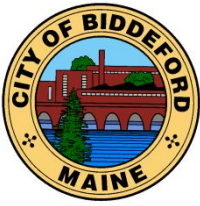
completion of the development, postconstruction photographs of the shoreline vegetation and development site.”

The applicant’s submission has provided photographic evidence of pre-construction conditions satisfying this requirement. Staff recommend this be included as a condition of approval prior to construction regarding the Code Enforcement Office. Staff further recommend this be required as part of the compliance requirements post-construction in the conditions of approval. See below.

NEXT STEPS/SUGGESTED ACTIONS

If the Planning Board approved the project, Staff recommend doing so with the following Conditions of Approval attached:

1. **Prior to any ground disturbance or issuance of any permits:**
 - a. All outstanding review comments shall be addressed to the satisfaction of the City Planner.
 - b. Plans must be updated to reflect Shoreland Zoning setback requirement of 100 ft, instead of 75 ft which is currently shown on the plan.
 - c. Add a City Planner signature block to Sheet C-4 and submit final plans addressing all identified outstanding issues for review and signature. The approved plans must be recorded at the York County Registry of Deeds.
 - d. The applicant must submit a recorded copy of the approved plan to the Planning Department.
 - e. A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.
 - f. Stabilized Construction Access shall be constructed to the satisfaction of the Engineering Department.
 - g. The applicant shall provide pre-construction photographs to the Code Enforcement Office consistent with the requirements of *38 M.R.S. § 439-A(10) Photographic record required.*
2. Best management practices shall be adhered to during all ground disturbance operations. All Catch Basin’s in the vicinity of earthwork operations shall have silt sacks installed & maintained for the duration of the work.
3. Copies of the maintenance logs for the stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.
4. 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, unless authority issuing said permit allows for such actions.
5. Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approval.
6. Upon completion of the work the applicant shall provide post-construction photographs to the Code Enforcement Office consistent with the requirements of *38 M.R.S. § 439-A(10) Photographic record required.*
7. As-built plans are required at the completion of the project.
8. Standard Conditions of Approval apply.



CITY OF BIDDEFORD

Planning and Development Department

Hannah Bonine
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Hannah.Bonine@biddefordmaine.org

FINDINGS OF FACT AND CONCLUSIONS OF LAW

CONDITIONAL USE PERMIT AND SHORELAND ZONING PERMIT

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article VII (Conditional Use Permits), Article XI (Site Plan Review), Article XIV (Shoreland Zoning Ordinance) and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of **City of Biddeford** to replace and relocate a failing wastewater pump station at 20 Horrigan Court. 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:

	<i>SUBJECT</i>	<i>DATA/INFORMATION</i>
1	Applicant:	Tom Milligan, PE (City Engineer) 205 Main Street, 3 rd Floor Biddeford, ME 04005
2	Owner of Property:	City of Biddeford 205 Main Street Biddeford, ME 04005
3	Agent:	N/A
4	Engineer/Surveyor:	Ryan Wingard, PE c/o Wright-Pierce 11 Bowdoin Mill Island, Suite 140 Topsham, ME 04086
5	Project Location:	432 Main Street & 20 Horrigan Court
6	Project Tax Map #/Lot #:	Tax Map 37, Lot 16 & 16-1
7	Existing Zoning:	General Business (B-1)
8	Overlay Zoning:	General Development 2 (GD-2)
9	Existing Use:	Existing wastewater pump station on Lot 16-1. Lot 16 is currently vacant.
10	Proposed Use:	Essential Service – Wastewater Pump Station
11	City Approvals Required:	Conditional Use Permit, Shoreland Zoning Permit
12	Uses in the Vicinity:	Business, residential
13	Parcel Size:	1.67 Acres (total)
14	Water Supply:	Public water
15	Sewerage Disposal:	Public sewer
16	Solid Waste Disposal:	Independent trash removal
17	Fire Protection:	City of Biddeford

21	Estimated Site Development Costs:	TBD
22	Financial Capacity Letter:	TBD
23	Waivers Needed:	None
24	Waivers Granted:	None
25	Variances Needed for Approval:	None
26	Other Permits Obtained:	None
27	Other Non-City Permits Required:	• Saco River Corridor Commission (granted January XX, 2022) • Maine DEP NRPA Permit By Rule • Maine DEP Stormwater Permit By Rule
28	Covenants, By-laws, Restrictions Required by the Planning Board:	None
29	LDR Attachment A: Fees Paid:	All Planning fees have been paid.
30	Planning Board Review History: Final Review:	February 2, 2022

CONCLUSIONS OF LAW

Conditional Use Permit

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;

8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

Shoreland Zoning Permit

1. Will maintain safe and healthful conditions;
2. Will not result in water pollution, erosion, or sedimentation to surface waters;
3. Will adequately provide for the disposal of all wastewater;
4. Will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;

5. Will conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;
6. Will protect archaeological and historic resources as designated in the comprehensive plan;
7. Will not adversely affect existing commercial fishing or maritime activities in a commercial fisheries/maritime activities district;
8. Will avoid problems associated with floodplain development and use; and
9. Is in conformance with the provisions of Section 15, Land Use Standards.

Approval Granted:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the Conditional Use Permit and Shoreland Zoning Permit for the proposed project summarized above, located at 20 Horrigan Court (Tax Map 37, Lot 16 & 16-1) in accordance with the submitted application, supporting data, representations made, other related materials on file, and the following Conditions of Approval:

1. **Prior to any ground disturbance or issuance of any permits:**
 - a. All outstanding review comments shall be addressed to the satisfaction of the City Planner.
 - b. Plans must be updated to reflect Shoreland Zoning setback requirement of 100 ft, instead of 75 ft which is currently shown on the plan.
 - c. Add a City Planner signature block to Sheet C-4 and submit final plans addressing all identified outstanding issues for review and signature. The approved plans must be recorded at the York County Registry of Deeds.
 - d. The applicant must submit a recorded copy of the approved plan to the Planning Department.
 - e. A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.
 - f. Stabilized Construction Access shall be constructed to the satisfaction of the Engineering Department.
 - g. The applicant shall provide pre-construction photographs to the Code Enforcement Office consistent with the requirements of *38 M.R.S. § 439-A(10) Photographic record required.*
2. Best management practices shall be adhered to during all ground disturbance operations. All Catch Basin's in the vicinity of earthwork operations shall have silt sacks installed & maintained for the duration of the work.
3. Copies of the maintenance logs for the stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.
4. 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, unless authority issuing said permit allows for such actions.
5. Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approval.

6. Upon completion of the work the applicant shall provide post-construction photographs to the Code Enforcement Office consistent with the requirements of *38 M.R.S. § 439-A(10) Photographic record required.*
7. As-built plans are required at the completion of the project.
8. Standard Conditions of Approval apply.

Planning Board Chairperson

Date

DRAFT

CITY OF BIDDEFORD, MAINE
PLANNING BOARD
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

APPLICATION FORM

HORRIGAN COURT - EXISTING PUMP STATION REPLACEMENT

Type of Application:

- | | | |
|---|---|--------------------------------------|
| ☒ Shoreland Zoning Permit | ☐ Site Plan Review | ☐ Extraction |
| ☒ Conditional Use Permit | ☐ Subdivision | ☐ Private Way |
| ☐ Other: _____ | | |

Applicant Information:

Applicant's Name: TOM MILLIGAN, PE (CITY ENGINEER)

Applicant's Mailing Address: 205 MAIN STREET, BIDDEFORD, ME 04005 (3RD FLOOR - ENGINEERING DEPARTMENT)

Applicant's Telephone: 207-284-9118

What is Applicant's legal interest in the property?

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

Owner's Name: CITY OF BIDDEFORD

Owner's Address: 205 MAIN STREET, BIDDEFORD, ME 04005

Owner's Telephone: 207-571-0700

Agent's Name: _____

Agent's Address: _____

Telephone: _____

Engineer/Surveyor: RYAN WINGARD, PE - WRIGHT-PIERCE

Engineer/Surveyor's Address: 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

Telephone: 207-725-8721

Project Location and Lot Information:

Street Address: 432 MAIN STREET & 20 HORRIGAN COURT (EXISTING WASTEWATER PUMP STATION)

Tax Map: 37 Lot: 16 & 16-1

Current Zoning: B-1 GENERAL BUSINESS Shoreland Zoning: YES
(OVERLAY: GD-2 GENERAL DEVELOPMENT 2)

Size of lot: 1.67 TOTAL ☒ acres ☐ s.f. Lot Frontage: >±215-LF

Existing Use of Property: THE EXISTING WASTEWATER PUMP STATION IS LOCATED ON LOT 16-1 AND IS IN NEED OF EMERGENCY REPLACEMENT. THE EXISTING PUMP STATION CONSISTS OF AN ABOVE GROUND CONTROL BUILDING AND UNDERGROUND INFRASTRUCTURE. THE ADJACENT LOT 16 IS VACANT AND CONTAINS UNDERGROUND UTILITIES. BOTH LOTS ARE ACTIVELY USED BY PUBLIC WORKS AND THE CITY'S WASTEWATER DIVISION.

Property currently serviced by:

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

N/A - INDEPENDENT TRASH REMOVAL

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

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

Description of proposed use of property:

Project/Proposed Use Description: THE PROPOSED PROJECT IS TO REPLACE THE EXISTING FAILING WASTEWATER PUMP STATION AND RELOCATE IT OUT OF THE 100-YEAR FLOODPLAIN. THE NEW PUMP STATION WILL CONSIST OF BRAND NEW UNDERGROUND SUBMERSIBLE PUMPS, AN UNDERGROUND WET WELL AND VALVE VAULT, ASSOCIATED UNDERGROUND SEWER PIPING AND MANHOLES, AND AN ABOVE-GROUND CONTROL BUILDING. THE RELOCATED PUMP STATION WILL BE SECURED VIA A PERIMETER CHAIN-LINK FENCE, SCREENED FROM MAIN STREET VIA PROPOSED VEGETATION, AND WILL BE SERVICED BY A NEW ACCESS DRIVEWAY FROM MAIN STREET. A BIO-RETENTION FACILITY IS PROPOSED DOWNSTREAM OF THE RELOCATED PUMP STATION TO TREAT STORMWATER RUNOFF. THE EXISTING HERRIGAN COURT LOOP WILL BE CONVERTED INTO A T-TURNAROUND FOR EMERGENCY SERVICES.

Property to be serviced by:

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

N/A - INDEPENDENT TRASH REMOVAL

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

☒ If in a Shoreland Zone:Percent of residential lot coverage (Max. 20%): 0%Percent of structure expansion (Max. 30%): 0%☐ 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 structures: _____

Total new square feet paving/parking: _____

Waiver Requests (attach details):

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

Attachments:A. Letters of Approval [Provided, see Folder #4](#)

- ☒ 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 Dept (Sewer) - Tom Milligan 284-9118
- ☒ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc. [Provided, see Narrative #2](#)C. Photographs of site. [Provided, see Folder #7](#)D. Architectural renderings/drawings of proposed buildings, as required. [Provided, see Folder #5](#)E. Engineered Plans, as required. [Provided, see Folder #5](#)

Fees (due at time of 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 it's 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 review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this 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.

☐ Project proposed to have 1 acre or more of site disturbance: [SITE DISTURBANCE = 0.9-ACRES \(±39,000-SF\)](#)

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of applicant:



Date: [01/12/2022](#)

Signature of owner of property:



Date: [01/12/2022](#)

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**



City of Biddeford, Maine

Public Works Department

371 Hill Street Biddeford, Maine 04005

Planning Board Narrative

Horrigan Court Pump Station Replacement Project

Address: 20 Horrigan Court, Biddeford, ME 04005

Map: 37, Lots: 16 & 16-1

January 12, 2022

On behalf of Biddeford Public Works and the City's Engineering Department, attached is a Planning Board application to replace the existing wastewater pump station located at 20 Horrigan Court. The existing pump station is in critical condition and is in need of emergency replacement. Utilizing grant funding from MaineDEP, the City is proposing a submersible pump station in a relocated location on-site that is out of the 100-year floodplain. Since the existing pump station is located within 250-LF of the Saco River, this replacement pump station project will require a Shoreland Zoning Permit. Additionally, a Conditional Use permit will be required since 'essential services' are a conditional use in the B-1 General Business zone.

Replacing the failing pump station out of the floodplain and away from the Horrigan Court residential properties will greatly reduce the likelihood of future pump station failure, reduce potential discharge or overflows into the Saco River, and provide a better visual and noise buffer from residents.

The new pump station will consist of brand new underground submersible pumps, an underground wet well and valve vault, associated underground sewer piping and manholes, and an above-ground control building. The relocated pump station will be secured via a perimeter chain-link fence and screened from Main Street via proposed arborvitae vegetation. A bio-retention facility is proposed downstream of the relocated pump station to treat stormwater runoff prior to leaving the site. The existing Horrigan Court loop will be converted into a T-turnaround, limiting traffic on Horrigan Court to residents and emergency services. All construction and future pump station maintenance traffic will utilize a new access driveway from Main Street.

Per Section 16 of the Shoreland Zoning Ordinance, this project will meet the following standards:

1. *Will maintain safe and healthful conditions;*
 - a. See attached Environmental & Health Impact Assessment. The new pump station will better serve the entire western part of the City and will greatly reduce potential environmental impacts than the existing facility.
2. *Will not result in water pollution, erosion, or sedimentation to surface waters;*
 - a. Soil erosion & sediment control measures will be utilized and a bio-retention rain garden will be installed to treat stormwater runoff prior to leaving the site. A permit-by-rule permit will be obtained from MaineDEP. See drawings C-4 and C-9.
3. *Will adequately provide for the disposal of all wastewater;*
 - a. The main goal of this pump station replacement is to provide a safer and efficient wastewater conveyance facility.
4. *Will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat;*
 - a. The existing pump station is directly adjacent to the Saco River and is within the 100-year floodplain. The new pump station will be relocated further away from the river and out of the floodplain. Per the attached 'Official Species List' from USFWS, there are no endangered species in this vicinity of this project.
5. *Will conserve shore cover and visual, as well as actual, points of access to inland and coastal waters;*
 - a. No impact to the site's Saco River frontage is proposed.
6. *Will protect archaeological and historic resources as designated in the comprehensive plan;*
 - a. This site is not listed on the National Register of Historic Properties (see attached list). No impacts are expected.



City of Biddeford, Maine

Public Works Department

371 Hill Street Biddeford, Maine 04005

7. *Will not adversely affect existing commercial fishing or maritime activities in a commercial fisheries/maritime activities district;*
 - a. No impact to the site's Saco River frontage is proposed, therefore no impacts to fishing and maritime activities is expected.
8. *Will avoid problems associated with floodplain development and use; and*
 - a. The project is relocating the existing pump station facility out of the 100-year floodplain. See attached FEMA maps and construction drawings.
9. *Is in conformance with the provisions of Section 15, Land Use Standards.*
 - a. This project shall be in conformance with the Land Use standards listed within the Shoreland Zoning Ordinance. Notable parameters associated with the project are that the new control building will be set ± 140 -LF from the HWL and have a finished floor elevation of EL 62 (4.4' above the 100-year base flood elevation 57.6).

Materials included with this submittal:

1. Planning Board Application
2. Planning Board Narrative
3. 250' Property Abutter List
4. Approval Letters from Police, Fire, MaineWater, and Wastewater/Engineering
5. Construction Drawings and Specifications (10 full-size hard copy sets of the Civil drawings provided)
6. Environmental & Health Impact Assessment
7. Existing Site Photos
8. FEMA Maps
9. National Register of Historic Properties (Not applicable)
10. Tax Map 37
11. USFWS – Endangered Species List
12. Zoning Map

We appreciate the opportunity to better serve our community and propose this pump station replacement project to the Planning Board. We hope this submittal is adequate and conveys the importance of this new facility.

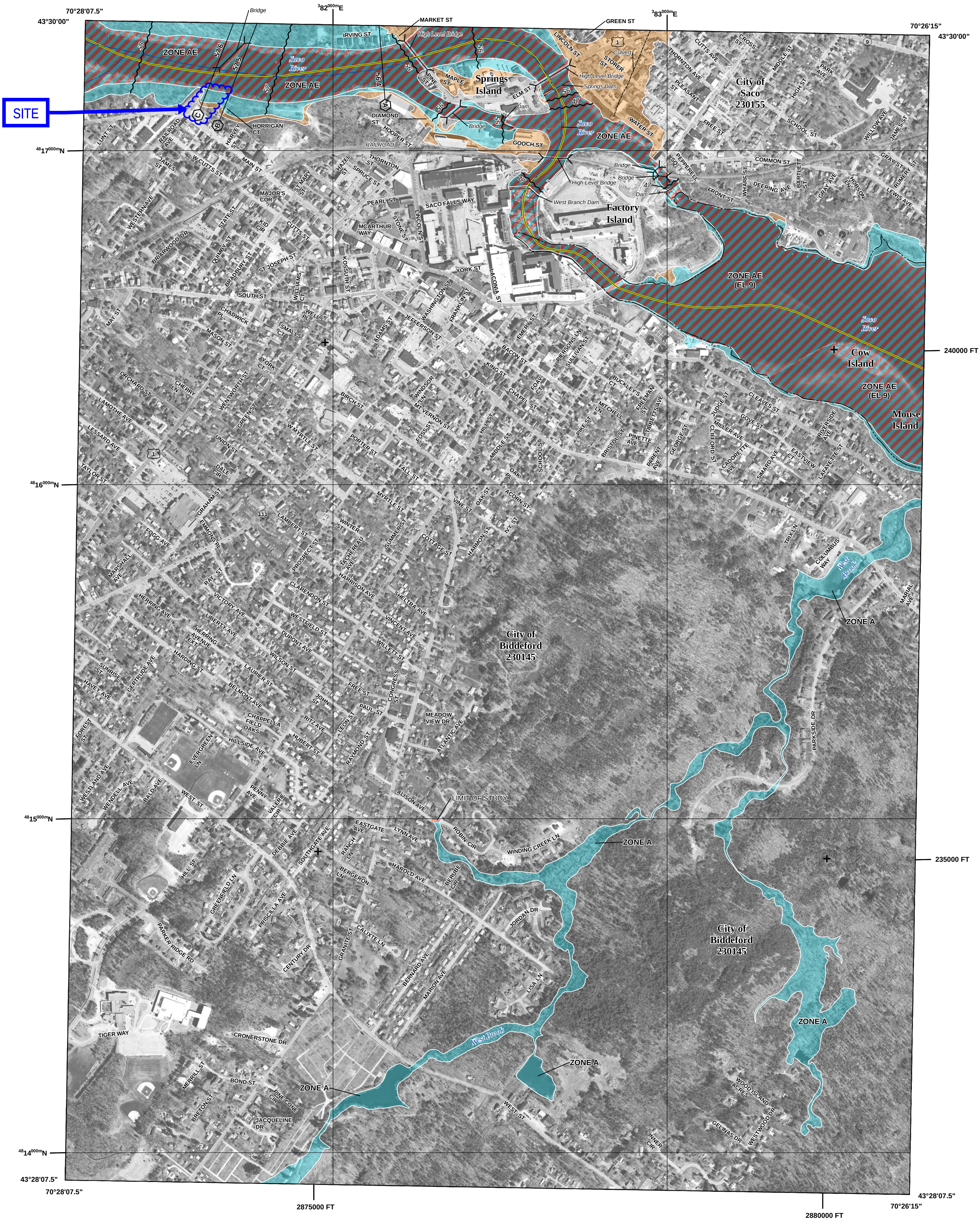
Regards,

A handwritten signature in blue ink that reads "Thomas Milligan Jr.".

Tom Milligan, PE
Biddeford City Engineer

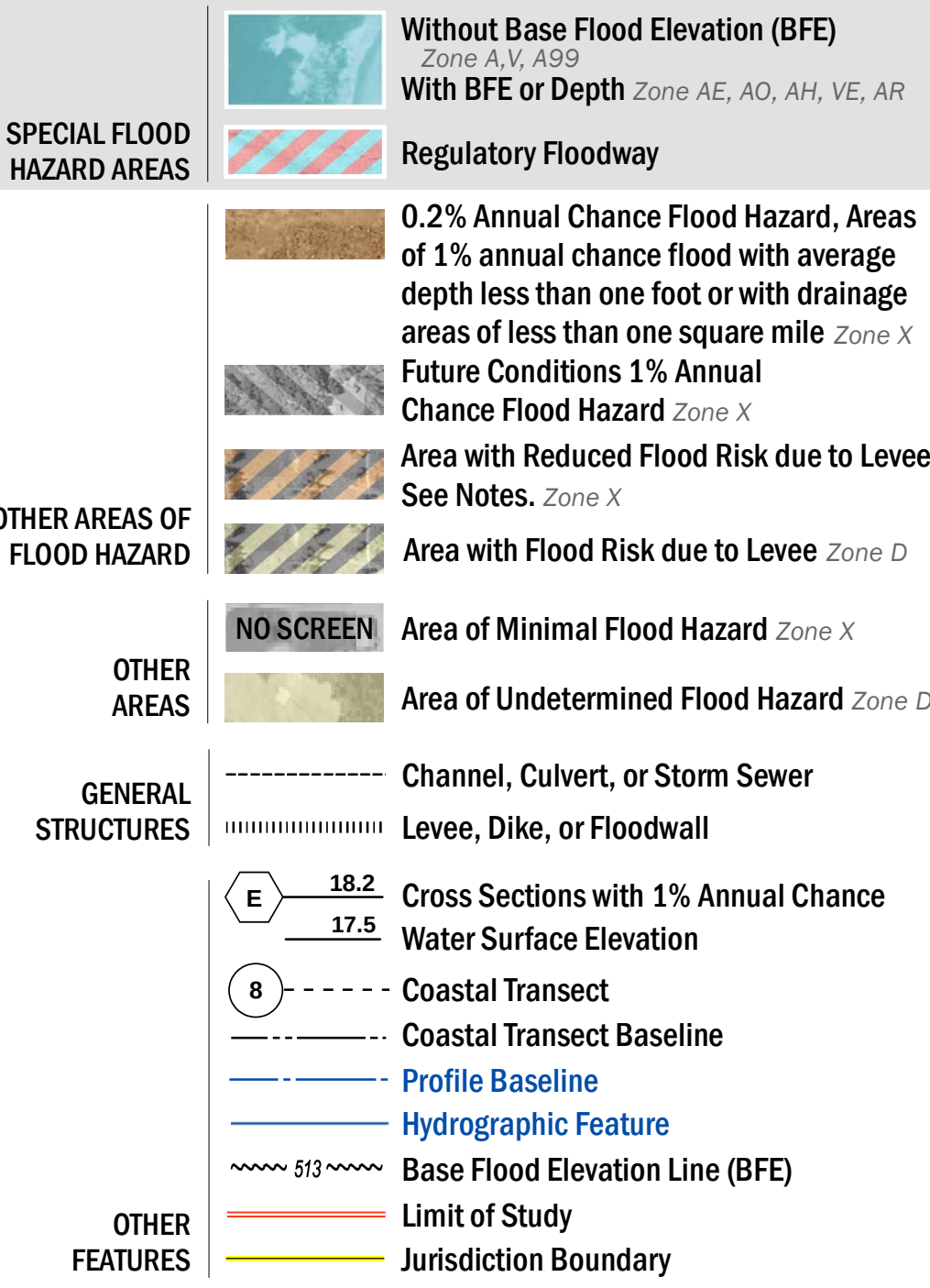
CC:

Jeff Demers, Public Works Director
Craig Chekan, Deputy City Engineer
Alex Buechner, Wastewater Superintendent



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTP://MSC.FEMA.GOV](http://MSC.FEMA.GOV)



NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information exchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

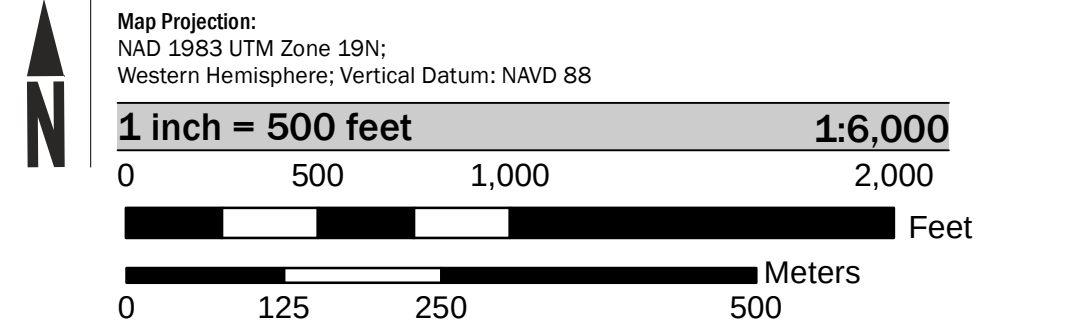
For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

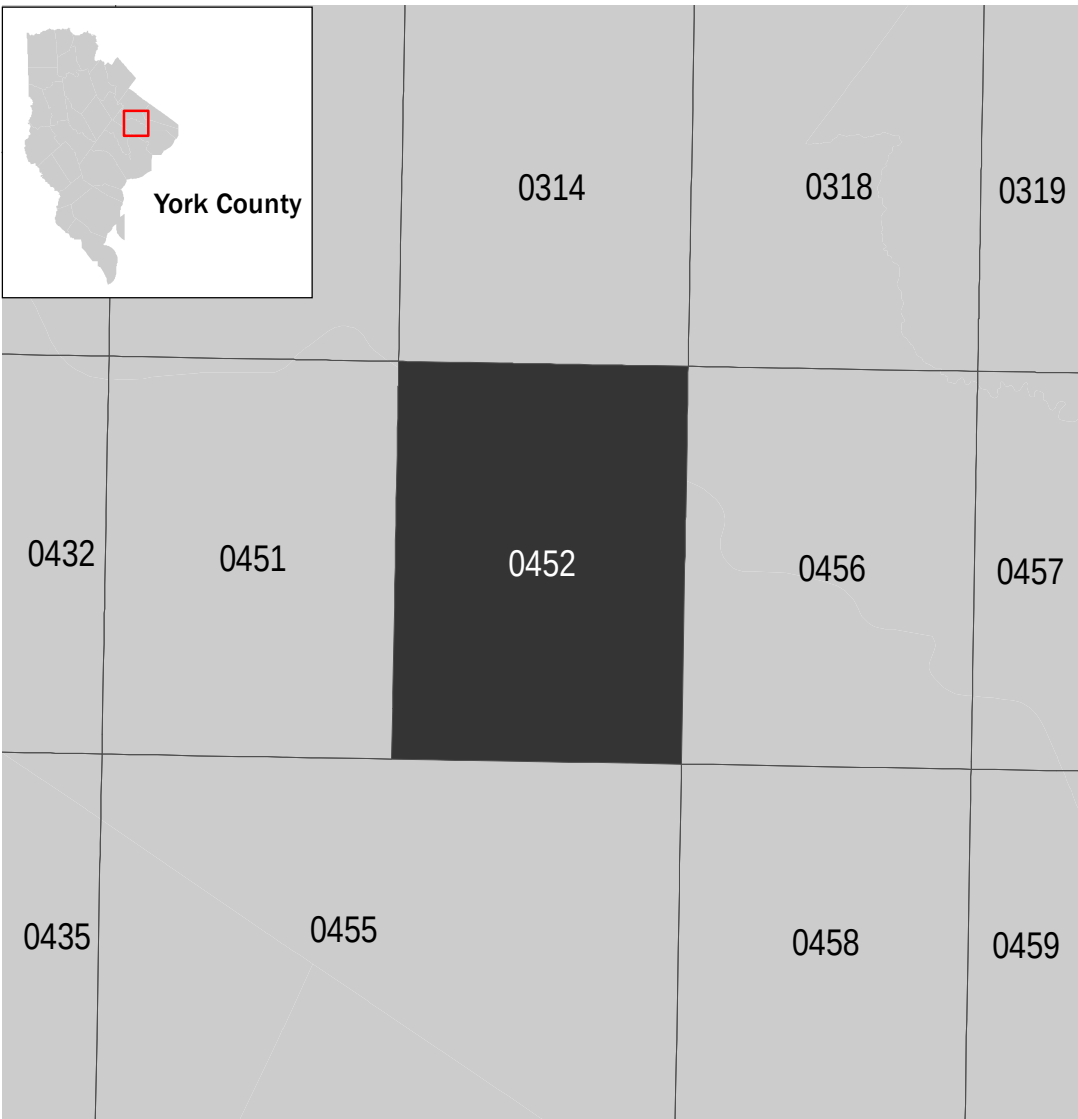
Basemap information shown on this FIRM provided in digital format by State of Maine, Maine office of GIS (MeGIS). This information was derived from MeGIS, dated 2012.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and FDTs may reflect stream channel distances that differ from what is shown on the map.

SCALE



PANEL LOCATOR



National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

YORK COUNTY, MAINE
All Jurisdictions

PANEL **0452** of **0837**

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BIDDEFORD, CITY OF	230145	0452	G
SACO, CITY OF	230155	0452	G

REVISED PRELIMINARY
3/28/2018

VERSION NUMBER **2.3.2.1**
MAP NUMBER **23031C0452G**
EFFECTIVE DATE

Abutting Properties for
432 MAIN ST
37/ 16/ / /
(250 Feet)

Location:
37/ 15/ / /
442 MAIN ST
Owner:
CITY OF BIDDEFORD
PO BOX 586
BIDDEFORD,, ME 04005-0586

Location:
37/ 17/ / /
418 MAIN ST
Owner:
BRIDGES, DAVID M
418 MAIN ST
BIDDEFORD, ME 04005

Location:
37/ 21/ / /
11 HERRIGAN CT
Owner:
FOOTE, SAMANTHA A
11 HERRIGAN CT
BIDDEFORD, ME 04005

Location:
37/ 24/ / /
6 HERRIGAN CT
Owner:
WOODRUGG, SANDRA
6 HERRIGAN CT
BIDDEFORD, ME 04005

Location:
37/ 27/ / /
400 MAIN ST
Owner:
390 MAIN, LLC
PO BOX 1503
SACO, ME 04072

Location:
37/ 47/ / /
409 MAIN ST
Owner:
HOLLYDAY MULTI, LLC
PO BOX 10982
PORTLAND, ME 04104

Location:
37/ 50/ / /
421 MAIN ST
Owner:
SANGILLO, THOMAS
38 ALFRED ST
BIDDEFORD, ME 04005

Location:
37/ 157/ / /
92 WEST CUTTS ST
Owner:
HOWE, ALANA
40 SANFORD RD
WATERBORO, ME 04087

Location:
37/ 160/ / /
441 MAIN ST
Owner:
TREMBLAY, MARCEL J INC
441 MAIN ST
BIDDEFORD, ME 04005

Location:
37/ 16/ 1/ / /
20 HERRIGAN CT
Owner:
CITY OF BIDDEFORD
SEWAGE PLANT HERRIGAN'S CT
PO BOX 586
BIDDEFORD, ME 04005-0586

Location:
37/ 19/ / /
5 HERRIGAN CT
Owner:
MEAS, NAVANN
83 GRANDVIEW AVE #2
SOUTH PORTLAND, ME 04106-6115

Location:
37/ 22/ / /
10 HERRIGAN CT
Owner:
DEMELLO, ROBERT E
10 HERRIGAN CT
BIDDEFORD, ME 04005

Location:
37/ 25/ / /
410 MAIN ST
Owner:
207 RENTALS LLC
PO BOX 1503
SACO, ME 04072

Location:
37/ 28/ / /
8 HARVEY ST
Owner:
TRASK, JANE E
8 HARVEY ST
BIDDEFORD, ME 04005

Location:
37/ 48/ / /
413 MAIN ST
Owner:
PAQUET, YVON J
11 LISA LN
BIDDEFORD, ME 04005-2245

Location:
37/ 51/ / /
13 WESTERN AVE
Owner:
RIVERDALE, LLC
17 WINDY PT LN
SACO, ME 04072

Location:
37/ 158/ / /
90 WEST CUTTS ST
Owner:
ABERLE, EDWARD F.
ABERLE, CAROL L.
90 WEST CUTTS ST
BIDDEFORD, ME 04005

Location:
37/ 161/ / /
443 MAIN ST
Owner:
TREMBLAY, MARCEL J INC
441 MAIN ST
BIDDEFORD, ME 04005-2140

Location:
37/ 16/ 2/ / /
422 MAIN ST
Owner:
HERITAGE CABLEVISION OF MAINE
PROPERTY TAX DEPARTMENT
ONE COMCAST CENTER, 32ND FL
PHILADELPHIA, PA 19103-2838

Location:
37/ 20/ / /
9 HERRIGAN CT
Owner:
ANDREWS, JAIME L
9 HERRIGAN CT
BIDDEFORD, ME 04005

Location:
37/ 23/ / /
8 HERRIGAN CT
Owner:
HUBERT, BRUCE A
8 HERRIGAN CT
BIDDEFORD, ME 04005

Location:
37/ 26/ / /
406 MAIN ST
Owner:
CHRETIEN PROPERTIES LLC
10 MCKENNEY DR
BIDDEFORD, ME 04005

Location:
37/ 29/ / /
6 HARVEY ST
Owner:
CRAIN, MEREDITH L
52 CUTTS ST
BIDDEFORD, ME 04005-2334

Location:
37/ 49/ / /
415 MAIN ST
Owner:
VENATOR LLC
PO BOX 47
BIDDEFORD, ME 04005

Location:
37/ 52/ / /
86 WEST CUTTS ST
Owner:
POMERLEAU, CONRAD A & LORRAINE
86 WEST CUTTS ST
BIDDEFORD, ME 04005-2229

Location:
37/ 159/ / /
431 MAIN ST
Owner:
MAIN STREET STORAGE LLC
C/O GERALD COBURN
431 MAIN ST
BIDDEFORD, ME 04005

Location:
40/ 25/ 2/ / /
MAIN ST (OFF OF)
Owner:
CITY OF BIDDEFORD
OLD DIAMOND INTERNATIONAL PROP
PO BOX 586
BIDDEFORD, ME 04005-0586



City of Biddeford, Maine

Public Works Department

371 Hill Street Biddeford, Maine 04005

Environmental & Health Impact Assessment **Horrigan Court Pump Station Replacement Project**

January 12, 2022

The purpose of the project is to replace, relocate and upgrade an aged pump station which services the entire western part of the City. The condition of the existing pump station is poor and is in need of emergency repair. The existing pump station will be removed from its current location in the floodplain of the Saco River at the end of Horrigan Court. The proposed replacement will relocate the pump station out of the floodplain, southwest from its current location immediately adjacent to the Saco River. The old station components will be dismantled and removed and the site will be revegetated/stabilized by loaming and seeding.

The current pump station is currently located between the existing homes at the end of Horrigan Court and the Saco River. The proposed pump station location will move it to the westerly side of the site adjacent to the old railroad tracks and generally away from the residential homes at the end of Horrigan Court. This new location is expected to result in less direct noise during times of needed service to the pump station. Additionally, by replacing the pump station with new components, it will reduce the likelihood of future failure of the pump station and any resultant discharge or overflow into the Saco River.

It is our opinion that the relocation of the pump station will provide significant benefits, especially moving it to higher ground above the 100-year floodplain. This will reduce its susceptibility to flood damage, icing, and infiltration. The project will also restore and revegetate the area of the existing pump station to be used as an area adjacent to the future Riverwalk Trail.

As part of the project, a row of arborvitae plantings will be installed between the new station and Main Street, creating both a visual buffer and some noise dampening. A perimeter chain-link fence will be installed around the new pump station to provide a security buffer. The project will also include construction of a rain garden (LID low impact development filter) adjacent to the old pump station access road area. Drainage from the new pump station location will be directed into the filter where it will be filtered and treated prior to leaving the site.

New underground piping and infrastructure will obviously be required for the newly relocated pump station. During excavation, erosion & sediment control devices and techniques will be utilized to minimize any environmental impacts. Upon completion, the area will be stabilized with permanent loam and seed. The existing loop road at the end of Horrigan Court will be terminated and converted to a T-turnaround dead-end – thus limiting vehicle traffic on Horrigan Court to residents and emergency services. All construction traffic and future pump station vehicular maintenance traffic will utilize the new access driveways from Main Street. A designated 10' wide trail corridor is proposed for future Riverwalk pedestrians.

Regards,

A handwritten signature in blue ink that reads "Thomas Milligan Jr".

Tom Milligan, PE
Biddeford City Engineer

Attachment 3: Photographs of the Existing Site

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 1: Site Entrance



Photo 2: Existing pump station, to be demolished

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 3: Existing pump station, to be demolished



Photo 4: Existing Horrigan Court, to be repaved

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 5: Existing electrical panels, to be demolished



Photo 6: Waterfront of parcel, facing west

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 7: Waterfront of parcel, facing east



Photo 8: Existing gravel road

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 9: Existing gravel road



Photo 10: Existing vegetation

**HORRIGAN COURT PUMP STATION
SITE PHOTOS 04/07/21**



Photo 11: Photo taken from the northwest corner of the parcel facing the Saco River

Chekan, Craig

From: Duross, Kevin
Sent: Wednesday, January 12, 2022 12:23 PM
To: Chekan, Craig; Demers, Jeff
Subject: Horrigan Court Pump Station Replacement

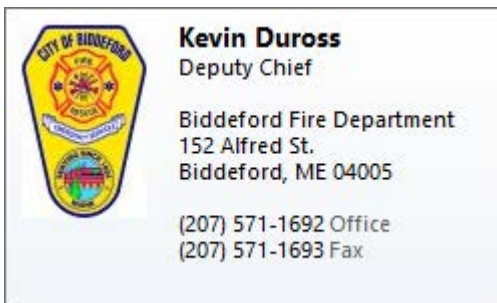
Hi Craig and Jeff,

The Fire Department sees no issues after reviewing the Horrigan Court Pump Station Replacement Plans as long as Fire Department access is not impeded.

Please reach out with any questions.

Thank you,

Kevin





January 12th, 2022

City of Biddeford
ATTN: Craig Chekan, PE
P.O. Box 586
Biddeford, ME 04005

Re: Ability to Serve Determination – Horrigan Court Pump Station Upgrade Project

Dear Mr. Chekan,

The Maine Water Company (MWC) has received your request for our Ability to Serve Determination on behalf of the City of Biddeford, for the above referenced project. The request indicates the proposed development will consist of a new wastewater pump station and associated appurtenances. The building development will require a 2-inch potable water service line that will only feed an outside yard hydrant. The usage is expected to fill trucks and clean equipment. Domestic water is available to your project. MWC does have sufficient capacity in the area from the existing 20-inch cast iron main located on Main Street. The static pressure in the area is approximately 55 psi. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

- Domestic services must each be individually tapped from the existing 20-inch main on Main St.
- A meter pit will be required to house the meter at the expense of the developer. A plumber will install the appropriate fittings, valves, backflow and meter inside the meter pit. A 1.5" meter will be used for this application. MWC will provide the first meter when the service line has been installed to approved specifications.
- Additional plan approval, paperwork and fees associated with service for this project will require further coordination with MWC.
- The meter pit will be privately owned by the City and maintained as clean, dry and accessible at the expense of the owner.

Should a Customer Agreement for service not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project.

All work must be completed in accordance with Maine Water Company material and installation specifications. All appropriate paperwork must be completed and the deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with our standard terms and conditions as well as Maine Public Utilities Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at Marcus.Knipp@mainewater.com. We look forward to working with you throughout design and construction.

Sincerely,
The Maine Water Company

A handwritten signature in black ink, appearing to read "Marcus Knipp".

Marcus Knipp, E.I.T.
Engineer



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

<http://www.fws.gov/mainefieldoffice/index.html>



In Reply Refer To:

January 11, 2022

Consultation Code: 05E1ME00-2022-SLI-0496

Event Code: 05E1ME00-2022-E-01807

Project Name: Horrigan Court Pump Station Replacement

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 the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This 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 ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and 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 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: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: <http://www.fws.gov/mainefieldoffice/Project%20review4.html>

Additionally, wind energy projects should follow the wind energy guidelines: <http://www.fws.gov/windenergy/> for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm> and at:

<http://www.towerkill.com>; and at:
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>

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 Tracking Number 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

Consultation Code: 05E1ME00-2022-SLI-0496

Event Code: Some(05E1ME00-2022-E-01807)

Project Name: Horrigan Court Pump Station Replacement

Project Type: WASTEWATER FACILITY

Project Description: Replacement and relocation of existing sewer pump station further from the Saco River and out of the floodplain.

Project Location:

Approximate location of the project can be viewed in Google Maps: [https://](https://www.google.com/maps/@43.49775615,-70.46444906591893,14z)

www.google.com/maps/@43.49775615,-70.46444906591893,14z



Counties: York County, Maine

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
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	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.

Chekan, Craig

From: Fisk, JoAnne
Sent: Tuesday, January 11, 2022 2:57 PM
To: Chekan, Craig
Subject: RE: Horrigan Court Pump Station Replacement - Police Approval Letter

Craig,

Regarding the E911 addressing for this location it is and will remain 20 Horrigan Court. There is no need for any permission letter due to the existing address.

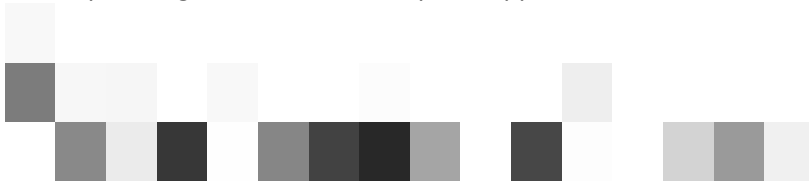
Regards,
JoAnne Fisk, Deputy Chief
Biddeford Police Department

From: Chekan, Craig <Craig.Chekan@Biddefordmaine.org>
Sent: Tuesday, January 11, 2022 2:36 PM
To: Fisk, JoAnne <joanne.fisk@biddefordmaine.org>
Cc: Beaupre, Roger P. <roger.beaupre@biddefordmaine.org>; Demers, Jeff <Jeff.Demers@Biddefordmaine.org>; Milligan, Tom <Tom.Milligan@Biddefordmaine.org>
Subject: Horrigan Court Pump Station Replacement - Police Approval Letter
Importance: High

Hi JoAnne

We are replacing the existing wastewater pump station at Horrigan Court and require local planning board permits.

Part of the planning board checklist requires approval letters from Fire and Police:



Planning's submittal deadline is tomorrow

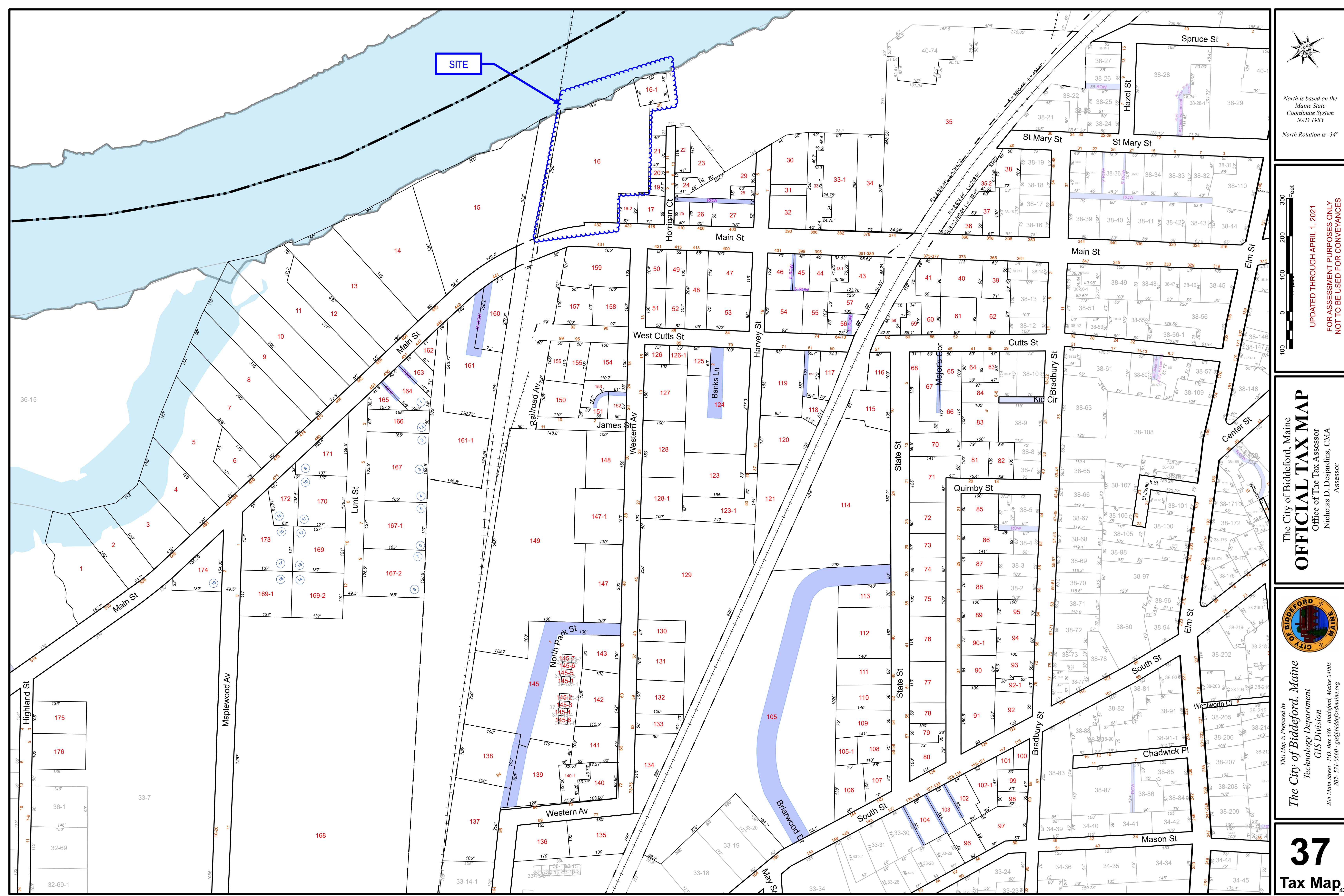
- I apologize for the short notice, but Jeff recommended I reach out to see if this is something you could quickly provide via email/letter?
- We just want to confirm if Police has any concerns with the pump station replacement project

Attached are pertinent construction drawings; the full drawing set can be found here:

\\\\netserver_1\\Public\\City Hall\\Engineering\\Horrigan Court Pump Station Replacement\\2021-12-20_Horrigan Court Final Bid Documents

Thanks in advance for your help
Craig

Craig Chekan, PE
City of Biddeford | P.O. Box 586, Biddeford, ME 04005
207-571-0636 | craig.chekan@biddefordmaine.org



North is based on the
Maine State
Coordinate System
NAD 1983
North Rotation is -34°

UPDATED THROUGH APRIL 1, 2021
FOR ASSESSMENT PURPOSES ONLY
NOT TO BE USED FOR CONVEYANCES

The City of Biddeford, Maine
OFFICIAL TAX MAP
Office of The Tax Assessor
Nicholas D. Desjardins, CMA
Assessor

This Map is Prepared By
The City of Biddeford, Maine
Technology Department
GIS Division
203 Main Street - P.O. Box 386 - Biddeford, Maine 04005
207-571-0660 - gis@biddefordmaine.org

37
Tax Map



City of Biddeford, Maine

Public Works Department

371 Hill Street Biddeford, Maine 04005

Letter of Wastewater Treatment Plant Capacity to Serve

Horrigan's Court Pump Station Replacement Project

c/o WWTF
63 Water Street
Biddeford, Maine 04005

January 11, 2022

Brief description of project: **Horrigan's Court Pump Station Replacement Project**
Estimated increase in flows: **0 gpd.**

Determination

The City of Biddeford Engineering Department has reviewed the request to serve the above-described project. It has been determined that at this time the City has sufficient capacity at the City's Wastewater Treatment Facilities to serve the above described project. It is estimated, based on information provided by the applicant, that 0 gpd of additional flows will be added from the project. There will be no increase in flow to the sewers. Changes to the project from that presented to this department may require a new review of the request for ability to serve. This determination will be effective for a period of one year from the date above.

Upon approval of the Planning Board the applicant must make application for sewer service. Flow amounts for the project will be determined at the time application is made and may or may not be the amount stated above. The applicant will be required to pay all fees based on the flow amount calculated at the time application is made and prior to the issuance of any building permits.

This Capacity to Serve Letter is intended only to determine the City of Biddeford Wastewater Treatment Facilities ability to handle and treat the flow from the above stated project once it is received at the treatment facility. The Planning Department, Engineering Department, Public Works or other persons from the Wastewater Department may require further studies or documentation regarding the impact on the City's sewer collection system or its components.

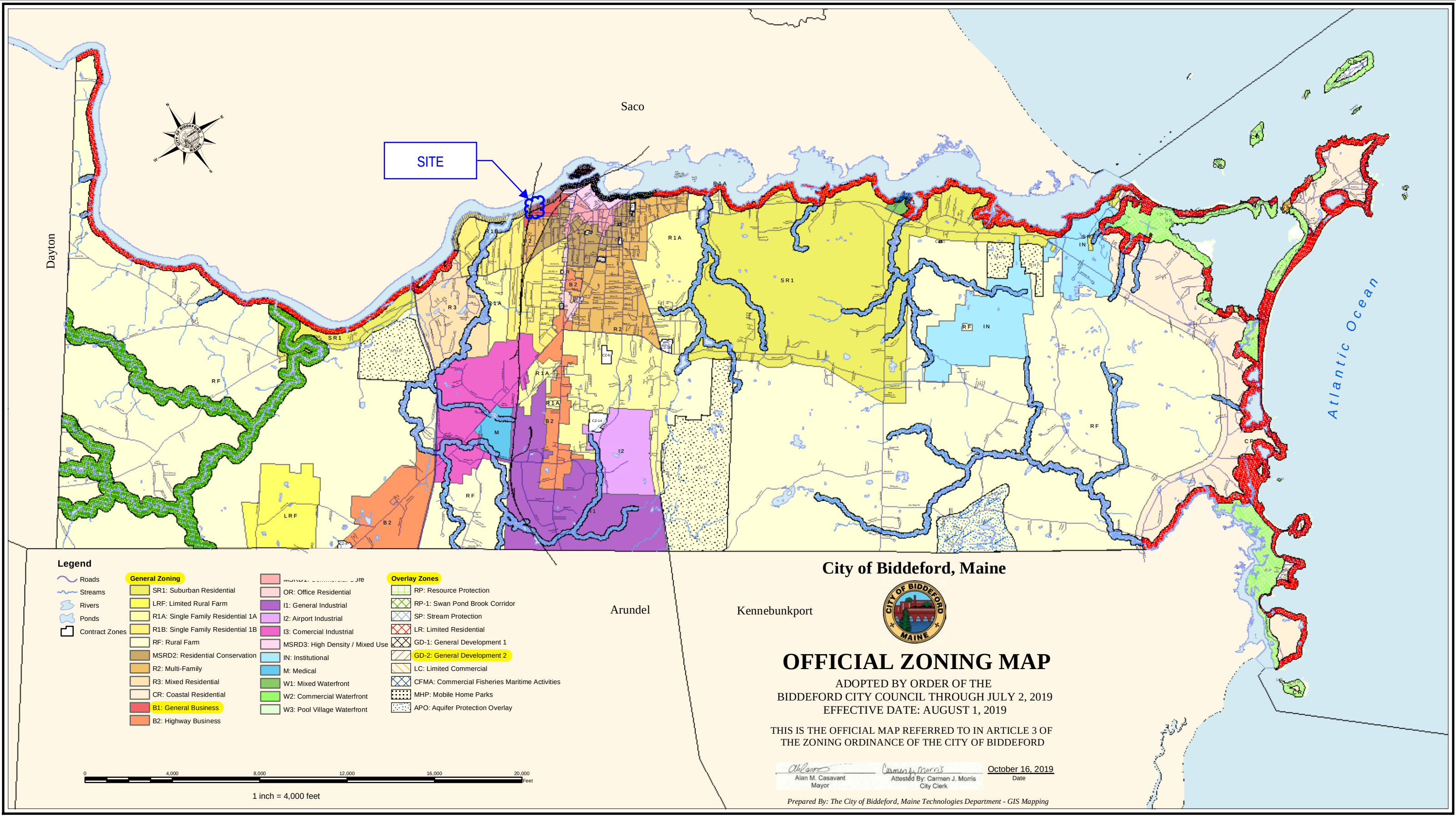
Regards,

A handwritten signature in blue ink that reads "Thomas Milligan Jr".

Tom Milligan, PE
Biddeford City Engineer

Cc:

Craig Chekan, Deputy City Engineer
Jeff Demers, Public Works Director
Alex Buechner, Wastewater Superintendent
Roby Fecteau, Code Enforcement
Greg Tansley, City Planner



Legend

- | | | | |
|----------------|-----------------------------------|---------------------------------|--|
| Roads | General Zoning | MSRD2: Residential Conservation | Overlay Zones |
| Streams | SR1: Suburban Residential | OR: Office Residential | RP: Resource Protection |
| Rivers | LRF: Limited Rural Farm | I1: General Industrial | RP-1: Swan Pond Brook Corridor |
| Ponds | R1A: Single Family Residential 1A | I2: Airport Industrial | SP: Stream Protection |
| Contract Zones | R1B: Single Family Residential 1B | I3: Commercial Industrial | LR: Limited Residential |
| | RF: Rural Farm | MSRD3: High Density / Mixed Use | GD-1: General Development 1 |
| | MSRD2: Residential Conservation | IN: Institutional | GD-2: General Development 2 |
| | R2: Multi-Family | M: Medical | LC: Limited Commercial |
| | R3: Mixed Residential | W1: Mixed Waterfront | CFMA: Commercial Fisheries Maritime Activities |
| | CR: Coastal Residential | W2: Commercial Waterfront | MHP: Mobile Home Parks |
| | B1: General Business | W3: Pool Village Waterfront | APO: Aquifer Protection Overlay |
| | B2: Highway Business | | |

City of Biddeford, Maine



OFFICIAL ZONING MAP

ADOPTED BY ORDER OF THE
BIDDEFORD CITY COUNCIL THROUGH JULY 2, 2019
EFFECTIVE DATE: AUGUST 1, 2019

THIS IS THE OFFICIAL MAP REFERRED TO IN ARTICLE 3 OF
THE ZONING ORDINANCE OF THE CITY OF BIDDEFORD

 Alan M. Casavant Mayor	 Attested By: Carmen J. Morris City Clerk	<u>October 16, 2019</u> Date
-------------------------------	---	---------------------------------

Prepared By: The City of Biddeford, Maine Technologies Department - GIS Mapping

Reference Number	Property Name	Status	Request Type	Restricted Address	Category of Property	State	County	City	Street & Number
08001258	Biddeford-Saco Mills Historic District	Listed	Single	FALSE	DISTRICT	MAINE	York	Biddeford	Bounded by Pearl, Lincoln, York and Main Sts., Biddeford, Gooch and Saco Sts.
09001146	Biddeford Main Street Historic District	Listed	Single	FALSE	district	MAINE	York	Biddeford	29 to 316 Main St., and portions of Elm, Jefferson, Adams, Washington, Franklin, Alfred and Water Sts.
11000819	Emery School	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	116 Hill St.
15000771	St. Andre's Parish	Listed	Single	FALSE	DISTRICT	MAINE	York	Biddeford	73, 77 Bacon & 39, 41 Sullivan Sts.
16000786	Timber Point	Listed	Single	FALSE	district	MAINE	York	Biddeford	2 Timber Point Rd., Rachel Carson National Wildlife Refuge
72000080	First Parish Meetinghouse	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	Old Pool Rd.
73000156	Biddeford City Hall	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	205 Main St.
73000161	U.S. Post Office	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	35 Washington St.
80000260	Flagg, James Montgomery, House	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	St. Martin's Lane
80000263	Tarr, John, House	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	29 Ferry Lane
82000428	Dudley Block	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	28-34 Water St.
83003708	St. Joseph's School	Listed	Single	FALSE	BUILDING	MAINE	York	Biddeford	Birch St.
100004341	Stage Island Monument	Listed	Single	FALSE	structure	MAINE	York	Biddeford	NE of Hills Beach on Stage Island , .6 mi. N of mouth of Biddeford Pool

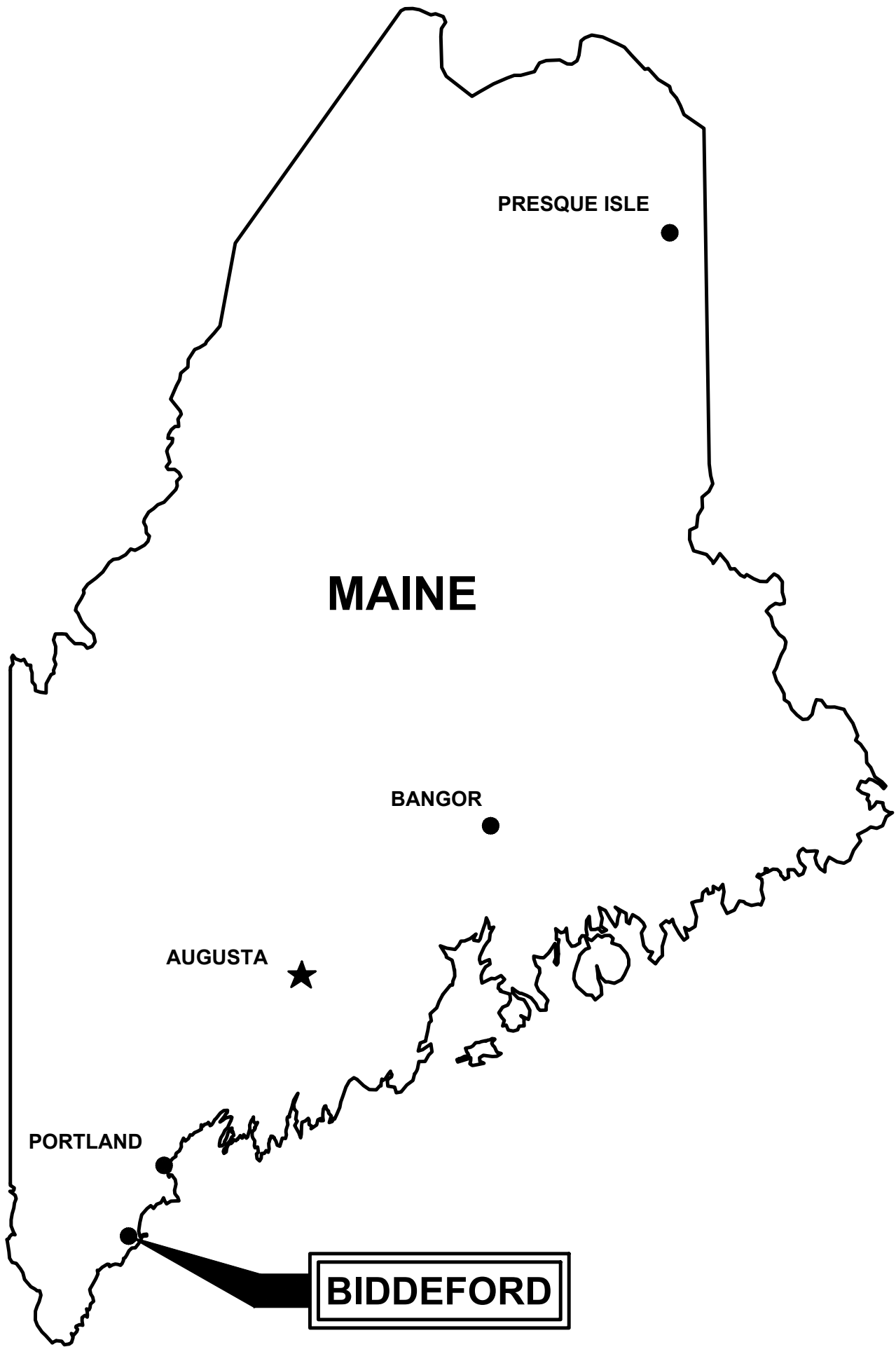
CITY OF BIDDEFORD, MAINE

CONTRACT DRAWINGS FOR

HORRIGAN COURT PUMP STATION UPGRADE

DECEMBER 2021

CONTRACT DRAWINGS



DRAWING INDEX

GENERAL	
---	COVER SHEET
1 OF 2	BOUNDARY & TOPOGRAPHIC SURVEY PLAN
2 OF 2	BOUNDARY & TOPOGRAPHIC SURVEY PLAN
CIVIL	
C-1	GENERAL NOTES, LEGEND & ABBREVIATIONS
C-2	EXISTING PUMP STATION DEMOLITION PLANS
C-3	SITE LAYOUT PLAN
C-4	PUMP STATION SITE PIPING & GRADING PLAN
C-5	ACCESS DRIVE & SEWER MAIN PROFILE
C-6	DETAILS I
C-7	DETAILS II
C-8	DETAILS III
C-9	EROSION CONTROL NOTES & DETAILS
ARCHITECTURAL	
A-1	GENERAL NOTES, LEGENDS, AND ABBREVIATIONS
A-2	PLANS, ELEVATIONS, SECTIONS AND DETAILS
A-3	DETAILS I
A-4	DETAILS II
PROCESS	
PR-1	PROCESS GENERAL NOTES, LEGEND, ABBREVIATIONS, AND DETAILS
PR-2	PUMP STATION TOP AND BOTTOM PLANS
PR-3	PUMP STATION SECTIONS AND PERSPECTIVES I
PR-4	PUMP STATION SECTIONS AND PERSPECTIVES II
INSTRUMENTATION	
I-1	LEGEND, ABBREVIATIONS & NOTES
I-2	CONTROL LOOPS
ELECTRICAL	
E-1	ELECTRICAL LEGEND, ABBREVIATIONS, NOTES, NEMA AND CONDUIT INSTALLATION SCHEDULE
E-2	ELECTRICAL SITE PLAN
E-3	SINGLE LINE DIAGRAM
E-4	ELECTRICAL PLAN
E-5	ELECTRICAL DETAILS I
E-6	ELECTRICAL DETAILS II
E-7	ELECTRICAL DETAILS III
E-8	ELECTRICAL SCHEDULES
E-9	ELECTRICAL SCHEMATICS

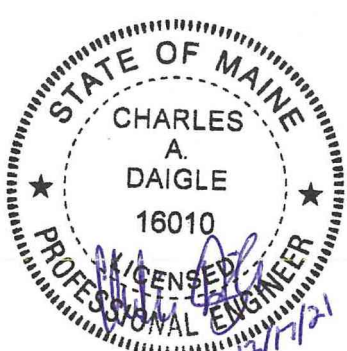
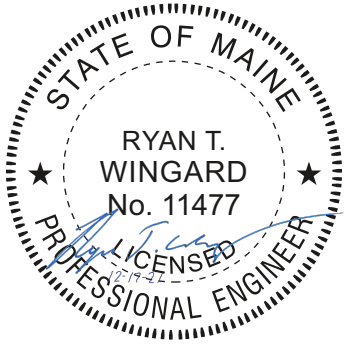


LOCATION PLAN
SCALE: "NTS"

WRIGHT-PIERCE

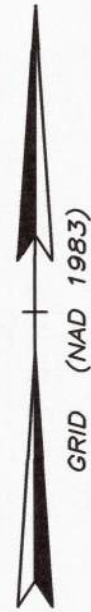
Engineering a Better Environment

207.725.8721 | www.wright-pierce.com



FOR BIDDING DECEMBER 17, 2021

WP PROJECT No. 12223



LEGEND :

•	SET IRON ROD WITH CAP (UNLESS OTHERWISE NOTED)
□	CATCH BASIN
⊙	DRAIN MANHOLE
⊗	HYDRANT
⊕	WATER VALVE
⊖	SEWER MANHOLE
⊙	SEWER VALVE
⊙	PUMP STATION
⊙	WITNESS POST FOR BURIED GAS LINE
☆	LIGHT POST
⊙	UTILITY POLE
⊙	HEDGE OR SHRUB
⊙	DIAMETER
N/F	NOW OR FORMERLY
CB	CORNERBOARD
BW	BRICKWORK
UP	UNDERPINNING
FM	FORCED MAIN
W	WATER MAIN
S	SANITARY SEWER MAIN
SD	STORM DRAIN
OU	OVERHEAD UTILITY LINES
OF	OVERFLOW PIPE - LINE
□	STOCKADE - WOOD PANEL FENCE
○	CHAIN LINK FENCE

LOCUS DEED REFERENCES :

1. (MAP 37, LOT 16-1)
J. H. DUNNING CORPORATION
TO
CITY OF BIDDEFORD
JULY 7, 1964 BOOK 1619, PAGE 477
 2. (MAP 40, LOT 25-2)
DIAMOND INTERNATIONAL CORPORATION
TO
THE INHABITANTS OF THE CITY OF BIDDEFORD
OCTOBER 5, 1976 BOOK 2158, PAGE 491
 3. (MAP 37, LOT 16)
PHILIP N. LABBE AND GEORGE H. DESROBERTS
TO
THE INHABITANTS OF THE CITY OF BIDDEFORD
MARCH 15, 1979 BOOK 2482, PAGE 220
- SEE ALSO: BOOK 758, PAGE 257
BOOK 603, PAGE 180

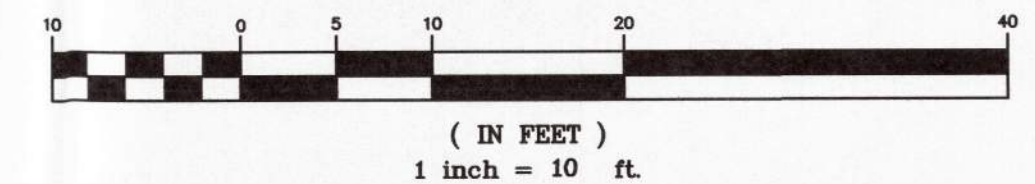
PLAN REFERENCES :

1. "B. & M. R. R., LEASE PLAN, BIDDEFORD, ME., J. G. DEERING & SON, LESSEE"
DATED NOVEMBER, 1911 (PREPARED BY BOSTON & MAINE RAILROAD).
2. "PLAN OF PROPERTY OF PEPPERELL MANUFACTURING CO., BIDDEFORD, ME."
DATED MAY 13, 1926 AS REVISED APRIL, 1935 BY LIBBY & DOW.
3. "PLAN SHOWING THE HERRIGAN PROPERTY" DATED OCTOBER, 1929 BY LIBBY & DOW.
4. "LAND AND EASEMENTS IN BIDDEFORD & SACO, ME, BOSTON AND MAINE
CORPORATION TO PORTLAND GAS LIGHT CO." DATED FEBRUARY, 1966, FILE
NO. R2-87A-3, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN
PLAN BOOK 44, PAGE 6.
5. "PLAN SHOWING A PROPOSED SEWER EASEMENT AND PUMPING STATION LOT,
BIDDEFORD, MAINE" DATED MARCH 24, 1964, AS REVISED APRIL 2, 1964 BY
LIBBY & DOW, RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN
PLAN BOOK 39, PAGE 40.
6. "PLAN SHOWING A SURVEY OF LAND FOR DIAMOND INTERNATIONAL CORP.,
BIDDEFORD, MAINE" DATED JANUARY, 1973 BY DOW, COULOMBE & BROWN,
INC.
7. "COMPREHENSIVE SEWER STUDY, EXISTING SEWER SYSTEM, CITY OF BIDDEFORD,
MAINE" DATED OCTOBER, 1974 AS REVISED NOVEMBER, 1974 BY ERWARD C.
JORDAN CO., INC., SHEET NO. 36.

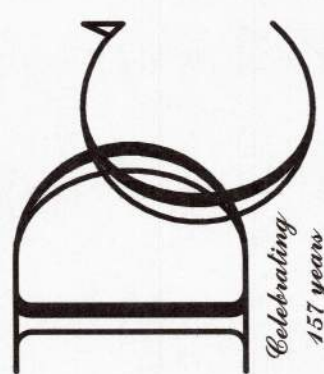
NOTES :

1. TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS SURVEY CONFORMS TO
STATE OF MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS'
STANDARDS; CHAPTER 90, ADOPTED APRIL, 2001.
EXCEPTIONS: A PROPOSED LEGAL DESCRIPTION WAS NOT PREPARED.
2. ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM OF 1988.
3. SEE ACCOMPANYING SURVEYOR'S REPORT.
4. THE LINES OF MAIN STREET AND HERRIGAN COURT ARE APPARENT LINES PER
PLAN REFERENCES #2 AND #3.
5. THE UNDERGROUND WATER LINE WAS IDENTIFIED BY MAINWATER.
6. THE UNDERGROUND GAS LINE WAS IDENTIFIED BY UNTIL.
7. THE SURVEYOR IS AWARE OF UNDERGROUND ELECTRIC LINES IN THE VICINITY
OF THE UTILITY POLE AND PUMP STATION FACILITY. THESE HAVE NOT BEEN
MARKED FOR THE SURVEYOR TO LOCATE.
8. SEWER INFORMATION PLOTTED FROM LOCATION OF STRUCTURES VISIBLE ON
THE GROUND SURFACE, INVERT MEASUREMENTS, INFORMATION SHOWN ON
PLAN REFERENCE #7, AND INFORMATION PROVIDED THE SURVEYOR BY THE
CITY OF BIDDEFORD WASTE WATER AND ENGINEERING DEPARTMENTS.
9. INFORMATION IN BRACKETS [] IS PER CITY OF BIDDEFORD WASTE WATER AND
ENGINEERING DEPARTMENT RECORDS.

GRAPHIC SCALE



PLAN SHOWING A BOUNDARY SURVEY AND TOPOGRAPHIC
SURVEY MADE FOR
THE CITY OF BIDDEFORD
C/O WRIGHT-PIERCE
(MAILING ADDRESS : 75 WASHINGTON AVENUE, PORTLAND, ME 04101
PARCEL LOCATED AT MAIN STREET AND HERRIGAN COURT
BIDDEFORD MAINE



Dow & Coulombe, Inc.
Land Surveyors & Land Planners Since 1864
13 Park Street, Saco, Maine 04072
Telephone: (207)284-4521 * Fax: (207)284-4522
info@dowcoulombe.com * www.dowcoulombe.com

Date:
APRIL 6, 2021
H. Scale: Drawn by:
1" = 10' MJC
Chk'd by: App'd by:
PDD MJC
SHEET 2 OF 2

ZONE-9
Dwgs2021\HRRIGAN9

GENERAL NOTES

1. THE OWNER WILL BE RESPONSIBLE FOR OBTAINING THE PERMITS LISTED IN THE SUPPLEMENTARY OR SPECIAL CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH PERMIT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL OBTAINED PERMITS ARE AVAILABLE FOR REVIEW FROM THE OWNER. ALL OTHER PERMITS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS OF WAY AND EASEMENTS. THE CONTRACTOR SHALL VERIFY THAT THE NECESSARY EASEMENTS HAVE BEEN SECURED BY THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE APPLICABLE PROVISIONS OF EACH EASEMENT AS THEY APPLY TO THE WORK PRIOR TO BIDDING AND ABIDE BY THOSE PROVISIONS DURING CONSTRUCTION. COPIES OF ALL RIGHTS-OF-WAY AND EASEMENTS ARE AVAILABLE FOR REVIEW FROM THE OWNER.
3. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRAFFIC FLOW AT ALL TIMES. CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL SIGNS IN ACCORDANCE WITH THE MUTCD AND ALL STATE AND LOCAL REGULATIONS. THE CONTRACTOR IS REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE OWNER PRIOR TO COMMENCING CONSTRUCTION. THE POLICE DEPARTMENT AND FIRE DEPARTMENT ARE TO BE NOTIFIED AT LEAST 24-HOURS IN ADVANCE OF ANY STREET CLOSING OR DETOUR. REFER TO SPECIFICATION SECTION 01570.

4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
5. CONTRACTOR SHALL COMPLY WITH THE COORDINATION REQUIREMENTS AND RELATED COSTS, IF ANY, AS SPECIFIED IN SPECIFICATION SECTION 01050.

6. CONTRACTOR SHALL NOTE THAT, IN GENERAL, ALL EXISTING CONDITION INFORMATION ON THE DRAWINGS ARE SHOWN WITH A LIGHTER LINE WEIGHT AND WITH A SLANTED TYPE TEXT.

7. **AS-BUILT PLANS & ELECTRONIC DESIGN FILES SHALL BE REQUIRED UNDER THIS CONTRACT. PLEASE REFER TO SPECIFICATION SECTION 01720 FOR DETAILS.**

EXISTING SITE CONDITIONS

1. THE LOCATIONS OF UNDERGROUND UTILITIES AND STRUCTURES, AS SHOWN ON THE DRAWINGS, ARE APPROXIMATE AND MAY NOT BE COMPLETE. THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE BASED ON PREVIOUS CONSTRUCTION DESIGN PLANS, WHICH ARE AVAILABLE FOR INSPECTION AT THE ENGINEER'S OFFICE. NO GUARANTEE IS MADE THAT UTILITIES OR STRUCTURES WILL BE EXACTLY SHOWN. BEFORE ANY UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN, THE CONTRACTOR SHALL LOCATE ALL LOCATIONS AND SIZES OF EXISTING UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD WITH TEST PITS AS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF NEW FACILITIES OR PIPING THAT MAY BE AFFECTED. THE CONTRACTOR WILL REALIGN NEW PIPE LOCATIONS AS REQUIRED TO CONFORM TO EXISTING LINES AND AS APPROVED BY THE ENGINEER.

2. BELOW GRADE UTILITY INFORMATION IS BASED ON INFORMATION PROVIDED BY EACH UTILITY. LOCATION OF PUBLIC UTILITIES SHOWN IS ONLY APPROXIMATE AND MAY NOT BE COMPLETE. PRIVATE UNDERGROUND UTILITIES SUCH AS, BUT NOT LIMITED TO, SEWER LINES, WATER LINES AND BURIED ELECTRICAL SERVICE ENTRANCES ARE NOT SHOWN. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING UTILITIES IN THE FIELD WITH THE RESPECTIVE UTILITY COMPANY REPRESENTATIVE PRIOR TO COMMENCING WORK. REFER TO SPECIFICATION SECTION 01050. ADDITIONAL TEST PITS, BEYOND THOSE SHOWN, MAY BE REQUIRED. UTILITY CONTACTS ARE AS FOLLOWS:

ELECTRIC: CENTRAL MAINE POWER 162 CANCO ROAD PORTLAND, ME 04103 (207) 458-1207	WATER: MAINE WATER COMPANY 93 INDUSTRIAL PARK ROAD SACO, ME 04072 (207) 294-6904	DIG SAFE: 1-888-344-7233
---	---	------------------------------------

TELEPHONE/CABLE: CONSOLIDATED COMMUNICATIONS 5 DAVIS FARM ROAD PORTLAND, ME 04103 (207) 535-4208	CHARTER COMMUNICATIONS 118 JOHNSON ROAD PORTLAND, ME 04102 (207) 620-3410	MAINE FIBER COMPANY 491 LISBON STREET LEWISTON, ME 04240 (207) 333-3471
--	--	--

GAS: UNITIL CORPORATION 376 RIVERSIDE INDUSTRIAL PARKWAY PORTLAND, ME 04103 (207) 536-5663	SEWER: GRANITE STATE GAS 325 WEST ROAD PORTSMOUTH, NH 03810	CITY OF BIDDEFORD 205 MAIN STREET/P.O. BOX 580 BIDDEFORD, ME 04005 (207) 284-9118
---	---	---

3. REFER TO SPECIFICATION SECTION 00800-5C-5.06. IF THE PRESENCE OF HAZARDOUS ENVIRONMENTAL CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IMMEDIATELY. ALL ACTIVITIES, HANDLING AND DISPOSAL OF HAZARDOUS ENVIRONMENTAL CONDITIONS AND MATERIALS SHALL BE IN ACCORDANCE WITH OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.

SITE DEMOLITION

1. REFER TO THE EXISTING PUMP STATION & DEMOLITION PLAN, FOR ADDITIONAL INFORMATION REGARDING EXISTING FACILITIES. REFER TO THE LAYOUT DRAWING FOR LIMITS OF WORK.
2. REFER TO CIVIL AND ELECTRICAL DRAWINGS FOR SPECIFIC INFORMATION REGARDING DEMOLITION AND REMOVAL.
3. REFER TO SPECIFICATION SECTION 01010A, WHICH CONTAINS INFORMATION ON CONSTRAINTS OF CONSTRUCTION SEQUENCING.
4. DEMOLISH/REMOVE EXISTING PIPING AS REQUIRED FOR CONSTRUCTION OF NEW FACILITIES. ALL PIPING, EQUIPMENT AND MATERIALS TO BE DEMOLISHED AND/OR REMOVED FROM SERVICE SHALL BE COORDINATED WITH THE OWNER AND ENGINEER BEFORE COMMENCING THAT WORK. EXISTING PIPING THAT NEEDS TO BE REMOVED TO CONSTRUCT THE NEW FACILITIES, BUT IS TO REMAIN, SHALL BE REINSTALLED/REPLACED AS NEEDED. EXISTING PIPES AND CONDUIT DESIGNATED AS "ABANDONED" MAY BE REMOVED IF THE CONTRACTOR SO CHOOSES. IF ABANDONED PIPE CONFLICTS WITH NEW SITE PIPING OR FACILITIES, THEN A PORTION OF THE ABANDONED PIPE SHALL BE REMOVED, AND THE NEW ENDS OF ABANDONED PIPE CAPPED OR PLUGGED WITH CONCRETE.
5. ALL EXISTING PIPING AND UTILITIES WHICH ARE BENEATH PROPOSED STRUCTURES, AND ARE TO BE ABANDONED, SHALL BE REMOVED TO A MINIMUM OF 5-FEET OUTSIDE OF THE STRUCTURE. PIPE AND UTILITIES BENEATH PROPOSED STRUCTURES THAT ARE TO REMAIN SHALL BE CONCRETE ENCASED, UNLESS OTHERWISE INDICATED. REFER TO THE STRUCTURAL DRAWINGS FOR DETAILS.
6. SEVERING OF EXISTING UTILITIES FOR ABANDONMENT, OR REMOVAL OF A SEGMENT FROM SERVICE, SHALL BE PERFORMED IN SUCH A MANNER AS TO ALLOW THE REMAINING ACTIVE SEGMENT TO CONTINUE IN ITS INTENDED SERVICE. CAP ACTIVE SEGMENTS WITH APPROPRIATE FITTINGS, JOINT RESTRAINT, ETC. TO ENSURE THEIR INTEGRITY. PLUG ENDS OF ABANDONED PIPE SEGMENTS WITH CONCRETE UNLESS SPECIAL CIRCUMSTANCES DICTATE PLUGGING ABANDONED PIPES WITH BLIND FLANGES, RESTRAINED MECHANICAL JOINT PLUGS, ETC. AS APPROPRIATE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF ALL DEMOLISHED PIPING EQUIPMENT AND MATERIALS. UNLESS THE EQUIPMENT HAS BEEN IDENTIFIED TO BE SALVAGED OR RETURNED TO THE CITY. DISPOSAL SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. THE OWNER RESERVES THE RIGHT TO RETAIN ANY SUCH PIPING, EQUIPMENT AND MATERIALS DESIGNATED FOR DEMOLITION. PLEASE REFER TO DEMOLITION PLAN & ELECTRICAL PLANS FOR SPECIFIC EQUIPMENT TO BE RETAINED BY THE CITY. SUCH MATERIALS TO BE RETAINED SHALL BE PROPERLY STORED IN AN ON-SITE LOCATION. COORDINATE LOCATION AND MATERIALS TO BE SALVAGED WITH THE OWNER/ENGINEER. REFER TO SPECIFICATION SECTION 02050A.
8. THE CONTRACTOR SHALL KEEP A RECORD OF DEMOLITION AS PART OF THE PROJECT RECORD DOCUMENTS IN ACCORDANCE WITH SPECIFICATION SECTION 01720.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO ENSURE THAT ALL PROCESS FLOWS ARE MAINTAINED DURING CONSTRUCTION. GRAVITY OR PUMPED BYPASSES AND OTHER MEANS OF MAINTAINING FLOW SHALL BE SUBJECT TO THE REVIEW AND ACCEPTANCE OF THE ENGINEER. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY STOPPAGES OR BYPASSES WITH THE OWNER AND ENGINEER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROPRIATE DISPOSAL OF FLOWS RESULTING FROM PRECIPITATION AND GROUNDWATER DETERIORATING OPERATIONS.

SITE CLEARING, GRUBBING AND GRADING

3. STRIPPING OF TOPSOIL (LOAM) SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02115. REFER TO THE LAYOUT AND GRADING DRAWINGS FOR LIMIT OF WORK AND STRIPPING.
2. CONTRACTOR SHALL MINIMIZE CLEARING OPERATIONS. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02110. CLEARING LIMITS SHALL BE AS INDICATED ON THE DRAWINGS, BUT AT ALL TIMES WITHIN EXISTING ROAD RIGHTS-OF-WAY AND PROPERTY LINES ON STATE OR COUNTY-OWNED PROPERTY OR EASEMENTS. ALL FEARING AND GRUBBING MATERIAL SHALL BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF AT A SITE PROVIDED BY THE CONTRACTOR IN COMPLIANCE WITH ALL STATE AND LOCAL LAWS.
3. THE CONTRACTOR SHALL FOLLOW ALL ENDANGERED SPECIES ACT 4(D) RULES REGARDING THE NORTHERN LONG EARED BAT. THIS INCLUDES AVOIDANCE OF TREE REMOVAL DURING THE MONTHS OF JUNE AND JULY. CONTRACTOR SHALL PLAN ACCORDINGLY.
4. CONTRACTOR SHALL PROVIDE PROPER EROSION CONTROL AND DRAINAGE MEASURES IN ALL AREAS OF WORK, AND CONFINE SOIL SEDIMENT TO WITHIN THE LIMITS OF EXCAVATION AND GRADING. PRIOR TO BEGINNING EXCAVATION WORK, EROSION CONTROL FENCE SHALL BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE ACTUAL LIMITS OF GRUBBING AND/OR GRADING, AND AS SHOWN ON THE DRAWINGS. EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS ARE A MINIMUM, CONTRACTOR SHALL TAKE ALL OTHER NECESSARY MEASURES. EROSION CONTROL FENCE SHALL ALSO BE INSTALLED AT THE DOWN GRADIENT PERIMETER OF THE TOPSOIL STOCKPILES. ALL DISTURBED EARTH SURFACES SHALL BE STABILIZED IN THE SHORTEST PRACTICAL TIME AND TEMPORARY EROSION CONTROL DEVICES SHALL BE EMPLOYED UNTIL SUCH TIME AS ADEQUATE SOIL STABILIZATION HAS BEEN ACHIEVED. TEMPORARY STORAGE OF EXCAVATED MATERIAL SHALL BE STABILIZED IN A MANNER THAT WILL MINIMIZE EROSION. ALL INSTALLED EROSION CONTROL FACILITIES SHALL BE REMOVED AT THE END OF THE PROJECT. REFER TO SPECIFICATION SECTION 02270.
5. ALL STORM DRAINAGE INLETS SHALL BE PROTECTED BY HAY BALE FILTERS TO PREVENT ENTRY OF SEDIMENT FROM RUNOFF WATERS DURING CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL COLLECTED SEDIMENT, AND THAT WHICH COLLECTS IN THE STORM DRAIN SYSTEM. REFER TO THE CIVIL DETAIL DRAWINGS.
6. THE GEOTECHNICAL REPORT FOR THE PROJECT SITE IS INCLUDED IN APPENDIX A AND IS DESCRIBED IN SPECIFICATION SECTION 00800 (SUPPLEMENTAL CONDITIONS).
7. CONTRACTOR SHALL CONTROL DUST ON THE CONSTRUCTION SITE TO A REASONABLE LIMIT, AS DETERMINED BY THE ENGINEER, AND AS OUTLINED IN SPECIFICATION SECTION 01562.
8. CONTRACTOR SHALL NOT TRACK OR SPILL EARTH, DEBRIS OR OTHER CONSTRUCTION MATERIAL ON PUBLIC OR PRIVATE STREETS AND PLANT DRIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMMEDIATE ASSOCIATED CLEAN UP.
9. ALL CATCH BASINS, MANHOLES, VALVE PITS, VALVE BOXES AND OTHER BURIED FACILITIES WITH SURFACE ACCESS SHALL BE ADJUSTED TO MATCH FINAL GRADES, UNLESS OTHERWISE INDICATED.
10. THE CONTRACTOR SHALL NOT HAVE ANY RIGHT OF PROPERTY IN ANY MATERIALS TAKEN FROM ANY EXCAVATION. SUITABLE EXCAVATED MATERIAL MAY BE INCORPORATED IN THE PROJECT, WITH EXCESS MATERIAL DISPOSED OF AT A LOCATION PROVIDED BY THE CONTRACTOR. THESE PROVISIONS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF OBLIGATIONS TO PROPERLY DISPOSE OF AND REPLACE ANY MATERIAL DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING. THE CONTRACTOR SHALL DISPOSE OF UNSUITABLE AND EXCESS MATERIAL IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CONTRACT DOCUMENTS.
11. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, PAVEMENT AND OTHER ITEMS DAMAGED BY CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND ENGINEER.
12. WHERE EXISTING PAVEMENT IS REMOVED AND REPLACED, MATCH EXISTING GRADES TO THE EXTENT POSSIBLE. COORDINATE FINE GRADING WITH THE ENGINEER.
13. ALL ROAD AND DRIVE CROSS SLOPES SHALL PITCH 1/4-INCH PER FOOT MINIMUM. ALL PAVED SURFACES SHALL PITCH 1% UNLESS OTHERWISE NOTED. REFER TO THE CIVIL DETAIL DRAWINGS.
14. ALL NON-ROADWAY AREAS THAT ARE EXCAVATED, FILLED, OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE LOAMED, GRADED, LIMED, FERTILIZED, SEEDED AND MULCHED, UNLESS OTHERWISE NOTED. THE TOP 4-INCHES OF SOIL SHALL BE LOAM. REFER TO SPECIFICATION SECTION 02485, LANDSCAPING/LOAM AND SEED.

CIVIL SITE LAYOUT

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THIS PROVIDED LAYOUT INFORMATION THROUGHOUT THE COURSE OF CONSTRUCTION. REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
2. REFER TO THE SITE PIPING AND SITE GRADING DRAWINGS FOR ADDITIONAL LAYOUT INFORMATION.
3. CONTRACTOR SHALL EXCAVATE TEST PITS, WHERE NECESSARY, PRIOR TO CONSTRUCTION LAYOUT AND RESULTS REPORTED TO THE ENGINEER FOR REVIEW FOR CONFORMANCE TO THE PLANS. TEST PITS ARE REQUIRED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.
4. IN GENERAL, THE GIVEN STRUCTURE LOCATIONS ARE TO BE THE OUTSIDE FACE OF THE STRUCTURE FOUNDATION WITH NO ADJUSTING REFERRED TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING AND STRUCTURE DIMENSIONS. RADII SHOWN FOR ROADS ARE TO EDGE OF PAVEMENT.
5. PLACE CRUSHED STONE MOWING STRIP AROUND THOSE STRUCTURES AS INDICATED ON THE DRAWINGS. REFER TO THE CIVIL DETAIL DRAWINGS.
6. THE LOCATIONS AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO, THE OWNER AND ENGINEER. THE CONTRACTOR SHALL LIMIT ACTIVITIES TO THESE AREAS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING AND RESETTling ALL EXISTING PROPERTY MONUMENTATION DISTURBED BY CONSTRUCTION. THIS WORK SHALL BE DONE BY A LAND SURVEYOR REGISTERED IN THE STATE OF MAINE, AT NO ADDITIONAL COST TO THE OWNER.
8. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE DISTANCES FROM THE DRAWINGS. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
9. BOLLARD LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE BOLLARD LOCATIONS WITH THE ENGINEER. REFER TO THE CIVIL DETAIL DRAWINGS.

CIVIL SITE PIPING

1. PIPING LEGEND IS ON THE PROCESS DRAWINGS. THE PROCESS PIPING SCHEDULE AND ADDITIONAL PIPING NOTES ARE LOCATED IN SPECIFICATION SECTION 15050.
2. ALL PIPE LINES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS IN PIPING WILL BE PERMITTED. CONCRETE THRUST BLOCKS OR OTHER ACCEPTABLE RESTRAINT SYSTEM IS REQUIRED ON ALL FITTINGS ON PRESSURE PIPE. WHERE A RESTRAINED JOINT SYSTEM IS USED, THE NUMBER OF PIPES WITH RESTRAINED JOINTS ON EITHER SIDE OF THE FITTING SHALL BE DESIGNED TO REFLECT THE PROJECT SOIL CONDITIONS AND PEAK SURGE PRESSURE IN THE PIPING SYSTEM. SEE THE CIVIL DETAIL DRAWINGS FOR THRUST BLOCK DETAILS. PROVIDE ALL BENDS (HORIZONTAL AND VERTICAL) AS REQUIRED TO MEET THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS.
3. THE CONTRACTOR SHALL ASCERTAIN THE LOCATION AND SIZE OF EXISTING PIPING AND UTILITIES IN THE FIELD BY TEST PIT EXCAVATION PRIOR TO COMMENCING INSTALLATION OF ANY OF THE NEW PIPING AFFECTED. WHERE NEW PIPE CONNECTS TO EXISTING PIPING OR STRUCTURAL PENETRATION, CONTRACTOR SHALL VERIFY ELEVATION BY TEST PIT, AS REQUIRED, PRIOR TO INSTALLATION OF ANY OF THE ASSOCIATED/AFFECTED NEW PIPING. IDENTIFIED CONFLICTS WITH EXISTING PIPING AND UTILITIES WILL BE REVIEWED WITH THE ENGINEER PRIOR TO COMMENCING INSTALLATION. THE HORIZONTAL ALIGNMENT OF NEW PIPING MAY BE ADJUSTED IN THE FIELD SUBJECT TO PRIOR REVIEW AND ACCEPTANCE OF THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR LAYOUT OF ALL PROPOSED WORK AS SHOWN ON THE DRAWINGS AND REPORT ANY LAYOUT DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

4. ALL BURIED CONNECTIONS TO STRUCTURES SHALL HAVE SLEEVE TYPE FLEXIBLE CONNECTIONS APPROXIMATELY 4-FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED (SOLID SLEEVE). REFER TO SPECIFICATION SECTION 1508B.
5. PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CONCRETE FOUNDATIONS, WALLS AND SLABS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE WATERSTOPS. SEE PROCESS, MECHANICAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS. NEW PENETRATIONS THROUGH EXISTING STRUCTURE WALLS SHALL BE BY CORING MACHINE AND LINK-TYPE SEALS, UNLESS OTHERWISE INDICATED. OPENINGS TO BE COMPATIBLE WITH REQUIRED PIPING AND STANDARD LINK SEAL SIZES. SEE PROCESS DETAIL DRAWINGS. REFER TO SPECIFICATION SECTION 1509.2.
6. TRENCH INSULATION SHALL BE USED WHERE DEPTH OF COVER IS LESS THAN 5-FEET. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.
7. TRENCH INSULATION SHALL BE USED WHEN THERE IS LESS THAN 2-FEET BETWEEN THE SEWER OR FORCE MAIN AND A CULVERT. REFER TO THE CIVIL DETAIL DRAWINGS FOR THE TRENCH INSULATION DETAIL.
8. MANHOLES ARE 4-FEET IN DIAMETER UNLESS OTHERWISE NOTED. THE TOP OF MANHOLE FRAMES SHALL BE SET FLUSH WITH FINISH GRADE, UNLESS OTHERWISE NOTED ON DRAWINGS. SEWER MANHOLE INVERTS SHOWN ON THE DRAWINGS ARE TO THE INSIDE FACE OF THE MANHOLE.
9. PIPES WITHIN VALVE PITS (MANHOLES) SHALL BE SUPPORTED 12-INCHES ABOVE BOTTOM OF MANHOLE ON ADJUSTABLE PIPE SADDLE SUPPORTS, IN ACCORDANCE WITH SPECIFICATION SECTION 1509.4, UNLESS OTHERWISE INDICATED.
10. CONTRACTOR SHALL RE-SHAPE INVERTS AS REQUIRED WHEN CONNECTING INTO EXISTING MANHOLES.
11. REFER TO SPECIFICATION SECTION 02200 FOR PIPE AND STRUCTURE BEDDING AND BACKFILL REQUIREMENTS.
12. COMPACTION TESTS WILL BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 02200. ANY SETTLEMENT OCCURRING WITHIN ONE-YEAR OF FINAL COMPLETION OF THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
13. OPEN TRENCHES IN THE ROADWAY MUST BE BACKFILLED AT THE END OF THE WORKDAY. OPEN TRENCHES OUTSIDE OF THE WAY MAY BE LEFT OPEN IF THE CONTRACTOR PROVIDES ADEQUATELY SAFE BARRICADING AND LIGHTS.
14. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTICE TO THE RESPECTIVE UTILITY POLE OWNER. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
15. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS, AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE CONNECTION. CONTRACTOR SHALL VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. TEST PITS SHALL BE USED AS REQUIRED.
16. ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE UNLESS OTHERWISE NOTED ON THE CIVIL EXISTING CONDITIONS AND DEMOLITION PLAN. ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND DISPOSAL OF ALL DEMOLITION MATERIALS IN ACCORDANCE WITH SPECIFICATION SECTION 02050.
18. WHERE POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER/SEWER LINE. A MINIMUM SEPARATION OF 18-INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER OR SLUDGE LINE SHALL BE MAINTAINED, IF POSSIBLE. WHERE A WATER LINE CROSSES UNDER A WASTEWATER/SEWER LINE, A FULL LENGTH OF PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
19. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO ANY TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. DAMAGE TO ANY SUCH STRUCTURES CAUSED BY OR RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE OWNER.
20. PIPING ON THE SITE PIPING PLAN HAS BEEN SHOWN BROKEN FOR CLARITY ONLY. PIPE BREAKS DO NOT INDICATE RELATIVE ELEVATIONS OF PIPING.
21. ELECTRICAL CONDUIT RUNS ARE INDICATED ON THE ELECTRICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION, EXCAVATION AND BACKFILLING REQUIRED FOR THE ELECTRICAL CONDUITS, AND SHALL FURNISH AND INSTALL ELECTRICAL MANHOLES AND HANDHOLES. COORDINATE THE LOCATION OF THE ELECTRICAL MANHOLES AND HANDHOLES, AND THE REQUIRED OPENING SIZES, WITH THE ELECTRICAL CONTRACTOR.
22. WHENEVER PROPOSED STRUCTURES ARE LOCATED PARTLY WITHIN A PAVED AREA AND PARTLY IN A NON-PAVED AREA, A BITUMINOUS CONCRETE PAVED APRON 2-FEET WIDE SHALL BE SUPPLIED AROUND THE PROPOSED COVER. PAVEMENT SHALL SLOPE AWAY FROM THE COVER.

SURVEY INFORMATION

1. EXISTING TOPOGRAPHICAL INFORMATION SHOWN IS OBTAINED FROM AN ON-GROUND SURVEY PERFORMED IN APRIL 2021 BY DOW & COULOMBE, INC. THE PROJECT IS ORIENTED TO GRID NORTH, NORTH AMERICAN DATUM OF 1983 (NAD 83), MAIN STATE PLANE COORDINATE SYSTEM, WEST ZONE-50 FOOT. VERTICAL DATUM IS REFERENCED TO NAVD88.
2. CONTRACTOR SHALL VERIFY BENCHMARK ELEVATIONS PRIOR TO USING IN CONSTRUCTION. PROJECT BENCH MARKS ARE SHOWN ON THE DRAWINGS.

PROJECT BENCHMARK
WEST CORNER OF CONCRETE SLAB FOR EXISTING CONTROL BUILDING
ELEV.=56.57' (NAVD88)
3. WETLAND & NATURAL RESOURCE BOUNDARIES DELINEATED BY ATLANTIC ENVIRONMENTAL, LLC IN MARCH 2021.

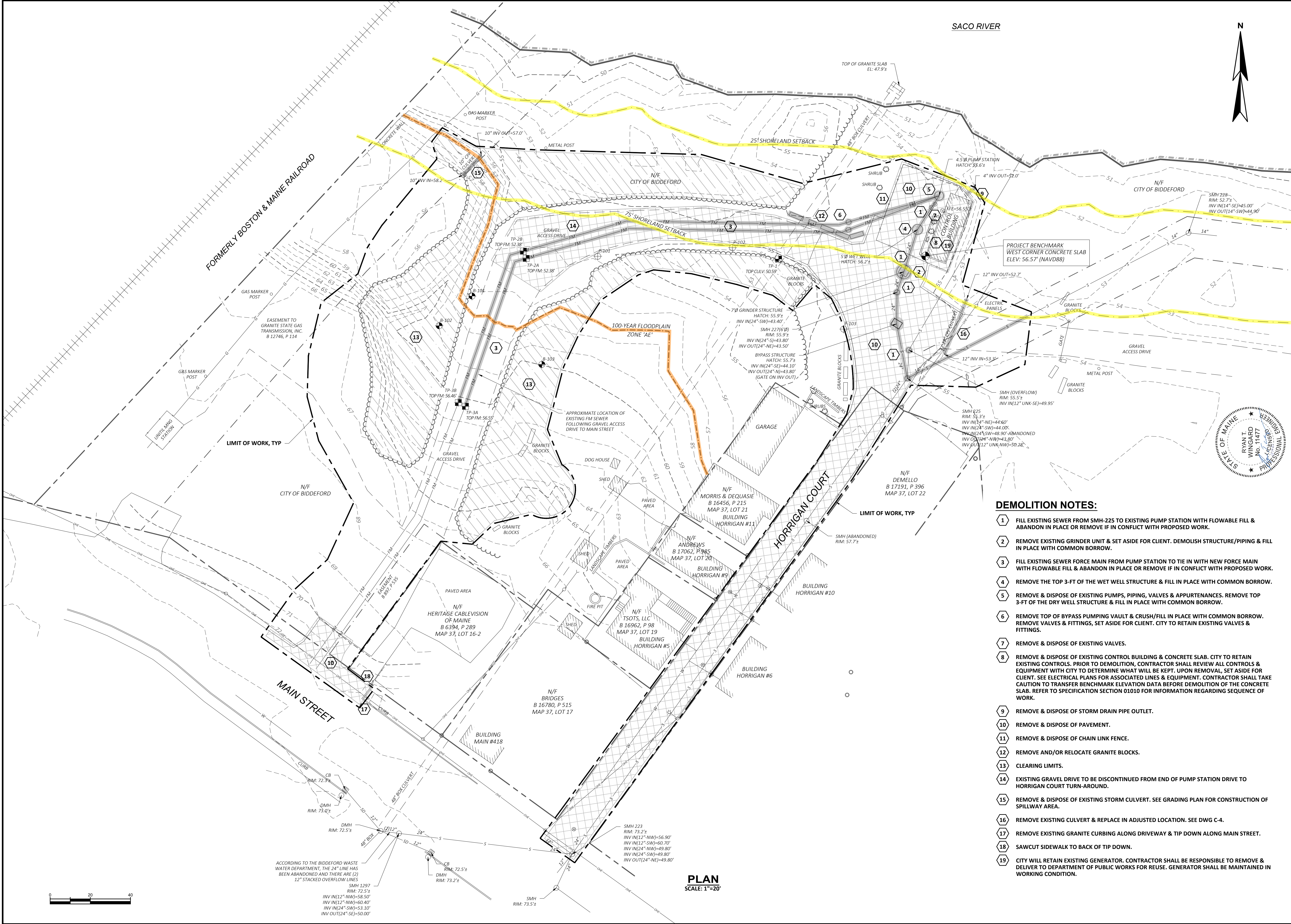
CIVIL ABBREVIATIONS

Ø, DIA	AND
#, NO	DIAMETER
APP'D	NUMBER
BLDG	APPROVED
CB	BUILDING
CEN	CATCH BASIN
CFS	CENTER
CI	CUBIC FEET PER SECOND
CL	CAST IRON
CMP	CENTERLINE
CO	CORRUGATED METAL PIPE
CONC	CLEANOUT
COR	CONCRETE
CY	CORNER
DEMO	CUBIC YARD
DMH	DEMOLITION
DI	DRAIN MANHOLE
DR	DUCTILE IRON
DWG	DRAIN
EL	DRAWING
EMH	ELEVATION
FM	ELECTRIC MANHOLE
FT	FORCE MAIN
G	FEET
HYD	GAS
IN	HYDRANT
INF	INCH
INV	INFLUENT
LBS	INVERT
MAX	POUNDS
MH	MAXIMUM
MIN	MANHOLE
MW	MINIMUM
NGVD	MONITORING WELL
N/A	NORTH
NTS	NATIONAL GEODETTIC VERTICAL DATUM
OD	NOT AVAILABLE/APPLICABLE
PC	NOT TO SCALE
PS	OUTSIDE DIAMETER
PSI	PERFORATED CLAY
PS	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRIMARY SLUDGE
PVC	PT
PCP	TANGENCY
RD	POLYVINYL CHLORIDE
REQ'D	REINFORCED CONCRETE PIPE
S	ROOF DRAIN
SD	REQUIRED
SF	SLOPE, SEWER
SMH	STORM DRAIN
SQ	SQUARE FEET
STA	SANITARY SEWER MANHOLE
T, XFMR	SQUARE
TBM	STATION
THK	TRANSFORMER
TOS	TEMPORARY BENCH MARK
TYP	THICKNESS
UG	TOP OF STRUCTURE
UGE	TYPICAL
VC	UNDERDRAIN
W/	UNDERGROUND
W	UNDERGROUND ELECTRIC
	VITRIFIED CLAY
	WITH
	POTABLE WATER

LEGEND

EXISTING	PROPERTY/ROW LINE	PROPOSED
	EASEMENT LINE	
	CENTERLINE	
	EDGE OF PAVEMENT	
	CURBING	
	EDGE OF GRAVEL	
	EDGE OF CONCRETE	
	CONTOUR	
	BUILDING	
	STONEWALL	
	TREELINE	
	CHAIN LINK FENCE	
	SEWER	
	SEWER FORCE MAIN	
	GAS	
	WATER	
	STORM DRAIN	
	UNDERDRAIN	
	CULVERT	
	UNDERGROUND ELECTRIC	
	OVERHEAD ELECTRIC	
	IRON PIPE/REBAR	
	SURVEY CONTROL POINT	
	SPOT ELEVATION	
	SEWER MANHOLE	
	DRAINAGE MANHOLE	
	CATCH BASIN	
	SHUTOFF VALVE	
	YARD HYDRANT	
	HYDRANT	
	GAS SERVICE SHUTOFF	
	GAS GATE VALVE	
	UTILITY POLE	
	UTILITY POLE W/ GUY	
	UTILITY POLE W/ LIGHT	
	BOLLARD	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	SHRUB	
	EDGE OF WATER	
	EDGE OF WETLANDS	
	FLOODPLAIN	
	WETLANDS	
	DRAINAGE FLOW	
	SIGN	
	TEMPORARY BENCH MARK	
	TEST PIT	
	TEST BORING	
	LIMIT OF WORK	
	SILT FENCE	
	RIPRAP	
	RAILROAD	

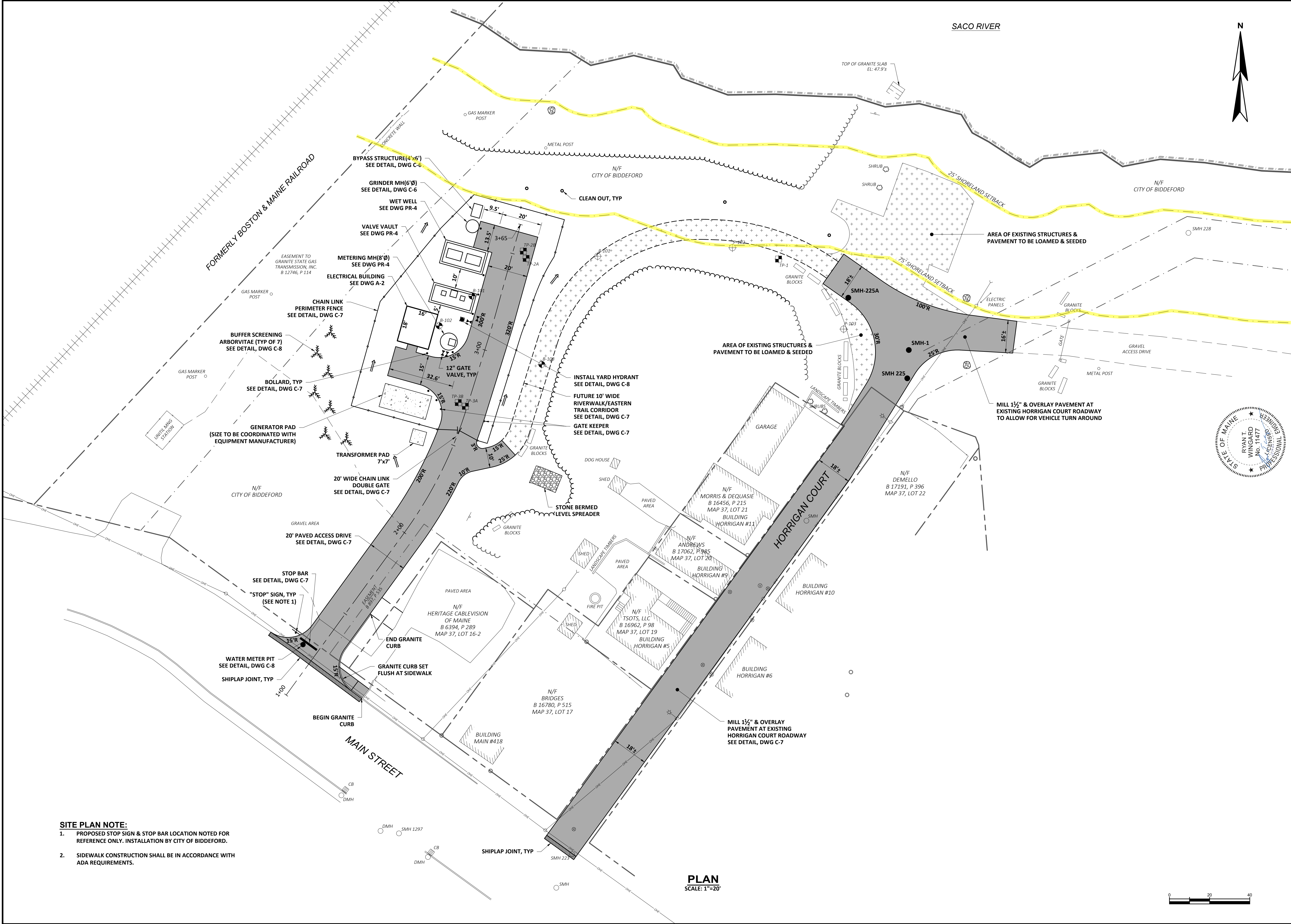
DRAWING	CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	 WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086		PROJECT NO: 122236 DESIGNED: C.DAIGLE CAD COORD: R.BEISAW CAD: R.BEISAW CHECKED: C.DAIGLE DATE: 11-2021 APPROVED: R.WINGARD DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	NO	REVISIONS	APPD. DATE
	GENERAL NOTES; LEGEND & ABBREVIATIONS				△		



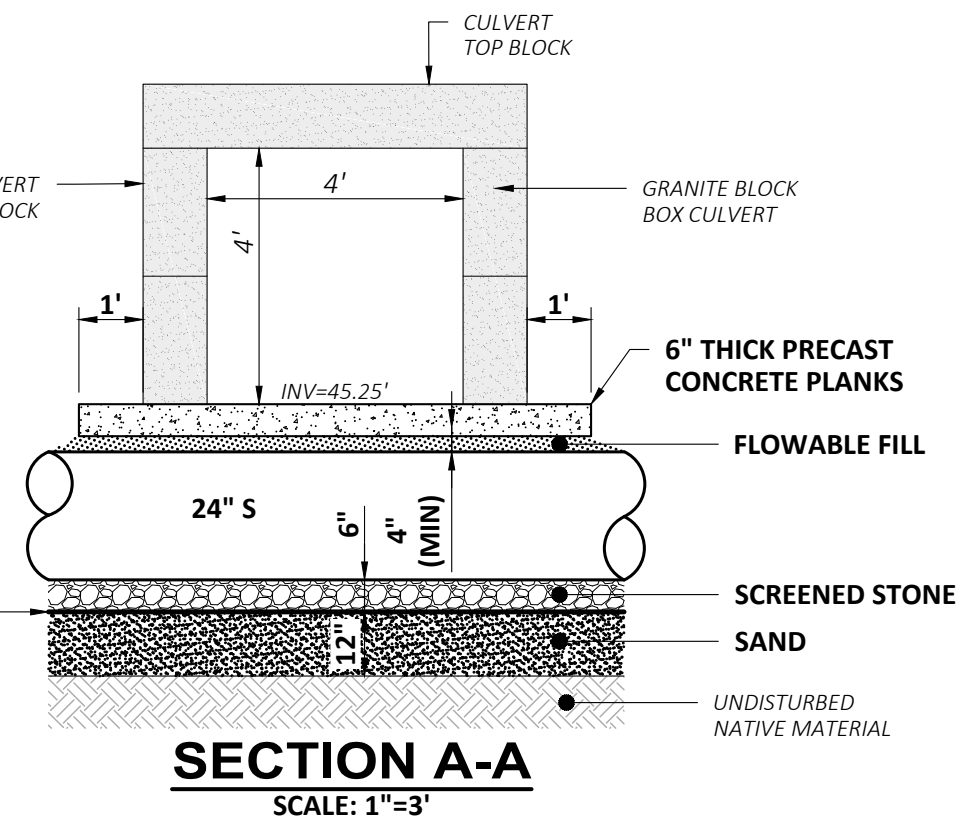
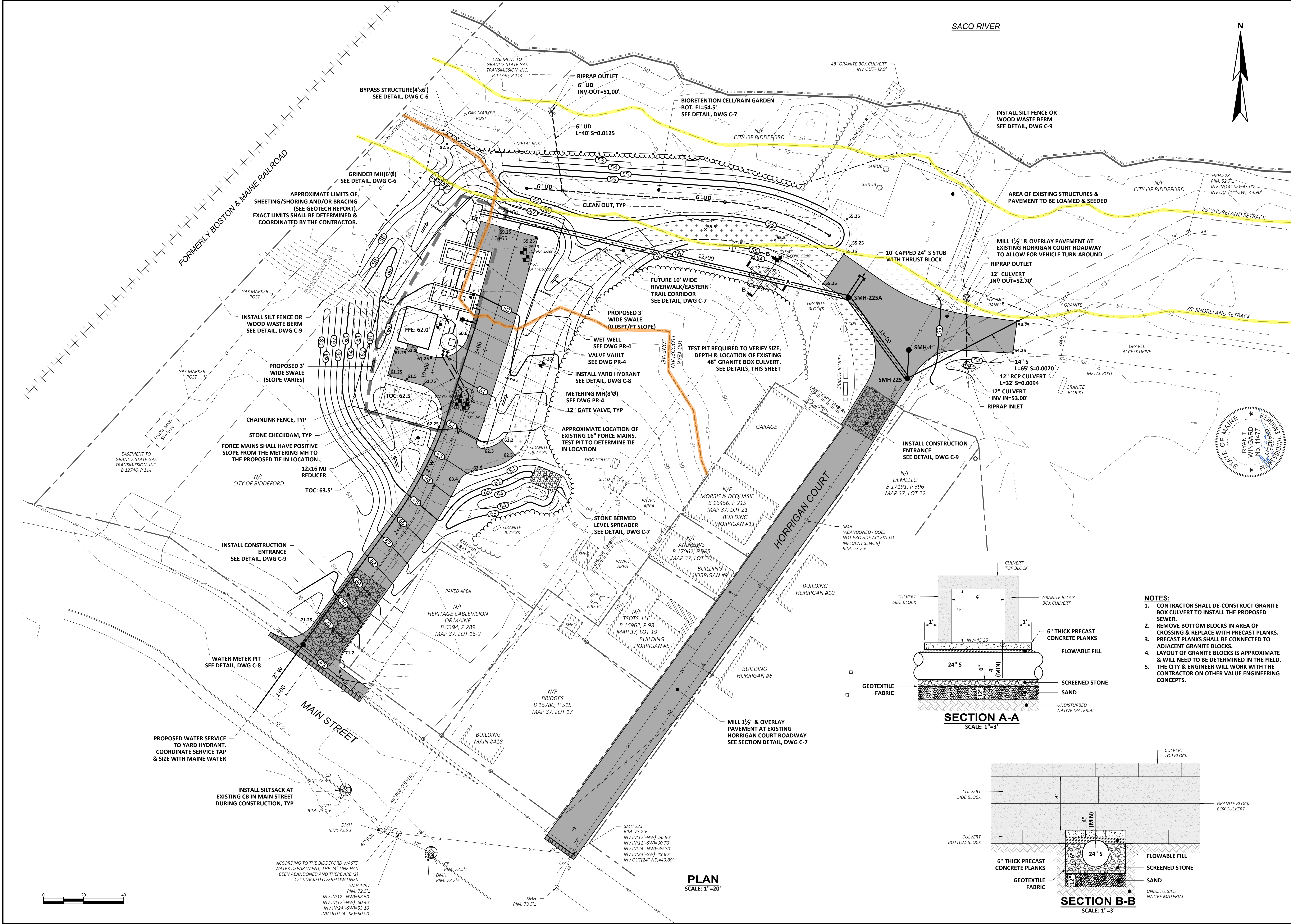
- DEMOLITION NOTES:**
- 1 FILL EXISTING SEWER FROM SMH-225 TO EXISTING PUMP STATION WITH FLOWABLE FILL & ABANDON IN PLACE OR REMOVE IF IN CONFLICT WITH PROPOSED WORK.
 - 2 REMOVE EXISTING GRINDER UNIT & SET ASIDE FOR CLIENT. DEMOLISH STRUCTURE/PIPING & FILL IN PLACE WITH COMMON BORROW.
 - 3 FILL EXISTING SEWER FORCE MAIN FROM PUMP STATION TO TIE IN WITH NEW FORCE MAIN WITH FLOWABLE FILL & ABANDON IN PLACE OR REMOVE IF IN CONFLICT WITH PROPOSED WORK.
 - 4 REMOVE THE TOP 3-FT OF THE WET WELL STRUCTURE & FILL IN PLACE WITH COMMON BORROW.
 - 5 REMOVE & DISPOSE OF EXISTING PUMPS, PIPING, VALVES & APPURTENANCES. REMOVE TOP 3-FT OF THE DRY WELL STRUCTURE & FILL IN PLACE WITH COMMON BORROW.
 - 6 REMOVE TOP OF BYPASS PUMPING VAULT & CRUSH/FILL IN PLACE WITH COMMON BORROW. REMOVE VALVES & FITTINGS, SET ASIDE FOR CLIENT. CITY TO RETAIN EXISTING VALVES & FITTINGS.
 - 7 REMOVE & DISPOSE OF EXISTING VALVES.
 - 8 REMOVE & DISPOSE OF EXISTING CONTROL BUILDING & CONCRETE SLAB. CITY TO RETAIN EXISTING CONTROLS. PRIOR TO DEMOLITION, CONTRACTOR SHALL REVIEW ALL CONTROLS & EQUIPMENT WITH CITY TO DETERMINE WHAT WILL BE KEPT. UPON REMOVAL, SET ASIDE FOR CLIENT. SEE ELECTRICAL PLANS FOR ASSOCIATED LINES & EQUIPMENT. CONTRACTOR SHALL TAKE CAUTION TO TRANSFER BENCHMARK ELEVATION DATA BEFORE DEMOLITION OF THE CONCRETE SLAB. REFER TO SPECIFICATION SECTION 01010 FOR INFORMATION REGARDING SEQUENCE OF WORK.
 - 9 REMOVE & DISPOSE OF STORM DRAIN PIPE OUTLET.
 - 10 REMOVE & DISPOSE OF PAVEMENT.
 - 11 REMOVE & DISPOSE OF CHAIN LINK FENCE.
 - 12 REMOVE AND/OR RELOCATE GRANITE BLOCKS.
 - 13 CLEARING LIMITS.
 - 14 EXISTING GRAVEL DRIVE TO BE DISCONTINUED FROM END OF PUMP STATION DRIVE TO HORRIGAN COURT TURN-AROUND.
 - 15 REMOVE & DISPOSE OF EXISTING STORM CULVERT. SEE GRADING PLAN FOR CONSTRUCTION OF SPILLWAY AREA.
 - 16 REMOVE EXISTING CULVERT & REPLACE IN ADJUSTED LOCATION. SEE DWG C-4.
 - 17 REMOVE EXISTING GRANITE CURBING ALONG DRIVEWAY & TIP DOWN ALONG MAIN STREET.
 - 18 SAWCUT SIDEWALK TO BACK OF TIP DOWN.
 - 19 CITY WILL RETAIN EXISTING GENERATOR. CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE & DELIVER TO DEPARTMENT OF PUBLIC WORKS FOR REUSE. GENERATOR SHALL BE MAINTAINED IN WORKING CONDITION.

REVISIONS		APPD	DATE
NO			
PROJECT NO: 122236			
DESIGNED: CDAGLE			
CAD COORD: R.BEISAW			
CAD: R.BEISAW			
CHECKED: CDAGLE			
DATE: 11-2021			
APPROVED: R.WINGARD			
DATE: 12-2021			
SUBMISSION: CONTRACT DRAWINGS			
STATE OF MAINE RYAN BEISAW 12/17/2021 12223-C2-EXISTCOND.DWG STATE OF MAINE CHARLES DAIGLE 16010 12223-C2-EXISTCOND.DWG			
CITY OF BIDDEFORD		EXISTING PUMP STATION DEMOLITION PLAN	
HORRIGAN COURT PUMP STATION UPGRADE			
BIDDEFORD, MAINE			
DRAWING		C-2	

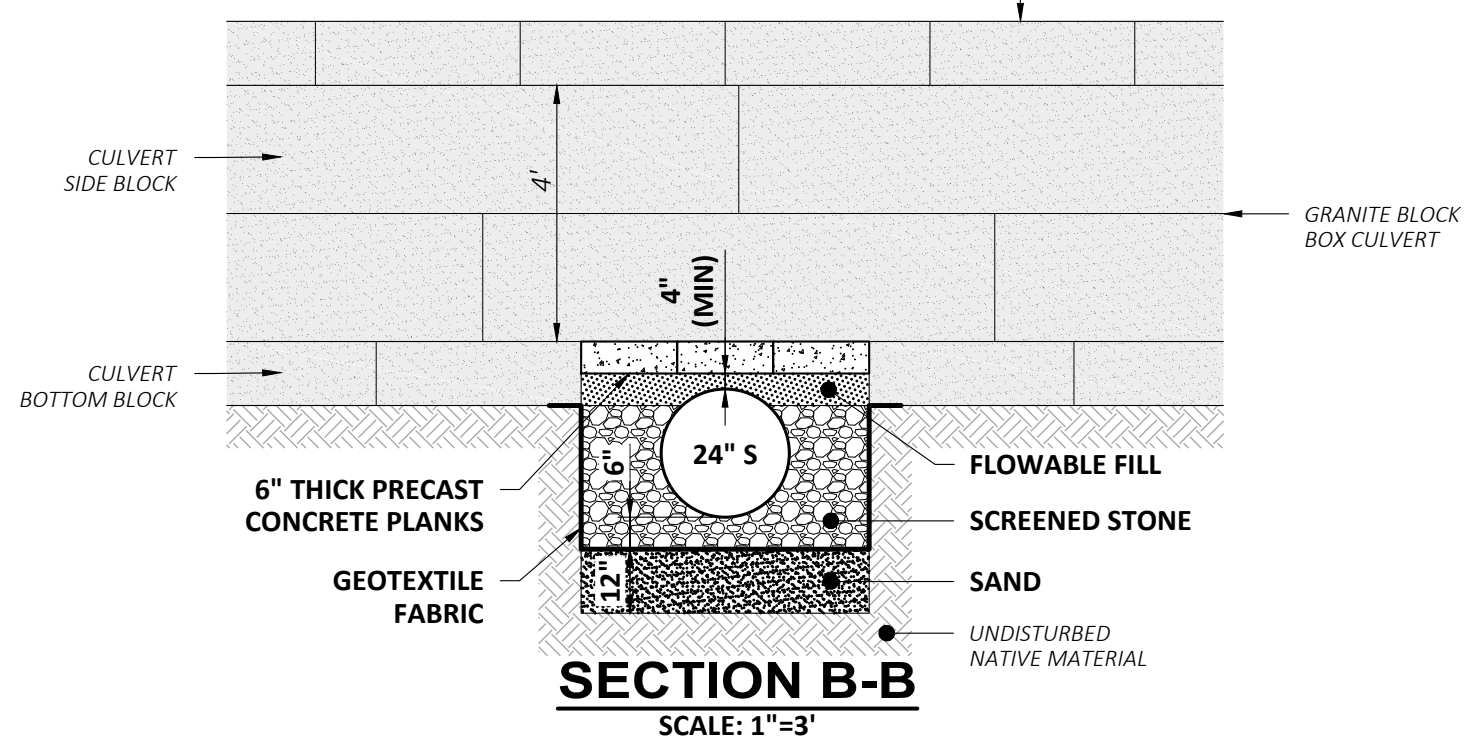
LAST SAVED BY: RYAN BEISAW 12/17/2021 8:04 AM
A:\ENGINE\BIDDEFORD\12223-DIAMOND\MATCH\LOT1\12223-C-3 SITE LAYOUT PLAN.DWG | 12223-C-3 SITE LAYOUT PLAN | 1:2,885 | 12/17/2021 8:36:01 AM | RYAN BEISAW



CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE		DRAWING			
SITE LAYOUT PLAN		C-3			
 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086				PROJECT NO: 12223G DESIGNED: C.DAIGLE CAD COORD: R.BEISAW CAD: R.BEISAW CHECKED: C.DAIGLE DATE: 11-2021 APPROVED: R.WINGARD DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	

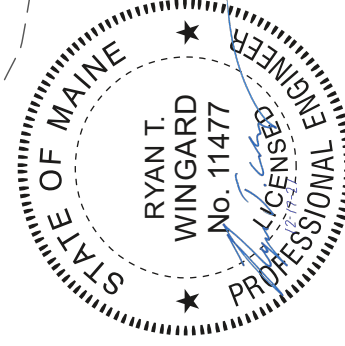


SECTION A-A
SCALE: 1"=3'

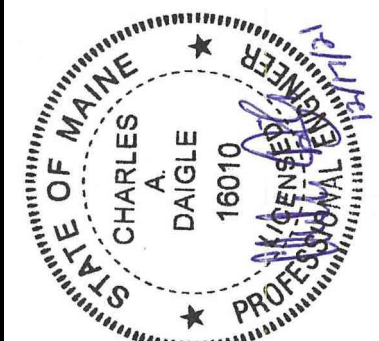
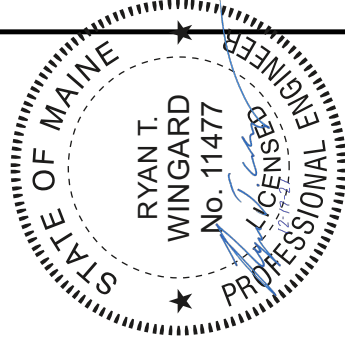
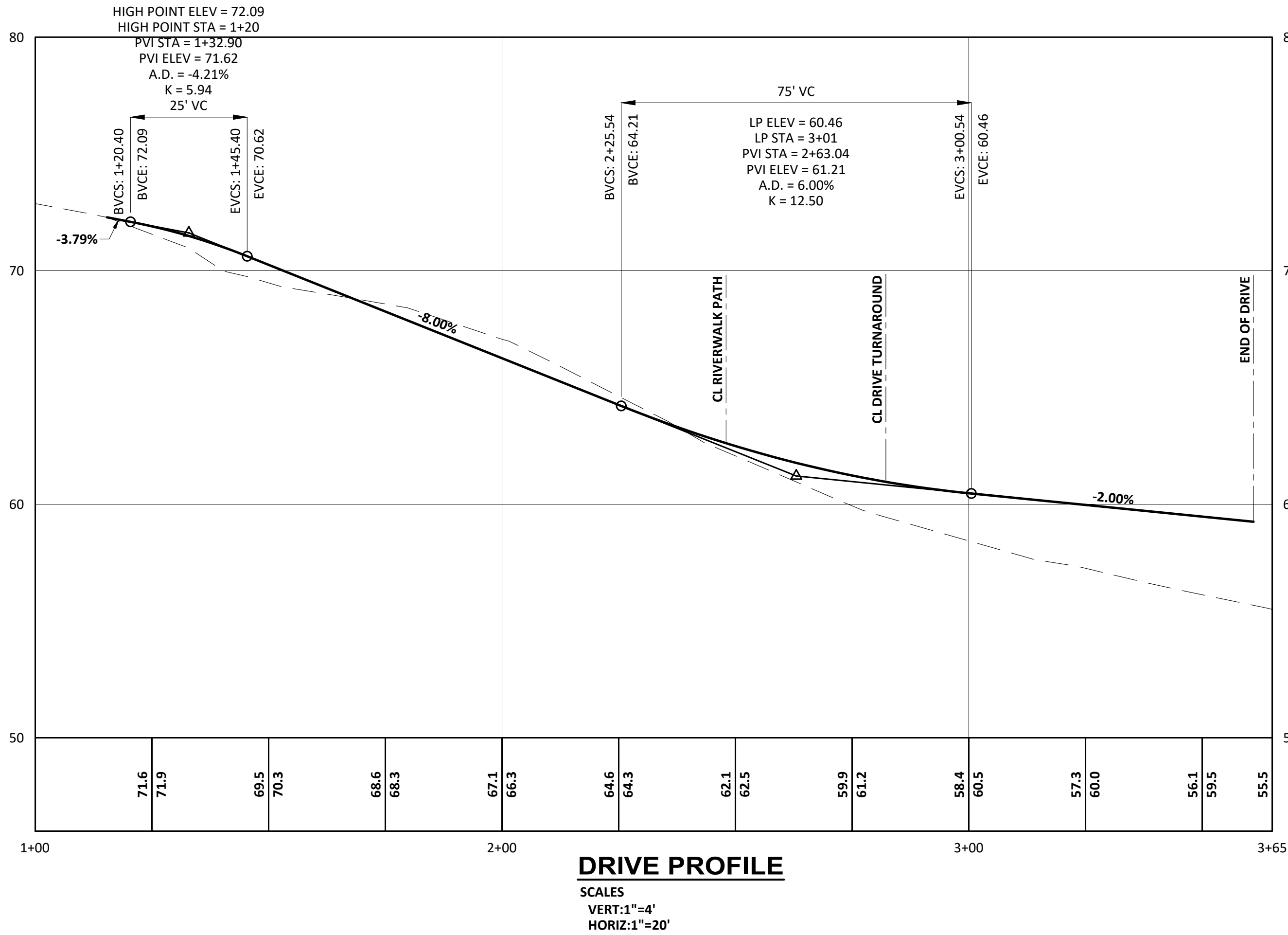
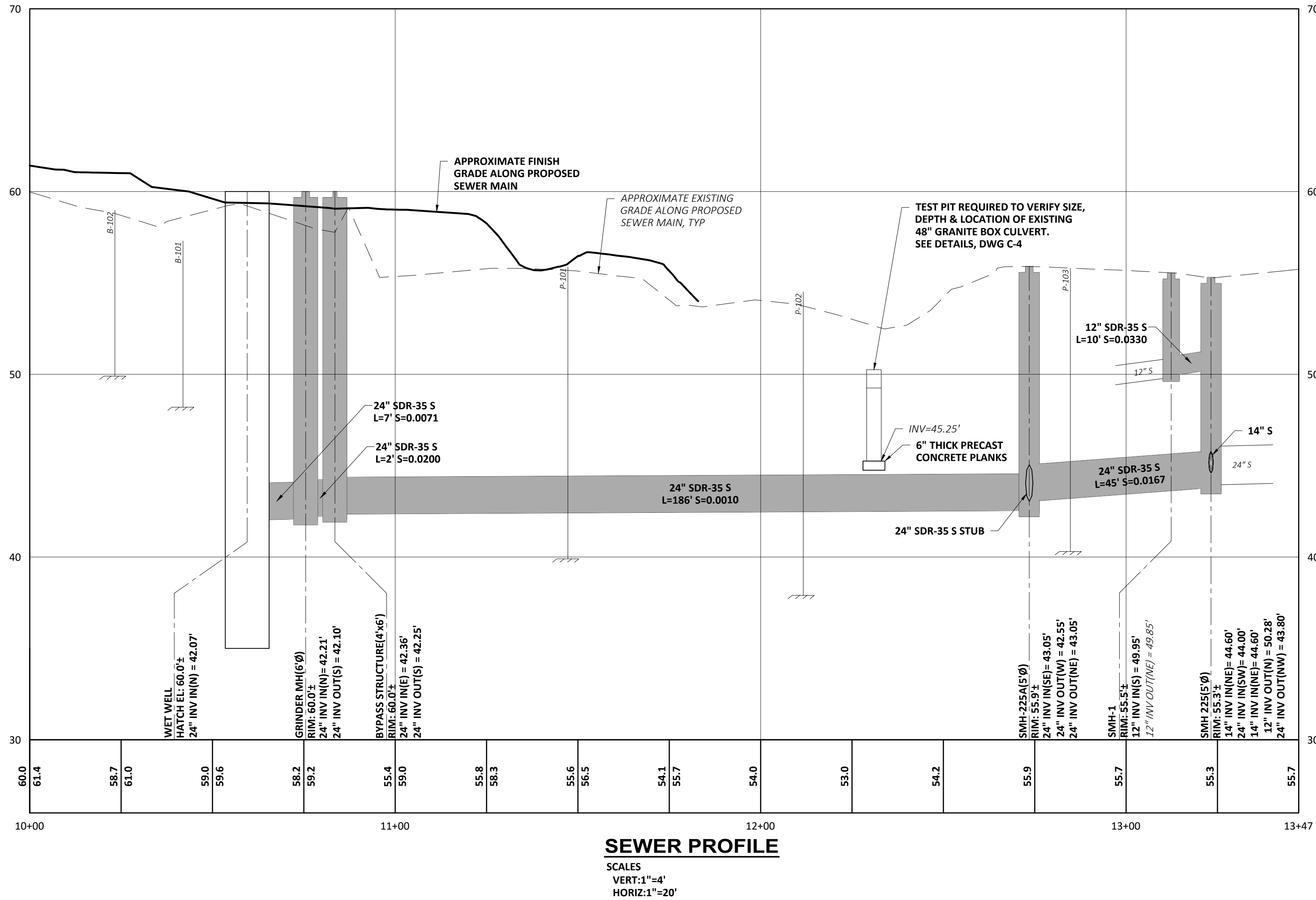


SECTION B-B
SCALE: 1"=3'

- NOTES:**
1. CONTRACTOR SHALL DE-CONSTRUCT GRANITE BOX CULVERT TO INSTALL THE PROPOSED SEWER.
 2. REMOVE BOTTOM BLOCKS IN AREA OF CROSSING & REPLACE WITH PRECAST PLANKS.
 3. PRECAST PLANKS SHALL BE CONNECTED TO ADJACENT GRANITE BLOCKS.
 4. LAYOUT OF GRANITE BLOCKS IS APPROXIMATE & WILL NEED TO BE DETERMINED IN THE FIELD.
 5. THE CITY & ENGINEER WILL WORK WITH THE CONTRACTOR ON OTHER VALUE ENGINEERING CONCEPTS.



REVISIONS		APPD	DATE
NO			
PROJECT NO: 12223G			
DESIGNED: C.DAIGLE			
CAD COORD: R.BEISAW			
CAD: R.BEISAW			
CHECKED: C.DAIGLE			
DATE: 11-2021			
APPROVED: R.WINGARD			
DATE: 12-2021			
SUBMISSION: CONTRACT DRAWINGS			
		207.725.8721 www.wright-pierce.com	
11 BOWDOIN HILL ISLAND, SUITE 140, TOPSHAM, ME 04086			
CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE		PUMP STATION SITE PIPING & GRADING PLAN	
DRAWING		C-4	



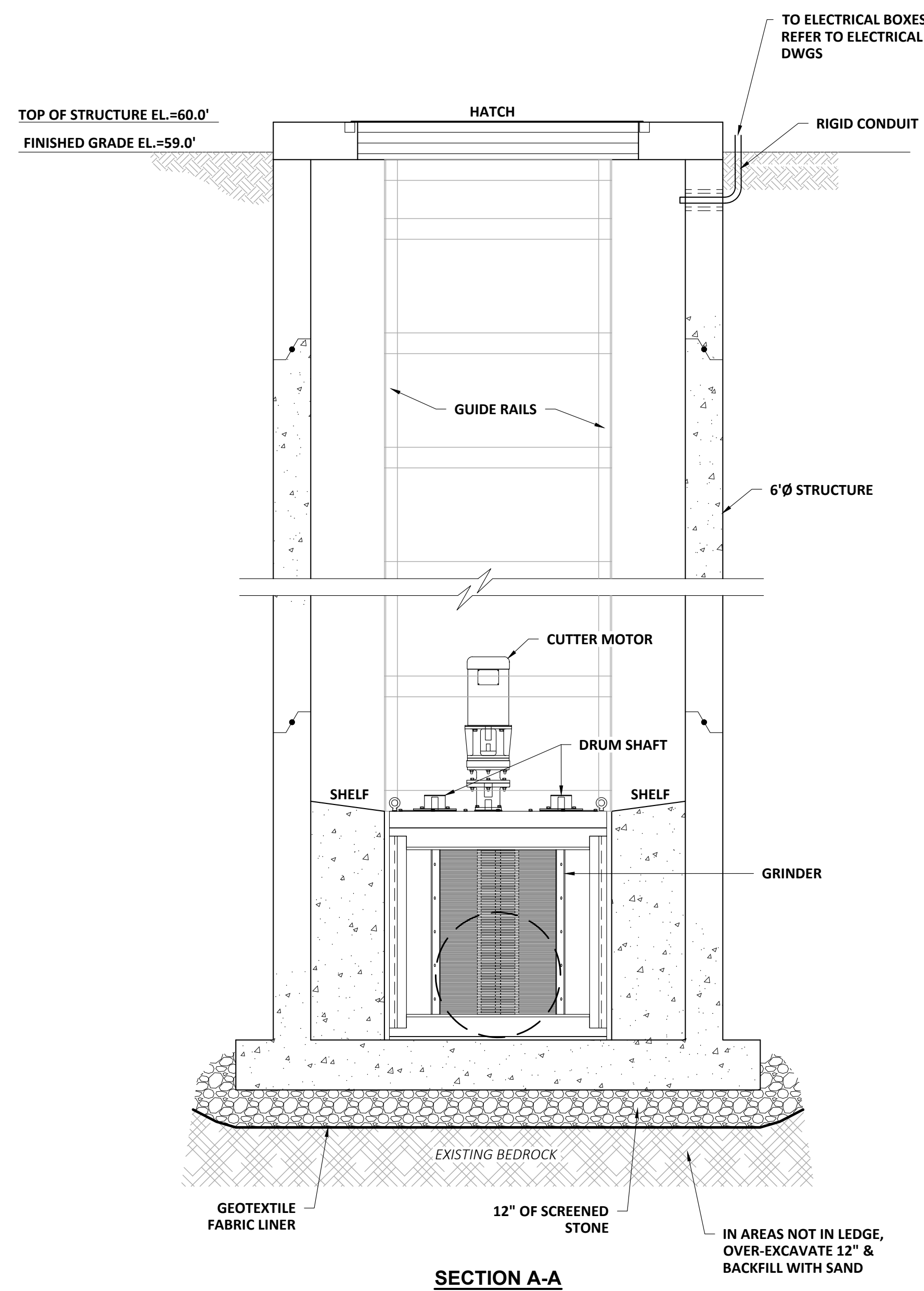
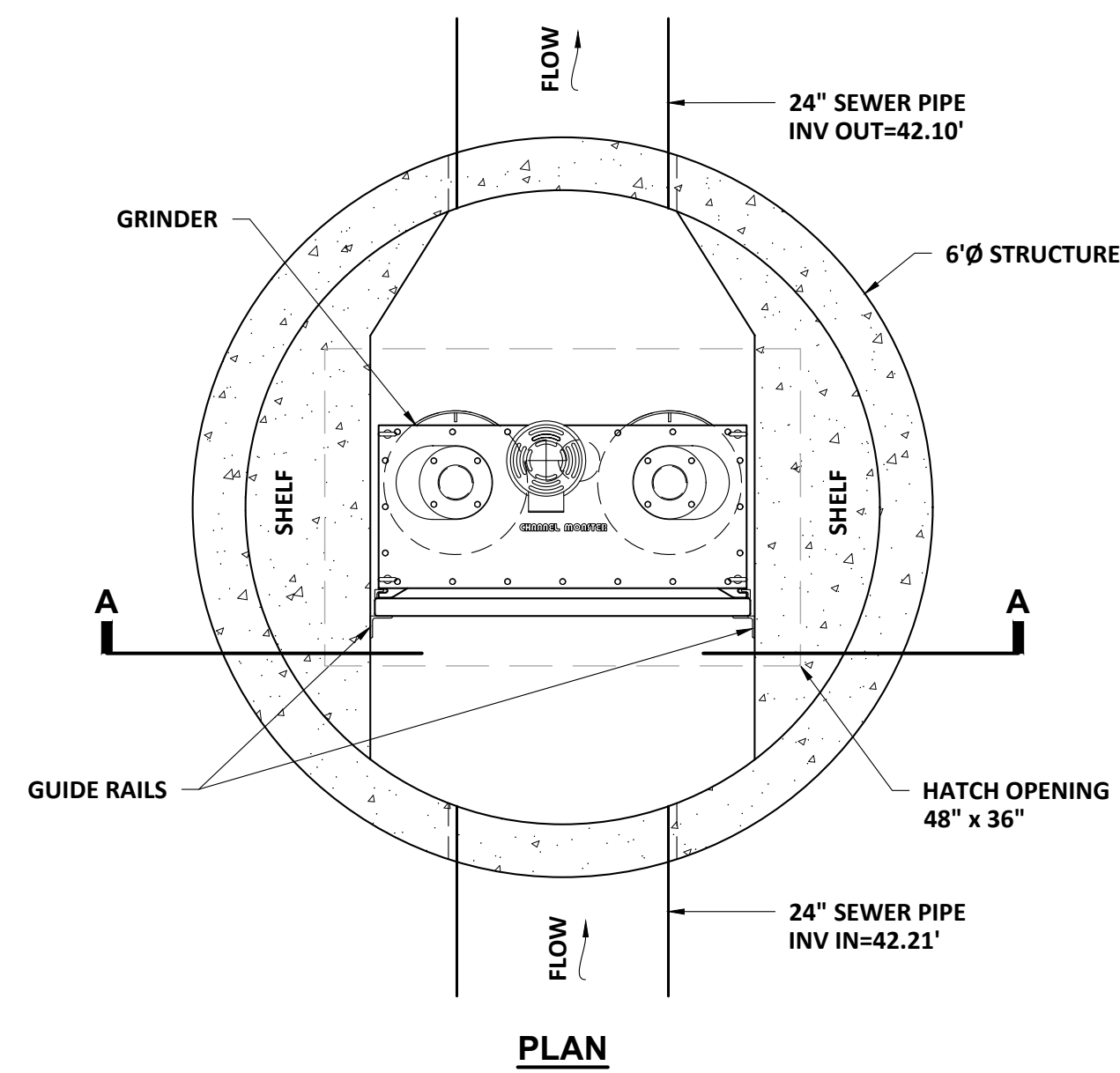
WRIGHT-PIERCE
207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

CITY OF BIDDEFORD
HORRIGAN COURT PUMP STATION UPGRADE
BIDDEFORD, MAINE

ACCESS DRIVE & SEWER MAIN PROFILE

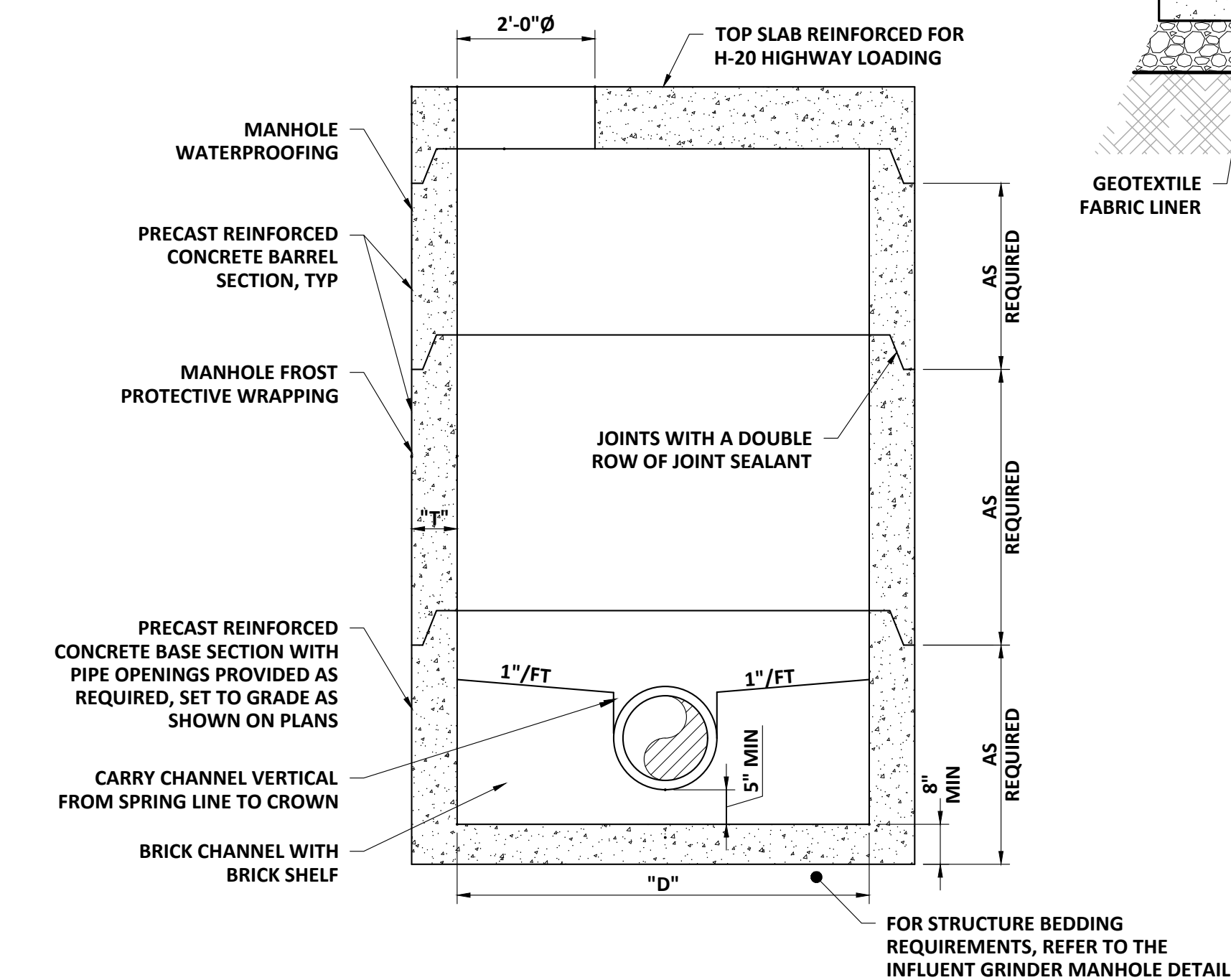
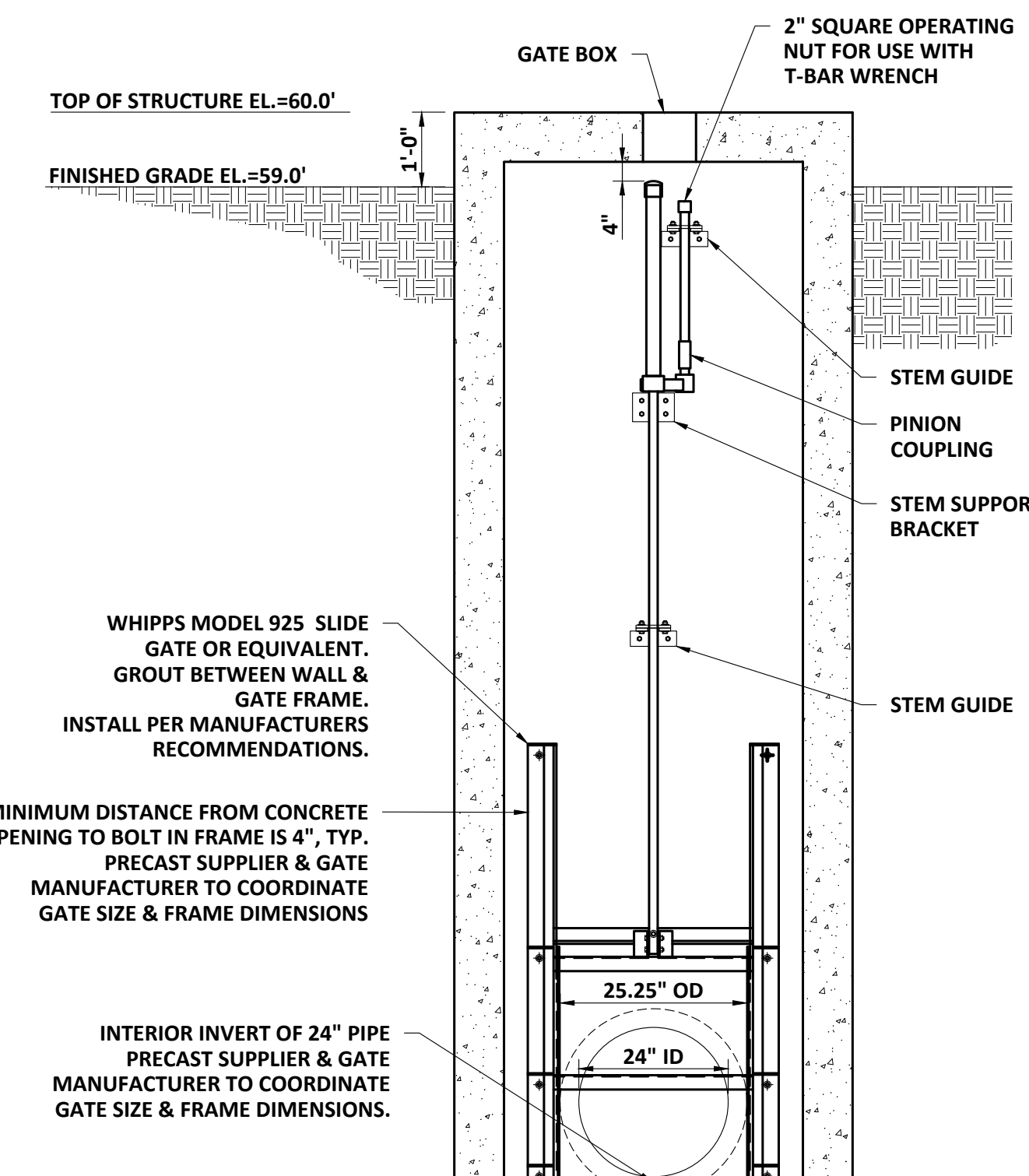
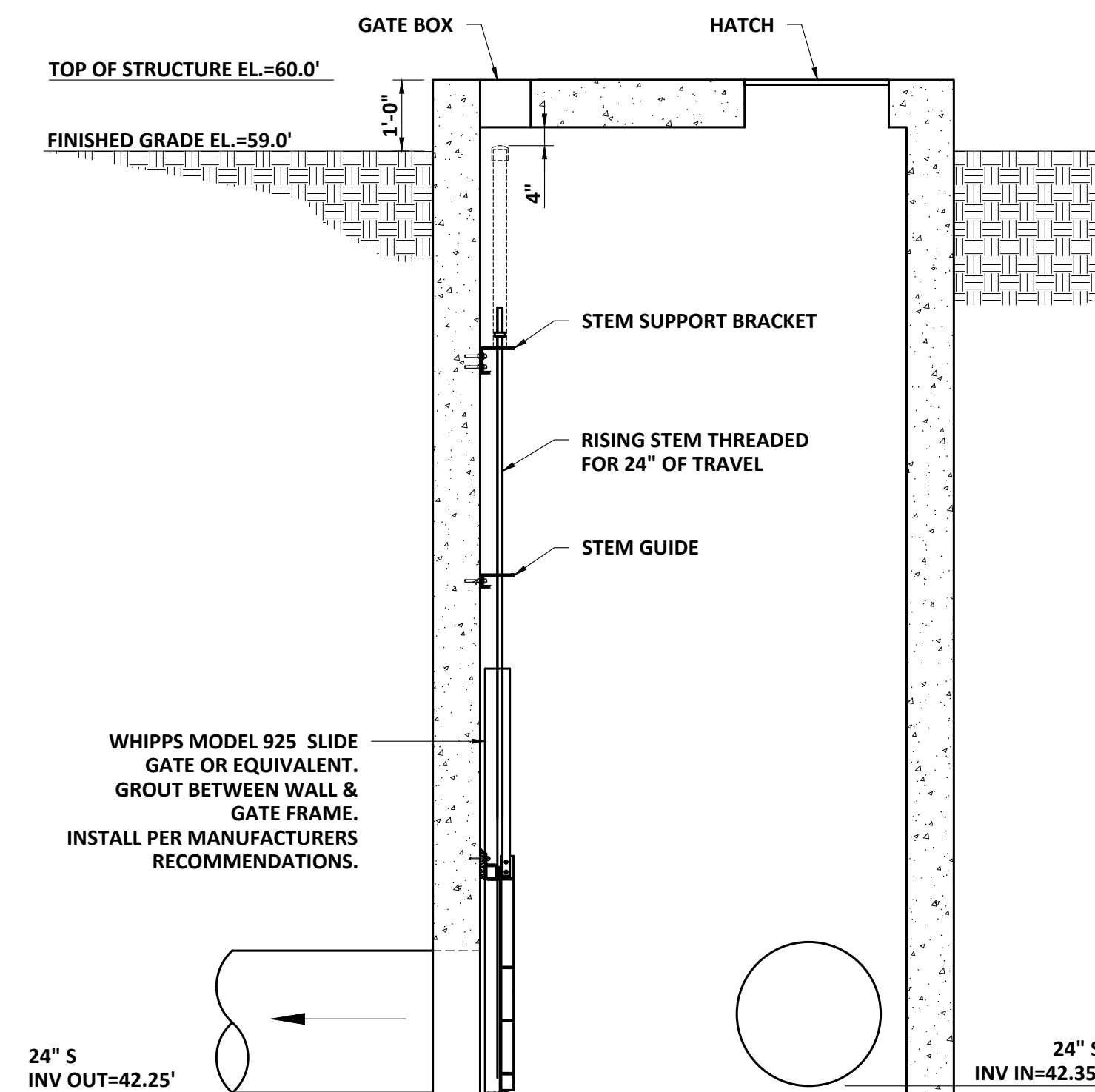
NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			

PROJECT NO: 12223G
DESIGNED: C.DAIGLE
CAD COORD: R.BEISAW
CAD: R.BEISAW
CHECKED: C.DAIGLE
DATE: 11-2021
APPROVED: R.WINGARD
DATE: 12-2021
SUBMISSION: CONTRACT DRAWINGS



INFLUENT GRINDER MANHOLE

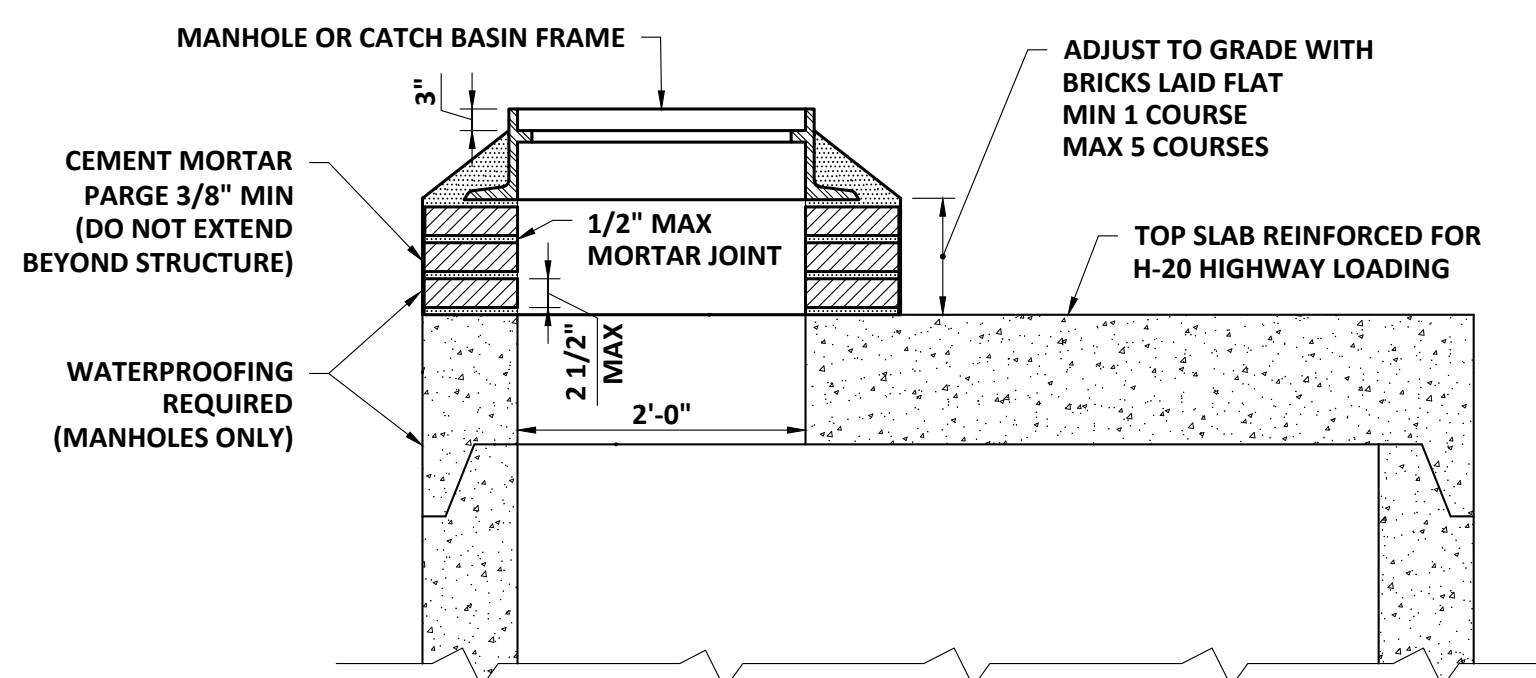
SCALE: 'NTS'



NOTE:
MANHOLE CHANNELS REQUIRING CHANGE IN ALIGNMENT ARE TO BE BUILT ON A SMOOTH RADIUS. IF SIDE PIPES ENTER CHANNEL, SHAPE TO RECEIVE ADDED SIDE FLOW.

<u>DIAMETER ("D")</u>	<u>MAX PIPE DIAMETER STRAIGHT THRU TO 45° DEFLECTION</u>	<u>MINIMUM WALL THICKNESS ("T")</u>
48"	UP TO 30" O.D.	8"
60"	UP TO 44" O.D.	8"
72"	UP TO 51" O.D.	8"
96"	UP TO 72" O.D.	8"

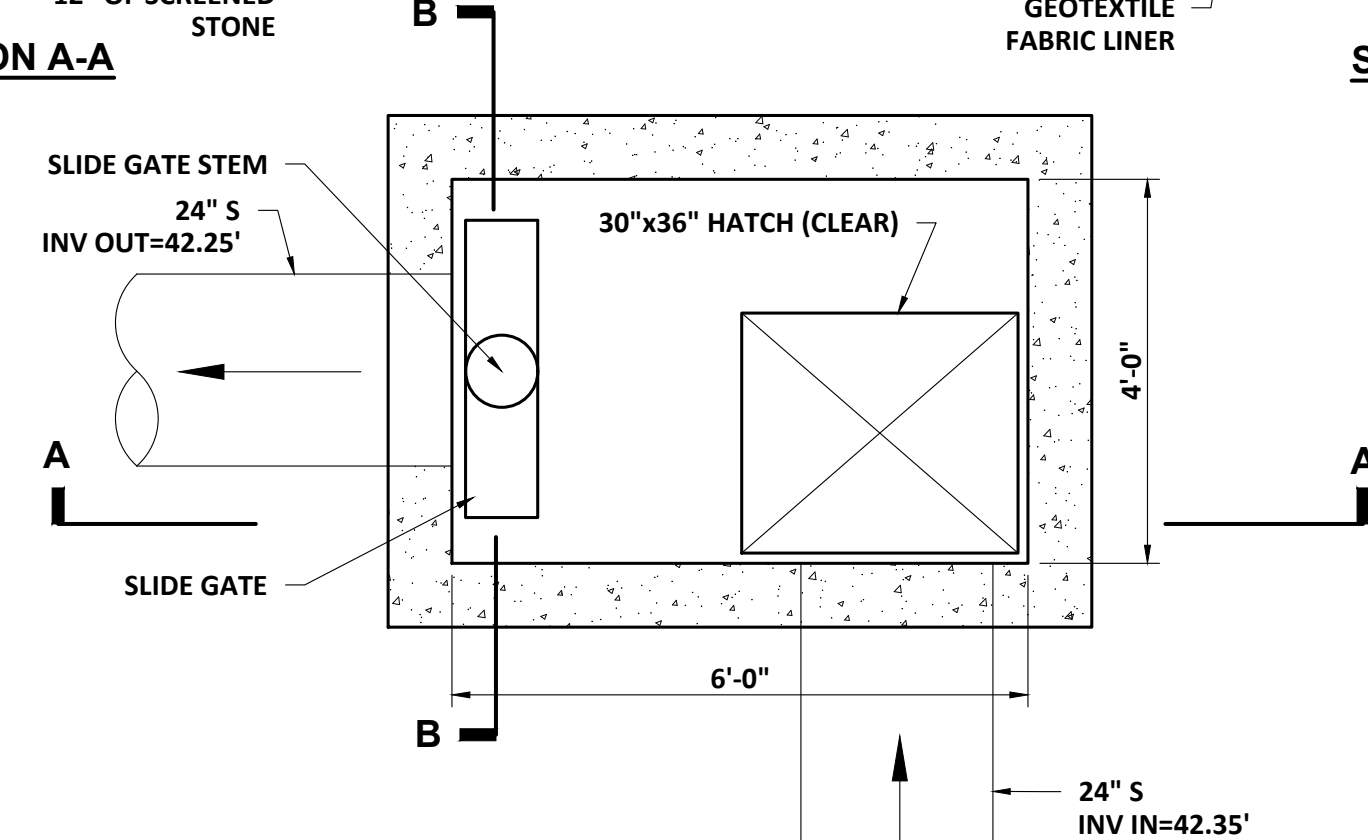
FLAT SLAB TOP MANHOLE



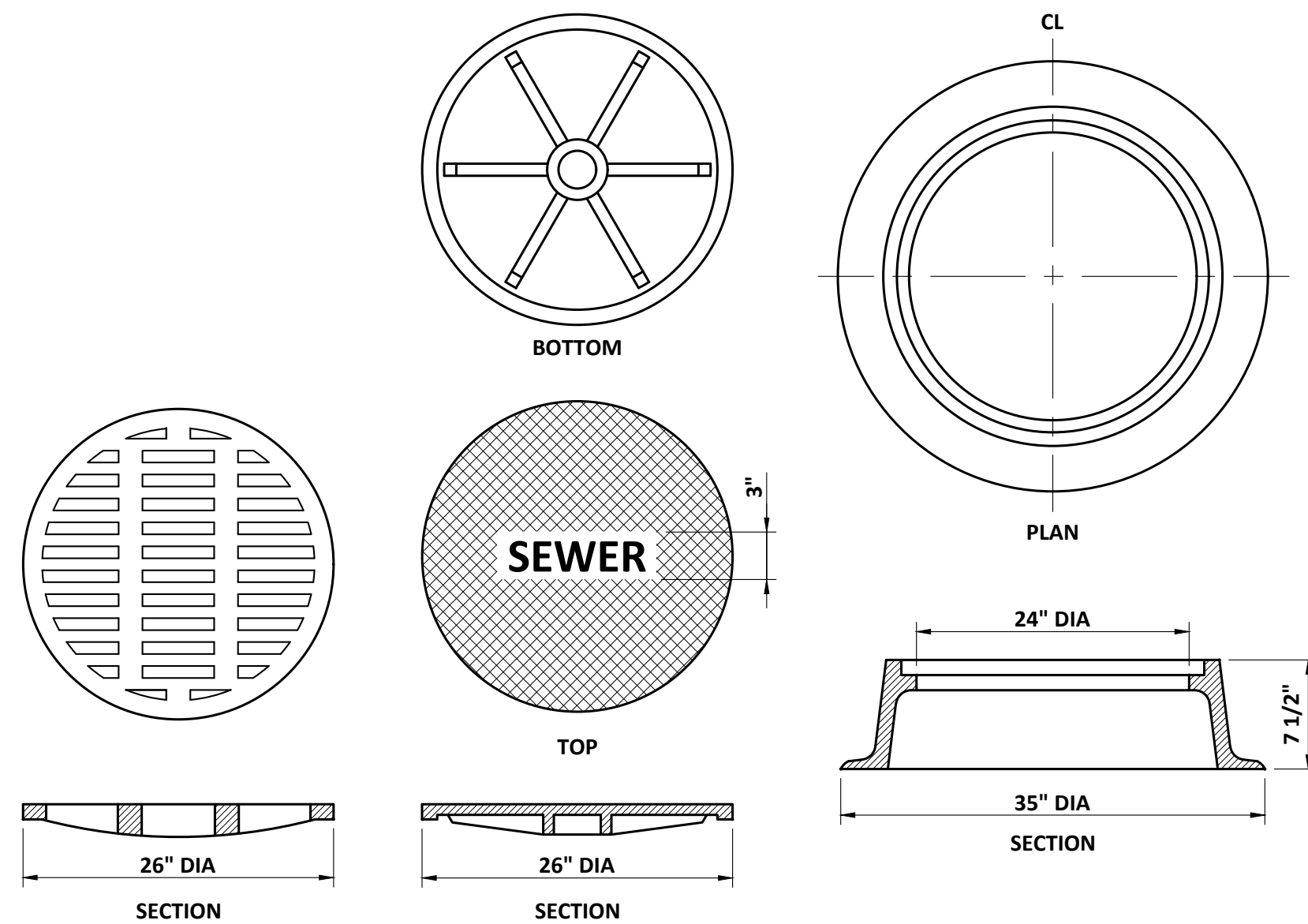
FLAT SLAB TOP MANHOLE AND CATCH BASIN FRAME INSTALLATION

SCALE: NTS

SECTION A-A

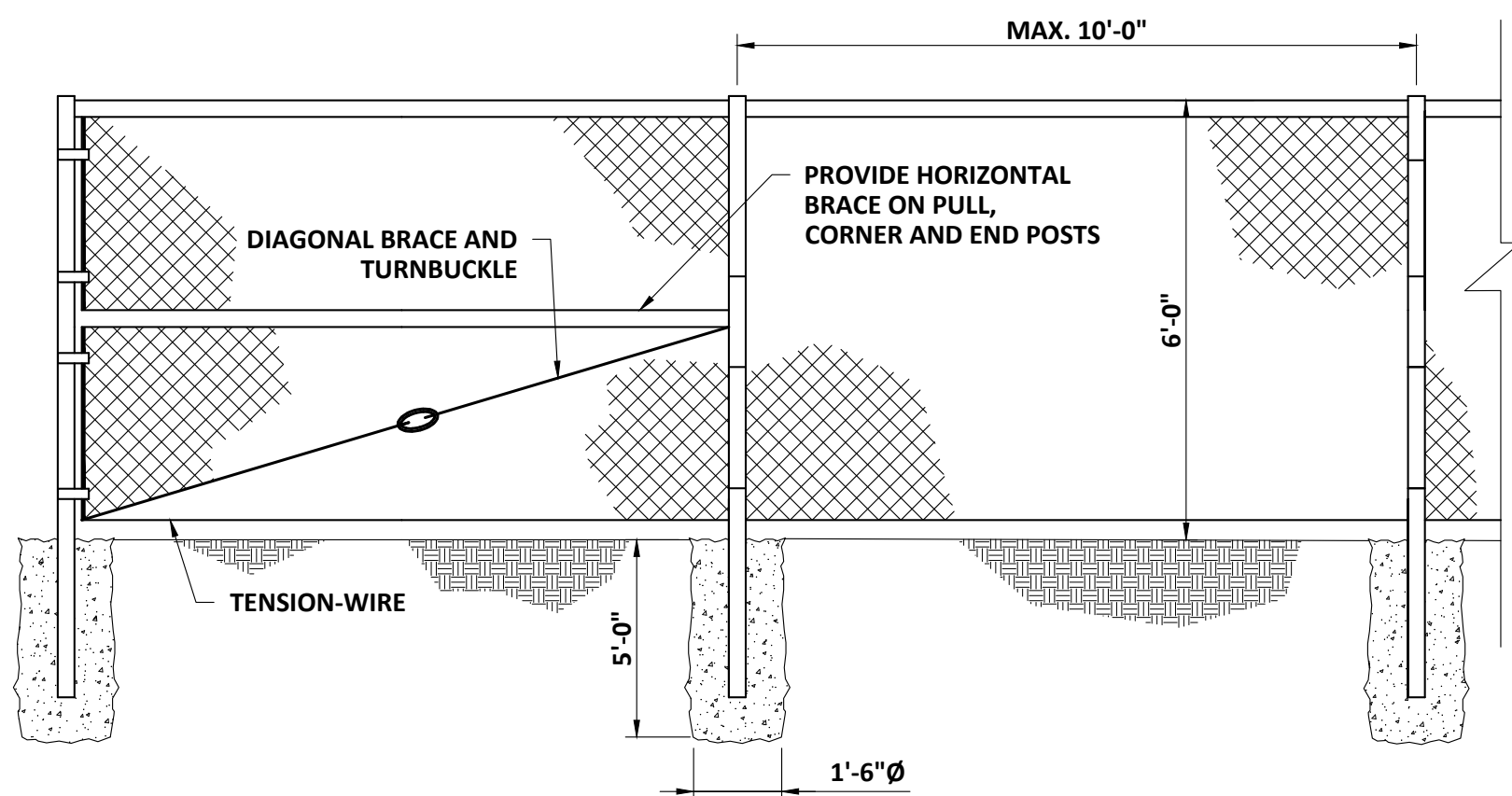


BYPASS STRUCTURE



CATCH BASIN & MANHOLE STANDARD COVER AND FRAME

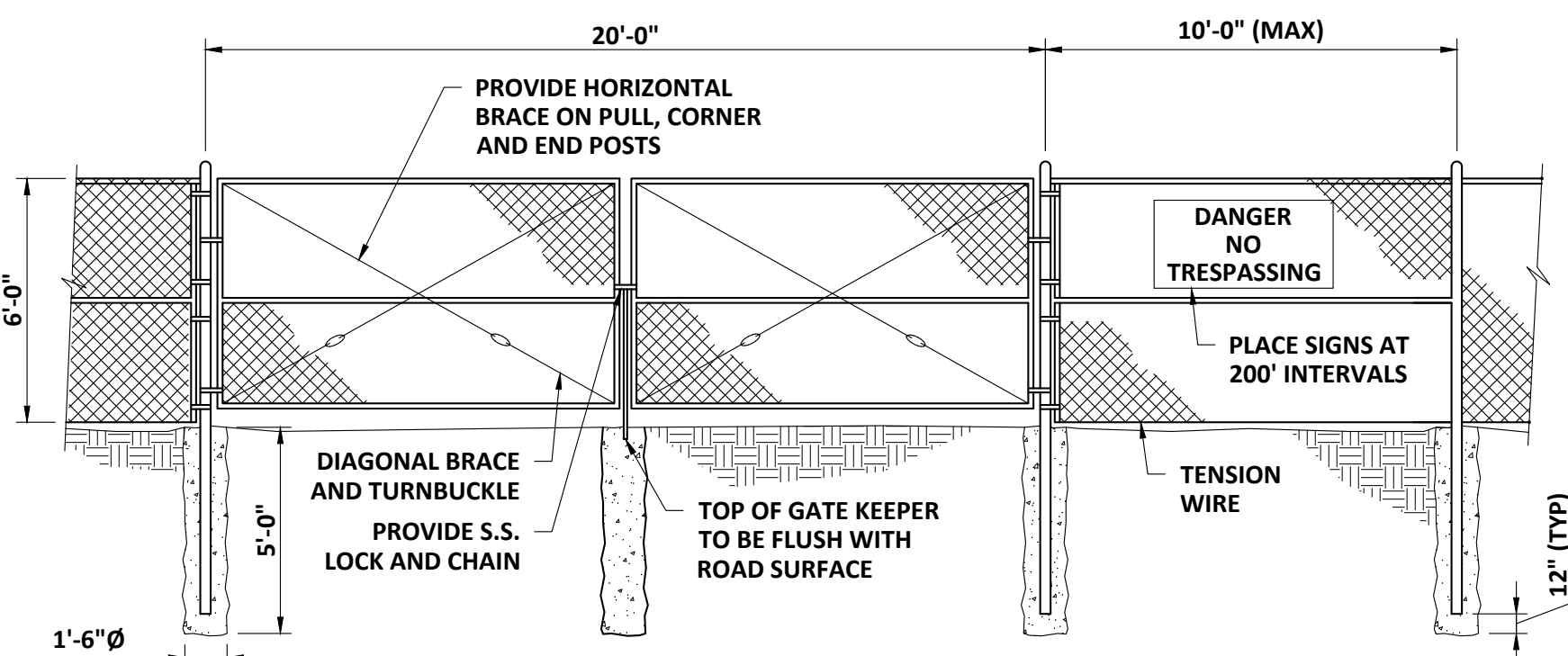
CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086	STATE OF MAINE CHARLES A. DAIGLE 1601Q REGISTERED PROFESSIONAL ENGINEER	PROJECT NO: 122236		NO	REV/ISSIONS	APPD. DATE
			DESIGNED: C.DAIGLE				
			CAD COORD: R.BEISAW				
			CAD: R.BEISAW				
			CHECKED: C.DAIGLE				
			DATE: 11-2021				
			APPROVED: R.WINGARD				
DATE: 12-2021							
SUBMISSION: CONTRACT DRAWINGS							



- NOTES:**
1. SECURE POSTS IN CONCRETE AS SHOWN AT PULL, CORNER AND END POSTS (INCLUDING GATE POSTS)
 2. IF CHAINLINK FENCE IS INSTALLED IN UNFRACTURED LEDGE, POST SHALL PENETRATE 2'-0" INTO THE LEDGE AND SHALL BE GROUTED INTO 6"Ø HOLE.

CHAINLINK FENCE

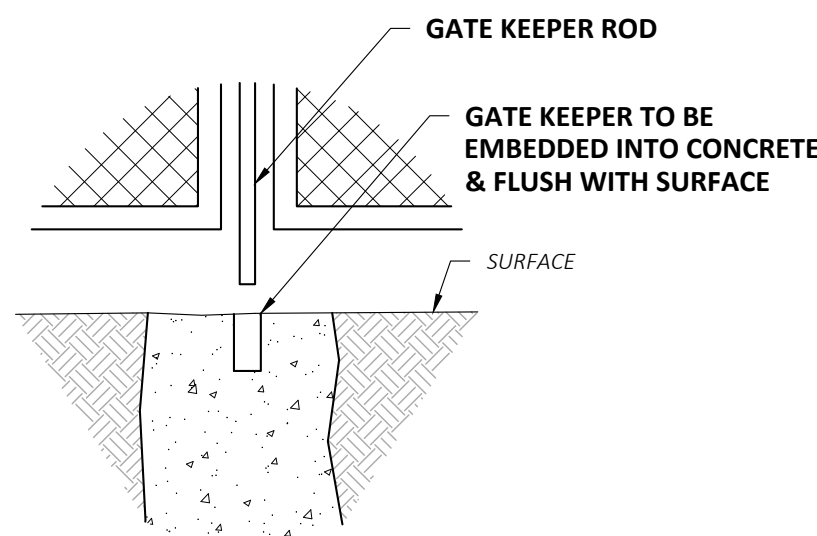
SCALE: "NTS"



- NOTES:**
1. SECURE POSTS IN CONCRETE AS SHOWN AT PULL, CORNER AND END POSTS (INCLUDING GATE POSTS)
 2. IF CHAINLINK FENCE IS INSTALLED IN UNFRACTURED LEDGE, POST SHALL PENETRATE 2'-0" INTO THE LEDGE AND SHALL BE GROUTED INTO 6" Ø HOLE.

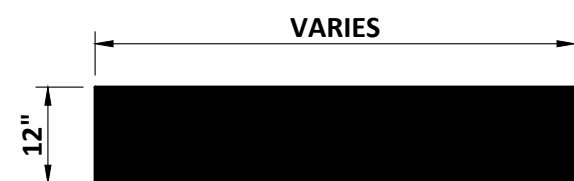
CHAINLINK FENCE AND LOCKING DOUBLE GATE

SCALE: "NTS"



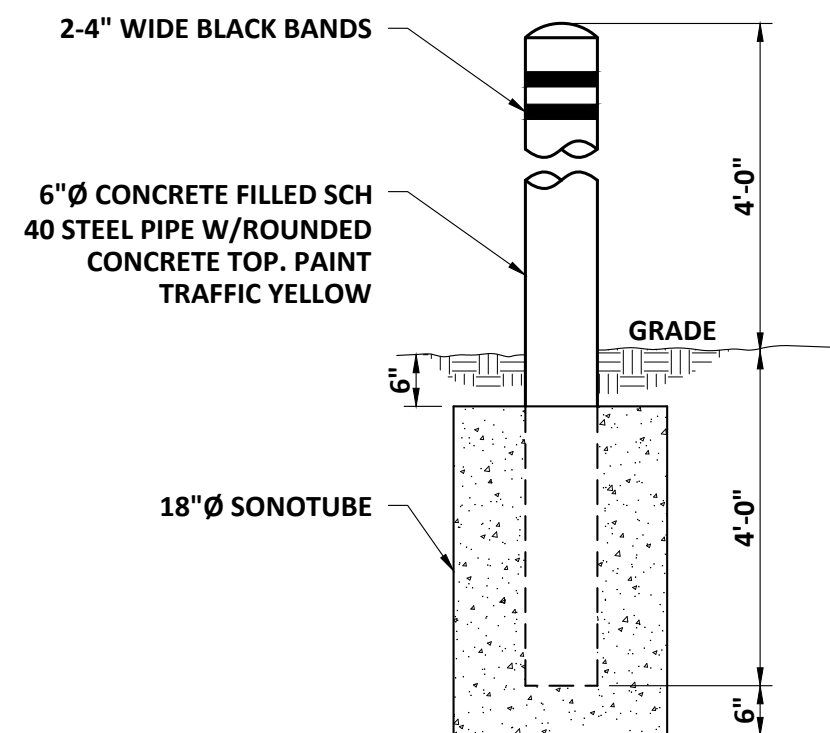
GATE KEEPER

SCALE: NTS



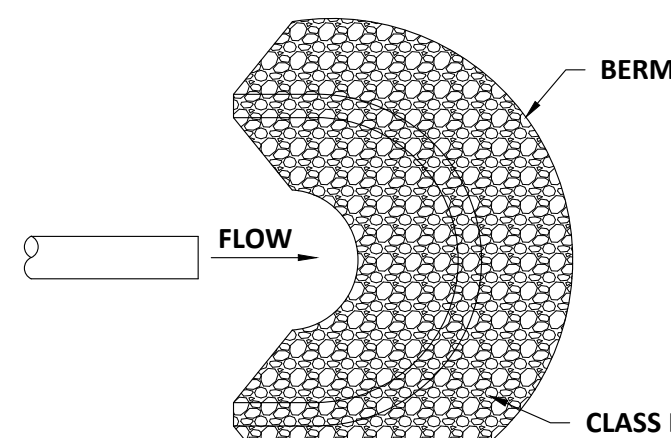
PAINTED STOPBAR

SCALE: NTS

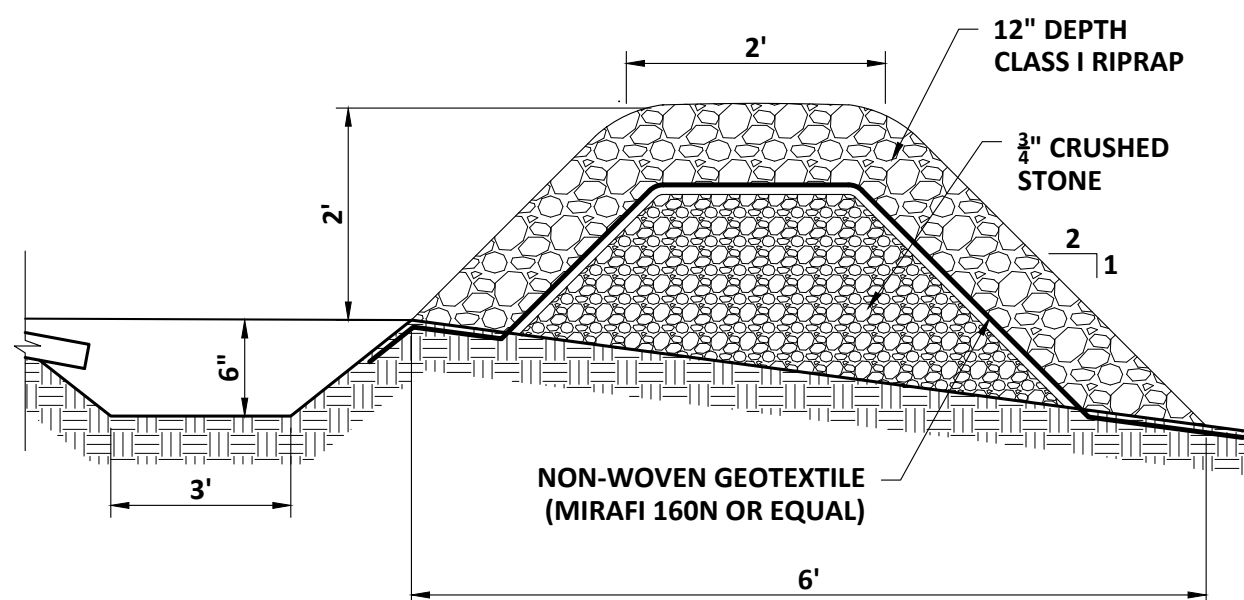


BOLLARD

SCALE: NTS



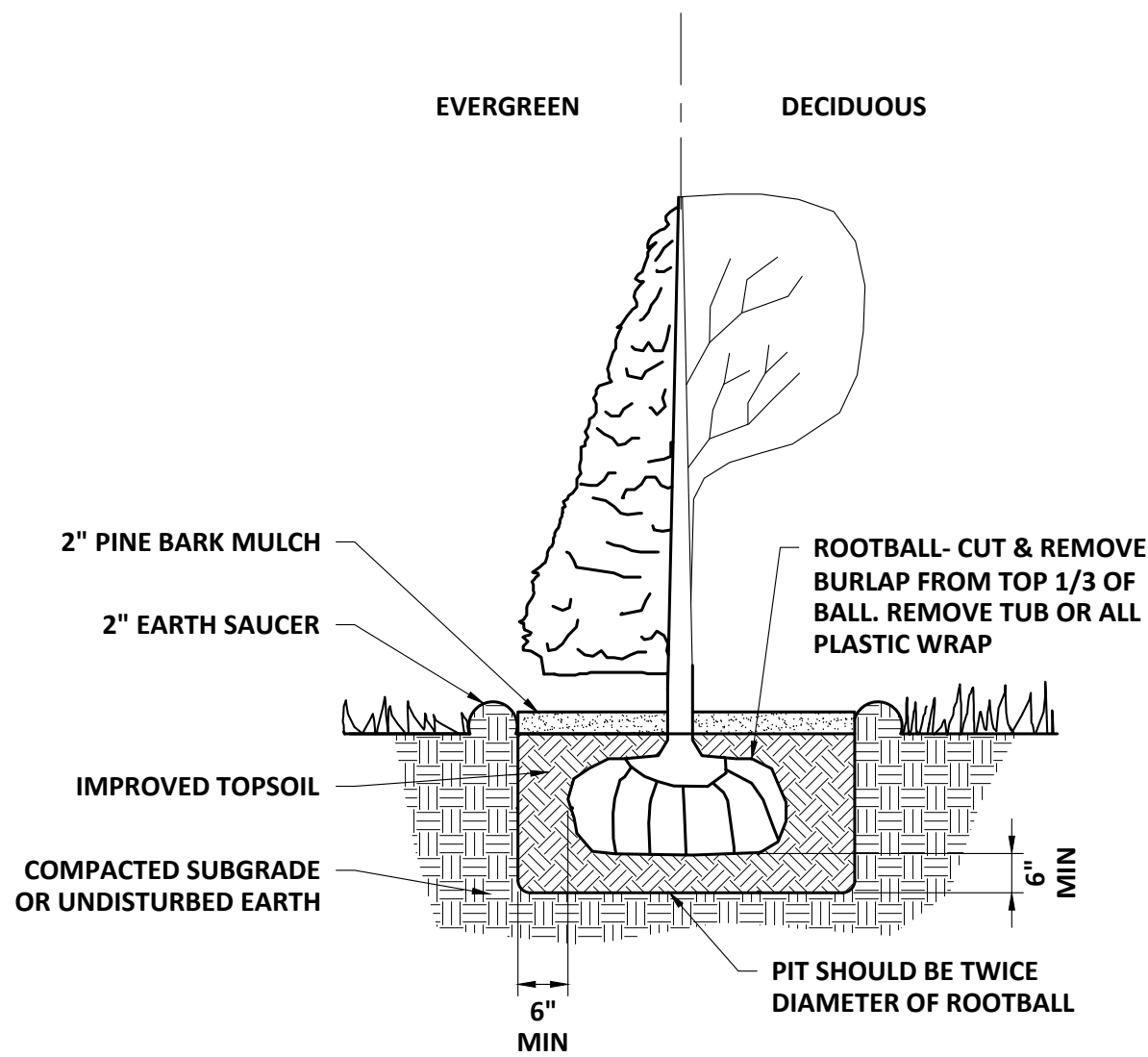
PLAN



SECTION

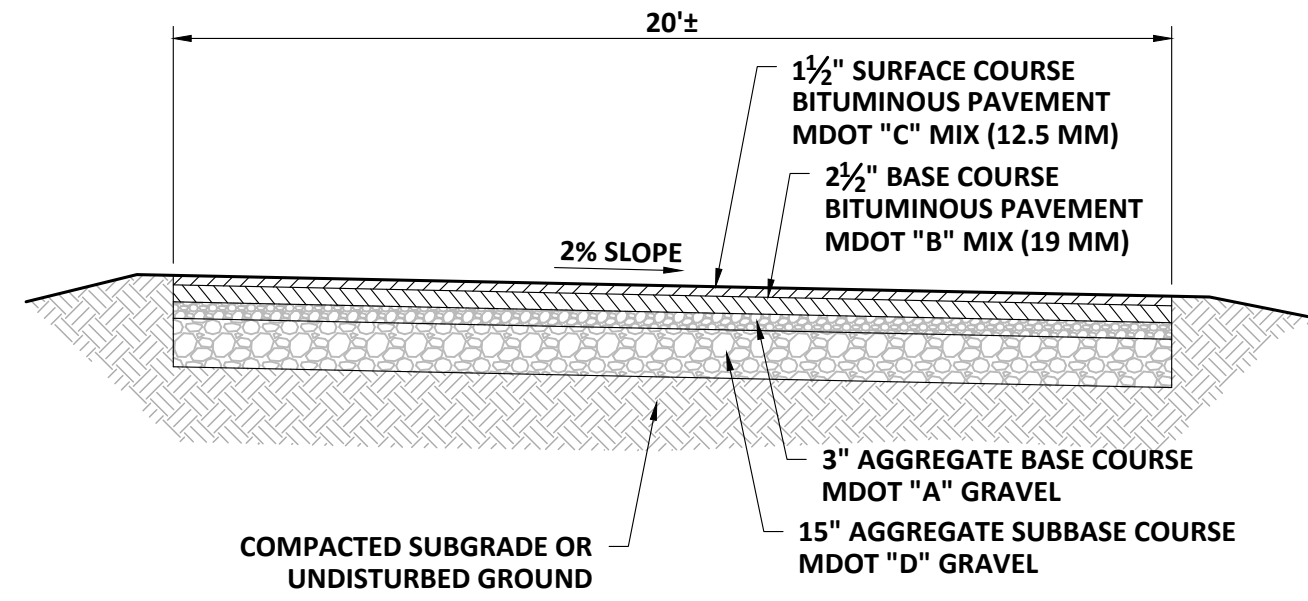
LEVEL SPREADER

SCALE: "NTS"



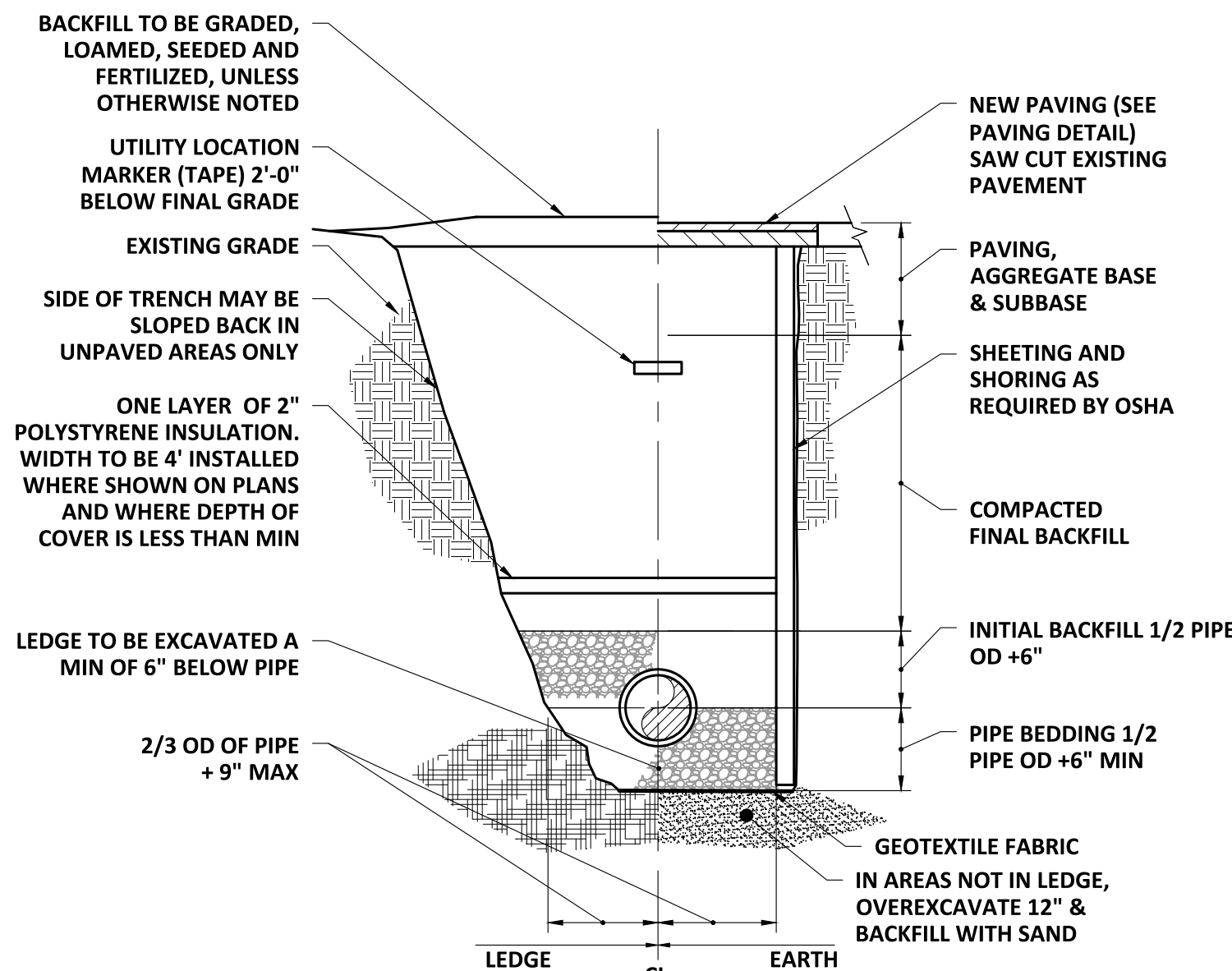
SHRUB PLANTING

SCALE: NTS



TYPICAL ROADWAY SECTION

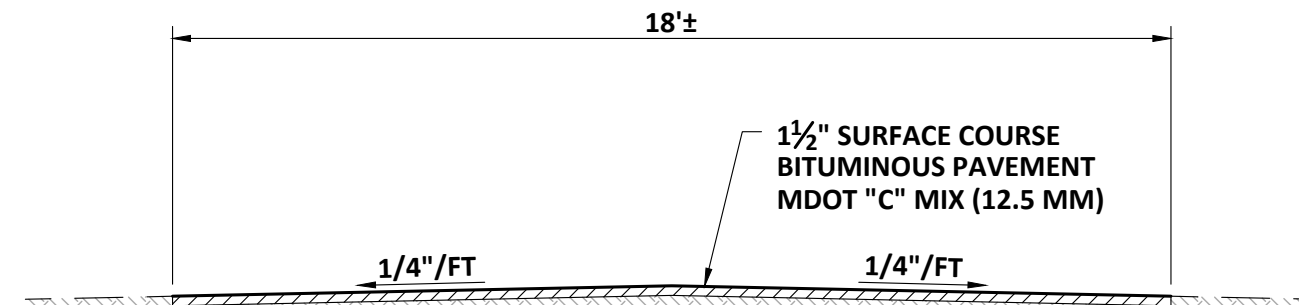
PRESS DI



- NOTES:**
- 1. ALL EXCAVATION MUST MEET OSHA STANDARDS.**
 - 2. INSTALL 3 FOOT LONG IMPERVIOUS MATERIAL DAM IN BEDDING/INITIAL BACKFILL MATERIAL EVERY 100' AND WHERE SHOWN ON PLANS TO PREVENT TRENCH GROUNDWATER FROM BEING CHANNLED ALONG BEDDING/INITIAL BACKFILL.**
 - 3. SEE SPECIFICATIONS FOR BEDDING AND BACKFILL REQUIREMENTS.**

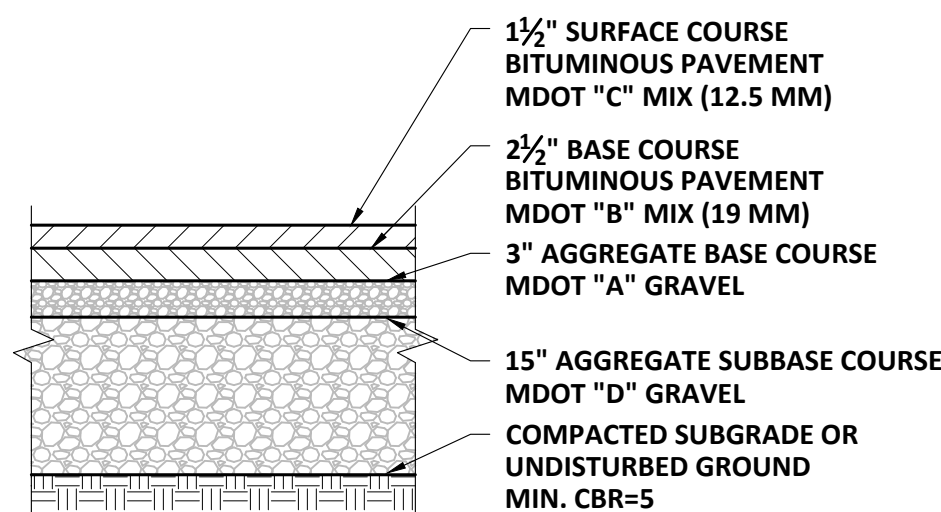
PIPE TRENCH

SCALE: "NTS"



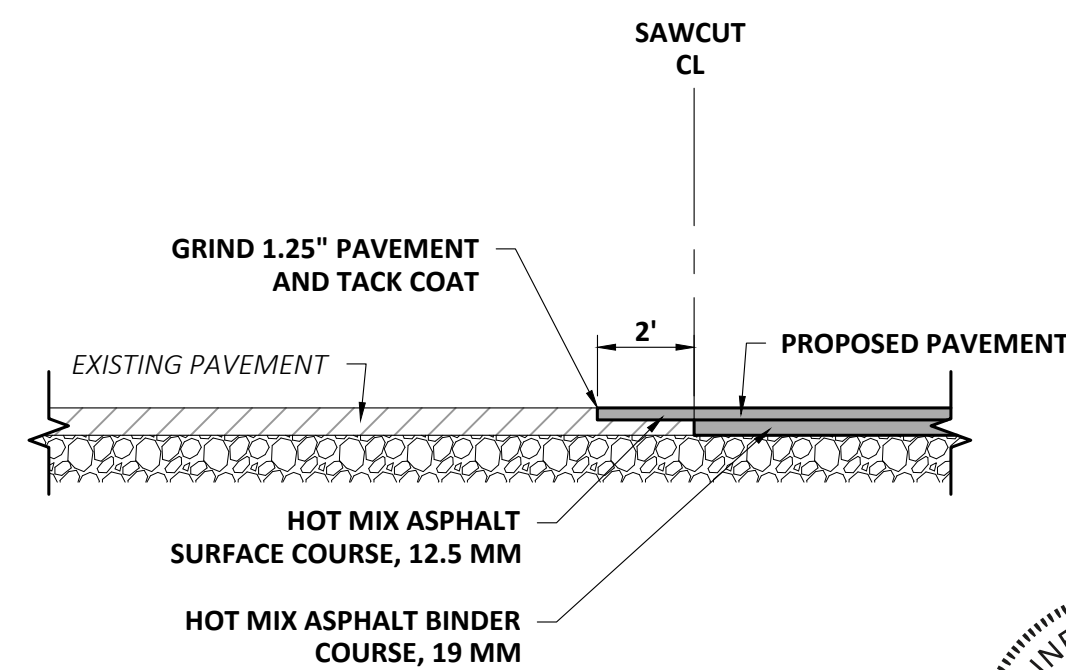
TYPICAL ROADWAY SECTION

PIGAN C



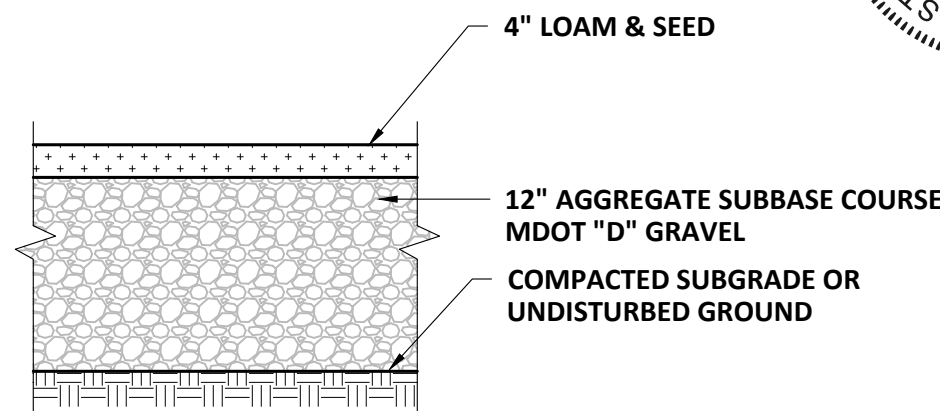
DRIVEWAY PAVEMENT

SCALE: "NTS"



SHIPLAP PAVEMENT JOINT

SCALE: "NTS"



RIVERWALK / EASTERN

CORE

- ## NOTES:
1. A FILTER BASIN MUST DRAIN DRY WITHIN 24 AND 48 HOURS.
 2. THE PEAK WATER QUALITY STORAGE DEPTH SHOULD NOT EXCEED 6 INCHES OVER A BIOTRETMENT BASIN FILTER. DUE TO THE DEEPER ROOT ZONES OF THE PLANTS AND INCREASED EVAPOTRANSPIRATION POTENTIAL, ONE THIRD OF THE SOIL FILTER VOLUME (6 INCHES) MAY BE INCLUDED AS STORAGE VOLUME WHEN DESIGNING BIOTRETMENT CELLS. PLANTS THAT CAN SUSTAIN FREQUENT DRAUGHT AND INUNDATION SHOULD BE SELECTED. STORAGE OVER THE TREATMENT VOLUME TO CONTROL PEAK FLOWS FOR THE FLOODING STANDARDS CANNOT BE PROVIDED BECAUSE OF POTENTIAL DAMAGE TO THE VEGETATION; AND AN INDEPENDENT STRUCTURE MUST BE PROVIDED. THE OVERFLOW OUTLET CAN BE NO MORE THAN 6 INCHES ABOVE THE FILTER SURFACE.
 3. PRETREATMENT AREAS SUCH AS A GRASS SWALE, GRASS OR MEADOW FILTER STRIP AND SEDIMENT TRAP SHOULD BE PROVIDED TO MINIMIZE THE DISCHARGE OF SEDIMENT TO THE BIOTRETMENT FILTER. PRETREATMENT STRUCTURES SHOULD BE SIZED TO HOLD AN ANNUAL SEDIMENT LOAD CALCULATED USING A SAND APPLICATION RATE OF 50 CUBIC FEET PER ACRE PER YEAR FOR SUCH OF THE PAVEMENT SURFACE WITHIN THE BASIN'S SUBCATCHMENT AREA.
 4. WHEN NEEDED, A MAINTENANCE ACCESS SHOULD BE PROVIDED AND MAINTAINED THAT IS AT LEAST 10 FEET WIDE WITH A MAXIMUM SLOPE OF 15% AND A MAXIMUM CROSS SLOPE OF 3%. THIS ACCESS SHOULD NEVER CROSS THE EMERGENCY SPILLWAY, UNLESS THE SPILLWAY HAS BEEN DESIGNED FOR THAT PURPOSE. AN EASEMENT FOR LONG-TERM ACCESS MAY BE NEEDED.
 5. A ROCK FOREBAY IS RECOMMENDED TO REDUCE FLOW VELOCITY INTO THE BASIN. ALL SEDIMENT SHOULD BE REMOVED AFTER CONSTRUCTION AND THE UPGRADED TRIBUTARY AREA IS FULLY STABILIZED.
 6. THE SOIL FILTER PLANTS SHOULD BE PLANTED WITH PLANTS THAT ARE TOLERANT OF WELL DRAINED SOILS AND FREQUENT INUNDATION. NATIVE PLANTS SHOULD BE CHOSEN FOR THEIR TOLERANCE TO URBAN RUNOFF, MOISTURE FLUCTUATION, POLLUTANT LOADING, LIGHT AMOUNT, TEMPERATURE AND PH. BASED UPON THE EXPECTED FULL GROWN SIZE OF THE PLANT, THE PLANTS' SPACING SHOULD BE NO MORE THAN 18 INCHES TO 3 FEET ON CENTER.
 7. A LANDSCAPE DESIGNER OR ARCHITECT SHOULD BE INVOLVED TO SELECT THE APPROPRIATE PLANTS FOR THE CONDITIONS. REVEALER OR INVASIVES. FULL PLANT COVER SHOULD BE ACHIEVED WITHIN THE FIRST YEAR FROM CONSTRUCTION.
 8. UPON PLANTING, THE SOIL FILTER SHOULD BE MULCHED WITH 2-3 INCHES OF COVER. ACCEPTABLE MULCH IS A WELL-AGED, UNIFORM IN COLOR, AND FREE OF FOREIGN MATERIAL INCLUDING PLANT ROOT MATERIAL.

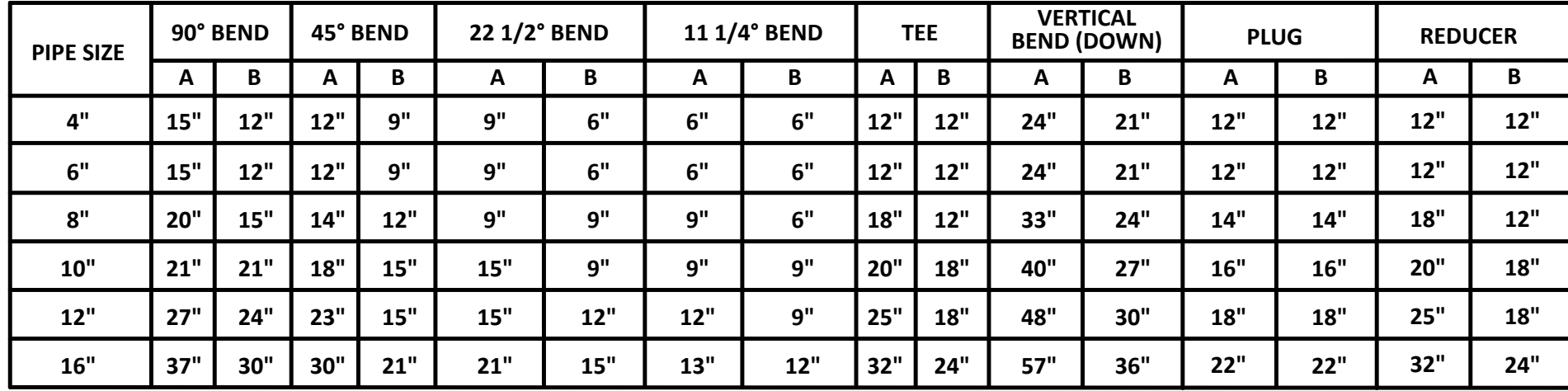
[illegible]



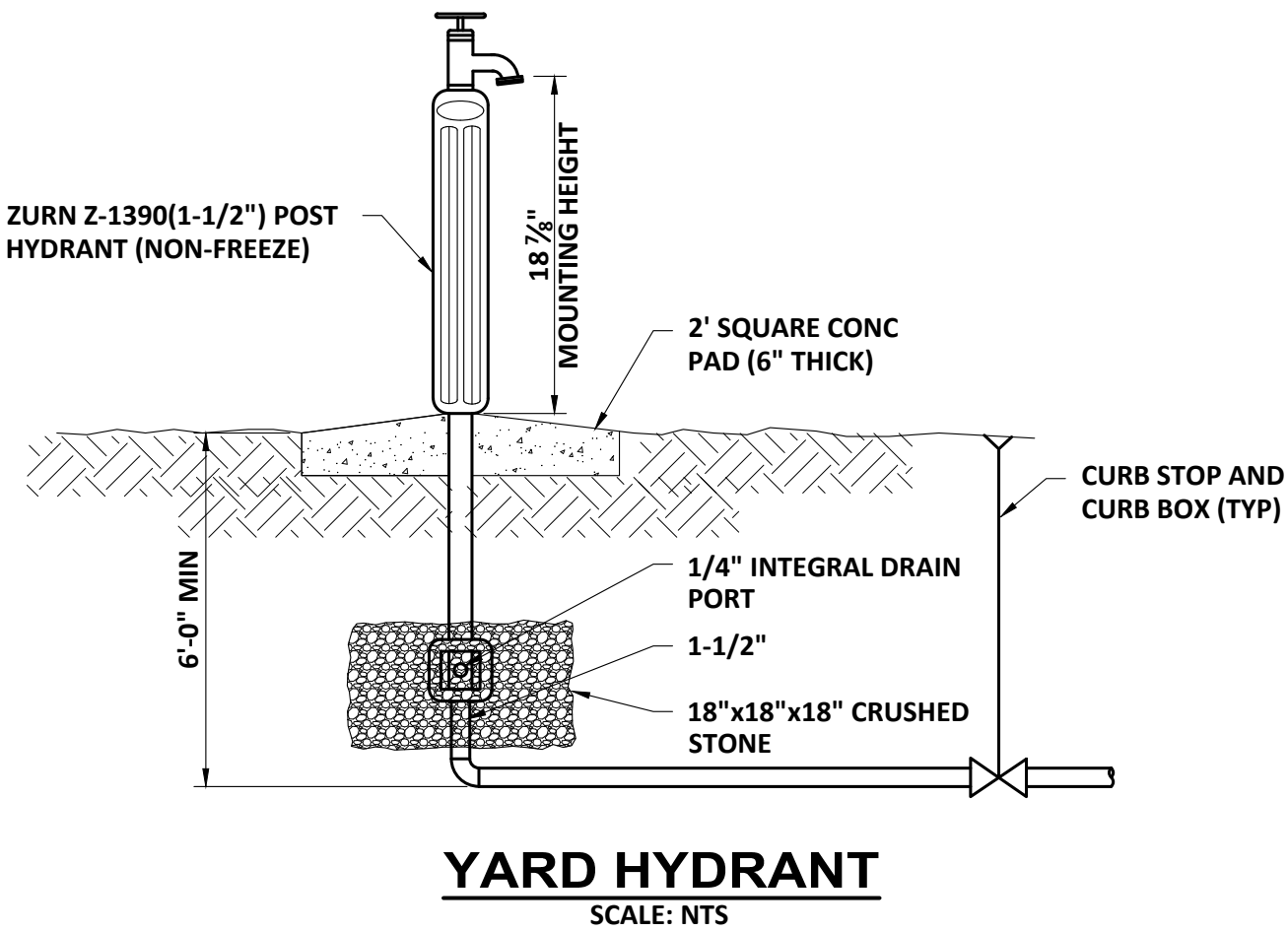
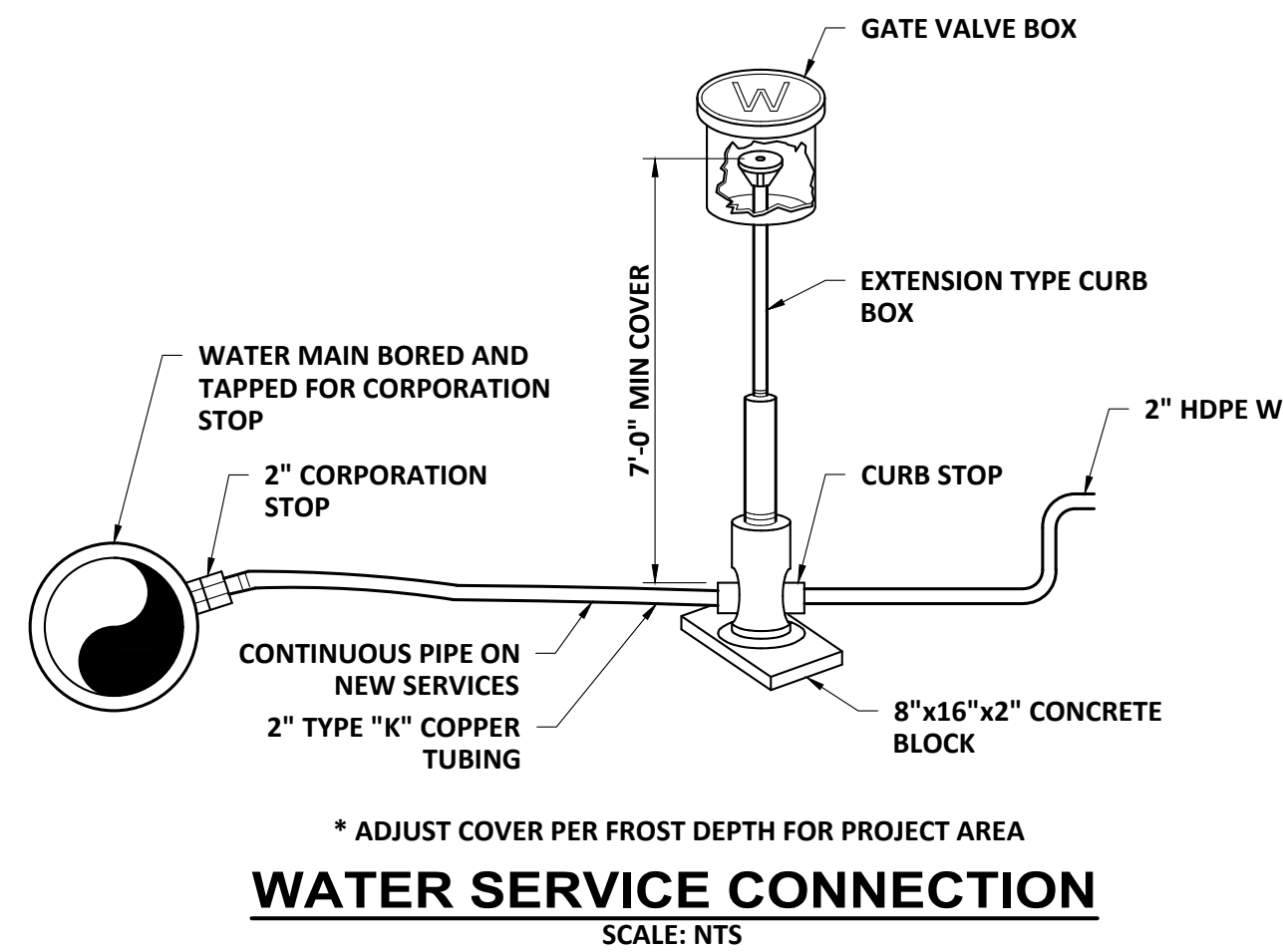
- ### METER PIT NOTES:
1. SPECIAL APPROVAL IS REQUIRED, PRIOR TO CONSTRUCTION FOR ALL PROPOSED METER PIT INSTALLATIONS
 2. BACKFLOW PREVENTION DEVICES MUST BE REVIEWED AND APPROVED
 3. METER PIT SHALL BE LOCATED ON PRIVATE PROPERTY.
 4. THE METER PIT SHALL BE MADE OF PRECAST CONCRETE OF SUFFICIENT SIZE TO PROVIDE 5.5' MINIMUM GROUND COVER FROM FINISHED GRADE TO THE TOP OF THE SERVICE PIPE
 5. ALL SEAMS BETWEEN CONCRETE SECTIONS SHALL BE SEALED WITH MASTIC JOINT.
 6. ALL PENINGS IN THE CONCRETE FOR SERVICE PIPING SHALL BE SEALED WITH A MODULAR SEAL (EPOXY OR SILICONE)
 7. THE METER PIT INTERIOR MUST BE AT LEAST 48" IN DIAMETER. THE OPENING MUST BE AT LEAST 30" IN DIAMETER, WITH A CAST IRON FRAME. THE COVER SHALL BE CAST IRON OR STEEL, 32" MINIMUM IN DIAMETER, AND BE LABELED WATER. STEEL PLATE MATERIAL SHALL BE COATED WITH A RUST INHIBITOR PAINT
 8. WALL-MOUNTED LADDER RUNGS ARE NOT TO BE INSTALLED WITHIN METER PIT. ALL PIPING INSIDE AND EXTENDING THROUGH THE METER PIT WILL BE MADE OF COPPER WITH A MINIMUM OF 12" CLEARANCE FROM THE BOTTOM OF THE PIT WITH PROPERT SUPPORTS.
 9. CUSTOMER SHALL ENSURE THE METER PIT AND COVER ARE PROPERLY RATED FOR VEHICLE LOADING IF APPLICABLE.

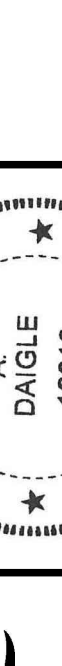
METER INSTALLATION NOTES:

1. CONTACT WATER DEPARTMENT FOR FLANGED METER SPOOL SPACER BAR PRIOR TO SCHEDULING A METER INSTALL.
2. CUSTOMER WILL INSTALL TWO BALL VALVES AT LEAST 24" APART AND ALLOWING FOR THE METER TO BE CENTERED DIRECTLY UNDER THE OPENING. ADDITIONAL SPACING FOR BACKFLOW DEVICE MAY BE REQUIRED.



THRUST BLOCKS



DRAWING	CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086		PROJECT NO: 122236 DESIGNED: C.DAIGLE CAD COORD: R.BEISAW CAD: R.BEISAW CHECKED: C.DAIGLE DATE: 11-2021 APPROVED: R.WINGARD DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	NO	REVISIONS	APPD. DATE
	DETAILS III				△		

EROSION AND SEDIMENTATION CONTROL NOTES

THIS PLAN HAS BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION IN DEVELOPING AREAS IN ACCORDANCE WITH OCTOBER 2016 REVISION TO THE 2003 MAINE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) MANUAL FOR DESIGNERS AND ENGINEERS, OR LATEST EDITION. EROSION CONTROL MIX SHALL BE AS SPECIFIED IN THIS CITATION, PAGE 40.

THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL STRUCTURES ARE SHOWN ON THE SITE PLAN.

- ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE DONE IN ACCORDANCE WITH 2016 REVISION TO THE 2003 MAINE EROSION AND SEDIMENT CONTROL FIELD GUIDE FOR CONTRACTORS, OR LATEST EDITION. ALL TEMPORARY MEASURES SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED.
- IN AREAS ADJACENT TO NATURAL RESOURCES, LOCATIONS TO BE VEGETATED IN THEIR FINISH CONDITION SHALL BE STABILIZED WITH MULCH WITHIN 7 DAYS OF MOST RECENT DISTURBANCE.
- AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR UP TO ONE YEAR SHALL BE STABILIZED WITH MULCH WITHIN 7 DAYS OF MOST RECENT DISTURBANCE.
- THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE MAINTAINED IN AN UNTREATED OR UNVEGETATED CONDITION FOR THE MINIMUM TIME REQUIRED. IN GENERAL AREAS TO BE VEGETATED SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
- SEDIMENT BARRIERS (SILT FENCE, STONE CHECK DAMS, ETC.) SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF UPGRADE/ DRAINAGE AREAS. SEDIMENT BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO THE STOCKPILES. PLASTIC SHEETING OR OTHER MATERIAL, WOVEN OR NON-WOVEN GEOTEXTILE FABRIC, MAY BE USED TO COVER STOCKPILES.
- INSTALL SILT FENCE AT TOE OF SLOPES TO FILTER SILT FROM RUNOFF. SEE SILT FENCE DETAIL FOR PROPER INSTALLATION. SILT FENCE WILL REMAIN IN PLACE PER NOTE #5.
- ALL EROSION CONTROL STRUCTURES WILL BE INSPECTED, REPLACED AND/OR REPAIRED EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR WHEN NO LONGER SERVICEABLE DUE TO SEDIMENT ACCUMULATION OR DECOMPOSURE. IF REPAIRS ARE IDENTIFIED, THEY SHALL BEGIN NO LATER THAN THE END OF THE FOLLOWING WORK DAY AND BE COMPLETE WITHIN 7 DAYS FROM INSPECTION. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
- NO SLOPES, EITHER PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2 TO 1) UNLESS STABILIZED WITH RIPRAP OR OTHER STRUCTURAL MEANS. NO SLOPES IN EXCESS OF 1.5H:1V SHALL BE ALLOWED UNLESS STAMPED BY A PROFESSIONAL ENGINEER.
- IF FINAL SEEDING AND SODDING IS NOT EXPECTED PRIOR TO THE ANTICIPATED DATE OF THE FIRST KILLING FROST, USE TEMPORARY ANNUAL RYEGRASS SEEDING AND MULCHING ON ROUGH GRADED SUBSOIL TO PROTECT THE SITE AND DELAY PERMANENT LOAMING, FINE GRADING, AND SEEDING OR SODDING UNTIL SPRING.
- WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISH GRADED SHALL BE COMPLETED 30 DAYS PRIOR TO THE FIRST KILLING FROST.
- DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO THE SITE AND REGRADED ONTO OPEN AREAS. POST SEEDING SEDIMENT, IF ANY, WILL BE DISPOSED OF IN AN ACCEPTABLE MANNER.
- REVEGETATION MEASURES WILL COMMENCE UPON COMPLETION OF CONSTRUCTION EXCEPT AS NOTED ABOVE. ALL DISTURBED AREAS NOT OTHERWISE STABILIZED WILL BE GRADED, SMOOTHED, AND REVEGETATED.
- ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE SITE IS STABILIZED.
- EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.
- EXPOSED AREA SHOULD BE LIMITED SUCH THAT THE AREA CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT.
- STABILIZATION SCHEDULE BEFORE WINTER:

SEPTEMBER 1: ALL SLOPES GREATER THAN 15% MUST BE SEEDDED AND MULCHED. ALL GRASS-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED.

SEPTEMBER 15 ALL DISTURBED AREAS MUST BE SEEDDED AND MULCHED. ALL SLOPES MUST BE STABILIZED, SEEDDED AND MULCHED. SLOPES 3:1 OR GREATER TO BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDDED. ALL DISTURBED AREAS TO BE PROTECTED WITH AN ANNUAL GRASS MUST BE SEEDDED AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND MULCHED.

OCTOBER 1 ALL DISTURBED AREAS TO BE PROTECTED WITH WINTER RYE MUST BE APPLIED AT A RATE OF 3LBS PER 1000 SQUARE FEET, AND WITH HAY APPLIED AT A RATE OF 75LBS PER 1000 SQUARE FEET OR WITH AN EROSION CONTROL BLANKET.

OCTOBER 15: SOIL MUST BE SEEDDED WITH WINTER RYE AND PROTECTED WITH EROSION CONTROL BLANKET IF NOT YET STABILIZED.

NOVEMBER 1: AREA SHOULD BE STABILIZED IF RYE HAS NOT GROWN THREE INCHES AND DOES NOT HAVE 75% COVERAGE.

NOVEMBER 15 ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED. SLOPES THAT ARE COVERED WITH RIPRAP MUST BE CONSTRUCTED BY THAT DATE.

DECEMBER 1 ALL DISTURBED AREAS WHERE THE GROWTH OF VEGETATION FAILS TO BE AT LEAST THREE INCHES TALL OR AT LEAST 75% OF THE DISTURBED SOIL IS COVERED BY VEGETATION, MUST BE PROTECTED FOR OVER-WINTER.

- MULCH MAY REQUIRE ANCHORING TO ENSURE THAT MULCH REMAINS IN-PLACE. MULCH NETTING, CRIMPING, OR PUNCHING ARE ACCEPTABLE METHODS. MULCH NETTING SHALL BE TENAX RADIX EROSION CONTROL NETS OR APPROVED EQUAL, AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS.
- SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS AND EQUIPMENT ON-SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.
- 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 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.
- MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETEGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
- EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
- 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 SPECIFICATIONS AND ANY APPLICABLE PERMIT CONDITIONS;
 - 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 DEWATERING;
 - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
 - LANDSCAPE IRRIGATION.
- UNAUTHORIZED NON-STORMWATER DISCHARGES: THE MAINE DEP'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MORE 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.

EROSION CONTROL - WINTER CONSTRUCTION

- WINTER CONSTRUCTION PERIOD DEFINED: NOVEMBER 1 THROUGH APRIL 15.
- CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED SUCH THAT NO LARGER AREA OF THE SITE IS WITHOUT EROSION CONTROL PROTECTION AS LISTED IN ITEM 2 ABOVE.
- AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW AT A RATE OF 100 LB. PER 1,000 SQUARE FEET (WITH OR WITHOUT SEEDING) OR DORMANT SEEDDED, MULCHED AND ADEQUATELY ANCHORED BY AN APPROVED ANCHORING TECHNIQUE. IN ALL CASES, MULCH SHALL BE APPLIED SUCH THAT SOIL SURFACE IS NOT VISIBLE THROUGH THE MULCH. OVERWINTER HAY MULCH SHOULD BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET. MULCH SHOULD BE ANCHORED WITH NETTING OR TACKIFIER TO PREVENT MOVEMENT BEFORE FREEZING.
- BETWEEN THE DATES OF OCTOBER 15 AND APRIL 15TH, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE-FREEZING TEMPERATURES, THE SLOPES SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED AND IS SMOOTH, THEN THE AREA MUST BE STABILIZED WITH MULCH. IF CONSTRUCTION CONTINUES DURING FREEZING WEATHER, ALL EXPOSED AREAS SHALL BE GRADED BEFORE FREEZING AND THE SURFACE TEMPORARILY PROTECTED FROM EROSION BY THE APPLICATION OF MULCH. SLOPES SHALL NOT BE LEFT EXPOSED OVER THE WINTER OR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS TREATED IN THE ABOVE MANNER. UNTIL SUCH TIME AS WEATHER CONDITIONS ALLOW DITCHES TO BE FINISHED WITH THE PERMANENT SURFACE TREATMENT, EROSION SHALL BE CONTROLLED BY THE INSTALLATION OF BALES OF HAY OR STONE CHECK DAMS IN ACCORDANCE WITH THE STANDARD DETAILS.
- THE APPLICATION OF MULCH TO FINE GRADED AREAS WILL BE STABILIZED AS FOLLOWS:
 - BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION, CHEMICAL TACK OR WOOD CELLULOSE FIBER.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGEWAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. THIS SHALL BE IN ADDITION TO EROSION CONTROL MATTING-DITCHES DETAIL.
 - MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL AREAS WITH SLOPES GREATER THAN 15%. AFTER OCTOBER 1ST, THE SAME APPLIES FOR ALL SLOPES GREATER THAN 8%.
- AFTER NOVEMBER 1ST THE CONTRACTOR SHALL APPLY MULCH AND ANCHORING ON ALL BARE EARTH AT THE END OF EACH WORKING DAY.
- DURING WINTER CONSTRUCTION PERIODS ALL SNOW SHALL BE REMOVED FROM AREAS OF MULCHING PRIOR TO PLACEMENT.
- THE INSPECTION FREQUENCY FOR AREAS BEING WORKED ON DURING WINTER CONSTRUCTION SHALL BE AFTER EACH RAINFALL, SNOWSTORM, OR THAWING, AND AT LEAST ONCE A WEEK.
 - CONTRACTOR SHALL NOT BE REQUIRED TO INSPECT AREAS OF THE SITE THAT ARE NOT VISIBLE DUE TO SNOW IF THOSE AREAS ARE NOT BEING ACTIVELY CONSTRUCTED, HAVE BEEN INSPECTED AND PROPERLY REPAIRED PRIOR TO THE SNOW EVENT.

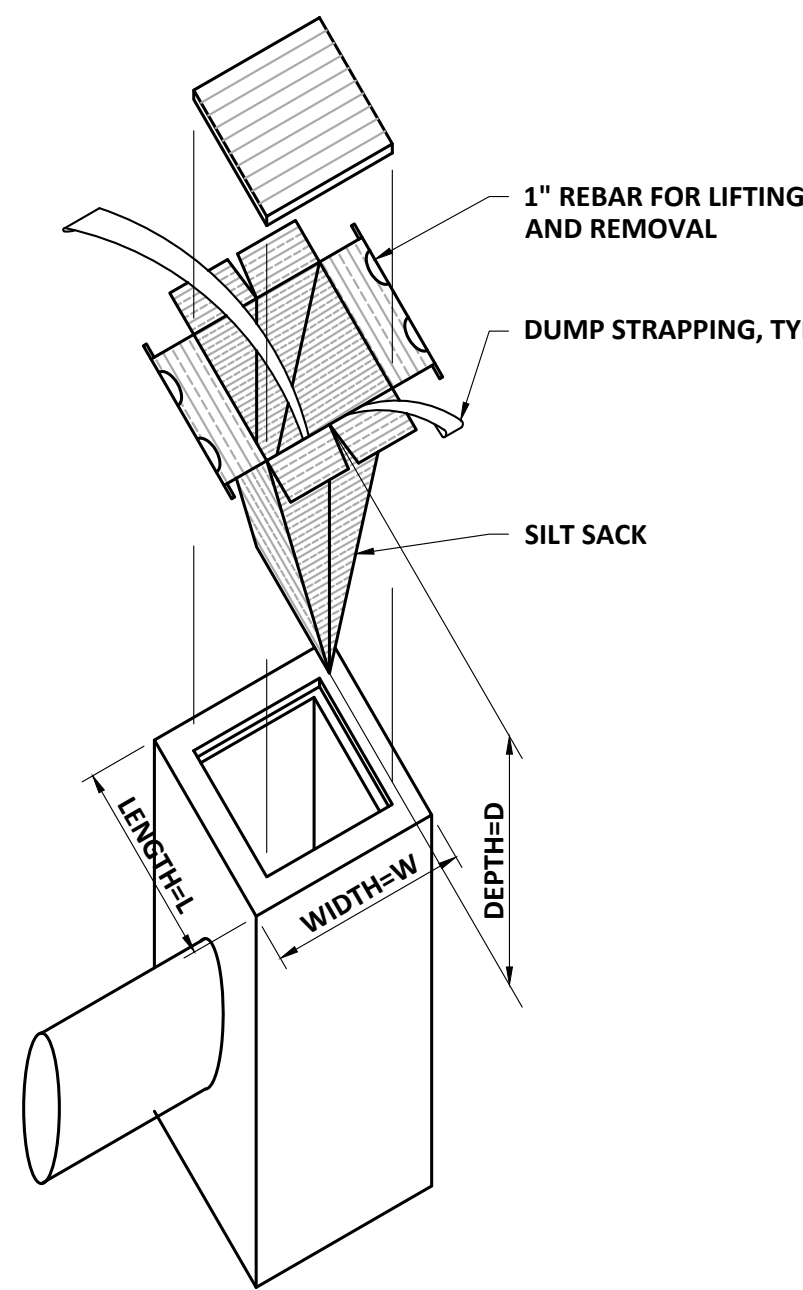
EROSION CONTROL - WETLAND NOTES

- WETLANDS AND SURFACE WATERS (EXCEPTING THOSE WHICH ARE TO BE FILLED IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS) WILL BE PROTECTED WITH SILT FENCE INSTALLED AT THE EDGE OF THE WETLAND OR THE BOUNDARY OF WETLAND DISTURBANCE.
- IF THE WORK INCLUDES CROSSING OF WETLANDS AND/OR STREAMS, THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS WORKING IN THESE AREAS.
- ANY WETLAND CROSSING WORK SHALL BE COMPLETED BETWEEN THE PERIOD OF MAY 1 AND SEPTEMBER 30.
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION WITHIN OR ADJACENT TO WETLAND AREAS. ALL TEMPORARY MEASURES SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED.
- WETLAND VEGETATIVE LAYERS SHALL BE REMOVED AND SALVAGED FOR RESTORATION OF THE DISTURBED AREAS.
- STORAGE AREAS FOR WETLAND MATERIALS SHALL BE PROPERLY PROTECTED AGAINST EROSION.
- SEEDING OF THE DISTURBED AREAS WITHIN WETLAND AREAS SHALL UTILIZE MIXTURES APPROPRIATE FOR WETLAND AREAS AS OUTLINED IN THE SPECIFICATIONS.

INSPECTIONS

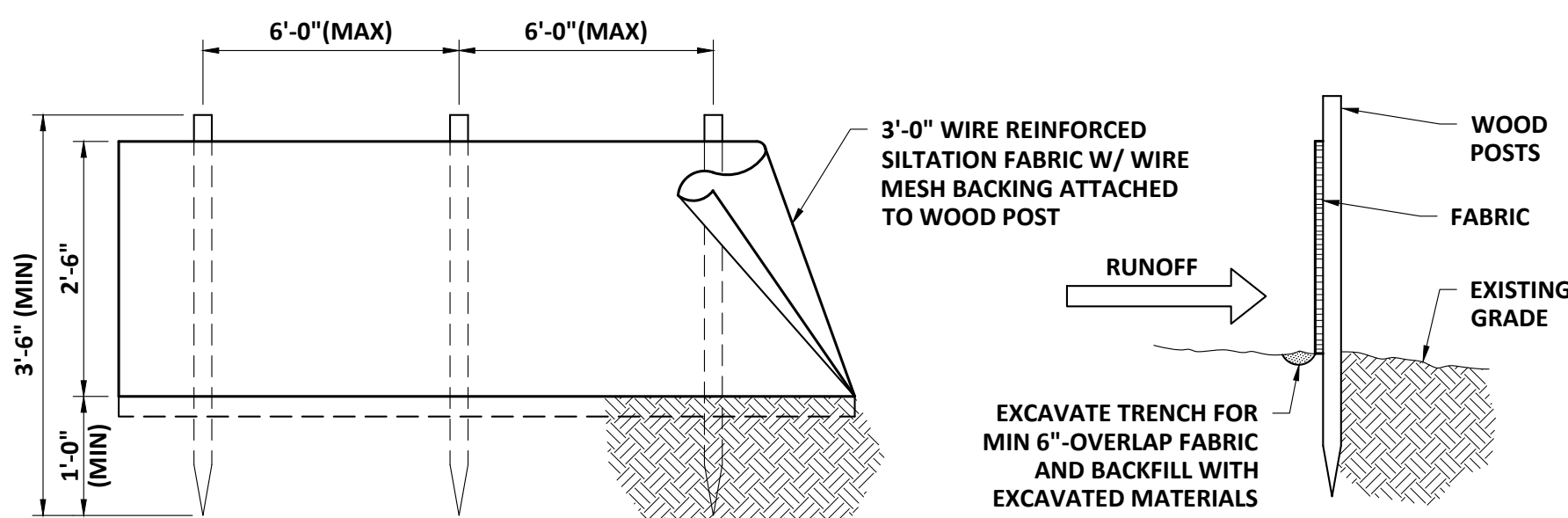
REGULAR INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS SHALL BE MADE AT LEAST WEEKLY AND PRIOR TO AND FOLLOWING STORM EVENTS. MINIMUM INSPECTIONS SHALL BE MADE AS LISTED IN THE TABLE BELOW. SEE INSPECTIONS, MAINTENANCE AND HOUSEKEEPING PLAN FOR ADDITIONAL INFORMATION.

INSPECTED ITEM	EXAMPLE REPAIR INDICATORS
MULCHED SURFACES	THIN MULCH OR INADEQUATE APPLICATION. WIND MOVEMENT
SEEDDED SURFACES	POOR SEED GERMINATION. LOSS OF MULCH. DEVELOPMENT OF RIVULETS.
SEDIMENT BARRIER	SEDIMENT BUILD-UP TO ONE HALF THE HEIGHT OF THE BARRIER. UNDERMINING OF THE BARRIER. SUPPORTING STAKES LOOSE, TOPPLED OR UNMARKED. BREAKS IN BARRIER.
PERIMETER DIVERSION	DISCHARGE IS TO STABILIZED AREA. EROSION OR BREAKS IN BARRIER. SUPPORTING STAKES LOOSE, TOPPLED OR UNMARKED.
CATCH BASIN PROTECTION	SEDIMENT BUILD-UP AND STRUCTURE BLOCKAGES. SLOW FLOW/PONDING WATER. BREAKS IN FABRIC OR VOIDS IN BARRIER.
DEWATERING FILTER	BREAKS IN FABRIC OR SUPPORTING STRUCTURE. SLOW FLOW, INDICATING HIGH SEDIMENT BUILD-UP.
CONSTRUCTION ENTRANCE	SEDIMENTATION OF ROADWAYS. OFF-SITE DUST COMPLAINTS.
STOCKPILE	BALLOONING OR BLOWOUTS, RUNOFF AND EROSION

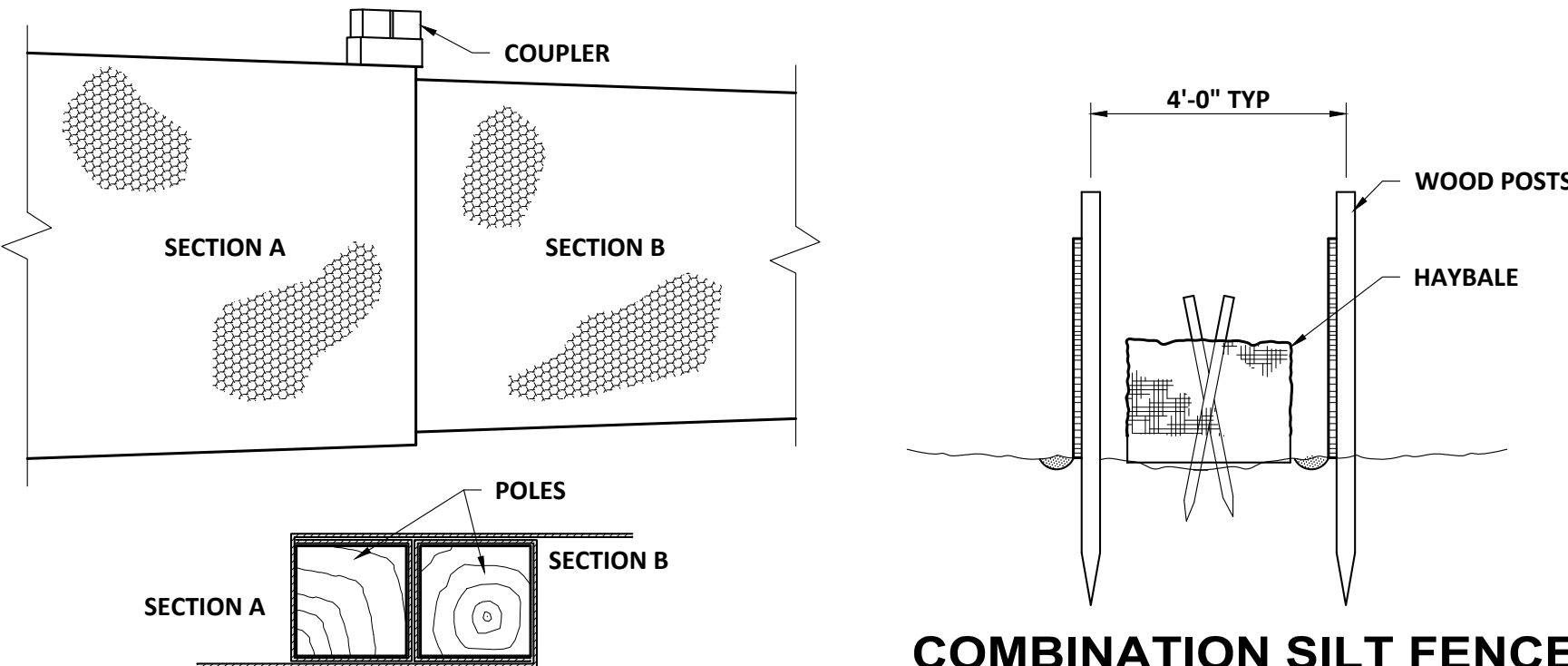


NOTE: INSTALL SILT SACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILT SACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.

SILT SACK CATCH BASIN INLET
SCALE: NTS

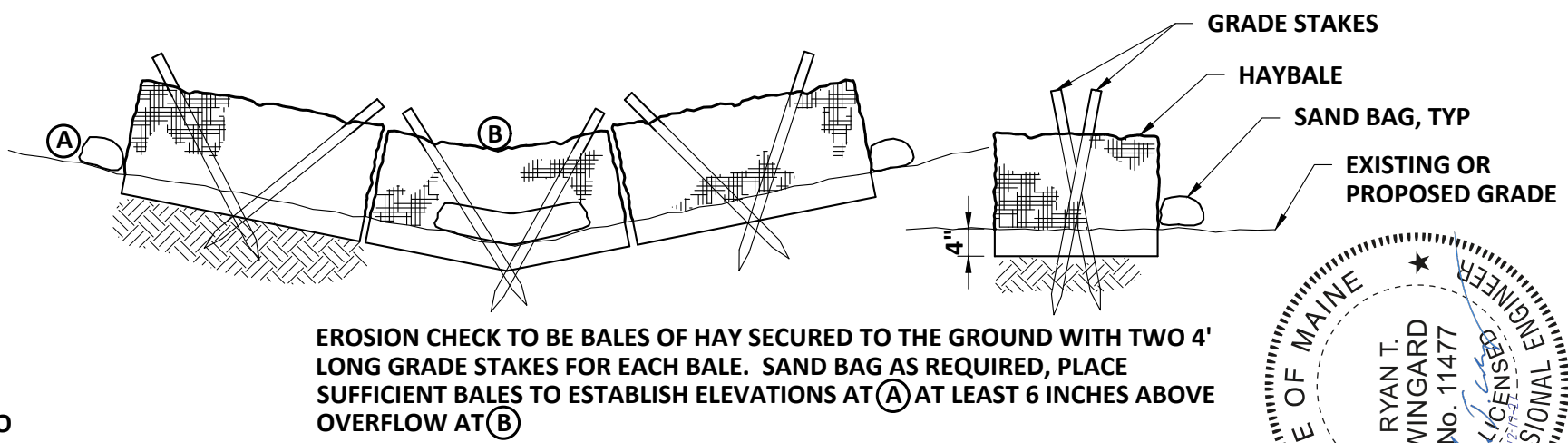


SILT FENCE INSTALLATION DETAIL
SCALE: NTS



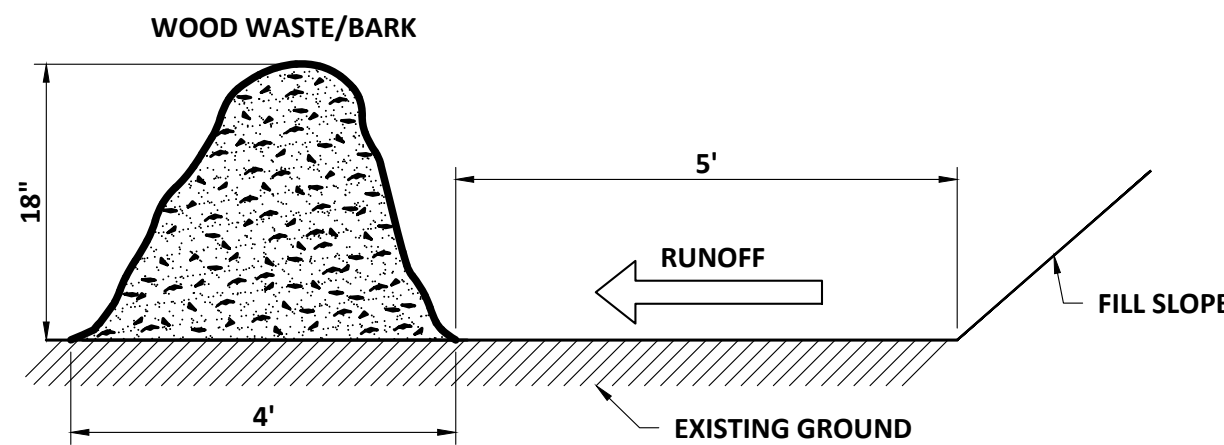
JOINING SILT FENCE SECTIONS
SCALE: "NTS"

COMBINATION SILT FENCE
AND HAY BALE BARRIER
SCALE: NTS



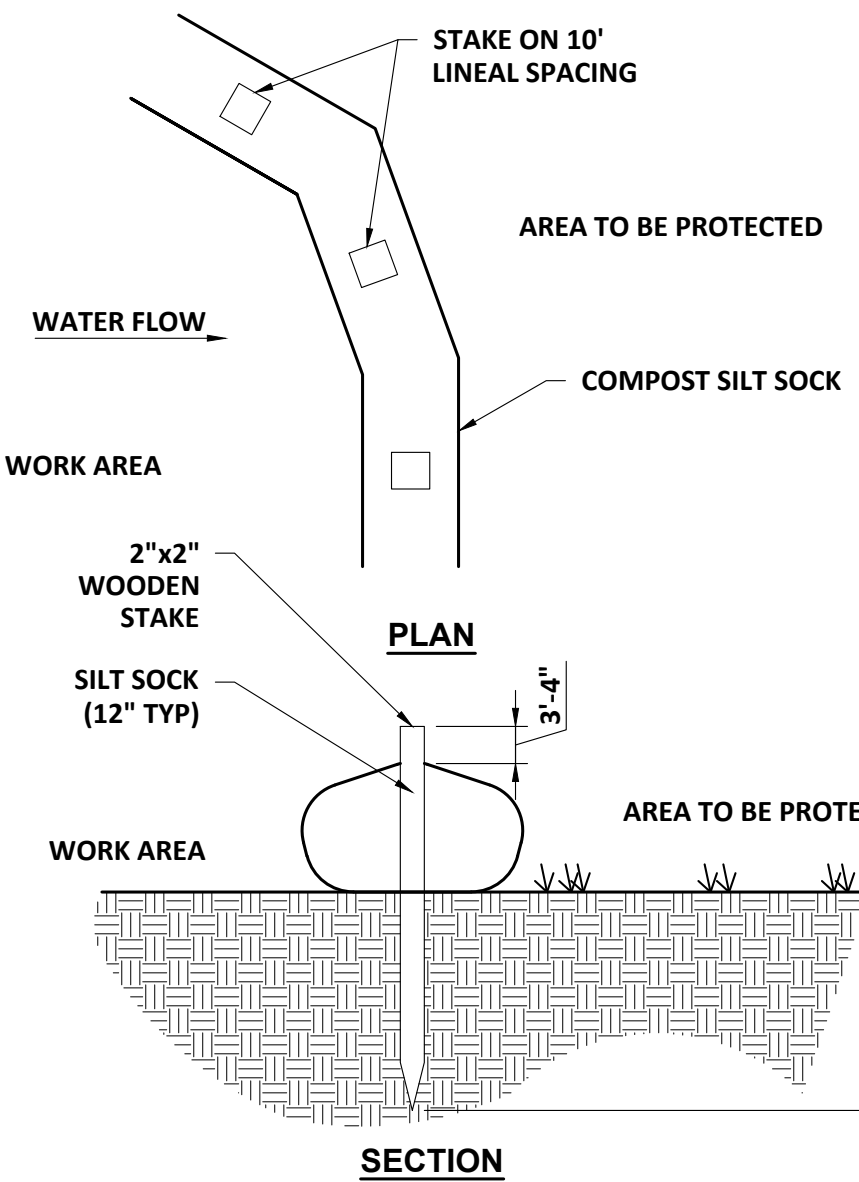
EROSION CHECK TO BE BALES OF HAY SECURED TO THE GROUND WITH TWO 4' LONG GRADE STAKES FOR EACH BALE. SAND BAG AS REQUIRED, PLACE SUFFICIENT BALES TO ESTABLISH ELEVATIONS AT (A) AT LEAST 6 INCHES ABOVE OVERFLOW AT (B).

HAY BALE CHECK DAM
SCALE: "NTS"



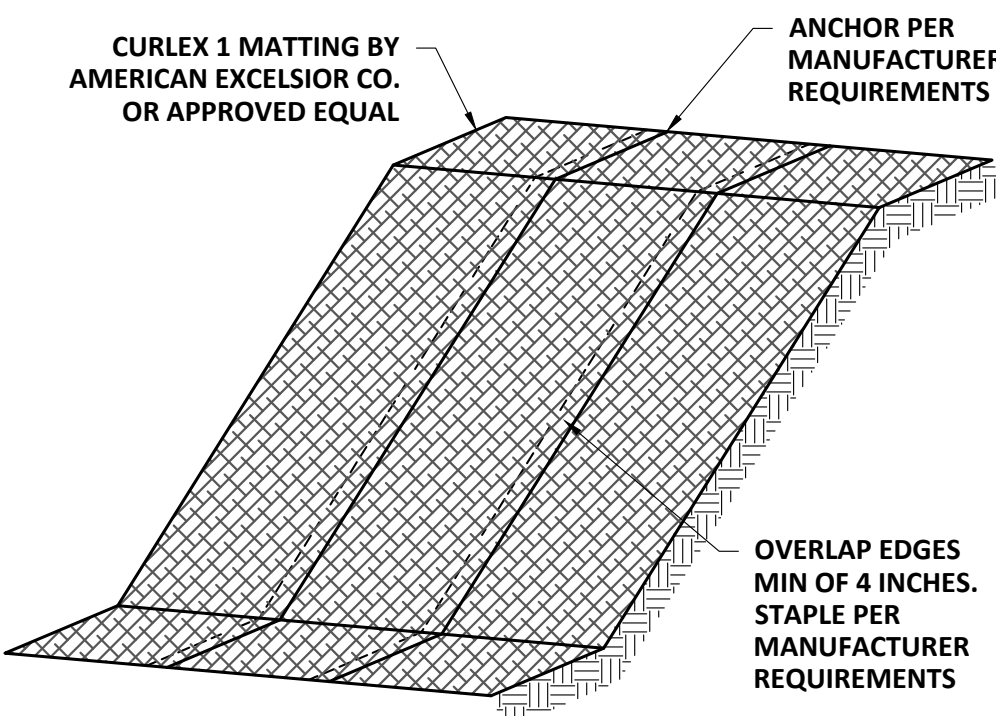
NOTE: 1. EROSION CONTROL MIX SHALL BE AS SPECIFIED ON PAGE 45 OF THE OCTOBER 2016 REVISION TO THE 2003 MAINE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) MANUAL FOR DESIGNERS AND ENGINEERS, OR LATEST EDITION.

EROSION CONTROL MIX BERM
SCALE: "NTS"



NOTE: 1. PROVIDE FOR DRAINAGE SWALES AS INDICATED ON GRADING & DRAINAGE PLAN. ADDITIONAL REQUIREMENTS MAY APPLY. SEE EROSION CONTROL - WINTER CONSTRUCTION NOTE 5 AS APPLICABLE.

EROSION CONTROL MATTING - DITCHES
SCALE: "NTS"

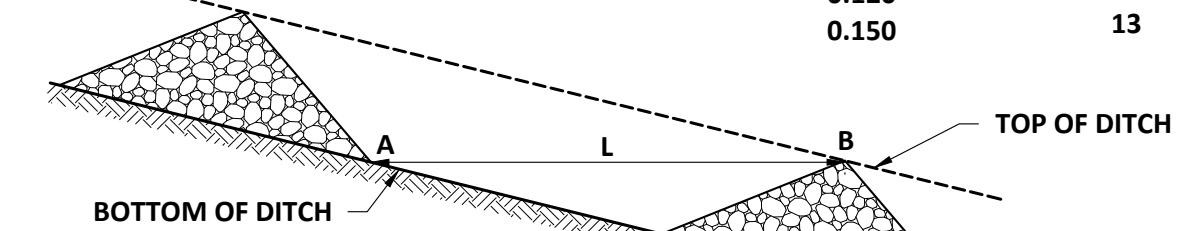


NOTE: INSTALL ON SLOPES 3:1 OR GREATER

EROSION CONTROL MATTING - SLOPES
SCALE: "NTS"

DITCH SLOPE (FT/FT)	L (FT)
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

CROSS SECTION

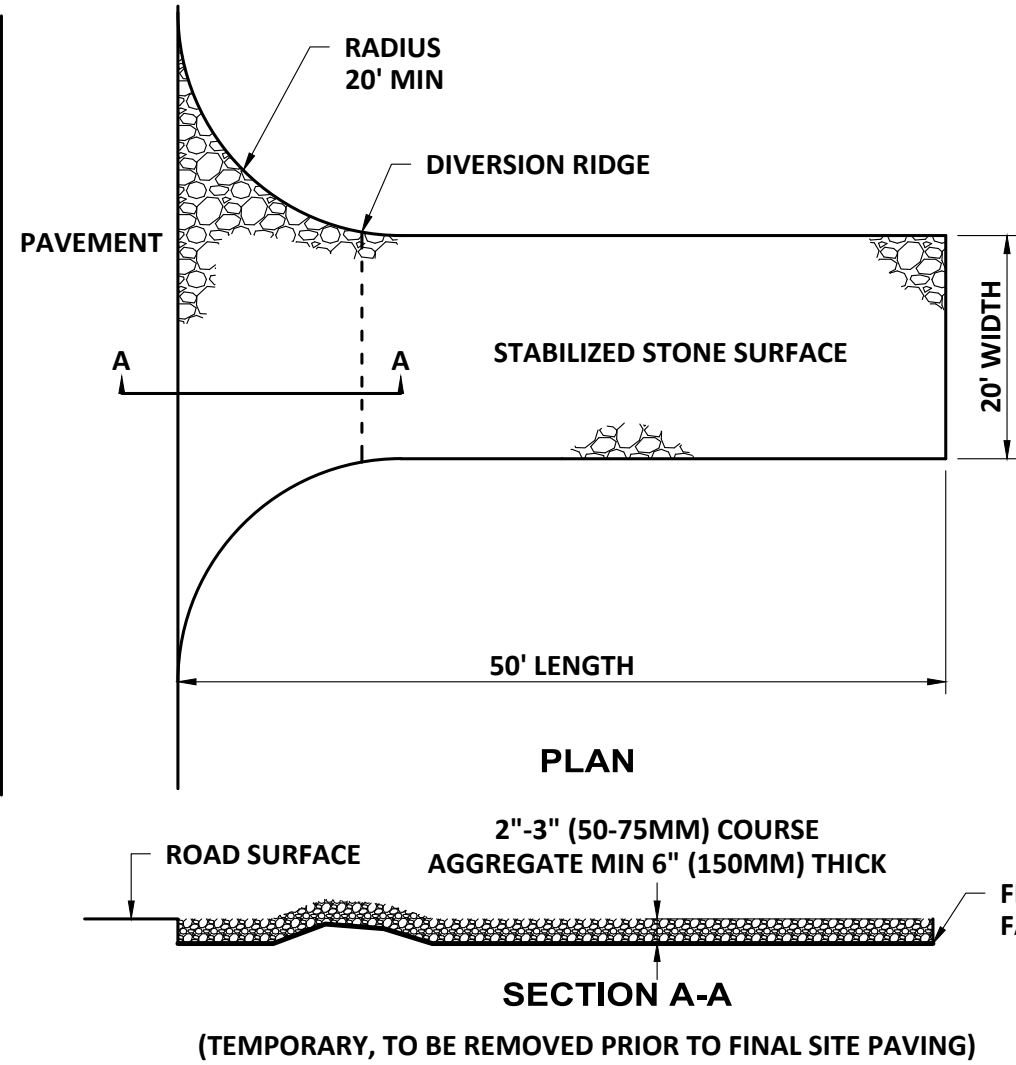


PROFILE

STONE CHECK DAM DETAIL
SCALE: NTS

NOTES: 1. ALL MATERIAL TO MEET SPECIFICATIONS 2. SILT SOCK COMPOST/SOIL/ROCK/SEED FILL TO MEET APPLICATION REQUIREMENTS 3. SILT SOCK DEPICTED IS FOR MINIMUM SLOPES. GREATER SLOPES MAY REQUIRE LARGER SOCKS PER THE ENGINEER 4. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

COMPOST SILT SOCK
SCALE: NTS



NOTE: 1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED DURING CONSTRUCTION AS REQUIRED TO PREVENT OFF-SITE TRACKING OF SEDIMENT. ANY SEDIMENT TRACKED OFF-SITE SHALL BE REMOVED AND DISPOSED OF IN A MANNER THAT SEDIMENTS DO NOT ENTER DOWN SLOPE WATER RESOURCES.

STABILIZED CONSTRUCTION ENTRANCE
SCALE: "NTS"

PROJECT NO: 122323
DESIGNED: C.DAIGLE
CAD COORD: R.BESAW
CAD: R.BESAW
CHECKED: C.DAIGLE
DATE: 11-2021
APPROVED: R.WINGARD
DATE: 12-2021
SUBMISSION: CONTRACT DRAWINGS

NO

REVISIONS

APPROD

DATE

STATE OF MAINE
RYAN T. WRIGHT
16010
Professional Engineer
No. 1477
Professional Seal

STATE OF MAINE
CHARLES A. DAIGLE
16010
Professional Engineer
No. 1477
Professional Seal

CITY OF BIDDEFORD
HORRIGAN COURT PUMP STATION UPGRADE
BIDDEFORD, MAINE

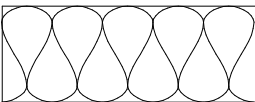
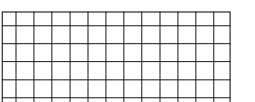
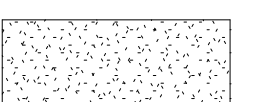
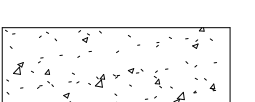
207.725.8721 | www.wright-pierce.com
11 BOWDOIN HILL ISLAND, SUITE 140, TOPSHAM, ME 04086

EROSION CONTROL NOTES & DETAILS

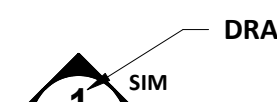
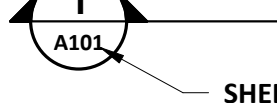
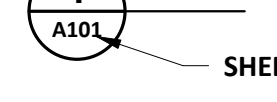
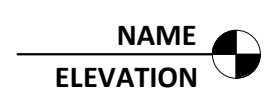
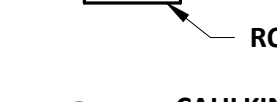
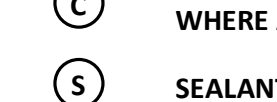
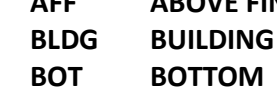
DRAWING
C-9

57

MATERIALS LEGEND

	BATT INSULATION
	RIGID INSULATION
	SPRAY FOAM INSULATION
	CONCRETE
	EARTH
	DIMENSIONAL LUMBER OR WOOD BLOCKING
	PLYWOOD

SYMBOLS LEGEND

	DRAWING NUMBER
	SECTION
	SHEET NUMBER
	DRAWING NUMBER
	DETAIL
	SHEET NUMBER
	DATUM
	ROOM TAG
	ROOM NUMBER
	CAULKING (FIRE RATED WHERE APPLICABLE)
	SEALANT

ABBREVIATIONS:

AFF	ABOVE FINISH FLOOR
BLDG	BUILDING
BOT	BOTTOM
C	CAULK
CL	CENTER LINE
CBB	CONTINUOUS BOND BEAM
CDM	CAVITY DRAINAGE MATERIAL
CJ	CONTROL JOINT
CJV	CONTROL JOINT (VENEER ONLY)
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONT	CONTINUOUS
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
EL	ELEVATION (HEIGHT)
EQ	EQUAL
EXIST	EXISTING
FD	FLOOR DRAIN
FFE	FINISH FLOOR ELEVATION
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET (FOOT)
FV	FIELD VERIFY
GWB	GYPSPUM WALL BOARD
HB	HOSE BIB
HDWD	HARDWARE
HM	HOLLOW METAL
HP	HIGH POINT
HR	HOUR
INSUL	INSULATION
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MJ	MASONRY JOINT
MO	MASONRY OPENING
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PT	PRESSURE TREATED
R	RISER
RD	ROOF DRAIN
REQ	REQUIRED
RO	ROUGH OPENING
S	SEALANT
SF	SQUARE FEET (FOOT)
SIM	SIMILAR
SPEC	SPECIFICATIONS
T	TREAD
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
TYP	TYPICAL
W/	WITH

CODE NOTES

APPLICABLE CODES:
MAINE UNIFORM BUILDING CODE:
2015 INTERNATIONAL BUILDING CODE AS AMENDED (IBC)
2015 INTERNATIONAL ENERGY CONSERVATION CODE AS AMENDED (IECC)
MAINE ADOPTED NFPA CODES AND STANDARDS:
NFPA 1 - FIRE PREVENTION CODE, 2018 EDITION AS AMENDED
NFPA 101 - LIFE SAFETY CODE, 2018 EDITION AS AMENDED

DESCRIPTION OF BUILDING AND WORK
THE BUILDING IS A NEW BUILDING REPLACING THE EXISTING PUMP STATION. THE BUILDING WILL CONTAIN ELECTRICAL EQUIPMENT AND A PUMP CONTROL PANEL. THE BUILDING IS A NORMALLY UNOCCUPIED BUILDING, OPEN TO AUTHORIZED PERSONNEL ONLY AND NOT REQUIRED TO BE ACCESSIBLE (IBC 1103.2.9)

USE GROUP/OCCUPANCY CLASSIFICATION
MODERATE-HAZARD FACTORY INDUSTRIAL GROUP F-1 (IBC 306.2)
SPECIAL PURPOSE INDUSTRIAL OCCUPANCY (NFPA 101 40.1.2.1.2)

TYPE OF CONSTRUCTION
CONSTRUCTION TYPE V-B (IBC 602.5)

AUTOMATIC SPRINKLER SYSTEMS
AUTOMATIC SPRINKLER SYSTEMS NOT REQUIRED IN F-1 OCCUPANCIES UNDER 12,000 SF (903.2.4).

FIRE RESISTANCE REQUIREMENTS OF BUILDING ELEMENTS (TABLE 601)
STRUCTURAL ELEMENTS, WALLS AND ROOF CONSTRUCTION CAN BE OF ANY MATERIAL PERMITTED BY THE CODE AND IS NOT REQUIRED TO HAVE A FIRE RATING

ONE EXIT
ONE EXIT IS ALLOWED IN FACTORY INDUSTRIAL AREAS IF THE EXIT CAN BE REACHED WITHIN A COMMON PATH OF 50 FEET (NFPA 101 40.2.4.1.2). ACTUAL MAX COMMON PATH IS LESS THAN 20'.

ONE STEP
ONE STEP IS ALLOWED IN USE GROUP F OCCUPANCIES AT EXTERIOR DOORS NOT REQUIRED TO BE ACCESSIBLE (IBC 1003.5 e 1).

ENERGY CONSERVATION CLIMATE ZONE FOR YORK COUNTY, MAINE IS 6 (IECC C301.1).

BUILDING ENVELOP REQUIREMENTS
SLAB-ON-GRADE FLOORS, R-10 TO 24" BELOW REQUIRED, R-15 FULL HEIGHT OF FROST WALL PROVIDED
(2" POLYSTYRENE)
WOOD FRAMED WALLS, R-13 + R-7.5ci REQUIRED, R-26ci PROVIDED (4" SPRAY FOAM)
ATTIC, R-49 REQUIRED, R-51 PROVIDED (8.5" SPRAY FOAM INSULATION)

ARCHITECTURAL NOTES

- DIMENSIONS ARE TO FACE OF CONCRETE, EXTERIOR FACE OF STUDS AT WOOD STUD WALLS AND CENTERLINE OF OPENINGS.
- DIMENSIONS OF DOORS AND WINDOWS ARE NOMINAL. COORDINATE WITH ACTUAL ITEM WHEN SIZING ROUGH OPENINGS.
- COORDINATE ALL R.O.'S (ROUGH OPENINGS) WITH THE ITEMS AND EQUIPMENT TO BE SUPPLIED.
- PAINT ALL ITEMS, REFER TO SPECIFICATION SECTION 09900.
- WOOD IN CONTACT WITH CONCRETE SHALL BE PRESSURE TREATED.

STRUCTURAL NOTES:

CAST-IN-PLACE REINFORCED CONCRETE NOTES:

- REFERENCE SPECIFICATIONS - 03300
- REINFORCED CONCRETE WAS DESIGNED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING:
2.1 ACI 318 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY
- MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS:
STRUCTURAL CONCRETE - f'c = 4,500 PSI
CONCRETE FILL, ELECTRICAL CONDUIT ENCASEMENTS, PIPE ENCASEMENTS - f'c = 3,000 PSI
- REINFORCING STEEL SHALL BE NEW BILLET STEEL CONFORMING TO ASTM SPECIFICATION A615 GRADE 60 DEFORMED BARS. FABRICATION SHALL BE IN ACCORDANCE WITH THE CRSI CODE OF STANDARD PRACTICE.
- REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER UNLESS OTHERWISE NOTED:
5.1 CONCRETE CAST AGAINST EARTH: 3 INCHES
5.3 ALL OTHER CONCRETE SURFACES: 2 INCHES
- SPliced BARS SHALL HAVE THE FOLLOWING MINIMUM SPLICE LENGTHS REGARDLESS OF LOCATION (UNLESS OTHERWISE INDICATED ON THE DRAWINGS):
#4 - 1'-8" #5 - 2'-0" #6 - 2'-5" #7 - 3'-6"
- EMBEDDED HOOKED DOWEL BAR SPlicERS SHALL HAVE THE FOLLOWING MINIMUM DIMENSIONS:
#4 - 7" EMBEDMENT WITH 9" HOOK
#5 - 8" EMBEDMENT WITH 10" HOOK
- CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN SHOWN ON THE DRAWINGS UNLESS REVIEWED WITH NO EXCEPTIONS TAKEN BY THE ENGINEER. CONTROL JOINTS SHALL BE PLACED AT ALL INDICATED LOCATIONS.
- SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER. (UNLESS OTHERWISE INDICATED ON THE DRAWINGS)
- PROVIDE CHAMFERS AT ALL EXPOSED CORNERS AND EDGES, EXCEPT THOSE DIRECTLY BELOW WOOD WALLS.
- 90 DEGREE BENDS IN REINFORCING BARS SHALL EXTEND 12 BAR DIAMETERS BUT NOT LESS THAN 12" BEYOND BEND UNLESS OTHERWISE NOTED.
- PROVIDE ADDITIONAL REINFORCING STEEL AT SLAB AND WALL OPENINGS AS INDICATED ON THE TYPICAL STRUCTURAL DETAILS.
- PROVIDE A MINIMUM 4" THICK REINFORCED CONCRETE PAD BELOW ALL EQUIPMENT, PIPE SUPPORTS, STANCHIONS, CONTROL PANELS, TANKS, ETC. UNLESS OTHERWISE NOTED.
- INDEPENDENT TESTING LABORATORY WILL PERFORM SLUMP AND AIR CONTENT TESTS FOR ALL CONCRETE TRUCKS AND PREPARE AND TEST CONCRETE CYLINDER SAMPLES.

METALS NOTES:

- UNLESS OTHERWISE INDICATED, ALL METAL FABRICATIONS SHALL BE STRUCTURAL STEEL.
- ANCHOR RODS SHALL CONFORM TO ASTM F1554 GRADE 36.
- STEEL BOLTS SHALL CONFORM TO ASTM F3125 GRADE 325 UNLESS OTHERWISE NOTED.
- STAINLESS STEEL FASTENERS SHALL CONFORM TO ASTM F593 AND ASTM F594 (TYPE 316).
- EPOXY AND EXPANSION ANCHORS SHALL BE TYPE 316 STAINLESS STEEL. EMBEDMENT DEPTH OF THESE ANCHORS SHALL BE NOT LESS THAN 6 INCHES UNLESS OTHERWISE NOTED.
- ALL STRUCTURAL STEEL, HIGH STRENGTH BOLTS AND ANCHOR RODS SHALL BE HOT-DIPPED GALVANIZED AND/OR PAINTED AS SPECIFIED. GALVANIZE STEEL PRIOR TO ASSEMBLY IF POSSIBLE AND AFTER ALL WELDING.
- ALL SURFACES OF UNCOATED STEEL (EXCEPT REINFORCING STEEL) AND ALUMINUM SHAPES AND FASTENERS THAT ARE IN CONTACT WITH OR EMBEDDED IN CONCRETE SHALL BE COATED WITH EPOXY PAINT (MIN 5 MIL DFT).
- ALL SURFACES OF DISSIMILAR METALS IN CONTACT SHALL BE COATED WITH EPOXY PAINT (MIN 5 MIL DFT).
- BOLLARDS SHALL BE ASTM A53/A53M GRADE B AND HOT-DIP GALVANIZED PER ASTM A123.

FOUNDATION NOTES:

- BACKFILLING OF THE FROST WALLS SHALL NOT COMMENCE UNTIL THE FOLLOWING CONDITIONS ARE MET:
1.1 THE CONCRETE WALLS HAVE BEEN IN PLACE FOR A MINIMUM OF 7 DAYS.
1.2 THE CONCRETE WALLS HAVE ATTAINED A COMPRESSIVE STRENGTH OF 3,300 PSI.
- BACKFILLING OF ALL OTHER FOUNDATION WALLS (TANKS AND BELOW GRADE SPACES) SHALL NOT COMMENCE UNTIL THE FOLLOWING CONDITIONS ARE MET:
2.1 THE CONCRETE WALLS HAVE BEEN IN PLACE FOR A MINIMUM OF 14 DAYS.
2.2 THE CONCRETE WALLS HAVE ATTAINED A COMPRESSIVE STRENGTH OF 4,500 PSI
2.3 THE TOP SLAB HAS BEEN IN PLACE FOR A MINIMUM OF 14 DAYS AND ATTAINED A COMPRESSIVE STRENGTH OF 3,300 PSI
2.4 LEAK TESTS HAVE BEEN SUCCESSFULLY COMPLETED.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN A CONTINUOUS DEWATERING SYSTEM TO INSURE AGAINST FLOTATION OF EACH NEW STRUCTURE UNTIL CONSTRUCTION OF THE CONCRETE FOUNDATION AND BACKFILLING FOR EACH STRUCTURE IS COMPLETED.
- FOUNDATION DESIGN, SUBGRADE AND FILL DETAILS ARE BASED ON A MAXIMUM NET ALLOWABLE SOIL BEARING CAPACITY OF 2000 PSF.
- EXISTING SUBGRADE CONDITIONS CONSIST OF A SURFICIAL LAYER OF TOPSOIL, OVERLYING UNCONTROLLED FILL OVERLYING REFUSAL SURFACES (PROBABLE BEDROCK) AT APPROXIMATELY 9 FEET BELOW GROUND SURFACE.
- OVER EXCAVATE AND REMOVE ALL SOIL BENEATH ALL STRUCTURES (INCLUDING 45 DEGREE ZONE OF INFLUENCE) TO BEDROCK (APPROX 9 FEET BELOW FINISH GRADE). REPLACE WITH COMPACTED STRUCTURAL FILL.
- ALL CONCRETE STRUCTURES SHALL BE COVERED, INSULATED AND HEATED AS REQUIRED TO PREVENT FROST PENETRATION BENEATH THE STRUCTURES UNTIL SUBSTANTIAL COMPLETION OR UNTIL STRUCTURES ARE COMPLETED AND BACKFILLED.
- THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE BELOW THE FROST DEPTH (AS MEASURED FROM FINISH GRADE) UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- BACKFILL BOTH SIDES OF FROST WALLS AT THE SAME TIME TO PREVENT AN UNBALANCED LOAD ON THE WALLS.

WOOD TRUSS NOTES:

- REFERENCE SPECIFICATION - 06175
- ALL WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING PUBLICATIONS:
2.1 "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" INCLUDING "DESIGN VALUES FOR WOOD CONSTRUCTION", BY THE AMERICAN WOOD COUNCIL.
2.2 "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION" ANSI/TPI 1-2014 BY THE TRUSS PLATE INSTITUTE.
- STRUCTURAL LUMBER USED IN THE MANUFACTURING OF WOOD TRUSSES SHALL BE SELECTED BY THE TRUSS DESIGN ENGINEER.
- TOP AND BOTTOM CHORDS SHALL BE 2X6 MINIMUM SIZE AND INTERIOR WEBS SHALL BE 2X4 MINIMUM SIZE. TRUSS MEMBER SIZES SHALL BE INCREASED ABOVE THE MINIMUMS AS NECESSARY TO SUPPORT DESIGN LOADS. OUTSIDE DIMENSIONS OF TRUSSES SHALL BE AS INDICATED ON THE DRAWINGS, INTERIOR CONFIGURATIONS SHOWN ON THE DRAWINGS ARE ASSUMED AND SHALL BE AS REQUIRED BY THE TRUSS ENGINEER TO SUPPORT DESIGN LOADS AND AVOID INTERFERENCES.
- THE PERMANENT LATERAL BRACING SYSTEM AS INDICATED ON THE CONTRACT DRAWINGS INCLUDES WOOD BRACING (LATERAL, DIAGONAL, AND WEB) AND PLYWOOD ROOF SHEATHING. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED TO LATERALLY SUPPORT THE TRUSSES DURING CONSTRUCTION.
- ATTACH ROOF TRUSSES TO TOP PLATES AT EACH END OF THE TRUSSES WITH HURRICANE ANCHORS AS INDICATED BELOW. ALL EQUIVALENTS SHALL HAVE EQUAL REACTION CAPACITY TO THOSE SPECIFIED. ATTACH CONNECTOR TO TRUSS AND TOP PLATES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

STRUCTURE	TRUSS	USP	SIMPSON STRONG-TIE	MATERIAL
PUMP STATION	T1	RT16A	H10A	HDG

PIPE SUPPORT NOTES:

- THE FOLLOWING RESTRICTIONS FOR SUPPORTING PIPES FROM NEW AND EXISTING STRUCTURES IN THE TABLE BELOW SHALL APPLY TO ALL PIPE SUPPORTS:

AREA	NEW STRUCTURES
FLOOR SYSTEMS	
REINFORCED CONCRETE SLAB:	
MAT SLAB/ BASE SLAB	YES
SLAB-ON-GRADE	YES
ROOF SYSTEMS	
WOOD TRUSS	NO
OTHER SYSTEMS	
METAL AND CONCRETE STAIRS	NO

NOTE: "NO" INDICATES THAT PIPES MAY NOT BE SUPPORTED FROM THE INDICATED STRUCTURE AND "YES" INDICATES THAT PIPES MAY BE SUPPORTED FROM THE INDICATED STRUCTURE. THE RESTRICTIONS APPLY TO BEARING THE PIPE SUPPORT ABOVE, HANGING BELOW, OR HANGING THE PIPE FROM THE SIDE OF THE INDICATED STRUCTURAL ELEMENT. ALL PIPE SUPPORTS SUPPORTED FROM STRUCTURES SHALL BE SUBJECTED TO REVIEW WITH NO EXCEPTIONS TAKEN BY THE ENGINEER.

WOOD FRAMING NOTES:

- REFERENCE SPECIFICATION - 06100
- ALL WOOD FRAMING WAS DESIGNED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION" INCLUDING "DESIGN VALUES FOR WOOD CONSTRUCTION", BY THE AMERICAN WOOD COUNCIL.
- TOP PLATES SHALL BE SOUTHERN YELLOW PINE No 2 OR EQUAL USED AT 19% MAXIMUM MOISTURE CONTENT.
- ALL OTHER FRAMING SHALL BE SPRUCE-PINE-FIR (SPF) No. 2 OR EQUAL USED AT 19% MAXIMUM MOISTURE CONTENT.
- NAILING SCHEDULE:
TOP PLATE TO STUD 2-16d (DIRECT)
STUD TO SILL PLATE 4-12d (TOE NAIL)
STUD TO STUD (ELSEWHERE) 16d @ 24" OC (DIRECT)
STUD TO STUD (@ WALL CORNERS) 16d @ 16" OC (DIRECT)
HEADER TO STUD 4-8d (TOE NAIL)
DOUBLE TOP PLATES 12d @ 16" OC (2 ROWS) (DIRECT)
DOUBLE TOP PLATES (END JOINT) 8-16d DIRECT EACH SIDE OF JOINT
(2 ROWS @ 3" OC)
DOUBLE TOP PLATES (CORNERS & INTERSECTION) 4-16d (TOENAIL)
BLOCKING TO TOP PLATE 12d @ 6" (TOE NAIL)
GABLE END WALL BRACING 3-16d EACH END
BRACING TO TRUSSES 2-12d EACH TRUSS
BLOCKING TO TRUSSES 2-8d (TOENAIL) OR 2-16d (DIRECT)
FURRING/STRAPPING TO BOTTOM OF TRUSS 2-NO. 8 x 2 1/2" LONG SCREWS
EACH TRUSS
BUILD UP HEADER 16d @ 16" OC (2 ROWS) (DIRECT)
ROOF PLYWOOD @ DIAPHRAGM BOUNDARY 12d @ 6" OC
ROOF PLYWOOD @ ALL OTHER EDGES 8d @ 12" OC
EXTERIOR WALL PLYWOOD @ INTERIOR SUPPORTS 8d @ 12" OC
ALL OTHER NAILING SHALL BE IN ACCORDANCE WITH REFERENCED BUILDING CODE.
- WOOD TO WOOD AND WOOD TO CONCRETE BOLTED CONNECTORS SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):
6.1 WOOD TO WOOD: ASTM A307 OR ASTM F3125 GRADE A325N BOLTS (CONCEALED);
HOT-DIPPED GALVANIZED F3125 GRADE A325N BOLTS (EXPOSED)
6.2 WOOD TO CONCRETE: 1/2" DIA. ANCHOR BOLTS (CONCEALED);
HOT-DIPPED GALVANIZED F3125 GRADE A325N BOLTS (EXPOSED)
- PLYWOOD SHEATHING SHALL BE AS FOLLOWS:
9.1 ROOF: 5/8" APA RATED STRUCTURAL I SHEATHING, 40/20 SPAN RATING, EXPOSURE 1 (BLOCK ALL PLYWOOD EDGES WITH FULL DEPTH 2X BLOCKING).
9.2 WALLS: 1/2" APA RATED STRUCTURAL I SHEATHING, 32/16 SPAN RATING, EXPOSURE 1 (BLOCK ALL PLYWOOD EDGES WITH FULL DEPTH 2X BLOCKING).

STRUCTURAL DESIGN CRITERIA:

- HOLLOW METAL DOORS SHALL BE INSULATED.
- DESIGN FLOOR LOAD = 200 PSF.

GEOTECHNICAL:

DESIGN FLOOD ELEVATION: EL 58.20'
LATERAL EARTH PRESSURES (BELOW GRADE STRUCTURES):
ABOVE GROUNDWATER = 65 PSF/FT (UNIFORM VARYING)
BELOW GROUNDWATER = 95 PSF/FT (UNIFORM VARYING)
SURCHARGE = 125 PSF/FT (BASED ON 300 PSF UNIFORM LOAD)
SEISMIC = 0.100(S_v)(F_a)(V_h)(H²)(INVERTED UNIFORMLY VARYING)
LATERAL HYDROSTATIC PRESSURES:
STATIC = 65 PSF/FT (UNIFORM VARYING)
SEISMIC (IN ACCORDANCE WITH ACI 350.3)
Z = 0.15 (ZONE 2A)
S = 2.0
I = 1.0
NET ALLOWABLE SUBGRADE BEARING PRESSURE = 2,000 PSF
MINIMUM FROST DEPTH = 4'-6"

LIVE LOADS:

REE:
ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
2015 INTERNATIONAL BUILDING CODE
MAINE UNIFORM BUILDING AND ENERGY CODE
RISK CATEGORY III

WIND LOADS

BASIC WIND SPEED Vult = 130 MPH
DESIGN WIND SPEED Vasd = 101 MPH
EXPOSURE CATEGORY C
INTERNAL PRESSURE COEFFICIENT (Gcpi) = ±0.18
TOPOGRAPHIC FACTOR (Kzt) = 1.0

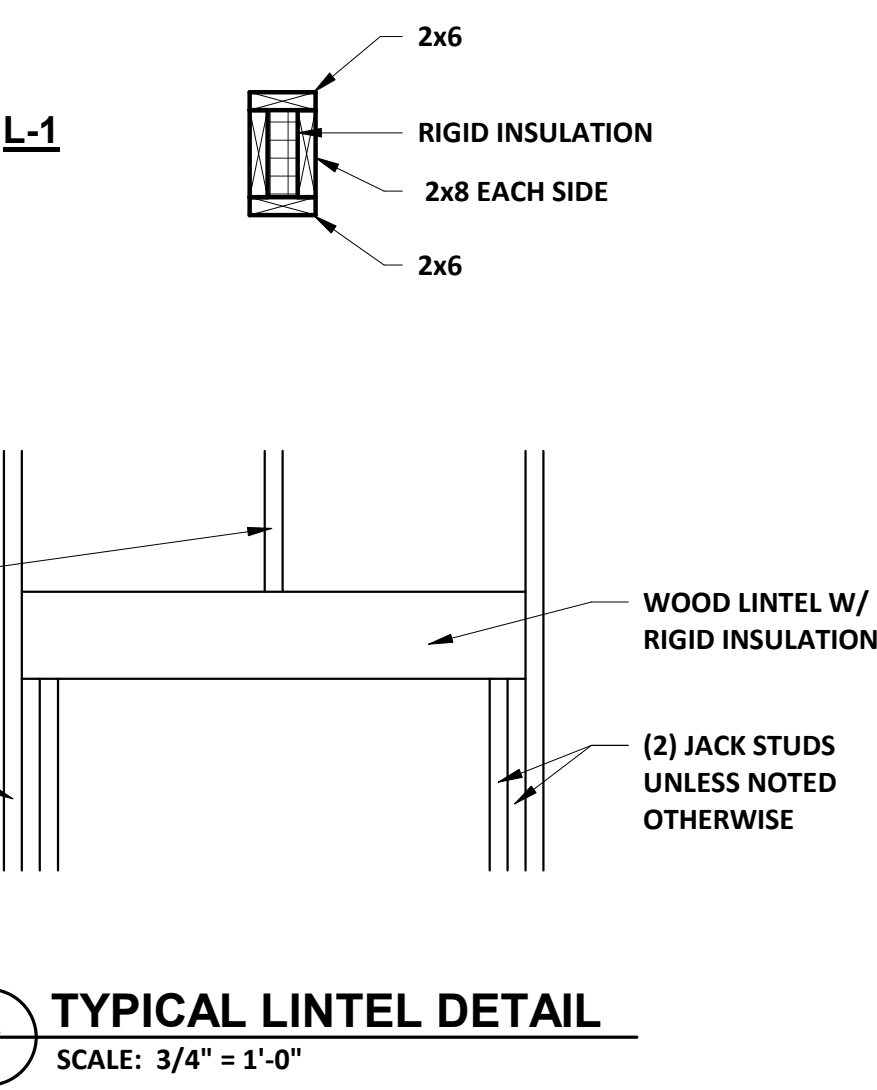
SNOW LOADS

GROUND SNOW LOAD (Pg) = 60 PSF
IMPORTANCE FACTOR (Is) = 1.1
EXPOSURE FACTOR (Ce) = 1.0
THERMAL FACTOR (Ct) = 1.1
SLOPE FACTOR (Cs) = 1.0

SEISMIC LOADS

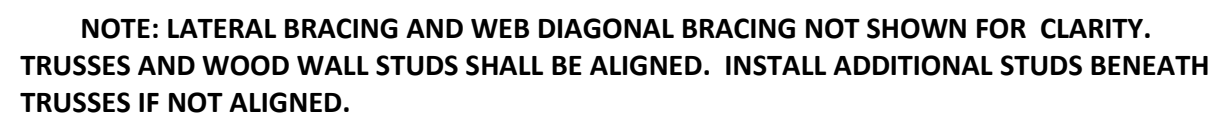
EQUIVALENT LATERAL FORCE ANALYSIS
IMPORTANCE FACTOR (Ie) = 1.25
SITE CLASSIFICATION C
SEISMIC DESIGN CATEGORY B
0.2s SPECTRAL RESPONSE ACCELERATION (Ss) = 0.251
1.0s SPECTRAL RESPONSE ACCELERATION (S1) = 0.079
RESPONSE MODIFICATION COEFFICIENT (R):
LIGHT-FRAME (WOOD) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE= 6.5

LINTEL SCHEDULE:



A TYPICAL LINTEL DETAIL
SCALE: 3/4" = 1'-0"

PROJECT NO: 12223G	DESIGNED: CMVCHAUD	CAD COORD: R.BESAW	CAD: S.MICHAUD	CHECKED: R.WILLIAMS	DATE: 12-2021	APPROVED: CMVCHAUD	DATE: 12-2021	SUBMISSION: CONTRACT DRAWINGS
CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, ME 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086 GENERAL NOTES, LEGENDS, AND ABBREVIATIONS								
DRAWING A-1								



ROOF FRAMING PLAN



TRUSS ELEVATION
SCALE: 3/16" = 1'-0"



TYPICAL WOOD TRUSS WEB LATERAL AND DIAGONAL BRACES
SCALE: 3/16" = 1'-0"

WALL CONSTRUCTION:
VINYL SIDING
AIR BARRIER SHEATHING
WOOD STUDS @ 24" OC
PRAY FOAM INSULATION
5/8" GWB
1/2" FINISH PLYWOOD

10" MINIMUM SLAB
W/ # 5 @ 8" OC BOTH WAYS A
MID-DEPTH OF SLAB

2" PERIMETER INSULATION
8" CONCRETE WALL WITH #
12" EACH WAY ALTERNATE
HORIZONTAL LEG OF DOWEL
3 #5s EQUALLY SPACED —

**APPROXIMATE LIMITS OF
SHEETING/SHORING AND/OR
BRACING (SEE GEOTECH REPORT).
EXACT LIMITS SHALL BE
COORDINATED BY THE CONTRACTOR**

**LIMIT OF SOIL REPLACEMENT IF
EXCAVATION BRACING SYSTEM IS
NOT USED** _____

**REPLACE EXISTING FILL SOILS WITH
COMPACTED STRUCTURAL FILL
EXCAVATION BRACING SYSTEM TO
REMAIN IN PLACE PERMANENTLY IF
WITHIN SOIL REPLACEMENT ZONE —**

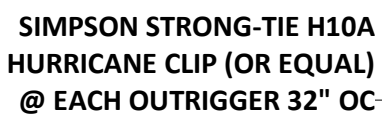


1. PROVIDE A MOUNTING PANEL PER THE MOUNTING PANEL DETAIL AT ALL ITEMS MOUNTED TO THE EXTERIOR WALLS.

**ANTENNA, SEE
ELECTRICAL DRAWINGS**

SLAB-ON-GRADE:
CAST-IN-PLACE CONCRETE
VAPOR BARRIER

1 SECTION
A-2 SCALE: 3/8" = 1'-0"



—(2) SIMPSON STRONG-TIE HGA10 (OR EQUAL) @
24" OC. EQUAL SPACE BETWEEN OUTRIGGERS

2X6 GABLE END WALL BRACE
@ 32" OC. FASTEN BRACE TO
STUD / BLOCKING W/ (4) -10
COMMON NAILS

—ROOF TRUSS (TYP)
—BOTTOM
CHORD
BRACING

TYPICAL WOOD TRUSS GABLE END DIAGONAL BRACE

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



PROVIDE RETURN AS SHOWN

EMERGENCY LIGHT, SEE ELECTRICAL DRAWINGS

FINISHED GRADE 61.00'±

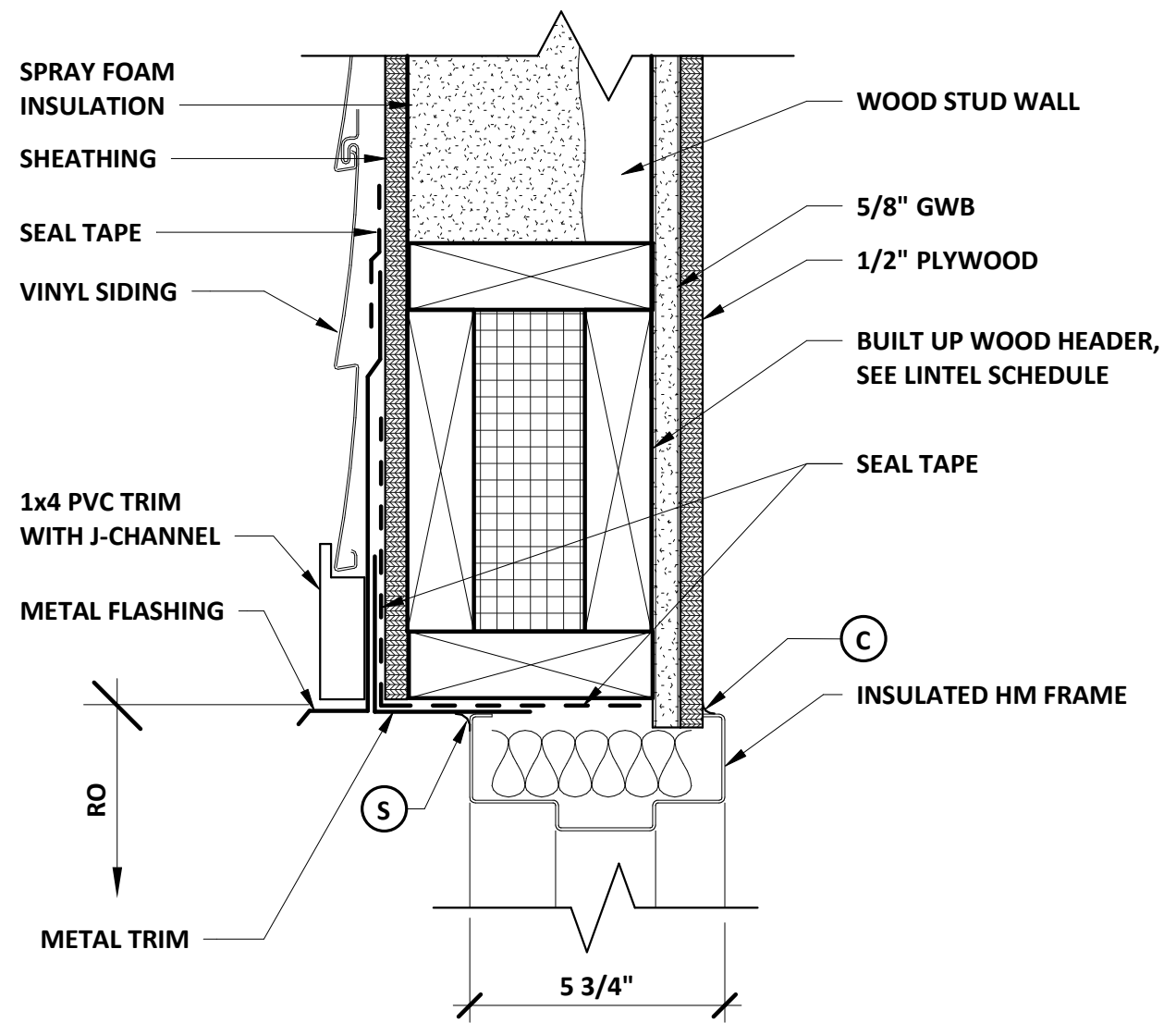
SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, ME	207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086 CATHY B. MICHAUD NO. 4919 STATE OF MAINE 12/17/21	PROJECT NO: 12236		NO	REVISIONS	APPD	DATE
		DESIGNED: CMICHAUD		△			
		CAD COORD: R.BESAW		△			
		CAD: S.RICKLEY		△			
		CHECKED: R.WILLIAMS		△			
		DATE: 12-2021		△			
		APPROVED: CMICHAUD		△			
		DATE: 12-2021		△			
		SUBMISSION: CONTRACT DRAWINGS		△			

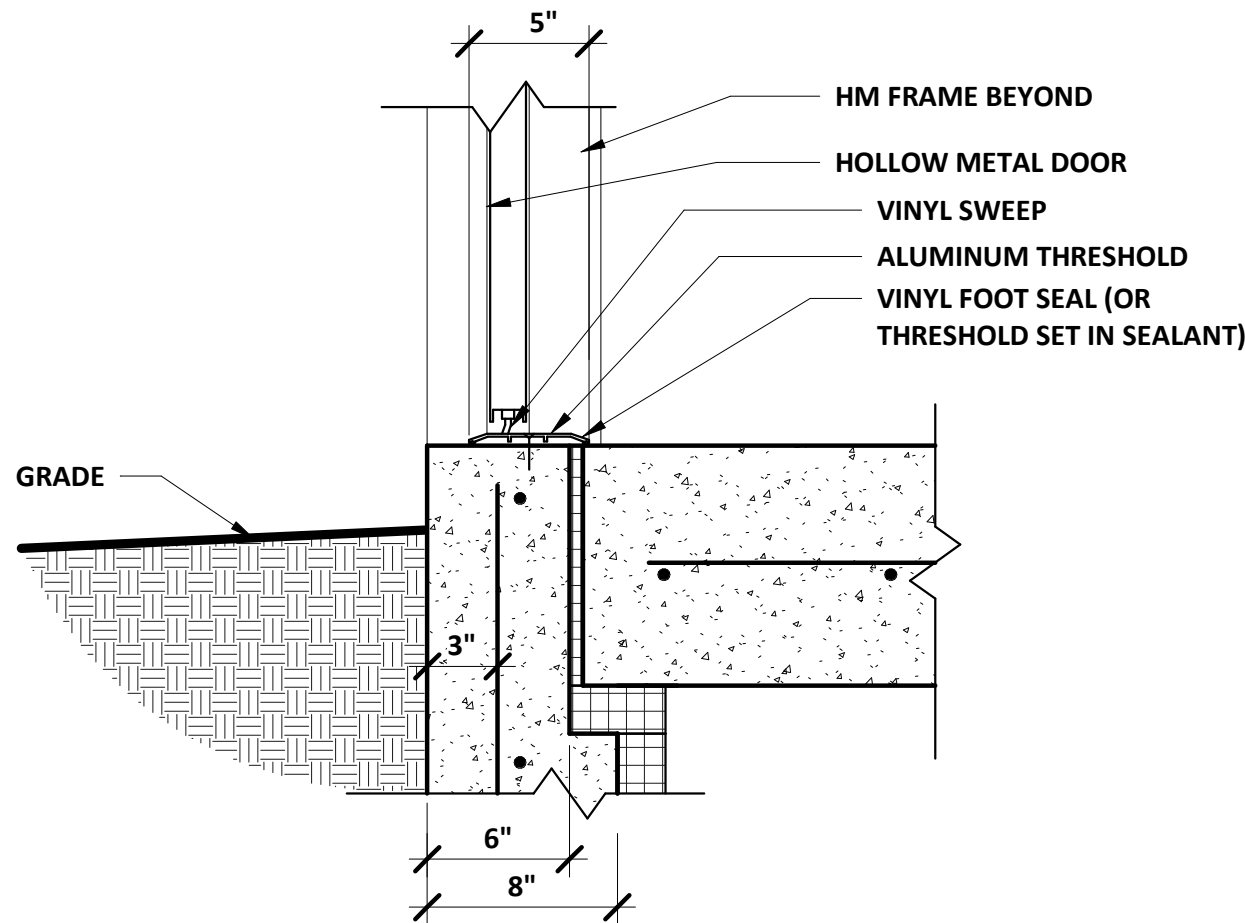
DRAWING

A-2

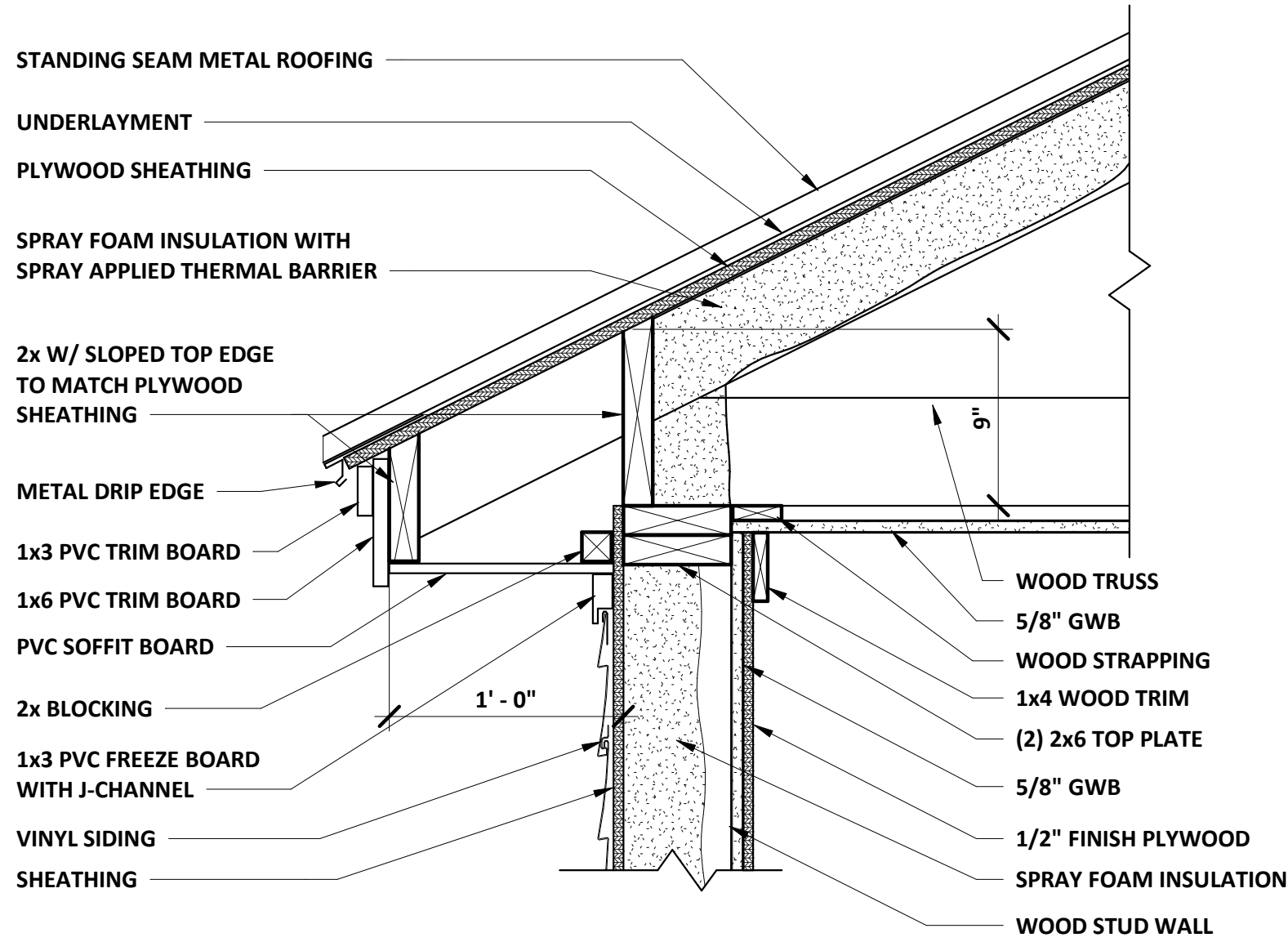
J:\ENGINE\Biddford\12223-DiamondMatch\12223G - Horrigan Court PS\Drawings\AEC\Rev\12223-AH-HorriganCourtPS.0099.rvt 12/17/2021 8:47:46 AM



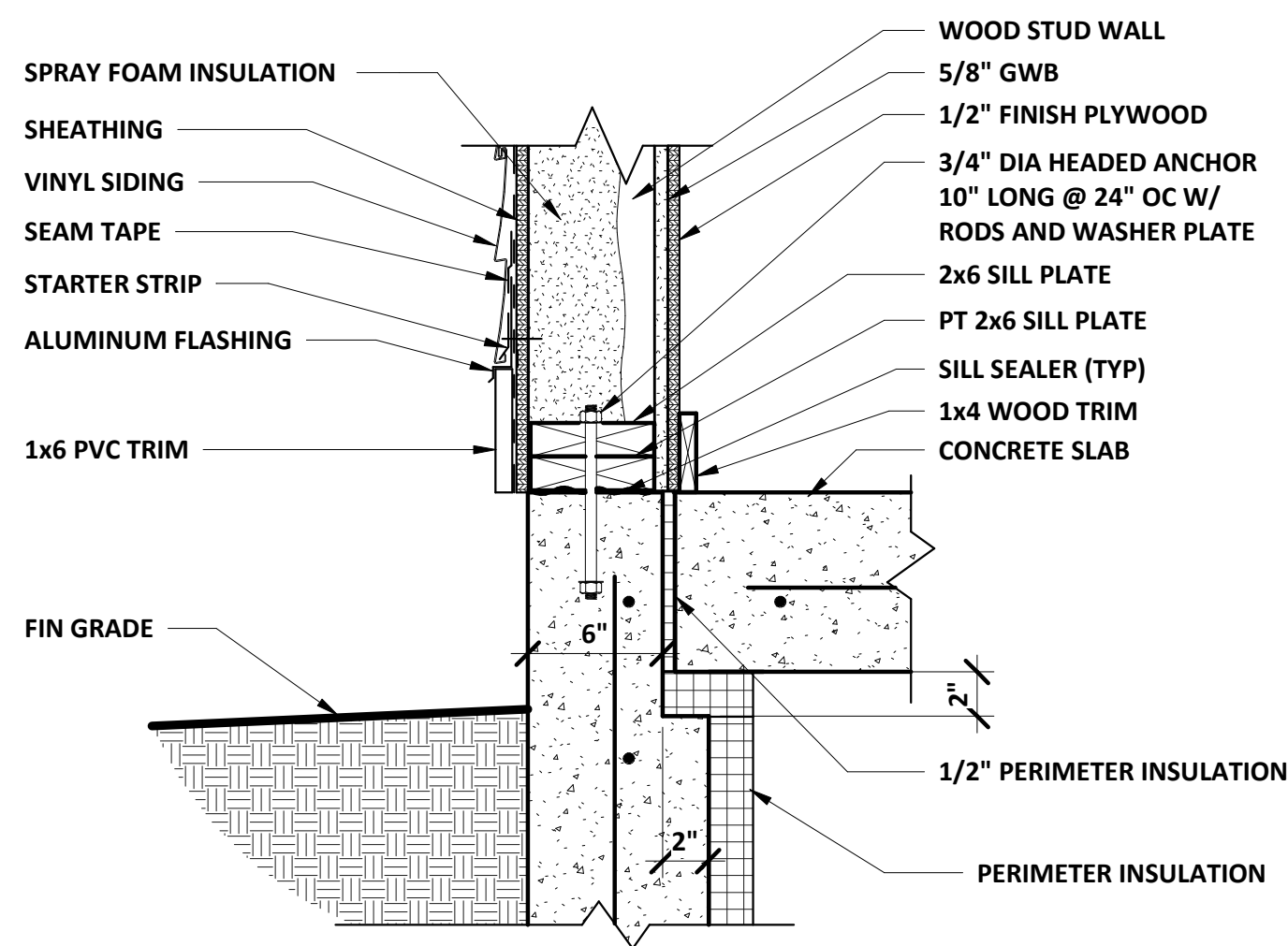
A EXTERIOR DOOR HEAD DETAIL
SCALE: 3" = 1'-0"



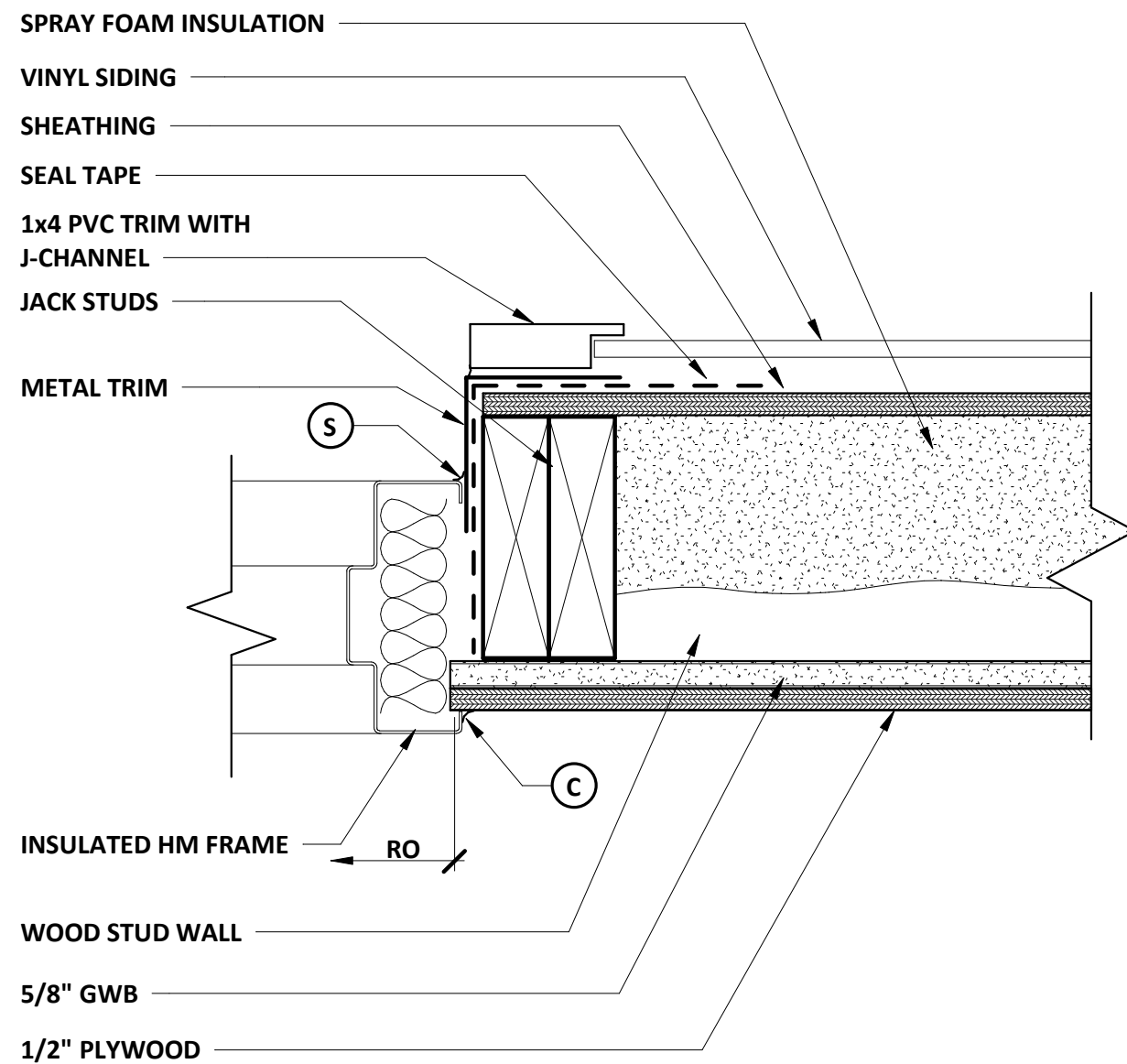
B EXTERIOR SILL DETAIL
SCALE: 1 1/2" = 1'-0"



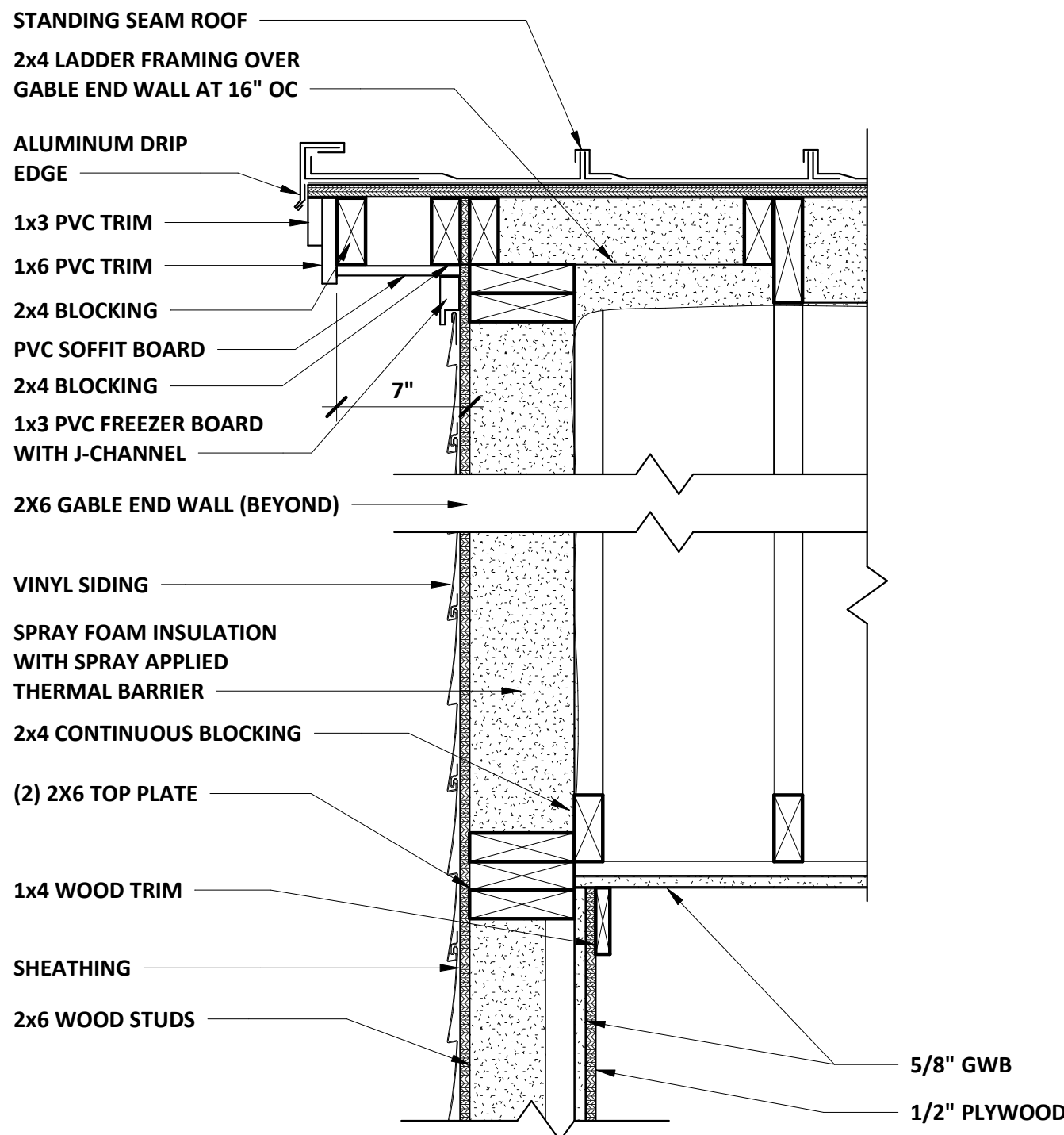
C ROOF EAVE DETAIL
SCALE: 1 1/2" = 1'-0"



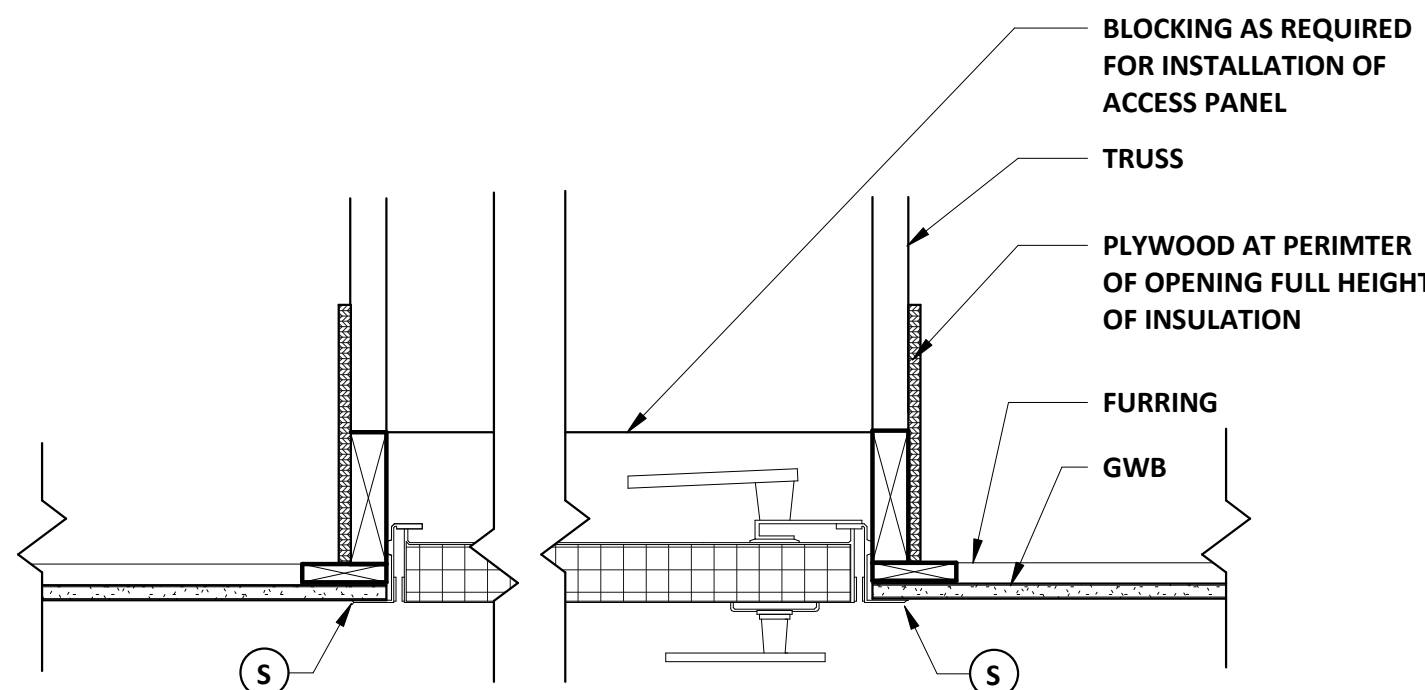
D BASE OF WALL DETAIL
SCALE: 1 1/2" = 1'-0"



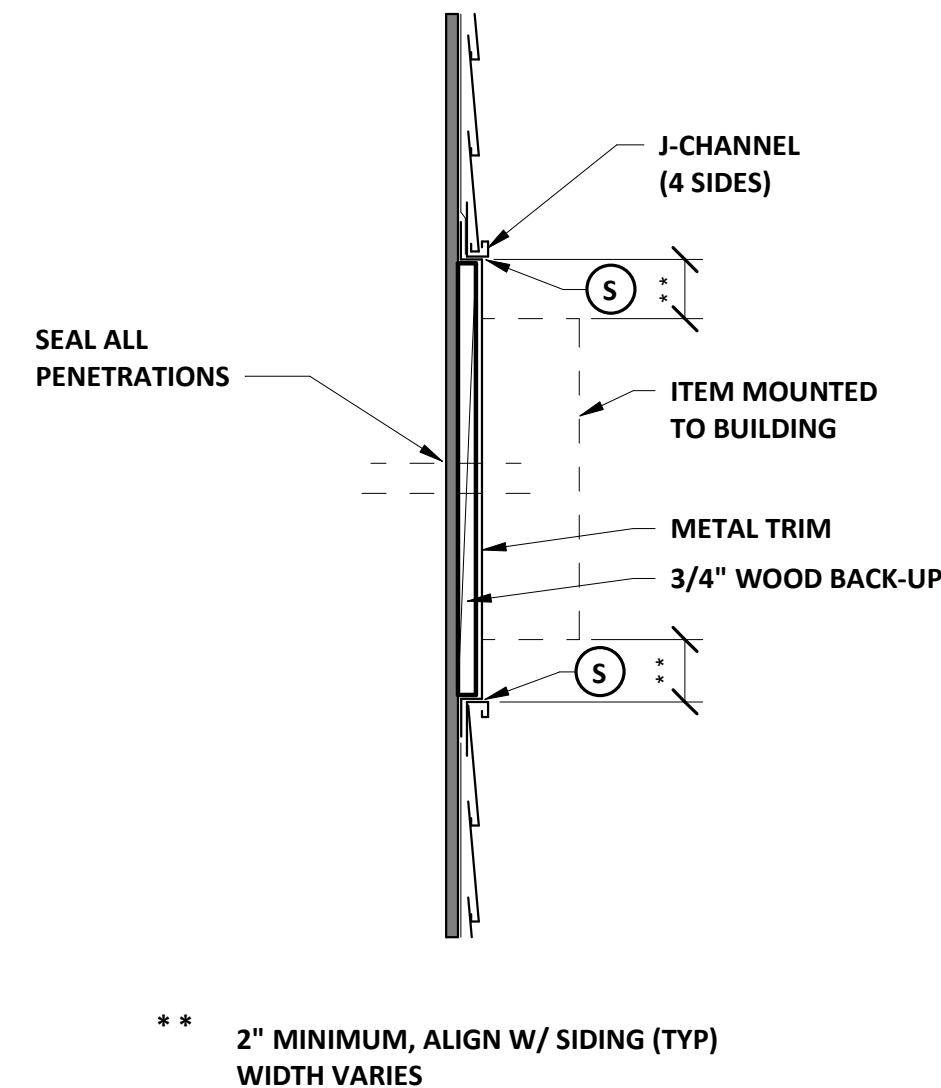
E EXTERIOR DOOR JAMB DETAIL
SCALE: 3" = 1'-0"



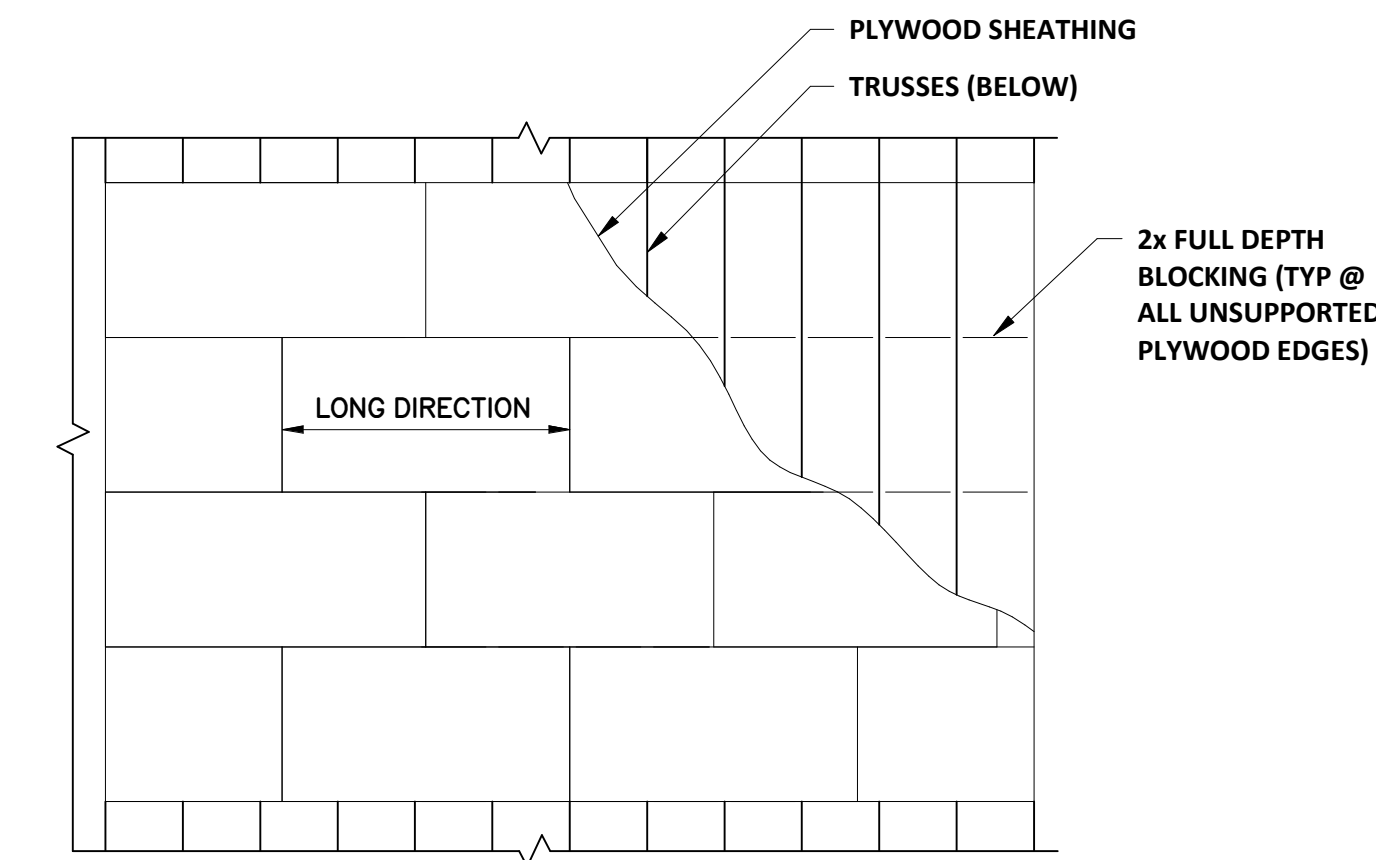
F ROOF RAKE DETAIL
SCALE: 1 1/2" = 1'-0"



G ATTIC ACCESS PANEL DETAIL
SCALE: 1 1/2" = 1'-0"



TYPICAL MOUNTING DETAIL
SCALE: 1 1/2" = 1'-0"



NOTE: PLACE PLYWOOD LONG DIRECTION PERPENDICULAR TO TRUSS SPAN DIRECTION.

PLYWOOD ROOF SHEATHING
SCALE: NTS

REVISIONS		APPD	DATE
NO	1	A	
	2	A	
	3	A	
	4	A	
	5	A	
PROJECT NO: 12223G DESIGNED: CMVCHAUD CAD COORD: R.BESAW CAD: S.RICALEY CHECKED: R.WILLIAMS DATE: 12-2021 APPROVED: CMVCHAUD DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS			
WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086			
CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, ME		DETAILS I	
DRAWING		A-3	

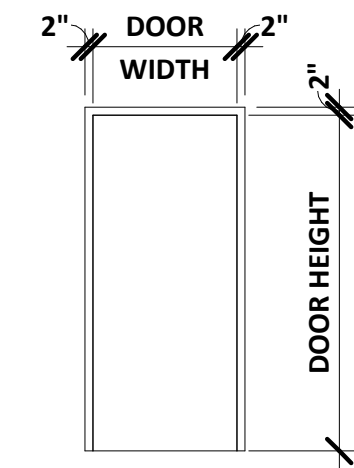
12/17/2021 8:47:50 AM

J:\ENGINE\Biddford\12223-DiamondMatch\ut\12223G - Horrigan Court PS\Drawings\AEC\Rev\12223-AH-HorriganCourtPS.0059.rvt

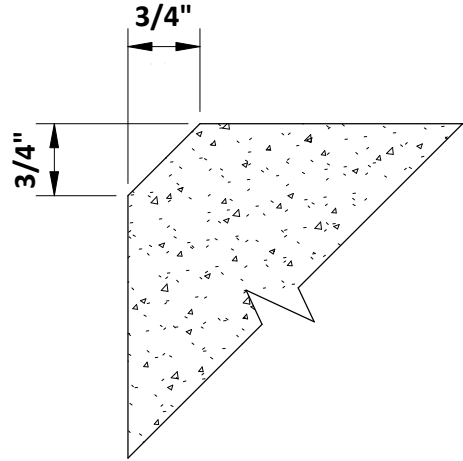
DOOR AND FRAME SCHEDULE												X APPLICABLE - NON APPLICABLE
NO	WTWT		GLASS	FRAME			TYPE	MATL	RATING	HDWE SET	REMARKS	
	W	H	THK	HEAD	JAMB	SILL						
101	3' - 0"	7' - 0"	1 3/4"	-	A/A-3	E/A-3	B/A-3	F	HM	-	1	

DOORS AND FRAMES KEY:

HM HOLLOW METAL

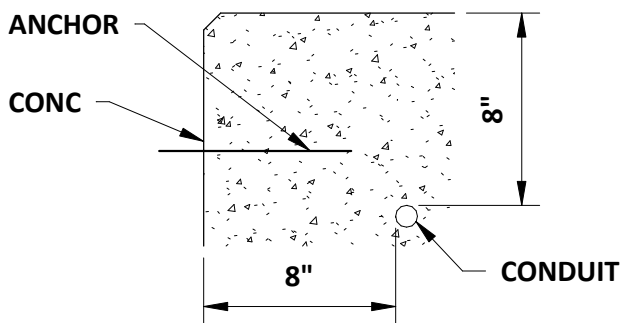


F
DOOR TYPES



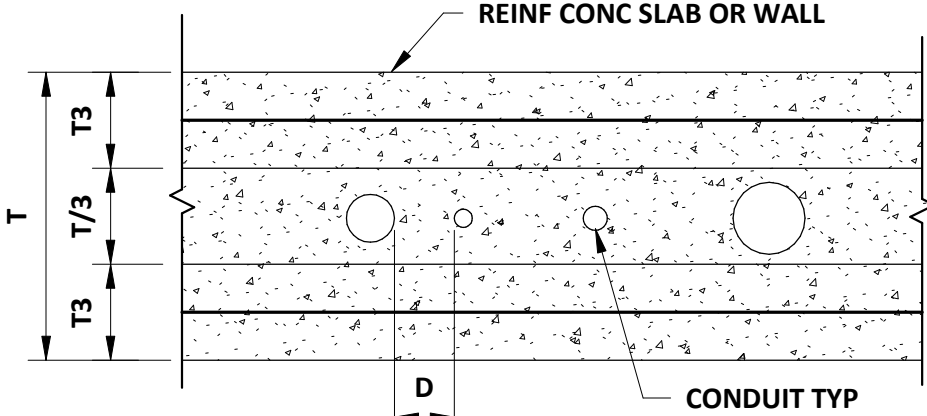
CHAMFER ALL EXPOSED CORNERS AND EDGES, EXCEPT THOSE DIRECTLY BELOW WOOD WALLS

CHAMFER
SCALE: 6" = 1'-0"



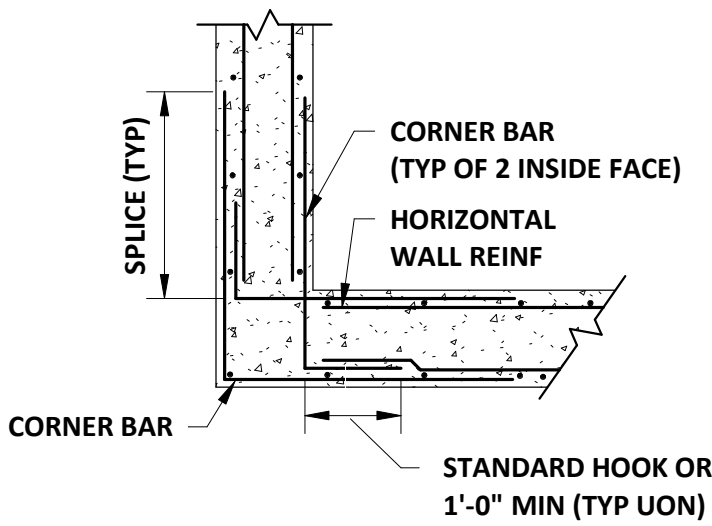
NOTE: CLEARANCE REQUIREMENTS ARE IN AREAS WHERE EPOXY OR EXPANSION ANCHORS WILL BE INSTALLED. INDICATED CLEARANCES ARE MINIMUMS UNLESS OTHERWISE INDICATED. GENERAL CONTRACTOR SHALL COORDINATE LOCATIONS OF CONDUIT W/ DRILLED ANCHORS.

CONDUIT CLEARANCE
SCALE: NTS



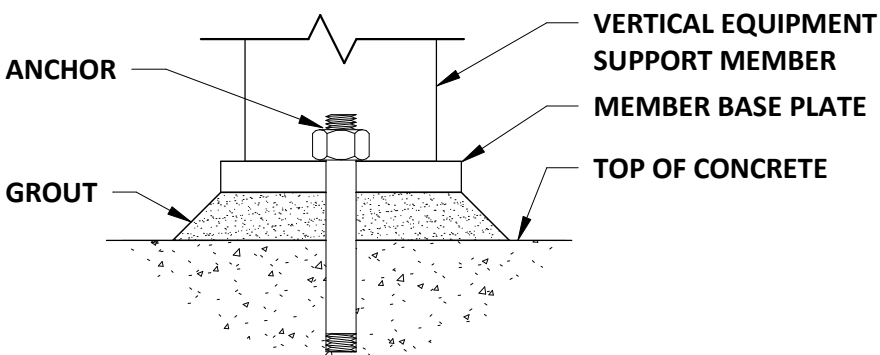
NOTES:
1. "D" = MINIMUM 2 1/2" OR 3 x LARGER CONDUIT DIAMETER.
2. CONDUITS SHALL BE WITHIN MIDDLE "T/3" OF THE SLAB.

CONDUIT PLACEMENT IN SLAB OR WALL
SCALE: NTS



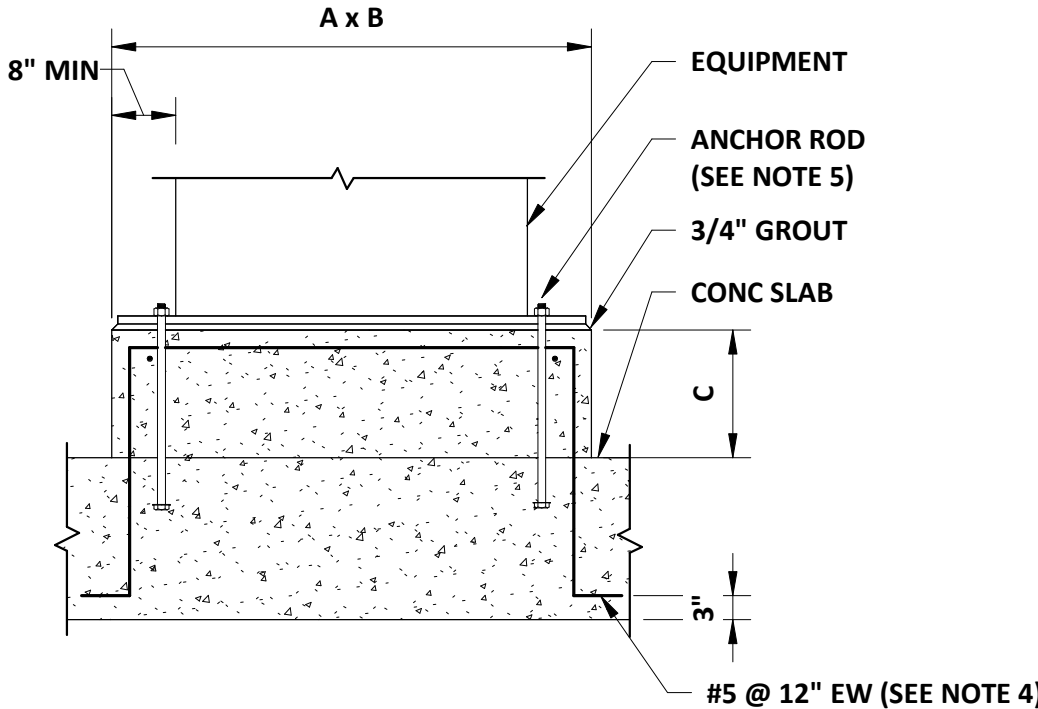
NOTES:
1. SPICE LENGTH TO BE BASED ON THE LARGER OF THE BARS BEING SPICED AT CORNERS OR INTERSECTIONS, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. CORNER BARS SHALL MATCH HORIZONTAL BARS IN SIZE AND SPACING, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

RECTANGULAR WALL HORIZONTAL
CORNER REINFORCEMENT
SCALE: NTS



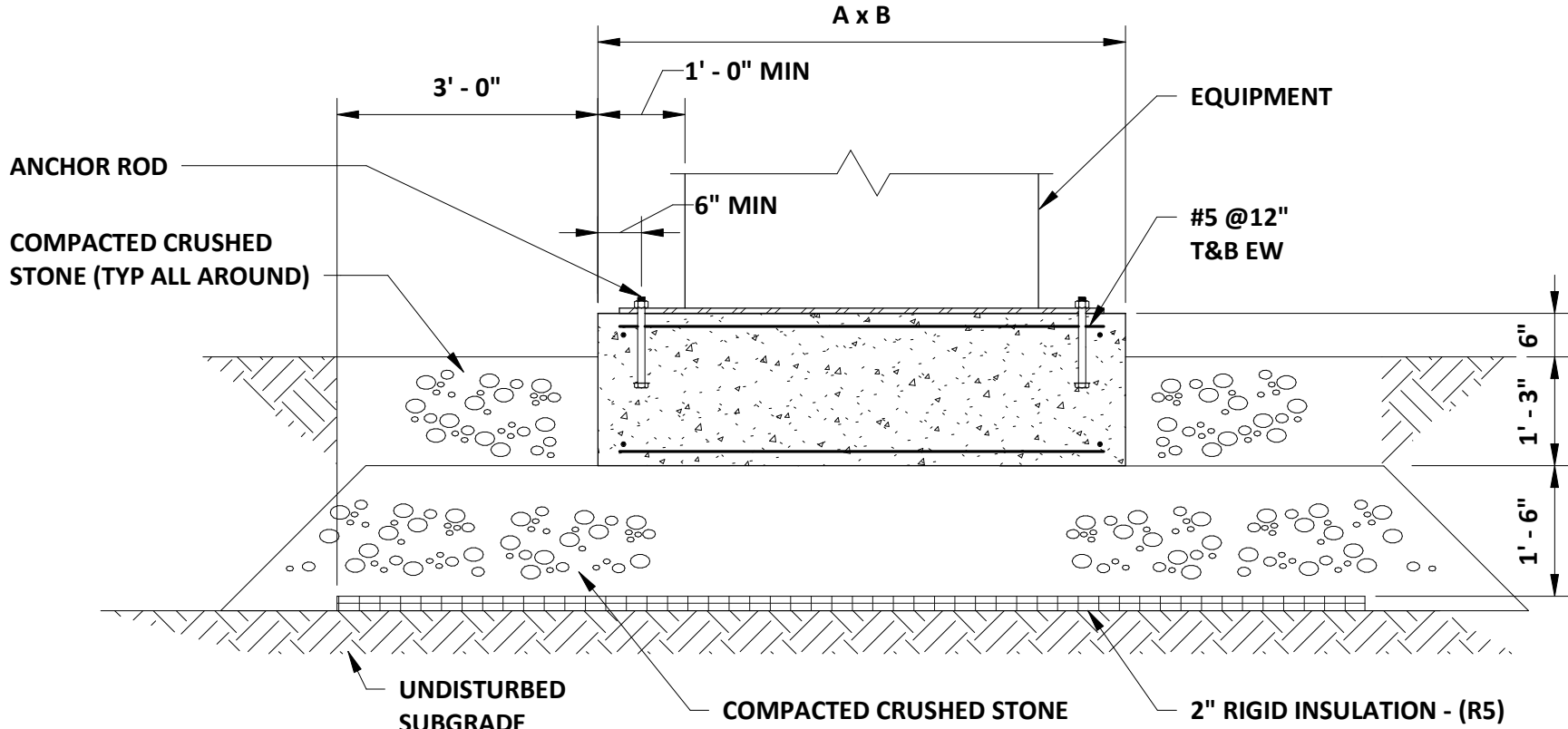
NOTES:
1. PROVIDE 1" NON-SHRINK GROUT BELOW ALL VERTICAL EQUIPMENT SUPPORT MEMBERS, INCLUDING CONTROL PANELS, PIPES, CONDUIT AND OTHER EQUIPMENT SUPPORTED BY VERTICAL MEMBERS.
2. EQUIPMENT BEARING DIRECTLY ON THE SLAB SHALL BE SUPPORTED BY A CONCRETE PAD

EQUIPMENT VERTICAL SUPPORT BASE
SCALE: NTS



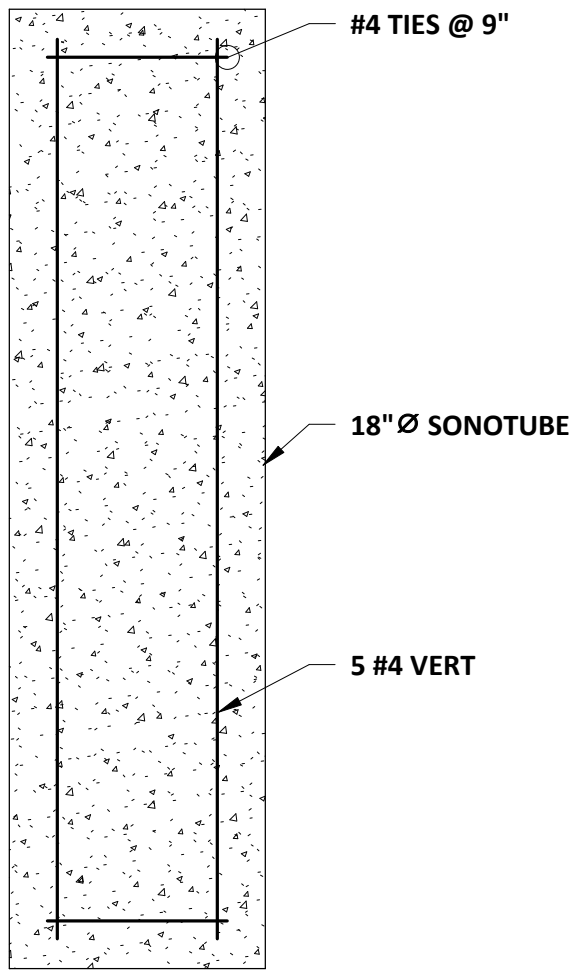
NOTES:
1. PROVIDE A MINIMUM 4" THICK REINFORCED CONCRETE PAD BELOW ALL EQUIPMENT, PIPE SUPPORTS, STANCHIONS, CONTROL PANELS, TANKS, ETC. UNLESS OTHERWISE NOTED.
2. A, B AND C DIMENSIONS SHALL BE DETERMINED BY THE GENERAL CONTRACTOR BASED ON EQUIPMENT SUPPLIED (OR AS INDICATED ON THE DRAWINGS).
3. CONCRETE PAD SHALL ATTAIN A COMPRESSIVE STRENGTH OF 4500 PSI PRIOR TO STARTUP OF EQUIPMENT.
4. FOR CONCRETE PADS PLACED ON EXISTING CONCRETE, DRILL HOLES AND INSTALL #5 @ 12" W/ HS EPOXY (MIN 8" EMBEDMENT).
5. FOR CONCRETE PADS PLACED ON EXISTING CONCRETE, USE SS EPOXY ANCHORS.
6. APPLY EPOXY BONDING AGENT ON CLEANED, ROUGHENED SURFACE PRIOR TO PLACING CONCRETE PAD.

EQUIPMENT PAD
SCALE: NTS

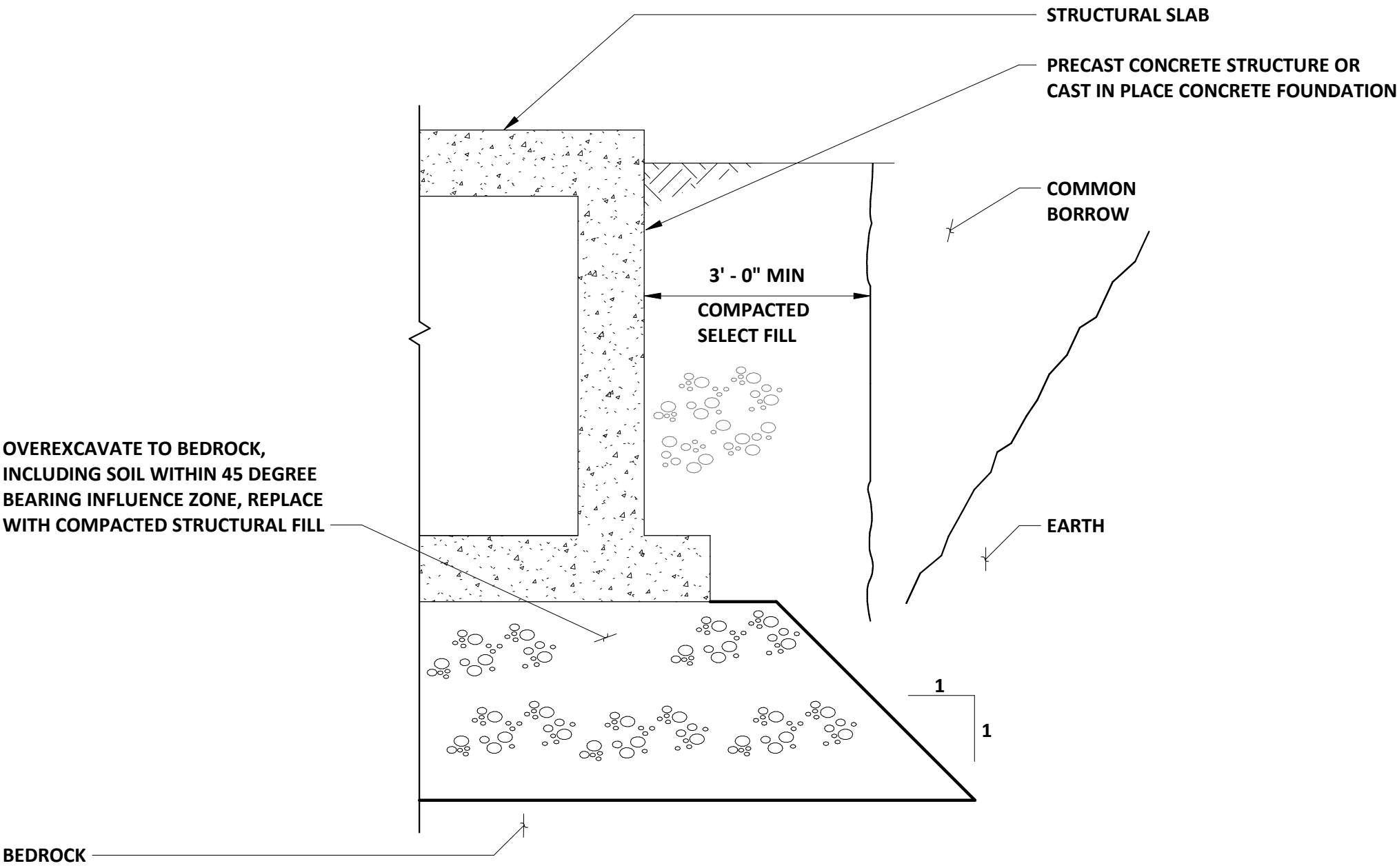


NOTES:
1. DETAIL IS APPLICABLE FOR ALL EXTERIOR EQUIPMENT UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
2. A AND B DIMENSIONS SHALL BE DETERMINED BY THE GENERAL CONTRACTOR BASED ON THE EQUIPMENT SUPPLIED.
3. CONCRETE PAD SHALL ATTAIN THE SPECIFIED COMPRESSIVE STRENGTH PRIOR TO STARTUP OF EQUIPMENT.

EXTERIOR CONCRETE PAD
SCALE: NTS



CONCRETE SONOTUBE FOUNDATION
SCALE: NTS



NOTES:
1. SELECT FILL SHALL BE COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY.
2. ALL EXCAVATIONS SHALL BE DRY (NO STANDING WATER) PRIOR TO PLACING BASE MATERIAL BELOW CONCRETE SLABS.

TYPICAL STRUCTURAL BACKFILL DETAIL
SCALE: NTS

ROOM FINISH SCHEDULE														
RM NO	ROOM NAME	FLOOR MATL	BASE MATL	WALLS								CEILING		REMARKS
				NORTH		SOUTH		EAST		WEST		MATL	FIN.	
				MATL.	FIN.	MATL.	FIN.	MATL.	FIN.	MATL.	FIN.			
101	ELECTRICAL ROOM	S CONC	-	PLY	PT	PLY	PT	PLY	PT	PLY	PT	GWB	PT	

FINISHES KEY:

GWB GYPSUM WALL BOARD
PLY FINISH PLYWOOD
PT PAINT
S CONC SEALED CONCRETE

FINISH KEY NOTES:

1. PROVIDE SCC ON CONCRETE SLAB AND 4" UP SIDE OF CONCRETE CURBS.

APPD DATE

REVISIONS

NO

1

2

3

4

5

PROJECT NO: 12223G

DESIGNED: CMICHAUD

CAD COORD: RBESAW

CAD: S RICKLEY

CHECKED: R WILLIAMS

DATE: 12-2021

APPROVED: CMICHAUD

DATE: 12-2021

SUBMISSION: CONTRACT DRAWINGS

12/17/21

CATHY B. MICHAUD
No. 4918
12/17/21

CITY OF BIDDEFORD

HORRIGAN COURT PUMP STATION UPGRADE

BIDDEFORD, ME

207.725.8721 | www.wright-pierce.com

11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

DETAILS II

A-4

PROCESS GENERAL NOTES

1. ALL EQUIPMENT AND PIPING LAYOUT DIMENSIONS SHALL BE FIELD VERIFIED AND COORDINATED WITH EQUIPMENT SUPPLIED, AND/OR EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AS REQUIRED PRIOR TO BEGINNING CONSTRUCTION OF NEW FACILITIES, EQUIPMENT OR PIPING THAT MAY BE AFFECTED. IN SOME SPECIFIC INSTANCES, WHERE SPECIAL ATTENTION MAY BE REQUIRED BY THE CONTRACTOR, SOME DIMENSIONS, ELEVATIONS, ETC. HAVE BEEN NOTED WITH AN " * ". THIS DOES NOT HOWEVER, LIMIT THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL NECESSARY INFORMATION FOR CONSTRUCTION.

2. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DIMENSIONS, LAYOUT OR ELEVATION CHANGES REQUIRED TO SUIT THE SPECIFIC EQUIPMENT BEING PROVIDED UNDER THIS CONTRACT. WHEN SUCH EQUIPMENT REQUIRES PADS, PIERS, CURBING, ETC., THAT DIFFERS FROM THAT SHOWN ON THE CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL COORDINATE THE STEEL REINFORCING SHOP DRAWINGS ACCORDINGLY.

3. ALL BURIED CONNECTIONS TO STRUCTURES, INCLUDING BUT NOT LIMITED TO PUMP DISCHARGE PIPING AND FORCE MAINS, SHALL HAVE SLEEVE TYPE FLEXIBLE CONNECTIONS APPROXIMATELY 4-FEET FROM THE STRUCTURES. ALL SLEEVE TYPE COUPLINGS ON PRESSURE LINES SHALL BE RESTRAINED (SOLID SLEEVE TYPE). REFER TO SPECIFICATION SECTION 02655.

4. ALL PIPING (EXCLUDING BUILDING DRAINS/SEWER) INSTALLED BELOW SLABS SHALL BE ENCASED IN CONCRETE. PROCESS DRAWINGS DO NOT SHOW CONCRETE ENCASEMENT FOR CLARITY.

5. PROVIDE CAST OR DUCTILE IRON WALL CASTINGS, OR GALVANIZED STEEL PIPE SLEEVES, FOR ALL PIPE PENETRATIONS MADE THROUGH CONCRETE FOUNDATIONS, WALLS AND SLABS, UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL WALL SLEEVES AND WALL CASTINGS SHALL HAVE SEALING/ANCHORING COLLARS. SEE PROCESS, MECHANICAL, PLUMBING AND STRUCTURAL DRAWINGS FOR LOCATIONS OF PENETRATIONS. NEW PENETRATIONS THROUGH EXISTING STRUCTURE WALLS SHALL BE BY CORING MACHINE AND LINK TYPE COMPRESSION SEALS, UNLESS OTHERWISE INDICATED. OPENINGS TO BE COMPATIBLE WITH REQUIRED PIPING AND STANDARD LINK SEAL SIZES. FOR ADDITIONAL INFORMATION, REFER TO SPECIFICATION SECTION 15092.

6. FOR PIPING MATERIAL, SEE THE PIPE SCHEDULE IN SPECIFICATION SECTION 15050.

7. ALL LIQUID TYPE FLOW ELEMENTS SHALL BE LOCATED A MINIMUM OF TEN PIPE DIAMETERS DOWNSTREAM AND FIVE DIAMETERS UPSTREAM OF ANY HYDRAULIC DISTURBANCE, EXCEPT IN SITUATIONS WHERE DIMENSIONAL CONSTRAINTS PRECLUDE THESE SEPARATION DISTANCES. IN THESE CASES, THE ENGINEER WILL REVIEW THE LAYOUT AND PROVIDE REVISED MINIMUM SEPARATION DISTANCES.

8. PIPES 3-INCH IN DIAMETER AND UNDER SHALL HAVE UNIONS INSTALLED ADJACENT TO EQUIPMENT AND TANKS, UNLESS OTHERWISE NOTED ON DRAWINGS. FLANGES ARE ACCEPTABLE ON 3-INCH DIAMETER PIPING.

9. ALL PIPES SHALL BE ADEQUATELY RESTRAINED AND SUPPORTED IN ACCORDANCE WITH SPECIFICATION SECTION 15094.

10. AFTER INSTALLATION, ALL PIPELINES SHALL BE PRESSURE TESTED FOR TIGHTNESS IN ACCORDANCE WITH SPECIFICATION SECTIONS 15050 AND 02755. ALL LEAKS SHALL BE CORRECTED AND RETESTED UNTIL PRESSURE TEST IS SATISFACTORILY COMPLETED.

11. ALL PIPING SHALL BE CLEANED, TO THE SATISFACTION OF THE ENGINEER, BEFORE TESTING.

12. PROVIDE 4-INCH HIGH (MIN.) REINFORCED CONCRETE PAD UNDER ALL EQUIPMENT, CONTROL PANELS, PIPE AND EQUIPMENT SUPPORTS, TANKS, ETC. UNLESS OTHERWISE INDICATED.

13. REFER TO SPECIFICATION SECTION 01070 AND THIS DRAWING FOR A LISTING OF COMMONLY USED ABBREVIATIONS.

14. ALL REDUCERS SHALL BE CONCENTRIC TYPE UNLESS DESIGNATED AS ECCENTRIC (ECC) ON THE DRAWINGS. ECCENTRIC REDUCERS SHALL BE INSTALLED WITH FLAT SIDE UP.

15. ALL PENETRATIONS BETWEEN CLASS 1, DIVISION 1 AREAS AND UNCLASSIFIED AREAS SHALL BE GAS TIGHT.

16. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH, AND INSTALL ADAPTERS, FITTINGS AND ADDITIONAL PIPE AS REQUIRED TO COMPLETE THE INSTALLATION.

17. ALL STAINLESS STEEL FASTENERS FOR PIPING, EQUIPMENT, SUPPORTS, ETC., SHALL BE HAND TIGHTENED IN ORDER TO LIMIT THE POTENTIAL FOR GALLING.

18. CONTRACTOR TO NOTE THAT ALL EXISTING INFORMATION ON THE DRAWINGS IS SHOWN WITH A LIGHTER LINE WEIGHT AND INDICATED WITH A SLANTED TYPE TEXT. THE EXCEPTION IS WHEN SCANNED IMAGES ARE UTILIZED FROM THE PREVIOUS CONSTRUCTION PROJECTS NOTED IN GENERAL NOTE NO. 1, ABOVE. WHEN REVIEWING DRAWINGS NOTED AS "SCANNED" UNDER DRAWING TITLE, THE CONTRACTOR SHALL IGNORE ANY REFERENCE TO PREVIOUS CONTRACT WORK. SCANNED IMAGES ARE NOT TO SCALE; HOWEVER, AN APPROXIMATE SCALE MAY BE GIVEN FOR CONVENIENCE.

19. CONTRACTOR SHALL COORDINATE INSTRUMENTATION MOUNTING DETAILS WITH THE INSTRUMENTATION SUPPLIER AND THE ELECTRICAL CONTRACTOR.

20. DO NOT SCALE DISTANCES OR DIMENSIONS FROM THE DRAWINGS. WRITTEN DIMENSIONS SHALL PREVAIL. REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.

VALVES

	SCHEMATIC	ORTHOGRAPHIC
CHECK VALVE (CKV)		
DUCK-BILL TYPE CHECK VALVE (DCKV)		
GATE VALVE (GV)		

FITTINGS/APPURTENANCES

SLEEVE COUPLING		
-----------------	--	--

LINETYPES

	EXISTING	NEW
STRUCTURES		
EQUIPMENT/PIPING		

AE	ANALYZING ELEMENT
AL	ALUMINUM
ALT	ALTERNATE
BF	BLIND FLANGE
BLDG	BUILDING
BOT	BOTTOM
CAR	CARRIER PIPE
CI	CAST IRON
CIP	CLEAN-IN-PLACE
CO	CLEANOUT
CON	CONTAINMENT PIPE
CONC	CONCRETE
CONT	CONTINUED
CPL	COUPLING
DET	DETAIL
DI	DUCTILE IRON
DIA (Ø)	DIAMETER
DIM	DIMENSION
DMH	DRAIN MANHOLE
DN	DOWN
DWG	DRAWING
ECC	ECCENTRIC
EL (ELEV)	ELEVATION
ELL	ELBOW
EQUIP	EQUIPMENT
EXIST (EX)	EXISTING

EXP	EXPANSION
FC	FLUSHING CONNECTION
FD	FLOOR DRAIN
FE	FLOW ELEMENT
FFE	FINISHED FLOOR ELEVATION
FLG	FLANGE
FLR	FLOOR
FOT	FLAT ON TOP
FP	FIRE PROTECTION
FPHB	FROST PROOF HOSE BIBB
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOW SWITCH
FW	FIXED WEIR (WW)
GAC	GAUGE
GAL	GRANULAR ACTIVATED CARBON
GALV	GALLON
GR	GREASE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
HYD	HYDRANT
ID	INSIDE DIAMETER
INL	INLET
INV	INVERT
JT	JOINT

LE	LEVEL ELEMENT
LR	LONG RADIUS
MAX	MAXIMUM
MECH	MECHANICAL
MFG	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
NJ	MECHANICAL JOINT
MTD	MOUNTED
NIC	NOT IN CONTRACT
NO	NUMBER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
NV	NEEDLE VALVE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ODOR	ODOR CONTROL DUCT
OH	OVERHEAD
OUT	OUTLET
PAC	POWDER ACTIVATED CARBON
PCCP	PRESTRESSED CONCRETE CYLINDER
PIPE	PIPE
PE	POLYETHYLENE OR PRESSURE ELEMENT
PP	POLYPROPYLENE
PS	PRESSURE SWITCH

PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
RES	RESIDUALS
REQ'D	REQUIRED
RD	ROOF DRAIN
SAM	SAMPLE LINE
SCH	SCHEDULE
SECT	SECTION
SHT	SHEET
SMH	SANITARY SEWER MANHOLE
SP	SUMP PUMP
SPD	SUMP PUMP DISCHARGE
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
THK	THICKNESS
TK	TANK
TYP	TYPICAL
UV	ULTRAVIOLET
VERT	VERTICAL
WSE	WATER SURFACE ELEVATION
XP	EXPLOSION PROOF
YH	YARD HYDRANT

PROCESS ABBREVIATIONS - FLUID

DR	DRAIN
FM	FORCE MAIN
FSW	FOAM SPRAY WATER
FTW	FILTER TO WASTE
FW	FINISH WATER (W)
G	GAS
S	SEWER
V	VENT
W	WATER - POTABLE

PROJECT NO: 122236
DESIGNED: C.DAIGLE
CAD COORD: R.BELAW
CAD: M.WILSON
CHECKED: K.OREY
DATE: 11-2021
APPROVED: C.DAIGLE
DATE: 12-2021
SUBMISSION: CONTRACT DRAWINGS

207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

CITY OF BIDDEFORD
HORRIGAN COURT PUMP STATION UPGRADE
BIDDEFORD, MAINE

PROCESS GENERAL NOTES, LEGEND, ABBREVIATIONS, AND DETAILS

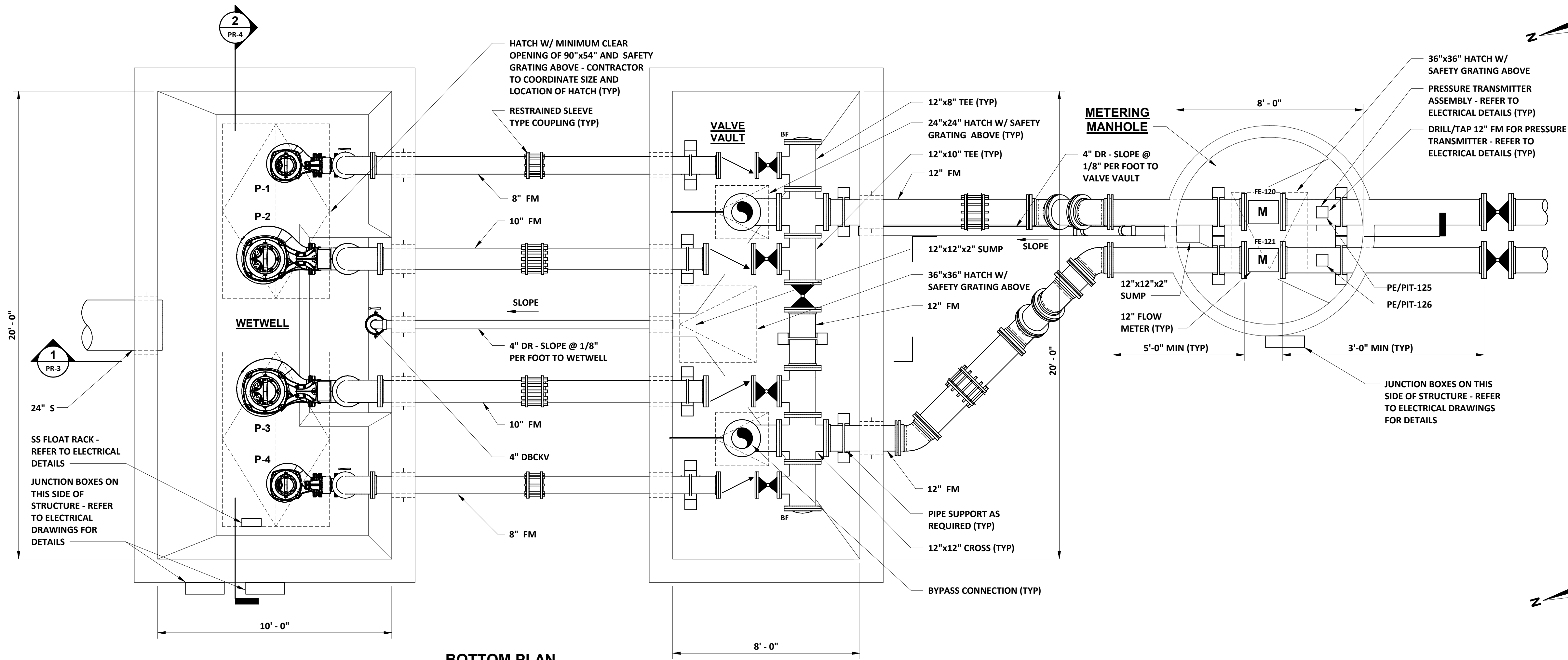
DRAWING
PR-1

REVISIONS

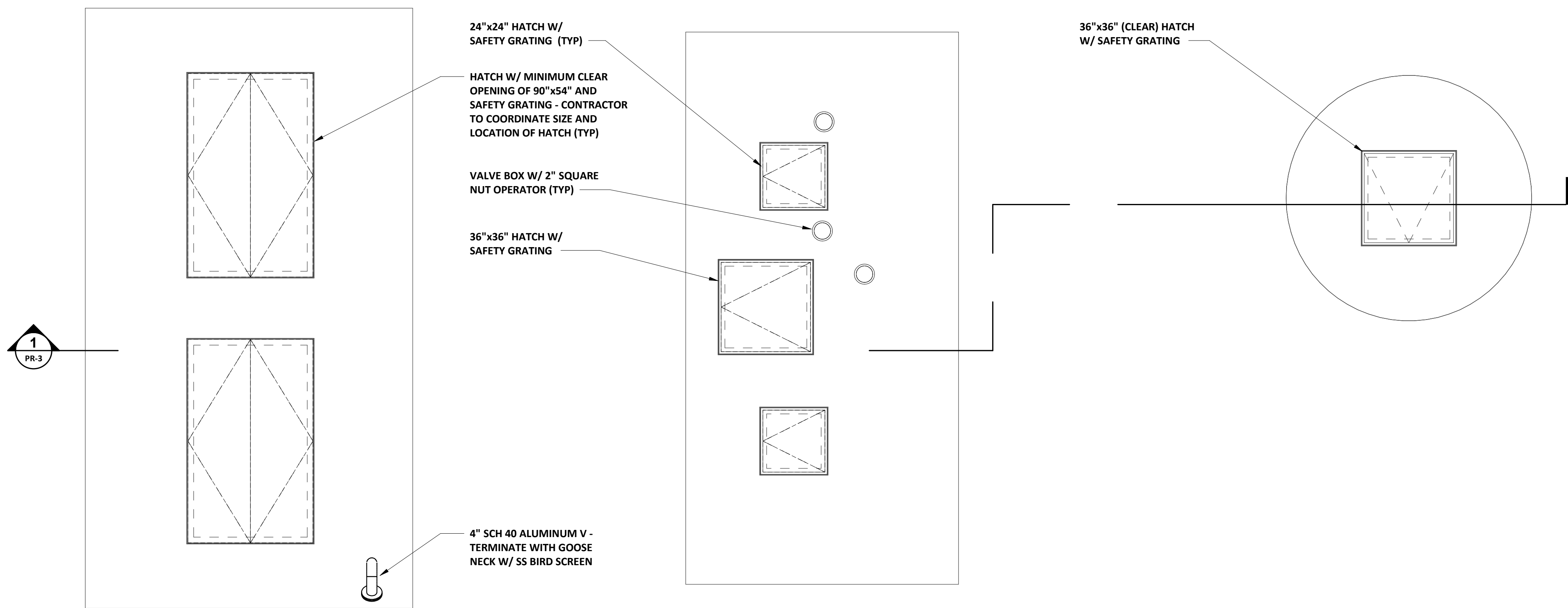
APPROVALS

DATE

J:\ENGINE\Biddford\12223-DiamondMatch\12223G - Horrigan Court PS\Drawings\PRO\RevA\12223-PRM-HorriganCourtPS.rvt 12/17/2021 9:52:51 AM



BOTTOM PLAN
SCALE: 3/8" = 1'-0"



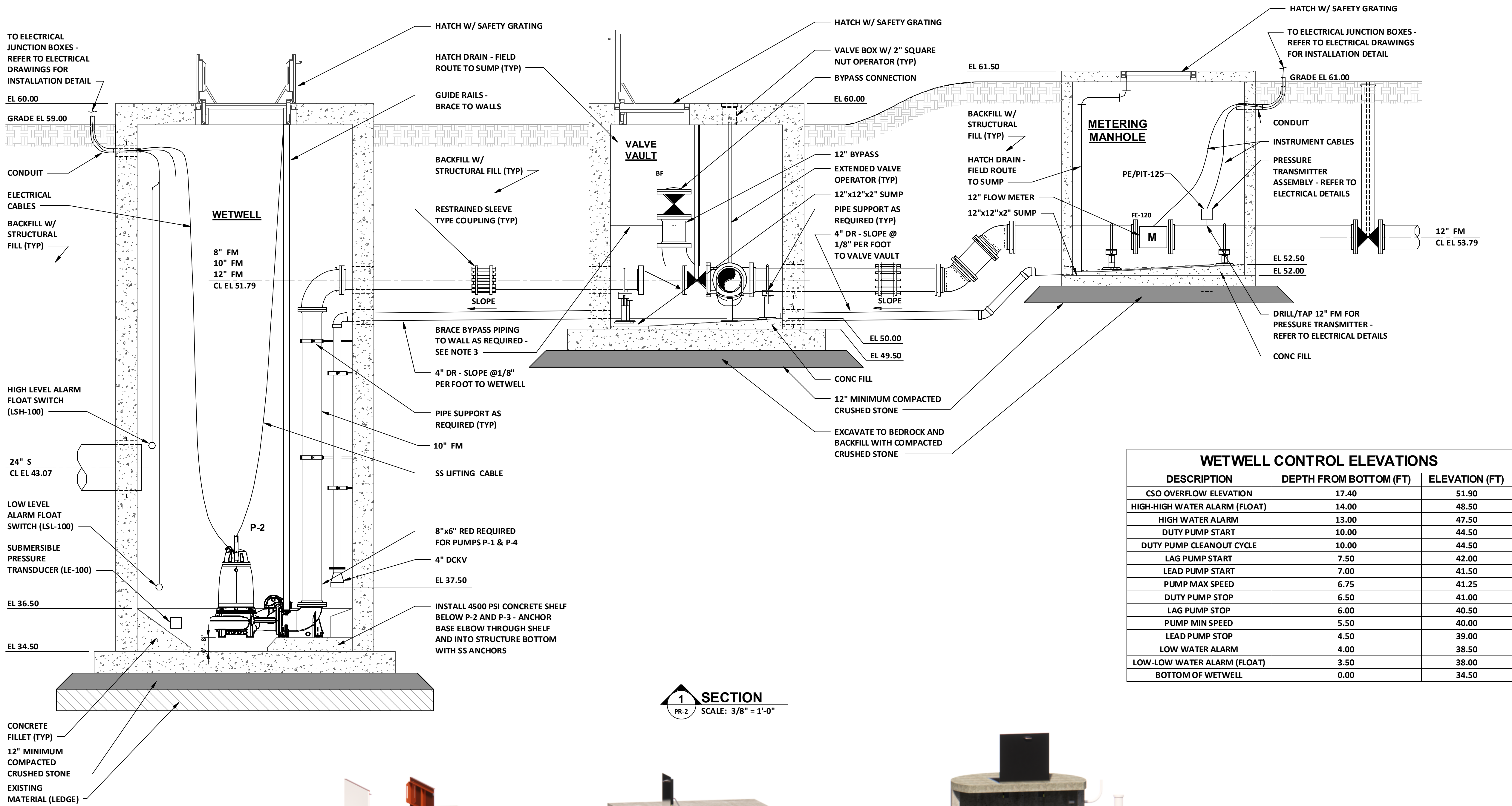
TOP PLAN
SCALE: 3/8" = 1'-0"

- NOTES:**
- FOR PROCESS GENERAL NOTES, LEGEND, AND ABBREVIATIONS, REFER TO DRAWING PR-1.
 - RESTRAIN PIPING WITH SS SUPPORTS AND HARDWARE TO PREVENT MOVEMENT IN WET WELL, VALVE VAULT, AND METERING MANHOLE. SOME SUPPORTS ARE SHOWN AND ADDITIONAL SUPPORTS MAY BE REQUIRED.
 - ON THE UNDERSIDE OF ALL HATCHES SPRAY PAINT USING STENCIL AND SAFETY YELLOW PAINT THE FOLLOWING: "WARNING - HAZARDOUS AREA, ENTER ONLY WITH PROPER EQUIPMENT".

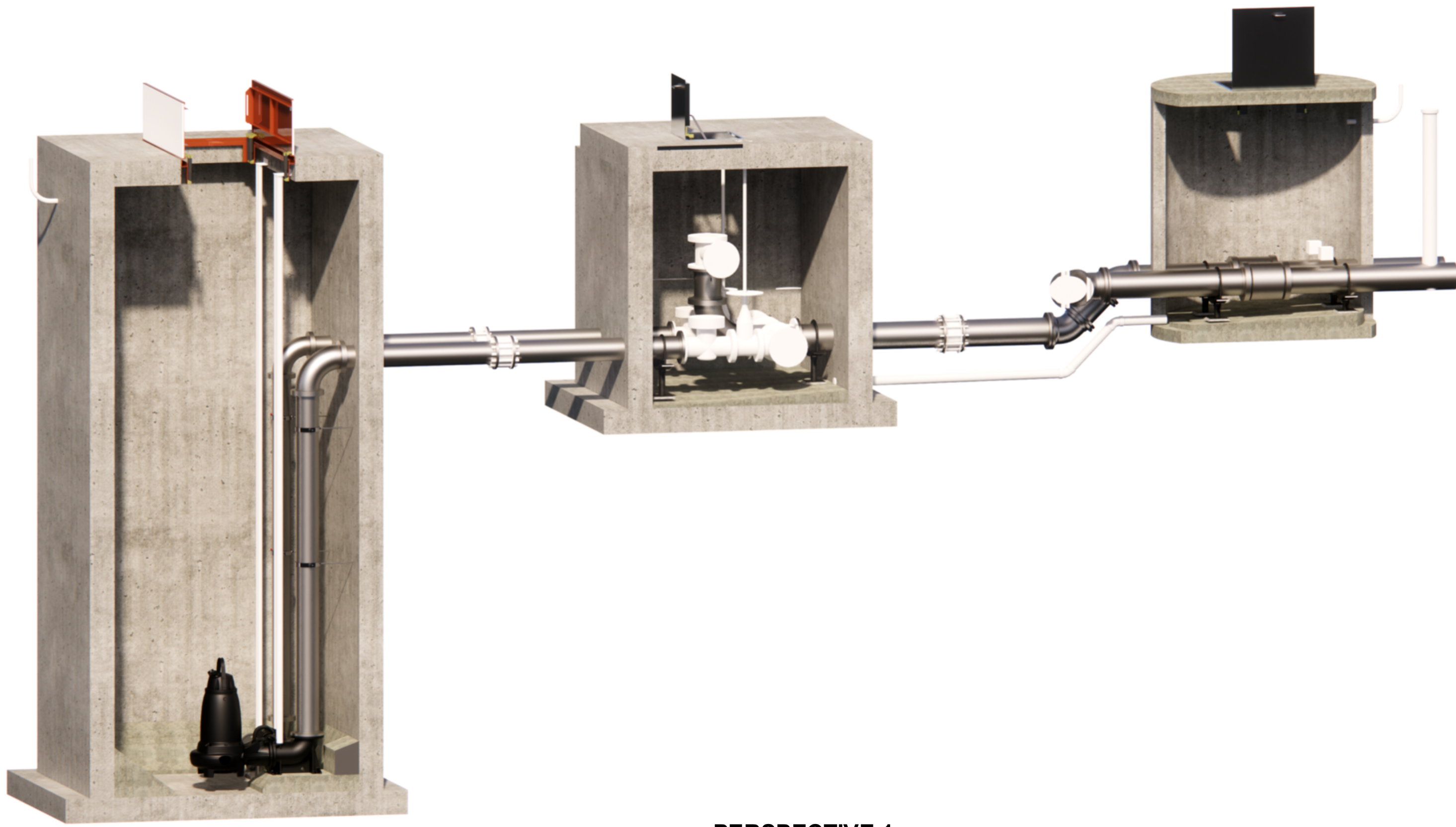
DRAWING	CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, ME	 WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086		PROJECT NO: 122236	PROJECT DESIGNED: CDAIGLE	NO	REVISIONS	APPD. DATE
	PUMP STATION TOP AND BOTTOM PLANS			CAD COORD: RBEISAM	1			
				CAD: M.WILSON	2			
				CHECKED: DAIGLE	3			
				DATE: 11-2021	4			
				APPROVED: CDAIGLE	5			
				DATE: 12-2021				
				SUBMISSION: CONTRACT DRAWINGS				

12/17/2021 9:52:59 AM

A:\ENCL\ME\Biddford\12223-DiamondMatch\ut\12223g - Horrigan Court P5\Drawing\PMO View\12223-PRM-HorriganCourtPS.rvt



WETWELL CONTROL ELEVATIONS		
DESCRIPTION	DEPTH FROM BOTTOM (FT)	ELEVATION (FT)
CSO OVERFLOW ELEVATION	17.40	51.90
HIGH-HIGH WATER ALARM (FLOAT)	14.00	48.50
HIGH WATER ALARM	13.00	47.50
DUTY PUMP START	10.00	44.50
DUTY PUMP CLEANOUT CYCLE	10.00	44.50
LAG PUMP START	7.50	42.00
LEAD PUMP START	7.00	41.50
PUMP MAX SPEED	6.75	41.25
DUTY PUMP STOP	6.50	41.00
LAG PUMP STOP	6.00	40.50
PUMP MIN SPEED	5.50	40.00
LEAD PUMP STOP	4.50	39.00
LOW WATER ALARM	4.00	38.50
LOW-LOW WATER ALARM (FLOAT)	3.50	38.00
BOTTOM OF WETWELL	0.00	34.50



PERSPECTIVE 1

- NOTES:
- FOR PROCESS GENERAL NOTES, LEGEND, AND ABBREVIATIONS, REFER TO DRAWING PR-1.
 - RESTRAIN PIPING WITH SS SUPPORTS AND HARDWARE TO PREVENT MOVEMENT IN WET WELL, VALVE VAULT, AND METERING MANHOLE. SOME SUPPORTS ARE SHOWN AND ADDITIONAL SUPPORTS MAY BE REQUIRED.
 - ON THE UNDERSIDE OF ALL HATCHES SPRAY PAINT USING STENCIL AND SAFETY YELLOW PAINT THE FOLLOWING: "WARNING - HAZARDOUS AREA, ENTER ONLY WITH PROPER EQUIPMENT".

NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			
101			
102			
103			
104			
105			
106			
107			
108			
109			
110			
111			
112			
113			
114			
115			
116			
117			
118			
119			
120			
121			
122			
123			
124			
125			
126			
127			
128			
129			
130			
131			
132			
133			
134			
135			
136			
137			
138			
139			
140			
141			
142			
143			
144			
145			
146			
147			
148			
149			
150			
151			
152			
153			
154			
155			
156			
157			
158			
159			
160			
161			
162			
163			
164			
165			
166			
167			
168			
169			
170			
171			
172			
173			
174			
175			
176			
177			
178			
179			
180			
181			
182			
183			
184			
185			
186			
187			
188			
189			
190			
191			
192			
193			
194			
195			
196			
197			
198			
199			
200			
201			
202			
203			
204			
205			
206			
207			
208			
209			
210			
211			
212			
213			
214			
215			
216			
217			
218			
219			
220			
221			
222			
223			
224			
225			
226			
227			
228			
229			
230			
231			
232			
233			
234			
235			
236			
237			
238			
239			
240			
241			
242			
243			
244			
245			
246			
247			
248			
249			
250			
251			
252			
253			
254			
255			
256			
257			
258			
259			
260			
261			
262			
263			
264			
265			
266			
267			
268			
269			
270			
271			
272			
273			
274			
275			
276			
277			
278			
279			
280			
281			
282			
283			
284			
285			
286			
287			
288			
289			
290			
291			
292			
293			
294			
295			
296			
297			
298			
299			
300			
301			
302			
303			
304			
305			
306			
307			
308			
309			
310			
311			
312			
313			
314			
315			
316			
317			
318			
319			
320			
321			
322			
323			
324			
325			
326			
327			
328			
329			
330			
331			
332			
333			
334			
335			
336			
337			
338			
339			
340			
341			
342			
343			
344			
345			
346			
347			
348			
349			
350			
351			
352			
353			
354			
355			
356			
357			
358			
359			
360			
361			
362			
363			
364			
365			
366			
367			
368			
369			
370			
371			
372			
373			
374			
375			
376			
377			
378			
379			
380			
381			
382			
383			
384			
385			
386			
387			
388			
389			
390			
391			
392			
393			
394			
395			
396			
397			
398			
399			
400			
401			
402			
403			
404			
405			
406			
407			
408			
409			
410			
411			
412			
413			
414			
415			
416			
417			
418			
419			
420			
421			
422			
423			
424			
425			
426			
427			
428			
429			
430			
431			
432			
433			
434			
435			
436			
437			
438			
439			
440			
441			
442			
443			
444			
445			
446			
447			
448			
449			
450			
451			
452			
453			
454			
455			
456			
457			
458			
459			</



- NOTES:**
1. FOR PROCESS GENERAL NOTES, LEGEND, AND ABBREVIATIONS, REFER TO DRAWING PR-1.
 2. RESTRAIN PIPING WITH SS SUPPORTS AND HARDWARE TO PREVENT MOVEMENT IN WET WELL. SOME SUPPORTS ARE SHOWN AND ADDITIONAL SUPPORTS MAY BE REQUIRED.
 3. ON THE UNDERSIDE OF ALL HATCHES SPRAY PAINT USING STENCIL AND SAFETY YELLOW PAINT THE FOLLOWING: "WARNING - HAZARDOUS AREA, ENTER ONLY WITH PROPER EQUIPMENT".

CITY OF BIDDEFORD	
HORRIGAN COURT PUMP STATION UPGRADE	
BIDDEFORD, ME	
PUMP STATION	
SECTIONS AND PERSPECTIVES II	
DRAWING	PR-4


WRIGHT-PIERCE
 207.725.8721 | www.wright-pierce.com
 11 BOWDOIN MILL ISLAND, SUITE 340, TOPSHAM, ME 04086

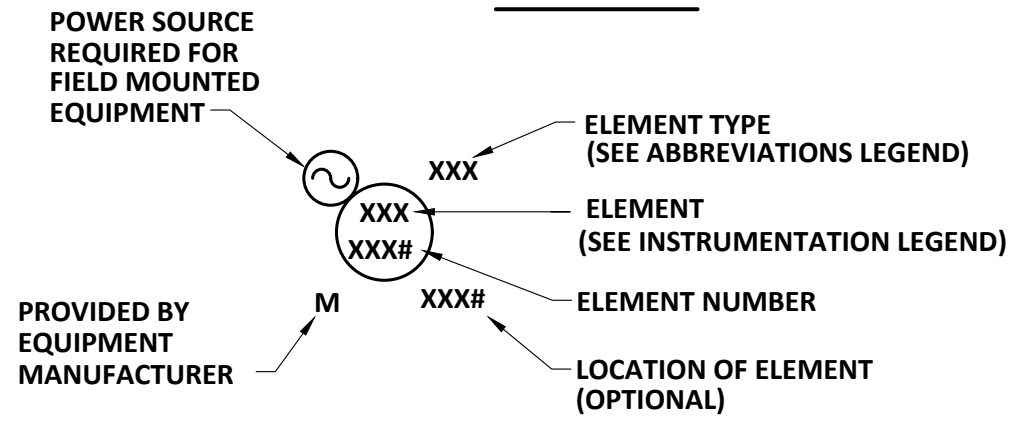
PROJECT NO: 12223G
 DESIGNED: CDAGLE
 CAD COORD: R.BETSAW
 CAD: M.WILSON
 CHECKED: K.OREY
 DATE: 11-2021
 APPROVED: CDAGLE
 DATE: 12-2021
 SUBMISSION: CONTRACT DRAWINGS

NO	REVISONS	APPD	DATE
A			
A			
A			
A			
A			

INSTRUMENTATION SYMBOL LEGEND

DESCRIPTION	EXISTING	NEW	FUTURE
PROCESS FLOW			
ELECTRICAL POWER OR PROCESS CONNECTION			
ELECTRICAL SIGNAL			
DATA LINK			
PLC INPUT/OUTPUT			
PNEUMATIC SIGNAL			
VENDOR CABLE			
DISCRETE OUTPUT SIGNAL			
ANALOG OUTPUT SIGNAL			
DISCRETE INPUT SIGNAL			
ANALOG INPUT SIGNAL			
HARDWARE INTERLOCK			
PROGRAMMABLE LOGIC CONTROLLER			
OPERATOR TERMINAL INTERFACE			
LOCAL (FIELD MOUNTED)			
FRONT PANEL MOUNTED			
REAR PANEL MOUNTED			
INTEGRAL EQUIPMENT			
SIGNAL SPLITTER CONVERTER/ BOOSTER (SEE BELOW)			
MOTOR			
ALARM/ STATUS LIGHT			
STROBE LIGHT			

TYPICAL INSTRUMENTATION SYMBOL

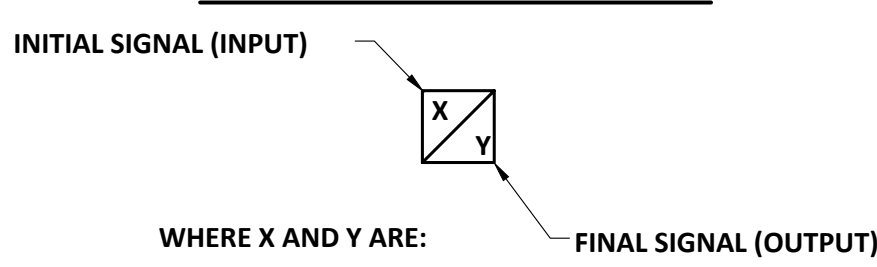


* ALSO USED AS A MODIFIER AFTER FIRST LETTER (i.e. PDTT: PRESSURE DIFFERENTIAL INDICATING TRANSMITTER)
** ALSO USED AS A MODIFIER AFTER LAST LETTER (i.e. LSHH: LEVEL SWITCH HIGH HIGH)

INSTRUMENTATION LEGEND

FIRST LETTER	SUCCEEDING LETTER	
1	2	3
A	ANALYSIS	ALARM
B	CONTROL	CONTROL
C	DIFFERENTIAL*	DETECT
D	VOLTAGE	ELEMENT
E	FLOW	---
F	---	---
G	GAS	GLASS
H	HAND (MANUAL)	GLASS**
I	CURRENT	INDICATE
J	POWER	---
K	TIME*	---
L	LEVEL	LIGHT
M	MOTOR	---
N	PRESSURE	---
O	QUANTITY OR TOTALIZE*	QUANTITY
P	RADIATION	RECORD
Q	---	---
R	---	---
S	SPEED OR FREQUENCY	SWITCH
T	TEMPERATURE	TRANSMIT
U	VIBRATION	VALVE
V	TORQUE, WEIGHT, FORCE	---
W	---	---
X	---	---
Y	STATUS	RELAY, COMPUTE, OR CONVERT
Z	POSITION	---

TYPICAL SIGNAL CONVERTER SYMBOL



WHERE X AND Y ARE:
I CURRENT
E VOLTAGE
P PRESSURE
H HYDRAULIC

ABBREVIATIONS LEGEND

AESS	APPLICATION ENGINEERING SERVICES SUPPLIER
AMD	ADMITTANCE
CAP	CAPACITANCE
CL	CHLORINE
CP	CONTROL PANEL
CR	CONTROL RELAY
DO	DISSOLVED OXYGEN
ESTOP	EMERGENCY STOP
FOR	FORWARD-OFF-REVERSE
FNR	FORWARD-NEUTRAL-REVERSE
FRSA	FORWARD-STOP-REVERSE-AUTO
FX	ACCESSORY
HOA	HAND-OFF-AUTO
I	CURRENT
INF	INFLUENT
LOE	LOSS OF ECHO
LOR	LOCAL-OFF-REMOTE
LT	PILOT LIGHT
MES	MANAGED ETHERNET SWITCH
MBS	MAINTENANCE BY-PASS SWITCH
MCC	MOTOR CONTROL CENTER
O/L	OVERLOAD
OCA	OPEN-CLOSE-AUTO
OIT	OPERATOR TERMINAL
ONC	OPEN-NEUTRAL-CLOSE
PB	PUSH BUTTON
PLC	PROGRAMMABLE LOGIC CONTROLLER
RESET	ALARM RESET
ROL	RAISE OFF LOWER
ROR	RUN-OFF-REMOTE
SI	SYSTEM INTEGRATOR
SCR	SPEED CONTROL RECTIFIER
SS	SELECTOR SWITCH
TR	TIMER RELAY
TURB	TURBIDITY
ULT	ULTRASONIC
UPS	UNINTERRUPTIBLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE

VALVES AND FITTINGS

DESCRIPTION	EXISTING	NEW	FUTURE
GATE VALVE			
BALL VALVE			
PLUG VALVE			
GLOBE VALVE			
BUTTERFLY VALVE			
CHECK VALVE			
DOUBLE DISC CHECK VALVE			
DIAPHRAGM VALVE			
MUD VALVE			
TIDE CHECK VALVE			
NEEDLE VALVE			
PINCH VALVE			
3-WAY VALVE			
KNIFE GATE			
TELESCOPING VALVE			
CONCENTRIC REDUCER			
ECCENTRIC REDUCER			
FLOW ARROW			
UNION			
PRESSURE SAFETY VALVE			
VACUUM RELIEF			
BACKPRESSURE VALVE			
PRESSURE REDUCING VALVE			
BACKFLOW PREVENTER			
DUPLEX STRAINER			
SIMPLEX STRAINER			
WYE STRAINER			
IN-LINE MIXER			
EXPANSION JOINT			
ROTAMETER			
PULSTATION DAMPENR			
DIAPHRAGM ISOLATOR			
WAFER ISOLATOR			

ACTUATORS

CONTROL ACTUATOR			
SOLENOID ACTUATOR			
PNEUMATIC DIAPHRAGM ACTUATOR			
PNEUMATIC/HYDRALUIC CYLINDER			

PUMPS

DESCRIPTION	EXISTING	NEW
POSITIVE DISPLACEMENT		
PROGRESSIVE CAVITY		
SCREW PUMP		
CENTRIFUGAL		
SUBMERSIBLE PUMP		
HOSE		
CHEMICAL METERING		
CHEMICAL TRANSFER		
CENTRIFUGAL		
POSITIVE DISPLACEMENT		
COMPRESSOR/TURBO		
AIR INTAKE FILTER		

BLOWERS

CENTRIFUGAL		
POSITIVE DISPLACEMENT		
COMPRESSOR/TURBO		
AIR INTAKE FILTER		

MISCELLANEOUS SYMBOLS

MIXER		
IN-LINE STATIC MIXER		
GRINDER		
WEIR		
STOP GATE		
SLIDE GATE		
SHEAR GATE		
CHEMICAL INJECTION NOZZLE		

INDICATOR LIGHT COLOR LEGEND

RUN	GREEN
STOP	RED
WARNING	AMBER
ALARM	RED
POWER	WHITE

FIELD INSTRUMENTS

DESCRIPTION	EXISTING	NEW	FUTURE
FIELD PIPE MOUNTED DEVICE			
PADDLE OR LEVER TYPE PROBE			
SUBMERSIBLE PRESSURE TRANSDUCER			
FLOAT SWITCH			
CAPACITANCE OR ADMITTANCE TYPE PROBE			
BUBBLE LIQUID LEVEL ELEMENT			
ULTRASONIC LEVEL TRANSDUCER			
RADAR LEVEL TRANSDUCER			
GUIDED WAVE RADAR			
MAGNETIC FLOW METER			
VENTURI FLOW METER			
PARSHALL FLUME			
ULTRASONIC FLOW METER			
PITOT FLOW METER			
AVERAGING PITOT FLOW METER			
THERMAL MASS FLOW METER			
TURBINE FLOW METER			
ORIFICE PLATE			

FLOW METERS

NOTES:

- REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE DRIP SHIELDS TO PROTECT ALL PANELS LOCATED UNDERNEATH PIPES OR OTHER LIQUID-CONTAINING STRUCTURES.
- REFERENCE PROCESS AND ELECTRICAL DRAWINGS FOR LOCATION OF PANELS AND FIELD INSTRUMENTATION.
- CONTRACTOR TO COORDINATE NEEDED VOLTAGE BASED UPON EQUIPMENT SUPPLIED.
- ALL FLOOR MOUNTED CONTROL PANELS SHALL BE INSTALLED ON 4" HIGH CONCRETE EQUIPMENT PADS.
- WHERE INPUT AND OUTPUT SIGNALS TO A PLC IS REQUIRED, PROVIDE PROPER TYPE AND QUANTITY OF INPUT/OUTPUT MODULES (I/O).
- CONTRACTOR SHALL COORDINATE THE TYPE OF ANALOG SIGNAL PROVIDED BY THE EQUIPMENT OR FIELD DEVICES WITH THE PROPER TYPE PLC I/O.
- ALL ANALOG SIGNALS WILL BE 4-20mA, UNLESS OTHERWISE INDICATED OR REQUIRED.
- ALL FIELD INSTRUMENTS SHALL BE POWERED FROM THEIR RESPECTIVE CONTROLS PANELS WITH UPS POWER.
- CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR WHEN MODIFYING AND/OR REPLACING EXISTING CONTROL PANELS AND FIELD INSTRUMENT LOCAL PANELS INTO TERMINATION BOXES.

PROJECT NO: 12223G DESIGNED: P.DENIS CAD COORD: R.BELAW CAD: Q.SNYDER / P.DENIS CHECKED: Q.SNYDER DATE: 11-2021 APPROVED: P.DENIS DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	APPROD DATE
REVISIONS	
NO	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	
101	
102	
103	
104	
105	
106	
107	
108	
109	
110	
111	
112	
113	
114	
115	
116	
117	
118	
119	
120	
121	
122	
123	
124	
125	
126	
127	
128	
129	
130	
131	
132	
133	
134	
135	
136	
137	
138	
139	
140	
141	
142	
143	
144	
145	
146	
147	
148	
149	
150	
151	
152	
153	
154	
155	
156	
157	
158	
159	
160	
161	
162	
163	
164	
165	
166	
167	
168	
169	
170	
171	
172	
173	
174	
175	
176	
177	
178	
179	
180	
181	
182	
183	
184	
185	
186	
187	
188	
189	
190	
191	
192	
193	
194	
195	
196	
197	
198	
199	
200	
201	
202	
203	
204	
205	
206	
207	
208	
209	
210	
211	
212	
213	
214	
215	
216	
217	
218	
219	
220	
221	
222	
223	
224	
225	
226	
227	
228	
229	
230	
231	
232	
233	
234	
235	
236	
237	
238	
239	
240	
241	
242	
243	
244	
245	
246	
247	
248	
249	
250	
251	
252	
253	
254	
255	
256	
257	

POWER

DESCRIPTION

PUSHBUTTON OR SELECTOR SWITCH STATION

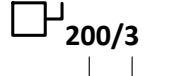
MAINTAINED RED MUSHROOM-HEAD EMERGENCY STOP P.B.

PANELBOARD, SURFACE MTD.

EQUIPMENT, TERMINAL, OR CONTROL CABINET

MOTOR

JUNCTION BOX

UNFUSED SAFETY SWITCH, RATING AS NOTED

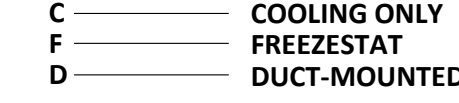
POLES AMPERES

* FUSED SAFETY SWITCH

SIZED AS RECOMMENDED BY MFR

LIGHTING OR POWER CONTACTOR

THERMOSTAT

C COOLING ONLY
F FREEZESTAT
D DUCT-MOUNTED

UTILITY METER

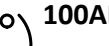
TRANSFORMER

PHOTOELECTRIC CELL

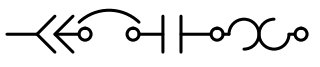
PHOTOELECTRIC CELL WITH MOTION SENSOR

SINGLE LINE DIAGRAM

DESCRIPTION

100AF FRAME SIZE CIRCUIT BREAKER

70AT TRIP AMPS

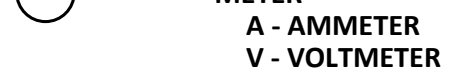
COMBINATION MOTOR STARTER AND BREAKER

GROUND CONNECTION

MOTOR (HP AS SHOWN)

EMERGENCY STOP MUSHROOM SWITCH (RED)

METER

A - AMMETER
V - VOLTMETER
W - WATTMETER

TRANSFORMER

SAFETY DISCONNECT SWITCH

SURGE CAPACITOR

LIGHTNING ARRESTER

DELTA CONNECTION

WYE CONNECTION

GROUND CONNECTION

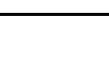
TRANSFER SWITCH

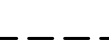
SPD SURGE PROTECTION DEVICE

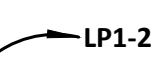
UTILITY METER

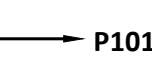
WIRING

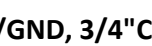
DESCRIPTION

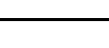
WIRING, CONCEALED IN FINISHED AREAS, EXPOSED WHERE PERMITTED BY SPECIFICATIONS

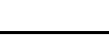
WIRING INSTALLED IN OR BELOW FLOOR SLAB

LP1-2 HOME RUN TO PANEL (CKT. NO. AS SHOWN)

P101 HOME RUN (NO. REFERS TO CONDUIT & WIRE SCHEDULE)

3C#12 W/GND, 3/4"C CONDUIT AND WIRE

CONDUIT DOWN

CONDUIT UP

SCHEMATIC DIAGRAM

DESCRIPTION

CONTROL RELAY

MOTOR CONTACTOR

CONTACT NORMALLY OPEN

CONTACT NORMALLY CLOSED

OVERLOAD HEATER ELEMENT

SELECTOR SWITCH

START PUSHBUTTON, MOMENTARY CONTACT

STOP PUSHBUTTON, MOMENTARY CONTACT

RED MUSHROOM-HEAD MAINTAINED-TYPE EMERGENCY STOP PUSHBUTTON

LIMIT SWITCH

TIMED CONTACT

PILOT LIGHT, LETTER INDICATES COLOR

G GREEN
R RED
A AMBER

FUSE

CONNECTION POINT FOR EXTERNAL DEVICE

INTERNAL CONNECTION POINT

LIGHTING FIXTURES

DESCRIPTION

FLUORESCENT FIXTURE, 2x4 SURFACE TROFFER TYPE

Ma,#3 FIXTURE (M) SWITCH (a) CIRCUIT (3)

FLUORESCENT FIXTURE, STRIP, OPEN REFLECTOR, ENCLOSED OR WRAPAROUND TYPE

EXIT SIGN, WALL MOUNTED SHADING INDICATES SIGN FACE

EMERGENCY LIGHTING BATTERY UNIT WITH 2 LAMP HEADS

REMOTE EMERGENCY LIGHTING 1 OR 2 LAMP HEADS

POLE MOUNTED SITE LIGHT

INCANDESCENT/CFS FIXTURE

SECURITY SYSTEM

DESCRIPTION

CARD READER

CAMERA PAN TILT ZOOM

WIRING DEVICES

DESCRIPTION

20 AMPERE, 120 VOLT DUPLEX RECEPTACLE

GFI 20 AMPERE, 120 VOLT DUPLEX RECEPTACLE

S SINGLE POLE WALL SWITCH

WP WEATHERPROOF
EP EXPLOSION PROOF
M MANUAL MOTOR STARTER

SPECIAL PURPOSE RECEPTACLE

JUNCTION BOX

#XX INDICATES THE CIRCUIT # OF THE RESPECTIVE PANELBOARD REFERENCED. SEE GENERAL NOTES 6 AND 19 FOR CONDUIT AND WIRING REQUIREMENTS

ABBREVIATIONS

A AMPERE

AC ALTERNATING CURRENT

AFF ABOVE FINISHED FLOOR

AI ANALOG INPUT (PLC)

AIC AMPERE INTERRUPTING CAPACITY

AO ANALOG OUTPUT (PLC)

AR AS REQUIRED

AUX AUXILIARY

AWG AMERICAN WIRE GAUGE

C CONDUIT

CB CIRCUIT BREAKER

CKT CIRCUIT

CP CONTROL PANEL

CR CONTROL RELAY

CPT CONTROL POWER TRANSFORMER

CU COPPER

DC DIRECT CURRENT

DI DIGITAL INPUT (PLC)

DO DIGITAL OUTPUT (PLC)

EC ELECTRICAL CONTRACTOR

EM EMERGENCY

EMT ELECTRICAL METALLIC TUBING

EP EXPLOSION PROOF CL I DIV 1 GR D

EPR ETHYLENE PROPYLENE RUBBER

EQUIP EQUIPMENT

ES EMERGENCY STOP

EX EXTERIOR

EXTG EXISTING

FBO FURNISHED BY OTHERS

FE FLOW ELEMENT

FIT FLOW INDICATOR TRANSMITTER

FNR FORWARD NEUTRAL REVERSE

FS FLOW SWITCH

FU FUSE

FVR FULL VOLTAGE REVERSING

FVNR FULL VOLTAGE NON-REVERSING

FWE FURNISHED WITH EQUIPMENT

FVNR FULL VOLTAGE NON-REVERSING

G GROUND

HOA HAND-OFF-AUTOMATIC

HP HORSEPOWER

HZ HERTZ

IMC INTERMEDIATE METAL CONDUIT

ISR INTRINSICALLY SAFE RELAY

JB JUNCTION BOX

K KILO

KCMIL THOUSAND CIRCULAR MILS

KV KILOVOLT

KVA KILOVOLT-AMPERE

L LOCAL

LCP LOCAL CONTROL PANEL

LCS LOCAL CONTROL STATION

LE LEVEL ELEMENT

LI LEVEL INDICATOR

LIT LEVEL INDICATOR TRANSMITTER

LP LIGHTING PANEL

LS LEVEL SWITCH

LT L-LOW, H-HIGH, LL-LOW LOW, HH-HIGH HIGH

LT LEVEL TRANSMITTER

MCB MAIN CIRCUIT BREAKER

MCC MOTOR CONTROL CENTER

MCP MOTOR CIRCUIT PROTECTOR

MFR MANUFACTURER

MLO MAIN LUG ONLY

MS MOTOR STARTER

MTD MOUNTED

NC NORMALLY CLOSED

NEG NEGATIVE

NEU NEUTRAL

NO NORMALLY OPEN

NTS NOT TO SCALE

OH OVERHEAD

OL OVERLOAD

P POLE

PB PUSHBUTTON

PE PRESSURE ELEMENT

PF POWER FACTOR

PH PHASE

PIT PRESSURE INDICATOR TRANSMITTER

PLC PROGRAMMABLE LOGIC CONTROLLER

PANEL PANEL

PRI PRIMARY

PT PRESSURE TRANSMITTER

PVC POLYVINYL CHLORIDE

R REMOTE

RGS RIGID GALVANIZED STEEL CONDUIT

RSC RIGID STEEL CONDUIT

S SURFACE

SEC SECONDARY

SHLD SHIELDED CABLE

SI SPEED INDICATOR

SN SOLID NEUTRAL

SP SPARE

SPD SURGE PROTECTIVE DEVICE

SW SWITCH

SYM SYMMETRICAL

T TRANSFORMER

TB TERMINAL BLOCKS

TDR TIME DELAY RELAY

TE TEMPERATURE ELEMENT

TIT TEMPERATURE INDICATING TRANSMITTER

TL TEMPERATURE LOW

TRANSF TRANSFORMER

TS TEMPERATURE SWITCH

TWS,TWSP TWISTED SHIELDED CABLE

V VOLT

VA VOLT-AMPERE

VFD VARIABLE FREQUENCY DRIVE

W WIRE

XLP CROSS LINKED POLYETHYLENE

XFMR TRANSFORMER

ZSC LIMIT SWITCH CLOSED

ZSO LIMIT SWITCH OPEN

GROUNDING

DESCRIPTION

GROUND ROD

-- G -- BARE COPPER CONDUCTOR EMBEDDED IN CONCRETE OR BURIED

MECHANICAL CONNECTION

GENERAL NOTES

- ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE CURRENT NATIONAL ELECTRICAL CODE.
- CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURES. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
- CONDUITS SHALL BE PROPERLY TERMINATED WITH NEAT CONNECTIONS TO ALL ASSOCIATED EQUIPMENT.
- CONTROL AND INSTRUMENTATION CONDUIT SIZES AND NUMBER OF CONDUCTORS ARE TO BE DETERMINED FROM SCHEMATIC DIAGRAMS, INSTRUMENTATION DIAGRAMS, AND/OR SPECIFICATIONS, IF NOT DIRECTLY SHOWN ON POWER PLANS. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL AND INSTRUMENTATION EQUIPMENT. MODIFICATIONS REVIEWED BY THE ENGINEER WITH NO EXCEPTIONS TAKEN, MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. EACH CONTROL AND INSTRUMENTATION CONDUIT SHALL ALSO CONTAIN 10 PERCENT SPARE CONDUCTORS, WITH A MINIMUM OF TWO SPARES, UP TO THE LIMIT OF CONDUIT FILL AS SPECIFIED BY THE NATIONAL ELECTRICAL CODE. INSTRUMENTATION SHIELDED CABLES SHALL BE INSTALLED IN RGS CONDUIT. SEPARATE FROM OTHER POWER WIRING.
- EACH CONDUIT TO CARRY GROUND WIRE(S) IN ADDITION TO NUMBER OF CONDUCTORS SHOWN ON DRAWINGS OR PER NOTE 4 ABOVE. ALL GROUNDING MUST CONFORM TO ARTICLE 250 OF CURRENT NATIONAL ELECTRICAL CODE.
- MINIMUM CONDUIT SIZE SHALL BE 3/4" TRADE SIZE, UNLESS OTHERWISE NOTED ON THE ELECTRICAL DRAWINGS. GENERAL LIGHTING, RECEPTACLE AND HVAC POWER CIRCUITS MAY BE 1/2" TRADE SIZE CONDUIT INSTALLED PER NEC. MINIMUM POWER WIRING SHALL BE 2CH12 AWG WITH GROUND AND 2CH14 AWG FOR CONTROL. MINIMUM INSTRUMENTATION CABLE SHALL BE 2/CH16 AWG TWS AND 3CH16 AWG TWS FOR SPEED POTENTIOMETERS AND RTD'S. PROVIDE CONDUIT AND WIRING AS INDICATED.
- ALL SURFACE MOUNTED PANELS ON THE INSIDE OF EXTERIOR WALLS ABOVE GRADE, OR IN OTHER LOCATIONS CONSIDERED AS DAMP, SHALL BE MOUNTED TO MAINTAIN A 1/4" AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
- ELECTRICAL EQUIPMENT LOCATIONS ARE APPROXIMATE ONLY. COORDINATE LOCATIONS WITH PROCESS PIPING AND OTHER DRAWINGS. CONTRACTOR SHALL COORDINATE MANUFACTURER'S EQUIPMENT REQUIREMENTS WITH SPACE AVAILABLE. FINAL CONTROL PANEL LOCATIONS SHALL BE FIELD COORDINATED.
- ALL FIELD CONTROL CONDUCTORS WILL TERMINATE AT INDIVIDUAL TERMINAL BLOCKS WITHIN THE CONTROL ENCLOSURE. SERIES AND PARALLEL CONNECTION OF FIELD CONTROL CONDUCTORS WILL BE MADE ONLY AT CONTROL PANEL OR MOTOR CONTROL CENTER TERMINAL BLOCKS.
- GROUND ALL CONDUCTOR SHIELDS AT CONTROL PANEL ONLY - DO NOT GROUND SHIELDS AT BOTH ENDS.
- AT THE FOLLOWING LOCATIONS, UNLESS OTHERWISE NOTED, PULL, JUNCTION, TERMINAL, SWITCH, AND OUTLET BOXES SHALL BE CAST IRON WHERE STEEL CONDUIT IS TERMINATED; OR SHALL BE CAST ALUMINUM WHERE ALUMINUM CONDUIT IS TERMINATED:

A - AT LOCATIONS WHERE VAPORTIGHT LIGHTING FIXTURES AND/OR WATERTIGHT RECEPTACLES ARE INDICATED.

B - AT LOCATIONS ON OR IN ALL OUTSIDE WALLS.

C - OUTDOORS
- NAMEPLATES SHALL CONFORM STRICTLY TO INSTRUCTIONS IN THE ELECTRICAL SPECIFICATIONS AND ON THE DRAWINGS. THE FOLLOWING SHALL HAVE NAMEPLATES:

A - ALL LOCAL CONTROL STATIONS AT OR NEAR EQUIPMENT

B - ALL PANELBOARDS, MOTOR CONTROL CENTERS

C - GANGED LIGHT SWITCHES

D - PROCESS CONTROL PANELS
- PIPE SLEEVES FOR CONDUITS PASSING FROM NON-HAZARDOUS AREAS TO HAZARDOUS AREAS SHALL HAVE CAULKING APPLIED TO MAKE THE INSTALLATION GASTIGHT.
- CONTRACTOR SHALL PROVIDE ALL CONDUIT, WIRING, EQUIPMENT, AND CONTROL DEVICES AS INDICATED BY SCHEMATICS, SINGLE LINE DIAGRAMS, SCHEDULES, PLANS, SPECIFICATIONS, AND VENDOR DOCUMENTATION TO PROVIDE A COMPLETE WORKING SYSTEM. SINCE NOT ALL HOME RUNS ARE SHOWN ON PLANS, THE CONTRACTOR SHALL REFERENCE ALL SINGLE LINE AND SCHEMATIC DIAGRAMS, SCHEDULES, AND VENDOR DOCUMENTATION TO DETERMINE CONDUIT AND WIRING REQUIREMENTS.
- PROVIDE CONCRETE HOUSEKEEPING PADS (4" HIGH) UNDER ELECTRICAL AND INSTRUMENTATION EQUIPMENT THAT IS DESIGNED TO BE FLOOR MOUNTED. PROVIDE SUBMITTAL SKETCH FOR ENGINEER REVIEW.
- CONTRACTOR SHALL PROVIDE A COMPLETE WORKING OPERATING SYSTEM IN ACCORDANCE WITH ALL DRAWINGS, SPECIFICATIONS, CODES AND STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL OF THE ELECTRICAL DRAWINGS AND CONDUIT AND WIRE SCHEDULES RELATIVE TO THE CONDUIT AND WIRE TO BE PROVIDED ON THIS PROJECT. THE INTENT OF THE CONTRACT DOCUMENTS IS TO PROVIDE DETAILED INFORMATION OF SPECIFIC INDIVIDUAL RUNS OF CONDUIT AND WIRE TO SPECIFIC EQUIPMENT. THE CONTRACTOR IS DIRECTED TO COMBINE CONDUIT AND WIRE RUNS AS MUCH AS POSSIBLE. THE LIMITING FACTOR FOR COMBINING CONDUIT AND WIRE SHALL BE BASED ON THE DERATING FACTORS ALLOWED PER THE NATIONAL ELECTRICAL CODE (NEC) BASED ON EQUIPMENT RATINGS AND REQUIRED AMPACITY RATINGS. CONTRACTOR IS DIRECTED TO USE THE MOST COST-EFFECTIVE CONDUIT AND WIRE RUNS CONSISTENT WITH THESE REQUIREMENTS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 120V CIRCUITS EXCEEDING 100 FEET IN LENGTH SHALL BE NO 10 AWG WIRING, MINIMUM.
- POWER CONDUITS FOR THREE PHASE AND SINGLE PHASE CIRCUITS (DESIGNATED WITH "P" NUMBERS) ARE SHOWN ON POWER PLANS, WITH CONDUIT SIZES AND WIRING INFORMATION INDICATED IN THE CONDUIT AND WIRE SCHEDULES.
- CONTROL AND INSTRUMENTATION SIGNAL CONDUITS (DESIGNATED WITH "C" AND "S" NUMBERS OR, ALTERNATIVELY, INDICATED BY WAY OF A LEGEND) ARE SHOWN ON CONTROL AND INSTRUMENTATION WIRING DIAGRAMS, WITH CONDUIT SIZES AND WIRING INFORMATION INDICATED EITHER IN THE LEGEND OR IN CONDUIT AND WIRE SCHEDULES. THE CONTRACTOR SHALL NOTE THAT THE MAJORITY OF CONTROL AND INSTRUMENTATION SIGNAL CONDUITS AND WIRING REQUIRED FOR THIS CONTRACT IS INDICATED IN THE AFOREMENTIONED LEGEND AND DOES NOT APPEAR IN THE CONDUIT AND WIRE SCHEDULES. FOR INSTRUMENTS REQUIRING 120V POWER SUPPLIES, THIS INFORMATION IS ALSO SHOWN ON THE CONTROL AND INSTRUMENTATION WIRING DIAGRAMS.
- PROVIDE CONDUIT EXPANSION PROTECTION FOR ALL EXTERIOR CONDUIT SYSTEMS.
- FOR ALL OUTDOOR ELECTRICAL EQUIPMENT AND INSTRUMENTATION, CONTRACTOR SHALL USE CONDUIT INSTALLATION MEANS AND METHODS NECESSARY TO MITIGATE MOISTURE AND CONDENSATION PER NEC AND INSTALLATION METHODS LISTED IN SPECIFICATIONS. MITIGATION METHODS INCLUDE DRIP LOOPS, AVOIDING TOP ENTRY, USE OF BREATHERS, DRAINS, AND DUCT SEALANT AS NECESSARY.
- DO NOT SCALE DISTANCES OR DIMENSIONS FROM THE DRAWINGS. WRITTEN DIMENSIONS SHALL PREVAIL. REPORT ANY DISCREPANCIES TO THE ENGINEER.

GENERAL DEMOLITION NOTES:

- THE EXISTING ELECTRICAL PLAN FOR THIS PROJECT IS BASED ON INFORMATION PROVIDED BY OTHERS AND FIELD SURVEY OF THE SITE. GENERAL CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- FIELD VERIFY ALL CONDITIONS AFFECTING THE WORK PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- PROTECT ALL EXISTING ITEMS AND EQUIPMENT ADJACENT TO THE WORK AREA. ALL EXISTING ITEMS, EQUIPMENT AND MATERIALS DAMAGED OR AFFECTED BY THE WORK SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
- THE EXISTING FACILITY SHALL REMAIN OPERATIONAL DURING CONSTRUCTION. SEE SPECIFICATION FOR ADDITIONAL DETAILS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE DEMOLITION AND CONSTRUCTION WITH THE OWNER'S REQUIREMENTS TO MAINTAIN FACILITY OPERATION. ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES AS NECESSARY.
- PATCH, REPAIR AND REFINISH ALL EXISTING SURFACES AFFECTED BY THE WORK, TO THE SATISFACTION OF THE ENGINEER.
- ALL ITEMS SHOWN ON THE PLANS WITH SHADING ARE TO BE REMOVED AND DISPOSED OF, UNLESS OTHERWISE INDICATED. THIS SHALL INCLUDE ALL ASSOCIATED CONDUIT, WIRING, BOXES, DEVICES, CONTROLS, ETC. UNLESS OTHERWISE NOTED. THE OWNER RESERVES THE RIGHT TO RETAIN ANY EQUIPMENT OR MATERIALS. THE CONTRACTOR WILL STORE ON SITE AND PROTECT SUCH ITEMS IN A MANNER ACCEPTABLE TO THE OWNER AND ENGINEER. ALSO REFER TO THE STRUCTURAL, MECHANICAL, PROCESS AND ELECTRICAL DRAWINGS FOR A COMPLETE REQUIREMENT OF DEMOLITION WORK FOR THIS PROJECT.

NEMA CLASSIFICATIONS FOR NEW ELECTRICAL

EQUIPMENT AND ENCLOSURES

(UNLESS OTHERWISE NOTED)

ROOM NAME	NEMA RATING
GENERAL SITE	
ELECTRICAL BUILDING	1/12
VALVE PIT	7(CLASS 1, DIV 2)
WETWELL	7(CLASS 1, DIV 1) SEE NOTE 2
WETWELL HATCH	
3' ENVELOPE	7(CLASS 1, DIV 1) SEE NOTE 2
WETWELL VENT	
3' ENVELOPE	7(CLASS 1, DIV 1) SEE NOTE 2
WETWELL VENT	
3' - 5' ENVELOPE	7(CLASS 1, DIV 2)
GRINDER MANHOLE	7(CLASS 1, DIV 1) SEE NOTE 2
GRINDER ENVELOPE	7(CLASS 1, DIV 2)
3' - 5' ENVELOPE	7(CLASS 1, DIV 2)
FLOW METER VAULT	7(CLASS 1, DIV 2)

NOTES:

- THE AREAS NOTED SHALL BE RATED AS INDICATED, EXCEPT THAT EQUIPMENT SUCH AS MOTOR CONTROL CENTERS, SWITCHBOARDS, AND TRANSFORMERS SHALL BE RATED AS SPECIFIED. PANELBOARDS AND TRANSFORMERS SHALL BE, AT A MINIMUM, RATED NEMA 12 IF NOT SPECIFIED.
- AREAS WITHIN 3' OF VENTS ARE RATED NEMA 7(CLASS 1, DIV. 1) AND BETWEEN 3' AND 5' ARE RATED NEMA 7(CLASS 1, DIV. 2). AREAS 18" ABOVE AND WITHIN 3' FROM HATCH OPENINGS ARE RATED NEMA 7(CLASS 1, DIV. 2). AREAS WITHIN A 3' ENVELOPE FROM DOORS ARE RATED NEMA 7(CLASS 1, DIV. 2).

** CONDUIT INSTALLATION SCHEDULE

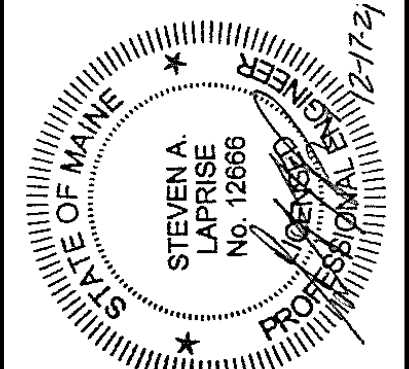
AREA NEMA RATING PER E-1	CONDUIT REQUIRED IN EXPOSED AREAS	CONDUIT REQUIRED IN NON EXPOSED AREAS	CONDUITS EMERGING FROM GRADE OR SLAB 12" AFF
1/12	* ALUMINUM	EMT	RGS PVC COATED
3R	* ALUMINUM	RGS	RGS PVC COATED
4	* ALUMINUM	RGS	RGS PVC COATED
4X	* ALUMINUM	RGS	RGS PVC COATED
4X CORROSIVE	RGS PVC COATED	RGS	RGS PVC COATED
4X CORROSIVE ABOVE 8'	PVC SCHEDULE 80	RGS	N/A
7	RGS PVC COATED	RGS	RGS PVC COATED
* IN CONCRETE SLAB	N/A	PVC SCHEDULE 40	RGS PVC COATED
* BELOW GRADE DUCT ENCASED IN CONCRETE	N/A	PVC SCHEDULE 40	RGS PVC COATED
* BELOW GRADE DUCT NON ENCASED	N/A	PVC SCHEDULE 80	RGS PVC COATED

** SEE SPECIFICATIONS FOR FURTHER INFORMATION
* SIGNAL CONDUITS SHALL BE RGS

APPRO DATE

REVISIONS

PROJECT NO: 122236
DESIGNED: M.GHALY
CAD COORD: R.BEAW
CAD: S.MAURO
CHECKED: S.LAPRISE
DATE: 11-2021
APPROVED: S.LAPRISE
DATE: 12-2021
SUBMISSION: CONTRACT DRAWINGS





207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

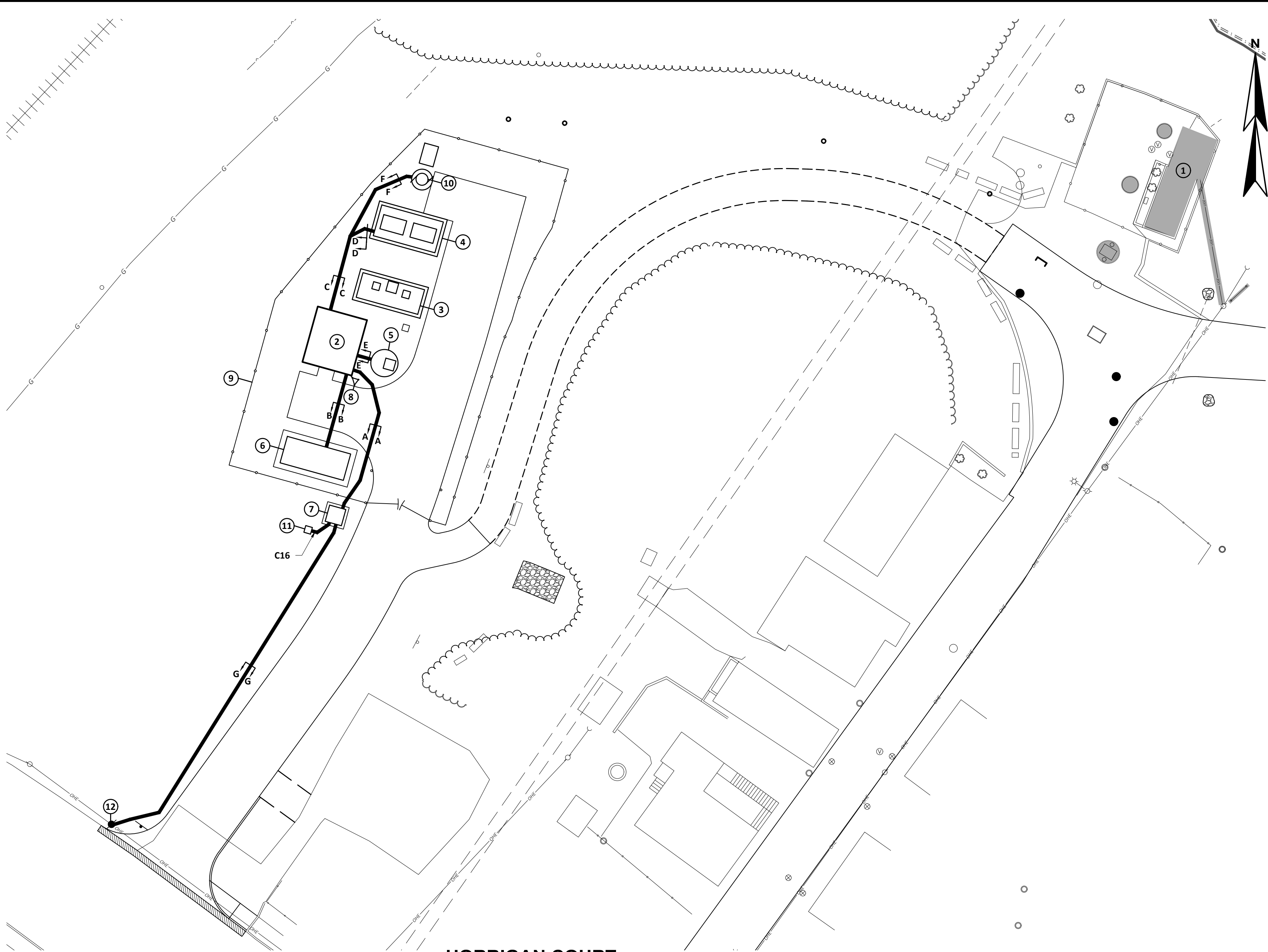
CITY OF BIDDEFORD
HORRIGAN COURT PUMP STATION UPGRADE
BIDDEFORD, MAINE

ELECTRICAL LEGEND, ABBREVIATIONS, NOTES,
NEMA AND CONDUIT INSTALLATION SCHEDULE

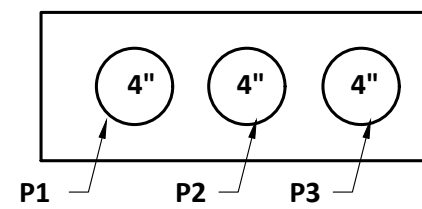
DRAWING

E-1

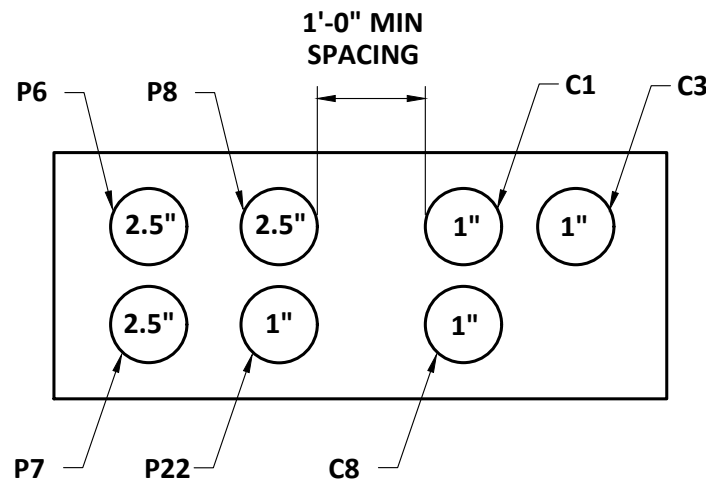
NOTE:
ALL NOTES AND SYMBOL LISTS SHALL BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.



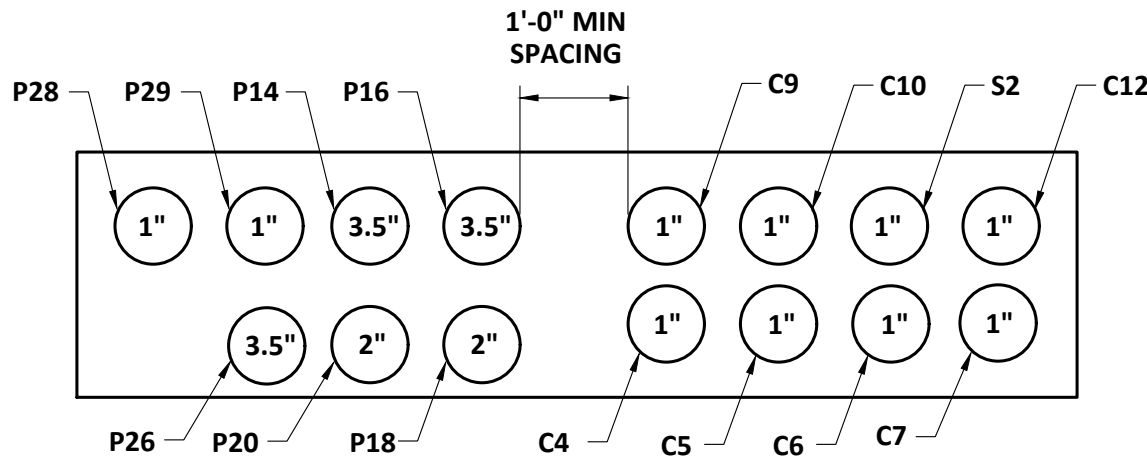
**HORRIGAN COURT
ELECTRICAL SITE PLAN**
SCALE: 1"=20'



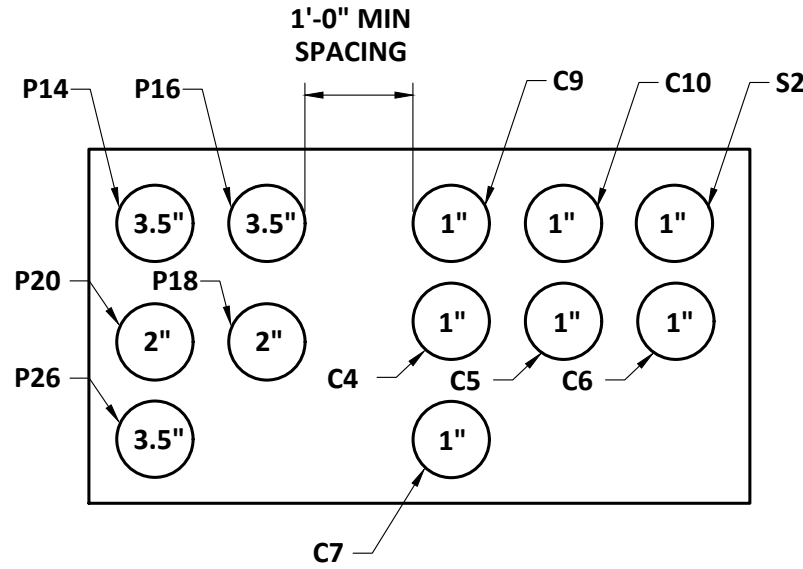
SECTION A-A
NTS



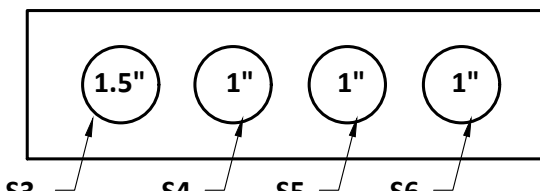
SECTION B-B
NTS



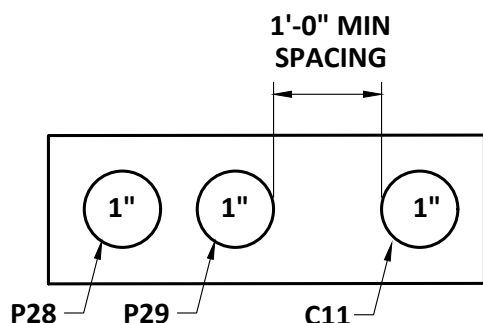
SECTION C-C
NTS



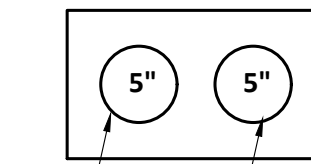
SECTION D-D
NTS



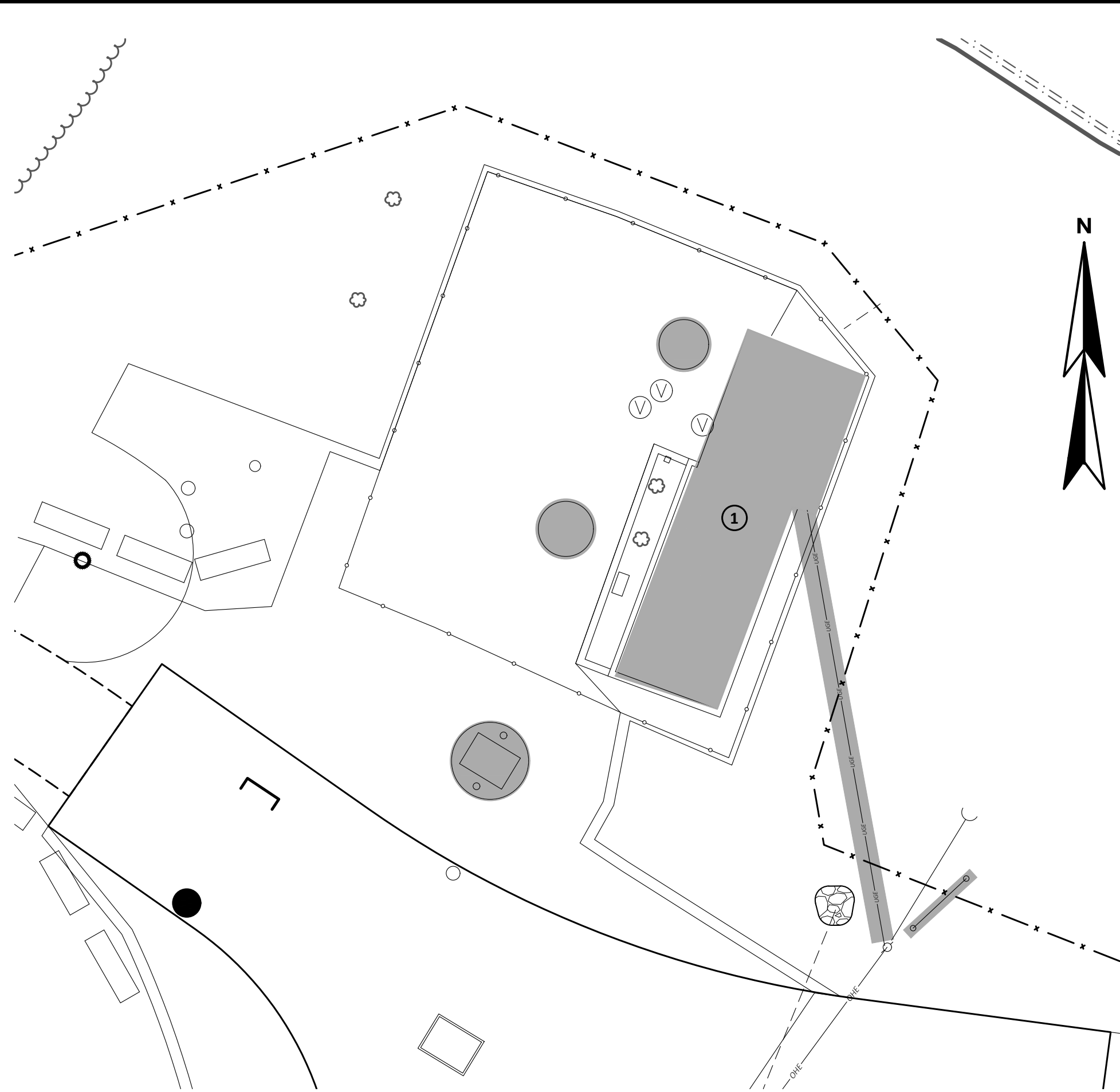
SECTION E-E
NTS



SECTION F-F
NTS



SECTION G-G
NTS



**HORRIGAN COURT
ELECTRICAL SITE DEMOLITION PLAN**
SCALE: 1"=10'

EQUIPMENT LEGEND

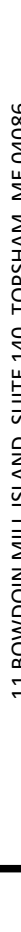
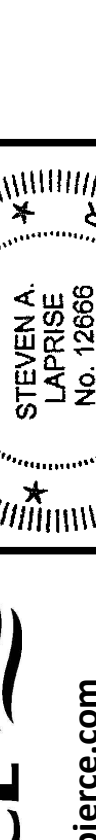
- ① PUMP STATION - TO BE REMOVED
- ② ELECTRICAL BUILDING
- ③ VALVE VAULT
- ④ WETWELL
- ⑤ FLOW METER VAULT
- ⑥ GENERATOR
- ⑦ PAD MOUNTED TRANSFORMER
- ⑧ SERVICE GROUND
- ⑨ FENCE
- ⑩ GRINDER
- ⑪ UTILITY METER AND PEDESTAL
- ⑫ SERVICE RISER POLE

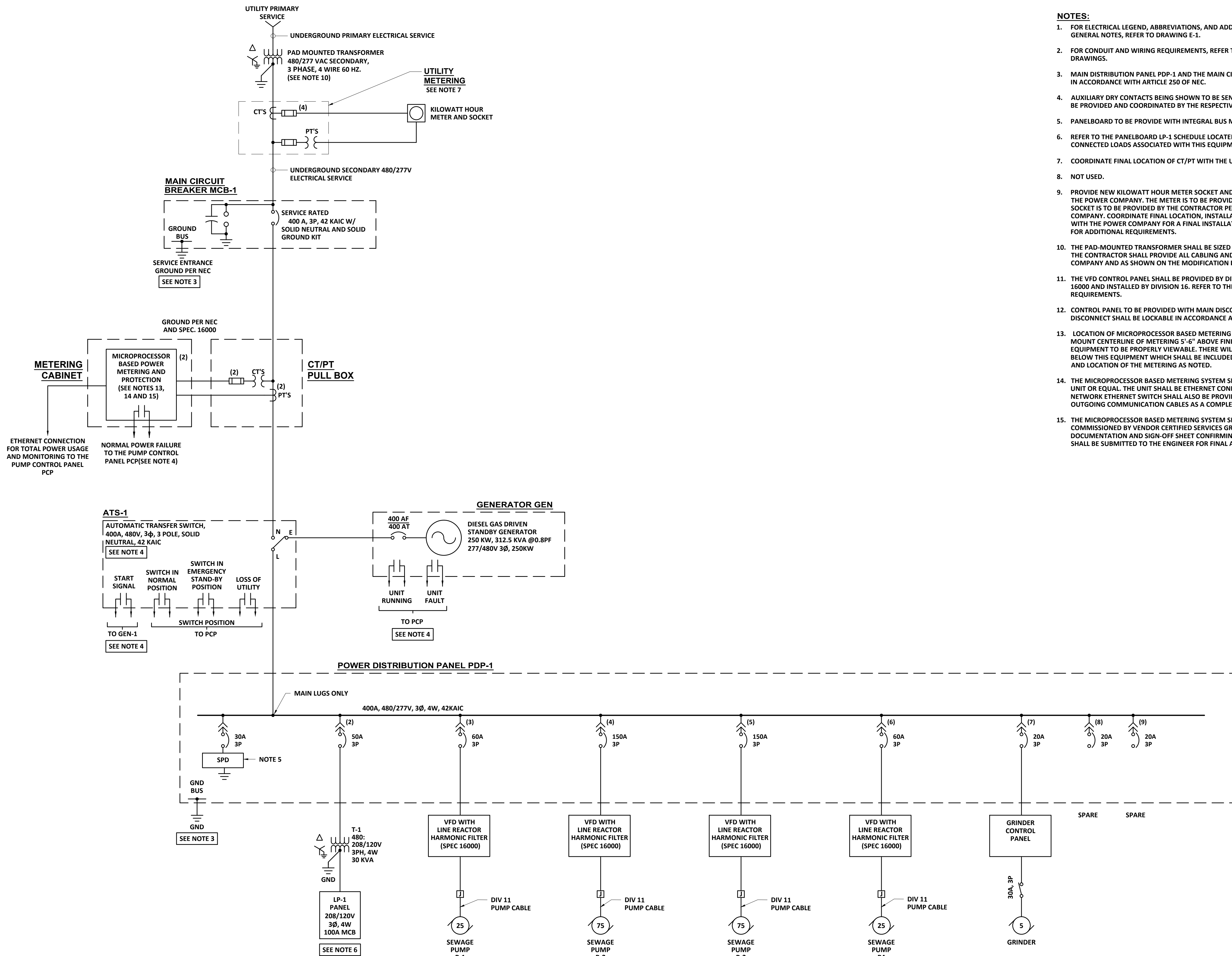
NOTES:

- FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES, REFER TO DRAWING E-1.
- FOR INFORMATION REGARDING CONDUIT AND WIRING REQUIREMENTS, REFER TO GENERAL NOTES 19 AND 20 ON DRAWING E-1.

DEMOLITION NOTES:

- ELECTRICAL EQUIPMENT INDICATED WITH SHADING SHALL BE DISCONNECTED AND REMOVED ALONG WITH ALL OF THE ASSOCIATED CONDUIT, WIRE, PULLBOXES, ETC. IN ITS ENTIRETY FOR A COMPLETE DEMOLITION, UNLESS OTHERWISE NOTED. ALL ABANDONED BELOW GRADE CONDUIT SHALL BE CUT AND CAPPED AT GRADE LEVEL. REFER TO TO NOTE 1 ON THIS DRAWING FOR ADDITIONAL DEMOLITION NOTES.
- INFORMATION CONTAINED IN THESE PLANS AND DIAGRAMS HAS BEEN OBTAINED IN PART FROM EXISTING PLANT ELECTRICAL DRAWINGS, SITE CONDITIONS AND SHOP DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY ALL INFORMATION AND CIRCUITRY AFFECTING HIS OR HER WORK PRIOR TO COMMENCING THE WORK FOR THIS CONTRACT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

DRAWING		CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE		 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086				PROJECT NO: 12223G DESIGNED: M.GHALY CAD COORD: R.BEISAW CAD: S.MAURO CHECKED: S.LAPRISE DATE: 11-2021 APPROVED: S.LAPRISE DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS		NO		REVISIONS		APP'D. DATE	
								A							
								A							
								A							
								A							
								A							
								A							
								A							



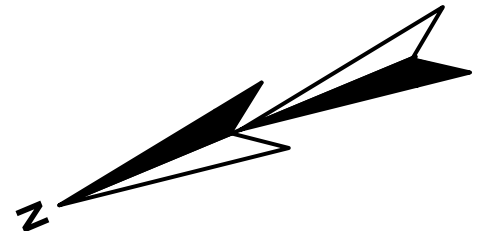
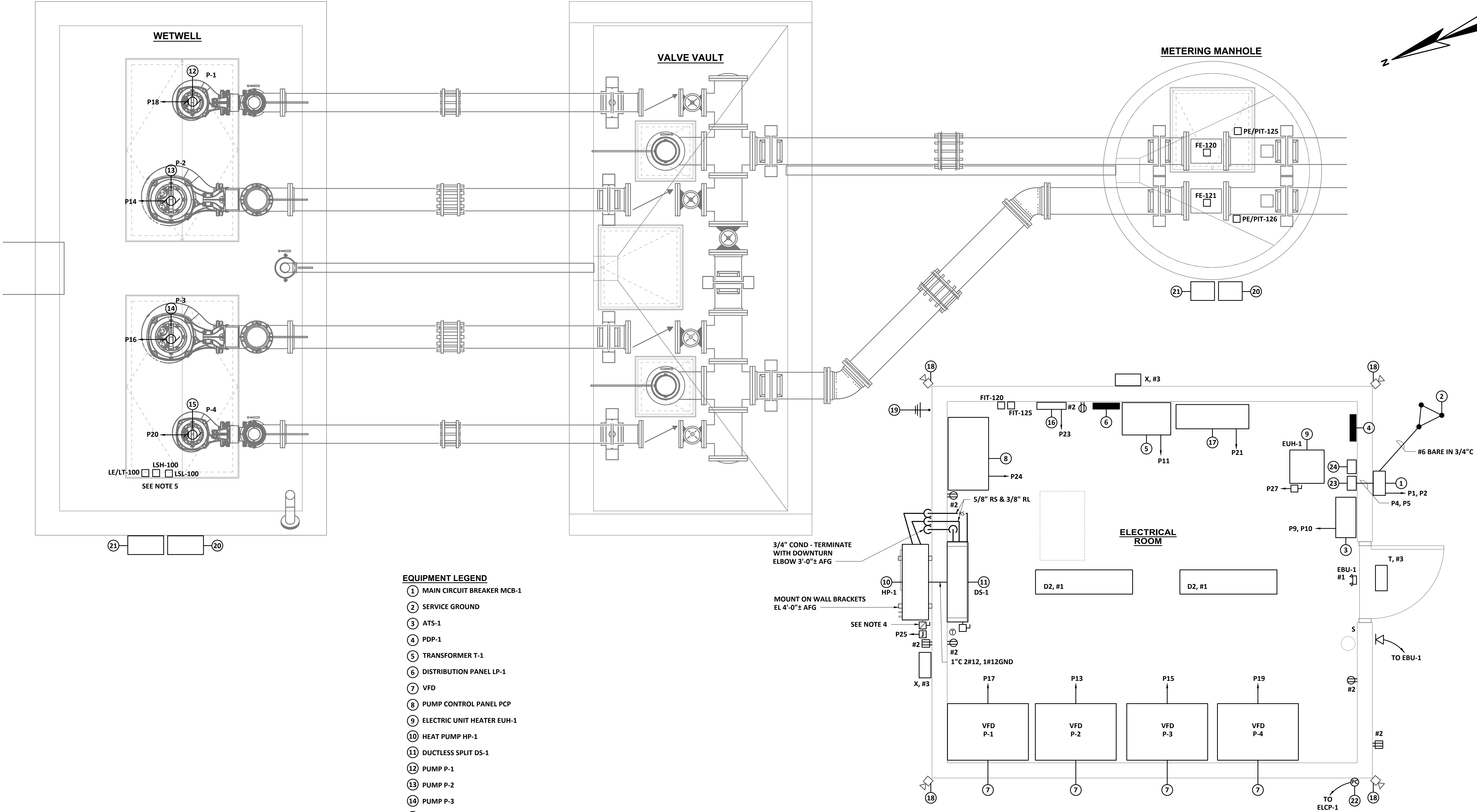
HORRIGAN COURT SINGLE LINE DIAGRAM

NTS

NOTES:

- FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND ADDITIONAL GENERAL DEMOLITION NOTES AND GENERAL NOTES, REFER TO DRAWING E-1.
2. FOR CONDUIT AND WIRING REQUIREMENTS, REFER TO THE RESPECTIVE MODIFICATION DRAWINGS.
3. MAIN DISTRIBUTION PANEL PDP-1 AND THE MAIN CIRCUIT BREAKER MCB-1 SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF NEC.
4. AUXILIARY DRY CONTACTS WHEN SHOWN TO BE SENT TO THE VARIOUS EQUIPMENT NOTED SHALL BE PROVIDED AND COORDINATED BY THE RESPECTIVE EQUIPMENT SUPPLIERS.
5. PANELBOARD TO BE PROVIDED WITH INTEGRAL BUS MOUNTED SURGE PROTECTIVE DEVICE.
6. REFER TO THE PANELBOARD LP-1 SCHEDULE LOCATED ON ELECTRICAL SCHEDULE DRAWING FOR CONNECTED LOADS ASSOCIATED WITH THIS EQUIPMENT.
7. COORDINATE FINAL LOCATION OF CT/PT WITH THE UTILITIES.
8. NOT USED.
9. PROVIDE NEW KILOWATT HOUR METER SOCKET AND COORDINATE METER INSTALLATION WITH THE POWER COMPANY. THE METER IS TO BE PROVIDED BY THE POWER COMPANY. THE METER SOCKET IS TO BE PROVIDED BY THE CONTRACTOR PER THE REQUIREMENTS OF THE POWER COMPANY. COORDINATE FINAL LOCATION, INSTALLATION AND ALL ADDITIONAL REQUIREMENTS WITH THE POWER COMPANY FOR A FINAL INSTALLATION. REFER TO THE ELECTRICAL SITE PLAN FOR ADDITIONAL REQUIREMENTS.
10. THE PAD-MOUNTED TRANSFORMER SHALL BE SIZED AND INSTALLED BY THE POWER COMPANY. THE CONTRACTOR SHALL PROVIDE ALL CABLEING AND CONNECTIONS AS REQUIRED BY THE POWER COMPANY AND AS SHOWN ON THE MODIFICATION DRAWINGS.
11. THE VFD CONTROL PANEL SHALL BE PROVIDED BY DIVISION 16 AS SPECIFIED UNDER SECTION 16000 AND INSTALLED BY DIVISION 16. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. CONTROL PANEL TO BE PROVIDED WITH MAIN DISCONNECT WITH EXTERNAL HANDLE. DISCONNECT SHALL BE LOCKABLE IN ACCORDANCE ARTICLE 110.25 OF THE NEC.
13. LOCATION OF MICROPROCESSOR BASED METERING AND PROTECTION HAS BEEN SHOWN. MOUNT CENTERLINE OF METERING 5'-6" ABOVE FINISHED FLOOR IN ORDER TO ALLOW THIS EQUIPMENT TO BE PROPERLY VIEWABLE. THERE WILL BE A 4" THICK CONCRETE PAD INSTALLED BELOW THIS EQUIPMENT WHICH SHALL BE INCLUDED IN THE OVERALL HEIGHT REQUIREMENT AND LOCATION OF THE METERING AS NOTED.
14. THE MICROPROCESSOR BASED METERING SYSTEM SHALL BE AN ALLEN-BRADLEY MODEL PMS5000 UNIT OR EQUAL. THE UNIT SHALL BE ETHERNET CONNECTED BACK TO THE SCADA SYSTEM. A NETWORK ETHERNET SWITCH SHALL ALSO BE PROVIDED IN ORDER TO CONNECT INCOMING AND OUTGOING COMMUNICATION CABLES AS A COMPLETE INSTALLATION.
15. THE MICROPROCESSOR BASED METERING SYSTEM SHALL BE PROGRAMMED, TESTED AND COMMISSIONED BY VENDOR CERTIFIED SERVICES GROUP AND A WRITTEN, AUTHORIZED DOCUMENTATION AND SIGN-OFF SHEET CONFIRMING A COMPLETE AND OPERATIONAL SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR FINAL ACCEPTANCE.

CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086		PROJECT NO: 12223G DESIGNED: M.GHALY CAD COORD: R.BEISAW CAD: S.MAURO CHECKED: S.LAPRISE DATE: 11-2021 APPROVED: S.LAPRISE DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	NO REVISIONS	APPD DATE
			△		
			△		
			△		
			△		
			△		

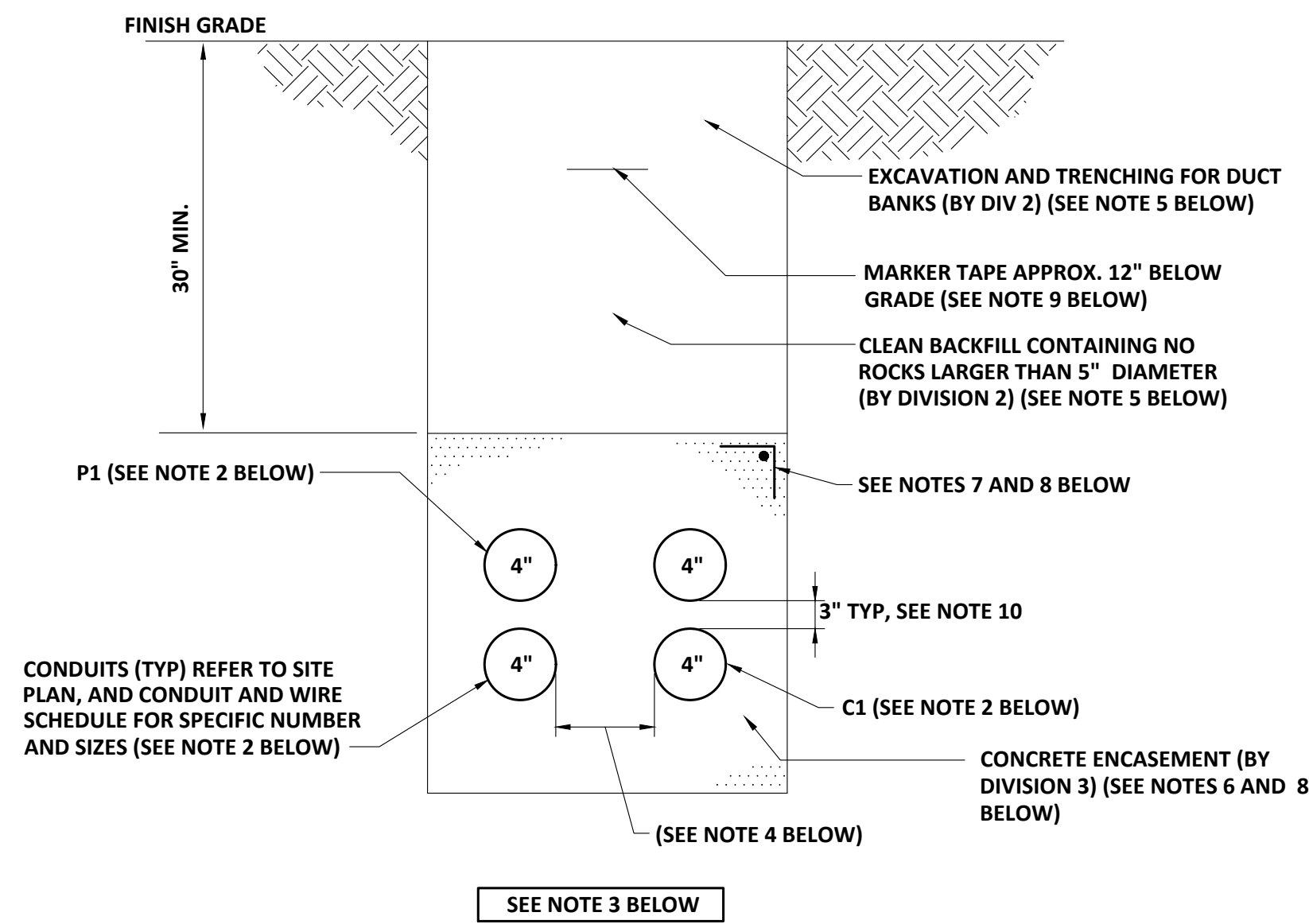


- NOTES:**
- FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES, REFER TO DRAWING E-1.
 - FOR INFORMATION REGARDING CONDUIT AND WIRING REQUIREMENTS, REFER TO GENERAL NOTES 19 AND 20 ON DRAWING E-1.
 - CIRCUIT NUMBERS INDICATED ON THIS DRAWING REFER TO PANELBOARD LP-1, UNLESS OTHERWISE NOTED.
 - THE CONTRACTOR SHALL FURNISH AND INSTALL A FUSED DISCONNECT SWITCH AS NOTED. COORDINATE, FURNISH AND INSTALL FUSES SIZED AS REQUIRED PER THE MANUFACTURER'S REQUIREMENTS FOR THIS EQUIPMENT.
 - VENDOR SUPPLIED CABLE ALL THE WAY BACK TO THE CONTROL PANEL IN THE ELECTRICAL BUILDING.

- EQUIPMENT LEGEND**
- 1 MAIN CIRCUIT BREAKER MCB-1
 - 2 SERVICE GROUND
 - 3 ATS-1
 - 4 PDP-1
 - 5 TRANSFORMER T-1
 - 6 DISTRIBUTION PANEL LP-1
 - 7 VFD
 - 8 PUMP CONTROL PANEL PCP
 - 9 ELECTRIC UNIT HEATER EUH-1
 - 10 HEAT PUMP HP-1
 - 11 DUCTLESS SPLIT DS-1
 - 12 PUMP P-1
 - 13 PUMP P-2
 - 14 PUMP P-3
 - 15 PUMP P-4
 - 16 EXTERIOR LIGHT CONTROL PANEL ELCP-1
 - 17 GRINDER OEM PANEL
 - 18 CAMERA - FUTURE - TYP OF 4
 - 19 ANTENNA
 - 20 CONTROL/SIGNAL JUNCTION BOX
 - 21 POWER JUNCTION BOX
 - 22 EXTERIOR LIGHTING PHOTOCELL
 - 23 CT CABINET
 - 24 METERING PANEL

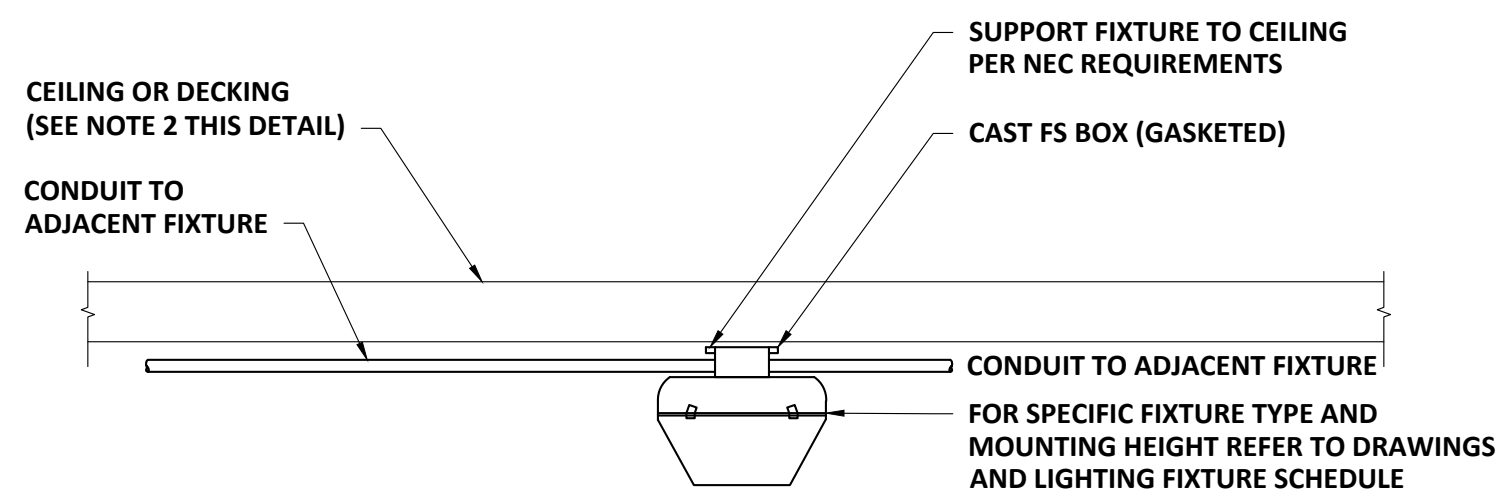
**ELECTRICAL BUILDING
ELECTRICAL PLAN**
SCALE: 1/2" = 1'-0"

DRAWING	E-4	CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	WRIGHT-PIERCE 207.725.8721 www.wright-pierce.com 11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086		PROJECT NO: 12223G DESIGNED: M.GHALY CAD COORD: R.BEISAW CAD: S.MAURO CHECKED: S.LAPRISE DATE: 11-2021 APPROVED: S.LAPRISE DATE: 12-2021 SUBMISSION: CONTRACT DRAWINGS	REVISIONS	APP'D	DATE
						NO		



- NOTES: (DUCT BANK DETAIL)**
1. DIMENSIONS TYPICAL FOR ALL DUCT BANKS, UNLESS OTHERWISE NOTED.
 2. FOR CONDUIT DETAILS, SEE CONDUIT AND WIRE SCHEDULES. REFERENCES P1 AND C1 DENOTES CONDUIT NUMBERS. REFER TO SPECIFIC DUCT BANK SECTIONS AND CONDUIT AND WIRE SCHEDULES FOR DETAILS.
 3. THIS TYPICAL DUCT BANK SECTION HAS BEEN SHOWN AS AN EXAMPLE OF THE REQUIREMENTS FOR THE UNDERGROUND INSTALLATION FOR THE DUCT BANK SYSTEM. THIS DENOTES SPECIFIC SPACING, CONCRETE ENCASEMENT, REINFORCING, ETC. REQUIRED FOR DUCT BANK INSTALLATIONS. THE SPECIFIC CONDUIT SIZING AND NUMBERS HAVE BEEN SHOWN BY EACH SPECIFIC DUCT BANK SECTION.
 4. IT SHALL BE REQUIRED THAT A MINIMUM OF 1'-0" CLEARANCE BE PROVIDED AT ALL TIMES BETWEEN ALL POWER CONDUITS AND ALL SIGNAL AND/OR CONTROL CONDUITS IN ORDER TO AVOID ANY ELECTRICAL NOISE INTERFERENCE WITH THE CABLES OR WIRES WITHIN THESE SIGNAL AND CONTROL CONDUITS.
 5. EXCAVATION, TRENCHING AND BACKFILLING SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 2 OF THIS CONTRACT.
 6. CONCRETE ENCASEMENT SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 3 OF THIS CONTRACT.
 7. REINFORCING STEEL SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 3 OF THIS CONTRACT.
 8. REFER TO THE CONTRACT DRAWINGS FOR SPECIFIC DETAILS FOR CONCRETE ENCASEMENT AND REINFORCING OF ELECTRICAL DUCT BANKS.
 9. INSTALL MARKER TAPE THE ENTIRE LENGTH OF EACH DUCT BANK.
 10. THERE SHALL BE 3" SPACING SEPARATION BETWEEN ALL CONDUITS, EXCEPT AS NOTED. ALSO THERE SHALL BE 3" SPACING ALL AROUND OUTSIDE OF THE CONDUIT DUCTBANK (TYP).

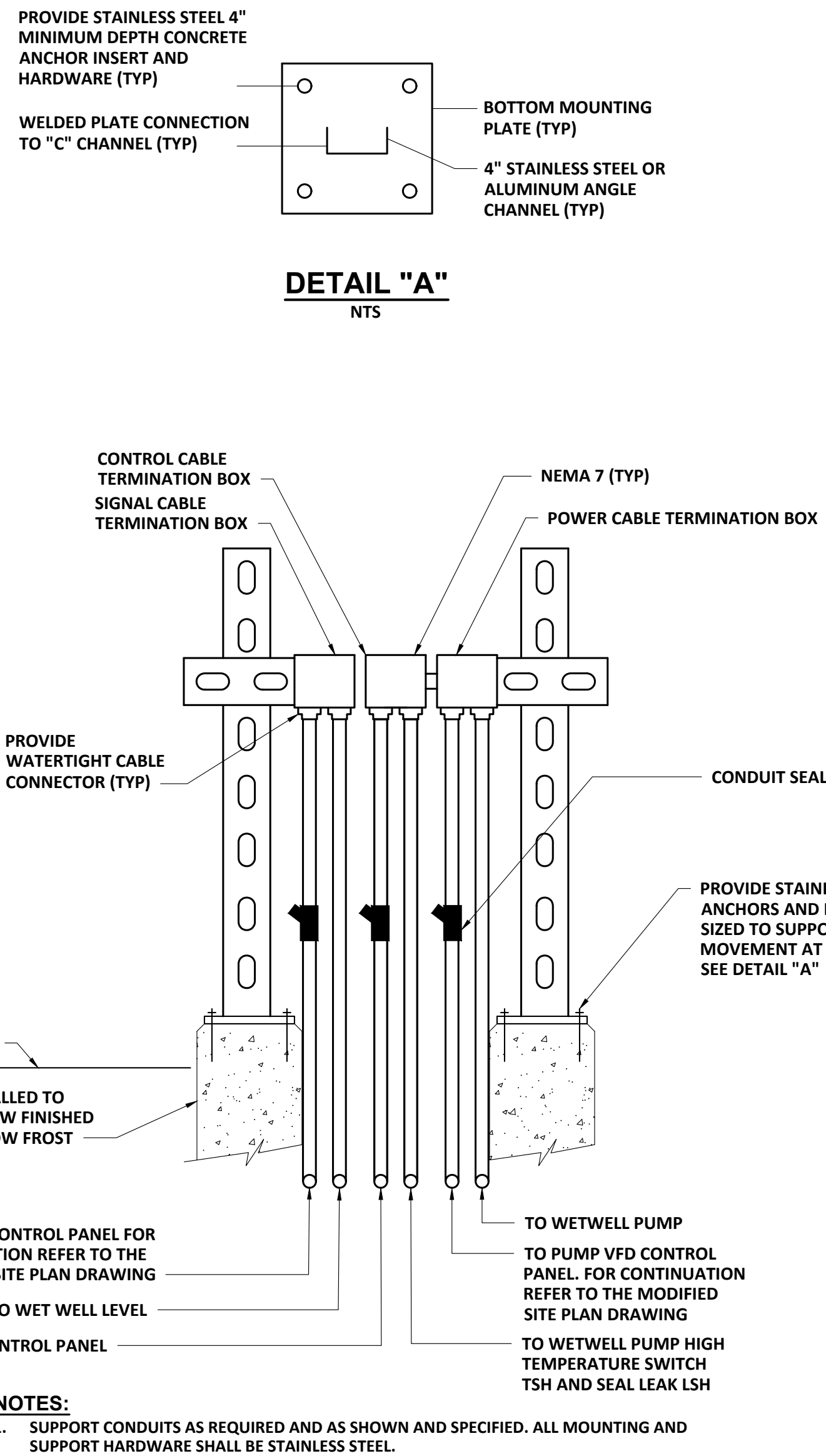
TYPICAL DUCT BANK DETAIL
NTS



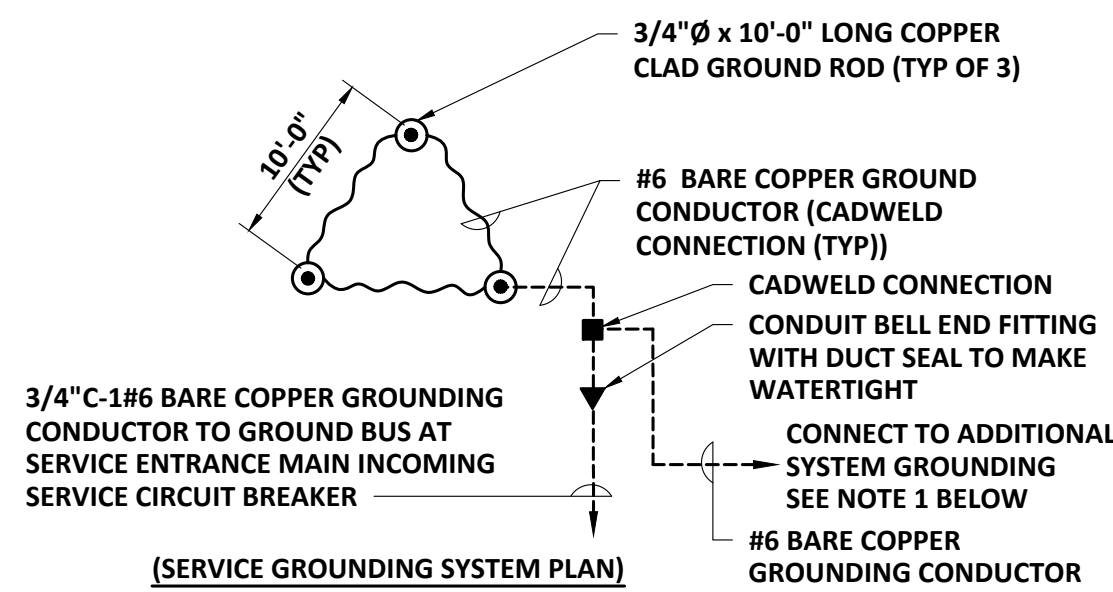
NOTES THIS DETAIL:

1. ANY FIXTURE NOT PROPERLY INSTALLED SHALL BE DISCONNECTED AND RE-INSTALLED PROPERLY FOR FINAL ACCEPTANCES BY THE ENGINEER. ANY ADDITIONAL COSTS SHALL BE AT THE EXPENSE OF THIS CONTRACTOR.
2. THIS DETAIL IS SHOWN DIAGRAMMATICALLY, CEILING AND CEILING JOIST ORIENTATION MAY NOT REFLECT ACTUAL FIELD CONDITIONS.
3. PROVIDE GROUNDING LUG, JUMPERS AND BUSHINGS AS REQUIRED TO BOND CONDUIT, LIGHT FIXTURE AND BOXES PER NEC REQUIREMENTS.

TYPICAL LED LIGHTING FIXTURE MOUNTING INSTALLATION DETAIL



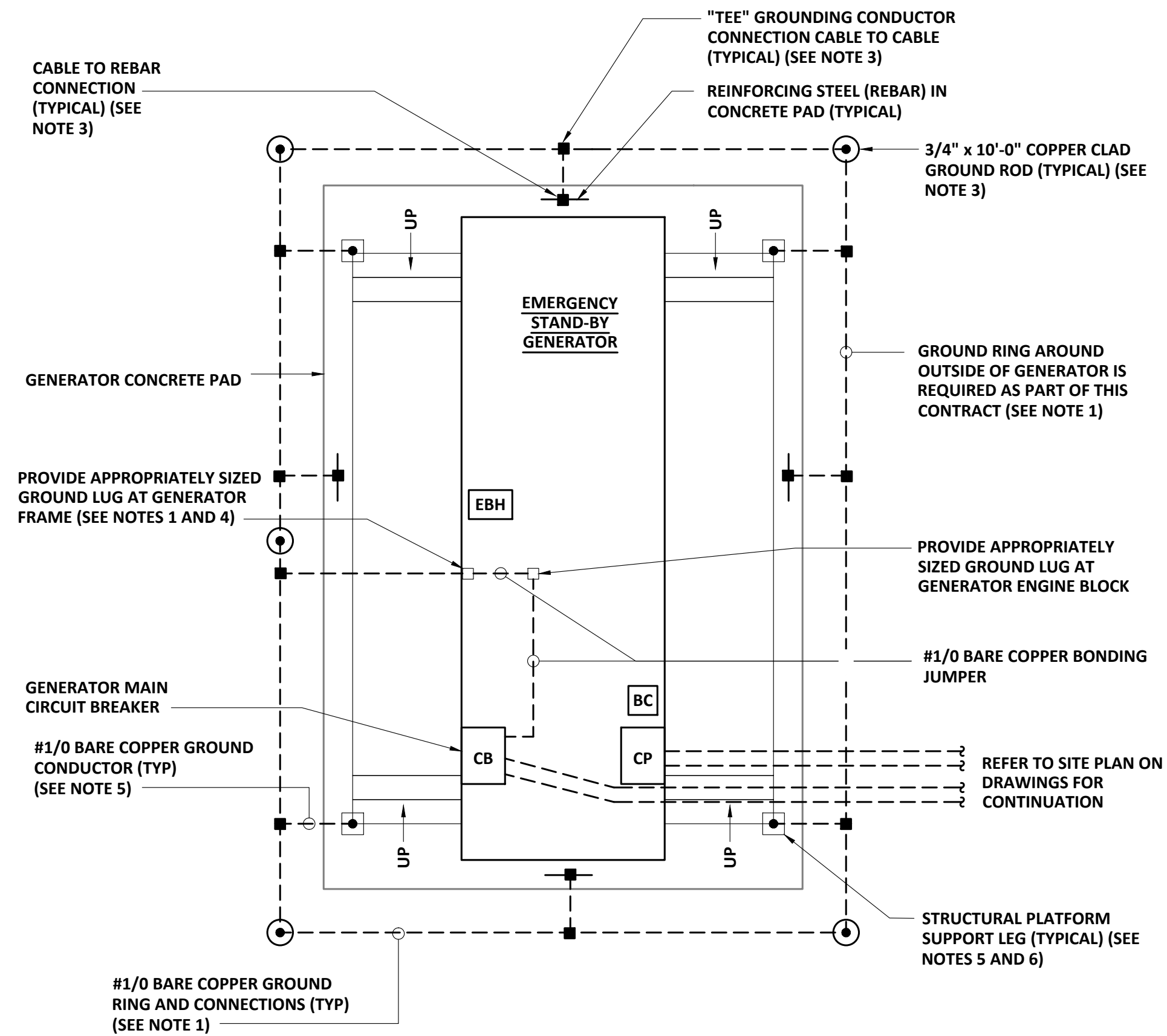
EQUIPMENT MOUNTING STRUCTURE



NOTES:
1. REFER TO THIS DRAWING FOR ADDITIONAL GROUNDING REQUIREMENTS.

- ## SERVICE GROUNDING SYSTEM PL

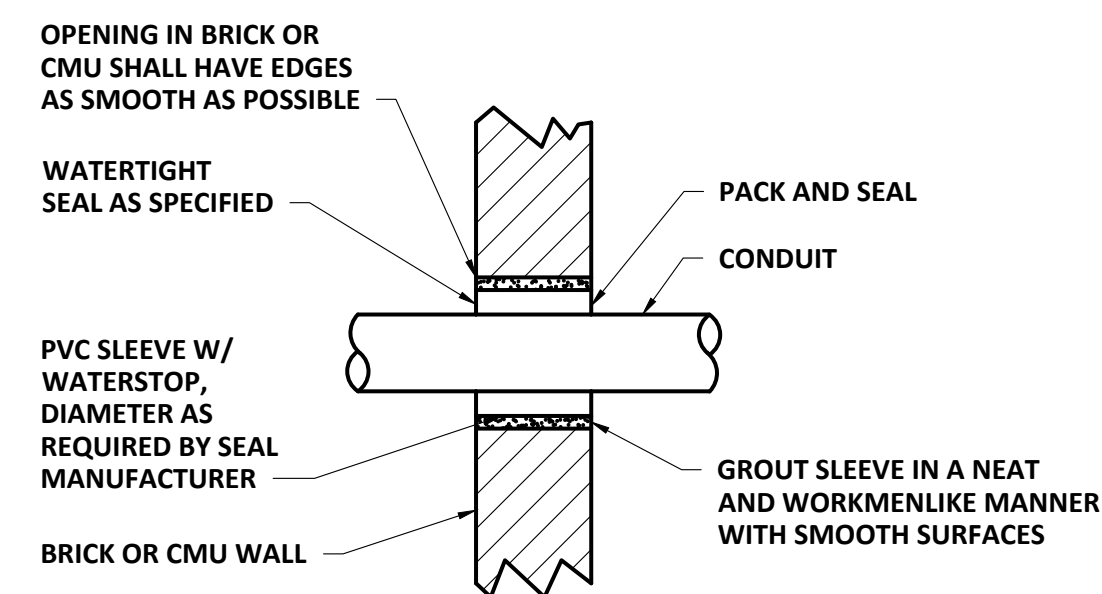
SERVICE GROUNDING SYSTEM PLAN



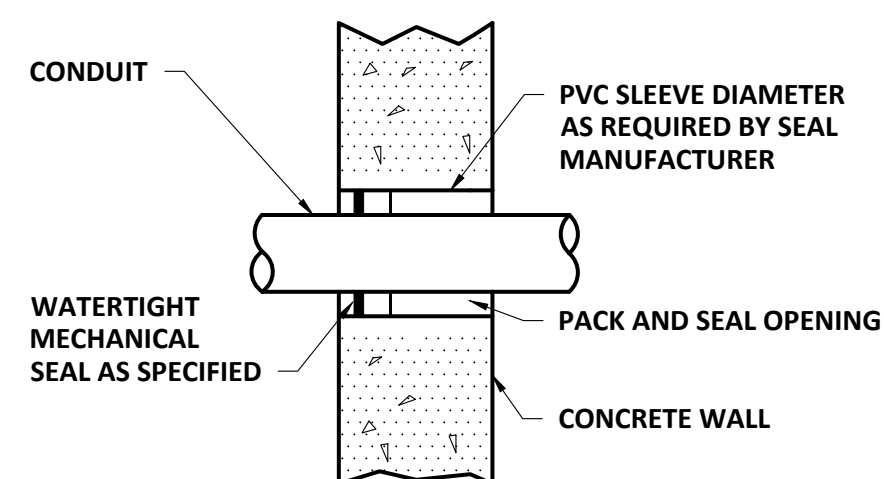
NOTES:

1. INSTALL #1/0 BARE COPPER GROUND CONDUCTOR FROM THE GENERATOR GROUND RING TO THE SERVICE EQUIPMENT GROUND VIA GROUNDING CONDUCTOR IN FEEDER CONDUIT FOR A COMMON GROUND POINT.
2. ALL GROUNDING CONNECTIONS BELOW GRADE SHALL BE CADWELD ONLY. NO MECHANICAL CONNECTIONS BELOW GRADE WILL BE ALLOWED.
3. REFER TO CADWELD GROUNDING CONNECTION DETAILS THIS DRAWING FOR ADDITIONAL REQUIREMENTS.
4. DO NOT BOND THE NEUTRAL AND GROUND AT THE GENERATOR END.
5. PROVIDE GROUND LUGS AND GROUNDING CONDUCTOR FOR THE STAIRS AS INDICATED. REFER TO ADDITIONAL GROUNDING DETAILS ON THIS DRAWING FOR ADDITIONAL REQUIREMENTS.
6. REFER TO THE STRUCTURAL DRAWINGS FOR PLATFORM AND STAIR LAYOUTS AND ADDITIONAL REQUIREMENTS.
7. THE GENERATOR OUTPUT IS NOT A SEPARATELY DERIVED SYSTEM SOURCE AND THEREFORE GROUNDING SHALL BE SOLIDLY CONNECTED TO THE SAME POTENTIAL AND INCLUDING GROUNDING SYSTEM CONDUCTORS FED TO THE AUTOMATIC TRANSFER SWITCH.

GENERATOR GROUNDING

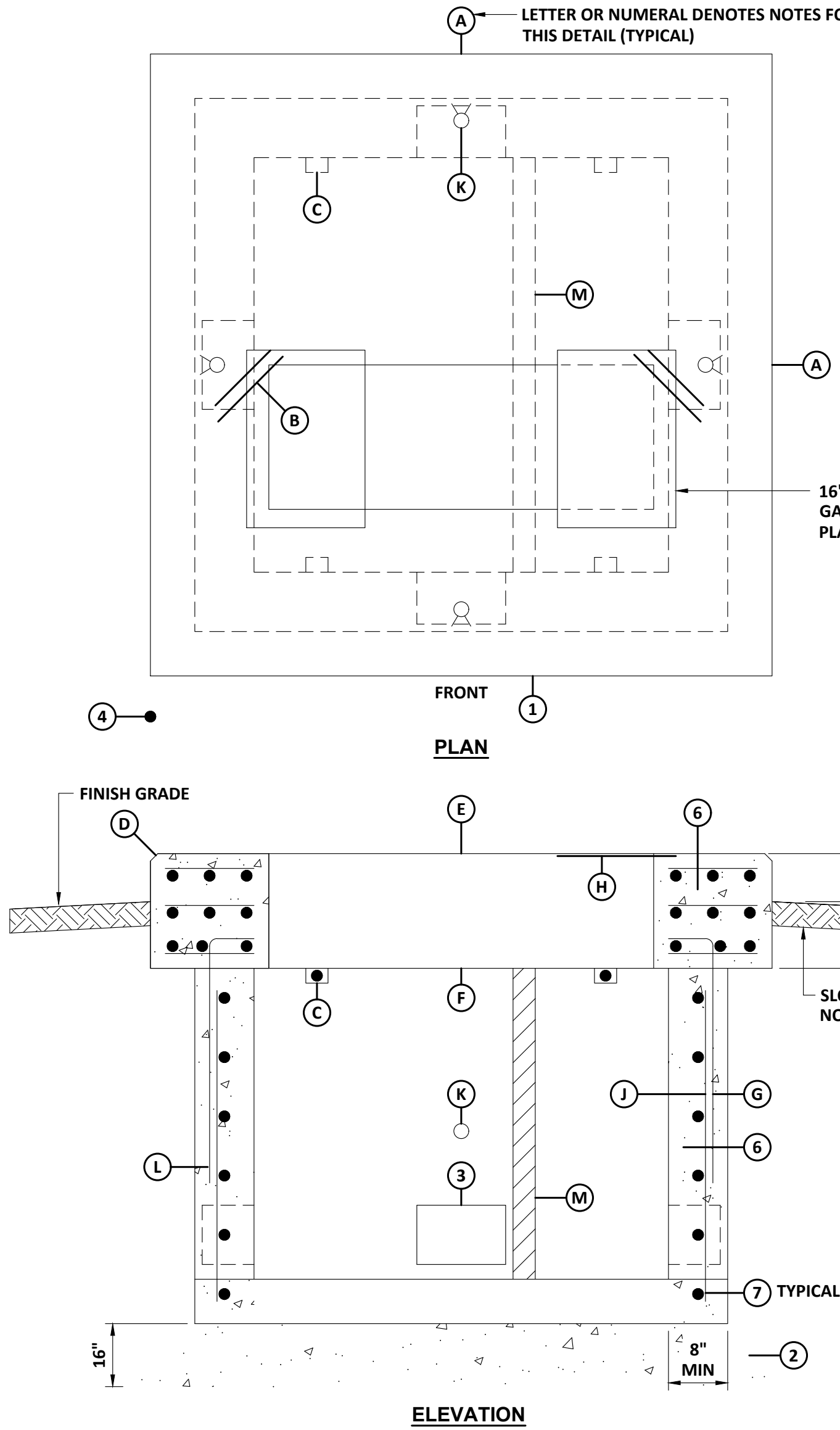


WATERTIGHT CONDUIT PENETRATION THROUGH BRICK OR CMU WALL



WATERTIGHT CONDUIT PENETRATION THROUGH CONCRETE, BRICK OR CMU WALL, FLOOR OR CEILING

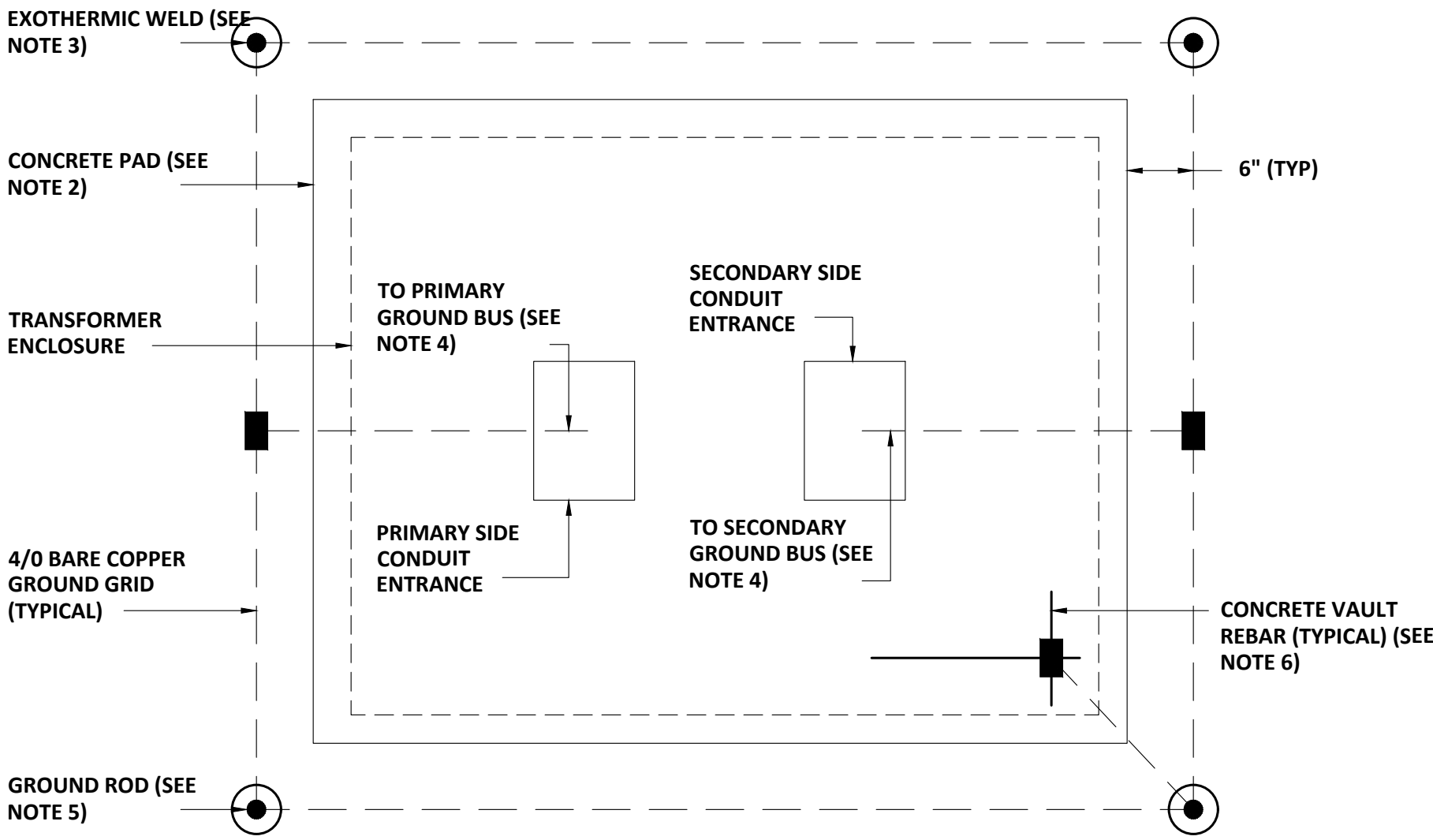
CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	ELECTRICAL DETAILS I	
---	---------------------------------	--



TYPICAL TRANSFORMER PAD DETAIL
NTS
SEE NOTE 1

NOTES (TYPICAL TRANSFORMER PAD DETAIL):

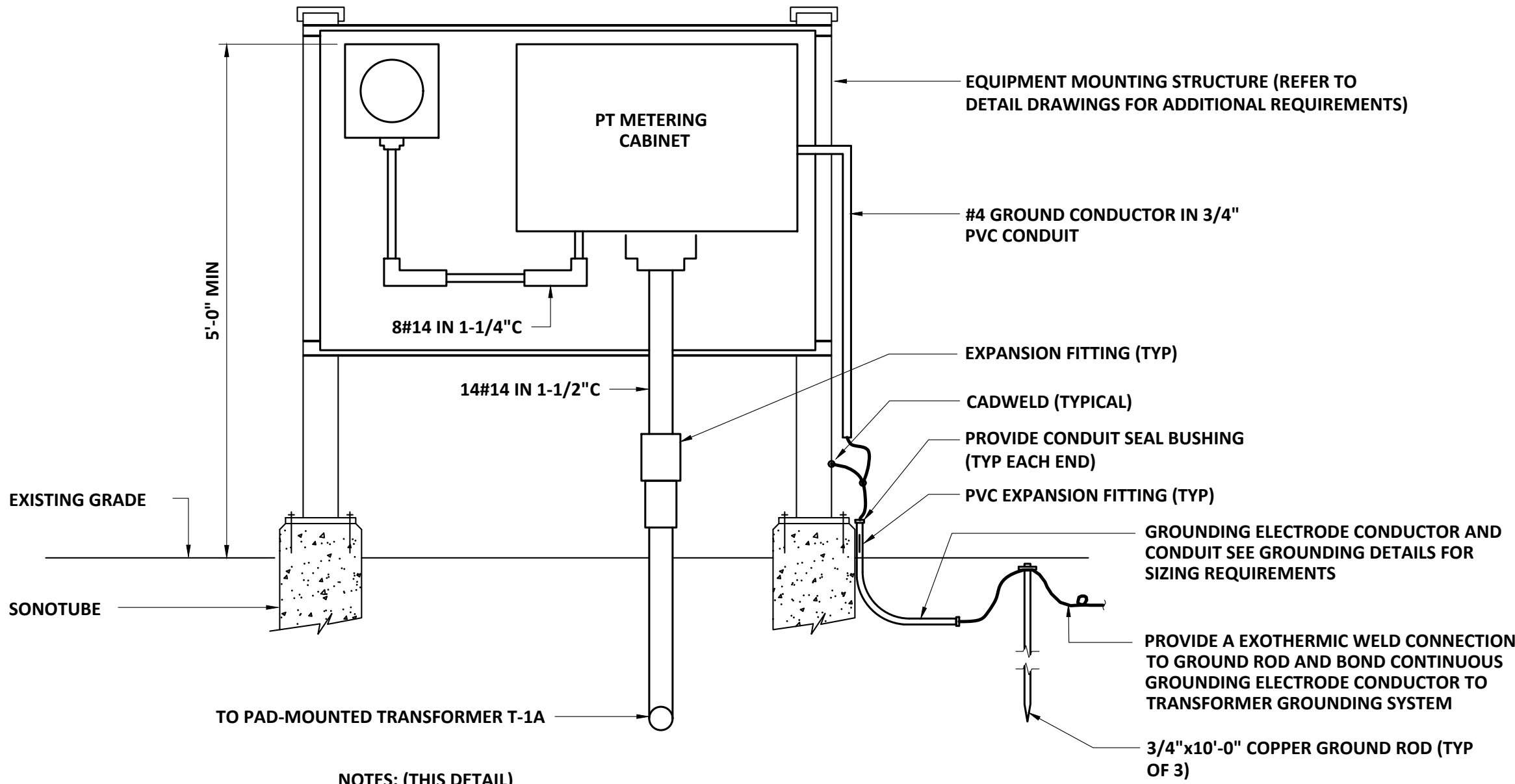
- "FRONT" DENOTES THE SIDE ON WHICH THE ACCESS DOORS ARE LOCATED. THE FOUNDATION MUST BE LOCATED SO THAT THE "FRONT" IS ACCESSIBLE BY TRUCK AND SUITABLY PROTECTED FROM PLOW AND TRUCK DAMAGE.
 - THE CONCRETE BASE SHALL BE SET ON A SUITABLE GRAVEL BASE AS NOTED. PROVIDE ADEQUATE DRAINAGE AWAY FROM THE BASE. FINISH GRADE SHALL BE GRADED AWAY FROM THE FOUNDATION.
 - PROVIDE CONDUIT BOND OUTS (SIZED AS REQUIRED FOR INSTALLATION) A MINIMUM OF 8" (TO BOTTOM) UP THE WALL FROM THE BASE. LOCATE A MINIMUM OF ONE BOND OUT PER WALL, MORE IF NECESSARY. LINE UP THE BOND OUTS WITH THE TRENCH AND DUCT BANKS AS INDICATED AND SHOWN ON THE DRAWINGS.
 - PROVIDE 3/4"x10'-0" COPPER CLAD STEEL GROUND ROD INSTALLED AS SHOWN ON THE GROUNDING PLAN THIS SHEET FOR THE TRANSFORMER PAD FOUNDATION. THE TOP OF THE GROUND ROD SHALL BE DRIVEN VERTICALLY TO 6" BELOW FINISHED GRADE.
 - PROVIDE A GROUND WIRE FROM THE GROUND GRID THROUGH THE CABLE HOLE AT THE BOTTOM OF THE PAD AS SHOWN ON THE GROUNDING PLAN THIS SHEET. ENOUGH GROUND WIRE SHALL BE PROVIDED SUCH THAT IT CAN BE INSTALLED THROUGH THE TWO GROUNDING LUGS AND CONNECTED TO THE NEUTRAL SPADE OF THE TRANSFORMER.
 - CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI @ 28 DAYS. FOR CAST-IN-PLACE EARLY HIGH STRENGTH MAY BE USED WITH A MINIMUM OF SEVEN DAY CURE TIME.
 - REINFORCING STEEL TO HAVE: FY=60 KSI.
 - FOR PRECAST UNITS: THE PRECAST SUPPLIER SHALL PROVIDE LIFTING LUGS IN THE SLAB FOUNDATION AND BASE. THE PRECAST SUPPLIER SHALL ASSEMBLE THE SLAB TO THE BASE PRIOR TO SHIPPING TO THE SITE TO ENSURE THAT THE SLAB AND BASE FIT PROPERLY (WITH NO ROCKING OF THE BASE EVIDENT).
 - THE FOUNDATION SUPPLIER SHALL SUPPLY A 16"x24"x1/4" GALVANIZED STEEL PLATE TO COVER A PORTION OF THE CABLE HOLE WHEN THE TRANSFORMER DOES NOT COMPLETELY COVER IT. THE GENERAL CONTRACTOR MAY BE REQUIRED TO CUT THE STEEL PLATE.
- A. #5 REBAR 12" ON CENTER EVENLY SPACED EACH WAY TOP AND BOTTOM.
- B. 2 #4 CORNER DIAGONAL REBAR 2'-0" LONG TOP AND BOTTOM.
- C. 4"x4"x1/2" ANGLE 6" LONG WITH (2) 3/4" DIAMETER EXPANSION ANCHORS TYPICAL - 4 PLACES (TWO PIECE PRECAST ONLY).
- D. CHAMFER TYPICAL
- E. 2" CONCRETE COVER OVER TOP REBAR.
- F. 3" CONCRETE COVER OVER BOTTOM REBAR
- G. #5 L-BAR @ 12" (CAST-IN-PLACE ONLY).
- H. 16"x24"x1/4" GALVANIZED STEEL PLATE.
- I. 6x6 WWM @ CENTER OF COVER.
- J. #5 REBAR ON 12" CENTERS.
- K. PULLING EYE INSERT, FOR USE WITH 3/4" NATIONAL COURSE THREAD EYE-BOLT, (RICHMOND LCB-1 OR EQUIVALENT), LOCATED OPPOSITE EACH CABLE HOLE AND TWO FEET FROM THE BOTTOM.
- L. ALL REBAR ENDS SHALL BE COVERED BY A MINIMUM OF 1" OF CONCRETE.
- M. PROVIDE A SUITABLE (FULL LENGTH AND HEIGHT) BARRIER WALL SEPARATING THE PRIMARY FROM THE SECONDARY CONDUCTORS AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- N. ALL CONCRETE WORK SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 3. ALL EXCAVATION AND BACKFILLING SHALL BE FURNISHED AND INSTALLED UNDER DIVISION 2. ALL WORK OF DIVISION 2 AND 3 HAS BEEN NOTED HERE FOR COORDINATION PURPOSES WITH DIVISION 16 - ELECTRICAL.
- O. THESE DETAILS ARE FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL OBTAIN TYPICAL VAULT CONSTRUCTION DETAILS FROM THE UTILITY COMPANY AND TRANSFORMER MANUFACTURER SUPPLIER AND SHALL PERFORM ALL WORK FROM THESE DETAILS. THE CONTRACTOR SHALL COORDINATE VAULT SIZES AND CONDUIT AND CABLE ENTRANCES WITH THE EQUIPMENT BEING FURNISHED AT EACH LOCATION SHOWN ON THE DRAWINGS.



TYPICAL PAD-MOUNTED TRANSFORMER
EQUIPMENT GROUNDING PLAN
NTS

NOTES (THIS DETAIL):

- PROVIDE TRANSFORMER CONCRETE PAD AND GROUNDING SYSTEM PER UTILITY COMPANY STANDARD DESIGN PRACTICES WITH THE EXCEPTION BEING THAT THIS SERVICE EQUIPMENT TRANSFORMER IS OWNED BY THE DISTRICT (OWNER) AND NOT THE UTILITY COMPANY. ALL INSTALLATIONS THEREFORE MUST ADHERE TO NEC REQUIREMENTS. COORDINATE CONDUIT ENTRANCE LOCATIONS WITH EQUIPMENT TO BE INSTALLED.
- SIZE CONCRETE PAD A MINIMUM OF 3" LARGER ALL AROUND THE EQUIPMENT TO BE INSTALLED.
- EXOTHERMIC WELD ALL CABLE TO CABLE, CABLE TO GROUND ROD AND CABLE TO CONCRETE PAD REBAR TO GROUND GIRDLE. NO MECHANICAL CONNECTIONS OTHER THAN IN ELECTRICAL ENCLOSURES WILL BE ALLOWED.
- PROVIDE SUFFICIENT GROUND CABLE LENGTH TO EXTEND TO EQUIPMENT GROUND BUS.
- PROVIDE 3/4"x10'-0" COPPER CLAD STEEL GROUND ROD DRIVEN VERTICALLY. GROUND ROD SHALL BE INSTALLED SUCH THAT TOP OF ROD IS APPROXIMATELY 6" BELOW FINISHED GRADE.
- PROVIDE A MINIMUM OF TWO GROUNDING CONNECTIONS TO REBAR IN CONCRETE PAD. CONNECTIONS TO REBAR SHALL BE IN OPPOSITE CORNERS OF PAD.
- PROVIDE AND COORDINATE CONSTRUCTION OF TRANSFORMER CONCRETE PAD WITH THE TREATMENT FACILITY AS TO THEIR SPECIFIC REQUIREMENTS FOR PAD MOUNTED TRANSFORMER INSTALLATIONS.
- TYPICAL GROUNDING SYSTEMS AND REQUIREMENTS FOR THE PAD-MOUNTED TRANSFORMERS HAS BEEN SHOWN.



NOTES: (THIS DETAIL)

- COORDINATE ALL FINAL DETAILS AND REQUIREMENTS WITH THE UTILITY COMPANY AND THE ENGINEER PRIOR TO FINAL INSTALLATION.

UTILITY SERVICE METERING
EQUIPMENT MOUNTING STRUCTURE
NTS
SEE NOTE 1 - THIS DETAIL

NO	REVISIONS	APPD	DATE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			
61			
62			
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			
73			
74			
75			
76			
77			
78			
79			
80			
81			
82			
83			
84			
85			
86			
87			
88			
89			
90			
91			
92			
93			
94			
95			
96			
97			
98			
99			
100			
101			
102			
103			
104			
105			
106			
107			
108			
109			
110			
111			
112			
113			
114			
115			
116			
117			
118			
119			
120			
121			
122			
123			
124			
125			
126			
127			
128			
129			
130			
131			
132			
133			
134			
135			
136			
137			
138			
139			
140			
141			
142			
143			
144			
145			
146			
147			
148			
149			
150			
151			
152			
153			
154			
155			
156			
157			
158			
159			
160			
161			
162			
163			
164			
165			
166			
167			
168			
169			
170			
171			
172			
173			
174			
175			
176			
177			
178			
179			
180			
181			
182			
183			
184			
185			
186			
187			
188			
189			
190			
191			
192			
193			
194			
195			
196			
197			
198			
199			
200			
201			
202			
203			
204			
205			
206			
207			
208			
209			
210			
211			
212			
213			
214			
215			
216			
217			
218			
219			
220			
221			
222			
223			
224			
225			
226			
227			
228			
229			
230			
231			
232			
233			
234			
235			
236			
237			
238			
239			
240			
241			
242			
243			
244			
245			
246			
247			
248			
249			
250			
251			
252			
253			
254			
255			
256			
257			
258			
259			
260			
261			
262			
263			
264			
265			
266			
267			
268			
269			
270			
271			
272			
273			
274			
275			
276			
277			
278			
279			
280			
281			
282			
283			
284			
285			
286			
287			
288			
289			
290			
291			
292			
293			
294			
295			
296			
297			
298			
299			
300			
301			
302			
303			
304			
305			
306			
307			
308			
309			
310			
311			
312			
313			
314			
315			
316			
317			
318			
319			
320			
321			
322			
323			
324			
325			
326			
327			
328			
329			
330			
331			
332			
333			
334			
335			
336			
337			
338			
339			
340			
341			
342			
343			
344			
345			
346			
347			
348			
349			
350			
351			
352			
353			
354			
355			
356			
357			
358			
359			
360			
361			
362			
363			
364			
365			
366			
367			
368			
369			
370			
371			
372			
373			
374			
375			
376			
377			
378			
379			
380			
381			
382			
383			
384			
385			
386			
387			
388			
389			
390			
391			
392			
393			
394			
395			
396			
397			
398			
399			
400			
401			
402			
403			
404			

DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE																				
UNIT NO.	LOCATION	REFRIGERANT	DX COOLING						DX HEATING			MOUNTING TYPE	SEER	CFM	VOLTS	PHASE	FLA	MCA	REMARKS	NOTES
			TC MBH	SC MBH	EAT DB	EAT WB	LAT DB	LAT WB	MBH	EAT	LAT									
DS-1	ELECTRICAL BUILDING	R-410A	24	18.5	80	67	58	57	26.0	68	100	WALL	21.4	775	208-230	1	0.36	1	MITSUBISHI PKA-A24HA7 OR EQUIVALENT	1,2

NOTES: 1. USE MANUFACTURER RECOMMENDED REFRIGERANT TUBING. INSULATE SUCTION & LIQUID LINES. PROVIDE PVC JACKETS.
2. PROVIDE WITH WALL MOUNTED REMOTE CONTROLLER. INITIAL SETPOINTS: COOLING 85°F, HEATING 55°F

AIR COOLED DX HEAT PUMP SCHEDULE														
UNIT NO.	LOCATION SERVED	REFRIGERANT	TOTAL MBH		SEER	COMPRESSOR		CONDENSER					REMARKS	NOTES
			COOL	HEAT		RLA	LRA	CFM	VOLTS	PHASE	MCA	MOCF		
HP-1	ELECTRICAL BUILDING	R-410A	24.0	26.0	21.4	7	11	1940	208-230	1	19	25	mitsubishi PUZ-A24NHA7-B5 OR EQUIVALENT	1,2,3

NOTES: 1. PROVIDE ALL ACCESSORIES AS REQUIRED FOR LOW AMBIENT COOLING.
2. PROVIDE WITH SEACOAST PROTECTION: EXTERNAL PANEL PHOSPHATE & ACRYLIC ENAMEL COATINGS, FAN MOTOR SUPPORT AND SEPARATOR ASSEMBLY VALVE BED EPOXY RESIN COATING, BLUE FIN COIL COATING
3. PROVIDE STAINLESS STEEL BRACKETS FOR WALL MOUNTING. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR.

ELECTRIC UNIT HEATER SCHEDULE										
UNIT NO.	LOCATION	KW	CFM	AIR TEMP RISE	VOLTS	PHASE	AMPS	NEMA	REMARKS	NOTES
EUH-1	ELECTRICAL BUILDING	2	510	12.3	240	1	9.0	12	INDEECO 926U02000JA OR EQUIVALENT	1,2

NOTES: 1. FACTORY MOUNTED AND WIRED DISCONNECT SWITCH.
2. INTEGRAL THERMOSTAT. INITIAL SETPOINT: 50°F

PANEL LP-1											
VOLTAGE: 208 / 120 PHASE: 3 WIRE: 4 AIC: 10,000 BUS RATING: 100 A				PANEL LOCATION: ELECTRICAL ROOM FEEDER POINT: TRANSFORMER T-1 MOUNTING: SURFACE MAIN TYPE: <u> X </u> MCB <u> 100 </u> TRIP AMPS							
CKT NO.	AMPS	NO. POLES	DESCRIPTION	PHASE (VA)			DESCRIPTION	NO. POLES	AMPS	CKT NO.	
				A	B	C					
1	20	1	INTERIOR LIGHTS / EMERGENCY LIGHTING	150 1000			RECEPTACLES	1	20	2	
3	20	1	EXTERIOR LIGHTING CONTROL PANEL		300 0		SPACE	2	20	4	
5	20	1	PUMP CONTROL PANEL			2000 0	SPACE	-	-	6	
7	25	2	HEAT PUMP HP-1	2280 1000			ELECTRIC UNIT HEATER EUH-1	2	20	8	
9	-	-				2280 1000		-	-	10	
11	20	1	GENERATOR BLOCK HEATER			1500 500	GENERATOR BATTERY CHARGER	1	20	12	
13	20	1	SPARE	0 0			SPARE	1	20	14	
15	20	1	SPARE		0 0		SPARE	1	20	16	
17	20	1	SPARE			0 0	SPARE	1	20	18	
19	20	1	SPARE	0 0			SPARE	1	20	20	
21	20	1	SPARE		0 0		SPARE	1	20	22	
23	20	1	SPARE			0 0	SPARE	1	20	24	
SUB-TOTAL:				4430	3580	4000					
TOTAL:				12010							
ESTIMATED DEMAND LOAD:				100%	12.0	KVA					
DEMAND LINE CURRENT:				33.3			AMPS				

LIGHTING FIXTURE SCHEDULE						
CODE	LIGHT SOURCE		MOUNTING	MANUFACTURER	CATALOG NO.	VOLTS
	TYPE	LAMPING				
D	LED	58W	CEILING OR PENDANT, SEE DRAWINGS FOR MOUNTING HEIGHT	COOPER-METALUX OR EQUAL	4VT2-LD4-6-DR-UNV-L835-CD1-VL-U	120
T	LED	40W LED	WALL *	COOPER-LUMARK OR EQUAL	LDWP-GL-4A-ED	120
X	PSLED	37W FLOOD	WALL - BKT2 HG	HOLOPHANE	PSLED P1 40K MVOLT 65 YMS 20KV GYSDP 0423 PR3 WL PCLL	120
	LED	(2) 1.5W, 3.6VDC	WALL *	LITHONIA OR EQUAL	ELM2-LED-HO	120
	LED	(1) 1.5W, 3.6VDC OR (1) 1.5W, 9.6VDC	WALL *	LITHONIA OR EQUAL	ELA-Q	3.6VDC OR 9.6VDC
	LED	(2) 1.5W, 3.6VDC OR (2) 1.5W, 9.6VDC	WALL *	LITHONIA OR EQUAL	ELA-T-Q	3.6VDC OR 9.6VDC
	LED		WALL, 7'AFF	COOPER-SURE-LITES OR EQUAL	LPX7SD	120

* REFER TO ARCHITECTURAL BUILDING ELEVATIONS FOR FIXTURE MOUNTING HEIGHTS

CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION CONDUIT SCHEDULE				
CONDUIT NO	SIZE		DESTINATION	
	CONDUIT	CONDUCTOR	FROM	TO
P1	4"	4#4/0	PAD MOUNTED TRANSFORMER	MAIN CIRCUIT BREAKER MCB-1
P2	4"	4#4/0	PAD MOUNTED TRANSFORMER	MAIN CIRCUIT BREAKER MCB-1
P3	4"	SPARE W/ PULL WIRE	PAD MOUNTED TRANSFORMER	OUTSIDE MAIN CIRCUIT BREAKER MCB-1
P4	2-1/2"	4#4/0 & 1#2 GND	MAIN CIRCUIT BREAKER MCB-1	AUTO TRANSFER SWITCH ATS-1
P5	2-1/2"	4#4/0 & 1#2 GND	MAIN CIRCUIT BREAKER MCB-1	AUTO TRANSFER SWITCH ATS-1
P6	2-1/2"	4#4/0 & 1#2 GND	GENERATOR	AUTO TRANSFER SWITCH ATS-1
P7	2-1/2"	4#4/0 & 1#2 GND	GENERATOR	AUTO TRANSFER SWITCH ATS-1
P8	2-1/2"	SPARE W/ PULL WIRE	GENERATOR	AUTO TRANSFER SWITCH ATS-1
P9	2-1/2"	4#4/0 & 1#2 GND	AUTO TRANSFER SWITCH ATS-1	POWER DISTRIBUTION PANEL PDP-1
P10	2-1/2"	4#4/0 & 1#2 GND	AUTO TRANSFER SWITCH ATS-1	POWER DISTRIBUTION PANEL PDP-1
P11	1-1/4"	3#4, 1#10 GND	POWER DISTRIBUTION PANEL PDP-1	LIGHTING TRANSFORMER T-1
P12	2"	4#1, 1#8 GND	LIGHTING TRANSFORMER T-1	LIGHTING PANEL LP-1
P13	2"	3#1 & 1#6 GND	POWER DISTRIBUTION PANEL PDP-1	VFD P-2
P14	3-1/2"	4#1 SHIELDED VFD CABLE	VFD P-2	SEWAGE PUMP P-2
P15	2"	3#1 & 1#6 GND	POWER DISTRIBUTION PANEL PDP-1	VFD P-3
P16	3-1/2"	4#1 SHIELDED VFD CABLE	VFD P-3	SEWAGE PUMP P-3
P17	1-1/4"	3#6 & 1#10 GND	POWER DISTRIBUTION PANEL PDP-1	VFD P-1
P18	2"	4#6 SHIELDED VFD CABLE	VFD P-1	SEWAGE PUMP P-1
P19	1-1/4"	3#6 & 1#10 GND	POWER DISTRIBUTION PANEL PDP-1	VFD P-4
P20	2"	4#6 SHIELDED VFD CABLE	VFD P-4	SEWAGE PUMP P-4
P21	3/4"	3#12 & 1#12 GND	POWER DISTRIBUTION PANEL PDP-1	GRINDER OEM PANEL
P22	1"	6#12 & 1#12 GND	LIGHTING PANEL LP-1	GENERATOR
P23	3/4"	2#12 & 1#12 GND	LIGHTING PANEL LP-1	EXTERIOR LIGHTING CONTROL PANEL
P24	3/4"	2#12 & 1#12 GND	LIGHTING PANEL LP-1	PUMP CONTROL PANEL
P25	3/4"	2#10 & 1#10 GND	LIGHTING PANEL LP-1	HEAT PUMP HP-1
P26	3-1/2"	SPARE W/ PULL WIRE	WETWELL	SEWAGE PUMPS VFD AREA
P27	3/4"	2#10 & 1#10 GND	LIGHTING PANEL LP-1	ELECTRIC UNIT HEATER EUH-1
P28	1"	3#12 & 1#12 GND	GRINDER OEM PANEL	GRINDER MOTOR
P29	1"	SPARE W/ PULL WIRE	GINDER OEM PANEL	GRINDER JB
P30	5"	BY UTILITY	UTILITY POLE	PAD MOUNTED TRANSFORMER
P31	5"	SPARE W/ PULL WIRE	UTILITY POLE	PAD MOUNTED TRANSFORMER
P32	NOT USED			
P33	NOT USED			
C1	1"	8 #14	AUTO TRANSFER SWITCH ATS-1	GENERATOR
C2	1"	8#14	AUTO TRANSFER SWITCH ATS-1	PUMP CONTROL PANEL PCP
C3	1"	6#14	GENERATOR	PUMP CONTROL PANEL PCP
C4	1"	8#14	SEWAGE PUMP P-1 VFD CONTROL PANEL	SEWAGE PUMP P-1
C5	1"	8#14	SEWAGE PUMP P-2 VFD CONTROL PANEL	SEWAGE PUMP P-2
C6	1"	8#14	SEWAGE PUMP P-3 VFD CONTROL PANEL	SEWAGE PUMP P-3
C7	1"	8#14	SEWAGE PUMP P-4 VFD CONTROL PANEL	SEWAGE PUMP P-4
C8	1"	SPARE	AUTO TRANSFER SWITCH ATS-1	GENERATOR
C9	1"	MANUFACTURER SUPPLIED CABLE	LSH-100/LSL-100	PUMP CONTROL PANEL PCP
C10	1"	SPARE	WETWELL	PUMP CONTROL PANEL PCP
C11	1"	4#14	GRINDER	GRINDER CONTROL PANEL
C12	1"	FUTURE	PUMP CONTROL PANEL	CAMERA #1 FUTURE
C13	1"	FUTURE	PUMP CONTROL PANEL	CAMERA #2 FUTURE
C14	1"	FUTURE	PUMP CONTROL PANEL	CAMERA #3 FUTURE
C15	1"	FUTURE	PUMP CONTROL PANEL	CAMERA #4 FUTURE
C16	1.5"	8#14	PAD MOUNTED TRANSFORMER	TO SERVICE METER/CT BOX
C17	NOT USED			
S1	1-1/2"	LOW LOSS ANTENNA CABLE	PUMP CONTROL PANEL PCP	YAGI ANTENNA
S2	1-1/2"	(2)-3/C #16 TWS	PUMP CONTROL PANEL PCP	WET WELL JB
S3	1-1/2"	(4)-3/C #16 TWS	PUMP CONTROL PANEL PCP	FLOW METER VAULT JB
S4	1"	MANUFACTURER SUPPLIED CABLE	FIT-120	FLOW METER VAULT JB
S5	1"	MANUFACTURER SUPPLIED CABLE	FIT-125	FLOW METER VAULT JB
S6	1"	SPARE	PUMP CONTROL PANEL PCP	FLOW METER VAULT JB
S7	NOT USED			

PROJECT NO: 12223G
DESIGNED: M.GHALY
CAD COORD: R.BEISAW
CAD: S.MAURO
CHECKED: S.LAPRISE
DATE: 11-2021
APPROVED: S.LAPRISE
DATE: 12-2021
SUBMISSION: CONTRACT DRAWINGS

REVISIONS

NO	DATE	

CITY OF BIDDEFORD
HORRIGAN COURT PUMP STATION UPGRADE
BIDDEFORD, MAINE

207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

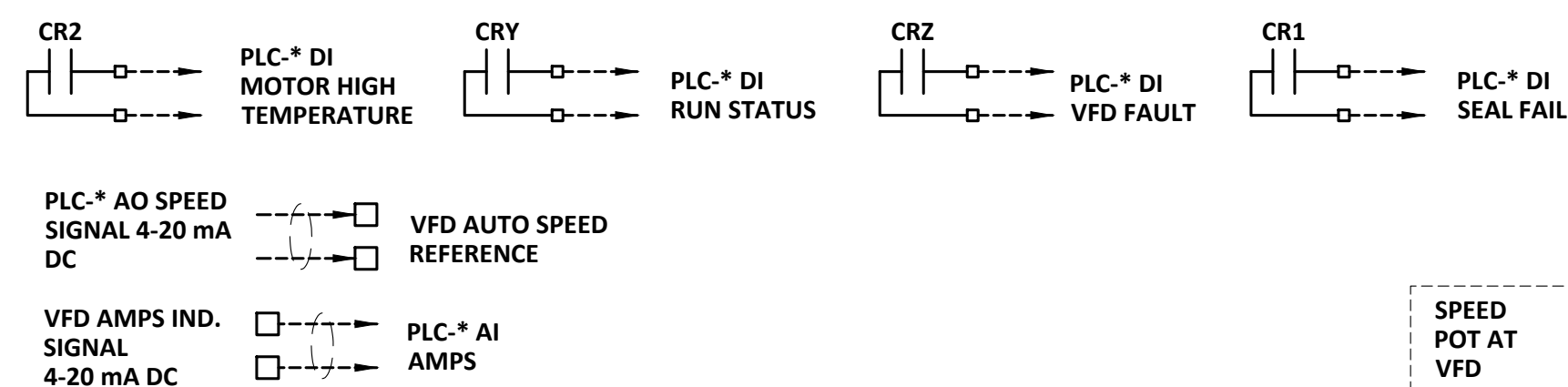
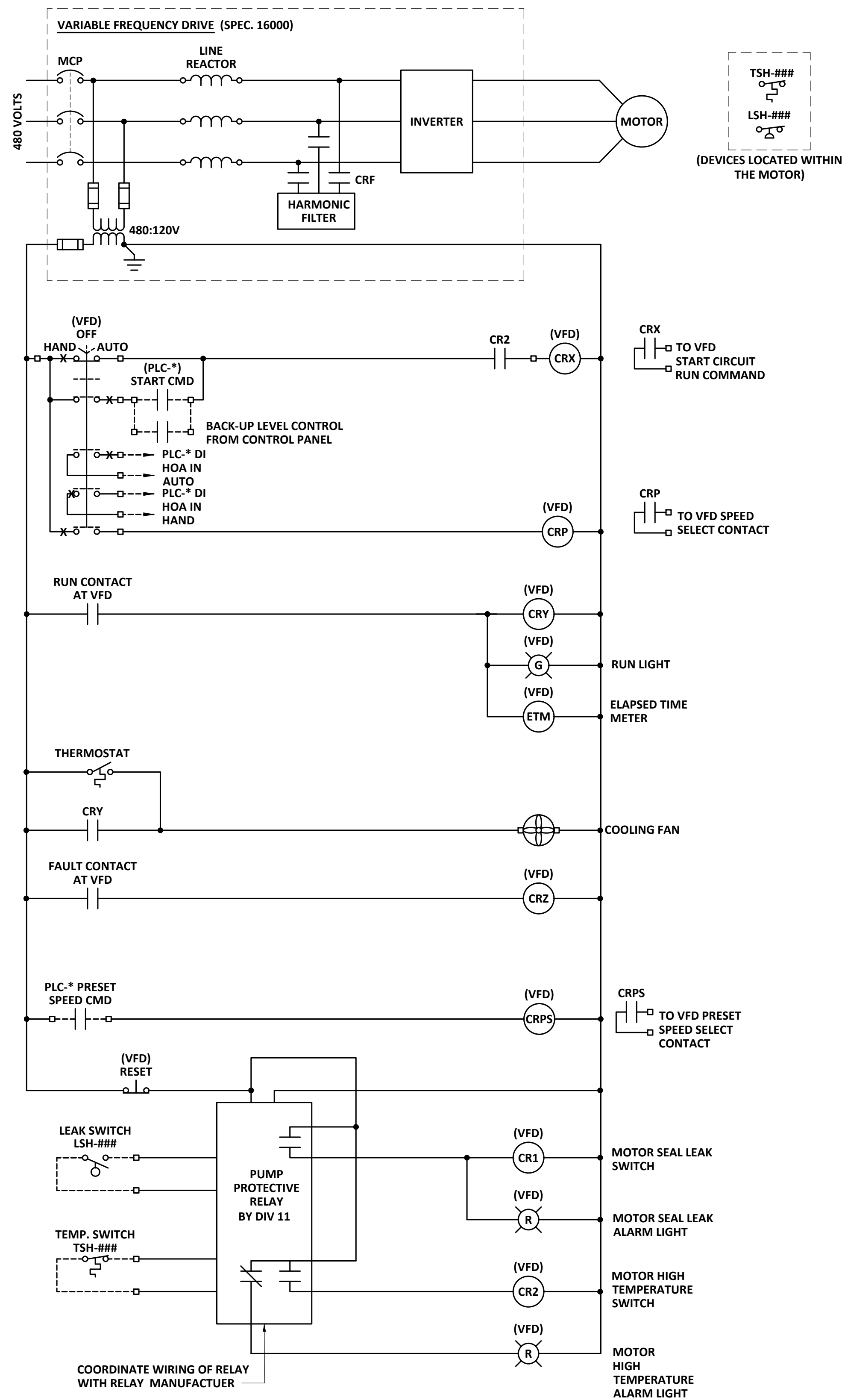
WRIGHT-PIERCE

207.725.8721 | www.wright-pierce.com
11 BOWDOIN MILL ISLAND, SUITE 140, TOPSHAM, ME 04086

ELECTRICAL SCHEDULES

E-8

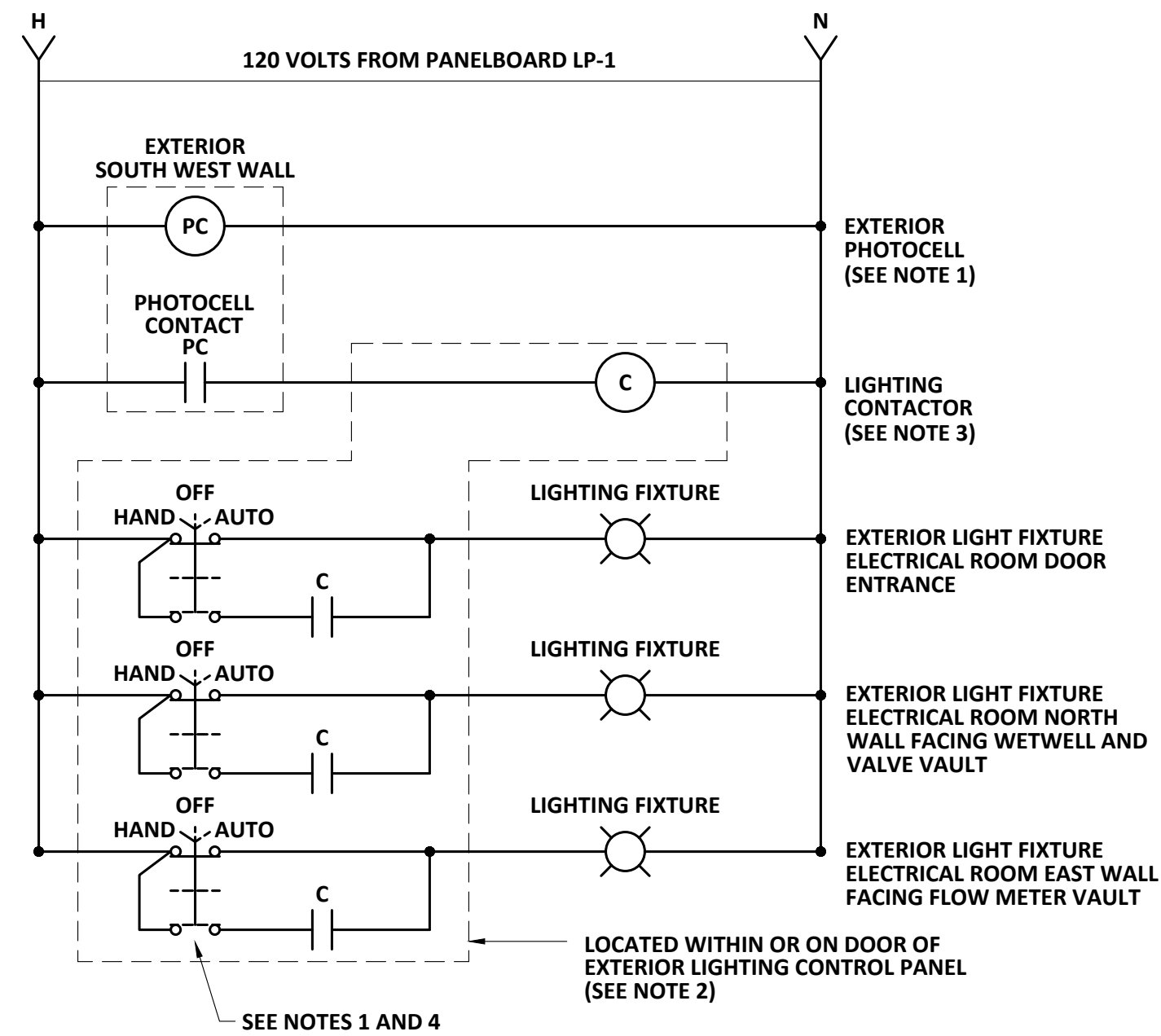
75



SCHEMATIC DIAGRAM
HORRIGAN COURT PUMP STATION SEWAGE PUMPS (P-1,2,3,4)

THE ABOVE CONTROL SCHEMATIC DIAGRAM APPLIES TO THE FOLLOWING EQUIPMENT:

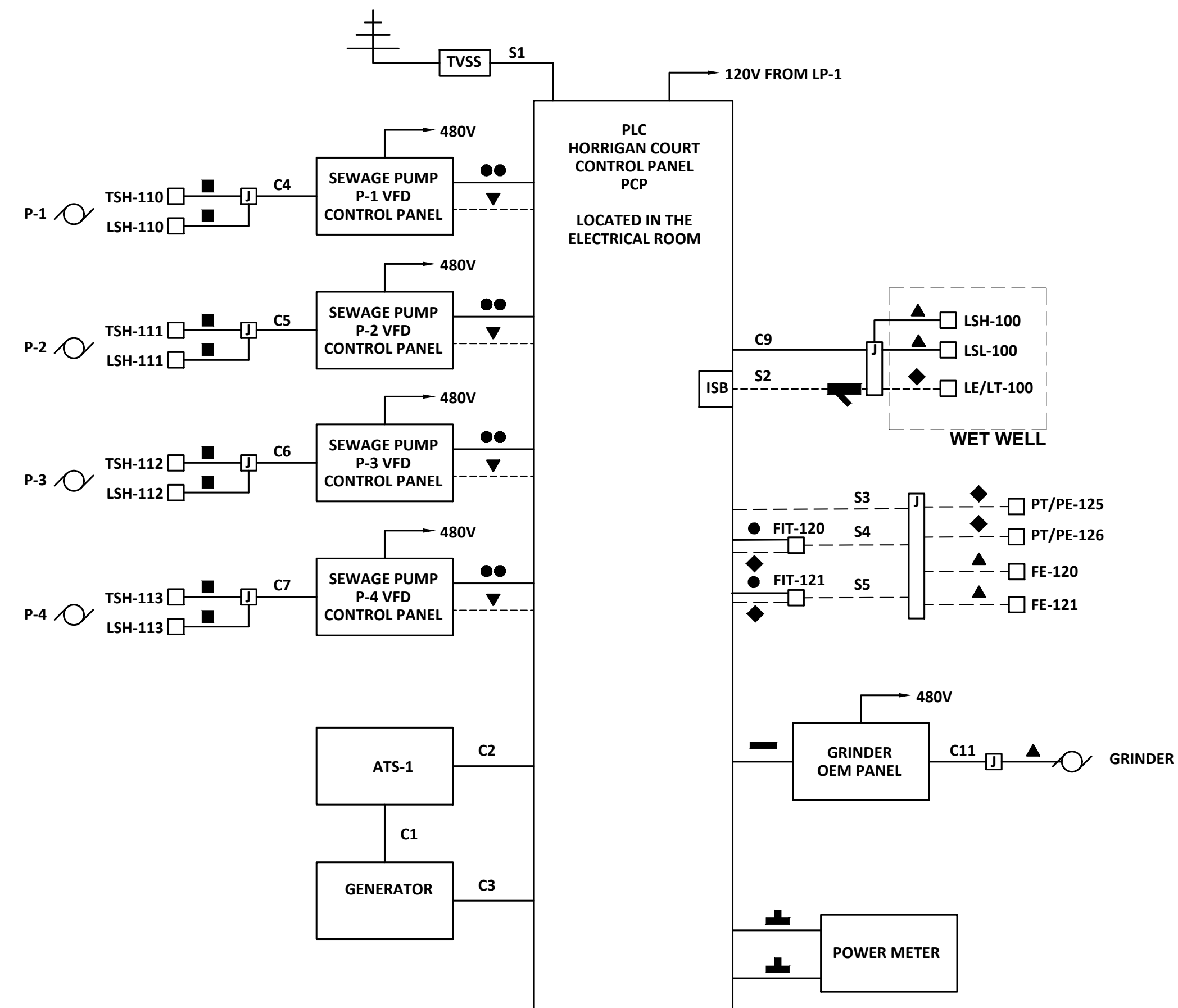
1. (HORRIGAN COURT SEWAGE PUMP P-1); LOOP(S) ### = 110, PLC-* = PCP
2. (HORRIGAN COURT SEWAGE PUMP P-2); LOOP(S) ### = 111, PLC-* = PCP
3. (HORRIGAN COURT SEWAGE PUMP P-3); LOOP(S) ### = 112, PLC-* = PCP
4. (HORRIGAN COURT SEWAGE PUMP P-4); LOOP(S) ### = 113, PLC-* = PCP



EXTERIOR LIGHTING
CONTROL PANEL ELCP-1
NTS

EXTERIOR LIGHTING NOTES:

1. PROVIDE PHOTOCELL AND LIGHTING CONTACTOR AS INDICATED ON THE SCHEMATIC AND PLANS FOR CONTROL OF THE EXTERIOR LIGHTING FIXTURE. PROVIDE A 3 POSITION MAINTAINED SELECTOR SWITCH FOR EACH EXTERIOR LIGHT SHOWN ON THE DRAWINGS. WIRE THIS SWITCH SUCH THAT THE LIGHT CAN BE SWITCHED ON, OFF OR BY SWITCHING TO AUTO, WILL ALLOW THE PHOTOCELL TO CONTROL THE OPERATION OF THE LIGHT.
2. THE LIGHTING CONTACTOR AND ALL ASSOCIATED SELECTOR SWITCHES SHALL BE LOCATED WITHIN A COMMON ELECTRICAL ENCLOSURE LOCATED AS SHOWN ON THE DRAWINGS. THE ENCLOSURE'S NEMA CLASSIFICATION RATING SHALL BE AS INDICATED ON DRAWING E-00.01 FOR THE AREA IN WHICH ITS INSTALLED.
3. PROVIDE 120V LIGHTING CONTACTOR WITH SUFFICIENT NUMBER OF CONTACTS SUCH THAT EXTERIOR LIGHT IS CONTROLLED BY ITS OWN CONTACT, UNLESS OTHERWISE INDICATED ON THE DRAWINGS. PROVIDE A MINIMUM OF TWO SPARE CONTACTS FOR FUTURE USE. SEE LIGHTING PLAN DRAWING FOR TOTAL NUMBER OF CONTACTS REQUIRED.
4. LABEL SELECTOR SWITCH SUCH THAT SWITCH IS CLEARLY IDENTIFIABLE AS TO WHICH LIGHT IT CONTROLS, I.E., NORTH WALL, SOUTH WALL, ETC.
5. A COMPLETE SHOP DRAWING SUBMITTAL WITH PANEL LAYOUT DETAILS AND DIMENSIONS ALONG WITH COMPLETE WIRING DIAGRAMS SHALL BE SUBMITTED FOR FINAL APPROVAL PRIOR TO ALLOWING INSTALLATION OF THIS EQUIPMENT.



LEGEND:

1. THE FOLLOWING SYMBOLS SHOWN ON THE CONTROL AND INSTRUMENTATION DIAGRAMS SHALL BE NOTED AS FOLLOWS:
- ▲ MANUFACTURER SUPPLIED CABLE, PROVIDE CONDUIT SIZED AS REQUIRED
 - PROVIDE 3/4" C, 4#14
 - ▬ PROVIDE 3/4" C, 6#14
 - ▬ PROVIDE 3/4" C, 8#14
 - + PROVIDE 3/4" C, 10#14
 - * PROVIDE 3/4" C, 12#14
 - ◆ PROVIDE 3/4" C, 14#14
 - ++ PROVIDE 1" C, 16#14
 - PROVIDE 1" C, 18#14
 - PROVIDE 3/4" C, 2#12 & #12 GND (POWER SUPPLY)
 - ◆ PROVIDE 3/4" C, (1)-2C #16 TWS
 - X PROVIDE 3/4" C, (2)-2C #16 TWS
 - ▽ PROVIDE 1" C, (3)-2C #16 TWS
 - PROVIDE 1" C, (2)-3/C #16 TWS
 - ┐ PROVIDE 3/4" C, CAT 6 ETHERNET CABLE

**** PROVIDE FINAL CONNECTIONS TO ALL CHEMICAL METERING PUMPS USING HEAVY-DUTY, EXTRA-FLEXIBLE, WATER AND CHEMICAL RESISTANT CABLES. CONDUCTORS SHALL BE NO.18 AWG. ALL CONNECTIONS SHALL BE MADE WATERTIGHT. REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION.**

NOTES:

1. FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES, REFER TO DRAWINGS E-1 AND E-2.
2. FOR INFORMATION REGARDING CONDUIT AND WIRING REQUIREMENTS, REFER TO GENERAL NOTES 19 AND 20 ON DRAWING E-2.

CITY OF BIDDEFORD HORRIGAN COURT PUMP STATION UPGRADE BIDDEFORD, MAINE	ELECTRICAL SCHEMATICS	
---	----------------------------------	---

PLANNING BOARD
REPORT

January 27, 2022

Biddeford Planning Board
Greg Tansley, City Planner
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Application: Windward Ridge – Ginger Hill, LLC
918 Pool Street (Tax Map 4 Lot 48)

Subdivision Final Plan Review

Review Status: Final Approval.

Board members and Mr. Tansley,

The following application and attached information has been provided for review:

1. Application form dated 9/15 /2021.
2. Cover letter and Application Submission entitled: *Final Subdivision Application for Winward Ridge Subdivision, located at 918 Pool Street, Biddeford, Maine 04005, Map 4. Lot 57. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 1/12/2022. This includes Declaration of Covenants & Restrictions, Fire Department Review Comments and Stormwater Report.
3. Engineering Plan set entitled: *Winward Ridge Subdivision, 918 Pool Street, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, REV. date 1/12/2022.
4. Response to Comments Letter: *RE: Response to Engineer Review, Winward Ridge & Leeward Meadows Subdivisions, Biddeford, Maine.* Prepared by Walsh Engineering Associates, dated 1/20/2022.

With review of the above information and the Land Development Regulations and Subdivision Ordinance, I offer the following comments on compliance with the City's ordinances. See attached for remaining outstanding engineering related comments from Site Design Associates. Responses to the previous comments are in red.

PROJECT DESCRIPTION

The applicant seeks to create 6 residential lots along a proposed 750-foot private road on a 11.8 AC parcel located mostly in the Rural Farm (RF) zone with approximately 80k SF in the Conservation Residential (CR) along Pool Street. The site includes two large freshwater wetlands on a forested undeveloped parcel.

COMPLETENESS REVIEW

The application is before the Planning Board as required by Chapter 66 (Subdivisions) subject to Subdivision review and approval. Per the City's Subdivision ordinance (66-26), all applications have a three-tier approval process beginning with a Sketch plan review. The Planning Board reviewed the Sketch Plan in July, and preliminary application in November of 2021. The applicant has submitted a final plan submission for review that appears to be complete.

COMPLIANCE WITH THE CITY'S ORDINANCES

The proposed minimum lot sizes and net density calculations appear to be in order. Required setbacks and buffers are also depicted, however, the overall development design is not as reflective a cluster development as it could be.

City Staff, including Long Meadow P&LA and Site Design Associates, have had an opportunity to share comments on an earlier submission prior to placing the application on the Board's agenda. The following are comments and recommendations that Board, and the applicant may want to consider:

AGRICULTURAL SOILS (Sec. 66-2)

In speaking with the State Soil Scientist's office and the NRCS, it appears the soils listed in the HISS prepared by Mark Hampton, Associates do not include the specific soils listed as prime agricultural or having state-wide significance. It was suggested, however, that if the project used federal aid or funding, that an application to the NRCS regarding agricultural and state-wide significant soils was required since its medium intensity soil surveys depict these soils on the property.

As requested the City Planner contacted Wayne Munroe at the NRCS office in Scarborough, and he agreed that a Medium Intensity Soil Survey (MISS), which is used to determine prime agricultural or having state-wide significance would not overrule a High Intensity Soil Survey (HISS). Mr. Munroe added that once the Soil Series are identified (mapped at the higher intensity development standards) the web soil survey (medium intensity) can still be used to identify the HISS mapped Soil Series site limitations and capabilities for various proposed land uses. It is Staff's understanding that the applicant's soil scientist reviewed this information and identified that there were no prime agricultural or having state-wide significance on the site.

OPEN SPACE DESIGN

Though this is one parcel with two zones, it shouldn't unnecessarily limit the overall cluster development for the property. The zoning ordinance provision for min. lot size for septic (20k) in Sec. 16 (Cluster developments) can be applied to both the CR and RF zones alike. As it is applied in the RF zone, 20k needs to be net developable in the CR zone too. A sketch was provided to the applicant with this suggestion and the agent's response to comments are based on that sketch. The attached revised sketch is based on the most recent plans submitted and should result in an overall site design that is more definitively a clustered development; smaller lots, less roadway and more contiguous open/conservation space. The location of the proposed lot 6 does not reflect the basic objectives of a cluster development, essentially to minimize the overall development footprint while maximizing contiguous open space. The latter should be more than simple arithmetic, meeting a specific square foot number as to size of the open space. An appropriate design of open space should not result in land that is contiguous through slivers of land connecting larger areas. **The design has been revised and provides a more characteristic cluster development with the majority of the lots being close to the minimum lot size permitted.**

The applicant would prefer to maximize the clearing of each proposed lot's building envelope to provide the most flexibility for siting the buildings. Considering the shape of the proposed open space, maintaining no-cut rear and some side setbacks would be an added benefit to the overall success of the open space as a natural resource habitat. **This does not appear to be addressed by the revised plans. At a minimum, perhaps a no-cut/no disturb rear yard setback for lots 1 and 6 and the rear and side yard setback for lot 5 that is adjacent to the abutting property should be considered. If it is considered, the Subdivision Plan should be revised, and the restriction be included in the respective new lot deeds.**

PRESERVATION IN PERPETUITY

As outlined in Sec. 16.E, Article VI of the Land Development Regulations, Open Space in a cluster development shall be preserved by means of a conservation easement held by a third party or held by the HOA by means of its declarations and covenants. The draft HOA documents does not appear to include any language related to the open space being preserved in perpetuity. **The HOA documents have been revised to address this comment. (See Art. III, Sec. 2)**

HOMEOWNERS ASSOCIATION DOCUMENTS

1. If not conveyed to a land trust the opens space (*common area*) for conservation should be more defined in terms of management, ideally a plan from plant/wildlife biologist, so it is clear to the HOA what it means *to preserve the habitat of the "Open Space" as much as possible.* (Art.3 Sec.2. The permission for the directors to remove dead and/or dying trees should be for purposes related to safety, not in general since most natural habitats benefit from dead trees. **The HOA documents have been revised to address this comment. (See Art. III, Sec. 2)**

2. Art. VI Sec. 12.d should include a reference to receiving Planning Board approval if granting easements is not reflected on the approved subdivision plan. Art VIII Sec. 2 should be subject to Board approval of an amended plan as well. **The HOA documents have been revised to address this comment.**
3. Encroachment of the open space by the homeowners or abutters should be addressed in terms of accountability as it relates to the open space being undeveloped and/or clearing that is contrary to the approved plan. **The revised documents address this comment (See Art. 6 Sec. 12.D).**
4. There does not appear to be any sections that address the shared maintenance of the private street, especially having the responsibility of contacting or ensuring that snow is removed in a reliable manner to aid in public safety access. **The revised documents address this comment (See Art. 6 Sec. 12.A).**

BUFFERING.

The proposed roadway from Pool Street incurs a great deal of clearing and grading (Sheet C2.3) outside of its Right-Of-Way, that will result in a significant hole in what is now is dense woodland edge. Plantings of trees and shrubs should be considered to either side of the entrance within the lot and open space land that would provide an adequate screen and soften the associated clearing. **This does **not** appear to have been addressed by the revised plans.**

PLAN RECOMMENDATIONS

1. A Stamped and signed final Boundary Survey should be submitted. **Submitted.**
2. The Existing Conditions Plan references GIS topography/contour data. Is this adequate for final road and site grading design? **Plan reference 1 on Sheet C1.0 reflects other sources of topographic data. Applicant should clarify what is used for the road design**
3. The Subdivision Plan should be prepared and certified by a Professional Land Surveyor, licensed in Maine. **Submitted.**
4. The Subdivision Plan appears to not include typical/standard notes found on surveys and subdivision plans, e.g. deeds, ownership, plan references.... The latter is referenced to the cover sheet, however, the Subdivision Plan will be recorded and ideally should be one sheet, unless multiple sheets are recorded as well. **The revised plan addresses this comment.**
5. The Subdivision Plan notes should reflect any applicable requirement City zoning or subdivision requirements, e.g. 75-foot buffer in the RF zone and Open Space preserved in perpetuity. **The buffer being part of the open space is not as much of an issue. The following is a suggested plan note to reflect the cluster and open space requirements:**
This six-lot single family residential subdivision is approved as a cluster development pursuant to Article VI, Section 16 of the City's Land Development Regulations, and includes the designated open space in perpetuity.

6. The plans should include signatory blocks and recording blocks where necessary. **The revised plans address this comment.**
7. Plan note 4 on Sheet S1.0 should be more specific and reference the actual declaration of covenants and restrictions and the conservation easement.

FIRE SAFETY

Chapter 30-87 requires underground fire suppression tanks for new (private/public) subdivisions, which are located outside the hydrant districts. The applicant should review the ordinance and coordinate with the Fire Department and demonstrate compliance prior to final approval. **The revised plans address this comment.**

WAIVER REQUESTS

None requested.

CONCLUSION

The Final Plan appears to be complete for the Planning Board's consideration and conforming in consideration of the above comments. If the Board is inclined to grant final approval it should consider it being with conditions that address all outstanding comments from board members, City Staff and peer-reviewers.

Feel free to contact me with questions.

Best regards,



Christopher Di Matteo
City of Biddeford Contract Planner.
cdimatteo@longmeadowpla.com
207.604.4245

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Pursuant to the provisions of the City of Biddeford Code of Ordinances Chapter 66 (Subdivisions), Conditional Uses (Article VII), and the Land Development Regulations, Article VI, Section 16 Cluster development, the Biddeford Planning Board has considered the application of **Ginger Hill, LLC for a six-lot cluster development subdivision at 918 Pool Street**, including supportive data, public hearing testimony and related materials contained in the record. Based on Public Comment and Staff's review and recommendation, the Planning Board makes the following Findings of Fact and Conclusions of Law:

Findings of Fact:

1.	Applicant and Owner	Emily Ingwersen Ginger Hill, LLC 18 Early Way, Arundel, ME 04046
2.	Agent:	William R. Walsh III, PE, Walsh Engineering Associates, Inc 1 Karen Drive, Westbrook, ME 04092
3.	Surveyor:	Titcomb Associates 133 Gray Road, Falmouth, ME 04105
4.	Project Location:	918 Pool Street
5.	Project Tax Map #/Lot #:	Tax Map 4 Lot 48
6.	Lot Size:	11.8 AC +/-
7.	Existing Zoning:	Coastal Residential / Rural Farm
8.	Overlay Zoning:	None
10.	Existing Use:	Vacant
11.	Proposed Use:	Six Lot Single Family Clustered Subdivision
12.	Floodplain Status:	None
13.	Approvals Required:	Subdivision Plan Review
14.	Uses in the Vicinity:	Residential
15.	Dimensional Requirements:	
	Min. Setback from Major R.O.W:	Min. Lot Size: 20,000 SF/ Unit*
	40FT/ Other R.O.W: 25 FT	*Clustered development
	Minimum Side/Rear Setback:25 FT	Maximum Height: 3 stories / 35 FT
16.	Waivers Needed:	
	a. None	
17.	Waivers Granted:	None
18.	Variances Needed for Approval:	None.
19.	Other Approvals Required:	Building Permits from the Biddeford Code Enforcement Office.
20.	Other Permits Obtained:	None.
21.	Other Non-City Permits Required:	MDEP

22.	LDR Attachment A: Fees Paid:	Yes
23.	Application Materials Submitted: 1. Application form dated 9/15 /2021. 2. Cover letter and Application Submission entitled: Final Subdivision Application for Winward Ridge Subdivision, located at 918 Pool Street, Biddeford, Maine 04005, Map 4. Lot 57. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046. Prepared by Walsh Engineering Associates, dated 1/12/2022. This includes Declaration of Covenants & Restrictions, Fire Department Review Comments and Stormwater Report. 3. Engineering Plan set entitled: Winward Ridge Subdivision, 918 Pool Street, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046. Prepared by Walsh Engineering Associates, REV. date 1/12/2022. 4. Response to Comments Letter: RE: Response to Engineer Review, Winward Ridge & Leeward Meadows Subdivisions, Biddeford, Maine. Prepared by Walsh Engineering Associates, dated 1/20/2022.	
24.	Planning Board Review History:	
	A. Conceptual Review	Meeting on July 7, 2021
	B. Preliminary Review	Meeting on November 3, 2021
	C. Final Review	Meeting on February 2, 2022

Conclusions of Law:

The Planning Board concludes based on the application information submitted, peer-review and staff reports prepared and testimony provided at their meetings, the application conforms to the following provisions:

A. Section 66-39 (below) applicable standard and requirements of Chapter 66 of the City's subdivision ordinance:

1. The project will not result in undue water or air pollution.
2. The project has sufficient water available for the reasonably foreseeable needs of the subdivision;
3. The project will not cause an unreasonable burden on an existing water supply, if one is utilized;
4. The project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy, condition may result;
5. The project will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highways or public roads existing or proposed;
6. The project will provide for adequate sewage waste disposal;

7. The project will not cause unreasonable burden on the ability of the municipality to disposal of solid waste and sewage if municipal services are to be utilized;
8. The project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas or public rights for physical or visual access to the shoreline. 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;
9. The project is in conformance with a duly adopted subdivision regulation or ordinance, Comprehensive Plan, development plan, or land use plan, if any.
10. The subdivider has adequate financial and technical capacity to meet the above stated standards;
11. Whenever situated, in whole or in part, within 250 feet of any lake, pond, river or tidal waters, the project will not adversely affect the quality of that body of water, or unreasonably affect the shoreline of that body of water, as indicated on the City of Biddeford, Official Zoning Map and referenced in the City's Comprehensive Plan;
12. The project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of ground water;
13. The project is not in a flood prone area;
14. The project will not unreasonably obstruct abutting properties or structures access to direct sunlight;
15. If any portion of the site has been identified as containing historic or archaeological resources, the development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of construction.

B. Section 16, Cluster development, Article VI Performance Standards and other applicable standards of the of the City's Land Development Regulations.

C. Article VII Conditional Uses of the City's Land Development Regulations, including Section 6 Standards:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;

5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties, which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal.
10. The proposed use would be in compliance with Biddeford's comprehensive plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
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 project (and for fire protection purposes, if applicable.)
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, historic sites, archeological resources, or on significant wildlife habitat or wetland areas and water bodies, which could be avoided by reasonable modification of the proposal;

Determination:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the application with the following conditions:

Conditions of Approval:

1. Prior to any ground disturbance:

- a. All outstanding review comments from the contract planner and the Planning Board shall be addressed to the satisfaction of the City Planner.
- b. Remaining comments from the 3rd Party Review Engineer shall be addressed as follows:
 - i. The applicant updated the Plan/Profile drawing with the required notes, as previously requested. The notes shall be added to the subdivision plan which will be recorded at the York County Registry of Deeds. Provide a Road Maintenance Agreement (Section 51.D.6. of the code) for city review prior to recording at the York County registry of Deeds.
- c. A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.
- d. A Unit Cost Estimate on City form shall be submitted to the City Planner for review.
- e. An Erosion and Sedimentation Control Performance Guarantee (acceptable to the Planning Department) in an amount to be determined by the City based on Condition of Approval 1.d. shall be submitted to the Planning Department.
- f. All erosion and sediment control measures need to be installed. Applicant shall notify the Engineering Department once installed so that Staff may inspect said installation, as necessary.
- g. The applicant must submit a recorded copy of the subdivision plan to the Planning Department.
- h. A Stabilized Construction Access shall be constructed and maintained through the duration of this project.

2. Prior to the sale or conveyance of any lot/unit or the issuance of any permits:

- a. The applicant shall submit recorded copies of all easements/agreements, home owners association documents, and the road maintenance agreement. All open space transferals (in fee or by easement) shall be recorded and submitted to the Planning Department.
- b. The Planning Department shall conduct a compliance inspection and shall determine that all required site improvements related to the public's health, safety, and welfare have been completed, and that the City holds a Performance Guarantee sufficient to cover any remaining site improvements and/or deficiencies.
- c. A performance guarantee (acceptable to the Engineering Department) in the amount of 150% of any remaining site improvements shall be submitted to the

Planning Department. Amount to be determined based on City inspections and the recommendation of the City Engineer.

- 3. Best management practices shall be adhered to during all ground disturbance operations.**
- 4. Copies of the maintenance logs for any stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.**
- 5. 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, unless authority issuing said permit allows for such actions.**
- 6. Once completed, as-built drawings of the site shall be provided to the Planning Department.**
- 7. Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approved plans.**
- 8. Standard Conditions of Approval apply.**

Planning Board Chairman

Date

From: Tansley, Greg
To: ["Munroe, Wayne - NRCS, Scarborough, ME"](#)
Subject: FW: [External Email]Biddeford Planning Board and Subdivision projects
Date: Tuesday, November 16, 2021 5:14:00 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)

Hi Wayne,

Just to keep you informed, I provided your response to the applicant's team. Their response is below

Thanks for assisting with this.

Respectfully,

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

From: Connor Ritter <connor@Walsh-eng.com>
Sent: Tuesday, November 16, 2021 3:45 PM
To: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Cc: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>; Eddy, Mathew <Mathew.Eddy@Biddefordmaine.org>; Emily Ingwersen <emily@gingerhilldesignbuild.com>; Robert Ingwersen <rob@gingerhilldesignbuild.com>; Bill Walsh <bill@Walsh-eng.com>
Subject: RE: [External Email]Biddeford Planning Board and Subdivision projects

Hi Greg,

Thanks for keeping us in the loop on this. I'm not sure of what was asked of Mr. Munroe originally, but his response does well to elaborate on the available soil identification tools and purposes. In addition to advising for a high intensity soil survey to provide additional details of on site soils, Mr. Munroe's response refers us to the Web Soil Survey data set, which we have included as part of Appendix C in the stormwater report in our submissions for each project. Based on the web soil survey and the high intensity soil survey conducted by licensed Soil Scientist Mark Hampton, we maintain that there are no soils unsuitable for development in the rural farm zone under the Biddeford Land Development Regulations Article VI, Section 44, Item A.5.

Thanks,
Connor

Connor Ritter, EIT



One Karen Drive, Suite 2A
Westbrook, ME 04092
P: (207) 553-9898, Ext 105
www.walsh-eng.com



This transmission is intended only for the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this communication is not the intended recipient, or an employee or agent responsible for delivering the communication to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error please contact the sender at 207-553-9898.

From: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Sent: Tuesday, November 16, 2021 3:07 PM
To: Connor Ritter <connor@Walsh-eng.com>
Cc: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>; Eddy, Mathew <Mathew.Eddy@Biddefordmaine.org>; Emily Ingwersen <emily@gingerhilldesignbuild.com>; Robert Ingwersen <rob@gingerhilldesignbuild.com>; Bill Walsh <bill@Walsh-eng.com>
Subject: FW: [External Email]Biddeford Planning Board and Subdivision projects

Hi Connor,

Please see below. It appears this email went out the day after the Planning Board meeting. I don't know what was asked, but below was the response.

I have attached the same documents I sent to Mr. Munroe.

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

From: Munroe, Wayne - NRCS, Scarborough, ME <wayne.munroe@usda.gov>
Sent: Tuesday, November 16, 2021 2:45 PM
To: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Subject: RE: [External Email]Biddeford Planning Board and Subdivision projects

Greg,

Below please find my response to recent [\(11/04/21\) Richard Rhames discussion](#) regarding the Biddeford Conservation Commission review of a few planned Subdivisions before the Biddeford Planning Department.

Your transcript context "violently disagrees" is simply inaccurate. I do disagree to any suggestion that the York County Published Soil Surveys is estimated at only 20 percent accuracy! The original published Soil Surveys were cleaned up to professional digital standards before release in the Web Soil Survey which is the recommended database to use for up to date Soil Maps along with capability and suitability ratings for various land uses.

My final communication put forth on the subject remains the same as the quoted conversation below. I wish the Biddeford Planning Board the best in carrying out your Mission.

"Richard,

Thanks for the update.

NRCS published County Soil Surveys, Web Soil Survey data follow National Cooperative Soil Survey Standards.

Furthermore, all original Soil Surveys published in the USA have undergone additional quality review criteria before becoming digital soil map data as now available in the Web Soil Survey data set.

More detail on site mapping to a higher intensity detail is always advised to identify land use limitations and soil properties associated with soil series inclusions not mapped at the Medium Intensity level.

An example of a higher intensity soil survey requirement is Private Septic System requirements by Maine State Plumbing code demanding on site soil testing procedure associated with Septic design by a licensed soil scientist.

My USDA NRCS Position (District Conservationist) involves comprehensive use of Soil Surveys applying professional use of the published Maps and data to identify on site limitations and land use interpretation.

I highly trust in the Standards of the United States Cooperative Soil Survey Mapping protocols that assures Soil Science quality criteria is met before publication of County Soil Surveys and modern digital data now available.

Any novice user of County Soil Surveys and Web Soil Survey may read the disclaimer regarding on site soil inclusions that may exist beyond the Medium Intensity Maps, not to be confused with potential gross soil map inaccuracy .

The Biddeford Planning Department subject to City Standards and Protocols may want to correlate proposed development higher intensity soil map results with the potential inclusions commonly

associated with mapped soils at the Medium Intensity Soils Survey and or Web Soil Survey Map results.

The identified Soil Series (mapped at the higher intensity development standards) may then use the soil limitation data available in the Web Soil Survey data set.

Best wishes and intentions for the Biddeford Planning Department to achieve high integrity results in carrying out their Mission.

Wayne,”

STATE OF MAINE SOILS CATENA KEY

The soil catena concept is a useful guide to understand the complex nature of soils that blanket the landscape. A soil catena is a sequence of soil series that extend across relief positions and are developed from similar parent material. Relief influences soil formation primarily through its effect on drainage, runoff, and erosion. The key that follows uses the catena concept by matching parent material and drainage for each series. This is helpful in identifying the relationship of one series to others. It is intended to be used only as a guide; the Official Series Description should be used to identify the soil being evaluated.

(Series listed in *Italics*) have a mesic soil temperature regime and are no longer used in Maine except in parts of York and Cumberland Counties.)

Good Luck!

Wayne,

Wayne P. Munroe
District Conservationist
Natural Resources Conservation Service
306 US Route One, Suite A1
Scarborough, ME 04074

“Helping People Help the Land”

Voice: (207) 883-0159 (ext. 2803)
Cell: (207) 232-1350
Fax: 1-855-603-3570
Email: Wayne.Munroe@USDA.GOV

From: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Sent: Tuesday, November 16, 2021 2:17 PM
To: Munroe, Wayne - NRCS, Scarborough, ME <wayne.munroe@usda.gov>
Subject: [External Email]Biddeford Planning Board and Subdivision projects

[External Email]

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;
Use caution before clicking links or opening attachments.
Please send any concerns or suspicious messages to: Spam.Abuse@usda.gov

Hi Wayne,

I don't think we have ever met. I am the Deputy Director of Planning and Development in Biddeford.

I tried calling earlier but you are not in the office today. On Nov. 3 during the Biddeford Planning Board's review of a subdivision proposal here in Biddeford your name came up several times. Mr. Richard Rhames of the Conservation Commission mentioned he had spoken to you about this project at 158 Oak Ridge Road, and mentioned he has spoken to you maybe earlier about the south street Village project as well.

His message to the Board came off as that you do not agree with Mark Hampton on certain things, and in fact "violently disagreed", as Richard put it. Given the nature of the disagreement (with a professional who has submitted materials as part of a Planning Board application) and the use of the word "violently", I was compelled to let the Board I would reach out to you to try to get a better understanding of your position. Given Mark Hampton has provided a HISS for each of these projects and that a Conservation Commission referred to you by name as disagreeing with Mr. Hampton it casts enough doubt out there that the Board Chair asked me if I would follow up with you.

The root of all of this is in the recent May 2020 NRCS updated map for York County. The attached catena was provided to me as a helpful resource. Mr. Rhames appeared to be arguing that Mark Hampton's HISS work should not be considered and we should use the old Soils Maps instead because they show something that the new maps don't. I think that is what I got from his discussion, anyways.

I have included a transcript (draft) from the meeting where Richard brought your name and title it.

Could we have a conversation before these projects get back before the Board? There are enough questions out there now that I think it would be beneficial.

Please let me know when you are available to talk, hopefully sooner than later.

Thanks,

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.



Final Subdivision Application City of Biddeford, Maine

for

Windward Ridge Subdivision

**Located At:
918 Pool Street
Biddeford, Maine 04005**

January 12, 2022

Applicant
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Prepared By
Walsh Engineering Associates, Inc.
1 Karen Drive, Suite 2A
Westbrook, Maine 04092

January 12, 2022

Biddeford Planning Board
c/o Mr. Greg Tansley, City Planner
City of Biddeford
205 Main Street
P.O. Box 586
Biddeford, ME 04005

**RE: Final Subdivision Submission
Windward Ridge Subdivision
918 Pool Street, Biddeford, Maine
Tax Map 4, Lot 48**

Dear Mr. Tansley,

On behalf of Ginger Hill LLC, (applicant), Walsh Engineering Associates, Inc. (WEA) is pleased to submit this Final Subdivision Submission. The applicant is proposing to construct a six-lot residential subdivision with a public road and open space at 918 Pool Street in Biddeford.

The applicant previously received sketch plan review approval and preliminary subdivision review approval from the City of Biddeford Planning Board at Planning Board meetings on July 7, 2021 and November 3, 2021 respectively. The contents of this submission reflect the final plans required by the City of Biddeford ordinance and all items requested as conditions of approval by the Planning Board and City of Biddeford Planning and Development Department.

Existing Conditions

The project is located on the 11.8± acre parcel identified by the City of Biddeford's Tax Assessors Tax Map 4, Lot 48 in the Coastal Residential (CR) and Rural Farm (RF) Districts. The majority of the site is currently undeveloped consisting of forested area with frontage on Pool Street and Oak Ridge Road. A gravel drive from Pool Street runs north across the property, connecting to another drive on the eastern abutting property. Wetlands and soils have been identified on site by Mark Hampton Associates, Inc. on March 5, 2021. Soils on the site have drainage conditions ranging from well drained to poorly drained. Stormwater drains across the site northwest towards the wetland on site and the abutting property. The project is not located within an Essential or Significant Habitat as evaluated by Jones Associates in May of 2021. There is not public sewer or water service available for the property.

Proposed Development

The applicant is proposing to subdivide the property into six residential lots, a large open space area, and a proposed private road for access. Each residential lot will include a single-family house and driveway as conceptually shown on the site plans. Access to the site will be provided off of Pool Street by a 680± foot long road with a turn around. The road has been designed to meet the

City of Biddeford's roadway construction standards for a private way serving 5 to 10 lots. A sidewalk is not proposed with the street due the absence of sidewalks within proximity of the project and to maintain the rural characteristics of the area. An MDOT Entrance permit has been granted for the road and was included in the preliminary submission. Each lot of the development will be serviced by individual private water wells and private on-site septic systems. Electric and telecommunication utilities will be run underground from an existing utility pole to service the lots. The development of the project will not have adverse effects to stormwater runoff and all drainage systems have been adequately designed. Applicable permits with the Maine Department of Environmental Protection (DEP) and the Army Corps of Engineers (ACOE) will be obtained prior to any wetland impact. Review requests sent out to the required departments are included with this submission.

The subdivision will utilize cluster development standards in order to preserve open space and natural resources on the property. The size of residential lots has been minimized to the extent practical in order to maximize the open space area. The open space is intended to preserve natural resources on the property and will be managed by the homeowner's association for the development.

We trust that we have provided the appropriate information to be placed on the next available planning board meeting. We look forward to working with the city to make this project a success. Please let me know if you have any questions or require any additional information.

Respectfully,



William R. Walsh, III, P.E.
Walsh Engineering Associates, Inc.

cc. Emily Ingwersen, Ginger Hill, LLC
Robert Ingwersen, Ginger Hill, LLC

Enc. Declaration of Covenants & Restrictions
Review Responses
Stormwater Report, Revision 3 dated January 12, 2022
Final Subdivision Plan Set dated January 12, 2022
Final Subdivision Application Fee (\$3,040.00)

TABLE OF CONTENTS

Application, Agent Authorization & Certificate of Good Standing

Attachment 1: Declaration of Covenants & Restrictions; Conservation Easement

1

Attachment 2: Review Responses

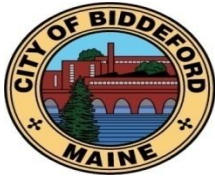
2

Attachment 3: Stormwater Report, Revision 2 (Bound Separately)

3

Attachment 4: Site Plans

4



City of Biddeford 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 ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision ☐ Private Way
☐ Other: _____

Applicant Information:

Name: Ginger Hill, LLC
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

What is your legal interest in the property?

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

Owner's Information:

Name: Ginger Hill, LLC
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

Agent's Information:

Name: William R. Walsh III, PE, Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: (207) 553-9898
Email: bill@walsh-eng.com

Engineer/Surveyor's Information:

Name: William R. Walsh III, PE, Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: (207) 553-9898
Email: bill@walsh-eng.com

Project Location and Lot Information:

Street Address: 918 Pool Street
Tax Map: 4 Lot: 48
Current Zoning: Coastal Residential & Rural Farm Shoreland Zoning: N/A
Size of Lot: 11.8 (x) acres () s.f. Lot Frontage: 461 ft
Existing use of Property: The existing lot is currently undeveloped

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

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

Description of proposed use of property:

Project/Proposed Use:

The lot will be used for the construction of a 6-lot residential subdivision.

Property to be Serviced by:

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

Is this project part of a larger project? ☐ (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: 6

If a Private Way is proposed, number of lots served: 6

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. _____

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 Dept – Tom Milligan 284-9118

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

- B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, ect.
- C. Photographs of Site.
- D. Architectural renderings/drawings of proposed buildings, as required.
- E. Engineering Plans, as required.

Fees (Due at time of Submission):

- \$40 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 it’s 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.

X Project proposed to have 1 acre or more of Site disturbance:

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of Applicant: William J. Webb (agent) **Date** 9/15/21

Signature of Property Owner: William J. Webb (agent) **Date** 9/15/21

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE)
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**

To Whom It May Concern,

By this letter, the undersigned authorizes Walsh Engineering Associates, Inc. to act as the agent for the undersigned in the preparation and submission of all Federal, State, and Local City permit applications and relevant documents and correspondence for all necessary permits for the construction on the property at 918 Pool Street, Biddeford, Maine 04005 (Tax Map 04, Lot 48) to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

Ginger Hill, LLC

Company

Emily Ingwersen

Signature

Emily Ingwersen, Manager

Printed Name and Title

6/14/2021

Date



MAINE

Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

[Subscriber activity report](#)

This record contains information from the CEC database and is accurate as of: Mon Aug 02 2021 10:54:51. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GINGER HILL, LLC	20150386DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
07/30/2014	N/A	MAINE

Other Names (A=Assumed ; F=Former)

GINGER HILL DESIGN & BUILD A

Clerk/Registered Agent

RALPH W. AUSTIN
P.O. BOX 468
BIDDEFORD, ME 04005

[Back to previous screen](#)

[New Search](#)

Click on a link to obtain additional information.

List of Filings

[View list of filings](#)

Obtain additional information:

Additional Addresses

[Plain Copy](#)

[Certified copy](#)

Certificate of Existence [\(more info\)](#)

[Short Form without amendments \(\\$30.00\)](#)

[Long Form with amendments \(\\$30.00\)](#)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files.
If you encounter problems, visit the [troubleshooting page](#).



ATTACHMENT 1
DECLARATION OF COVENANTS & RESTRICTIONS

**WINDWARD RIDGE SUBDIVISION
BIDDEFORD, MAINE**

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration is made this ____ day of _____, 2021, by Ginger Hill, LLC, with a place of business in Arundel, in the County of York and State of Maine (hereinafter called "Declarant").

W I T N E S S E T H:

WHEREAS, Declarant is the owner of real property situated on the southerly side of Route 9, also known as Pool Street, in the City of Biddeford, in the County of York and State of Maine, and desires to create a residential community thereon, pursuant to subdivision approval for such property, such approval being evidenced on "Standard Boundary Survey Showing Windward Ridge Subdivision, Pool Street, Biddeford, Maine" by _____, dated _____ and recorded in the York County Registry of Deeds in Plan Book _____, Page _____; and

WHEREAS, Declarant desires to ensure the preservation of values and amenities in the community and, to this end, desires to subject the real property described in ARTICLE I to the covenants, restrictions, easements, charges and liens hereinafter set forth, each and all of which are for the benefit of said property and each owner thereof; and

WHEREAS, Declarant has deemed it desirable for the efficient preservation of the values and amenities in the community to create an agency to which will be delegated and assigned the powers of maintaining and administering the common areas and facilities and administering and enforcing the covenants and restrictions and collecting and disbursing the assessments and charges hereinafter created; and

WHEREAS, Declarant has incorporated or will incorporate under the laws of the State of Maine, as a nonprofit corporation, WINDWARD RIDGE OWNERS ASSOCIATION for the purpose of exercising the aforesaid functions.

NOW, THEREFORE, Declarant declares that the real property described in Article I is and shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, charges and liens (sometimes referred to as "covenants and restrictions") hereinafter set forth in conveyances of lots.

ARTICLE I

PROPERTY SUBJECT TO THIS DECLARATION

The real property which is, and shall be held, transferred, sold, conveyed and occupied subject to this Declaration is located in the City of Biddeford, in the County of York and State of Maine, and is all of the land area shown on a plan entitled “Standard Boundary Survey Showing Windward Ridge Subdivision, Pool Street, Biddeford, Maine” by _____, dated _____ and recorded in the York County Registry of Deeds in Plan Book _____, Page _____, hereinafter referred to as “the Plan,” to which reference is made for a complete description thereof, all of which real property shall hereinafter be referred to as the “Property,” specifically including all of the numbered lots, roads, easements, rights of way, and such other lands or areas which may be designated by Declarant. All conditions, restrictions and limitations shown on said Plan, whether or not specifically referred to herein, are incorporated by reference into this Declaration and made a part hereof.

ARTICLE II

DEFINITIONS

Section 1: “Association” shall refer to Windward Ridge Owners Association, its successors and assigns.

Section 2: “Owner (s)” shall refer to the record owner, whether one or more persons or entities, of fee simple title to any Lot as depicted on the Plan.

Section 3: “Member” shall mean and refer to lot owners as provided in Article V.

Section 4: “Lot (s)” shall refer to those single-family residential lots as depicted on said Plan.

Section 5: “Common Area” shall mean all real property owned by Declarant, or the Association after transfer, with improvements thereon, or real property in which Declarant or the Association has easement rights and which are intended for the common use and/or benefit of the Owners as depicted on said Plan, including areas shown on the Plan as “Open Space” and the subdivision road known as “Windward Ridge”.

ARTICLE III

OWNERSHIP, MAINTENANCE AND USE OF COMMON AREAS

Section 1: Every Owner shall have equal rights with respect to the common areas which shall pass with the title to every lot, subject to the right of the Association to charge reasonable fees for the maintenance and upkeep of any portion of the common area. All common areas shall be managed by the Association, which shall be establish

rules and regulations for the use thereof in accordance with the provisions of this Declaration.

Section 2: The common areas on the Plan denoted as “Open Space” shall remain in their natural state in perpetuity, including existing vegetation and wetlands. The Board of Directors of the Association may allow the removal of dead, dying or diseased trees for safety purposes. The purpose of these regulations is to preserve the habitat of the “Open Space” as much as possible. The Association shall hire a plant / wildlife biologist to develop a management plan for the “Open Space.” This provision may not be substantially changed without prior approval of the Biddeford Planning Board.

Section 3: Any Owner may delegate, in accordance with the Association’s Bylaws, his/her right of enjoyment to the common area and facilities to members of his/her family, his/her tenants and his/her invitees for limited periods of time.

Section 4: Unless earlier conveyed, the common areas shall be conveyed by Declarant to the Association within thirty (30) days after the sale of the last lot. The Declarant, or the Board of Directors of the Association, has the authority to grant a conservation easement over the Open Space to a conservation commission or to a recognized land trust.

ARTICLE IV

COVENANT FOR MAINTENANCE ASSESSMENTS

Section 1: The Owner of each lot hereby covenants, and by acceptance of a deed thereof, agrees to pay to the Association an annual assessment or charge. The assessment, together with interest, costs, and reasonable attorney’s fees incurred for collection of the same shall be a continuing lien on the Owner’s lot. The assessments levied by the association shall be used exclusively to maintain and/or improve the common areas.

Section 2: Both annual and special assessments shall be fixed at a uniform rate for all lots, with the exception of fees incurred pursuant to Article VI, Section 14E herein, which shall be designated the sole and exclusive obligation of such Owner in breach of these Covenants and Restrictions.

Section 3: The Directors shall fix the amount of the annual assessment and any special assessments in accordance with the procedure set forth in the Bylaws of the Association.

Section 4: The Directors shall upon demand furnish a certificate in recordable form setting forth whether the assessments on a specified lot have been paid. Such a certificate may be signed by the President, Treasurer or other designated officer.

Section 5: In addition to the annual assessments authorized above, the Association may levy, in any assessment year, a special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the common area including maintenance of the drainage easements to assure adequate runoff from the rights-of-way. Special assessments shall be determined by the Directors of the Association on an “as needed basis.”

Section 6: Any assessment not paid within thirty (30) days after the due date shall bear interest from the due date at a rate to be determined by the Directors, but in any event not less than ten percent (10%) per annum. The Directors, on behalf of the Association may bring an action at law against the Owner personally obligated to pay the same, or foreclose the lien against the property, in the manner as a mortgage on real estate or by any other means presently or hereafter provided by law or in equity. A suit to recover a money judgment for unpaid assessments, interest, penalties and cost of collection may be maintained against the lot owner personally without foreclosing or waiving the lien securing such assessment.

ARTICLE V

MEMBERSHIP AND VOTING RIGHTS

Section 1: The Association shall have one (1) class of voting Membership. The Members of the Association shall have no redemptive rights, as such Members, to acquire any Memberships of this Association that may, at any time, be issued by the Association, except as may be specifically provided in this Article.

Section 2: The Association shall elect a minimum of three (3) Directors to manage Association business. The Directors shall be chosen, and shall serve terms, as designated and set forth in the Bylaws of the Association. Directors shall elect corporate officers, which shall consist of a President, a Vice President, and a Treasurer.

Section 3: Meetings shall be called and conducted, and notices thereof sent, as provided and set forth in the Bylaws.

Section 4: Notwithstanding the foregoing or anything contained in this Declaration to the contrary, Declarant shall have the sole and exclusive right to appoint officers and directors to the Board until sixty (60) days after the sale of last lot in the subdivision or until Declarant voluntarily transfers control of the Association to the Members, whichever occurs first. During the period of control as set forth herein, Members of the Association, otherwise qualified hereunder, shall have non-voting membership, unless the provisions of this sentence are expressly waived relative to a particular issue by a writing signed by the Declarant.

ARTICLE VI

PROTECTIVE COVENANTS

Section 1: Declarant hereby declares that the following protective covenants shall apply to all lots in Windward Ridge Subdivision for the benefit of all Owners. These covenants shall become effective immediately and shall run with the land described in any deed of conveyance, and be binding upon all persons claiming under the Declarant, as developer or otherwise, until termination by operation of law, or as hereinafter provided. The covenants and restrictions set forth herein shall be referenced in any future deeds of lots in Windward Ridge Subdivision.

Section 2: Each lot shall be used for residential purposes. No lot may be subdivided. No structure shall have vinyl siding or pvc/plastic trim. In any event, no buildings or additions shall be erected, placed or allowed to stand on any lot in the subdivision unless and until the plans, specifications and locations thereof have been approved in writing by a duly authorized agent of Declarant, its successors or assigns, or the Association after assumption of control by the Association.

Section 3: No unregistered automobiles, trucks, motorcycles, motor homes or travel trailers, snowmobiles or boats or other similar motorized vehicles shall be stored on the premises for more than six (6) months without approval of the Board of Directors of the Association.

Section 4: Once construction of a building is commenced, work thereon must be prosecuted diligently and must be completed within a reasonable time, and in any event, within one (1) year from commencement of said work, provided, however, that additional time shall be allowed for exigent circumstances, including labor shortages, material shortages or delays, and pandemics. "Completion" shall include grading, loaming and seeding.

Section 5: The erection or use of any satellite dish over twenty-four inches (24") in diameter within the limits of said subdivision must be approved, in writing, by the Board of Directors of the Association.

Section 6: Any use of the property must be in strict conformity with the provisions of any applicable zoning law, ordinance or regulation. Nothing contained in this article, or elsewhere in this Declaration, shall be construed to prohibit the Declarant from the use of any lot or dwelling for promotional or display purposes, or as "model homes," a sales office, or the like.

Section 7: No temporary structures shall be built upon the land other than those necessary and used in the course of construction of permanent buildings, and all such

structures shall be removed immediately upon completion of any building operation. Storage and garden sheds shall be allowed within the building envelope for each lot as shown on the Plan.

Section 8: Any fence constructed upon the property shall be made of non-pressure treated wood or made of metal, but no other material.

Section 9: The use and operation of motorized vehicles of any kind or type, including but not limited to snowmobiles and ATVs, shall be prohibited in any wooded area of the Subdivision, including the wooded area of a lot owned by the operator or user of any such motorized vehicle.

Section 10: The discharge of firearms of any kind or type, for any purpose, is prohibited anywhere within the Subdivision.

Section 11: The use of chemical pesticides and herbicides on lawns and gardens is prohibited. Owners are encouraged to follow the recommendations of the City of Biddeford's "Yard Smart" program as set forth in the pamphlet entitled "10 Simple Steps Toward a Safe & Healthy Lawn" (<https://www.biddefordmaine.org/DocumentCenter/View/1762/Conservation-Commission-Resources---Combined-PDF>).

Section 12: The Association shall have control over the common areas and its Directors shall enforce the aforementioned and following covenants, which shall be deemed to run with the land:

A. The Association shall, until transfer to a public authority or agency, arrange and provide for the proper maintenance of Windward Ridge, including the subdivision road and the Open Space. The Association shall ensure that the subdivision road is properly maintained, and that snow removal occurs in a reliable manner to aid in public safety access.

B. The Association shall prohibit any use of the property designated "Drainage Easement" on the plan for any purpose other than as a natural drainage swale, and shall arrange and provide for maintenance of said easements so that they continue to perform the function for which they are intended, but none other, including periodic cleaning, if necessary. Nothing contained herein shall allow the Association to enter upon said easement area for the purpose of cutting or removing any natural vegetation unless absolutely essential to the proper operation of said easement.

D. The Declarant, and Association, after transfer of the common areas, shall retain the sole right and power to grant any and all necessary easements over common areas to public utility authorities to carry out its obligations hereunder, either for installation or repair of same. Any such easements not shown or reflected on the

approved subdivision plan must also receive approval from the Biddeford Planning Board.

E. In addition to any other remedies provided for the Association herein, upon the apparent breach of Protective Covenants by any Lot Owner (s), the Directors on behalf of the Association, shall notify said Owner(s) by certified mail of such breach, and include a reasonable description of the actions necessary to correct or cure such breach. If said Owner (s) does not take corrective action within seven (7) days from receipt of said notice, or object to the proposed action to be taken within said time period, the Directors shall, without further notice, be entitled to take such action as set forth in the Notice and to surcharge as a special assessment to said Owner (s) solely for all necessary and incidental expenses, including attorney's fees incurred in taking such corrective action. For this purpose, the Association or any agent thereof shall and by these presents, does have the right to enter upon land of any such breaching Owner to clean all drainage easements of all debris, to clean and maintain the culverts required by said Covenant, or to remove drainage water in accordance with the Plan, and to ensure compliance with any other applicable covenant, restriction or condition.

Section 13: Enforcement shall be by the Association as Plaintiff in a proper case, or by any Owner by proceeding at law or in equity against any persons violating, or attempting to violate any covenants, restrictions or conditions, either to restrain violation or to recover damages, or both, in the sole discretion of the party so proceeding. Any party successfully enforcing any of these covenants shall be entitled to recover against the party violating such covenant (s), as a monetary award, for the reasonable attorney's fees and costs incurred in such enforcement proceedings.

ARTICLE VII

RESERVATION OF RIGHTS AND EASEMENTS

Declarant reserves the following rights and easements:

Section 1: The right to install, maintain, repair and replace under, over and upon the common property and areas designated as easements or rights of way on the plan, and any ways on which said land abuts, or shall abut, such electric light, power, telephone and telegraph cables and wires, water, sewer and drainage pipes, mains and conduits, catch basins, surface drains and culverts, and such other facilities, installations, appurtenances and things as Declarant may deem necessary or convenient in connection with the provision of adequate drainage, sewerage disposal, water, electricity, telephone communications and other utilities to any portion of the property, and for the benefit of any other land owned by Declarant, its successors and assigns, including, but not limited to adjoining property, now owned or hereafter acquired by Declarant, which Declarant may choose to develop in the future; all of which rights and easements, Declarant, its

successors and assigns, may assign to telephone, telegraph, power, water and other public and private utility companies and corporations as Declarant may determine;

Section 2: The right to add to or designate additional lands or areas as common areas as herein defined, or to dedicate and subject additional lands to the terms and conditions of this Declaration.

Section 3: An easement and right of way over all ways and other common spaces shown on the plan for ingress and egress by Declarant to adjoining property now owned or hereafter acquired by Declarant, its successors and assigns for all purposes related to development of such adjoining property and for permanent egress and ingress to such adjoining property by future owners of homes therein.

Section 4: The right to enter upon the land or any sold or unsold lot for the purpose of selectively cutting trees and clearing trees and brush to improve the physical appearance of the land.

Section 5: The right to waive or modify certain of the conditions, covenants and restrictions set forth in Article VI with respect to any additional lands dedicated and subject to the terms and conditions of this Declaration.

ARTICLE VIII

GENERAL PROVISIONS

Section 1: Invalidation of any one of these covenants or restrictions by judgment or court order shall not affect any other provisions which shall remain in full force and effect.

Section 2: The Covenants and Restrictions of this Declaration, which shall be recorded at the York County Registry of Deeds, shall run with and bind the land. This Declaration may be amended by an instrument signed by not less than sixty percent (60%) of said Owners. Any amendments hereto must be recorded at the York County Registry of Deeds. Any amendments to the approved subdivision plan must also be approved by the Biddeford Planning Board.

WITNESS:

GINGER HILL, LLC

By: _____

Emily Ingwersen

Its: Manager Duly Authorized

STATE OF MAINE
YORK, ss

_____, 2021

Personally appeared Emily Ingwersen, Authorized Manager of Ginger Hill, LLC,
and acknowledged the foregoing Declaration to be her free act and deed in her said
capacity and the free act and deed of said company.

Before me,

Ralph W. Austin /Attorney at Law
Bar #1156

ATTACHMENT 2 REVIEW RESPONSES

- Biddeford Planning & Engineer Review
- Biddeford Police Department Review
- Biddeford Fire Department Review
- Central Maine Power Review
- MHPC Review

PLANNING BOARD
REPORT

October 29, 2021

Biddeford Planning Board
Greg Tansley, City Planner
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Application: Windward Ridge – Ginger Hill, LLC
918 Pool Street (Tax Map 4 Lot 48)

Subdivision Preliminary Plan Review

Review Status: New preliminary plan application

Board members and Mr. Tansley,

The following application and attached information has been provided for review:

1. Application form dated 9/15 /2021.
2. Cover letter and Application Submission entitled: *Preliminary Subdivision Application for Winward Ridge Subdivision, located at 918 Pool Street, Biddeford, Maine 04005, Map 4. Lot 48. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 9/15/2021. This includes Stormwater Report, Soil Survey prepared by Mark Hampton and Wildlife Evaluation Report prepared by Jones Associates.
3. Engineering Plan set entitled: *Winward Ridge Subdivision, 918 Pool Street, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 10/20/2021.
4. Response to Comments Letter: *RE: Preliminary Subdivision Application Winward Ridge Subdivision, 918 Pool Street, Biddeford, Maine, Tax Map 4, Lot 48.* Prepared by Walsh Engineering Associates, dated 10/20/2021.
5. Homeowner's Association Documents: *Windward Ridge Subdivision, Maine, Declaration of Covenants and Restrictions*
6. Letter from Jones Associates dated October 19, 2021.

With review of the above information and the Land Development Regulations and Subdivision Ordinance, I offer the following comments on compliance with the City's ordinances. See attached for remaining outstanding engineering related comments from Site Design Associates.

PROJECT DESCRIPTION

The applicant seeks to create 6 residential lots along a proposed 750-foot private road on a 11.8 AC parcel located mostly in the Rural Farm (RF) zone with approximately 80k SF in the Conservation Residential (CR) along Pool Street. The site includes two large freshwater wetlands on a forested undeveloped parcel.

COMPLETENESS REVIEW

The application is before the Planning Board as required by Chapter 66 (Subdivisions) subject to Subdivision review and approval. Per the City's Subdivision ordinance (66-26), all applications have a three-tier approval process beginning with a Sketch plan review. The Planning Board reviewed the Sketch Plan in July and the applicant has submitted a preliminary plan submission for review that appears to be complete.

COMPLIANCE WITH THE CITY'S ORDINANCES

The proposed minimum lot sizes and net density calculations appear to be in order. Required setbacks and buffers are also depicted, however, the overall development design is not as reflective a cluster development as it could be.

City Staff, including Long Meadow P&LA and Site Design Associates, have had an opportunity to share comments on an earlier submission prior to placing the application on the Board's agenda. The following are comments and recommendations that Board, and the applicant may want to consider:

AGRICULTURAL SOILS (Sec. 66-2)

In speaking with the State Soil Scientist's office and the NRCS, it appears the soils listed in the HISS prepared by Mark Hampton, Associates do not include the specific soils listed as prime agricultural or having state-wide significance. It was suggested, however, that if the project used federal aid or funding, that an application to the NRCS regarding agricultural and state-wide significant soils was required since the its medium intensity soil surveys depict these soils on the property.

OPEN SPACE DESIGN

Though this is one parcel with two zones, it shouldn't unnecessarily limit the overall cluster development for the property. The zoning ordinance provision for min. lot size for septic (20k) in Sec. 16 (Cluster developments) can be applied to both the CR and RF zones alike. As it is applied in the RF zone, 20k needs to be net developable in the CR zone too. A sketch was provided to the applicant with this suggestion and the agent's response to comments are based on that sketch. The attached revised sketch is based on the most recent plans submitted and should result in an overall site design that is more definitively a clustered development; smaller lots, less roadway and more contiguous open/conservation space. The location of the proposed lot 6 does not reflect the basic objectives of a cluster development, essentially to minimize the overall development footprint while

maximizing contiguous open space. The latter should be more than simple arithmetic, meeting a specific square foot number as to size of the open space. An appropriate design of open space should not result in land that is contiguous through slivers of land connecting larger areas.

The applicant would prefer to maximize the clearing of each proposed lot's building envelope to provide the most flexibility for siting the buildings. Considering the shape of the proposed open space, maintaining no-cut rear and some side setbacks would be an added benefit to the overall success of the open space as a natural resource habitat.

PRESERVATION IN PERPETUITY

As outlined in Sec. 16.E, Article VI of the Land Development Regulations, Open Space in a cluster development shall be preserved by means of a conservation easement held by a third party or held by the HOA by means of its declarations and covenants. The draft HOA documents does not appear to include any language related to the open space being preserved in perpetuity.

HOMEOWNERS ASSOCIATION DOCUMENTS

1. If not conveyed to a land trust the opens space (*common area*) for conservation should be more defined in terms of management, ideally a plan from plant/wildlife biologist, so it is clear to the HOA what it means *to preserve the habitat of the "Open Space" as much as possible.* (Art.3 Sec.2. The permission for the directors to remove dead and/or dying trees should be for purposes related to safety, not in general since most natural habitats benefit from dead trees.
2. Art. VI Sec. 12.d should include a reference to receiving Planning Board approval if granting easements is not reflected on the approved subdivision plan. Art VIII Sec. 2 should be subject to Board approval of an amended plan as well.
3. Encroachment of the open space by the homeowners or abutters should be addressed in terms of accountability as it relates to the open space being undeveloped and/or clearing that is contrary to the approved plan.
4. There does not appear to be any sections that address the shared maintenance of the private street, especially having the responsibility of contacting or ensuring that snow is removed in a reliable manner to aid in public safety access.

BUFFERING.

The proposed roadway from Pool Street incurs a great deal of clearing and grading (Sheet C2.3) outside of its Right-Of-Way, that will result in a significant hole in what is now is dense woodland edge. Plantings of trees and shrubs should be considered to either side of the entrance within the lot and open space land that would provide an adequate screen and soften the associated clearing.

PLAN RECOMMENDATIONS

1. A Stamped and signed final Boundary Survey should be submitted.
2. The Existing Conditions Plan references GIS topography/contour data. Is this adequate for final road and site grading design?
3. The Subdivision Plan should be prepared and certified by a Professional Land Surveyor, licensed in Maine.
4. The Subdivision Plan appears to not include typical/standard notes found on surveys and subdivision plans, e.g. deeds, ownership, plan references.... The latter is referenced to the cover sheet, however, the Subdivision Plan will be recorded and ideally should be one sheet, unless multiple sheets are recorded as well.
5. The Subdivision Plan notes should reflect any applicable requirement City zoning or subdivision requirements, e.g. 75-foot buffer in the RF zone and Open Space preserved in perpetuity.
6. The plans should include signatory blocks and recording blocks where necessary.

FIRE SAFETY

Chapter 30-87 requires underground fire suppression tanks for new (private/public) subdivisions, which are located outside the hydrant districts. The applicant should review the ordinance and coordinate with the Fire Department and demonstrate compliance prior to final approval.

WAIVER REQUESTS

None requested.

CONCLUSION

The Preliminary Plan appears to be complete for the Planning Board's consideration. The above comments reflect an opinion that there is more that can be done to further the objectives of the cluster development design for this property.

If the Board is inclined to grant preliminary approval it should consider it being conditioned on the applicant addressing all outstanding comments from board members, City Staff and peer-reviewers prior to the final plan submission.

Feel free to contact me with questions.

Best regards,



Christopher Di Matteo
City of Biddeford Contract Planner.
cdimatteo@longmeadowpla.com
207.604.4245

Subject: Leeward Meadows and Windward Ridge Subdivisions

Date: Thursday, October 28, 2021 at 11:12:39 AM Eastern Daylight Time

From: Tom Saucier

To: Tansley, Greg

CC: Christopher Di Matteo

Hi Greg

Per your request we have undertaken a review of the revised plans and documentation submitted to our office. It appears the majority of our comments have been addressed for both projects.

Below are some follow-up comments, numbered per the original comments:

Windward Ridge

A.2. The response indicated that the intent was for the proposed road to remain private. Reference should be made to Section 51 for private way requirements, including required notes, plans, and maintenance agreement, and registry filings required under section 51.D.

B.2. The response indicates that the existing woods road was modeled as an impervious surface, which usually includes gravel and paved surfaces, but generally not a vegetated woods road surface.

B.4. The analysis points should be shown at the property line, not well onto the abutting property, if that abutting property is not controlled by the applicant.

B.6. Sheet flow lengths should be a maximum of 100 ft for wooded conditions.

C.1.a. The response indicated that the road right of way would be field surveyed prior to construction. Given the intent is for the road to remain private, that seems like a reasonable alternative to us, if staff agrees.

C.1.b. The response indicates the existing culvert at the site entrance will be replaced. Drawing C-2.4 shows a new 24" culvert in plan view and an 18" culvert in the profile.

C.2.d. Not addressed.

C.3.g. The applicant should refer to your 10/22/21 email in regards to fire protection addressed.

C.4.a. The proposed 24" culvert at Pool Street still lacks adequate cover.

C.4.b. A sediment barrier should be shown downgradient of portions of the road and drive to lot 6.

C.4.j. The response indicates that the cross slope is now 1%. A minimum of 2% is required.

Leeward Meadow

A.2. The response indicated that the intent was for the proposed road to remain private. Reference should be made to Section 51 for private way requirements, including required notes, plans, and maintenance agreement, and registry filings required under section 51.D.

B.8. Sheet flow lengths should be a maximum of 100 ft for wooded conditions.

C.1.a. The response indicated that the road right of way would be field surveyed prior to construction. Given the intent is for the road to remain private, that seems like a reasonable alternative to us, if staff agrees.

C.2.c. Monumentation for the road is shown as iron pipes. Section 62-87 requires granite, unless otherwise approved by the city.

C.3.e. The applicant should refer to your 10/22/21 email in regards to fire protection addressed.

C.3.f. Utilities are still shown under the paved travel way.

Stormwater Management

For both projects, the stormwater quantity analysis indicates that the post development peak rates of runoff will be less than the existing rates of runoff. Rather than our office spending a lot of time reviewing the model to determine how this conclusion was reached, when both projects involve the creation of new impervious area, we request that the applicant expand on these results in the stormwater management report.

We do not anticipate that these comments will alter the overall concept for the projects. From an engineering standpoint, we believe that the project is ready for preliminary approval, if staff agrees, and the planning board is so inclined.

Thanks
Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

LEGEND

EXISTING

ROAD

PROPERTY LINE

RIGHT-OF-WAY LINE

ABUTTERS PROPERTY LINE

PROPERTY SETBACK

TOWN LINE

N/F

"OWNERS NAME" TAX MAP TAX LOT DEED BOOK AND PAGE

ABUTTER IDENTIFICATION

WETLANDS

NET LOT AREA DEDUCT AREAS

SOMEWHAT POORLY DRAINED SOILS

WETLANDS

STEEP SLOPES (>33%)

PLAN NOTES:

- SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.
- CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
- MIN. LOT AREA: CR: 30,000 SF (NO WATER/SEWER, 2/A SOILS) RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
- MAX. LOT COVERAGE: 30%
- MAX. BUILDING HEIGHT: 35 FT
- MIN. STREET FRONTAGE: CR: 150 FT RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
- FRONT SETBACK: 40 FT FROM MAJOR ROW 25 FT FROM OTHER ROW
- SIDE SETBACK: 25 FT
- REAR SETBACK: 25 FT
- 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Net Residential Density Calculation (CR Zone)	
	Area (sf)
Gross Lot Area	128,000
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	85,370
Minimum Conventional Lot Area (CR Zone)	80,000
Total Allowable Lots	1

Net Residential Density Calculation (RF Zone)	
	Area (sf)
Gross Lot Area	381,091
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	65,925
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,933
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	93,774
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	219,460
Minimum Conventional Lot Area (RF Zone)	40,000
Total Allowable Lots	5

Net Residential Density Calculation (Lot 1)	
	Area (sf)
Gross Lot Area	35,802
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	3,059
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,318
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	31,426
Minimum Cluster Lot Area	30,000

Net Residential Density Calculation (Lot 2)	
	Area (sf)
Gross Lot Area	28,219
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	0
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	28,219
Minimum Cluster Lot Area	20,000

Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	26,471
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	5,463
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	21,008
Minimum Cluster Lot Area	20,000

Net Residential Density Calculation (Lot 4)	
	Area (sf)
Gross Lot Area	26,598
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	4,449
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	205
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	21,945
Minimum Cluster Lot Area	20,000

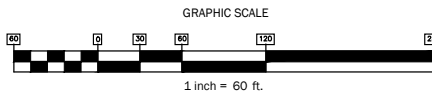
Net Residential Density Calculation (Lot 5)	
	Area (sf)
Gross Lot Area	27,506
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	6,921
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	488
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	20,098
Minimum Cluster Lot Area	20,000

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	60,882
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	10,095
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	30,538
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	20,249
Minimum Cluster Lot Area	20,000

Cluster Open Space Area Calculations			
Lot	Conventional Subdivision Minimum Lot Area (sf)	Net Lot Area (sf)	Cluster Subdivision Lot Area Reduction (sf)
1	80,000	31,426	48,575
2	40,000	28,219	11,781
3	40,000	21,008	18,992
4	40,000	21,945	18,055
5	40,000	20,098	19,903
6	40,000	20,249	19,751
Required Open Space Area			137,056
Provided Open Space Area			270,305
% of Required Open Space Provided			197.2%

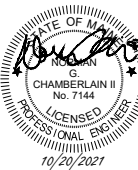
Line Segment Table		
Line Segment	Bearing	Distance
L1	N44°12'56"W	70.00'
L2	N29°12'56"W	60.00'
L3	S60°47'04"W	45.00'
L4	N29°12'56"W	50.00'
L5	S60°47'04"W	29.03'
L6	N60°47'04"E	45.00'
L7	N29°12'56"E	45.00'
L8	S44°12'56"E	21.55'
L9	S44°12'56"E	48.46'

Curve Segment Table				
Curve Segment	Curve Radius	Curve Length	Cord Bearing	Cord Length
C1	275.00'	152.86'	N28°17'30"W	150.90'
C2	225.00'	25.95'	N15°40'17"W	25.93'
C3	225.00'	40.21'	N24°05'44"W	40.16'
C4	5.00'	7.85'	N74°12'56"W	7.07'
C5	5.00'	7.85'	N15°47'04"E	7.07'
C6	275.00'	60.49'	S22°54'52"E	60.36'
C7	275.00'	20.38'	S14°29'25"E	20.37'
C8	225.00'	125.07'	S28°17'30"E	123.46'



WALSH
ENGINEERING ASSOCIATES, INC.
One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2021



Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC

18 Early Way
Auranda, Maine 04046

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Subdivision Plan Review	CAR	WRW
2	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	6/15/2021	Revised per City Review Comments	CAR	NGC

Sheet Title:
Cluster
Subdivision Plan

Job No.: 742 Sheet No.:

Date: June 15, 2021

Scale: 1" = 60'

Drawn: CAR

Checked: WRW

C2.1

Connor Ritter

From: Fisk, JoAnne <joanne.fisk@biddefordmaine.org> on behalf of Fisk, JoAnne
Sent: Wednesday, July 28, 2021 1:44 PM
To: Connor@walsh-eng.com
Subject: Road names

Connor,

Per our conversation on street names both Leeward Meadows and Windward Ridge are acceptable names. Please let me know if you need anything else.

JoAnne Fisk



The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Connor Ritter

From: Duross, Kevin <kevin.duross@biddefordmaine.org>
Sent: Monday, January 10, 2022 11:41 AM
To: Connor Ritter
Cc: Tansley, Greg
Subject: RE: Leeward Meadows and Windward Ridge Fire Suppression

Hi Conner,

I have reviewed the plan with the requested fire suppression system. This is an acceptable plan. When the project is completed, we will need to inspect the suppression system.

Thank you,

Kevin



From: Connor Ritter <connor@Walsh-eng.com>
Sent: Monday, January 3, 2022 11:47 AM
To: Duross, Kevin <kevin.duross@biddefordmaine.org>
Subject: Leeward Meadows and Windward Ridge Fire Suppression

Hi Kevin,

I just wanted to follow up with you on the fire suppression systems for the Leeward Meadows and Windward Ridge subdivision projects. I've attached a plan for each site with 10,000 gallon fire suppression tanks included per the Fire Department layouts provided the last time we met. Let me know if you find these acceptable for the projects or if there is anything else necessary.

Thanks,
Connor

Connor Ritter, EIT



One Karen Drive, Suite 2A
Westbrook, ME 04092
P: (207) 553-9898, Ext 105
www.walsh-eng.com



This transmission is intended only for the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this communication is not the intended recipient, or an employee or agent responsible for delivering the communication to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error please contact the sender at 207-553-9898.

The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Isaiah Bates

From: Cough, Jamie <Jamie.Cough@cmpco.com> on behalf of Cough, Jamie
Sent: Monday, August 9, 2021 12:16 PM
To: Isaiah Bates
Subject: 158 Oak Ridge Road and 918 Pool Street Biddeford, Maine CAPACITY LETTER | CMP Capacity Letter CMP Ability to Serve Request and Three Phase Service Process
Attachments: Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; May 2021 EDET.XLSX

Request for Ability to Serve Letter

Project Description: Leeward Meadows Subdivison (158 Oak Ridge Road) Biddeford, Maine

The development of a 6-lot residential subdivision

Project Description: Windward Ridge Subdivision (918 Pool Street) Biddeford, Maine

The development of a 6-lot residential subdivision

CMP has the ability to serve the proposed projects in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, **please contact me at 207-629-1489.**

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let me know. The underlined links will redirect you to the appropriate site for additional information. **If this is a single phase service with all self-contained metering, the process is simplified, but still begins with a call to CMP. Please refer to CMP Installation Checklists**

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

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

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

Metering:

All metering (including locations) must be preapproved by CMP.

Chapter 324 Interconnections:

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

Reallocation/Line Extensions:

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

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

Electricity Supplier Information:

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

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

Regards,

Jamie

Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207-629-1489 office



=====

Please consider the environment before printing this email.

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

The views presented in this message are solely those of the author(s) and do not necessarily represent the opinion of Avangrid Networks, Inc. or any company of its group. Neither Avangrid Networks, Inc. nor any company of its group guarantees the integrity, security or proper receipt of this message. Likewise, neither Avangrid Networks, Inc. nor any company of its group accepts any liability whatsoever for any possible damages arising from, or in connection with, data interception, software viruses or manipulation by third parties.

=====



JANET T. MILLS
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

KIRK F. MOHNEY
DIRECTOR

August 30, 2021

Mr. Isaiah Bates
Walsh Engineering
One Karen Drive
Suite 2A
Westbrook, ME 04092

Project: MHPC# 1436-21 Windward Ridge Subdivision; 918 Pool Street
Proposed Subdivision
Town: Biddeford, ME

Dear Mr. Bates:

In response to your recent request, I have reviewed the information received August 20, 2021 to initiate consultation on the above referenced project.

Based on the information provided, I have concluded that there are no National Register eligible properties on or adjacent to the parcels. In addition, the project area is not considered sensitive for archaeological resources.

Please contact Megan M. Rideout of our staff, at megan.m.rideout@maine.gov or 207-287-2992, if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

**ATTACHMENT 3
STORMWATER REPORT, REVISION 2
(Bound Separately)**



STORMWATER MANAGEMENT REPORT REVISION 2

for

Windward Ridge
Pool Street
Biddeford, Maine 04005

September 15, 2021
Revision 1: October 20, 2021
Revision 2: January 12, 2022

Submitted to:
City of Biddeford
205 Main Street
P.O. Box 586
Biddeford, Maine 04005

Submitted by:
Walsh Engineering Associates, Inc.
One Karen Drive, Suite 2A
Westbrook, Maine 04092

STORMWATER MANAGEMENT REPORT REVISION 2

**WINDWARD RIDGE
Pool Street
Biddeford, Maine 04005**

Introduction

Walsh Engineering Associates, Inc. (WEA) was retained by Emily and Robert Ingwersen, dba Ginger Hill Design + Build (Applicant) to provide site design and stormwater management design services for the development of a six-lot subdivision and open space parcel on Pool Street in Biddeford. The proposed development includes six single-family dwellings, associated driveways, and a private street. The development will create a net increase of approximately 37,610± square feet (0.86± acres) of impervious surfaces.

This Stormwater Management Report assesses both pre-development and post development peak runoff rates of stormwater runoff from the developed site. The analysis provided herein was completed in accordance with the City of Biddeford stormwater standards.

The original Stormwater Management Report was submitted to the City of Biddeford as part of a preliminary subdivision application submission on September 15, 2021. Revision 1 of the Stormwater Management Report reflects revisions made in response to comments provided via an engineer review conducted by Site Design Associates dated September 29, 2021. This Revision 2 of the Stormwater Management Report reflects revisions made in response to comments provided via a Planning Board report prepared by Christopher Di Matteo of Long Meadow Planning & Landscape Architecture, LLC and Tom Saucier of Site Design Associates dated October 29, 2021.

Methodology

Stormwater runoff analysis has been performed to comply with the City of Biddeford Subdivision Regulations. The HydroCAD Stormwater Modeling System software (Version 10.0) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire was used for the analysis. The program is based upon the TR-20 computer program and the TR-55 tabular method, both of which are based upon techniques developed by the USDA Soil Conservation Service. The analysis was performed for the 2-, 10-, and 25-year frequencies (3.3, 4.9, and 6.2 inches respectively) for York County. The 24-hour storm event with a Type III distribution were the basis for the analysis.

Pre-Development Conditions

The property is located within the watershed of the Little River. The parcel was previously undeveloped consisting of wooded land, wetlands, and a woods road running through the middle of the property.

The pre-development condition was considered to be wooded area, lawn area, and impervious surfaces, as taken from the USDA NRCS online Web Soil Survey. The soil types onsite are Lyman-Tunbridge, Colonel, and Scantic listed as Hydrologic Soil Group (HSG) D. See the High Intensity Soil Survey and Web Soil Survey in Appendix C. The property drains northwest through

a large wetland onto an abutting property (AP1), southwest to a set of two 12” culverts that cross Oak Ridge Road (AP2), and west onto an abutting property at a second location (AP3).

Site topography, soil boundaries, pre-development drainage areas, and analysis points AP1, AP2, and AP3 are shown on drawing D1.0 – Pre-Development Drainage Plan. Pre-development HydroCAD calculations can be found in Appendix A. Pre-development peak flow rates at the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Post-Development Conditions

The proposed project will include six single-family dwellings, associated driveways, and a minor, nonurban residential street. The street will have one connection onto Pool Street and all driveways will have access via the proposed street. The project will contain approximately 37,610± square feet of impervious area.

Post-development stormwater runoff from the site was analyzed by routing stormwater flows from the various developed subcatchments through proposed conveyance. Post-development HydroCAD calculations can be found in Appendix B and sheet D2.0 – Post Development Drainage Plan can be found in Appendix E. Post development peak flow rates at each of the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Stormwater Quantity

The City of Biddeford stormwater standards require that peak flow rates discharging from the site are not increased as a result of the development.

Table 1 – Peak Flow Rates (cfs)			
Analysis Point	2-Year Storm	10-Year Storm	25-Year Storm
AP1 Pre-Development	4.6	9.4	13.2
Post Development	4.5	9.1	13.1
AP2 Pre-Development	3.9	7.5	10.0
Post Development	3.8	7.4	9.9
AP3 Pre-Development	1.1	2.2	3.2
Post Development	0.8	1.7	2.4

As shown in Table 1, the peak runoff rates at analysis points AP1, AP2, and AP3 under the post development conditions will be less than the peak pre-development runoff rates for every storm event. This result is due to the timing of the peak runoff from the developed areas having little overlap with the timing of the peak runoff from the undeveloped areas. The runoff from the developed areas typically passes the analysis point prior to the higher volume of runoff from the undeveloped areas. Some areas of runoff have also been redirected to different analysis points under the post development conditions due to the development. Based on this analysis, we do not anticipate any adverse impacts on downgradient drainage systems due to the proposed development. Pre- and Post Development HydroCAD calculations can be found in Appendices A and B.

Stormwater Quality

The project is not in the watershed of a lake or Urban Impaired Stream and will not create over one acre of impervious surface or 5 acres of developed area and therefore does not require a Maine DEP Stormwater Permit.

Erosion Control

BMPs such as silt fence and/or filter berms of erosion control mix, erosion control blanket, 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 shown on the Site Plans in Appendix E on sheet C2.3. Erosion and sedimentation control notes and details can be found on sheets C3.0-C3.1.

Inspection & Maintenance

Ginger Hill Design + Build will be responsible for maintaining the stormwater facilities for the project until such time as the Homeowners Association will take over the system and maintenance of it. An Inspection and Maintenance Plan is included in Appendix D.

Conclusions

Calculations show that the peak rate of runoff from the 2-, 10-, and 25-year storm events will not exceed the pre-development rate as required by the City of Biddeford.

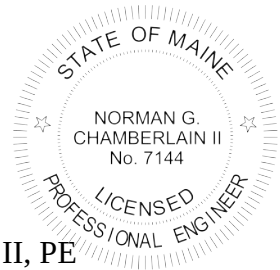
Respectfully,



Connor A. Ritter, EIT
Walsh Engineering Associates, Inc.



Norman G. Chamberlain II, PE
Walsh Engineering Associates, Inc.



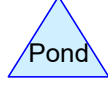
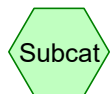
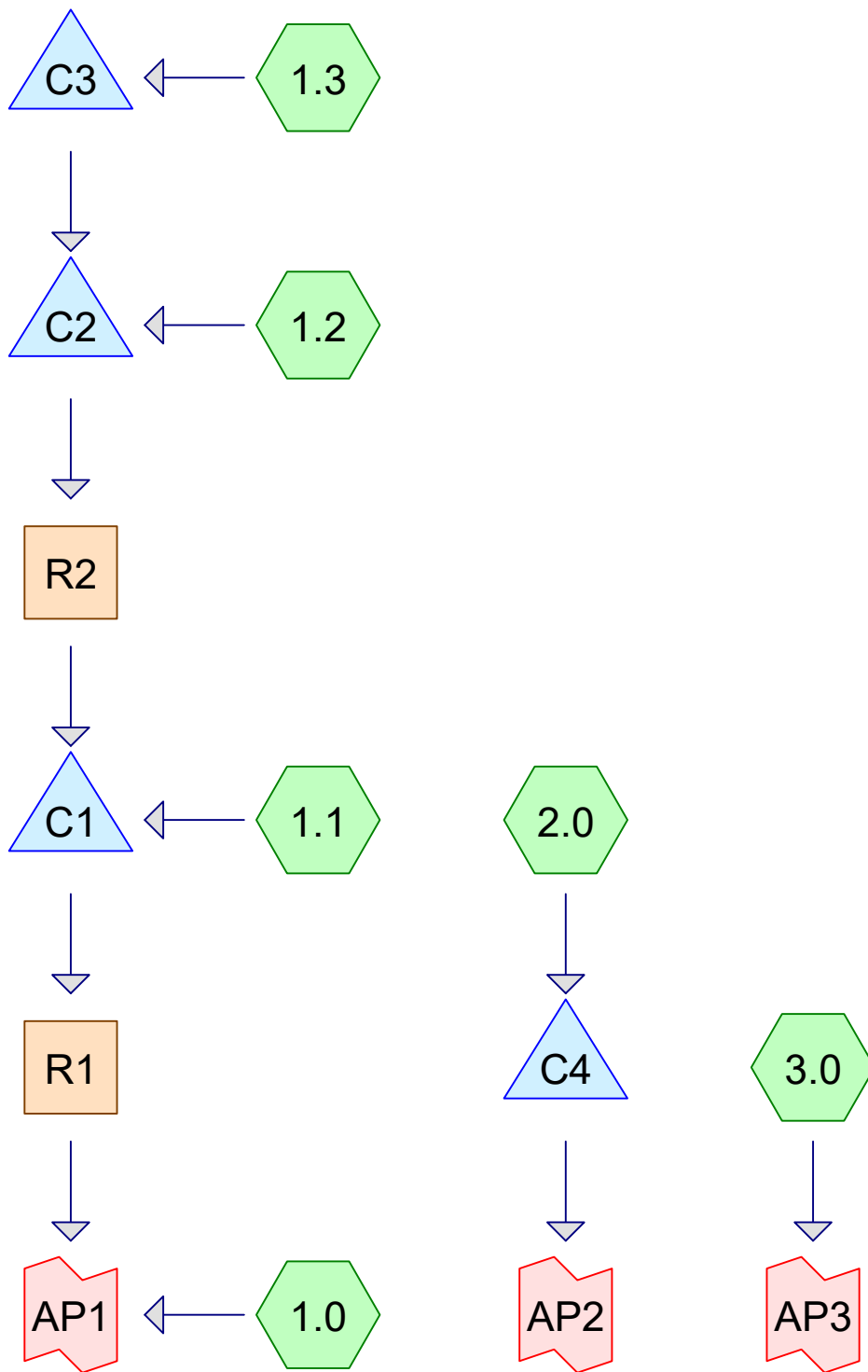
Supporting Data and Calculations

The following material presents calculations and copies of source material used during the analysis for this study.

- Appendix A: Pre-Development HydroCAD Report
- Appendix B: Post-Development HydroCAD Report
- Appendix C: High Intensity Soil Survey
Web Soil Survey Map
- Appendix D: Inspection & Maintenance Plan
- Appendix E: Drainage Plans
 - D1.0 – Pre-Development Drainage Plan
 - D2.0 – Post-Development Drainage Plan

Appendix A

Pre-Development HydroCAD Report



Routing Diagram for Pre-Dev Rev 3
Prepared by Walsh Engineering Associates, Inc., Printed 1/4/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Printed 1/4/2022
Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,280	80	>75% Grass cover, Good, HSG D (1.1, 1.2, 1.3, 2.0)
15,620	89	Dirt roads, HSG D (1.0, 1.1, 2.0)
68,900	98	Paved parking, HSG D (1.1, 1.2, 1.3, 2.0)
1,173,050	77	Woods, Good, HSG D (1.0, 1.1, 1.2, 1.3, 2.0, 3.0)
1,272,850	78	TOTAL AREA

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=1.28" Flow Length=659' Tc=44.5 min CN=77 Runoff=3.7 cfs 25,539 cf
Subcatchment 1.1:	Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=1.35" Flow Length=598' Tc=67.5 min CN=78 Runoff=3.5 cfs 30,343 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=1.35" Flow Length=396' Tc=11.4 min CN=78 Runoff=3.8 cfs 14,598 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=1.48" Flow Length=453' Tc=57.8 min CN=80 Runoff=4.3 cfs 33,424 cf
Subcatchment 2.0:	Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=1.41" Flow Length=750' Tc=49.7 min CN=79 Runoff=5.0 cfs 36,266 cf
Subcatchment 3.0:	Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=1.28" Flow Length=377' Tc=25.7 min CN=77 Runoff=1.1 cfs 5,831 cf
Reach R1:	Avg. Flow Depth=0.19' Max Vel=0.36 fps Inflow=2.9 cfs 39,571 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=2.8 cfs 39,548 cf
Reach R2:	Avg. Flow Depth=0.06' Max Vel=0.20 fps Inflow=0.4 cfs 9,256 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=0.4 cfs 9,228 cf
Pond C1:	Peak Elev=34.18' Storage=1,791 cf Inflow=3.5 cfs 39,571 cf 18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=2.9 cfs 39,571 cf
Pond C2:	Peak Elev=40.46' Storage=7,794 cf Inflow=3.8 cfs 14,598 cf Outflow=0.4 cfs 9,256 cf
Pond C3:	Peak Elev=42.68' Storage=10,399 cf Inflow=4.3 cfs 33,424 cf Discarded=2.1 cfs 33,398 cf Primary=0.0 cfs 0 cf Outflow=2.1 cfs 33,398 cf
Pond C4:	Peak Elev=26.01' Storage=6,883 cf Inflow=5.0 cfs 36,266 cf Outflow=3.9 cfs 35,920 cf
Link AP1:	Inflow=4.6 cfs 65,087 cf Primary=4.6 cfs 65,087 cf
Link AP2:	Inflow=3.9 cfs 35,920 cf Primary=3.9 cfs 35,920 cf
Link AP3:	Inflow=1.1 cfs 5,831 cf Primary=1.1 cfs 5,831 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 146,000 cf Average Runoff Depth = 1.38"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Summary for Subcatchment 1.0:

Runoff = 3.7 cfs @ 12.64 hrs, Volume= 25,539 cf, Depth= 1.28"

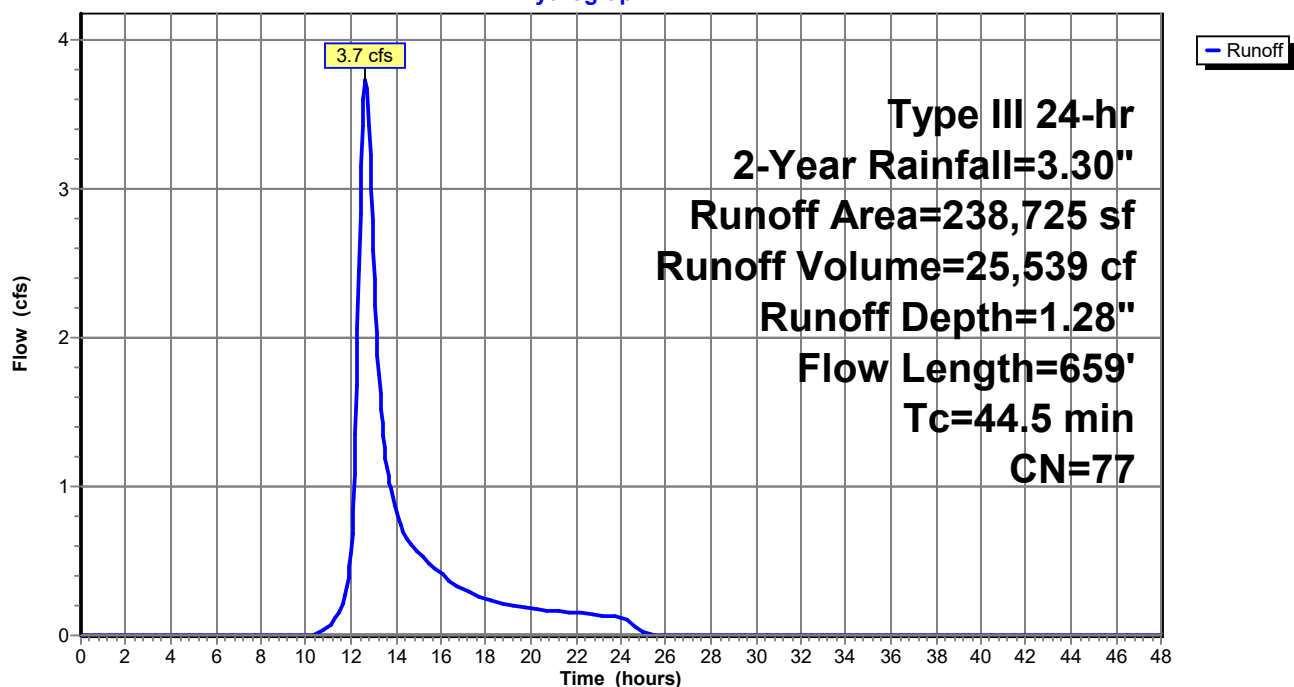
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
235,620	77	Woods, Good, HSG D
3,105	89	Dirt roads, HSG D
238,725	77	Weighted Average
238,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 5

Summary for Subcatchment 1.1:

Runoff = 3.5 cfs @ 12.95 hrs, Volume= 30,343 cf, Depth= 1.35"

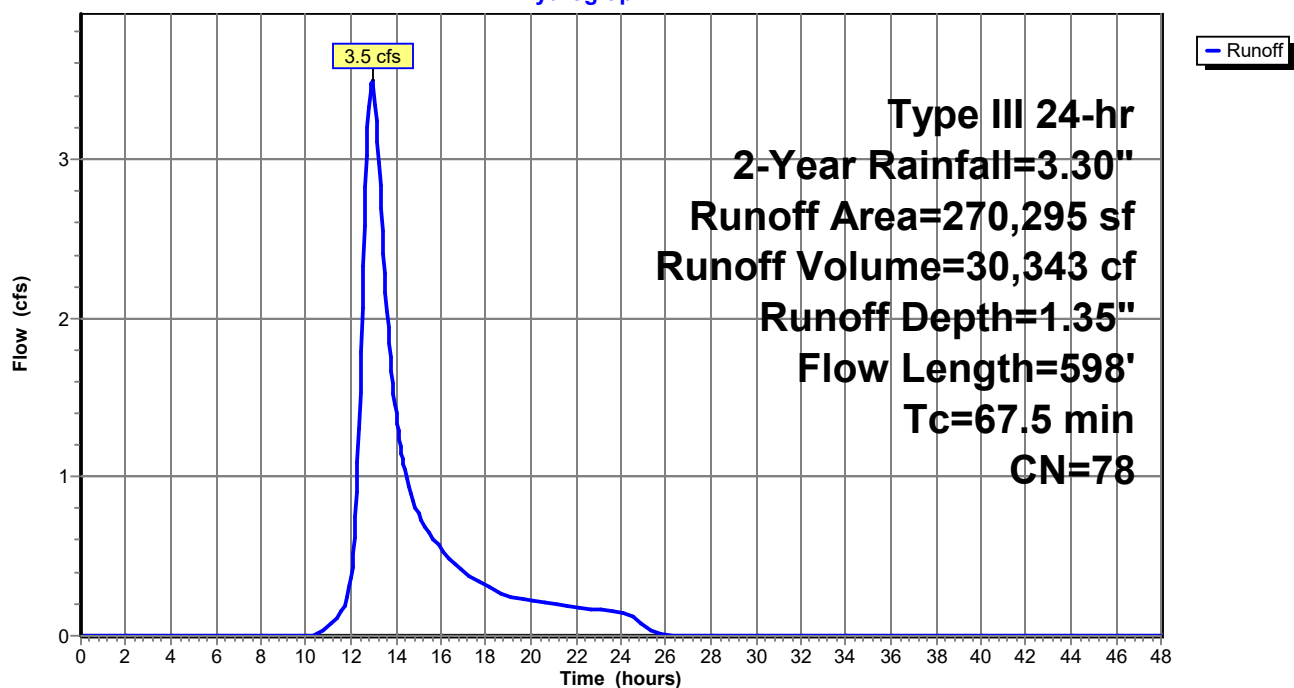
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
255,765	77	Woods, Good, HSG D
1,275	80	>75% Grass cover, Good, HSG D
2,685	98	Paved parking, HSG D
10,570	89	Dirt roads, HSG D
270,295	78	Weighted Average
267,610		99.01% Pervious Area
2,685		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 6

Summary for Subcatchment 1.2:

Runoff = 3.8 cfs @ 12.17 hrs, Volume= 14,598 cf, Depth= 1.35"

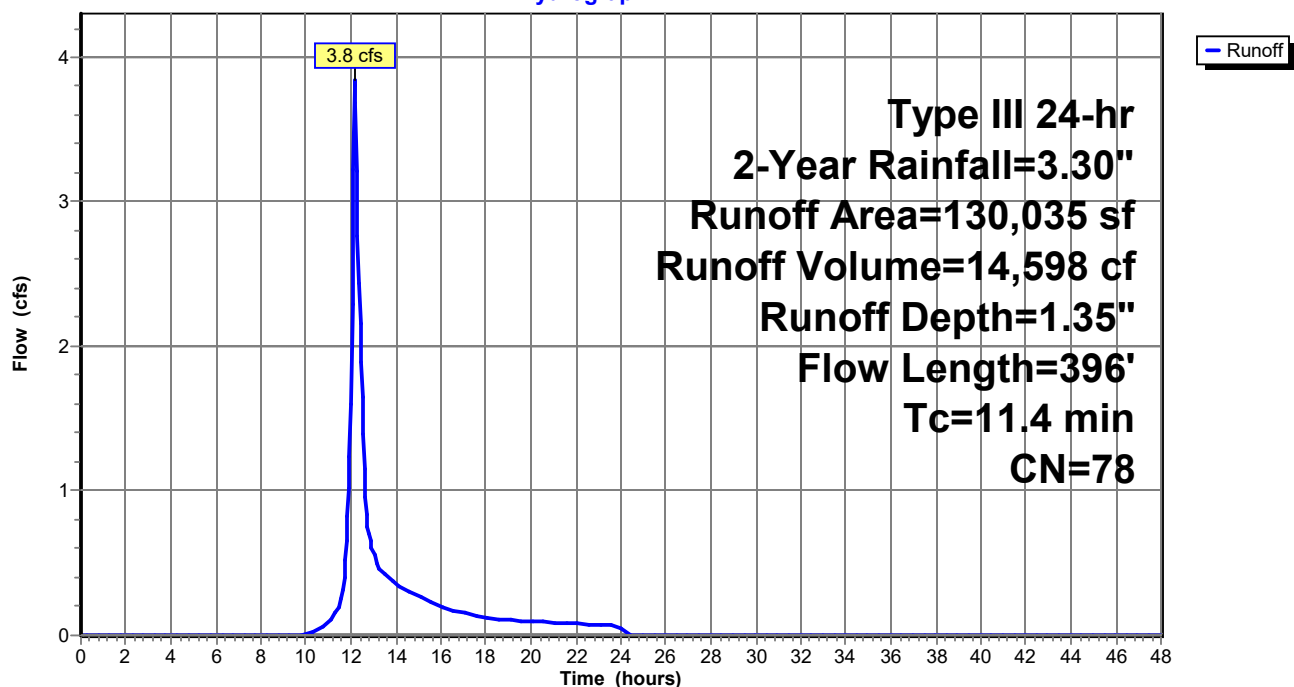
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 7

Summary for Subcatchment 1.3:

Runoff = 4.3 cfs @ 12.80 hrs, Volume= 33,424 cf, Depth= 1.48"

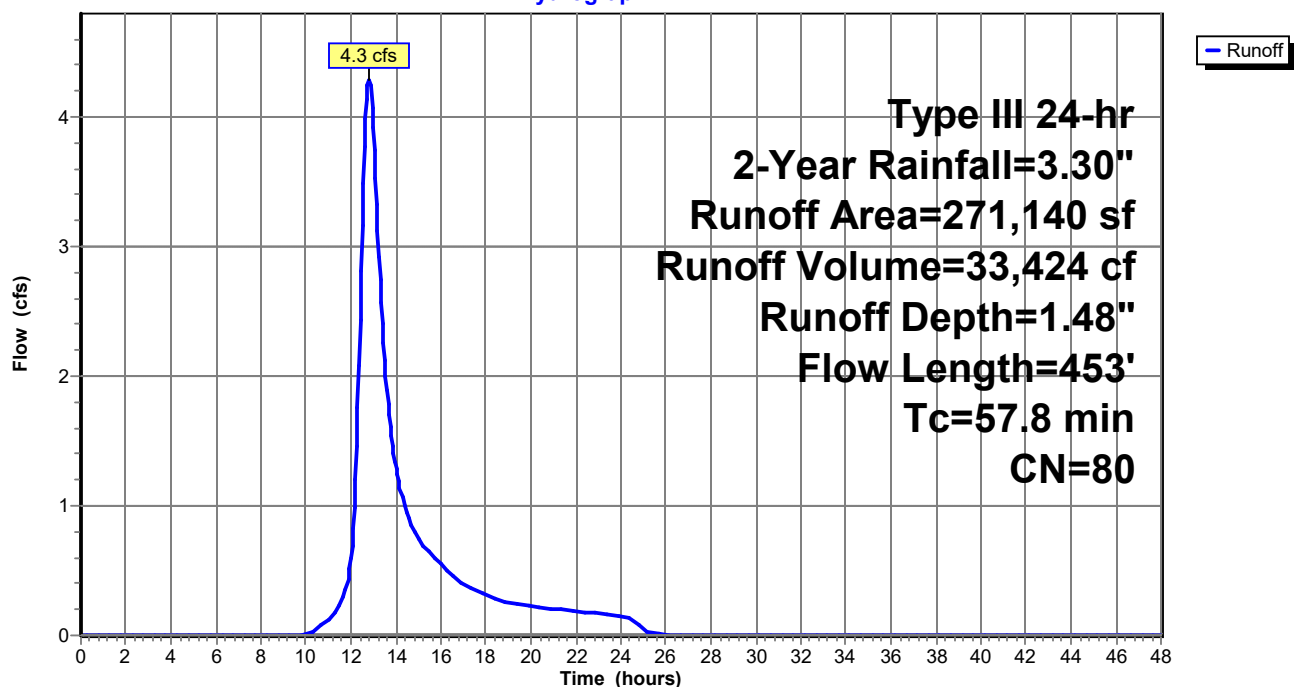
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



Summary for Subcatchment 2.0:

Runoff = 5.0 cfs @ 12.71 hrs, Volume= 36,266 cf, Depth= 1.41"

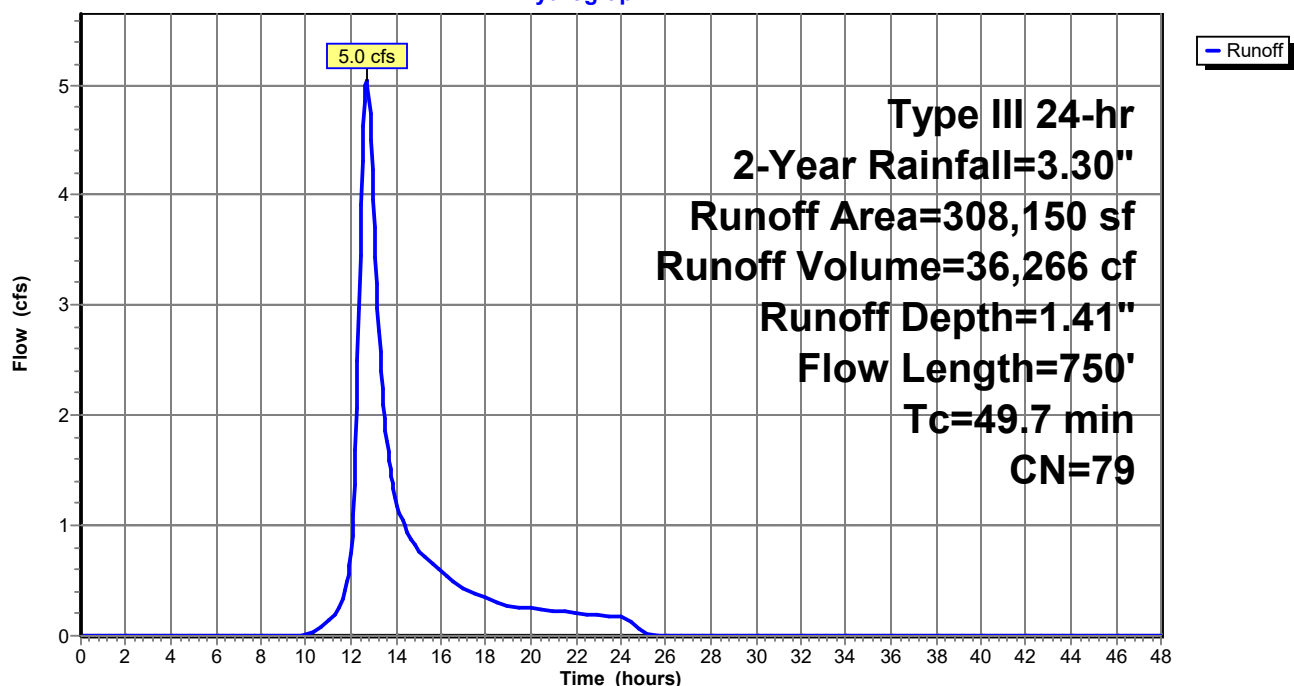
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
275,925	77	Woods, Good, HSG D
8,960	80	>75% Grass cover, Good, HSG D
21,320	98	Paved parking, HSG D
1,945	89	Dirt roads, HSG D
308,150	79	Weighted Average
286,830		93.08% Pervious Area
21,320		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:

Hydrograph



Summary for Subcatchment 3.0:

Runoff = 1.1 cfs @ 12.38 hrs, Volume= 5,831 cf, Depth= 1.28"

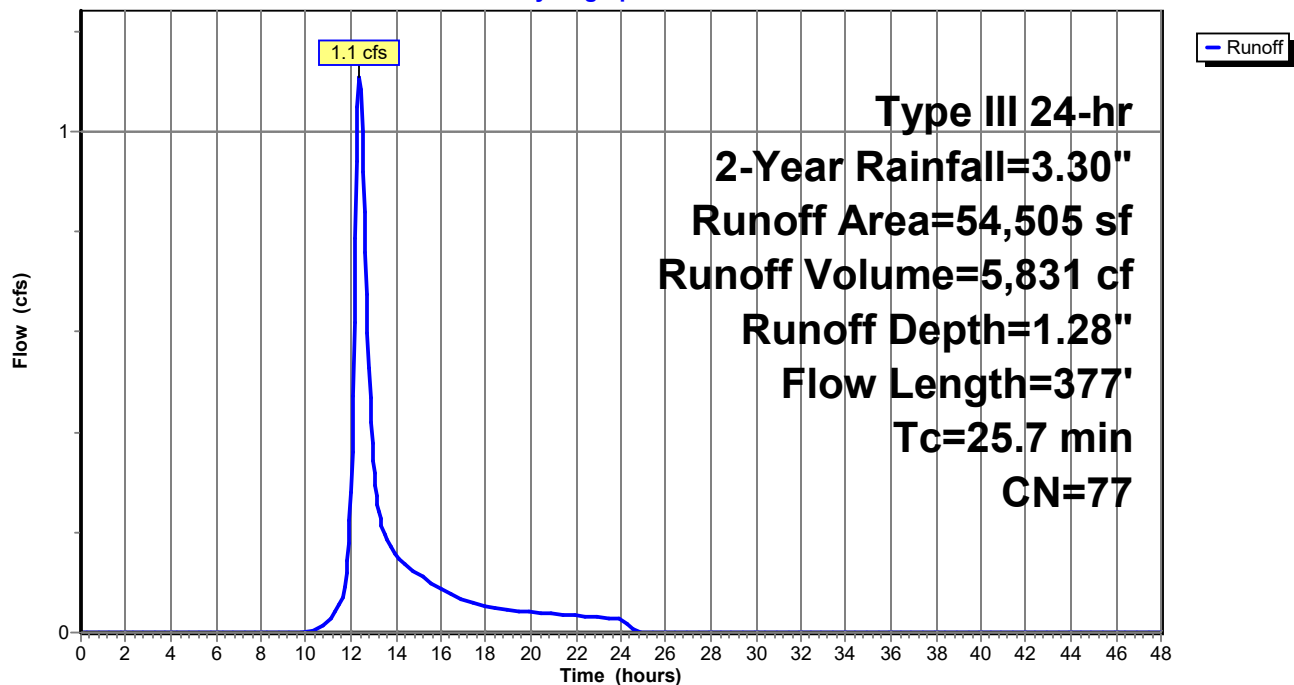
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
54,505	77	Woods, Good, HSG D
54,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	72	0.1600	0.10		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
13.4	305	0.0230	0.38		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
25.7	377	Total			

Subcatchment 3.0:

Hydrograph



Summary for Reach R1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 0.71" for 2-Year event
 Inflow = 2.9 cfs @ 13.29 hrs, Volume= 39,571 cf
 Outflow = 2.8 cfs @ 13.73 hrs, Volume= 39,548 cf, Atten= 2%, Lag= 26.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.36 fps, Min. Travel Time= 15.3 min

Avg. Velocity = 0.12 fps, Avg. Travel Time= 44.7 min

Peak Storage= 2,595 cf @ 13.48 hrs

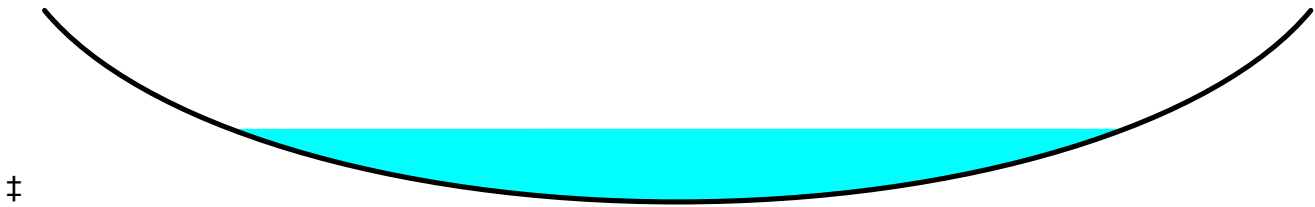
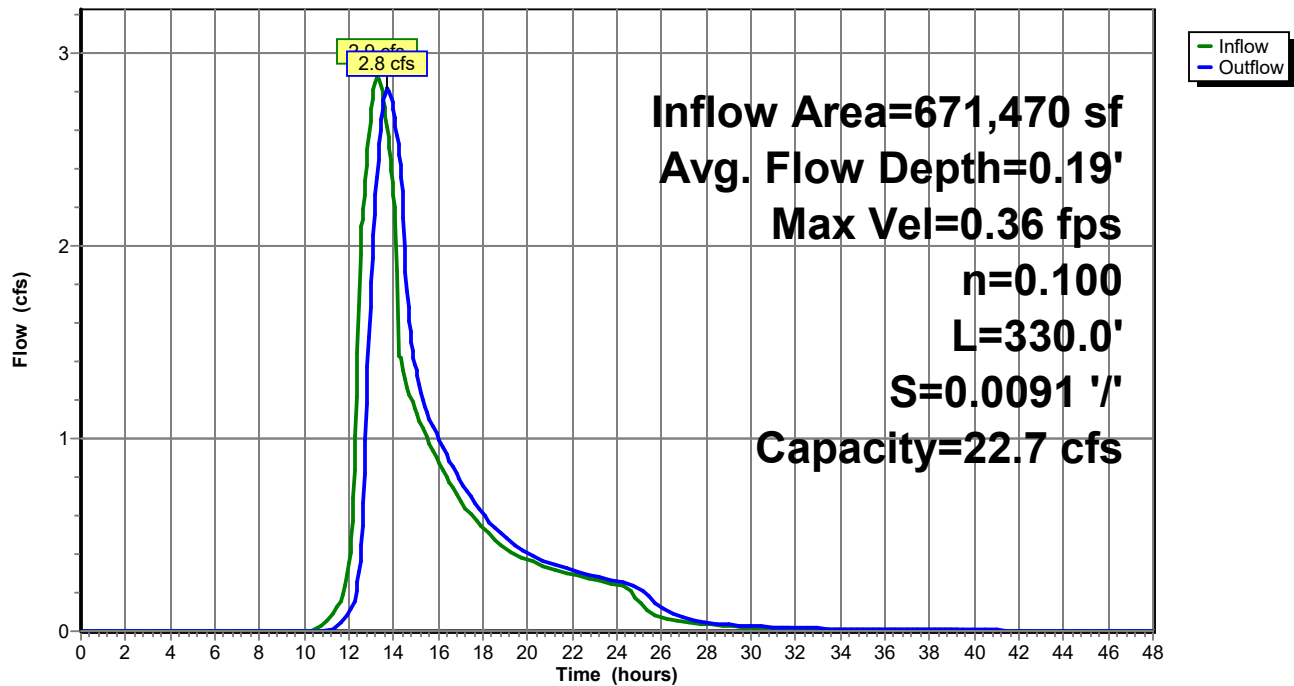
Average Depth at Peak Storage= 0.19'

Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 330.0' Slope= 0.0091 '/'

Inlet Invert= 33.00', Outlet Invert= 30.00'

**Reach R1:****Hydrograph**

Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 0.28" for 2-Year event
 Inflow = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf
 Outflow = 0.4 cfs @ 15.10 hrs, Volume= 9,228 cf, Atten= 8%, Lag= 82.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.20 fps, Min. Travel Time= 39.5 min

Avg. Velocity = 0.10 fps, Avg. Travel Time= 81.0 min

Peak Storage= 862 cf @ 14.44 hrs

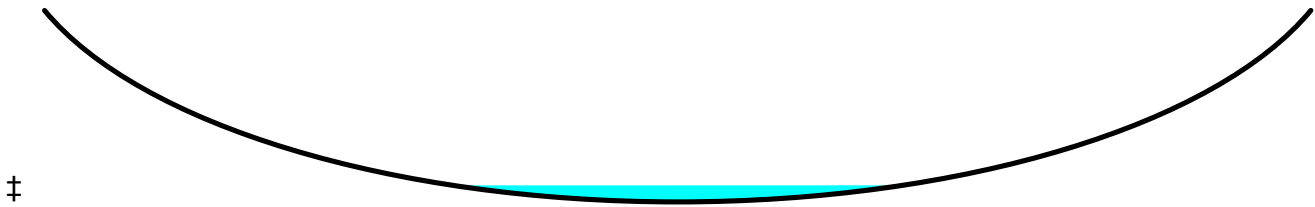
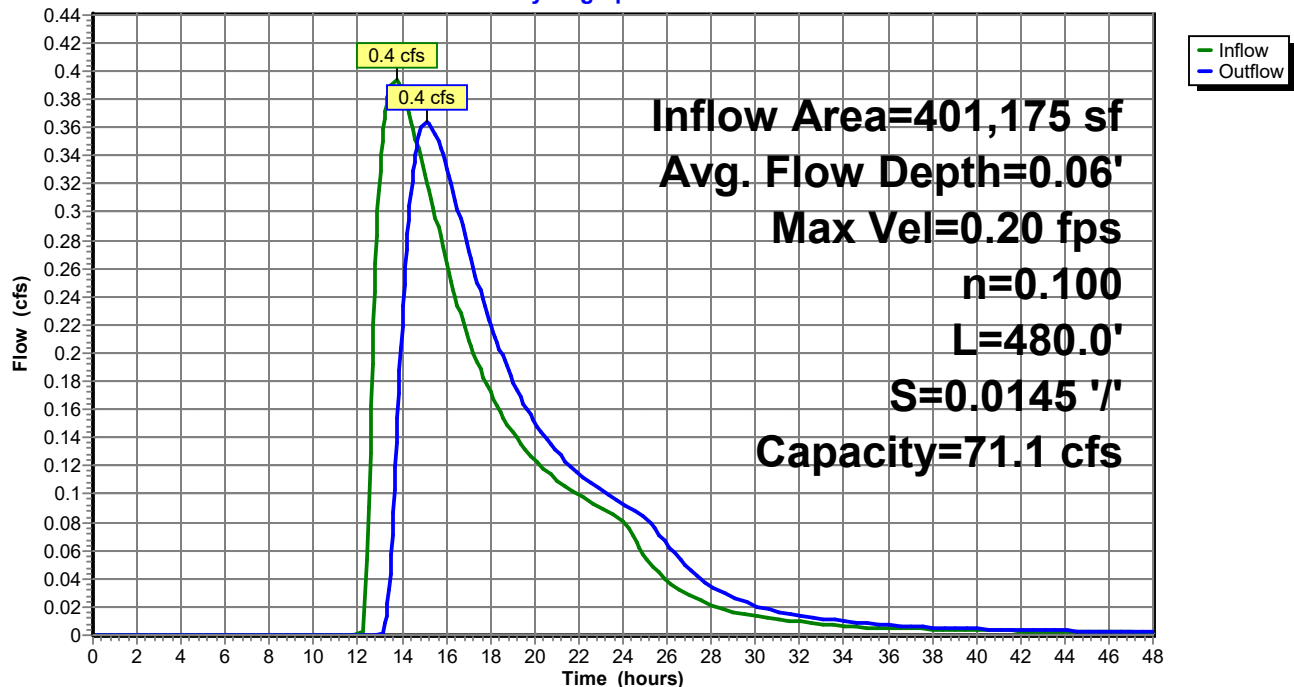
Average Depth at Peak Storage= 0.06'

Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 480.0' Slope= 0.0145 '/'

Inlet Invert= 40.23', Outlet Invert= 33.26'

**Reach R2:****Hydrograph**

Summary for Pond C1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 0.71" for 2-Year event
 Inflow = 3.5 cfs @ 12.95 hrs, Volume= 39,571 cf
 Outflow = 2.9 cfs @ 13.29 hrs, Volume= 39,571 cf, Atten= 17%, Lag= 20.3 min
 Primary = 2.9 cfs @ 13.29 hrs, Volume= 39,571 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 34.18' @ 13.29 hrs Surf.Area= 12,723 sf Storage= 1,791 cf

Flood Elev= 34.76' Surf.Area= 31,144 sf Storage= 14,457 cf

Plug-Flow detention time= 3.3 min calculated for 39,529 cf (100% of inflow)

Center-of-Mass det. time= 3.3 min (970.6 - 967.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

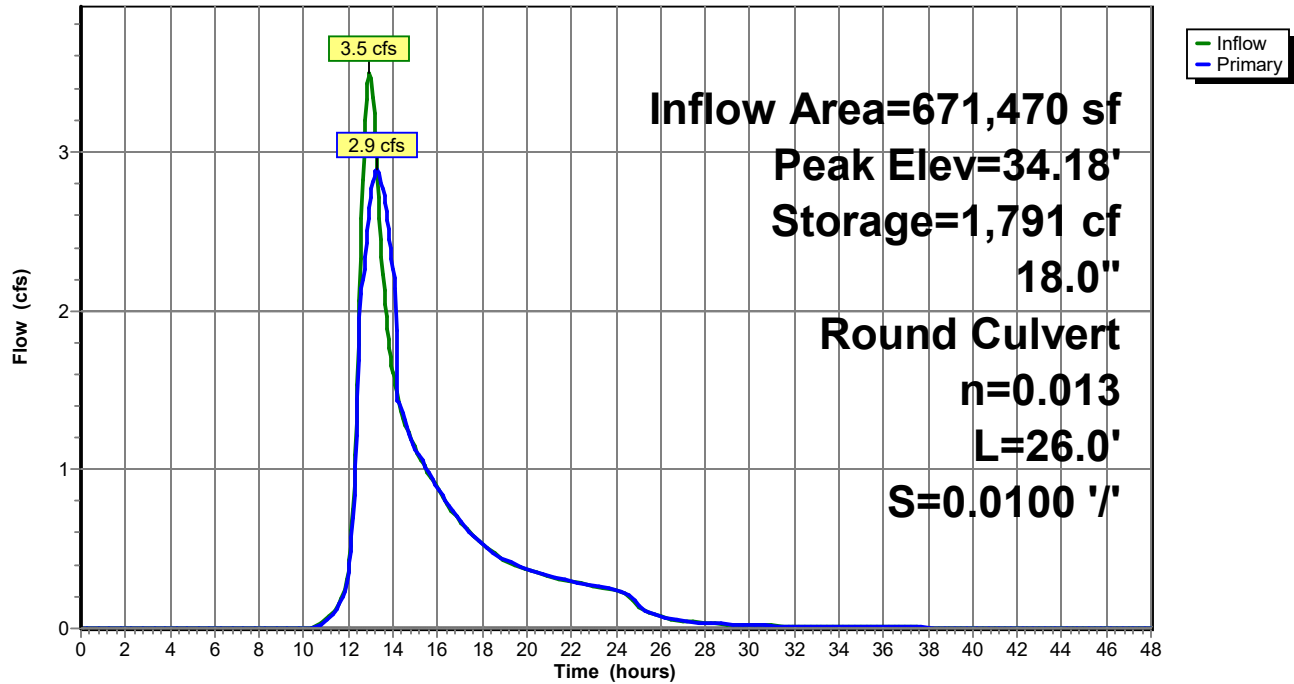
Device	Routing	Invert	Outlet Devices
#1	Primary	33.26'	18.0" Round Culvert L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.26' / 33.00' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.9 cfs @ 13.29 hrs HW=34.18' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 2.9 cfs @ 3.62 fps)

Pond C1:

Hydrograph



Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 0.44" for 2-Year event
 Inflow = 3.8 cfs @ 12.17 hrs, Volume= 14,598 cf
 Outflow = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf, Atten= 90%, Lag= 93.4 min
 Primary = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.46' @ 13.72 hrs Surf.Area= 8,283 sf Storage= 7,794 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 344.9 min calculated for 9,256 cf (63% of inflow)
 Center-of-Mass det. time= 233.9 min (1,086.4 - 852.5)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

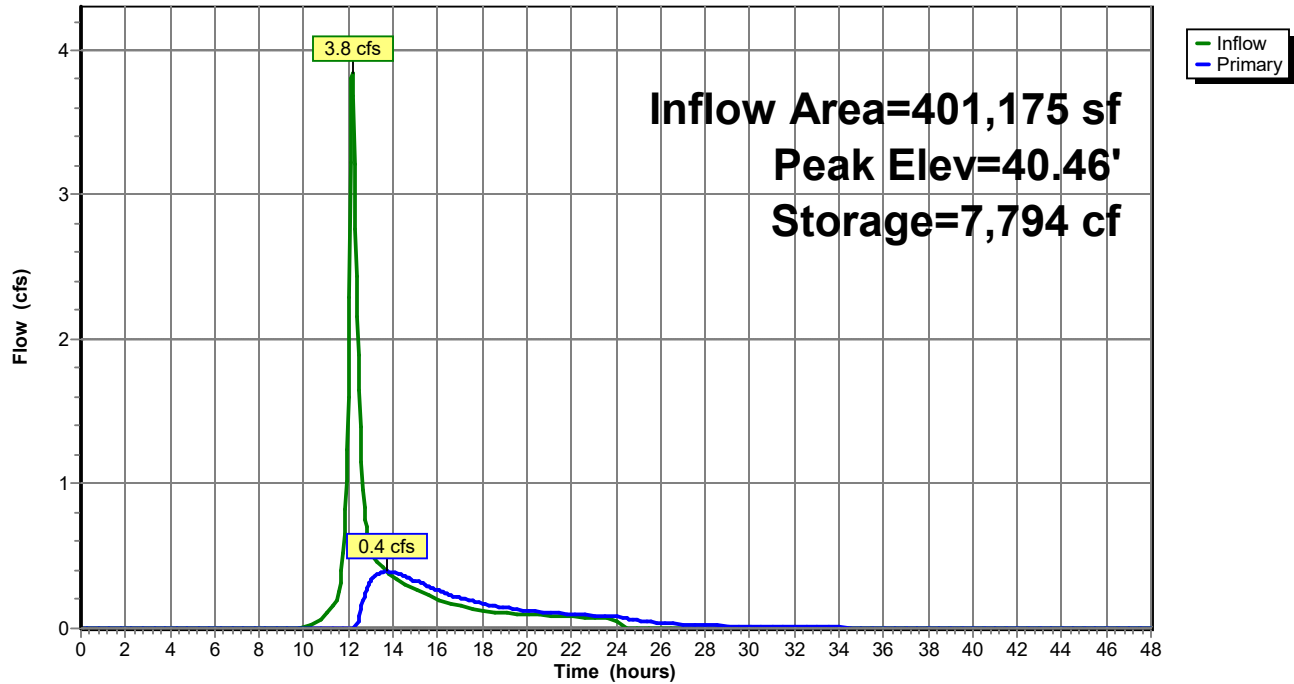
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.4 cfs @ 13.72 hrs HW=40.46' (Free Discharge)

1=Culvert (Barrel Controls 0.0 cfs @ 1.18 fps)

2=Culvert (Inlet Controls 0.4 cfs @ 1.55 fps)

Pond C2:**Hydrograph**

Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 1.48" for 2-Year event
 Inflow = 4.3 cfs @ 12.80 hrs, Volume= 33,424 cf
 Outflow = 2.1 cfs @ 13.52 hrs, Volume= 33,398 cf, Atten= 52%, Lag= 43.2 min
 Discarded = 2.1 cfs @ 13.52 hrs, Volume= 33,398 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.68' @ 13.52 hrs Surf.Area= 26,940 sf Storage= 10,399 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 97.3 min calculated for 33,398 cf (100% of inflow)
 Center-of-Mass det. time= 96.8 min (986.0 - 889.2)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

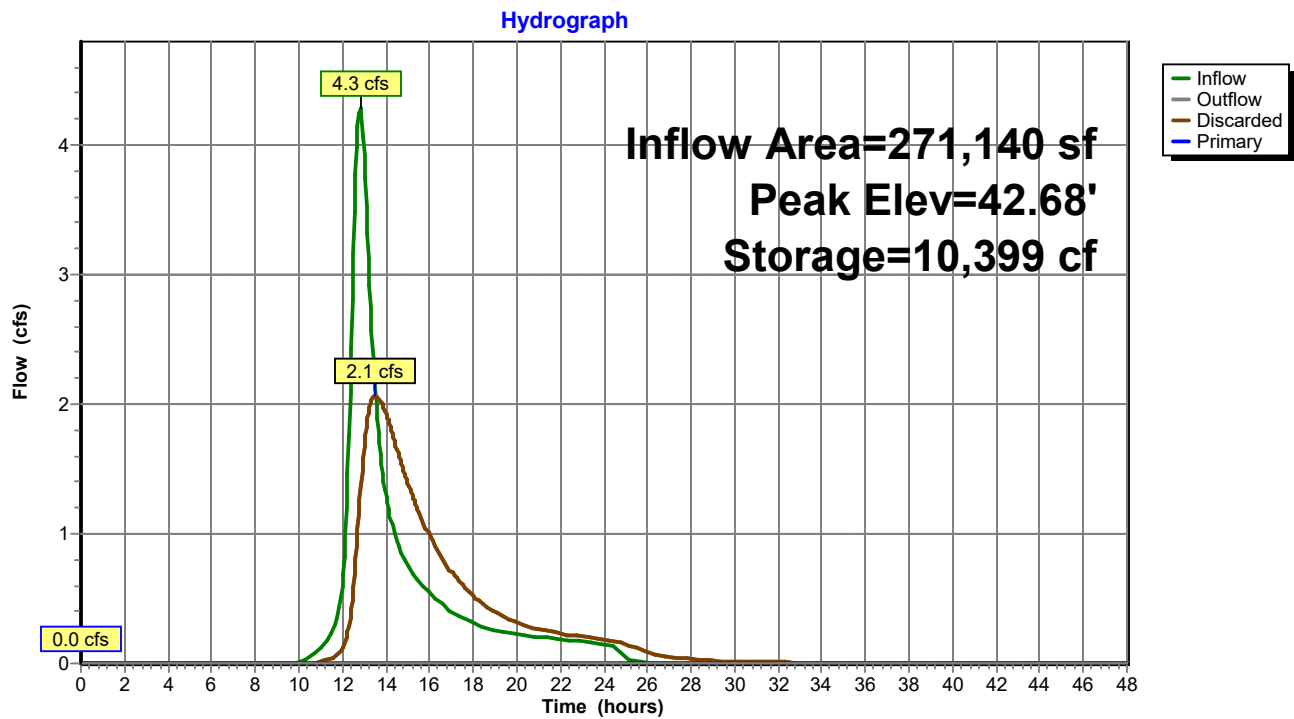
Discarded OutFlow Max=2.1 cfs @ 13.52 hrs HW=42.68' (Free Discharge)

↑**2=Culvert** (Inlet Controls 2.1 cfs @ 2.21 fps)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=42.00' (Free Discharge)

↑**1=Culvert** (Controls 0.0 cfs)

Pond C3:



Summary for Pond C4:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 5.0 cfs @ 12.71 hrs, Volume= 36,266 cf
 Outflow = 3.9 cfs @ 13.02 hrs, Volume= 35,920 cf, Atten= 24%, Lag= 19.0 min
 Primary = 3.9 cfs @ 13.02 hrs, Volume= 35,920 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.01' @ 13.02 hrs Surf.Area= 11,024 sf Storage= 6,883 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 54.7 min calculated for 35,920 cf (99% of inflow)
 Center-of-Mass det. time= 49.0 min (933.9 - 884.9)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

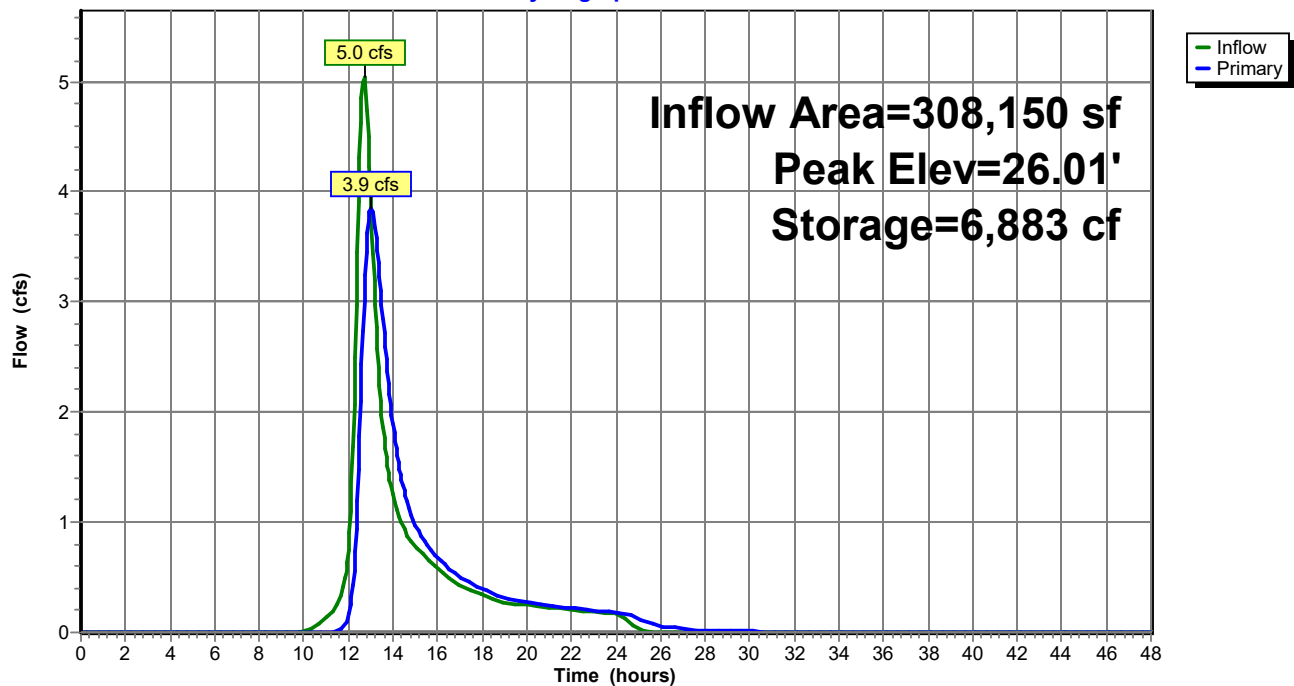
Primary OutFlow Max=3.8 cfs @ 13.02 hrs HW=26.01' (Free Discharge)

1=Culvert (Inlet Controls 1.8 cfs @ 2.33 fps)

2=Culvert (Barrel Controls 2.1 cfs @ 2.99 fps)

Pond C4:

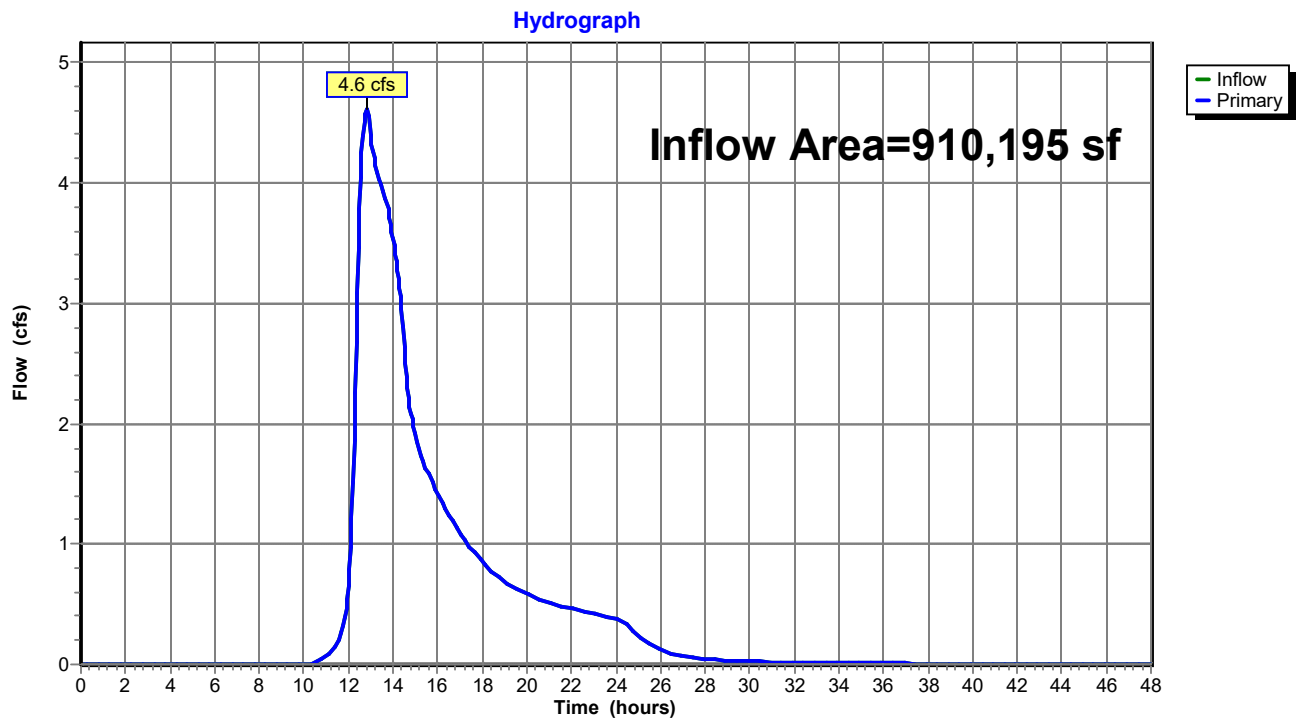
Hydrograph



Summary for Link AP1:

Inflow Area = 910,195 sf, 5.23% Impervious, Inflow Depth > 0.86" for 2-Year event
Inflow = 4.6 cfs @ 12.81 hrs, Volume= 65,087 cf
Primary = 4.6 cfs @ 12.81 hrs, Volume= 65,087 cf, Atten= 0%, Lag= 0.0 min

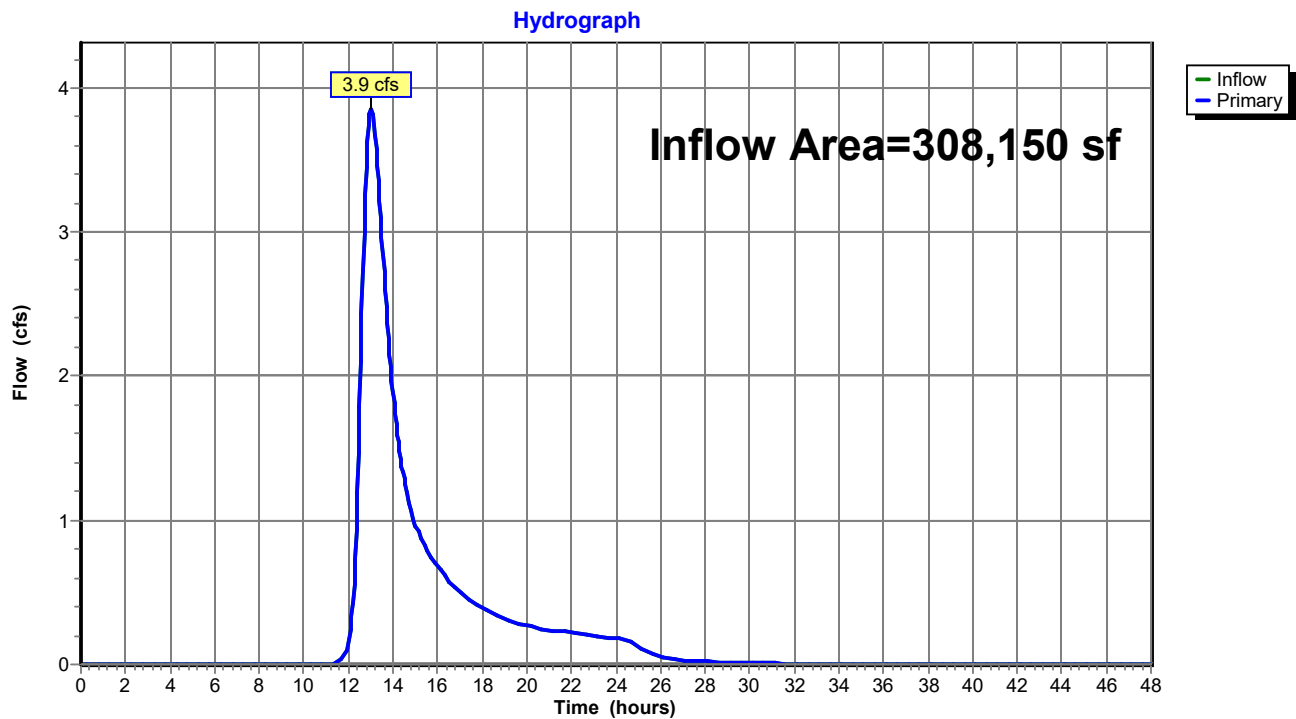
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

Summary for Link AP2:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth > 1.40" for 2-Year event
Inflow = 3.9 cfs @ 13.02 hrs, Volume= 35,920 cf
Primary = 3.9 cfs @ 13.02 hrs, Volume= 35,920 cf, Atten= 0%, Lag= 0.0 min

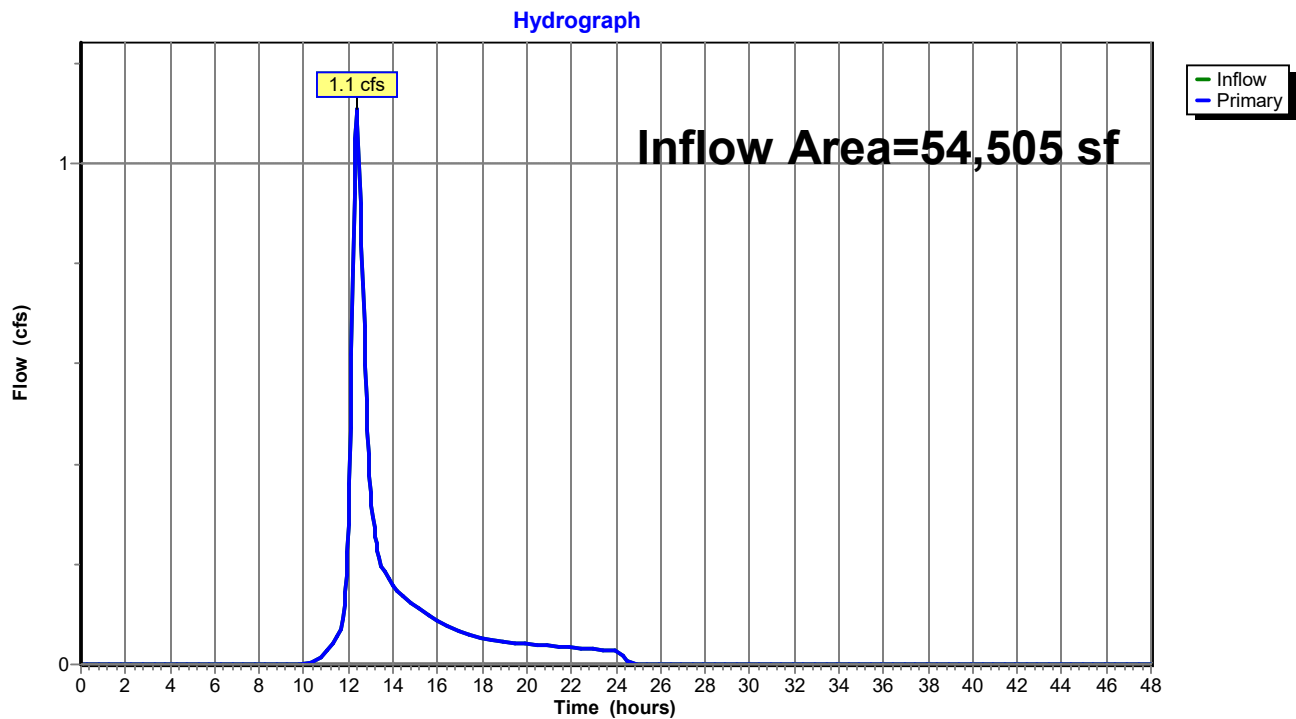
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

Summary for Link AP3:

Inflow Area = 54,505 sf, 0.00% Impervious, Inflow Depth = 1.28" for 2-Year event
Inflow = 1.1 cfs @ 12.38 hrs, Volume= 5,831 cf
Primary = 1.1 cfs @ 12.38 hrs, Volume= 5,831 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:

Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 23

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=2.54" Flow Length=659' Tc=44.5 min CN=77 Runoff=7.6 cfs 50,521 cf
Subcatchment 1.1:	Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=2.63" Flow Length=598' Tc=67.5 min CN=78 Runoff=7.0 cfs 59,172 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=2.63" Flow Length=396' Tc=11.4 min CN=78 Runoff=7.6 cfs 28,467 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=2.81" Flow Length=453' Tc=57.8 min CN=80 Runoff=8.2 cfs 63,397 cf
Subcatchment 2.0:	Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=2.72" Flow Length=750' Tc=49.7 min CN=79 Runoff=9.9 cfs 69,738 cf
Subcatchment 3.0:	Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=2.54" Flow Length=377' Tc=25.7 min CN=77 Runoff=2.2 cfs 11,535 cf
Reach R1:	Avg. Flow Depth=0.26' Max Vel=0.44 fps Inflow=5.5 cfs 83,984 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=5.4 cfs 83,961 cf
Reach R2:	Avg. Flow Depth=0.12' Max Vel=0.34 fps Inflow=2.6 cfs 24,840 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=2.0 cfs 24,812 cf
Pond C1:	Peak Elev=34.66' Storage=11,630 cf Inflow=8.4 cfs 83,984 cf 18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=5.5 cfs 83,984 cf
Pond C2:	Peak Elev=40.93' Storage=11,993 cf Inflow=7.6 cfs 30,188 cf Outflow=2.6 cfs 24,840 cf
Pond C3:	Peak Elev=42.96' Storage=19,486 cf Inflow=8.2 cfs 63,397 cf Discarded=3.9 cfs 61,648 cf Primary=0.4 cfs 1,721 cf Outflow=4.3 cfs 63,369 cf
Pond C4:	Peak Elev=26.49' Storage=12,411 cf Inflow=9.9 cfs 69,738 cf Outflow=7.5 cfs 69,392 cf
Link AP1:	Inflow=9.4 cfs 134,482 cf Primary=9.4 cfs 134,482 cf
Link AP2:	Inflow=7.5 cfs 69,392 cf Primary=7.5 cfs 69,392 cf
Link AP3:	Inflow=2.2 cfs 11,535 cf Primary=2.2 cfs 11,535 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 282,831 cf Average Runoff Depth = 2.67"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Summary for Subcatchment 1.0:

Runoff = 7.6 cfs @ 12.62 hrs, Volume= 50,521 cf, Depth= 2.54"

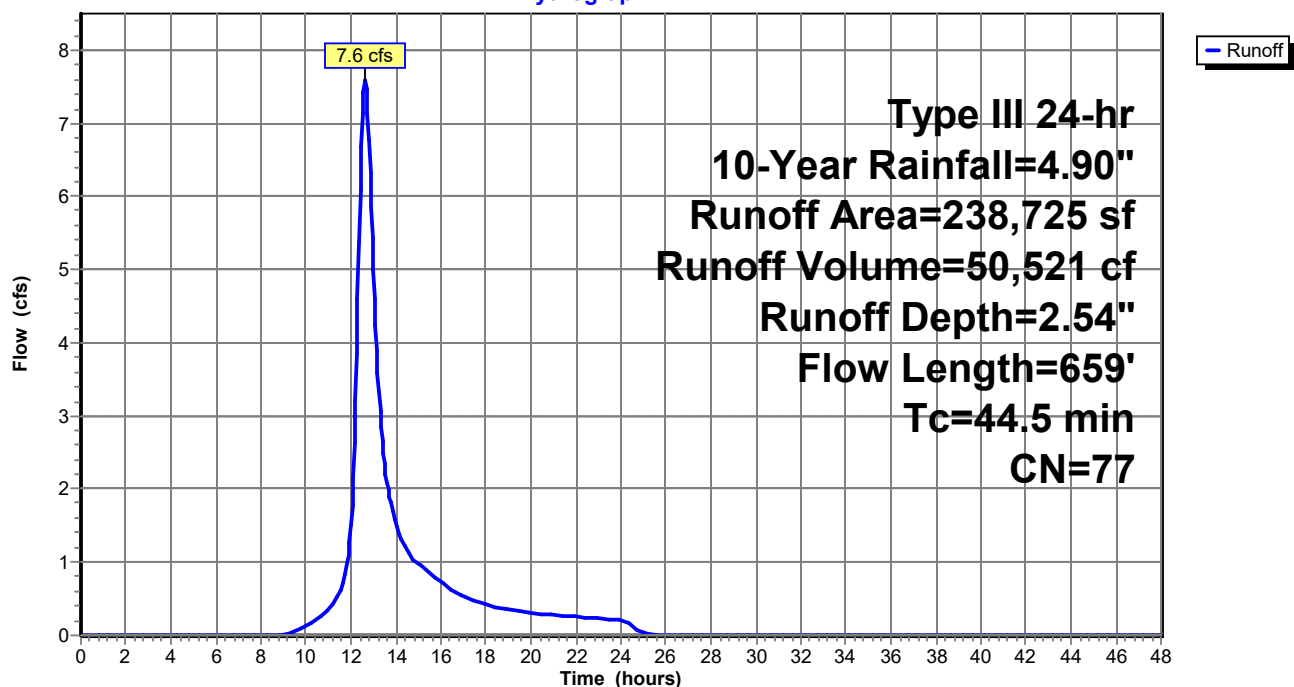
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
235,620	77	Woods, Good, HSG D
3,105	89	Dirt roads, HSG D
238,725	77	Weighted Average
238,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 25

Summary for Subcatchment 1.1:

Runoff = 7.0 cfs @ 12.92 hrs, Volume= 59,172 cf, Depth= 2.63"

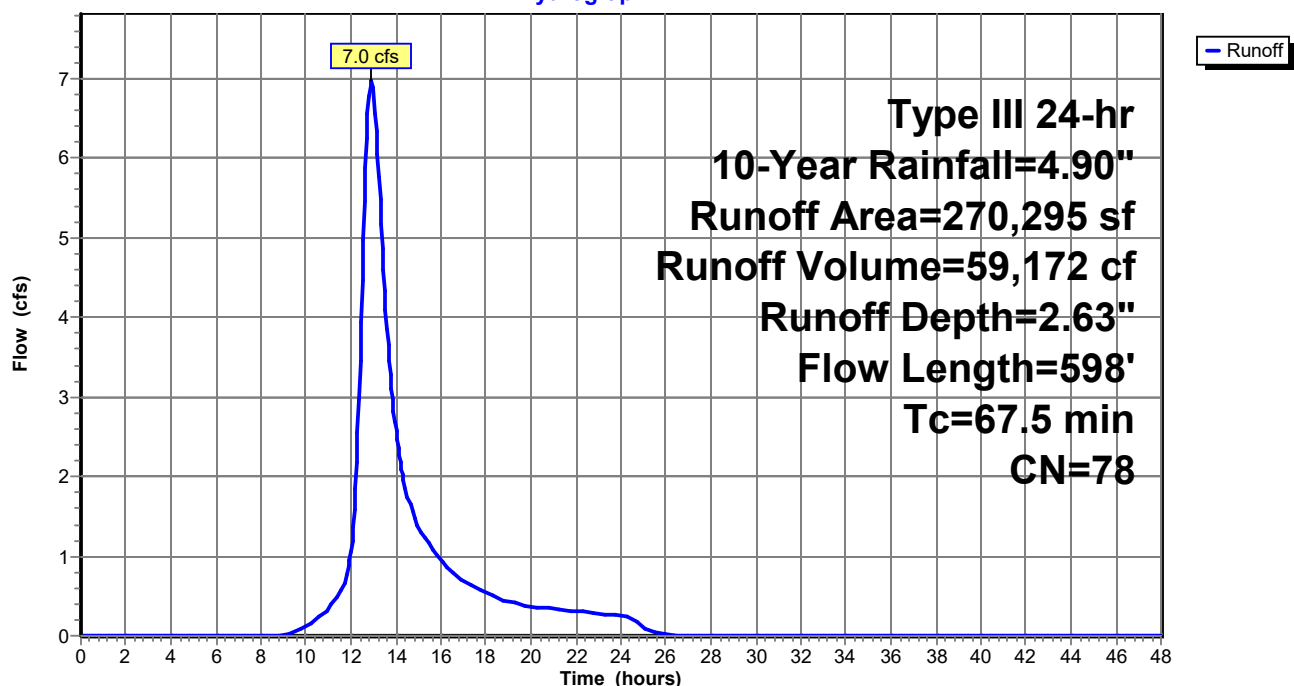
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
255,765	77	Woods, Good, HSG D
1,275	80	>75% Grass cover, Good, HSG D
2,685	98	Paved parking, HSG D
10,570	89	Dirt roads, HSG D
270,295	78	Weighted Average
267,610		99.01% Pervious Area
2,685		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 26

Summary for Subcatchment 1.2:

Runoff = 7.6 cfs @ 12.16 hrs, Volume= 28,467 cf, Depth= 2.63"

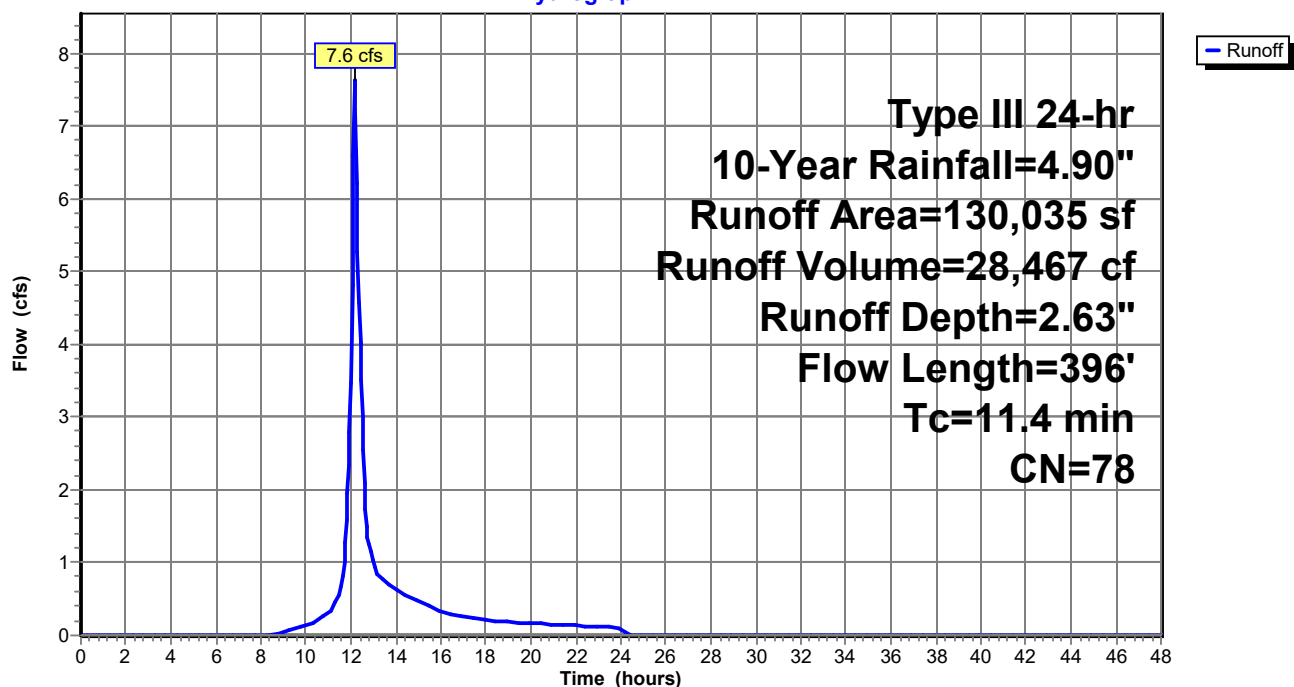
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 27

Summary for Subcatchment 1.3:

Runoff = 8.2 cfs @ 12.79 hrs, Volume= 63,397 cf, Depth= 2.81"

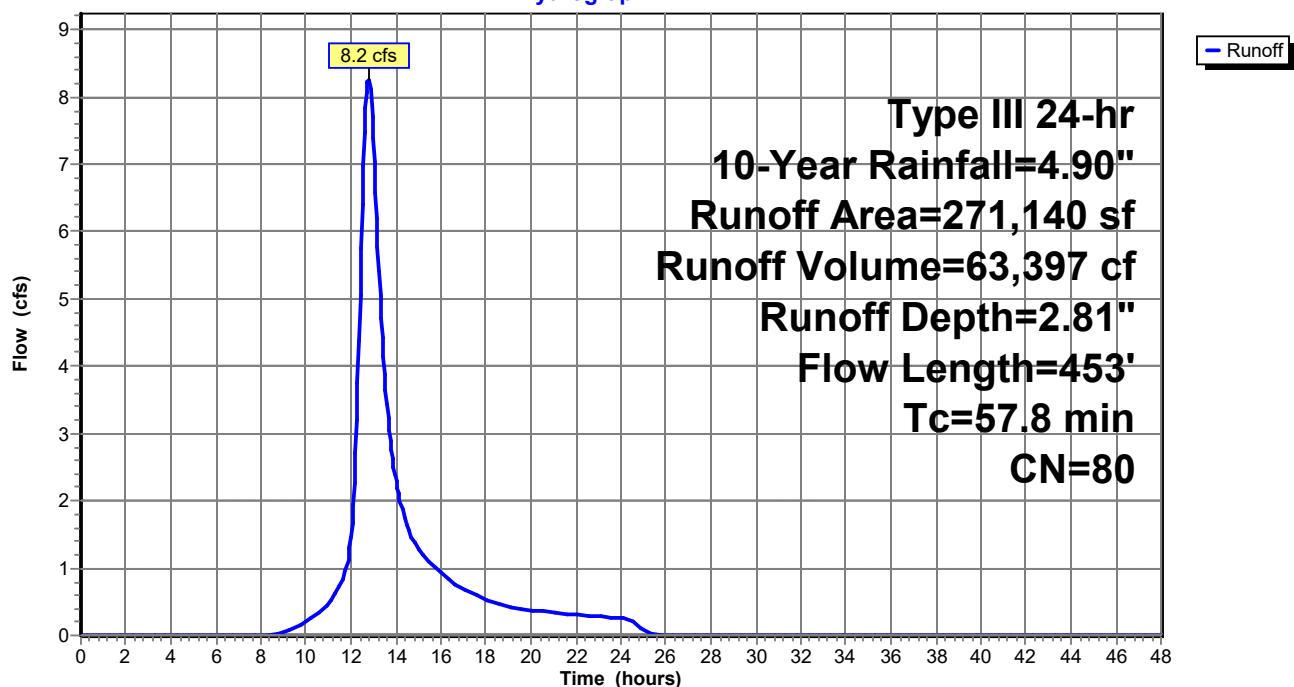
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 28

Summary for Subcatchment 2.0:

Runoff = 9.9 cfs @ 12.68 hrs, Volume= 69,738 cf, Depth= 2.72"

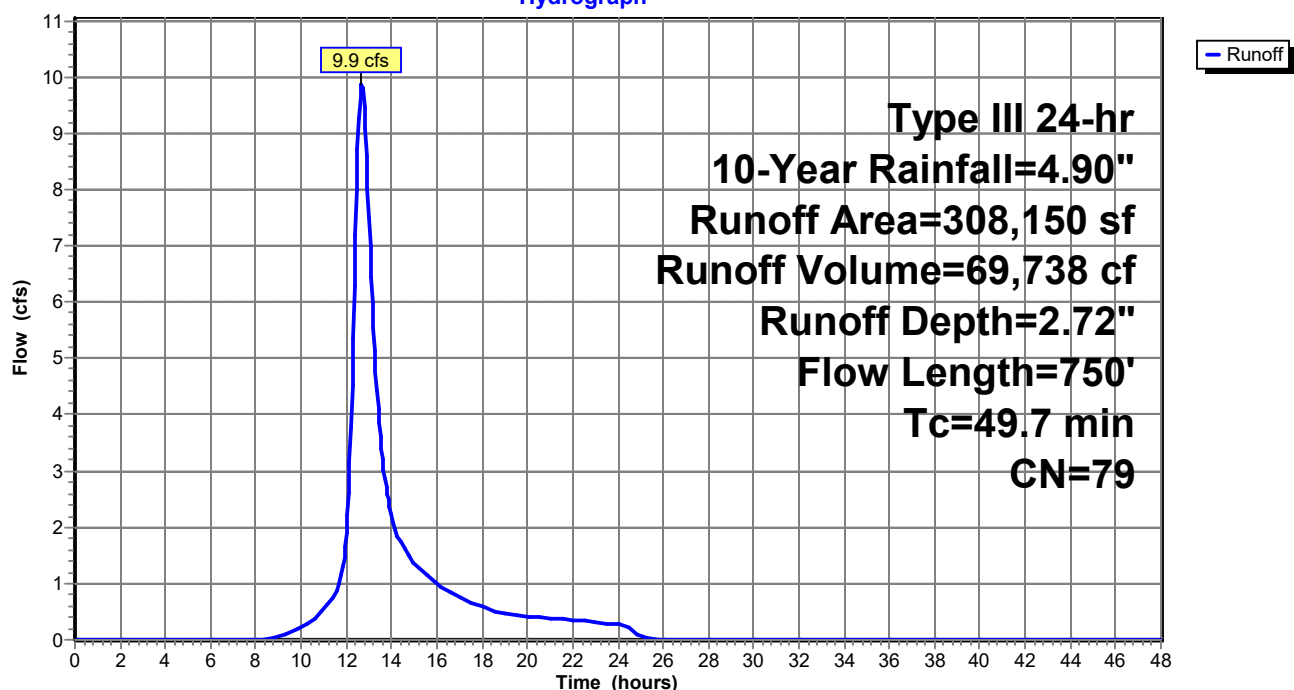
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
275,925	77	Woods, Good, HSG D
8,960	80	>75% Grass cover, Good, HSG D
21,320	98	Paved parking, HSG D
1,945	89	Dirt roads, HSG D
308,150	79	Weighted Average
286,830		93.08% Pervious Area
21,320		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 29

Summary for Subcatchment 3.0:

Runoff = 2.2 cfs @ 12.36 hrs, Volume= 11,535 cf, Depth= 2.54"

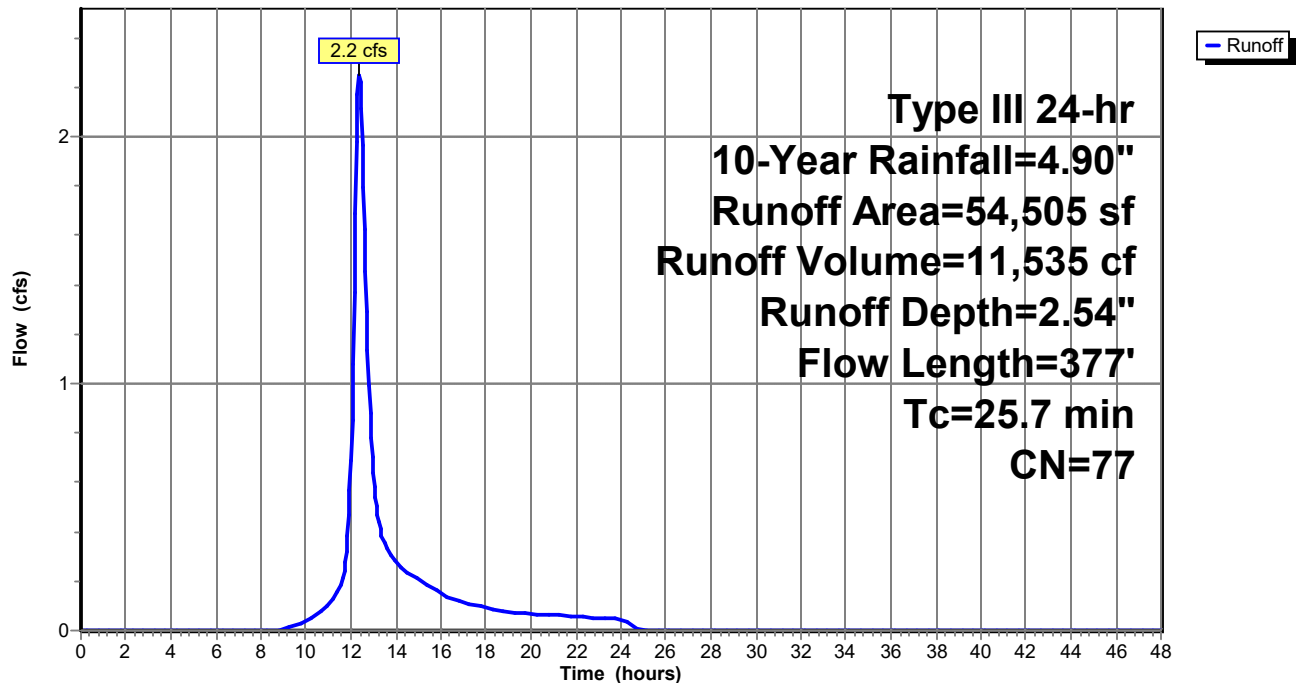
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
54,505	77	Woods, Good, HSG D
54,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	72	0.1600	0.10		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
13.4	305	0.0230	0.38		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
25.7	377	Total			

Subcatchment 3.0:

Hydrograph



Summary for Reach R1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 1.50" for 10-Year event
 Inflow = 5.5 cfs @ 13.65 hrs, Volume= 83,984 cf
 Outflow = 5.4 cfs @ 14.03 hrs, Volume= 83,961 cf, Atten= 1%, Lag= 23.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.44 fps, Min. Travel Time= 12.5 min

Avg. Velocity = 0.14 fps, Avg. Travel Time= 38.2 min

Peak Storage= 4,091 cf @ 13.82 hrs

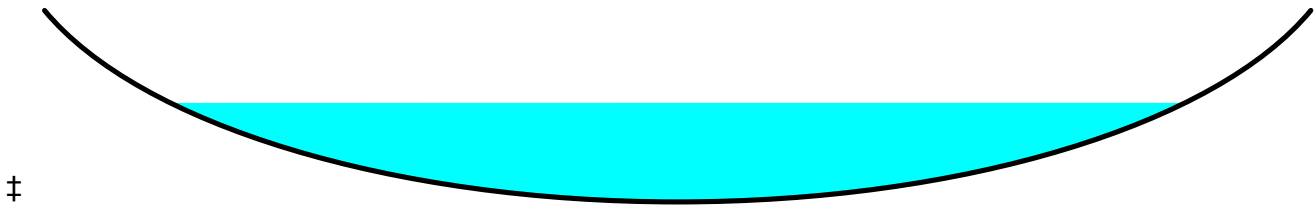
Average Depth at Peak Storage= 0.26'

Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

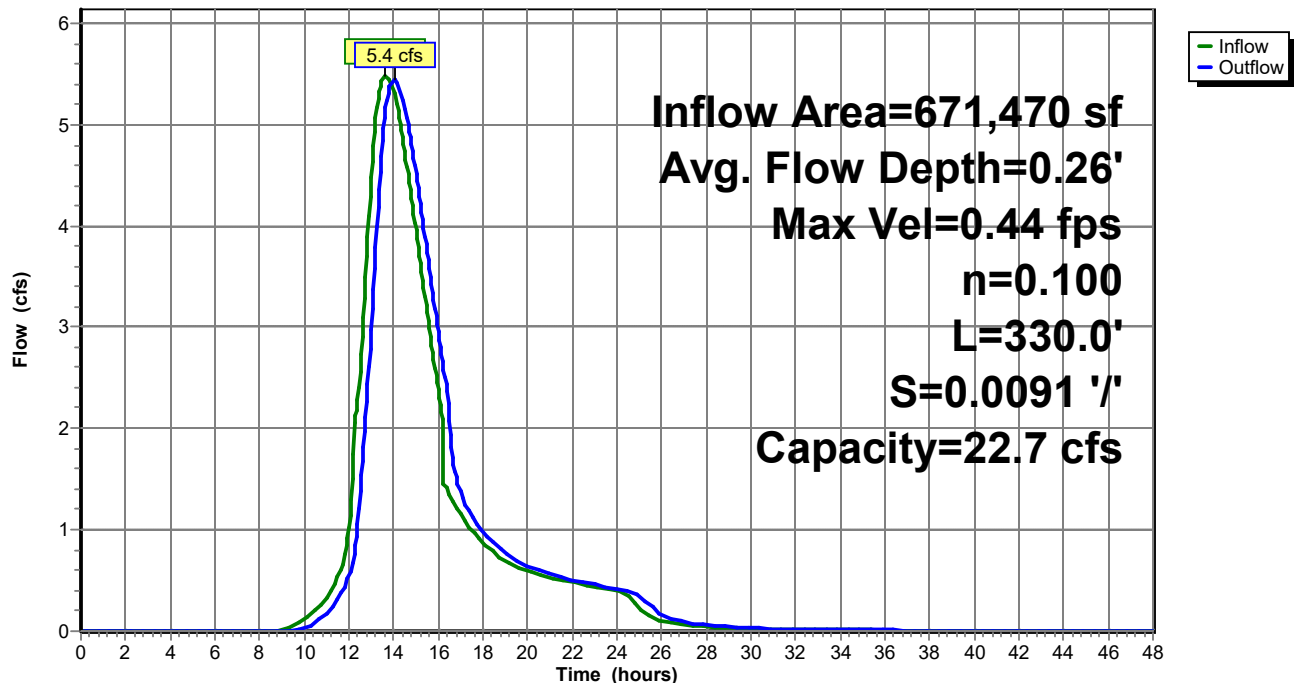
100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 330.0' Slope= 0.0091 '/'

Inlet Invert= 33.00', Outlet Invert= 30.00'

**Reach R1:**

Hydrograph



Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 0.74" for 10-Year event
 Inflow = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf
 Outflow = 2.0 cfs @ 13.32 hrs, Volume= 24,812 cf, Atten= 23%, Lag= 46.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.34 fps, Min. Travel Time= 23.5 min

Avg. Velocity = 0.12 fps, Avg. Travel Time= 67.5 min

Peak Storage= 2,790 cf @ 12.93 hrs

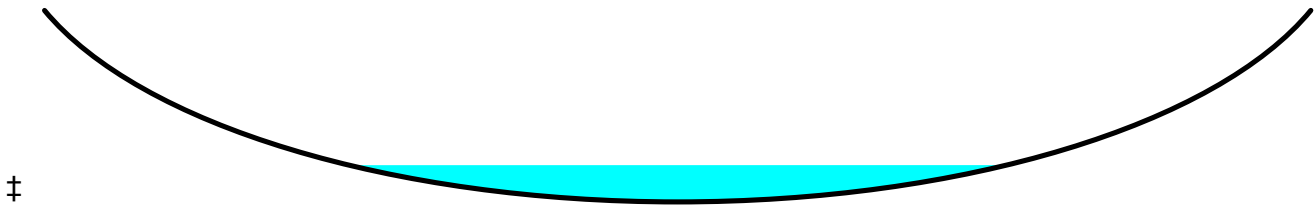
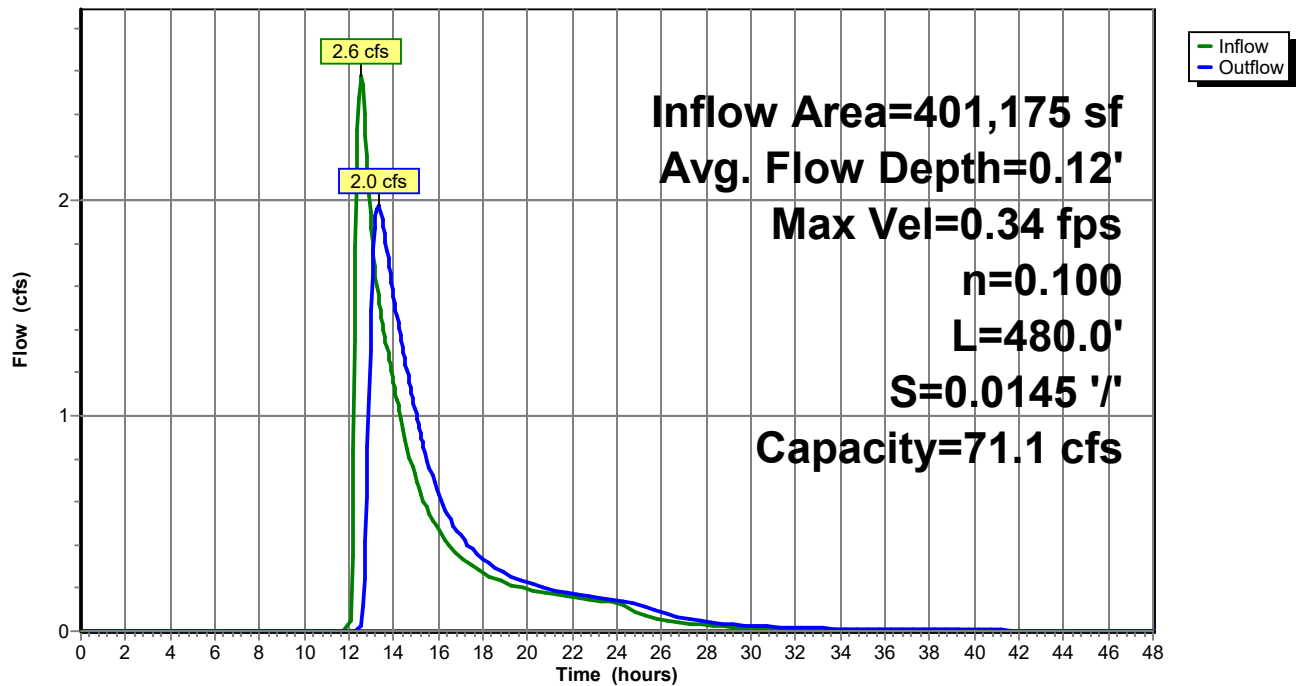
Average Depth at Peak Storage= 0.12'

Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 480.0' Slope= 0.0145 '/'

Inlet Invert= 40.23', Outlet Invert= 33.26'

**Reach R2:****Hydrograph**

Summary for Pond C1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 1.50" for 10-Year event
 Inflow = 8.4 cfs @ 13.03 hrs, Volume= 83,984 cf
 Outflow = 5.5 cfs @ 13.65 hrs, Volume= 83,984 cf, Atten= 35%, Lag= 36.7 min
 Primary = 5.5 cfs @ 13.65 hrs, Volume= 83,984 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.66' @ 13.65 hrs Surf.Area= 28,100 sf Storage= 11,630 cf
 Flood Elev= 34.76' Surf.Area= 31,144 sf Storage= 14,457 cf

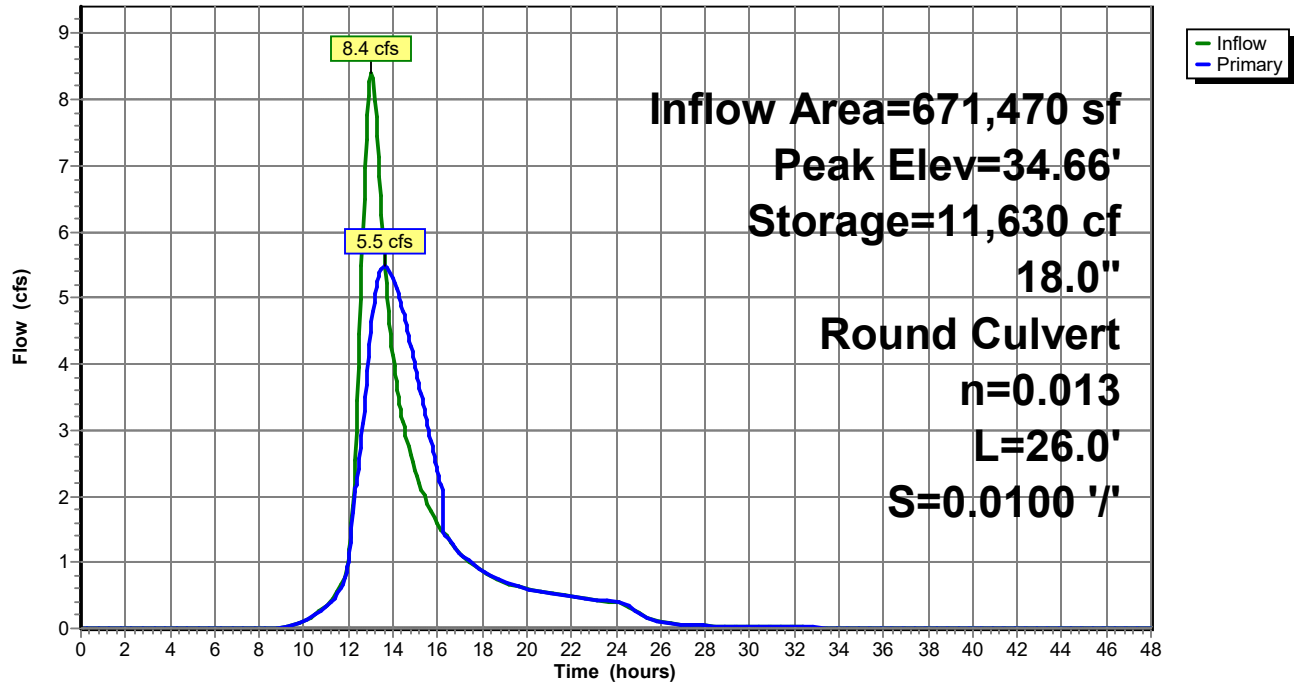
Plug-Flow detention time= 16.9 min calculated for 83,984 cf (100% of inflow)
 Center-of-Mass det. time= 16.9 min (939.0 - 922.1)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	33.26'	18.0" Round Culvert L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.26' / 33.00' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.5 cfs @ 13.65 hrs HW=34.66' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 5.5 cfs @ 3.19 fps)

Pond C1:**Hydrograph**

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 0.90" for 10-Year event
 Inflow = 7.6 cfs @ 12.16 hrs, Volume= 30,188 cf
 Outflow = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf, Atten= 66%, Lag= 23.2 min
 Primary = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.93' @ 12.55 hrs Surf.Area= 9,771 sf Storage= 11,993 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 191.2 min calculated for 24,840 cf (82% of inflow)
 Center-of-Mass det. time= 121.2 min (953.4 - 832.3)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

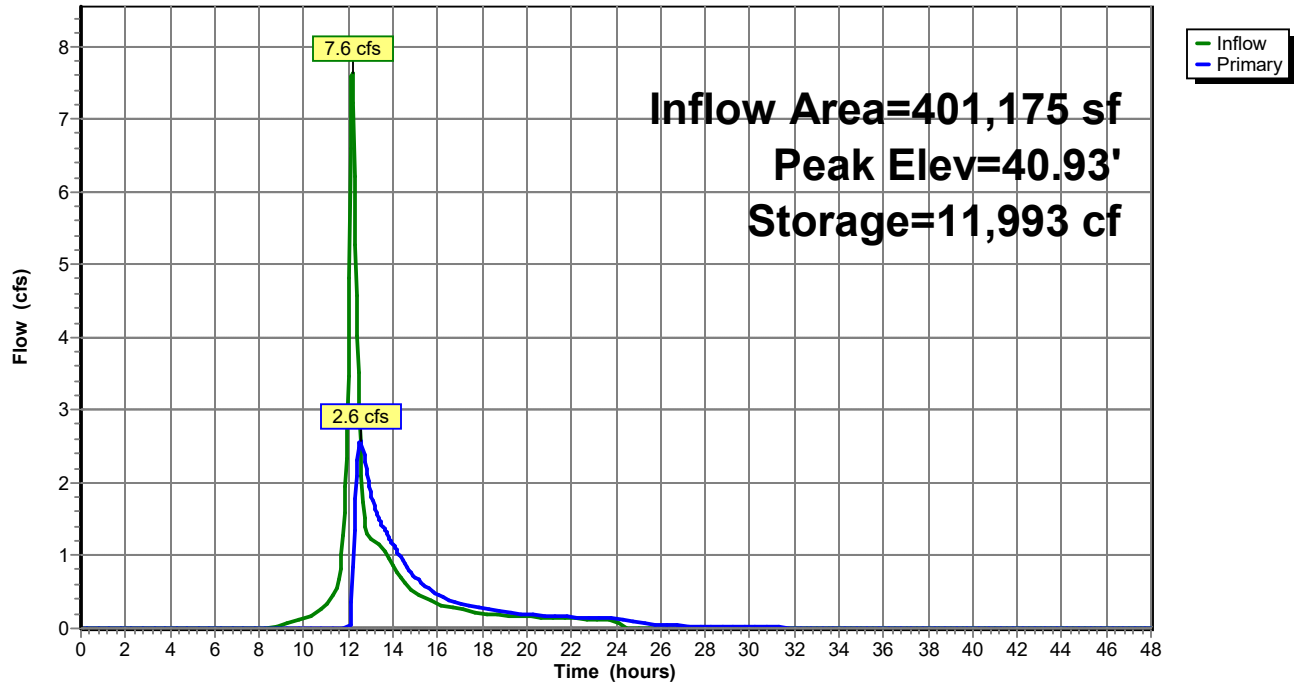
Primary OutFlow Max=2.6 cfs @ 12.55 hrs HW=40.93' (Free Discharge)

1=Culvert (Barrel Controls 1.0 cfs @ 2.61 fps)

2=Culvert (Inlet Controls 1.6 cfs @ 2.40 fps)

Pond C2:

Hydrograph



Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 2.81" for 10-Year event
 Inflow = 8.2 cfs @ 12.79 hrs, Volume= 63,397 cf
 Outflow = 4.3 cfs @ 13.42 hrs, Volume= 63,369 cf, Atten= 48%, Lag= 37.8 min
 Discarded = 3.9 cfs @ 13.42 hrs, Volume= 61,648 cf
 Primary = 0.4 cfs @ 13.42 hrs, Volume= 1,721 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.96' @ 13.42 hrs Surf.Area= 36,705 sf Storage= 19,486 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 88.2 min calculated for 63,369 cf (100% of inflow)
 Center-of-Mass det. time= 87.8 min (958.5 - 870.7)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

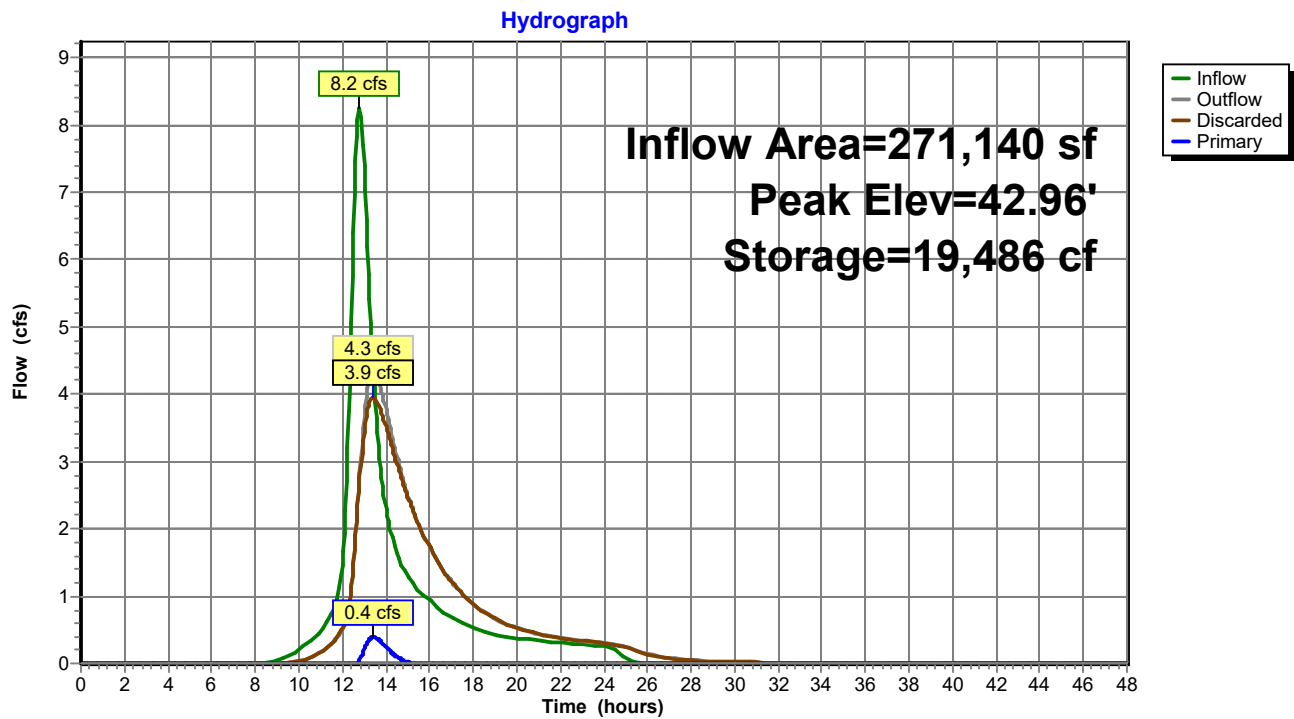
Discarded OutFlow Max=3.9 cfs @ 13.42 hrs HW=42.96' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 3.9 cfs @ 2.64 fps)

Primary OutFlow Max=0.4 cfs @ 13.42 hrs HW=42.96' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.4 cfs @ 1.43 fps)

Pond C3:



Summary for Pond C4:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 2.72" for 10-Year event
 Inflow = 9.9 cfs @ 12.68 hrs, Volume= 69,738 cf
 Outflow = 7.5 cfs @ 13.00 hrs, Volume= 69,392 cf, Atten= 24%, Lag= 19.4 min
 Primary = 7.5 cfs @ 13.00 hrs, Volume= 69,392 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.49' @ 13.00 hrs Surf.Area= 11,985 sf Storage= 12,411 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 41.6 min calculated for 69,320 cf (99% of inflow)
 Center-of-Mass det. time= 39.5 min (905.3 - 865.9)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

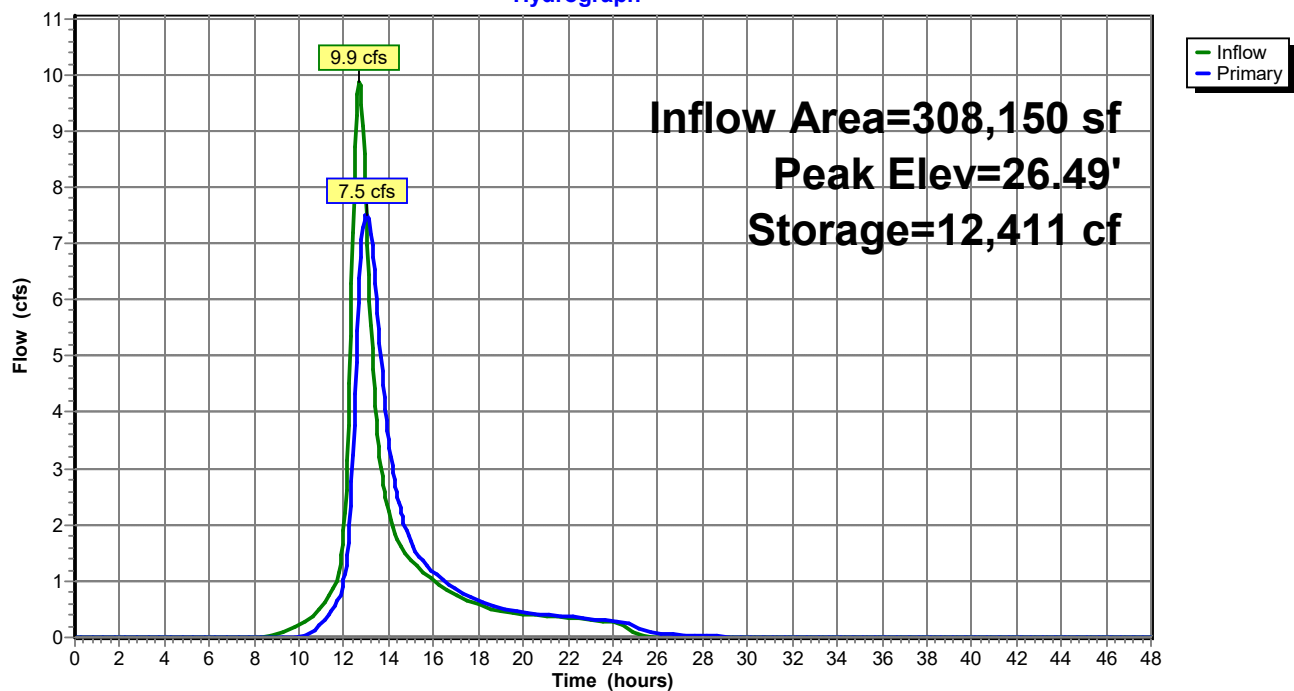
Primary OutFlow Max=7.5 cfs @ 13.00 hrs HW=26.49' (Free Discharge)

1=Culvert (Inlet Controls 3.7 cfs @ 2.98 fps)

2=Culvert (Barrel Controls 3.9 cfs @ 3.52 fps)

Pond C4:

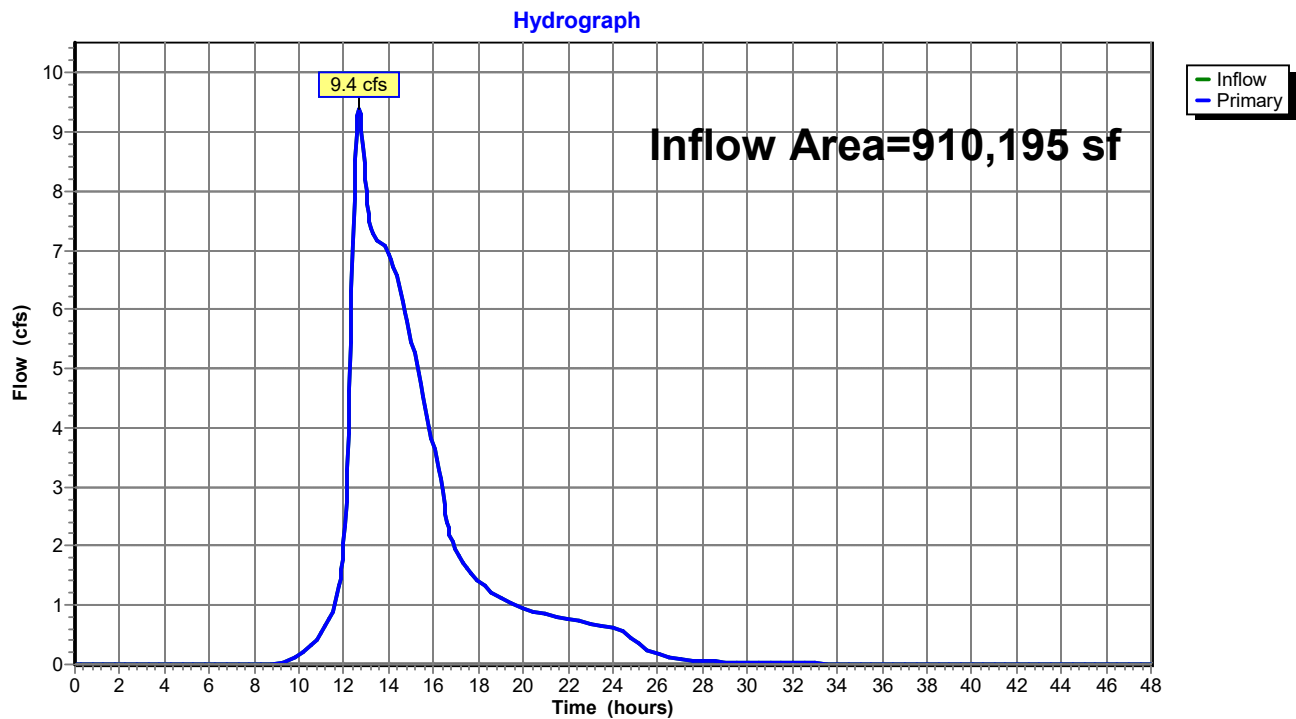
Hydrograph



Summary for Link AP1:

Inflow Area = 910,195 sf, 5.23% Impervious, Inflow Depth > 1.77" for 10-Year event
Inflow = 9.4 cfs @ 12.67 hrs, Volume= 134,482 cf
Primary = 9.4 cfs @ 12.67 hrs, Volume= 134,482 cf, Atten= 0%, Lag= 0.0 min

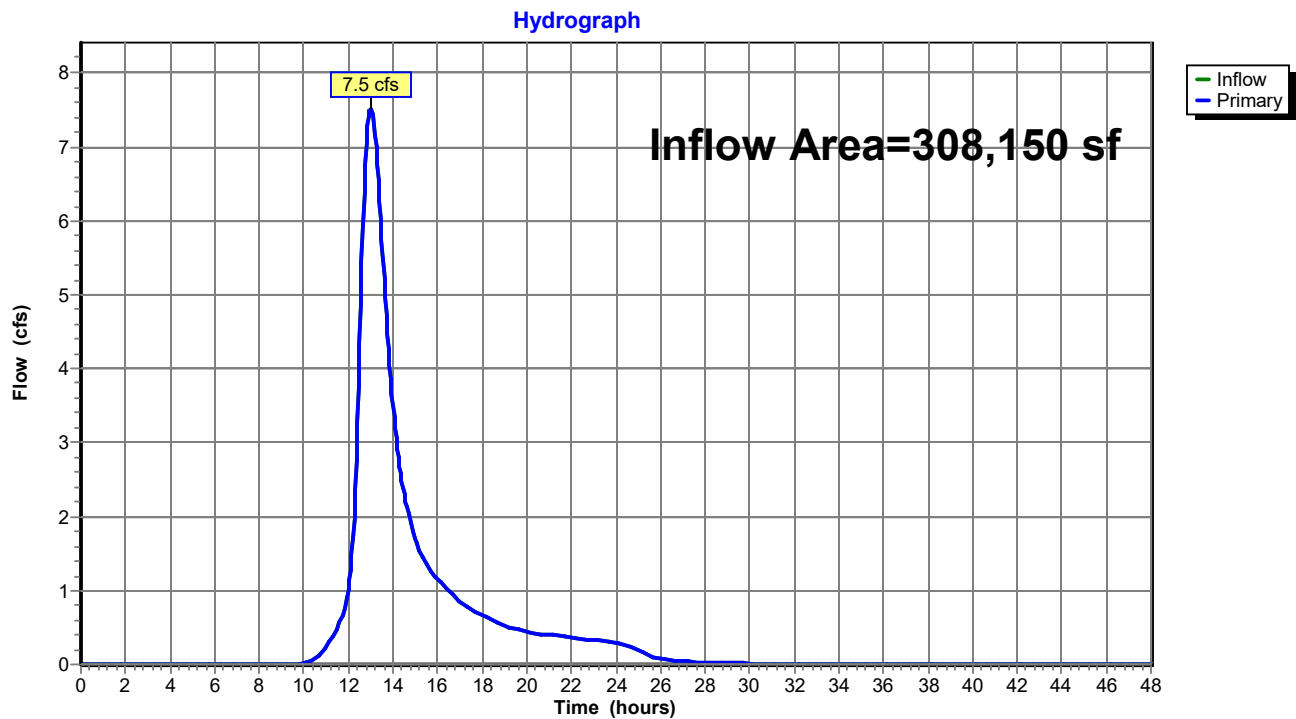
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

Summary for Link AP2:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 2.70" for 10-Year event
Inflow = 7.5 cfs @ 13.00 hrs, Volume= 69,392 cf
Primary = 7.5 cfs @ 13.00 hrs, Volume= 69,392 cf, Atten= 0%, Lag= 0.0 min

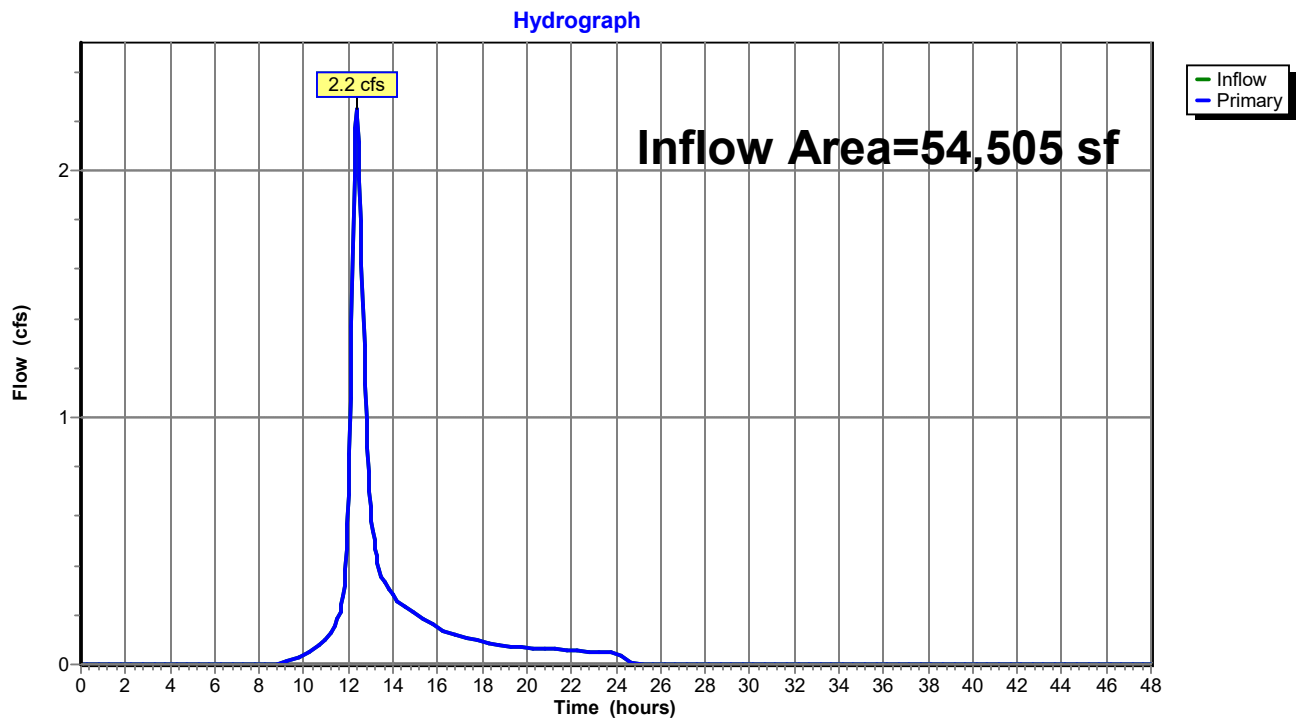
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

Summary for Link AP3:

Inflow Area = 54,505 sf, 0.00% Impervious, Inflow Depth = 2.54" for 10-Year event
Inflow = 2.2 cfs @ 12.36 hrs, Volume= 11,535 cf
Primary = 2.2 cfs @ 12.36 hrs, Volume= 11,535 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:

Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 43

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=3.65" Flow Length=659' Tc=44.5 min CN=77 Runoff=10.9 cfs 72,698 cf
Subcatchment 1.1:	Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=3.76" Flow Length=598' Tc=67.5 min CN=78 Runoff=10.0 cfs 84,605 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=3.76" Flow Length=396' Tc=11.4 min CN=78 Runoff=10.9 cfs 40,702 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=3.96" Flow Length=453' Tc=57.8 min CN=80 Runoff=11.6 cfs 89,526 cf
Subcatchment 2.0:	Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=3.86" Flow Length=750' Tc=49.7 min CN=79 Runoff=14.0 cfs 99,090 cf
Subcatchment 3.0:	Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=3.65" Flow Length=377' Tc=25.7 min CN=77 Runoff=3.2 cfs 16,598 cf
Reach R1:	Avg. Flow Depth=0.29' Max Vel=0.47 fps Inflow=6.9 cfs 125,440 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=6.9 cfs 125,417 cf
Reach R2:	Avg. Flow Depth=0.17' Max Vel=0.42 fps Inflow=4.6 cfs 40,864 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=3.9 cfs 40,835 cf
Pond C1:	Peak Elev=35.07' Storage=25,686 cf Inflow=13.6 cfs 125,440 cf 18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=6.9 cfs 125,440 cf
Pond C2:	Peak Elev=41.29' Storage=15,674 cf Inflow=10.9 cfs 46,214 cf Outflow=4.6 cfs 40,864 cf
Pond C3:	Peak Elev=43.15' Storage=26,762 cf Inflow=11.6 cfs 89,526 cf Discarded=5.4 cfs 83,985 cf Primary=1.0 cfs 5,512 cf Outflow=6.5 cfs 89,497 cf
Pond C4:	Peak Elev=26.96' Storage=18,232 cf Inflow=14.0 cfs 99,090 cf Outflow=10.0 cfs 98,743 cf
Link AP1:	Inflow=13.2 cfs 198,115 cf Primary=13.2 cfs 198,115 cf
Link AP2:	Inflow=10.0 cfs 98,743 cf Primary=10.0 cfs 98,743 cf
Link AP3:	Inflow=3.2 cfs 16,598 cf Primary=3.2 cfs 16,598 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 403,219 cf Average Runoff Depth = 3.80"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Summary for Subcatchment 1.0:

Runoff = 10.9 cfs @ 12.61 hrs, Volume= 72,698 cf, Depth= 3.65"

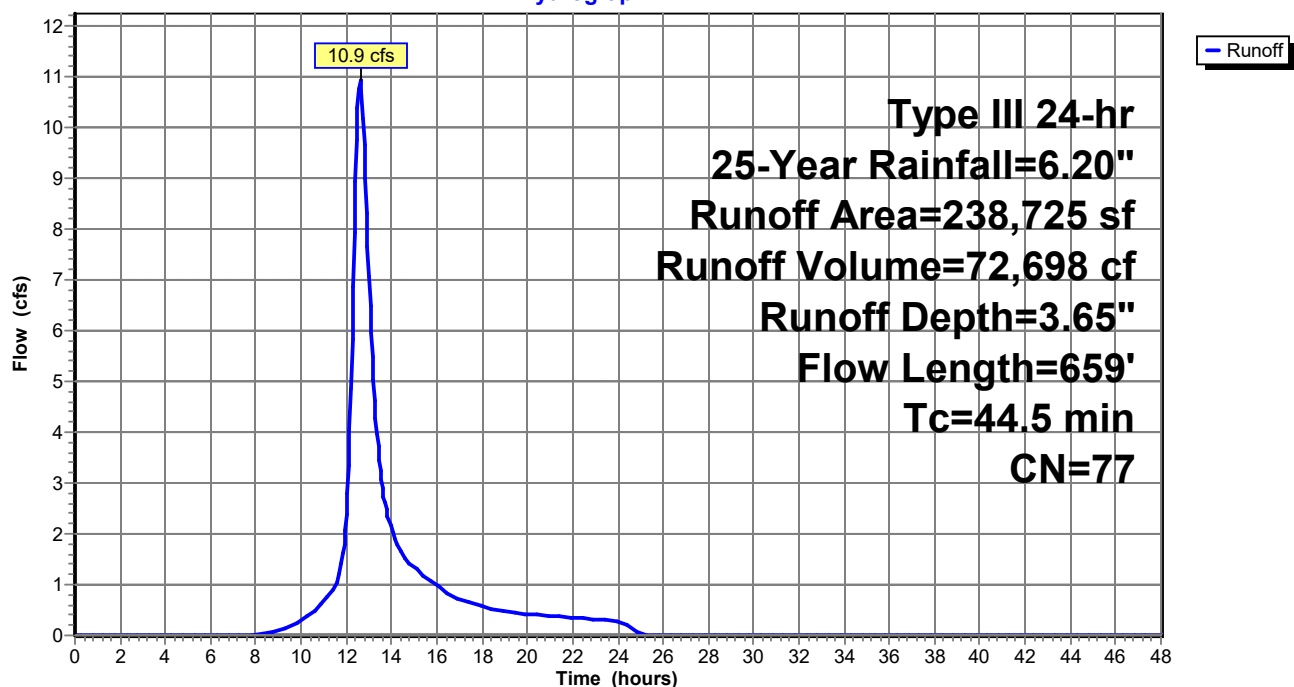
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
235,620	77	Woods, Good, HSG D
3,105	89	Dirt roads, HSG D
238,725	77	Weighted Average
238,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Summary for Subcatchment 1.1:

Runoff = 10.0 cfs @ 12.91 hrs, Volume= 84,605 cf, Depth= 3.76"

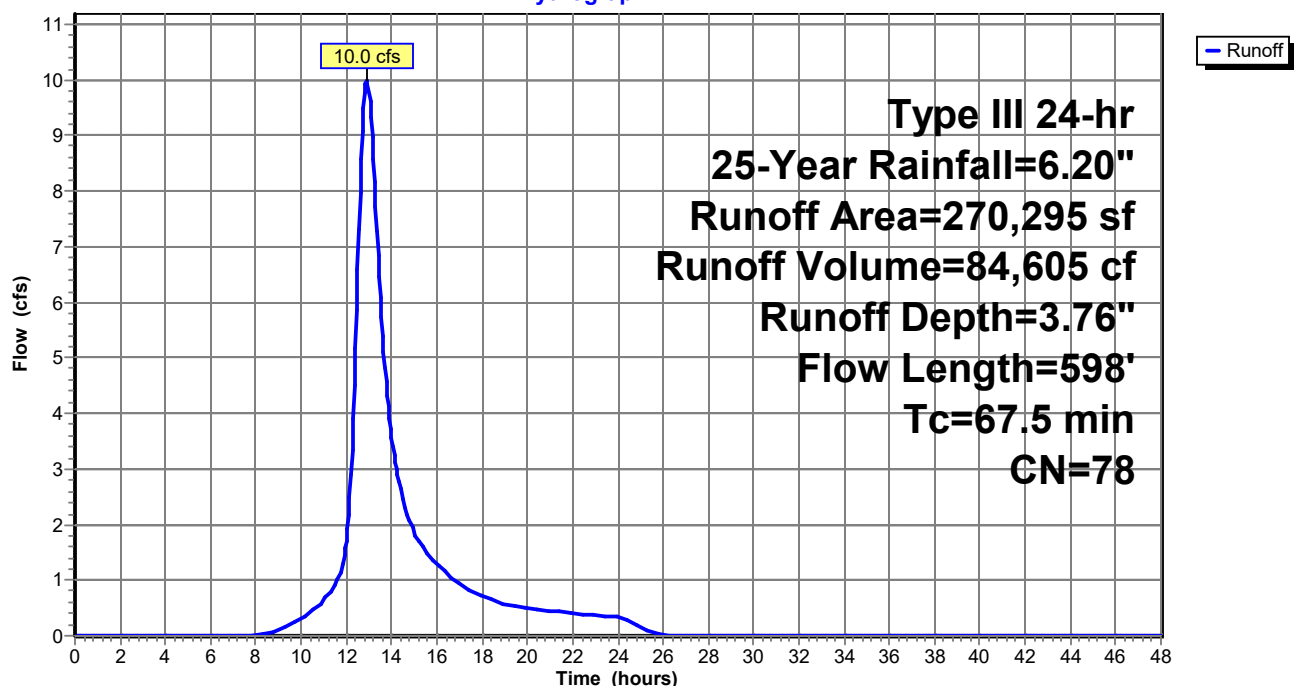
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
255,765	77	Woods, Good, HSG D
1,275	80	>75% Grass cover, Good, HSG D
2,685	98	Paved parking, HSG D
10,570	89	Dirt roads, HSG D
270,295	78	Weighted Average
267,610		99.01% Pervious Area
2,685		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 46

Summary for Subcatchment 1.2:

Runoff = 10.9 cfs @ 12.16 hrs, Volume= 40,702 cf, Depth= 3.76"

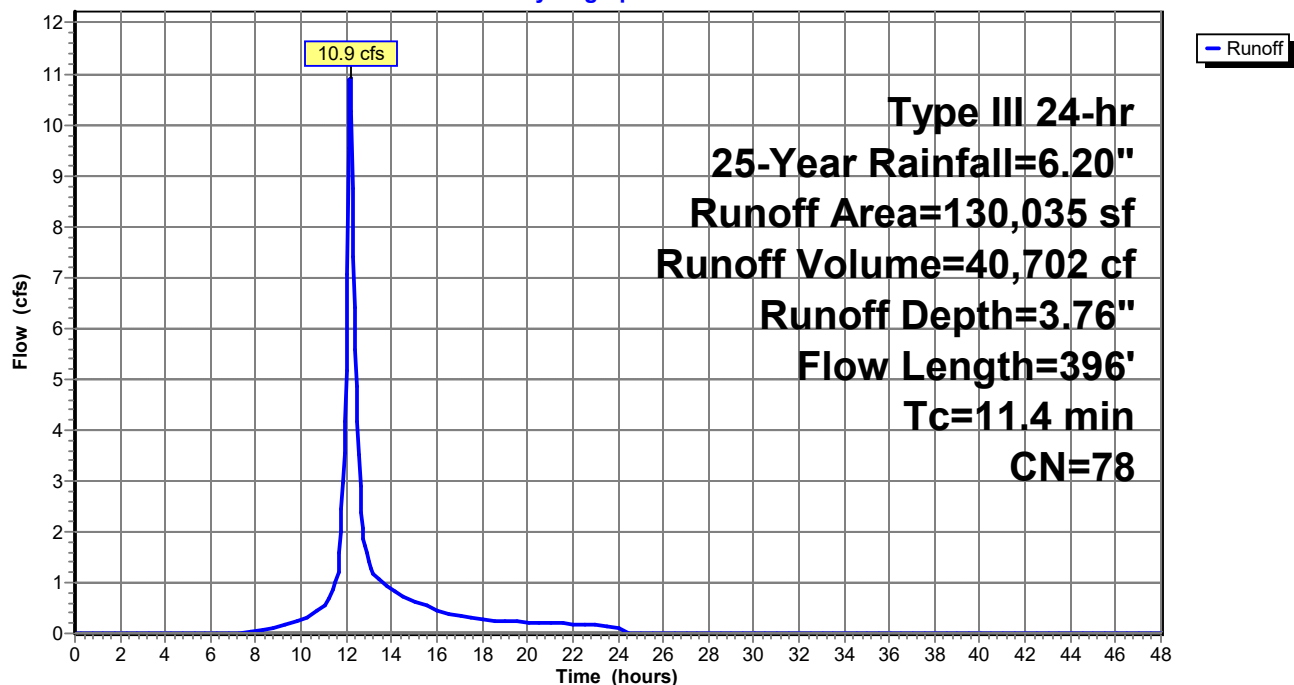
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Summary for Subcatchment 1.3:

Runoff = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf, Depth= 3.96"

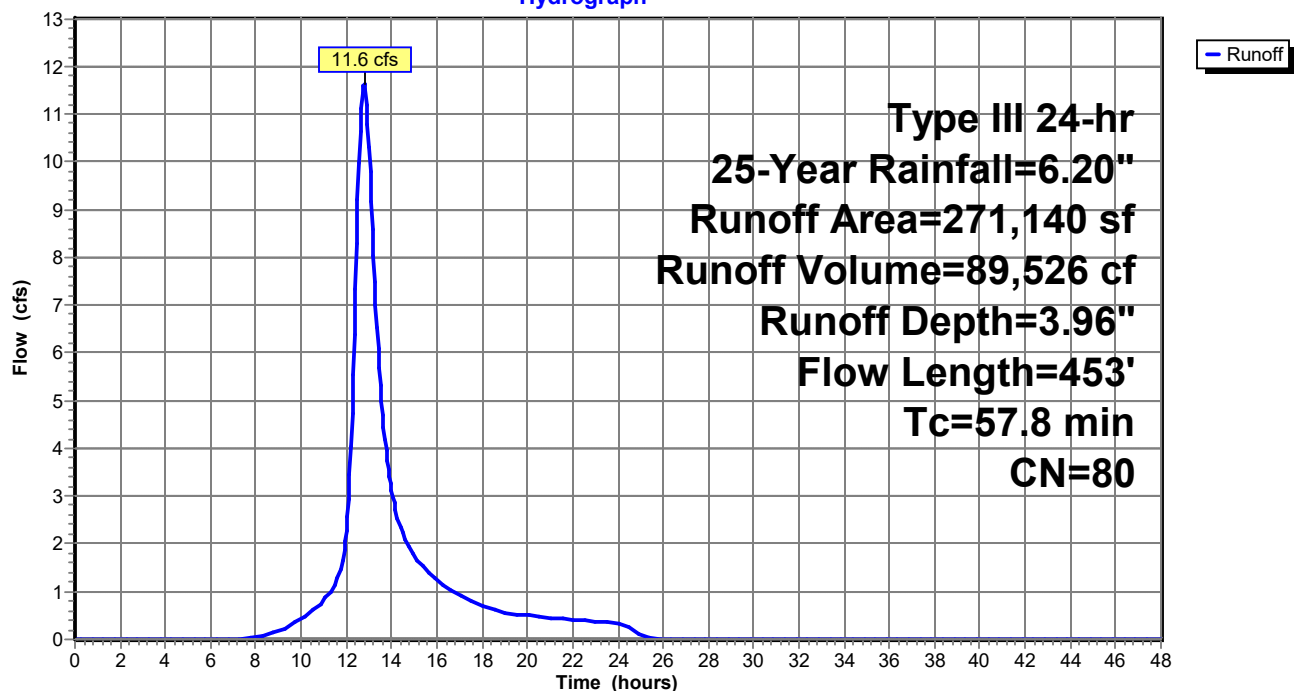
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



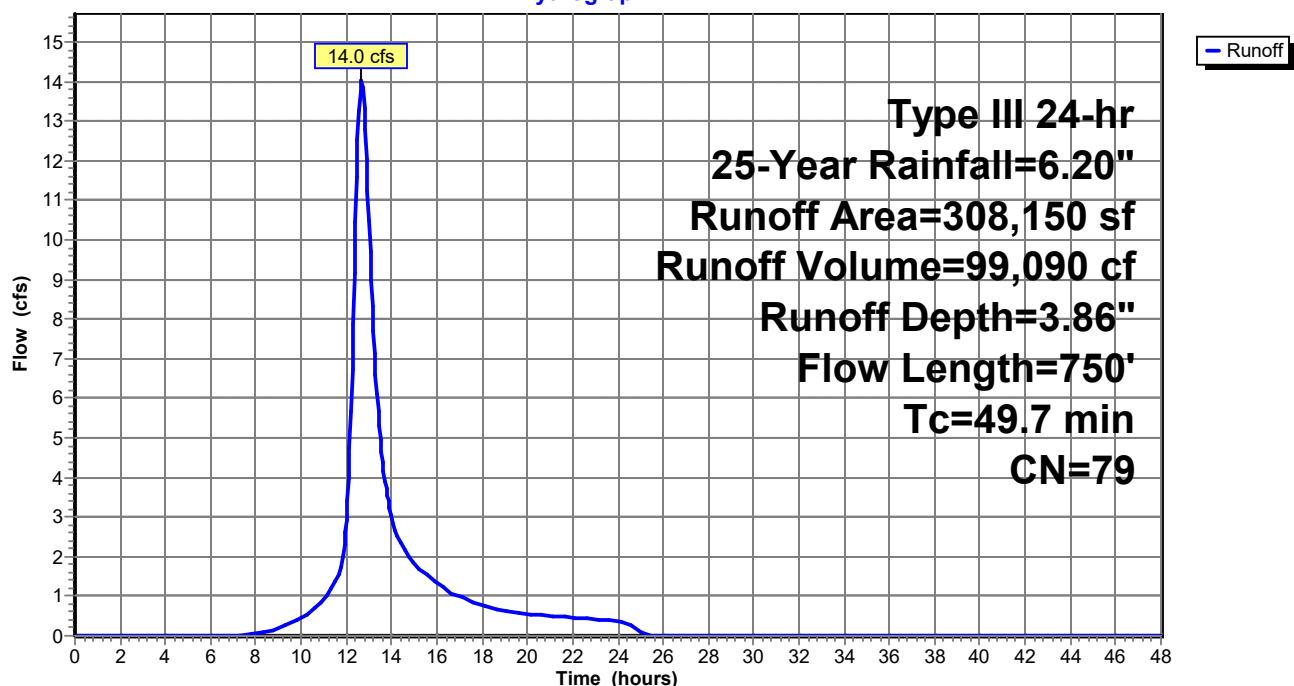
Summary for Subcatchment 2.0:

Runoff = 14.0 cfs @ 12.67 hrs, Volume= 99,090 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
275,925	77	Woods, Good, HSG D
8,960	80	>75% Grass cover, Good, HSG D
21,320	98	Paved parking, HSG D
1,945	89	Dirt roads, HSG D
308,150	79	Weighted Average
286,830		93.08% Pervious Area
21,320		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:**Hydrograph**

Pre-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 49

Summary for Subcatchment 3.0:

Runoff = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf, Depth= 3.65"

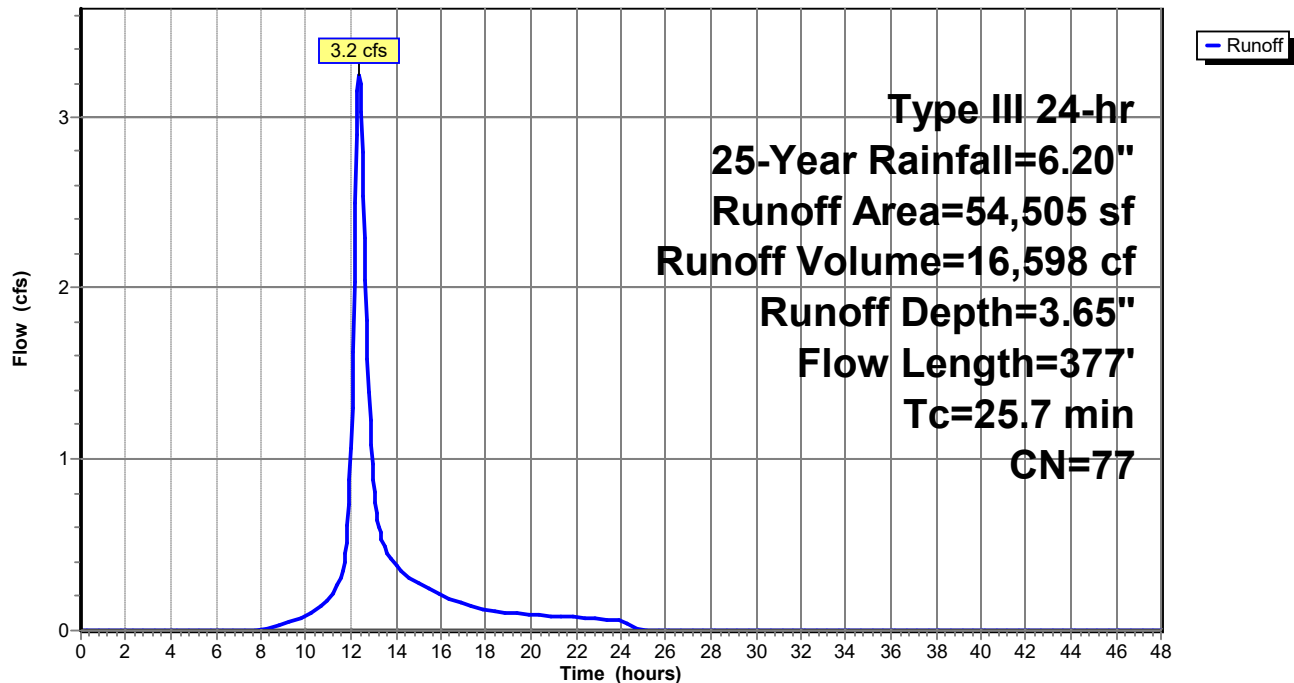
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
54,505	77	Woods, Good, HSG D
54,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	72	0.1600	0.10		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
13.4	305	0.0230	0.38		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
25.7	377	Total			

Subcatchment 3.0:

Hydrograph



Summary for Reach R1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 2.24" for 25-Year event
 Inflow = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf
 Outflow = 6.9 cfs @ 14.19 hrs, Volume= 125,417 cf, Atten= 0%, Lag= 21.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.47 fps, Min. Travel Time= 11.6 min

Avg. Velocity = 0.16 fps, Avg. Travel Time= 34.7 min

Peak Storage= 4,824 cf @ 14.00 hrs

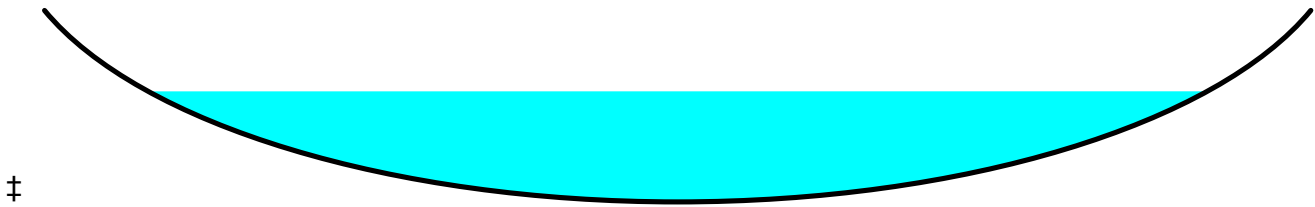
Average Depth at Peak Storage= 0.29'

Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

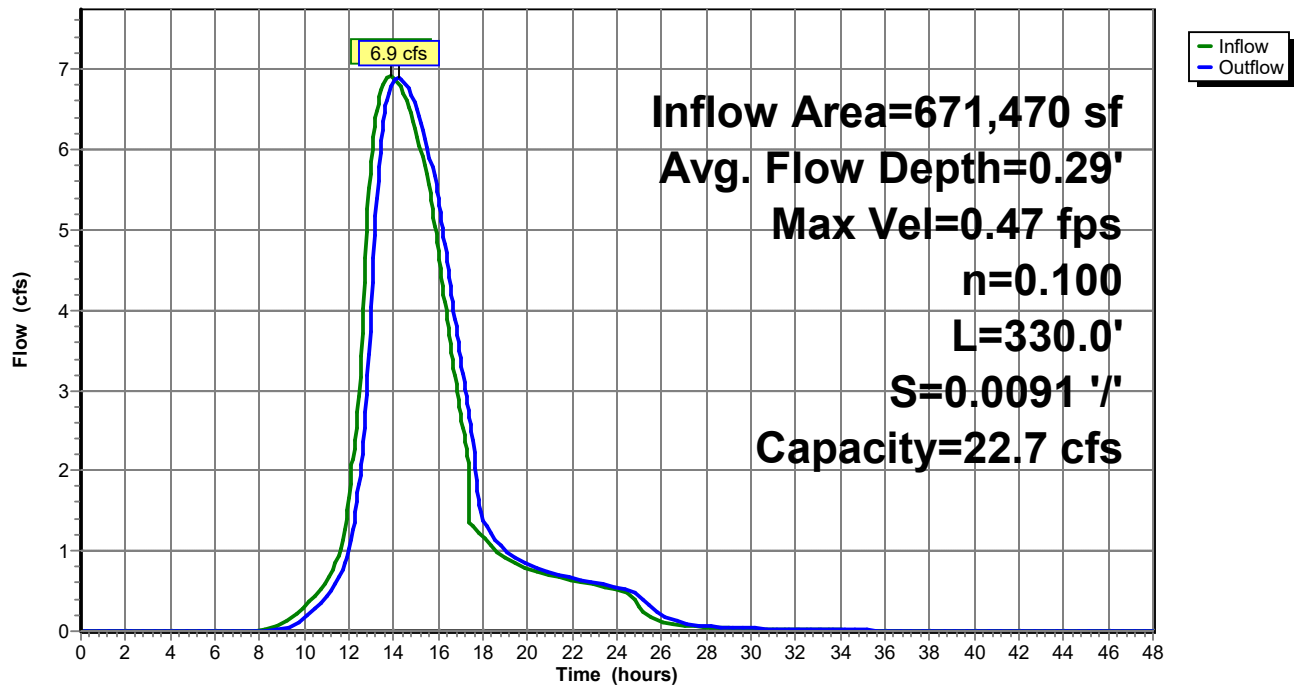
100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 330.0' Slope= 0.0091 '/'

Inlet Invert= 33.00', Outlet Invert= 30.00'

**Reach R1:**

Hydrograph



Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 1.22" for 25-Year event
 Inflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf
 Outflow = 3.9 cfs @ 13.09 hrs, Volume= 40,835 cf, Atten= 17%, Lag= 37.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.42 fps, Min. Travel Time= 19.1 min

Avg. Velocity = 0.13 fps, Avg. Travel Time= 61.7 min

Peak Storage= 4,427 cf @ 12.77 hrs

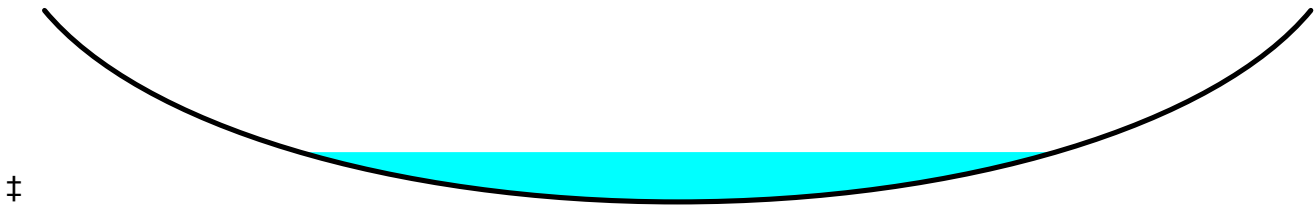
Average Depth at Peak Storage= 0.17'

Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

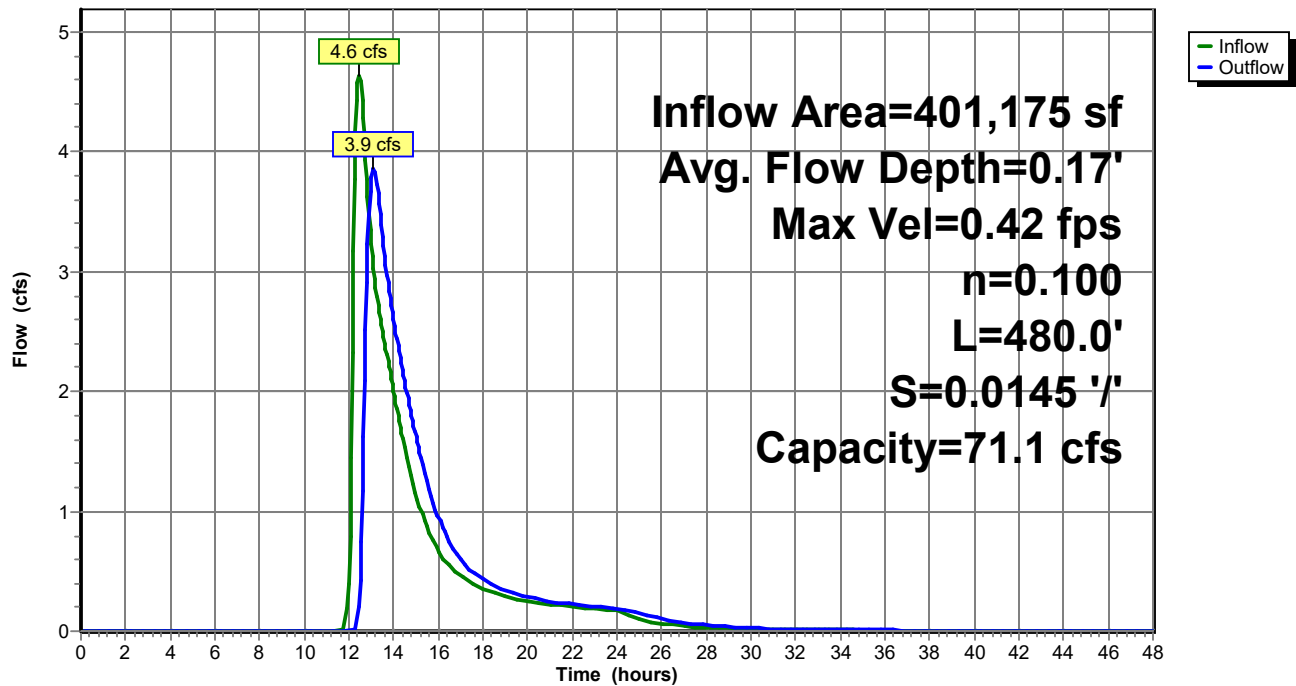
160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

Length= 480.0' Slope= 0.0145 '/'

Inlet Invert= 40.23', Outlet Invert= 33.26'

**Reach R2:**

Hydrograph



Summary for Pond C1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 2.24" for 25-Year event
 Inflow = 13.6 cfs @ 12.97 hrs, Volume= 125,440 cf
 Outflow = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf, Atten= 49%, Lag= 52.4 min
 Primary = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf

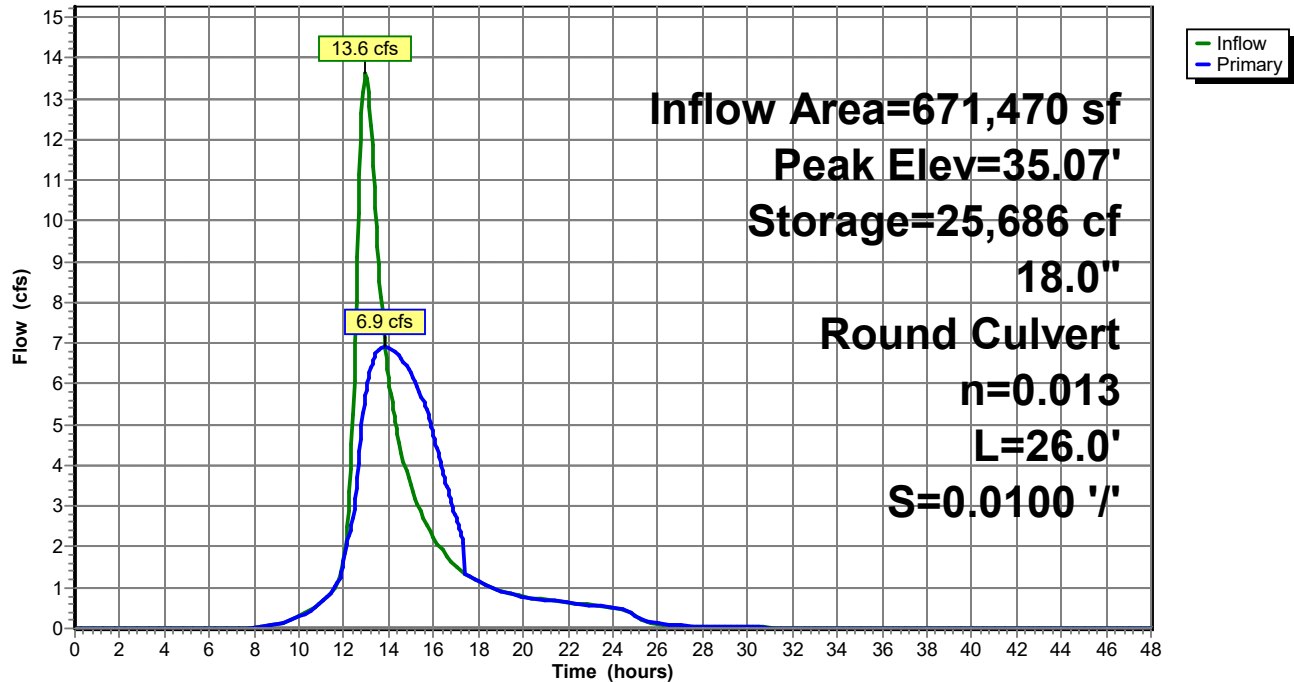
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.07' @ 13.84 hrs Surf.Area= 40,698 sf Storage= 25,686 cf
 Flood Elev= 34.76' Surf.Area= 31,144 sf Storage= 14,457 cf

Plug-Flow detention time= 32.4 min calculated for 125,440 cf (100% of inflow)
 Center-of-Mass det. time= 32.4 min (935.5 - 903.1)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	33.26'	18.0" Round Culvert L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.26' / 33.00' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.9 cfs @ 13.84 hrs HW=35.07' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 6.9 cfs @ 3.92 fps)

Pond C1:**Hydrograph**

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 1.38" for 25-Year event
 Inflow = 10.9 cfs @ 12.16 hrs, Volume= 46,214 cf
 Outflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf, Atten= 58%, Lag= 18.5 min
 Primary = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.29' @ 12.47 hrs Surf.Area= 10,856 sf Storage= 15,674 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 142.9 min calculated for 40,864 cf (88% of inflow)
 Center-of-Mass det. time= 91.8 min (914.6 - 822.7)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

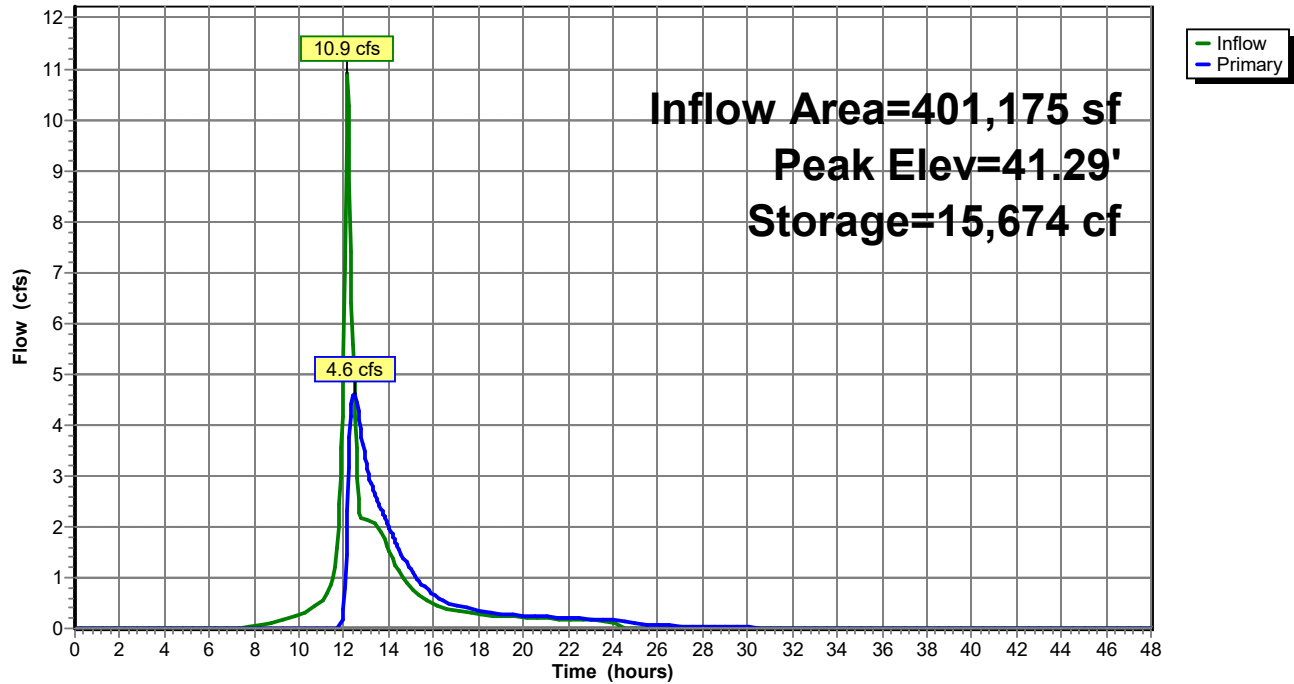
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.6 cfs @ 12.47 hrs HW=41.28' (Free Discharge)

1=Culvert (Barrel Controls 2.2 cfs @ 3.16 fps)

2=Culvert (Inlet Controls 2.4 cfs @ 3.07 fps)

Pond C2:**Hydrograph**

Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 3.96" for 25-Year event
 Inflow = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf
 Outflow = 6.5 cfs @ 13.36 hrs, Volume= 89,497 cf, Atten= 44%, Lag= 34.8 min
 Discarded = 5.4 cfs @ 13.36 hrs, Volume= 83,985 cf
 Primary = 1.0 cfs @ 13.36 hrs, Volume= 5,512 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 43.15' @ 13.36 hrs Surf.Area= 38,612 sf Storage= 26,762 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 83.1 min calculated for 89,497 cf (100% of inflow)
 Center-of-Mass det. time= 82.8 min (943.7 - 860.8)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Discarded OutFlow Max=5.4 cfs @ 13.36 hrs HW=43.15' (Free Discharge)

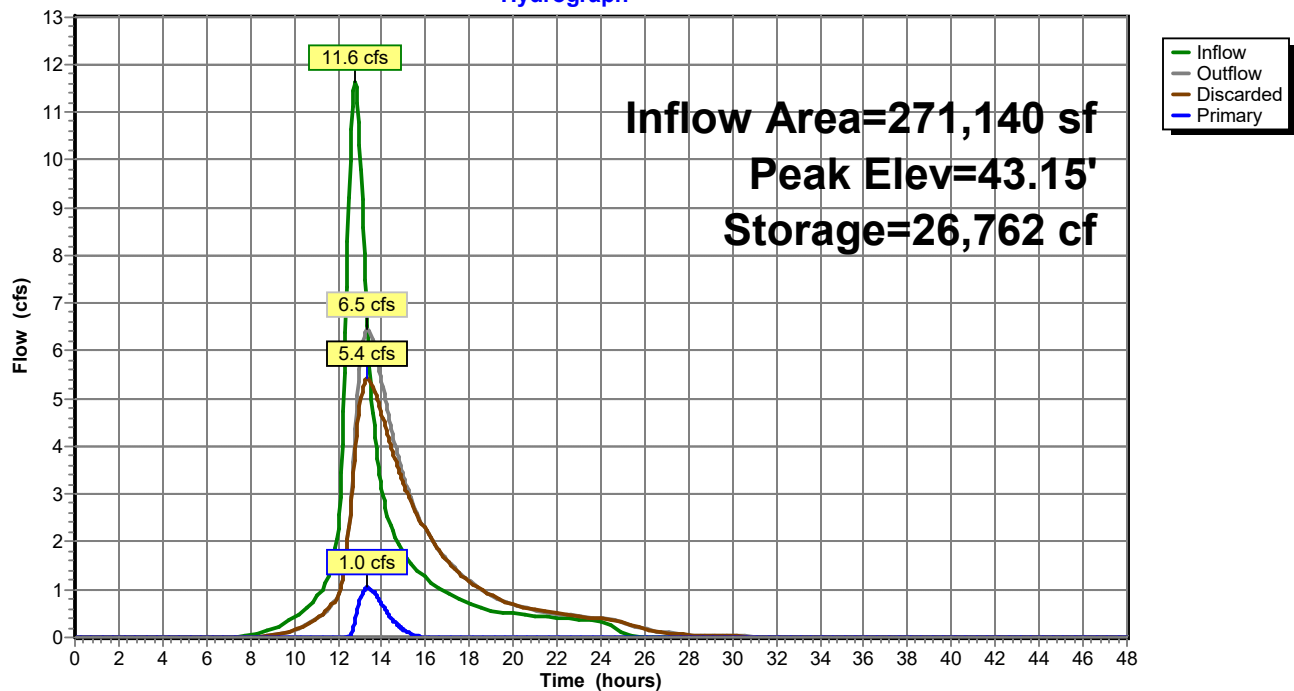
↑ **2=Culvert** (Inlet Controls 5.4 cfs @ 2.89 fps)

Primary OutFlow Max=1.0 cfs @ 13.36 hrs HW=43.15' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 1.0 cfs @ 1.85 fps)

Pond C3:

Hydrograph



Summary for Pond C4:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 3.86" for 25-Year event
 Inflow = 14.0 cfs @ 12.67 hrs, Volume= 99,090 cf
 Outflow = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf, Atten= 29%, Lag= 21.9 min
 Primary = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.96' @ 13.03 hrs Surf.Area= 12,920 sf Storage= 18,232 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 39.4 min calculated for 98,743 cf (100% of inflow)
 Center-of-Mass det. time= 37.0 min (892.8 - 855.8)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

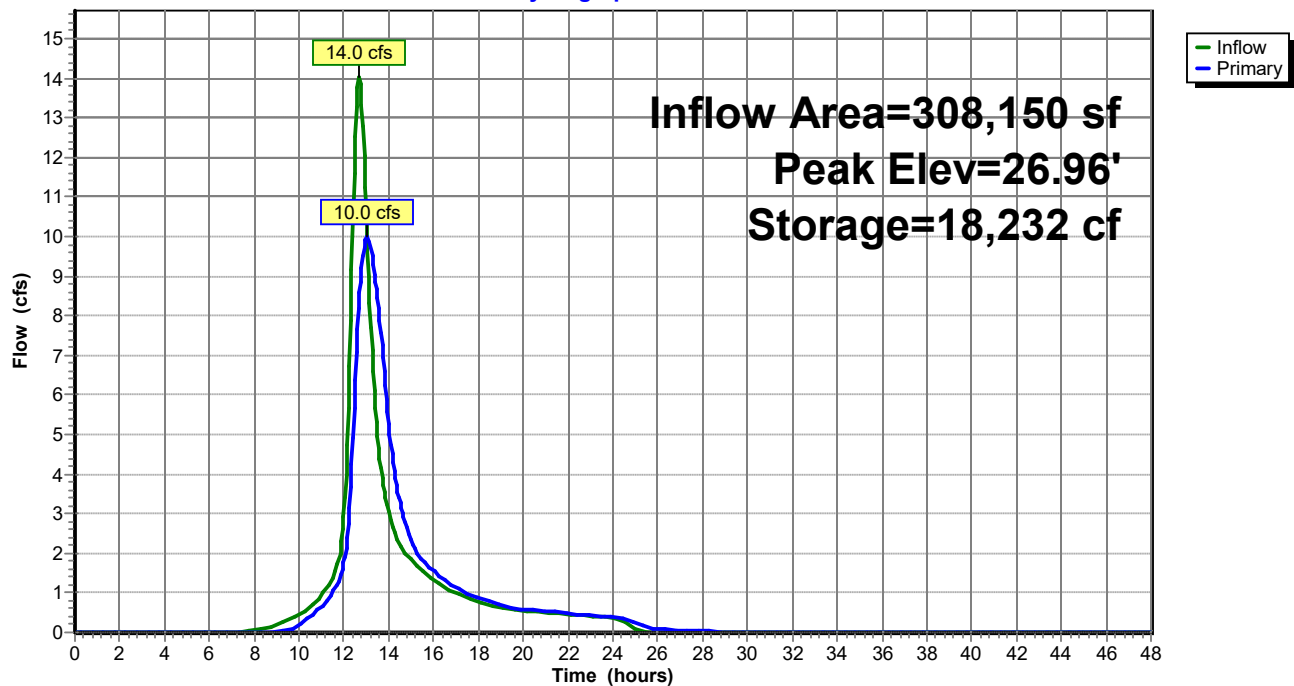
Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.0 cfs @ 13.03 hrs HW=26.96' (Free Discharge)

1=Culvert (Inlet Controls 4.8 cfs @ 3.94 fps)
 2=Culvert (Barrel Controls 5.1 cfs @ 4.19 fps)

Pond C4:

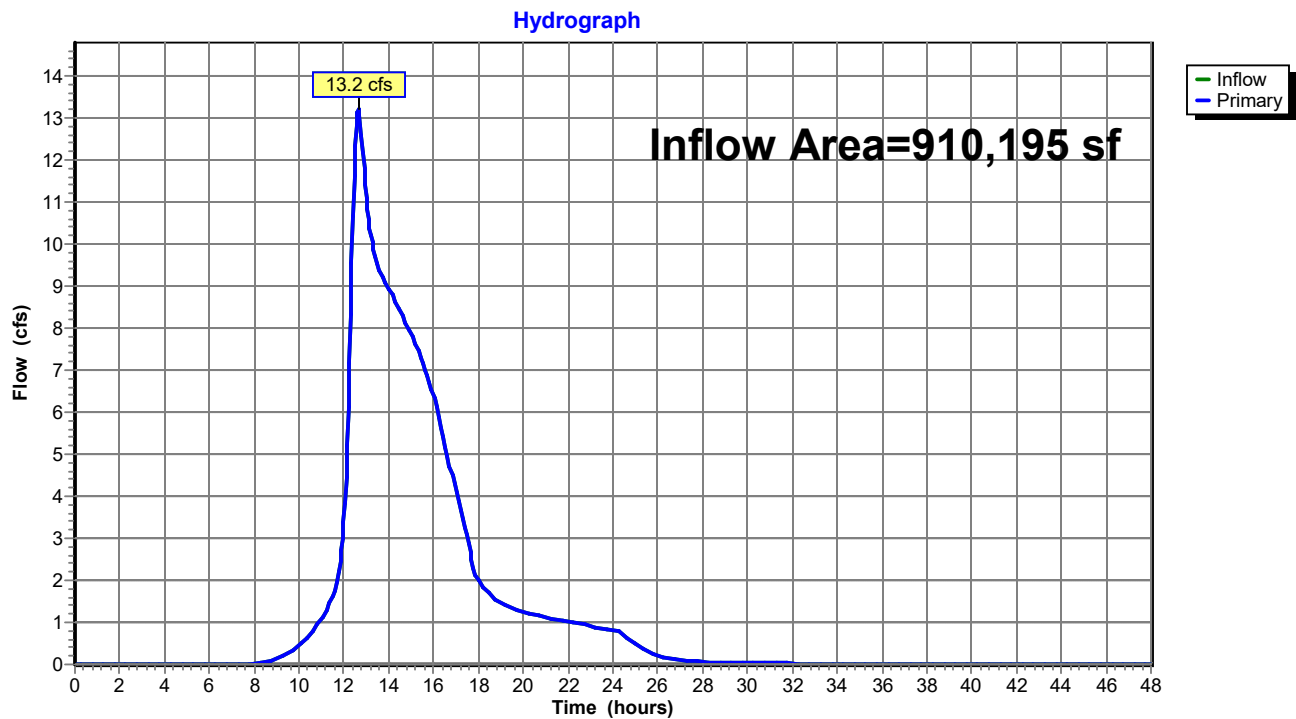
Hydrograph



Summary for Link AP1:

Inflow Area = 910,195 sf, 5.23% Impervious, Inflow Depth > 2.61" for 25-Year event
Inflow = 13.2 cfs @ 12.65 hrs, Volume= 198,115 cf
Primary = 13.2 cfs @ 12.65 hrs, Volume= 198,115 cf, Atten= 0%, Lag= 0.0 min

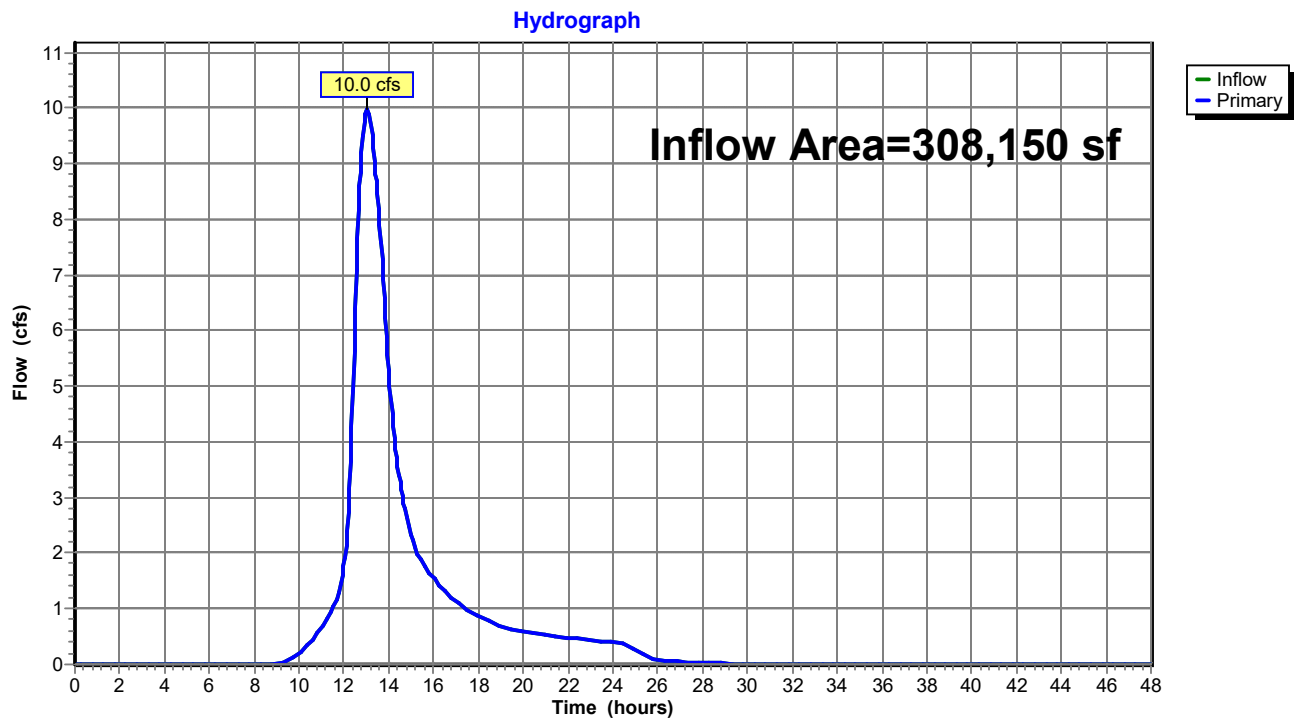
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

Summary for Link AP2:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 3.85" for 25-Year event
Inflow = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf
Primary = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf, Atten= 0%, Lag= 0.0 min

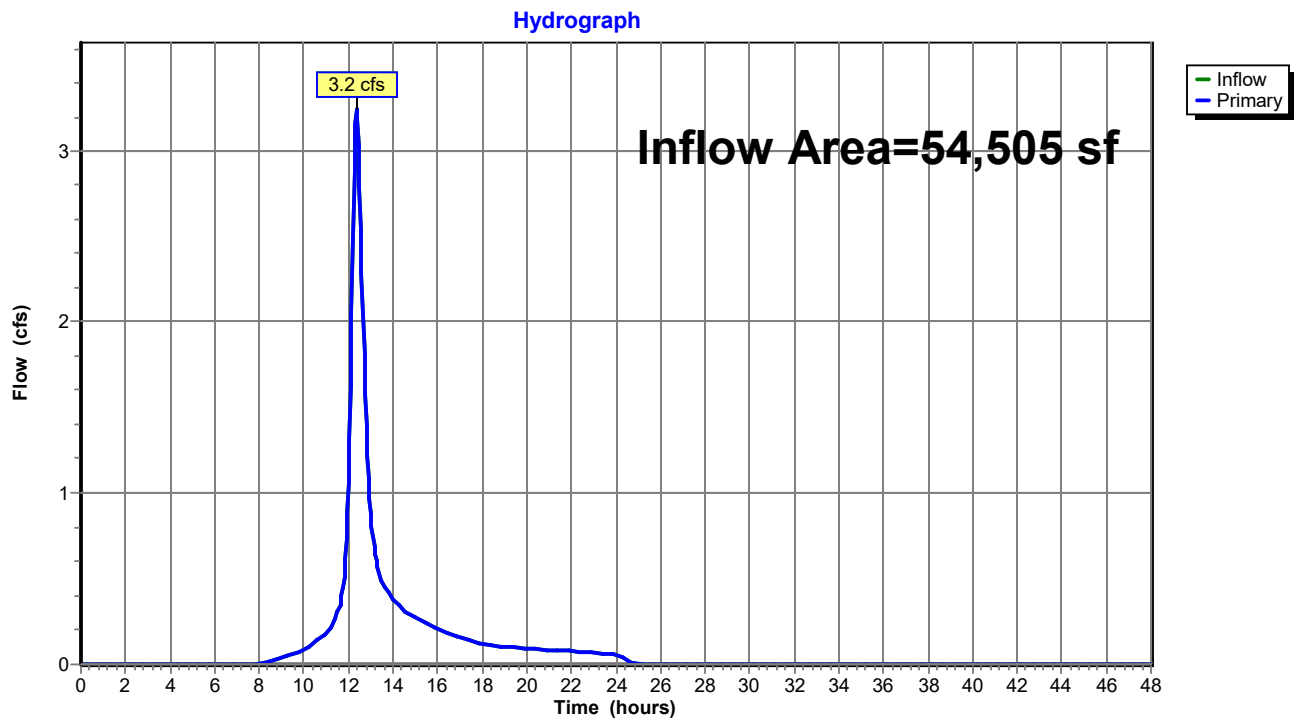
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

Summary for Link AP3:

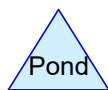
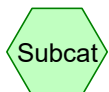
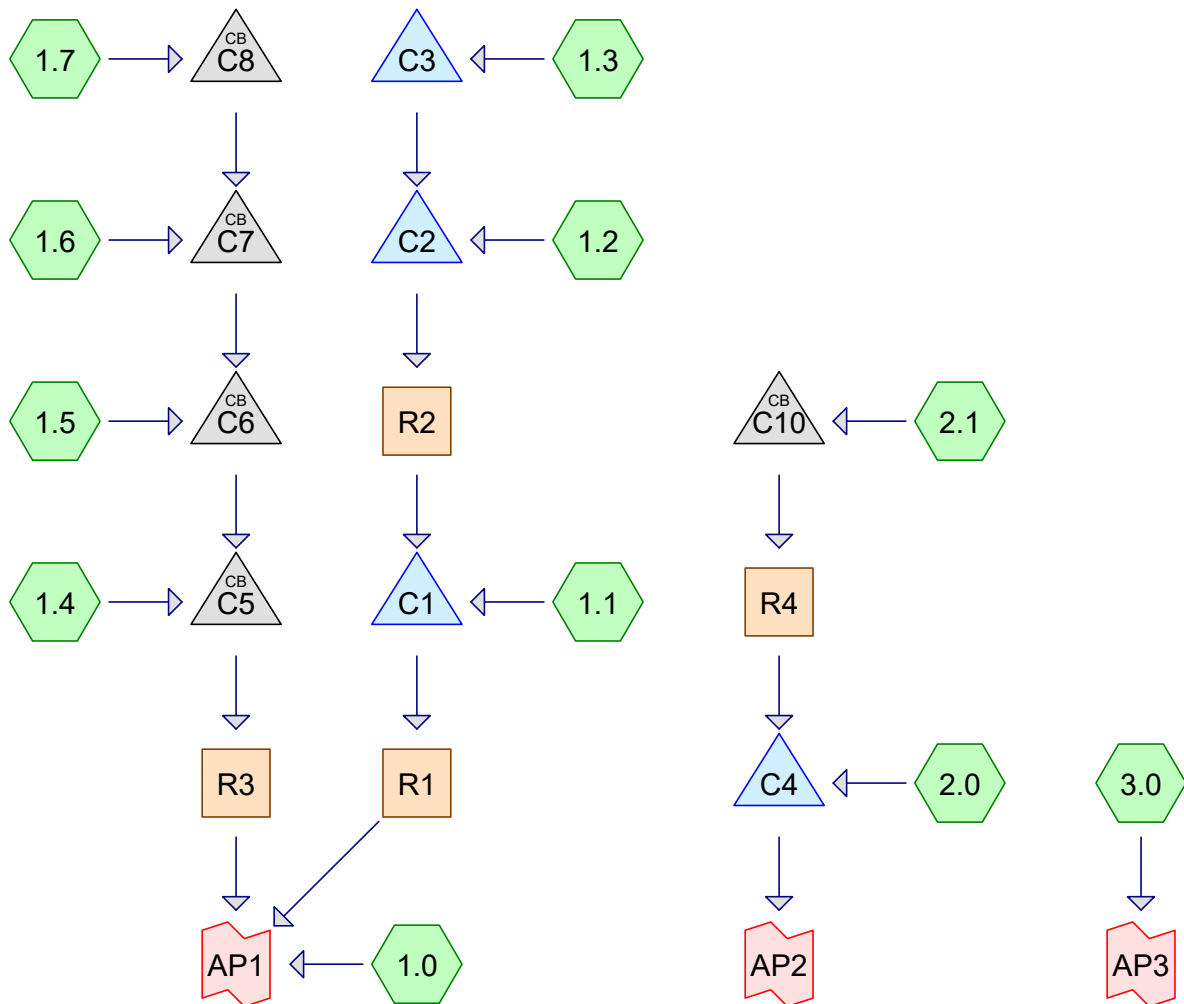
Inflow Area = 54,505 sf, 0.00% Impervious, Inflow Depth = 3.65" for 25-Year event
Inflow = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf
Primary = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:

Appendix B

Post Development HydroCAD Report



Routing Diagram for Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc., Printed 1/4/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Printed 1/4/2022
Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
149,100	80	>75% Grass cover, Good, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.0, 2.1, 3.0)
9,435	89	Dirt roads, HSG D (1.0, 1.1)
106,510	98	Paved parking, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.0, 2.1, 3.0)
1,007,805	77	Woods, Good, HSG D (1.0, 1.1, 1.2, 1.3, 1.7, 2.0, 2.1, 3.0)
1,272,850	79	TOTAL AREA

Post-Dev Rev 3*Type III 24-hr 2-Year Rainfall=3.30"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 3

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=1.35" Flow Length=659' Tc=44.5 min CN=78 Runoff=3.6 cfs 24,475 cf
Subcatchment 1.1:	Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=1.41" Flow Length=598' Tc=67.5 min CN=79 Runoff=3.6 cfs 31,247 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=1.35" Flow Length=396' Tc=11.4 min CN=78 Runoff=3.8 cfs 14,598 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=1.48" Flow Length=453' Tc=57.8 min CN=80 Runoff=4.3 cfs 33,424 cf
Subcatchment 1.4:	Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=1.69" Tc=6.0 min CN=83 Runoff=0.4 cfs 1,370 cf
Subcatchment 1.5:	Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=1.92" Tc=6.0 min CN=86 Runoff=0.5 cfs 1,613 cf
Subcatchment 1.6:	Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=1.69" Tc=6.0 min CN=83 Runoff=0.9 cfs 2,705 cf
Subcatchment 1.7:	Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=1.48" Tc=6.0 min CN=80 Runoff=0.3 cfs 1,012 cf
Subcatchment 2.0:	Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=1.41" Flow Length=750' Tc=49.7 min CN=79 Runoff=4.8 cfs 34,420 cf
Subcatchment 2.1:	Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=1.62" Tc=6.0 min CN=82 Runoff=0.5 cfs 1,696 cf
Subcatchment 3.0:	Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=1.41" Flow Length=225' Tc=23.2 min CN=79 Runoff=0.8 cfs 4,227 cf
Reach R1:	Avg. Flow Depth=0.17' Max Vel=0.33 fps Inflow=2.2 cfs 40,450 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=2.1 cfs 40,423 cf
Reach R2:	Avg. Flow Depth=0.06' Max Vel=0.20 fps Inflow=0.4 cfs 9,256 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=0.4 cfs 9,228 cf
Reach R3:	Avg. Flow Depth=0.45' Max Vel=0.66 fps Inflow=2.1 cfs 6,701 cf n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=1.6 cfs 6,701 cf
Reach R4:	Avg. Flow Depth=0.05' Max Vel=1.56 fps Inflow=0.5 cfs 1,696 cf n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=0.4 cfs 1,696 cf
Pond C1:	Peak Elev=34.52' Storage=8,009 cf Inflow=3.6 cfs 40,475 cf 30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=2.2 cfs 40,450 cf

Post-Dev Rev 3*Type III 24-hr 2-Year Rainfall=3.30"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 4

Pond C10: Peak Elev=47.39' Inflow=0.5 cfs 1,696 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.5 cfs 1,696 cf

Pond C2: Peak Elev=40.46' Storage=7,794 cf Inflow=3.8 cfs 14,598 cf
Outflow=0.4 cfs 9,256 cf

Pond C3: Peak Elev=42.68' Storage=10,399 cf Inflow=4.3 cfs 33,424 cf
Discarded=2.1 cfs 33,398 cf Primary=0.0 cfs 0 cf Outflow=2.1 cfs 33,398 cf

Pond C4: Peak Elev=26.01' Storage=6,839 cf Inflow=5.0 cfs 36,116 cf
Outflow=3.8 cfs 35,770 cf

Pond C5: Peak Elev=35.36' Inflow=2.1 cfs 6,701 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=2.1 cfs 6,701 cf

Pond C6: Peak Elev=37.67' Inflow=1.7 cfs 5,330 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=1.7 cfs 5,330 cf

Pond C7: Peak Elev=41.59' Inflow=1.2 cfs 3,717 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=1.2 cfs 3,717 cf

Pond C8: Peak Elev=46.79' Inflow=0.3 cfs 1,012 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.3 cfs 1,012 cf

Link AP1: Inflow=4.5 cfs 71,599 cf
Primary=4.5 cfs 71,599 cf

Link AP2: Inflow=3.8 cfs 35,770 cf
Primary=3.8 cfs 35,770 cf

Link AP3: Inflow=0.8 cfs 4,227 cf
Primary=0.8 cfs 4,227 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 150,787 cf Average Runoff Depth = 1.42"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 5

Summary for Subcatchment 1.0:

Runoff = 3.6 cfs @ 12.64 hrs, Volume= 24,475 cf, Depth= 1.35"

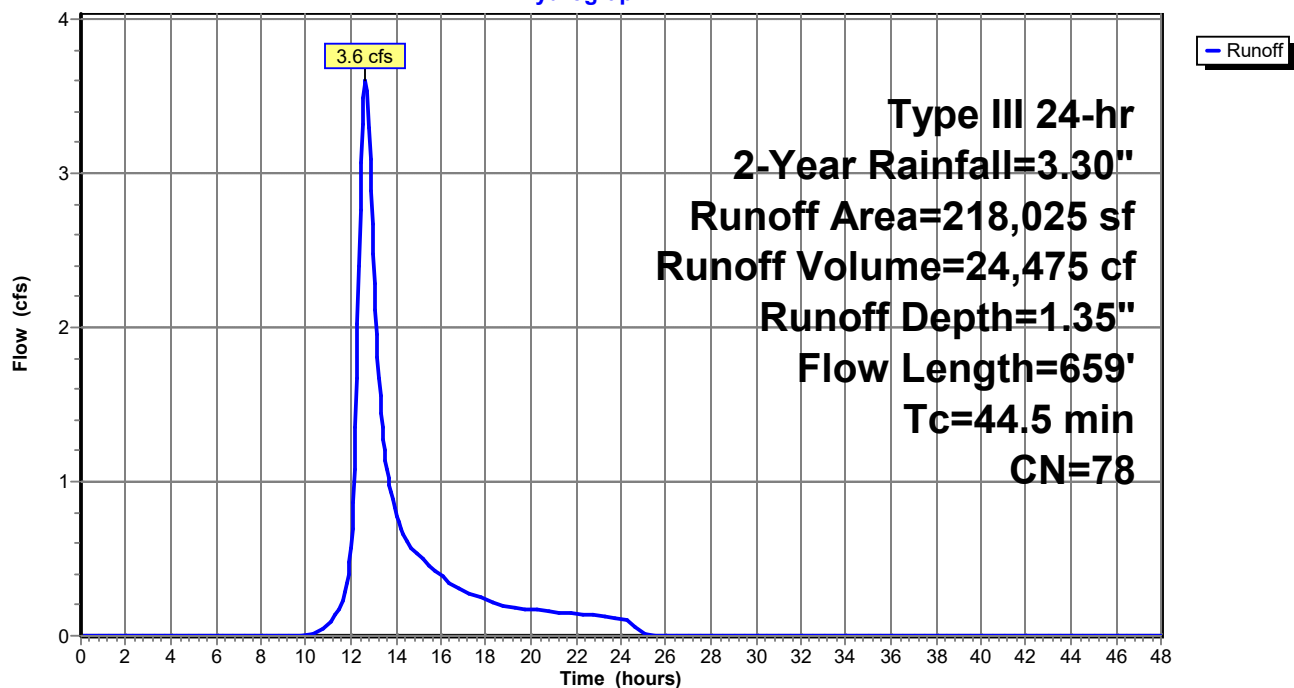
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
184,685	77	Woods, Good, HSG D
20,670	80	>75% Grass cover, Good, HSG D
9,565	98	Paved parking, HSG D
3,105	89	Dirt roads, HSG D
218,025	78	Weighted Average
208,460		95.61% Pervious Area
9,565		4.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 6

Summary for Subcatchment 1.1:

Runoff = 3.6 cfs @ 12.95 hrs, Volume= 31,247 cf, Depth= 1.41"

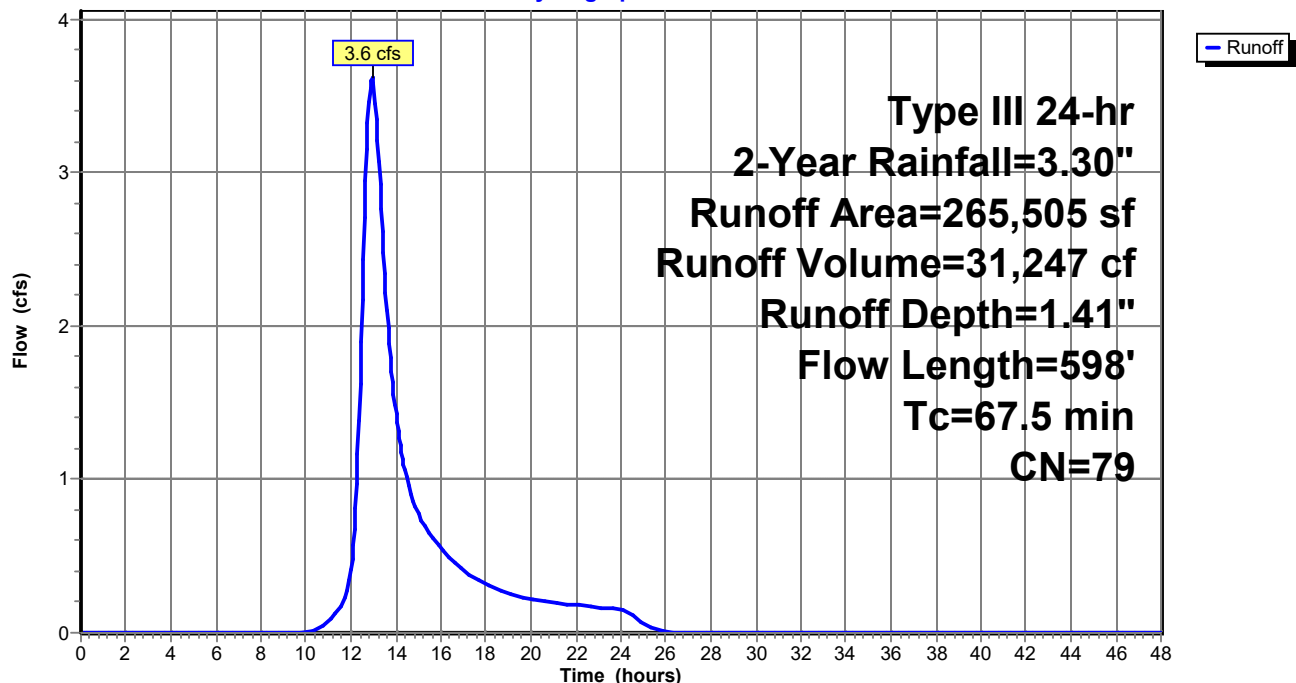
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
202,720	77	Woods, Good, HSG D
41,160	80	>75% Grass cover, Good, HSG D
15,295	98	Paved parking, HSG D
6,330	89	Dirt roads, HSG D
265,505	79	Weighted Average
250,210		94.24% Pervious Area
15,295		5.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 7

Summary for Subcatchment 1.2:

Runoff = 3.8 cfs @ 12.17 hrs, Volume= 14,598 cf, Depth= 1.35"

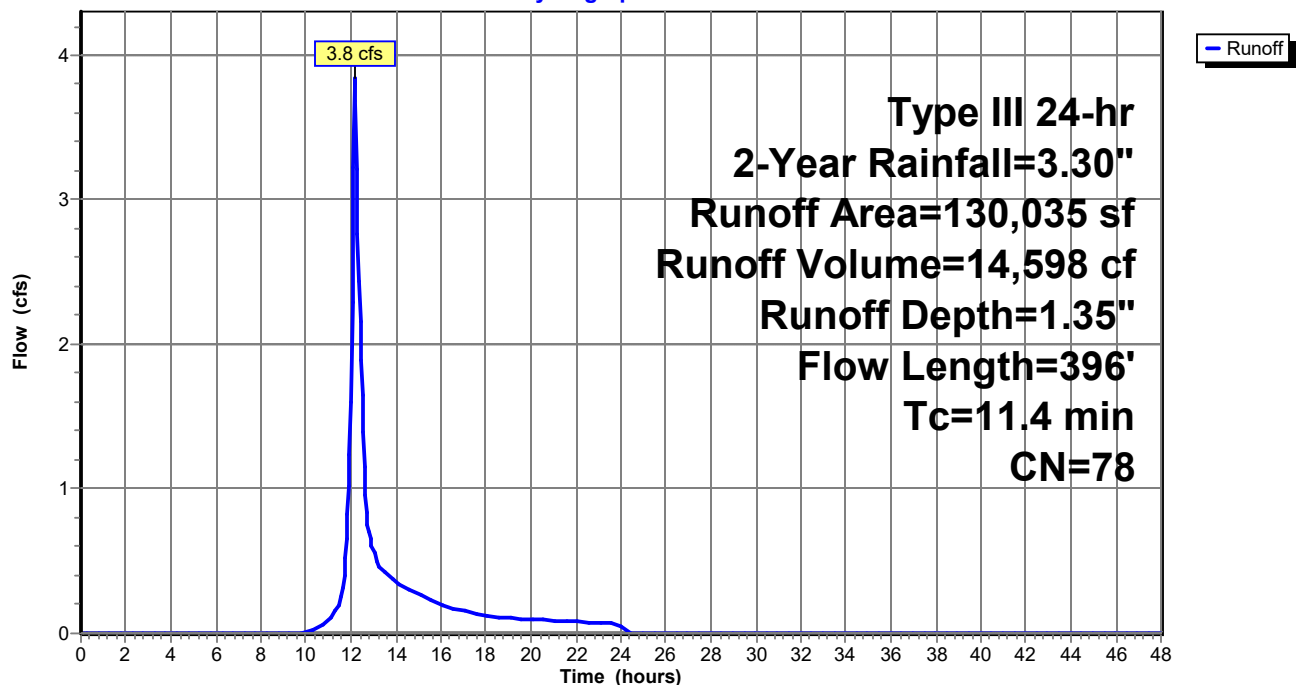
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 8

Summary for Subcatchment 1.3:

Runoff = 4.3 cfs @ 12.80 hrs, Volume= 33,424 cf, Depth= 1.48"

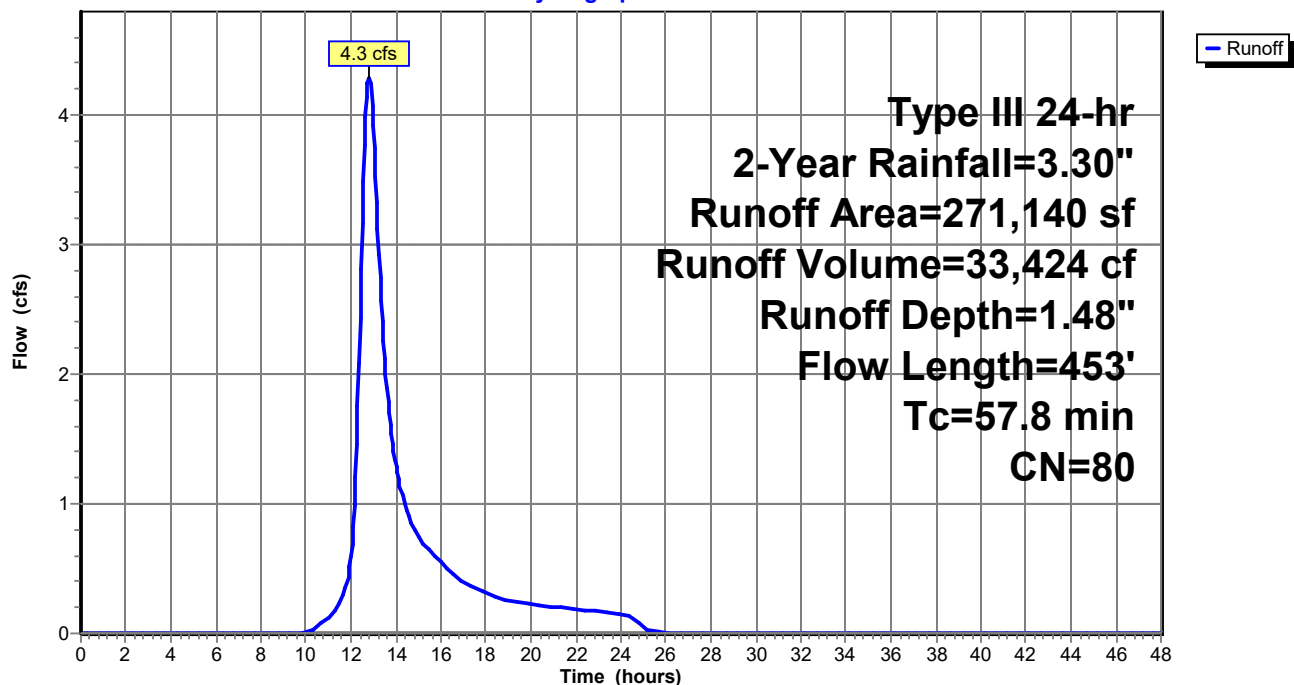
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 9

Summary for Subcatchment 1.4:

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,370 cf, Depth= 1.69"

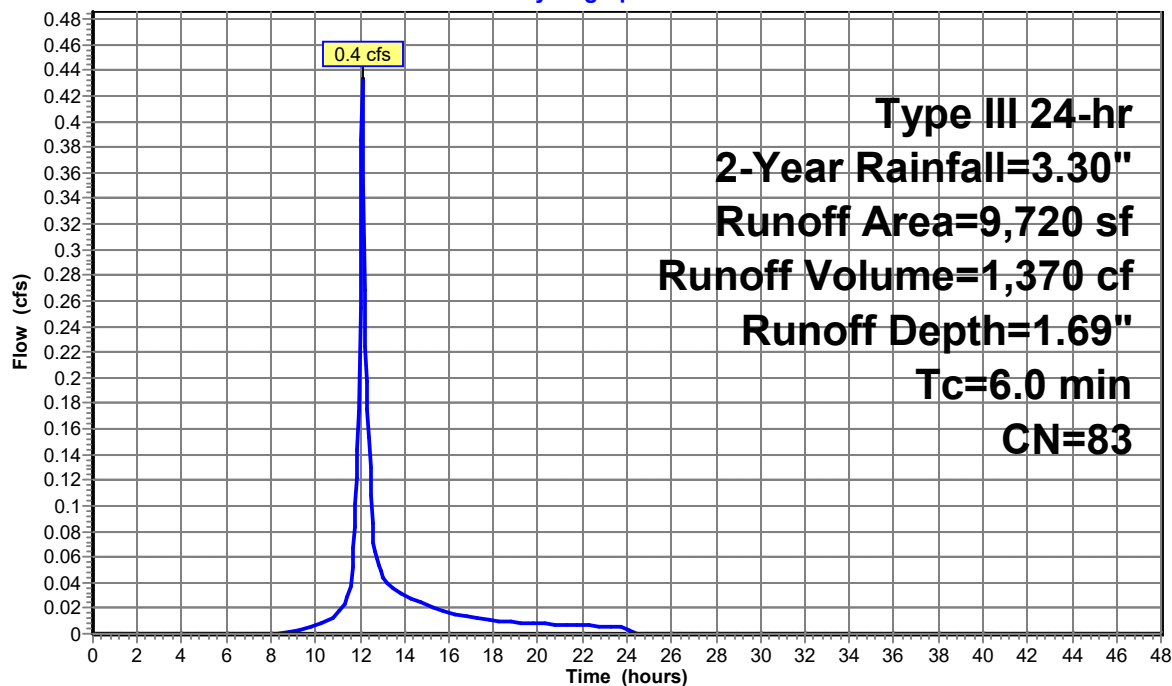
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
8,085	80	>75% Grass cover, Good, HSG D
1,635	98	Paved parking, HSG D
9,720	83	Weighted Average
8,085		83.18% Pervious Area
1,635		16.82% Impervious Area

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

Subcatchment 1.4:

Hydrograph



Runoff

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 10

Summary for Subcatchment 1.5:

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,613 cf, Depth= 1.92"

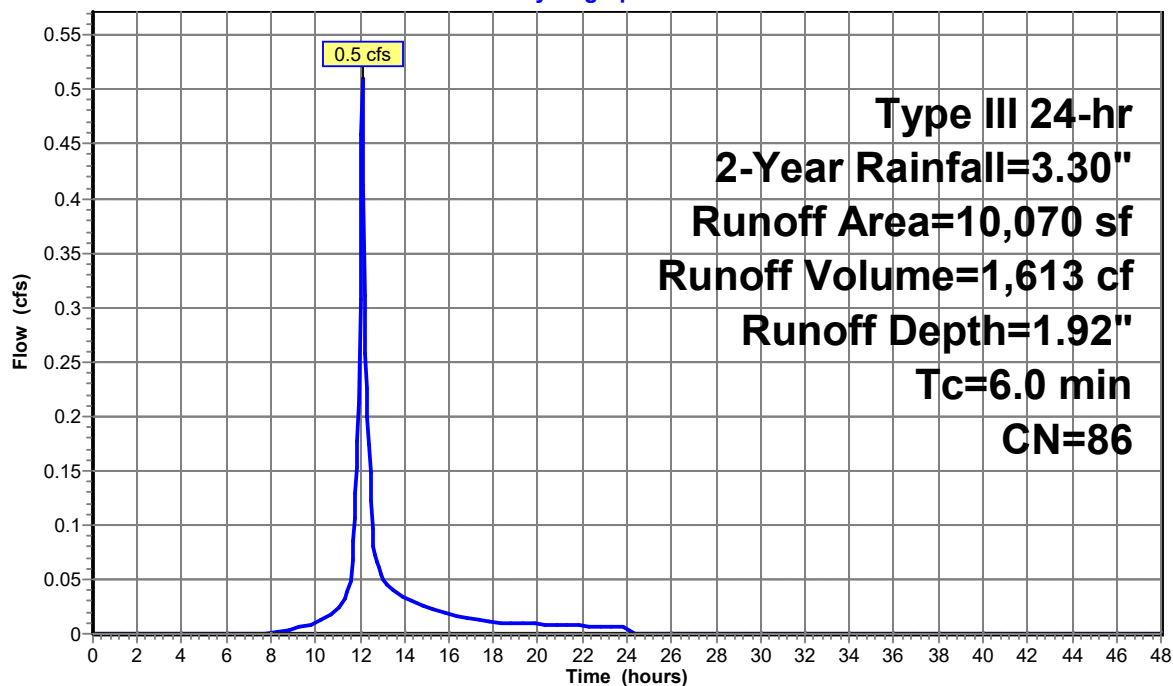
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
6,695	80	>75% Grass cover, Good, HSG D
3,375	98	Paved parking, HSG D
10,070	86	Weighted Average
6,695		66.48% Pervious Area
3,375		33.52% Impervious Area

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

Subcatchment 1.5:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 11

Summary for Subcatchment 1.6:

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,705 cf, Depth= 1.69"

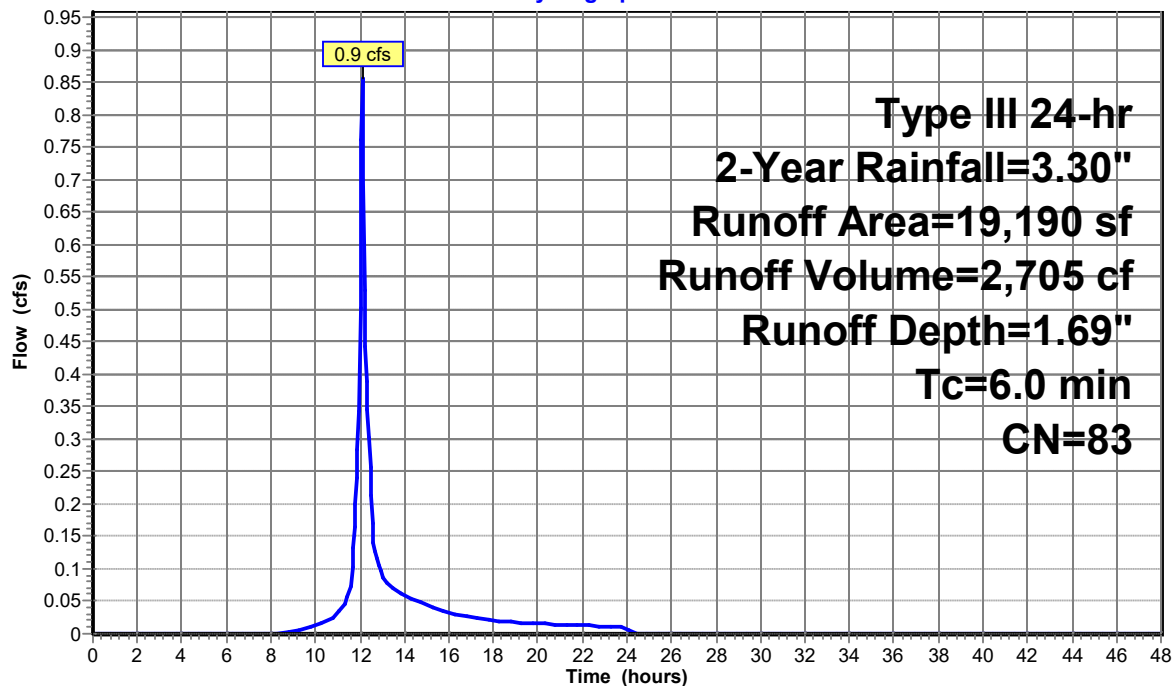
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
15,685	80	>75% Grass cover, Good, HSG D
3,505	98	Paved parking, HSG D
19,190	83	Weighted Average
15,685		81.74% Pervious Area
3,505		18.26% Impervious Area

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

Subcatchment 1.6:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 12

Summary for Subcatchment 1.7:

Runoff = 0.3 cfs @ 12.10 hrs, Volume= 1,012 cf, Depth= 1.48"

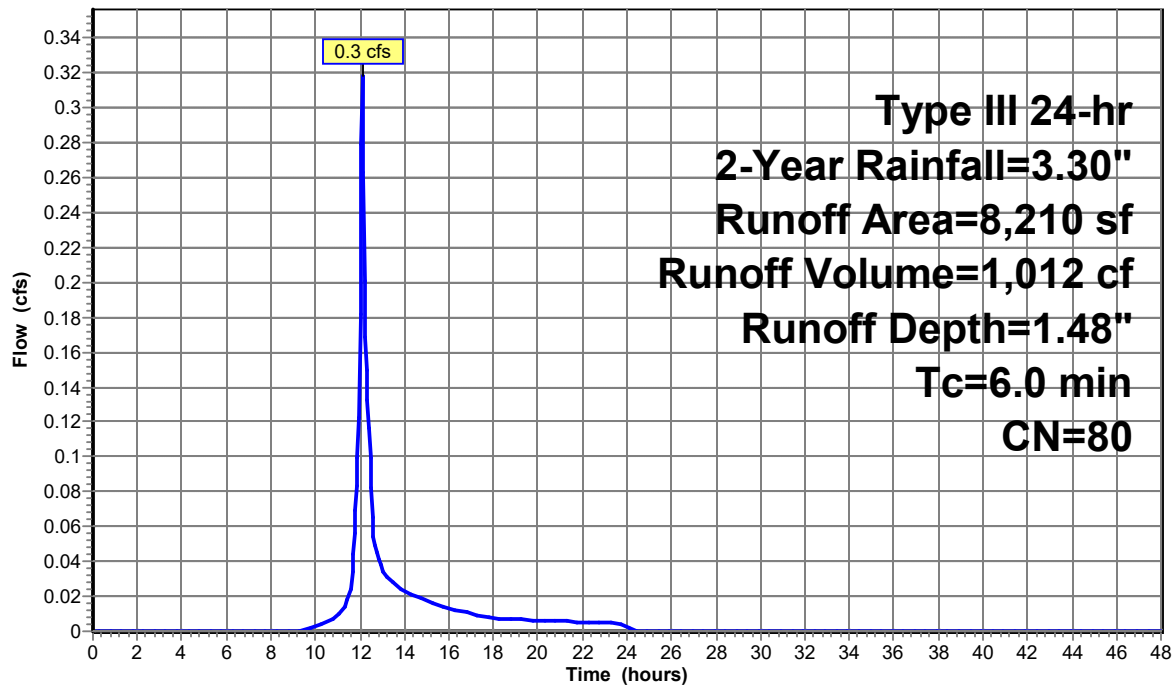
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
3,915	77	Woods, Good, HSG D
3,525	80	>75% Grass cover, Good, HSG D
770	98	Paved parking, HSG D
8,210	80	Weighted Average
7,440		90.62% Pervious Area
770		9.38% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 13

Summary for Subcatchment 2.0:

Runoff = 4.8 cfs @ 12.71 hrs, Volume= 34,420 cf, Depth= 1.41"

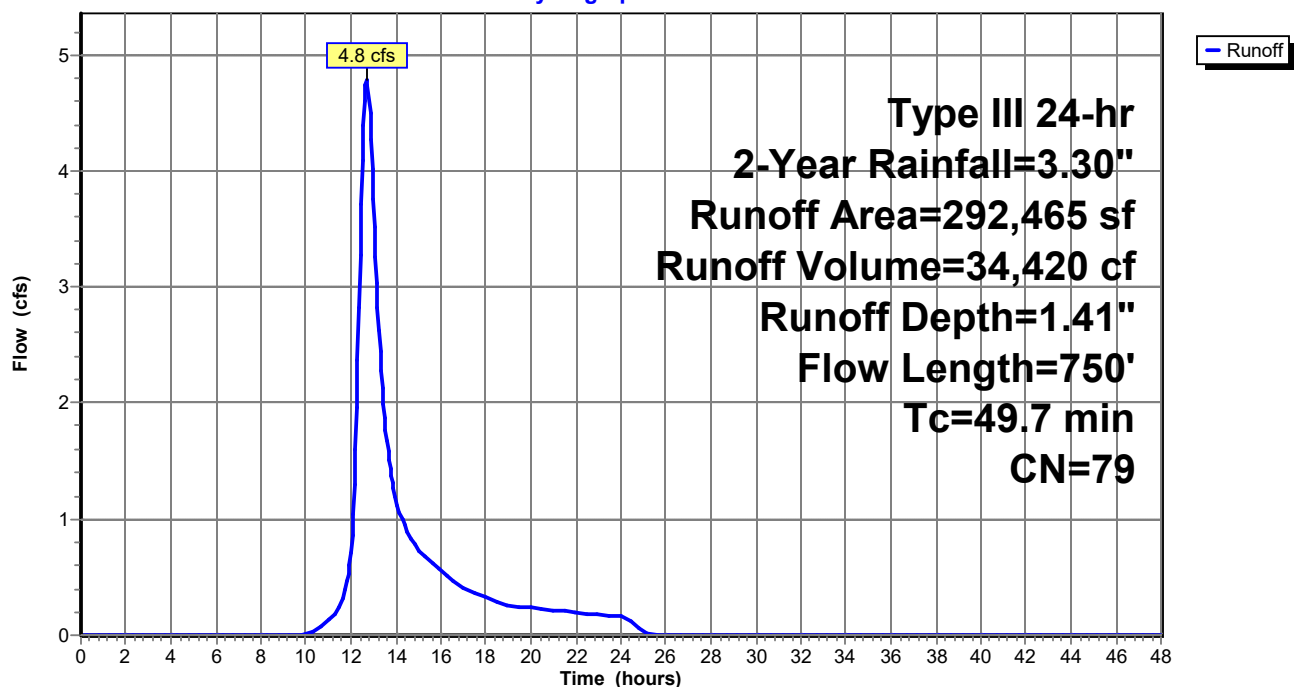
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
243,170	77	Woods, Good, HSG D
23,955	80	>75% Grass cover, Good, HSG D
25,340	98	Paved parking, HSG D
292,465	79	Weighted Average
267,125		91.34% Pervious Area
25,340		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 14

Summary for Subcatchment 2.1:

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf, Depth= 1.62"

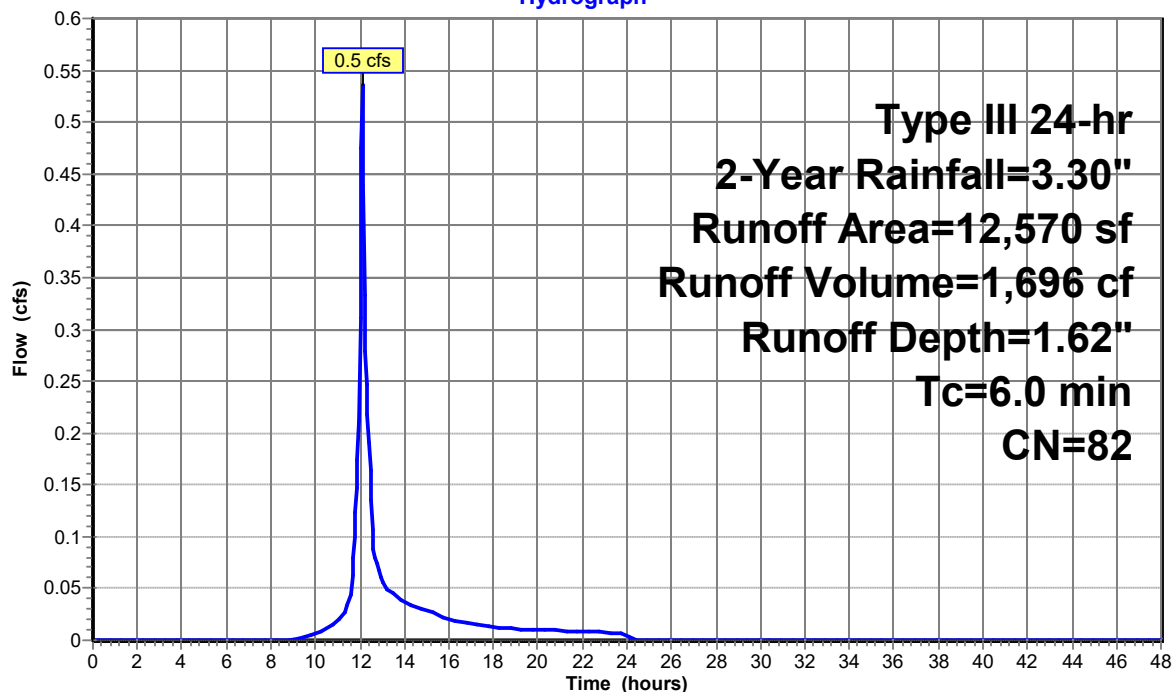
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
4,765	77	Woods, Good, HSG D
5,915	80	>75% Grass cover, Good, HSG D
1,890	98	Paved parking, HSG D
12,570	82	Weighted Average
10,680		84.96% Pervious Area
1,890		15.04% Impervious Area

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

Subcatchment 2.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 15

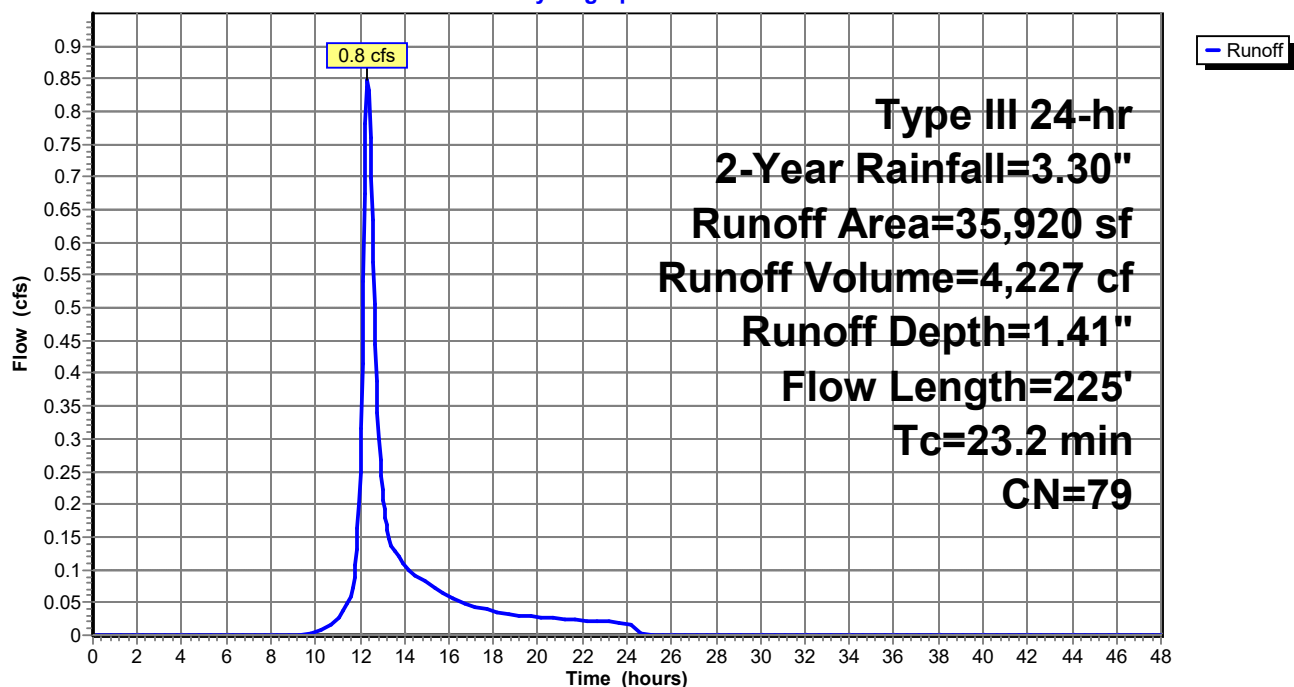
Summary for Subcatchment 3.0:

Runoff = 0.8 cfs @ 12.34 hrs, Volume= 4,227 cf, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
17,315	77	Woods, Good, HSG D
18,365	80	>75% Grass cover, Good, HSG D
240	98	Paved parking, HSG D
35,920	79	Weighted Average
35,680		99.33% Pervious Area
240		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	31	0.0563	0.21		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
18.1	69	0.0563	0.06		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.6	125	0.1000	0.79		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
23.2	225	Total			

Subcatchment 3.0:**Hydrograph**

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 16

Summary for Reach R1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 0.73" for 2-Year event
Inflow = 2.2 cfs @ 13.62 hrs, Volume= 40,450 cf
Outflow = 2.1 cfs @ 14.16 hrs, Volume= 40,423 cf, Atten= 2%, Lag= 32.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.33 fps, Min. Travel Time= 16.8 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 42.8 min

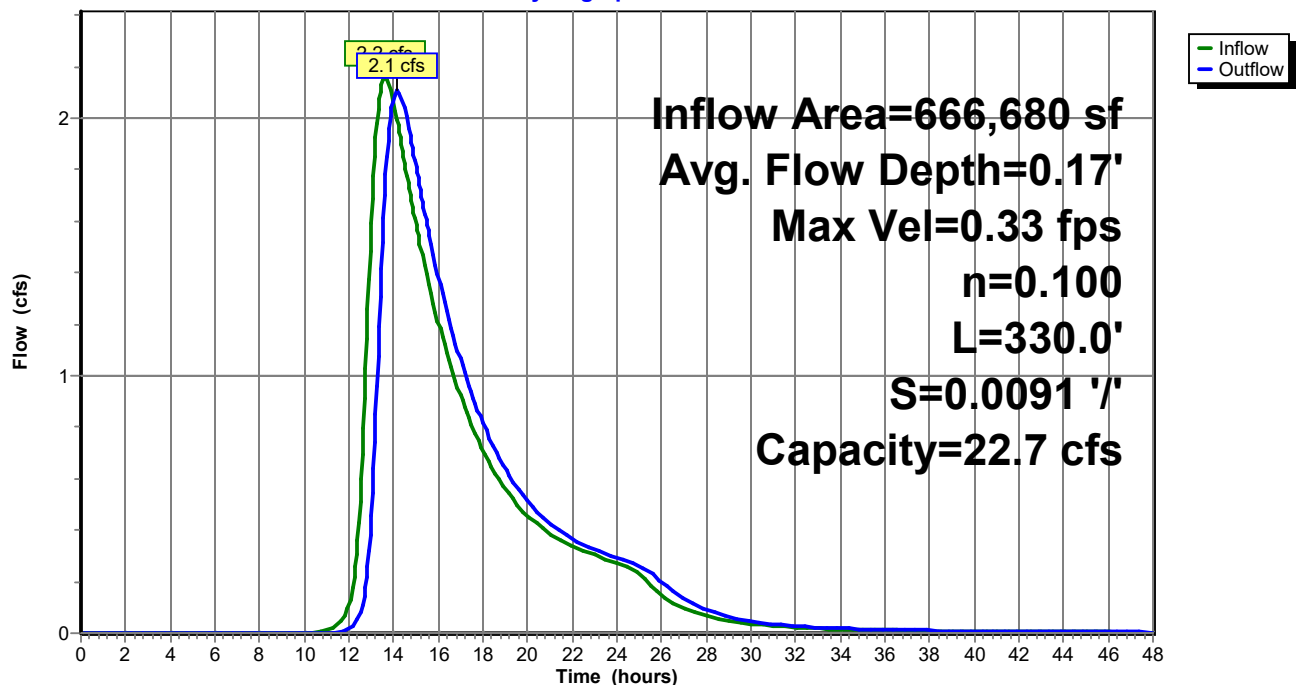
Peak Storage= 2,120 cf @ 13.87 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 330.0' Slope= 0.0091 '
Inlet Invert= 33.00', Outlet Invert= 30.00'



Reach R1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 17

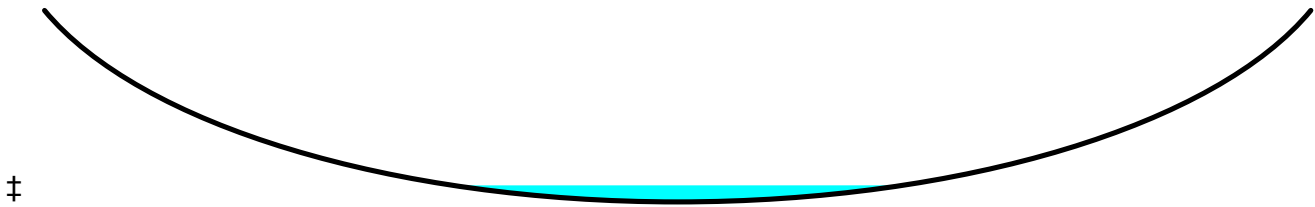
Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 0.28" for 2-Year event
Inflow = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf
Outflow = 0.4 cfs @ 15.10 hrs, Volume= 9,228 cf, Atten= 8%, Lag= 82.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.20 fps, Min. Travel Time= 39.5 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 81.0 min

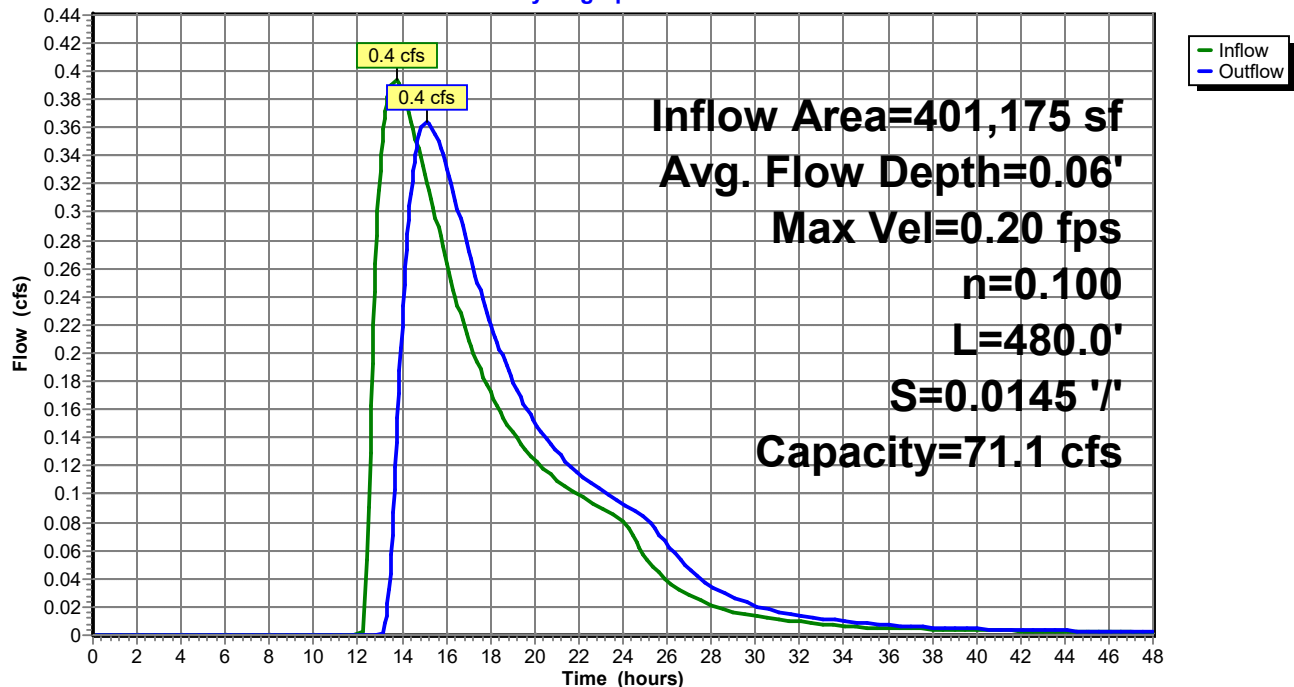
Peak Storage= 862 cf @ 14.44 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 480.0' Slope= 0.0145 '/'
Inlet Invert= 40.23', Outlet Invert= 33.26'



Reach R2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 18

Summary for Reach R3:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 1.70" for 2-Year event
Inflow = 2.1 cfs @ 12.09 hrs, Volume= 6,701 cf
Outflow = 1.6 cfs @ 12.30 hrs, Volume= 6,701 cf, Atten= 23%, Lag= 12.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.66 fps, Min. Travel Time= 7.6 min

Avg. Velocity = 0.19 fps, Avg. Travel Time= 26.7 min

Peak Storage= 755 cf @ 12.16 hrs

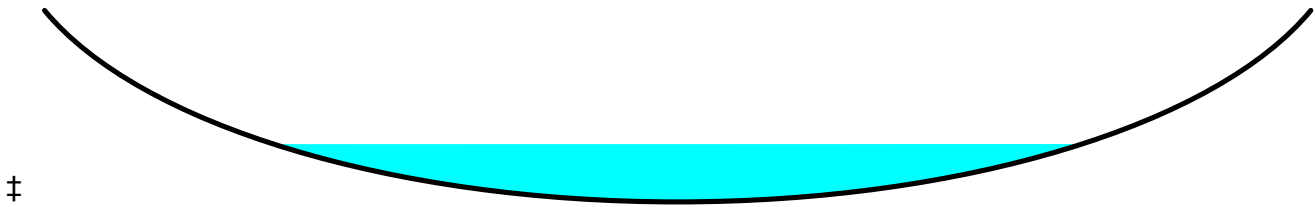
Average Depth at Peak Storage= 0.45'

Bank-Full Depth= 1.50' Flow Area= 15.0 sf, Capacity= 21.8 cfs

15.00' x 1.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage

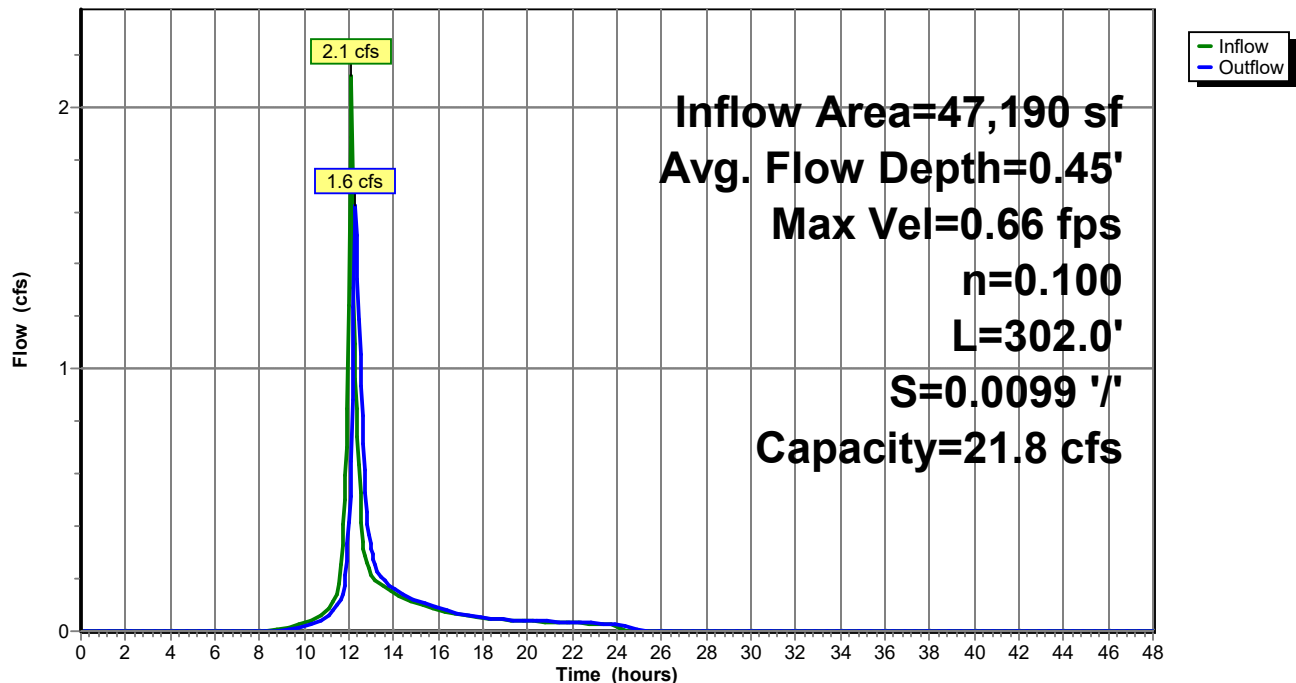
Length= 302.0' Slope= 0.0099 '/'

Inlet Invert= 34.00', Outlet Invert= 31.00'



Reach R3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 19

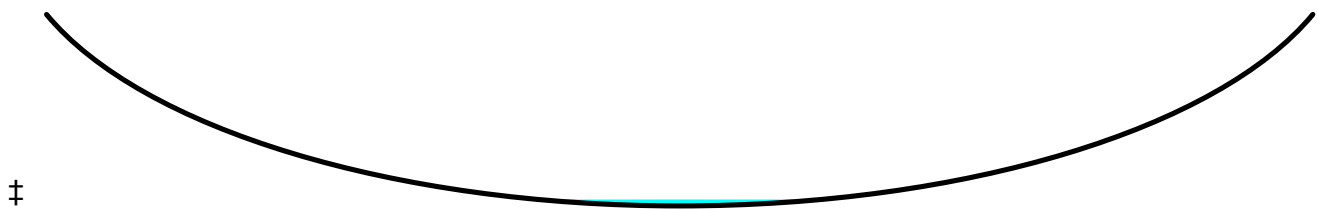
Summary for Reach R4:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 1.62" for 2-Year event
Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf
Outflow = 0.4 cfs @ 12.33 hrs, Volume= 1,696 cf, Atten= 27%, Lag= 14.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.56 fps, Min. Travel Time= 9.2 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 19.5 min

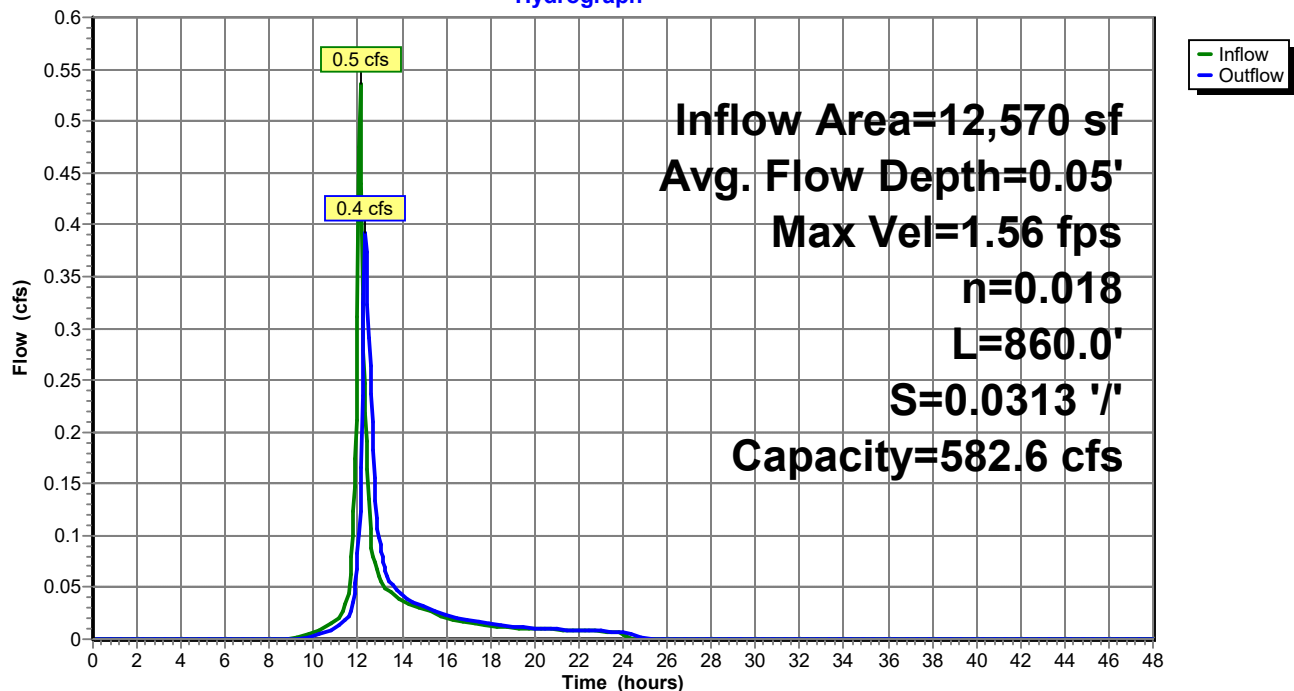
Peak Storage= 218 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.50' Flow Area= 40.0 sf, Capacity= 582.6 cfs

40.00' x 1.50' deep Parabolic Channel, n= 0.018 Earth, clean & straight
Length= 860.0' Slope= 0.0313 '/'
Inlet Invert= 52.00', Outlet Invert= 25.10'



Reach R4:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 20

Summary for Pond C1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 0.73" for 2-Year event
 Inflow = 3.6 cfs @ 12.95 hrs, Volume= 40,475 cf
 Outflow = 2.2 cfs @ 13.62 hrs, Volume= 40,450 cf, Atten= 40%, Lag= 40.2 min
 Primary = 2.2 cfs @ 13.62 hrs, Volume= 40,450 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 34.52' @ 13.62 hrs Surf.Area= 23,635 sf Storage= 8,009 cf

Flood Elev= 36.00' Surf.Area= 65,400 sf Storage= 74,950 cf

Plug-Flow detention time= 68.1 min calculated for 40,408 cf (100% of inflow)

Center-of-Mass det. time= 67.1 min (1,030.5 - 963.4)

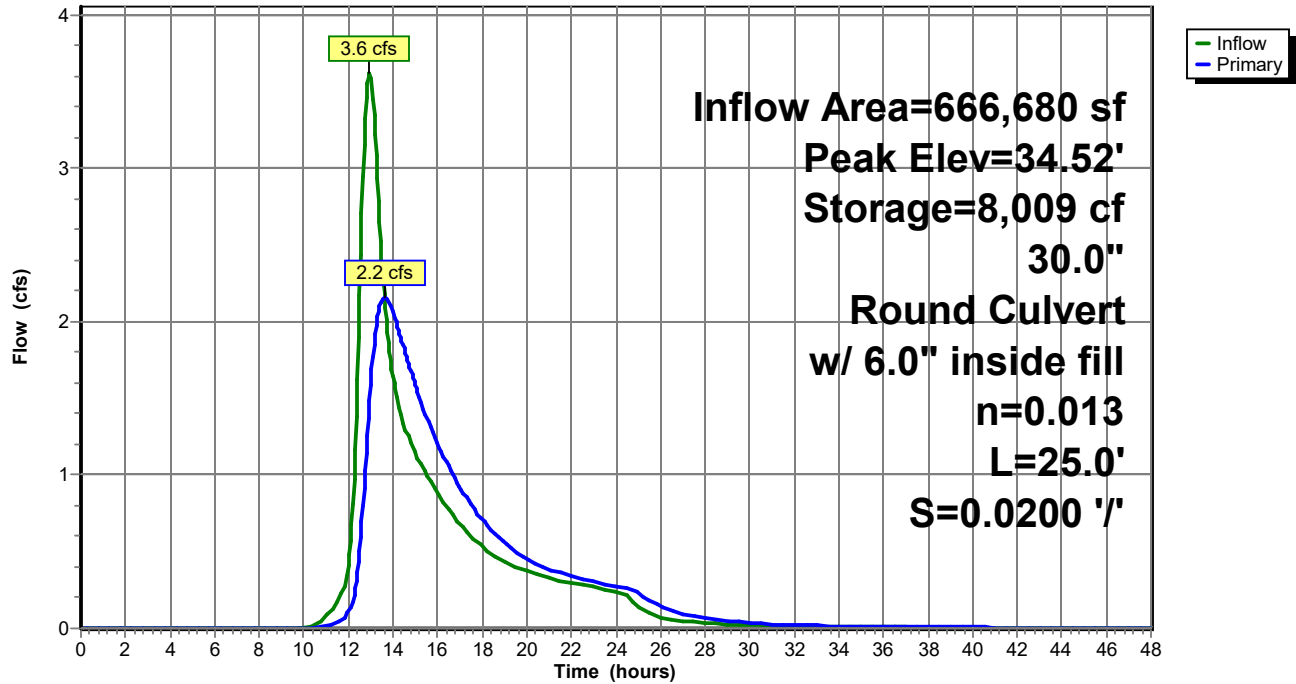
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	30.0" Round Culvert w/ 6.0" inside fill L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 33.00' S= 0.0200 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.21 sf

Primary OutFlow Max=2.2 cfs @ 13.62 hrs HW=34.52' (Free Discharge)↑ **1=Culvert** (Inlet Controls 2.2 cfs @ 1.80 fps)

Pond C1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 22

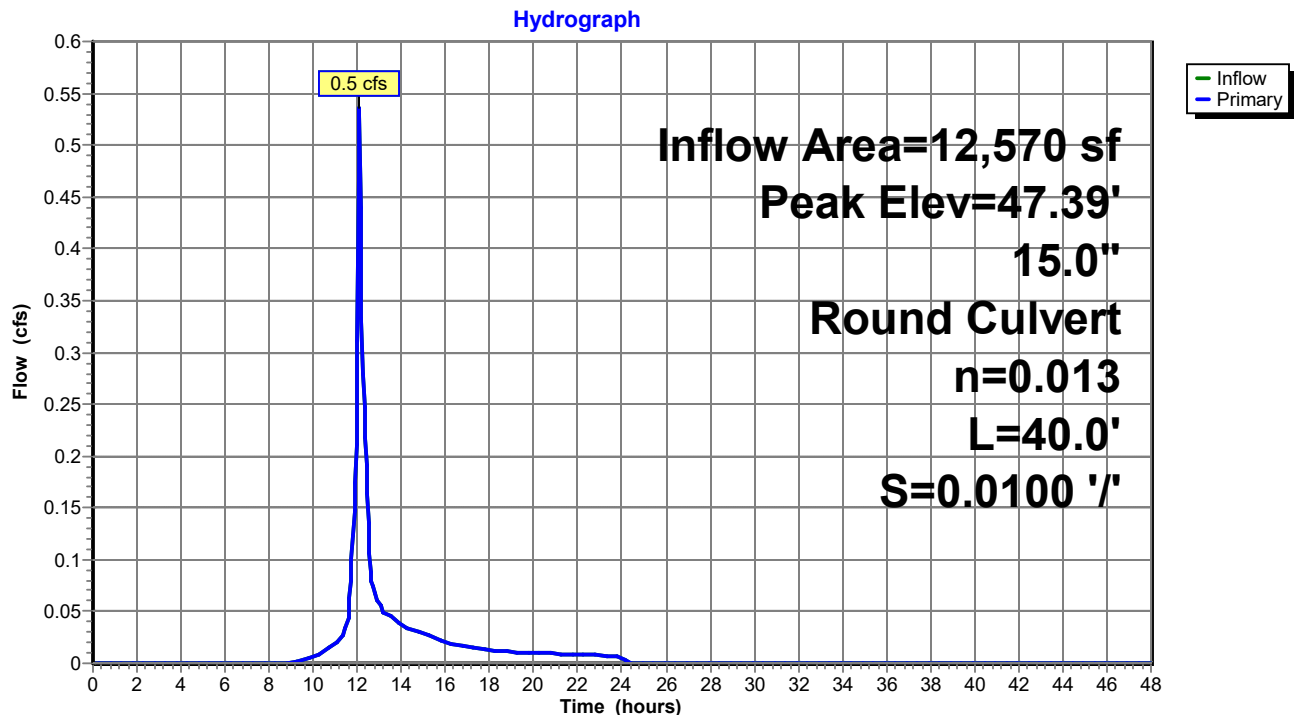
Summary for Pond C10:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 1.62" for 2-Year event
 Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf
 Outflow = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.39' @ 12.09 hrs
 Flood Elev= 48.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	15.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 47.00' / 46.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=47.38' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.5 cfs @ 1.66 fps)

Pond C10:

Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 23

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 0.44" for 2-Year event
 Inflow = 3.8 cfs @ 12.17 hrs, Volume= 14,598 cf
 Outflow = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf, Atten= 90%, Lag= 93.4 min
 Primary = 0.4 cfs @ 13.72 hrs, Volume= 9,256 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.46' @ 13.72 hrs Surf.Area= 8,283 sf Storage= 7,794 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 344.9 min calculated for 9,256 cf (63% of inflow)
 Center-of-Mass det. time= 233.9 min (1,086.4 - 852.5)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

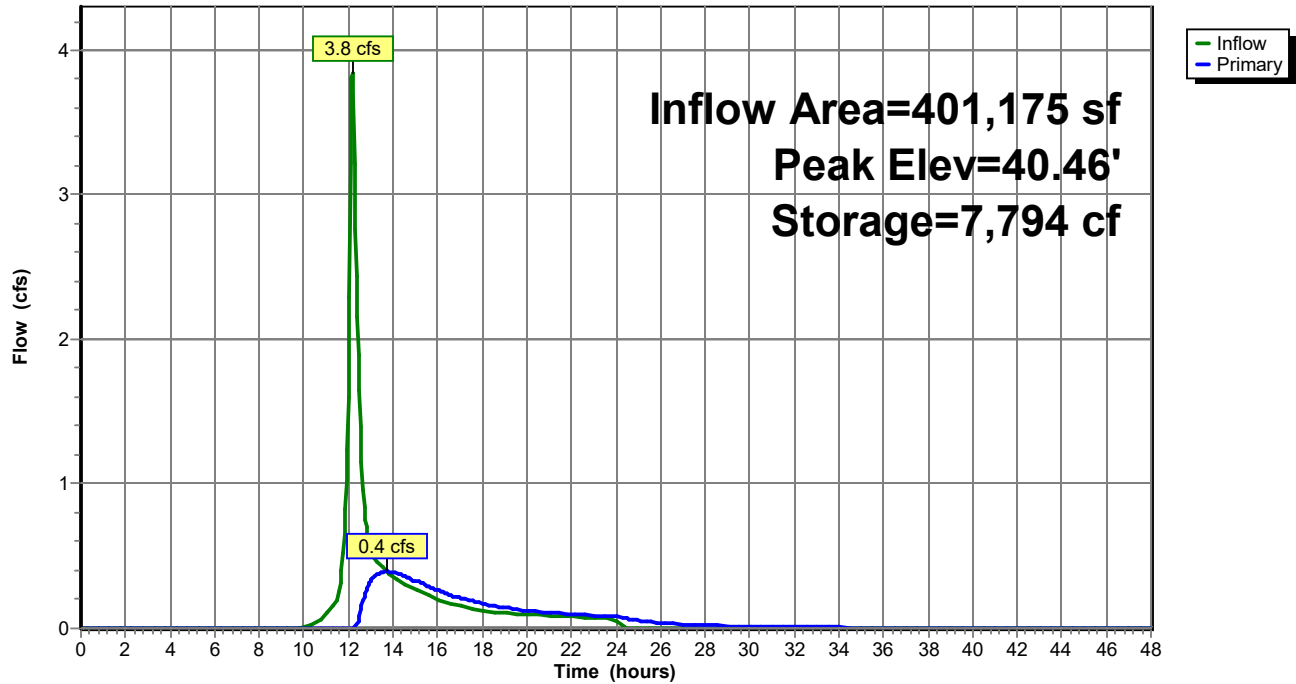
Primary OutFlow Max=0.4 cfs @ 13.72 hrs HW=40.46' (Free Discharge)

1=Culvert (Barrel Controls 0.0 cfs @ 1.18 fps)

2=Culvert (Inlet Controls 0.4 cfs @ 1.55 fps)

Pond C2:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 25

Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 1.48" for 2-Year event
 Inflow = 4.3 cfs @ 12.80 hrs, Volume= 33,424 cf
 Outflow = 2.1 cfs @ 13.52 hrs, Volume= 33,398 cf, Atten= 52%, Lag= 43.2 min
 Discarded = 2.1 cfs @ 13.52 hrs, Volume= 33,398 cf
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.68' @ 13.52 hrs Surf.Area= 26,940 sf Storage= 10,399 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 97.3 min calculated for 33,398 cf (100% of inflow)
 Center-of-Mass det. time= 96.8 min (986.0 - 889.2)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

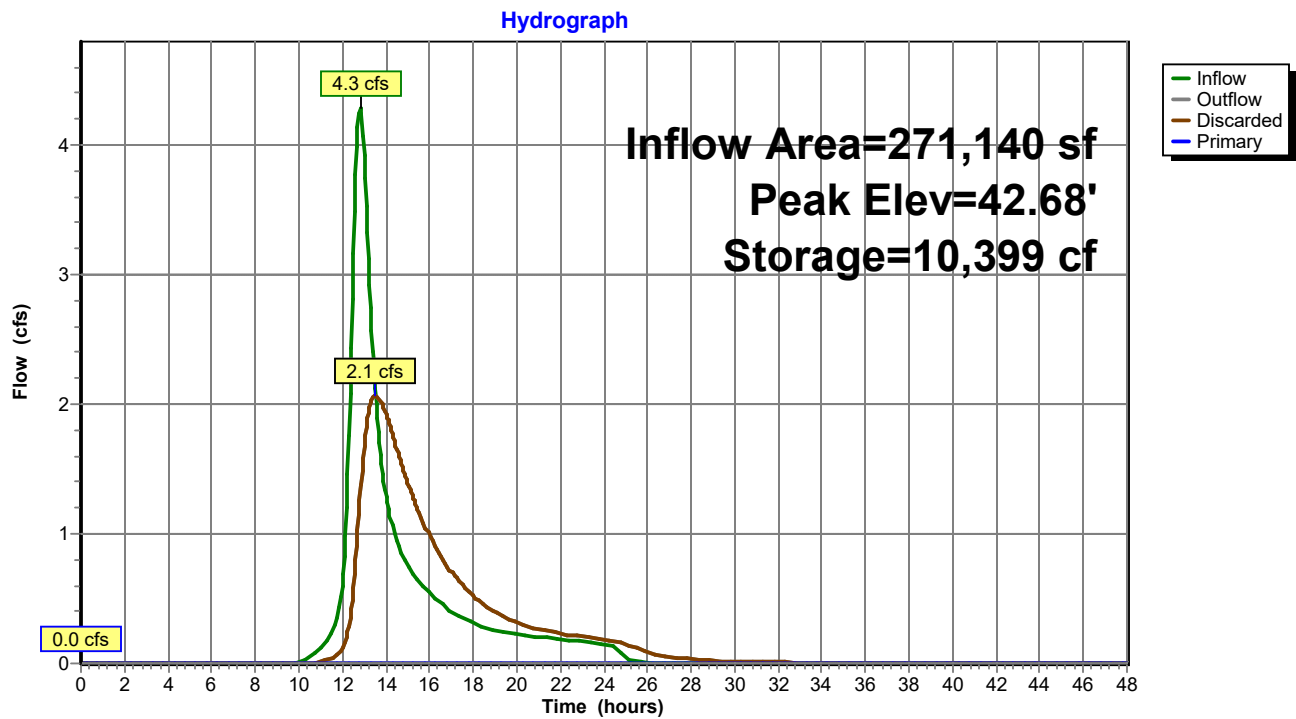
Discarded OutFlow Max=2.1 cfs @ 13.52 hrs HW=42.68' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 2.1 cfs @ 2.21 fps)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=42.00' (Free Discharge)

↑ **1=Culvert** (Controls 0.0 cfs)

Pond C3:



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 27

Summary for Pond C4:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 1.42" for 2-Year event
 Inflow = 5.0 cfs @ 12.68 hrs, Volume= 36,116 cf
 Outflow = 3.8 cfs @ 13.01 hrs, Volume= 35,770 cf, Atten= 23%, Lag= 19.5 min
 Primary = 3.8 cfs @ 13.01 hrs, Volume= 35,770 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.01' @ 13.01 hrs Surf.Area= 11,016 sf Storage= 6,839 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 53.7 min calculated for 35,733 cf (99% of inflow)
 Center-of-Mass det. time= 49.1 min (932.8 - 883.7)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

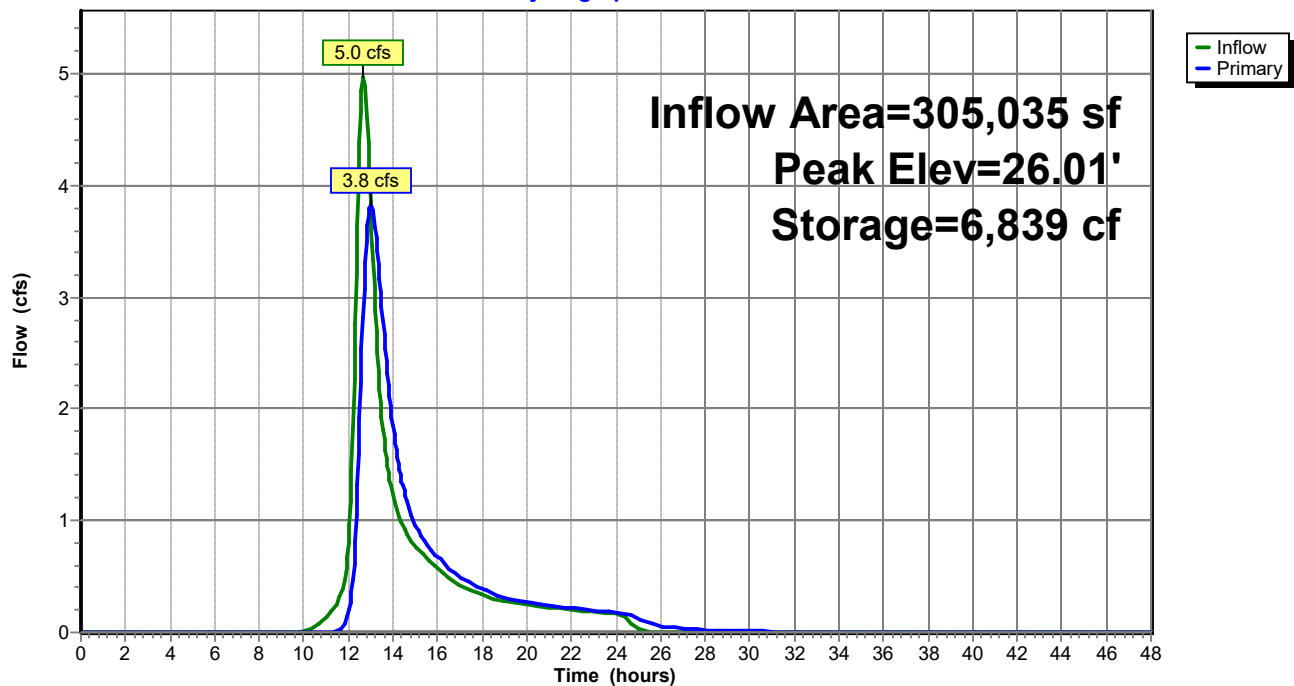
Primary OutFlow Max=3.8 cfs @ 13.01 hrs HW=26.01' (Free Discharge)

1=Culvert (Inlet Controls 1.8 cfs @ 2.32 fps)

2=Culvert (Barrel Controls 2.0 cfs @ 2.98 fps)

Pond C4:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 29

Summary for Pond C5:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 1.70" for 2-Year event
 Inflow = 2.1 cfs @ 12.09 hrs, Volume= 6,701 cf
 Outflow = 2.1 cfs @ 12.09 hrs, Volume= 6,701 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.1 cfs @ 12.09 hrs, Volume= 6,701 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 35.36' @ 12.09 hrs

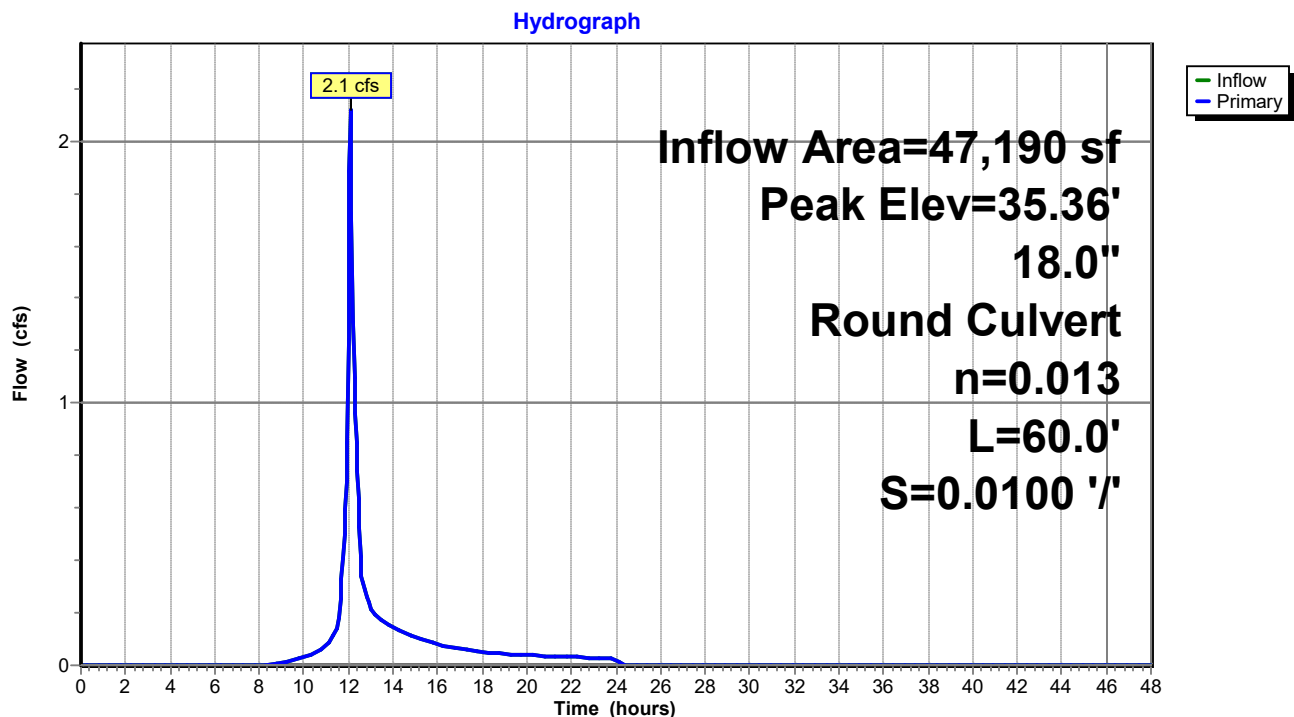
Flood Elev= 36.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.60' / 34.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.1 cfs @ 12.09 hrs HW=35.36' (Free Discharge)

↑1=Culvert (Inlet Controls 2.1 cfs @ 2.34 fps)

Pond C5:



Summary for Pond C6:

Inflow Area = 37,470 sf, 20.42% Impervious, Inflow Depth = 1.71" for 2-Year event
 Inflow = 1.7 cfs @ 12.09 hrs, Volume= 5,330 cf
 Outflow = 1.7 cfs @ 12.09 hrs, Volume= 5,330 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.7 cfs @ 12.09 hrs, Volume= 5,330 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 37.67' @ 12.09 hrs

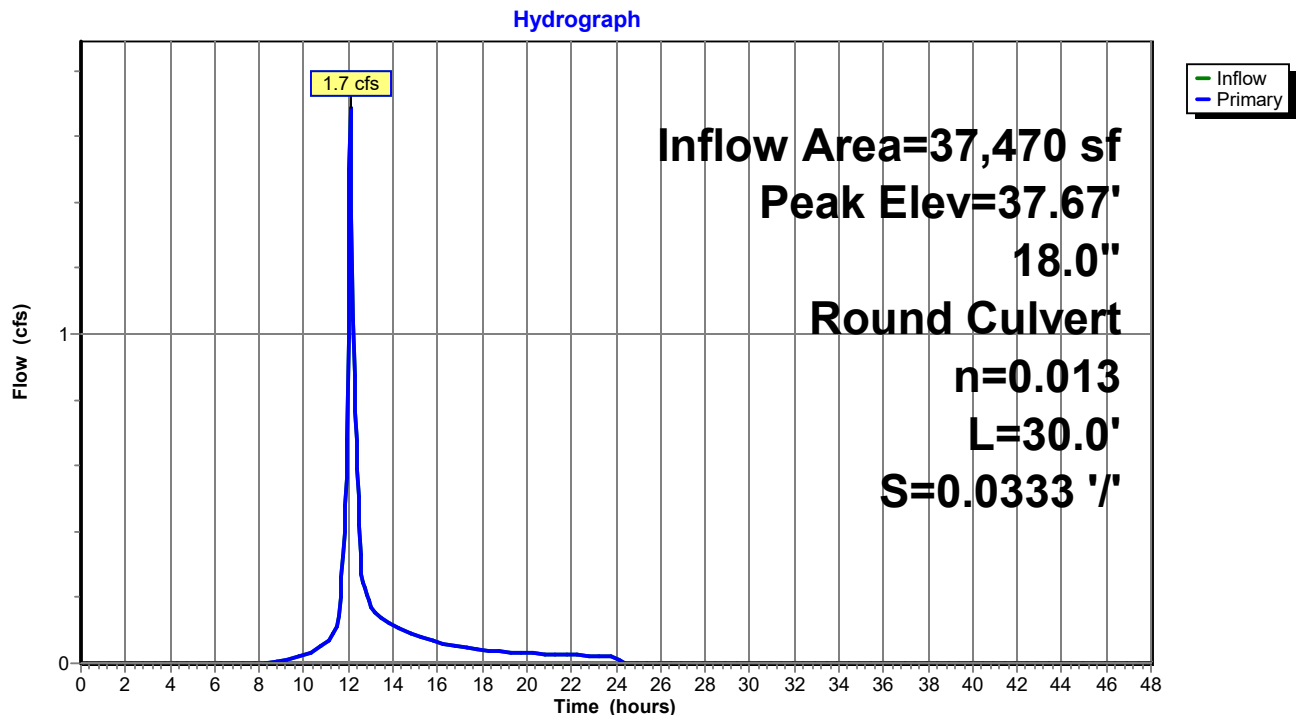
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	18.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.7 cfs @ 12.09 hrs HW=37.66' (Free Discharge)

↑1=Culvert (Inlet Controls 1.7 cfs @ 2.19 fps)

Pond C6:



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 31

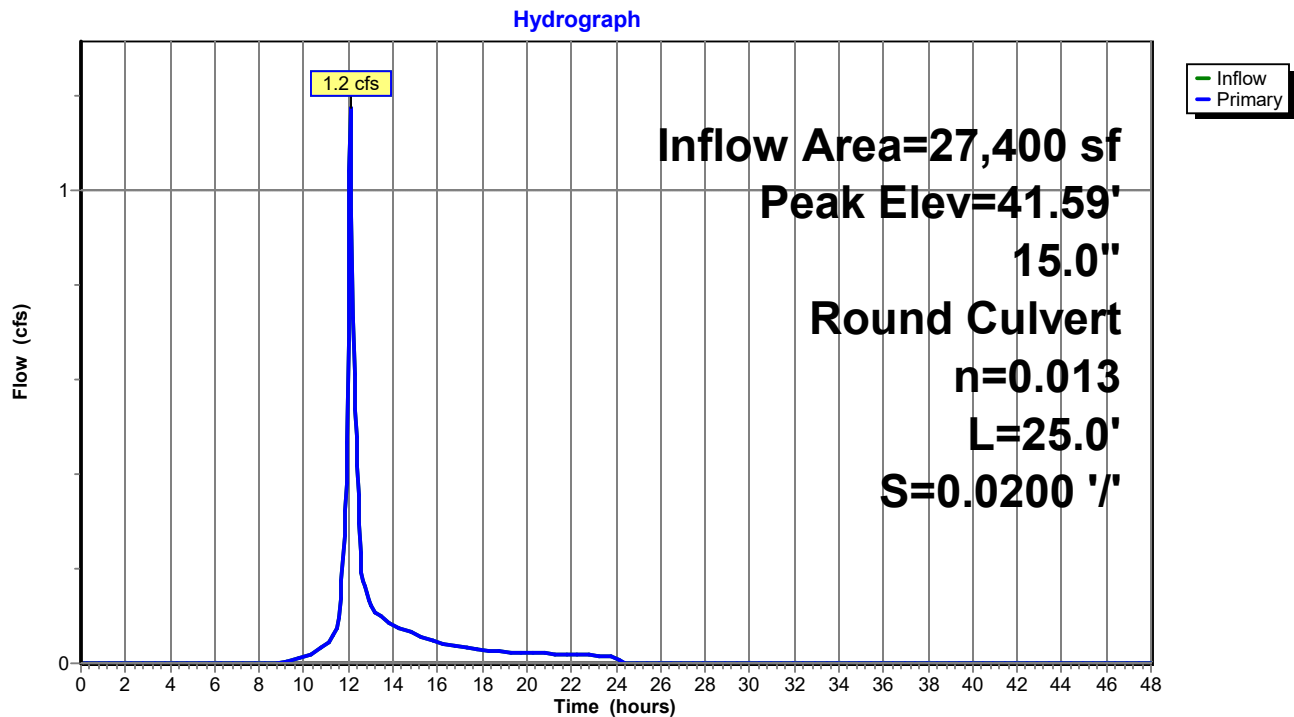
Summary for Pond C7:

Inflow Area = 27,400 sf, 15.60% Impervious, Inflow Depth = 1.63" for 2-Year event
 Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,717 cf
 Outflow = 1.2 cfs @ 12.09 hrs, Volume= 3,717 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.09 hrs, Volume= 3,717 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.59' @ 12.09 hrs
 Flood Elev= 42.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.09 hrs HW=41.58' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.2 cfs @ 2.05 fps)

Pond C7:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 32

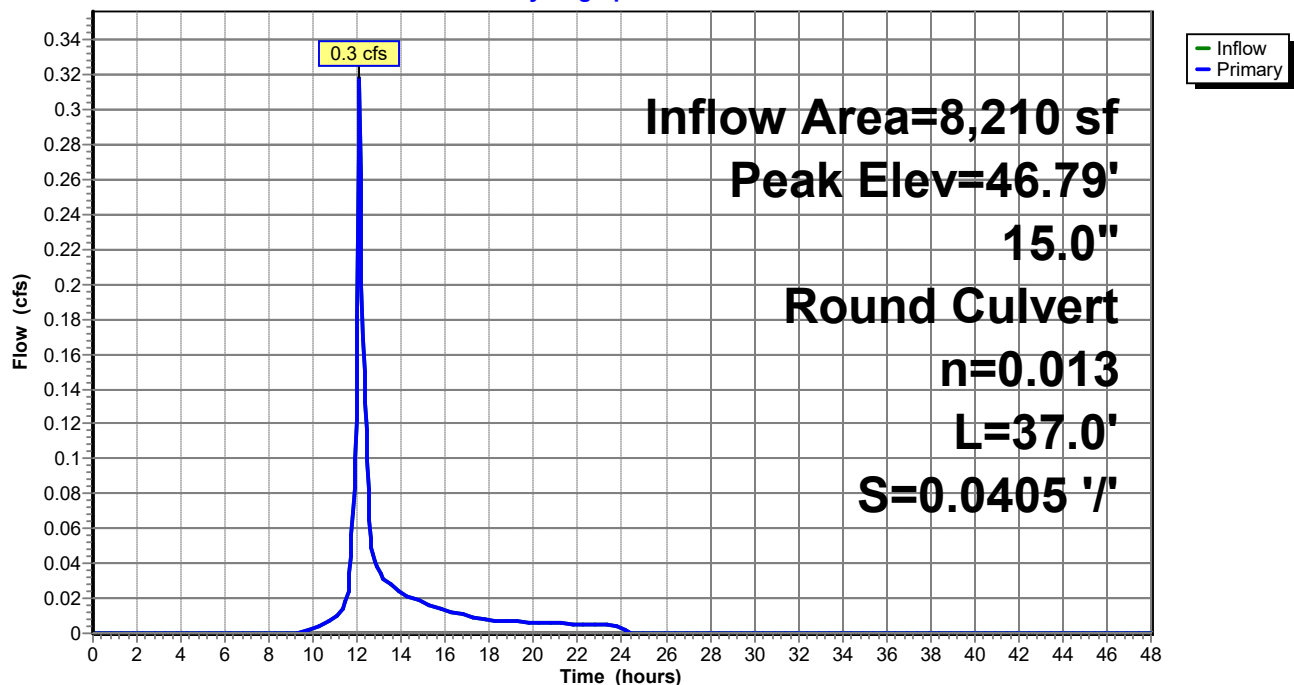
Summary for Pond C8:

Inflow Area = 8,210 sf, 9.38% Impervious, Inflow Depth = 1.48" for 2-Year event
 Inflow = 0.3 cfs @ 12.10 hrs, Volume= 1,012 cf
 Outflow = 0.3 cfs @ 12.10 hrs, Volume= 1,012 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.3 cfs @ 12.10 hrs, Volume= 1,012 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.79' @ 12.10 hrs
 Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	15.0" Round Culvert L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.50' / 45.00' S= 0.0405 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.3 cfs @ 12.10 hrs HW=46.79' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.3 cfs @ 1.45 fps)

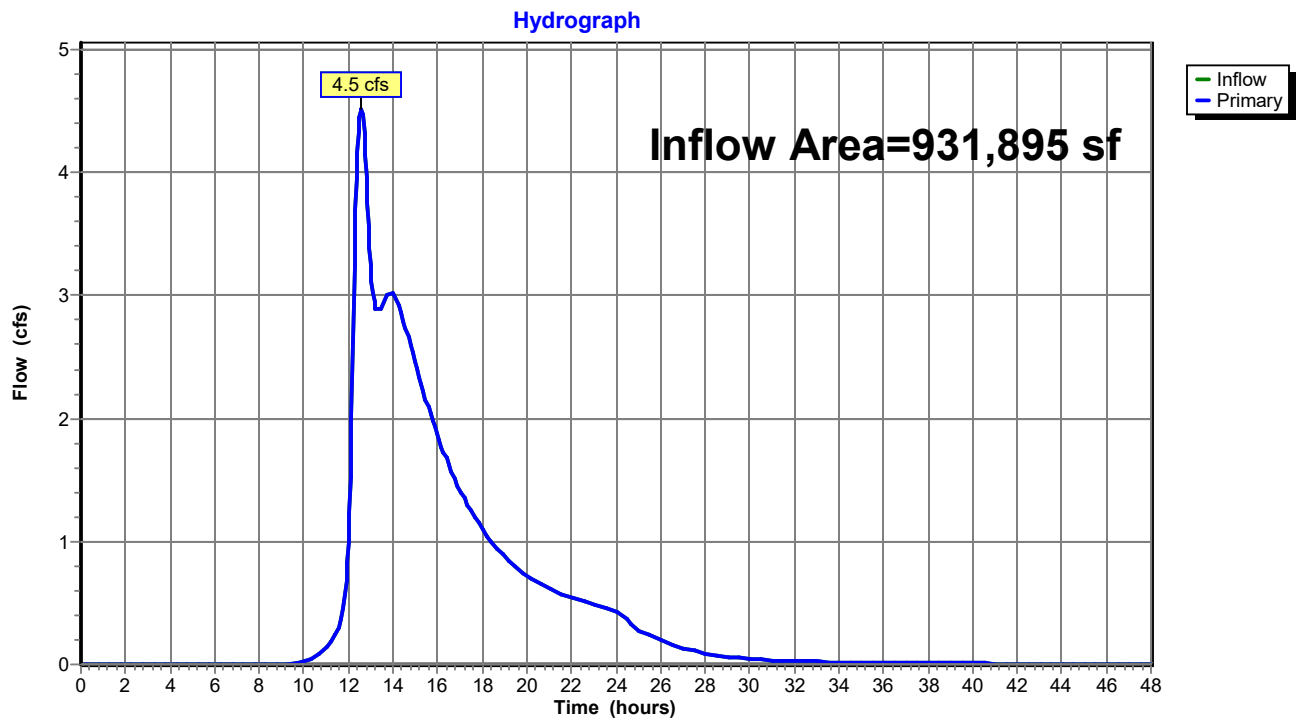
Pond C8:**Hydrograph**

Summary for Link AP1:

Inflow Area = 931,895 sf, 8.48% Impervious, Inflow Depth > 0.92" for 2-Year event
 Inflow = 4.5 cfs @ 12.58 hrs, Volume= 71,599 cf
 Primary = 4.5 cfs @ 12.58 hrs, Volume= 71,599 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

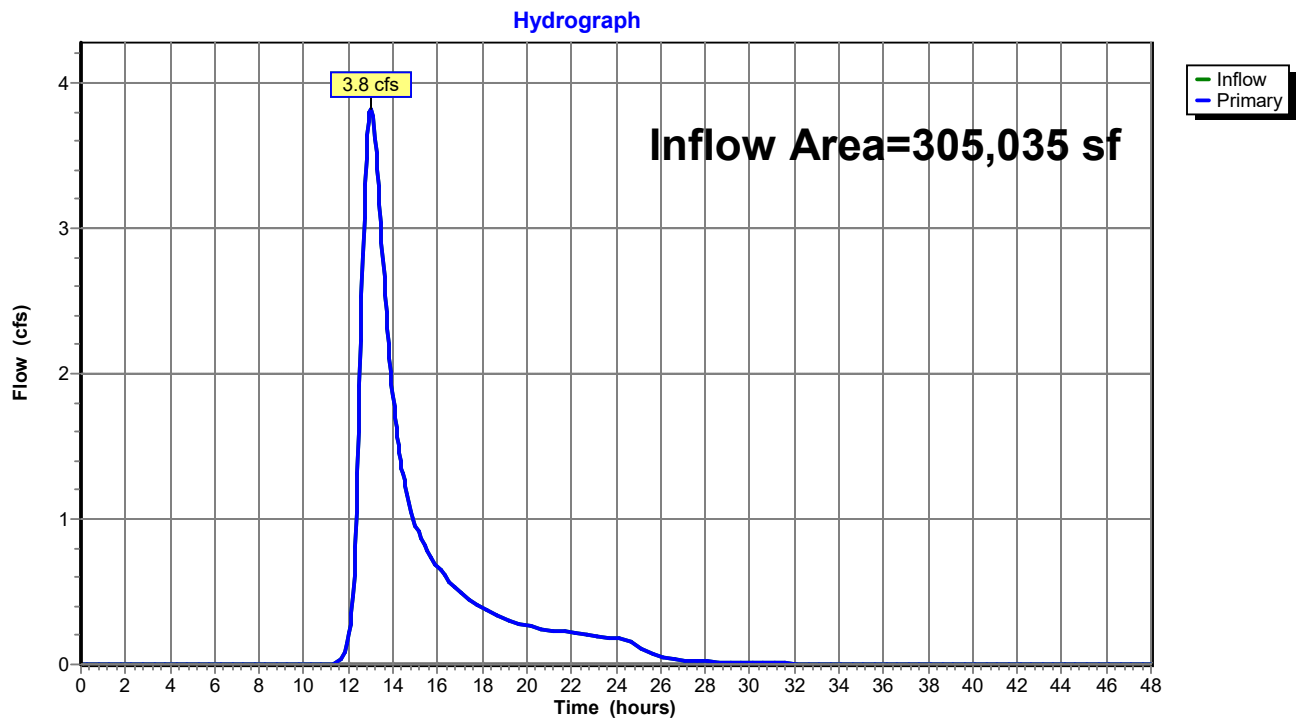


Summary for Link AP2:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth > 1.41" for 2-Year event
 Inflow = 3.8 cfs @ 13.01 hrs, Volume= 35,770 cf
 Primary = 3.8 cfs @ 13.01 hrs, Volume= 35,770 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:



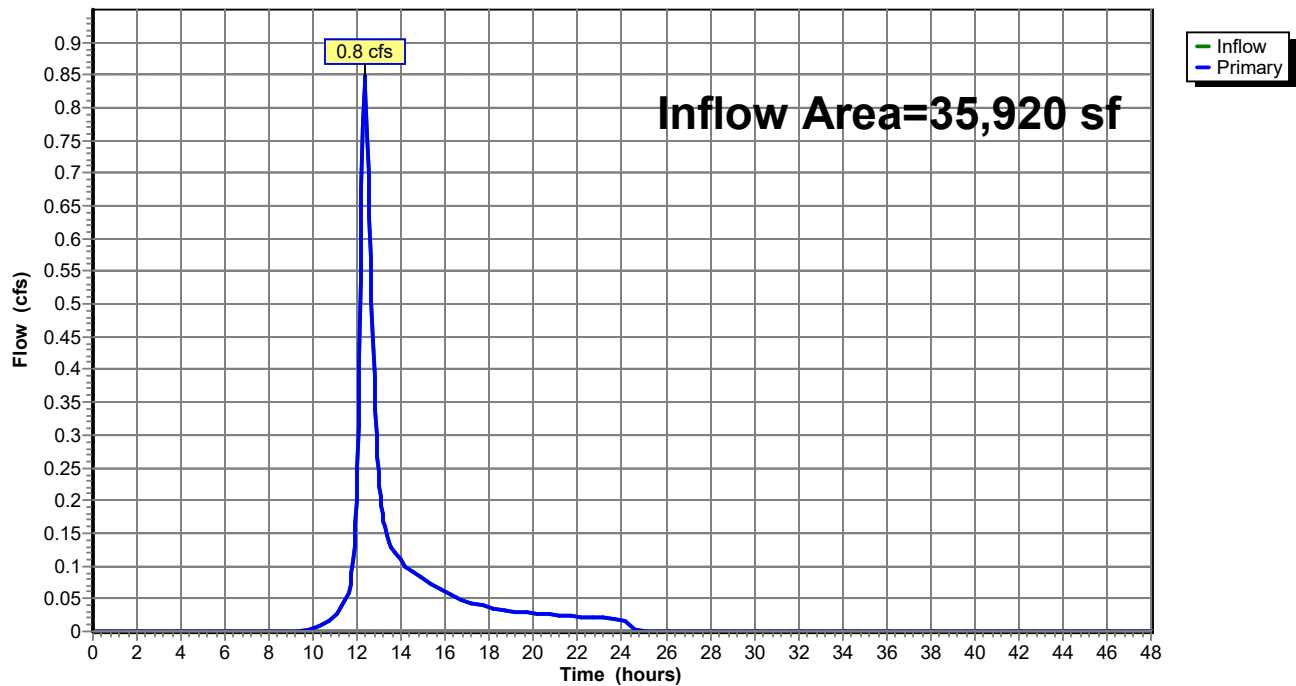
Summary for Link AP3:

Inflow Area = 35,920 sf, 0.67% Impervious, Inflow Depth = 1.41" for 2-Year event
 Inflow = 0.8 cfs @ 12.34 hrs, Volume= 4,227 cf
 Primary = 0.8 cfs @ 12.34 hrs, Volume= 4,227 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:

Hydrograph



Post-Dev Rev 3*Type III 24-hr 10-Year Rainfall=4.90"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 36

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=2.63" Flow Length=659' Tc=44.5 min CN=78 Runoff=7.2 cfs 47,730 cf
Subcatchment 1.1:	Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=2.72" Flow Length=598' Tc=67.5 min CN=79 Runoff=7.1 cfs 60,087 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=2.63" Flow Length=396' Tc=11.4 min CN=78 Runoff=7.6 cfs 28,467 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=2.81" Flow Length=453' Tc=57.8 min CN=80 Runoff=8.2 cfs 63,397 cf
Subcatchment 1.4:	Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=3.08" Tc=6.0 min CN=83 Runoff=0.8 cfs 2,498 cf
Subcatchment 1.5:	Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=3.37" Tc=6.0 min CN=86 Runoff=0.9 cfs 2,831 cf
Subcatchment 1.6:	Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=3.08" Tc=6.0 min CN=83 Runoff=1.6 cfs 4,931 cf
Subcatchment 1.7:	Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=2.81" Tc=6.0 min CN=80 Runoff=0.6 cfs 1,920 cf
Subcatchment 2.0:	Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=2.72" Flow Length=750' Tc=49.7 min CN=79 Runoff=9.4 cfs 66,189 cf
Subcatchment 2.1:	Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=2.99" Tc=6.0 min CN=82 Runoff=1.0 cfs 3,132 cf
Subcatchment 3.0:	Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=2.72" Flow Length=225' Tc=23.2 min CN=79 Runoff=1.7 cfs 8,129 cf
Reach R1:	Avg. Flow Depth=0.25' Max Vel=0.43 fps Inflow=5.1 cfs 84,873 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=5.1 cfs 84,846 cf
Reach R2:	Avg. Flow Depth=0.12' Max Vel=0.34 fps Inflow=2.6 cfs 24,840 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=2.0 cfs 24,812 cf
Reach R3:	Avg. Flow Depth=0.61' Max Vel=0.81 fps Inflow=3.8 cfs 12,180 cf n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=3.1 cfs 12,180 cf
Reach R4:	Avg. Flow Depth=0.07' Max Vel=1.91 fps Inflow=1.0 cfs 3,132 cf n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=0.8 cfs 3,132 cf
Pond C1:	Peak Elev=34.91' Storage=19,523 cf Inflow=8.5 cfs 84,899 cf 30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=5.1 cfs 84,873 cf

Post-Dev Rev 3*Type III 24-hr 10-Year Rainfall=4.90"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 37

Pond C10: Peak Elev=47.54' Inflow=1.0 cfs 3,132 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=1.0 cfs 3,132 cf

Pond C2: Peak Elev=40.93' Storage=11,993 cf Inflow=7.6 cfs 30,188 cf
Outflow=2.6 cfs 24,840 cf

Pond C3: Peak Elev=42.96' Storage=19,486 cf Inflow=8.2 cfs 63,397 cf
Discarded=3.9 cfs 61,648 cf Primary=0.4 cfs 1,721 cf Outflow=4.3 cfs 63,369 cf

Pond C4: Peak Elev=26.48' Storage=12,260 cf Inflow=9.7 cfs 69,321 cf
Outflow=7.4 cfs 68,974 cf

Pond C5: Peak Elev=35.68' Inflow=3.8 cfs 12,180 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=3.8 cfs 12,180 cf

Pond C6: Peak Elev=37.94' Inflow=3.0 cfs 9,682 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=3.0 cfs 9,682 cf

Pond C7: Peak Elev=41.84' Inflow=2.2 cfs 6,851 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=2.2 cfs 6,851 cf

Pond C8: Peak Elev=46.91' Inflow=0.6 cfs 1,920 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.6 cfs 1,920 cf

Link AP1: Inflow=9.1 cfs 144,756 cf
Primary=9.1 cfs 144,756 cf

Link AP2: Inflow=7.4 cfs 68,974 cf
Primary=7.4 cfs 68,974 cf

Link AP3: Inflow=1.7 cfs 8,129 cf
Primary=1.7 cfs 8,129 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 289,311 cf Average Runoff Depth = 2.73"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 38

Summary for Subcatchment 1.0:

Runoff = 7.2 cfs @ 12.62 hrs, Volume= 47,730 cf, Depth= 2.63"

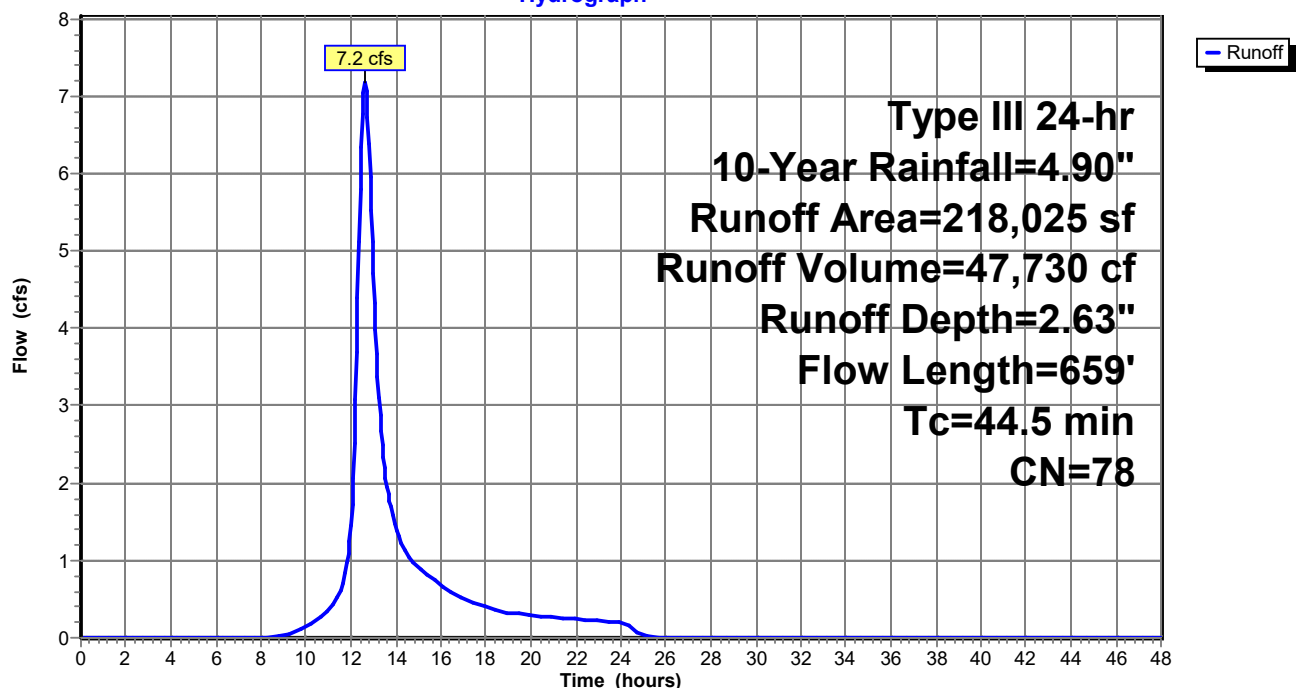
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
184,685	77	Woods, Good, HSG D
20,670	80	>75% Grass cover, Good, HSG D
9,565	98	Paved parking, HSG D
3,105	89	Dirt roads, HSG D
218,025	78	Weighted Average
208,460		95.61% Pervious Area
9,565		4.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 39

Summary for Subcatchment 1.1:

Runoff = 7.1 cfs @ 12.92 hrs, Volume= 60,087 cf, Depth= 2.72"

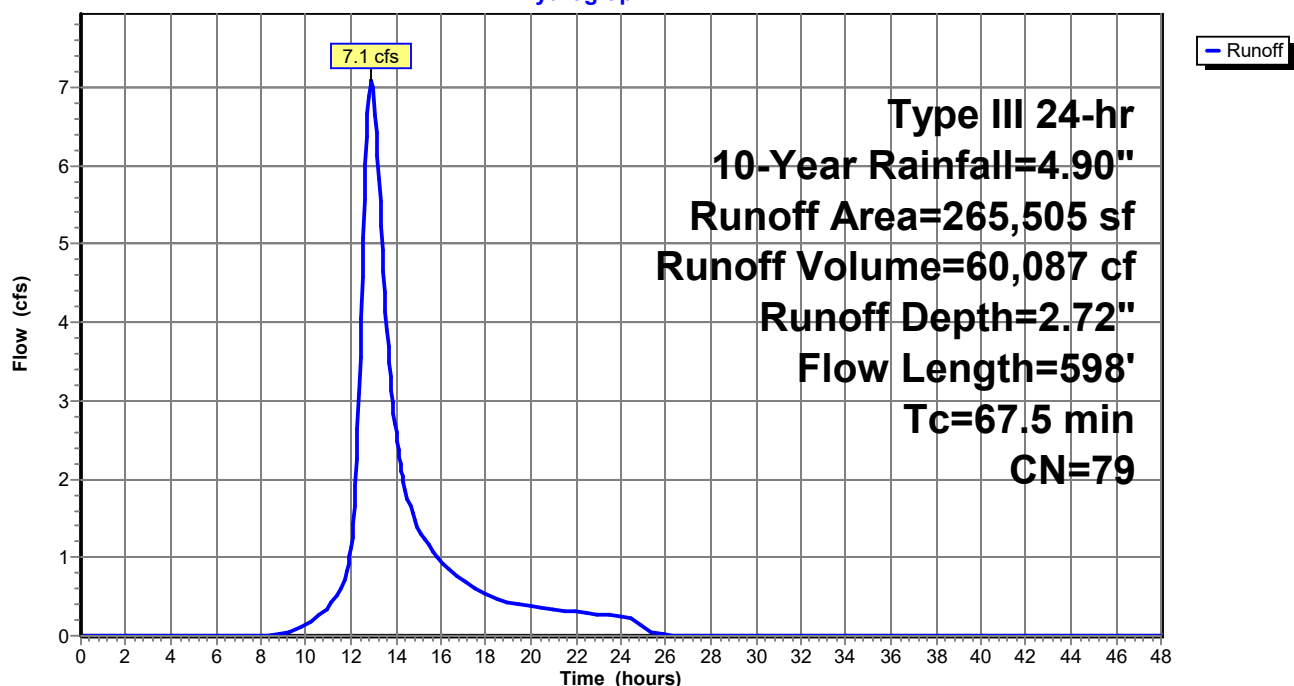
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
202,720	77	Woods, Good, HSG D
41,160	80	>75% Grass cover, Good, HSG D
15,295	98	Paved parking, HSG D
6,330	89	Dirt roads, HSG D
265,505	79	Weighted Average
250,210		94.24% Pervious Area
15,295		5.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 40

Summary for Subcatchment 1.2:

Runoff = 7.6 cfs @ 12.16 hrs, Volume= 28,467 cf, Depth= 2.63"

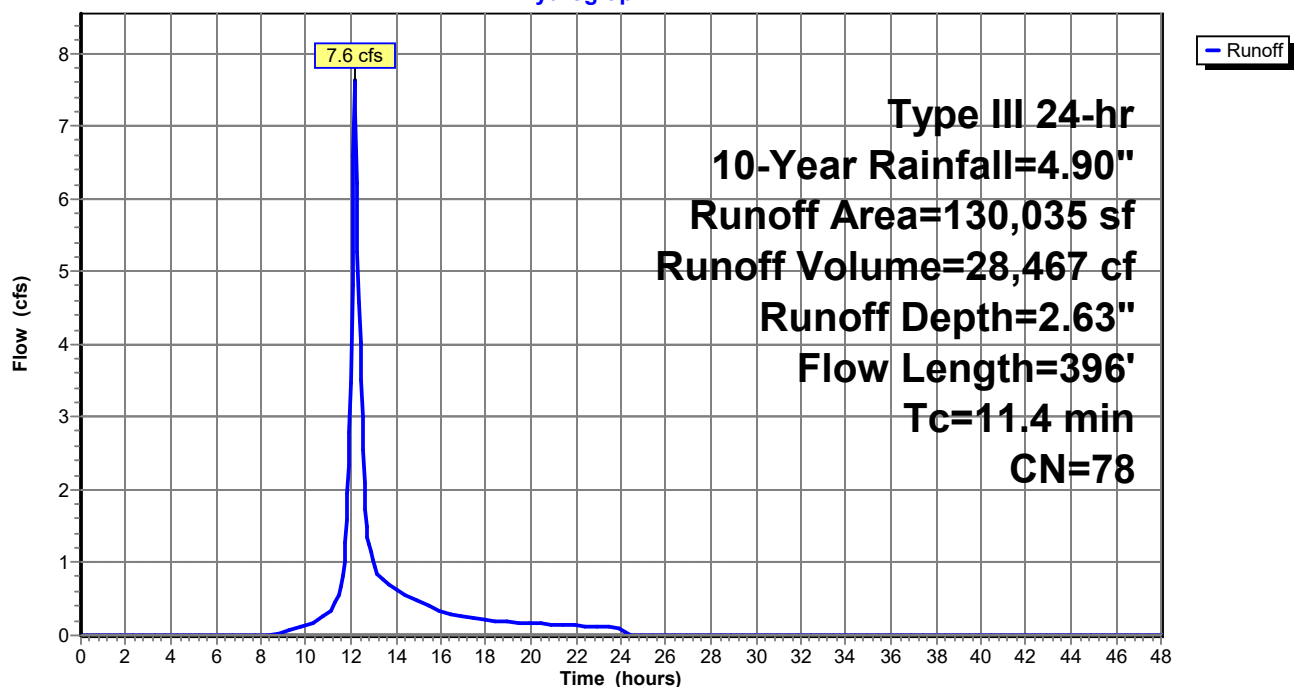
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 41

Summary for Subcatchment 1.3:

Runoff = 8.2 cfs @ 12.79 hrs, Volume= 63,397 cf, Depth= 2.81"

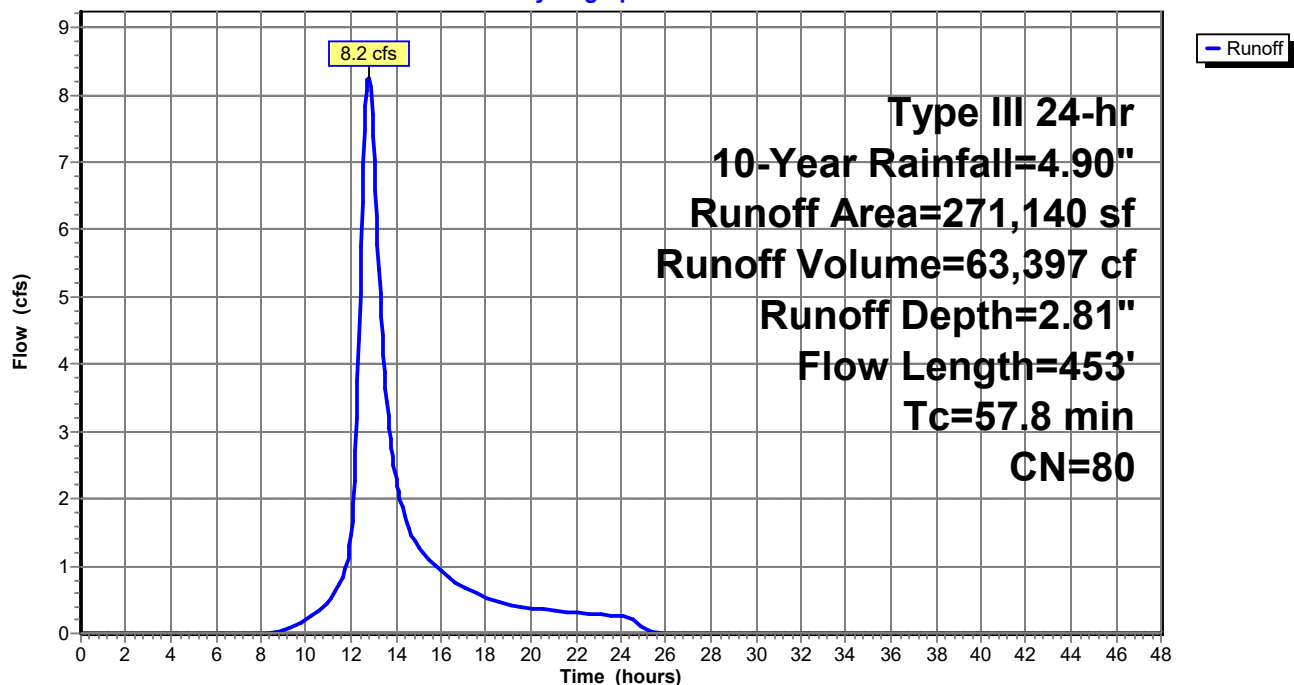
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 42

Summary for Subcatchment 1.4:

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,498 cf, Depth= 3.08"

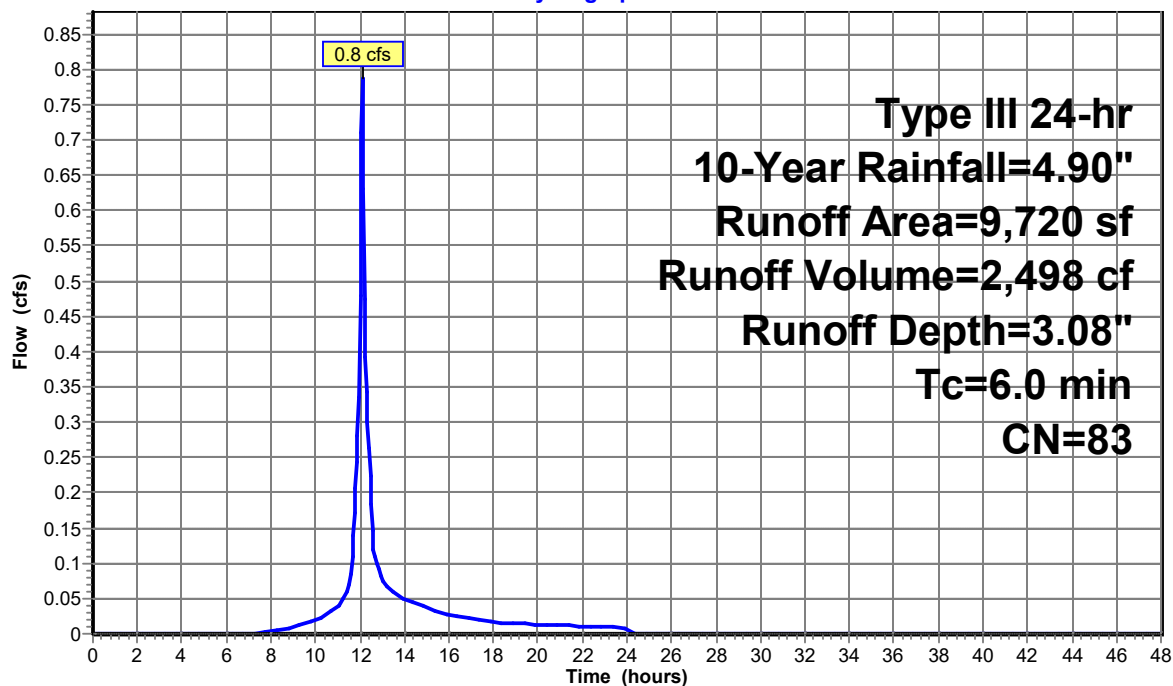
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
8,085	80	>75% Grass cover, Good, HSG D
1,635	98	Paved parking, HSG D
9,720	83	Weighted Average
8,085		83.18% Pervious Area
1,635		16.82% Impervious Area

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

Subcatchment 1.4:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 43

Summary for Subcatchment 1.5:

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,831 cf, Depth= 3.37"

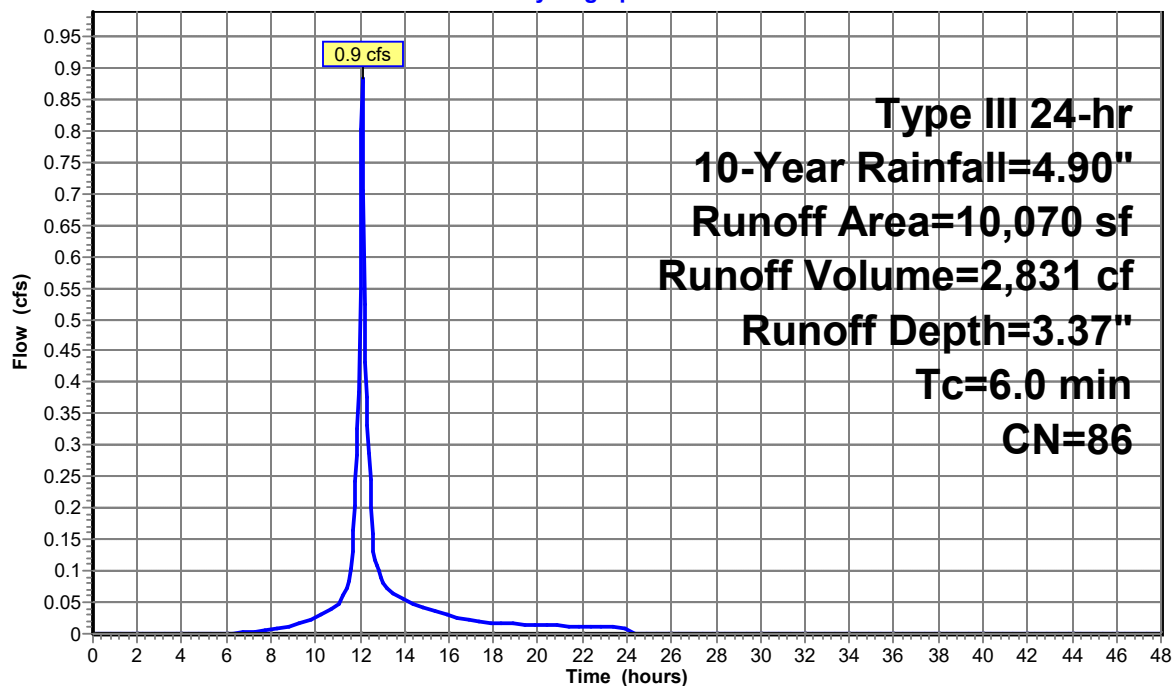
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
6,695	80	>75% Grass cover, Good, HSG D
3,375	98	Paved parking, HSG D
10,070	86	Weighted Average
6,695		66.48% Pervious Area
3,375		33.52% Impervious Area

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

Subcatchment 1.5:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 44

Summary for Subcatchment 1.6:

Runoff = 1.6 cfs @ 12.09 hrs, Volume= 4,931 cf, Depth= 3.08"

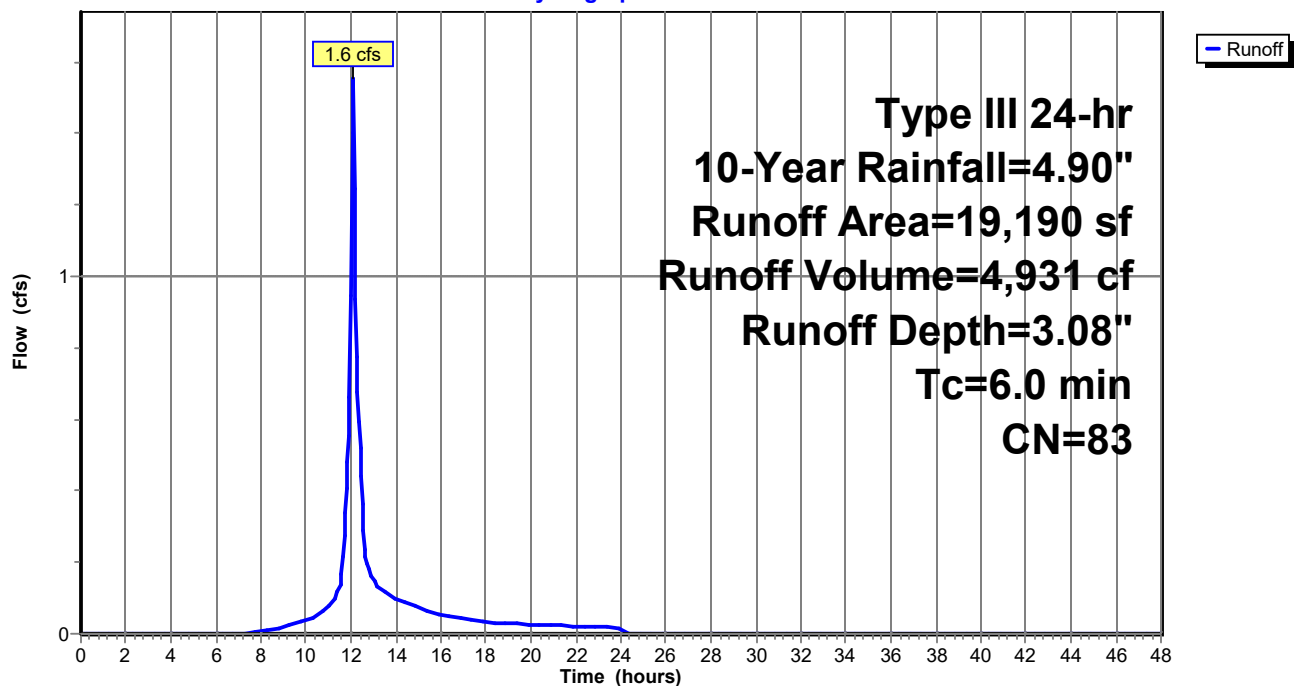
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
15,685	80	>75% Grass cover, Good, HSG D
3,505	98	Paved parking, HSG D
19,190	83	Weighted Average
15,685		81.74% Pervious Area
3,505		18.26% Impervious Area

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

Subcatchment 1.6:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 45

Summary for Subcatchment 1.7:

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 1,920 cf, Depth= 2.81"

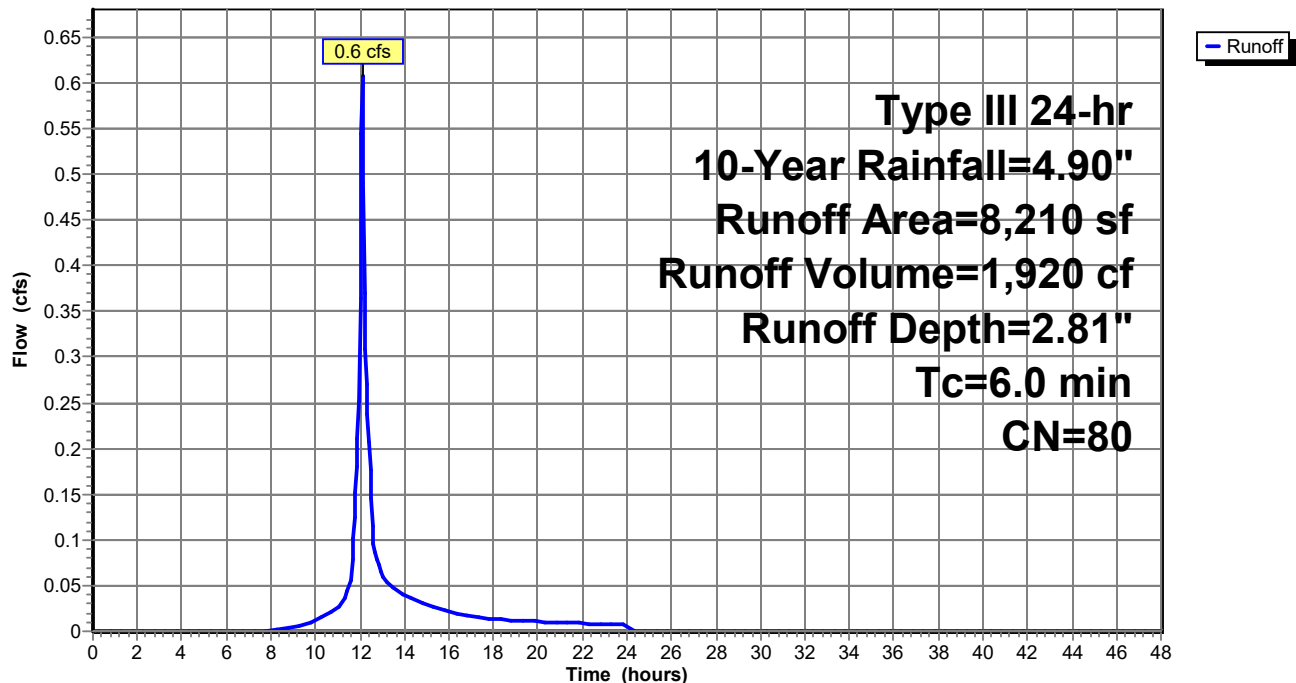
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
3,915	77	Woods, Good, HSG D
3,525	80	>75% Grass cover, Good, HSG D
770	98	Paved parking, HSG D
8,210	80	Weighted Average
7,440		90.62% Pervious Area
770		9.38% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 46

Summary for Subcatchment 2.0:

Runoff = 9.4 cfs @ 12.68 hrs, Volume= 66,189 cf, Depth= 2.72"

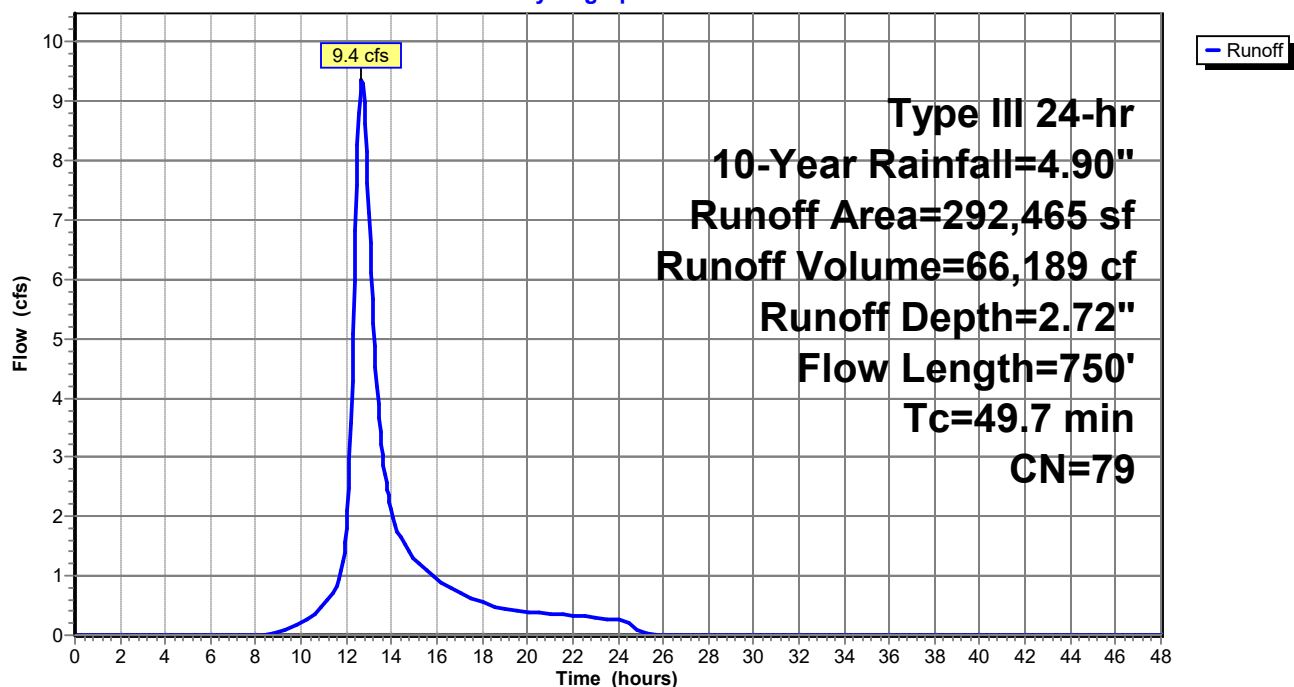
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
243,170	77	Woods, Good, HSG D
23,955	80	>75% Grass cover, Good, HSG D
25,340	98	Paved parking, HSG D
292,465	79	Weighted Average
267,125		91.34% Pervious Area
25,340		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 47

Summary for Subcatchment 2.1:

Runoff = 1.0 cfs @ 12.09 hrs, Volume= 3,132 cf, Depth= 2.99"

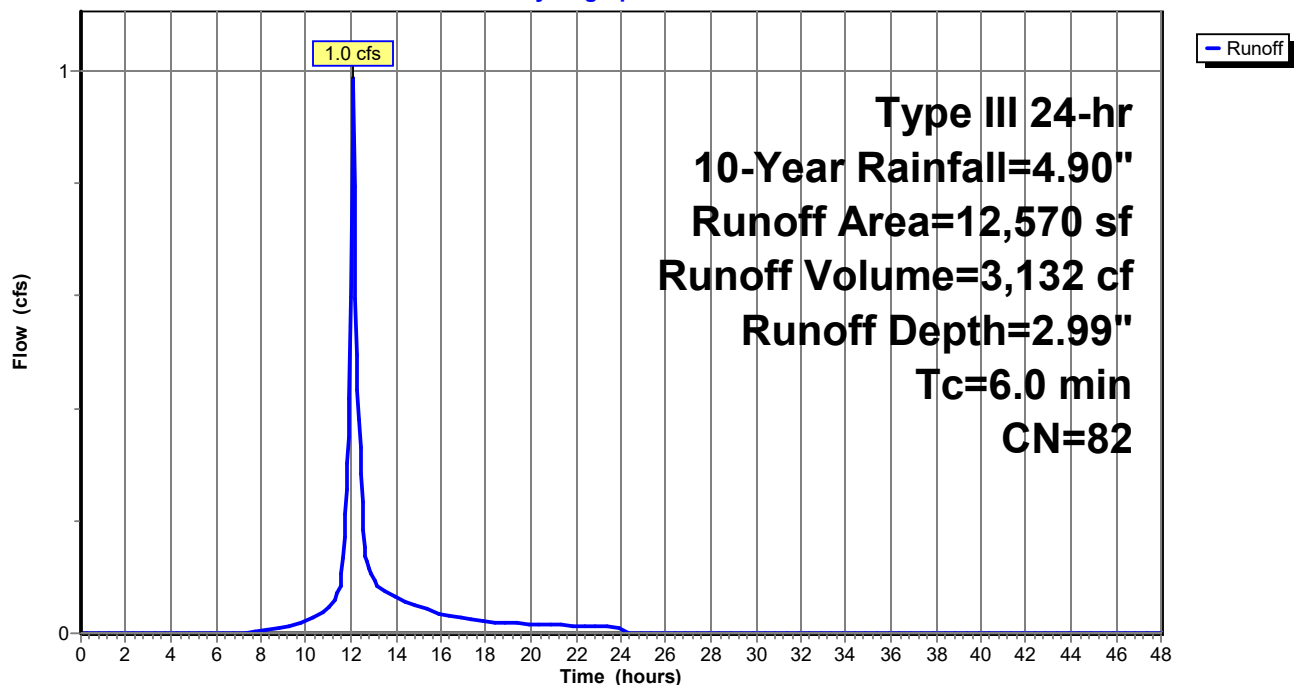
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
4,765	77	Woods, Good, HSG D
5,915	80	>75% Grass cover, Good, HSG D
1,890	98	Paved parking, HSG D
12,570	82	Weighted Average
10,680		84.96% Pervious Area
1,890		15.04% Impervious Area

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

Subcatchment 2.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 48

Summary for Subcatchment 3.0:

Runoff = 1.7 cfs @ 12.32 hrs, Volume= 8,129 cf, Depth= 2.72"

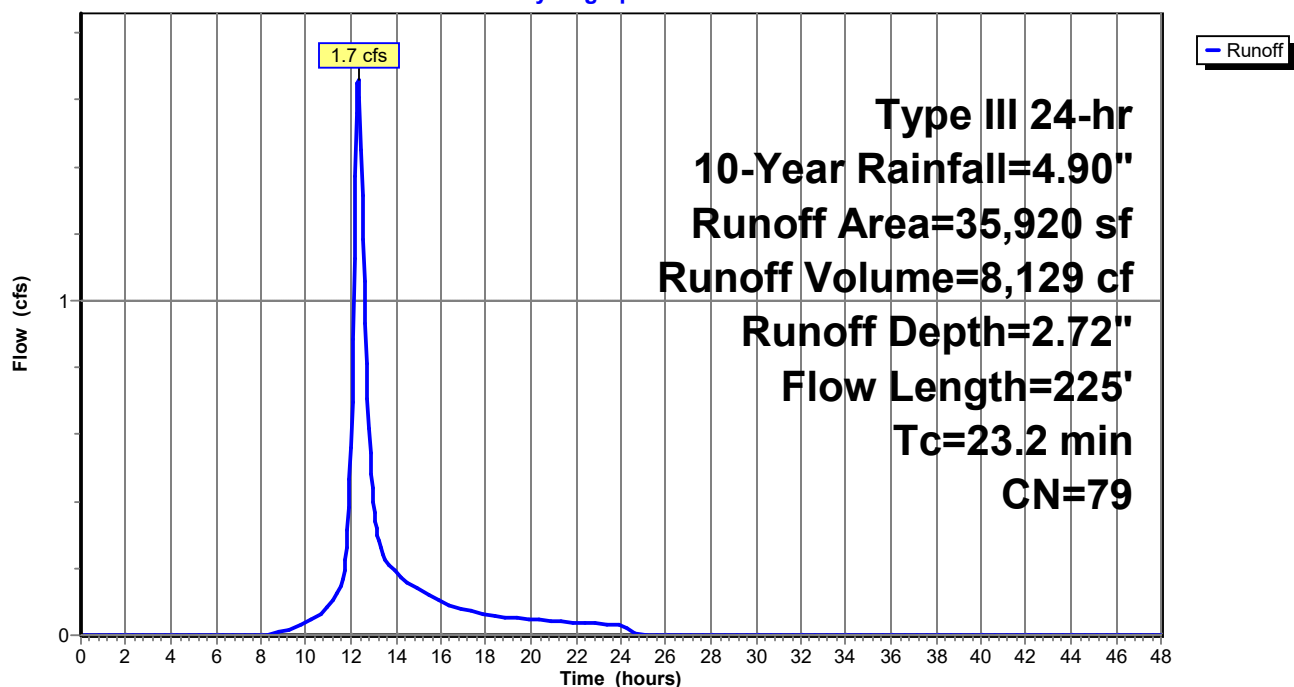
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
17,315	77	Woods, Good, HSG D
18,365	80	>75% Grass cover, Good, HSG D
240	98	Paved parking, HSG D
35,920	79	Weighted Average
35,680		99.33% Pervious Area
240		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	31	0.0563	0.21		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
18.1	69	0.0563	0.06		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.6	125	0.1000	0.79		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
23.2	225	Total			

Subcatchment 3.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 49

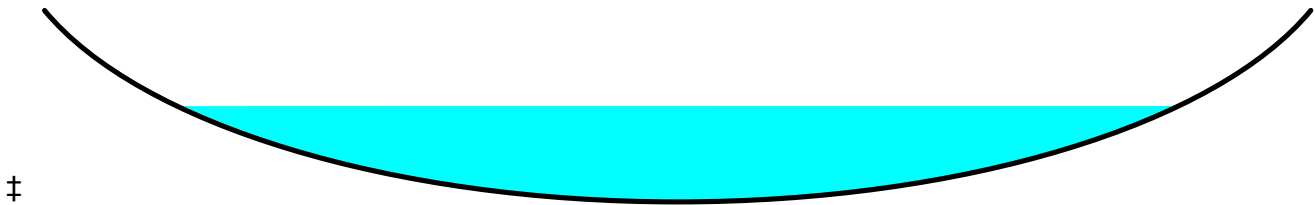
Summary for Reach R1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 1.53" for 10-Year event
Inflow = 5.1 cfs @ 13.73 hrs, Volume= 84,873 cf
Outflow = 5.1 cfs @ 14.12 hrs, Volume= 84,846 cf, Atten= 1%, Lag= 23.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.43 fps, Min. Travel Time= 12.8 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 36.7 min

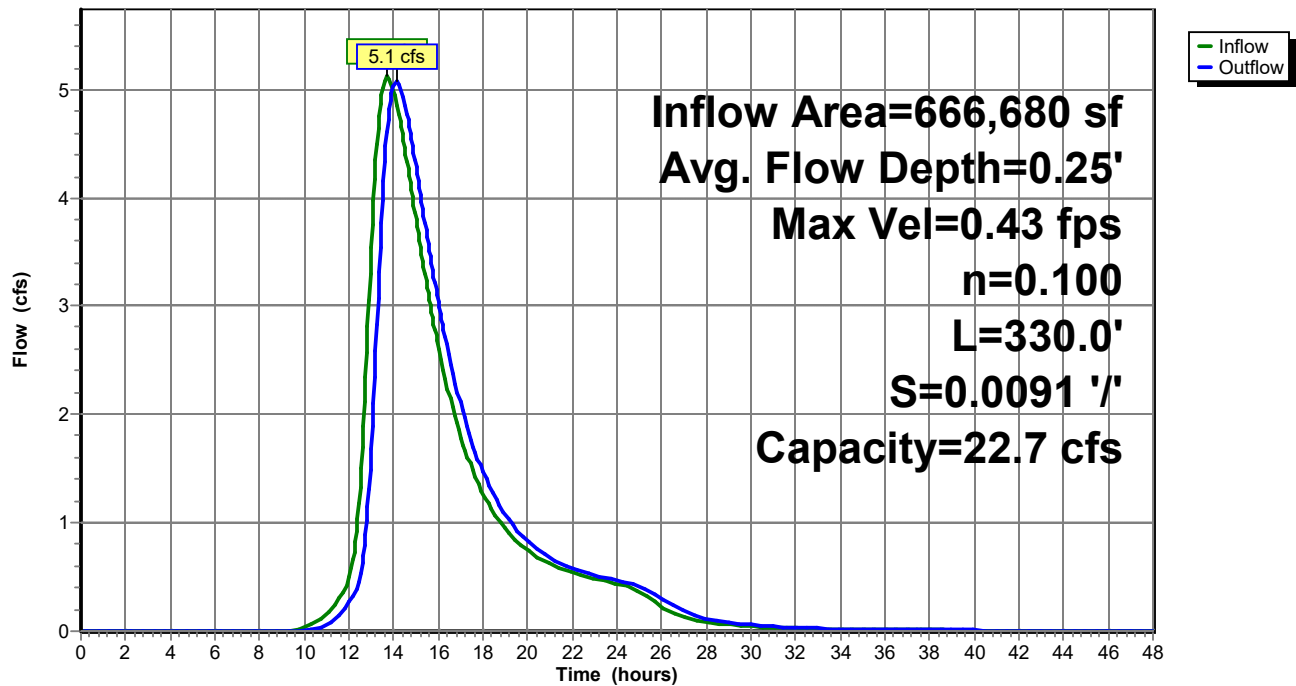
Peak Storage= 3,897 cf @ 13.91 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 330.0' Slope= 0.0091 '/
Inlet Invert= 33.00', Outlet Invert= 30.00'



Reach R1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 50

Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 0.74" for 10-Year event
Inflow = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf
Outflow = 2.0 cfs @ 13.32 hrs, Volume= 24,812 cf, Atten= 23%, Lag= 46.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 23.5 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 67.5 min

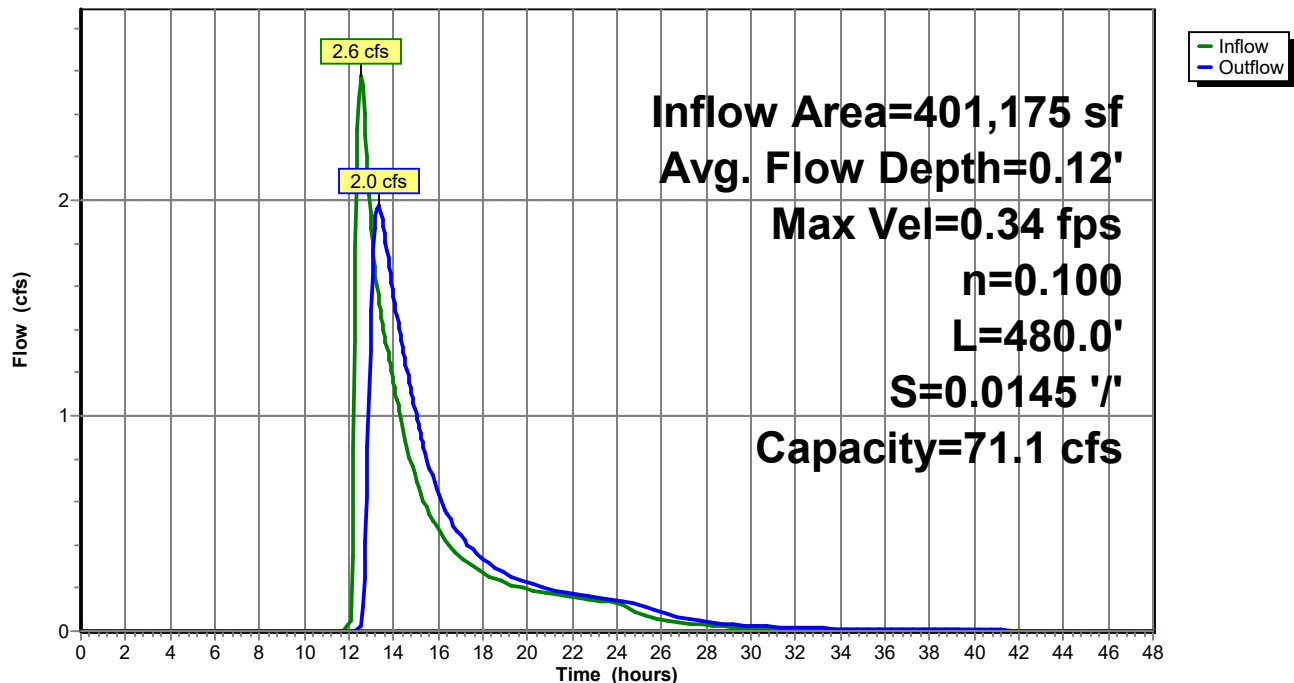
Peak Storage= 2,790 cf @ 12.93 hrs
Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 480.0' Slope= 0.0145 '/'
Inlet Invert= 40.23', Outlet Invert= 33.26'



Reach R2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 51

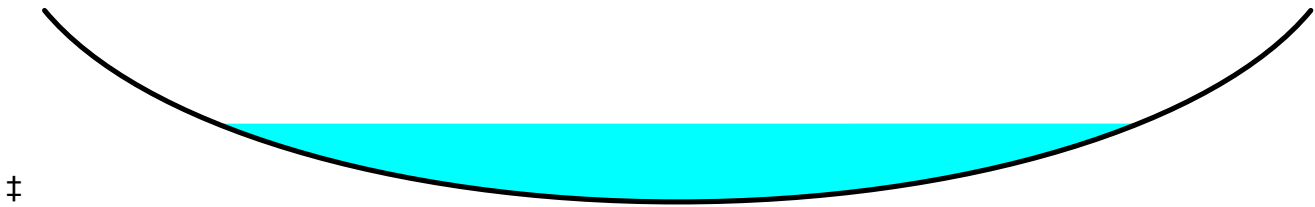
Summary for Reach R3:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 3.10" for 10-Year event
Inflow = 3.8 cfs @ 12.09 hrs, Volume= 12,180 cf
Outflow = 3.1 cfs @ 12.26 hrs, Volume= 12,180 cf, Atten= 18%, Lag= 9.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.81 fps, Min. Travel Time= 6.2 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 23.2 min

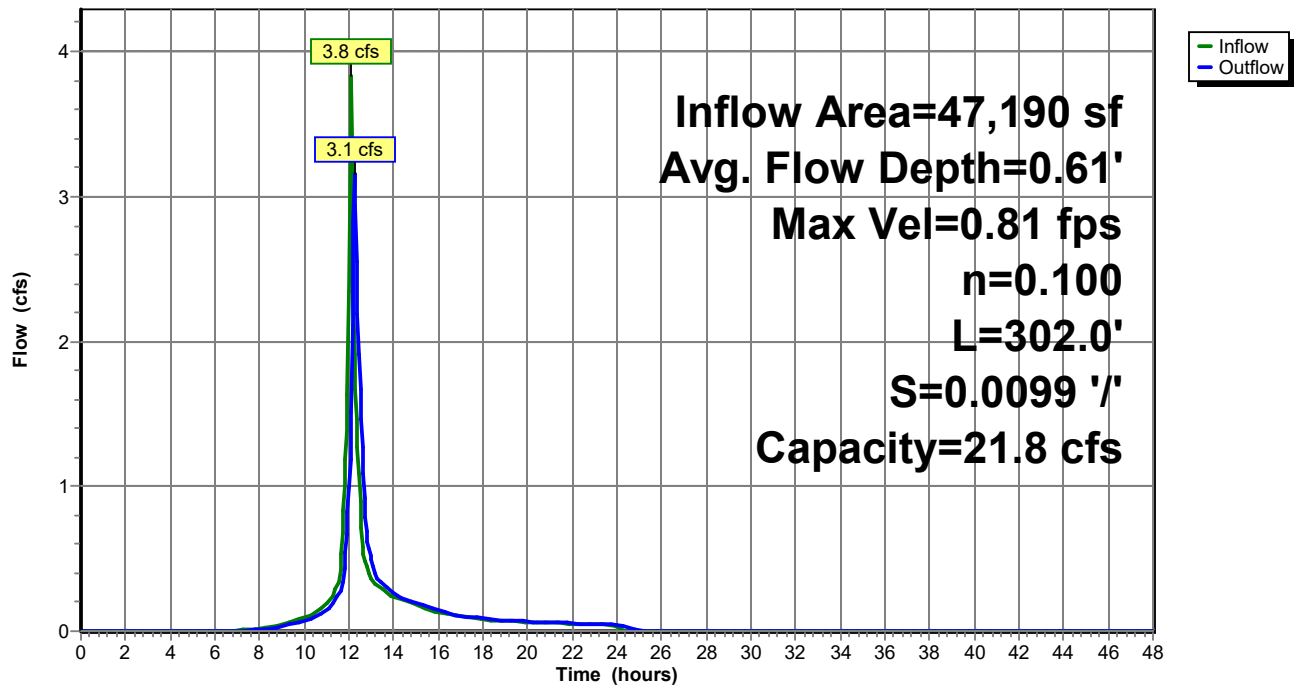
Peak Storage= 1,182 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.50' Flow Area= 15.0 sf, Capacity= 21.8 cfs

15.00' x 1.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 302.0' Slope= 0.0099 '/
Inlet Invert= 34.00', Outlet Invert= 31.00'



Reach R3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 52

Summary for Reach R4:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 2.99" for 10-Year event
Inflow = 1.0 cfs @ 12.09 hrs, Volume= 3,132 cf
Outflow = 0.8 cfs @ 12.29 hrs, Volume= 3,132 cf, Atten= 23%, Lag= 11.9 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.91 fps, Min. Travel Time= 7.5 min

Avg. Velocity = 0.78 fps, Avg. Travel Time= 18.4 min

Peak Storage= 351 cf @ 12.16 hrs

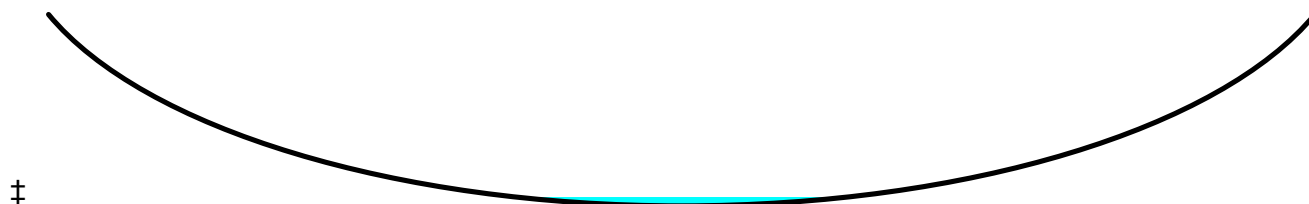
Average Depth at Peak Storage= 0.07'

Bank-Full Depth= 1.50' Flow Area= 40.0 sf, Capacity= 582.6 cfs

40.00' x 1.50' deep Parabolic Channel, n= 0.018 Earth, clean & straight

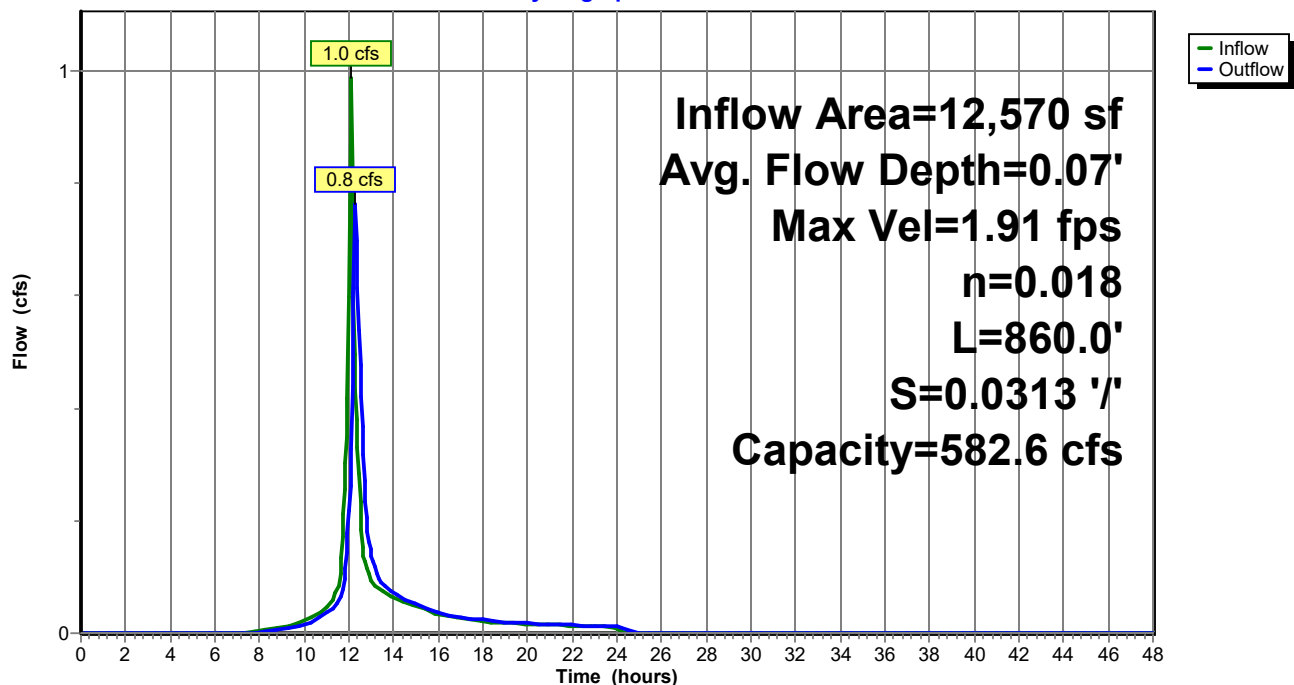
Length= 860.0' Slope= 0.0313 '/'

Inlet Invert= 52.00', Outlet Invert= 25.10'



Reach R4:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 53

Summary for Pond C1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 1.53" for 10-Year event
 Inflow = 8.5 cfs @ 13.03 hrs, Volume= 84,899 cf
 Outflow = 5.1 cfs @ 13.73 hrs, Volume= 84,873 cf, Atten= 40%, Lag= 42.0 min
 Primary = 5.1 cfs @ 13.73 hrs, Volume= 84,873 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.91' @ 13.73 hrs Surf.Area= 35,961 sf Storage= 19,523 cf
 Flood Elev= 36.00' Surf.Area= 65,400 sf Storage= 74,950 cf

Plug-Flow detention time= 65.2 min calculated for 84,873 cf (100% of inflow)
 Center-of-Mass det. time= 64.7 min (984.5 - 919.8)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)

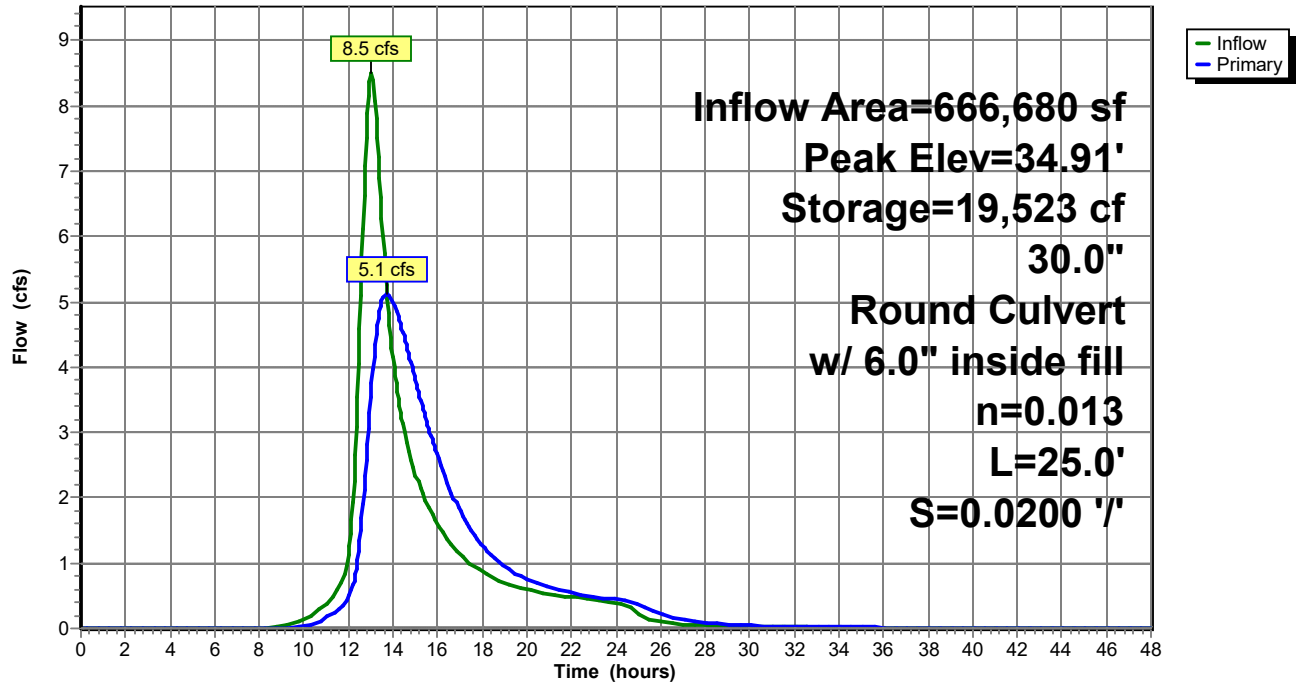
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	30.0" Round Culvert w/ 6.0" inside fill L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 33.00' S= 0.0200 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.21 sf

Primary OutFlow Max=5.1 cfs @ 13.73 hrs HW=34.91' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 5.1 cfs @ 2.38 fps)

Pond C1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 55

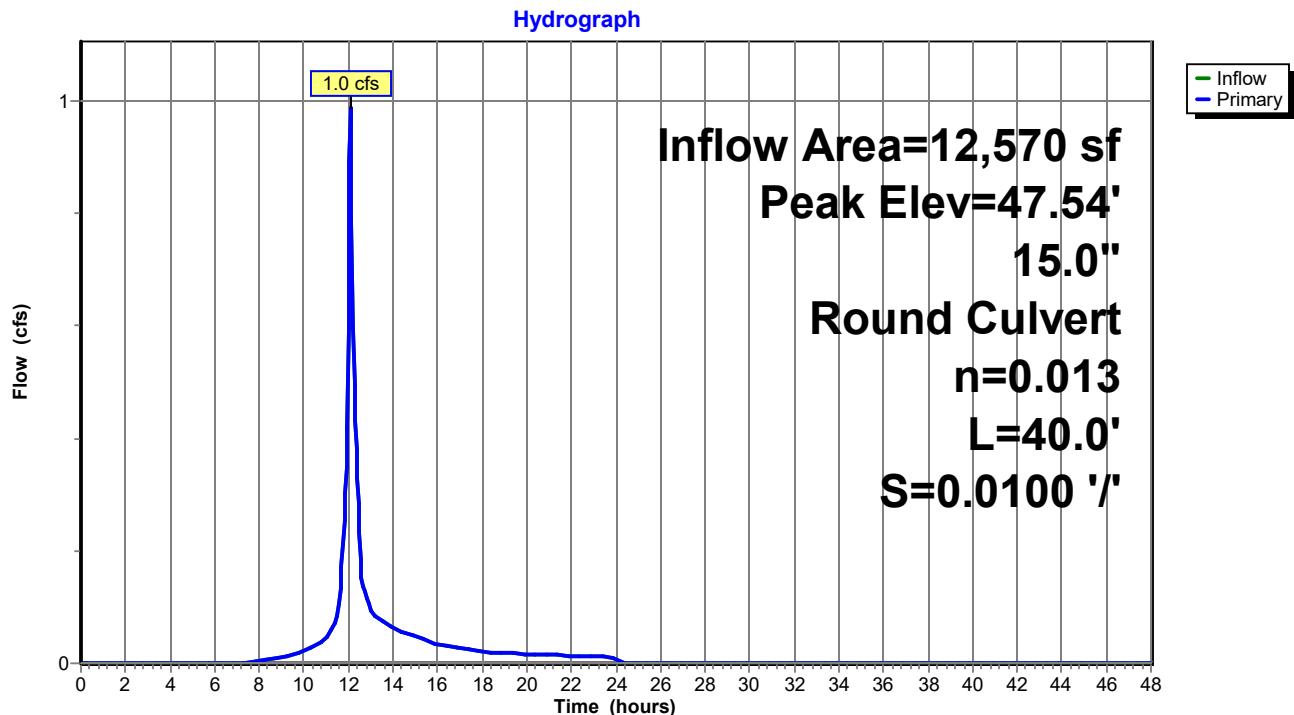
Summary for Pond C10:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 2.99" for 10-Year event
 Inflow = 1.0 cfs @ 12.09 hrs, Volume= 3,132 cf
 Outflow = 1.0 cfs @ 12.09 hrs, Volume= 3,132 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.0 cfs @ 12.09 hrs, Volume= 3,132 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 47.54' @ 12.09 hrs
 Flood Elev= 48.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	15.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 47.00' / 46.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.0 cfs @ 12.09 hrs HW=47.53' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.0 cfs @ 1.96 fps)

Pond C10:

Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 56

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 0.90" for 10-Year event
 Inflow = 7.6 cfs @ 12.16 hrs, Volume= 30,188 cf
 Outflow = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf, Atten= 66%, Lag= 23.2 min
 Primary = 2.6 cfs @ 12.55 hrs, Volume= 24,840 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 40.93' @ 12.55 hrs Surf.Area= 9,771 sf Storage= 11,993 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 191.2 min calculated for 24,840 cf (82% of inflow)
 Center-of-Mass det. time= 121.2 min (953.4 - 832.3)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

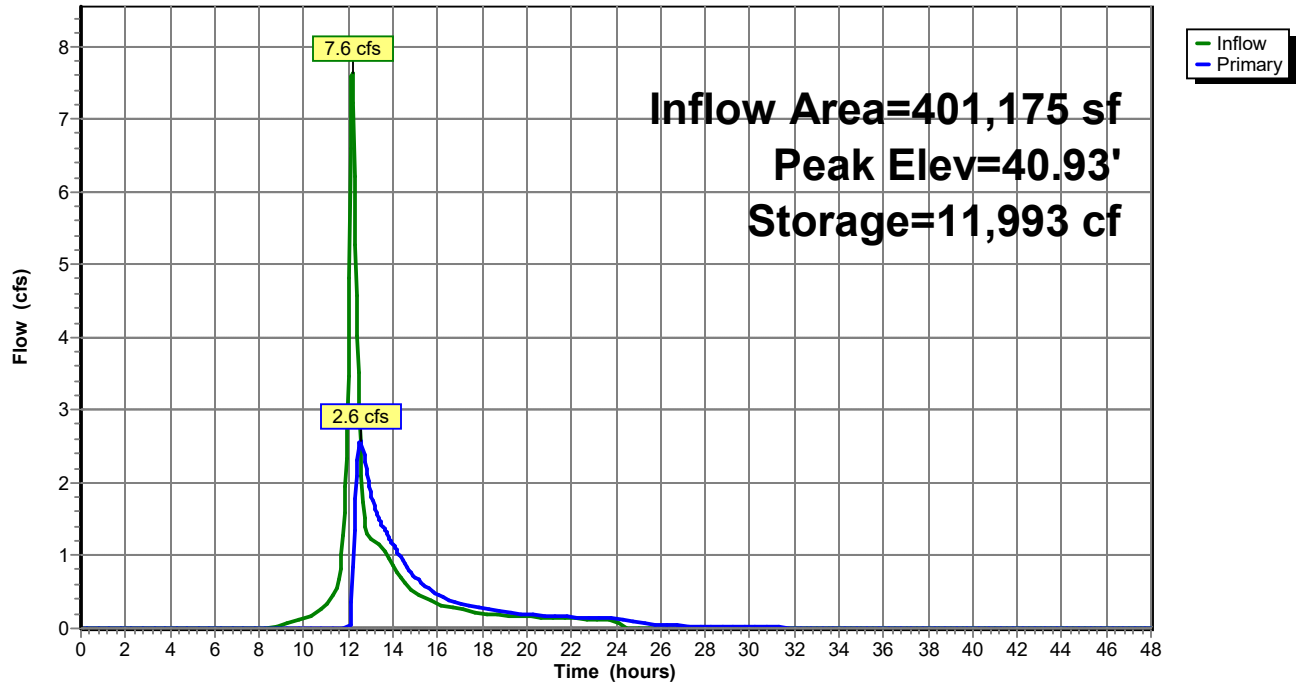
Primary OutFlow Max=2.6 cfs @ 12.55 hrs HW=40.93' (Free Discharge)

1=Culvert (Barrel Controls 1.0 cfs @ 2.61 fps)

2=Culvert (Inlet Controls 1.6 cfs @ 2.40 fps)

Pond C2:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 58

Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 2.81" for 10-Year event
 Inflow = 8.2 cfs @ 12.79 hrs, Volume= 63,397 cf
 Outflow = 4.3 cfs @ 13.42 hrs, Volume= 63,369 cf, Atten= 48%, Lag= 37.8 min
 Discarded = 3.9 cfs @ 13.42 hrs, Volume= 61,648 cf
 Primary = 0.4 cfs @ 13.42 hrs, Volume= 1,721 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.96' @ 13.42 hrs Surf.Area= 36,705 sf Storage= 19,486 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 88.2 min calculated for 63,369 cf (100% of inflow)
 Center-of-Mass det. time= 87.8 min (958.5 - 870.7)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

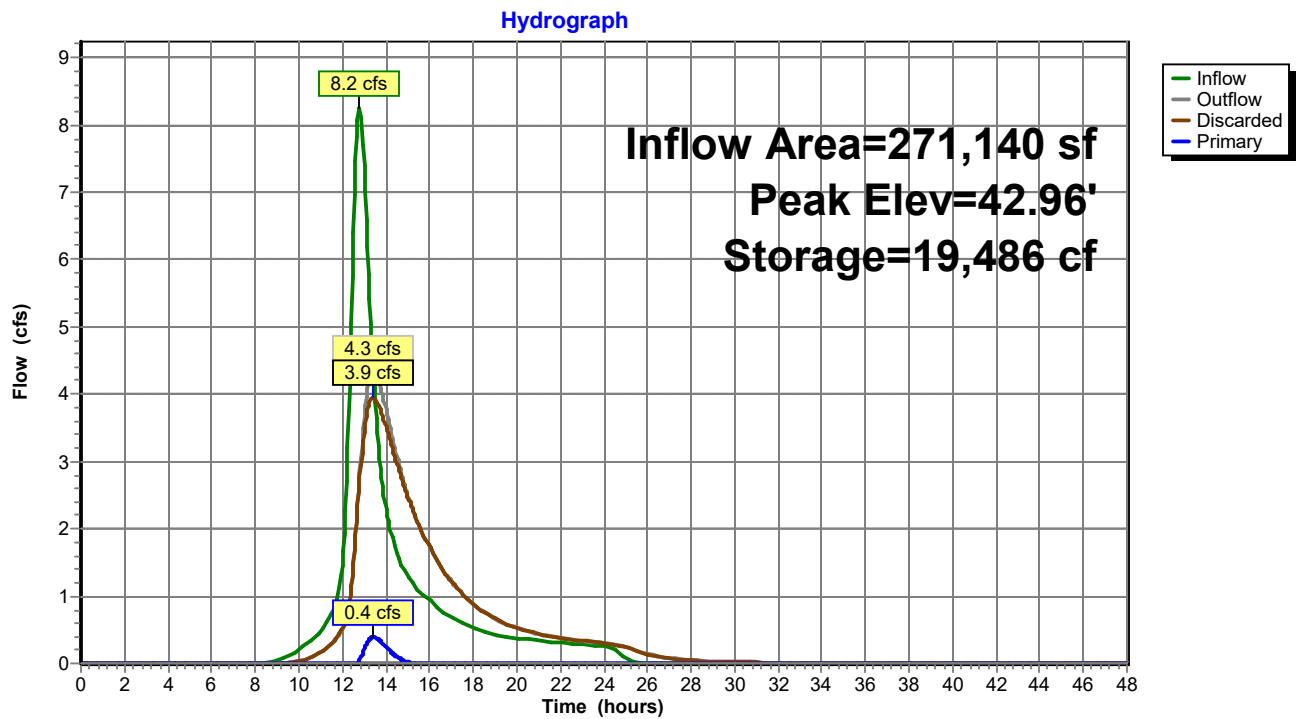
Discarded OutFlow Max=3.9 cfs @ 13.42 hrs HW=42.96' (Free Discharge)

↑ **2=Culvert** (Inlet Controls 3.9 cfs @ 2.64 fps)

Primary OutFlow Max=0.4 cfs @ 13.42 hrs HW=42.96' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 0.4 cfs @ 1.43 fps)

Pond C3:



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 60

Summary for Pond C4:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 2.73" for 10-Year event
 Inflow = 9.7 cfs @ 12.66 hrs, Volume= 69,321 cf
 Outflow = 7.4 cfs @ 12.98 hrs, Volume= 68,974 cf, Atten= 23%, Lag= 19.1 min
 Primary = 7.4 cfs @ 12.98 hrs, Volume= 68,974 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.48' @ 12.98 hrs Surf.Area= 11,960 sf Storage= 12,260 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 41.8 min calculated for 68,902 cf (99% of inflow)
 Center-of-Mass det. time= 39.6 min (904.2 - 864.6)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

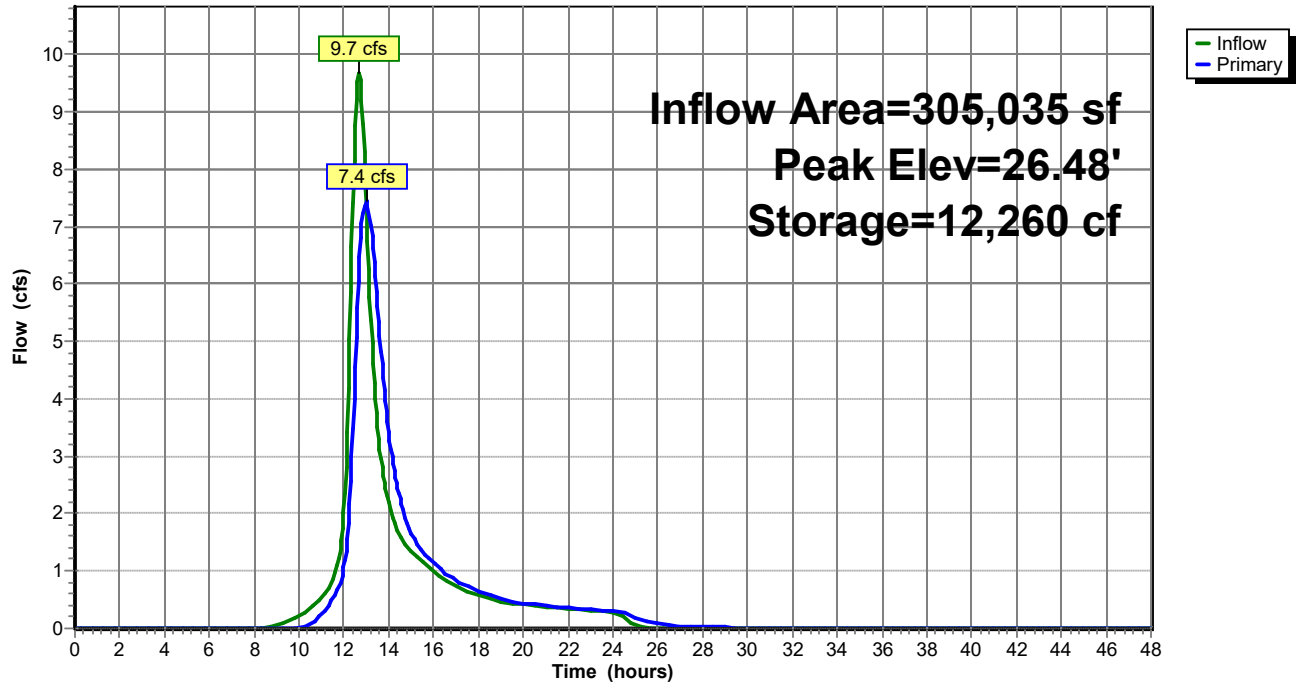
Primary OutFlow Max=7.4 cfs @ 12.98 hrs HW=26.48' (Free Discharge)

1=Culvert (Inlet Controls 3.6 cfs @ 2.97 fps)

2=Culvert (Barrel Controls 3.8 cfs @ 3.51 fps)

Pond C4:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 62

Summary for Pond C5:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 3.10" for 10-Year event
 Inflow = 3.8 cfs @ 12.09 hrs, Volume= 12,180 cf
 Outflow = 3.8 cfs @ 12.09 hrs, Volume= 12,180 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.8 cfs @ 12.09 hrs, Volume= 12,180 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 35.68' @ 12.09 hrs

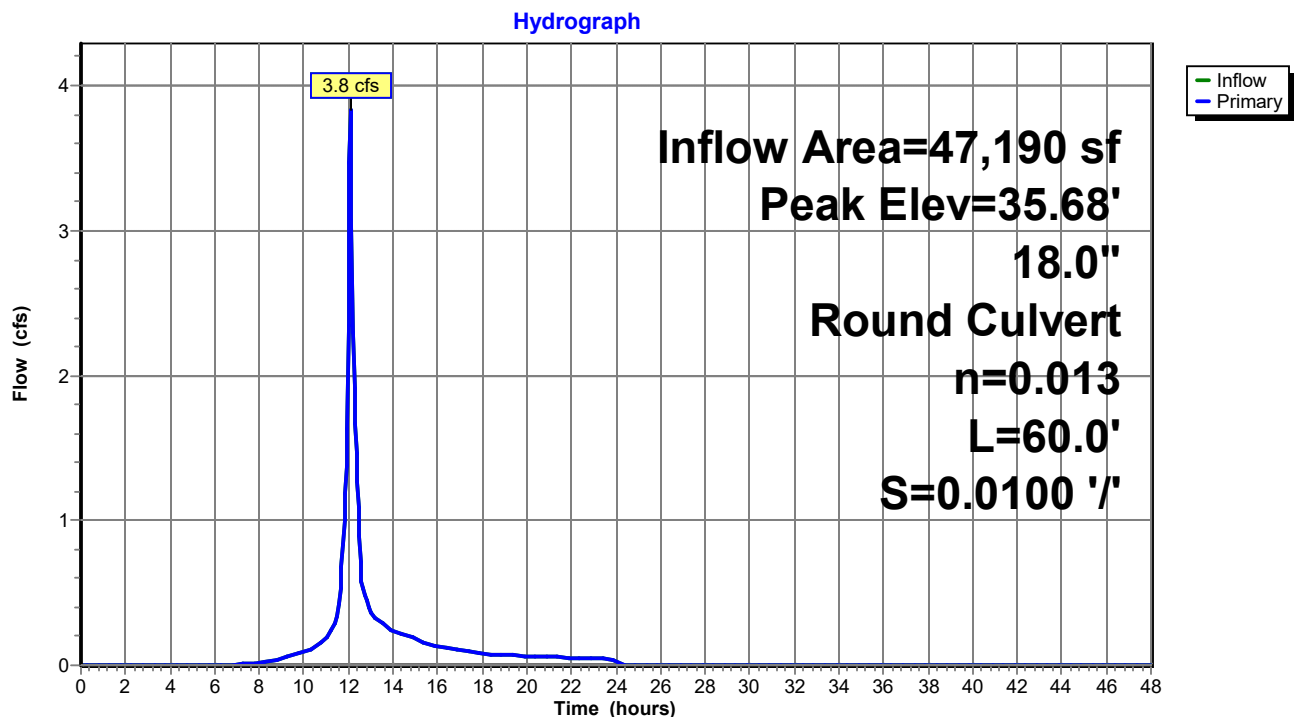
Flood Elev= 36.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.60' / 34.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.8 cfs @ 12.09 hrs HW=35.67' (Free Discharge)

↑1=Culvert (Inlet Controls 3.8 cfs @ 2.78 fps)

Pond C5:



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 63

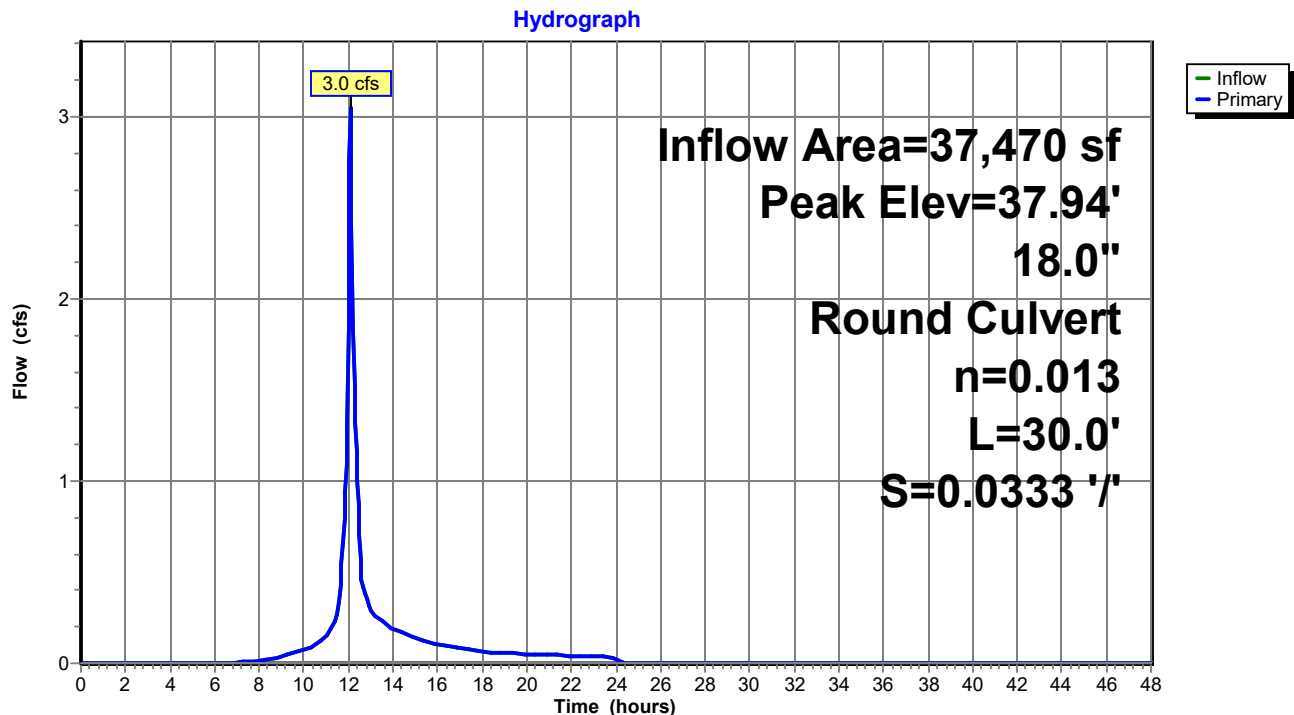
Summary for Pond C6:

Inflow Area = 37,470 sf, 20.42% Impervious, Inflow Depth = 3.10" for 10-Year event
 Inflow = 3.0 cfs @ 12.09 hrs, Volume= 9,682 cf
 Outflow = 3.0 cfs @ 12.09 hrs, Volume= 9,682 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.0 cfs @ 12.09 hrs, Volume= 9,682 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.94' @ 12.09 hrs
 Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	18.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.0 cfs @ 12.09 hrs HW=37.93' (Free Discharge)
 ↑1=Culvert (Inlet Controls 3.0 cfs @ 2.59 fps)

Pond C6:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 64

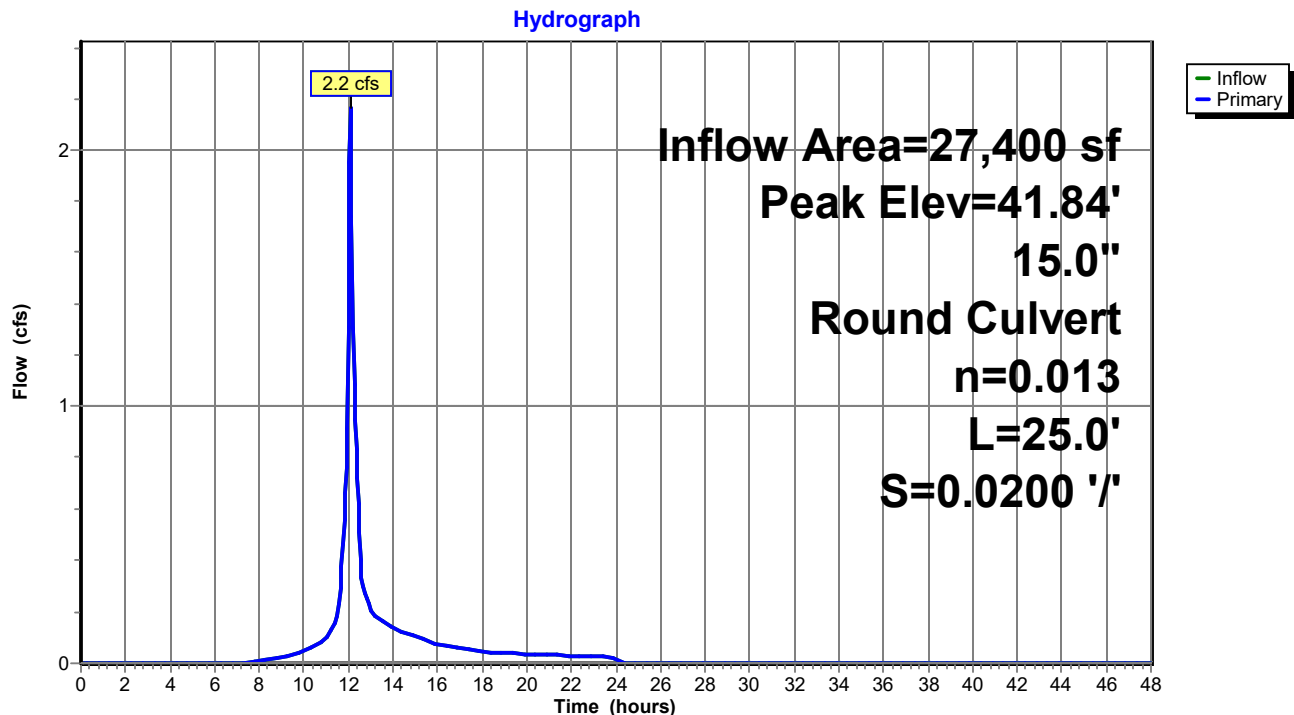
Summary for Pond C7:

Inflow Area = 27,400 sf, 15.60% Impervious, Inflow Depth = 3.00" for 10-Year event
 Inflow = 2.2 cfs @ 12.09 hrs, Volume= 6,851 cf
 Outflow = 2.2 cfs @ 12.09 hrs, Volume= 6,851 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.2 cfs @ 12.09 hrs, Volume= 6,851 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.84' @ 12.09 hrs
 Flood Elev= 42.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.1 cfs @ 12.09 hrs HW=41.83' (Free Discharge)
 ↑1=Culvert (Inlet Controls 2.1 cfs @ 2.45 fps)

Pond C7:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 65

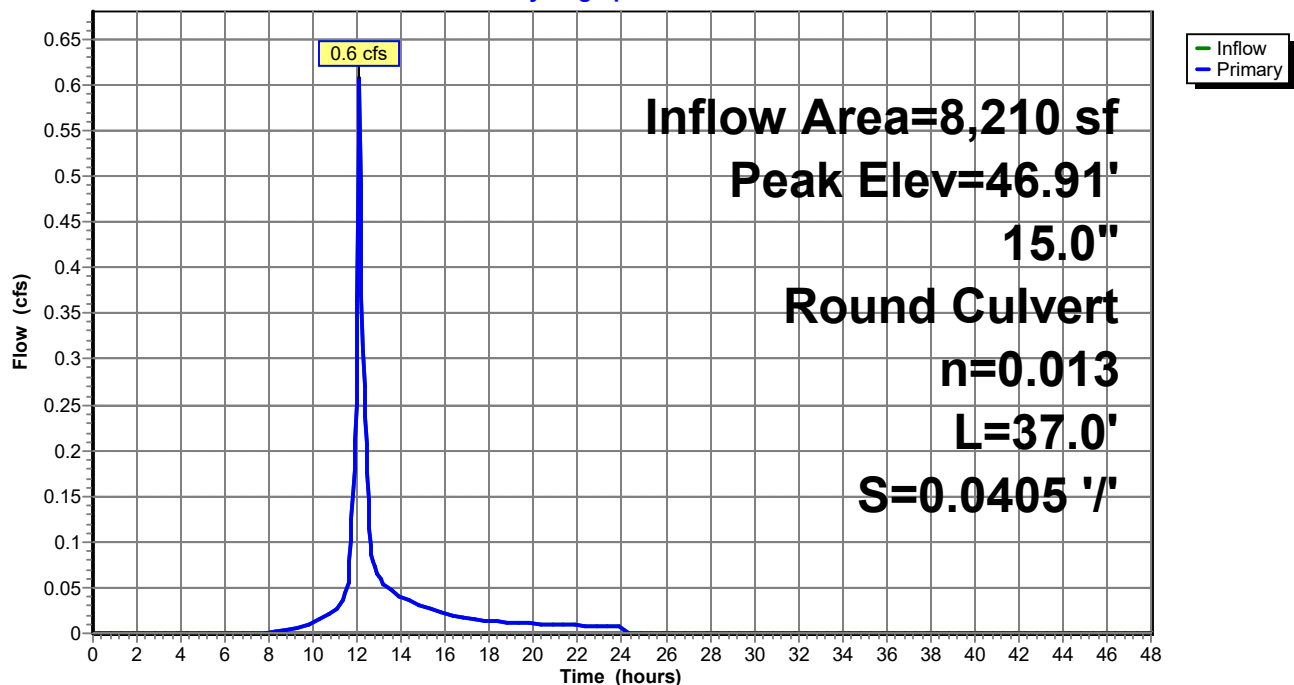
Summary for Pond C8:

Inflow Area = 8,210 sf, 9.38% Impervious, Inflow Depth = 2.81" for 10-Year event
 Inflow = 0.6 cfs @ 12.09 hrs, Volume= 1,920 cf
 Outflow = 0.6 cfs @ 12.09 hrs, Volume= 1,920 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.6 cfs @ 12.09 hrs, Volume= 1,920 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.91' @ 12.09 hrs
 Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	15.0" Round Culvert L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.50' / 45.00' S= 0.0405 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.6 cfs @ 12.09 hrs HW=46.91' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.6 cfs @ 1.72 fps)

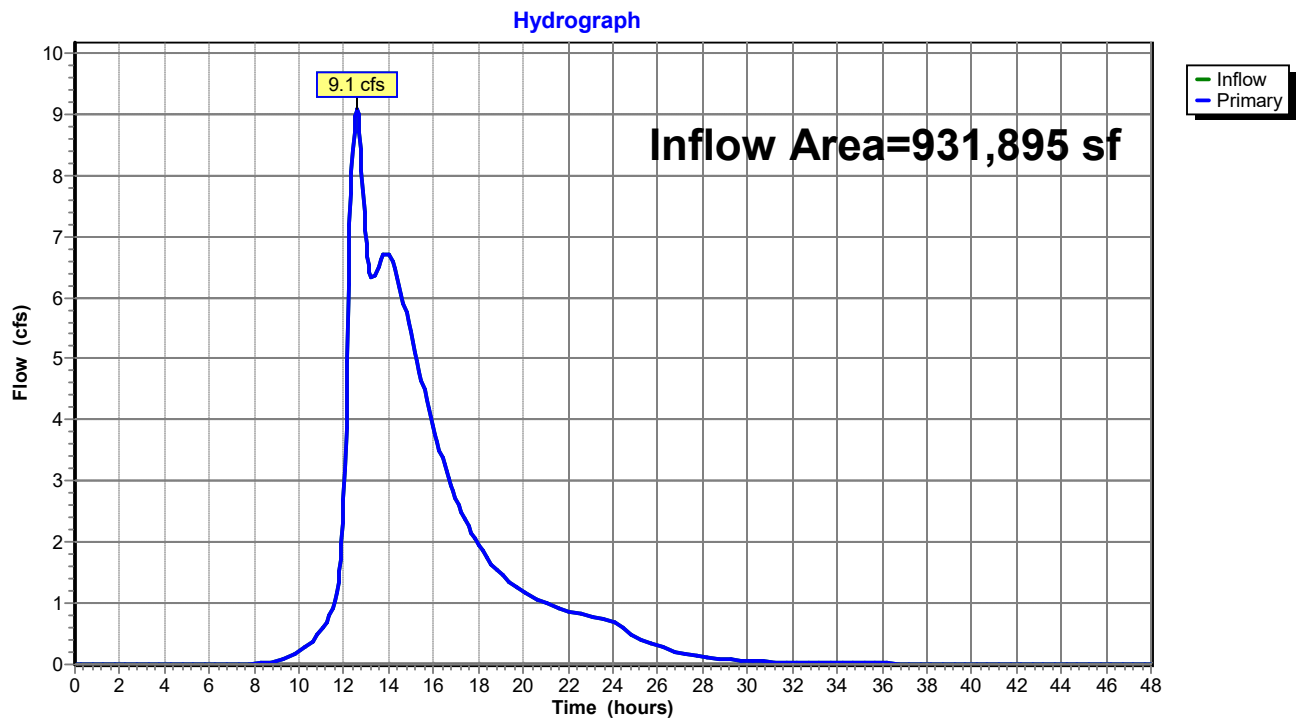
Pond C8:**Hydrograph**

Summary for Link AP1:

Inflow Area = 931,895 sf, 8.48% Impervious, Inflow Depth > 1.86" for 10-Year event
 Inflow = 9.1 cfs @ 12.58 hrs, Volume= 144,756 cf
 Primary = 9.1 cfs @ 12.58 hrs, Volume= 144,756 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

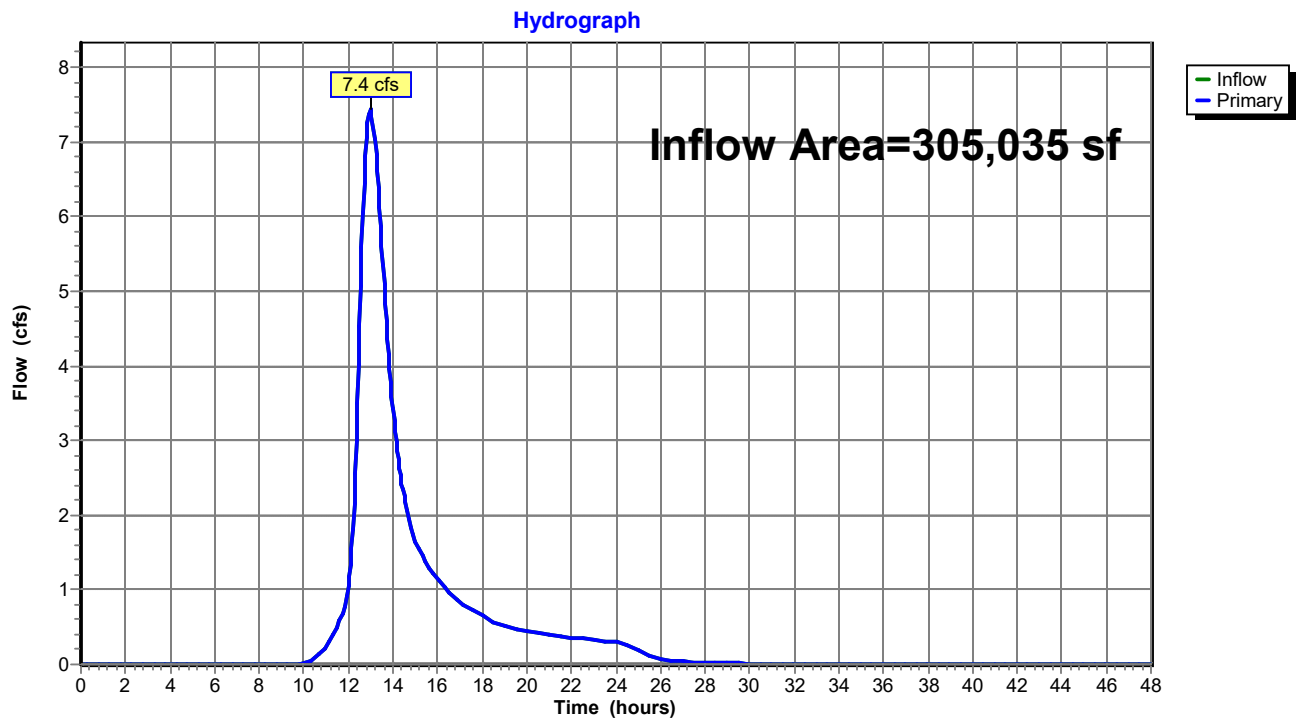


Summary for Link AP2:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 2.71" for 10-Year event
 Inflow = 7.4 cfs @ 12.98 hrs, Volume= 68,974 cf
 Primary = 7.4 cfs @ 12.98 hrs, Volume= 68,974 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

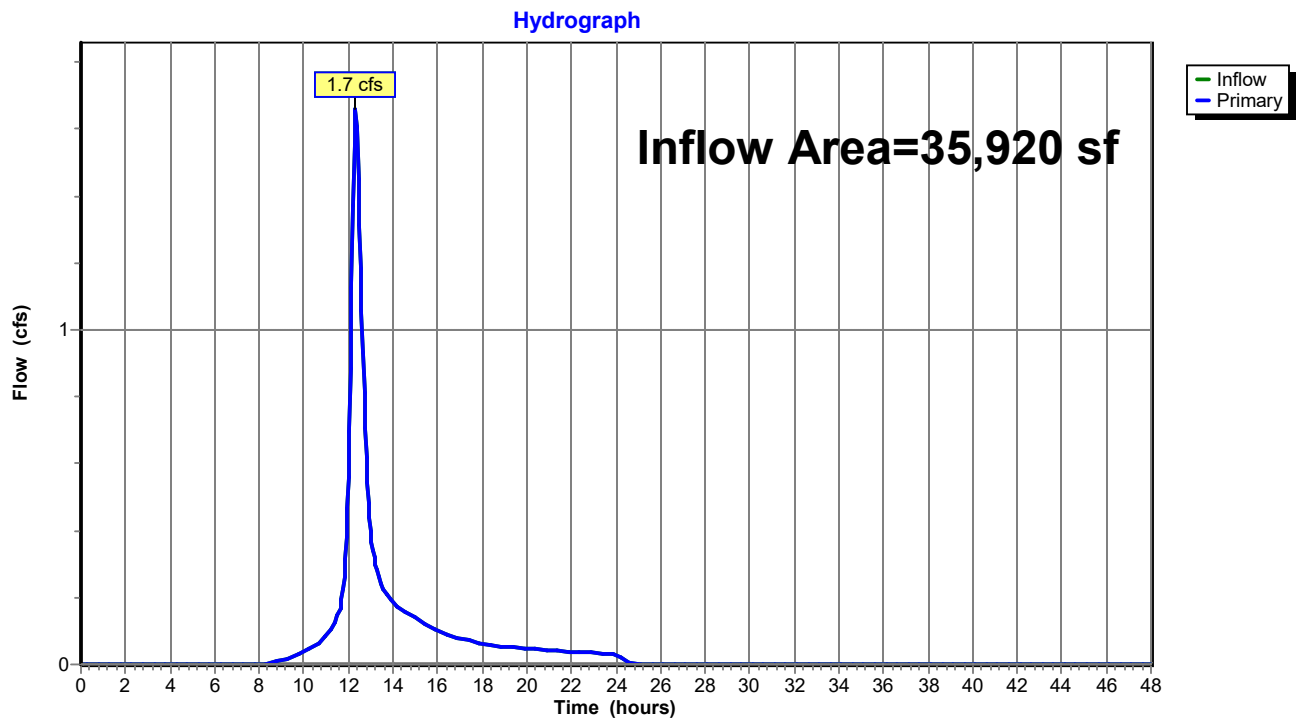


Summary for Link AP3:

Inflow Area = 35,920 sf, 0.67% Impervious, Inflow Depth = 2.72" for 10-Year event
 Inflow = 1.7 cfs @ 12.32 hrs, Volume= 8,129 cf
 Primary = 1.7 cfs @ 12.32 hrs, Volume= 8,129 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:



Post-Dev Rev 3*Type III 24-hr 25-Year Rainfall=6.20"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 69

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0:	Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=3.76" Flow Length=659' Tc=44.5 min CN=78 Runoff=10.3 cfs 68,244 cf
Subcatchment 1.1:	Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=3.86" Flow Length=598' Tc=67.5 min CN=79 Runoff=10.1 cfs 85,377 cf
Subcatchment 1.2:	Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=3.76" Flow Length=396' Tc=11.4 min CN=78 Runoff=10.9 cfs 40,702 cf
Subcatchment 1.3:	Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=3.96" Flow Length=453' Tc=57.8 min CN=80 Runoff=11.6 cfs 89,526 cf
Subcatchment 1.4:	Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=4.28" Tc=6.0 min CN=83 Runoff=1.1 cfs 3,465 cf
Subcatchment 1.5:	Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=4.60" Tc=6.0 min CN=86 Runoff=1.2 cfs 3,860 cf
Subcatchment 1.6:	Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=4.28" Tc=6.0 min CN=83 Runoff=2.1 cfs 6,840 cf
Subcatchment 1.7:	Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=3.96" Tc=6.0 min CN=80 Runoff=0.9 cfs 2,711 cf
Subcatchment 2.0:	Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=3.86" Flow Length=750' Tc=49.7 min CN=79 Runoff=13.3 cfs 94,046 cf
Subcatchment 2.1:	Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=4.17" Tc=6.0 min CN=82 Runoff=1.4 cfs 4,370 cf
Subcatchment 3.0:	Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=3.86" Flow Length=225' Tc=23.2 min CN=79 Runoff=2.4 cfs 11,551 cf
Reach R1:	Avg. Flow Depth=0.30' Max Vel=0.49 fps Inflow=7.8 cfs 126,185 cf n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=7.8 cfs 126,158 cf
Reach R2:	Avg. Flow Depth=0.17' Max Vel=0.42 fps Inflow=4.6 cfs 40,864 cf n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=3.9 cfs 40,835 cf
Reach R3:	Avg. Flow Depth=0.72' Max Vel=0.90 fps Inflow=5.3 cfs 16,876 cf n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=4.4 cfs 16,876 cf
Reach R4:	Avg. Flow Depth=0.08' Max Vel=2.13 fps Inflow=1.4 cfs 4,370 cf n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=1.1 cfs 4,370 cf
Pond C1:	Peak Elev=35.20' Storage=31,004 cf Inflow=13.7 cfs 126,212 cf 30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=7.8 cfs 126,185 cf

Post-Dev Rev 3*Type III 24-hr 25-Year Rainfall=6.20"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 70

Pond C10: Peak Elev=47.64' Inflow=1.4 cfs 4,370 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=1.4 cfs 4,370 cf

Pond C2: Peak Elev=41.29' Storage=15,674 cf Inflow=10.9 cfs 46,214 cf
Outflow=4.6 cfs 40,864 cf

Pond C3: Peak Elev=43.15' Storage=26,762 cf Inflow=11.6 cfs 89,526 cf
Discarded=5.4 cfs 83,985 cf Primary=1.0 cfs 5,512 cf Outflow=6.5 cfs 89,497 cf

Pond C4: Peak Elev=26.94' Storage=17,960 cf Inflow=13.7 cfs 98,416 cf
Outflow=9.9 cfs 98,069 cf

Pond C5: Peak Elev=35.95' Inflow=5.3 cfs 16,876 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=5.3 cfs 16,876 cf

Pond C6: Peak Elev=38.15' Inflow=4.2 cfs 13,411 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=4.2 cfs 13,411 cf

Pond C7: Peak Elev=42.04' Inflow=3.0 cfs 9,551 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=3.0 cfs 9,551 cf

Pond C8: Peak Elev=46.99' Inflow=0.9 cfs 2,711 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.9 cfs 2,711 cf

Link AP1: Inflow=13.1 cfs 211,278 cf
Primary=13.1 cfs 211,278 cf

Link AP2: Inflow=9.9 cfs 98,069 cf
Primary=9.9 cfs 98,069 cf

Link AP3: Inflow=2.4 cfs 11,551 cf
Primary=2.4 cfs 11,551 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 410,690 cf Average Runoff Depth = 3.87"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 71

Summary for Subcatchment 1.0:

Runoff = 10.3 cfs @ 12.61 hrs, Volume= 68,244 cf, Depth= 3.76"

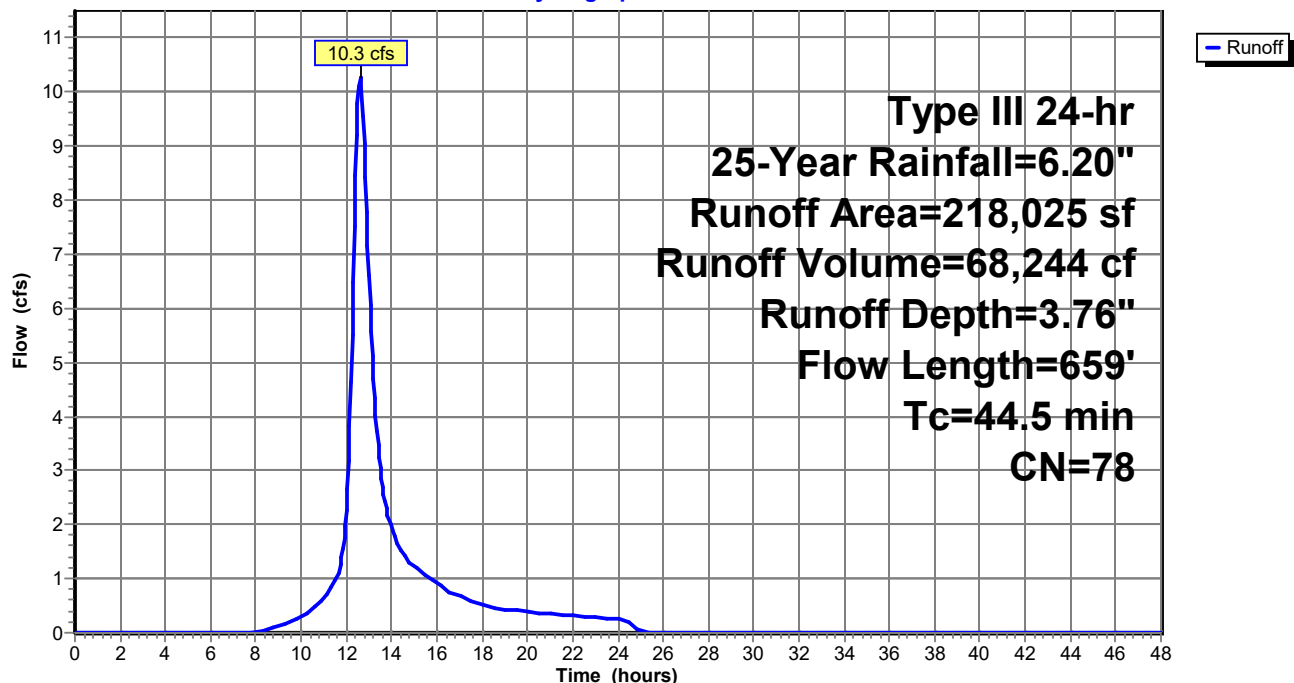
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
184,685	77	Woods, Good, HSG D
20,670	80	>75% Grass cover, Good, HSG D
9,565	98	Paved parking, HSG D
3,105	89	Dirt roads, HSG D
218,025	78	Weighted Average
208,460		95.61% Pervious Area
9,565		4.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		Shallow Concentrated Flow, C-D Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 72

Summary for Subcatchment 1.1:

Runoff = 10.1 cfs @ 12.90 hrs, Volume= 85,377 cf, Depth= 3.86"

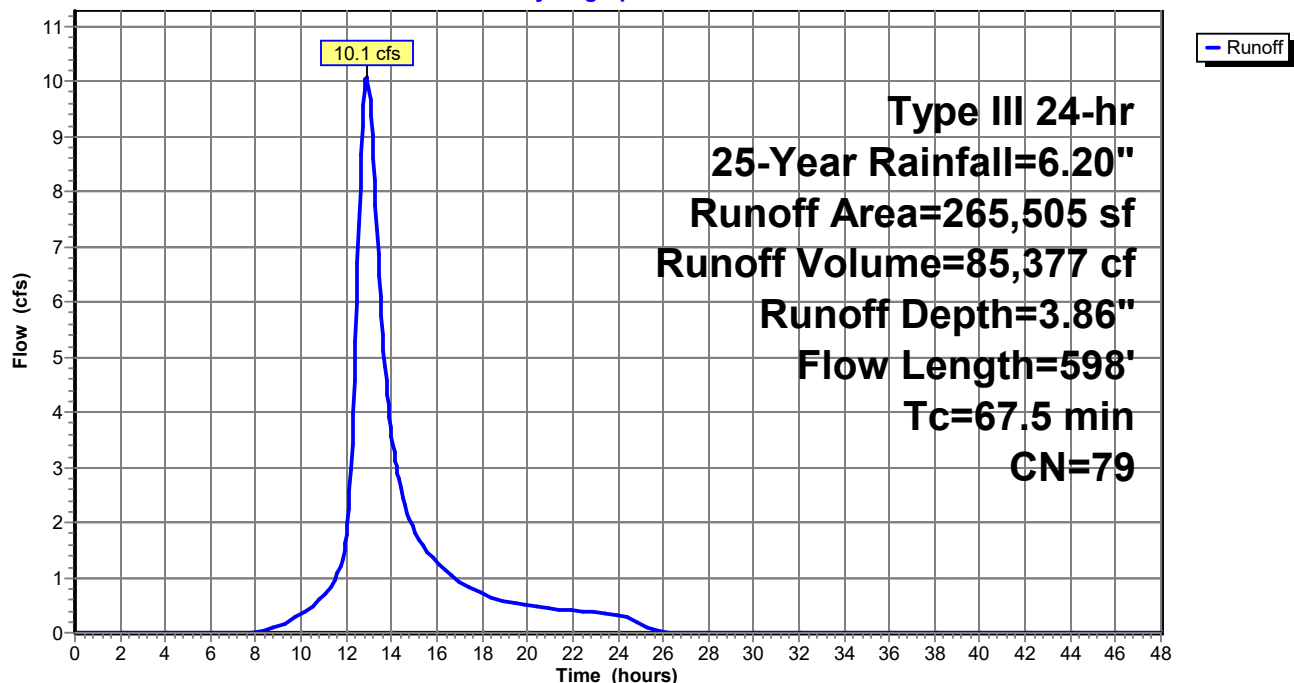
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
202,720	77	Woods, Good, HSG D
41,160	80	>75% Grass cover, Good, HSG D
15,295	98	Paved parking, HSG D
6,330	89	Dirt roads, HSG D
265,505	79	Weighted Average
250,210		94.24% Pervious Area
15,295		5.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 73

Summary for Subcatchment 1.2:

Runoff = 10.9 cfs @ 12.16 hrs, Volume= 40,702 cf, Depth= 3.76"

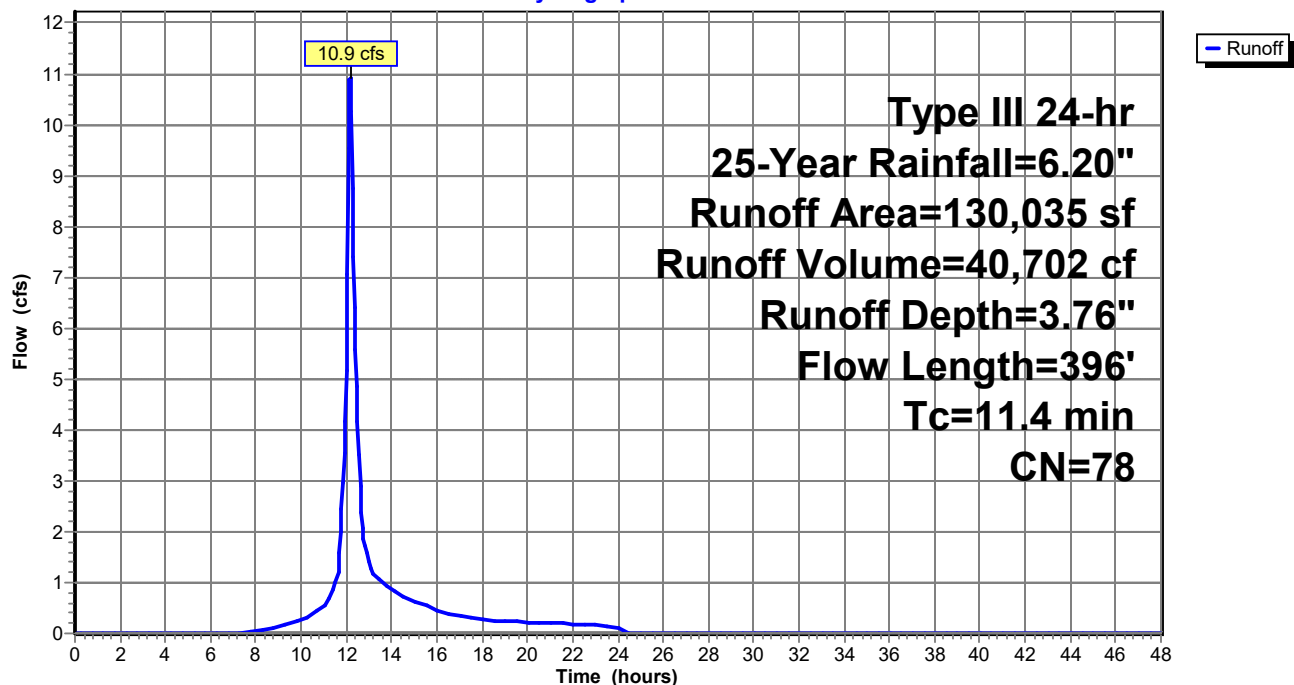
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 74

Summary for Subcatchment 1.3:

Runoff = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf, Depth= 3.96"

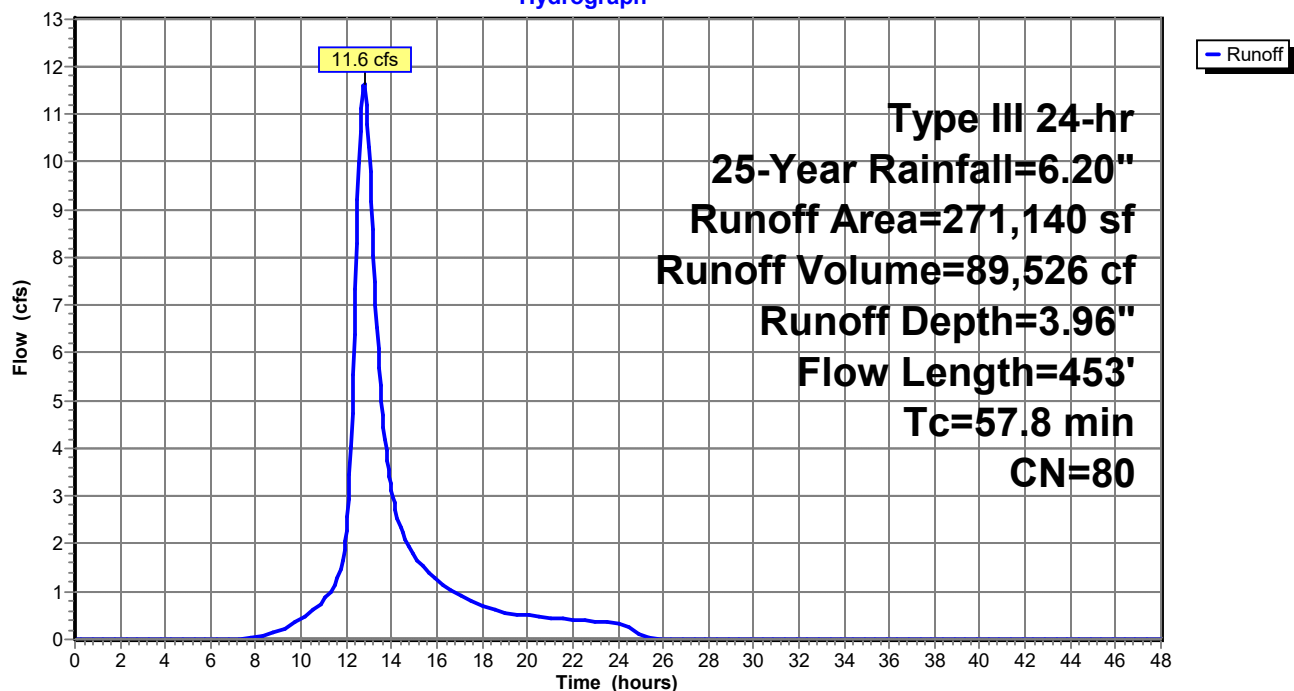
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 75

Summary for Subcatchment 1.4:

Runoff = 1.1 cfs @ 12.09 hrs, Volume= 3,465 cf, Depth= 4.28"

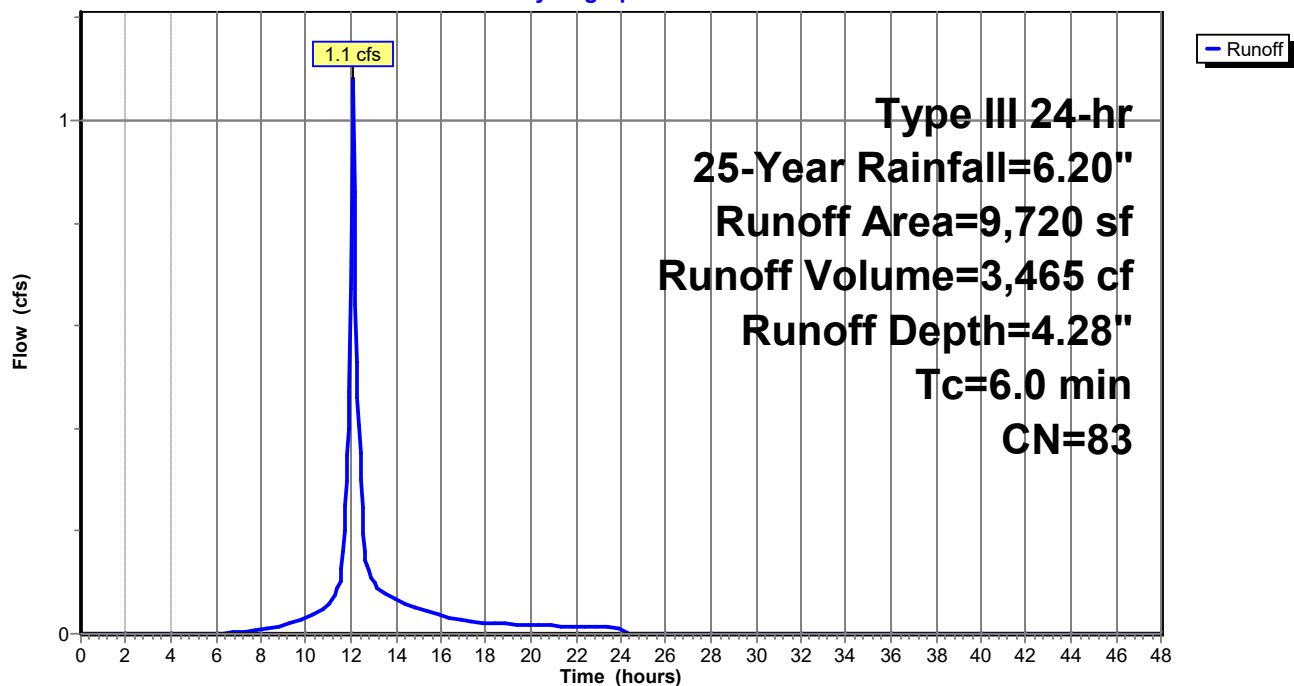
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
8,085	80	>75% Grass cover, Good, HSG D
1,635	98	Paved parking, HSG D
9,720	83	Weighted Average
8,085		83.18% Pervious Area
1,635		16.82% Impervious Area

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

Subcatchment 1.4:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 76

Summary for Subcatchment 1.5:

Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,860 cf, Depth= 4.60"

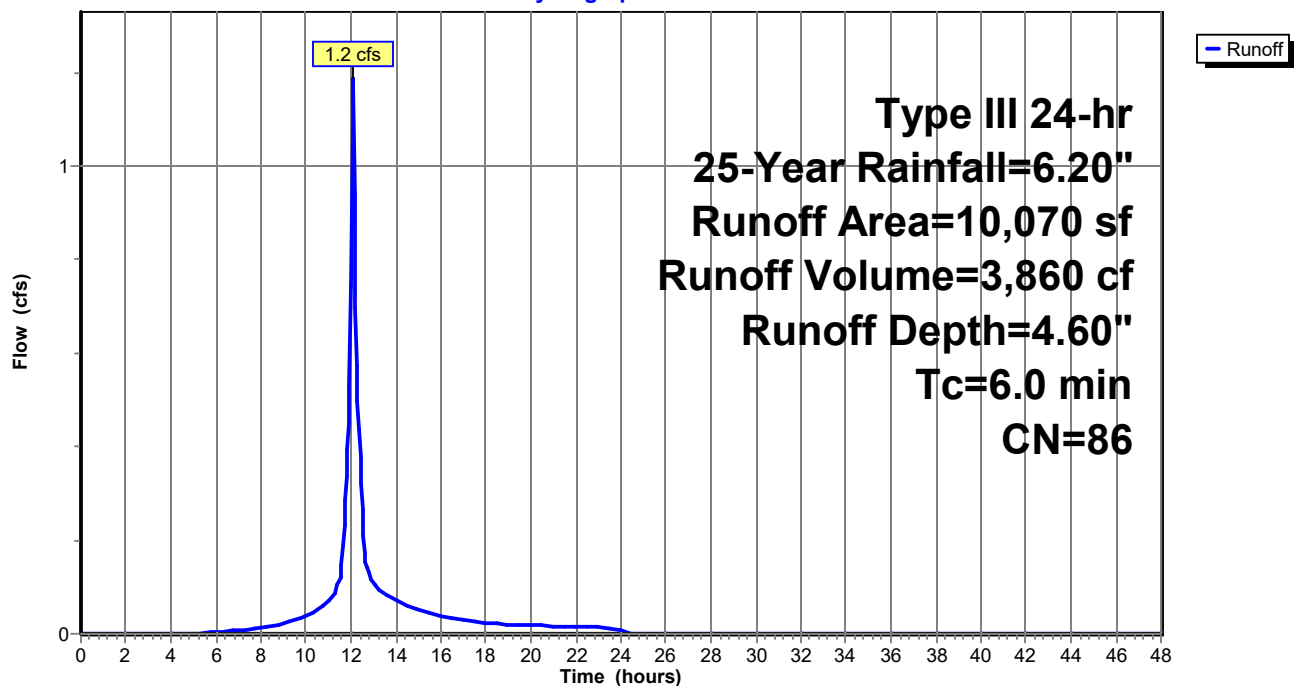
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
6,695	80	>75% Grass cover, Good, HSG D
3,375	98	Paved parking, HSG D
10,070	86	Weighted Average
6,695		66.48% Pervious Area
3,375		33.52% Impervious Area

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

Subcatchment 1.5:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 77

Summary for Subcatchment 1.6:

Runoff = 2.1 cfs @ 12.09 hrs, Volume= 6,840 cf, Depth= 4.28"

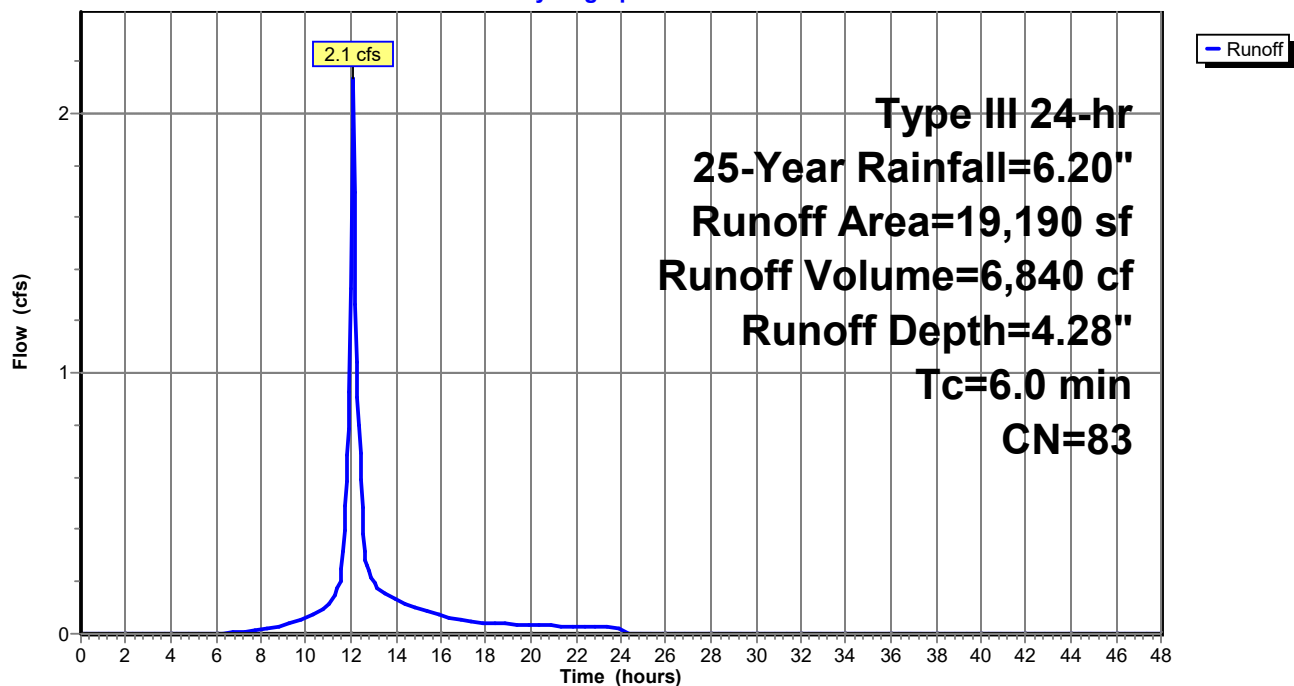
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
15,685	80	>75% Grass cover, Good, HSG D
3,505	98	Paved parking, HSG D
19,190	83	Weighted Average
15,685		81.74% Pervious Area
3,505		18.26% Impervious Area

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

Subcatchment 1.6:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 78

Summary for Subcatchment 1.7:

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,711 cf, Depth= 3.96"

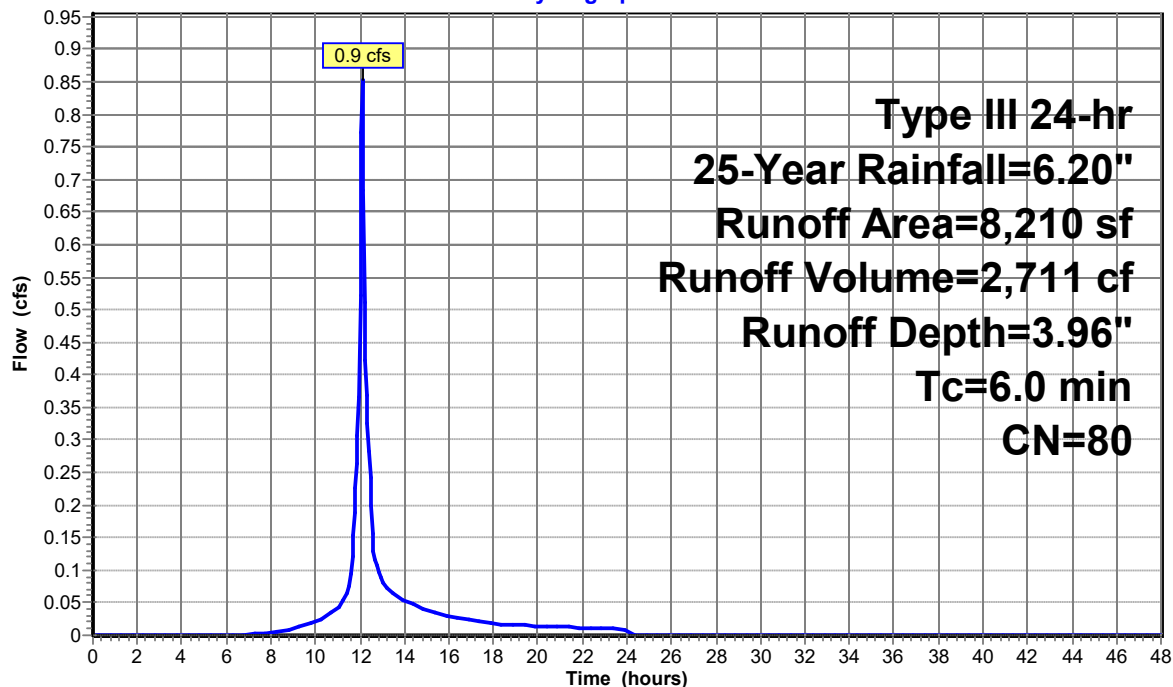
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
3,915	77	Woods, Good, HSG D
3,525	80	>75% Grass cover, Good, HSG D
770	98	Paved parking, HSG D
8,210	80	Weighted Average
7,440		90.62% Pervious Area
770		9.38% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 79

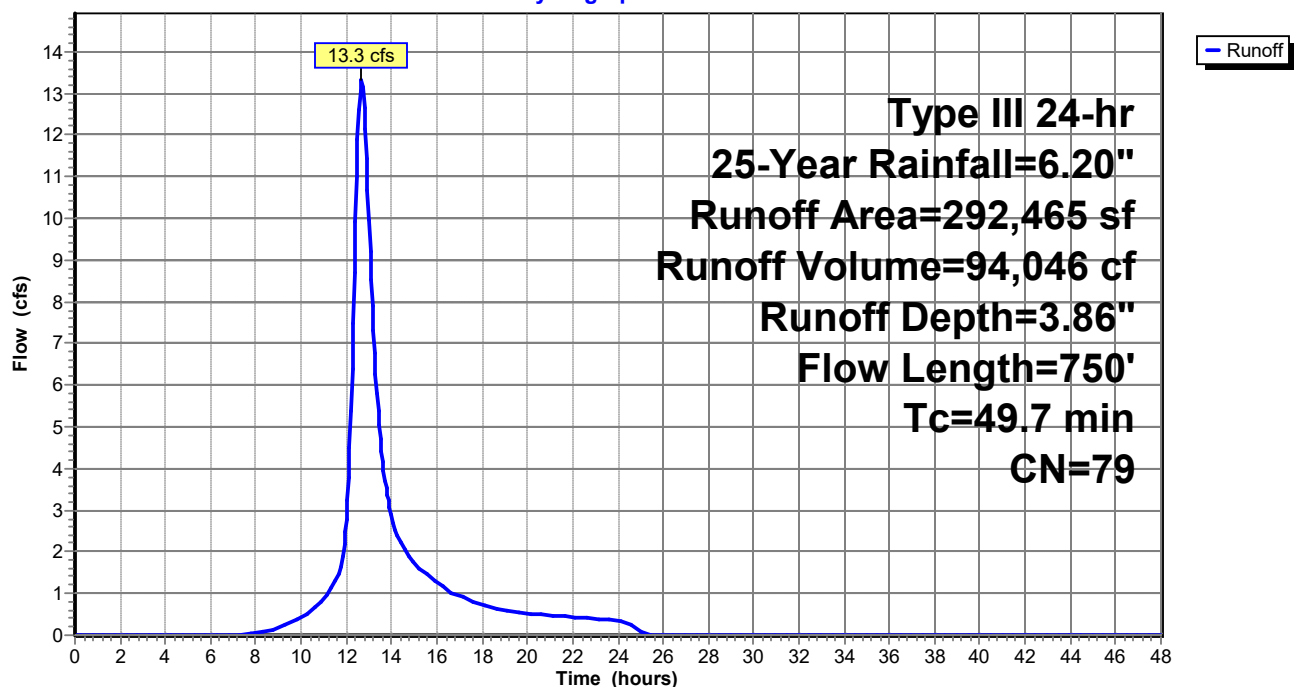
Summary for Subcatchment 2.0:

Runoff = 13.3 cfs @ 12.67 hrs, Volume= 94,046 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
243,170	77	Woods, Good, HSG D
23,955	80	>75% Grass cover, Good, HSG D
25,340	98	Paved parking, HSG D
292,465	79	Weighted Average
267,125		91.34% Pervious Area
25,340		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:**Hydrograph**

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 80

Summary for Subcatchment 2.1:

Runoff = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf, Depth= 4.17"

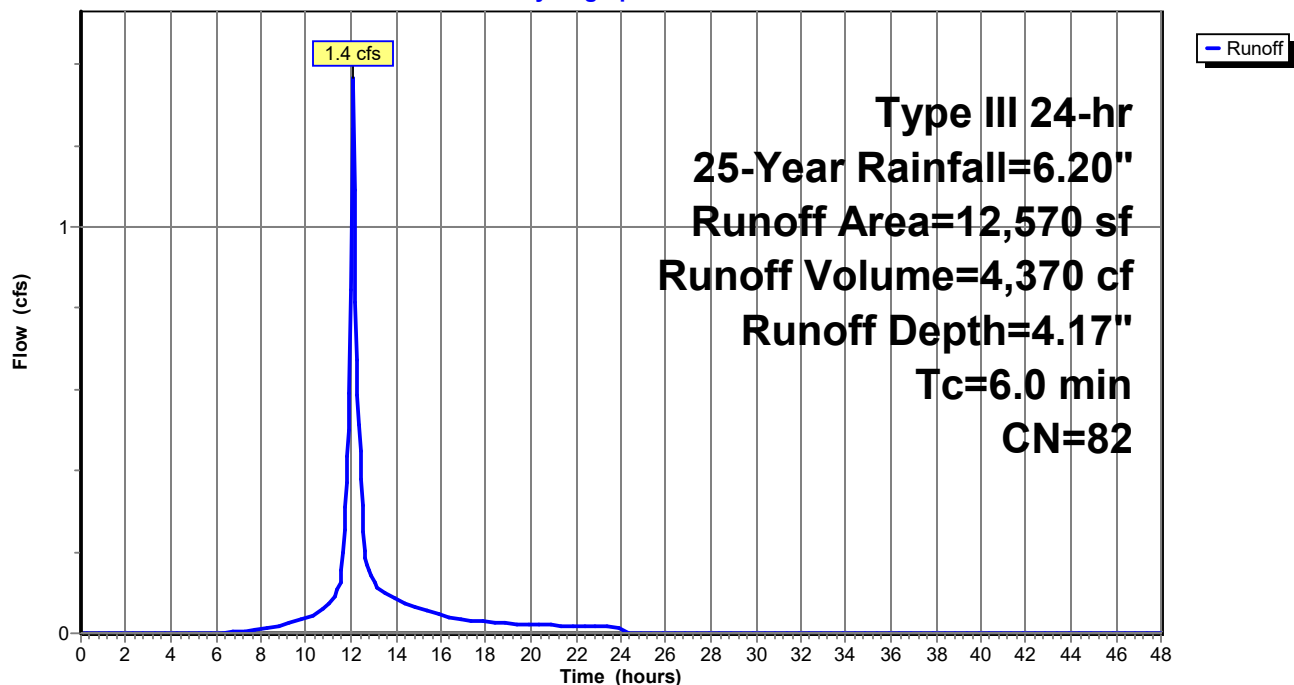
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
4,765	77	Woods, Good, HSG D
5,915	80	>75% Grass cover, Good, HSG D
1,890	98	Paved parking, HSG D
12,570	82	Weighted Average
10,680		84.96% Pervious Area
1,890		15.04% Impervious Area

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

Subcatchment 2.1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 81

Summary for Subcatchment 3.0:

Runoff = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf, Depth= 3.86"

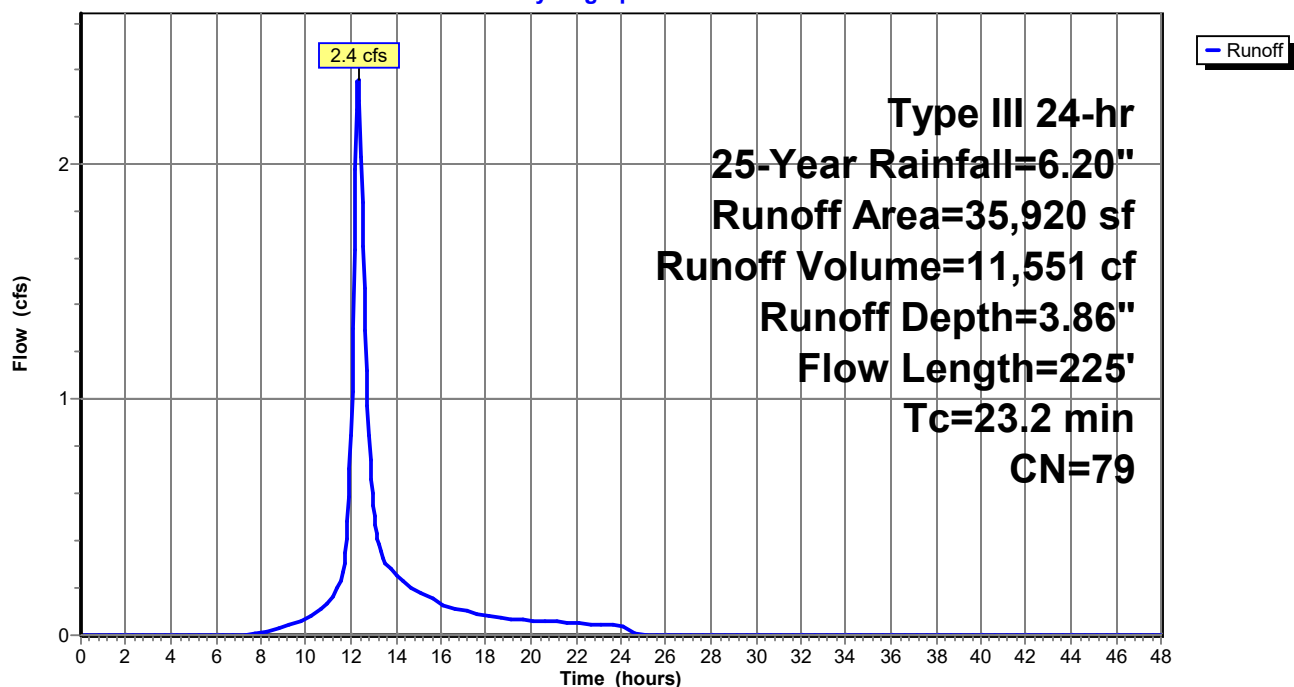
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
17,315	77	Woods, Good, HSG D
18,365	80	>75% Grass cover, Good, HSG D
240	98	Paved parking, HSG D
35,920	79	Weighted Average
35,680		99.33% Pervious Area
240		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	31	0.0563	0.21		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
18.1	69	0.0563	0.06		Sheet Flow, B-C
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.6	125	0.1000	0.79		Shallow Concentrated Flow, C-D
					Forest w/Heavy Litter Kv= 2.5 fps
23.2	225	Total			

Subcatchment 3.0:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 82

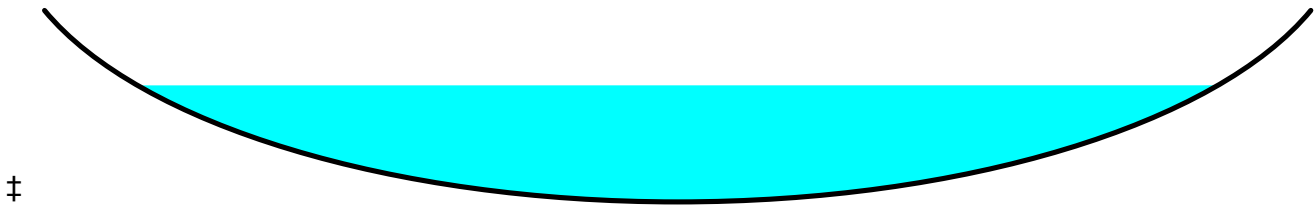
Summary for Reach R1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 2.27" for 25-Year event
Inflow = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf
Outflow = 7.8 cfs @ 14.04 hrs, Volume= 126,158 cf, Atten= 1%, Lag= 20.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.49 fps, Min. Travel Time= 11.2 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 33.7 min

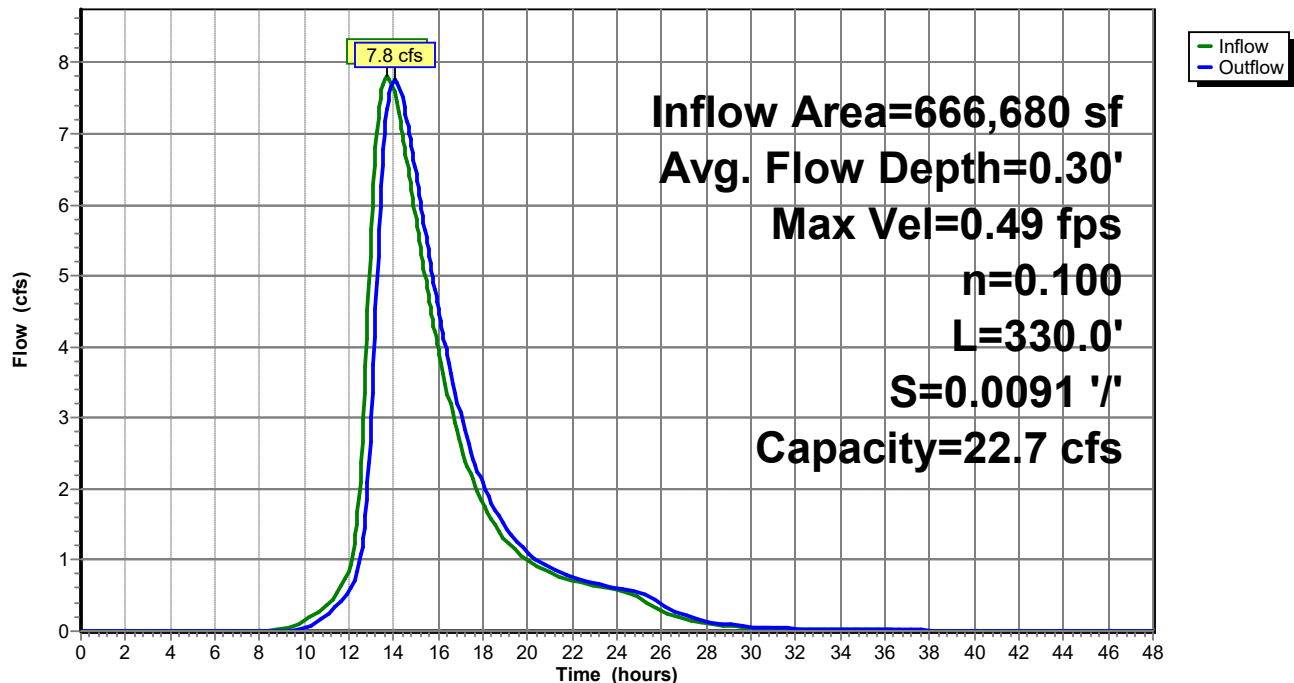
Peak Storage= 5,229 cf @ 13.85 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 330.0' Slope= 0.0091 '/
Inlet Invert= 33.00', Outlet Invert= 30.00'



Reach R1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 83

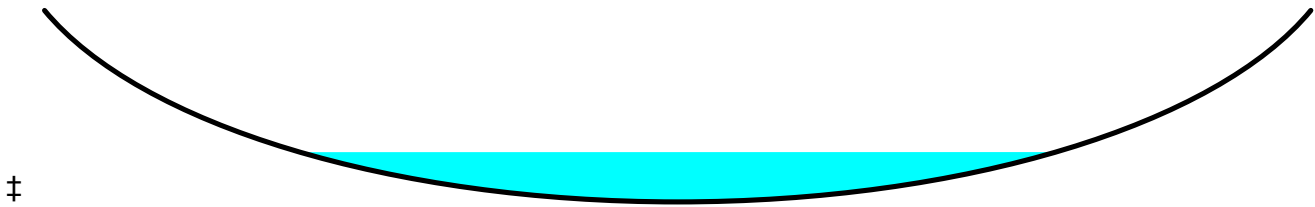
Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 1.22" for 25-Year event
Inflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf
Outflow = 3.9 cfs @ 13.09 hrs, Volume= 40,835 cf, Atten= 17%, Lag= 37.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.42 fps, Min. Travel Time= 19.1 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 61.7 min

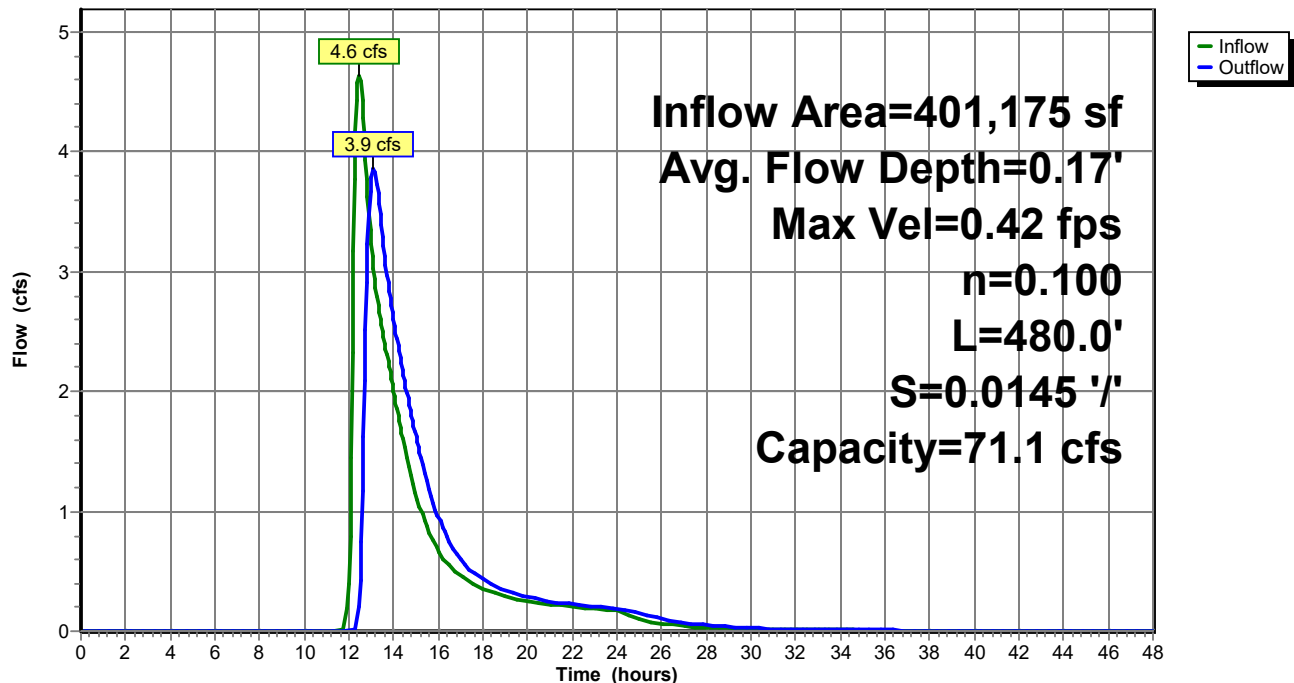
Peak Storage= 4,427 cf @ 12.77 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 480.0' Slope= 0.0145 '/'
Inlet Invert= 40.23', Outlet Invert= 33.26'



Reach R2:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 84

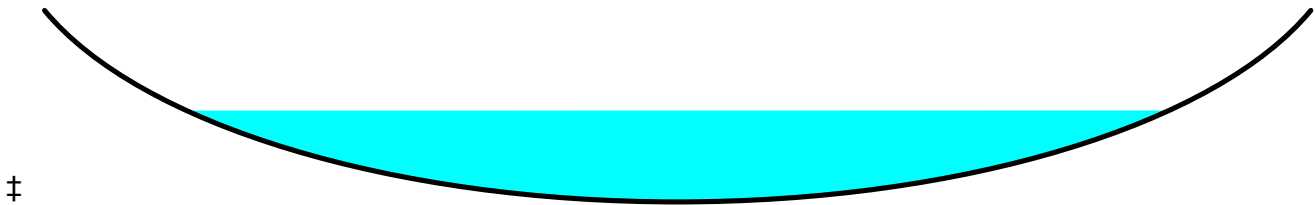
Summary for Reach R3:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 4.29" for 25-Year event
Inflow = 5.3 cfs @ 12.09 hrs, Volume= 16,876 cf
Outflow = 4.4 cfs @ 12.24 hrs, Volume= 16,876 cf, Atten= 16%, Lag= 9.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 21.4 min

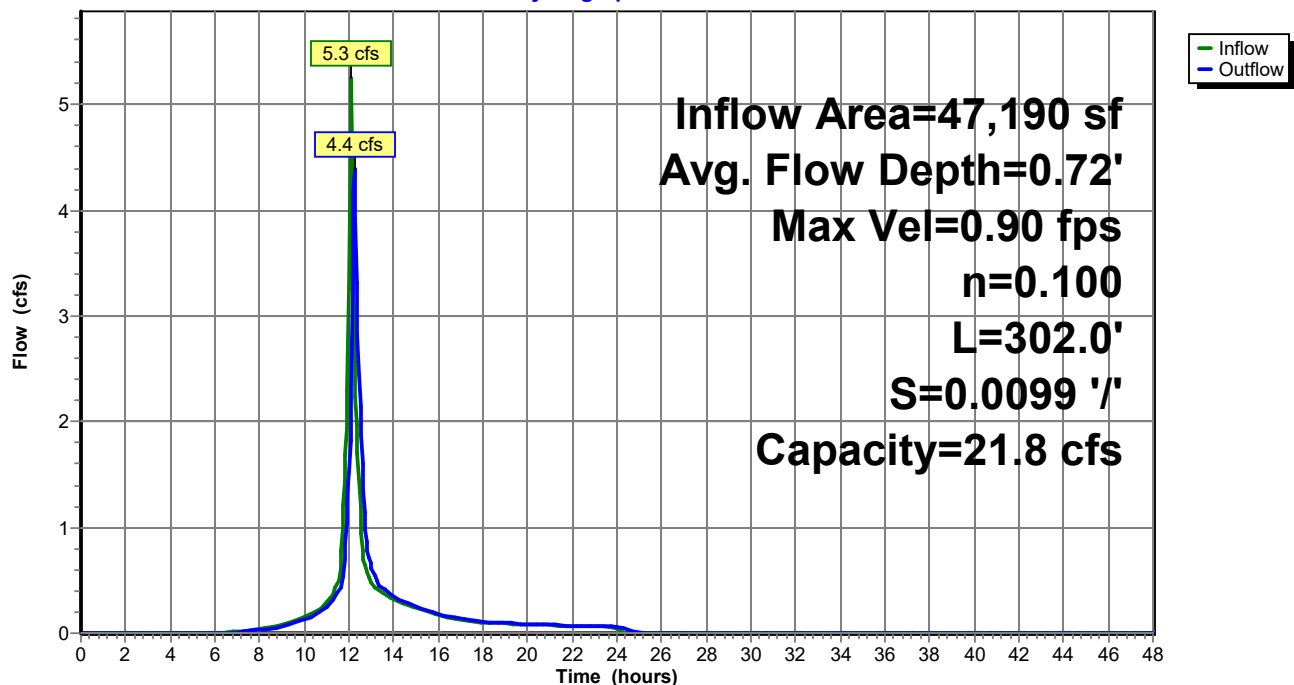
Peak Storage= 1,495 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 1.50' Flow Area= 15.0 sf, Capacity= 21.8 cfs

15.00' x 1.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 302.0' Slope= 0.0099 '/'
Inlet Invert= 34.00', Outlet Invert= 31.00'



Reach R3:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 85

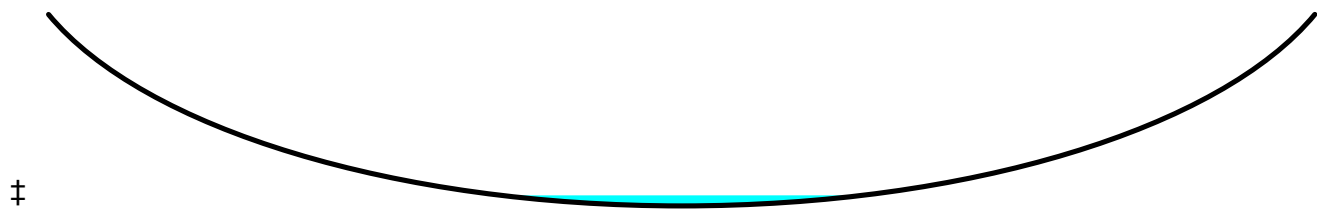
Summary for Reach R4:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 4.17" for 25-Year event
Inflow = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf
Outflow = 1.1 cfs @ 12.27 hrs, Volume= 4,370 cf, Atten= 20%, Lag= 10.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 17.6 min

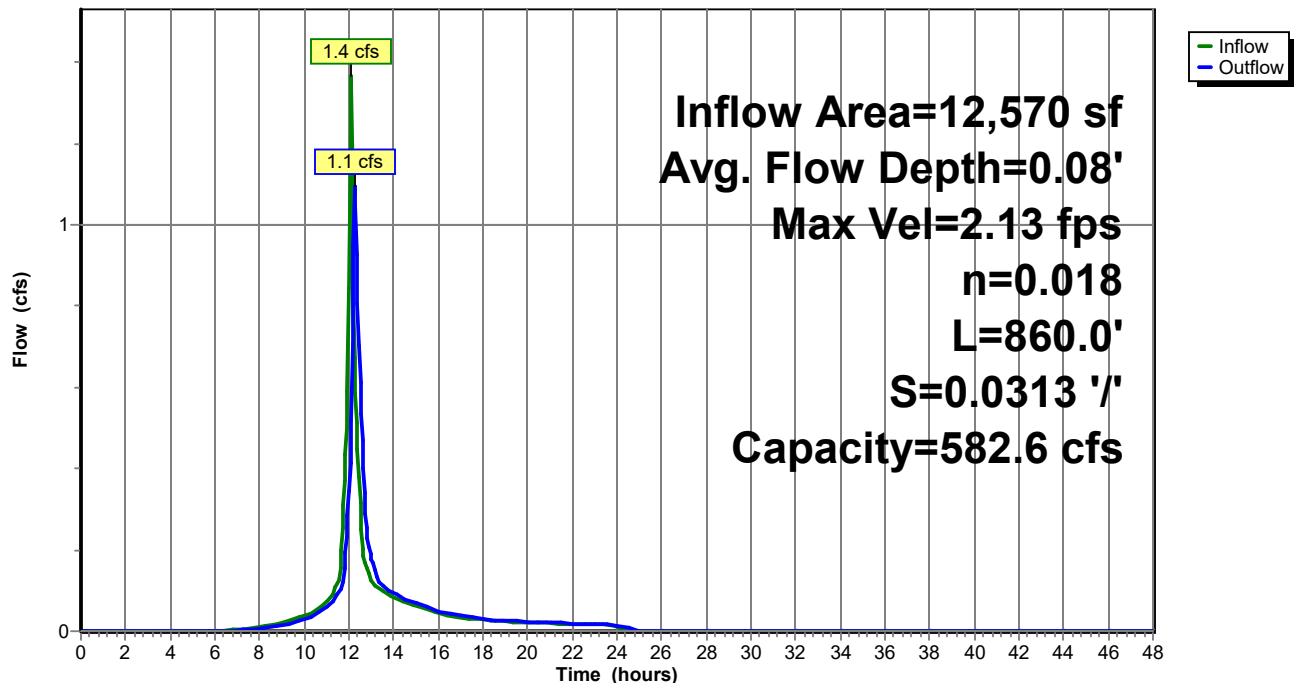
Peak Storage= 449 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.50' Flow Area= 40.0 sf, Capacity= 582.6 cfs

40.00' x 1.50' deep Parabolic Channel, n= 0.018 Earth, clean & straight
Length= 860.0' Slope= 0.0313 '/'
Inlet Invert= 52.00', Outlet Invert= 25.10'



Reach R4:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 86

Summary for Pond C1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 2.27" for 25-Year event
 Inflow = 13.7 cfs @ 12.97 hrs, Volume= 126,212 cf
 Outflow = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf, Atten= 43%, Lag= 43.8 min
 Primary = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.20' @ 13.70 hrs Surf.Area= 44,037 sf Storage= 31,004 cf
 Flood Elev= 36.00' Surf.Area= 65,400 sf Storage= 74,950 cf

Plug-Flow detention time= 65.5 min calculated for 126,185 cf (100% of inflow)
 Center-of-Mass det. time= 65.1 min (966.3 - 901.2)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	STORAGE (Prismatic) Listed below (Recalc)

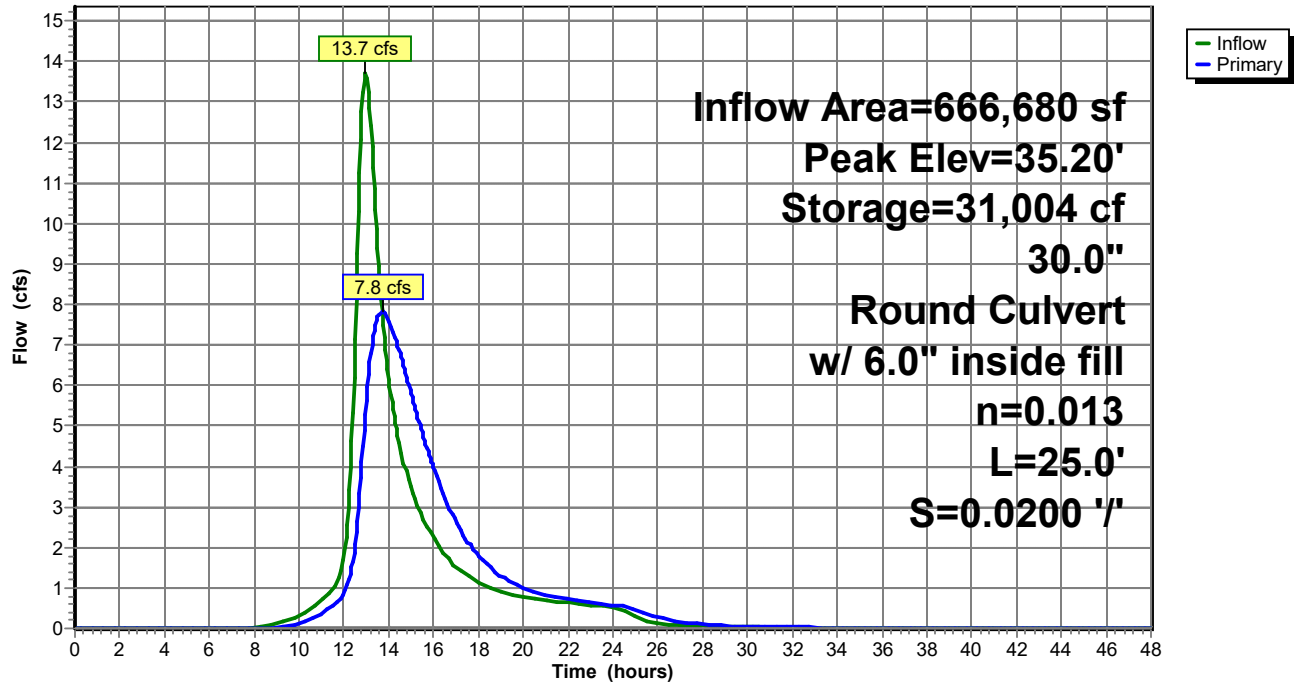
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	30.0" Round Culvert w/ 6.0" inside fill L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 33.00' S= 0.0200 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.21 sf

Primary OutFlow Max=7.8 cfs @ 13.70 hrs HW=35.20' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 7.8 cfs @ 2.74 fps)

Pond C1:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 88

Summary for Pond C10:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 4.17" for 25-Year event
 Inflow = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf
 Outflow = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 47.64' @ 12.09 hrs

Flood Elev= 48.25'

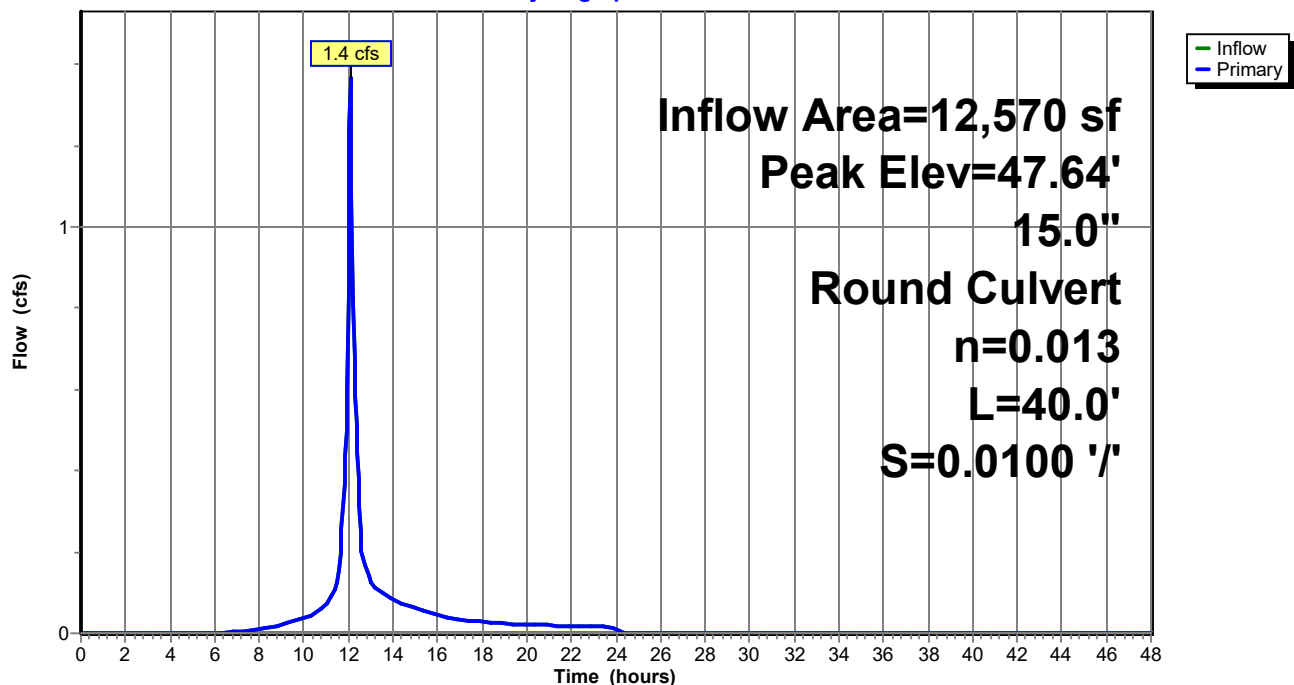
Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	15.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 47.00' / 46.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.3 cfs @ 12.09 hrs HW=47.63' (Free Discharge)

↑1=Culvert (Inlet Controls 1.3 cfs @ 2.14 fps)

Pond C10:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 89

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 1.38" for 25-Year event
 Inflow = 10.9 cfs @ 12.16 hrs, Volume= 46,214 cf
 Outflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf, Atten= 58%, Lag= 18.5 min
 Primary = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 41.29' @ 12.47 hrs Surf.Area= 10,856 sf Storage= 15,674 cf
 Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 142.9 min calculated for 40,864 cf (88% of inflow)
 Center-of-Mass det. time= 91.8 min (914.6 - 822.7)

Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 ' S= 0.0065 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	12.0" Round Culvert L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 ' S= -0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

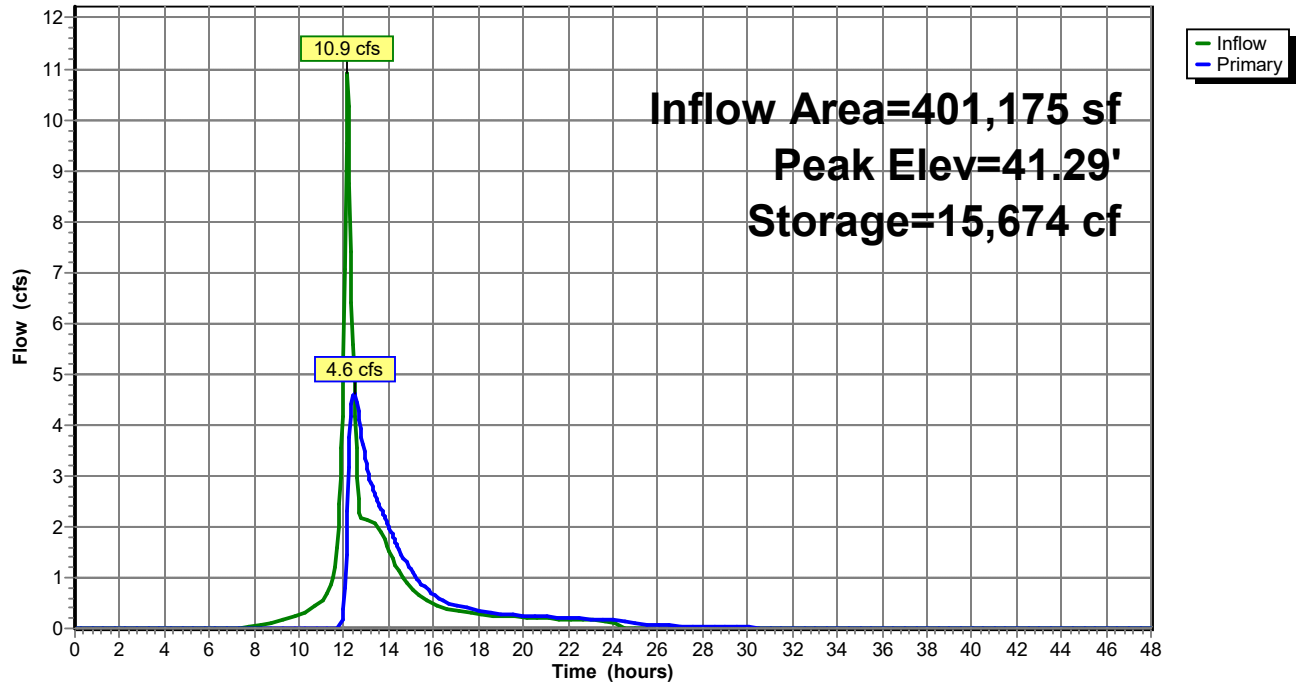
Primary OutFlow Max=4.6 cfs @ 12.47 hrs HW=41.28' (Free Discharge)

1=Culvert (Barrel Controls 2.2 cfs @ 3.16 fps)

2=Culvert (Inlet Controls 2.4 cfs @ 3.07 fps)

Pond C2:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 91

Summary for Pond C3:

Inflow Area = 271,140 sf, 13.50% Impervious, Inflow Depth = 3.96" for 25-Year event
 Inflow = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf
 Outflow = 6.5 cfs @ 13.36 hrs, Volume= 89,497 cf, Atten= 44%, Lag= 34.8 min
 Discarded = 5.4 cfs @ 13.36 hrs, Volume= 83,985 cf
 Primary = 1.0 cfs @ 13.36 hrs, Volume= 5,512 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 43.15' @ 13.36 hrs Surf.Area= 38,612 sf Storage= 26,762 cf
 Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 83.1 min calculated for 89,497 cf (100% of inflow)
 Center-of-Mass det. time= 82.8 min (943.7 - 860.8)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	24.0" Round Culvert L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 ' S= 0.0072 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	24.0" Round Culvert L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 ' S= 0.0163 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Discarded OutFlow Max=5.4 cfs @ 13.36 hrs HW=43.15' (Free Discharge)

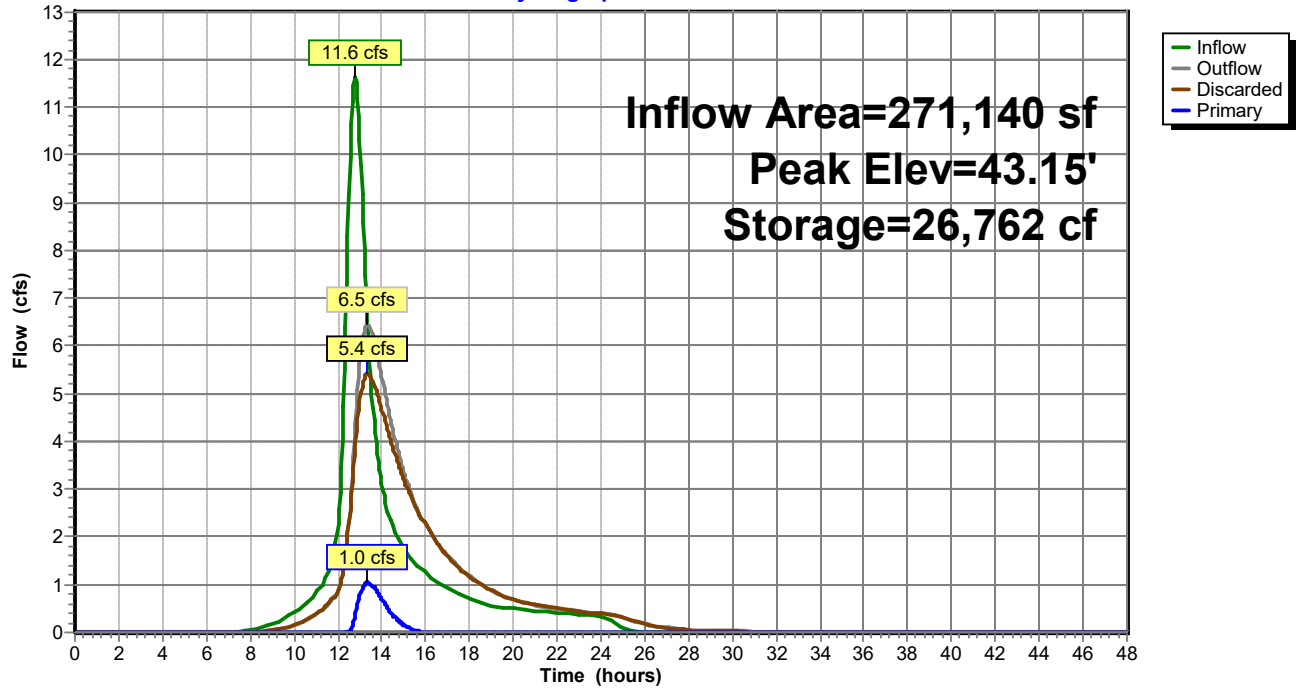
↑ **2=Culvert** (Inlet Controls 5.4 cfs @ 2.89 fps)

Primary OutFlow Max=1.0 cfs @ 13.36 hrs HW=43.15' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 1.0 cfs @ 1.85 fps)

Pond C3:

Hydrograph



Post-Dev Rev 3

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/4/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 93

Summary for Pond C4:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 3.87" for 25-Year event
 Inflow = 13.7 cfs @ 12.66 hrs, Volume= 98,416 cf
 Outflow = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf, Atten= 28%, Lag= 21.7 min
 Primary = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 26.94' @ 13.02 hrs Surf.Area= 12,878 sf Storage= 17,960 cf
 Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 39.4 min calculated for 98,069 cf (100% of inflow)
 Center-of-Mass det. time= 37.0 min (891.6 - 854.5)

Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

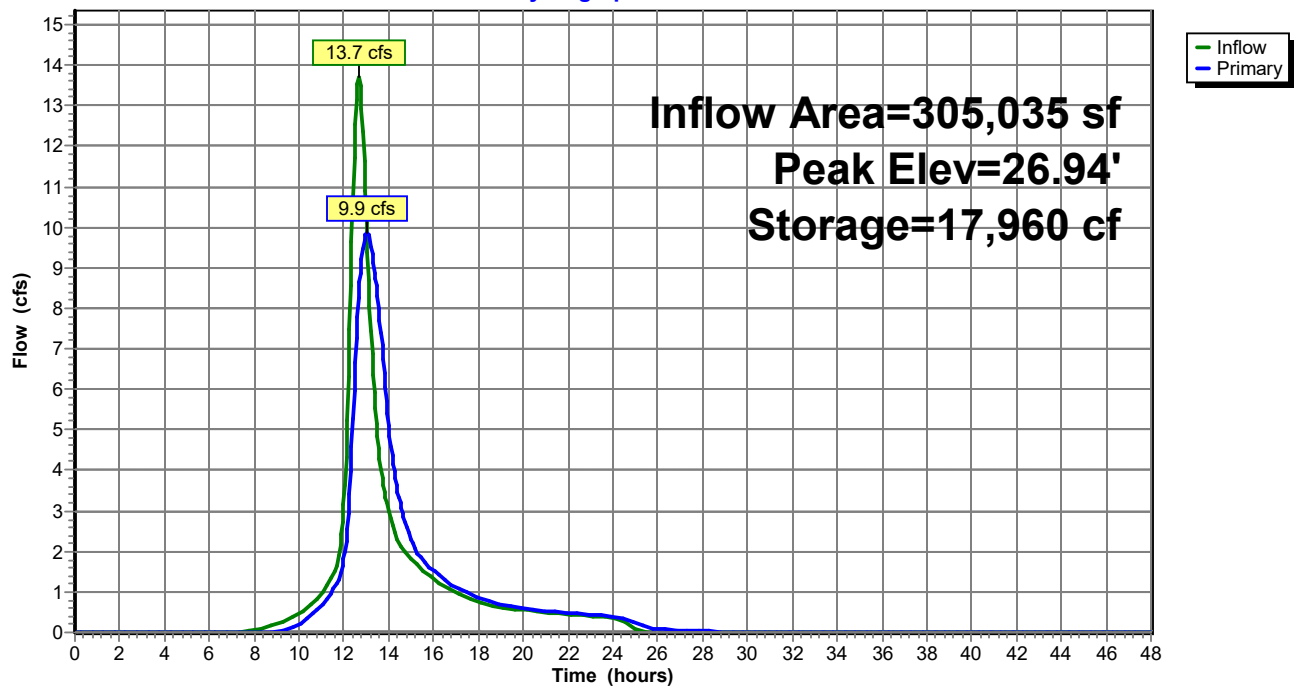
Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 ' S= 0.0097 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	15.0" Round Culvert L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 ' S= 0.0039 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.9 cfs @ 13.02 hrs HW=26.94' (Free Discharge)

1=Culvert (Inlet Controls 4.8 cfs @ 3.90 fps)
 2=Culvert (Barrel Controls 5.1 cfs @ 4.13 fps)

Pond C4:

Hydrograph



Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 95

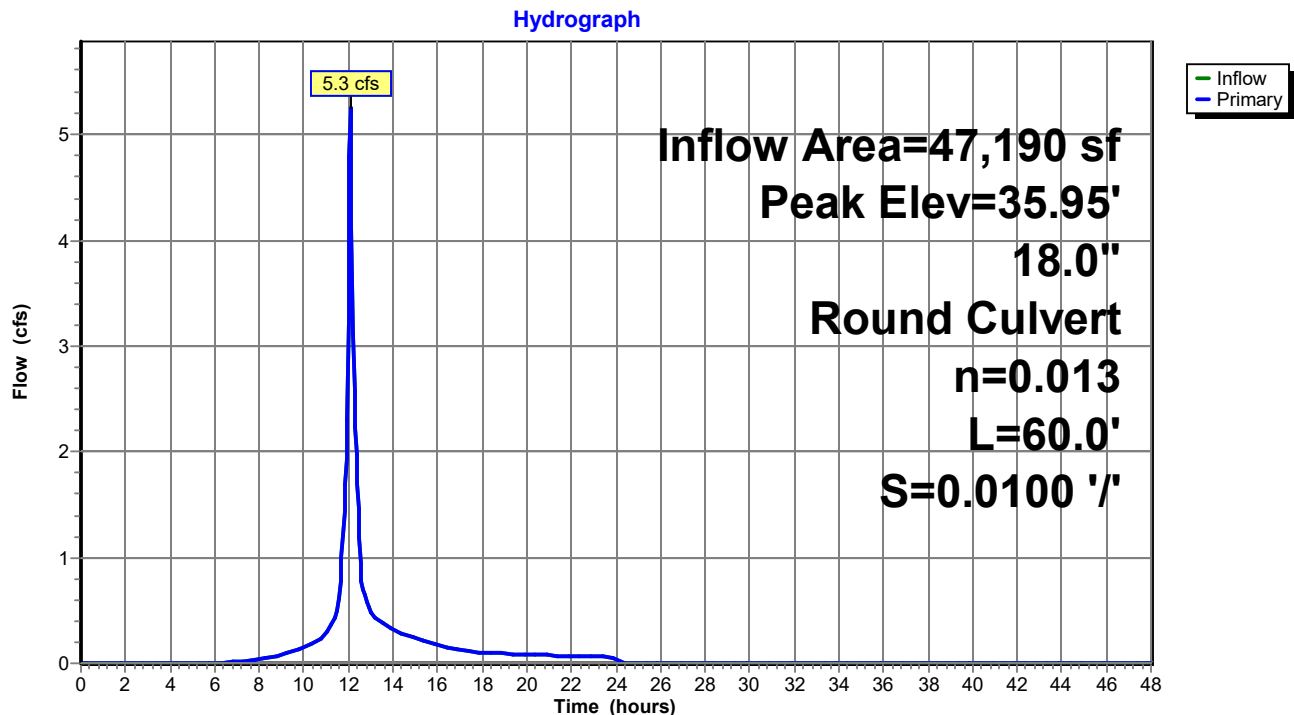
Summary for Pond C5:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 4.29" for 25-Year event
 Inflow = 5.3 cfs @ 12.09 hrs, Volume= 16,876 cf
 Outflow = 5.3 cfs @ 12.09 hrs, Volume= 16,876 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.3 cfs @ 12.09 hrs, Volume= 16,876 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.95' @ 12.09 hrs
 Flood Elev= 36.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.60' / 34.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.1 cfs @ 12.09 hrs HW=35.93' (Free Discharge)
 ↑1=Culvert (Inlet Controls 5.1 cfs @ 3.10 fps)

Pond C5:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 96

Summary for Pond C6:

Inflow Area = 37,470 sf, 20.42% Impervious, Inflow Depth = 4.29" for 25-Year event
 Inflow = 4.2 cfs @ 12.09 hrs, Volume= 13,411 cf
 Outflow = 4.2 cfs @ 12.09 hrs, Volume= 13,411 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.2 cfs @ 12.09 hrs, Volume= 13,411 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

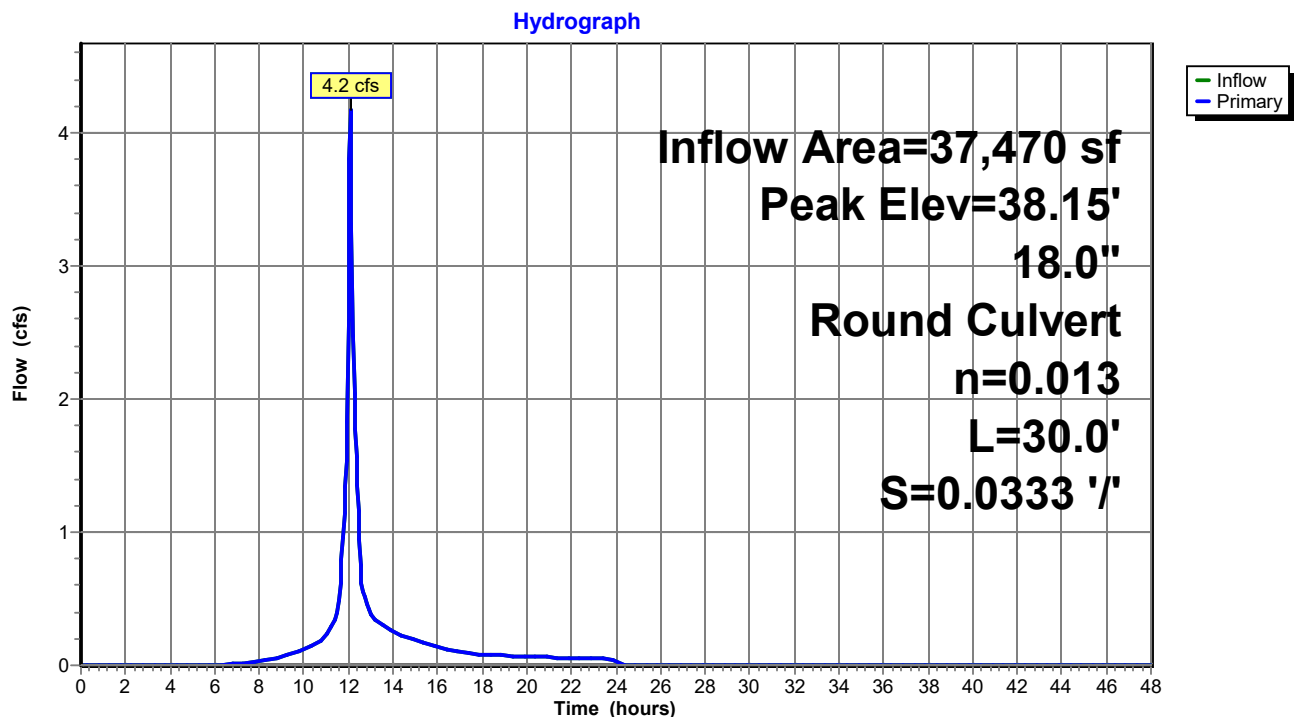
Peak Elev= 38.15' @ 12.09 hrs

Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	18.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.1 cfs @ 12.09 hrs HW=38.13' (Free Discharge)

↑1=Culvert (Inlet Controls 4.1 cfs @ 2.86 fps)

Pond C6:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 97

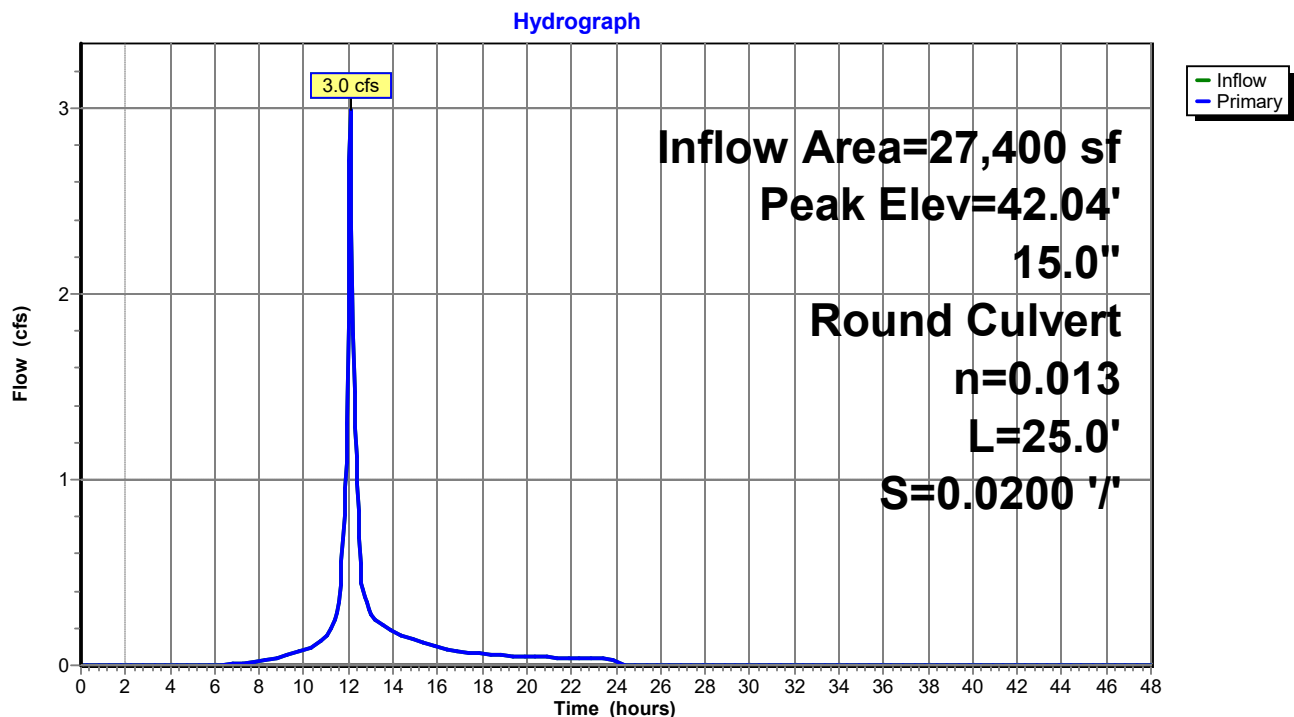
Summary for Pond C7:

Inflow Area = 27,400 sf, 15.60% Impervious, Inflow Depth = 4.18" for 25-Year event
 Inflow = 3.0 cfs @ 12.09 hrs, Volume= 9,551 cf
 Outflow = 3.0 cfs @ 12.09 hrs, Volume= 9,551 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.0 cfs @ 12.09 hrs, Volume= 9,551 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 42.04' @ 12.09 hrs
 Flood Elev= 42.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	15.0" Round Culvert L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.9 cfs @ 12.09 hrs HW=42.02' (Free Discharge)
 ↑1=Culvert (Inlet Controls 2.9 cfs @ 2.72 fps)

Pond C7:

Post-Dev Rev 3

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/4/2022

Page 98

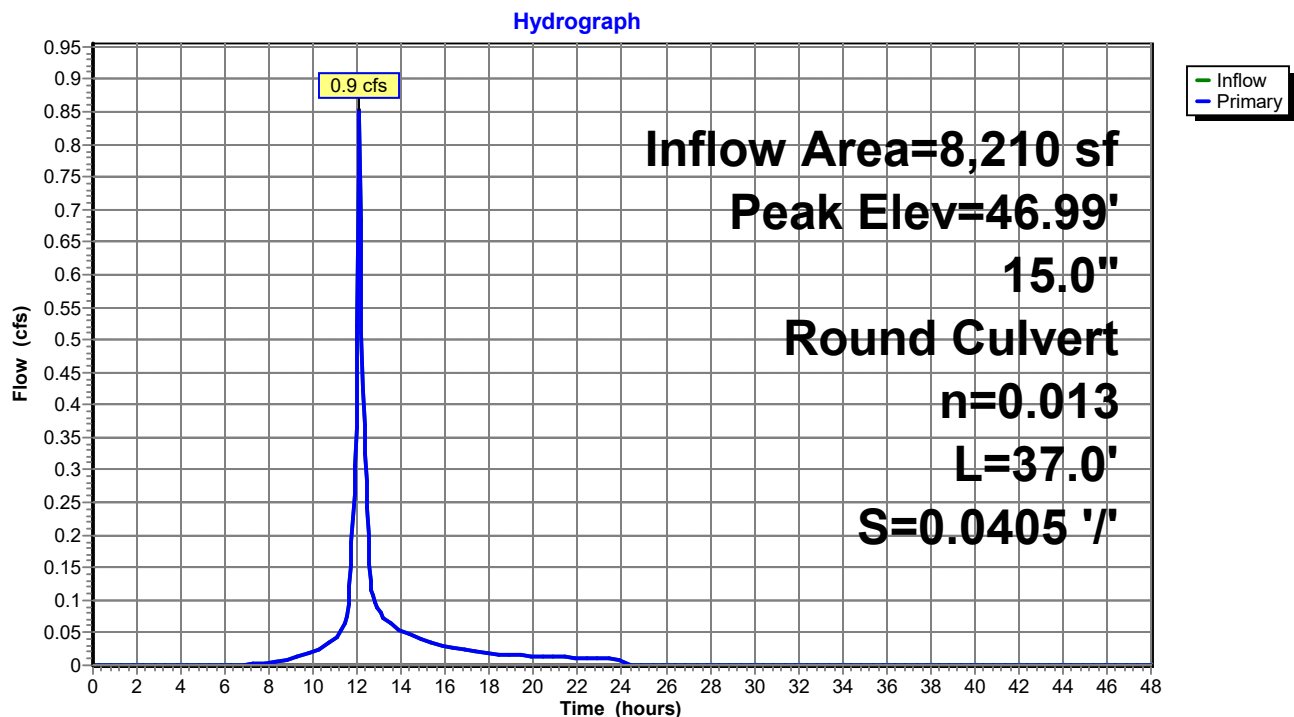
Summary for Pond C8:

Inflow Area = 8,210 sf, 9.38% Impervious, Inflow Depth = 3.96" for 25-Year event
 Inflow = 0.9 cfs @ 12.09 hrs, Volume= 2,711 cf
 Outflow = 0.9 cfs @ 12.09 hrs, Volume= 2,711 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.9 cfs @ 12.09 hrs, Volume= 2,711 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 46.99' @ 12.09 hrs
 Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	15.0" Round Culvert L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.50' / 45.00' S= 0.0405 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.8 cfs @ 12.09 hrs HW=46.99' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.8 cfs @ 1.88 fps)

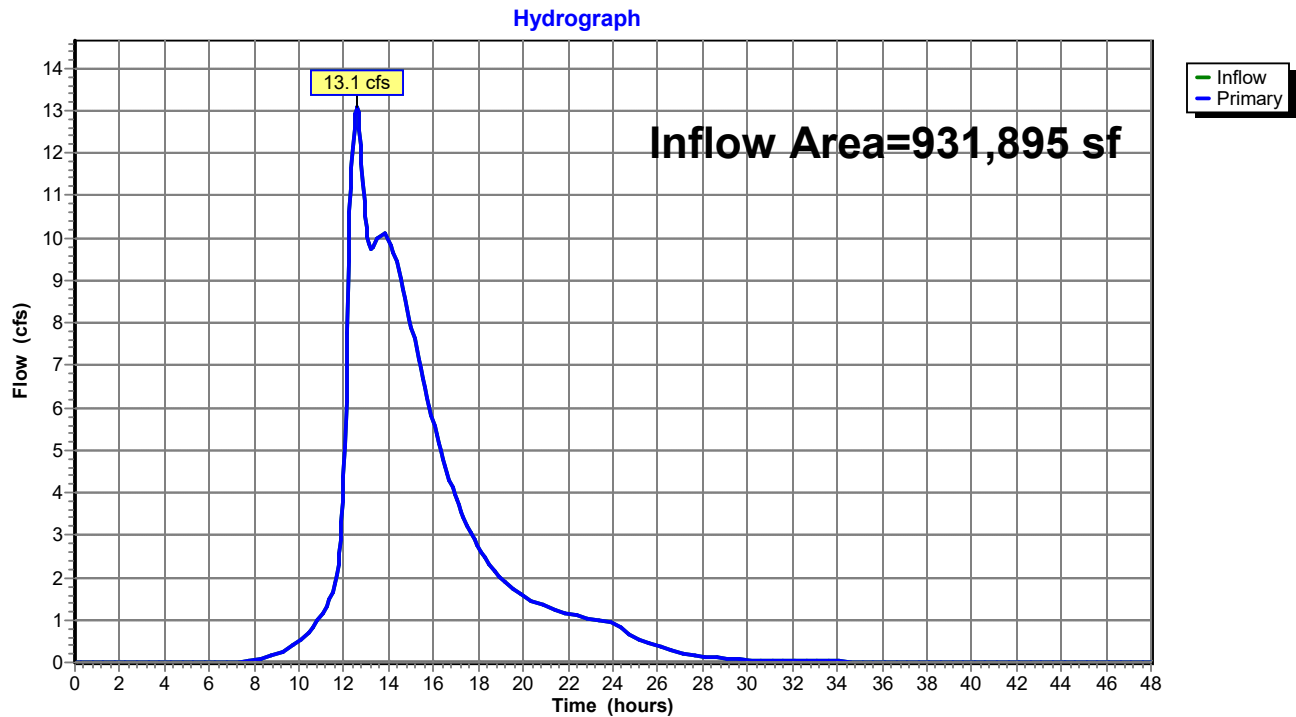
Pond C8:

Summary for Link AP1:

Inflow Area = 931,895 sf, 8.48% Impervious, Inflow Depth > 2.72" for 25-Year event
 Inflow = 13.1 cfs @ 12.58 hrs, Volume= 211,278 cf
 Primary = 13.1 cfs @ 12.58 hrs, Volume= 211,278 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

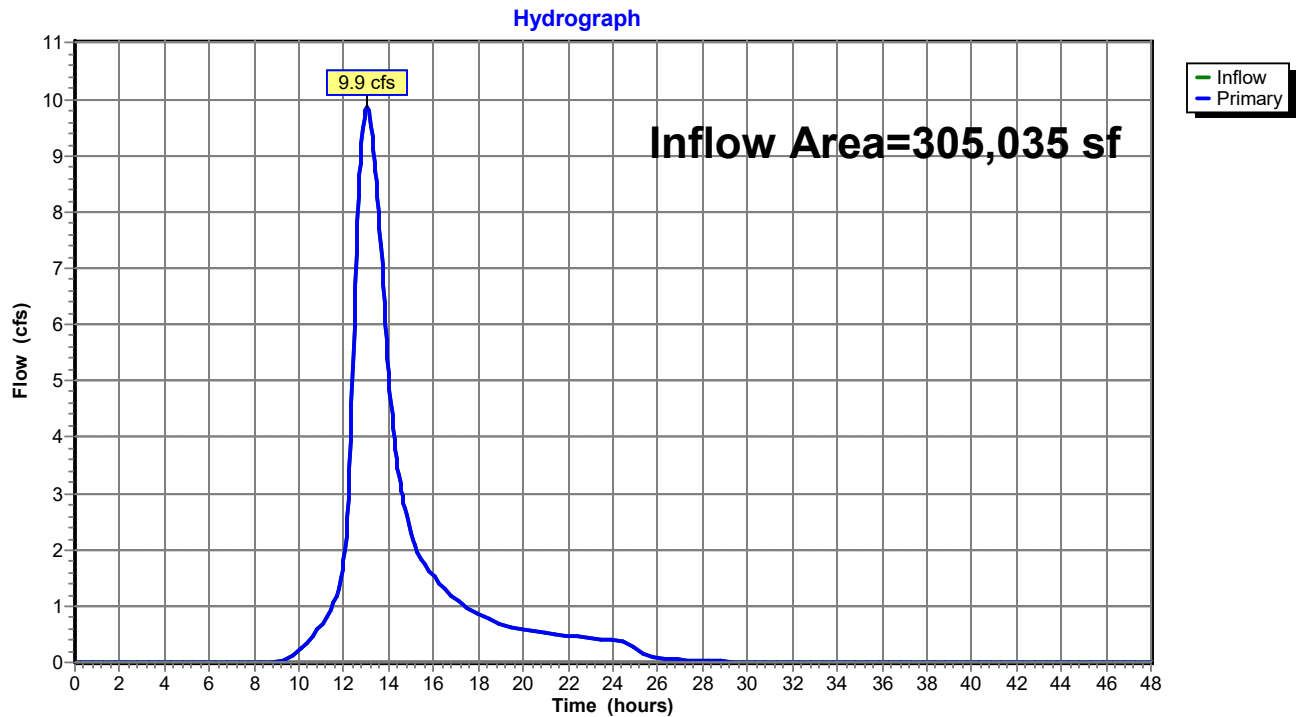


Summary for Link AP2:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 3.86" for 25-Year event
 Inflow = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf
 Primary = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

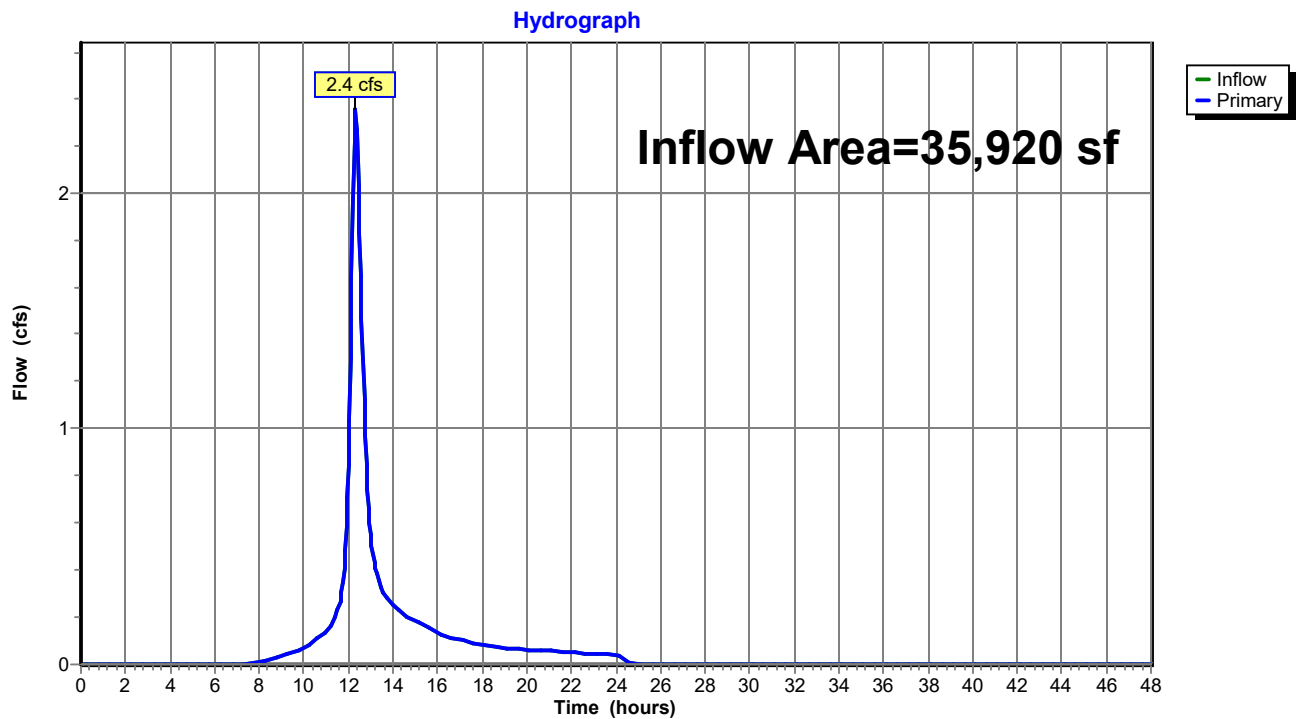


Summary for Link AP3:

Inflow Area = 35,920 sf, 0.67% Impervious, Inflow Depth = 3.86" for 25-Year event
 Inflow = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf
 Primary = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:



Appendix C

High Intensity Soil Survey
Web Soil Survey Map



MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6495

918 Pool Street
Biddeford, ME
Ginger Hill Design & Build

Soil Narrative Report

DATE: Soil Profiles observed on May 5, 2021

BASE MAP: Base plan provided by Walsh Engineering Associates scale 1 inch equals 60 feet and one foot contours.

GROUND CONTROL: Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or less.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points
Base Map – 2 foot contour intervals

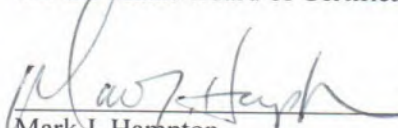
Provided:

Mapping units of 1 acre or less
Base map scale of 1"= 60 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by gps equipment with accuracy to less than 3 feet.
Ground topographic survey with one foot contours and ground control provided.

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.


Mark J. Hampton

C.S.S. #216, L.S.E. #263

July 17, 2017
Date





MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6495

918 Pool Street
Ginger Hill Design & Build
Biddeford, ME

LYMAN-TUNBRIDGE COMPLEX

SETTING

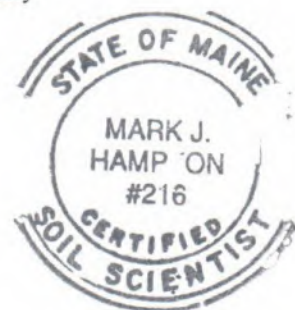
PARENT MATERIAL:	Loamy glacial till
LANDFORM:	Glaciated uplands
POSITION IN LANDSCAPE:	Uppermost locations, sideslopes, shoulders and crests
SLOPE GRADIENT RANGES:	(A) 0-3%, (B) 3-8%, (C) 8-15%, (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS:	Excessively well drained Lyman (10-20 inches to bedrock) and Tunbridge (20-40 inches to bedrock) These soils occur in a nonrepeating pattern with exposed bedrock outcrops and cannot be separated.	
TYPICAL PROFILE:	<u>Surface Layer:</u>	Reddish brown fine sandy loam, 0-4 inches
	<u>Subsurface Layer:</u>	Red brown fine sandy loam 4-12"
	<u>Subsoil Layer:</u>	Dark red fine sandy loam 12-18"
	<u>Substratum:</u>	Brown fine sandy loam 18-36"
HYDROLOGIC GROUP:	Group C/D	
PERMEABILITY:	Slow to rapid, depending on slope and bedrock outcrops.	
DEPTH TO BEDROCK:	Shallow (Lyman 10-20 inches) to moderately deep (Tunbridge 20-40 inches).	
HAZARD TO FLOODING:	None	

INCLUSIONS (Within Mapping Unit)

CONTRASTING:	Buxton, Lamoine, Scantic
--------------	--------------------------



USE AND MANAGEMENT

Development: The limiting factor for building site development is depth to bedrock which ranges from 0 to 40 inches within this complex. Tunbridge and Lyman (deeper than 11 inches) soils may be suitable for subsurface wastewater disposal.



MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6495

918 Pool Street
Ginger Hill Design & Build
Biddeford, ME

Colonel
(Aquic Haplorthods)

SETTING

PARENT MATERIAL: Derived from dense, loamy glacial till
LANDFORM: Drumlins and Sideslopes of glaciated uplands
POSITION IN LANDSCAPE: Mid-positions on landform
SLOPE GRADIENT RANGES: (A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 1.0 to 2.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

<u>Surface Layer:</u>	Dk gray brown, stony sandy loam 0-3"
<u>Subsurface Layer:</u>	Dark Brown, stony sandy loam, 3-12"
<u>Subsoil Layer:</u>	Olive Brown, stony sandy loam, 12-18"
<u>Substratum:</u>	Olive, stony, sandy loam, 18-65"

HYDROLOGIC GROUP: Group C
SURFACE RUNOFF: Moderate to moderately slow
PERMEABILITY: Moderate and moderately slow
DEPTH TO BEDROCK: Greater than 65 inches
HAZARD TO FLOODING: None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Scantic, Lyman-Tunbridge

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.





MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6495

918 Pool Street
Ginger Hill Design & Build
Biddeford, ME

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS:	Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.	
TYPICAL PROFILE:	<u>Surface Layer:</u>	Dark grayish brown, silt loam 0-9"
	<u>Subsurface Layer:</u>	Olive gray silt loam, 9-16"
	<u>Substratum:</u>	Gray silty clay loam, 16"+
HYDROLOGIC GROUP:	Group D	
SURFACE RUNOFF:	Moderate to moderately slow	
PERMEABILITY:	Slow to very slow	
DEPTH TO BEDROCK:	Greater than 65 inches	
HAZARD TO FLOODING:	None	

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Colonel, Lyman-Tunbridge

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.



SOIL PROFILE / CLASSIFICATION INFORMATION**DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES**Project Name:
Pool Street SubdivisionApplicant Name:
Ginger Hill Design and BuildProject Location (municipality):
BiddefordExploration Symbol # SS-1 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	3	D	2	14	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name:		☐ Hydric ☒ Non-hydric		
	Colonel SPD		Hydrologic Soil Group		

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Black	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	8	E	2	6	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name:		☒ Hydric ☐ Non-hydric		
	Scantic PD		Hydrologic Soil Group		

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	3	D	2	12	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name:		☐ Hydric ☒ Non-hydric		
	Colonel SPD		Hydrologic Soil Group		

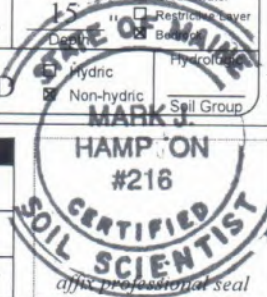
Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☐ Groundwater
	2	AIII	4	15	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name:		☐ Hydric ☒ Non-hydric		
	Lyman-Tunbridge WD		Hydrologic Soil Group		

INVESTIGATOR INFORMATION AND SIGNATURESignature Mark Hampton
Name Printed/typed Mark HamptonDate 4/8/21
Cert/Lic/Reg. # 263/216Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

SOIL PROFILE / CLASSIFICATION INFORMATION**DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES**Project Name:
Pool Street SubdivisionApplicant Name:
Ginger Hill Design and BuildProject Location (municipality):
BiddefordExploration Symbol # SS-5 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
0	Fine Sandy	Friable	Black
6	Loam		
12	Silty Clay	Firm	Gray
18	Loam		Common and
24			Distinct
30			
36			
42			
48			
54			
60			

Soil Details by S.E. 8 Soil Classification E Slope 2 Limiting Factor 6 ☐ Groundwater
 Profile Condition Percent Depth ☒ Restrictive Layer
 S.S. Soil series/phase name: Scantic PD ☐ Hydric ☐ Non-hydric Hydrologic
 Soil Group

Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24		Ledge	
30			
36			
42			
48			
54			
60			

Soil Details by S.E. 2 Soil Classification AIII Slope 4 Limiting Factor 16 ☐ Groundwater
 Profile Condition Percent Depth ☐ Restrictive Layer
 S.S. Soil series/phase name: Lyman-Tunbridge WD ☒ Hydric ☐ Non-hydric Hydrologic
 Soil Group

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24		Ledge	
30			
36			
42			
48			
54			
60			

Soil Details by S.E. 2 Soil Classification AII Slope 18 Limiting Factor 14 ☐ Groundwater
 Profile Condition Percent Depth ☒ Restrictive Layer
 S.S. Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic
 Soil Group

Exploration Symbol # SS-8 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal _____

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24		Ledge	
30			
36			
42			
48			
54			
60			

Soil Details by S.E. 2 Soil Classification AIII Slope 6 Limiting Factor 16 ☐ Groundwater
 Profile Condition Percent Depth ☒ Restrictive Layer
 S.S. Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric Hydrologic
 Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Date 4/8/21

Name Printed/typed

Mark Hampton

Cert/Lic/Reg. # 263/216

Title

☒ Licensed Site Evaluator☒ Certified Soil Scientist☐ Certified Geologist☐ Professional Engineer

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Location (municipality):
Biddeford

Exploration Symbol # SS-10 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6				
12	Sandy Loam	Friable	Red Brown	
18				
24		Ledge		
30				
36				
42				
48				
54				
60				

Soil Classification: 2 AIII
 Profile Condition

Slope: 8
 Percent

Limiting Factor: 15 "
 Depth

☐ Groundwater
☐ Restrictive Layer
☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☒ Hydric
☐ Non-hydric

Hydrologic
 Soil Group

Exploration Symbol # <u>SS-11</u>		☒ Test Pit ☐ Boring	
_____ " Organic horizon thickness		Ground surface elev. _____	
_____ " Depth of exploration or to refusal			
0	Texture	Consistency	Color
	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24		Ledge	
30			
36			
42			
48			
54			
60			

S.E. 2 AIII

Profile Condition

Slope 4

Percent

Limiting Factor 16 "

Depth

☐ Groundwater

☐ Restrictive Layer

☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric Hydrologic

☒ Non-hydric

Soil Group _____

Exploration Symbol # SS-12 ☒ Test Pit ☐ Boring
 _____ " Organic horizon thickness Ground surface elev. _____
 _____ " Depth of exploration or to refusal

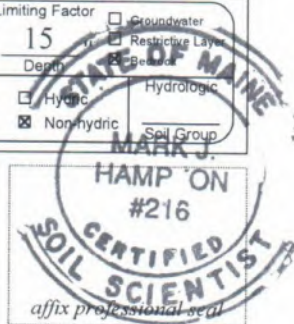
	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6				
12	Sandy Loam	Friable	Red Brown	
18				
24		Ledge		
30				
36				
42				
48				
54				
60				

Depth below mineral soil surface (inches)

S.E. 2 AIII Slope 3 Limiting Factor ☐ Groundwater
 Profile Condition Percent Depth Restrictive Layer & Below

S.S. Soil series/phase name: ☐ Hydric Hydrologic
 Lyman-Tunbridge WD ☒ Non-hydric Soil Group

Signature		Date	4/8/21
Name Printed/typed Mark Hampton		Cert/Lic/Reg. #	263/216
Title	☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer		



SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITESProject Name:
Pool Street SubdivisionApplicant Name:
Ginger Hill Design and BuildProject Location (municipality):
Biddeford

Exploration Symbol # SS-13 ☒ Test Pit ☐ Boring
 _____ " Organic horizon thickness Ground surface elev. _____
 _____ " Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Depth below mineral soil surface (inches)

S.E. Soil Classification: 2 AIII Slope: 4 Limiting Factor: 15
 Profile Condition Percent Depth
 S.S. Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-14 ☒ Test Pit ☐ Boring
 _____ " Organic horizon thickness Ground surface elev. _____
 _____ " Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Depth below mineral soil surface (inches)

S.E. Soil Classification: 2 AIII Slope: 6 Limiting Factor: 16
 Profile Condition Percent Depth
 S.S. Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-15 ☒ Test Pit ☐ Boring
 _____ " Organic horizon thickness Ground surface elev. _____
 _____ " Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Depth below mineral soil surface (inches)

S.E. Soil Classification: 2 AII Slope: 12 Limiting Factor: 12
 Profile Condition Percent Depth
 S.S. Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric Hydrologic Soil Group

Exploration Symbol # SS-16 ☒ Test Pit ☐ Boring
 _____ " Organic horizon thickness Ground surface elev. _____
 _____ " Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Depth below mineral soil surface (inches)

S.E. Soil Classification: 2 AIII Slope: 4 Limiting Factor: 15
 Profile Condition Percent Depth
 S.S. Soil series/phase name: Lyman-Tunbridge WD
☐ Hydric ☒ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Date 4/8/21

Name Printed/typed

Mark Hampton

Cert/Lic/Reg. # 263/216

Title

☒ Licensed Site Evaluator☒ Certified Soil Scientist☐ Certified Geologist☐ Professional Engineer

SOIL PROFILE / CLASSIFICATION INFORMATION**DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES**Project Name:
Pool Street SubdivisionApplicant Name:
Ginger Hill Design and BuildProject Location (municipality):
BiddefordExploration Symbol # SS-17 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0	Fine Sandy		
6	Loam	Friable	Black
12	Silty Clay	Firm	Gray
18	Loam		Common and Distinct
24			
30			
36			
42			
48			
54			
60			

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	8	E	2	6	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name: Scantic PD				
	☒ Hydric ☐ Non-hydric				
	Hydrologic Soil Group				

Exploration Symbol # SS-18 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24			
30			
36			
42			
48			
54			
60			

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	3	D	2	13	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name: Colonel SPD				
	☐ Hydric ☒ Non-hydric				
	Hydrologic Soil Group				

Exploration Symbol # SS-19 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24	Sandy Loam	Firm	Olive
30			Common and Distinct
36			
42			
48			
54			
60			

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	3	D	2	13	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name: Colonel SPD				
	☐ Hydric ☒ Non-hydric				
	Hydrologic Soil Group				

Exploration Symbol # SS-20 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown
6			
12	Sandy Loam	Friable	Red Brown
18			
24	Sandy Loam	Firm	Olive
30			Common and Distinct
36			
42			
48			
54			
60			

Soil Details by	S.E.	Soil Classification	Slope	Limiting Factor	☒ Groundwater
	3	D	2	12	☒ Restrictive Layer
	Profile	Condition	Percent	Depth	☐ Bedrock
S.S.	Soil series/phase name: Colonel SPD				
	☐ Hydric ☒ Non-hydric				
	Hydrologic Soil Group				

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

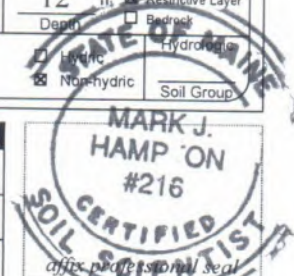
Date 4/8/21

Name Printed/typed

Mark Hampton

Cert/Lic/Reg. # 263/216

Title

☒ Licensed Site Evaluator☒ Certified Soil Scientist☐ Certified Geologist☐ Professional Engineer

SOIL PROFILE / CLASSIFICATION INFORMATION**DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES**Project Name:
Pool Street SubdivisionApplicant Name:
Ginger Hill Design and BuildProject Location (municipality):
BiddefordExploration Symbol # SS-21 ☒ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0	Fine Sandy		
6	Loam	Friable	Black
12	Silty Clay	Firm	Gray
18	Loam		Common and Distinct
24			
30			
36			
42			
48			
54			
60			

Soil Details by S.E. ☒ Groundwater
 Profile 8 Condition E Slope 2 Limiting Factor 6 ☒ Restrictive Layer
 S.S. Soil series/phase name: Scantic PD ☒ Hydric ☐ Non-hydric
☐ Bedrock ☐ Hydrologic
☐ Soil Group

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0			
6			
12			
18			
24			
30			
36			
42			
48			
54			
60			

Soil Details by S.E. ☐ Groundwater
 Profile _____ Condition _____ Slope _____ Limiting Factor _____ ☐ Restrictive Layer
 S.S. Soil series/phase name: _____ ☐ Hydric ☐ Non-hydric
☐ Bedrock ☐ Hydrologic
☐ Soil Group

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0			
6			
12			
18			
24			
30			
36			
42			
48			
54			
60			

Soil Details by S.E. ☐ Groundwater
 Profile _____ Condition _____ Slope _____ Limiting Factor _____ ☐ Restrictive Layer
 S.S. Soil series/phase name: _____ ☐ Hydric ☐ Non-hydric
☐ Bedrock ☐ Hydrologic
☐ Soil Group

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

" Organic horizon thickness Ground surface elev. _____

" Depth of exploration or to refusal

Texture	Consistency	Color	Mottling
0			
6			
12			
18			
24			
30			
36			
42			
48			
54			
60			

Soil Details by S.E. ☐ Groundwater
 Profile _____ Condition _____ Slope _____ Limiting Factor _____ ☐ Restrictive Layer
 S.S. Soil series/phase name: _____ ☐ Hydric ☐ Non-hydric
☐ Bedrock ☐ Hydrologic
☐ Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

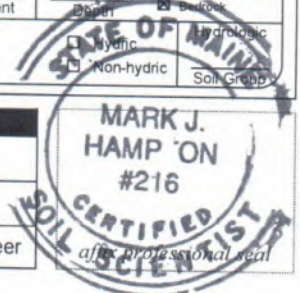
Date 4/8/21

Name Printed/typed

Mark Hampton

Cert/Lic/Reg. # 263/216

Title

☒ Licensed Site Evaluator☒ Certified Soil Scientist☐ Certified Geologist☐ Professional Engineer

Legend for Soil Maps

1. Drainage Class

Excessively Well Drained	EWD
Well Drained	WD
Moderately Well Drained	MWD
Somewhat Poorly Drained	SPD
Poorly Drained	PD
Very Poorly Drained	VPD

2. Slope Designation

0-3%	A
3-8%	B
8-15%	C
15-25%	D
>25%	E

3. Note: High Intensity Soil Survey has been prepared by Mark Hampton Associates, Inc. in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

- SOIL SURVEY GENERAL NOTES
1. SOILS AND WETLANDS MAPPING BY MARK HAMPTON ASSOCIATES, P.O. BOX 1931, PORTLAND, MAINE.
 2. FOR ACCOMPANYING SOIL SURVEY REPORT SEE "SOIL NARRATIVE REPORT" SIGNED AND SEALED MAY 5, 2021.
 3. THE SOILS SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
 4. THE SURVEY IS CLASS B-HIGH INTENSITY SOIL SURVEY.

SOIL LEGEND

DRAINAGE CLASS	
EXCESSIVELY WELL DRAINED	EWD
WELL DRAINED	WD
MODERATELY WELL DRAINED	MWD
SOMEWHAT POORLY DRAINED	SPD
POORLY DRAINED	PD
VERY POORLY DRAINED	VPD

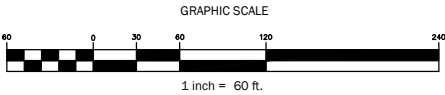
SLOPE DESIGNATION

0-3%	A
3-8%	B
8-15%	C
15-25%	D
> 25%	E

NOTE: HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.



MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104



DATE: AUGUST 20, 2021

GINGER HILL, LLC
18 EARLY WAY, ARUNDEL, MAINE, 04046

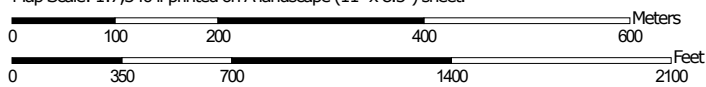
HIGH INTENSITY SOIL SURVEY
918 POOL ST, BIDDEFORD, MAINE, 04005, MAP 4, LOT 57

Hydrologic Soil Group—York County, Maine



Soil Map may not be valid at this scale.

Map Scale: 1:7,340 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/17/2021
Page 1 of 4

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

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 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	19.4	19.4%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	3.1	3.1%
LnD	Lyman loam, 15 to 25 percent slopes, rocky	D	0.0	0.0%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	24.5	24.5%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	33.8	33.8%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	19.2	19.2%
Totals for Area of Interest			100.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix D

Inspection and Maintenance Plan

INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES PLAN

**WINDWARD RIDGE
Pool Street
Biddeford, Maine 04005**

Stormwater Management Facilities include swales, paved areas, gravel areas, culverts, riprapped aprons, and level spreaders. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion, protect roadways and other gravel areas, and remove pollutants from stormwater runoff. Ginger Hill Design + Build will be responsible for the inspection and maintenance of the stormwater facilities associated with this project until all units are sold. At that time, inspection and maintenance will be transferred to the Homeowners Association.

SIGNIFICANT RAINFALL:

For the purposes of this Inspection and Maintenance Plan, a significant rainfall event shall be defined as a storm of 0.5 inches or more in a 24-hour period, heavy, intense rainfall, such as thunder showers or during periods of significant snowmelt.

SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS:

Swales, ditches, paved areas, and gravel 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. 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 and gravel areas should be visually inspected monthly during the winter. The inspector should pay particular attention for evidence of erosion. 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 repairs to eroded areas.

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.

CULVERT PIPES:

Inspect culvert 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.

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.

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.

WINDWARD RIDGE BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS			
I: INSPECTED - C: CLEANED - S: SWEEPED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
5/10/19	RST	I, C	EXAMPLE: Removed sand around CB's 19 and 20. Heavy rain over the weekend.

WINDWARD RIDGE BIDDEFORD, MAINE

INSPECTION / MAINTENANCE LOG

CULVERT PIPES	
---------------	--

I: INSPECTED - C: CLEANED - R: REPAIRED									
---	--	--	--	--	--	--	--	--	--

[illegible]

**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
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 & Gravel Surfaces	Review for damage and buildup of debris and sand.	X	X Sweep		
Culverts	Inspect for sediment build-up in pipe. Flush and remove as required.			X	
Riprap	Inspect for erosion, sediment and vegetation. Clean and rebuild as required.			X	

Appendix E

Drainage Plans

D1.0 – Pre-Development Drainage Plan

D2.0 – Post Development Drainage Plan
(See Complete Plan Set)

ATTACHMENT 4
SITE PLAN

Windward Ridge

Pool Street

Biddeford, Maine 04005

prepared for:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046
January 12, 2021

Design Consultants:

CIVIL ENGINEER
WALSH ENGINEERING ASSOCIATES, INC.
ONE KAREN DRIVE, SUITE 2A
WESTBROOK, MAINE 04092
207-553-9898

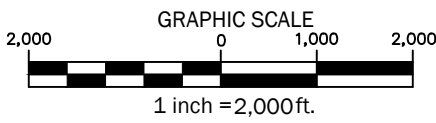
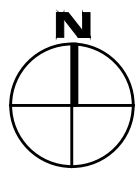
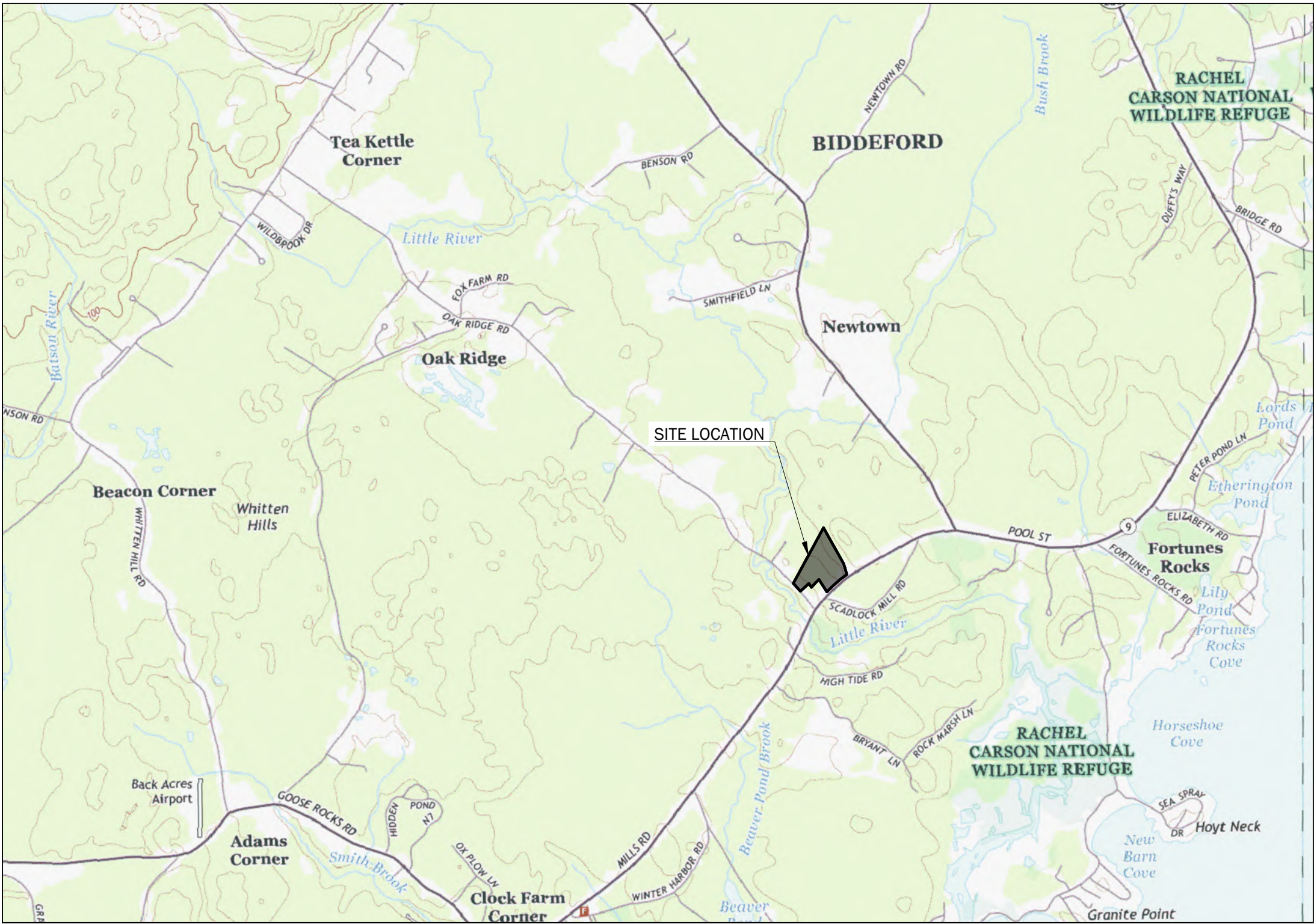
BOUNDARY SURVEYOR
TITCOMB ASSOCIATES, INC.
133 GRAY ROAD
FALMOUTH, MAINE 04105
207-797-9199

WETLAND & SOIL SCIENTIST
MARK HAMPTON ASSOCIATES, INC.
PO BOX 1931
PORTLAND, MAINE 04104
207-756-2900

WILDLIFE BIOLOGIST
JONES ASSOCIATES, INC
280 POLAND SPRING ROAD
AUBURN, MAINE 04210
207-241-0235



One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com



List of Drawings:

<u>SHEET NO.</u>	<u>SHEET TITLE</u>
S1.0	COVER SHEET SUBDIVISION PLAN PLAN OF BOUNDARY SURVEY 158 OAK RIDGE ROAD, BIDDEFORD, MAINE
C1.0	EXISTING CONDITIONS & REMOVALS PLAN
C1.1	CONVENTIONAL LAYOUT PLAN
C1.2	CLUSTER LAYOUT PLAN
C2.0	SITE LAYOUT & UTILITIES PLAN
C2.1	GRADING & EROSION CONTROL PLAN
C2.2	WINDWARD RIDGE PLAN & PROFILE
C3.0	SITE DETAILS
C3.1	SITE DETAILS
D1.0	PRE-DEVELOPMENT DRAINAGE PLAN
D2.0	POST DEVELOPMENT DRAINAGE PLAN

Record Owner:

GINGER HILL, LLC
18 EARLY WAY
ARUNDEL, MAINE 04046

Parcel ID:

MAP 4
LOT 48

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS ON THE PLANNING BOARD EVIDENCING APPROVAL OF THE FINAL PLANS.

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
	CONCRETE MONUMENT FOUND	
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

1. OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD BY DEED RECORDED AT THE (YCRD) DEED BOOK 18664, PAGE 128, DATED MAY 13, 2021.
2. STREET ADDRESS: 918 POOL STREET, BIDDEFORD, MAINE 04005
3. PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 48.
4. TOTAL AREA OF PARCEL: 11.8± AC (515,383 SF)
5. CURRENT ZONE: COASTAL RESIDENTIAL (CR) & RURAL FARM (RF)

1. TOPOGRAPHIC AND PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:
 - 1.1. A PLAN TITLED "PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE", MADE FOR GINGER HILL DESIGN & BUILD BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED JULY 13, 2021 AND REVISED THROUGH AUGUST 3, 2021.
 - 1.2. DIGITAL ELEVATION INFORMATION OBTAINED FROM MAINE OFFICE OF GIS GEOLIBRARY DIGITAL ELEVATION APPLICATION FEBRUARY 22, 2021.
 - 1.3. ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.
2. WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON MARCH 5, 2021.

1. BOOK AND PAGE REFERENCES ARE TO THE YORK COUNTY REGISTRY OF DEEDS, UNLESS OTHERWISE NOTED.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83.
3. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
4. THE PROPERTY IS BENEFITED BY AND SUBJECT TO THE EASEMENT, COVENANTS, AND RESTRICTIONS SET FORTH IN THE MASTER DECLARATION.
5. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

1. CLASSIFICATION: ZONE C, AREAS OF MINIMAL FLOODING
2. FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
3. EFFECTIVE DATE: MAY 15, 1984

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO
SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS ON THE PLANNING BOARD EVIDENCING APPROVAL OF THE FINAL PLANS.

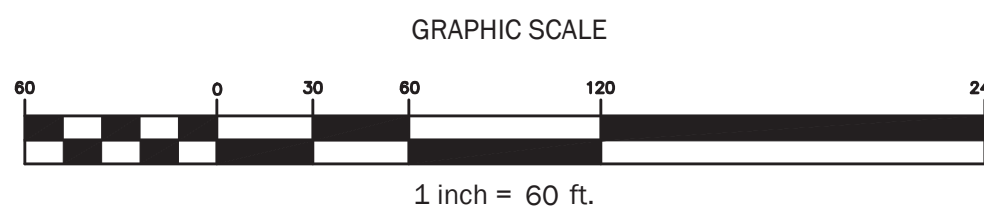
1. CLASSIFICATION: RURAL FARM (RF) & COASTAL RESIDENTIAL (CR)
2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT (RF) 10 FT (CR)
8. REAR SETBACK: 25 FT (RF) 10 FT (CR)
9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT
10. 75' VEGETATED BUFFER FROM EXISTING ROW

Line Segment Table		
Line Segment	Bearing	Distance
L8	N60°47'04"E	40.00'
L9	N29°12'56"W	40.00'
L10	N60°47'04"E	50.00'
L11	N29°12'56"W	60.00'
L12	S12°22'03"E	25.09'
L13	S44°12'56"E	70.00'

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.


Nicholas S. Elliston, P.L.S. #2518

Curve Segment Table				
Curve Segment	Curve Radius	Curve Length	Chord Bearing	Chord Length
C1	275.00'	152.86'	N28°17'30"W	150.90'
C2	225.00'	13.35'	N14°04'04"W	13.35'
C3	10.00'	18.06'	N67°29'30"W	15.70'
C4	10.00'	15.71'	N15°47'04"E	14.14'
C5	275.00'	80.87'	S20°47'30"E	80.57'
C6	225.00'	11.11'	S13°46'56"E	11.11'
C7	225.00'	113.96'	S29°42'23"E	112.74'



ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

Rev.	Date	Description	Drawn	Check
	4/15/2021	Birdeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Birdeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/10/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Subdivision Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 60'
Drawn:	CAR
Checked:	WRW

S1.0

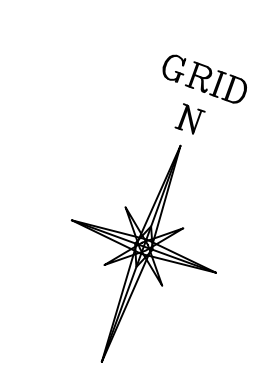
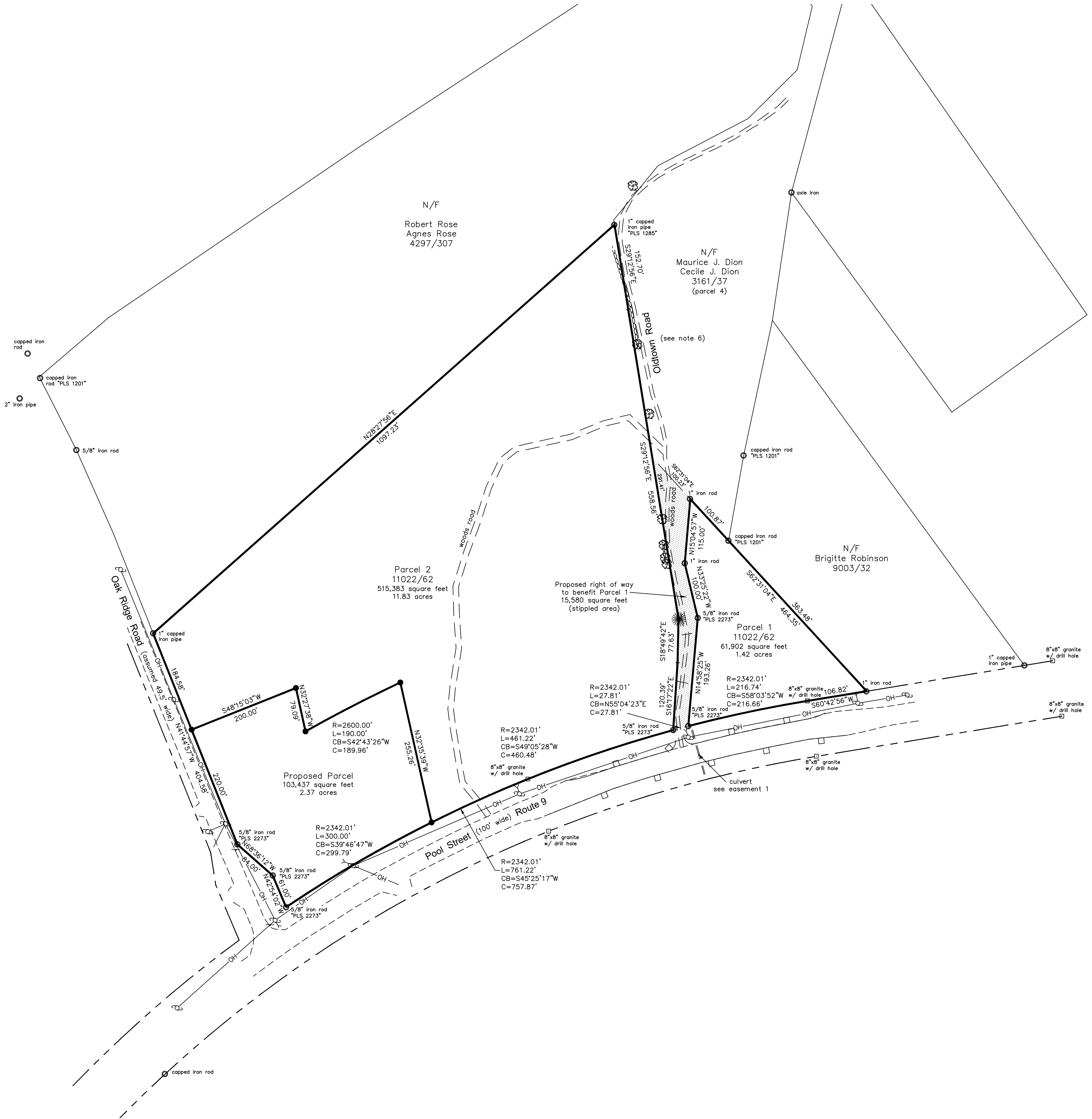
WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

Windward Ridge
918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 4B

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046



LEGEND	
	Monument - found
	Iron marker - found
	Iron marker - set (#5 rebar)
	Property line (locus)
	Property line (abutter)
	Right of way line
	Guard rail
	Sign
	Utility pole
	Guy wire
	Overhead utility line
	Now or formerly of
	Dead reference (Book/Page)
	1234/567
	Stone wall
	Deciduous tree w/embedded wire fence
	Coniferous tree w/embedded wire fence

- NOTES**
- 1) Book and Page references are to the York County Registry of Deeds, unless otherwise noted.
 - 2) Bearings are referenced to grid north, Maine State Plane Coordinate System, West Zone, NAD83.
 - 3) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.
 - 4) Property lies within Zone C based on FIRM Community #230145 Panel #0010 B, effective date May 15, 1984. It does not lie within a special flood hazard area.
 - 5) Project area was covered by snow and ice at the time of the survey and some features may have been obscured and not shown on this plan.
 - 6) This portion of Oldtown Road was formerly known as Old Newtown Road. It was renamed by order of the City of Biddeford Municipal Officers on November 20, 1979. "Newtown Road" was discontinued by the City of Biddeford Municipal Officers on January 2, 1990 and described as "all of Newtown Road lying between Hills Beach Road on the northeast, and Pool Street on the southwest". The roadway has not been maintained and is presumed to be included in the "Newtown Road" discontinuance. The City of Biddeford retained a public easement over the discontinued road.

- PLAN REFERENCES**
- 1) Plan Showing a Standard Boundary Survey made for Christopher Robinson by Dow and Coulombe, Inc. dated September 22, 1989 as recorded in Plan Book 186, Page 10.
 - 2) Worksheet Sketch made for Hank Labrie by John Bruckler dated January 31, 1997.
 - 3) Revision to Alphonse & Bernadette M. Dion Subdivision Boundary Survey and Re-Subdivision of Land of Peter S. and Shirley W. Bowen and David R. and Frances V. Consalvo made by Civil Consultants dated June 13, 2003 as recorded in Plan Book 284, Page 1.
 - 4) Maine State Highway Commission Right of Way S.H.C. File No. 16-137 Sheet 5 of 5 dated December, 1961 as recorded in Plan Book 39, Page 7.
 - 5) Standard Boundary Survey made for the Saco Valley Land Trust, Inc. made by Guy Casavant PLS #1301 dated October 16, 2002 as recorded in Plan Book 290, Page 28.
 - 6) Standard Boundary Survey made for Albert A. & Isabella Chretien by BH2M dated April, 2006 and revised through April 6, 2010 as recorded in Book 343, Page 13.
 - 5) Maine State Highway Commission Right of Way S.H.C. File No. 16-122 Sheet 1 of 2 dated June, 1958 as recorded in Plan Book 29, Page 11.
 - 6) Boundary Survey made for Henry George Labrie III by Titcomb Associates dated February 24, 2021.

EASEMENTS / ENCUMBRANCES

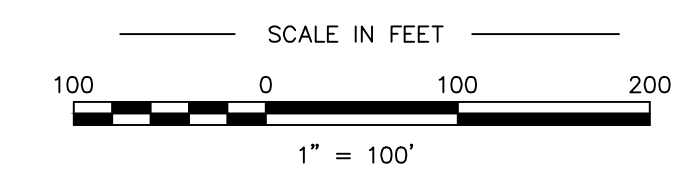
1) Drainage rights described in a Notice of Taking by the State of Maine recorded in Book 1481, Page 11

AREA

as noted

OWNERS OF RECORD

Ginger Hill Design & Build
18 Early Way, Arundel, Maine
Book 18664, Page 128



CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Rex J. Croteau, P.L.S. #2273



Rev. 1	08/03/21	proposed easement	RJC
PLAN OF			
Boundary Survey			
930 Pool Street		Biddeford, Maine	
MADE FOR			
Ginger Hill Design & Build			
468 Limerick Road		Arundel, Maine	
JOB #221021	DATE: July 13, 2021	SCALE: 1" = 100'	
BOOK #933	 133 Gray Road, Falmouth, Maine 04105 (207)797-9199 www.titcombsurvey.com		
221021.dwg			

11/20/2021 11:54:11 AM 11/20/2021 11:54:11 AM 11/20/2021 11:54:11 AM

LEGEND		
EXISTING		PROPOSED
---	PROPERTY LINE	---
---	ABUTTERS PROPERTY LINE	---
---	EASEMENT	---
---	PROPERTY SETBACK	---
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
IRF or IPF	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
IRF or IPF	CONCRETE MONUMENT FOUND	
IRF or IPF	GRANITE MONUMENT FOUND	
IRF or IPF	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
---	STORM DRAIN CULVERT	---
---	RIP RAP IN/OUT PROTECTION APRON	---
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
---	UTILITY POLE	---
---	BUILDING	---
---	RIPRAP	---
---	LANDSCAPE/RETAINING WALL	---
---	BITUMINOUS PAVEMENT	---
---	GRAVEL	---
---	CONCRETE	---
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
---	TREELINE	---
---	TREE	---

PARCEL INFORMATION:

- OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD
- STREET ADDRESS: 918 POOL STREET, BIDDEFORD, MAINE 04005
- PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 48.
- TOTAL AREA OF PARCEL: 11.8± AC (515,383 SF)
- CURRENT ZONE: COASTAL RESIDENTIAL (CR) & RURAL FARM (RF)

PLAN REFERENCES:

- TOPOGRAPHIC AND APPROXIMATE PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:
 - A PLAN TITLED "PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE", PREPARED BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED FEBRUARY 24, 2021.
 - DIGITAL ELEVATION INFORMATION OBTAINED FROM MAINE OFFICE OF GIS GEOLIBRARY DIGITAL ELEVATION APPLICATION FEBRUARY 22, 2021.
 - PROPERTY BOUNDARY INFORMATION OBTAINED FROM MAINE OFFICE OF GIS IN FEBRUARY 22, 2021.
 - ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.
- WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON MARCH 5, 2021.
- SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY AND SOIL NARRATIVE REPORT PROVIDED BY MARK HAMPTON DATED MAY 5, 2021.
- SOIL TEST PIT INFORMATION FOR SEPTIC SYSTEMS FROM HHE-200 DOCUMENTS PROVIDED BY MARK HAMPTON DATED AUGUST 26, 2021.

FLOOD ZONE INFORMATION:

- CLASSIFICATION: ZONE C
- FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
- EFFECTIVE DATE: MAY 15, 1984

ZONING INFORMATION*:

- CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
- MIN. LOT AREA: CR: 80,000 SF (NO WATER/SEWER, CONVENTIONAL)
CR: 30,000 SF (NO WATER/SEWER, CLUSTER)
RF: 40,000 SF (NO WATER/SEWER, CONVENTIONAL)
RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
- MAX. LOT COVERAGE: 30%
- MAX. BUILDING HEIGHT: 35 FT
- MIN. STREET FRONTAGE: CR: 150 FT
RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
- FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
- SIDE SETBACK: 25 FT
- REAR SETBACK: 25 FT
- 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.



WALSH

ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westport, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

STATE OF MAINE

WILLIAM R. WALSH, III

PROFESSIONAL ENGINEER

1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
2	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	11/20/2021	Revised per City Review Comments	CAR	NGC
4	11/20/2021	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:
Existing Conditions
& Removals Plan

Job No.: 742
Date: June 15, 2021
Scale: 1" = 60'
Drawn: CAR
Checked: WRW

Sheet No.:
C1.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

327

LEGEND

EXISTING

ROAD

N/F

"OWNERS NAME" TAX

MAP TAX LOT DEED BOOK

AND PAGE

PROPERTY LINE

RIGHT-OF-WAY LINE

ABUTTERS PROPERTY LINE

PROPERTY SETBACK

TOWN LINE

ABUTTER IDENTIFICATION

WETLANDS

NET LOT AREA DEDUCT AREAS

SOMEWHAT POORLY

DRAINED SOILS

WETLANDS

STEEP SLOPES (>33%)

- PLAN NOTES:
1.

SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.
- ZONING INFORMATION*:
1.

CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2.

MIN. LOT AREA: CR: 80,000 SF (NO WATER/SEWER, CONVENTIONAL)

RF: 40,000 SF (NO WATER/SEWER, CONVENTIONAL)
3.

MAX. LOT COVERAGE: 30%
4.

MAX. BUILDING HEIGHT: 35 FT
5.

MIN. STREET FRONTAGE: CR: 150 FT

RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
6.

FRONT SETBACK: 40 FT FROM MAJOR ROW

25 FT FROM OTHER ROW
7.

SIDE SETBACK: 25 FT
8.

REAR SETBACK: 25 FT
9.

75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT
- *ZONING STANDARDS FROM TOWN OF BIDDEFORD

CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Net Residential Density Calculation (CR Zone)	
	Area (sf)
Gross Lot Area	128,000
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	85,370
Minimum Conventional Lot Area (CR Zone)	80,000
Total Allowable Lots	1

Net Residential Density Calculation (RF Zone)	
	Area (sf)
Gross Lot Area	381,091
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	65,925
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,933
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	93,774
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	219,460
Minimum Conventional Lot Area (RF Zone)	40,000
Total Allowable Lots	5

Net Residential Density Calculation (Lot 1)	
	Area (sf)
Gross Lot Area	122,844
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	80,214
Minimum Conventional Lot Area (CR Zone)	80,000

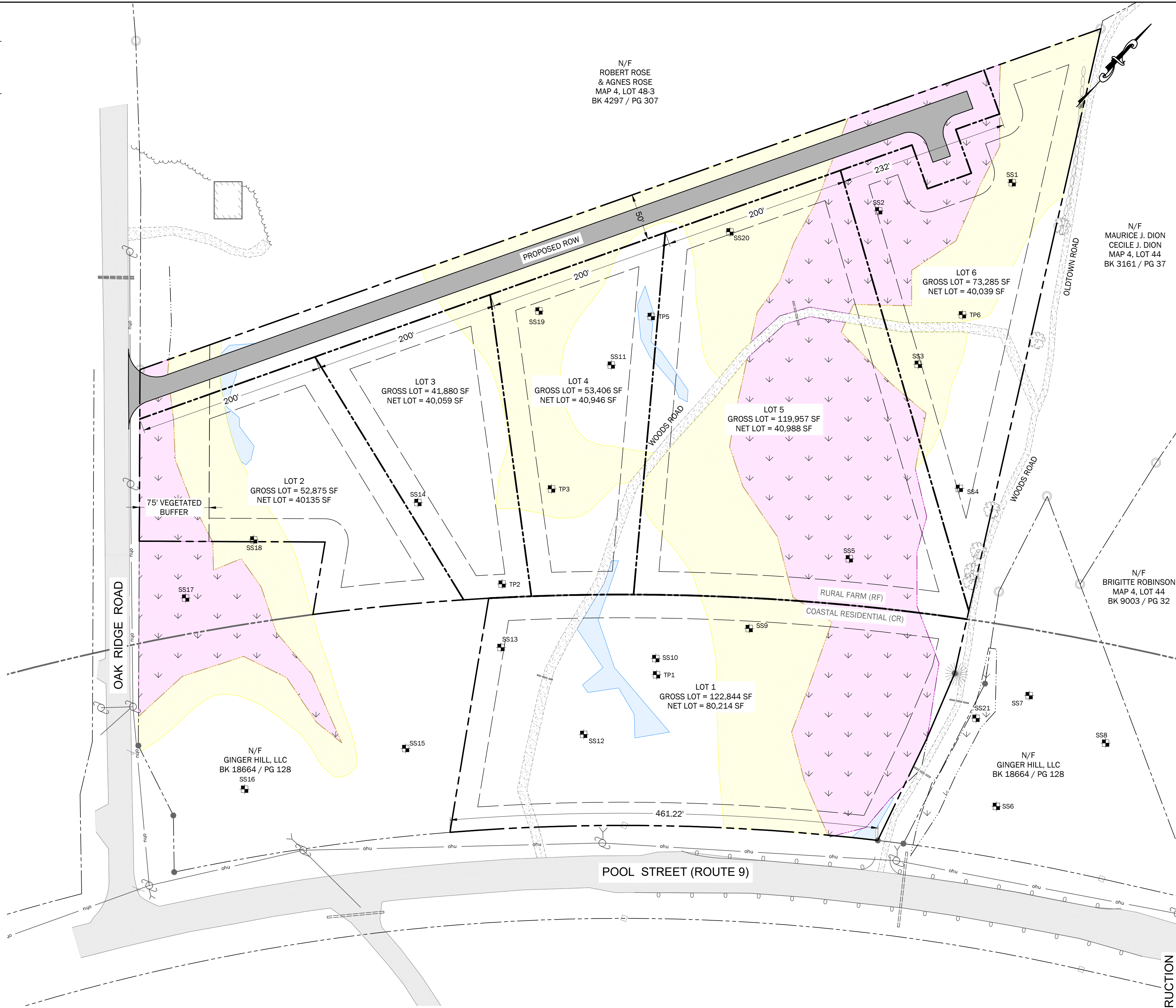
Net Residential Density Calculation (Lot 2)	
	Area (sf)
Gross Lot Area	52,875
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	5,397
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	483
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	6,861
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,135
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	41,880
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	1,822
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,059
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 4)	
	Area (sf)
Gross Lot Area	53,406
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	11,890
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	570
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,946
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 5)	
	Area (sf)
Gross Lot Area	119,957
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	19,103
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	325
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	59,542
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,988
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	73,285
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	16,563
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	16,683
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,039
Minimum Conventional Lot Area (RF Zone)	40,000



WALSH

ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092

ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

STATE OF MAINE

WILLIAM R. WALSH, III

No. 8204

LICENSED PROFESSIONAL ENGINEER

1/12/2022

Windward Ridge

918 Pool Street

Biddeford, Maine 04005

Map 4, Lot 48

PREPARED FOR:

Ginger Hill, LLC

18 Early Way

Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Conventional Layout Plan

Job No.: 742

Date: June 15, 2021

Scale: 1" = 60'

Drawn: CAR

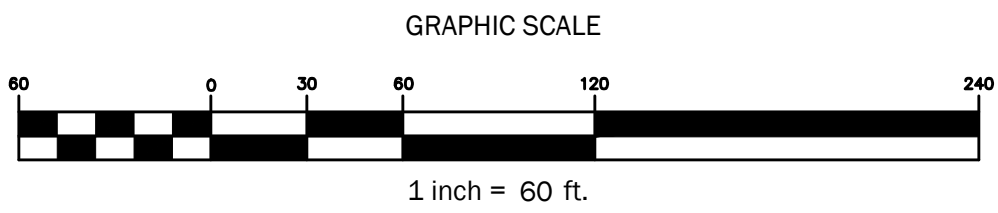
Checked: WRW

Sheet No.:

C1.1

1/2022 11:15:11 AM 11/15/2021 11:15:11 AM 11/15/2021 11:15:11 AM

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION



EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
	CONCRETE MONUMENT FOUND	
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
u	UTILITY POLE	U
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	
	SILT FENCE	SF
	EROSION CONTROL BERM	ECB
	TURF REINFORCEMENT MATTING	
	CONSTRUCTION ENTRANCE	

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

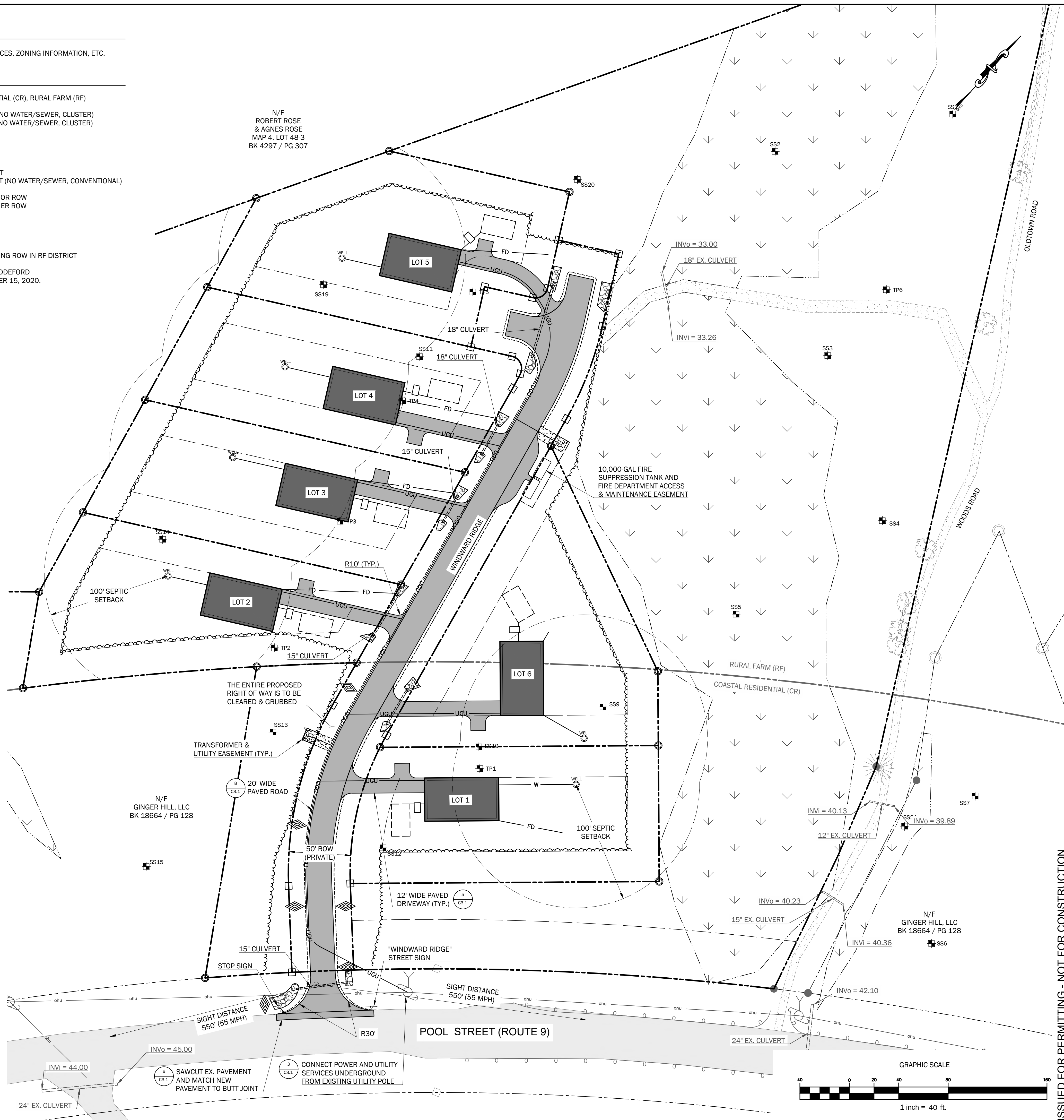
1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 40,000 SF (NO WATER/SEWER, CLUSTER)
RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

1. ALL DIMENSIONS, LOCATIONS AND CONTROLS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
2. DO NOT SCALE THE DRAWINGS FOR REQUIRED DIMENSIONS. ANY DISCREPANCIES IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
3. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE SHOWN.
4. ALL EDGES OF PAVING SHALL BE STAKED OUT BY THE CONTRACTOR AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING.
6. ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE LOAMED AND SEEDDED.
7. CENTERLINES OF DRIVEWAY AND WALKWAY, PROPOSED PARKING LOTS AND PROPOSED UTILITY LINES SHALL BE LOCATED AND LAID OUT BY PROFESSIONALLY LICENSED SURVEYOR.
8. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

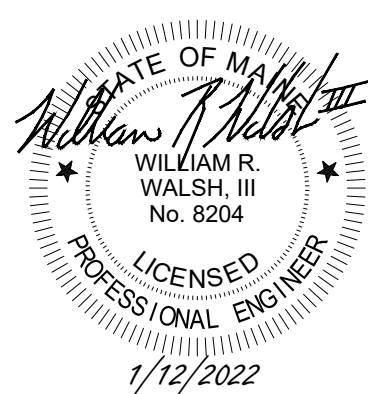
1. REFER TO SHEET C1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. DRAINAGE AT TERMINUS OF CURBING SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND PROJECT ENGINEER WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR PROJECT ENGINEER TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE CITY OF BIDDEFORD'S TECHNICAL GUIDELINES AND STANDARDS.

1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS.
2. THE CONTRACTOR SHALL COMPLY WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS MANUAL AS PUBLISHED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BUREAU OF LAND AND WATER QUALITY, MARCH 2003 OR LATEST EDITION.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. ALL DISTURBED AREAS ON SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED, OR BY OTHER METHODS AS REQUIRED BY THE WRITTEN EROSION CONTROL PLAN.
4. DISTURBED AREAS SHALL BE LIMITED TO ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION. FOR DISTURBED AREAS THAT ARE NOT UNDER ACTIVE CONSTRUCTION AND THAT CAN NOT YET UNDERGO FINAL GRADING, INSTALL TEMPORARY SEEDING AND MULCHING (REFER TO WRITTEN EROSION CONTROL PLAN).
5. PERMANENT SEEDING OR STABILIZATION SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED, OR TEMPORARY MEASURES SHALL BE APPLIED SUCH AS MULCHING OR SEEDING UNTIL PERMANENT STABILIZATION MEASURES ARE IN PLACE.
6. TOPSOIL SHALL BE STOCKPILED IN AREAS AWAY FROM PROTECTED NATURAL RESOURCES AND IN AREAS WHICH HAVE A MINIMAL POTENTIAL FOR EROSION; REFER TO OWNER FOR LOCATION OF MATERIAL STOCKPILE.
7. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND REPAIRED IN ACCORDANCE WITH THE WRITTEN EROSION CONTROL PLAN FOR THE DURATION OF THE PROJECT UNTIL ALL AREAS ARE STABILIZED. REMOVE ACCUMULATED SILT AND SEDIMENT AS NEEDED AND MAINTAIN SILT FENCE IN GOOD, OPERABLE CONDITION.



One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



918 Pool Street
Beverly, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Checked
	6/15/2021	Bideford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Bideford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title

Site Layout & Utilities Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 40'
Drawn:	CAR
Checked:	WRW

C2.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
	CONCRETE MONUMENT FOUND	
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	w
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	
	SILT FENCE	SF
	EROSION CONTROL BERM	ECB
	TURF REINFORCEMENT MATTING	
	CONSTRUCTION ENTRANCE	

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 40,000 SF (NO WATER/SEWER, CLUSTER)
RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)

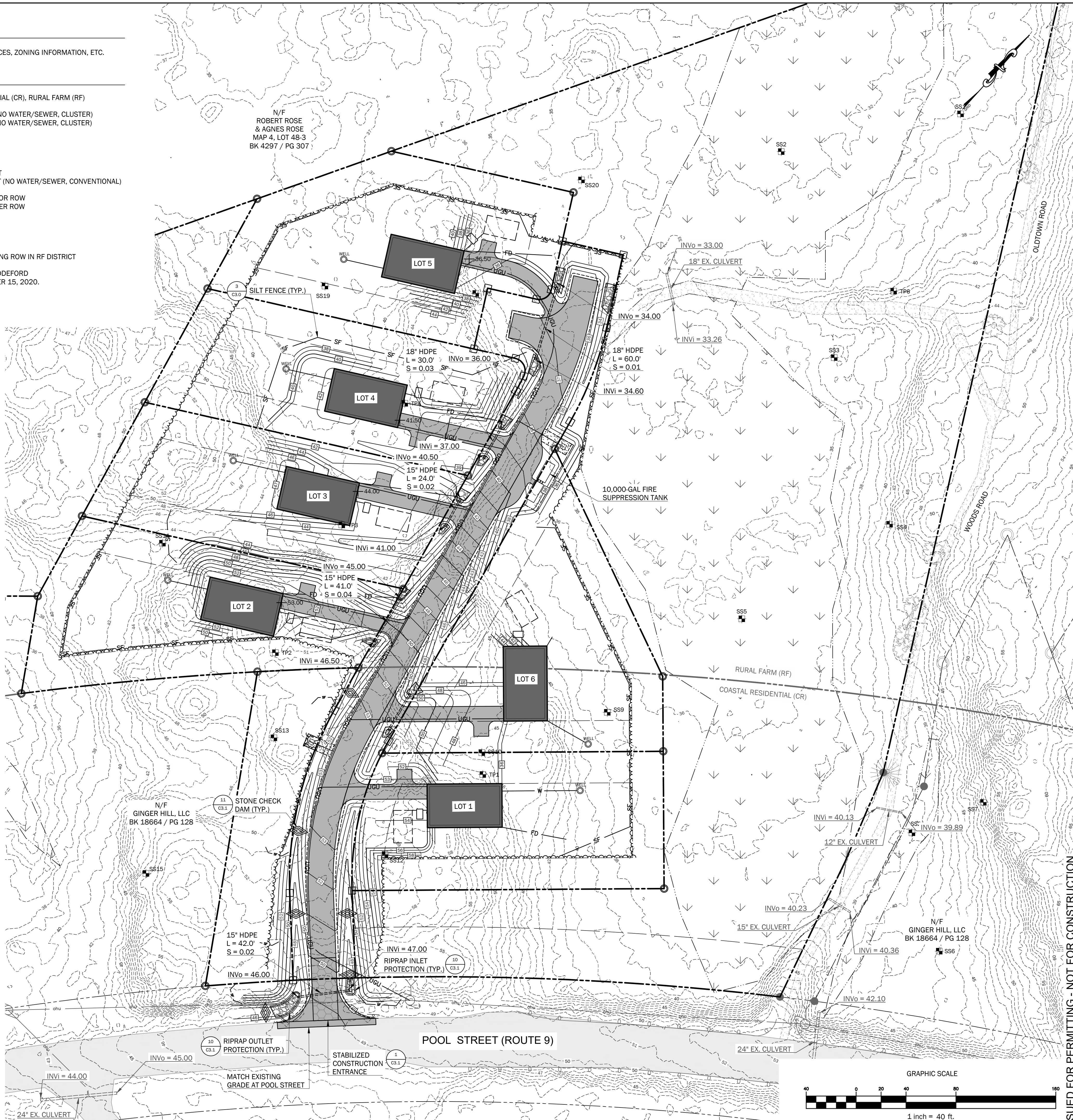
1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 40,000 SF (NO WATER/SEWER, CLUSTER)
20,000 SF (NO WATER/SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
RF: 200 FT (NO WATER/SEWER, CONVE)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020

1. ALL DIMENSIONS, LOCATIONS AND CONTROLS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
2. DO NOT SCALE THE DRAWINGS FOR REQUIRED DIMENSIONS. ANY DISCREPANCIES IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
3. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE SHOWN.
4. ALL EDGES OF PAVING SHALL BE STAKED OUT BY THE CONTRACTOR AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING.
6. ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE LOAMED AND SEEDDED.
7. CENTERLINES OF DRIVEWAY AND WALKWAY, PROPOSED PARKING LOTS AND PROPOSED UTILITY LINES SHALL BE LOCATED AND LAID OUT BY PROFESSIONALLY LICENSED SURVEYOR.
8. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

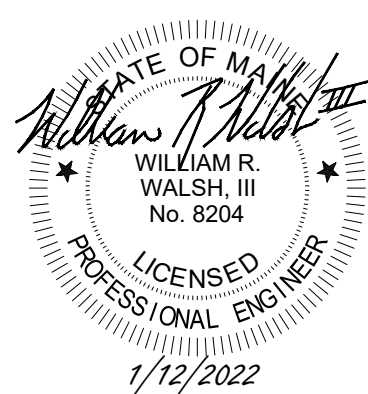
1. REFER TO SHEET C1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. DRAINAGE AT TERMINUS OF CURBING SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND PROJECT ENGINEER WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR PROJECT ENGINEER TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE CITY OF BIDDEFORD'S TECHNICAL GUIDELINES AND STANDARDS.

1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS.
2. THE CONTRACTOR SHALL COMPLY WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS MANUAL AS PUBLISHED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BUREAU OF LAND AND WATER QUALITY, MARCH 2003 OR LATEST EDITION.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. ALL DISTURBED AREAS ON SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED, OR BY OTHER METHODS AS REQUIRED BY THE WRITTEN EROSION CONTROL PLAN.
4. DISTURBED AREAS SHALL BE LIMITED TO ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION. FOR DISTURBED AREAS THAT ARE NOT UNDER ACTIVE CONSTRUCTION AND THAT CAN NOT YET UNDERGO FINAL GRADING, INSTALL TEMPORARY SEEDING AND MULCHING (REFER TO WRITTEN EROSION CONTROL PLAN).
5. PERMANENT SEEDING OR STABILIZATION SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED, OR TEMPORARY MEASURES SHALL BE APPLIED SUCH AS MULCHING OR SEEDING UNTIL PERMANENT STABILIZATION MEASURES ARE IN PLACE.
6. TOPSOIL SHALL BE STOCKPILED IN AREAS AWAY FROM PROTECTED NATURAL RESOURCES AND IN AREAS WHICH HAVE A MINIMAL POTENTIAL FOR EROSION; REFER TO OWNER FOR LOCATION OF MATERIAL STOCKPILE.
7. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND REPAIRED IN ACCORDANCE WITH THE WRITTEN EROSION CONTROL PLAN FOR THE DURATION OF THE PROJECT UNTIL ALL AREAS ARE STABILIZED. REMOVE ACCUMULATED SILT AND SEDIMENT AS NEEDED AND MAINTAIN SILT FENCE IN GOOD, OPERABLE CONDITION.



One Karen Dr., Suite 2A | Westbrook, Maine 04092
 ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Checked
	6/15/2021	Bideford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Bideford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title

Grading & Erosion Control Plan

Job No.:	742
----------	-----

Date: June 15, 2021

Scale: 1" = 40'

Drawn:	CAR
--------	-----

Sheet No. _____

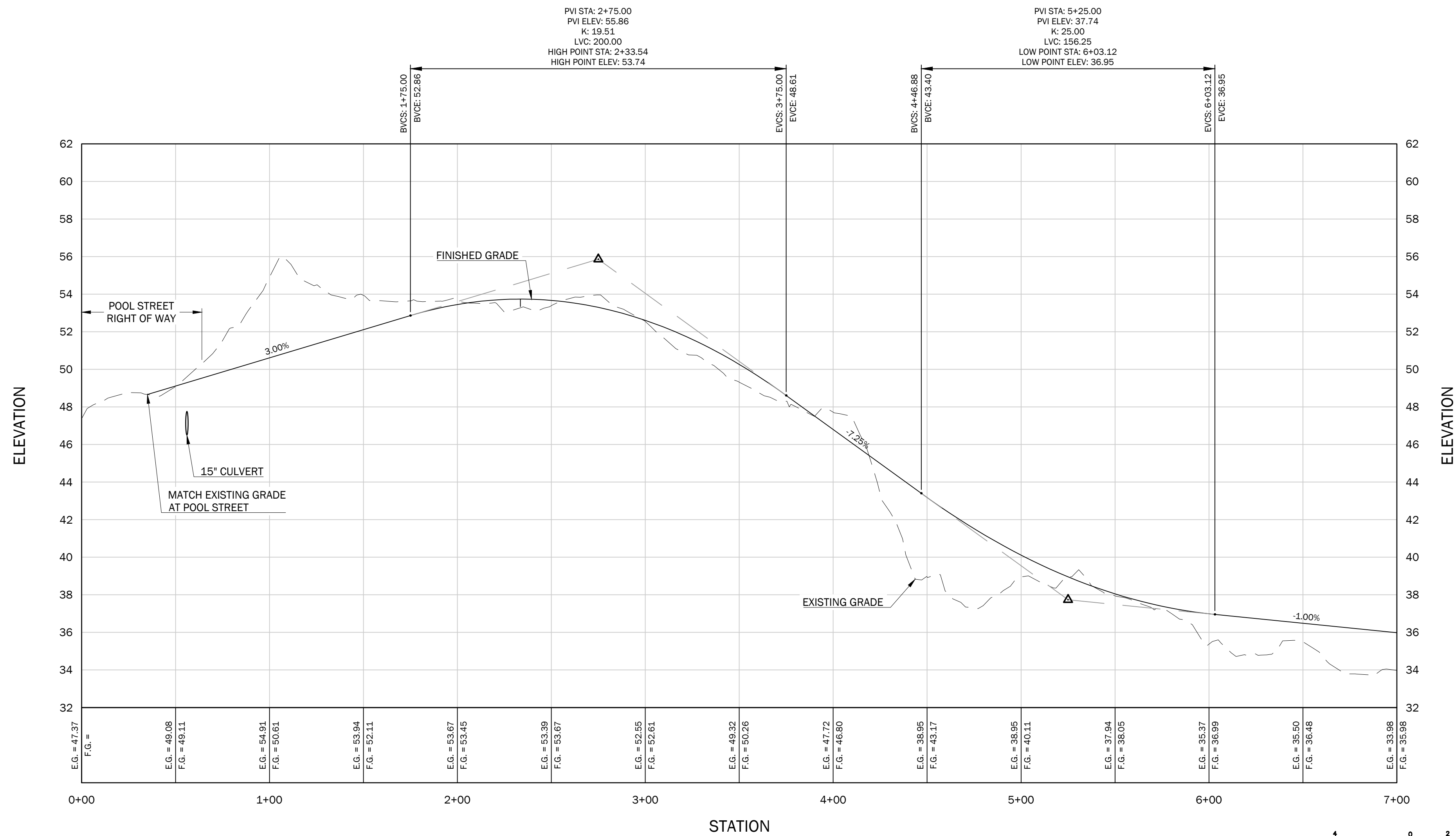
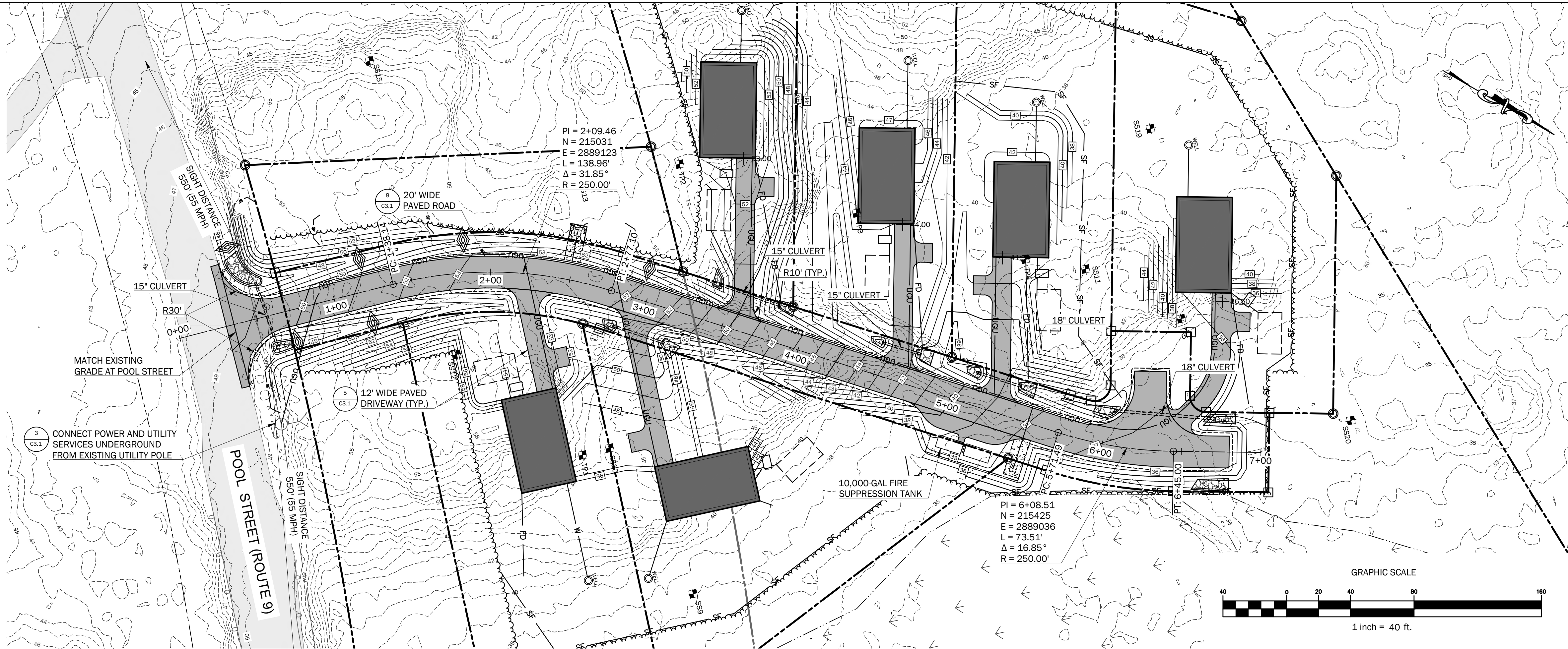
C2.1

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

LEGEND	
EXISTING	PROPOSED
	PROPERTY LINE
	ABUTTERS PROPERTY LINE
	EASEMENT
	PROPERTY SETBACK
	IRON ROD OR PIN FOUND
	IRON ROD OR PIN SET
	CONCRETE MONUMENT FOUND
	GRANITE MONUMENT FOUND
	MONUMENT SET
	SD
	FD
	SD
	RIP RAP IN/OUT PROTECTION APRON
	W
	SS
	UGU
	UTILITY POLE
	BUILDING
	RIPRAP
	LANDSCAPE/RETAINING WALL
	BITUMINOUS PAVEMENT
	GRAVEL
	CONCRETE
	100
	101
	TREELINE
	TREE
	SF
	ECB
	TURF REINFORCEMENT MATTING
	CONSTRUCTION ENTRANCE

PLAN NOTES:

- SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.
- THIS PLAN IS TO ACT AS THE "PLAN OF PRIVATE WAY" IN ACCORDANCE WITH ARTICLE VI, SECTION 51, PART D OF THE CITY OF BIDDEFORD LAND DEVELOPMENT REGULATIONS.
- THE CITY OF BIDDEFORD SHALL NOT BE RESPONSIBLE OF THE COST OF MATERIALS, INSTALLATION, MAINTENANCE, OR POWER FOR THE STREET LIGHTING. THE HOMEOWNER'S ASSOCIATION SHALL ASSUME ALL COSTS ASSOCIATED WITH THE LIGHTING SYSTEM.
- THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR, OR PLOWING OF THE PRIVATE WAY AND THAT FURTHER LOT DIVISIONS UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE BOARD.



WINDWARD RIDGE PROFILE

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
2	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	10/20/2021	Revised per City Review Comments	CAR	NGC
4	11/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

**Windward Ridge
Plan & Profile View**

Job No.: 742
Date: June 15, 2021
Scale: As Shown
Drawn: CAR
Checked: WRW

Sheet No.:

C2.2

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

THERE SHALL BE NO DISTURBANCE WITHIN 50 FEET OF PROTECTED NATURAL RESOURCES WITHOUT AN APPROVED PERMIT BY RULE NOTIFICATION FOR THAT DISTURBANCE.

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:

- 1) LIMIT DISTURBANCE AND, HENCE, EROSION
- 2) CORRECT ANY EROSION PROBLEMS IMMEDIATELY
- 3) REGULARLY MONITOR THE IMPLEMENTED PRACTICES, ESPECIALLY AFTER EVERY RAINFALL
- 4) REVEGETATE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION
- 5) CONFORM TO ALL REQUIREMENTS/STANDARDS OF THE SITE'S MAINE DEP EROSION & SEDIMENT CONTROL BMP MANUAL.

A SIGNIFICANT STORM EVENT SHALL BE DEFINED AS 0.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD.

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. IN NO CASE SHALL AN AREA GREATER THAN 40 ACRES BE UNSTABILIZED. 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 7 DAYS OF COMPLETING CONSTRUCTION IN THE AREA OR WITHIN 48 HOURS IF WITHIN 75 FEET OF A NATURAL RESOURCE. IF FINAL GRADING, LOAMING AND SEEDING CANNOT OCCUR WITHIN 7 DAYS, OR IF THE AREA IS NOT UNDER ACTIVE CONSTRUCTION FOR A PERIOD LONGER THAN 7 DAYS, SEE ITEM NO. 4 BELOW.
3. PRIOR TO THE START OF CONSTRUCTION IN A SPECIFIC AREA, SILT FENCING SHALL BE INSTALLED ON DOWNGRADIENT PORTIONS OF THE SITE AS LOCATED ON THE PLANS TO PROTECT AGAINST ANY CONSTRUCTION RELATED EROSION.
4. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM EXISTING DRAINAGE AREAS AND WETLANDS. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
 - A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
 - B. SEEDDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
 - C. STOCKPILES SHALL BE EITHER PLACED UPHILL OF AN EXISTING SEDIMENT BARRIER ON THE SITE OR ENCLOSED BY A HAY BALE OR SILT FENCE BARRIER THE FIRST DAY THAT STOCKPIILING 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, 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, AND IN NO CASE SHALL SLOPES EXCEED 1.5:1. 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.

8. 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 TO BE REVEGETATED AS LAWN AND 4" IN AREAS TO BE REVEGETATED WITH NON-LAWN VEGETATION AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE.
2. LAWN AREAS: "PARK MIX" GRASS SEED BY ALLEN, STERLING & LOTHROP (FAIMOUTH, 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 EROSION CONTROL MIX:** THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF EROSION CONTROL MIX ON THE SLOPE BY NOVEMBER 15TH. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX 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 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, 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 FROM THE PROJECT.

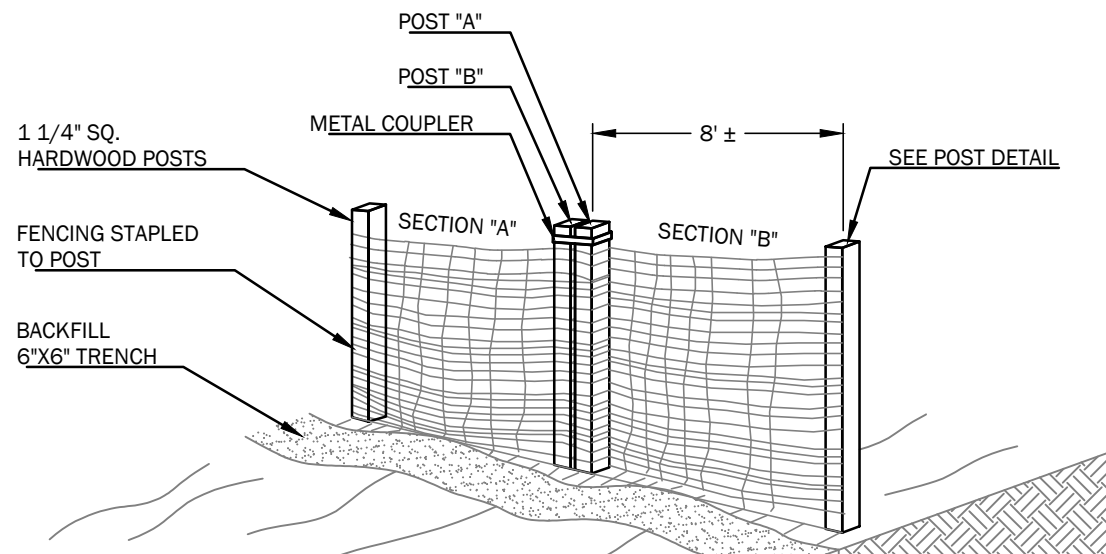
INSPECTION AND MAINTENANCE (APPENDIX B)

THE OWNER SHALL BE RESPONSIBLE FOR SEEING THAT EROSION AND SEDIMENT CONTROL MEASURES ARE UNDERTAKEN AND MAINTAINED. IF INSPECTIONS ARE REQUIRED BY PERMITTING AGENCIES, THE DESIGN ENGINEER, OR THIRD PARTY INSPECTOR SHALL FOLLOW THE PROCEDURES OUTLINED BELOW:

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 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 1 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 QUALIFICATION(S) 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 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/EMERGPRLRES/
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 (SEE) 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 PROVISIONS OF RULES RELATED TO SOIL, 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 DEPOSITED 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.
 8. **ADDITIONAL REQUIREMENTS:** ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

1

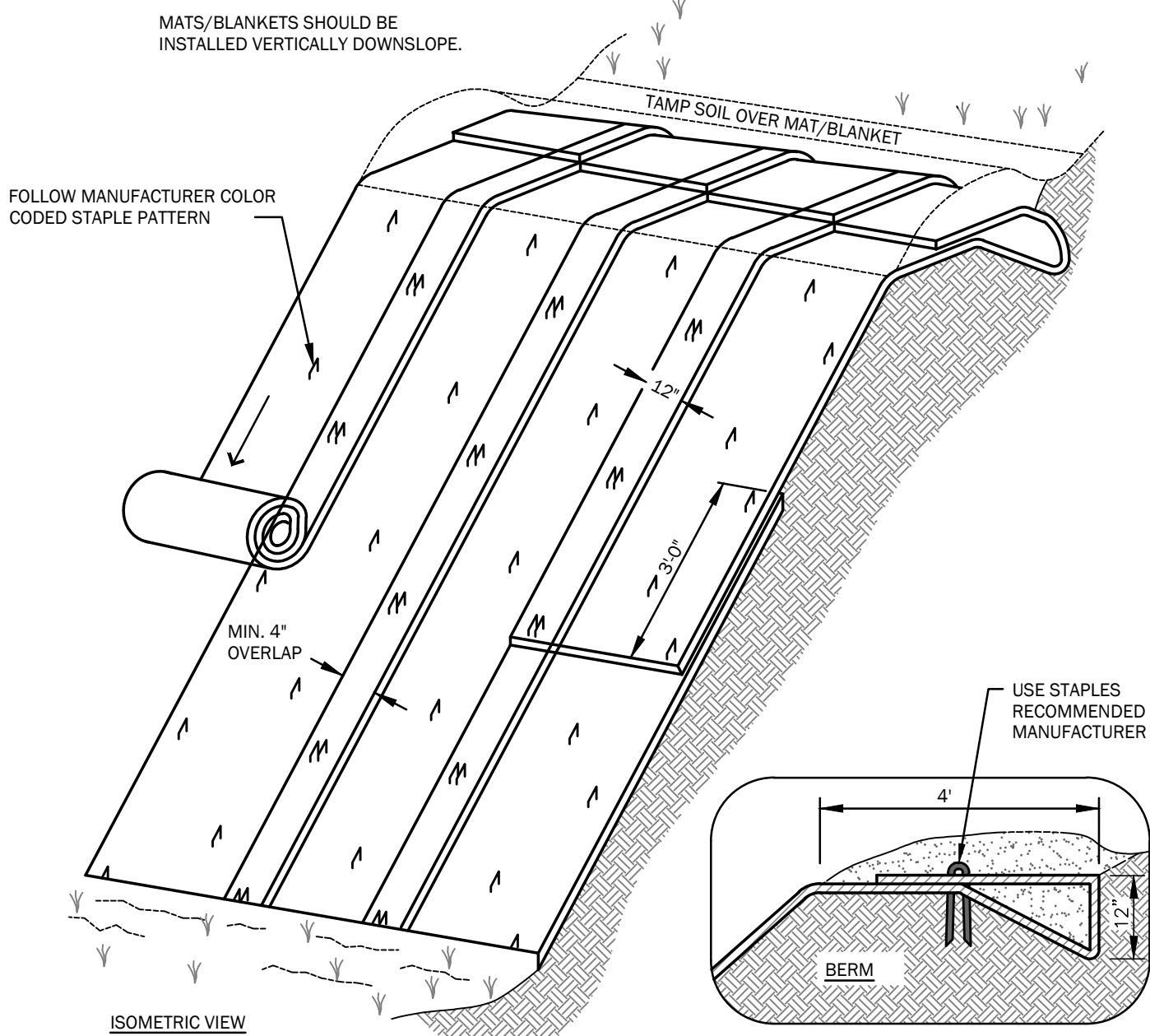
EROSION AND SEDIMENTATION CONTROL NOTES

C3.0

NOT TO SCALE

INSTALLATION INSTRUCTIONS:

1. TURF REINFORCEMENT MAT (TRM) MATERIAL SHALL BE ENKAMAT 7020, OR APPROVED EQUAL.
2. EROSION CONTROL BLANKET (ECB) SHALL BE BIONET S75BN SINGLE NET STRAW BLANKET BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
3. FOR TRM INSTALLATION ONLY:
 - 3.1. APPLY 2" OF LOAM ONTO THE GROUND SURFACE.
 - 3.2. OVER TOP THE 2" OF LOAM, UNROLL MAT IN THE DIRECTION OF WATER FLOW.
4. MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND. STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
5. BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSION FLOW UNDERNEATH.
6. SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
7. BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
8. OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATER FLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
9. OVERLAP ADJACENT EDGES OF MAT BY THREE (3) INCHES (MIN.) AND STAKE.
10. USE WOOD STAKES OR STAPLES FOR PINNING MAT TO THE GROUND SURFACE, PER MANUFACTURER'S RECOMMENDATIONS.
11. IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
12. STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
13. WORK ADDITIONAL LOAM INTO THE MAT AND COVER THE MAT SURFACE WITH 1" OF LOAM, THEN SEED AND MULCH.



2

STRAW MATTING (ECB) AND TRM EROSION CONTROL

C3.0

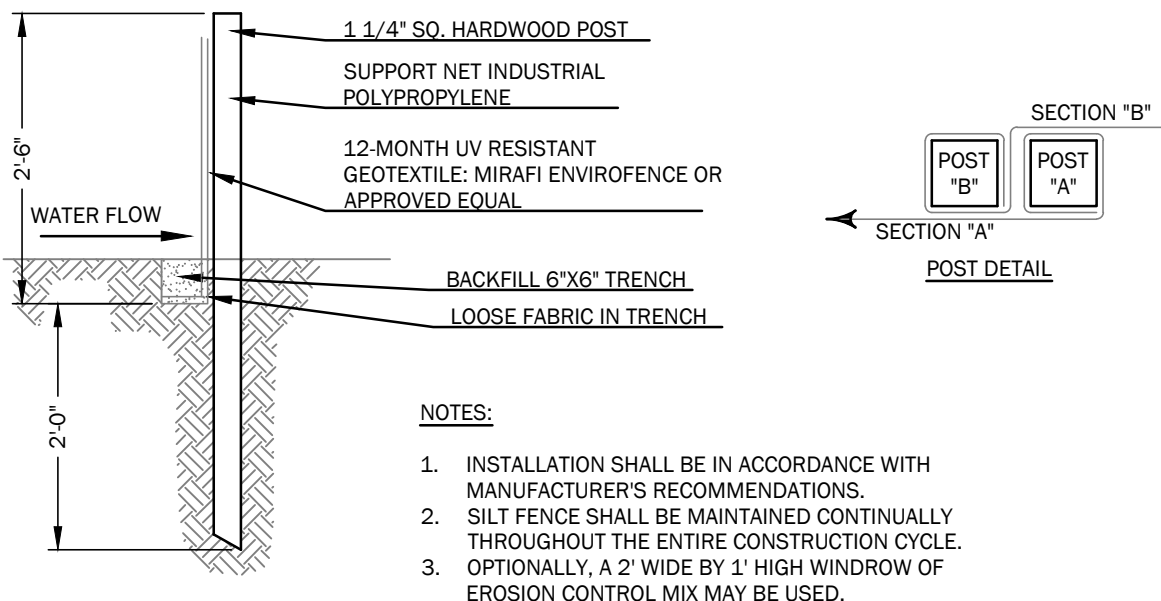
NOT TO SCALE

3

PREFABRICATED SILT FENCE

C3.0

NOT TO SCALE



4

SEDIMENT BARRIER (EROSION CONTROL MIX)

C3.0

NOT TO SCALE

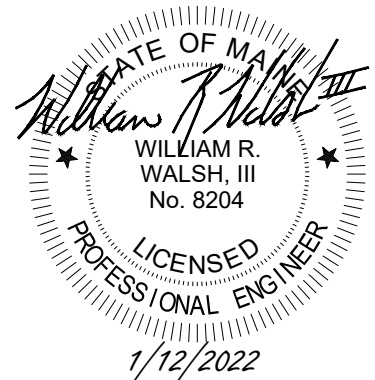
NOTES

1. THE EROSION CONTROL MIX SHALL CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.
2. MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS
 - A. THE ORGANIC CONTENT SHALL BE BETWEEN 80 AND 100% DRY WEIGHT BASIS
 - B. PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MAXIMUM OF 85% PASSING A 0.75" SCREEN
 - C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
 - D. LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX
 - E. SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM
 - F. THE pH SHOULD FALL BETWEEN 5.0 AND 8.0
3. PLACE BARRIER ALONG A RELATIVELY FLAT CONTOUR. CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES WHERE FINES CAN WASH UNDER THE BARRIER THROUGH GRASS BLADES AND BRANCHES.
4. PLACEMENT OF BARRIER SHOULD BE:
 - AT TOE OF THE SLOPE.
 - FROZEN GROUND, BEDROCK OR ROOTED FORESTED AREAS.
 - THE EDGE OF GRAVEL AND AREAS UNDER CONSTRUCTION.
5. BARRIER SHALL NOT BE USED ADJACENT TO WETLANDS, WHERE THERE IS LOWING WATER, OR ON SLOPES EXCEEDING 8% WITHOUT THE SUPPORT OF SILT FENCE.
6. REMOVE SEDIMENT DEPOSITS WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
7. WHEN BARRIER IS DECOMPOSED, CLOGGED WITH SEDIMENT, ERODED OR INEFFECTIVE, IT MUST BE REPLACED OR REPAIRED. THE BARRIER SHOULD BE RESHAPED AS NECESSARY.

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



Windward Ridge

919 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

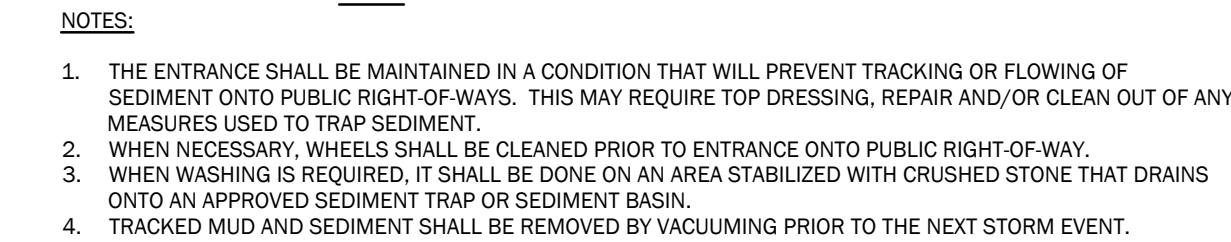
Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	11/20/2021	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

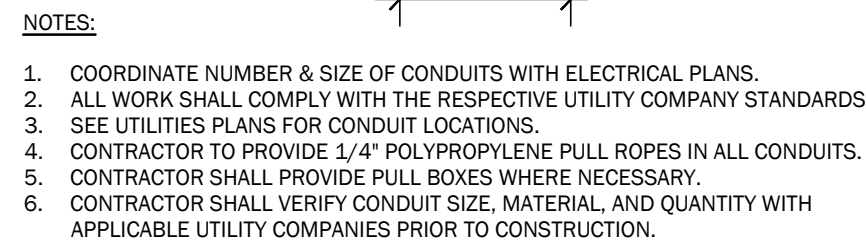
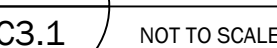
Site Details

Job No.:	742	Sheet No.:	
Date:	June 15, 2021		
Scale:	No Scale		
Drawn:	CAR		
Checked:	WRW		

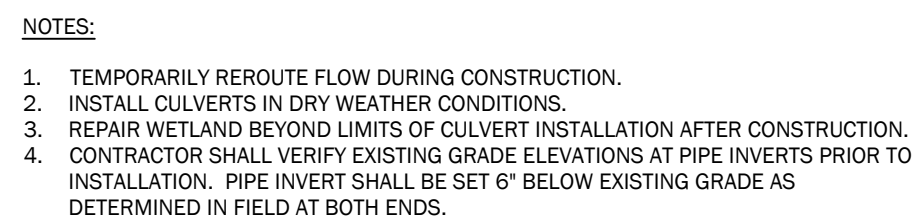
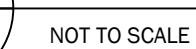
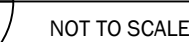
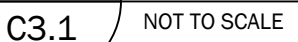
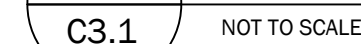
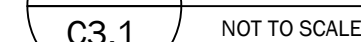
C3.0



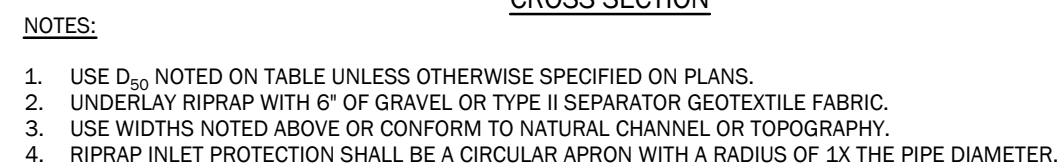
C3.1 NOT TO SCALE



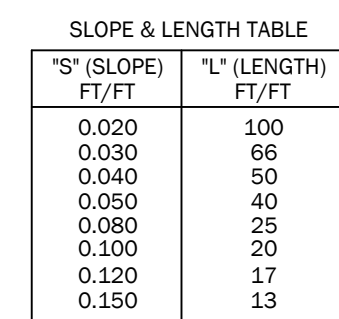
NOT TO SCALE



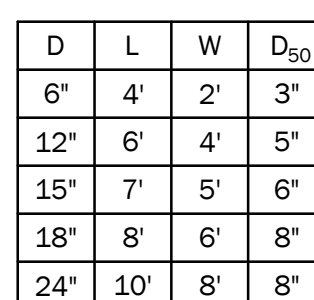
NOT TO SCALE



1 NOT TO SCALE



3.1 NOT TO SCALE



D	L	W	D ₅₀
6"	4'	2'	3"
12"	6'	4'	5"
15"	7'	5'	6"
18"	8'	6'	8"
24"	10'	8'	8"

"S" (SLOPE) FT/FT	"L" (LENGTH) FT/FT
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

L = THE DISTANCE SUCH THAT
POINTS A AND B ARE EQUAL
ELEVATION.

STONE IS A TEMPORARY MEASURE.
REGRADE STONE INTO BOTTOM AS
CHANNEL IS PERMANENTLY STABILIZED.

1. PROPOSED RIPRAP DITCHES. USE IN UNLINED DITCHES DURING CONSTRUCTION.

2. CHECK DAMS ARE NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING. SOME SEDIMENT WILL ACCUMULATE BEHIND DAMS. SEDIMENT SHOULD BE REMOVED FROM BEHIND DAMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE DAM.

3. STONE: 2" - 3" CRUSHED STONE (MDOT 703.31).

4. KEY STONE INTO CHANNEL BARS AND EXTEND IT BEYOND THE ADJUSTMENTS A MINIMUM OF 18 (0.5M) TO PREVENT FLOW AROUND DAM.

(

C3.1

LEGEND	
EXISTING	PROPOSED
	PROPERTY LINE
	ABUTTERS PROPERTY LINE
	EASEMENT
	PROPERTY SETBACK
	IRON ROD OR PIN FOUND
	STORM DRAIN CATCH BASIN
	STORM DRAIN LINE
	STORM DRAIN CULVERT
	RIP RAP IN/OUT PROTECTION APRON
	WATERLINE
	HYDRANT
	WATER LINE GATE VALVE
	SANITARY SEWER LINE
	SEWER MANHOLE
	OVERHEAD UTILITY
	UNDERGROUND UTILITY
	UTILITY POLE
	BUILDING
	RIPRAP
	LANDSCAPE/RETAINING WALL
	BITUMINOUS PAVEMENT
	GRAVEL
	CONCRETE
	INDEX CONTOUR
	INTERMEDIATE CONTOUR
	TREELINE
	TREE

DRAINAGE NOTES:

- SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY AND SOIL NARRATIVE REPORT PROVIDED BY MARK HAMPTON DATED MAY 5, 2021.
- SOILS INFORMATION FOR AREAS OUTSIDE OF THE PROPERTY BOUNDARY FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT [HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/](http://websoilsurvey.nrcs.usda.gov/). ACCESSED ON AUGUST 2, 2021.

Tc FLOW LINE DATA:

SUBCATCHMENT 1.0	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	27.0	100'	0.043	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	2.8	194'	0.022		
	14.7	365'	0.027		

SUBCATCHMENT 1.1	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	1.5	40'	0.350	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	25.4	60'	0.018		
	40.6	498'	0.007		

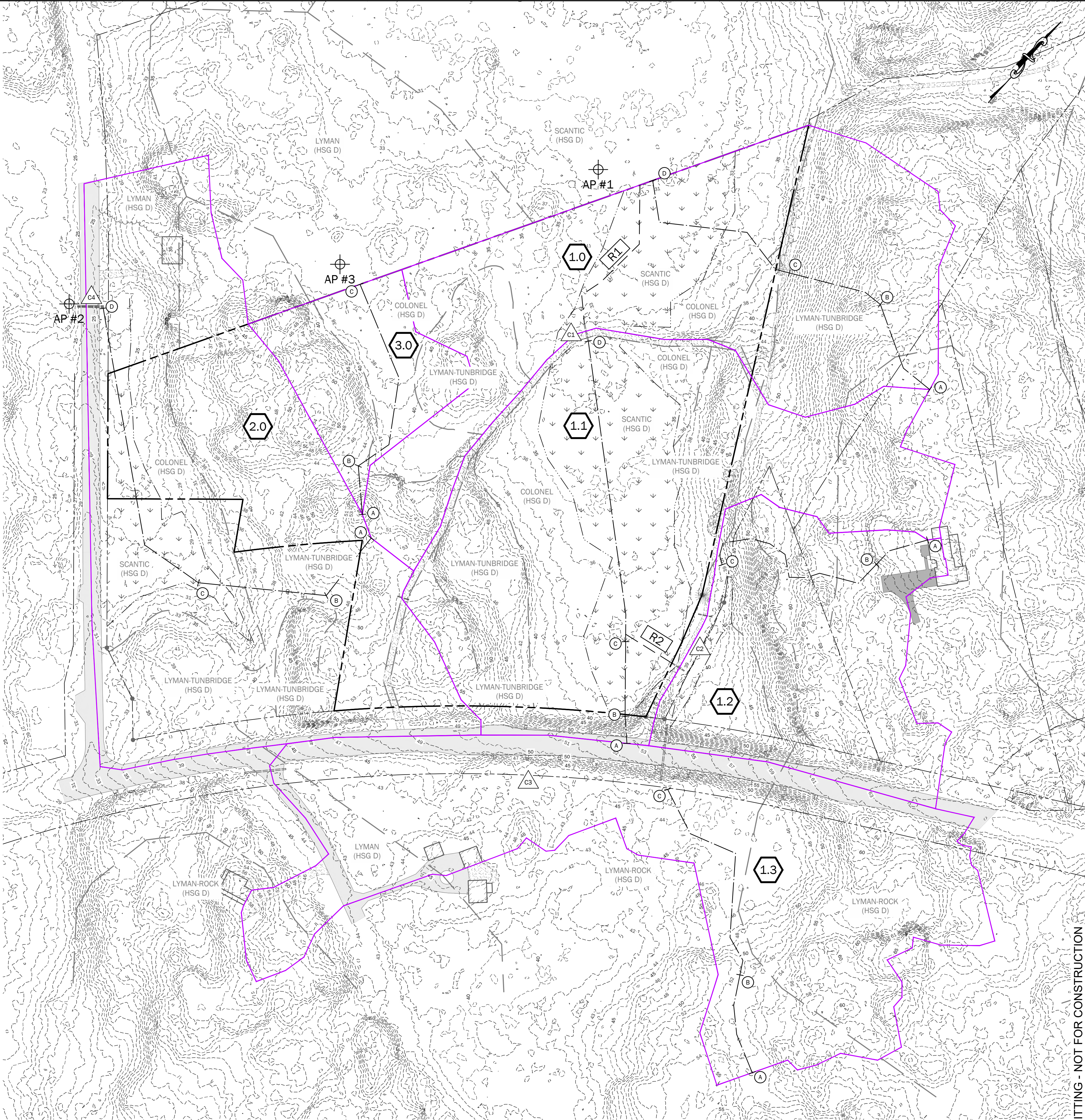
SUBCATCHMENT 1.2	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	4.6	86'	0.093	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	6.8	310'	0.094		

SUBCATCHMENT 1.3	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	43.3	100'	0.013	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	14.5	353'	0.026		

SUBCATCHMENT 2.0	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	20.8	100'	0.083	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	4.7	198'	0.079		
	24.2	452'	0.016		

SUBCATCHMENT 3.0	SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	12.3	72'	0.016	SHALLOW CONCENTRATED FLOW	SHEET FLOW
	13.4	305'	0.023		

DRAINAGE	
SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	
TIME OF CONCENTRATION FLOW	
ANALYSIS POINT	
POND / CATCH BASIN	
SOILS BOUNDARY	
SOILS DESIGNATION	



WALSH

ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

STATE OF MAINE

RODMAN G. CHAMBERLAIN II

No. 7144

LICENSED PROFESSIONAL ENGINEER

1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
2	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	10/20/2021	Revised per City Review Comments	CAR	NGC
4	11/20/2021	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:
Pre-Development
Drainage Plan

Job No.: 742
Date: June 15, 2021
Scale: 1" = 80'
Drawn: CAR
Checked: WRW

Sheet No.:
D1.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

\\P07-161\Drawings\Maine\04005 - Windward Ridge\04005 - Windward Ridge.dwg, 11/15/2021 10:24:24

335

LEGEND	
EXISTING	PROPOSED
	PROPERTY LINE
	ABUTTERS PROPERTY LINE
	EASEMENT
	PROPERTY SETBACK
	IRON ROD OR PIN FOUND
	STORM DRAIN CATCH BASIN
	STORM DRAIN LINE
	STORM DRAIN CULVERT
	RIP RAP IN/OUT PROTECTION APRON
	WATERLINE
	HYDRANT
	WATER LINE GATE VALVE
	SANITARY SEWER LINE
	SEWER MANHOLE
	OVERHEAD UTILITY
	UNDERGROUND UTILITY
	UTILITY POLE
	BUILDING
	RIPRAP
	LANDSCAPE/RETAINING WALL
	BITUMINOUS PAVEMENT
	GRAVEL
	CONCRETE
	INDEX CONTOUR
	INTERMEDIATE CONTOUR
	TREELINE
	TREE

DRAINAGE NOTES:

- SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY AND SOIL NARRATIVE REPORT PROVIDED BY MARK HAMPTON DATED MAY 5, 2021.
- SOILS INFORMATION FOR AREAS OUTSIDE OF THE PROPERTY BOUNDARY FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT [HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/](http://websoilsurvey.nrcs.usda.gov/). ACCESSED ON AUGUST 2, 2021.

Tc FLOW LINE DATA:

SUBCATCHMENT 1.0				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	27.0	100'	0.043	SHEET FLOW
B-C	2.8	194'	0.022	SHALLOW CONCENTRATED FLOW
C-D	14.7	365'	0.027	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	1.5	40'	0.350	SHEET FLOW
B-C	25.4	60'	0.018	SHEET FLOW
C-D	40.6	498'	0.007	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.2				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	4.6	86'	0.093	SHEET FLOW
B-C	6.8	310'	0.094	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.3				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	43.3	100'	0.013	SHEET FLOW
B-C	14.5	353'	0.026	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.4				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 1.5				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 1.6				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

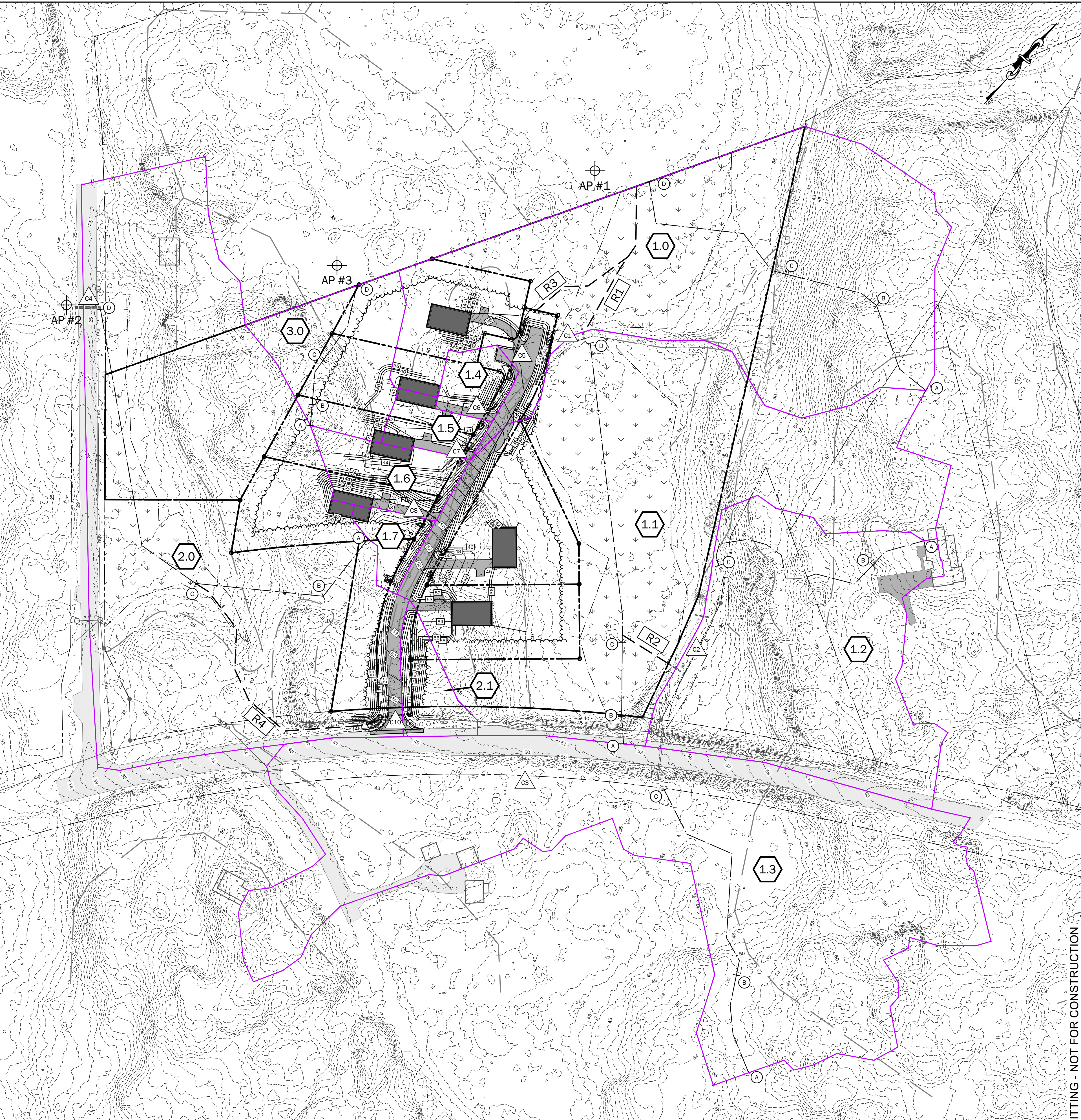
SUBCATCHMENT 1.7				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 2.0				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	20.8	100'	0.083	SHEET FLOW
B-C	4.7	198'	0.079	SHALLOW CONCENTRATED FLOW
C-D	24.2	452'	0.016	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.1				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 3.0				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	2.5	31'	0.056	SHEET FLOW
B-C	18.1	69'	0.056	SHEET FLOW
C-D	2.6	125'	0.100	SHALLOW CONCENTRATED FLOW

DRAINAGE	
SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	
TIME OF CONCENTRATION FLOW	
ANALYSIS POINT	
POND / CATCH BASIN	
SOILS BOUNDARY	
SOILS DESIGNATION	



WALSH
ENGINEERING ASSOCIATES, INC.
One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com
Copyright © 2022

Windward Ridge
918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48
PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
2	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	10/20/2021	Revised per City Review Comments	CAR	NGC
4	11/23/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:
**Post-Development
Drainage Plan**

Job No.: 742
Date: June 15, 2021
Scale: 1" = 80'
Drawn: CAR
Checked: WRW

Sheet No.:
D2.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

10/27/2022 10:00 AM: W:\Projects\Windward Ridge\Windward Ridge.dwg (10/27/2022 10:00 AM)

PLANNING BOARD
REPORT

January 27, 2022

Biddeford Planning Board
Greg Tansley, City Planner
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Application: Leeward Meadows – Ginger Hill, LLC
158 Oak Ridge Road (Tax Map 4 Lot 57)

Subdivision Final Plan Review

Review Status: Final Approval.

Board members and Mr. Tansley,

The following application and attached information has been provided for review:

1. Application form dated 9/15/2021.
2. Cover letter and Application Submission entitled: *Final Subdivision Application for Leeward Meadows Subdivision, located at 158 Oak Ridge Road, Biddeford, Maine 04005, Map 4. Lot 57. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 1/12/2022. This includes Declaration of Covenants & Restrictions, Fire Department Review Comments and Stormwater Report.
3. Engineering Plan set entitled: *Leeward Meadows, Oak Ridge Road, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, REV. date 1/12/2022.
4. Response to Comments Letter: *RE: Response to Engineer Review, Winward Ridge & Leeward Meadows Subdivisions, Biddeford, Maine.* Prepared by Walsh Engineering Associates, dated 1/20/2022.

With review of the above information and the Land Development Regulations and Subdivision Ordinance, I offer the following comments on compliance with the City's ordinances. See attached for remaining outstanding engineering related comments from Site Design Associates. Responses to the previous comments are in red.

PROJECT DESCRIPTION

The applicant seeks to create 6 residential lots along a proposed 735-foot private road on a 15.5 AC parcel located in the Rural Farm (RF) zone. The site includes a large freshwater wetland among open field and woods.

COMPLETENESS REVIEW

The application is before the Planning Board as required by Chapter 66 (Subdivisions) subject to Subdivision review and approval. Per the City's Subdivision ordinance (66-26), all applications have a three-tier approval process beginning with a Sketch plan review. The Planning Board reviewed the Sketch Plan in July and approved the Preliminary Plan in November of last year. The applicant has submitted a final plan submission for review that appears to be complete.

COMPLIANCE WITH THE CITY'S ORDINANCES

The proposed minimum lot sizes and net density calculations appear to be in order. Required setbacks are also depicted and the applicant engaged a Landscape Architect to design the required Rural Farm Zone vegetated buffer. The latter may need logistical and design tweaks to be more effective and clearer as to its designated location.

City Staff, including Long Meadow P&LA and Site Design Associates, have had an opportunity to share comments on an earlier submission prior to placing the application on the Board's agenda. Considering the revised plans and the response to comments, the following are comments and recommendations that Board, and the applicant may want to consider:

AGRICULTURAL SOILS (Sec. 66-2)

In speaking with the State Soil Scientist's office and the NRCS, it appears the soils listed in the HISS prepared by Mark Hampton, Associates do not include the specific soils listed as prime agricultural or having state-wide significance. It was suggested, however, that if the project used federal aid or funding, that an application to the NRCS regarding agricultural and state-wide significant soils was required since its medium intensity soil surveys depict these soils on the property.

As requested the City Planner contacted Wayne Munroe at the NRCS office in Scarborough, and he agreed that a Medium Intensity Soil Survey (MISS), which is used to determine prime agricultural or having state-wide significance would not overrule a High Intensity Soil Survey (HISS). Mr. Munroe added that once the Soil Series are identified (mapped at the higher intensity development standards) the web soil survey (medium intensity) can still be used to identify the HISS mapped Soil Series site limitations and capabilities for various proposed land uses. It is Staff's understanding that the applicant's soil scientist reviewed this information and identified that there were no prime agricultural or having state-wide significance on the site.

OPEN SPACE DESIGN

The open space design provides for a compact development towards the front of the parcel while preserving the majority of the riparian habitat that abuts existing conservation land to the rear. The latter is proposed to be protected under an easement held by the Kennebunkport Land Trust. The boundary of conservation land should be marked in some manner to identify it as such, and making it known in the HOA documents, drawing a distinction from the other open spaces, would be helpful too. The open space that is not proposed to be held by the Land Trust, should also be marked in some manner to articulate the line between lots and open space.

PRESERVATION IN PERPETUITY

As outlined in Sec. 16.E, Article VI of the Land Development Regulations, Open Space in a cluster development shall be preserved by means of a conservation easement held by a third party or held by the HOA by means of its declarations and covenants. A draft agreement and easement between the applicant and the land trust should be provided to the Board for review and approval. The draft HOA documents does not appear to include any language related to the non-land trust open space being preserved in perpetuity. **The applicant has provided a draft conservation easement that conforms to Sec. 16 and addresses this comment.**

SUBDIVISION IN THE RURAL FARM (RF) ZONE (Sec. 66-79)

Buffer Location: This provision, among other items, requires a 75-foot wide vegetated buffer. The Plan depicts the 75-foot buffer in the location specified by the ordinance, measured from the public street. With consultation with City Staff, the applicant has located the required plantings for the buffer adjacent to the new private street instead. This provides for the current meadow/field to be maintained along Ridge Road.

If the Planning Board is amenable to this, a waiver to locate the required 75-wide buffer adjacent to proposed private street would be prudent, so it is clear from a regulatory perspective the proposed plantings' purpose. A note should be added to the plan indicating that the plantings shown are maintained as a buffer required under Sec. 66-79. **No plan note has been added. The following is recommended for Sheet S1.0:**

The 75-foot-wide vegetated buffer depicted on this plan is required per Biddeford City Code Sec. 66-79 and be maintained as effective screen of the development and as depicted on the Planning Board approved Landscape Plan prepared by Scott Strynar, Landscape Architect, LLC, REV. date_____.

Buffer Design: The applicant has engaged with a landscape architect that has prepared a planting plan with an appropriate mix of plant species. The Board and the applicant should consider the following tweaks to the design:

1. The planting proposed is less than 75 feet wide, however, per 66-79 (3) b, the width can be reduced to no less than 50 feet wide. The Plan depicts 40 feet, of which 15 feet is located

- within the Street Right-Of-Way (ROW). This does not seem to be appropriate since the ROW is dedicated to street and related utilities and infrastructure, which is likely to be in conflict with maintaining a vegetated buffer. **The revised plans address this comment.**
2. The proposed vegetated buffer along the proposed street should be shifted out of the ROW and the planting strip increased to 50 feet wide. Added evergreen trees to make up the difference in width should be utilized to provide for an effective screen. **The revised plans address this comment.**
 3. The actual delineation of the 75-foot buffer should be shown adjacent to the new street where the planting is proposed to be rather than measured from Ridge Road. (See attached sketch) **The revised plans address this comment.**
 4. The plant species arborvitae is not comparable in size at maturity to the other Evergreen trees listed, having a spread of 12 feet vs. 20 feet for the spruce and fir trees. It is recommended that they are substituted with more of the evergreen species listed. **The revised plans address this comment.**
 5. The addition of the native grasses and wildflower seeding to provide a “pollinator” meadow should be a nice asset to the proposed development. The final drawings should include details on the best practices of executing this in a manner that will not provide an opportunity for invasive/exotic weeds to get established during establishment. **The revised plans address this comment.**
 6. **Lot 6 could benefit with one or two more evergreen trees to provide a more effective screen between the proposed house and Oak Ridge Road.**
 7. **Installation size of evergreen trees, at least in those areas abutting lot 6 and lot 1, should be of a large size, perhaps 8-10 feet high.**
 8. **Installation size of the deciduous trees should be increased to 2” – 2-1/2” caliper, which is typical for street trees and would better benefit the effectiveness of the buffer.**

HOMEOWNERS ASSOCIATION DOCUMENTS

1. The open space that is not to be held by the land trust (*common area*) should be more defined in terms of management, as it relates to buffer requirements and maintaining existing natural screening of the development. The HOA documents should be drafted to help make expectations clear in maintaining the planted trees and shrubs in the open space as a buffer and vegetated screen, and existing vegetation that currently provide screening that is not proposed to be cleared, should be maintained as such. **Exhibit A refers to Open Space 1 and Open Space 2 as protected property subject to the conservation easement. The language in Declaration of Covenants and Restrictions does address the comment here, though, should reflect the separate conservation easement when discussing *Open Space*. Perhaps the area held in common that is not subject to the conservation easement should be**

referenced/named to set it apart to limit confusion. Possibly Exhibit A may do that, however, it has not been submitted. In either case there may be some benefit in itemizing, what appears to be, three different types of open space: two are subject to the conservation easement, and a third is between the proposed street and Oak Ridge Road that includes the Buffer Strip.

2. Art. VI Sec. 12.dc should include a reference to receiving Planning Board approval if granting easements is not reflected on the approved subdivision plan. Art VIII Sec. 2 should be subject to Board approval of an amended plan as well. **The revised plans address this comment.**
3. Encroachment of the open space by the homeowners or abutters should be addressed in terms of accountability as it relates to the open space being undeveloped and/or clearing that is contrary to the approved plan. **The revised documents address this comment (See Art. 6 Sec. 12.D).**
4. There does not appear to be any sections that address the shared maintenance of the private street, especially having the responsibility of contacting or ensuring that snow is removed in a reliable manner to aid in public safety access. **The revised documents address this comment (See Art. 6 Sec. 12.A).**

FIRE SAFETY

Chapter 30-87 requires underground fire suppression tanks for new (private/public) subdivisions, which are located outside the hydrant districts. The applicant should review the ordinance and coordinate with the Fire Department and demonstrate compliance prior to final approval. **The revised plans address this comment.**

PLAN RECOMMENDATIONS

1. A Stamped and signed final Boundary Survey should be submitted. **Submitted.**
2. The Existing Conditions Plan references GIS topography/contour data. Is this adequate for final road and site grading design? **Plan reference 1 on Sheet C1.0 reflects other sources of topographic data. Applicant should clarify what is used for the road design.**
3. The Subdivision Plan should be prepared and certified by a Professional Land Surveyor, licensed in Maine. **Submitted**
4. The Subdivision Plan appears to not include typical/standard notes found on surveys and subdivision plans, e.g. deeds, ownership, plan references.... The latter is referenced to the cover sheet, however, the Subdivision Plan will be recorded and ideally should be one sheet, unless multiple sheets are recorded as well. **The revised plans address this comment.**
5. The Subdivision Plan notes should reflect any applicable City zoning or subdivision requirements, e.g. 75-foot buffer in the RF zone and Open Space preserved in perpetuity. **This does not appear to have been addressed. Concerning the buffer, see recommended**

plan note suggested in comment above for SUBDIVISION IN THE RURAL FARM (RF) ZONE (Sec. 66-79). With regard to open space, following plan note is suggested:

This six-lot single family residential subdivision is approved as a cluster development pursuant to Article VI, Section 16 of the City's Land Development Regulations, and includes the designated open space in perpetuity.

6. The plans should include signatory blocks and recording blocks where necessary. The revised plans address this comment.
7. Plan note 4 on Sheet S1.0 should be more specific and reference the actual declaration of covenants and restrictions and the conservation easement.
8. Sec. 66-79(4)b. requires reference to the required buffer strip in the deed(s) of those lots that include the buffer area in fee. It is recommended that deeds for lots 1 and 2 include the same language as recommended for the plan note on Sheet S1.0 (noted earlier in this review).

WAIVER REQUESTS

None requested.

CONCLUSION

The Final Plan appears to be complete for the Planning Board's consideration and conforming in consideration of the above comments. If the Board is inclined to grant final approval it should consider it being with conditions that address all outstanding comments from board members, City Staff and peer-reviewers.

Feel free to contact me with questions.

Best regards,



Christopher Di Matteo
City of Biddeford Contract Planner.
cdimatteo@longmeadowpla.com
207.604.4245

FINDINGS OF FACT AND CONCLUSIONS OF LAW

Pursuant to the provisions of the City of Biddeford Code of Ordinances Chapter 66 (Subdivisions), Conditional Uses (Article VII), and the Land Development Regulations, Article VI, Section 16 Cluster development, the Biddeford Planning Board has considered the application of **Ginger Hill, LLC for a six-lot cluster development subdivision at 158 Oak Ridge Road**, including supportive data, public hearing testimony and related materials contained in the record. Based on Public Comment and Staff's review and recommendation, the Planning Board makes the following Findings of Fact and Conclusions of Law:

Findings of Fact:

1.	Applicant and Owner	Emily Ingwersen Ginger Hill, LLC 18 Early Way, Arundel, ME 04046
2.	Agent:	William R. Walsh III, PE, Walsh Engineering Associates, Inc 1 Karen Drive, Westbrook, ME 04092
3.	Surveyor:	Titcomb Associates 133 Gray Road, Falmouth, ME 04105
4.	Project Location:	158 Oak Ridge Road
5.	Project Tax Map #/Lot #:	Tax Map 4 Lot 57
6.	Lot Size:	15.5 AC +/-
7.	Existing Zoning:	Rural Farm
8.	Overlay Zoning:	None
10.	Existing Use:	Vacant
11.	Proposed Use:	Six Lot Single Family Clustered Subdivision
12.	Floodplain Status:	None
13.	Approvals Required:	Subdivision Plan Review
14.	Uses in the Vicinity:	Residential
15.	Dimensional Requirements:	
	Min. Setback from Major R.O.W: 40FT/ Other R.O.W: 25 FT	Min. Lot Size: 20,000 SF/ Unit* *Clustered development
	Minimum Side/Rear Setback:25 FT	Maximum Height: 3 stories / 35 FT
16.	Waivers Needed:	None.
17.	Waivers Granted:	None.
18.	Variances Needed for Approval:	None.
19.	Other Approvals Required:	Building Permits from the Biddeford Code Enforcement Office.
20.	Other Permits Obtained:	None.
21.	Other Non-City Permits Required:	MDEP
22.	LDR Attachment A: Fees Paid:	Yes

23.	Application Materials Submitted: 1. Application form dated 9/15/2021. 2. Cover letter and Application Submission entitled: Final Subdivision Application for Leeward Meadows Subdivision, located at 158 Oak Ridge Road, Biddeford, Maine 04005, Map 4. Lot 57. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046. Prepared by Walsh Engineering Associates, dated 1/12/2022. This includes Declaration of Covenants & Restrictions, Fire Department Review Comments and Stormwater Report. 3. Engineering Plan set entitled: Leeward Meadows, Oak Ridge Road, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046. Prepared by Walsh Engineering Associates, REV. date 1/12/2022. 4. Response to Comments Letter: RE: Response to Engineer Review, Winward Ridge & Leeward Meadows Subdivisions, Biddeford, Maine. Prepared by Walsh Engineering Associates, dated 1/20/2022.	
24.	Planning Board Review History:	
	A. Conceptual Review	Meeting on July 7, 2021
	B. Preliminary Review	Meeting on November 3, 2021
	C. Final Review	Meeting on February 2, 2022

Conclusions of Law:

The Planning Board concludes based on the application information submitted, peer-review and staff reports prepared and testimony provided at their meetings, the application conforms to the following provisions:

A. Section 66-39 (below) applicable standard and requirements of Chapter 66 of the City's subdivision ordinance:

1. The project will not result in undue water or air pollution.
2. The project has sufficient water available for the reasonably foreseeable needs of the subdivision;
3. The project will not cause an unreasonable burden on an existing water supply, if one is utilized;
4. The project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy, condition may result;
5. The project will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highways or public roads existing or proposed;
6. The project will provide for adequate sewage waste disposal;
7. The project will not cause unreasonable burden on the ability of the municipality to disposal of solid waste and sewage if municipal services are to be utilized;

8. The project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas or public rights for physical or visual access to the shoreline. 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;
9. The project is in conformance with a duly adopted subdivision regulation or ordinance, Comprehensive Plan, development plan, or land use plan, if any.
10. The subdivider has adequate financial and technical capacity to meet the above stated standards;
11. Whenever situated, in whole or in part, within 250 feet of any lake, pond, river or tidal waters, the project will not adversely affect the quality of that body of water, or unreasonably affect the shoreline of that body of water, as indicated on the City of Biddeford, Official Zoning Map and referenced in the City's Comprehensive Plan;
12. The project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of ground water;
13. The project is not in a flood prone area;
14. The project will not unreasonably obstruct abutting properties or structures access to direct sunlight;
15. If any portion of the site has been identified as containing historic or archaeological resources, the development shall include appropriate measures for protecting these resources, including but not limited to modification of the proposed design of the site, timing of construction, and limiting the extent of construction.

B. Section 16, Cluster development, Article VI Performance Standards and other applicable standards of the of the City's Land Development Regulations.

C. Article VII Conditional Uses of the City's Land Development Regulations, including Section 6 Standards:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;

5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties, which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal.
10. The proposed use would be in compliance with Biddeford's comprehensive plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
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 project (and for fire protection purposes, if applicable.)
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, historic sites, archeological resources, or on significant wildlife habitat or wetland areas and water bodies, which could be avoided by reasonable modification of the proposal;

Determination:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the application with the following conditions:

Conditions of Approval:

1. Prior to any ground disturbance:

- a. All outstanding review comments from the contract planner and the Planning Board shall be addressed to the satisfaction of the City Planner.
- b. Remaining comments from the 3rd Party Review Engineer shall be addressed as follows:
 - i. The applicant updated the Plan/Profile drawing with the required notes, as previously requested. The notes shall be added to the subdivision plan which will be recorded at the York County Registry of Deeds. Provide a Road Maintenance Agreement (Section 51.D.6. of the code) for city review prior to recording at the York County registry of Deeds.
- c. A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.
- d. A Unit Cost Estimate on City form shall be submitted to the City Planner for review.
- e. An Erosion and Sedimentation Control Performance Guarantee (acceptable to the Planning Department) in an amount to be determined by the City based on Condition of Approval 1.d. shall be submitted to the Planning Department.
- f. All erosion and sediment control measures need to be installed. Applicant shall notify the Engineering Department once installed so that Staff may inspect said installation, as necessary.
- g. The applicant must submit a recorded copy of the subdivision plan to the Planning Department.
- h. A Stabilized Construction Access shall be constructed and maintained through the duration of this project.

2. Prior to the sale or conveyance of any lot/unit or the issuance of any permits:

- a. The applicant shall submit recorded copies of all easements/agreements, home owners association documents, and the road maintenance agreement. All open space transferals (in fee or by easement) shall be recorded and submitted to the Planning Department.
- b. The Planning Department shall conduct a compliance inspection and shall determine that all required site improvements related to the public's health, safety, and welfare have been completed, and that the City holds a Performance Guarantee sufficient to cover any remaining site improvements and/or deficiencies.
- c. A performance guarantee (acceptable to the Engineering Department) in the amount of 150% of any remaining site improvements shall be submitted to the Planning Department. Amount to be determined based on City inspections and the recommendation of the City Engineer.

3. Best management practices shall be adhered to during all ground disturbance operations.

4. **Copies of the maintenance logs for any stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.**
5. **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, unless authority issuing said permit allows for such actions.**
6. **Once completed, as-built drawings of the site shall be provided to the Planning Department.**
7. **Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approved plans.**
8. **Standard Conditions of Approval apply.**

Planning Board Chairman

Date

From: Tansley, Greg
To: ["Munroe, Wayne - NRCS, Scarborough, ME"](#)
Subject: FW: [External Email]Biddeford Planning Board and Subdivision projects
Date: Tuesday, November 16, 2021 5:14:00 PM
Attachments: [image002.png](#)
[image003.png](#)
[image004.png](#)

Hi Wayne,

Just to keep you informed, I provided your response to the applicant's team. Their response is below

Thanks for assisting with this.

Respectfully,

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

From: Connor Ritter <connor@Walsh-eng.com>
Sent: Tuesday, November 16, 2021 3:45 PM
To: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Cc: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>; Eddy, Mathew <Mathew.Eddy@Biddefordmaine.org>; Emily Ingwersen <emily@gingerhilldesignbuild.com>; Robert Ingwersen <rob@gingerhilldesignbuild.com>; Bill Walsh <bill@Walsh-eng.com>
Subject: RE: [External Email]Biddeford Planning Board and Subdivision projects

Hi Greg,

Thanks for keeping us in the loop on this. I'm not sure of what was asked of Mr. Munroe originally, but his response does well to elaborate on the available soil identification tools and purposes. In addition to advising for a high intensity soil survey to provide additional details of on site soils, Mr. Munroe's response refers us to the Web Soil Survey data set, which we have included as part of Appendix C in the stormwater report in our submissions for each project. Based on the web soil survey and the high intensity soil survey conducted by licensed Soil Scientist Mark Hampton, we maintain that there are no soils unsuitable for development in the rural farm zone under the Biddeford Land Development Regulations Article VI, Section 44, Item A.5.

Thanks,
Connor

Connor Ritter, EIT



One Karen Drive, Suite 2A
Westbrook, ME 04092
P: (207) 553-9898, Ext 105
www.walsh-eng.com



This transmission is intended only for the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this communication is not the intended recipient, or an employee or agent responsible for delivering the communication to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error please contact the sender at 207-553-9898.

From: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Sent: Tuesday, November 16, 2021 3:07 PM
To: Connor Ritter <connor@Walsh-eng.com>
Cc: Bonine, Hannah <Hannah.Bonine@Biddefordmaine.org>; Eddy, Mathew <Mathew.Eddy@Biddefordmaine.org>; Emily Ingwersen <emily@gingerhilldesignbuild.com>; Robert Ingwersen <rob@gingerhilldesignbuild.com>; Bill Walsh <bill@Walsh-eng.com>
Subject: FW: [External Email]Biddeford Planning Board and Subdivision projects

Hi Connor,

Please see below. It appears this email went out the day after the Planning Board meeting. I don't know what was asked, but below was the response.

I have attached the same documents I sent to Mr. Munroe.

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

From: Munroe, Wayne - NRCS, Scarborough, ME <wayne.munroe@usda.gov>
Sent: Tuesday, November 16, 2021 2:45 PM
To: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Subject: RE: [External Email]Biddeford Planning Board and Subdivision projects

Greg,

Below please find my response to recent (11/04/21) [Richard Rhames discussion](#) regarding the Biddeford Conservation Commission review of a few planned Subdivisions before the Biddeford Planning Department.

Your transcript context "violently disagrees" is simply inaccurate. I do disagree to any suggestion that the York County Published Soil Surveys is estimated at only 20 percent accuracy! The original published Soil Surveys were cleaned up to professional digital standards before release in the Web Soil Survey which is the recommended database to use for up to date Soil Maps along with capability and suitability ratings for various land uses.

My final communication put forth on the subject remains the same as the quoted conversation below. I wish the Biddeford Planning Board the best in carrying out your Mission.

"Richard,

Thanks for the update.

NRCS published County Soil Surveys, Web Soil Survey data follow National Cooperative Soil Survey Standards.

Furthermore, all original Soil Surveys published in the USA have undergone additional quality review criteria before becoming digital soil map data as now available in the Web Soil Survey data set.

More detail on site mapping to a higher intensity detail is always advised to identify land use limitations and soil properties associated with soil series inclusions not mapped at the Medium Intensity level.

An example of a higher intensity soil survey requirement is Private Septic System requirements by Maine State Plumbing code demanding on site soil testing procedure associated with Septic design by a licensed soil scientist.

My USDA NRCS Position (District Conservationist) involves comprehensive use of Soil Surveys applying professional use of the published Maps and data to identify on site limitations and land use interpretation.

I highly trust in the Standards of the United States Cooperative Soil Survey Mapping protocols that assures Soil Science quality criteria is met before publication of County Soil Surveys and modern digital data now available.

Any novice user of County Soil Surveys and Web Soil Survey may read the disclaimer regarding on site soil inclusions that may exist beyond the Medium Intensity Maps, not to be confused with potential gross soil map inaccuracy .

The Biddeford Planning Department subject to City Standards and Protocols may want to correlate proposed development higher intensity soil map results with the potential inclusions commonly

associated with mapped soils at the Medium Intensity Soils Survey and or Web Soil Survey Map results.

The identified Soil Series (mapped at the higher intensity development standards) may then use the soil limitation data available in the Web Soil Survey data set.

Best wishes and intentions for the Biddeford Planning Department to achieve high integrity results in carrying out their Mission.

Wayne,”

STATE OF MAINE SOILS CATENA KEY

The soil catena concept is a useful guide to understand the complex nature of soils that blanket the landscape. A soil catena is a sequence of soil series that extend across relief positions and are developed from similar parent material. Relief influences soil formation primarily through its effect on drainage, runoff, and erosion. The key that follows uses the catena concept by matching parent material and drainage for each series. This is helpful in identifying the relationship of one series to others. It is intended to be used only as a guide; the Official Series Description should be used to identify the soil being evaluated.

(Series listed in *Italics*) have a mesic soil temperature regime and are no longer used in Maine except in parts of York and Cumberland Counties.)

Good Luck!

Wayne,

Wayne P. Munroe
District Conservationist
Natural Resources Conservation Service
306 US Route One, Suite A1
Scarborough, ME 04074

“Helping People Help the Land”

Voice: (207) 883-0159 (ext. 2803)
Cell: (207) 232-1350
Fax: 1-855-603-3570
Email: Wayne.Munroe@USDA.GOV

From: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Sent: Tuesday, November 16, 2021 2:17 PM
To: Munroe, Wayne - NRCS, Scarborough, ME <wayne.munroe@usda.gov>
Subject: [External Email]Biddeford Planning Board and Subdivision projects

[External Email]

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;
Use caution before clicking links or opening attachments.
Please send any concerns or suspicious messages to: Spam.Abuse@usda.gov

Hi Wayne,

I don't think we have ever met. I am the Deputy Director of Planning and Development in Biddeford.

I tried calling earlier but you are not in the office today. On Nov. 3 during the Biddeford Planning Board's review of a subdivision proposal here in Biddeford your name came up several times. Mr. Richard Rhames of the Conservation Commission mentioned he had spoken to you about this project at 158 Oak Ridge Road, and mentioned he has spoken to you maybe earlier about the south street Village project as well.

His message to the Board came off as that you do not agree with Mark Hampton on certain things, and in fact "violently disagreed", as Richard put it. Given the nature of the disagreement (with a professional who has submitted materials as part of a Planning Board application) and the use of the word "violently", I was compelled to let the Board I would reach out to you to try to get a better understanding of your position. Given Mark Hampton has provided a HISS for each of these projects and that a Conservation Commission referred to you by name as disagreeing with Mr. Hampton it casts enough doubt out there that the Board Chair asked me if I would follow up with you.

The root of all of this is in the recent May 2020 NRCS updated map for York County. The attached catena was provided to me as a helpful resource. Mr. Rhames appeared to be arguing that Mark Hampton's HISS work should not be considered and we should use the old Soils Maps instead because they show something that the new maps don't. I think that is what I got from his discussion, anyways.

I have included a transcript (draft) from the meeting where Richard brought your name and title it.

Could we have a conversation before these projects get back before the Board? There are enough questions out there now that I think it would be beneficial.

Please let me know when you are available to talk, hopefully sooner than later.

Thanks,

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

Final Subdivision Application City of Biddeford, Maine

for

Leeward Meadows Subdivision

**Located At:
158 Oak Ridge Road
Biddeford, Maine 04005**

January 12, 2022

Applicant
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Prepared By
Walsh Engineering Associates, Inc.
1 Karen Drive, Suite 2A
Westbrook, Maine 04092

January 12, 2022

Biddeford Planning Board
c/o Mr. Greg Tansley, City Planner
City of Biddeford
205 Main Street
P.O. Box 586
Biddeford, ME 04005

**RE: Final Subdivision Submission
Leeward Meadows Subdivision
158 Oak Ridge Road, Biddeford, Maine
Tax Map 4, Lot 57**

Dear Mr. Tansley,

On behalf of Ginger Hill, LLC (applicant), Walsh Engineering Associates, Inc. (WEA) is pleased to submit this Final Subdivision Submission. The Applicant is proposing to develop a six-lot residential cluster subdivision with a private road and open space at 158 Oak Ridge Road in Biddeford.

The applicant previously received sketch plan review approval and preliminary subdivision review approval from the City of Biddeford Planning Board at Planning Board meetings on July 7, 2021 and November 3, 2021 respectively. The contents of this submission reflect the final plans required by the City of Biddeford ordinance and all items requested as conditions of approval by the Planning Board and City of Biddeford Planning and Development Department.

Existing Conditions

The project is located on the 15.5± acres parcel identified by the City of Biddeford's Assessor's Tax Map as Map 4, Lot 57 in the Rural Farm (RF) District. The site is currently undeveloped consisting of meadow and forested area with frontage on Oak Ridge Road. Wetlands and soils have been identified on site by Mark Hampton Associates, Inc. on April 20, 2021. Soils on the site are generally poorly or somewhat poorly draining. Stormwater drains north towards the wetland on site and across Oak Ridge Road via a 30-inch culvert. The project is not located within an Essential or Significant Habitat as evaluated by Jones Associates, Inc. in May of 2021. There is not public sewer or water service available for the property.

Proposed Development

The applicant is proposing to subdivide the property into six residential lots, a large open space area, and a proposed private road for access. Each residential lot will include a single-family house and driveway as conceptually shown on the site plans. A 735± foot long road with two entrances on Oak Ridge Road is proposed for the access. The road has been designed to meet the City of Biddeford's roadway construction standards for a private way serving 5 to 10 lots. A sidewalk is

not proposed with the street due the absence of sidewalks within proximity of the project and to maintain the rural characteristics of the area. Each lot of the development will be serviced by individual private water wells and private on-site septic systems. Electric and telecommunication utilities will be run underground from an existing utility pole to service the lots. The development of the project will not have adverse effect on stormwater runoff and all drainage systems have been adequately designed. Applicable permits with the Maine Department of Environmental Protection (DEP) and the Army Corps of Engineers (ACOE) will be obtained prior to any wetland impact.

The subdivision will utilize cluster development standards in order to preserve open space and natural resources on the property. The size of residential lots has been minimized to the extent practical in order to maximize the open space area. The open space is intended to preserve natural resources on the property and will be managed by the homeowner's association for the development in conjunction with the Kennebunkport Land Trust via a conservation easement. A landscaping plan incorporating a mix of native trees and shrubs to provide visual screening from Oak Ridge Road has been prepared in accordance with vegetated buffer requirements of the Rural Farm District.

We trust that we have provided the appropriate information to be placed on the next available planning board meeting. We look forward to working with the city to make this project a success. Please let me know if you have any questions or require any additional information.

Respectfully,



William R. Walsh III, PE
Walsh Engineering Associates, Inc.

cc. Emily Ingwersen, Ginger Hill, LLC
Robert Ingwersen, Ginger Hill, LLC

Enc. Declaration of Covenants & Restrictions
Fire Department Review Response
Stormwater Report, Revision 3 dated January 12, 2022
Final Subdivision Plan Set dated January 12, 2022
Final Subdivision Application Fee (\$3,040.00)

TABLE OF CONTENTS

Application, Agent Authorization & Certificate of Good Standing

Attachment 1: Declaration of Covenants & Restrictions; Conservation Easement

1

Attachment 2: Review Responses

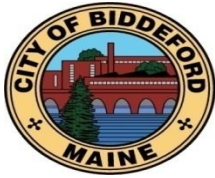
2

Attachment 3: Stormwater Report, Revision 2 (Bound Separately)

3

Attachment 4: Site Plans

4



City of Biddeford 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 ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision ☐ Private Way
☐ Other: _____

Applicant Information:

Name: Ginger Hill Design + Build
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

What is your legal interest in the property?

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

Owner's Information:

Name: Ginger Hill, LLC dba Ginger Hill Design + Build
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

Agent's Information:

Name: William R. Walsh III, PE - Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: (207) 553-9898
Email: bill@walsh-eng.com

Engineer/Surveyor's Information:

Name: William R. Walsh III, PE - Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: 207-553-9898
Email: bill@walsh-eng.com

Project Location and Lot Information:

Street Address: 158 Oak Ridge Road
Tax Map: 4 Lot: 57
Current Zoning: Rural Farm Shoreland Zoning: N/A
Size of Lot: 15.5 (X)acres ()s.f. Lot Frontage: 806 ft
Existing use of Property: The existing lot is currently undeveloped

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

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

Description of proposed use of property:

Project/Proposed Use:

The lot will be used for the construction of a 6-lot residential subdivision.

Property to be Serviced by:

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

Is this project part of a larger project? ☐ (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:** 6

☒ **If a Private Way is proposed, number of lots served:** 6

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. _____

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 Dept – Tom Milligan 284-9118

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

- B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, ect.
- C. Photographs of Site.
- D. Architectural renderings/drawings of proposed buildings, as required.
- E. Engineering Plans, as required.

Fees (Due at time of Submission):

- \$40 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 it’s 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.

X Project proposed to have 1 acre or more of Site disturbance:

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of Applicant: _____ **Date** _____

Signature of Property Owner: _____ **Date** _____

IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE) CHECKWITH PLANNING STAFF FOR CLARIFICATION.

To Whom It May Concern,

By this letter, the undersigned authorizes Walsh Engineering Associates, Inc. to act as the agent for the undersigned in the preparation and submission of all Federal, State, and Local City permit applications and relevant documents and correspondence for all necessary permits for the construction on the property at Oak Ridge Road, Biddeford, Maine 04005 (Tax Map 4, Lot 57, Parcel A) to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

Ginger Hill, LLC

Company

Emily Ingwersen

Signature

Emily Ingwersen, Manager

Printed Name and Title

6/14/2021

Date



MAINE

Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

[Subscriber activity report](#)

This record contains information from the CEC database and is accurate as of: Mon Aug 02 2021 10:54:51. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GINGER HILL, LLC	20150386DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
07/30/2014	N/A	MAINE

Other Names (A=Assumed ; F=Former)

GINGER HILL DESIGN & BUILD	A
----------------------------	---

Clerk/Registered Agent

RALPH W. AUSTIN
P.O. BOX 468
BIDDEFORD, ME 04005

[Back to previous screen](#)

[New Search](#)

Click on a link to obtain additional information.

List of Filings

[View list of filings](#)

Obtain additional information:

Additional Addresses

[Plain Copy](#)

[Certified copy](#)

Certificate of Existence [\(more info\)](#)

[Short Form without
amendments
\(\\$30.00\)](#)

[Long Form with
amendments
\(\\$30.00\)](#)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files.
If you encounter problems, visit the [troubleshooting page](#).



ATTACHMENT 1
DECLARATION OF COVENANTS & RESTRICTIONS
CONSERVATION EASEMENT

**LEEWARD MEADOWS SUBDIVISION
BIDDEFORD, MAINE**

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration is made this ____ day of _____, 2021, by Ginger Hill, LLC, with a place of business in Arundel, in the County of York and State of Maine (hereinafter called “Declarant”).

W I T N E S S E T H:

WHEREAS, Declarant is the owner of real property situated on the southwesterly side of Oak Ridge Road, in the City of Biddeford, in the County of York and State of Maine, and desires to create a residential community thereon, pursuant to subdivision approval for such property, such approval being evidenced on “Standard Boundary Survey Showing Leeward Meadows Subdivision, Oak Ridge Road, Biddeford, Maine” by _____, dated _____ and recorded in the York County Registry of Deeds in Plan Book _____, Page _____; and

WHEREAS, Declarant desires to ensure the preservation of values and amenities in the community and, to this end, desires to subject the real property described in ARTICLE I to the covenants, restrictions, easements, charges and liens hereinafter set forth, each and all of which are for the benefit of said property and each owner thereof; and

WHEREAS, Declarant has deemed it desirable for the efficient preservation of the values and amenities in the community to create an agency to which will be delegated and assigned the powers of maintaining and administering the common areas and facilities and administering and enforcing the covenants and restrictions and collecting and disbursing the assessments and charges hereinafter created; and

WHEREAS, Declarant has incorporated or will incorporate under the laws of the State of Maine, as a nonprofit corporation, LEEWARD MEADOWS OWNERS ASSOCIATION for the purpose of exercising the aforesaid functions.

NOW, THEREFORE, Declarant declares that the real property described in Article I is and shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, charges and liens (sometimes referred to as “covenants and restrictions”) hereinafter set forth in conveyances of lots.

ARTICLE I

PROPERTY SUBJECT TO THIS DECLARATION

The real property which is, and shall be held, transferred, sold, conveyed and occupied subject to this Declaration is located in the City of Biddeford, in the County of York and State of Maine, and is all of the land area shown on a plan entitled "Standard Boundary Survey Showing Leeward Meadows Subdivision, Oak Ridge Road, Biddeford, Maine" by _____, dated _____ and recorded in the York County Registry of Deeds in Plan Book ____, Page ____, hereinafter referred to as "the Plan," to which reference is made for a complete description thereof, all of which real property shall hereinafter be referred to as the "Property," specifically including all of the numbered lots, roads, easements, rights of way, and such other lands or areas which may be designated by Declarant. All conditions, restrictions and limitations shown on said Plan, whether or not specifically referred to herein, are incorporated by reference into this Declaration and made a part hereof.

ARTICLE II

DEFINITIONS

Section 1: "Association" shall refer to Leeward Meadows Owners Association, its successors and assigns.

Section 2: "Owner (s)" shall refer to the record owner, whether one or more persons or entities, of fee simple title to any Lot as depicted on the Plan.

Section 3: "Member" shall mean and refer to lot owners as provided in Article V.

Section 4: "Lot (s)" shall refer to those single-family residential lots as depicted on said Plan.

Section 5: "Common Area" shall mean all real property owned by Declarant, or the Association after transfer, with improvements thereon, or real property in which Declarant or the Association has easement rights and which are intended for the common use and/or benefit of the Owners as depicted on said Plan, including areas shown on the Plan as "Open Space" and the subdivision road known as "Leeward Meadows".

ARTICLE III

OWNERSHIP, MAINTENANCE AND USE OF COMMON AREAS

Section 1: Every Owner shall have equal rights with respect to the common areas which shall pass with the title to every lot, subject to the right of the Association to charge reasonable fees for the maintenance and upkeep of any portion of the common area. All common areas shall be managed by the Association, which shall establish rules and regulations for the use thereof in accordance with the provisions of this Declaration.

Section 2: The common areas on the Plan denoted as “Open Space” shall remain in their natural state, including existing vegetation and wetlands. Trees and shrubs that are planted in the “Open Space” as a buffer and vegetated screen, and existing vegetation that is proposed to remain, shall be maintained as such. The Board of Directors of the Association may allow the removal of dead, dying or diseased trees. Those areas of the “Open Space” that are fields shall be mowed a minimum of once each year. The Board of Directors of the Association may also allow common garden space in certain areas of the “Open Space,” subject to such rules and regulations as the Board may adopt. The purpose of these regulations is to preserve the habitat of the “Open Space” as much as possible. This provision may not be substantially changed without prior approval of the Biddeford Planning Board.

Section 3: Any Owner may delegate, in accordance with the Association’s Bylaws, his/her right of enjoyment to the common area and facilities to members of his/her family, his/her tenants and his/her invitees for limited periods of time.

Section 4: Unless earlier conveyed, the common areas shall be conveyed by Declarant to the Association within thirty (30) days after the sale of the last lot. The Declarant, or the Board of Directors of the Association, has the authority to grant a conservation easement over the Open Space to a conservation commission or to a recognized land trust.

ARTICLE IV

COVENANT FOR MAINTENANCE ASSESSMENTS

Section 1: The Owner of each lot hereby covenants, and by acceptance of a deed thereof, agrees to pay to the Association an annual assessment or charge. The assessment, together with interest, costs, and reasonable attorney’s fees incurred for collection of the same shall be a continuing lien on the Owner’s lot. The assessments levied by the association shall be used exclusively to maintain and/or improve the common areas.

Section 2: Both annual and special assessments shall be fixed at a uniform rate for all lots, with the exception of fees incurred pursuant to Article VI, Section 14E herein, which shall be designated the sole and exclusive obligation of such Owner in breach of these Covenants and Restrictions.

Section 3: The Directors shall fix the amount of the annual assessment and any special assessments in accordance with the procedure set forth in the Bylaws of the Association.

Section 4: The Directors shall upon demand furnish a certificate in recordable form setting forth whether the assessments on a specified lot have been paid. Such a certificate may be signed by the President, Treasurer or other designated officer.

Section 5: In addition to the annual assessments authorized above, the Association may levy, in any assessment year, a special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the common area including maintenance of the drainage easements to assure adequate runoff from the rights-of-way. Special assessments shall be determined by the Directors of the Association on an “as needed basis.”

Section 6: Any assessment not paid within thirty (30) days after the due date shall bear interest from the due date at a rate to be determined by the Directors, but in any event not less than ten percent (10%) per annum. The Directors, on behalf of the Association may bring an action at law against the Owner personally obligated to pay the same, or foreclose the lien against the property, in the manner as a mortgage on real estate or by any other means presently or hereafter provided by law or in equity. A suit to recover a money judgment for unpaid assessments, interest, penalties and cost of collection may be maintained against the lot owner personally without foreclosing or waiving the lien securing such assessment.

ARTICLE V

MEMBERSHIP AND VOTING RIGHTS

Section 1: The Association shall have one (1) class of voting Membership. The Members of the Association shall have no redemptive rights, as such Members, to acquire any Memberships of this Association that may, at any time, be issued by the Association, except as may be specifically provided in this Article.

Section 2: The Association shall elect a minimum of three (3) Directors to manage Association business. The Directors shall be chosen, and shall serve terms, as designated and set forth in the Bylaws of the Association. Directors shall elect corporate officers, which shall consist of a President, a Vice President, and a Treasurer.

Section 3: Meetings shall be called and conducted, and notices thereof sent, as provided and set forth in the Bylaws.

Section 4: Notwithstanding the foregoing or anything contained in this Declaration to the contrary, Declarant shall have the sole and exclusive right to appoint officers and directors to the Board until sixty (60) days after the sale of last lot in the subdivision or until Declarant voluntarily transfers control of the Association to the Members, whichever occurs first. During the period of control as set forth herein, Members of the Association, otherwise qualified hereunder, shall have non-voting membership, unless the provisions of this sentence are expressly waived relative to a particular issue by a writing signed by the Declarant.

ARTICLE VI

PROTECTIVE COVENANTS

Section 1: Declarant hereby declares that the following protective covenants shall apply to all lots in Leeward Meadows Subdivision for the benefit of all Owners. These covenants shall become effective immediately and shall run with the land described in any deed of conveyance, and be binding upon all persons claiming under the Declarant, as developer or otherwise, until termination by operation of law, or as hereinafter provided. The covenants and restrictions set forth herein shall be referenced in any future deeds of lots in Leeward Meadows Subdivision.

Section 2: Each lot shall be used for residential purposes. No lot may be subdivided. No structure shall have vinyl siding or pace/plastic trim. No residence shall more than 3,500 square feet of living space, excluding garages and basements. In any event, no buildings or additions shall be erected, placed or allowed to stand on any lot in the subdivision unless and until the plans, specifications and locations thereof have been approved in writing by a duly authorized agent of Declarant, its successors or assigns, or the Association after assumption of control by the Association. All buildings and other structures, including fences, must be placed within the building envelope as shown on the Plan. Notwithstanding the foregoing, fences may be allowed in the Open Space for enclosure of animals, such as horses, with permission of the Declarant or the Board of Directors of the Association, as the case may be.

Section 3: No unregistered automobiles, trucks, motorcycles, motor homes or travel trailers, snowmobiles or boats or other similar motorized vehicles shall be stored on the premises for more than six (6) months without approval of the Board of Directors of the Association.

Section 4: Once construction of a building is commenced, work thereon must be prosecuted diligently and must be completed within a reasonable time, and in any event, within one (1) year from commencement of said work, provided, however, that additional time shall be allowed for exigent circumstances, including labor shortages, material shortages or delays and pandemics. "Completion" shall include grading, loaming and seeding.

Section 5: The erection or use of any satellite dish over twenty-four inches (24") in diameter within the limits of said subdivision must be approved, in writing, by the Board of Directors of the Association.

Section 6: Any use of the property must be in strict conformity with the provisions of any applicable zoning law, ordinance or regulation. Nothing contained in this article, or elsewhere in this Declaration, shall be construed to prohibit the Declarant from the use

of any lot or dwelling for promotional or display purposes, or as “model homes,” a sales office, or the like.

Section 7: No temporary structures shall be built upon the land other than those necessary and used in the course of construction of permanent buildings, and all such structures shall be removed immediately upon completion of any building operation. Storage and garden sheds shall be allowed, within the building envelope for each lot as shown on the Plan.

Section 8: Any fence constructed upon the property shall be made of non-pressure treated wood or made of metal, but no other material.

Section 9: The use and operation of motorized vehicles of any kind or type, including but not limited to snowmobiles and ATVs, shall be prohibited in any wooded area of the Subdivision, including the wooded area of a lot owned by the operator or user of any such motorized vehicle.

Section 10: The discharge of firearms of any kind or type, for any purpose, is prohibited anywhere within the Subdivision.

Section 11: The use of chemical pesticides and herbicides on lawns and gardens is prohibited. Owners are encouraged to follow the recommendations of the City of Biddeford’s “Yard Smart” program as set forth in the pamphlet entitled “10 Simple Steps Toward a Safe & Healthy Lawn” (<https://www.biddefordmaine.org/DocumentCenter/View/1762/Conservation-Commission-Resources---Combined-PDF>).

Section 12: The Association shall have control over the common areas and its Directors shall enforce the aforementioned and following covenants, which shall be deemed to run with the land:

A. The Association shall, until transfer to a public authority or agency, arrange and provide for the proper maintenance of Leeward Meadows, including the subdivision road and the Open Space. The Association shall ensure that the subdivision road is properly maintained, and that snow removal occurs in a reliable manner to aid in public safety access.

B. The Association shall prohibit any use of the property designated “Drainage Easement” on the plan for any purpose other than as a natural drainage swale, and shall arrange and provide for maintenance of said easements so that they continue to perform the function for which they are intended, but none other, including periodic cleaning, if necessary. Nothing contained herein shall allow the Association to enter upon said easement area for the purpose of cutting or removing any natural vegetation unless absolutely essential to the proper operation of said easement.

C. The Declarant, and Association, after transfer of the common areas, shall retain the sole right and power to grant any and all necessary easements over common areas to public utility authorities to carry out its obligations hereunder, either for installation or repair of same. Any such easements not shown on the approved subdivision plan must also receive approval from the Biddeford Planning Board.

D. In addition to any other remedies provided for the Association herein, upon the apparent breach of Protective Covenants by any Lot Owner (s), the Directors on behalf of the Association, shall notify said Owner(s) by certified mail of such breach, and include a reasonable description of the actions necessary to correct or cure such breach. If said Owner (s) does not take corrective action within seven (7) days from receipt of said notice, or object to the proposed action to be taken within said time period, the Directors shall, without further notice, be entitled to take such action as set forth in the Notice and to surcharge as a special assessment to said Owner (s) solely for all necessary and incidental expenses, including attorney's fees incurred in taking such corrective action. For this purpose, the Association or any agent thereof shall and by these presents, does have the right to enter upon land of any such breaching Owner to clean all drainage easements of all debris, to clean and maintain the culverts required by said Covenant, or to remove drainage water in accordance with the Plan, and to ensure compliance with any other applicable covenant, restriction or condition.

Section 13: Enforcement shall be by the Association as Plaintiff in a proper case, or by any Owner by proceeding at law or in equity against any persons violating, or attempting to violate any covenants, restrictions or conditions, either to restrain violation or to recover damages, or both, in the sole discretion of the party so proceeding. Any party successfully enforcing any of these covenants shall be entitled to recover against the party violating such covenant (s), as a monetary award, for the reasonable attorney's fees and costs incurred in such enforcement proceedings.

ARTICLE VII

RESERVATION OF RIGHTS AND EASEMENTS

Declarant reserves the following rights and easements:

Section 1: The right to install, maintain, repair and replace under, over and upon the common property and areas designated as easements or rights of way on the plan, and any ways on which said land abuts, or shall abut, such electric light, power, telephone and telegraph cables and wires, water, sewer and drainage pipes, mains and conduits, catch basins, surface drains and culverts, and such other facilities, installations, appurtenances and things as Declarant may deem necessary or convenient in connection with the provision of adequate drainage, sewerage disposal, water, electricity, telephone communications and other utilities to any portion of the property, and for the benefit of

any other land owned by Declarant, its successors and assigns, including, but not limited to adjoining property, now owned or hereafter acquired by Declarant, which Declarant may choose to develop in the future; all of which rights and easements, Declarant, its successors and assigns, may assign to telephone, telegraph, power, water and other public and private utility companies and corporations as Declarant may determine;

Section 2: The right to add to or designate additional lands or areas as common areas as herein defined, or to dedicate and subject additional lands to the terms and conditions of this Declaration.

Section 3: An easement and right of way over all ways and other common spaces shown on the plan for ingress and egress by Declarant to adjoining property now owned or hereafter acquired by Declarant, its successors and assigns for all purposes related to development of such adjoining property and for permanent egress and ingress to such adjoining property by future owners of homes therein.

Section 4: The right to enter upon the land or any sold or unsold lot for the purpose of selectively cutting trees and clearing trees and brush to improve the physical appearance of the land.

Section 5: The right to waive or modify certain of the conditions, covenants and restrictions set forth in Article VI with respect to any additional lands dedicated and subject to the terms and conditions of this Declaration.

ARTICLE VIII

GENERAL PROVISIONS

Section 1: Invalidity of any one of these covenants or restrictions by judgment or court order shall not affect any other provisions which shall remain in full force and effect.

Section 2: The Covenants and Restrictions of this Declaration, which shall be recorded at the York County Registry of Deeds, shall run with and bind the land. This Declaration may be amended by an instrument signed by not less than sixty percent (60%) of said Owners. Any amendments hereto must be recorded at the York County Registry of Deeds. Any amendments to the approved subdivision plan must also be approved by the Biddeford Planning Board.

WITNESS:

GINGER HILL, LLC

By: _____

Emily Ingwersen

Its: Manager Duly Authorized

STATE OF MAINE

YORK, ss

_____, 2021

Personally appeared Emily Ingwersen, Authorized Manager of Ginger Hill, LLC, and acknowledged the foregoing Declaration to be her free act and deed in her said capacity and the free act and deed of said company.

Before me,

Ralph W. Austin /Attorney at Law
Bar #1156

**CONSERVATION EASEMENT
OPEN SPACE AREA OF LEEWARD MEADOWS SUBDIVISION
BIDDEFORD, MAINE**

GINGER HILL, LLC, a Maine limited liability company, with an address of 18 Early Way, Arundel, Maine 04046, in the County of York and State of Maine (hereinafter referred to as the "GRANTOR").

GRANTS as a gift to **KENNEBUNKPORT CONSERVATION TRUST**, a a Maine nonprofit corporation, with a mailing address of 57 Gravelly Brook Road, Kennebunkport, Maine 04046 (referred to as the "HOLDER").

With QUITCLAIM COVENANTS, in perpetuity, the following described Conservation Easement on real estate in the City of Biddeford, County of York, and State of Maine, hereinafter referred to as the PROTECTED PROPERTY, and described in Exhibit A, and depicted on Exhibit B, both attached hereto and made a part hereof, exclusively for conservation purposes as follows:

PURPOSE

It is the purpose of this Conservation Easement to protect and preserve in perpetuity important natural and recreational resources, on the Protected Property, to maintain, restrict and conserve its use to that of recreational, conservation or agricultural purposes. The following recitals more particularly describe the Protected Property, the conservation values of the Protected Property and significance of this grant.

WHEREAS, the Grantor is the sole owner of the Protected Property, shown and depicted as "Open Space 1" and "Open Space 2" on a plan entitled "Subdivision Plan of Leeward Meadows, Oak Ridge Road, Biddeford, Maine" by _____, dated _____, with a latest revision date of _____ and recorded in the York County Registry of Deeds in Plan Book ____, Page ____; and

WHEREAS, the Protected Property consists of approximately _____ square feet of substantially natural and undeveloped vegetated and wetlands land; and

WHEREAS, the Grantor and the Holder desire to ensure that the Protected Property will provide an open area sufficient for the use and enjoyment of the lot owners/members of Leeward Meadows Homeowner's Association; and

WHEREAS, the structures and uses permitted hereunder are or shall be limited and sited so as to be screened or to blend with traditional landscape so as not to alter materially the sylvan appearance of the landscape.

NOW THEREFORE, in consideration of the foregoing, the Grantor and Holder

have established a Conservation Easement on, over and across the Protected Property consisting of the following terms, covenants, restrictions and affirmative rights granted to Holder, which shall run with and bind the Protected Property in perpetuity:

COVENANTS AND RESTRICTIONS

1. Land Use

No industrial, commercial, residential or other building development activities are permitted on the Protected Property, except for those allowed under the Biddeford Zoning Ordinance permitting structures that are accessory to non-commercial recreational, conservation or agricultural purposes and as approved by the Homeowners Association.

No surface mining, drilling, mineral development, or other man-made changes in the existing general topography of the landscape or land surface are permitted on the Protected Property, except as permitted herein.

Subject to any more restrictive local, state, and federal laws and regulations, it is forbidden to dispose of or store rubbish, garbage, building debris, unserviceable vehicles and equipment, parts thereof, hazardous waste, hazardous or toxic substance, or other unsightly or offensive waste material on the Protected Property, except that organic matter, compost and logging debris may be used, stored or disposed of in a manner not detrimental to the conservation values of the Protected Property, and other waste generated by permitted uses on the Protected Property may be stored temporarily in appropriate containment for removal at reasonable intervals.

2. Subdivision.

No division, subdivision, partition or establishment of separate parcels or lots on the Protected Property is permitted, nor may the Protected Property be included as part of the gross tract area of other property not subject to this Conservation Easement for the purposes of determining density, lot coverage, or land area requirements, under otherwise applicable laws, regulations or ordinances controlling land use and building density.

3. Structures.

As of the date of this grant, there are no new structures on the Protected Property.

No additional structures of any kind, temporary or permanent, may be located on the Protected Property without the prior written consent of Holder, except however, the Grantor reserves the right to locate on the Protected Property only the following structures:

MINOR STRUCTURES: Grantor reserves the right to install minor structures to enhance the opportunity for non-commercial outdoor recreation, conservation, or agricultural uses including but not limited to boundary markers; trail markers; small unlighted informational and interpretive signs; trail improvements such as steps, bog bridges, water bars, footbridges, platforms, and railings; primitive campsites including fire rings, privies, and picnic tables; registration boxes; wildlife observation blinds; gates, barriers or low fences to prevent access by motor vehicles or to protect fragile areas and areas under active management or study, and shared solar panels; provided that all such structures must be designed and located to blend with the natural surroundings and complement the natural and scenic features of the landscape, and to preserve the agricultural production capacity of prime or unique soils.

NOTICE: Grantor must notify Holder by certified mail, return receipt requested, in accordance with the provisions of Paragraph 8, prior to the commencement of site preparation, construction, substantial exterior alteration or relocation of any existing or permitted structure. Notice must include, at the minimum, sufficient information to enable Holder to determine whether proposed plans are consistent with the terms of this Conservation Easement and the conservation purposes hereof.

4. Surface Alterations.

As of the date of this grant, there are no surface alterations on the Protected Property.

No additional filling, dumping, excavation or other alteration may be made to the surface of the Protected Property without the prior written consent of Holder; except, however, the Grantor reserves the following rights, provided that the disturbed surrounding area must be restored as soon as reasonably possible to a state consistent with the conservation values to be protected by this Conservation Easement:

- A. Grantor reserves the right to maintain existing surface alterations and to alter the surface to the extent necessary to exercise the rights reserved in Paragraph 3 and Paragraph 5.
- B. Grantor reserves the right to cultivate existing open areas for agriculture, including horticulture, tree farming, orchards, and crop use, and to graze animals in numbers that are sufficiently limited in number to prevent overgrazing and the risk of erosion; and the right to develop the Protected Property's water resources by the excavation of wells and springs for use on the Protected Property only.
- C. Grantor reserves the right to establish and maintain additional unpaved trails for purposes of non-commercial recreation, conservation or agriculture, provided that they are located and designed in a manner to prevent soil erosion and prevent damage to fragile plant communities and wildlife habitat.

5. Vegetation Management.

As of the date of this grant, the Protected Property is in a predominantly forested condition. Vegetation may be cut, disturbed, altered or removed from the Protected Property by the Grantor, including but not limited to the following: Grantor reserves the right to selectively cut, prune and manage vegetation and forest cover to the extent necessary to exercise the reserved rights of Grantor at Paragraph 3 and 4, and provided that in every case the disturbed surrounding area must be restored as soon as possible to a state consistent with the scenic and conservation values to be protected by this Conservation Easement.

6. Access.

Nothing contained herein should be construed as affording the general public physical access to any portion of the Protected Property. Nothing in this Easement should be construed to preclude Grantor's right to grant public access on, over or across the Protected Property, for purposes of noncommercial recreation, agriculture or conservation, and further that more than a *de minimis* use of the Protected Property for commercial outdoor recreation is prohibited pursuant to IRC § 2031 (c) and regulations promulgated thereunder.

Grantor and Holder claim all of the rights and immunities against liability for injury to the public to the fullest extent of the law under Title 14 M.R.S.A. Section 159-A, *et seq.*, as amended and successor provision thereof (The Maine Recreational Use Statute), and under any other applicable provision of law and equity.

7. Definitions.

- A. "Commercial forest management" is defined as the growing, stocking, and cutting of forest trees, Christmas trees and other forest products for sale or exchange, and includes timber cruising, resource evaluation, herbicide, pesticide and fertilizer application, timber stand improvement, pruning, mechanical and conventional timber harvesting and other forest harvesting, forest products transportation and other transportation consistent with the terms of this Conservation Easement, natural and artificial regeneration of forest stands, maple sugaring, other similar and associated activities, and the construction, creation, use and maintenance of woods roads, skid trails and winter haul roads, turnouts, timber landings and crossing of flowing waters.
- B. "Agriculture" is defined as the production of plant and animal products for domestic or commercial purposes, including animal husbandry, floriculture, horticulture, orchardry, the processing and sale of farm products predominantly grown, produced or raised on the Protected Property, but not be deemed to include industrial processing and packaging or feed lot activities.

- C. "Non-Commercial Recreation" is dispersed, traditional low-impact outdoor recreation, nature observation and study that does not generally rely on buildings or spectator facilities and may include hiking, bird watching, picnicking, cross country skiing, snowshoeing, bicycling, horseback riding, primitive non-commercial camping, and outdoor education, including scientific and archaeological research and observation, and placement of solar panels. The use of the Protected Property by professional researchers shall not be construed as a commercial use. No motorized vehicles, recreational or otherwise, shall be allowed on the Protected Property.
- D. "Normal high watermark of the shore" means that line on the shore of tidal or fresh water bodies which is apparent from visible markings, changes in the character of soils due to the prolonged action of the water or changes in vegetation, and which distinguishes between predominantly aquatic and predominantly terrestrial land. In places where the shore or bank is of such character that the high watermark cannot be easily determined (rockslides, ledges, rapidly eroding or slumping banks), the normal high watermark will be estimated from places where it can be determined by the above method. Distances from the normal high water mark will be determined by horizontal measurement.
- E. A "wetland" is any area saturated or inundated by water at a frequency or for a duration sufficient to support, and which under normal circumstances does support, vegetation typically adapted for life in saturated soils, or any land below an identifiable debris line left by tidal action (including sand dunes), and any land with vegetation present that is tolerant of salt water and occurs primarily in salt water or estuarine habitat. The "upland edge" of a wetland is the boundary between upland and wetland, and not the edge of open water.
- F. A structure or part thereof will be deemed a "residence," "residential unit," or "for human habitation" if it is equipped with sleeping accommodations, cooking facilities and indoor plumbing. This definition should not be construed to prohibit bunkhouses, sleeping lofts in accessory structures, tree houses or other small scale children's play structures, temporary tents for non-commercial camping, or unoccupied self-contained recreational vehicles owned by occupant of the residences on Protected Property.

8. Notices.

Any notice to Holder required hereunder must be made by certified mail return receipt requested, addressed to: Kennebunkport Conservation Trust 57 Gravelly Brook Road, Kennebunkport, Maine 04046 or to such other authorized person or address hereafter designated in writing by Holder. Notices to Grantor required hereunder shall be made in writing addressed to Leeward Meadows Homeowners Association at address to be provided at a later date, and other communication shall be by reasonable means under the circumstances.

Any notices to Holder or requests for Holder consent, required or contemplated

hereunder, must include at a minimum sufficient information to enable Holder to determine whether proposed plans are consistent with the terms of this Conservation Easement and the conservation purposes hereof.

9. Costs and Taxes, Indemnification.

Grantor is responsible to pay and discharge when due all property taxes and assessments lawfully imposed and to avoid the imposition of any liens that may impact Holder's rights hereunder. Grantor acknowledges that Holder has no possessory rights in the Protected Property, nor any responsibility or right to control, maintain, or keep up the Protected Property. Grantor is responsible for all costs and responsibility of ownership, control, operation, maintenance, and upkeep of the Protected Property.

10. Holder's Affirmative Rights.

- A. Holder has the right to enforce this Conservation Easement by proceedings at law and in equity, including the right to require the restoration of the Protected Property to a condition in compliance herewith, after providing Grantor with prior notice and reasonable opportunity to cure any breach, except where emergency circumstances require more immediate enforcement action. Holder may not bring an enforcement action against Grantor for injury to or change in the Protected Property resulting from natural causes or environmental catastrophe beyond their control, such as fire, flood, storm and earth movement, or from any prudent action taken by Grantor under emergency conditions to prevent, abate, or mitigate significant injury to the Protected Property resulting from such causes. If a Court (or other decision maker chosen by mutual consent of the parties) determines that this Conservation Easement has been breached, Grantor will reimburse Holder for any reasonable costs of enforcement, including court costs, reasonable attorney's fees, and any other payments ordered by such Court or decision maker.
- B. Holder has the right to enter the Protected Property for inspection and monitoring purposes and for enforcement, at a reasonable time and in a reasonable manner that is consistent with the conservation purposes hereof. Holder will make reasonable efforts to notify Grantor, or such other person the Grantor may so designate, prior to entry onto any area of the Protected Property.
- C. Holder has the right to require that Grantor's reserved rights be exercised in a manner that avoids unnecessary harm to the conservation values to be protected by this Conservation Easement.
- D. In the event boundaries are not, as of the date of delivery of this instrument, adequately clear or marked and Grantor fails to restore them within a reasonable time after notice by Holder, Holder has the right to engage a professional surveyor to reestablish and remark boundaries of the Protected Property or any part thereof which work will be at Grantor's cost only if and to

the extent necessary to determine if a breach of this Conservation Easement has occurred.

- E. Grantor, its successors and assigns, agrees to hold Holder harmless, and to indemnify it, from and against all claims, losses and liabilities based upon or arising as a result of Holder's exercise or enforcement of its rights hereunder. The obligations of Grantor under this indemnification and hold harmless provision may be assigned to the Leeward Meadows Homeowners Association whereupon Grantor shall be released from any further obligations hereunder.

11. Conservation Easement Requirements Under Maine Law and U.S. Treasury Regulations.

- A. This Conservation Easement is created pursuant to The Uniform Conservation Easement Act at Title 33, Maine Revised Statutes Annotated, Sections 476 through 479-B, inclusive, as amended, and shall be construed in accordance with the laws of the State of Maine.
- B. This Conservation Easement is established exclusively for conservation purposes pursuant to the Internal Revenue Code, as amended (hereinafter referred to as the "Code") at Title 26, U.S.C.A., Section 170(h)(1)-(6) and Sections 2031(c), 2055 and 2522, and under Treasury Regulations at Title 26 C.F.R §.110A-14 et seq., as amended; and
- C. The Holder is qualified to hold conservation easements pursuant to Title 33, Maine Revised Statutes Annotated, Section 476(2)(A), and to wit: a governmental entity with the commitment to preserve the conservation values of the Protected Property.
- D. This Conservation Easement is assignable, but only to an entity that satisfies the requirements of Section 170(h) (3) of the Internal Revenue Code (or successor provisions thereof) and the requirements of Section 476(2) of Title 33 of the Maine Revised Statutes Annotated, as amended (or successor provisions thereof), and that as a condition of transfer, agrees to uphold the conservation purposes of this grant.
- E. Grantor agrees to notify Holder prior to undertaking any activity or exercising any reserved right that may have a material adverse effect on the conservation purposes of this grant.
- F. Grantor represents that as of the date of this grant there are no liens or mortgages outstanding against the Protected Property, except any listed in Exhibit A, which are subordinated to Holder's right to enforce the restrictions of this grant. Grantor has the right to use the Protected Property as collateral to secure the repayment of debt, provided that the right of the Holder to

enforce the terms, restrictions and covenants created under this easement shall not be extinguished by foreclosure of any mortgage or any publicly or privately placed lien, regardless of date, provided that Holder has the right to subordinate its right to collect monetary damages based upon a violation that occurs or is discovered subsequent to recording of a mortgage or lien to the rights of said mortgage holders.

- G. This Conservation Easement constitutes a property right owned by the Holder. Notwithstanding that this Conservation Easement is an obligation, and not a financial asset, should it be extinguished, which may be accomplished only by court order, Holder is entitled to a share of the proceeds of any sale, exchange or involuntary conversion of the unrestricted property, according to Holder's proportional interest in the Protected Property, as determined and required under Treasury Regulations 1.170-A-14(g) (6)(ii). Holder's proportional interest is determined as of the date of this grant and will not include value attributable to improvements to the Protected Property made after the date of this grant. Holder will use such proceeds for its conservation purposes.

12. General Provisions.

- A. The failure or delay of the Holder, for any reason whatsoever, to discover a violation or initiate legal action to enforce this Conservation Easement shall not constitute a waiver or estoppel of its rights to do so at a later time.
- B. A person's obligation hereunder as Grantor, or successor owner of the Protected Property, will cease, if and when such person or entity cease to have any present, partial contingent, collateral or future interest in the Protected Property, but only to the extent that the Protected Property is then in compliance herewith. Responsibility of owners for breaches of this Conservation Easement that occur prior to transfer of title will survive such transfer. Holder will provide certificates, indicating compliance of the Protected Property with the terms of this grant, at Grantor's cost, after an inspection made upon reasonable prior notice.
- C. In making this grant, Grantor has considered the fact that uses prohibited hereby may become more economically valuable than permitted uses, and that neighboring properties may in the future be put entirely to such prohibited uses. It is the intent of both the Grantor and Holder that any such changes shall not be deemed to be changed conditions permitting termination of this Easement.
- D. If any provision of this Conservation Easement or the application of any provision to a particular person or circumstance is found to be invalid, the remainder of this Conservation Easement and the application of such provision to any other person or in any other circumstance, shall remain valid.

E. Any discretionary consent by Holder, permitted by this Conservation Easement for uses that are conditional or not expressly reserved by Grantor, and any legally permissible amendment hereto, may be granted only if the Holder has determined in its reasonable discretion, that the proposed use inconsistent with the purposes of this Conservation Easement, substantially conforms to the intent of this grant, meets any applicable conditions expressly stated herein, and does not materially increase the adverse impact of expressly permitted actions under this Conservation Easement, provided that Holder has no right or power to consent to any use that would limit the term or terminate this Conservation Easement, or that would impair the qualification of this Conservation Easement or the status of the Holder under any applicable laws, including Title 33 M.R.S.A. Section 476 *et seq.*, or Section 170(h) or 501 (c) (3) of the Internal Revenue Code.

Being a portion only of the property conveyed to the Grantor Ginger Hill, LLC by Deed of Clover Leaf Investment Properties, LLC dated May 13, 2021 and recorded in the York County Registry of Deeds in Book 18667, Page 573.

IN WITNESS WHEREOF, Grantor, **GINGER HILL, LLC**, has caused these presents to be signed and sealed in its company name by Emily Ingwersen, its Manager hereunto duly authorized this ____ day of _____, 20__.

Signed, sealed and delivered
in the presence of

GINGER HILL, LLC

Witness

By: _____
Emily Ingwersen, Its Manager

STATE OF MAINE
YORK, SS.

_____, 20__

Then personally appeared the above-named Emily Ingwersen, Manager of Ginger Hill, LLC and acknowledged the foregoing instrument to be her free act and deed in her said capacity and the free act and deed of said company.

Ralph W. Austin, Attorney-at-law

HOLDER ACCEPTANCE

The above and foregoing Conservation Easement was authorized to be accepted by the Kennebunkport Conservation Trust, Holder as aforesaid, and the said Holder does hereby accept the foregoing Conservation Easement, by and through _____, its _____ duly authorized, this _____ day of _____, 20__.

Signed, sealed and delivered
in the presence of

Witness

[name]
Title:

EXHIBIT A

Description of Protected Property

Certain lots or parcels of land situated in Biddeford, in the County of York and State of Maine, lying southwesterly of Oak Ridge Road, so-called, and being all those parcels of land denoted as “Open Space 1” and “Open Space 2” on a plan entitled “Subdivision Plan of Leeward Meadows, Oak Ridge Road, Biddeford, Maine” by _____, dated _____, with a latest revision date of _____ and recorded in the York County Registry of Deeds in Plan Book _____, Page _____;

EXHIBIT B

[REDUCED PLAN OF LEEWARD MEADOWS]

ATTACHMENT 2 REVIEW RESPONSES

- Biddeford Planning & Engineer Review
- Biddeford Police Department Review
- Biddeford Fire Department Review
- Central Maine Power Review
- MHPC Review

PLANNING BOARD
REPORT

October 29, 2021

Biddeford Planning Board
Greg Tansley, City Planner
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Application: Leeward Meadows – Ginger Hill, LLC
918 Oak Ridge Road (Tax Map 4 Lot 57)

Subdivision Preliminary Plan Review

Review Status: New preliminary plan application

Board members and Mr. Tansley,

The following application and attached information has been provided for review:

1. Application form dated 9/15/2021.
2. Cover letter and Application Submission entitled: *Preliminary Subdivision Application for Leeward Meadows Subdivision, located at 158 Oak Ridge Road, Biddeford, Maine 04005, Map 4, Lot 57. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 9/15/2021. This includes Stormwater Report, Soil Survey prepared by Mark Hampton and Wildlife Evaluation Report prepared by Jones Associates.
3. Engineering Plan set entitled: *Leeward Meadows, Oak Ridge Road, Biddeford, Maine 04005. Prepared For: Ginger Hill, LLC, 18 Early Way, Arundel, Maine 04046.* Prepared by Walsh Engineering Associates, dated 10/20/2021.
4. Response to Comments Letter: *RE: Preliminary Subdivision Application Leeward Meadows Subdivision, 158 Oak Ridge Road, Biddeford, Maine, Tax Map 4, Lot 57.* Prepared by Walsh Engineering Associates, dated 10/20/2021.
5. Homeowner's Association Documents: *Leeward Meadows Subdivision, Maine, Declaration of Covenants and Restrictions*
6. Letter from Jones Associates dated October 19, 2021.

With review of the above information and the Land Development Regulations and Subdivision Ordinance, I offer the following comments on compliance with the City's ordinances. See attached for remaining outstanding engineering related comments from Site Design Associates.

PROJECT DESCRIPTION

The applicant seeks to create 6 residential lots along a proposed 735-foot private road on a 15.5 AC parcel located in the Rural Farm (RF) zone. The site includes a large freshwater wetland among open field and woods.

COMPLETENESS REVIEW

The application is before the Planning Board as required by Chapter 66 (Subdivisions) subject to Subdivision review and approval. Per the City's Subdivision ordinance (66-26), all applications have a three-tier approval process beginning with a Sketch plan review. The Planning Board reviewed the Sketch Plan in July and the applicant has submitted a preliminary plan submission for review that appears to be complete.

COMPLIANCE WITH THE CITY'S ORDINANCES

The proposed minimum lot sizes and net density calculations appear to be in order. Required setbacks are also depicted and the applicant engaged a Landscape Architect to design the required Rural Farm Zone vegetated buffer. The latter may need logistical and design tweaks to be more effective and clearer as to its designated location.

City Staff, including Long Meadow P&LA and Site Design Associates, have had an opportunity to share comments on an earlier submission prior to placing the application on the Board's agenda. Considering the revised plans and the response to comments, the following are comments and recommendations that Board and the applicant may want to consider:

AGRICULTURAL SOILS (Sec. 66-2)

In speaking with the State Soil Scientist's office and the NRCS, it appears the soils listed in the HISS prepared by Mark Hampton, Associates do not include the specific soils listed as prime agricultural or having state-wide significance. It was suggested, however, that if the project used federal aid or funding, that an application to the NRCS regarding agricultural and state-wide significant soils was required since the its medium intensity soil surveys depict these soils on the property.

OPEN SPACE DESIGN

The open space design provides for a compact development towards the front of the parcel while preserving the majority of the riparian habitat that abuts existing conservation land to the rear. The latter is proposed to be protected under an easement held by the Kennebunkport Land Trust. The boundary of conservation land should be marked in some manner to identify it as such, and making it known in the HOA documents, drawing a distinction from the other open spaces, would be helpful too. The open space that is not proposed to be held by the Land Trust, should also be marked in some manner to articulate the line between lots and open space.

PRESERVATION IN PERPETUITY

As outlined in Sec. 16.E, Article VI of the Land Development Regulations, Open Space in a cluster development shall be preserved by means of a conservation easement held by a third party or held by the HOA by means of its declarations and covenants. A draft agreement and easement between the applicant and the land trust should be provided to the Board for review and approval. The draft HOA documents does not appear to include any language related to the non-land trust open space being preserved in perpetuity.

SUBDIVISION IN THE RURAL FARM (RF) ZONE (Sec. 66-79)

Buffer Location: This provision, among other items, requires a 75-foot wide vegetated buffer. The Plan depicts the 75-foot buffer in the location specified by the ordinance, measured from the public street. With consultation with City Staff, the applicant has located the required plantings for the buffer adjacent to the new private street instead. This provides for the current meadow/field to be maintained along Ridge Road.

If the Planning Board is amenable to this , a waiver to locate the required 75-wide buffer adjacent to proposed private street would be prudent, so it is clear from a regulatory perspective the proposed plantings' purpose. A note should be added to the plan indicating that the plantings shown are maintained as a buffer required under Sec. 66-79.

Buffer Design: The applicant has engaged with a landscape architect that has prepared a planting plan with an appropriate mix of plant species. The Board and the applicant should consider the following tweaks to the design:

1. The planting proposed is less than 75 feet wide, however, per 66-79 (3) b, the width can be reduced to no less than 50 feet wide. The Plan depicts 40 feet, of which 15 feet is located within the Street Right-Of-Way (ROW). This does not seem to be appropriate since the ROW is dedicated to street and related utilities and infrastructure, which is likely to be in conflict with maintaining a vegetated buffer.
2. The proposed vegetated buffer along the proposed street should be shifted out of the ROW and the planting strip increased to 50 feet wide. Added evergreen trees to make up the difference in width should be utilized to provide for an effective screen.
3. The actual delineation of the 75-foot buffer should be shown adjacent to the new street where the planting is proposed to be rather than measured from Ridge Road. (See attached sketch)
4. The plant species arborvitae is not comparable in size at maturity to the other Evergreen trees listed, having a spread of 12 feet vs. 20 feet for the spruce and fir trees. It is recommended that they are substituted with more of the evergreen species listed.
5. The addition of the native grasses and wildflower seeding to provide a "pollinator" meadow should be a nice asset to the proposed development. The final drawings should include

details on the best practices of executing this in a manner that will not provide an opportunity for invasive/exotic weeds to get established during establishment.

HOMEOWNERS ASSOCIATION DOCUMENTS

1. The open space that is not to be held by the land trust (*common area*) should be more defined in terms of management, as it relates to buffer requirements and maintaining existing natural screening of the development. The HOA documents should be drafted to help make expectations clear in maintaining the planted trees and shrubs in the open space as a buffer and vegetated screen, and existing vegetation that currently provide screening that is not proposed to be cleared, should be maintained as such.
2. Art. VI Sec. 12.d should include a reference to receiving Planning Board approval if granting easements is not reflected on the approved subdivision plan. Art VIII Sec. 2 should be subject to Board approval of an amended plan as well.
3. Encroachment of the open space by the homeowners or abutters should be addressed in terms of accountability as it relates to the open space being undeveloped and/or clearing that is contrary to the approved plan.
4. There does not appear to be any sections that address the shared maintenance of the private street, especially having the responsibility of contacting or ensuring that snow is removed in a reliable manner to aid in public safety access.

FIRE SAFETY

Chapter 30-87 requires underground fire suppression tanks for new (private/public) subdivisions, which are located outside the hydrant districts. The applicant should review the ordinance and coordinate with the Fire Department and demonstrate compliance prior to final approval.

PLAN RECOMMENDATIONS

1. A Stamped and signed final Boundary Survey should be submitted.
2. The Existing Conditions Plan references GIS topography/contour data. Is this adequate for final road and site grading design?
3. The Subdivision Plan should be prepared and certified by a Professional Land Surveyor, licensed in Maine.
4. The Subdivision Plan appears to not include typical/standard notes found on surveys and subdivision plans, e.g. deeds, ownership, plan references.... The latter is referenced to the cover sheet, however, the Subdivision Plan will be recorded and ideally should be one sheet, unless multiple sheets are recorded as well.
5. The Subdivision Plan notes should reflect any applicable City zoning or subdivision requirements, e.g. 75-foot buffer in the RF zone and Open Space preserved in perpetuity.
6. The plans should include signatory blocks and recording blocks where necessary.

WAIVER REQUESTS

None requested.

CONCLUSION

The Preliminary Plan appears to be complete for the Planning Board's consideration. The above comments reflect recommended changes that should be addressed and reflected in the final plans prior to approval by the Board.

If the Board is inclined to grant preliminary approval it should consider it being conditioned on the applicant addressing all outstanding comments from board members, City Staff and peer-reviewers prior to the final plan submission.

Feel free to contact me with questions.

Best regards,



Christopher Di Matteo
City of Biddeford Contract Planner.
cdimatteo@longmeadowpla.com
207.604.4245

Subject: Leeward Meadows and Windward Ridge Subdivisions

Date: Thursday, October 28, 2021 at 11:12:39 AM Eastern Daylight Time

From: Tom Saucier

To: Tansley, Greg

CC: Christopher Di Matteo

Hi Greg

Per your request we have undertaken a review of the revised plans and documentation submitted to our office. It appears the majority of our comments have been addressed for both projects.

Below are some follow-up comments, numbered per the original comments:

Windward Ridge

A.2. The response indicated that the intent was for the proposed road to remain private. Reference should be made to Section 51 for private way requirements, including required notes, plans, and maintenance agreement, and registry filings required under section 51.D.

B.2. The response indicates that the existing woods road was modeled as an impervious surface, which usually includes gravel and paved surfaces, but generally not a vegetated woods road surface.

B.4. The analysis points should be shown at the property line, not well onto the abutting property, if that abutting property is not controlled by the applicant.

B.6. Sheet flow lengths should be a maximum of 100 ft for wooded conditions.

C.1.a. The response indicated that the road right of way would be field surveyed prior to construction. Given the intent is for the road to remain private, that seems like a reasonable alternative to us, if staff agrees.

C.1.b. The response indicates the existing culvert at the site entrance will be replaced. Drawing C-2.4 shows a new 24" culvert in plan view and an 18" culvert in the profile.

C.2.d. Not addressed.

C.3.g. The applicant should refer to your 10/22/21 email in regards to fire protection addressed.

C.4.a. The proposed 24" culvert at Pool Street still lacks adequate cover.

C.4.b. A sediment barrier should be shown downgradient of portions of the road and drive to lot 6.

C.4.j. The response indicates that the cross slope is now 1%. A minimum of 2% is required.

Leeward Meadow

A.2. The response indicated that the intent was for the proposed road to remain private. Reference should be made to Section 51 for private way requirements, including required notes, plans, and maintenance agreement, and registry filings required under section 51.D.

B.8. Sheet flow lengths should be a maximum of 100 ft for wooded conditions.

C.1.a. The response indicated that the road right of way would be field surveyed prior to construction. Given the intent is for the road to remain private, that seems like a reasonable alternative to us, if staff agrees.

C.2.c. Monumentation for the road is shown as iron pipes. Section 62-87 requires granite, unless otherwise approved by the city.

C.3.e. The applicant should refer to your 10/22/21 email in regards to fire protection addressed.

C.3.f. Utilities are still shown under the paved travel way.

Stormwater Management

For both projects, the stormwater quantity analysis indicates that the post development peak rates of runoff will be less than the existing rates of runoff. Rather than our office spending a lot of time reviewing the model to determine how this conclusion was reached, when both projects involve the creation of new impervious area, we request that the applicant expand on these results in the stormwater management report.

We do not anticipate that these comments will alter the overall concept for the projects. From an engineering standpoint, we believe that the project is ready for preliminary approval, if staff agrees, and the planning board is so inclined.

Thanks
Tom

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086
207-449-4275

PLAN REFERENCES:

1. EXISTING CONDITIONS SURVEY, TOPOGRAPHY, TREE LINE, DRAINAGE & DEVELOPMENT CONCEPT TAKEN FROM ELECTRONIC FILE PREPARED BY WALSH ENGINEERING FOR GINGER HILL, LLC, DATED October 6, 2021.



A Street View Looking East Along Oak Ridge Road



B Street View Looking West Along Oak Ridge Road

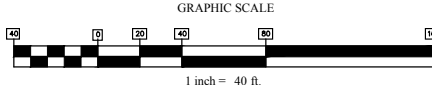
PLAN LIST:

QUANTITY	LABEL	NAME	SCIENTIFIC	SIZE
TREES:				
3	LT	RED MAPLE	ACER RUBRUM	2.5-3" CAL
2	LT	RED OAK	QUERCUS RUBRA	2.5-3" CAL
3	LT	SWAMP WHITE OAK	QUERCUS BICOLOR	2.5-3" CAL
3	LT	AMERICAN BEECH	FAGUS GRANDIFOLIA	2.5-3" CAL
2	LT	GREEN ASH	FRAXINUS PENN.	2.5-3" CAL
UNDERSTORY:				
5	ST	YELLOW BIRCH	BETULA ALLEGHANIENSIS	10-12 FT HT
5	ST	HORNBEAM	CARPINUS CAROLINIANA	1-2" CAL
6	ST	SERVICEBERRY	AMELANCHIER CANADENSIS	7-8 FT HT
5	ST	PAGODA DOGWOOD	CORNUS ALTERNIFOLIA	8-10FT HT
EVERGREENS:				
5	ET	WHITE SPRUCE	PICEA GLAUCA	7-8FT HT
5	ET	WHITE PINE	PINUS STROBUS	7-8FT HT
5	ET	BALSAW FIR	ABIES BALSAMEA	7-8FT HT
5	ET	DARK AMERICAN ARBORVITAE	THUJA OCCIDENTALIS 'NIGRA'	7-8FT HT
SHRUBS:				
14	SH	RED CHOKEBERRY	ARONIA ARBUTIFOLIA	24-30" HT
13	SH	WINTERBERRY	ILEX VERTICILLATA	24-30" HT
13	SH	WITHERED VIBURNUM	VIBURNUM CASSINOIDES	24-30" HT
13	SH	NORTHERN BAYBERRY	MYRTICA PENNSYLVANICA	24-30" HT
13	SH	SWEET PEPPERBUSH	CLETHRA ALNIFOLIA	24-30" HT
13	SH	COMMON WITCH HAZEL	HAMAMELIS VIRGINIANA	24-30" HT
13	SH	FORSYTHIA	FORSYTHIA X INTERMEDIA	24-30" HT
MEADOW:				
47,000 SF	MEADOW	NEW ENGLAND CONSERVATION / WILDLIFE MIX (NEW ENGLAND WETLAND PLANTS, INC. (413) 548-8000)		1 LB/1,750 SF

PLANTING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE PLAN.
2. ANY SUBSTITUTION OF SPECIFIED PLANTS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT. ONLY NATIVE SPECIES AND/OR VARIETIES WILL BE ACCEPTABLE.
3. ALL TREE, SHRUB, VINE, AND PLANT BEDS (GROUNDCOVERS, PERENNIALS, BULBS, ETC.) LOCATIONS SHALL BE STAKED OR MARKED BY CONTRACTOR AND THEN APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO PLANTING. CONTRACTOR MUST GIVE A MINIMUM 3 DAY NOTICE BETWEEN STAKING AND PLANTING.
4. ALL PLANTS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (AS SET FORTH BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION).
5. ALL PLANTS SHALL BE DELIVERED TO THE SITE FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES. THE LOCATION OF WHICH SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION OPERATIONS. SHOULD THE LOCATION OF PROPOSED PLANTINGS CONFLICT WITH ANY OF SAID UTILITIES, ADJUST PLANT LOCATIONS ACCORDINGLY AFTER CONSULTATION WITH THE LANDSCAPE ARCHITECT.
7. PLANTING TREES AND SHRUBS: EXCAVATE PLANTING PITS WITH SLOPING SIDES, AND WITH BOTTOM OF EXCAVATION RAISED IN CENTER FOR DRAINAGE. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION, AND LOOSEN SOIL ON SIDES OF SLOPES. SET PLANTS IN CENTER OF PIT WITH TOP OF BALL RAISED SLIGHTLY ABOVE FINISH GRADES. PLACE A SETTING LAYER OF COMPACTED PLANTING MIX. REMOVE BURLAP AND WIRE BASKETS FROM TOP OF BALLS. ON SIDES, FOLD BACK WIRE AND REMOVE UPPER PORTIONS OF BURLAP. DO NOT USE PLANT IF ROOT BALL IS CRACKED OR BROKEN. IF CONTAINER, REMOVE CONTAINER AND SOIL PERIMETER SOIL AND ROOTS. PLACE PLANTING MIX AROUND BALL/CONTAINER IN LAYERS, TAMPING TO ELIMINATE VOIDS AND AIR POCKETS. DO NOT COVER TOP OF ROOT BALL. PRUNE, THIN, AND SHAPE AFTER PLANTING.
8. MULCH PLANTING BEDS WITH 3" FINELY SHREDDED AND AGED PINE BARK MULCH OR AS SPECIFIED ON THE PLAN.
9. ALL DISTURBED LAWN AREAS TO BE LOAMED AND SEEDING AS NECESSARY AT NO ADDITIONAL COST TO OWNER(S).
10. GRADES SHOWN REPRESENT PROPOSED GRADES PER CONTRACT. CONTRACTOR TO VERIFY GRADES AS NEEDED.
11. PLANT MATERIALS SHALL BE GUARANTEED FOR ONE (1) YEAR AFTER PLANTING. ANY DEAD, UNSIGHTLY, OR UNHEALTHY PLANTS SHALL BE REPLACED IN KIND AT NO COST TO THE OWNER(S).
12. THE CONTRACTOR SHALL REPLACE OR REPAIR TO ORIGINAL CONDITION ANY AND ALL UTILITIES, PAVING, CURBING, ETC., DAMAGED AS A RESULT OF THEIR OPERATIONS AT NO ADDITIONAL COST TO THE OWNER(S).
13. A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO LANDSCAPE CONTRACTOR BEGINNING CONSTRUCTION OR ORDERING PLANT MATERIALS.

Plan View
Scale: 1" = 40'



PLANT SYMBOL / LEGEND

- DECIDUOUS TREE LARGE
- DECIDUOUS TREE UNDERSTORY
- EVERGREEN TREE
- SHRUB
- SEEDED MEADOW

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2021

10-14-21
SCOTT M. STRYNAR
NO. 3148
STATE OF MAINE

Scott Strynar
Landscape Architect, LLC.
88 Meehan Lane
North Berwick, ME 03906
(t) 207-957-4441
www.scottstrynar.com

Leeward Meadows
Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Aurand, Maine 04046

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Stakeout Plan Review	CAR	WRW
2	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	6/15/2021	Review per Engineer Review Comments	CAR	WRW

Sheet Title:
Landscape Plan

Job No.: 742
Date: June 15, 2021
Scale: 1" = 40'
Drawn: CAR
Checked: WRW

Sheet No.: **L1.0**

Connor Ritter

From: Fisk, JoAnne <joanne.fisk@biddefordmaine.org> on behalf of Fisk, JoAnne
Sent: Wednesday, July 28, 2021 1:44 PM
To: Connor@walsh-eng.com
Subject: Road names

Connor,

Per our conversation on street names both Leeward Meadows and Windward Ridge are acceptable names. Please let me know if you need anything else.

JoAnne Fisk



The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Connor Ritter

From: Duross, Kevin <kevin.duross@biddefordmaine.org>
Sent: Monday, January 10, 2022 11:41 AM
To: Connor Ritter
Cc: Tansley, Greg
Subject: RE: Leeward Meadows and Windward Ridge Fire Suppression

Hi Conner,

I have reviewed the plan with the requested fire suppression system. This is an acceptable plan. When the project is completed, we will need to inspect the suppression system.

Thank you,

Kevin



From: Connor Ritter <connor@Walsh-eng.com>
Sent: Monday, January 3, 2022 11:47 AM
To: Duross, Kevin <kevin.duross@biddefordmaine.org>
Subject: Leeward Meadows and Windward Ridge Fire Suppression

Hi Kevin,

I just wanted to follow up with you on the fire suppression systems for the Leeward Meadows and Windward Ridge subdivision projects. I've attached a plan for each site with 10,000 gallon fire suppression tanks included per the Fire Department layouts provided the last time we met. Let me know if you find these acceptable for the projects or if there is anything else necessary.

Thanks,
Connor

Connor Ritter, EIT



One Karen Drive, Suite 2A
Westbrook, ME 04092
P: (207) 553-9898, Ext 105
www.walsh-eng.com



This transmission is intended only for the individual or entity to which it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this communication is not the intended recipient, or an employee or agent responsible for delivering the communication to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error please contact the sender at 207-553-9898.

The contents of this e-mail message and any attachments are confidential and are intended solely for addressee. The information may also be legally privileged. This transmission is sent in trust, for the sole purpose of delivery to the intended recipient. If you have received this transmission in error, any use, reproduction or dissemination of this transmission is strictly prohibited. If you are not the intended recipient, please immediately notify the sender by reply e-mail or phone and delete this message and its attachments, if any.

Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

Isaiah Bates

From: Cough, Jamie <Jamie.Cough@cmpco.com> on behalf of Cough, Jamie
Sent: Monday, August 9, 2021 12:16 PM
To: Isaiah Bates
Subject: 158 Oak Ridge Road and 918 Pool Street Biddeford, Maine CAPACITY LETTER | CMP Capacity Letter CMP Ability to Serve Request and Three Phase Service Process
Attachments: Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; May 2021 EDET.XLSX

Request for Ability to Serve Letter

Project Description: Leeward Meadows Subdivison (158 Oak Ridge Road) Biddeford, Maine

The development of a 6-lot residential subdivision

Project Description: Windward Ridge Subdivision (918 Pool Street) Biddeford, Maine

The development of a 6-lot residential subdivision

CMP has the ability to serve the proposed projects in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, **please contact me at 207-629-1489.**

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let me know. The underlined links will redirect you to the appropriate site for additional information. **If this is a single phase service with all self-contained metering, the process is simplified, but still begins with a call to CMP. Please refer to CMP Installation Checklists**

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

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

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

Metering:

All metering (including locations) must be preapproved by CMP.

Chapter 324 Interconnections:

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

Reallocation/Line Extensions:

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

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

Electricity Supplier Information:

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

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

Regards,

Jamie

Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207-629-1489 office



=====

Please consider the environment before printing this email.

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

The views presented in this message are solely those of the author(s) and do not necessarily represent the opinion of Avangrid Networks, Inc. or any company of its group. Neither Avangrid Networks, Inc. nor any company of its group guarantees the integrity, security or proper receipt of this message. Likewise, neither Avangrid Networks, Inc. nor any company of its group accepts any liability whatsoever for any possible damages arising from, or in connection with, data interception, software viruses or manipulation by third parties.

=====



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

August 30, 2021

Mr. Isaiah Bates
Walsh Engineering
One Karen Drive
Suite 2A
Westbrook, ME 04092

Project: MHPC# 1437-21 Leeward Meadows Subdivision; 158 Oak Ridge Road
Proposed Subdivision
Town: Biddeford, ME

Dear Mr. Bates:

In response to your recent request, I have reviewed the information received August 20, 2021 to initiate consultation on the above referenced project.

Based on the information provided, I have concluded that there are no National Register eligible properties on or adjacent to the parcels. In addition, the project area is not considered sensitive for archaeological resources.

Please contact Megan M. Rideout of our staff, at megan.m.rideout@maine.gov or 207-287-2992, if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
State Historic Preservation Officer

**ATTACHMENT 3
STORMWATER REPORT, REVISION 2
(Bound Separately)**



STORMWATER MANAGEMENT REPORT REVISION 2

for

Leeward Meadows
Oak Ridge Road
Biddeford, Maine 04005

September 15, 2021
Revision 1: October 20, 2021
Revision 2: January 12, 2022

Submitted to:
City of Biddeford
205 Main Street
P.O. Box 586
Biddeford, Maine 04005

Submitted by:
Walsh Engineering Associates, Inc.
One Karen Drive, Suite 2A
Westbrook, Maine 04092

STORMWATER MANAGEMENT REPORT REVISION 2

**LEEWARD MEADOWS
Oak Ridge Road
Biddeford, Maine 04005**

Introduction

Walsh Engineering Associates, Inc. (WEA) was retained by Emily and Robert Ingwersen, dba Ginger Hill Design + Build (Applicant) to provide site design and stormwater management design services for the development of a six-lot subdivision and open space parcel on Oak Ridge Road in Biddeford. The proposed development includes six single-family dwellings, associated driveways, and a private street. The development will create a net increase of approximately 36,660± square feet (0.84± acres) of impervious surfaces.

This Stormwater Management Report assesses both pre-development and post development peak runoff rates of stormwater runoff from the developed site. The analysis provided herein was completed in accordance with the City of Biddeford stormwater standards.

The original Stormwater Management Report was submitted to the City of Biddeford as part of a preliminary subdivision application submission on September 15, 2021. Revision 1 of the Stormwater Management Report reflects revisions made in response to comments provided via an engineer review conducted by Site Design Associates dated September 29, 2021. This Revision 2 of the Stormwater Management Report reflects revisions made in response to comments provided via a Planning Board report prepared by Christopher Di Matteo of Long Meadow Planning & Landscape Architecture, LLC and Tom Saucier of Site Design Associates dated October 29, 2021.

Methodology

Stormwater runoff analysis has been performed to comply with the City of Biddeford Subdivision Regulations. The HydroCAD Stormwater Modeling System software (Version 10.0) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire was used for the analysis. The program is based upon the TR-20 computer program and the TR-55 tabular method, both of which are based upon techniques developed by the USDA Soil Conservation Service. The analysis was performed for the 2-, 10-, and 25-year frequencies (3.3, 4.9, and 6.2 inches respectively) for York County. The 24-hour storm event with a Type III distribution were the basis for the analysis.

Pre-Development Conditions

The property is located within the watershed of the Little River. The parcel was previously undeveloped consisting of a large meadow with the remainder of the property being wooded. The property drains north towards a 30" culvert under Oak Ridge Road.

The pre-development condition was considered to be meadow area, wooded area, and impervious surfaces, as taken from the USDA NRCS online Web Soil Survey. The soil types onsite are Lyman-Tunbridge Complex, Lamoine, and Scantic listed as Hydrologic Soil Group (HSG) C/D and D. See the High Intensity Soil Survey and Web Soil Survey in Appendix C. The property drains north towards a 30" culvert under Oak Ridge Road (AP1).

Site topography, soil boundaries, pre-development drainage areas, and analysis point AP1 are shown on drawing D1.0 – Pre-Development Drainage Plan. Pre-development HydroCAD calculations can be found in Appendix A. Pre-development peak flow rates at the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Post-Development Conditions

The proposed project will include six single-family dwellings, associated driveways, and a minor, nonurban residential street. The street will have two connections onto Oak Ridge Road and all driveways will have access via the proposed street. The project will contain approximately 36,660± square feet of impervious area.

Post-development stormwater runoff from the site was analyzed by routing stormwater flows from the various developed subcatchments through proposed conveyance. Post-development HydroCAD calculations can be found in Appendix B and sheet D2.0 – Post Development Drainage Plan can be found in Appendix E. Post development peak flow rates at each of the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Stormwater Quantity

The City of Biddeford stormwater standards require that peak flow rates discharging from the site are not increased as a result of the development.

Table 1 – Peak Flow Rates (cfs)			
Analysis Point	2-Year Storm	10-Year Storm	25-Year Storm
AP1 Pre-Development	12.8	20.9	25.0
Post Development	12.8	20.9	25.0

As shown in Table 1, the peak runoff rates at analysis point AP1 under the post development conditions will remain equal to the peak pre-development runoff rates for every storm event. This result is due to the timing of the peak runoff from the developed areas having little overlap with the timing of the peak runoff from the undeveloped areas. The runoff from the developed areas typically passes the analysis point prior to the higher volume of runoff from the undeveloped areas. Based on this analysis, we do not anticipate any adverse impacts on downgradient drainage systems due to the proposed development. Pre- and Post Development HydroCAD calculations can be found in Appendices A and B.

Stormwater Quality

The project is not in the watershed of a lake or Urban Impaired Stream and will not create over one acre of impervious surface or 5 acres of developed area and therefore does not require a Maine DEP Stormwater Permit.

Erosion Control

BMPs such as silt fence and/or filter berms of erosion control mix, erosion control blanket, 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 shown on the Site Plans in Appendix E on sheet C2.3. Erosion and sedimentation control notes and details can be found on sheets C3.0-C3.1.

Inspection & Maintenance

Ginger Hill Design + Build will be responsible for maintaining the stormwater facilities for the project until such time as the Homeowners Association will take over the system and maintenance of it. An Inspection and Maintenance Plan is included in Appendix D.

Conclusions

Calculations show that the peak rate of runoff from the 2-, 10-, and 25-year storm events will not exceed the pre-development rate as required by the City of Biddeford.

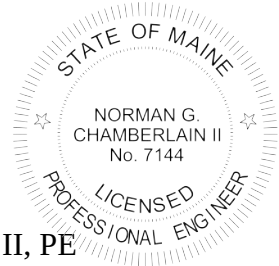
Respectfully,



Connor A. Ritter, EIT
Walsh Engineering Associates, Inc.



Norman G. Chamberlain II, PE
Walsh Engineering Associates, Inc.



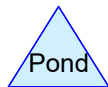
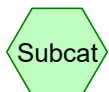
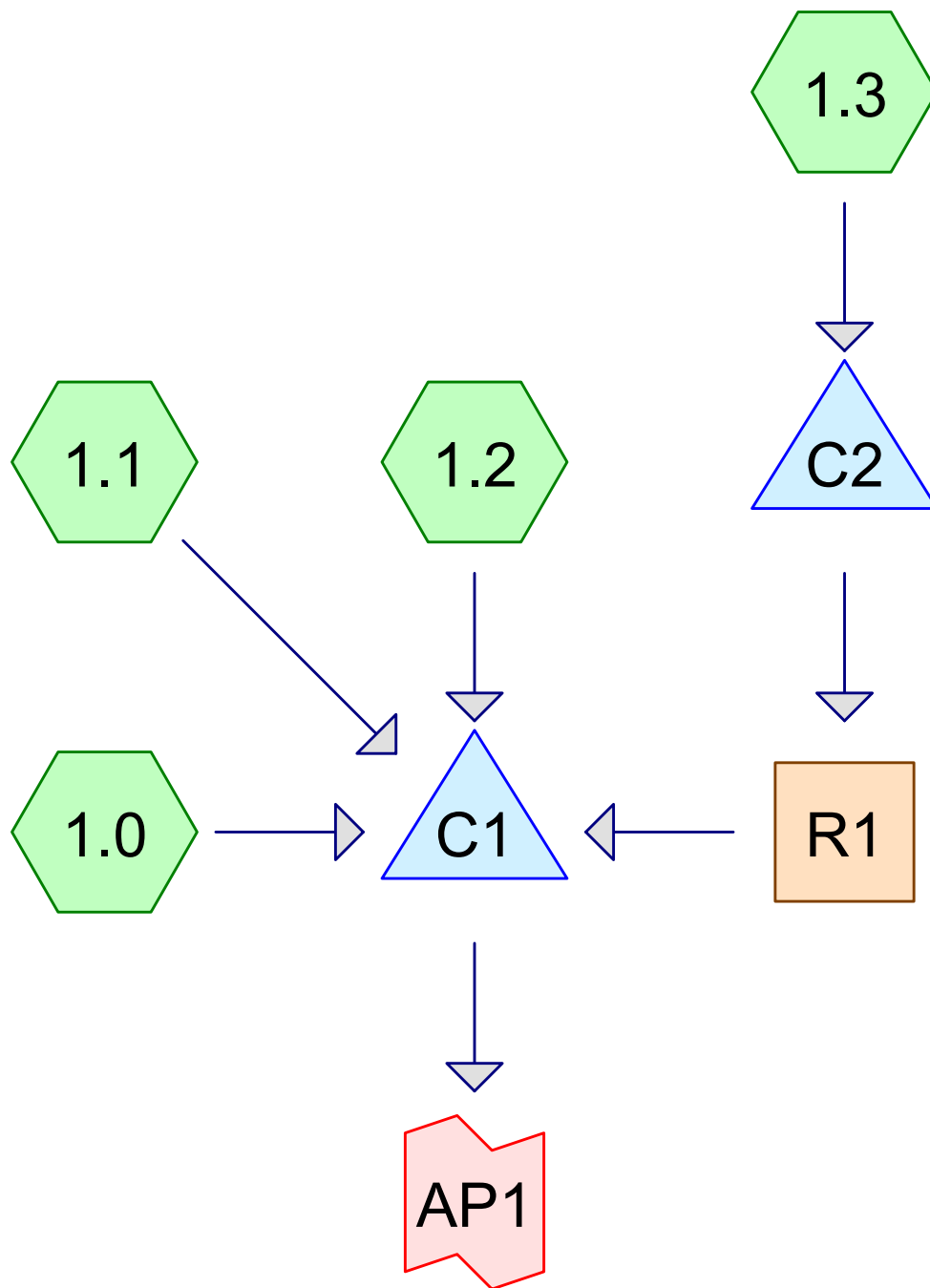
Supporting Data and Calculations

The following material presents calculations and copies of source material used during the analysis for this study.

- Appendix A: Pre-Development HydroCAD Report
- Appendix B: Post-Development HydroCAD Report
- Appendix C: High Intensity Soil Survey
Web Soil Survey Map
- Appendix D: Inspection & Maintenance Plan
- Appendix E: Drainage Plans
 - D1.0 – Pre-Development Drainage Plan
 - D2.0 – Post-Development Drainage Plan
 - D2.1 – Post-Development Drainage Plan

Appendix A

Pre-Development HydroCAD Report



Routing Diagram for Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc., Printed 1/3/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Printed 1/3/2022
Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
156,645	80	>75% Grass cover, Good, HSG D (1.0, 1.1)
2,465	71	Meadow, non-grazed, HSG C (1.1, 1.2)
480,300	78	Meadow, non-grazed, HSG D (1.0, 1.1, 1.2, 1.3)
37,330	98	Paved parking, HSG D (1.0, 1.1, 1.2, 1.3)
161,355	70	Woods, Good, HSG C (1.0, 1.1, 1.2, 1.3)
1,319,105	77	Woods, Good, HSG D (1.0, 1.1, 1.2, 1.3)
2,157,200	77	TOTAL AREA

Pre-Dev Rev 2*Type III 24-hr 2-Year Rainfall=3.30"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=340,010 sf 3.56% Impervious Runoff Depth>1.27"
Flow Length=1,502' Slope=0.0167 '/' Tc=67.7 min CN=79 Runoff=4.6 cfs 35,992 cf

Subcatchment 1.1: Runoff Area=1,475,335 sf 0.72% Impervious Runoff Depth>1.11"
Flow Length=1,450' Tc=136.8 min CN=77 Runoff=11.2 cfs 135,994 cf

Subcatchment 1.2: Runoff Area=168,765 sf 2.53% Impervious Runoff Depth>1.15"
Flow Length=765' Tc=57.4 min CN=77 Runoff=2.3 cfs 16,232 cf

Subcatchment 1.3: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>1.22"
Flow Length=690' Tc=39.7 min CN=78 Runoff=3.0 cfs 17,649 cf

Reach R1: Avg. Flow Depth=0.29' Max Vel=1.69 fps Inflow=3.0 cfs 17,569 cf
n=0.022 L=400.0' S=0.0057 '/' Capacity=477.4 cfs Outflow=3.0 cfs 17,455 cf

Pond C1: Peak Elev=33.53' Storage=31,394 cf Inflow=15.3 cfs 205,674 cf
30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=12.8 cfs 202,933 cf

Pond C2: Peak Elev=34.64' Storage=148 cf Inflow=3.0 cfs 17,649 cf
Outflow=3.0 cfs 17,569 cf

Link AP1: Inflow=12.8 cfs 202,933 cf
Primary=12.8 cfs 202,933 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 205,868 cf Average Runoff Depth = 1.15"
98.27% Pervious = 2,119,870 sf 1.73% Impervious = 37,330 sf

Summary for Subcatchment 1.0:

Runoff = 4.6 cfs @ 12.94 hrs, Volume= 35,992 cf, Depth> 1.27"

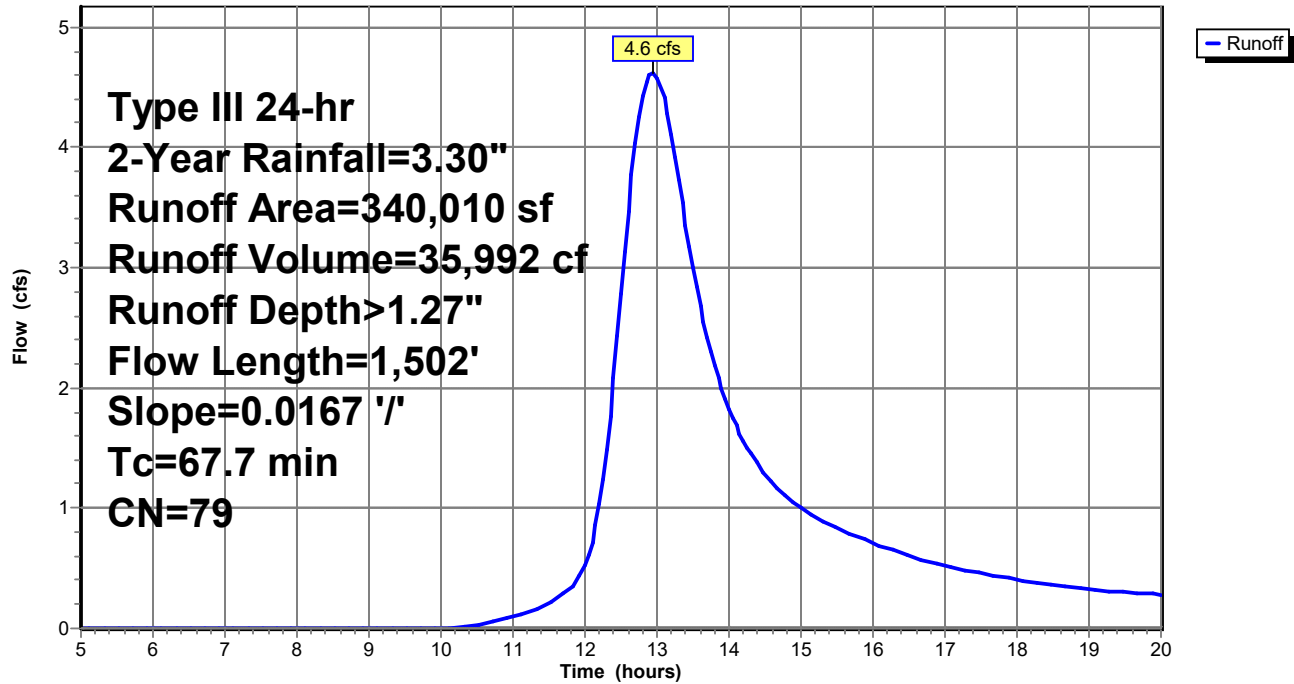
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
6,265	70	Woods, Good, HSG C
20,930	77	Woods, Good, HSG D
168,410	78	Meadow, non-grazed, HSG D
132,305	80	>75% Grass cover, Good, HSG D
12,100	98	Paved parking, HSG D
340,010	79	Weighted Average
327,910		96.44% Pervious Area
12,100		3.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
8.6	600	0.0167	1.16		Shallow Concentrated Flow, D-E Cultivated Straight Rows Kv= 9.0 fps
67.7	1,502	Total			

Subcatchment 1.0:

Hydrograph



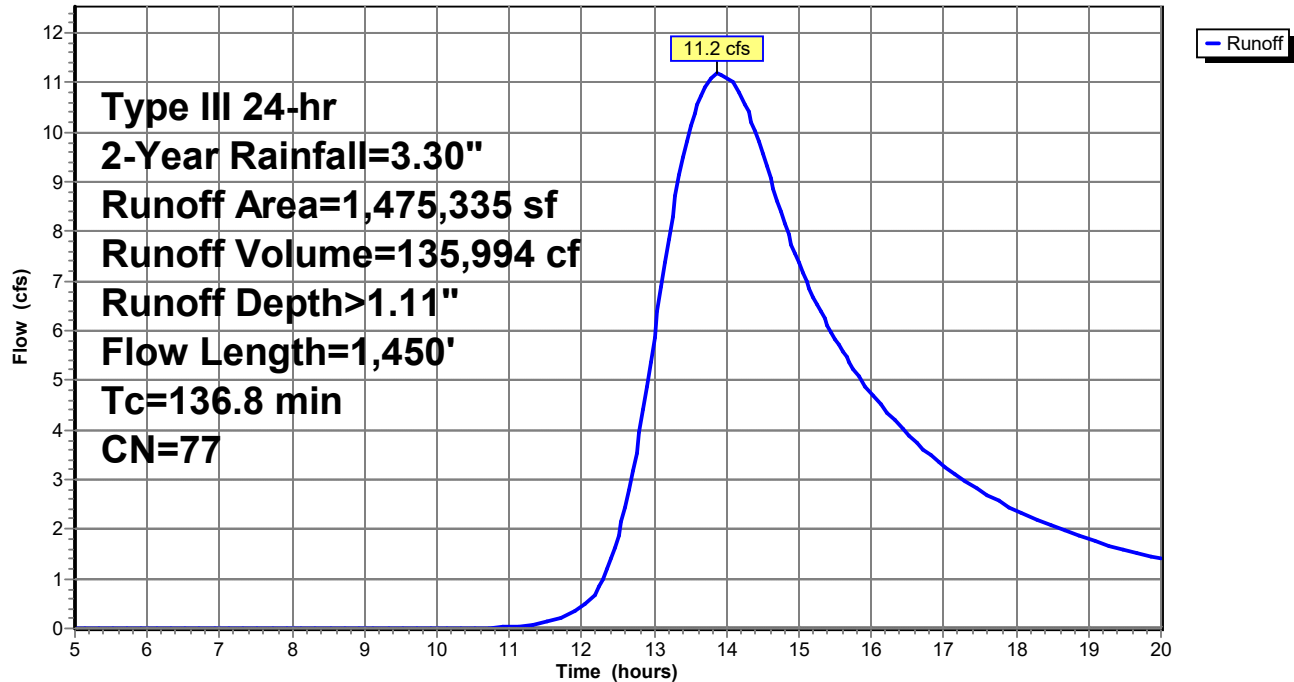
Summary for Subcatchment 1.1:

Runoff = 11.2 cfs @ 13.86 hrs, Volume= 135,994 cf, Depth> 1.11"

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-Year Rainfall=3.30"

Area (sf)	CN	Description
118,320	70	Woods, Good, HSG C
1,145,650	77	Woods, Good, HSG D
2,375	71	Meadow, non-grazed, HSG C
174,000	78	Meadow, non-grazed, HSG D
24,340	80	>75% Grass cover, Good, HSG D
10,650	98	Paved parking, HSG D
1,475,335	77	Weighted Average
1,464,685		99.28% Pervious Area
10,650		0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
14.9	565	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
136.8	1,450	Total			

Subcatchment 1.1:**Hydrograph**

Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 8

Summary for Subcatchment 1.2:

Runoff = 2.3 cfs @ 12.82 hrs, Volume= 16,232 cf, Depth> 1.15"

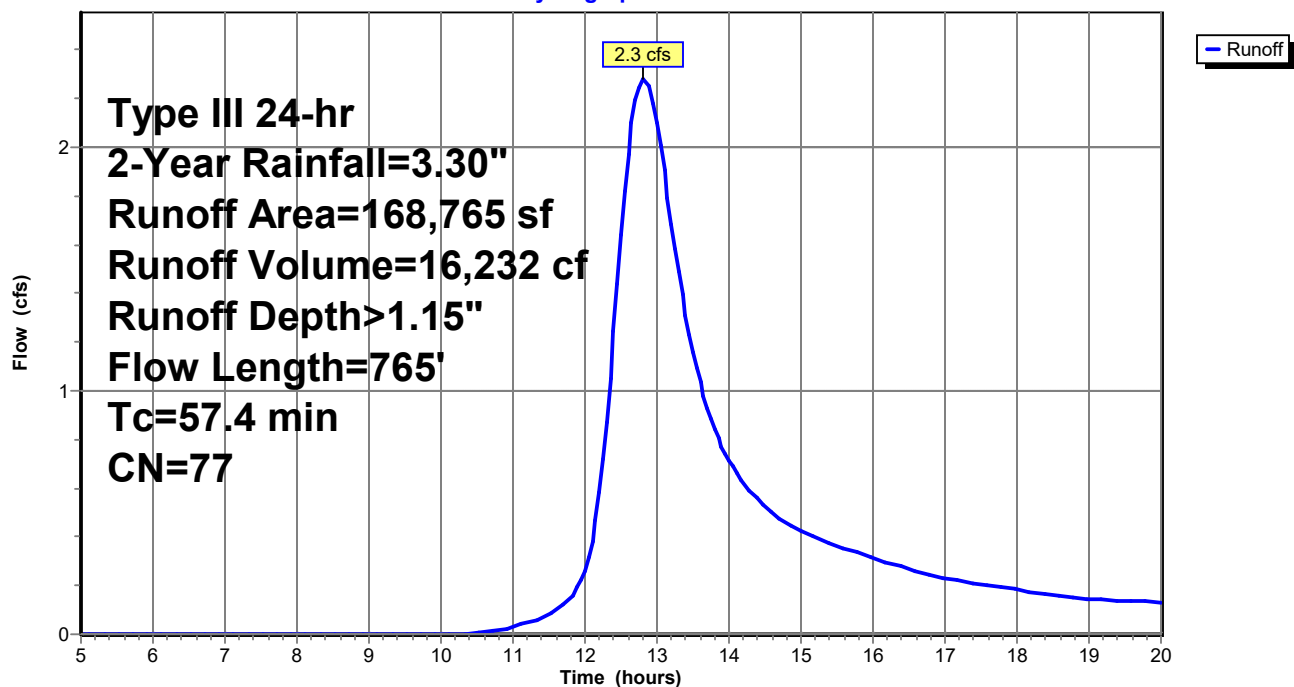
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
22,320	70	Woods, Good, HSG C
7,035	77	Woods, Good, HSG D
90	71	Meadow, non-grazed, HSG C
135,050	78	Meadow, non-grazed, HSG D
4,270	98	Paved parking, HSG D
168,765	77	Weighted Average
164,495		97.47% Pervious Area
4,270		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	65	0.0067	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.0	70	0.0570	0.60		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
15.0	630	0.0100	0.70		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
57.4	765	Total			

Subcatchment 1.2:

Hydrograph



Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 9

Summary for Subcatchment 1.3:

Runoff = 3.0 cfs @ 12.57 hrs, Volume= 17,649 cf, Depth> 1.22"

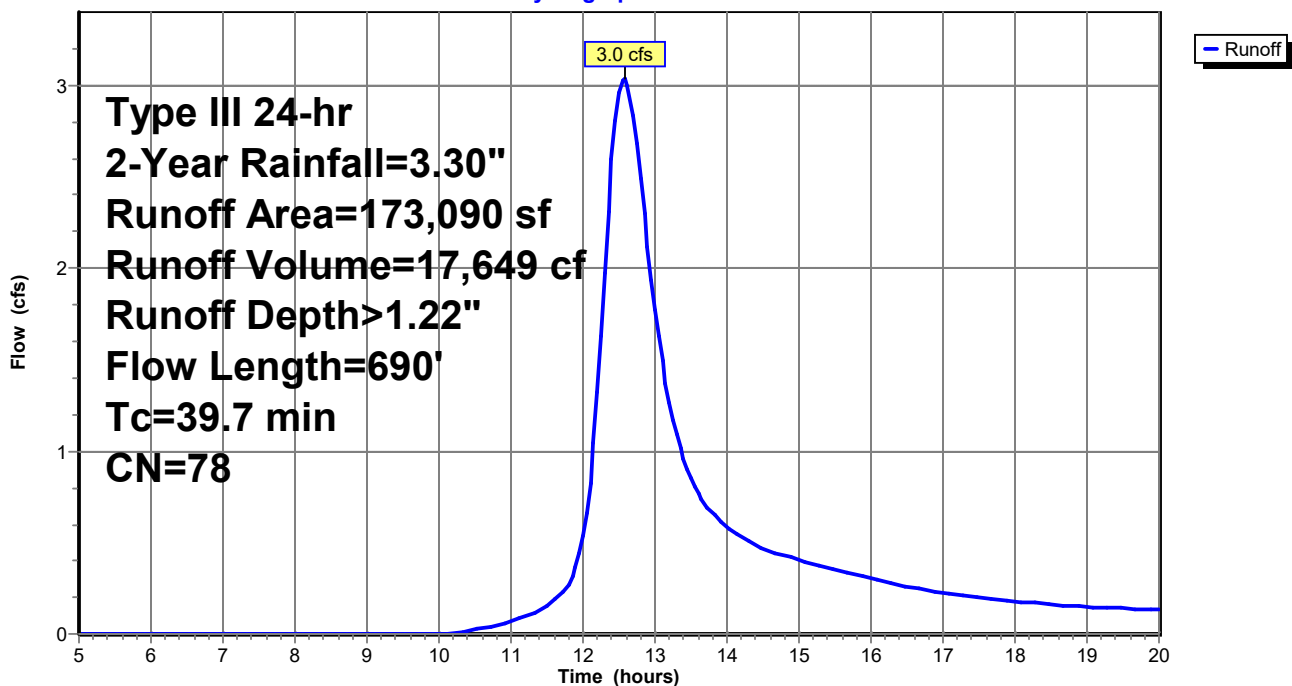
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
14,450	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.3:

Hydrograph



Summary for Reach R1:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 1.22" for 2-Year event
 Inflow = 3.0 cfs @ 12.58 hrs, Volume= 17,569 cf
 Outflow = 3.0 cfs @ 12.69 hrs, Volume= 17,455 cf, Atten= 1%, Lag= 6.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.69 fps, Min. Travel Time= 3.9 min

Avg. Velocity = 0.86 fps, Avg. Travel Time= 7.8 min

Peak Storage= 710 cf @ 12.63 hrs

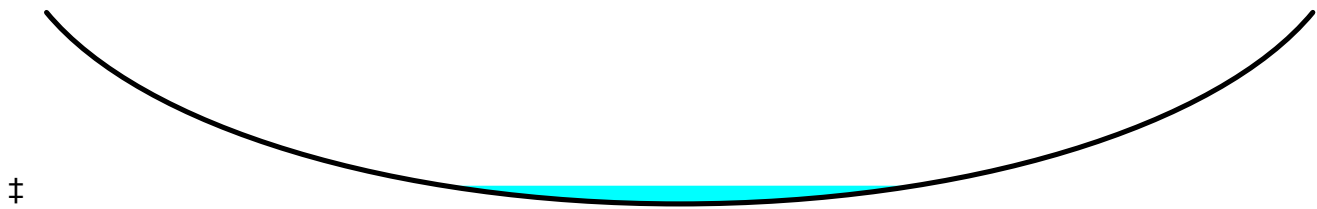
Average Depth at Peak Storage= 0.29'

Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 477.4 cfs

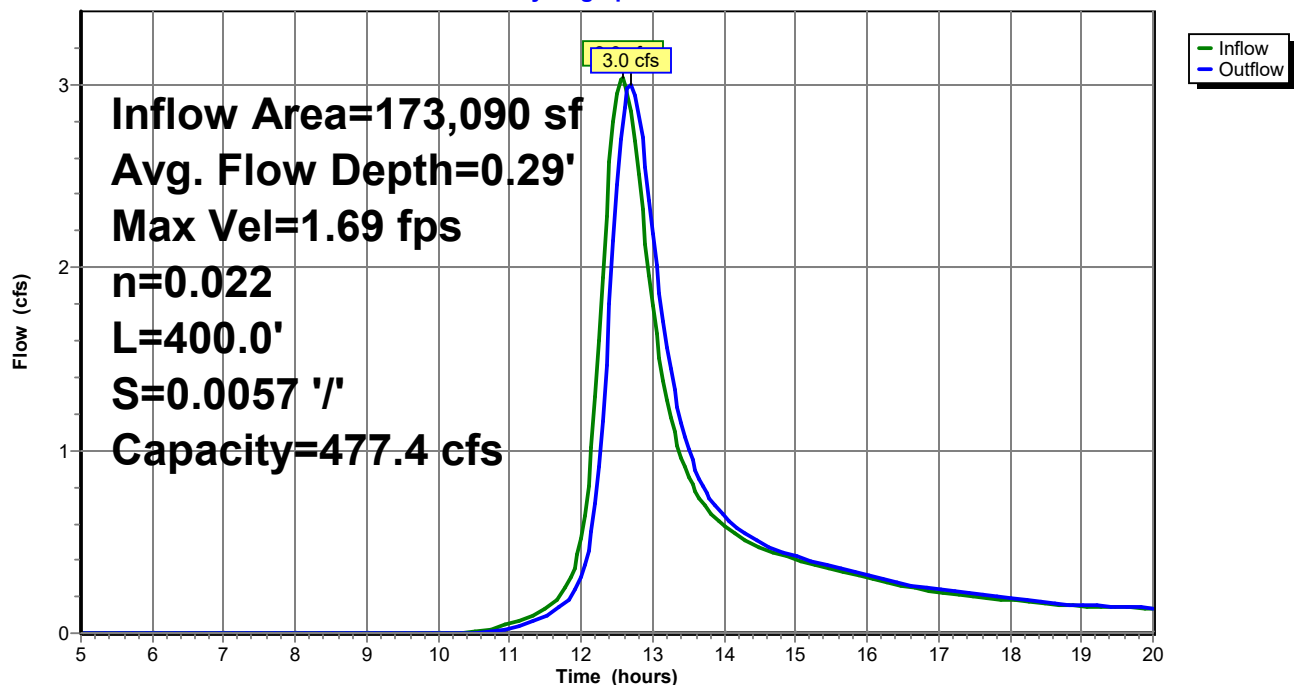
30.00' x 3.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight

Length= 400.0' Slope= 0.0057 '/'

Inlet Invert= 34.08', Outlet Invert= 31.80'

**Reach R1:**

Hydrograph



Summary for Pond C1:

Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 1.14" for 2-Year event
 Inflow = 15.3 cfs @ 13.38 hrs, Volume= 205,674 cf
 Outflow = 12.8 cfs @ 14.34 hrs, Volume= 202,933 cf, Atten= 16%, Lag= 57.4 min
 Primary = 12.8 cfs @ 14.34 hrs, Volume= 202,933 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.53' @ 14.34 hrs Surf.Area= 55,153 sf Storage= 31,394 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 32.7 min calculated for 202,933 cf (99% of inflow)
 Center-of-Mass det. time= 28.6 min (916.7 - 888.1)

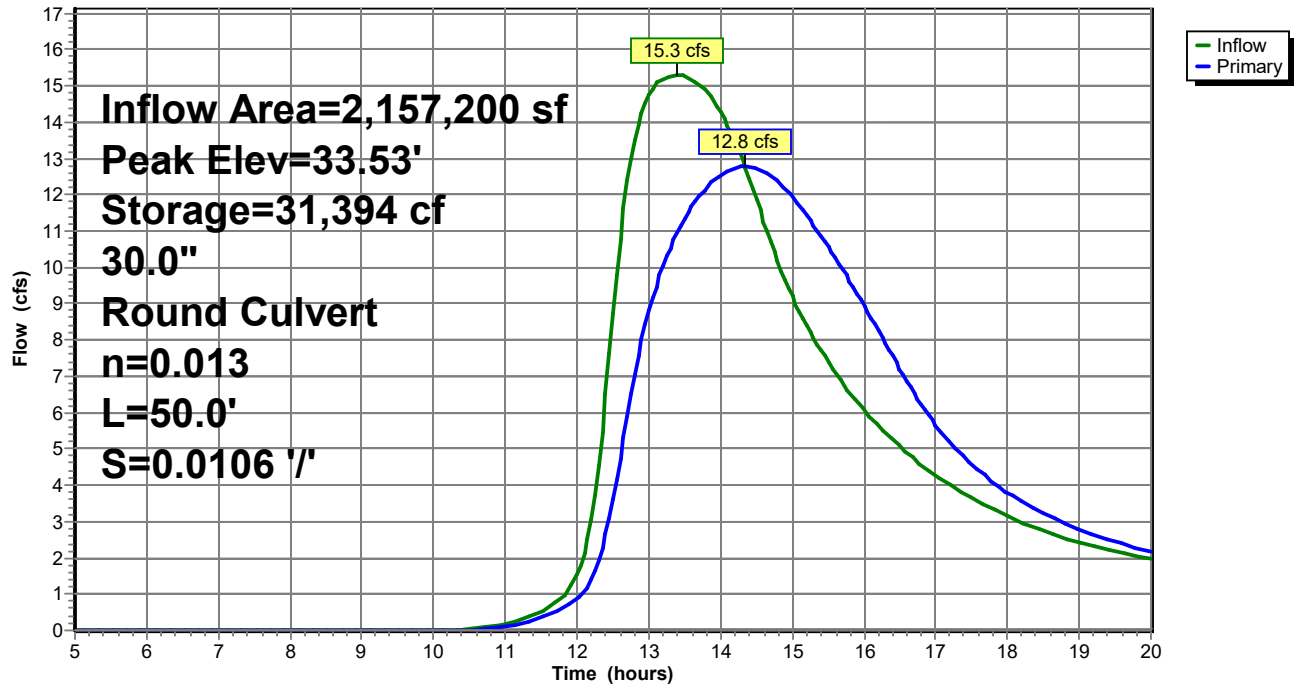
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=12.8 cfs @ 14.34 hrs HW=33.53' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 12.8 cfs @ 3.53 fps)

Pond C1:

Hydrograph



Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 1.22" for 2-Year event
 Inflow = 3.0 cfs @ 12.57 hrs, Volume= 17,649 cf
 Outflow = 3.0 cfs @ 12.58 hrs, Volume= 17,569 cf, Atten= 0%, Lag= 0.2 min
 Primary = 3.0 cfs @ 12.58 hrs, Volume= 17,569 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.64' @ 12.58 hrs Surf.Area= 400 sf Storage= 148 cf

Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 3.1 min calculated for 17,569 cf (100% of inflow)

Center-of-Mass det. time= 1.4 min (834.7 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

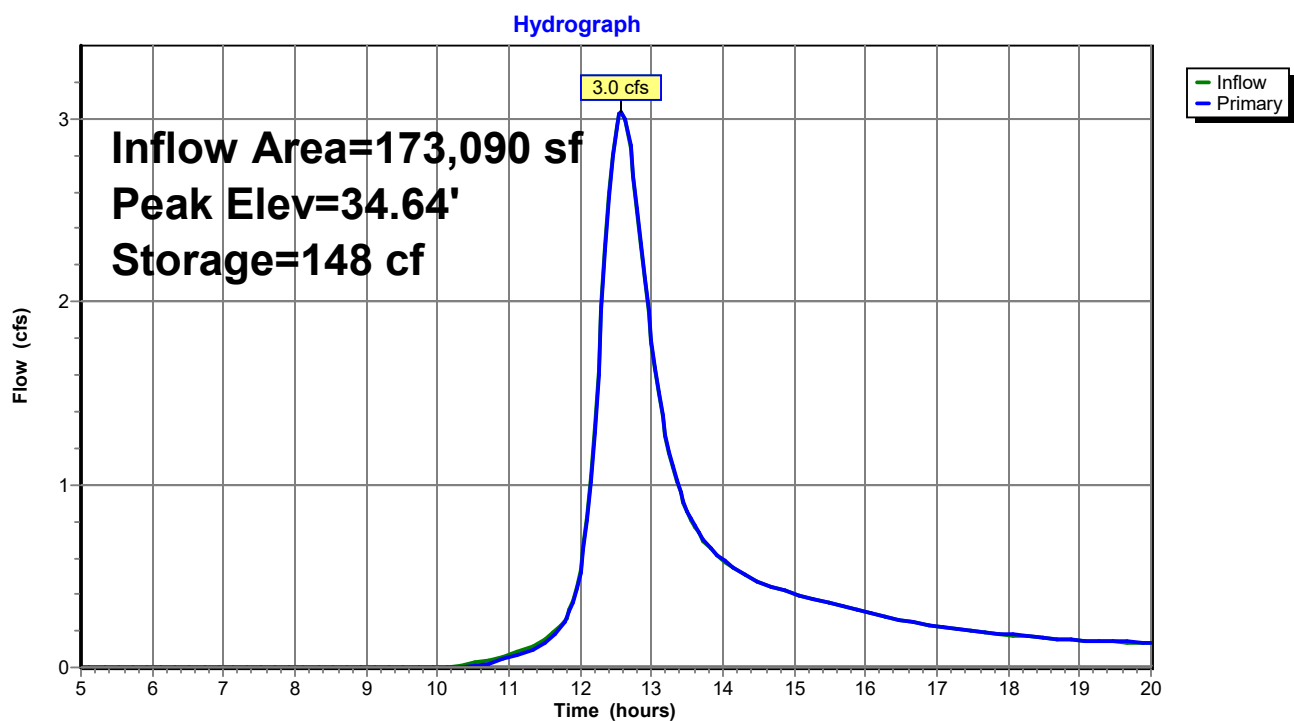
Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.0 cfs @ 12.58 hrs HW=34.64' (Free Discharge)

1=Culvert (Inlet Controls 0.4 cfs @ 1.63 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 2.6 cfs @ 0.93 fps)

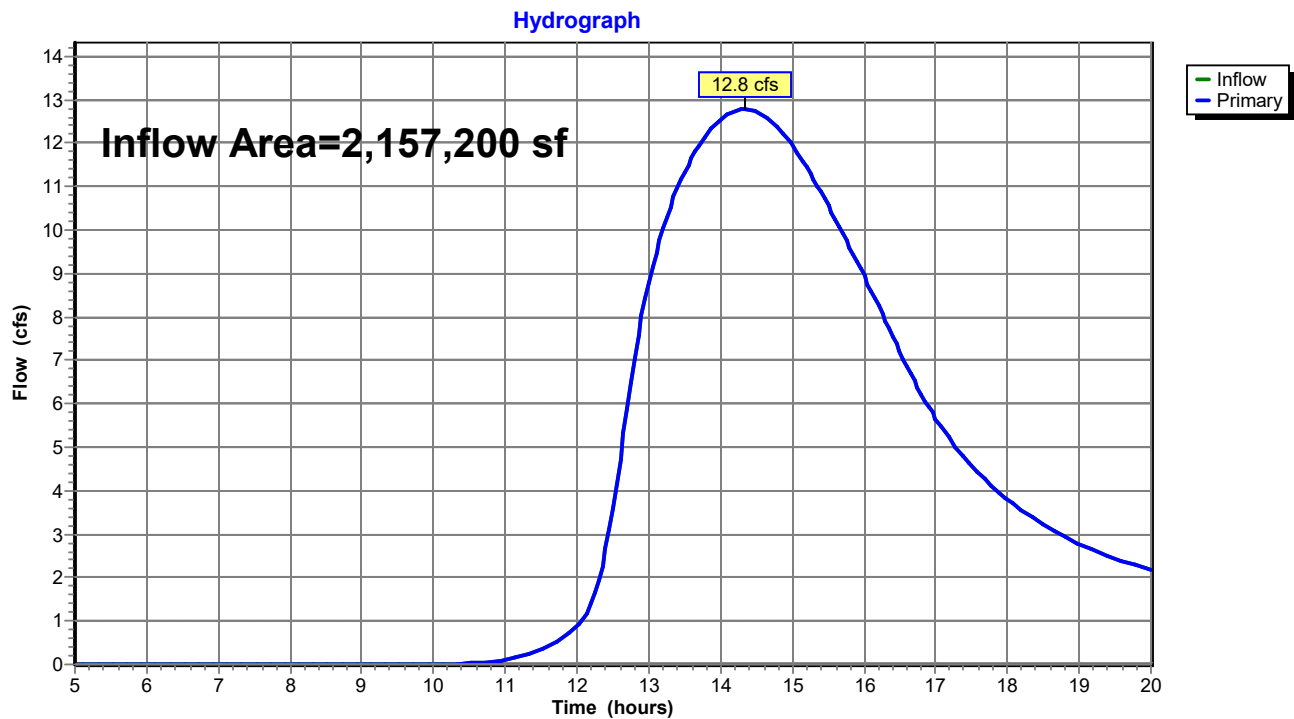
Pond C2:



Summary for Link AP1:

Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 12.8 cfs @ 14.34 hrs, Volume= 202,933 cf
Primary = 12.8 cfs @ 14.34 hrs, Volume= 202,933 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:

Pre-Dev Rev 2*Type III 24-hr 10-Year Rainfall=4.90"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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 1.0: Runoff Area=340,010 sf 3.56% Impervious Runoff Depth>2.48"
Flow Length=1,502' Slope=0.0167 '/' Tc=67.7 min CN=79 Runoff=9.1 cfs 70,183 cf

Subcatchment 1.1: Runoff Area=1,475,335 sf 0.72% Impervious Runoff Depth>2.23"
Flow Length=1,450' Tc=136.8 min CN=77 Runoff=22.9 cfs 274,704 cf

Subcatchment 1.2: Runoff Area=168,765 sf 2.53% Impervious Runoff Depth>2.32"
Flow Length=765' Tc=57.4 min CN=77 Runoff=4.6 cfs 32,592 cf

Subcatchment 1.3: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>2.42"
Flow Length=690' Tc=39.7 min CN=78 Runoff=6.0 cfs 34,870 cf

Reach R1: Avg. Flow Depth=0.40' Max Vel=2.09 fps Inflow=6.0 cfs 34,774 cf
n=0.022 L=400.0' S=0.0057 '/' Capacity=477.4 cfs Outflow=6.0 cfs 34,611 cf

Pond C1: Peak Elev=34.30' Storage=95,764 cf Inflow=31.1 cfs 412,090 cf
30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=20.9 cfs 406,351 cf

Pond C2: Peak Elev=34.73' Storage=183 cf Inflow=6.0 cfs 34,870 cf
Outflow=6.0 cfs 34,774 cf

Link AP1: Inflow=20.9 cfs 406,351 cf
Primary=20.9 cfs 406,351 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 412,349 cf Average Runoff Depth = 2.29"
98.27% Pervious = 2,119,870 sf 1.73% Impervious = 37,330 sf

Pre-Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 17

Summary for Subcatchment 1.0:

Runoff = 9.1 cfs @ 12.91 hrs, Volume= 70,183 cf, Depth> 2.48"

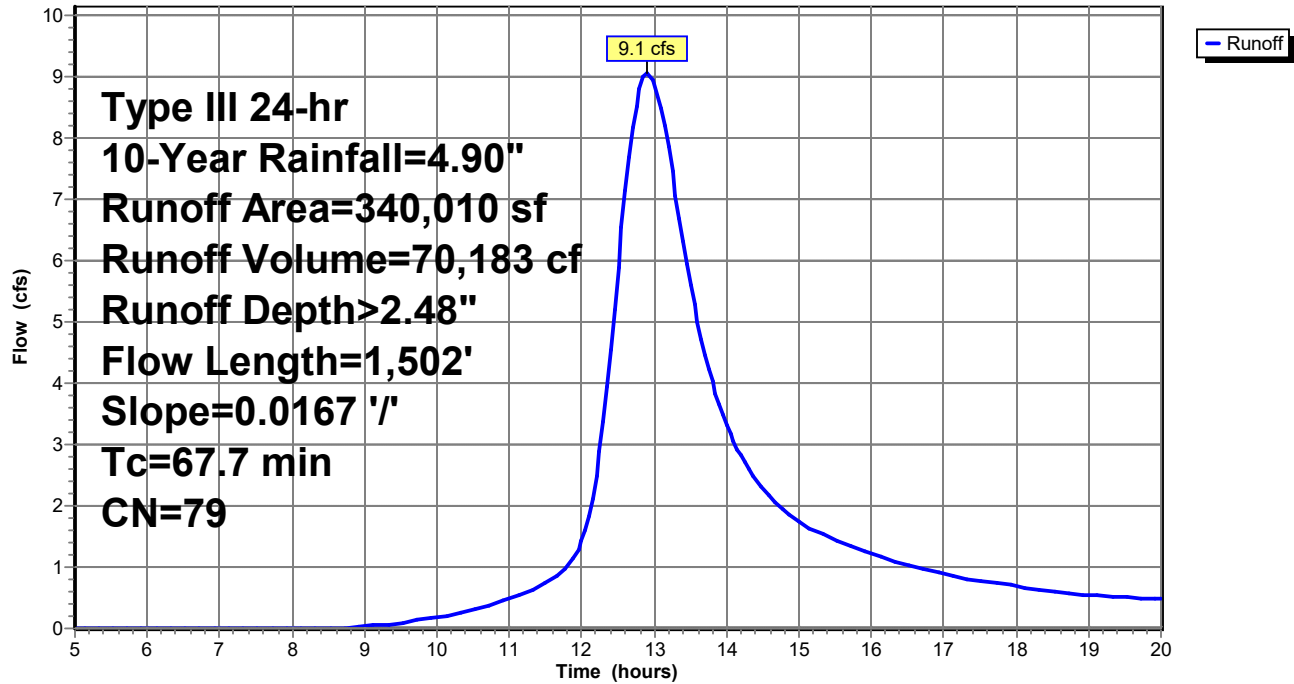
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
6,265	70	Woods, Good, HSG C
20,930	77	Woods, Good, HSG D
168,410	78	Meadow, non-grazed, HSG D
132,305	80	>75% Grass cover, Good, HSG D
12,100	98	Paved parking, HSG D
340,010	79	Weighted Average
327,910		96.44% Pervious Area
12,100		3.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
8.6	600	0.0167	1.16		Shallow Concentrated Flow, D-E
					Cultivated Straight Rows Kv= 9.0 fps
67.7	1,502	Total			

Subcatchment 1.0:

Hydrograph



Pre-Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 19

Summary for Subcatchment 1.1:

Runoff = 22.9 cfs @ 13.84 hrs, Volume= 274,704 cf, Depth> 2.23"

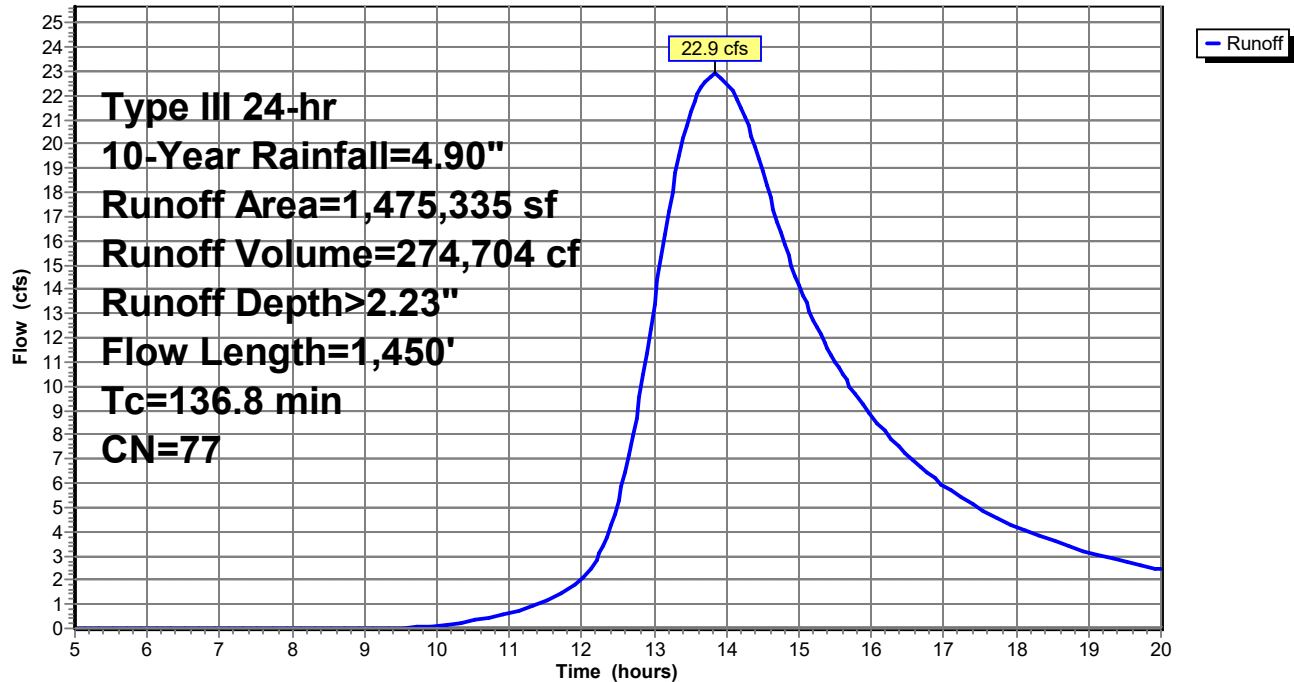
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
118,320	70	Woods, Good, HSG C
1,145,650	77	Woods, Good, HSG D
2,375	71	Meadow, non-grazed, HSG C
174,000	78	Meadow, non-grazed, HSG D
24,340	80	>75% Grass cover, Good, HSG D
10,650	98	Paved parking, HSG D
1,475,335	77	Weighted Average
1,464,685		99.28% Pervious Area
10,650		0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
14.9	565	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
136.8	1,450	Total			

Subcatchment 1.1:

Hydrograph



Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 21

Summary for Subcatchment 1.2:

Runoff = 4.6 cfs @ 12.79 hrs, Volume= 32,592 cf, Depth> 2.32"

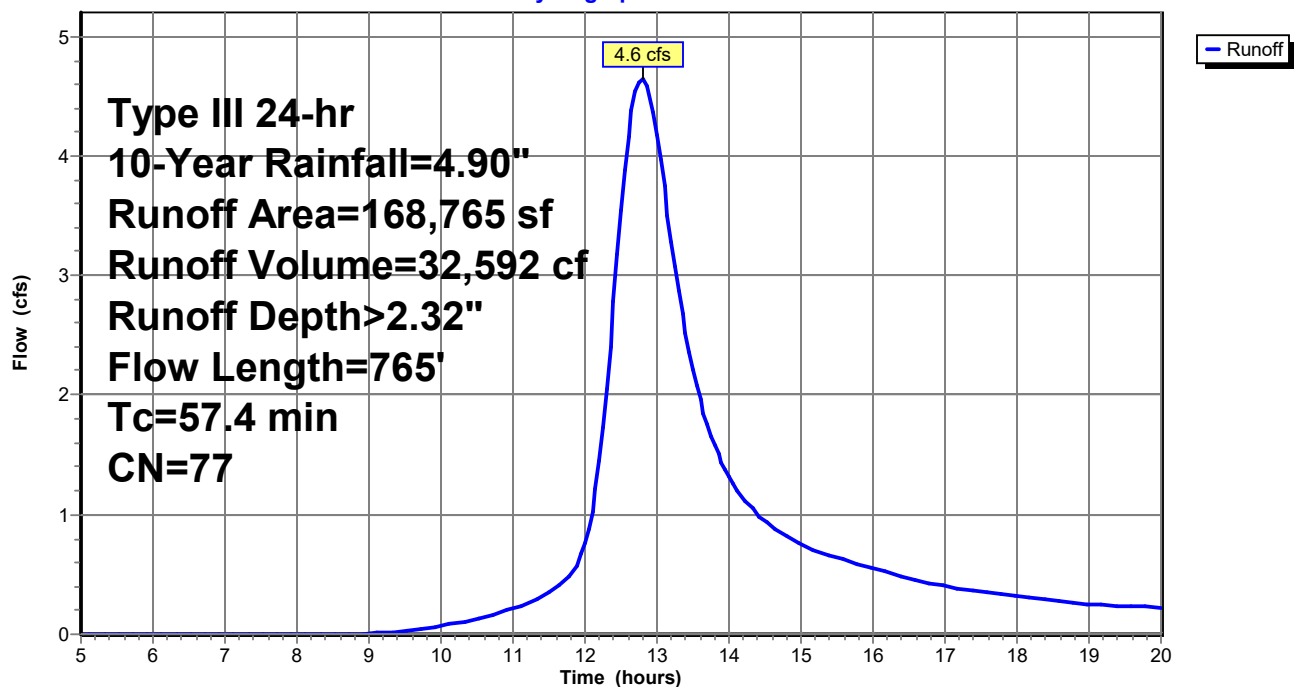
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
22,320	70	Woods, Good, HSG C
7,035	77	Woods, Good, HSG D
90	71	Meadow, non-grazed, HSG C
135,050	78	Meadow, non-grazed, HSG D
4,270	98	Paved parking, HSG D
168,765	77	Weighted Average
164,495		97.47% Pervious Area
4,270		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	65	0.0067	0.03		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
2.0	70	0.0570	0.60		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
15.0	630	0.0100	0.70		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
57.4	765	Total			

Subcatchment 1.2:

Hydrograph



Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 22

Summary for Subcatchment 1.3:

Runoff = 6.0 cfs @ 12.55 hrs, Volume= 34,870 cf, Depth> 2.42"

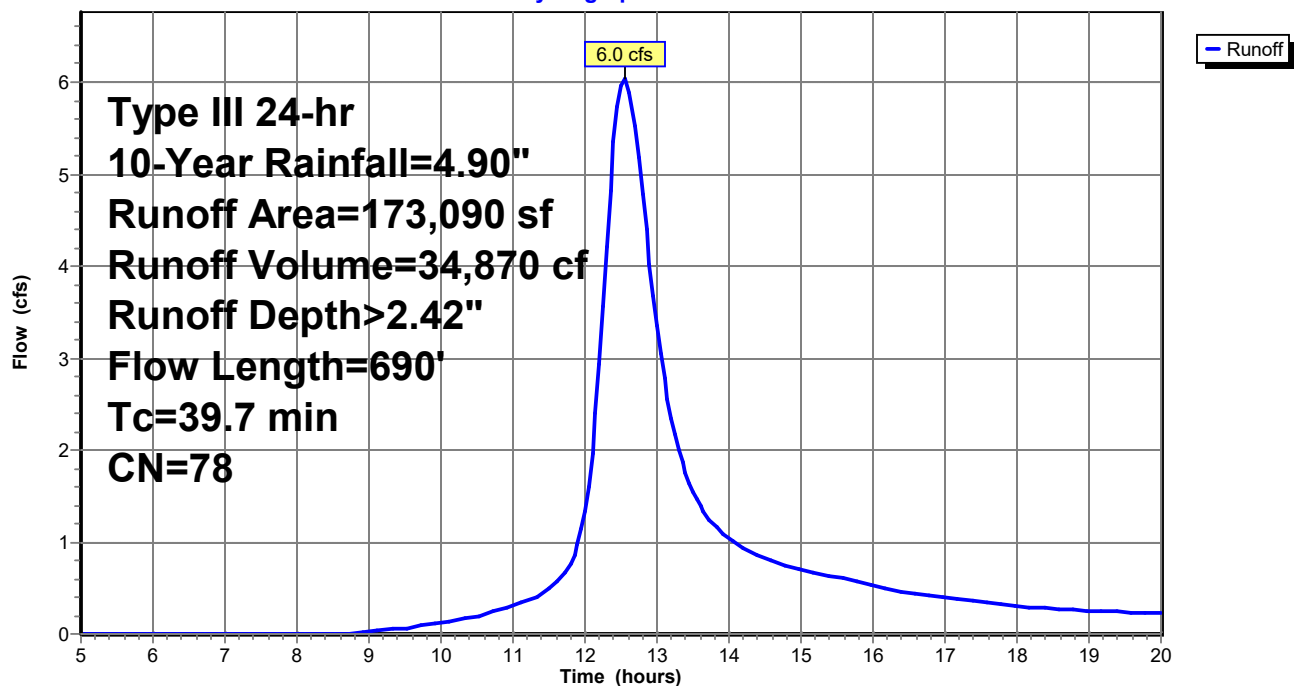
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
14,450	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.3:

Hydrograph



Summary for Reach R1:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 2.41" for 10-Year event
 Inflow = 6.0 cfs @ 12.56 hrs, Volume= 34,774 cf
 Outflow = 6.0 cfs @ 12.65 hrs, Volume= 34,611 cf, Atten= 1%, Lag= 5.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.09 fps, Min. Travel Time= 3.2 min

Avg. Velocity = 0.98 fps, Avg. Travel Time= 6.8 min

Peak Storage= 1,148 cf @ 12.60 hrs

Average Depth at Peak Storage= 0.40'

Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 477.4 cfs

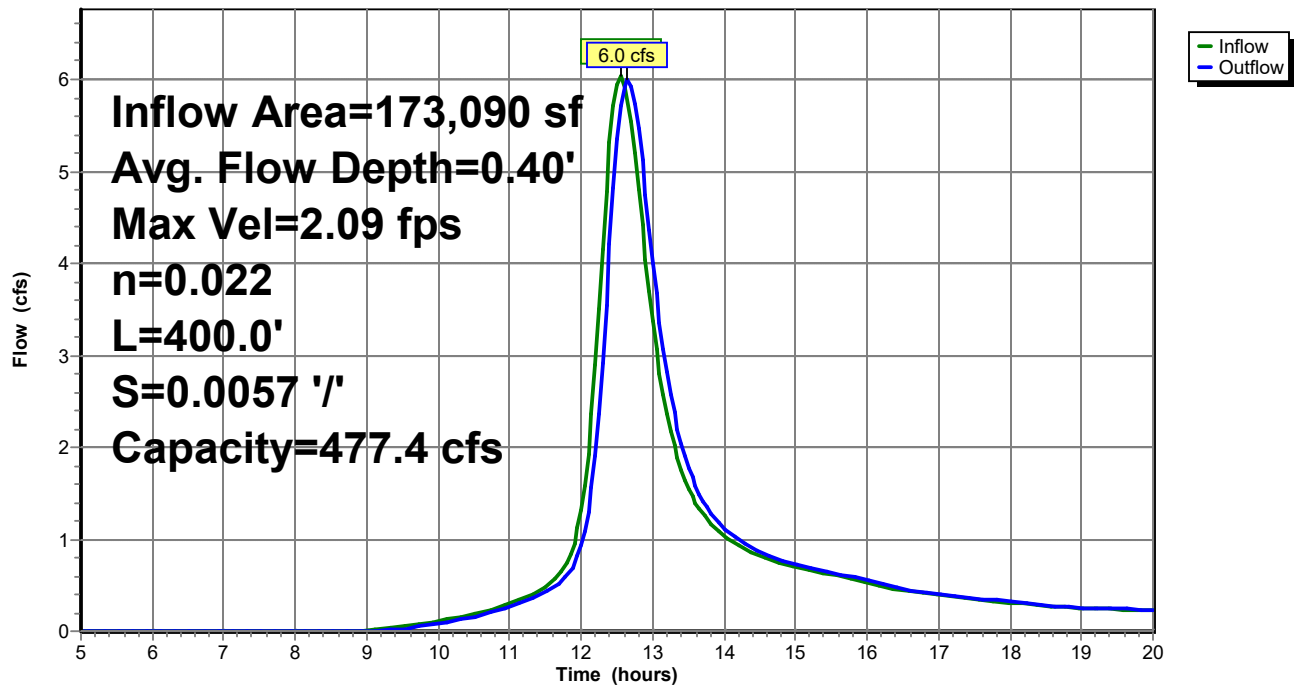
30.00' x 3.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight

Length= 400.0' Slope= 0.0057 '/'

Inlet Invert= 34.08', Outlet Invert= 31.80'

**Reach R1:**

Hydrograph



Summary for Pond C1:

Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 2.29" for 10-Year event
 Inflow = 31.1 cfs @ 13.24 hrs, Volume= 412,090 cf
 Outflow = 20.9 cfs @ 14.67 hrs, Volume= 406,351 cf, Atten= 33%, Lag= 85.3 min
 Primary = 20.9 cfs @ 14.67 hrs, Volume= 406,351 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.30' @ 14.67 hrs Surf.Area= 118,341 sf Storage= 95,764 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 55.0 min calculated for 406,351 cf (99% of inflow)
 Center-of-Mass det. time= 50.6 min (925.4 - 874.8)

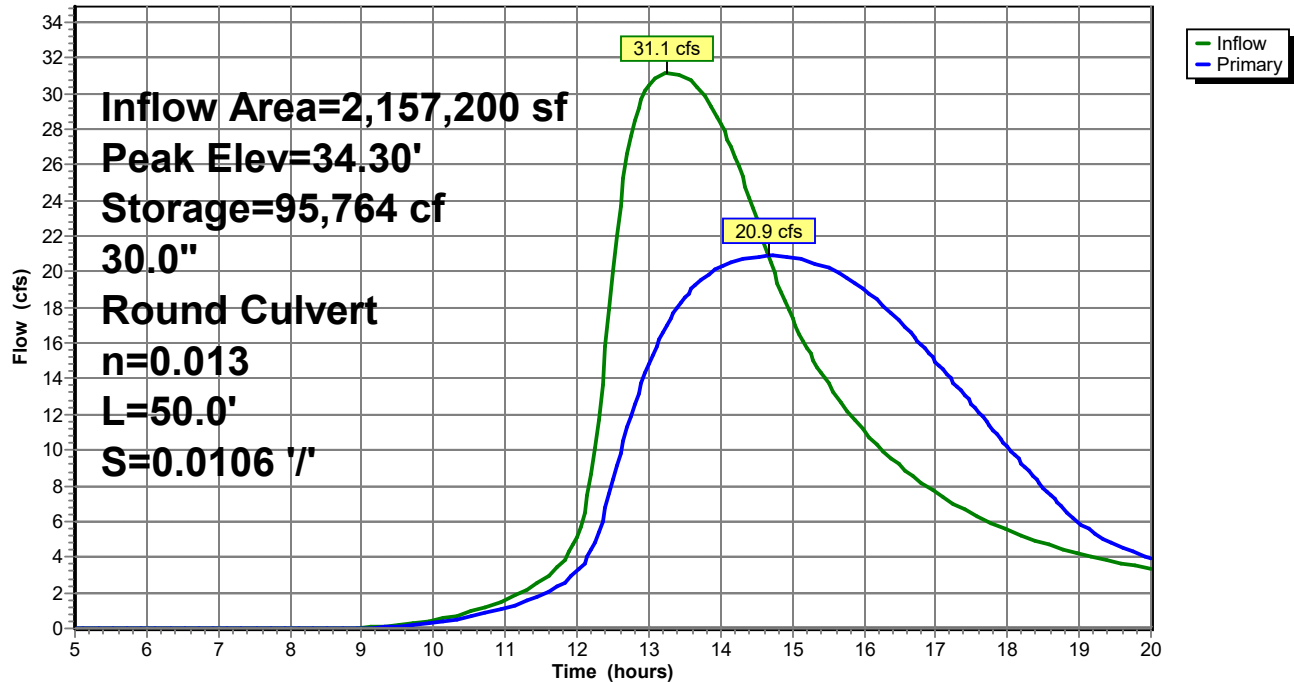
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=20.9 cfs @ 14.67 hrs HW=34.30' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 20.9 cfs @ 4.26 fps)

Pond C1:

Hydrograph



Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 2.42" for 10-Year event
 Inflow = 6.0 cfs @ 12.55 hrs, Volume= 34,870 cf
 Outflow = 6.0 cfs @ 12.56 hrs, Volume= 34,774 cf, Atten= 0%, Lag= 0.2 min
 Primary = 6.0 cfs @ 12.56 hrs, Volume= 34,774 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.73' @ 12.56 hrs Surf.Area= 400 sf Storage= 183 cf

Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 1.9 min calculated for 34,659 cf (99% of inflow)

Center-of-Mass det. time= 0.9 min (819.5 - 818.5)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

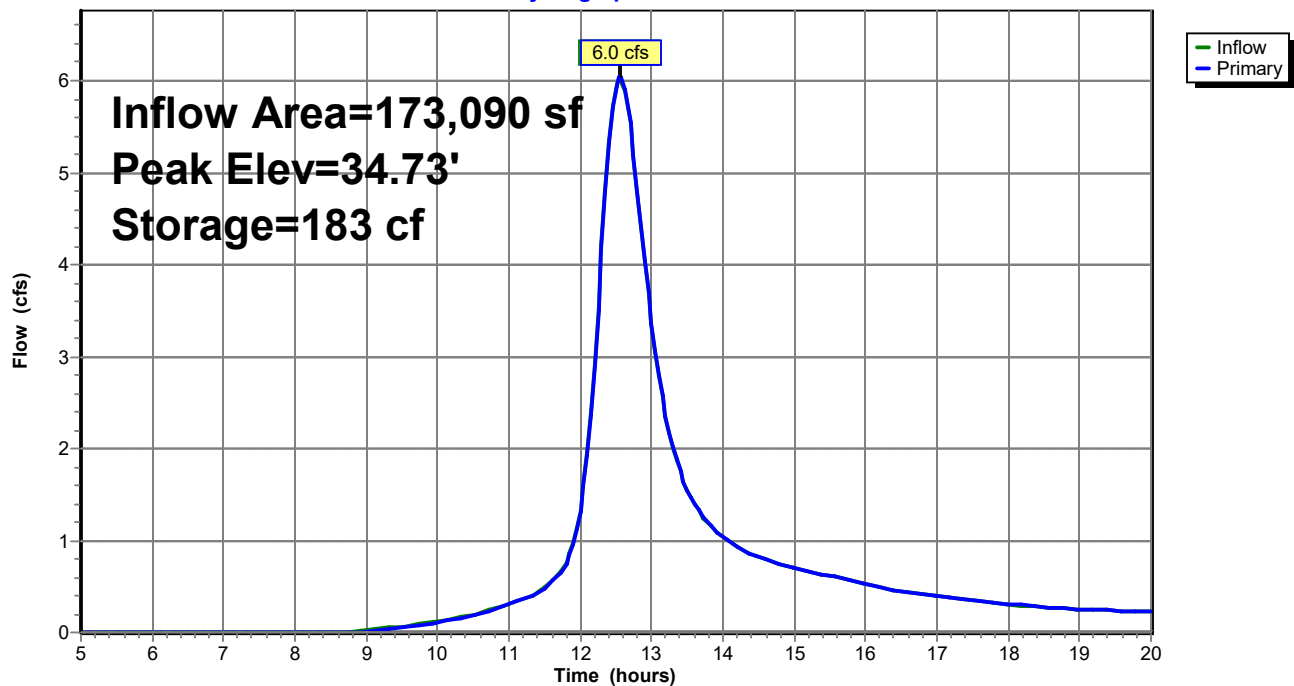
Primary OutFlow Max=6.0 cfs @ 12.56 hrs HW=34.73' (Free Discharge)

1=Culvert (Barrel Controls 0.6 cfs @ 2.64 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 5.4 cfs @ 1.19 fps)

Pond C2:

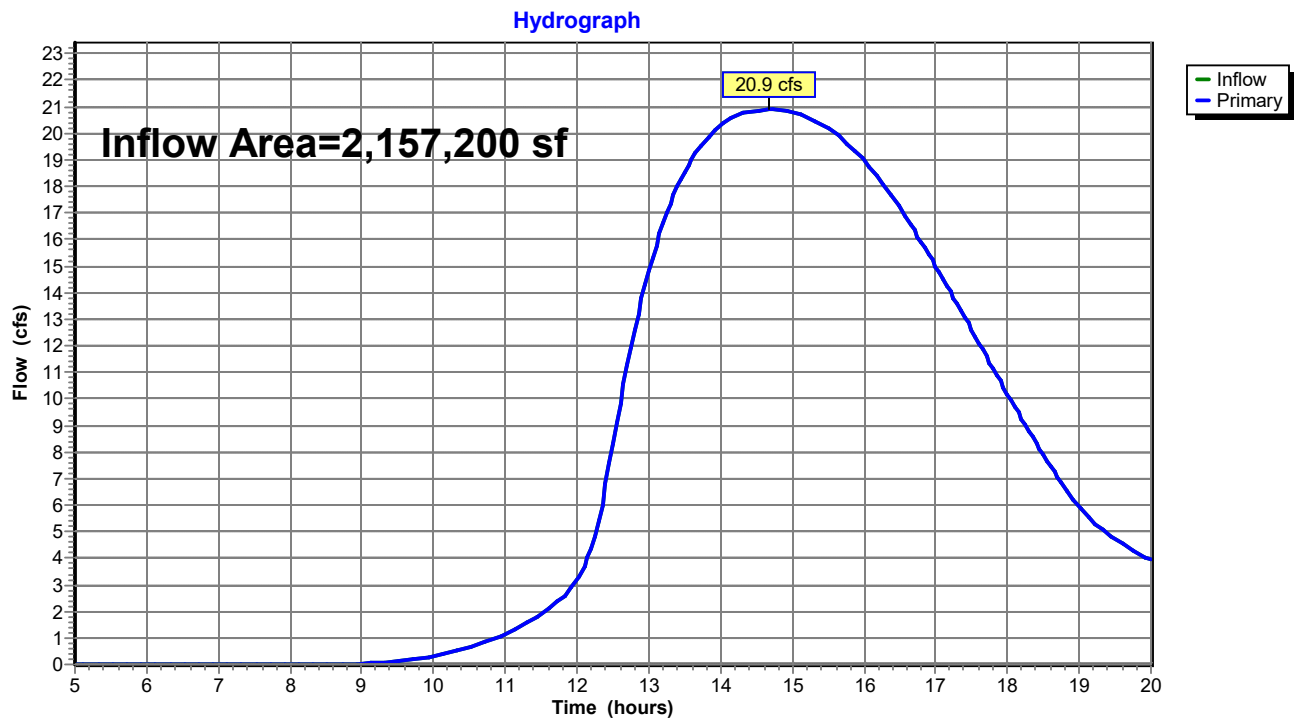
Hydrograph



Summary for Link AP1:

Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 2.26" for 10-Year event
Inflow = 20.9 cfs @ 14.67 hrs, Volume= 406,351 cf
Primary = 20.9 cfs @ 14.67 hrs, Volume= 406,351 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:

Pre-Dev Rev 2*Type III 24-hr 25-Year Rainfall=6.20"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 29

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=340,010 sf 3.56% Impervious Runoff Depth>3.54"
Flow Length=1,502' Slope=0.0167 '/' Tc=67.7 min CN=79 Runoff=12.9 cfs 100,345 cf

Subcatchment 1.1: Runoff Area=1,475,335 sf 0.72% Impervious Runoff Depth>3.25"
Flow Length=1,450' Tc=136.8 min CN=77 Runoff=33.2 cfs 398,963 cf

Subcatchment 1.2: Runoff Area=168,765 sf 2.53% Impervious Runoff Depth>3.36"
Flow Length=765' Tc=57.4 min CN=77 Runoff=6.7 cfs 47,209 cf

Subcatchment 1.3: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>3.48"
Flow Length=690' Tc=39.7 min CN=78 Runoff=8.6 cfs 50,147 cf

Reach R1: Avg. Flow Depth=0.47' Max Vel=2.34 fps Inflow=8.6 cfs 50,049 cf
n=0.022 L=400.0' S=0.0057 '/' Capacity=477.4 cfs Outflow=8.6 cfs 49,851 cf

Pond C1: Peak Elev=34.85' Storage=176,321 cf Inflow=45.1 cfs 596,368 cf
30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=25.0 cfs 581,407 cf

Pond C2: Peak Elev=34.79' Storage=208 cf Inflow=8.6 cfs 50,147 cf
Outflow=8.6 cfs 50,049 cf

Link AP1: Inflow=25.0 cfs 581,407 cf
Primary=25.0 cfs 581,407 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 596,664 cf Average Runoff Depth = 3.32"
98.27% Pervious = 2,119,870 sf 1.73% Impervious = 37,330 sf

Summary for Subcatchment 1.0:

Runoff = 12.9 cfs @ 12.90 hrs, Volume= 100,345 cf, Depth> 3.54"

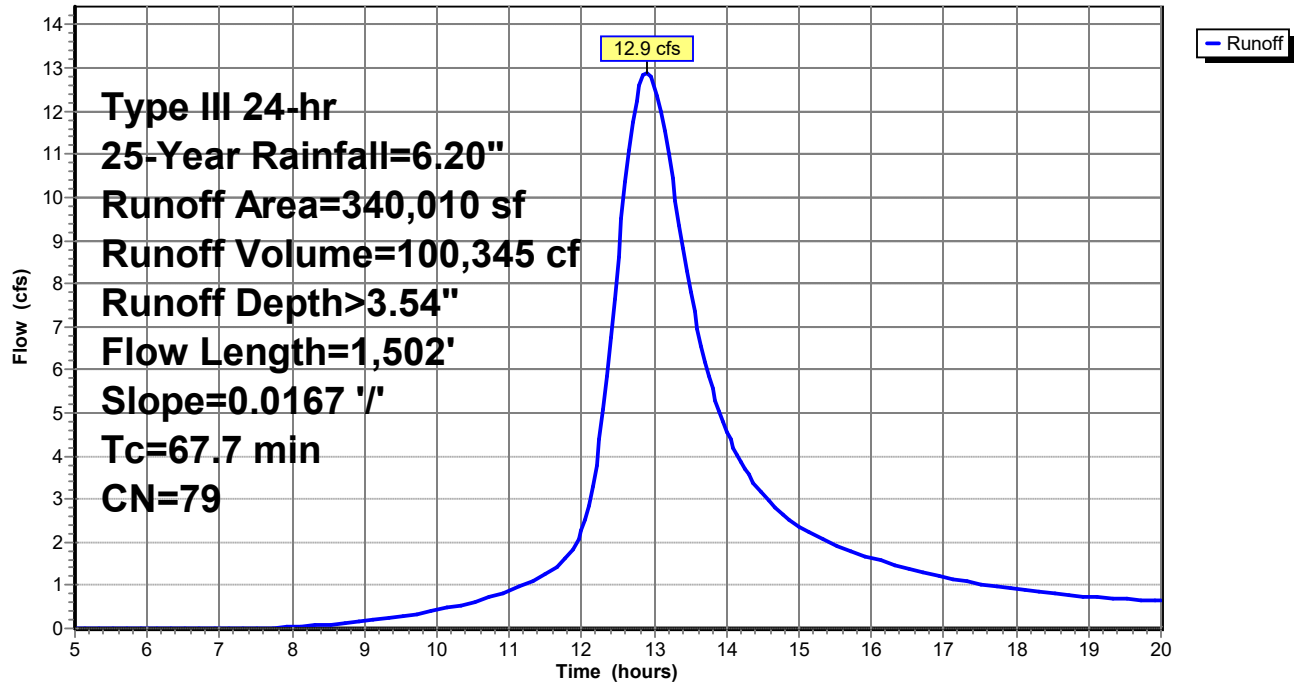
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
6,265	70	Woods, Good, HSG C
20,930	77	Woods, Good, HSG D
168,410	78	Meadow, non-grazed, HSG D
132,305	80	>75% Grass cover, Good, HSG D
12,100	98	Paved parking, HSG D
340,010	79	Weighted Average
327,910		96.44% Pervious Area
12,100		3.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
8.6	600	0.0167	1.16		Shallow Concentrated Flow, D-E Cultivated Straight Rows Kv= 9.0 fps
67.7	1,502	Total			

Subcatchment 1.0:

Hydrograph



Summary for Subcatchment 1.1:

Runoff = 33.2 cfs @ 13.83 hrs, Volume= 398,963 cf, Depth> 3.25"

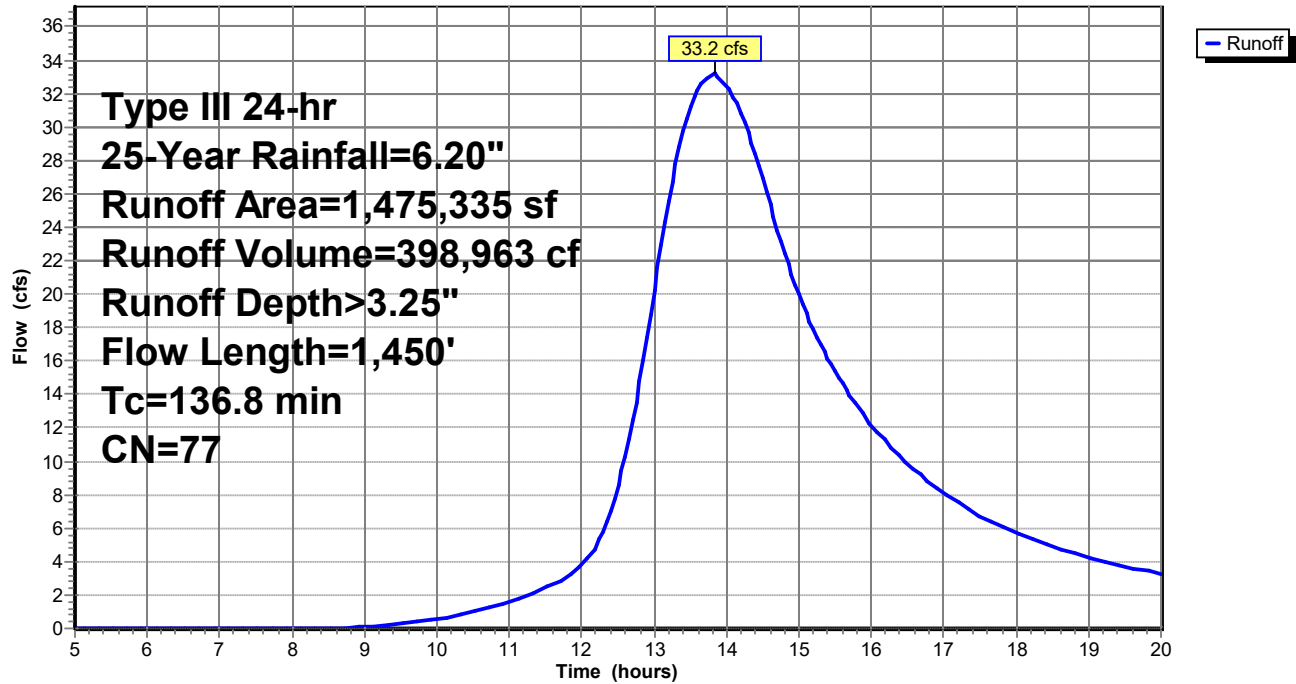
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
118,320	70	Woods, Good, HSG C
1,145,650	77	Woods, Good, HSG D
2,375	71	Meadow, non-grazed, HSG C
174,000	78	Meadow, non-grazed, HSG D
24,340	80	>75% Grass cover, Good, HSG D
10,650	98	Paved parking, HSG D
1,475,335	77	Weighted Average
1,464,685		99.28% Pervious Area
10,650		0.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
14.9	565	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
136.8	1,450	Total			

Subcatchment 1.1:

Hydrograph



Pre-Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 34

Summary for Subcatchment 1.2:

Runoff = 6.7 cfs @ 12.78 hrs, Volume= 47,209 cf, Depth> 3.36"

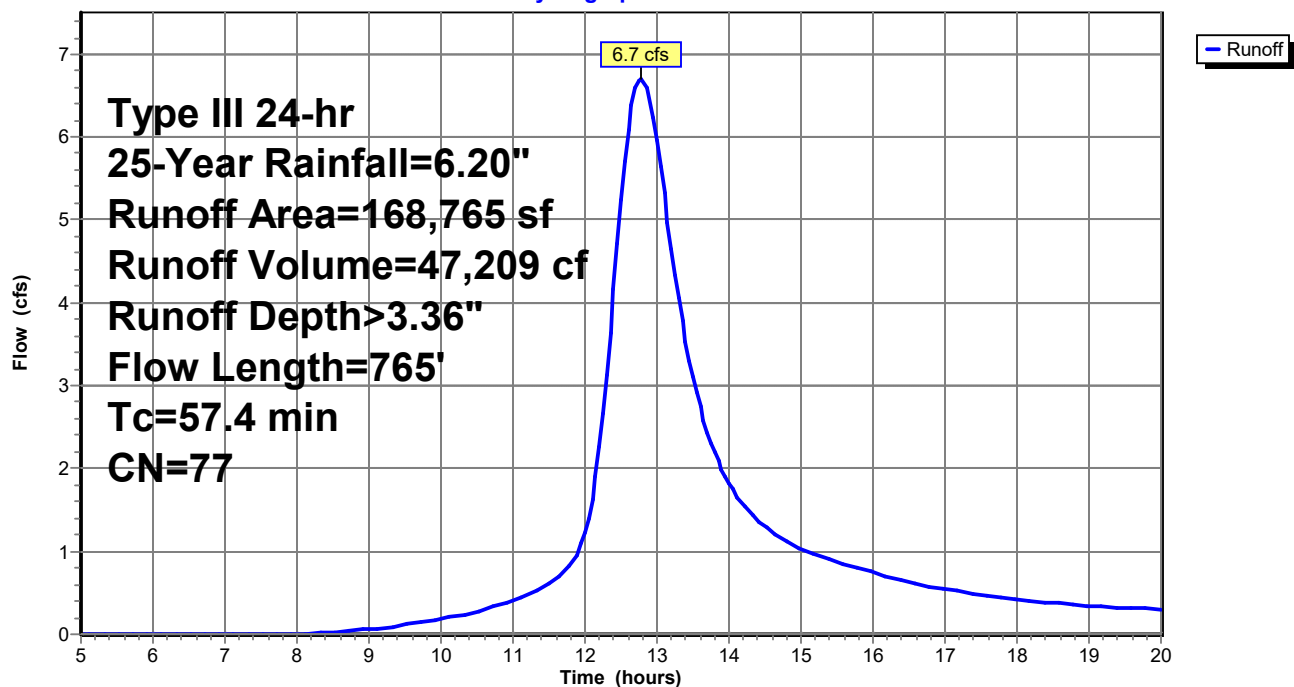
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
22,320	70	Woods, Good, HSG C
7,035	77	Woods, Good, HSG D
90	71	Meadow, non-grazed, HSG C
135,050	78	Meadow, non-grazed, HSG D
4,270	98	Paved parking, HSG D
168,765	77	Weighted Average
164,495		97.47% Pervious Area
4,270		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.4	65	0.0067	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
2.0	70	0.0570	0.60		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
15.0	630	0.0100	0.70		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
57.4	765	Total			

Subcatchment 1.2:

Hydrograph



Summary for Subcatchment 1.3:

Runoff = 8.6 cfs @ 12.55 hrs, Volume= 50,147 cf, Depth> 3.48"

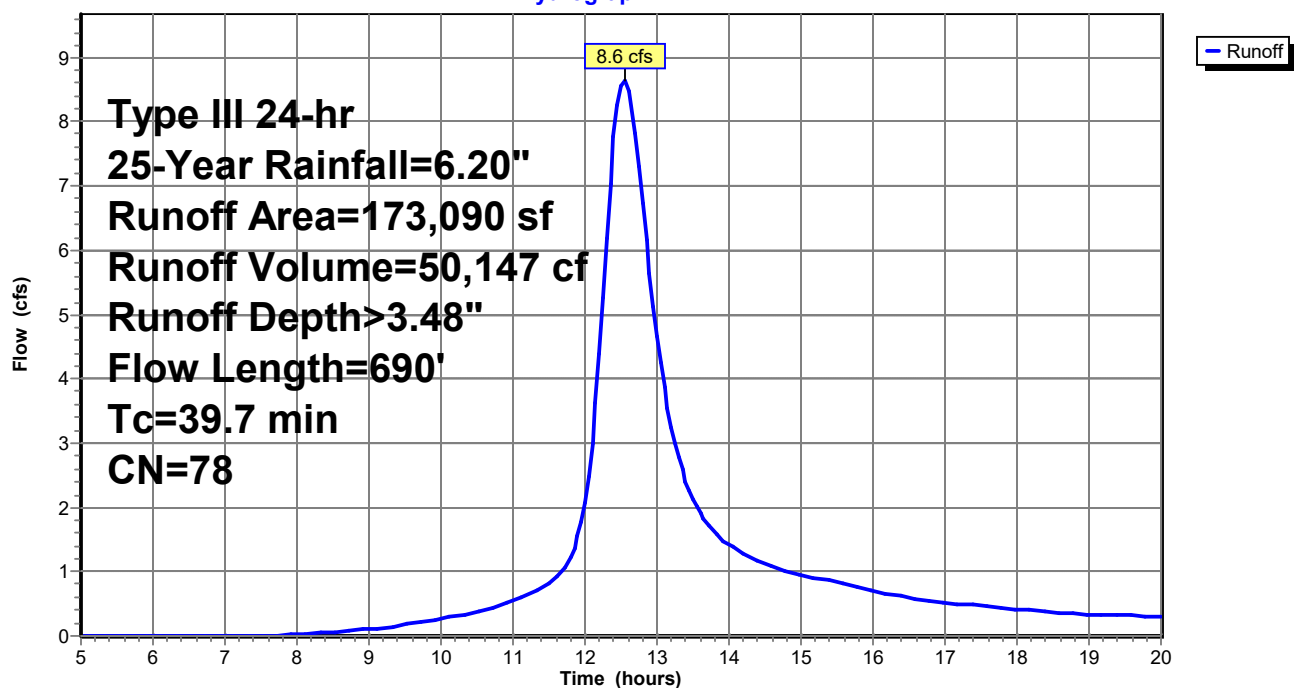
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
14,450	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.3:

Hydrograph



Summary for Reach R1:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 3.47" for 25-Year event
 Inflow = 8.6 cfs @ 12.55 hrs, Volume= 50,049 cf
 Outflow = 8.6 cfs @ 12.63 hrs, Volume= 49,851 cf, Atten= 1%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.34 fps, Min. Travel Time= 2.9 min

Avg. Velocity = 1.06 fps, Avg. Travel Time= 6.3 min

Peak Storage= 1,472 cf @ 12.58 hrs

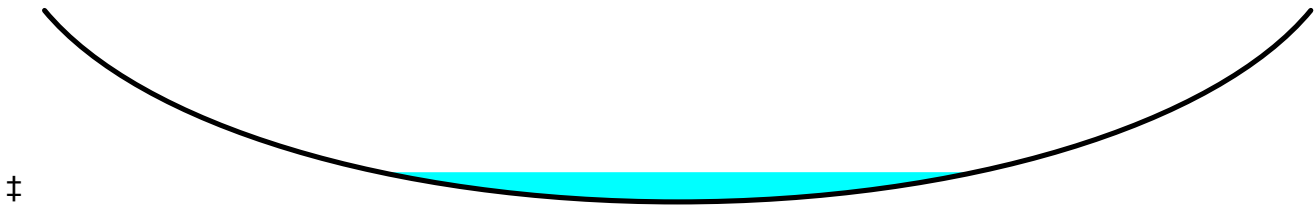
Average Depth at Peak Storage= 0.47'

Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 477.4 cfs

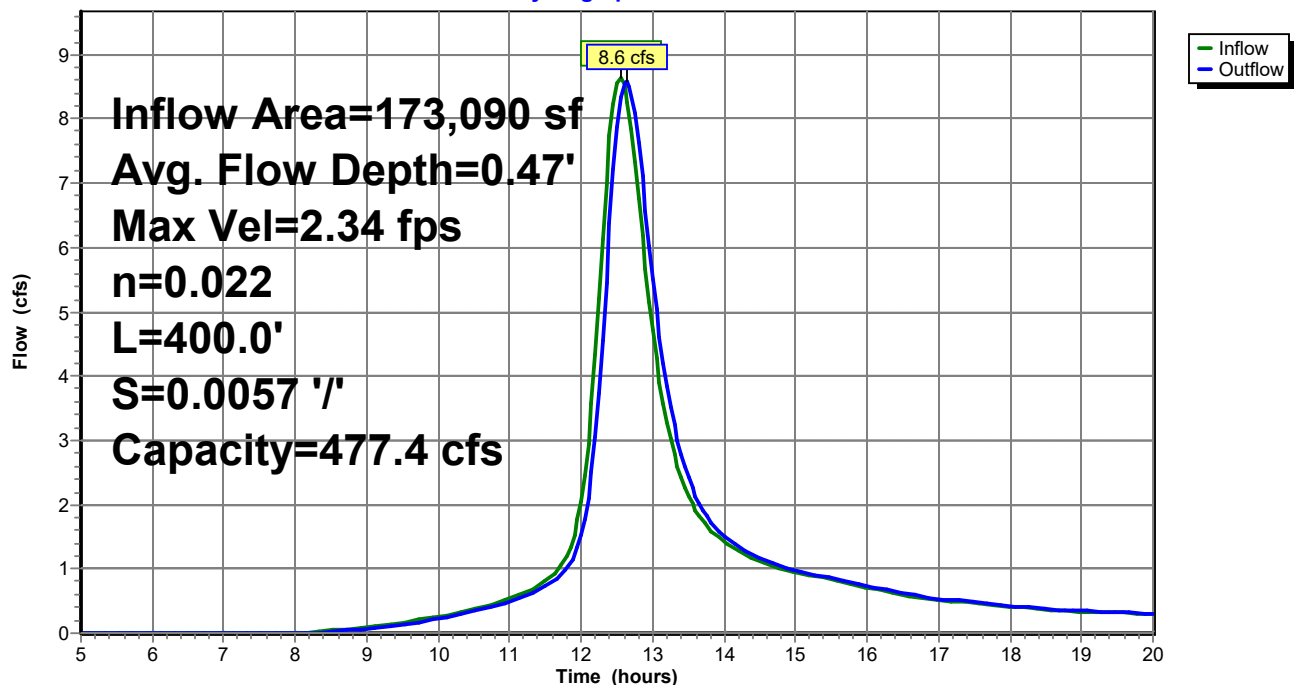
30.00' x 3.00' deep Parabolic Channel, n= 0.022 Earth, clean & straight

Length= 400.0' Slope= 0.0057 '/'

Inlet Invert= 34.08', Outlet Invert= 31.80'

**Reach R1:**

Hydrograph



Summary for Pond C1:

Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 3.32" for 25-Year event
 Inflow = 45.1 cfs @ 13.22 hrs, Volume= 596,368 cf
 Outflow = 25.0 cfs @ 14.95 hrs, Volume= 581,407 cf, Atten= 44%, Lag= 103.9 min
 Primary = 25.0 cfs @ 14.95 hrs, Volume= 581,407 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.85' @ 14.95 hrs Surf.Area= 176,645 sf Storage= 176,321 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 82.1 min calculated for 579,475 cf (97% of inflow)
 Center-of-Mass det. time= 74.1 min (941.4 - 867.3)

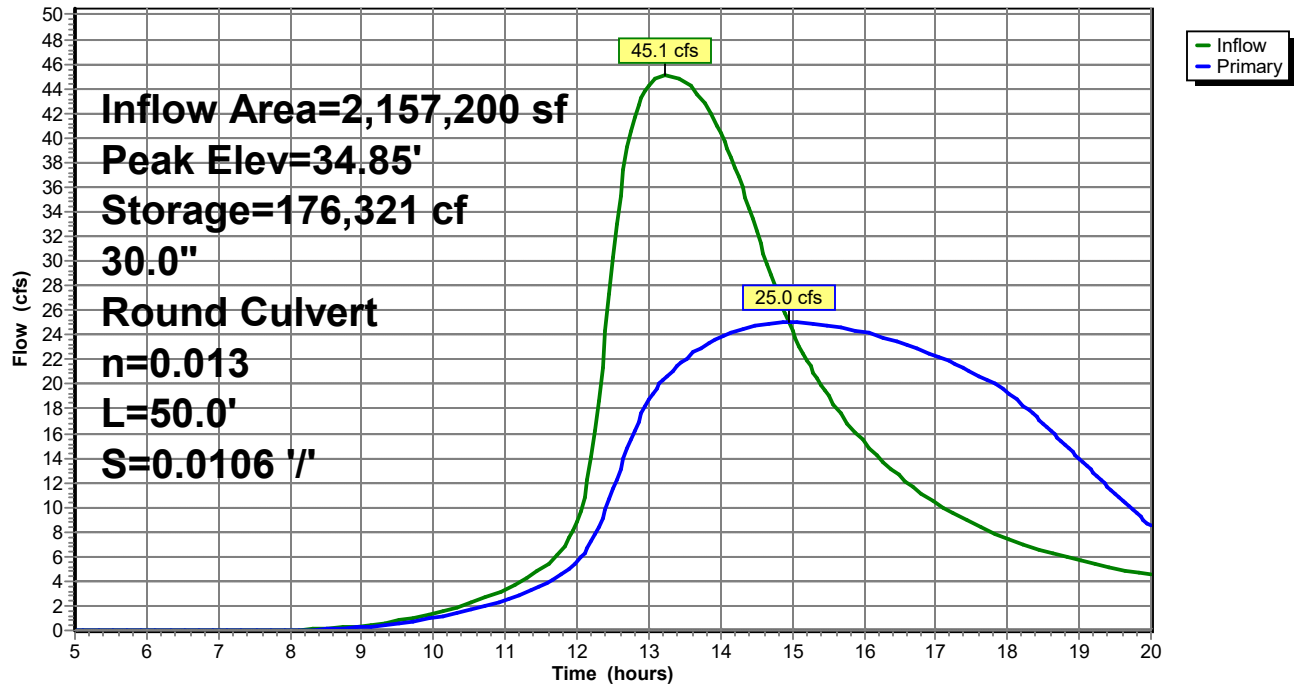
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=25.0 cfs @ 14.95 hrs HW=34.85' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 25.0 cfs @ 5.10 fps)

Pond C1:

Hydrograph



Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 3.48" for 25-Year event
 Inflow = 8.6 cfs @ 12.55 hrs, Volume= 50,147 cf
 Outflow = 8.6 cfs @ 12.55 hrs, Volume= 50,049 cf, Atten= 0%, Lag= 0.2 min
 Primary = 8.6 cfs @ 12.55 hrs, Volume= 50,049 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.79' @ 12.55 hrs Surf.Area= 400 sf Storage= 208 cf

Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 1.5 min calculated for 49,883 cf (99% of inflow)

Center-of-Mass det. time= 0.8 min (811.2 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

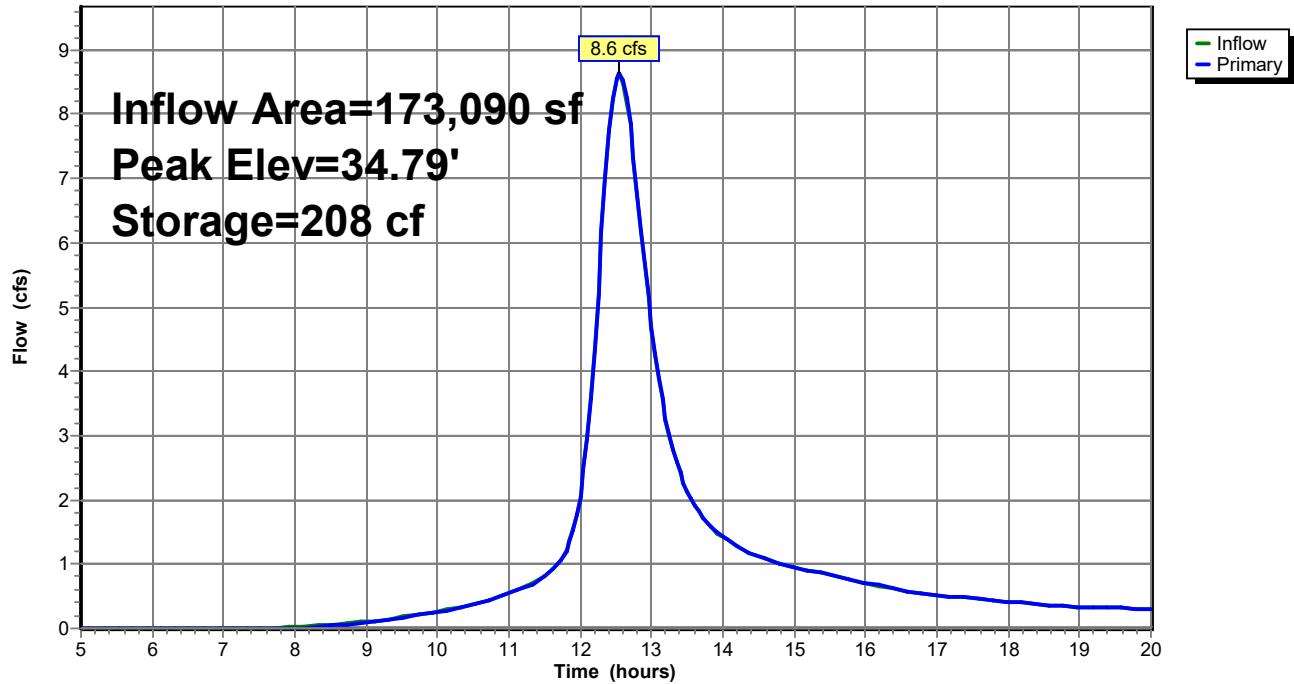
Primary OutFlow Max=8.6 cfs @ 12.55 hrs HW=34.79' (Free Discharge)

1=Culvert (Barrel Controls 0.8 cfs @ 2.76 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 7.9 cfs @ 1.36 fps)

Pond C2:

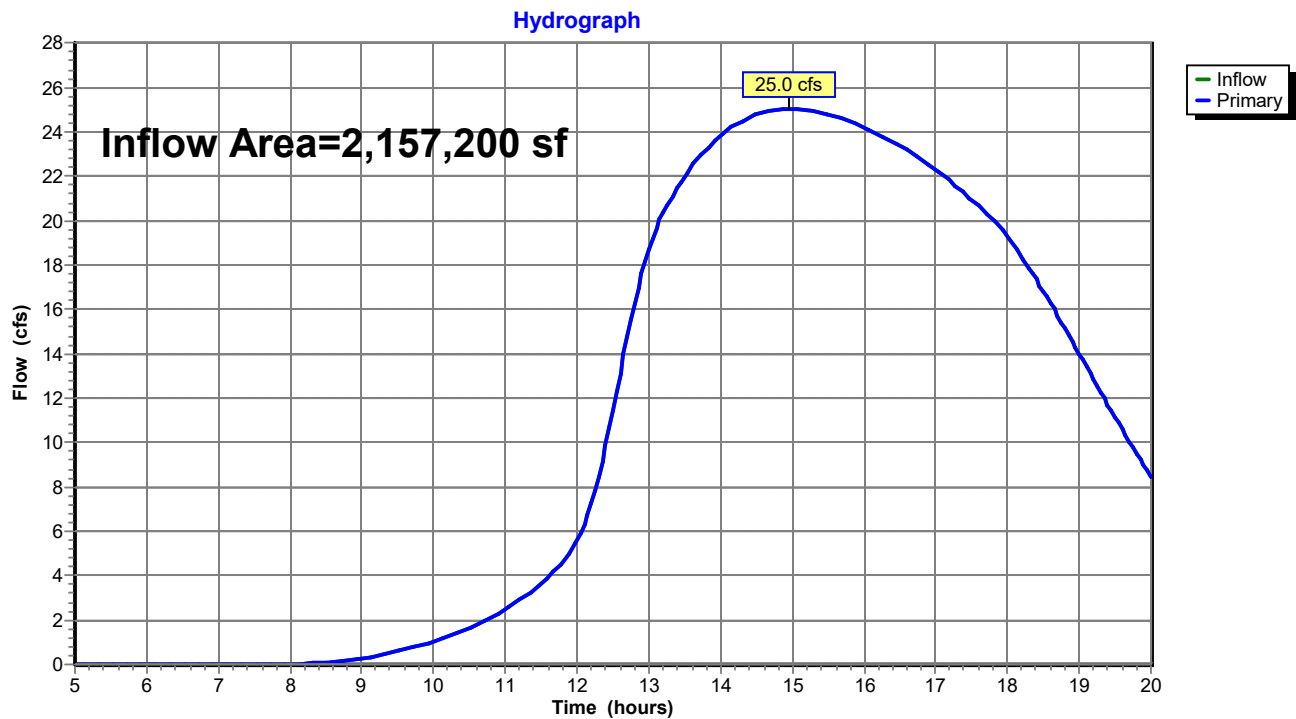
Hydrograph



Summary for Link AP1:

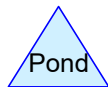
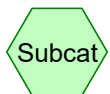
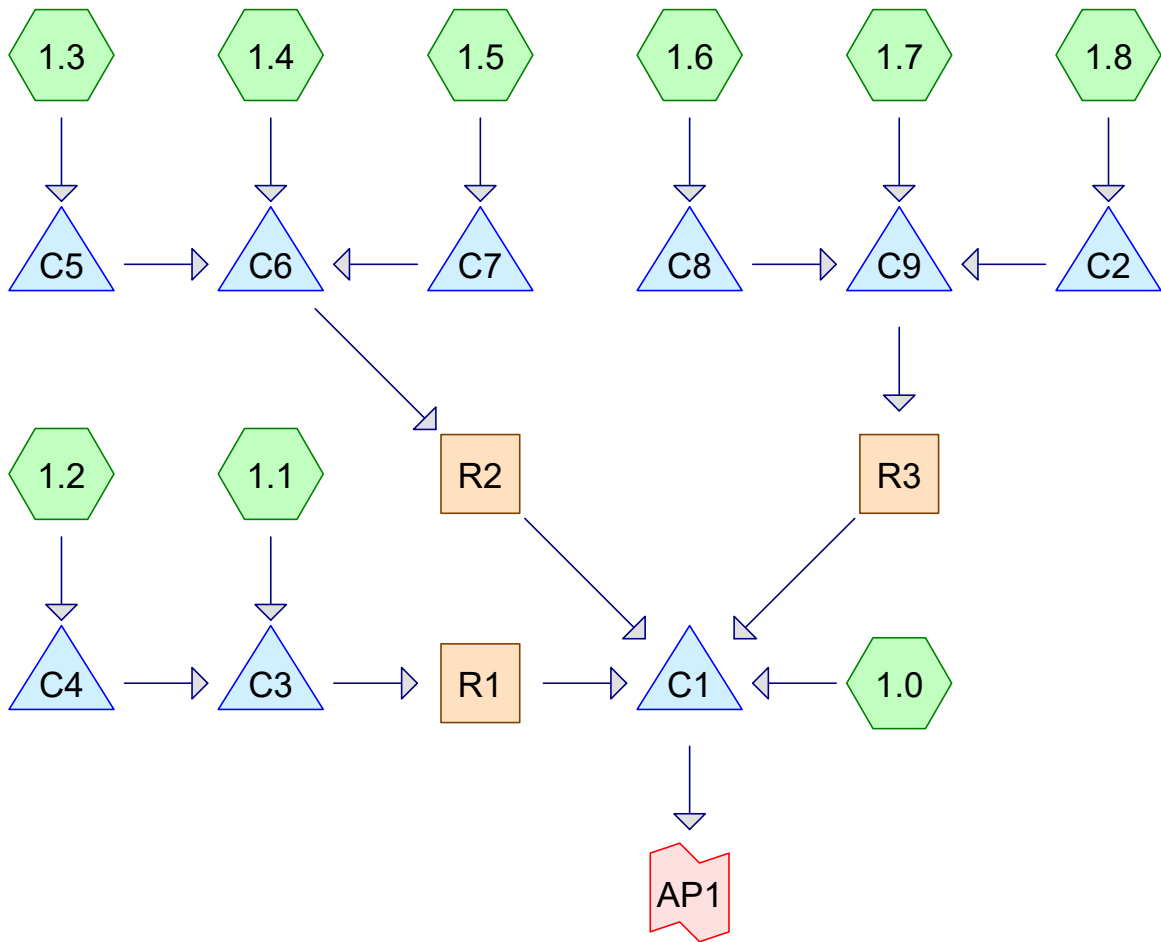
Inflow Area = 2,157,200 sf, 1.73% Impervious, Inflow Depth > 3.23" for 25-Year event
Inflow = 25.0 cfs @ 14.95 hrs, Volume= 581,407 cf
Primary = 25.0 cfs @ 14.95 hrs, Volume= 581,407 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:

Appendix B

Post Development HydroCAD Report



Routing Diagram for Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc., Printed 1/3/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Printed 1/3/2022
Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
9,985	74	>75% Grass cover, Good, HSG C (1.2, 1.4, 1.6, 1.8)
291,545	80	>75% Grass cover, Good, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7)
4,090	71	Meadow, non-grazed, HSG C (1.2, 1.4)
314,110	78	Meadow, non-grazed, HSG D (1.0, 1.1, 1.2, 1.4, 1.7, 1.8)
73,070	98	Paved parking, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8)
149,575	70	Woods, Good, HSG C (1.4, 1.6, 1.8)
1,314,825	77	Woods, Good, HSG D (1.0, 1.1, 1.4, 1.6, 1.7, 1.8)
2,157,200	78	TOTAL AREA

Post Dev Rev 2*Type III 24-hr 2-Year Rainfall=3.30"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=93,065 sf 23.24% Impervious Runoff Depth>1.57"
 Flow Length=316' Tc=7.7 min CN=83 Runoff=3.9 cfs 12,188 cf

Subcatchment 1.1: Runoff Area=225,475 sf 5.35% Impervious Runoff Depth>1.34"
 Flow Length=1,232' Slope=0.0167 '/' Tc=63.8 min CN=80 Runoff=3.3 cfs 25,106 cf

Subcatchment 1.2: Runoff Area=51,750 sf 4.53% Impervious Runoff Depth>1.29"
 Flow Length=810' Tc=22.8 min CN=79 Runoff=1.2 cfs 5,583 cf

Subcatchment 1.3: Runoff Area=9,380 sf 23.88% Impervious Runoff Depth>1.64"
 Tc=6.0 min CN=84 Runoff=0.4 cfs 1,286 cf

Subcatchment 1.4: Runoff Area=1,549,650 sf 1.07% Impervious Runoff Depth>1.11"
 Flow Length=1,265' Tc=131.9 min CN=77 Runoff=12.0 cfs 143,293 cf

Subcatchment 1.5: Runoff Area=10,510 sf 19.27% Impervious Runoff Depth>1.57"
 Tc=6.0 min CN=83 Runoff=0.5 cfs 1,377 cf

Subcatchment 1.6: Runoff Area=25,645 sf 8.42% Impervious Runoff Depth>1.36"
 Flow Length=258' Tc=25.1 min CN=80 Runoff=0.6 cfs 2,901 cf

Subcatchment 1.7: Runoff Area=18,635 sf 19.64% Impervious Runoff Depth>1.57"
 Tc=6.0 min CN=83 Runoff=0.8 cfs 2,442 cf

Subcatchment 1.8: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>1.22"
 Flow Length=690' Tc=39.7 min CN=78 Runoff=3.0 cfs 17,649 cf

Reach R1: Avg. Flow Depth=0.23' Max Vel=2.07 fps Inflow=3.7 cfs 30,650 cf
 n=0.022 L=225.0' S=0.0116 '/' Capacity=216.9 cfs Outflow=3.7 cfs 30,565 cf

Reach R2: Avg. Flow Depth=0.49' Max Vel=2.14 fps Inflow=12.0 cfs 145,841 cf
 n=0.022 L=135.0' S=0.0044 '/' Capacity=134.5 cfs Outflow=12.0 cfs 145,569 cf

Reach R3: Avg. Flow Depth=0.28' Max Vel=1.33 fps Inflow=3.3 cfs 22,811 cf
 n=0.022 L=280.0' S=0.0036 '/' Capacity=120.6 cfs Outflow=3.3 cfs 22,684 cf

Pond C1: Peak Elev=33.53' Storage=31,635 cf Inflow=15.3 cfs 211,007 cf
 30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=12.8 cfs 208,242 cf

Pond C2: Peak Elev=34.64' Storage=148 cf Inflow=3.0 cfs 17,649 cf
 Outflow=3.0 cfs 17,569 cf

Pond C3: Peak Elev=35.66' Storage=1,588 cf Inflow=3.8 cfs 30,681 cf
 15.0" Round Culvert x 2.00 n=0.013 L=48.0' S=0.0104 '/' Outflow=3.7 cfs 30,650 cf

Pond C4: Peak Elev=36.50' Storage=140 cf Inflow=1.2 cfs 5,583 cf
 15.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=1.2 cfs 5,575 cf

Post Dev Rev 2*Type III 24-hr 2-Year Rainfall=3.30"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 4

Pond C5: Peak Elev=34.54' Storage=36 cf Inflow=0.4 cfs 1,286 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=0.4 cfs 1,285 cf

Pond C6: Peak Elev=34.12' Storage=1,782 cf Inflow=12.0 cfs 145,954 cf
36.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.013 L=45.0' S=0.0067 '/' Outflow=12.0 cfs 145,841 cf

Pond C7: Peak Elev=34.54' Storage=71 cf Inflow=0.5 cfs 1,377 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=0.4 cfs 1,376 cf

Pond C8: Peak Elev=34.20' Storage=118 cf Inflow=0.6 cfs 2,901 cf
15.0" Round Culvert n=0.013 L=32.0' S=0.0094 '/' Outflow=0.6 cfs 2,899 cf

Pond C9: Peak Elev=33.92' Storage=2,280 cf Inflow=3.7 cfs 22,911 cf
15.0" Round Culvert x 2.00 n=0.013 L=36.0' S=0.0111 '/' Outflow=3.3 cfs 22,811 cf

Link AP1: Inflow=12.8 cfs 208,242 cf
Primary=12.8 cfs 208,242 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 211,825 cf Average Runoff Depth = 1.18"
96.61% Pervious = 2,084,130 sf 3.39% Impervious = 73,070 sf

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 5

Summary for Subcatchment 1.0:

Runoff = 3.9 cfs @ 12.11 hrs, Volume= 12,188 cf, Depth> 1.57"

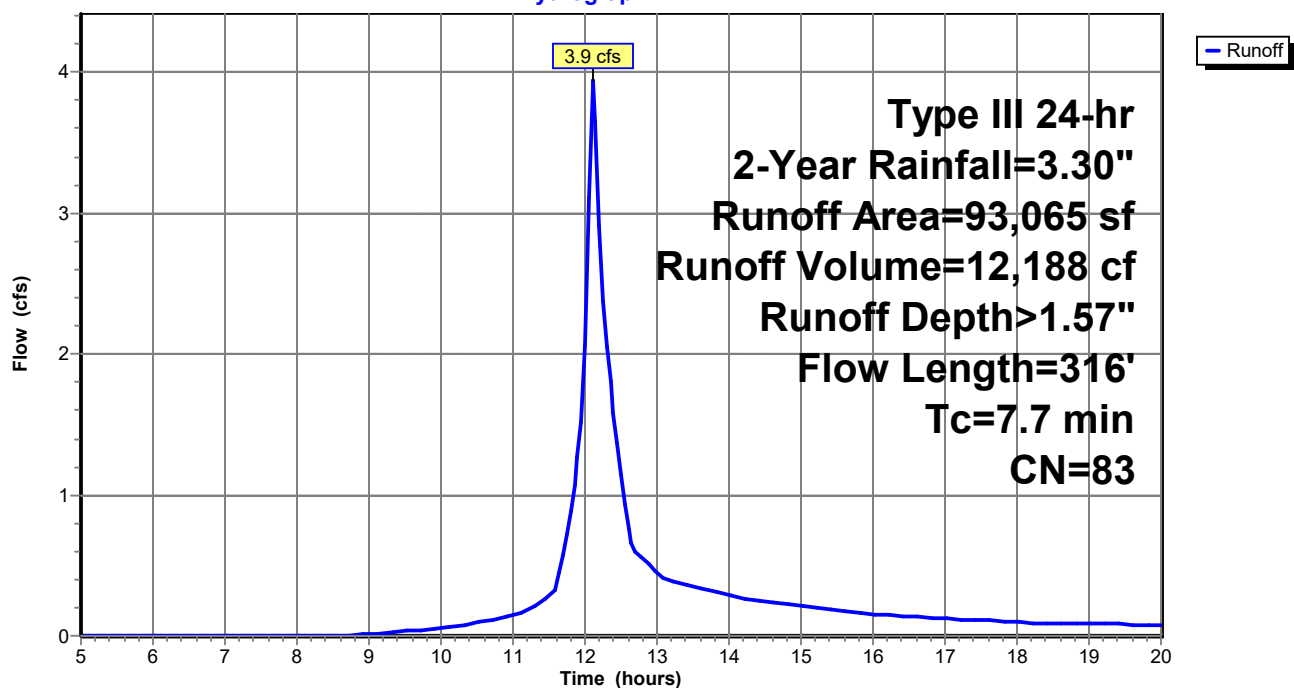
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
1,900	77	Woods, Good, HSG D
60,950	78	Meadow, non-grazed, HSG D
8,585	80	>75% Grass cover, Good, HSG D
21,630	98	Paved parking, HSG D
93,065	83	Weighted Average
71,435		76.76% Pervious Area
21,630		23.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.01		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.30"
1.2	20	0.1500	0.28		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
6.2	276	0.0111	0.74		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
7.7	316	Total			

Subcatchment 1.0:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 6

Summary for Subcatchment 1.1:

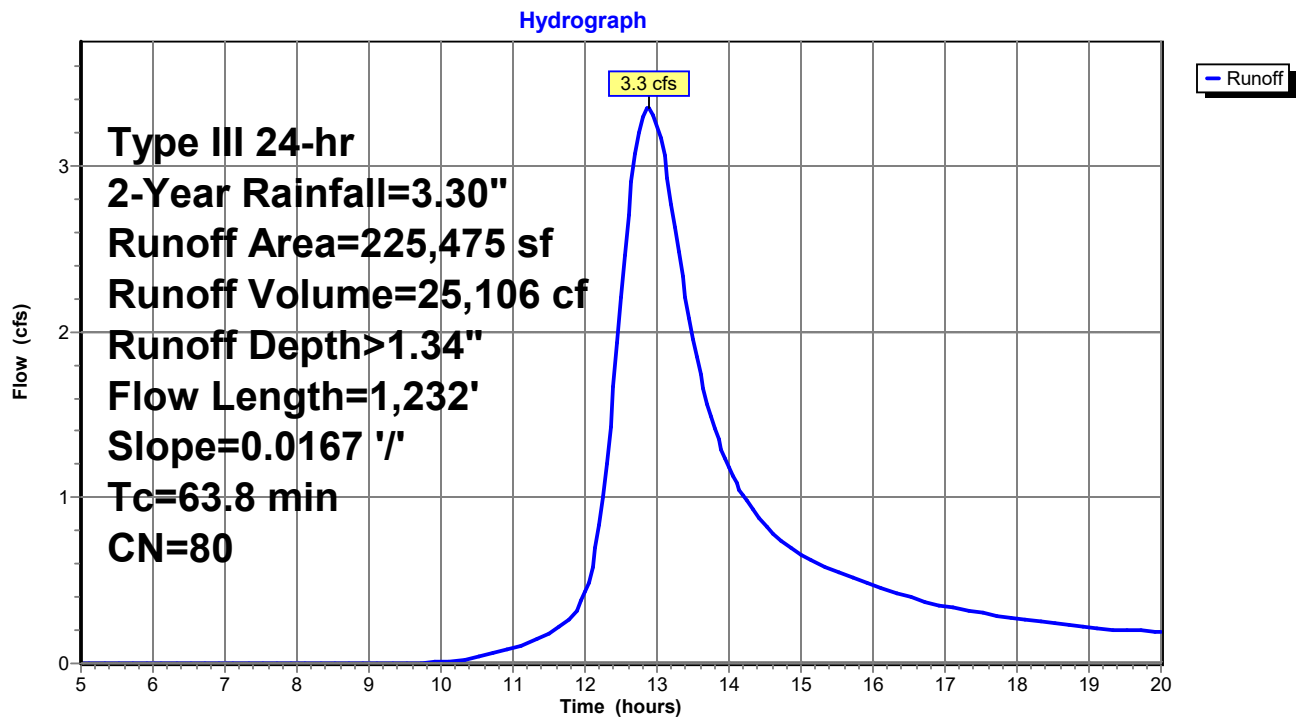
Runoff = 3.3 cfs @ 12.88 hrs, Volume= 25,106 cf, Depth> 1.34"

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-Year Rainfall=3.30"

Area (sf)	CN	Description
20,935	77	Woods, Good, HSG D
57,900	78	Meadow, non-grazed, HSG D
134,575	80	>75% Grass cover, Good, HSG D
12,065	98	Paved parking, HSG D
225,475	80	Weighted Average
213,410		94.65% Pervious Area
12,065		5.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
4.7	330	0.0167	1.16		Shallow Concentrated Flow, D-E Cultivated Straight Rows Kv= 9.0 fps
63.8	1,232	Total			

Subcatchment 1.1:



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 8

Summary for Subcatchment 1.2:

Runoff = 1.2 cfs @ 12.33 hrs, Volume= 5,583 cf, Depth> 1.29"

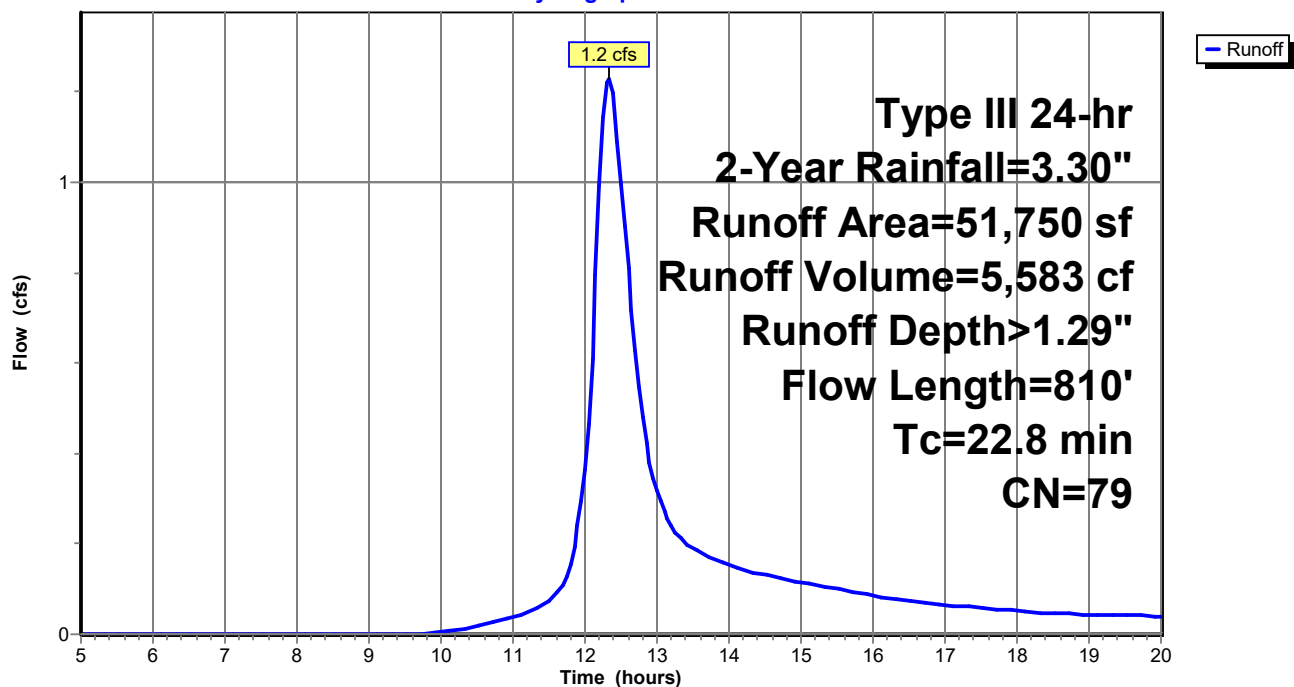
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
1,625	71	Meadow, non-grazed, HSG C
18,275	78	Meadow, non-grazed, HSG D
3,655	74	>75% Grass cover, Good, HSG C
25,850	80	>75% Grass cover, Good, HSG D
2,345	98	Paved parking, HSG D
51,750	79	Weighted Average
49,405		95.47% Pervious Area
2,345		4.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0467	0.24		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
4.2	250	0.0200	0.99		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
11.7	460	0.0088	0.66		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
22.8	810	Total			

Subcatchment 1.2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 9

Summary for Subcatchment 1.3:

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,286 cf, Depth> 1.64"

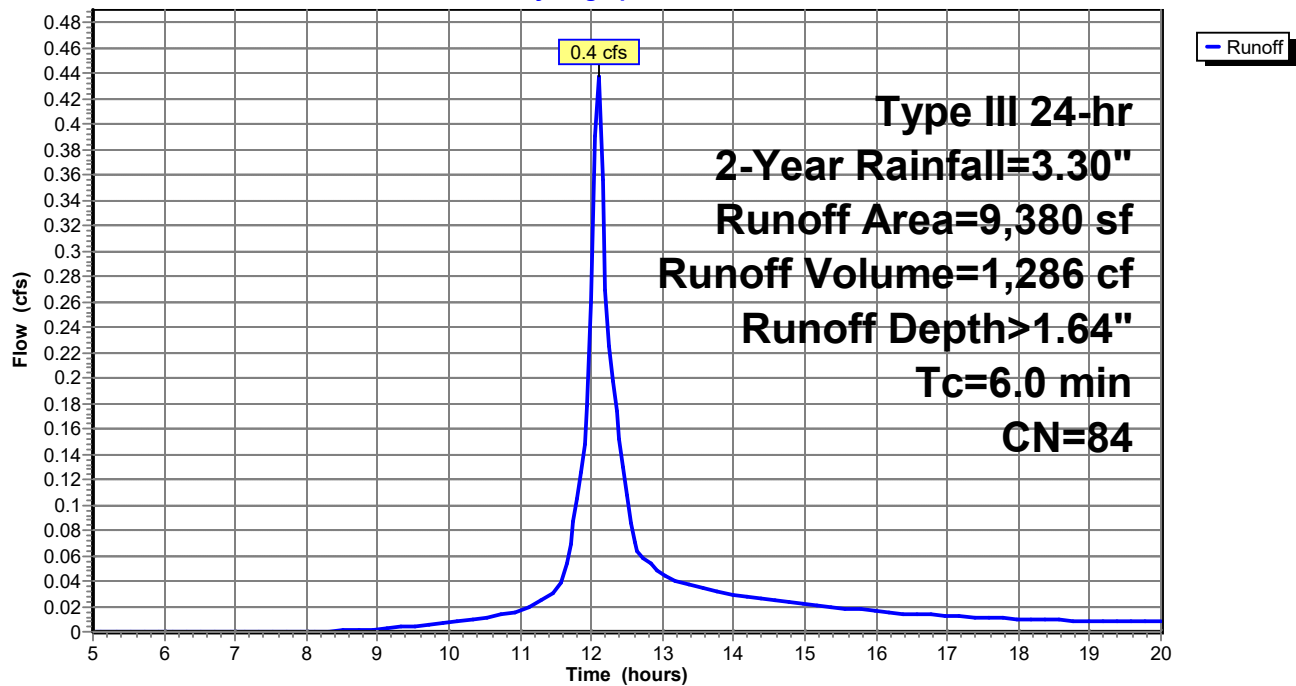
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
7,140	80	>75% Grass cover, Good, HSG D
2,240	98	Paved parking, HSG D
9,380	84	Weighted Average
7,140		76.12% Pervious Area
2,240		23.88% Impervious Area

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

Subcatchment 1.3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 10

Summary for Subcatchment 1.4:

Runoff = 12.0 cfs @ 13.88 hrs, Volume= 143,293 cf, Depth> 1.11"

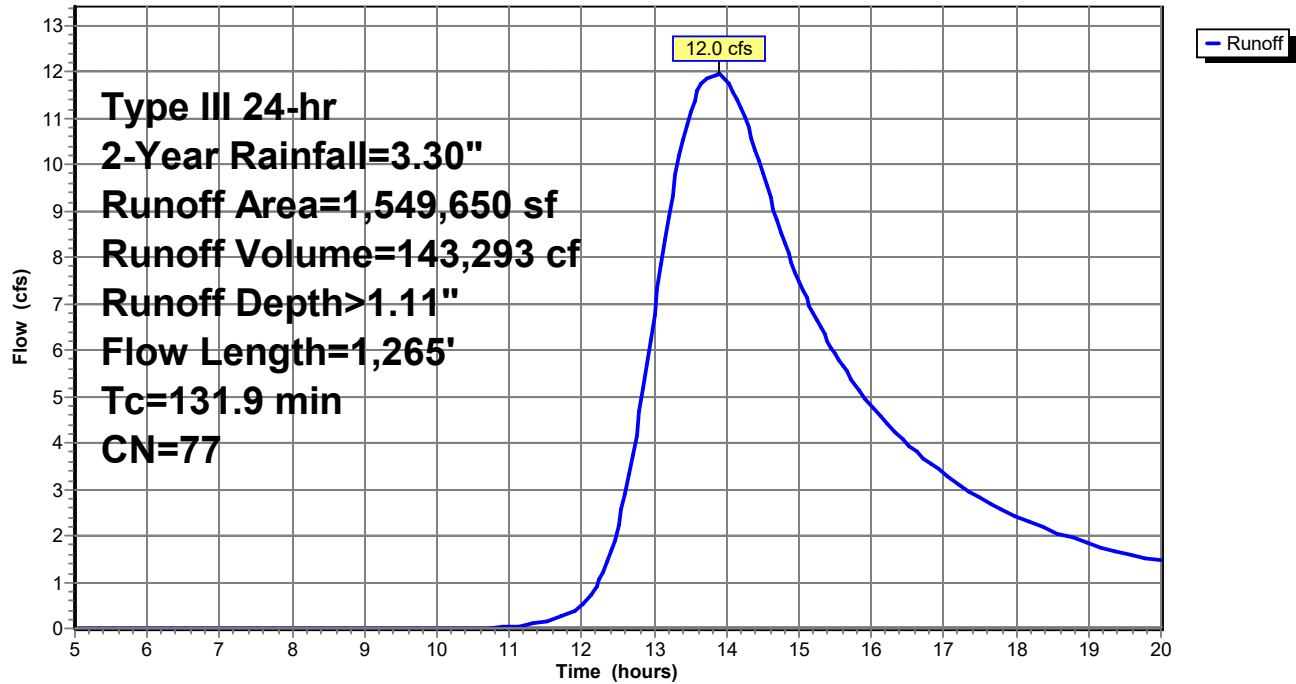
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
134,385	70	Woods, Good, HSG C
1,145,175	77	Woods, Good, HSG D
2,465	71	Meadow, non-grazed, HSG C
167,535	78	Meadow, non-grazed, HSG D
2,580	74	>75% Grass cover, Good, HSG C
80,875	80	>75% Grass cover, Good, HSG D
16,635	98	Paved parking, HSG D
1,549,650	77	Weighted Average
1,533,015		98.93% Pervious Area
16,635		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
10.0	380	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
131.9	1,265	Total			

Subcatchment 1.4:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 12

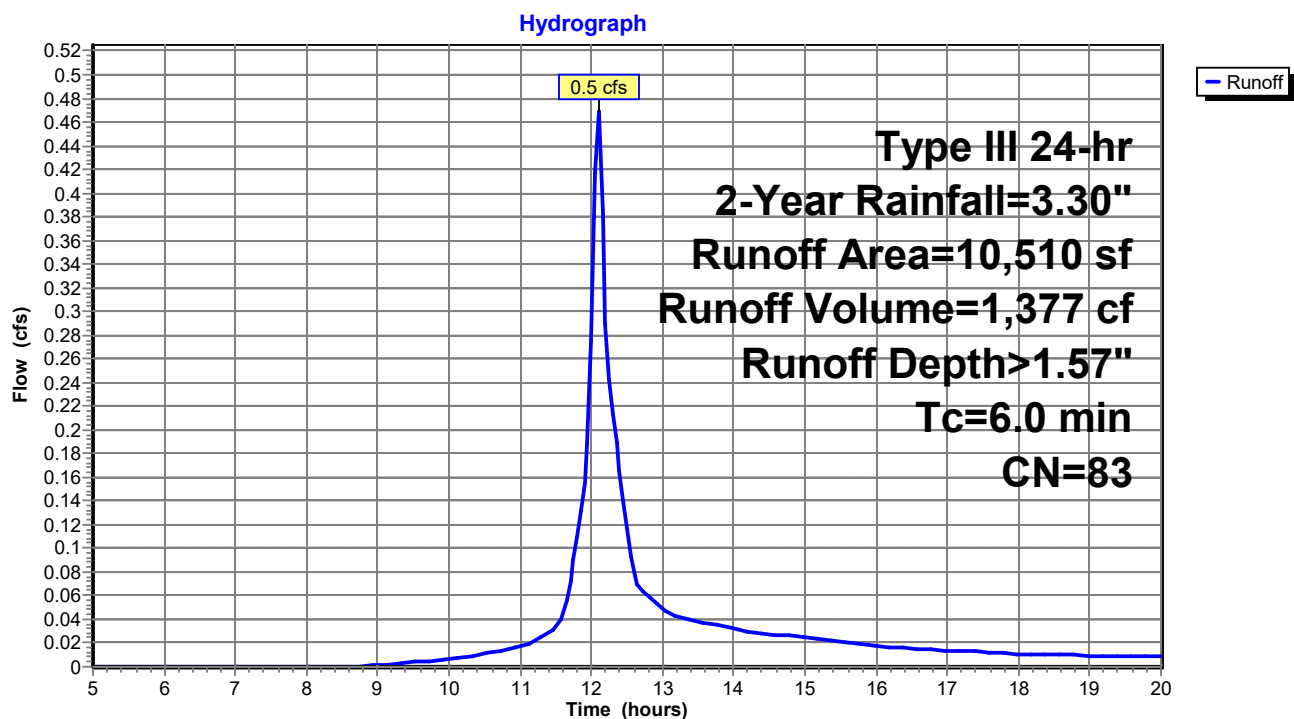
Summary for Subcatchment 1.5:

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,377 cf, Depth> 1.57"

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-Year Rainfall=3.30"

Area (sf)	CN	Description
8,485	80	>75% Grass cover, Good, HSG D
2,025	98	Paved parking, HSG D
10,510	83	Weighted Average
8,485		80.73% Pervious Area
2,025		19.27% Impervious Area

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

Subcatchment 1.5:

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 13

Summary for Subcatchment 1.6:

Runoff = 0.6 cfs @ 12.36 hrs, Volume= 2,901 cf, Depth> 1.36"

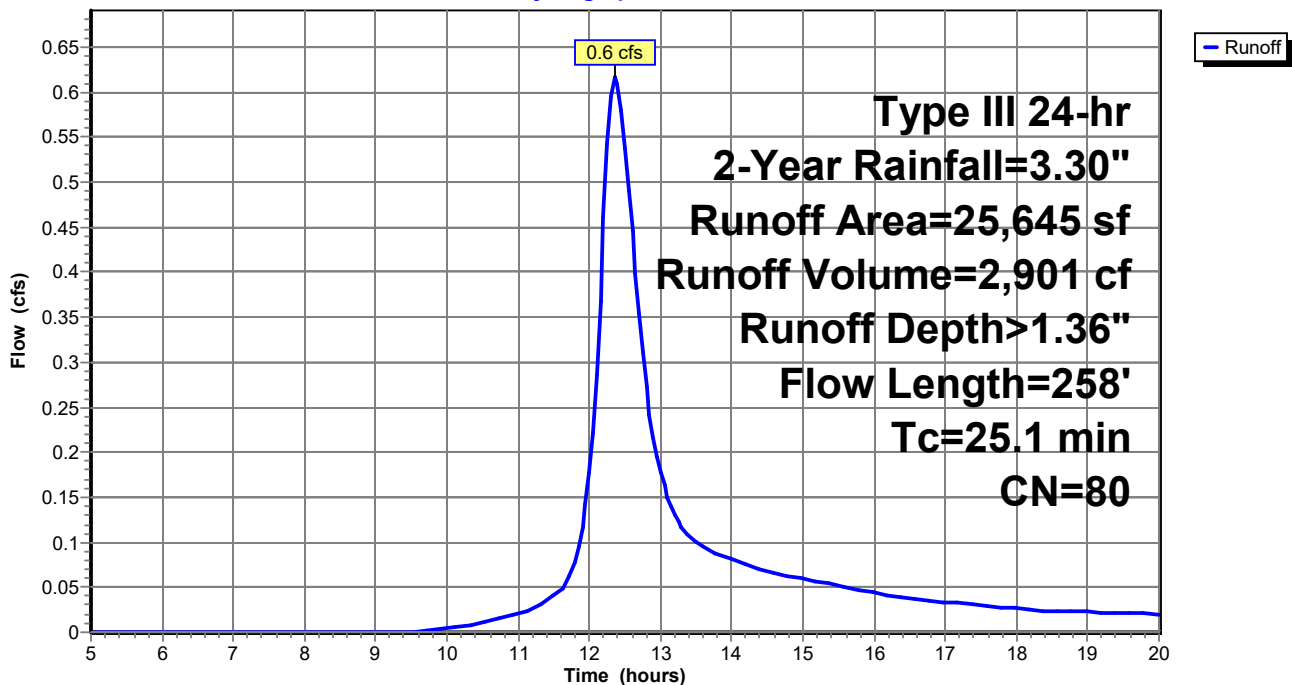
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
2,300	70	Woods, Good, HSG C
445	77	Woods, Good, HSG D
2,190	74	>75% Grass cover, Good, HSG C
18,550	80	>75% Grass cover, Good, HSG D
2,160	98	Paved parking, HSG D
25,645	80	Weighted Average
23,485		91.58% Pervious Area
2,160		8.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	66	0.0606	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
4.2	50	0.0400	0.20		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
4.0	142	0.0070	0.59		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
25.1	258	Total			

Subcatchment 1.6:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 14

Summary for Subcatchment 1.7:

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,442 cf, Depth> 1.57"

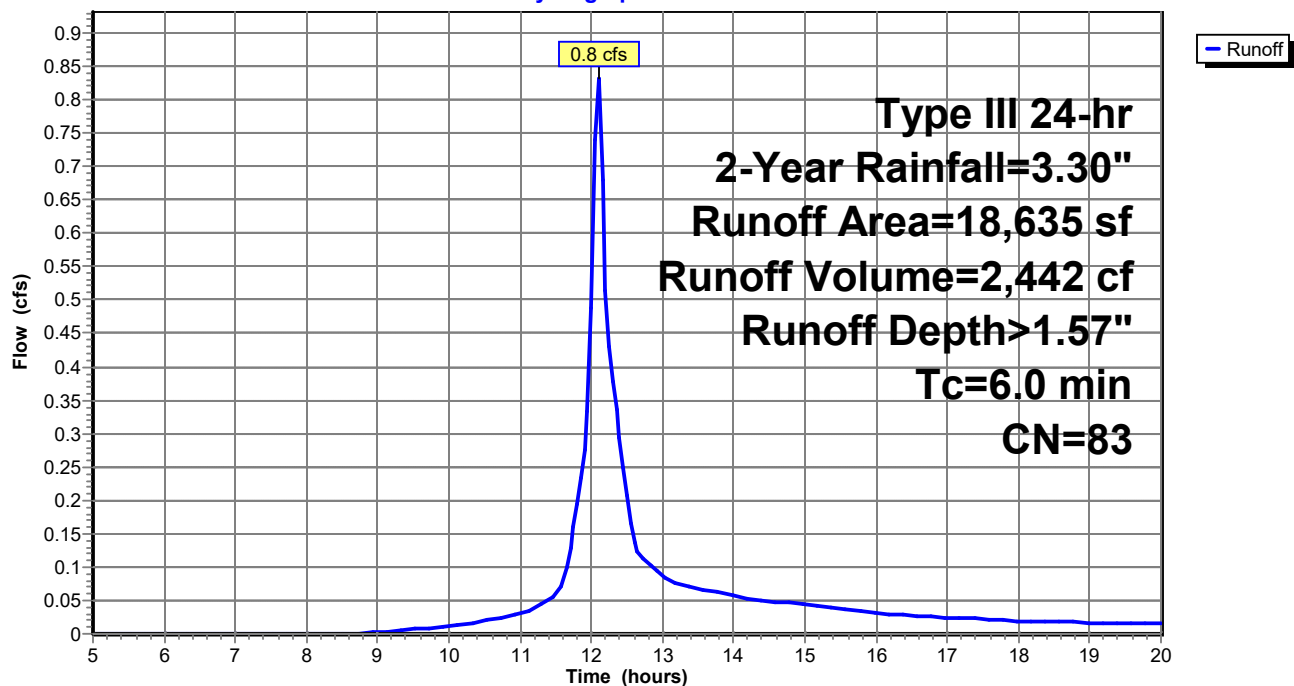
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
880	77	Woods, Good, HSG D
6,610	78	Meadow, non-grazed, HSG D
7,485	80	>75% Grass cover, Good, HSG D
3,660	98	Paved parking, HSG D
18,635	83	Weighted Average
14,975		80.36% Pervious Area
3,660		19.64% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 15

Summary for Subcatchment 1.8:

Runoff = 3.0 cfs @ 12.57 hrs, Volume= 17,649 cf, Depth> 1.22"

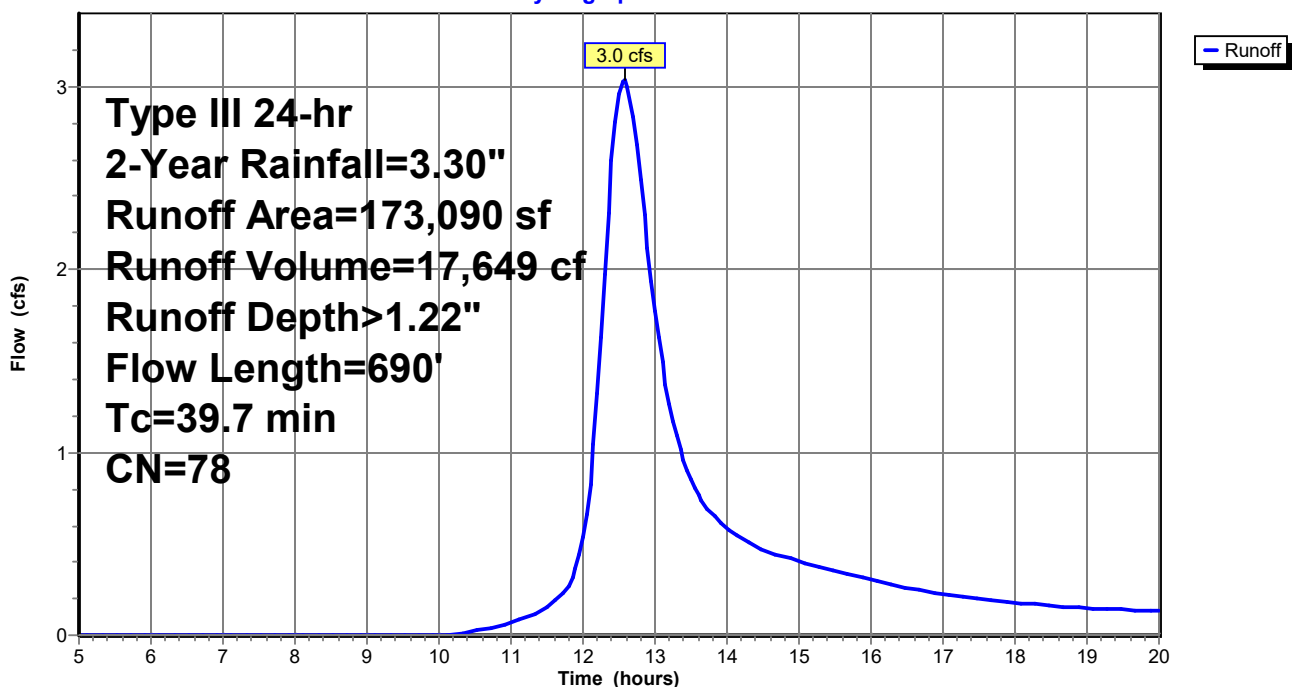
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.30"

Area (sf)	CN	Description
12,890	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
1,560	74	>75% Grass cover, Good, HSG C
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.8:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 16

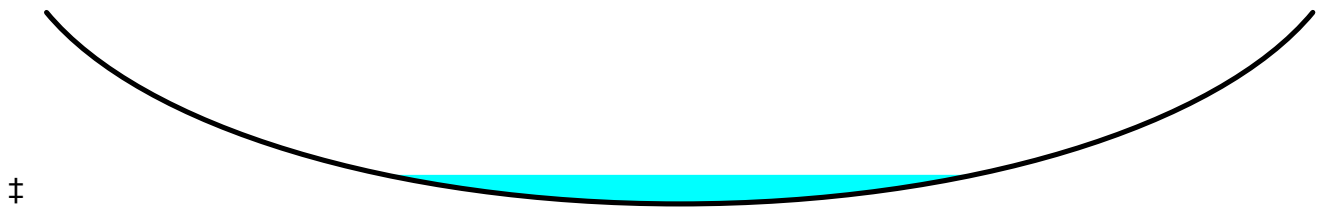
Summary for Reach R1:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 1.33" for 2-Year event
Inflow = 3.7 cfs @ 12.95 hrs, Volume= 30,650 cf
Outflow = 3.7 cfs @ 13.00 hrs, Volume= 30,565 cf, Atten= 0%, Lag= 3.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.07 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 3.3 min

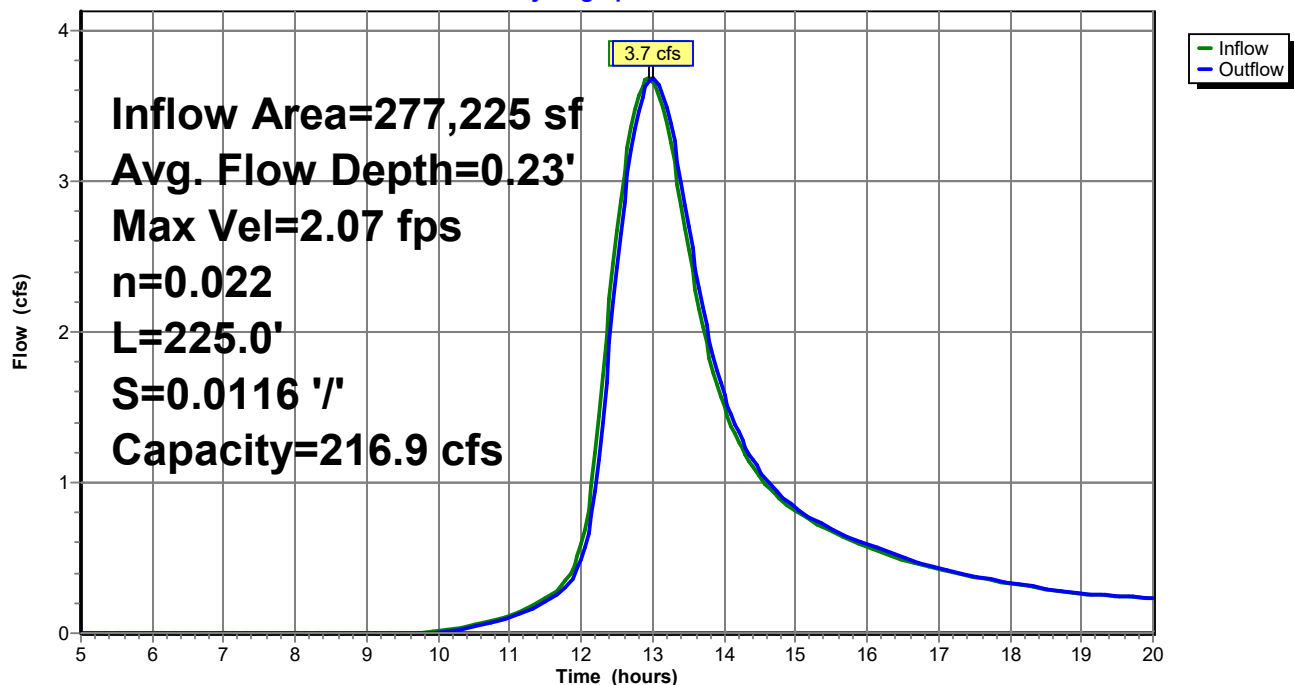
Peak Storage= 401 cf @ 12.97 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 216.9 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 225.0' Slope= 0.0116 '/'
Inlet Invert= 34.40', Outlet Invert= 31.80'



Reach R1:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 17

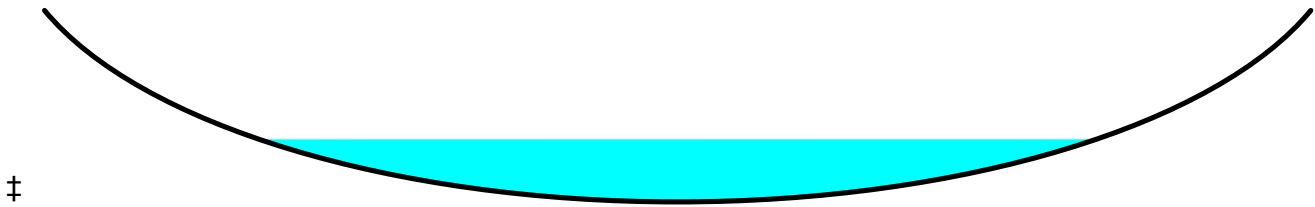
Summary for Reach R2:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 1.12" for 2-Year event
Inflow = 12.0 cfs @ 13.94 hrs, Volume= 145,841 cf
Outflow = 12.0 cfs @ 13.96 hrs, Volume= 145,569 cf, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.14 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 1.9 min

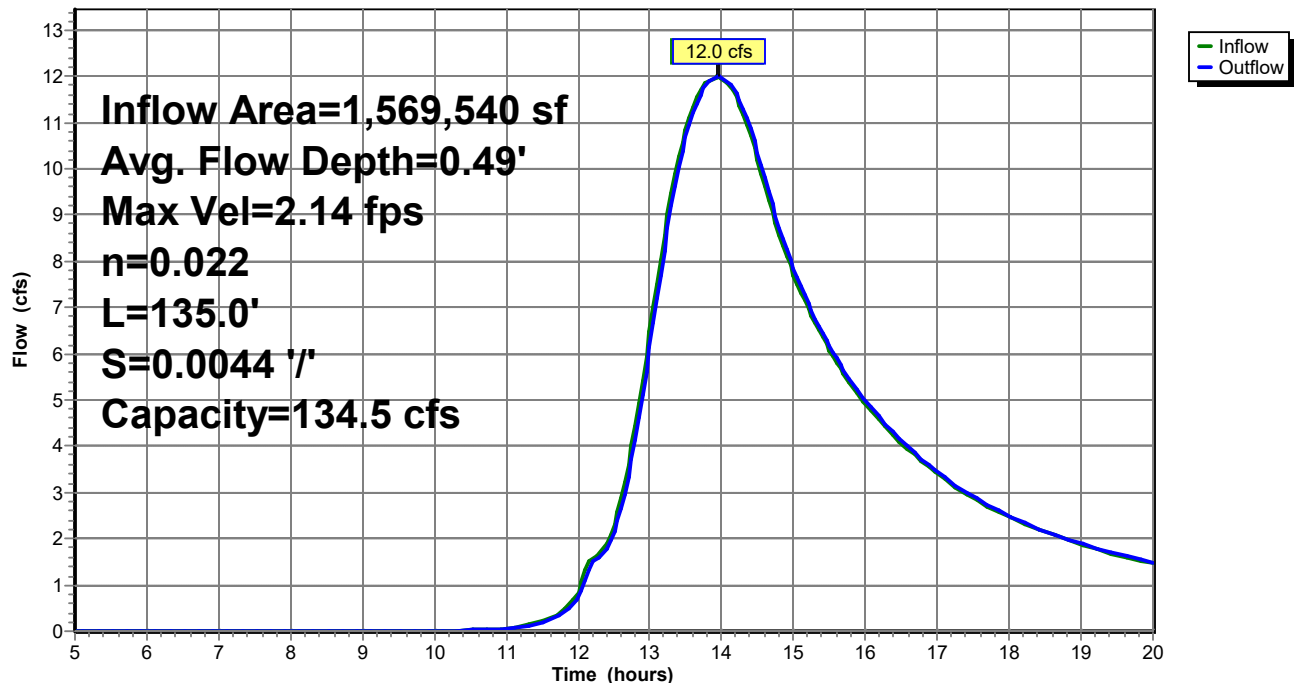
Peak Storage= 759 cf @ 13.95 hrs
Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 134.5 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 135.0' Slope= 0.0044 '/'
Inlet Invert= 32.40', Outlet Invert= 31.80'



Reach R2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 18

Summary for Reach R3:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 1.26" for 2-Year event
Inflow = 3.3 cfs @ 12.72 hrs, Volume= 22,811 cf
Outflow = 3.3 cfs @ 12.82 hrs, Volume= 22,684 cf, Atten= 1%, Lag= 6.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.33 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 7.3 min

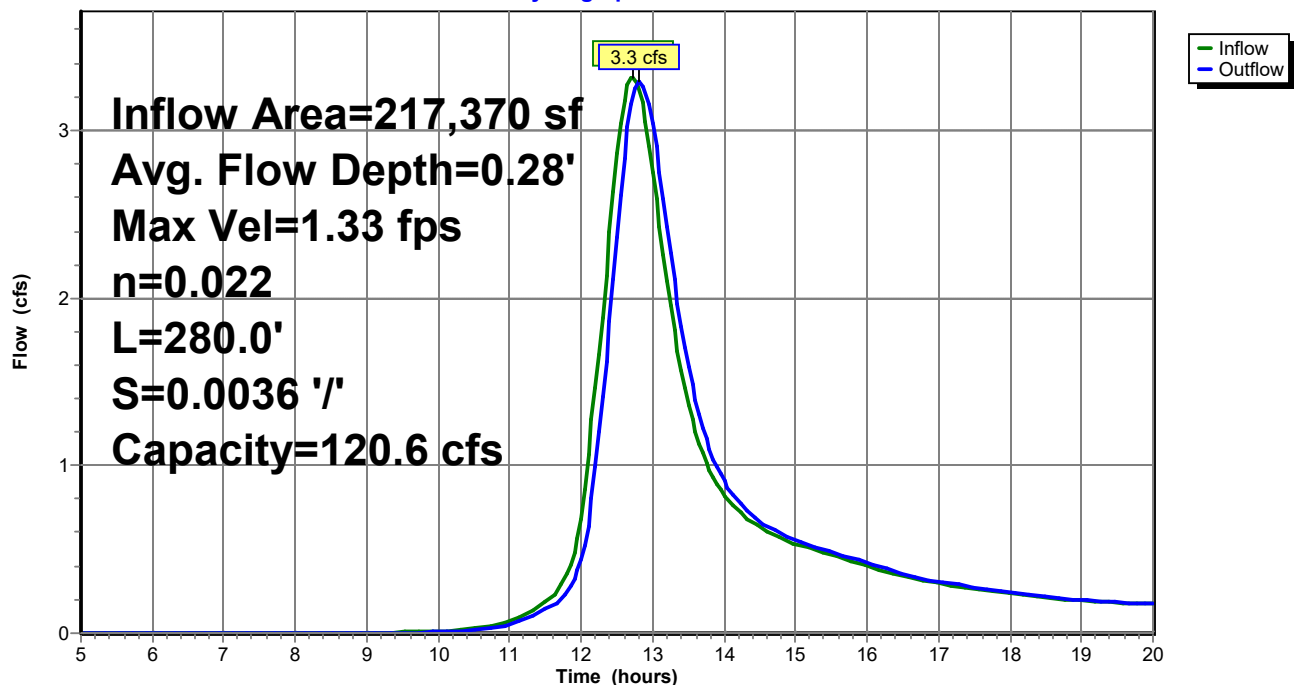
Peak Storage= 693 cf @ 12.76 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 120.6 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 280.0' Slope= 0.0036 '/'
Inlet Invert= 32.80', Outlet Invert= 31.80'



Reach R3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 19

Summary for Pond C1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 1.17" for 2-Year event
 Inflow = 15.3 cfs @ 13.62 hrs, Volume= 211,007 cf
 Outflow = 12.8 cfs @ 14.42 hrs, Volume= 208,242 cf, Atten= 16%, Lag= 48.1 min
 Primary = 12.8 cfs @ 14.42 hrs, Volume= 208,242 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.53' @ 14.42 hrs Surf.Area= 55,435 sf Storage= 31,635 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 32.5 min calculated for 207,550 cf (98% of inflow)
 Center-of-Mass det. time= 28.4 min (913.4 - 885.0)

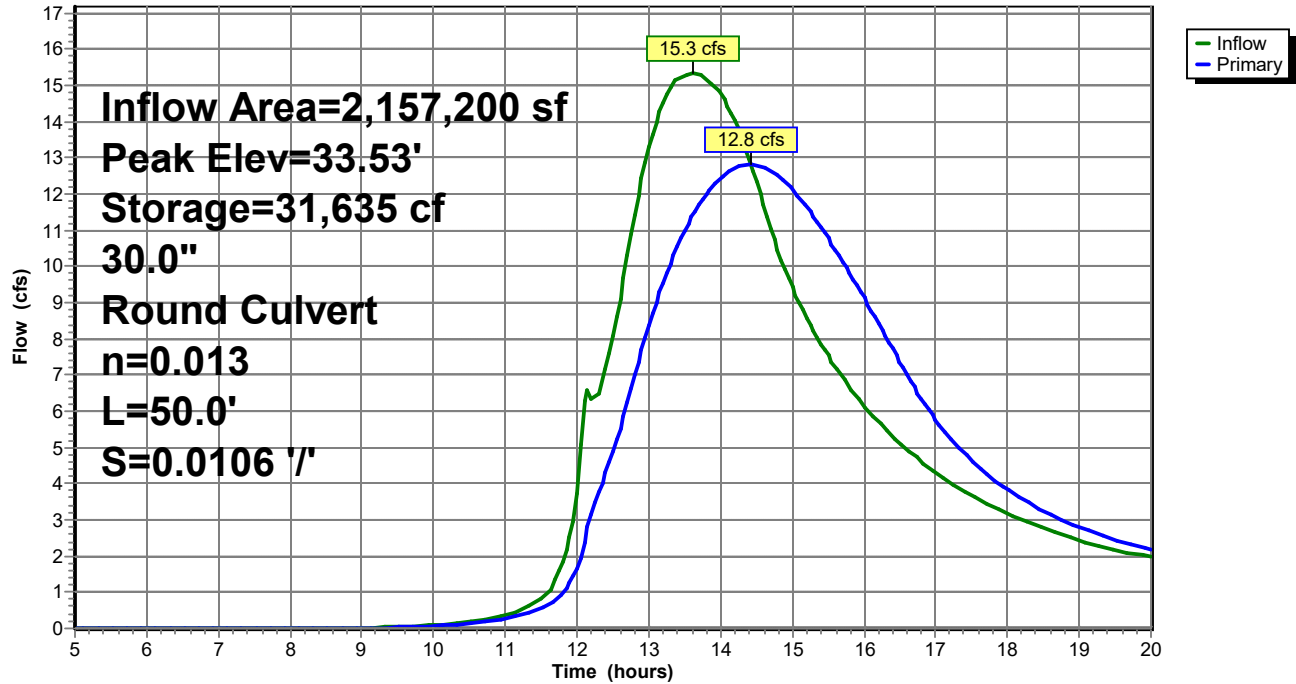
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=12.8 cfs @ 14.42 hrs HW=33.53' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 12.8 cfs @ 3.54 fps)

Pond C1:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 21

Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 1.22" for 2-Year event
 Inflow = 3.0 cfs @ 12.57 hrs, Volume= 17,649 cf
 Outflow = 3.0 cfs @ 12.58 hrs, Volume= 17,569 cf, Atten= 0%, Lag= 0.2 min
 Primary = 3.0 cfs @ 12.58 hrs, Volume= 17,569 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.64' @ 12.58 hrs Surf.Area= 400 sf Storage= 148 cf

Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 3.1 min calculated for 17,569 cf (100% of inflow)

Center-of-Mass det. time= 1.4 min (834.7 - 833.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

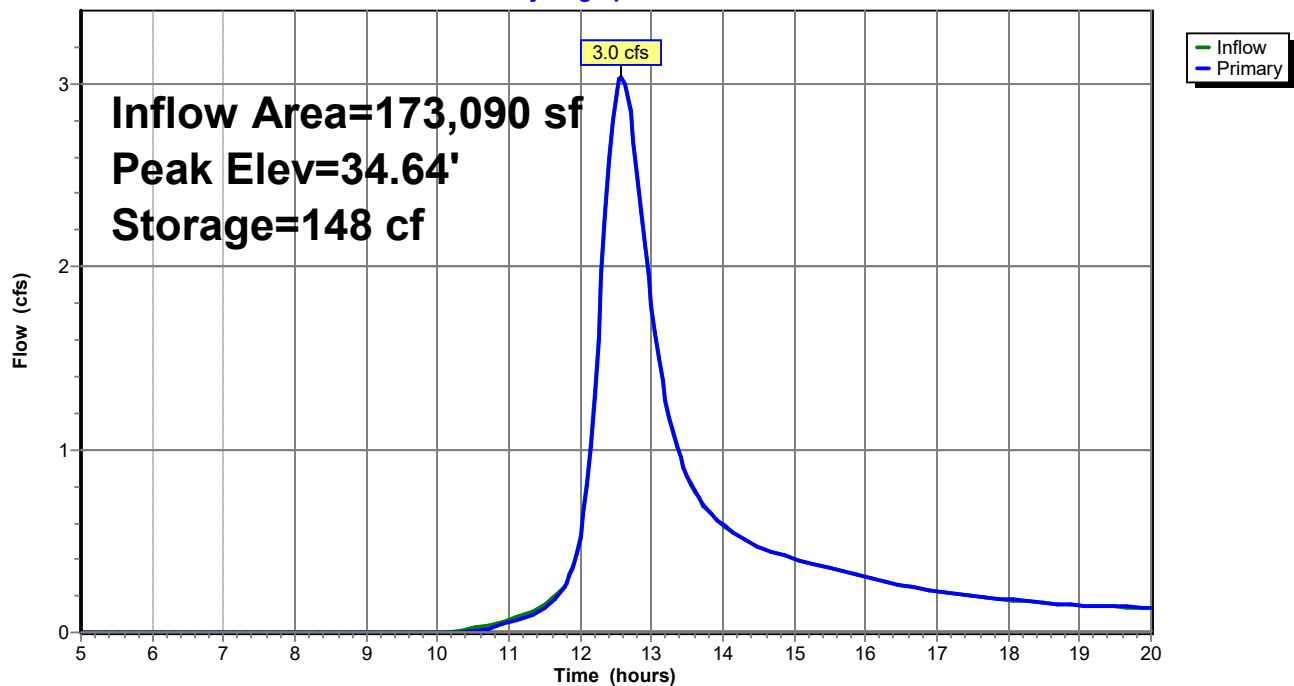
Primary OutFlow Max=3.0 cfs @ 12.58 hrs HW=34.64' (Free Discharge)

1=Culvert (Inlet Controls 0.4 cfs @ 1.63 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 2.6 cfs @ 0.93 fps)

Pond C2:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 23

Summary for Pond C3:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 1.33" for 2-Year event
 Inflow = 3.8 cfs @ 12.80 hrs, Volume= 30,681 cf
 Outflow = 3.7 cfs @ 12.95 hrs, Volume= 30,650 cf, Atten= 3%, Lag= 8.8 min
 Primary = 3.7 cfs @ 12.95 hrs, Volume= 30,650 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.66' @ 12.95 hrs Surf.Area= 4,676 sf Storage= 1,588 cf
 Flood Elev= 36.15' Surf.Area= 7,000 sf Storage= 3,555 cf

Plug-Flow detention time= 5.4 min calculated for 30,650 cf (100% of inflow)
 Center-of-Mass det. time= 5.0 min (847.2 - 842.2)

Volume	Invert	Avail.Storage	Storage Description
#1	34.90'	3,555 cf	STORAGE (Prismatic) Listed below (Recalc)

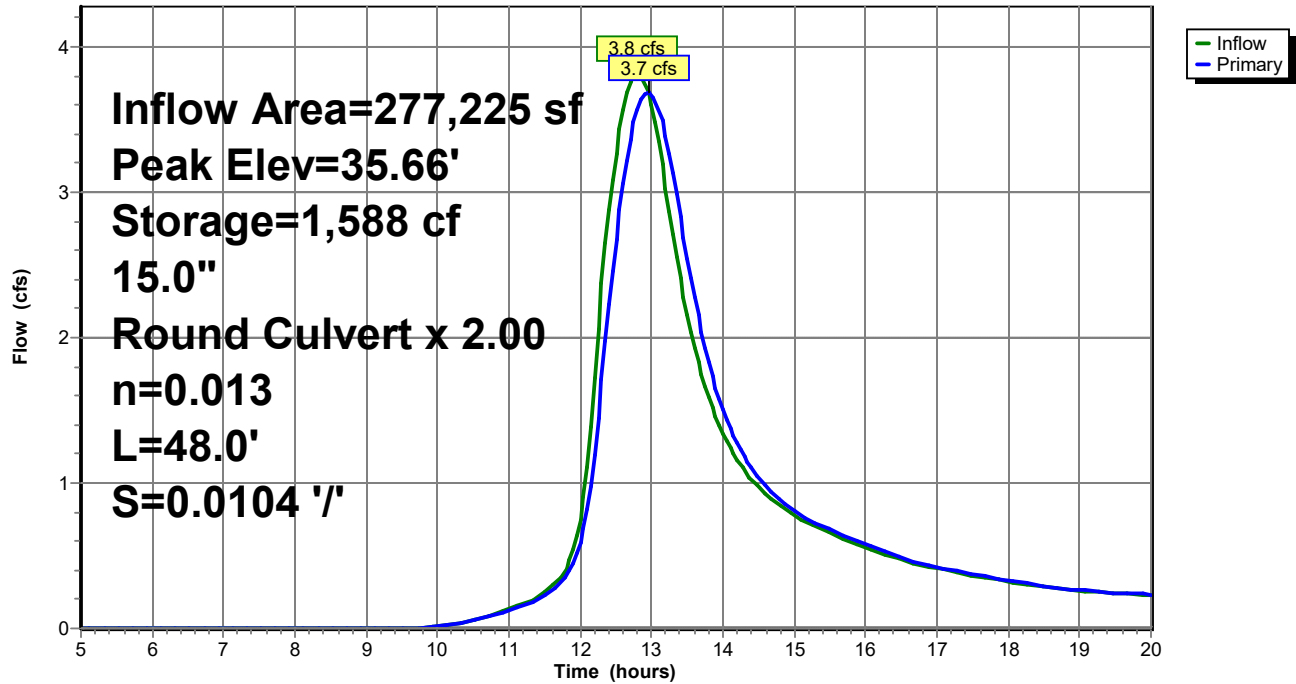
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.90	0	0	0
35.00	100	5	5
36.00	7,000	3,550	3,555

Device	Routing	Invert	Outlet Devices
#1	Primary	34.90'	15.0" Round Culvert X 2.00 L= 48.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.90' / 34.40' S= 0.0104 ' / S= 0.0104 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.7 cfs @ 12.95 hrs HW=35.66' (Free Discharge)
 ↑1=Culvert (Inlet Controls 3.7 cfs @ 2.35 fps)

Pond C3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 25

Summary for Pond C4:

Inflow Area = 51,750 sf, 4.53% Impervious, Inflow Depth > 1.29" for 2-Year event
 Inflow = 1.2 cfs @ 12.33 hrs, Volume= 5,583 cf
 Outflow = 1.2 cfs @ 12.36 hrs, Volume= 5,575 cf, Atten= 1%, Lag= 1.9 min
 Primary = 1.2 cfs @ 12.36 hrs, Volume= 5,575 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 36.50' @ 12.36 hrs Surf.Area= 376 sf Storage= 140 cf

Flood Elev= 37.15' Surf.Area= 600 sf Storage= 383 cf

Plug-Flow detention time= 2.4 min calculated for 5,575 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (819.8 - 817.9)

Volume	Invert	Avail.Storage	Storage Description
#1	35.90'	383 cf	STORAGE (Prismatic) Listed below (Recalc)

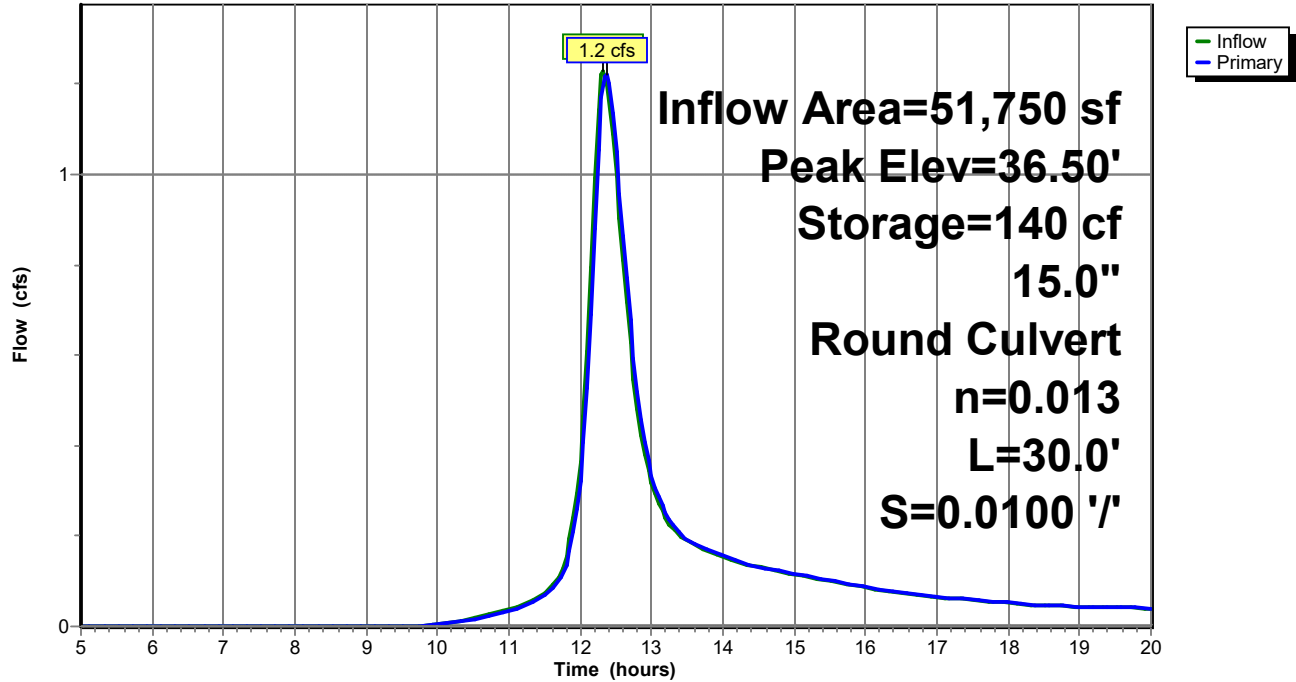
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
35.90	0	0	0
36.00	150	8	8
37.00	600	375	383

Device	Routing	Invert	Outlet Devices
#1	Primary	35.90'	15.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.90' / 35.60' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.36 hrs HW=36.50' (Free Discharge)↑ **1=Culvert** (Inlet Controls 1.2 cfs @ 2.08 fps)

Pond C4:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 27

Summary for Pond C5:

Inflow Area = 9,380 sf, 23.88% Impervious, Inflow Depth > 1.64" for 2-Year event
 Inflow = 0.4 cfs @ 12.09 hrs, Volume= 1,286 cf
 Outflow = 0.4 cfs @ 12.12 hrs, Volume= 1,285 cf, Atten= 4%, Lag= 1.4 min
 Primary = 0.4 cfs @ 12.12 hrs, Volume= 1,285 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.54' @ 12.12 hrs Surf.Area= 212 sf Storage= 36 cf

Flood Elev= 35.45' Surf.Area= 680 sf Storage= 466 cf

Plug-Flow detention time= 1.4 min calculated for 1,281 cf (100% of inflow)

Center-of-Mass det. time= 1.2 min (793.3 - 792.2)

Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	2,100 cf	STORAGE (Prismatic) Listed below (Recalc)

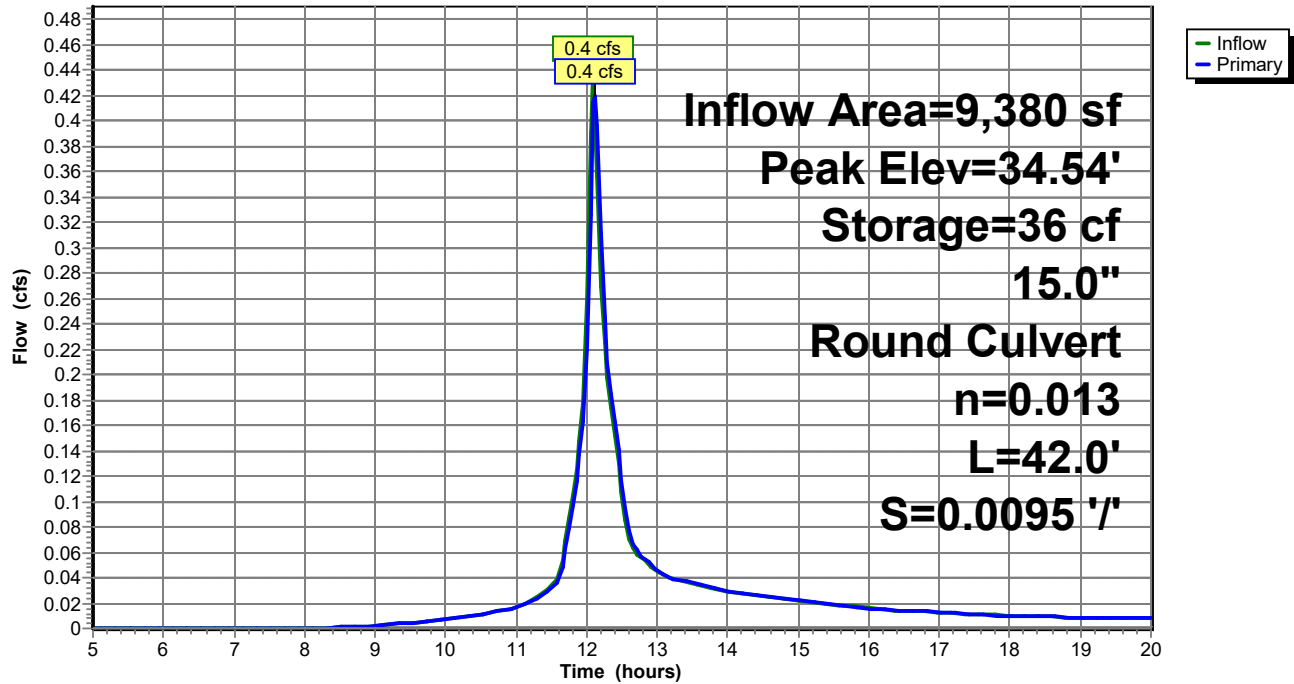
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	500	200	200
36.00	900	700	900
37.00	1,500	1,200	2,100

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.4 cfs @ 12.12 hrs HW=34.53' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.4 cfs @ 1.55 fps)

Pond C5:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 29

Summary for Pond C6:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 1.12" for 2-Year event
 Inflow = 12.0 cfs @ 13.88 hrs, Volume= 145,954 cf
 Outflow = 12.0 cfs @ 13.94 hrs, Volume= 145,841 cf, Atten= 0%, Lag= 3.2 min
 Primary = 12.0 cfs @ 13.94 hrs, Volume= 145,841 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.12' @ 13.94 hrs Surf.Area= 6,467 sf Storage= 1,782 cf
 Flood Elev= 35.70' Surf.Area= 31,200 sf Storage= 18,300 cf

Plug-Flow detention time= 1.9 min calculated for 145,841 cf (100% of inflow)
 Center-of-Mass det. time= 1.7 min (904.2 - 902.5)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	18,300 cf	STORAGE (Prismatic) Listed below (Recalc)

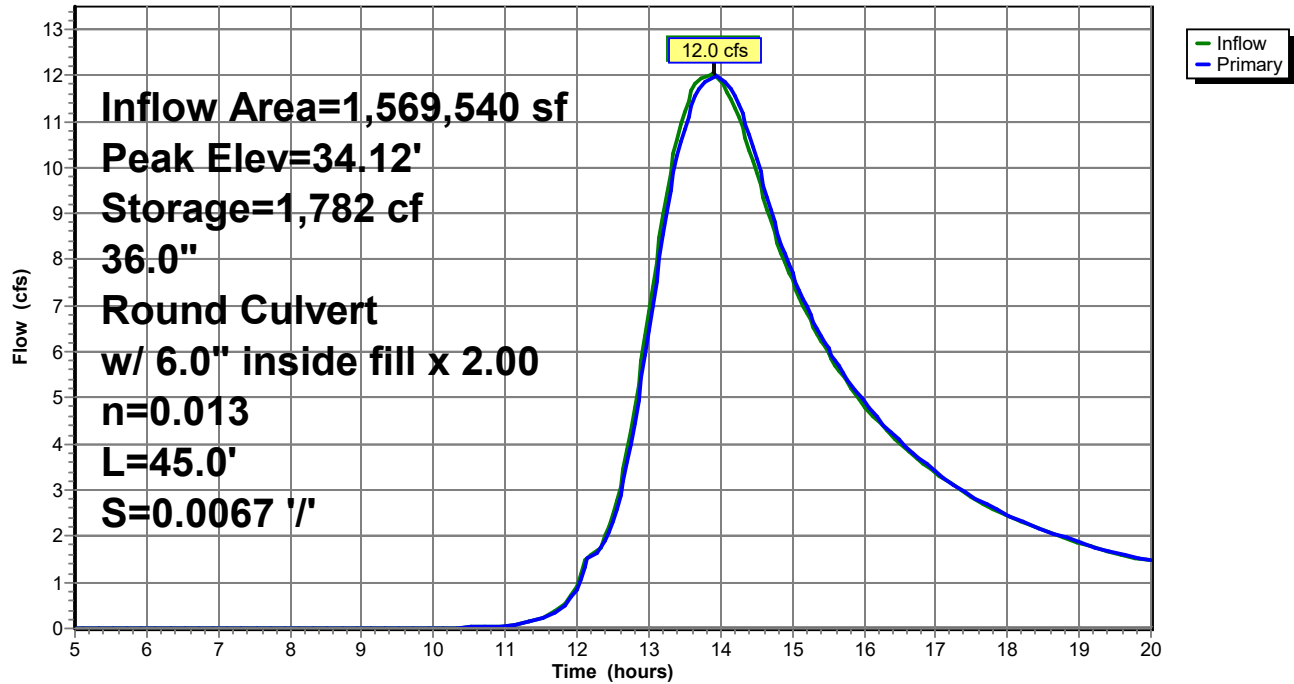
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	3,000	1,200	1,200
35.00	31,200	17,100	18,300

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	36.0" Round Culvert X 2.00 w/ 6.0" inside fill L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.70' / 32.40' S= 0.0067 ' S= 0.0067 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 6.29 sf

Primary OutFlow Max=12.0 cfs @ 13.94 hrs HW=34.12' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 12.0 cfs @ 2.37 fps)

Pond C6:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 31

Summary for Pond C7:

Inflow Area = 10,510 sf, 19.27% Impervious, Inflow Depth > 1.57" for 2-Year event
 Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,377 cf
 Outflow = 0.4 cfs @ 12.14 hrs, Volume= 1,376 cf, Atten= 11%, Lag= 2.7 min
 Primary = 0.4 cfs @ 12.14 hrs, Volume= 1,376 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.54' @ 12.14 hrs Surf.Area= 422 sf Storage= 71 cf

Flood Elev= 35.45' Surf.Area= 1,473 sf Storage= 956 cf

Plug-Flow detention time= 2.7 min calculated for 1,371 cf (100% of inflow)

Center-of-Mass det. time= 2.3 min (797.1 - 794.8)

Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	1,925 cf	STORAGE (Prismatic) Listed below (Recalc)

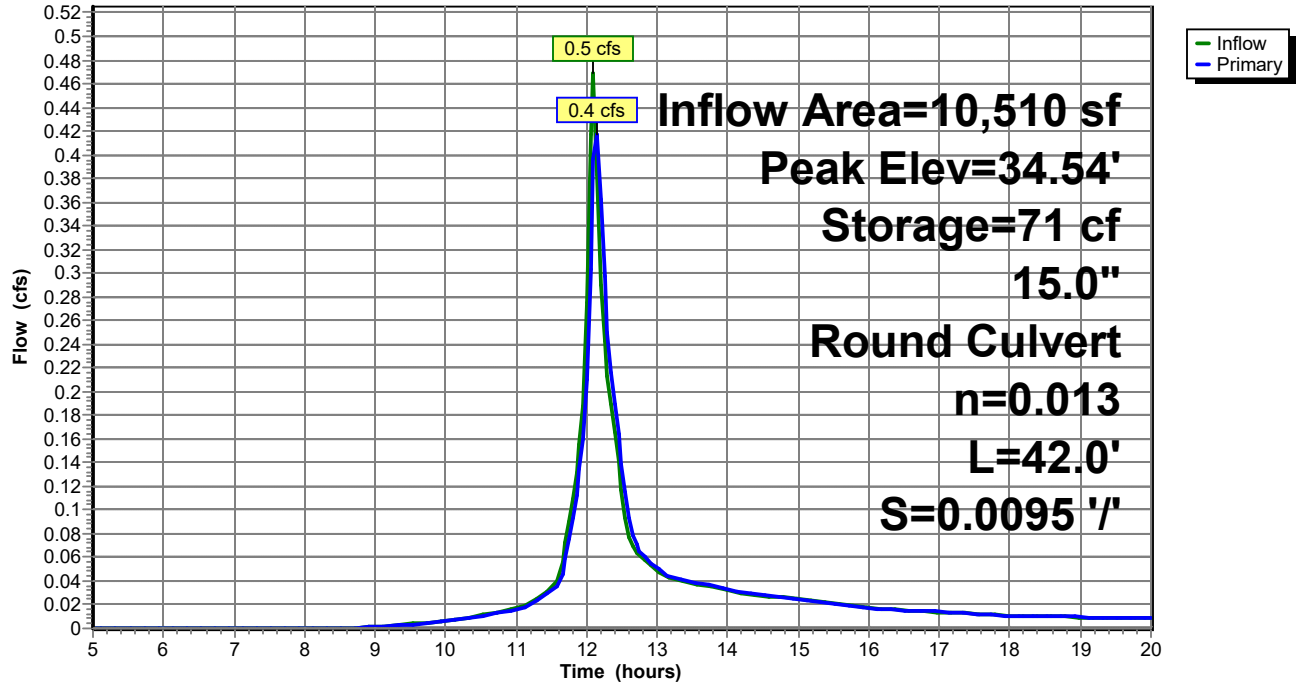
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	1,000	400	400
36.00	2,050	1,525	1,925

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.4 cfs @ 12.14 hrs HW=34.53' (Free Discharge)↑ **1=Culvert** (Inlet Controls 0.4 cfs @ 1.56 fps)

Pond C7:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 33

Summary for Pond C8:

Inflow Area = 25,645 sf, 8.42% Impervious, Inflow Depth > 1.36" for 2-Year event
 Inflow = 0.6 cfs @ 12.36 hrs, Volume= 2,901 cf
 Outflow = 0.6 cfs @ 12.44 hrs, Volume= 2,899 cf, Atten= 5%, Lag= 5.0 min
 Primary = 0.6 cfs @ 12.44 hrs, Volume= 2,899 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.20' @ 12.44 hrs Surf.Area= 861 sf Storage= 118 cf

Flood Elev= 35.05' Surf.Area= 3,650 sf Storage= 1,915 cf

Plug-Flow detention time= 2.2 min calculated for 2,899 cf (100% of inflow)

Center-of-Mass det. time= 1.9 min (819.2 - 817.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.80'	1,915 cf	STORAGE (Prismatic) Listed below (Recalc)

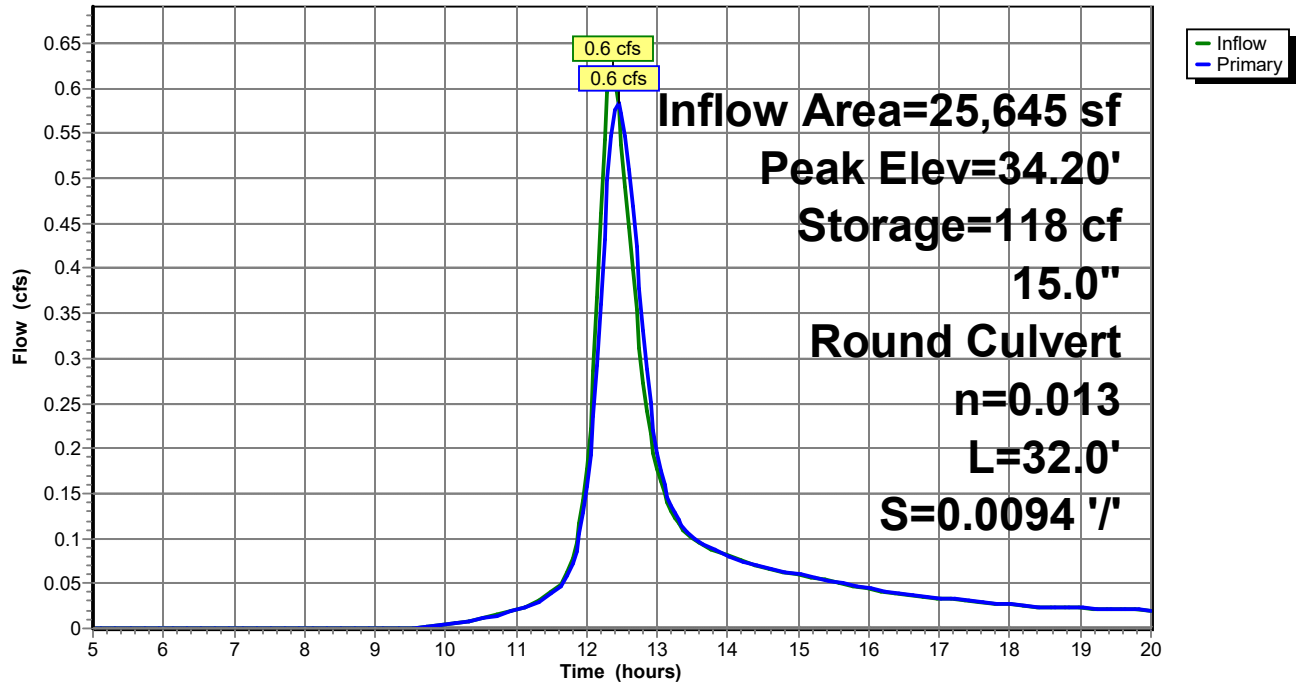
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.80	0	0	0
34.00	150	15	15
35.00	3,650	1,900	1,915

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	15.0" Round Culvert L= 32.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.80' / 33.50' S= 0.0094 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.6 cfs @ 12.44 hrs HW=34.20' (Free Discharge)↑ **1=Culvert** (Inlet Controls 0.6 cfs @ 1.71 fps)

Pond C8:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 35

Summary for Pond C9:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 1.26" for 2-Year event
 Inflow = 3.7 cfs @ 12.53 hrs, Volume= 22,911 cf
 Outflow = 3.3 cfs @ 12.72 hrs, Volume= 22,811 cf, Atten= 11%, Lag= 11.4 min
 Primary = 3.3 cfs @ 12.72 hrs, Volume= 22,811 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 33.92' @ 12.72 hrs Surf.Area= 6,361 sf Storage= 2,280 cf
 Flood Elev= 34.45' Surf.Area= 8,968 sf Storage= 6,455 cf

Plug-Flow detention time= 10.5 min calculated for 22,736 cf (99% of inflow)
 Center-of-Mass det. time= 8.9 min (837.4 - 828.5)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	12,015 cf	STORAGE (Prismatic) Listed below (Recalc)

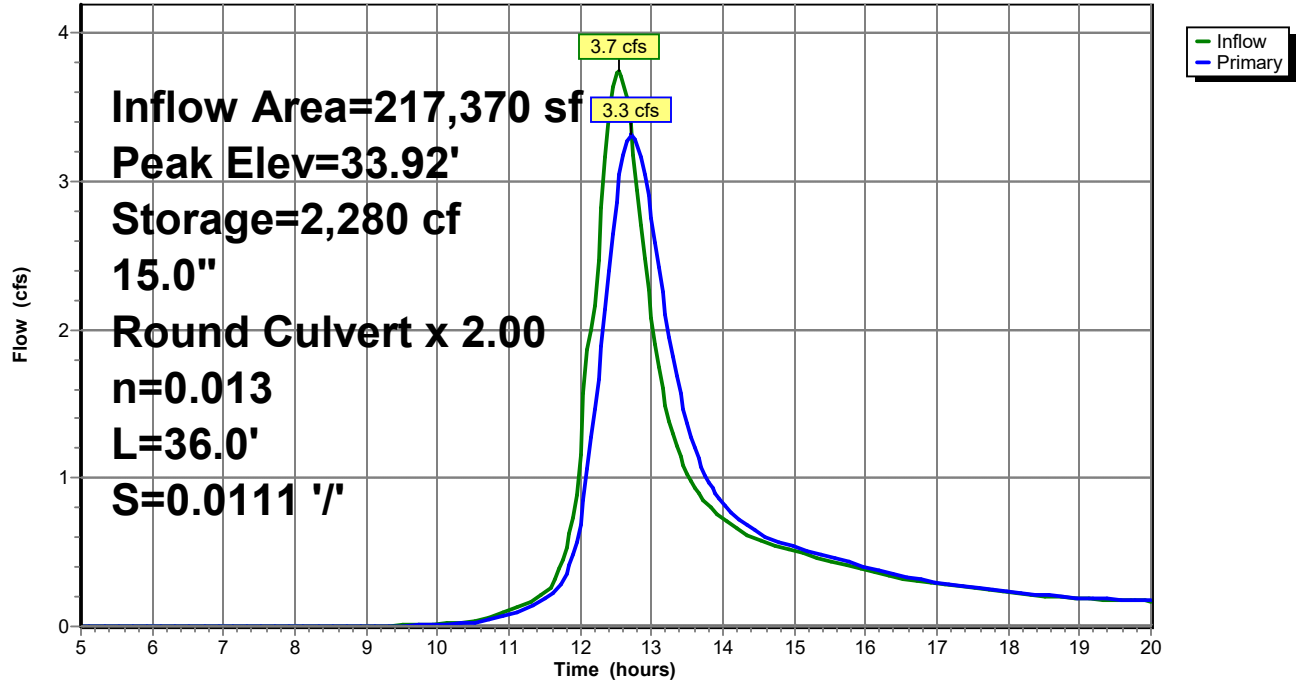
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	7,100	2,840	2,840
35.00	11,250	9,175	12,015

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	15.0" Round Culvert X 2.00 L= 36.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.20' / 32.80' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.3 cfs @ 12.72 hrs HW=33.92' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 3.3 cfs @ 2.27 fps)

Pond C9:

Hydrograph

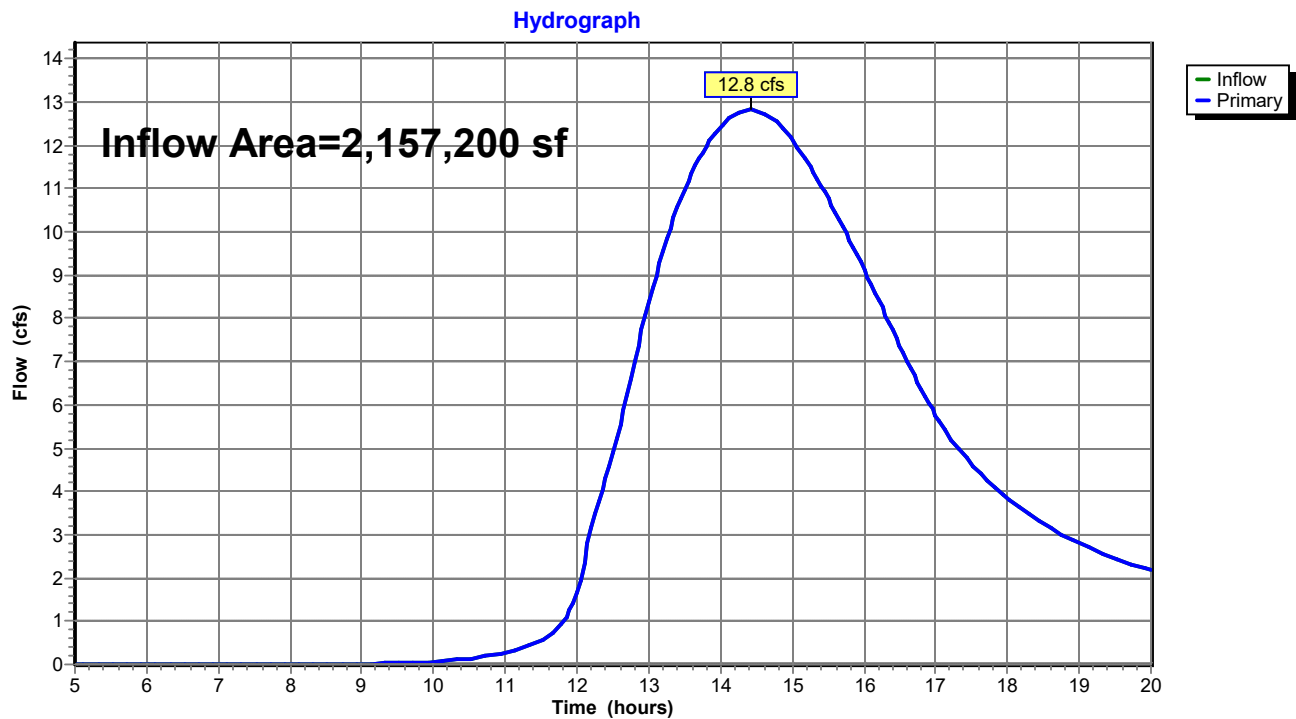


Summary for Link AP1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 1.16" for 2-Year event
 Inflow = 12.8 cfs @ 14.42 hrs, Volume= 208,242 cf
 Primary = 12.8 cfs @ 14.42 hrs, Volume= 208,242 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:



Post Dev Rev 2*Type III 24-hr 10-Year Rainfall=4.90"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 38

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=93,065 sf 23.24% Impervious Runoff Depth>2.89"
 Flow Length=316' Tc=7.7 min CN=83 Runoff=7.2 cfs 22,406 cf

Subcatchment 1.1: Runoff Area=225,475 sf 5.35% Impervious Runoff Depth>2.57"
 Flow Length=1,232' Slope=0.0167 '/' Tc=63.8 min CN=80 Runoff=6.5 cfs 48,240 cf

Subcatchment 1.2: Runoff Area=51,750 sf 4.53% Impervious Runoff Depth>2.52"
 Flow Length=810' Tc=22.8 min CN=79 Runoff=2.4 cfs 10,859 cf

Subcatchment 1.3: Runoff Area=9,380 sf 23.88% Impervious Runoff Depth>2.98"
 Tc=6.0 min CN=84 Runoff=0.8 cfs 2,332 cf

Subcatchment 1.4: Runoff Area=1,549,650 sf 1.07% Impervious Runoff Depth>2.24"
 Flow Length=1,265' Tc=131.9 min CN=77 Runoff=24.5 cfs 289,320 cf

Subcatchment 1.5: Runoff Area=10,510 sf 19.27% Impervious Runoff Depth>2.89"
 Tc=6.0 min CN=83 Runoff=0.9 cfs 2,532 cf

Subcatchment 1.6: Runoff Area=25,645 sf 8.42% Impervious Runoff Depth>2.60"
 Flow Length=258' Tc=25.1 min CN=80 Runoff=1.2 cfs 5,563 cf

Subcatchment 1.7: Runoff Area=18,635 sf 19.64% Impervious Runoff Depth>2.89"
 Tc=6.0 min CN=83 Runoff=1.5 cfs 4,489 cf

Subcatchment 1.8: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>2.42"
 Flow Length=690' Tc=39.7 min CN=78 Runoff=6.0 cfs 34,870 cf

Reach R1: Avg. Flow Depth=0.32' Max Vel=2.57 fps Inflow=8.1 cfs 59,013 cf
 n=0.022 L=225.0' S=0.0116 '/' Capacity=216.9 cfs Outflow=7.4 cfs 58,895 cf

Reach R2: Avg. Flow Depth=0.68' Max Vel=2.64 fps Inflow=24.1 cfs 293,953 cf
 n=0.022 L=135.0' S=0.0044 '/' Capacity=134.5 cfs Outflow=24.1 cfs 293,562 cf

Reach R3: Avg. Flow Depth=0.38' Max Vel=1.62 fps Inflow=6.3 cfs 44,654 cf
 n=0.022 L=280.0' S=0.0036 '/' Capacity=120.6 cfs Outflow=6.3 cfs 44,473 cf

Pond C1: Peak Elev=34.30' Storage=95,212 cf Inflow=29.9 cfs 419,335 cf
 30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=20.9 cfs 413,554 cf

Pond C2: Peak Elev=34.73' Storage=183 cf Inflow=6.0 cfs 34,870 cf
 Outflow=6.0 cfs 34,774 cf

Pond C3: Peak Elev=36.27' Storage=3,555 cf Inflow=7.4 cfs 59,087 cf
 15.0" Round Culvert x 2.00 n=0.013 L=48.0' S=0.0104 '/' Outflow=8.1 cfs 59,013 cf

Pond C4: Peak Elev=36.79' Storage=268 cf Inflow=2.4 cfs 10,859 cf
 15.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=2.4 cfs 10,847 cf

Post Dev Rev 2*Type III 24-hr 10-Year Rainfall=4.90"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 39

Pond C5: Peak Elev=34.66' Storage=66 cf Inflow=0.8 cfs 2,332 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=0.7 cfs 2,331 cf

Pond C6: Peak Elev=34.63' Storage=8,754 cf Inflow=24.6 cfs 294,180 cf
36.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.013 L=45.0' S=0.0067 '/' Outflow=24.1 cfs 293,953 cf

Pond C7: Peak Elev=34.66' Storage=134 cf Inflow=0.9 cfs 2,532 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=0.8 cfs 2,529 cf

Pond C8: Peak Elev=34.37' Storage=304 cf Inflow=1.2 cfs 5,563 cf
15.0" Round Culvert n=0.013 L=32.0' S=0.0094 '/' Outflow=1.1 cfs 5,560 cf

Pond C9: Peak Elev=34.28' Storage=5,000 cf Inflow=7.4 cfs 44,823 cf
15.0" Round Culvert x 2.00 n=0.013 L=36.0' S=0.0111 '/' Outflow=6.3 cfs 44,654 cf

Link AP1: Inflow=20.9 cfs 413,554 cf
Primary=20.9 cfs 413,554 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 420,610 cf Average Runoff Depth = 2.34"
96.61% Pervious = 2,084,130 sf 3.39% Impervious = 73,070 sf

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 40

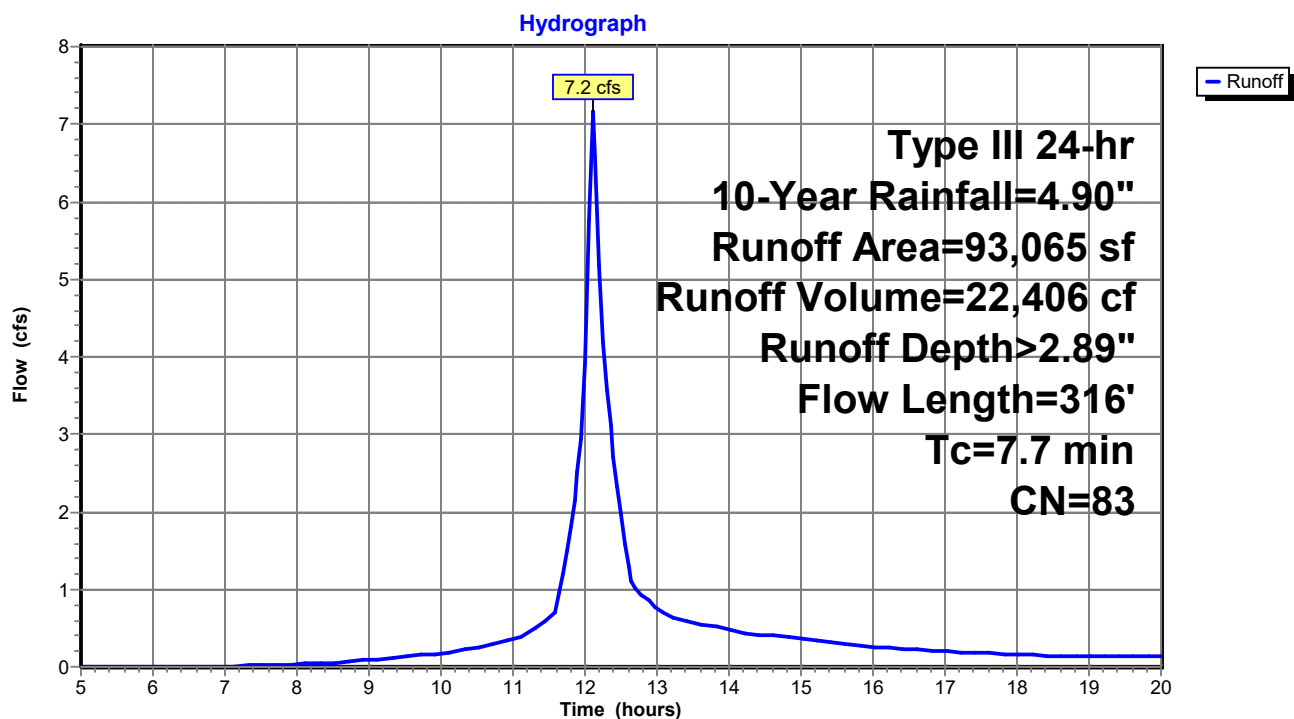
Summary for Subcatchment 1.0:

Runoff = 7.2 cfs @ 12.11 hrs, Volume= 22,406 cf, Depth> 2.89"

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-Year Rainfall=4.90"

Area (sf)	CN	Description
1,900	77	Woods, Good, HSG D
60,950	78	Meadow, non-grazed, HSG D
8,585	80	>75% Grass cover, Good, HSG D
21,630	98	Paved parking, HSG D
93,065	83	Weighted Average
71,435		76.76% Pervious Area
21,630		23.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.01		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.30"
1.2	20	0.1500	0.28		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
6.2	276	0.0111	0.74		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
7.7	316	Total			

Subcatchment 1.0:

Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 41

Summary for Subcatchment 1.1:

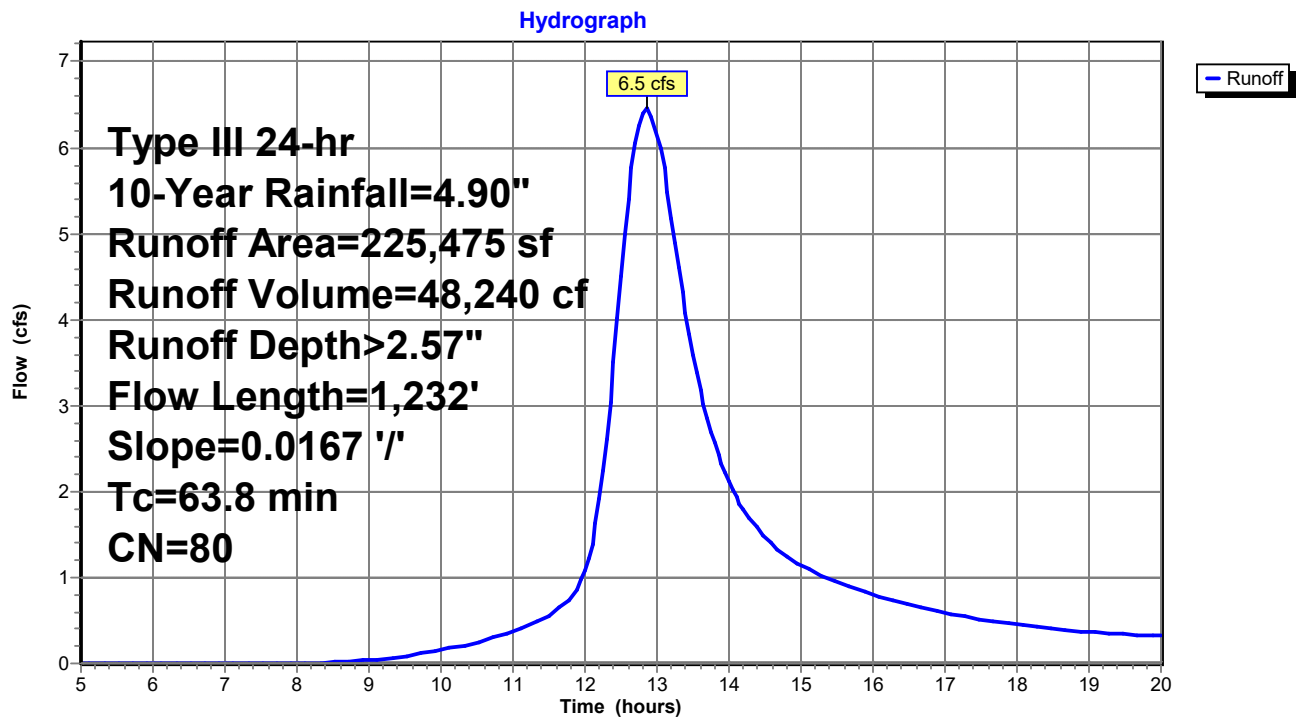
Runoff = 6.5 cfs @ 12.86 hrs, Volume= 48,240 cf, Depth> 2.57"

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-Year Rainfall=4.90"

Area (sf)	CN	Description
20,935	77	Woods, Good, HSG D
57,900	78	Meadow, non-grazed, HSG D
134,575	80	>75% Grass cover, Good, HSG D
12,065	98	Paved parking, HSG D
225,475	80	Weighted Average
213,410		94.65% Pervious Area
12,065		5.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
4.7	330	0.0167	1.16		Shallow Concentrated Flow, D-E
					Cultivated Straight Rows Kv= 9.0 fps
63.8	1,232	Total			

Subcatchment 1.1:



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 43

Summary for Subcatchment 1.2:

Runoff = 2.4 cfs @ 12.32 hrs, Volume= 10,859 cf, Depth> 2.52"

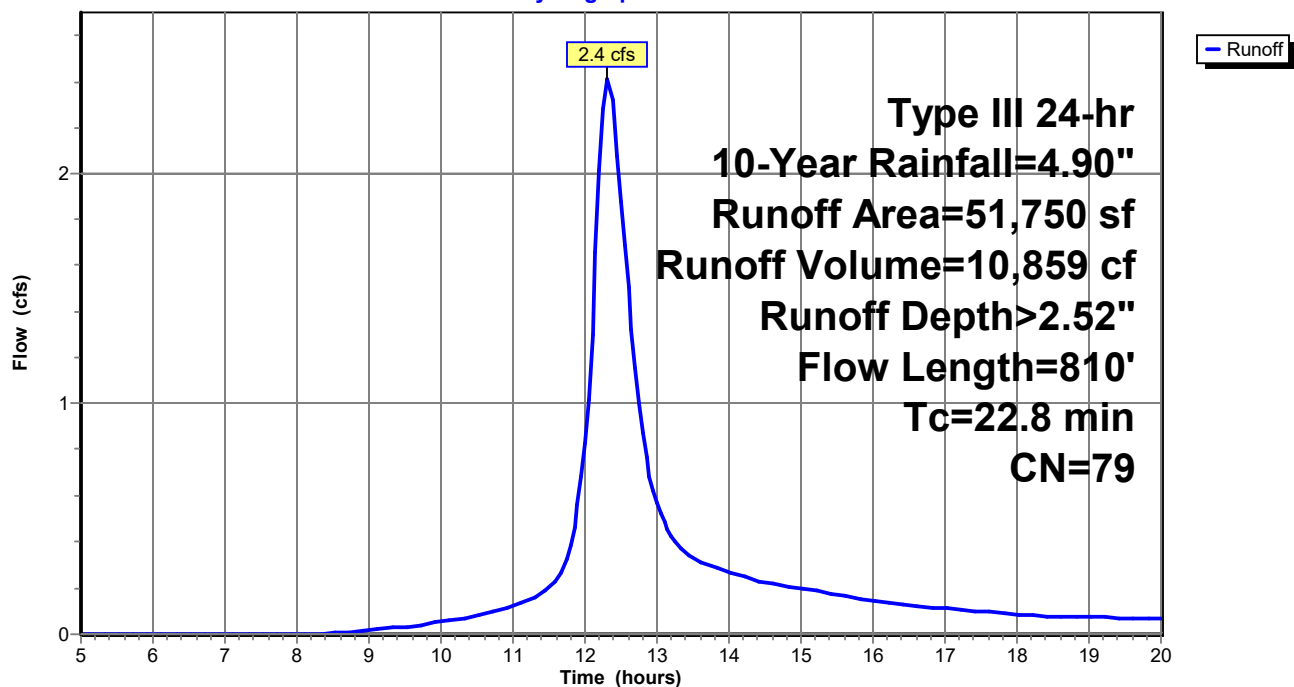
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,625	71	Meadow, non-grazed, HSG C
18,275	78	Meadow, non-grazed, HSG D
3,655	74	>75% Grass cover, Good, HSG C
25,850	80	>75% Grass cover, Good, HSG D
2,345	98	Paved parking, HSG D
51,750	79	Weighted Average
49,405		95.47% Pervious Area
2,345		4.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0467	0.24		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
4.2	250	0.0200	0.99		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
11.7	460	0.0088	0.66		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
22.8	810	Total			

Subcatchment 1.2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 44

Summary for Subcatchment 1.3:

Runoff = 0.8 cfs @ 12.09 hrs, Volume= 2,332 cf, Depth> 2.98"

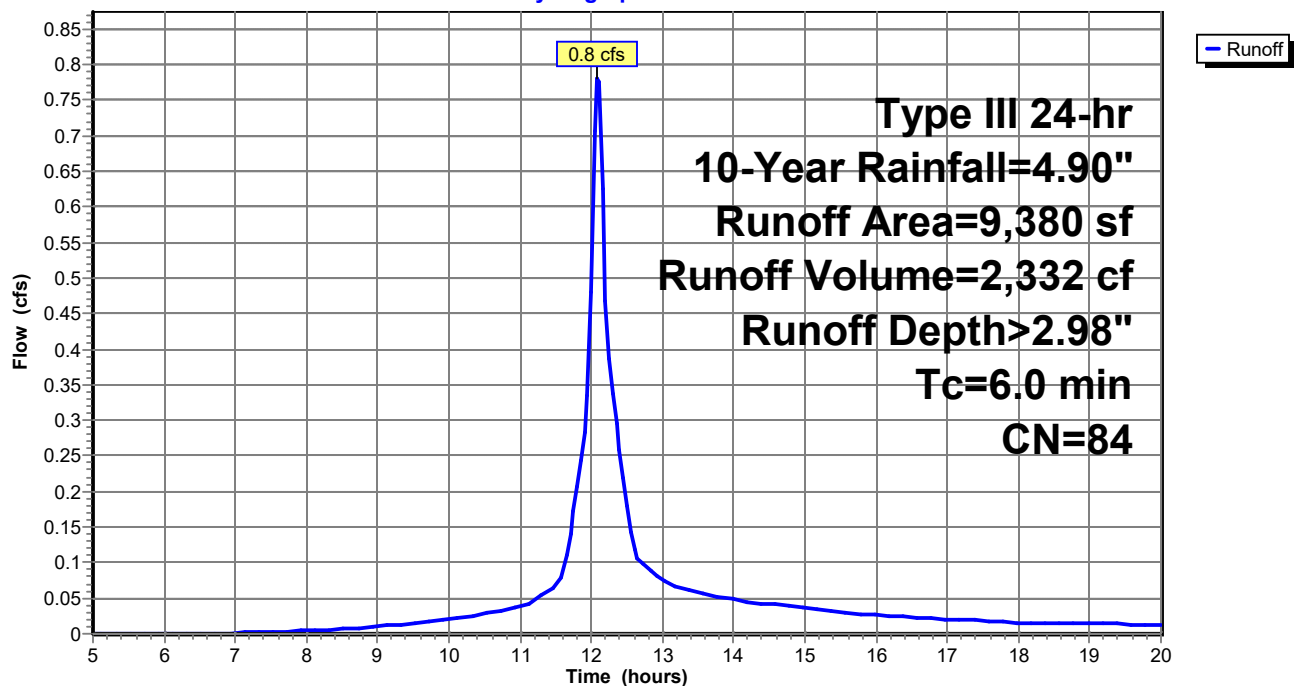
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
7,140	80	>75% Grass cover, Good, HSG D
2,240	98	Paved parking, HSG D
9,380	84	Weighted Average
7,140		76.12% Pervious Area
2,240		23.88% Impervious Area

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

Subcatchment 1.3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 45

Summary for Subcatchment 1.4:

Runoff = 24.5 cfs @ 13.77 hrs, Volume= 289,320 cf, Depth> 2.24"

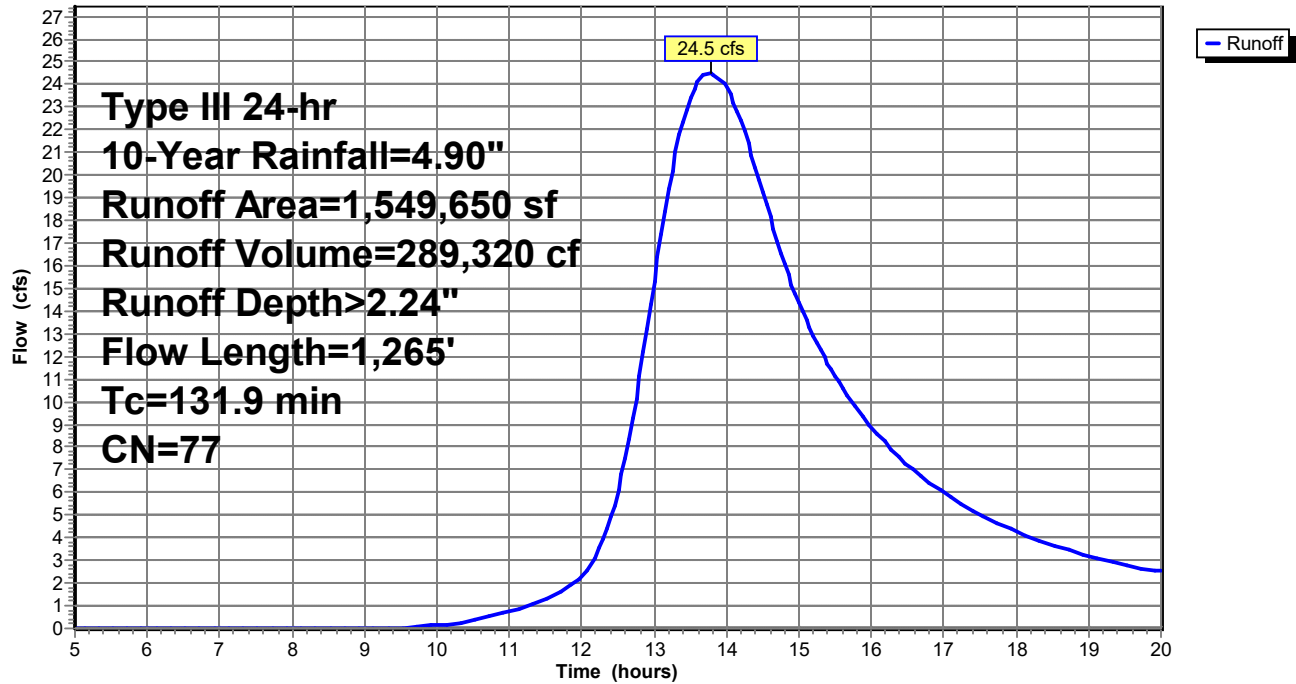
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
134,385	70	Woods, Good, HSG C
1,145,175	77	Woods, Good, HSG D
2,465	71	Meadow, non-grazed, HSG C
167,535	78	Meadow, non-grazed, HSG D
2,580	74	>75% Grass cover, Good, HSG C
80,875	80	>75% Grass cover, Good, HSG D
16,635	98	Paved parking, HSG D
1,549,650	77	Weighted Average
1,533,015		98.93% Pervious Area
16,635		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
10.0	380	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
131.9	1,265	Total			

Subcatchment 1.4:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 47

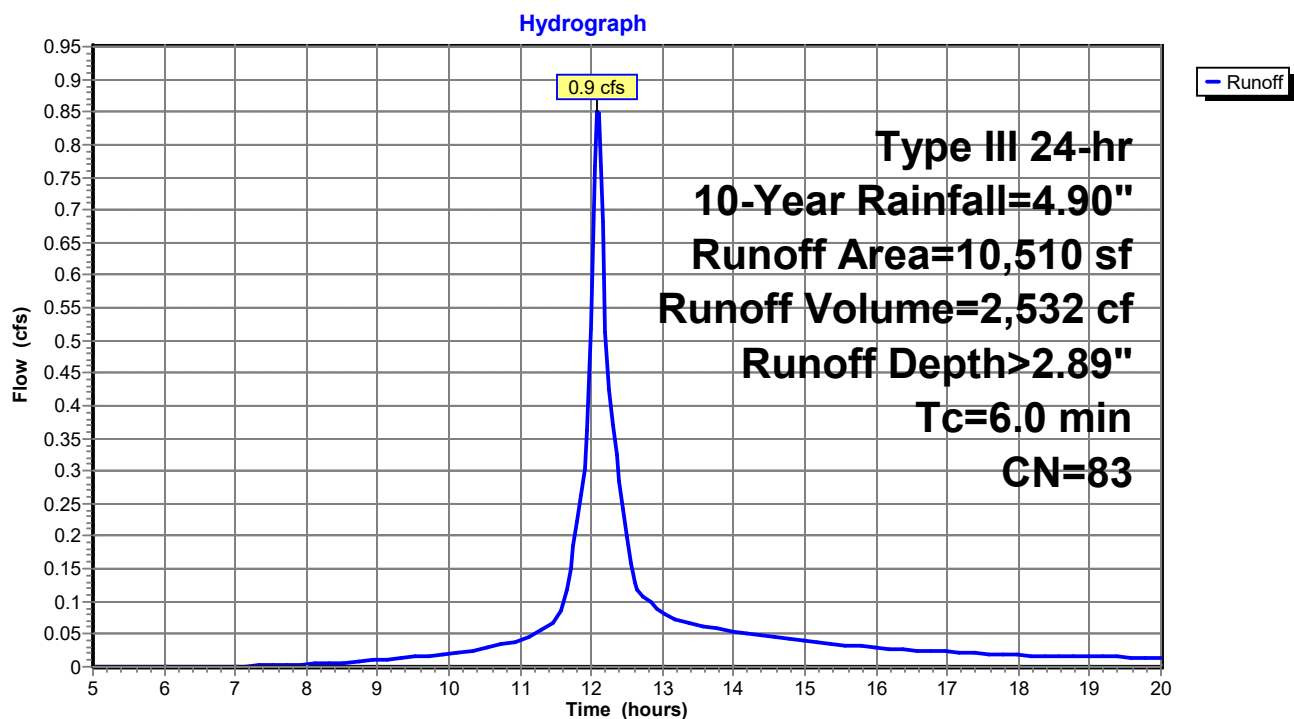
Summary for Subcatchment 1.5:

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,532 cf, Depth> 2.89"

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-Year Rainfall=4.90"

Area (sf)	CN	Description
8,485	80	>75% Grass cover, Good, HSG D
2,025	98	Paved parking, HSG D
10,510	83	Weighted Average
8,485		80.73% Pervious Area
2,025		19.27% Impervious Area

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

Subcatchment 1.5:

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 48

Summary for Subcatchment 1.6:

Runoff = 1.2 cfs @ 12.35 hrs, Volume= 5,563 cf, Depth> 2.60"

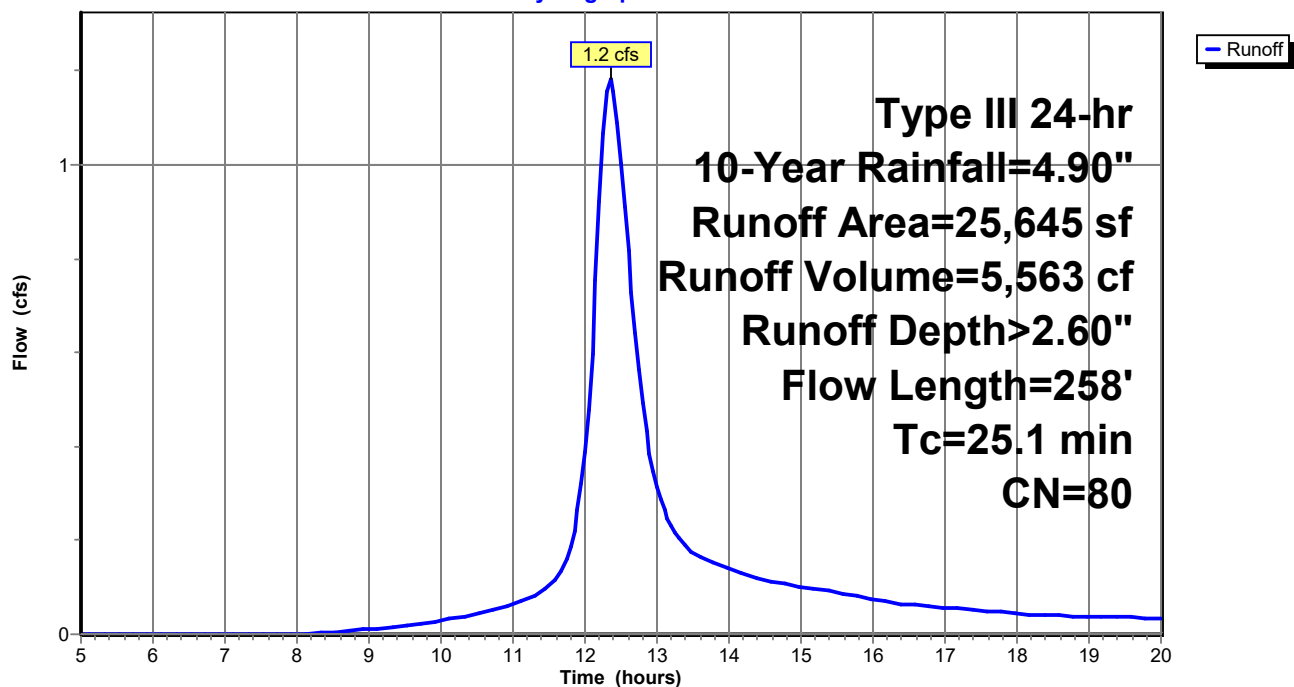
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,300	70	Woods, Good, HSG C
445	77	Woods, Good, HSG D
2,190	74	>75% Grass cover, Good, HSG C
18,550	80	>75% Grass cover, Good, HSG D
2,160	98	Paved parking, HSG D
25,645	80	Weighted Average
23,485		91.58% Pervious Area
2,160		8.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	66	0.0606	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
4.2	50	0.0400	0.20		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
4.0	142	0.0070	0.59		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
25.1	258	Total			

Subcatchment 1.6:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 49

Summary for Subcatchment 1.7:

Runoff = 1.5 cfs @ 12.09 hrs, Volume= 4,489 cf, Depth> 2.89"

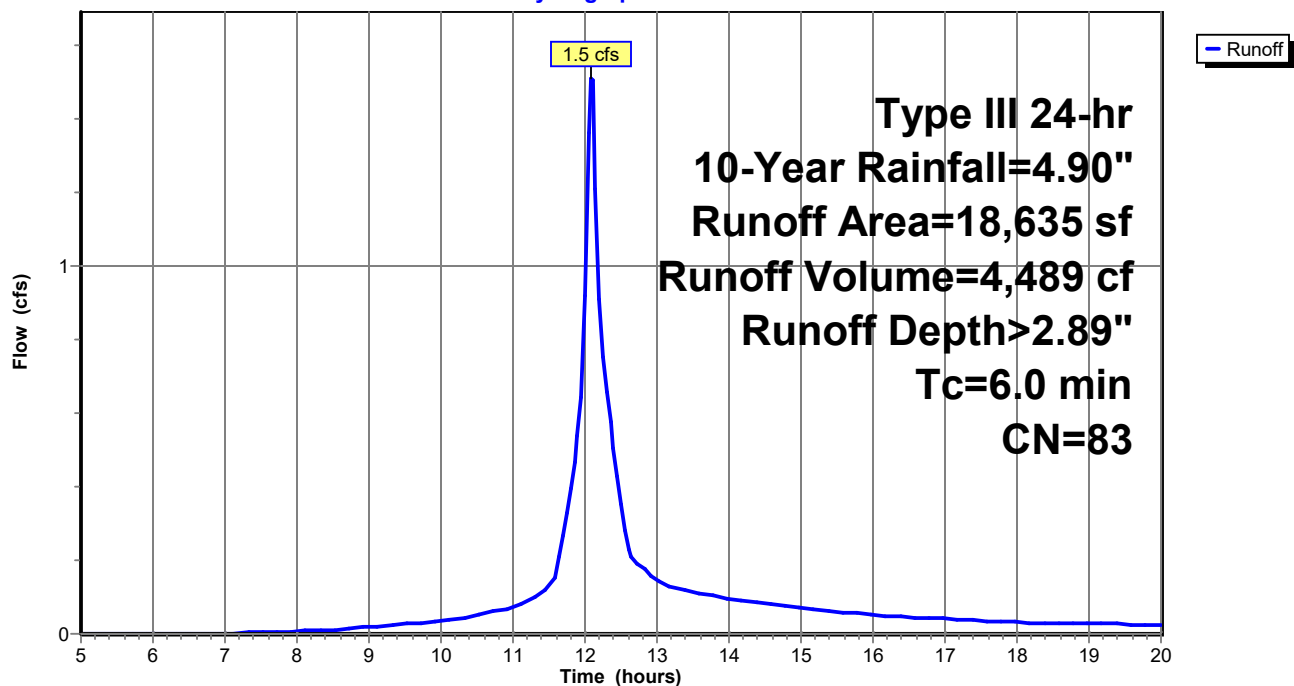
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
880	77	Woods, Good, HSG D
6,610	78	Meadow, non-grazed, HSG D
7,485	80	>75% Grass cover, Good, HSG D
3,660	98	Paved parking, HSG D
18,635	83	Weighted Average
14,975		80.36% Pervious Area
3,660		19.64% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 50

Summary for Subcatchment 1.8:

Runoff = 6.0 cfs @ 12.55 hrs, Volume= 34,870 cf, Depth> 2.42"

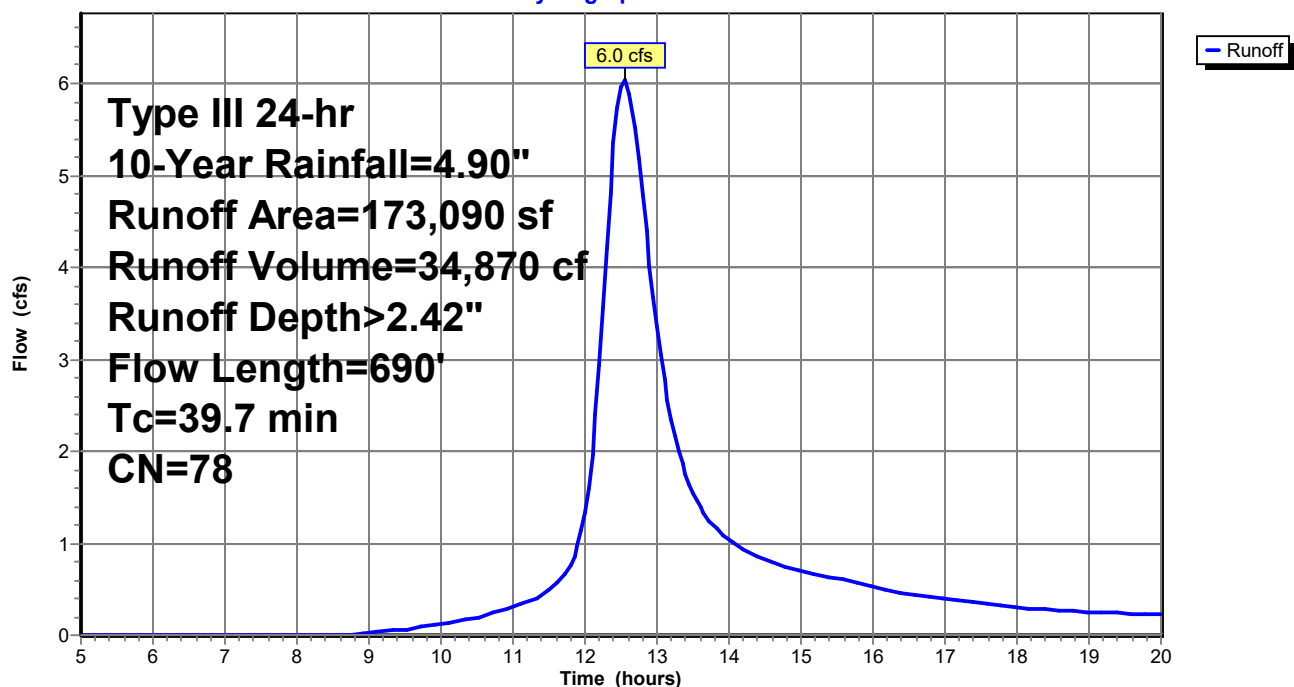
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
12,890	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
1,560	74	>75% Grass cover, Good, HSG C
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.8:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 51

Summary for Reach R1:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 2.55" for 10-Year event
Inflow = 8.1 cfs @ 12.80 hrs, Volume= 59,013 cf
Outflow = 7.4 cfs @ 12.86 hrs, Volume= 58,895 cf, Atten= 8%, Lag= 3.7 min

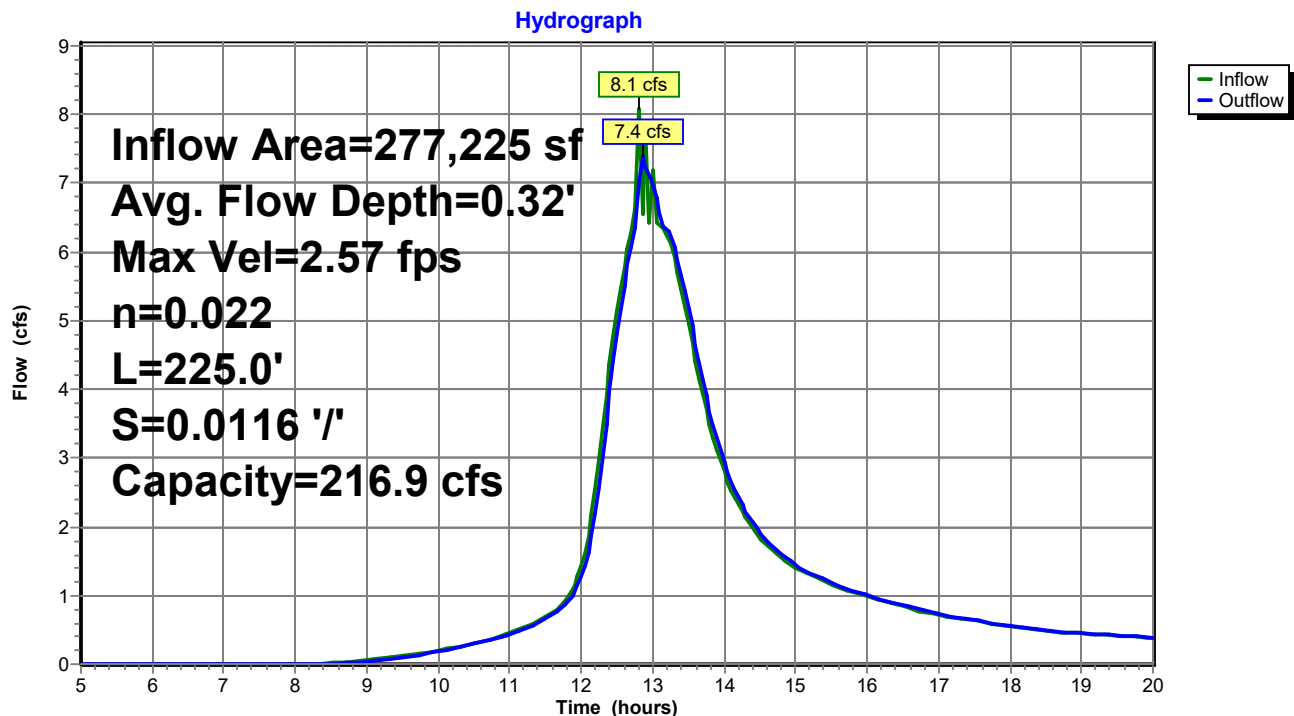
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.57 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.29 fps, Avg. Travel Time= 2.9 min

Peak Storage= 660 cf @ 12.82 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 216.9 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 225.0' Slope= 0.0116 '/'
Inlet Invert= 34.40', Outlet Invert= 31.80'



Reach R1:



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 52

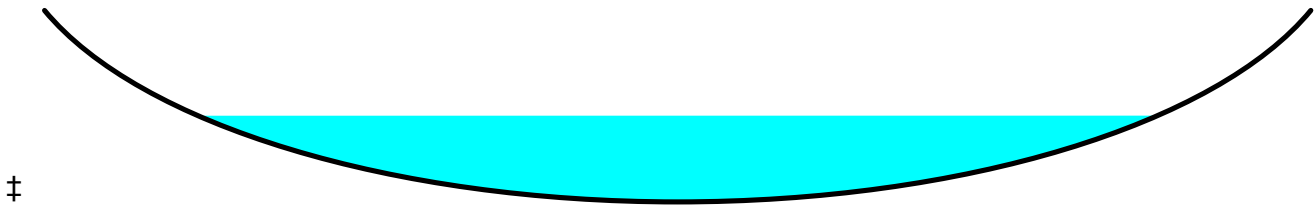
Summary for Reach R2:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 2.25" for 10-Year event
Inflow = 24.1 cfs @ 13.98 hrs, Volume= 293,953 cf
Outflow = 24.1 cfs @ 14.01 hrs, Volume= 293,562 cf, Atten= 0%, Lag= 1.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.64 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.7 min

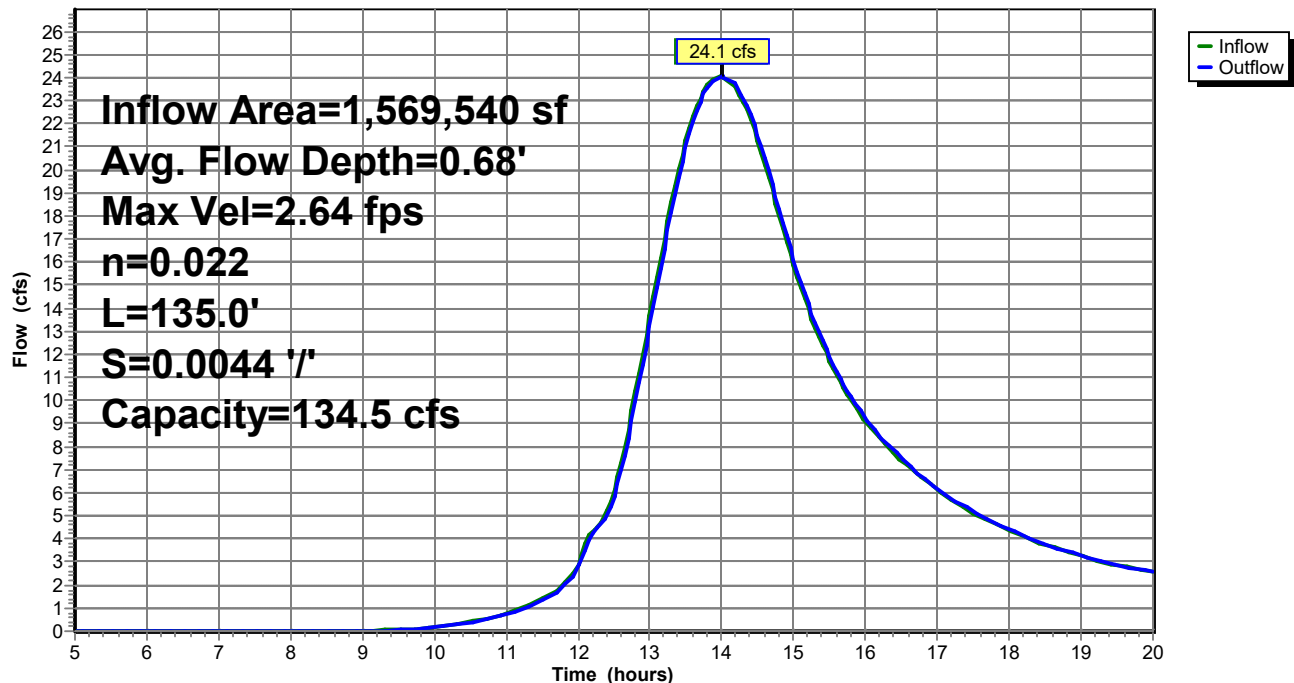
Peak Storage= 1,229 cf @ 13.99 hrs
Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 134.5 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 135.0' Slope= 0.0044 '/'
Inlet Invert= 32.40', Outlet Invert= 31.80'



Reach R2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 53

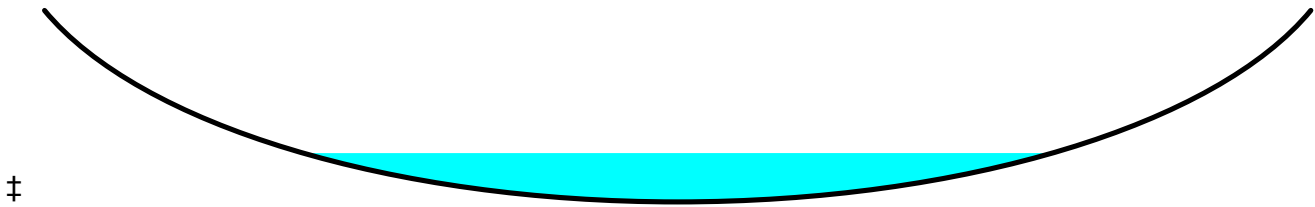
Summary for Reach R3:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 2.47" for 10-Year event
Inflow = 6.3 cfs @ 12.73 hrs, Volume= 44,654 cf
Outflow = 6.3 cfs @ 12.81 hrs, Volume= 44,473 cf, Atten= 0%, Lag= 4.9 min

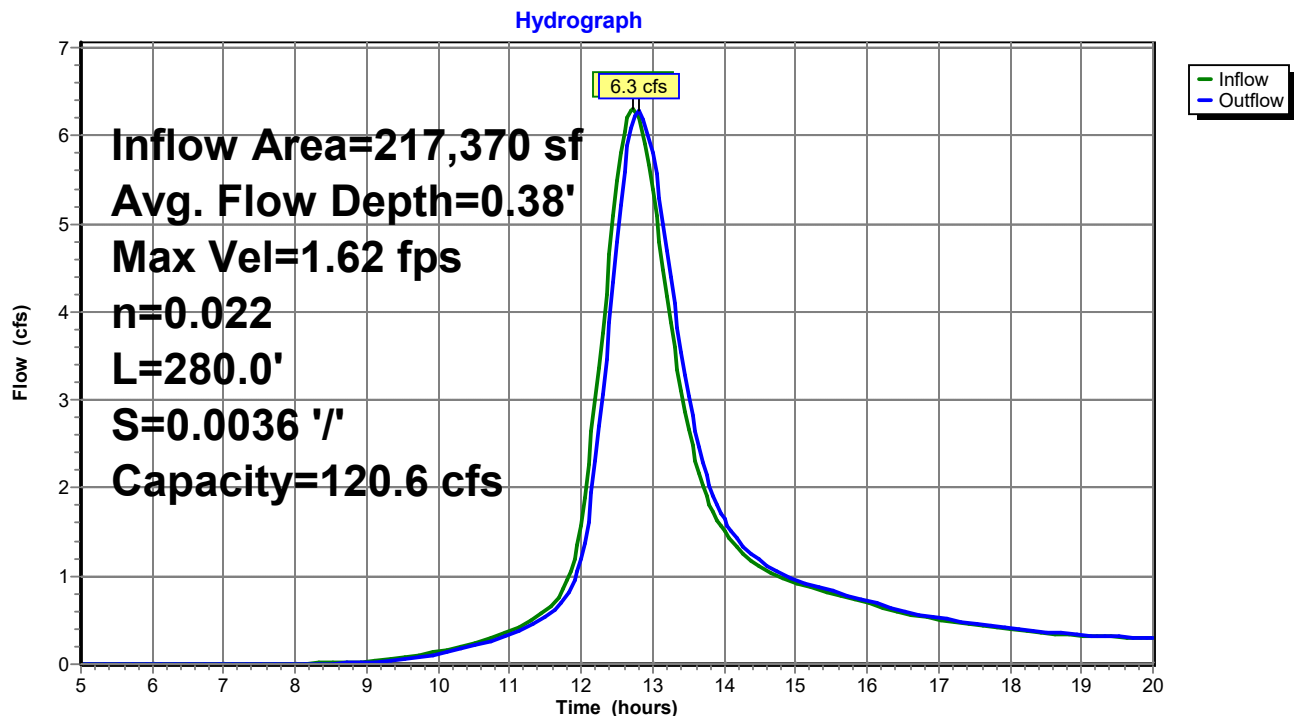
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.62 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 6.4 min

Peak Storage= 1,085 cf @ 12.76 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 120.6 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 280.0' Slope= 0.0036 '/'
Inlet Invert= 32.80', Outlet Invert= 31.80'



Reach R3:



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 54

Summary for Pond C1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 2.33" for 10-Year event
 Inflow = 29.9 cfs @ 13.66 hrs, Volume= 419,335 cf
 Outflow = 20.9 cfs @ 14.83 hrs, Volume= 413,554 cf, Atten= 30%, Lag= 70.5 min
 Primary = 20.9 cfs @ 14.83 hrs, Volume= 413,554 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.30' @ 14.83 hrs Surf.Area= 117,842 sf Storage= 95,212 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 54.3 min calculated for 412,180 cf (98% of inflow)
 Center-of-Mass det. time= 49.8 min (923.2 - 873.4)

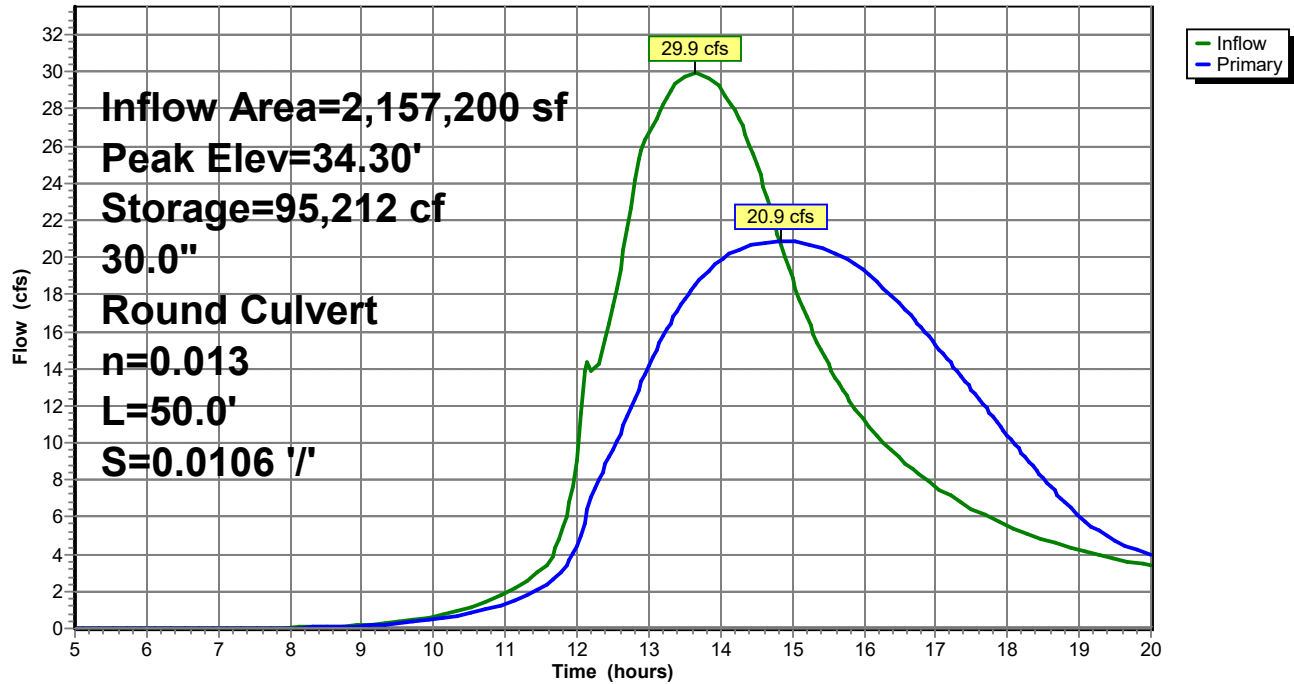
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=20.9 cfs @ 14.83 hrs HW=34.30' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 20.9 cfs @ 4.25 fps)

Pond C1:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 56

Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 2.42" for 10-Year event
 Inflow = 6.0 cfs @ 12.55 hrs, Volume= 34,870 cf
 Outflow = 6.0 cfs @ 12.56 hrs, Volume= 34,774 cf, Atten= 0%, Lag= 0.2 min
 Primary = 6.0 cfs @ 12.56 hrs, Volume= 34,774 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.73' @ 12.56 hrs Surf.Area= 400 sf Storage= 183 cf
 Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 1.9 min calculated for 34,659 cf (99% of inflow)
 Center-of-Mass det. time= 0.9 min (819.5 - 818.5)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

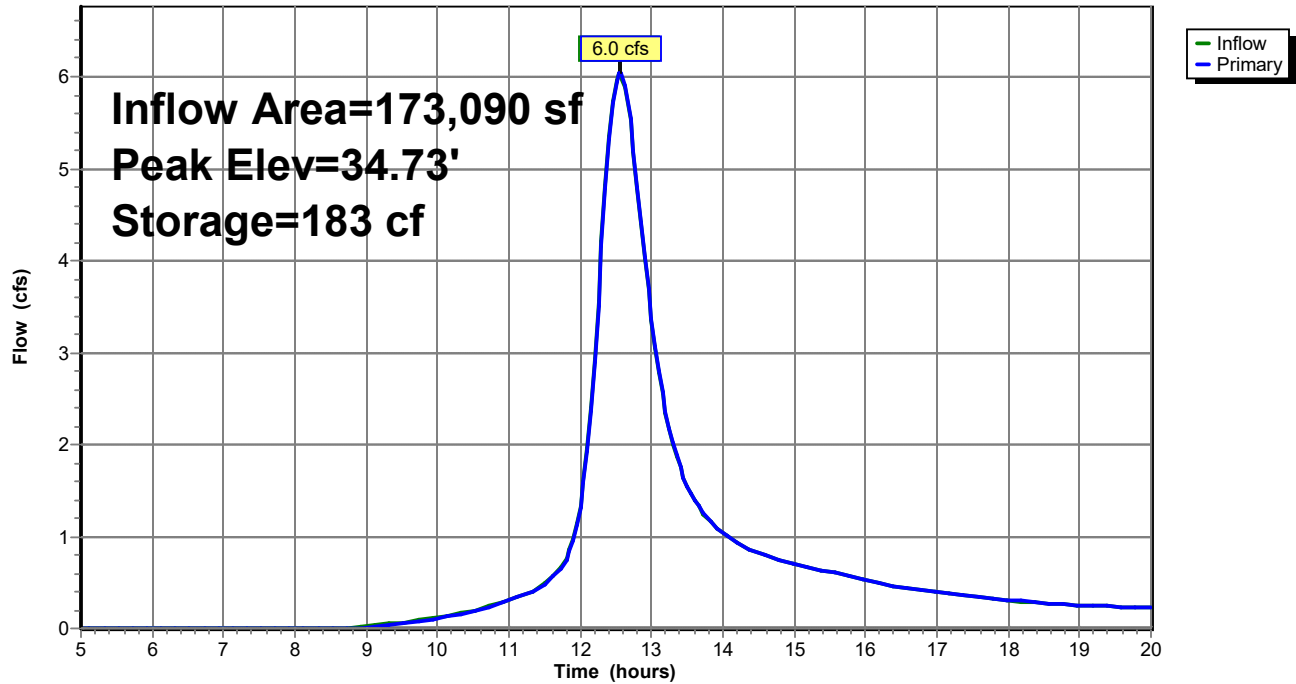
Primary OutFlow Max=6.0 cfs @ 12.56 hrs HW=34.73' (Free Discharge)

1=Culvert (Barrel Controls 0.6 cfs @ 2.64 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 5.4 cfs @ 1.19 fps)

Pond C2:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 58

Summary for Pond C3:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 2.56" for 10-Year event
 Inflow = 7.4 cfs @ 12.77 hrs, Volume= 59,087 cf
 Outflow = 8.1 cfs @ 12.80 hrs, Volume= 59,013 cf, Atten= 0%, Lag= 1.8 min
 Primary = 8.1 cfs @ 12.80 hrs, Volume= 59,013 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 36.27' @ 12.80 hrs Surf.Area= 7,000 sf Storage= 3,555 cf
 Flood Elev= 36.15' Surf.Area= 7,000 sf Storage= 3,555 cf

Plug-Flow detention time= 6.7 min calculated for 59,013 cf (100% of inflow)
 Center-of-Mass det. time= 6.2 min (834.3 - 828.0)

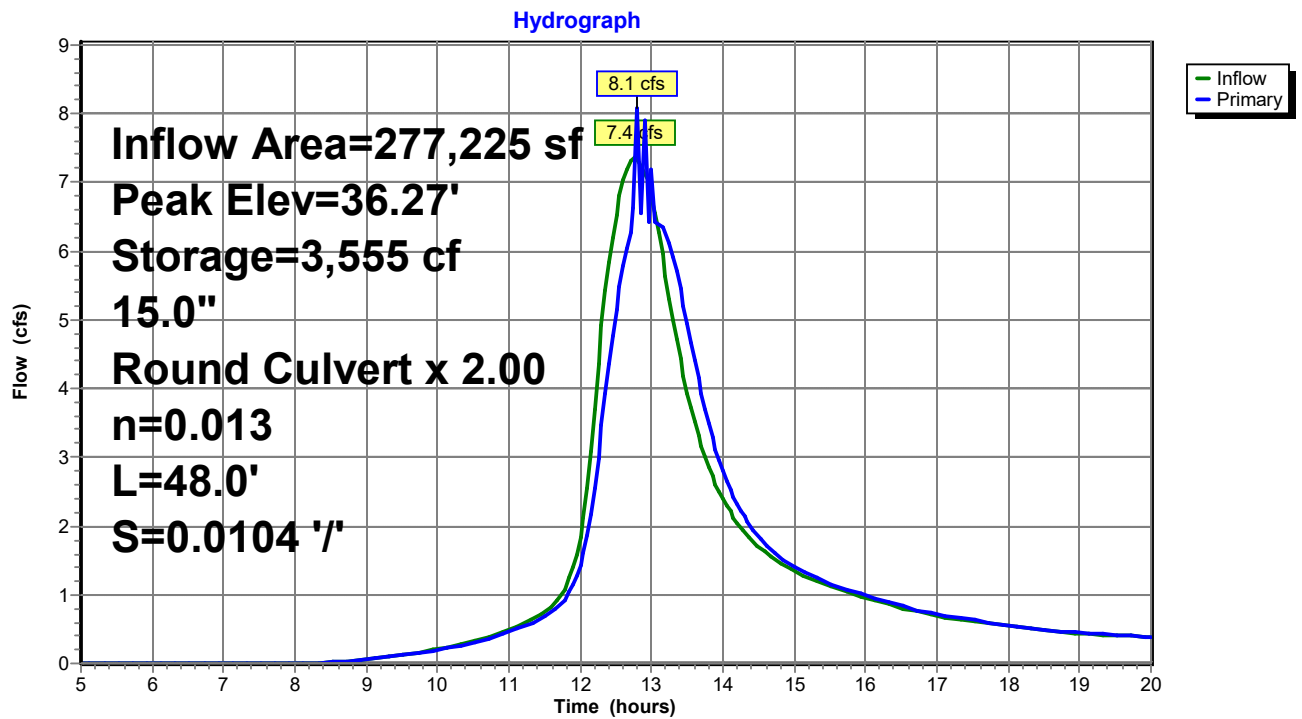
Volume	Invert	Avail.Storage	Storage Description
#1	34.90'	3,555 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.90	0	0	0
35.00	100	5	5
36.00	7,000	3,550	3,555

Device	Routing	Invert	Outlet Devices
#1	Primary	34.90'	15.0" Round Culvert X 2.00 L= 48.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.90' / 34.40' S= 0.0104 ' S= 0.0104 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.1 cfs @ 12.80 hrs HW=36.27' (Free Discharge)
 ↑1=Culvert (Inlet Controls 8.1 cfs @ 3.29 fps)

Pond C3:



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 60

Summary for Pond C4:

Inflow Area = 51,750 sf, 4.53% Impervious, Inflow Depth > 2.52" for 10-Year event
 Inflow = 2.4 cfs @ 12.32 hrs, Volume= 10,859 cf
 Outflow = 2.4 cfs @ 12.35 hrs, Volume= 10,847 cf, Atten= 1%, Lag= 2.1 min
 Primary = 2.4 cfs @ 12.35 hrs, Volume= 10,847 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 36.79' @ 12.35 hrs Surf.Area= 507 sf Storage= 268 cf

Flood Elev= 37.15' Surf.Area= 600 sf Storage= 383 cf

Plug-Flow detention time= 2.2 min calculated for 10,811 cf (100% of inflow)

Center-of-Mass det. time= 1.8 min (805.0 - 803.2)

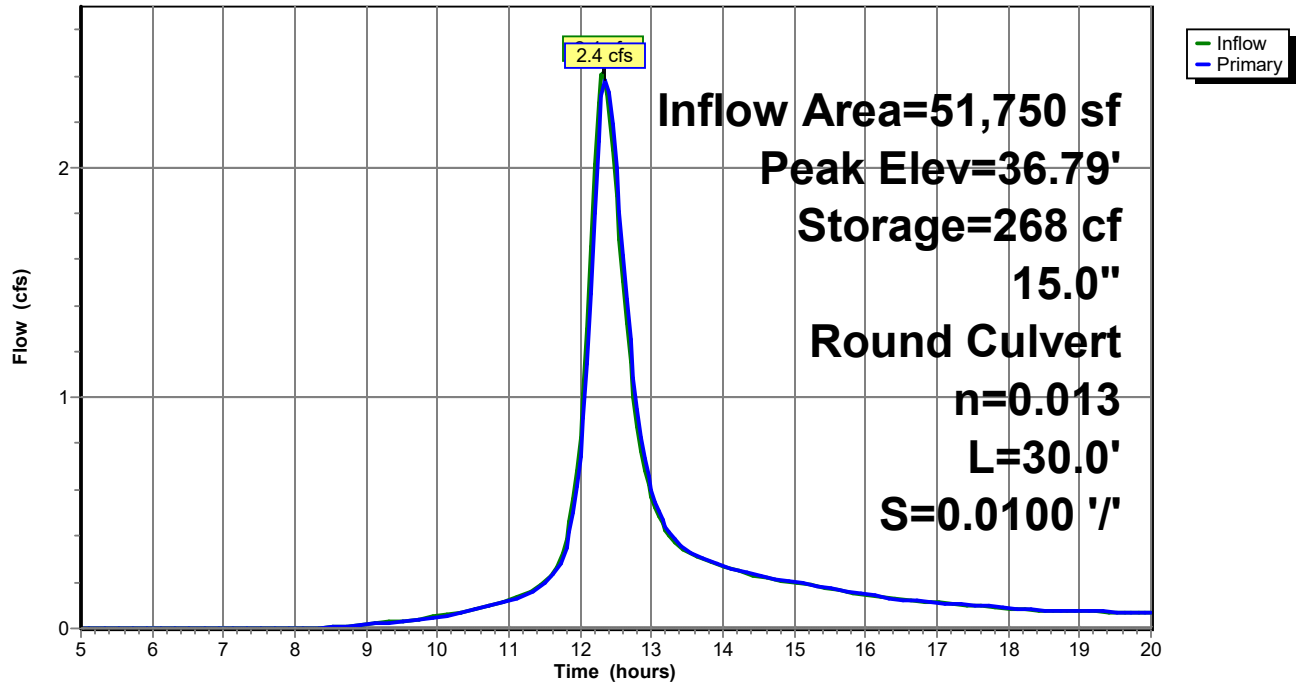
Volume	Invert	Avail.Storage	Storage Description
#1	35.90'	383 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
35.90	0	0	0
36.00	150	8	8
37.00	600	375	383

Device	Routing	Invert	Outlet Devices
#1	Primary	35.90'	15.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.90' / 35.60' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.4 cfs @ 12.35 hrs HW=36.79' (Free Discharge)↑ **1=Culvert** (Inlet Controls 2.4 cfs @ 2.54 fps)

Pond C4:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 62

Summary for Pond C5:

Inflow Area = 9,380 sf, 23.88% Impervious, Inflow Depth > 2.98" for 10-Year event
 Inflow = 0.8 cfs @ 12.09 hrs, Volume= 2,332 cf
 Outflow = 0.7 cfs @ 12.12 hrs, Volume= 2,331 cf, Atten= 4%, Lag= 1.5 min
 Primary = 0.7 cfs @ 12.12 hrs, Volume= 2,331 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.66' @ 12.12 hrs Surf.Area= 288 sf Storage= 66 cf

Flood Elev= 35.45' Surf.Area= 680 sf Storage= 466 cf

Plug-Flow detention time= 1.4 min calculated for 2,331 cf (100% of inflow)

Center-of-Mass det. time= 1.2 min (779.5 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	2,100 cf	STORAGE (Prismatic) Listed below (Recalc)

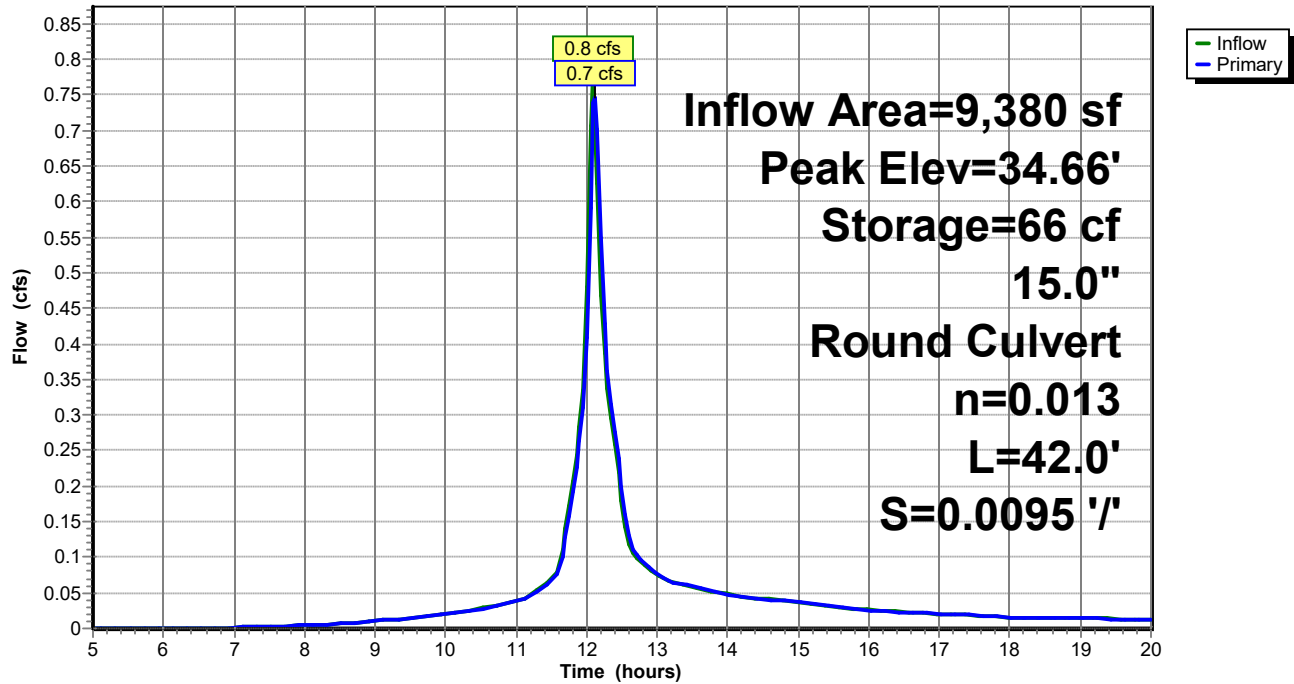
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	500	200	200
36.00	900	700	900
37.00	1,500	1,200	2,100

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.7 cfs @ 12.12 hrs HW=34.65' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.81 fps)

Pond C5:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 64

Summary for Pond C6:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 2.25" for 10-Year event
 Inflow = 24.6 cfs @ 13.77 hrs, Volume= 294,180 cf
 Outflow = 24.1 cfs @ 13.98 hrs, Volume= 293,953 cf, Atten= 2%, Lag= 12.8 min
 Primary = 24.1 cfs @ 13.98 hrs, Volume= 293,953 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.63' @ 13.98 hrs Surf.Area= 20,857 sf Storage= 8,754 cf

Flood Elev= 35.70' Surf.Area= 31,200 sf Storage= 18,300 cf

Plug-Flow detention time= 3.6 min calculated for 293,953 cf (100% of inflow)

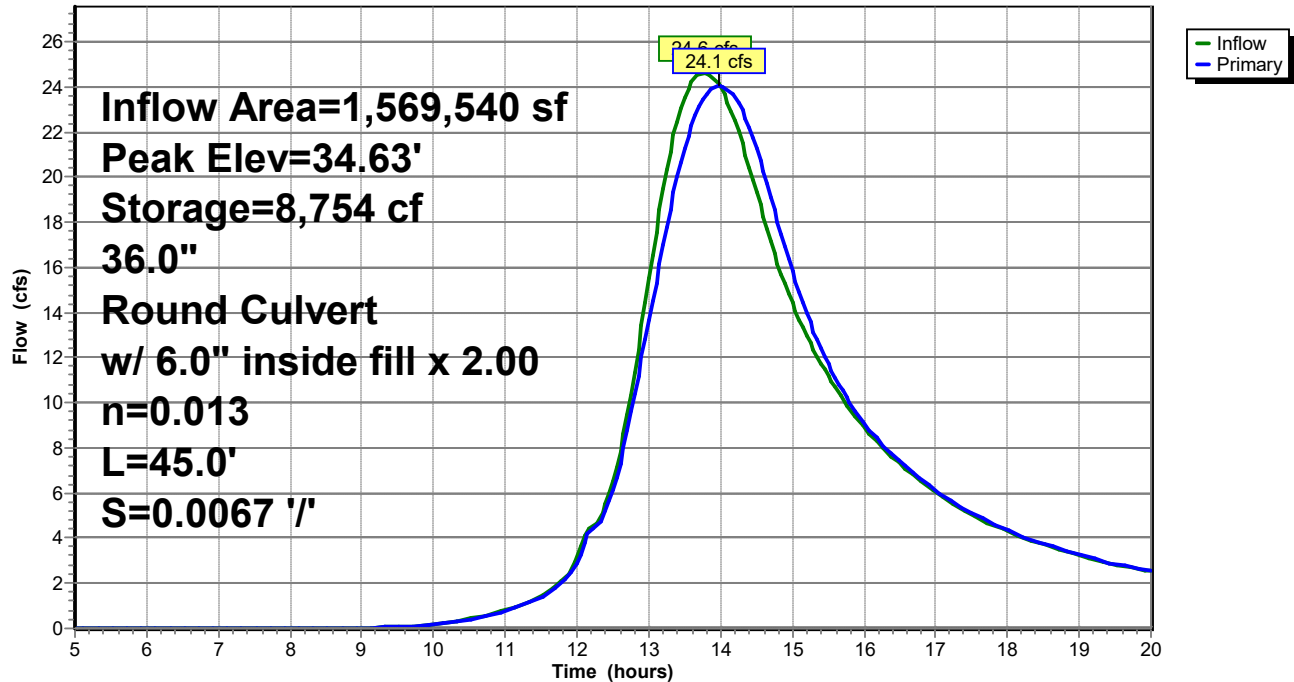
Center-of-Mass det. time= 3.4 min (892.8 - 889.4)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	18,300 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	3,000	1,200	1,200
35.00	31,200	17,100	18,300

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	36.0" Round Culvert X 2.00 w/ 6.0" inside fill L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.70' / 32.40' S= 0.0067 ' S= 0.0067 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 6.29 sf

Primary OutFlow Max=24.1 cfs @ 13.98 hrs HW=34.63' (Free Discharge)↑ **1=Culvert** (Inlet Controls 24.1 cfs @ 2.98 fps)

Pond C6:**Hydrograph**

Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 66

Summary for Pond C7:

Inflow Area = 10,510 sf, 19.27% Impervious, Inflow Depth > 2.89" for 10-Year event
 Inflow = 0.9 cfs @ 12.09 hrs, Volume= 2,532 cf
 Outflow = 0.8 cfs @ 12.14 hrs, Volume= 2,529 cf, Atten= 11%, Lag= 2.7 min
 Primary = 0.8 cfs @ 12.14 hrs, Volume= 2,529 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.66' @ 12.14 hrs Surf.Area= 578 sf Storage= 134 cf

Flood Elev= 35.45' Surf.Area= 1,473 sf Storage= 956 cf

Plug-Flow detention time= 2.8 min calculated for 2,521 cf (100% of inflow)

Center-of-Mass det. time= 2.4 min (783.2 - 780.8)

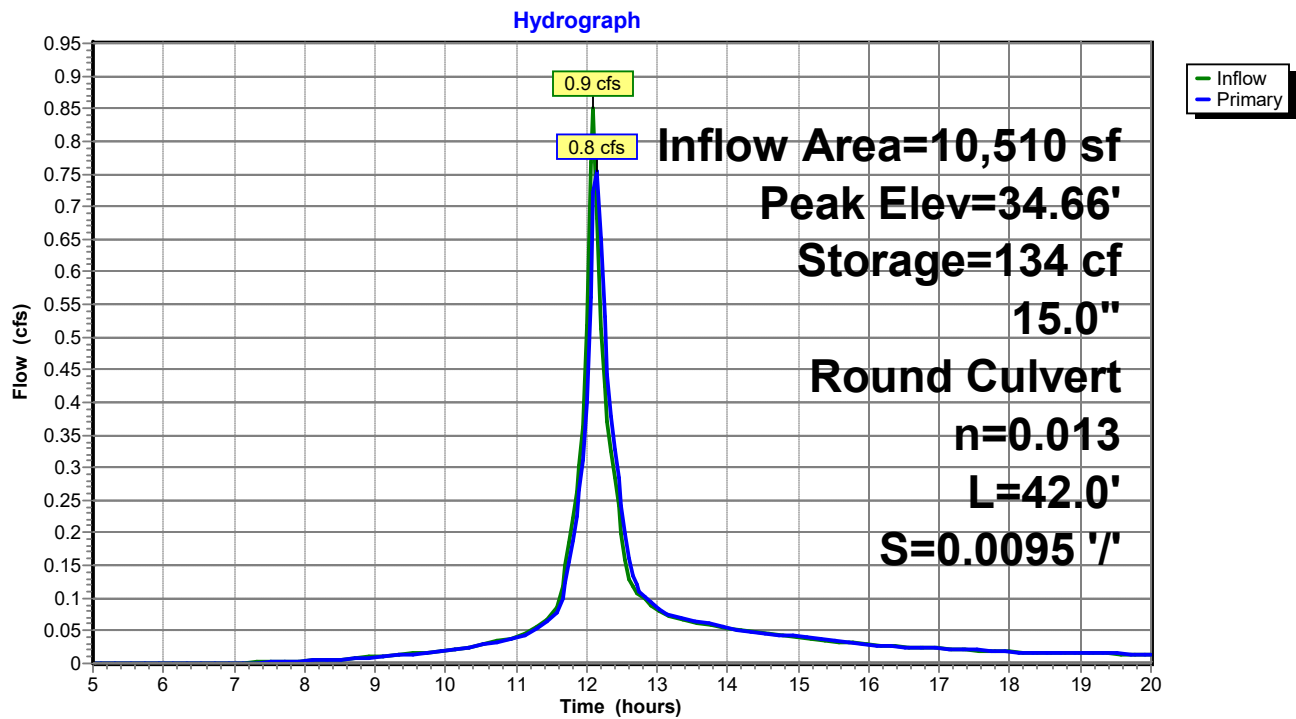
Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	1,925 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	1,000	400	400
36.00	2,050	1,525	1,925

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.7 cfs @ 12.14 hrs HW=34.66' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.82 fps)

Pond C7:



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 68

Summary for Pond C8:

Inflow Area = 25,645 sf, 8.42% Impervious, Inflow Depth > 2.60" for 10-Year event
 Inflow = 1.2 cfs @ 12.35 hrs, Volume= 5,563 cf
 Outflow = 1.1 cfs @ 12.45 hrs, Volume= 5,560 cf, Atten= 8%, Lag= 6.1 min
 Primary = 1.1 cfs @ 12.45 hrs, Volume= 5,560 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.37' @ 12.45 hrs Surf.Area= 1,431 sf Storage= 304 cf
 Flood Elev= 35.05' Surf.Area= 3,650 sf Storage= 1,915 cf

Plug-Flow detention time= 2.8 min calculated for 5,542 cf (100% of inflow)
 Center-of-Mass det. time= 2.6 min (805.4 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	33.80'	1,915 cf	STORAGE (Prismatic) Listed below (Recalc)

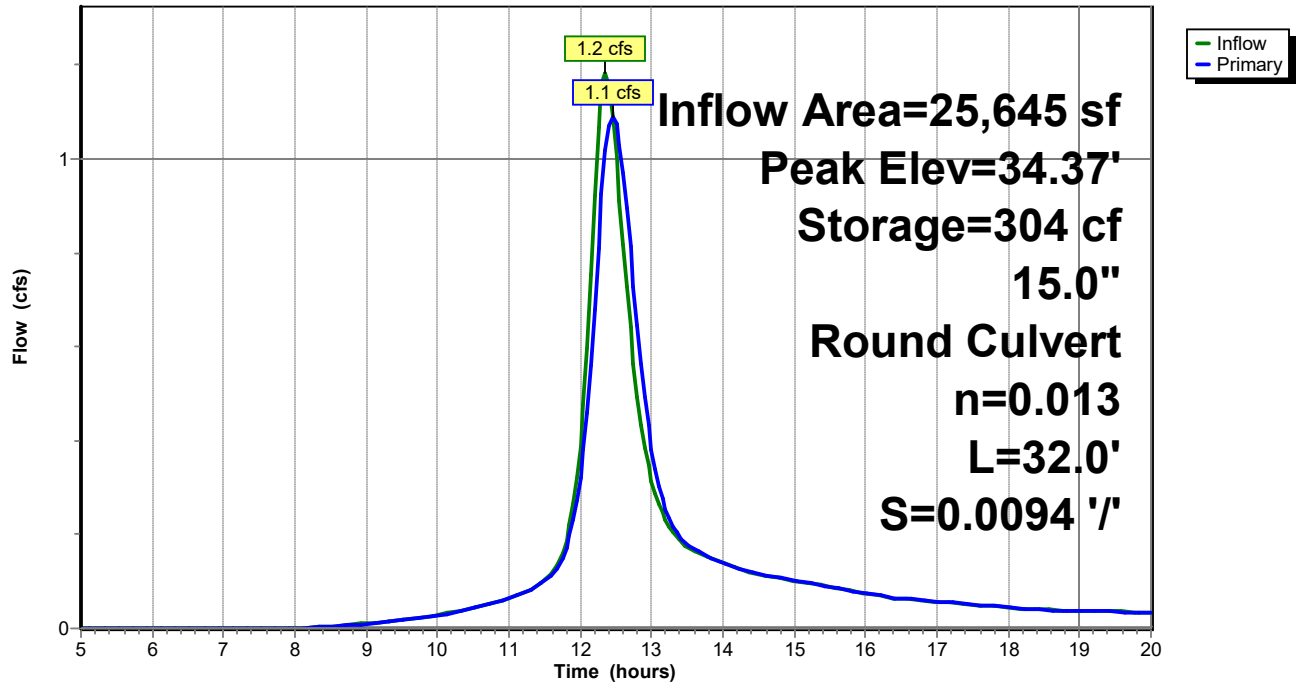
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.80	0	0	0
34.00	150	15	15
35.00	3,650	1,900	1,915

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	15.0" Round Culvert L= 32.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.80' / 33.50' S= 0.0094 ' S= 0.0094 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.1 cfs @ 12.45 hrs HW=34.37' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.1 cfs @ 2.02 fps)

Pond C8:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 70

Summary for Pond C9:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 2.47" for 10-Year event
 Inflow = 7.4 cfs @ 12.52 hrs, Volume= 44,823 cf
 Outflow = 6.3 cfs @ 12.73 hrs, Volume= 44,654 cf, Atten= 15%, Lag= 12.7 min
 Primary = 6.3 cfs @ 12.73 hrs, Volume= 44,654 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.28' @ 12.73 hrs Surf.Area= 8,267 sf Storage= 5,000 cf
 Flood Elev= 34.45' Surf.Area= 8,968 sf Storage= 6,455 cf

Plug-Flow detention time= 11.3 min calculated for 44,654 cf (100% of inflow)
 Center-of-Mass det. time= 9.9 min (823.7 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	12,015 cf	STORAGE (Prismatic) Listed below (Recalc)

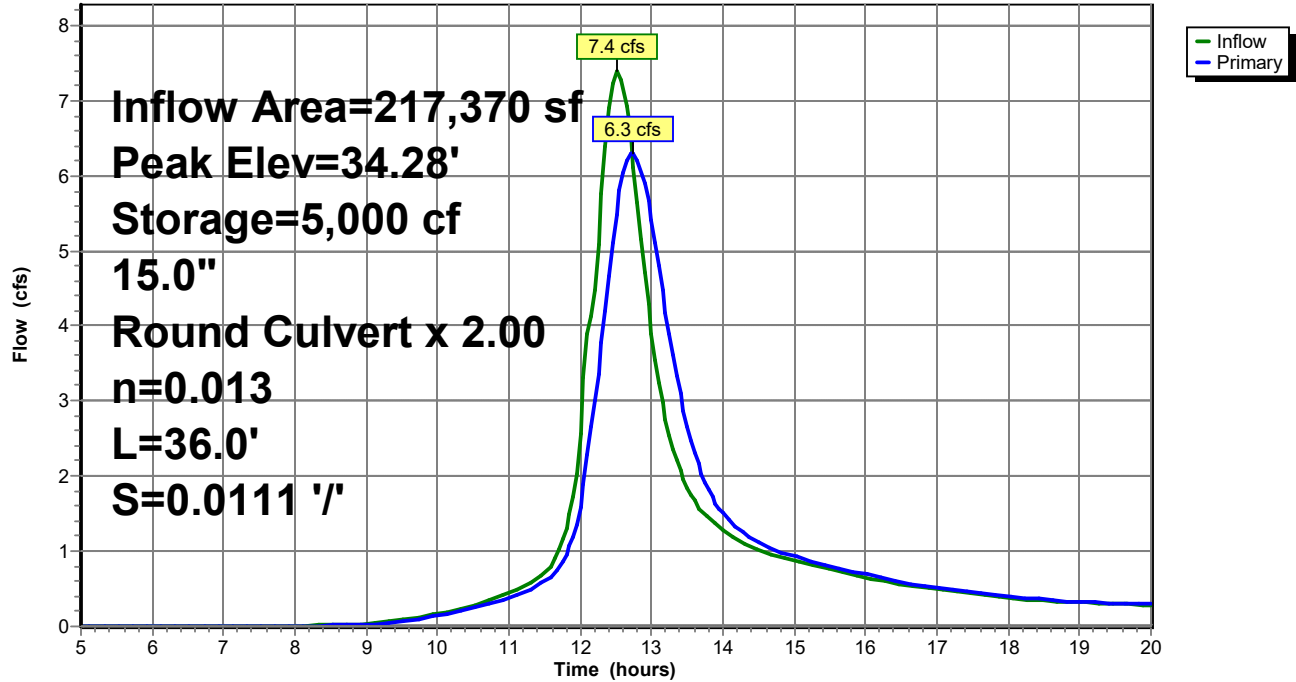
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	7,100	2,840	2,840
35.00	11,250	9,175	12,015

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	15.0" Round Culvert X 2.00 L= 36.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.20' / 32.80' S= 0.0111 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.3 cfs @ 12.73 hrs HW=34.28' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 6.3 cfs @ 2.79 fps)

Pond C9:

Hydrograph

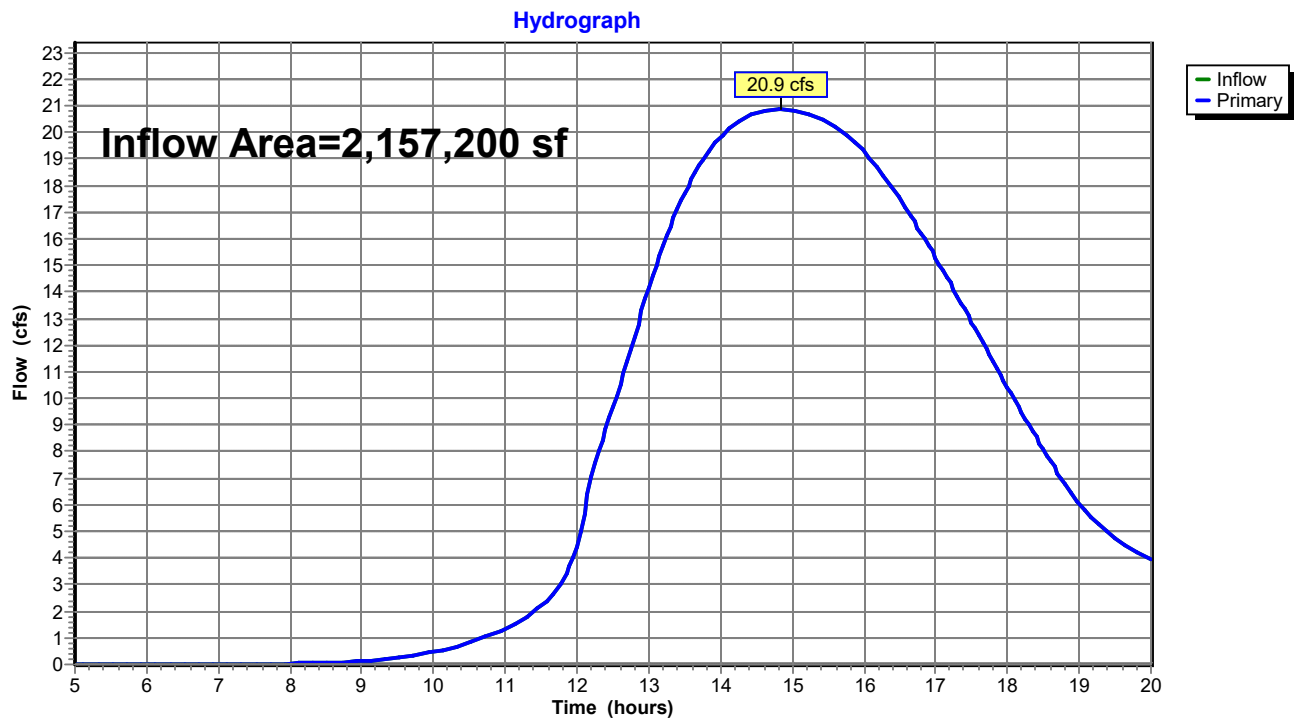


Summary for Link AP1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 2.30" for 10-Year event
Inflow = 20.9 cfs @ 14.83 hrs, Volume= 413,554 cf
Primary = 20.9 cfs @ 14.83 hrs, Volume= 413,554 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:



Post Dev Rev 2*Type III 24-hr 25-Year Rainfall=6.20"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 73

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=93,065 sf 23.24% Impervious Runoff Depth>4.02"
 Flow Length=316' Tc=7.7 min CN=83 Runoff=9.9 cfs 31,196 cf

Subcatchment 1.1: Runoff Area=225,475 sf 5.35% Impervious Runoff Depth>3.65"
 Flow Length=1,232' Slope=0.0167 '/' Tc=63.8 min CN=80 Runoff=9.1 cfs 68,519 cf

Subcatchment 1.2: Runoff Area=51,750 sf 4.53% Impervious Runoff Depth>3.60"
 Flow Length=810' Tc=22.8 min CN=79 Runoff=3.4 cfs 15,508 cf

Subcatchment 1.3: Runoff Area=9,380 sf 23.88% Impervious Runoff Depth>4.13"
 Tc=6.0 min CN=84 Runoff=1.1 cfs 3,228 cf

Subcatchment 1.4: Runoff Area=1,549,650 sf 1.07% Impervious Runoff Depth>3.25"
 Flow Length=1,265' Tc=131.9 min CN=77 Runoff=35.5 cfs 420,109 cf

Subcatchment 1.5: Runoff Area=10,510 sf 19.27% Impervious Runoff Depth>4.02"
 Tc=6.0 min CN=83 Runoff=1.2 cfs 3,525 cf

Subcatchment 1.6: Runoff Area=25,645 sf 8.42% Impervious Runoff Depth>3.69"
 Flow Length=258' Tc=25.1 min CN=80 Runoff=1.7 cfs 7,895 cf

Subcatchment 1.7: Runoff Area=18,635 sf 19.64% Impervious Runoff Depth>4.02"
 Tc=6.0 min CN=83 Runoff=2.1 cfs 6,250 cf

Subcatchment 1.8: Runoff Area=173,090 sf 5.96% Impervious Runoff Depth>3.48"
 Flow Length=690' Tc=39.7 min CN=78 Runoff=8.6 cfs 50,147 cf

Reach R1: Avg. Flow Depth=0.37' Max Vel=2.84 fps Inflow=12.2 cfs 83,899 cf
 n=0.022 L=225.0' S=0.0116 '/' Capacity=216.9 cfs Outflow=10.4 cfs 83,755 cf

Reach R2: Avg. Flow Depth=0.81' Max Vel=2.97 fps Inflow=35.3 cfs 426,525 cf
 n=0.022 L=135.0' S=0.0044 '/' Capacity=134.5 cfs Outflow=34.8 cfs 426,048 cf

Reach R3: Avg. Flow Depth=0.44' Max Vel=1.77 fps Inflow=8.3 cfs 63,961 cf
 n=0.022 L=280.0' S=0.0036 '/' Capacity=120.6 cfs Outflow=8.3 cfs 63,741 cf

Pond C1: Peak Elev=34.84' Storage=174,772 cf Inflow=42.1 cfs 604,741 cf
 30.0" Round Culvert n=0.013 L=50.0' S=0.0106 '/' Outflow=25.0 cfs 589,118 cf

Pond C2: Peak Elev=34.79' Storage=208 cf Inflow=8.6 cfs 50,147 cf
 Outflow=8.6 cfs 50,049 cf

Pond C3: Peak Elev=37.24' Storage=3,555 cf Inflow=10.4 cfs 84,012 cf
 15.0" Round Culvert x 2.00 n=0.013 L=48.0' S=0.0104 '/' Outflow=12.2 cfs 83,899 cf

Pond C4: Peak Elev=37.08' Storage=383 cf Inflow=3.4 cfs 15,508 cf
 15.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=3.5 cfs 15,492 cf

Post Dev Rev 2*Type III 24-hr 25-Year Rainfall=6.20"*

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 74

Pond C5: Peak Elev=34.74' Storage=92 cf Inflow=1.1 cfs 3,228 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=1.0 cfs 3,226 cf

Pond C6: Peak Elev=35.04' Storage=18,300 cf Inflow=35.6 cfs 426,857 cf
36.0" Round Culvert w/ 6.0" inside fill x 2.00 n=0.013 L=45.0' S=0.0067 '/' Outflow=35.3 cfs 426,525 cf

Pond C7: Peak Elev=34.75' Storage=188 cf Inflow=1.2 cfs 3,525 cf
15.0" Round Culvert n=0.013 L=42.0' S=0.0095 '/' Outflow=1.0 cfs 3,522 cf

Pond C8: Peak Elev=34.48' Storage=490 cf Inflow=1.7 cfs 7,895 cf
15.0" Round Culvert n=0.013 L=32.0' S=0.0094 '/' Outflow=1.5 cfs 7,890 cf

Pond C9: Peak Elev=34.62' Storage=8,085 cf Inflow=10.5 cfs 64,189 cf
15.0" Round Culvert x 2.00 n=0.013 L=36.0' S=0.0111 '/' Outflow=8.3 cfs 63,961 cf

Link AP1: Inflow=25.0 cfs 589,118 cf
Primary=25.0 cfs 589,118 cf

Total Runoff Area = 2,157,200 sf Runoff Volume = 606,376 cf Average Runoff Depth = 3.37"
96.61% Pervious = 2,084,130 sf 3.39% Impervious = 73,070 sf

Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 75

Summary for Subcatchment 1.0:

Runoff = 9.9 cfs @ 12.11 hrs, Volume= 31,196 cf, Depth> 4.02"

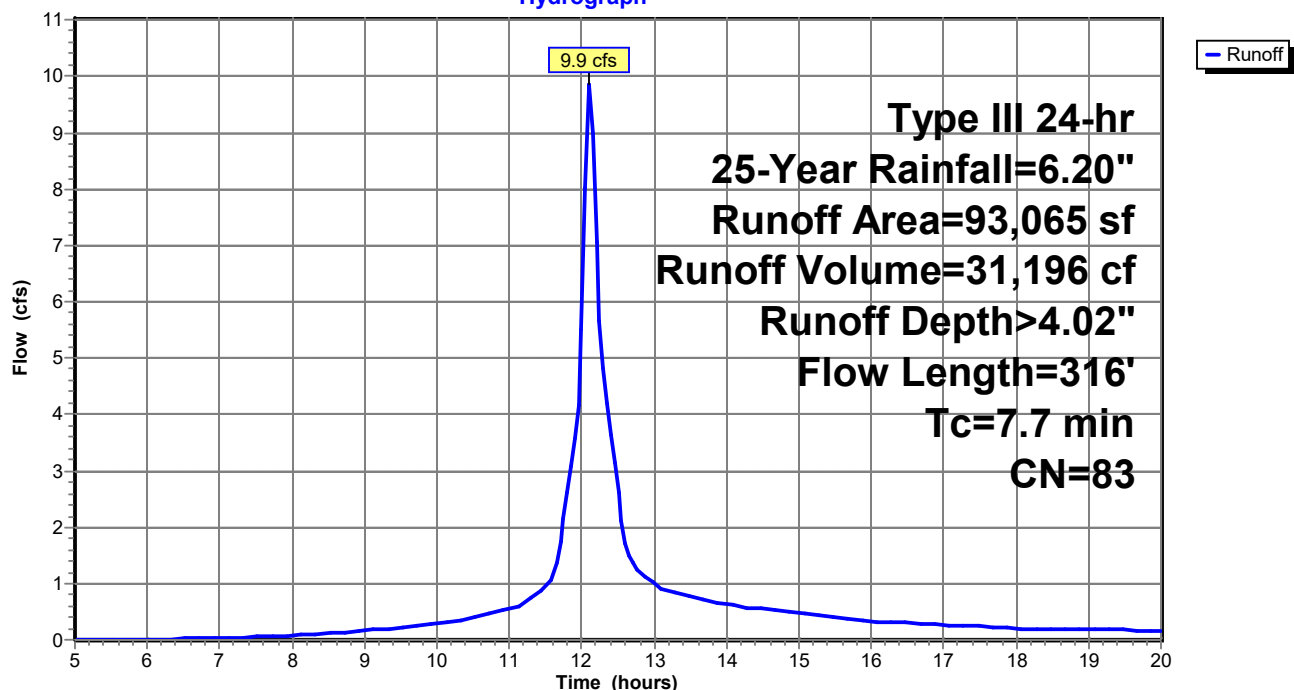
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
1,900	77	Woods, Good, HSG D
60,950	78	Meadow, non-grazed, HSG D
8,585	80	>75% Grass cover, Good, HSG D
21,630	98	Paved parking, HSG D
93,065	83	Weighted Average
71,435		76.76% Pervious Area
21,630		23.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.01		Sheet Flow, A-B Smooth surfaces n= 0.011 P2= 3.30"
1.2	20	0.1500	0.28		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
6.2	276	0.0111	0.74		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
7.7	316	Total			

Subcatchment 1.0:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 76

Summary for Subcatchment 1.1:

Runoff = 9.1 cfs @ 12.85 hrs, Volume= 68,519 cf, Depth> 3.65"

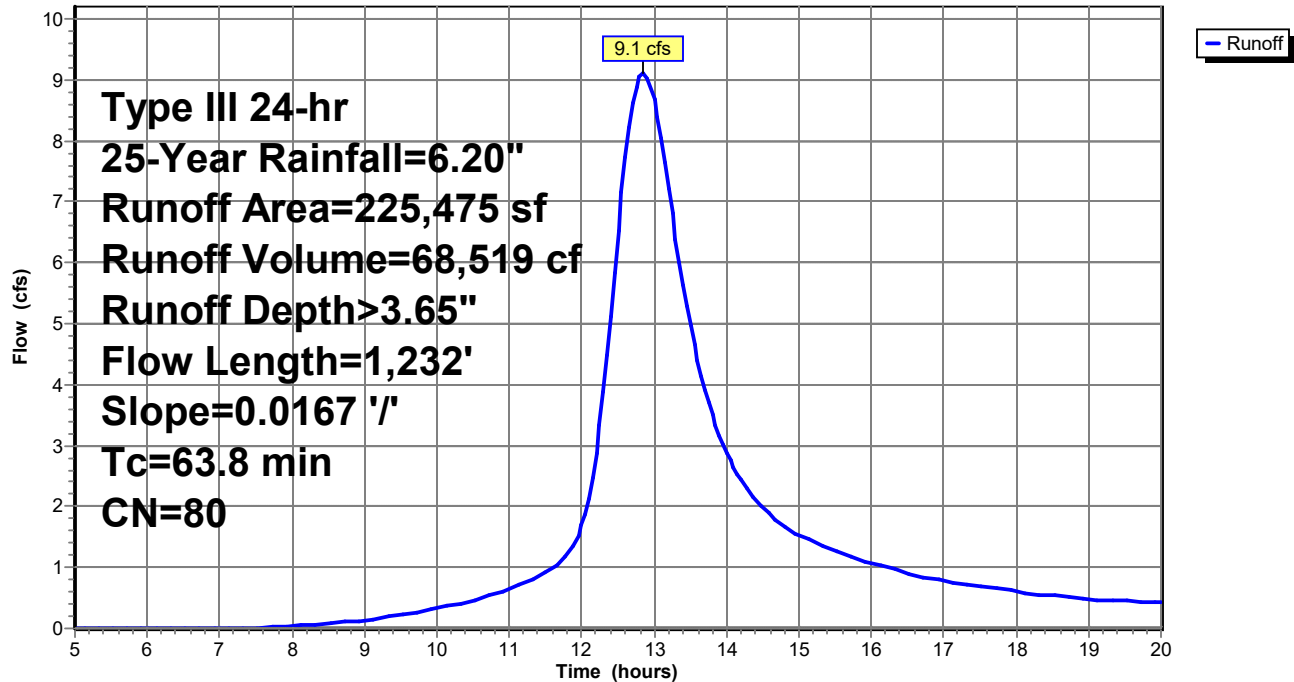
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
20,935	77	Woods, Good, HSG D
57,900	78	Meadow, non-grazed, HSG D
134,575	80	>75% Grass cover, Good, HSG D
12,065	98	Paved parking, HSG D
225,475	80	Weighted Average
213,410		94.65% Pervious Area
12,065		5.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.6	100	0.0167	0.04		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
7.3	142	0.0167	0.32		Shallow Concentrated Flow, B-C Forest w/Heavy Litter Kv= 2.5 fps
12.2	660	0.0167	0.90		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
4.7	330	0.0167	1.16		Shallow Concentrated Flow, D-E Cultivated Straight Rows Kv= 9.0 fps
63.8	1,232	Total			

Subcatchment 1.1:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 78

Summary for Subcatchment 1.2:

Runoff = 3.4 cfs @ 12.31 hrs, Volume= 15,508 cf, Depth> 3.60"

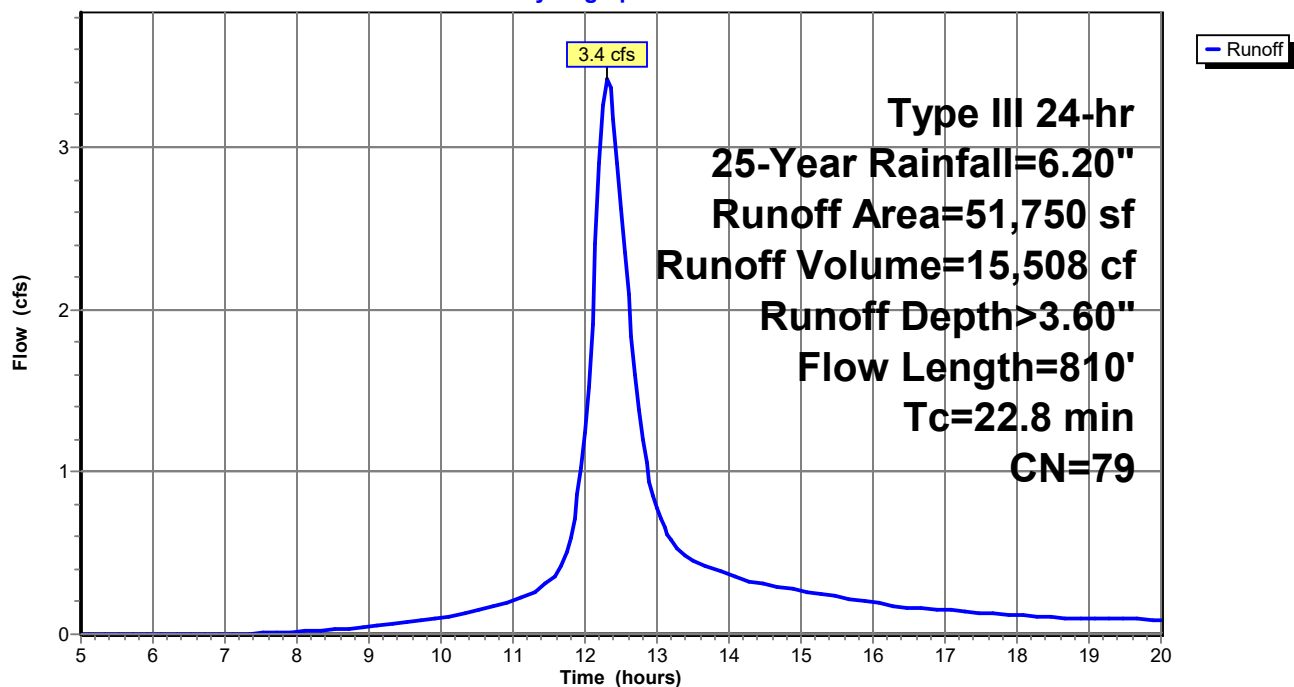
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
1,625	71	Meadow, non-grazed, HSG C
18,275	78	Meadow, non-grazed, HSG D
3,655	74	>75% Grass cover, Good, HSG C
25,850	80	>75% Grass cover, Good, HSG D
2,345	98	Paved parking, HSG D
51,750	79	Weighted Average
49,405		95.47% Pervious Area
2,345		4.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0467	0.24		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.30"
4.2	250	0.0200	0.99		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
11.7	460	0.0088	0.66		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
22.8	810	Total			

Subcatchment 1.2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 79

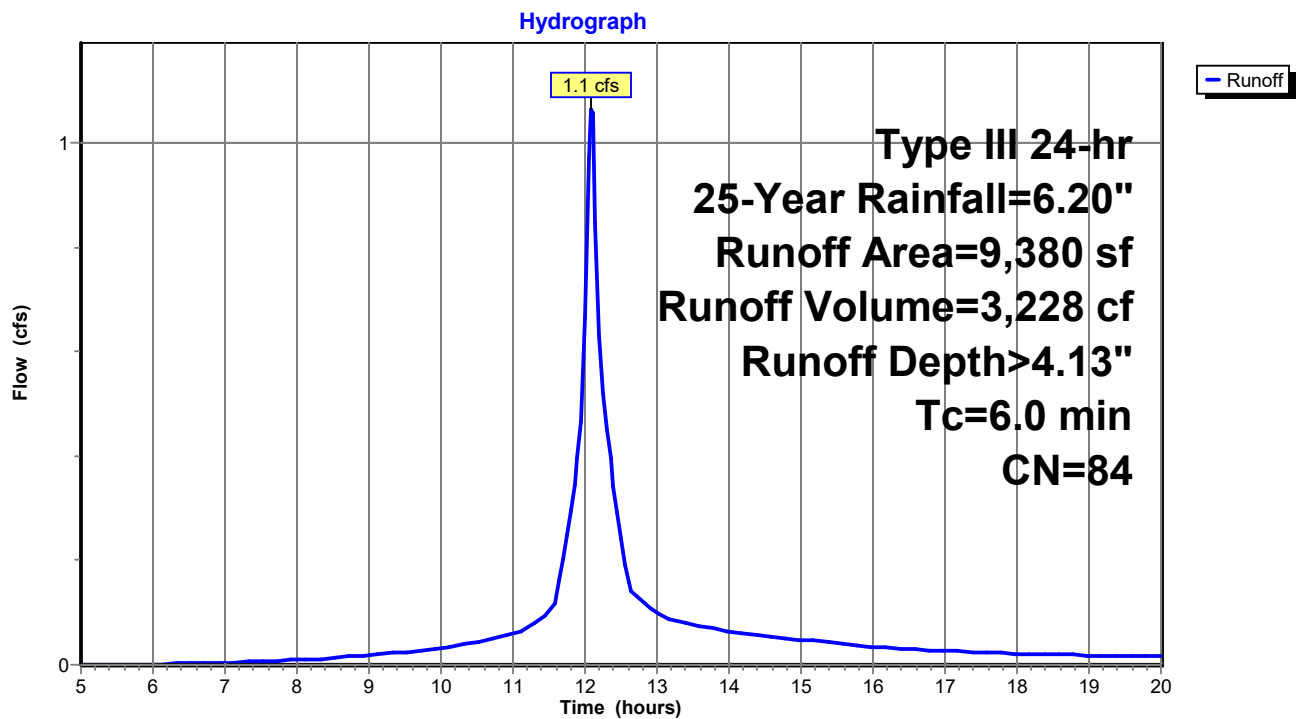
Summary for Subcatchment 1.3:

Runoff = 1.1 cfs @ 12.09 hrs, Volume= 3,228 cf, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
7,140	80	>75% Grass cover, Good, HSG D
2,240	98	Paved parking, HSG D
9,380	84	Weighted Average
7,140		76.12% Pervious Area
2,240		23.88% Impervious Area

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

Subcatchment 1.3:

Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 80

Summary for Subcatchment 1.4:

Runoff = 35.5 cfs @ 13.74 hrs, Volume= 420,109 cf, Depth> 3.25"

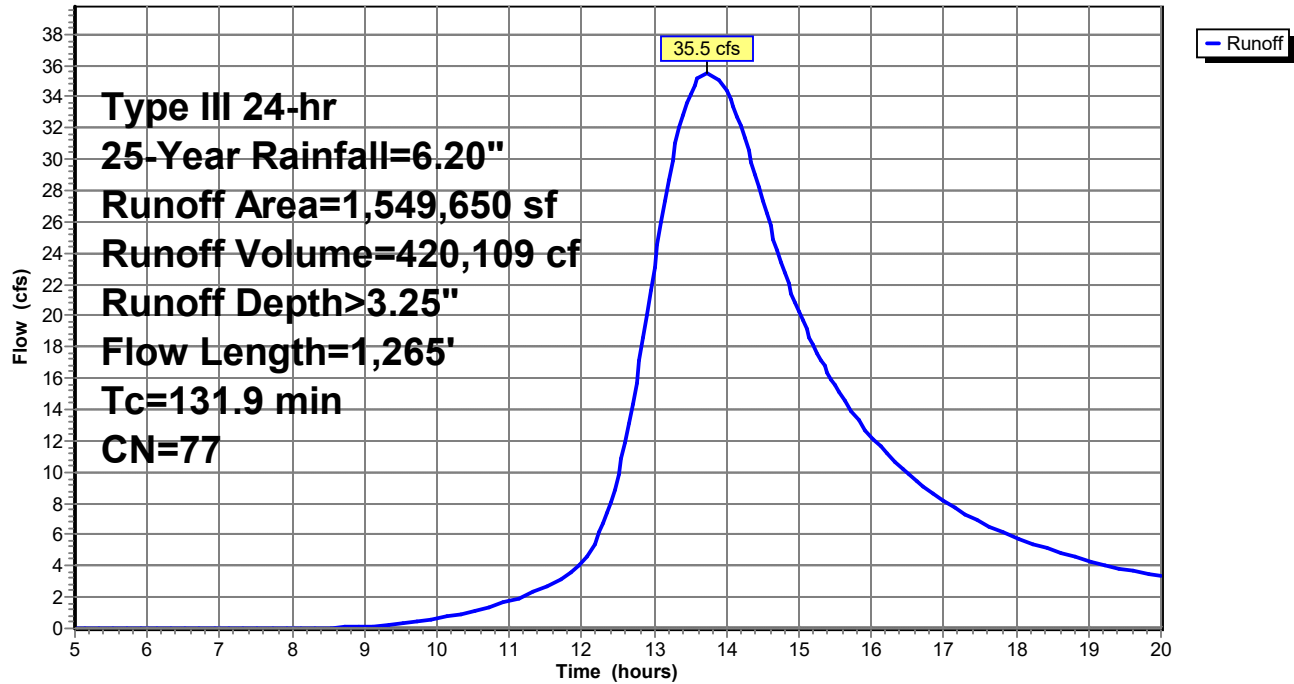
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
134,385	70	Woods, Good, HSG C
1,145,175	77	Woods, Good, HSG D
2,465	71	Meadow, non-grazed, HSG C
167,535	78	Meadow, non-grazed, HSG D
2,580	74	>75% Grass cover, Good, HSG C
80,875	80	>75% Grass cover, Good, HSG D
16,635	98	Paved parking, HSG D
1,549,650	77	Weighted Average
1,533,015		98.93% Pervious Area
16,635		1.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
64.1	100	0.0050	0.03		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
57.8	785	0.0082	0.23		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
10.0	380	0.0082	0.63		Shallow Concentrated Flow, C-D
					Short Grass Pasture Kv= 7.0 fps
131.9	1,265	Total			

Subcatchment 1.4:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 82

Summary for Subcatchment 1.5:

Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,525 cf, Depth> 4.02"

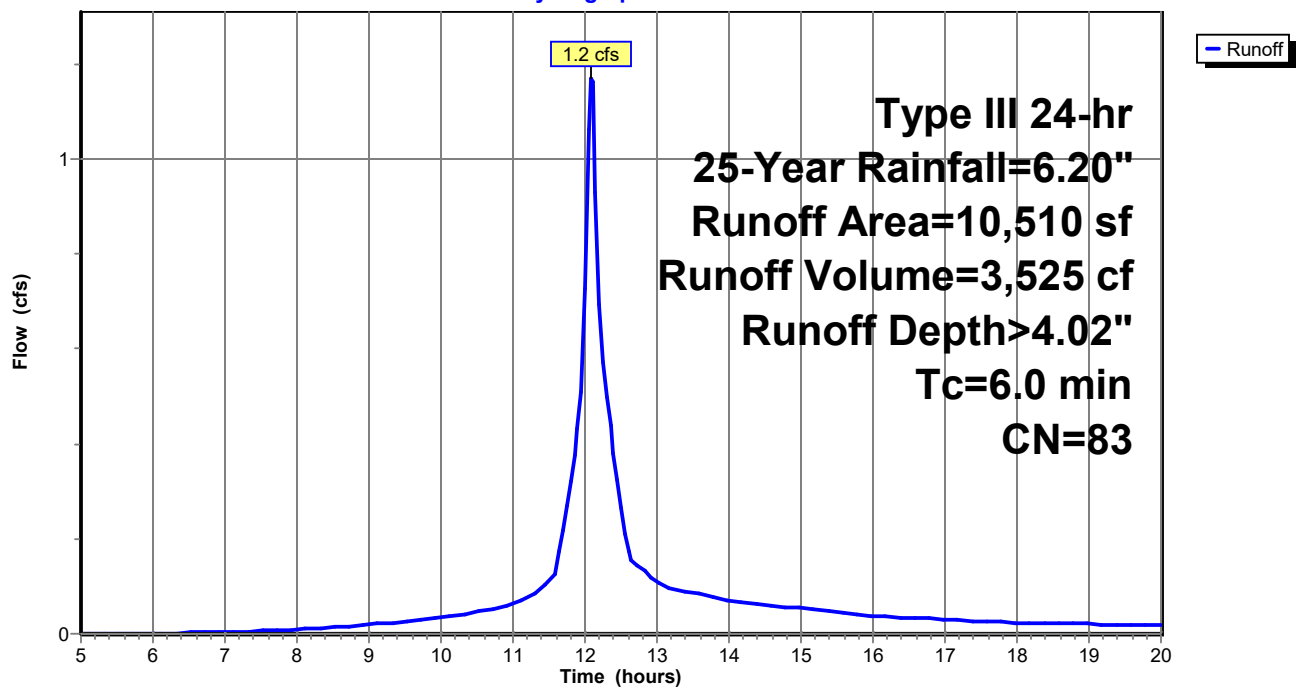
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
8,485	80	>75% Grass cover, Good, HSG D
2,025	98	Paved parking, HSG D
10,510	83	Weighted Average
8,485		80.73% Pervious Area
2,025		19.27% Impervious Area

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

Subcatchment 1.5:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 83

Summary for Subcatchment 1.6:

Runoff = 1.7 cfs @ 12.34 hrs, Volume= 7,895 cf, Depth> 3.69"

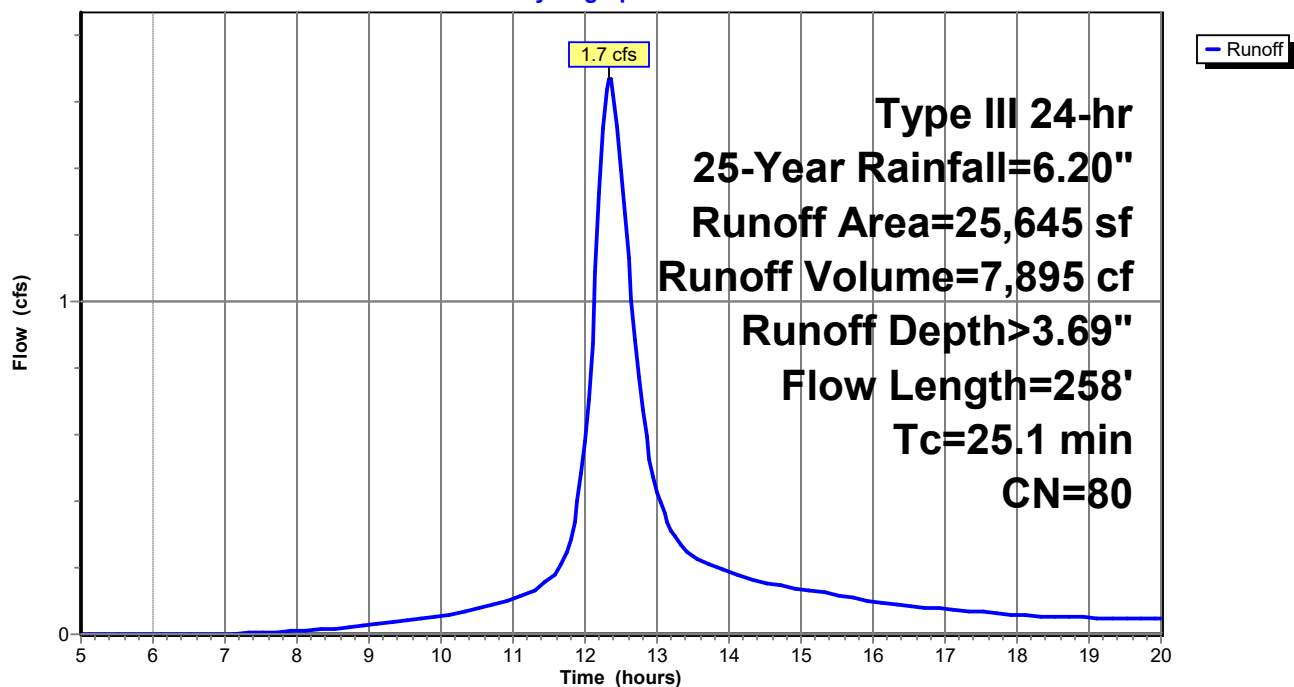
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
2,300	70	Woods, Good, HSG C
445	77	Woods, Good, HSG D
2,190	74	>75% Grass cover, Good, HSG C
18,550	80	>75% Grass cover, Good, HSG D
2,160	98	Paved parking, HSG D
25,645	80	Weighted Average
23,485		91.58% Pervious Area
2,160		8.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	66	0.0606	0.06		Sheet Flow, A-B Woods: Dense underbrush n= 0.800 P2= 3.30"
4.2	50	0.0400	0.20		Sheet Flow, B-C Grass: Short n= 0.150 P2= 3.30"
4.0	142	0.0070	0.59		Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps
25.1	258	Total			

Subcatchment 1.6:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
 HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 84

Summary for Subcatchment 1.7:

Runoff = 2.1 cfs @ 12.09 hrs, Volume= 6,250 cf, Depth> 4.02"

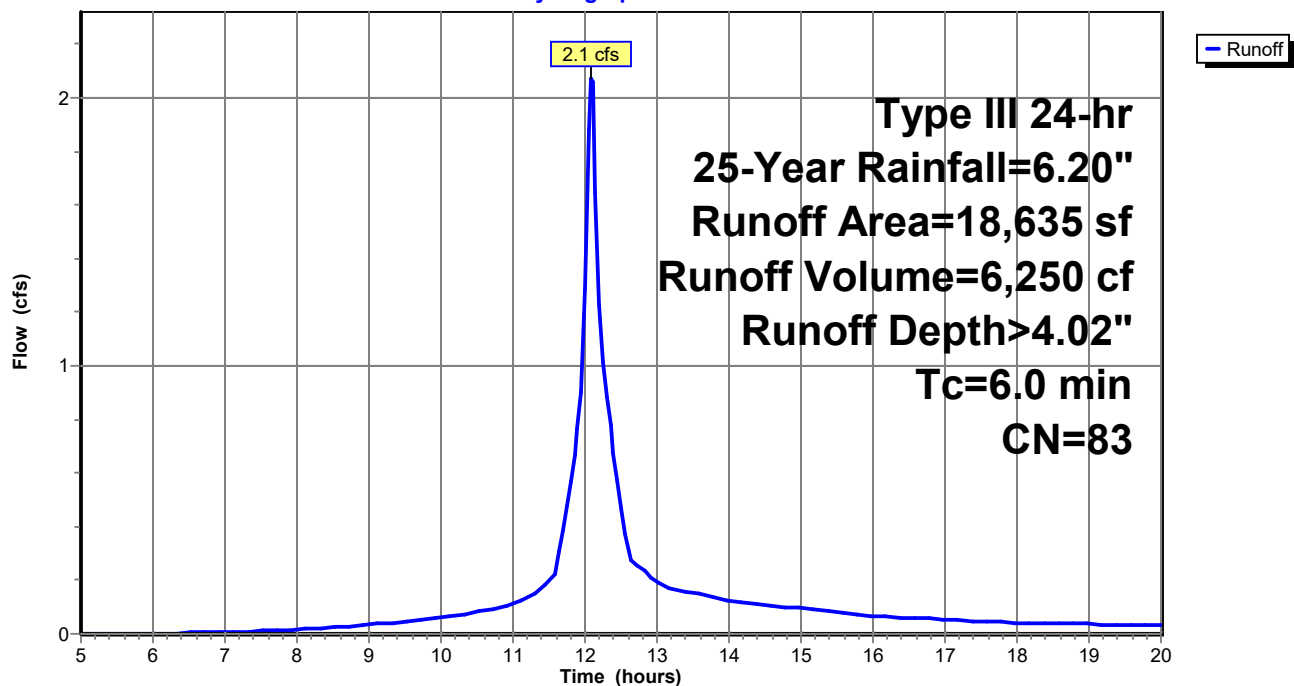
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
880	77	Woods, Good, HSG D
6,610	78	Meadow, non-grazed, HSG D
7,485	80	>75% Grass cover, Good, HSG D
3,660	98	Paved parking, HSG D
18,635	83	Weighted Average
14,975		80.36% Pervious Area
3,660		19.64% Impervious Area

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

Subcatchment 1.7:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 85

Summary for Subcatchment 1.8:

Runoff = 8.6 cfs @ 12.55 hrs, Volume= 50,147 cf, Depth> 3.48"

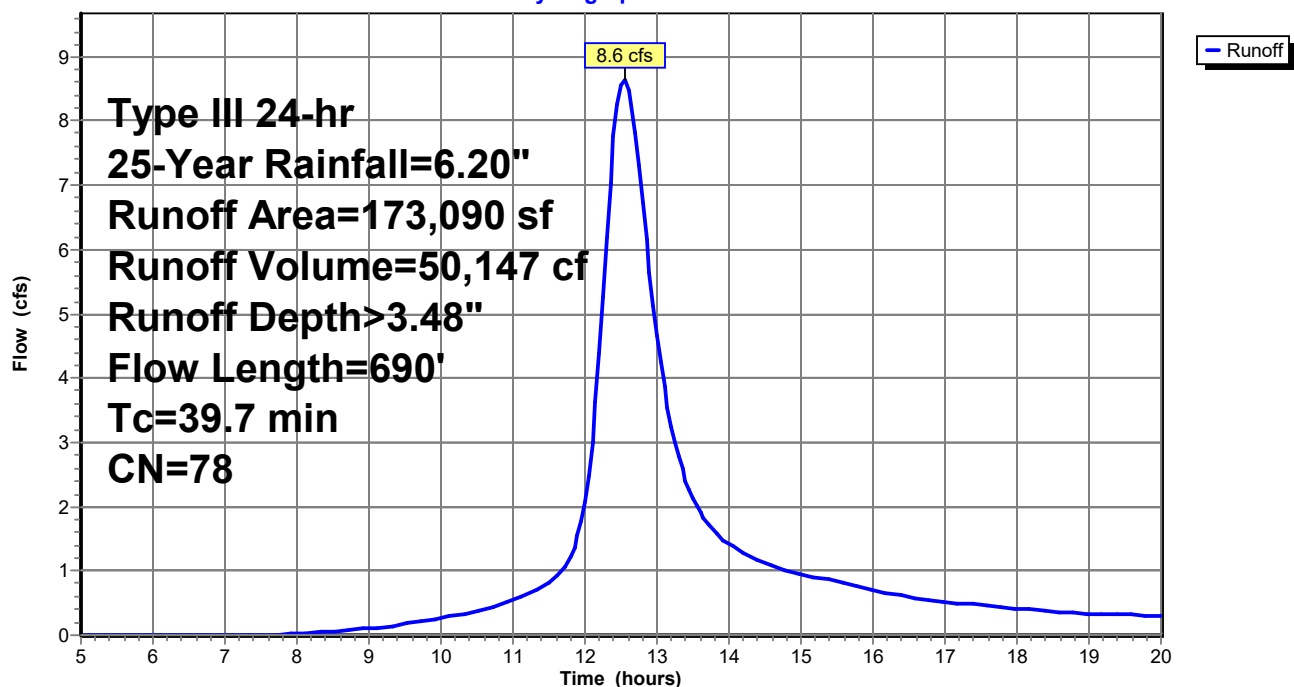
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
12,890	70	Woods, Good, HSG C
145,490	77	Woods, Good, HSG D
2,840	78	Meadow, non-grazed, HSG D
1,560	74	>75% Grass cover, Good, HSG C
10,310	98	Paved parking, HSG D
173,090	78	Weighted Average
162,780		94.04% Pervious Area
10,310		5.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	40	0.0500	0.05		Sheet Flow, A-B
					Woods: Dense underbrush n= 0.800 P2= 3.30"
27.4	650	0.0250	0.40		Shallow Concentrated Flow, B-C
					Forest w/Heavy Litter Kv= 2.5 fps
39.7	690	Total			

Subcatchment 1.8:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 86

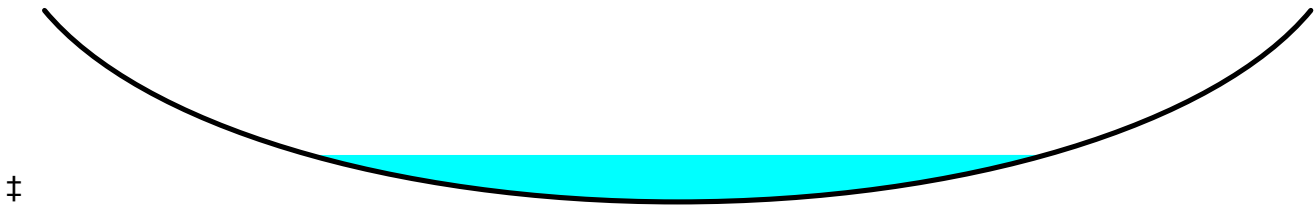
Summary for Reach R1:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 3.63" for 25-Year event
Inflow = 12.2 cfs @ 12.70 hrs, Volume= 83,899 cf
Outflow = 10.4 cfs @ 12.79 hrs, Volume= 83,755 cf, Atten= 15%, Lag= 5.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.84 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 2.7 min

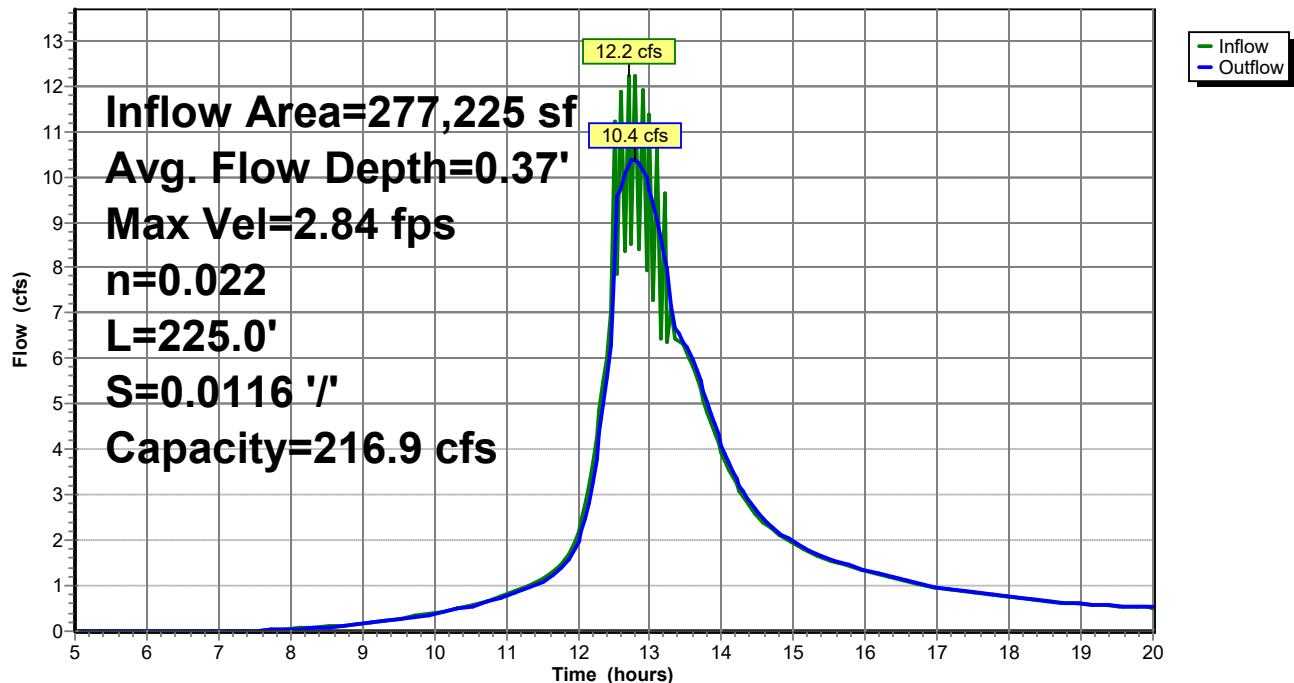
Peak Storage= 821 cf @ 12.76 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 216.9 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 225.0' Slope= 0.0116 '/'
Inlet Invert= 34.40', Outlet Invert= 31.80'



Reach R1:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 87

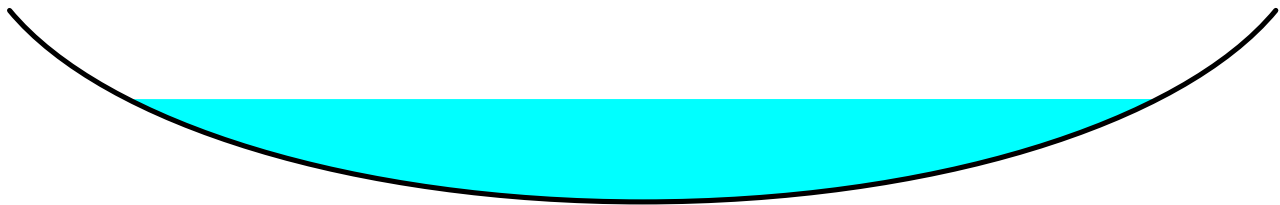
Summary for Reach R2:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 3.26" for 25-Year event
Inflow = 35.3 cfs @ 13.95 hrs, Volume= 426,525 cf
Outflow = 34.8 cfs @ 13.97 hrs, Volume= 426,048 cf, Atten= 1%, Lag= 1.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.97 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 1.5 min

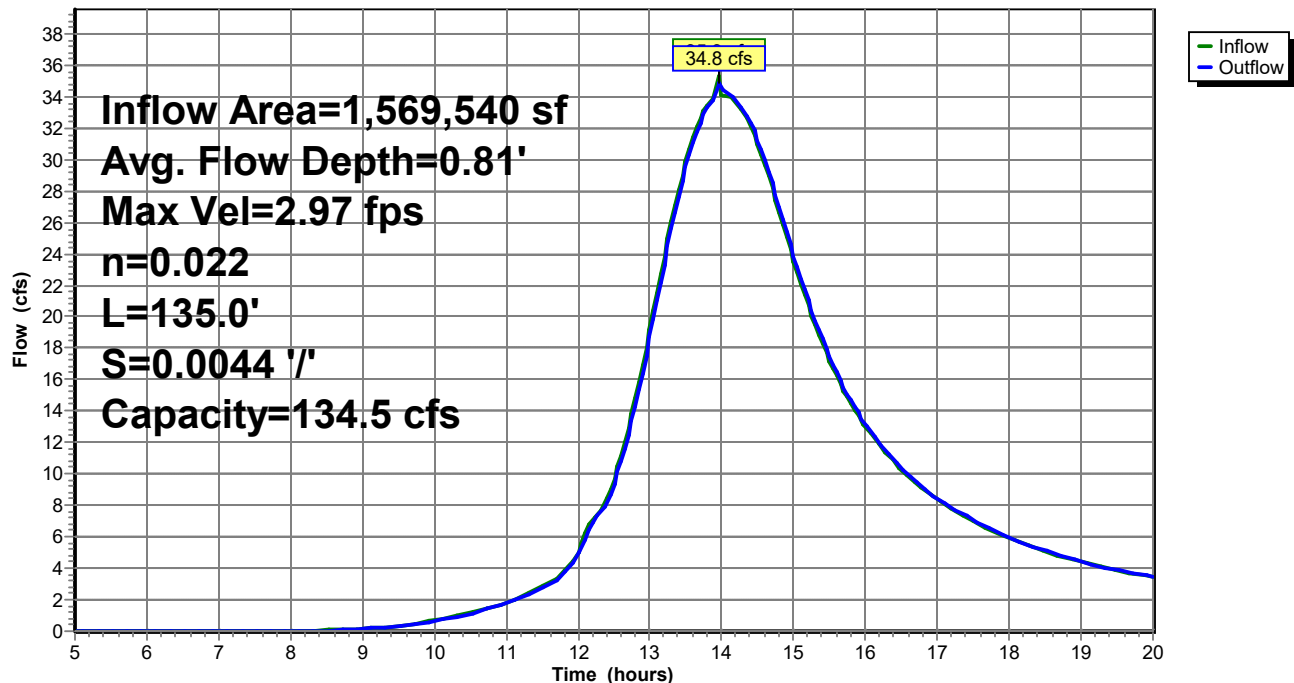
Peak Storage= 1,593 cf @ 13.96 hrs
Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 134.5 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 135.0' Slope= 0.0044 '/'
Inlet Invert= 32.40', Outlet Invert= 31.80'



Reach R2:

Hydrograph



Post Dev Rev 2

Prepared by Walsh Engineering Associates, Inc.
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

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

Printed 1/3/2022

Page 88

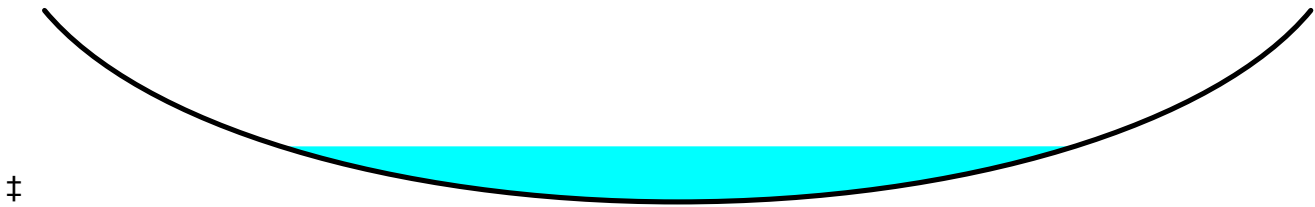
Summary for Reach R3:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 3.53" for 25-Year event
Inflow = 8.3 cfs @ 12.77 hrs, Volume= 63,961 cf
Outflow = 8.3 cfs @ 12.85 hrs, Volume= 63,741 cf, Atten= 0%, Lag= 4.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.77 fps, Min. Travel Time= 2.6 min
Avg. Velocity= 0.79 fps, Avg. Travel Time= 5.9 min

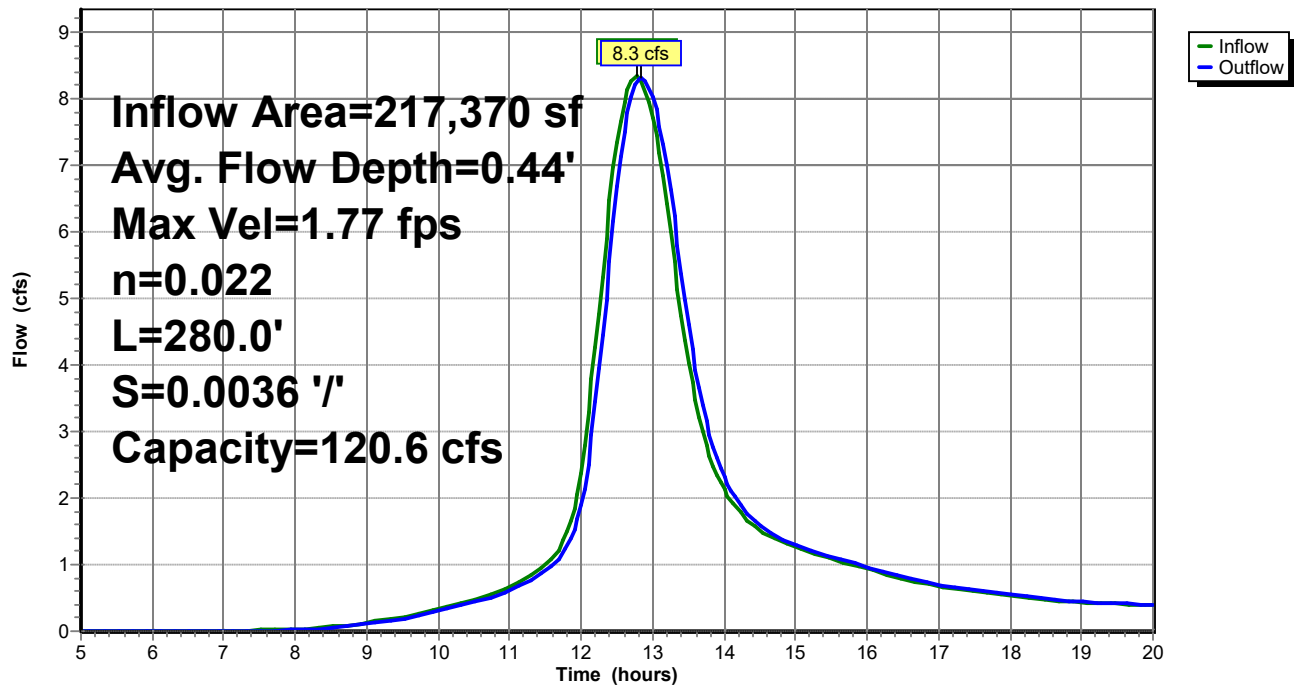
Peak Storage= 1,318 cf @ 12.80 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.50' Flow Area= 30.0 sf, Capacity= 120.6 cfs

30.00' x 1.50' deep Parabolic Channel, n= 0.022 Earth, clean & straight
Length= 280.0' Slope= 0.0036 '/'
Inlet Invert= 32.80', Outlet Invert= 31.80'



Reach R3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 89

Summary for Pond C1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 3.36" for 25-Year event
 Inflow = 42.1 cfs @ 13.95 hrs, Volume= 604,741 cf
 Outflow = 25.0 cfs @ 15.17 hrs, Volume= 589,118 cf, Atten= 41%, Lag= 73.0 min
 Primary = 25.0 cfs @ 15.17 hrs, Volume= 589,118 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.84' @ 15.17 hrs Surf.Area= 175,707 sf Storage= 174,772 cf
 Flood Elev= 34.30' Surf.Area= 117,925 sf Storage= 95,304 cf

Plug-Flow detention time= 80.4 min calculated for 589,118 cf (97% of inflow)
 Center-of-Mass det. time= 72.3 min (939.5 - 867.3)

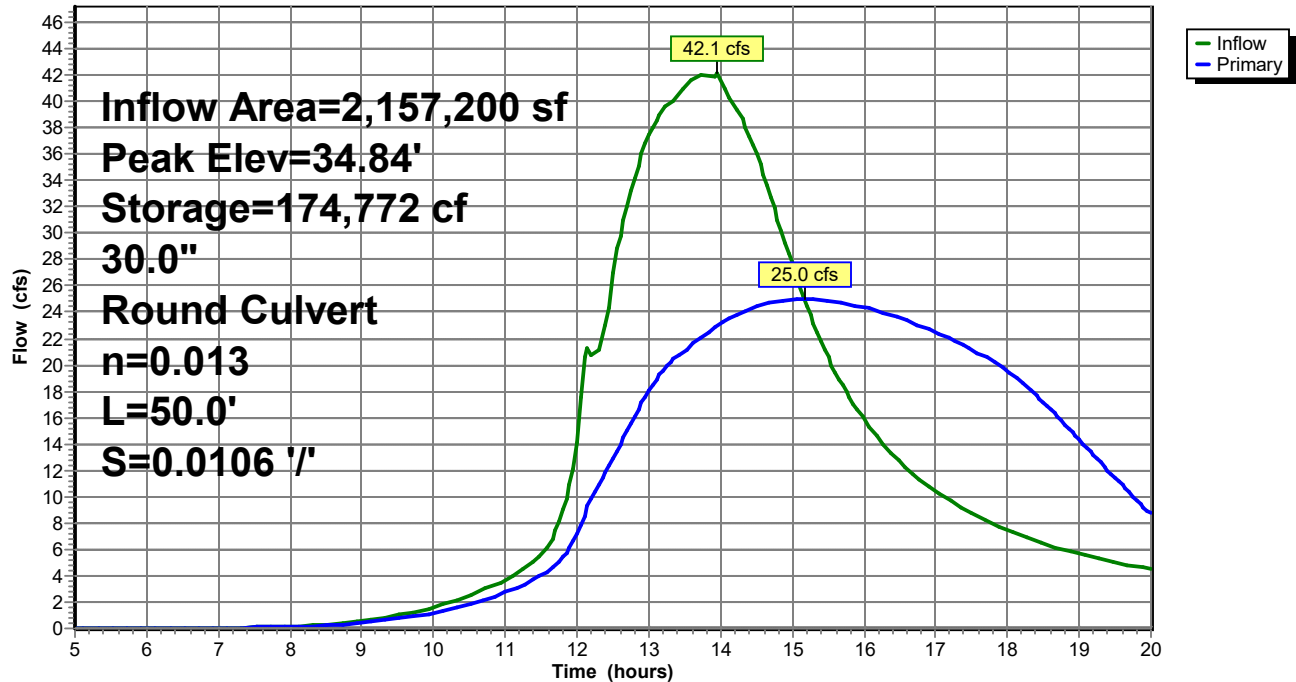
Volume	Invert	Avail.Storage	Storage Description
#1	31.80'	204,005 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.80	0	0	0
32.00	1,550	155	155
33.00	20,850	11,200	11,355
34.00	85,900	53,375	64,730
35.00	192,650	139,275	204,005

Device	Routing	Invert	Outlet Devices
#1	Primary	31.80'	30.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 31.80' / 31.27' S= 0.0106 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=25.0 cfs @ 15.17 hrs HW=34.84' (Free Discharge)
 ↑1=Culvert (Inlet Controls 25.0 cfs @ 5.09 fps)

Pond C1:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 91

Summary for Pond C2:

Inflow Area = 173,090 sf, 5.96% Impervious, Inflow Depth > 3.48" for 25-Year event
 Inflow = 8.6 cfs @ 12.55 hrs, Volume= 50,147 cf
 Outflow = 8.6 cfs @ 12.55 hrs, Volume= 50,049 cf, Atten= 0%, Lag= 0.2 min
 Primary = 8.6 cfs @ 12.55 hrs, Volume= 50,049 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.79' @ 12.55 hrs Surf.Area= 400 sf Storage= 208 cf

Flood Elev= 35.27' Surf.Area= 400 sf Storage= 292 cf

Plug-Flow detention time= 1.5 min calculated for 49,883 cf (99% of inflow)

Center-of-Mass det. time= 0.8 min (811.2 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1	34.27'	292 cf	STORAGE (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.27	400	0	0
35.00	400	292	292

Device	Routing	Invert	Outlet Devices
#1	Primary	34.27'	12.0" Round Culvert L= 20.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.27' / 34.08' S= 0.0095 ' S= 0.0095 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Primary	34.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

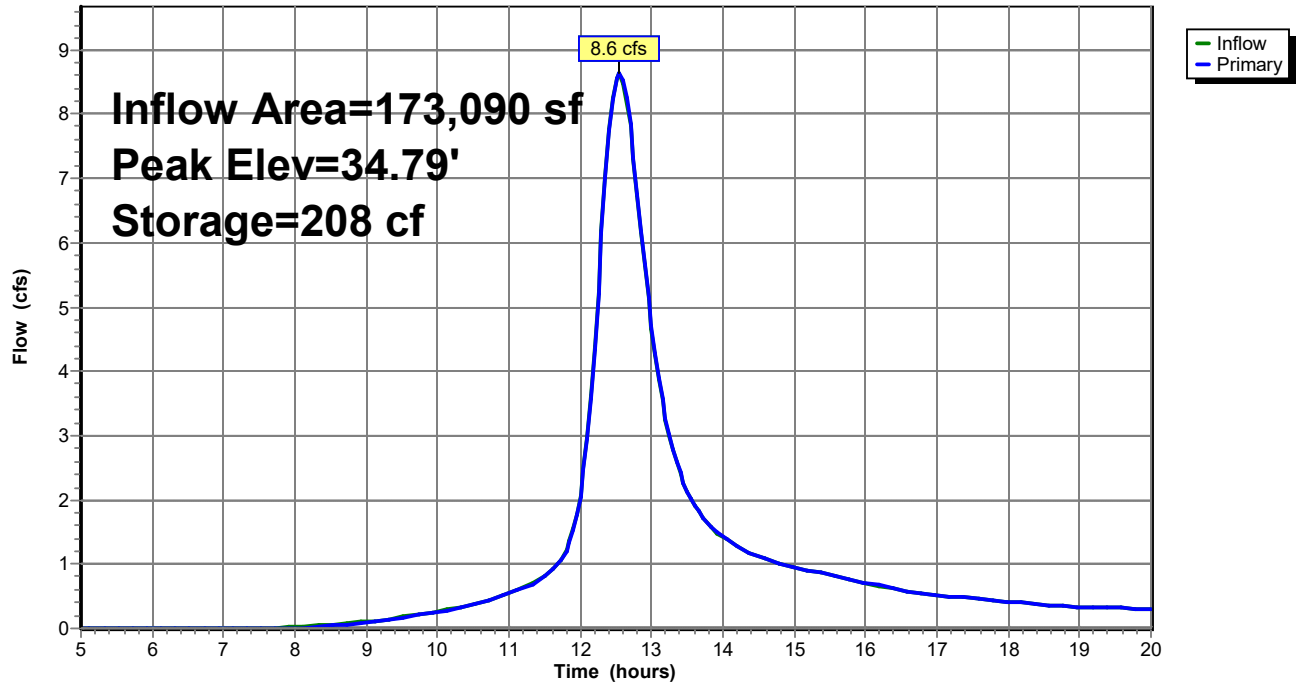
Primary OutFlow Max=8.6 cfs @ 12.55 hrs HW=34.79' (Free Discharge)

1=Culvert (Barrel Controls 0.8 cfs @ 2.76 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 7.9 cfs @ 1.36 fps)

Pond C2:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 93

Summary for Pond C3:

Inflow Area = 277,225 sf, 5.20% Impervious, Inflow Depth > 3.64" for 25-Year event
 Inflow = 10.4 cfs @ 12.75 hrs, Volume= 84,012 cf
 Outflow = 12.2 cfs @ 12.70 hrs, Volume= 83,899 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.2 cfs @ 12.70 hrs, Volume= 83,899 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 37.24' @ 12.70 hrs Surf.Area= 7,000 sf Storage= 3,555 cf
 Flood Elev= 36.15' Surf.Area= 7,000 sf Storage= 3,555 cf

Plug-Flow detention time= 6.3 min calculated for 83,620 cf (100% of inflow)
 Center-of-Mass det. time= 5.8 min (826.0 - 820.2)

Volume	Invert	Avail.Storage	Storage Description
#1	34.90'	3,555 cf	STORAGE (Prismatic) Listed below (Recalc)

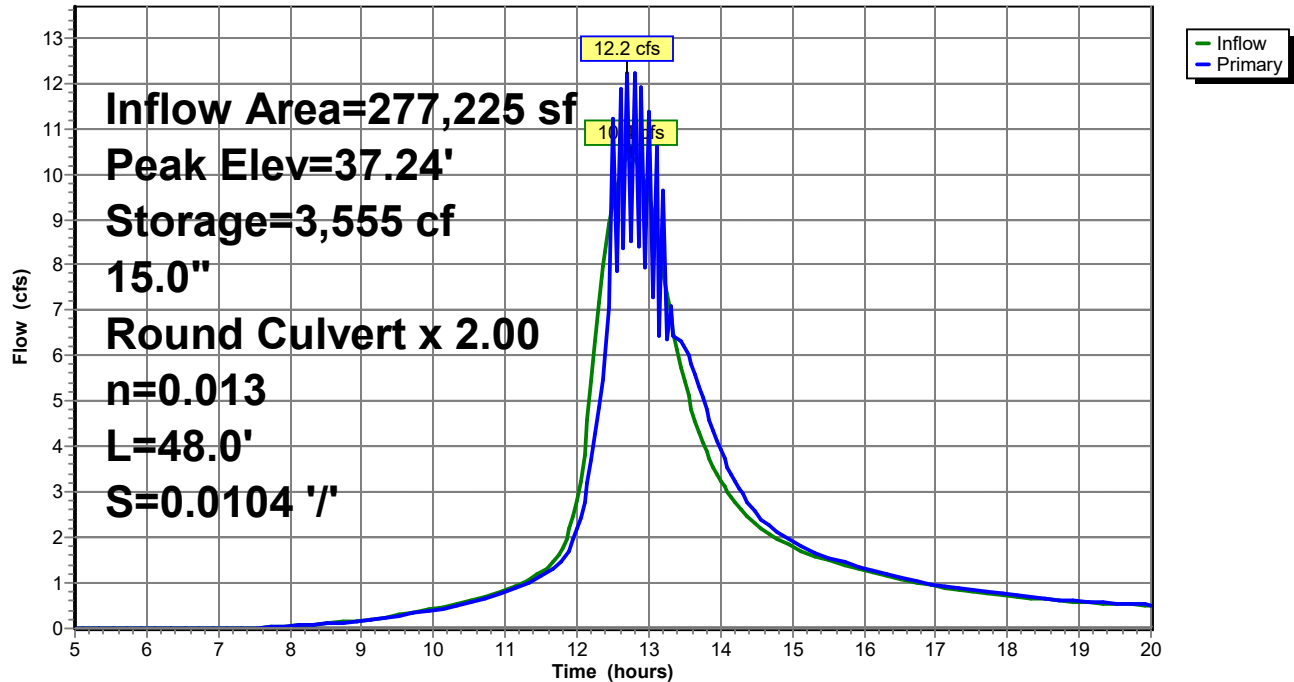
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.90	0	0	0
35.00	100	5	5
36.00	7,000	3,550	3,555

Device	Routing	Invert	Outlet Devices
#1	Primary	34.90'	15.0" Round Culvert X 2.00 L= 48.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.90' / 34.40' S= 0.0104 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=12.2 cfs @ 12.70 hrs HW=37.24' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 12.2 cfs @ 4.98 fps)

Pond C3:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 95

Summary for Pond C4:

Inflow Area = 51,750 sf, 4.53% Impervious, Inflow Depth > 3.60" for 25-Year event
 Inflow = 3.4 cfs @ 12.31 hrs, Volume= 15,508 cf
 Outflow = 3.5 cfs @ 12.34 hrs, Volume= 15,492 cf, Atten= 0%, Lag= 1.9 min
 Primary = 3.5 cfs @ 12.34 hrs, Volume= 15,492 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 37.08' @ 12.34 hrs Surf.Area= 600 sf Storage= 383 cf

Flood Elev= 37.15' Surf.Area= 600 sf Storage= 383 cf

Plug-Flow detention time= 2.2 min calculated for 15,492 cf (100% of inflow)

Center-of-Mass det. time= 1.8 min (796.8 - 795.0)

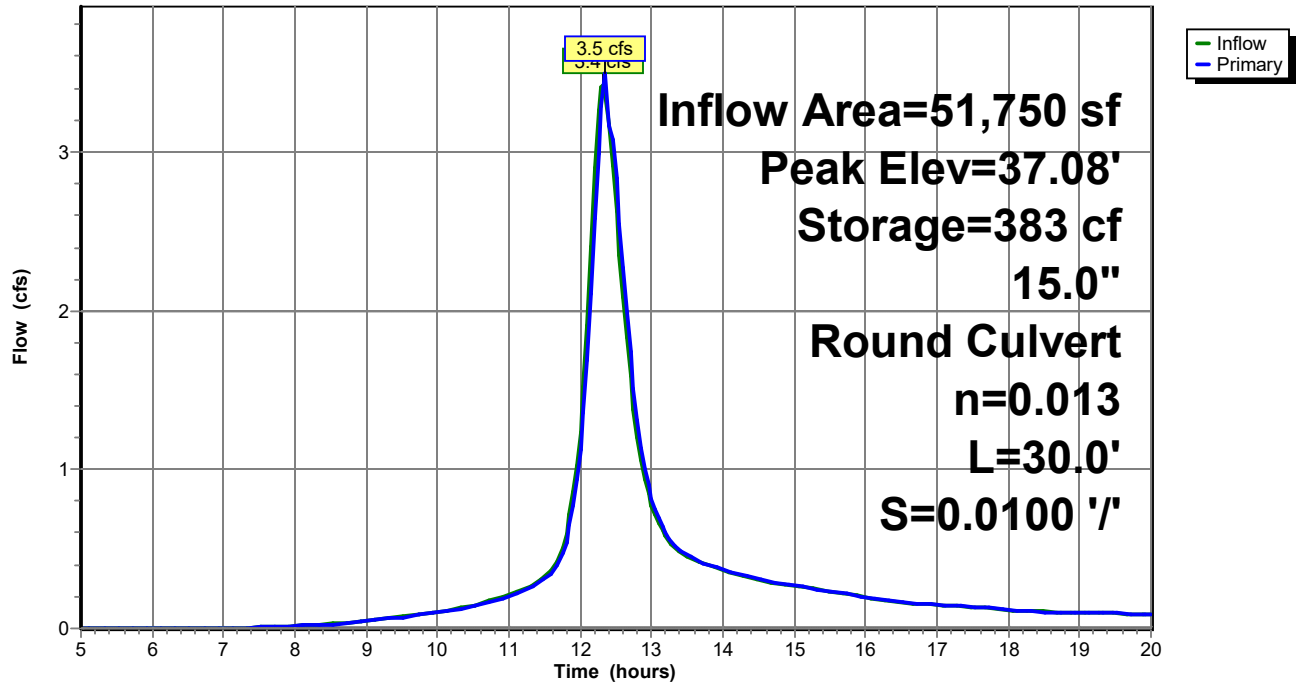
Volume	Invert	Avail.Storage	Storage Description
#1	35.90'	383 cf	STORAGE (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
35.90	0	0	0
36.00	150	8	8
37.00	600	375	383

Device	Routing	Invert	Outlet Devices
#1	Primary	35.90'	15.0" Round Culvert L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 35.90' / 35.60' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.5 cfs @ 12.34 hrs HW=37.07' (Free Discharge)↑ **1=Culvert** (Inlet Controls 3.5 cfs @ 2.91 fps)

Pond C4:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 97

Summary for Pond C5:

Inflow Area = 9,380 sf, 23.88% Impervious, Inflow Depth > 4.13" for 25-Year event
 Inflow = 1.1 cfs @ 12.09 hrs, Volume= 3,228 cf
 Outflow = 1.0 cfs @ 12.11 hrs, Volume= 3,226 cf, Atten= 5%, Lag= 1.5 min
 Primary = 1.0 cfs @ 12.11 hrs, Volume= 3,226 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.74' @ 12.11 hrs Surf.Area= 340 sf Storage= 92 cf

Flood Elev= 35.45' Surf.Area= 680 sf Storage= 466 cf

Plug-Flow detention time= 1.4 min calculated for 3,216 cf (100% of inflow)

Center-of-Mass det. time= 1.2 min (771.8 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	2,100 cf	STORAGE (Prismatic) Listed below (Recalc)

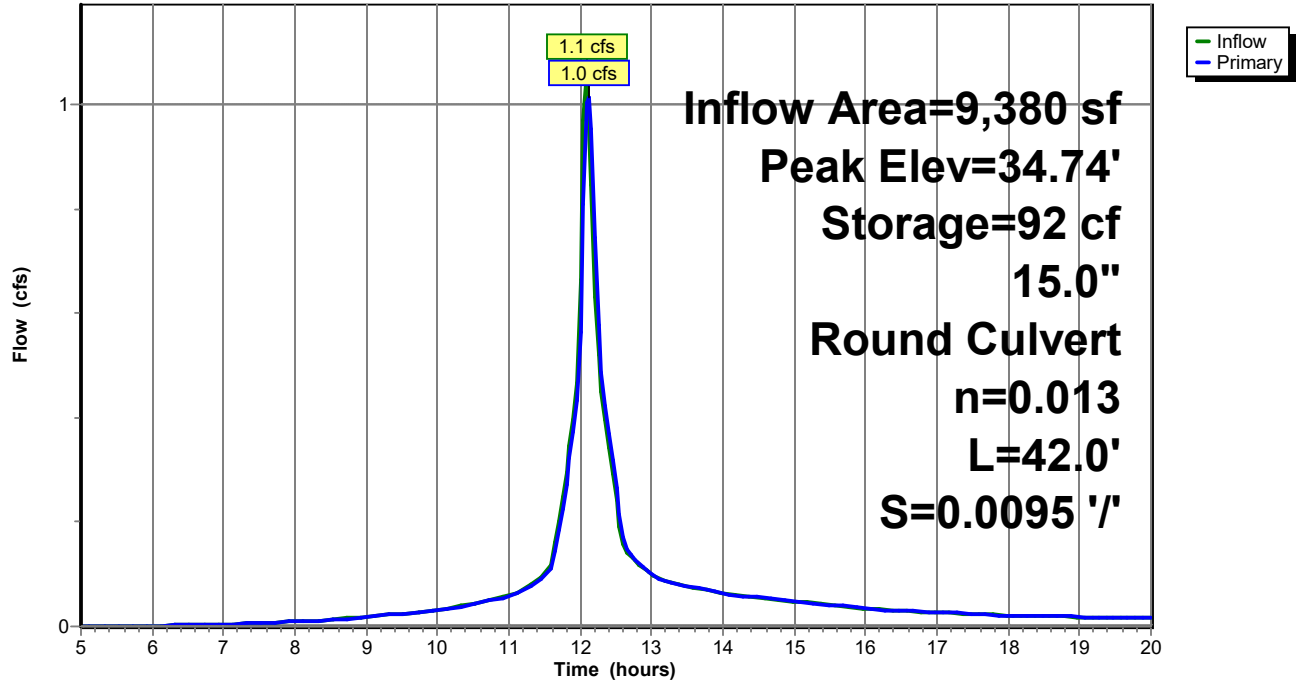
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	500	200	200
36.00	900	700	900
37.00	1,500	1,200	2,100

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.0 cfs @ 12.11 hrs HW=34.74' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.0 cfs @ 1.97 fps)

Pond C5:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 99

Summary for Pond C6:

Inflow Area = 1,569,540 sf, 1.33% Impervious, Inflow Depth > 3.26" for 25-Year event
 Inflow = 35.6 cfs @ 13.74 hrs, Volume= 426,857 cf
 Outflow = 35.3 cfs @ 13.95 hrs, Volume= 426,525 cf, Atten= 1%, Lag= 12.7 min
 Primary = 35.3 cfs @ 13.95 hrs, Volume= 426,525 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 35.04' @ 13.95 hrs Surf.Area= 31,200 sf Storage= 18,300 cf
 Flood Elev= 35.70' Surf.Area= 31,200 sf Storage= 18,300 cf

Plug-Flow detention time= 5.3 min calculated for 426,525 cf (100% of inflow)
 Center-of-Mass det. time= 5.0 min (887.1 - 882.1)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	18,300 cf	STORAGE (Prismatic) Listed below (Recalc)

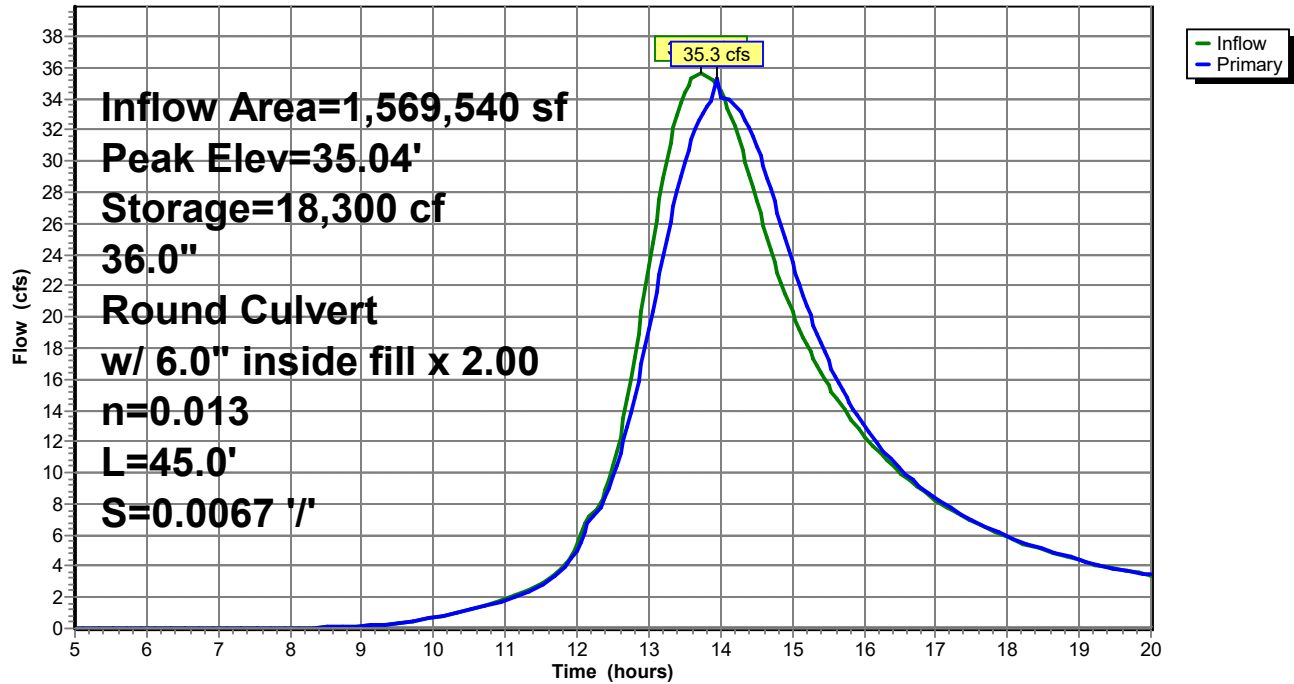
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	3,000	1,200	1,200
35.00	31,200	17,100	18,300

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	36.0" Round Culvert X 2.00 w/ 6.0" inside fill L= 45.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.70' / 32.40' S= 0.0067 ' S= 0.0067 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 6.29 sf

Primary OutFlow Max=35.3 cfs @ 13.95 hrs HW=35.04' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 35.3 cfs @ 3.43 fps)

Pond C6:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 101

Summary for Pond C7:

Inflow Area = 10,510 sf, 19.27% Impervious, Inflow Depth > 4.02" for 25-Year event
 Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,525 cf
 Outflow = 1.0 cfs @ 12.14 hrs, Volume= 3,522 cf, Atten= 12%, Lag= 2.8 min
 Primary = 1.0 cfs @ 12.14 hrs, Volume= 3,522 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 34.75' @ 12.14 hrs Surf.Area= 685 sf Storage= 188 cf

Flood Elev= 35.45' Surf.Area= 1,473 sf Storage= 956 cf

Plug-Flow detention time= 2.8 min calculated for 3,510 cf (100% of inflow)

Center-of-Mass det. time= 2.4 min (775.4 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	34.20'	1,925 cf	STORAGE (Prismatic) Listed below (Recalc)

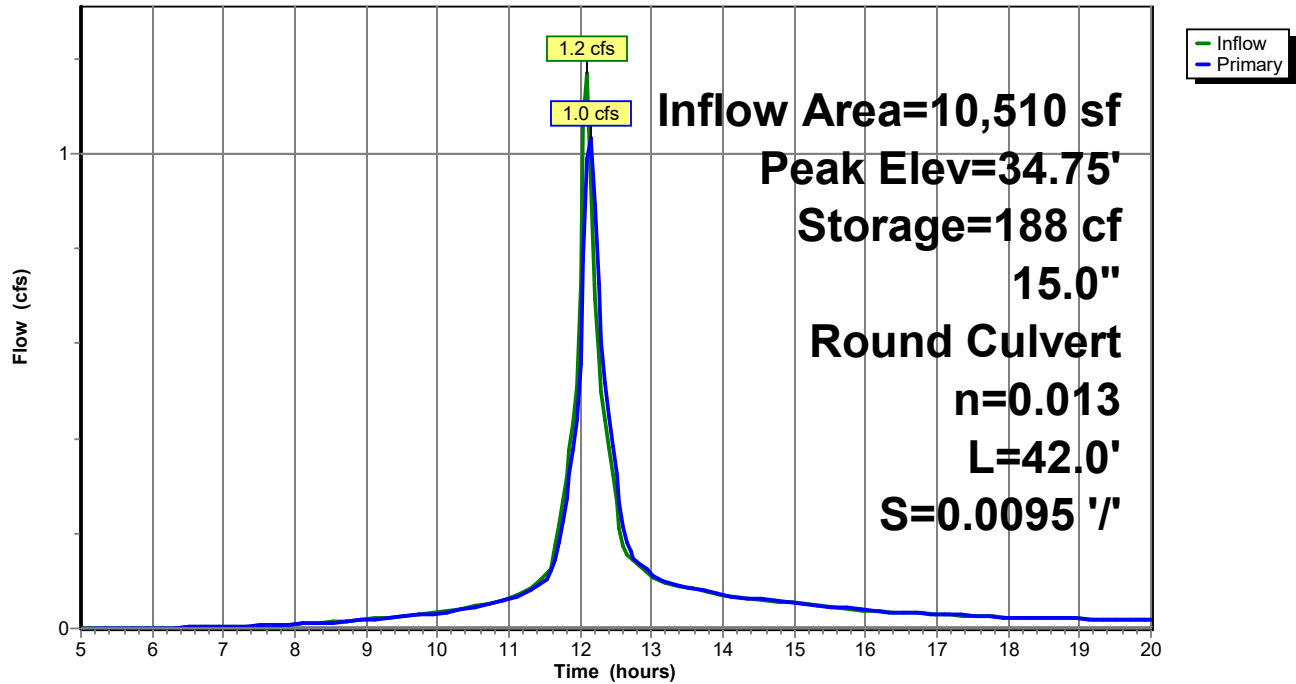
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.20	0	0	0
35.00	1,000	400	400
36.00	2,050	1,525	1,925

Device	Routing	Invert	Outlet Devices
#1	Primary	34.20'	15.0" Round Culvert L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.20' / 33.80' S= 0.0095 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.0 cfs @ 12.14 hrs HW=34.74' (Free Discharge)↑ **1=Culvert** (Inlet Controls 1.0 cfs @ 1.98 fps)

Pond C7:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 103

Summary for Pond C8:

Inflow Area = 25,645 sf, 8.42% Impervious, Inflow Depth > 3.69" for 25-Year event
 Inflow = 1.7 cfs @ 12.34 hrs, Volume= 7,895 cf
 Outflow = 1.5 cfs @ 12.46 hrs, Volume= 7,890 cf, Atten= 9%, Lag= 6.7 min
 Primary = 1.5 cfs @ 12.46 hrs, Volume= 7,890 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.48' @ 12.46 hrs Surf.Area= 1,829 sf Storage= 490 cf
 Flood Elev= 35.05' Surf.Area= 3,650 sf Storage= 1,915 cf

Plug-Flow detention time= 3.2 min calculated for 7,864 cf (100% of inflow)
 Center-of-Mass det. time= 3.0 min (797.8 - 794.8)

Volume	Invert	Avail.Storage	Storage Description
#1	33.80'	1,915 cf	STORAGE (Prismatic) Listed below (Recalc)

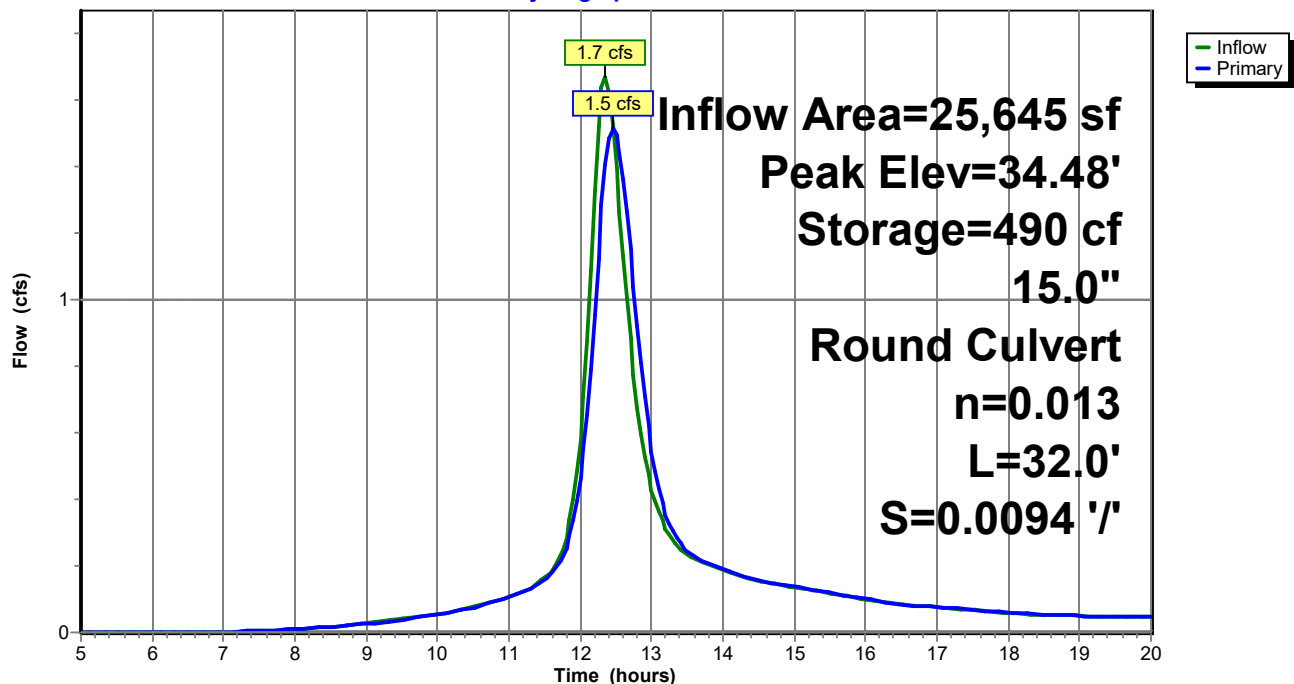
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.80	0	0	0
34.00	150	15	15
35.00	3,650	1,900	1,915

Device	Routing	Invert	Outlet Devices
#1	Primary	33.80'	15.0" Round Culvert L= 32.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.80' / 33.50' S= 0.0094 ' S= 0.0094 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.5 cfs @ 12.46 hrs HW=34.48' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.5 cfs @ 2.21 fps)

Pond C8:

Hydrograph



Post Dev Rev 2

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

Prepared by Walsh Engineering Associates, Inc.

Printed 1/3/2022

HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Page 105

Summary for Pond C9:

Inflow Area = 217,370 sf, 7.42% Impervious, Inflow Depth > 3.54" for 25-Year event
 Inflow = 10.5 cfs @ 12.51 hrs, Volume= 64,189 cf
 Outflow = 8.3 cfs @ 12.77 hrs, Volume= 63,961 cf, Atten= 21%, Lag= 15.5 min
 Primary = 8.3 cfs @ 12.77 hrs, Volume= 63,961 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 34.62' @ 12.77 hrs Surf.Area= 9,692 sf Storage= 8,085 cf
 Flood Elev= 34.45' Surf.Area= 8,968 sf Storage= 6,455 cf

Plug-Flow detention time= 12.4 min calculated for 63,961 cf (100% of inflow)
 Center-of-Mass det. time= 11.0 min (816.8 - 805.8)

Volume	Invert	Avail.Storage	Storage Description
#1	33.20'	12,015 cf	STORAGE (Prismatic) Listed below (Recalc)

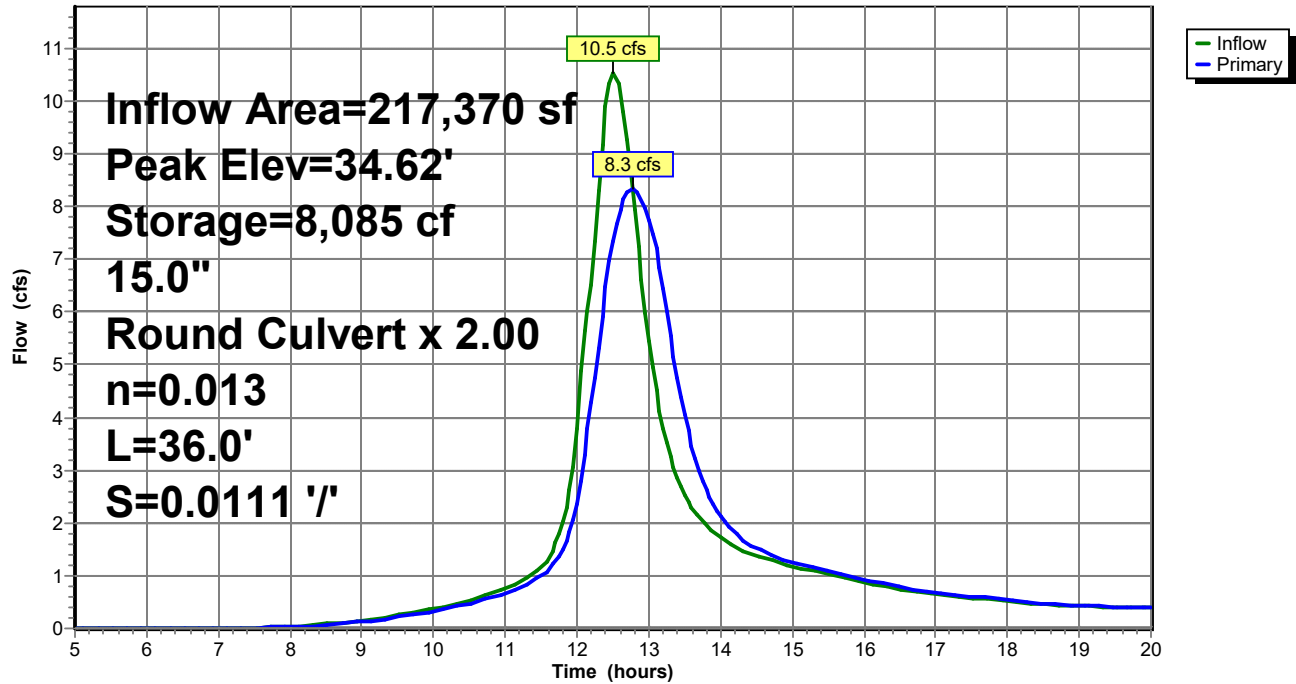
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.20	0	0	0
34.00	7,100	2,840	2,840
35.00	11,250	9,175	12,015

Device	Routing	Invert	Outlet Devices
#1	Primary	33.20'	15.0" Round Culvert X 2.00 L= 36.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.20' / 32.80' S= 0.0111 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.3 cfs @ 12.77 hrs HW=34.62' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 8.3 cfs @ 3.40 fps)

Pond C9:

Hydrograph

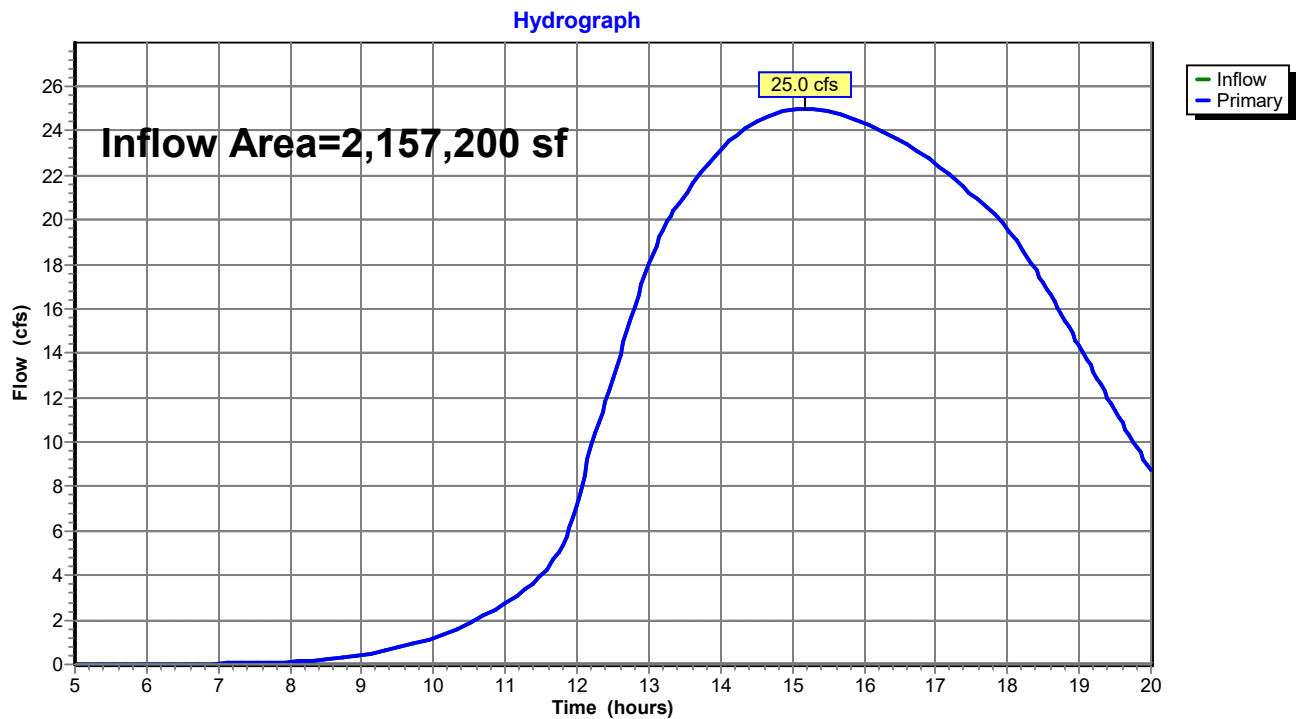


Summary for Link AP1:

Inflow Area = 2,157,200 sf, 3.39% Impervious, Inflow Depth > 3.28" for 25-Year event
 Inflow = 25.0 cfs @ 15.17 hrs, Volume= 589,118 cf
 Primary = 25.0 cfs @ 15.17 hrs, Volume= 589,118 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link AP1:



Appendix C

High Intensity Soil Survey
Web Soil Survey Map



MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6518

Oak Ridge Road
Biddeford, ME
Ginger Hill Design & Build

Soil Narrative Report

DATE: Soil Profiles observed on April 20, 2021

BASE MAP: Base plan provided by Walsh Engineering Associates scale 1 inch equals 60 feet and one foot contours.

GROUND CONTROL: Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or less.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points
Base Map –2 foot contour intervals

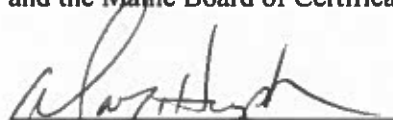
Provided:

Mapping units of 1 acre or less
Base map scale of 1"= 60 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by gps equipment with accuracy to less than 3 feet.
Ground topographic survey with one foot contours and ground control provided.

P.O. BOX 1981 • PORTLAND, ME 04104 • 1931 • 207-756-2900 • mhampto1@maine.rr.com

Quality services that meet your deadline

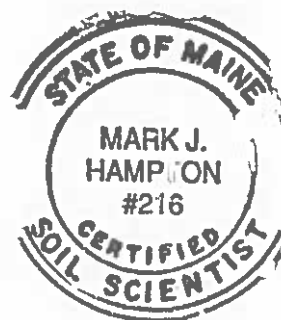
The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.


Mark J. Hampton

C.S.S. #216, L.S.E. #263

May 3, 2021

Date





MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6518

Oak Ridge Road
Biddeford, ME
Ginger Hill Design & Build

LYMAN-TUNBRIDGE COMPLEX

SETTING

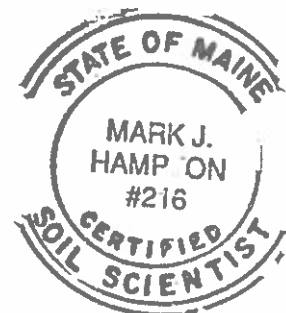
PARENT MATERIAL:	Loamy glacial till
LANDFORM:	Glaciated uplands
POSITION IN LANDSCAPE:	Uppermost locations, sideslopes, shoulders and crests
SLOPE GRADIENT RANGES:	(B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS:	Excessively well drained Lyman (10-20 inches to bedrock) and Tunbridge (20-40 inches to bedrock) These soils occur in a nonrepeating pattern with exposed bedrock outcrops and cannot be separated.	
TYPICAL PROFILE:	<u>Surface Layer:</u>	Reddish brown fine sandy loam, 0-4 inches
	<u>Subsurface Layer:</u>	Red brown fine sandy loam 4-12"
	<u>Subsoil Layer:</u>	Dark red fine sandy loam 12-18"
	<u>Substratum:</u>	Brown fine sandy loam 18-36"
HYDROLOGIC GROUP:	Group C/D	
PERMEABILITY:	Slow to rapid, depending on slope and bedrock outcrops.	
DEPTH TO BEDROCK:	Shallow (Lyman 10-20 inches) to moderately deep (Tunbridge 20-40 inches).	
HAZARD TO FLOODING:	None	

INCLUSIONS (Within Mapping Unit)

CONTRASTING:	Buxton, Lamoine, Scantic
--------------	--------------------------



USE AND MANAGEMENT

Development: The limiting factor for building site development is depth to bedrock which ranges from 0 to 40 inches within this complex. Tunbridge and Lyman (deeper than 11 inches) soils may be suitable for subsurface wastewater disposal.



MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6518

Oak Ridge Road
Biddeford, ME
Ginger Hill Design & Build

Lamoine
(Aeric Haplaquepts)

SETTING

PARENT MATERIAL: Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM: Coastal lowlands and river valleys
POSITION IN LANDSCAPE: Intermediate positions on landform
SLOPE GRADIENT RANGES: (A) 0-3 %

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 0.5 to 2.0 feet below the surface at some time from November to June or during periods of heavy precipitation.

TYPICAL PROFILE:

<u>Surface Layer:</u>	Dark Brown, fine sandy loam 0-7"
<u>Subsurface Layer:</u>	Lt. Olive brown silt loam, 7-14"
<u>Subsoil Layer:</u>	Olive silty clay loam, 14-21"
<u>Substratum:</u>	Olive, silty clay loam, 21-65"

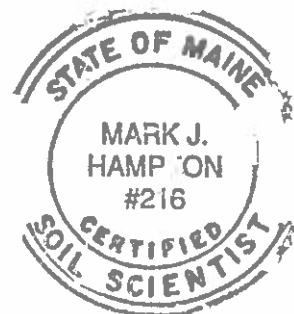
HYDROLOGIC GROUP: Group D
SURFACE RUNOFF: Moderate to moderately slow
PERMEABILITY: Slow to very slow
DEPTH TO BEDROCK: Greater than 65 inches
HAZARD TO FLOODING: None

INCLUSIONS (Within Mapping Unit)

CONTRASTING: Buxton, Scantic

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.





MARK HAMPTON ASSOCIATES, INC.

• SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6518

Oak Ridge Road
Biddeford, ME
Ginger Hill Design & Build

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL: Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM: Coastal lowlands and river valleys
POSITION IN LANDSCAPE: Lower positions on landform
SLOPE GRADIENT RANGES: (A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

<u>Surface Layer:</u>	Dark grayish brown, silt loam 0-9"
<u>Subsurface Layer:</u>	Olive gray silt loam, 9-16"
<u>Substratum:</u>	Gray silty clay loam, 16"+

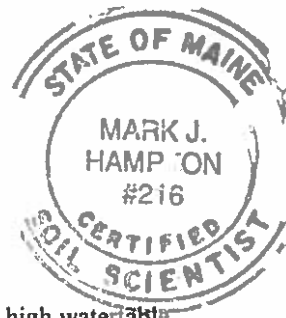
HYDROLOGIC GROUP: Group D
SURFACE RUNOFF: Moderate to moderately slow
PERMEABILITY: Slow to very slow
DEPTH TO BEDROCK: Greater than 65 inches
HAZARD TO FLOODING: None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Buxton, Lamoine

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.



SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Oak Ridge Road	Applicant Name: Ginger Hill Design & Build	Project Location (municipality): Biddeford
--	--	--

Exploration Symbol # SS-1 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy	Friable	Dark Brown	
6	Loam			
12	Sandy	Friable	Brown	
18				
24	ΛΛ	Ledge	ΛΛ	
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☒ S.S. ☒

Soil Classification Profile <u>2</u> Condition <u>AIII</u>	Slope Percent <u>4</u>	Limiting Factor Depth <u>18</u> " ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock	Hydrologic ☐ Hydric ☒ Non-hydric
Soil series/phase name: Lyman-Tunbridge WD			
Soil Group			

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Fine Sandy	Friable	Dark Brown	
6	Loam			
12	Fine Sandy	Friable	Brown	
18				
24	Silty Clay	Firm	Gray	Common and Distinct
30	Loam			
36				
42				
48				
54				
60				

Soil Details by S.E. ☒ S.S. ☒

Soil Classification Profile <u>8</u> Condition <u>D</u>	Slope Percent <u>2</u>	Limiting Factor Depth <u>14</u> " ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	Hydrologic ☐ Hydric ☒ Non-hydric
Soil series/phase name: Lamoine SPD			
Soil Group			

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Fine Sandy	Friable	Dark Brown	
6	Loam			
12	Fine Sandy	Friable	Brown	
18				
24	Silty Clay	Firm	Gray	Common and Distinct
30	Loam			
36				
42				
48				
54				
60				

Soil Details by S.E. ☒ S.S. ☒

Soil Classification Profile <u>8</u> Condition <u>D</u>	Slope Percent <u>2</u>	Limiting Factor Depth <u>13</u> " ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	Hydrologic ☐ Hydric ☒ Non-hydric
Soil series/phase name: Lamoine SPD			
Soil Group			

Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

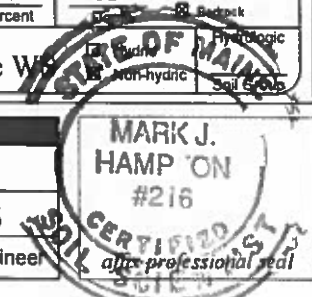
Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Fine Sandy	Friable	Dark Brown	
6	Loam			
12	Fine Sandy	Friable	Brown	
18				
24	ΛΛ	Ledge	ΛΛ	
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☒ S.S. ☒

Soil Classification Profile <u>2</u> Condition <u>AIII</u>	Slope Percent <u>4</u>	Limiting Factor Depth <u>15</u> " ☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	Hydrologic ☐ Hydric ☒ Non-hydric
Soil series/phase name: Lyman-Tunbridge WD			
Soil Group			

INVESTIGATOR INFORMATION AND SIGNATURE

Signature <i>Mark J Hampton</i>	Date 5/3/21
Name Printed/typed Mark J Hampton	Cert/Lic/Reg. # 263/216
Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer	



SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF
SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Oak Ridge Road	Applicant Name: Ginger Hill Design & Build	Project Location (municipality): Biddeford
--	--	--

Exploration Symbol # SS-5 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Fine Sandy	Friable	Black	
6	Loam			
12	Silty Clay	Firm	Gray	Common and Distinct
18				
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☒ Groundwater
 S.S. ☒ Restrictive Layer
☐ Bedrock
☒ Hydric
☐ Non-hydric
☐ Hydrologic
☐ Soil Group

Soil Classification: Profile 8 Condition E Slope 2 Percent
 Limiting Factor 6 Depth
 Soil series/phase name: **Scantic PD**

Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy	Friable	Dark Brown	
6	Loam			
12	Sandy	Friable	Brown	
18	Loam			
24		Ledge		
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☐ Groundwater
 S.S. ☐ Restrictive Layer
☐ Bedrock
☐ Hydric
☐ Non-hydric
☐ Hydrologic
☐ Soil Group

Soil Classification: Profile 2 Condition AIII Slope 4 Percent
 Limiting Factor 15 Depth
 Soil series/phase name: **Lyman-Tunbridge WD**

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy	Friable	Dark Brown	
6	Loam			
12	Sandy	Friable	Brown	
18	Loam			
24		Ledge		
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☐ Groundwater
 S.S. ☐ Restrictive Layer
☐ Bedrock
☐ Hydric
☐ Non-hydric
☐ Hydrologic
☐ Soil Group

Soil Classification: Profile 2 Condition AIII Slope 6 Percent
 Limiting Factor 15 Depth
 Soil series/phase name: **Lyman-Tunbridge WD**

Exploration Symbol # _____ ☐ Test Pit ☐ Boring
 " Organic horizon thickness _____ Ground surface elev. _____
 " Depth of exploration or to refusal _____

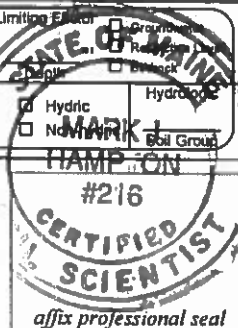
Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0				
6				
12				
18				
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ☐ Groundwater
 S.S. ☐ Restrictive Layer
☐ Bedrock
☐ Hydric
☐ Non-hydric
☐ Hydrologic
☐ Soil Group

Soil Classification: Profile _____ Condition _____ Slope _____ Percent
 Limiting Factor _____ Depth
 Soil series/phase name: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature <i>Mark J Hampton</i>	Date 5/3/21
Name Printed/Typed Mark J Hampton	Cert/Lic/Reg. # 263/216
Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer	



Legend for Soil Maps

1. Drainage Class

Excessively Well Drained	EWD
Well Drained	WD
Moderately Well Drained	MWD
Somewhat Poorly Drained	SPD
Poorly Drained	PD
Very Poorly Drained	VPD

2. Slope Designation

0-3%	A
3-8%	B
8-15%	C
15-25%	D
>25%	E

3. Note: High Intensity Soil Survey has been prepared by Mark Hampton Associates, Inc. in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

SOIL SURVEY GENERAL NOTES

- 1. SOILS AND WETLANDS MAPPING BY MARK HAMPTON ASSOCIATES, P.O. BOX 1931, PORTLAND, MAINE.
- 2. FOR ACCOMPANYING SOIL SURVEY REPORT SEE "SOIL NARRATIVE REPORT" SIGNED AND SEALED APRIL 20, 2021.
- 3. THE SOILS SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
- 4. THE SURVEY IS CLASS B-HIGH INTENSITY SOIL SURVEY.

SOIL LEGEND

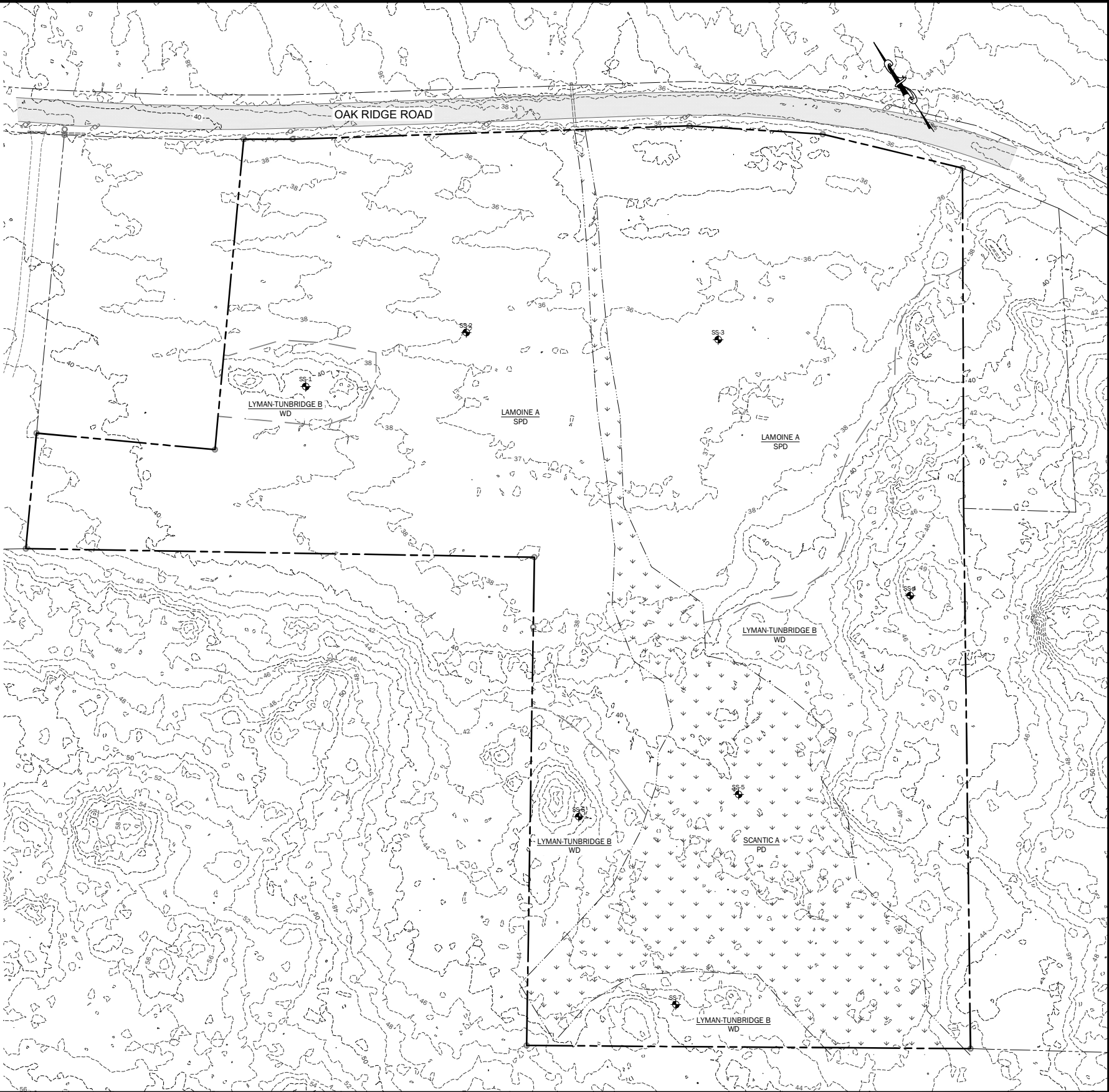
DRAINAGE CLASS

EXCESSIVELY WELL DRAINED	EWD
WELL DRAINED	WD
MODERATELY WELL DRAINED	MWD
SOMEWHAT POORLY DRAINED	SPD
POORLY DRAINED	PD
VERY POORLY DRAINED	VPD

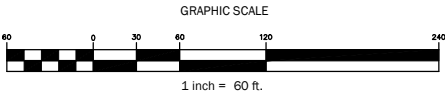
SLOPE DESIGNATION

0-3%	A
3-8%	B
8-15%	C
15-25%	D
> 25%	E

NOTE: HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.



MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104

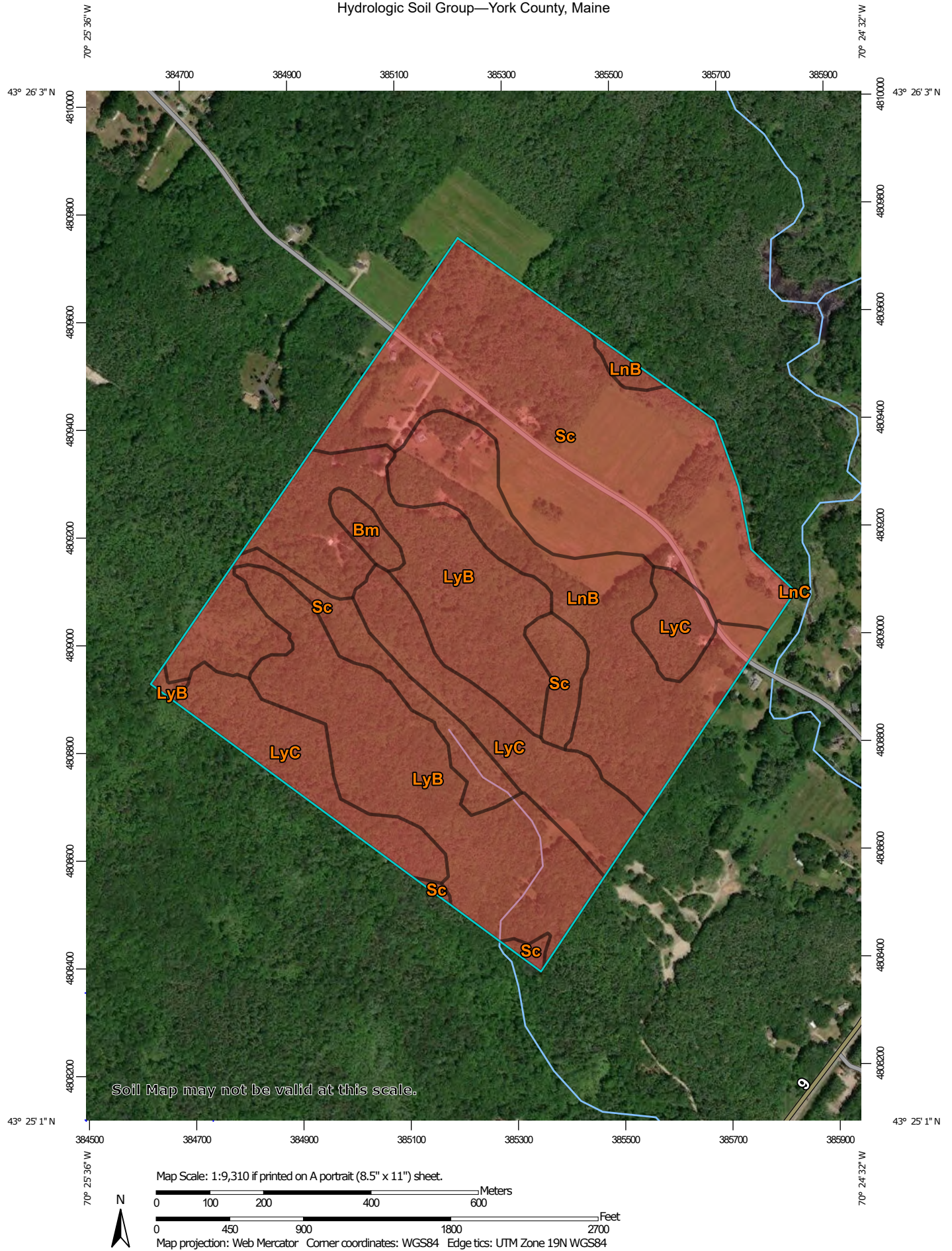


DATE: AUGUST 20, 2021

GINGER HILL, LLC
18 EARLY WAY, ARUNDEL, MAINE

HIGH INTENSITY SOIL SURVEY
185 OAK RIDGE ROAD, BIDDEFORD, MAINE, MAP 04, LOT 57

Hydrologic Soil Group—York County, Maine



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

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 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Bm	Biddeford mucky peat, 0 to 3 percent slopes	D	2.4	1.1%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	34.4	15.8%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	0.0	0.0%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	64.1	29.5%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	34.0	15.6%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	82.6	38.0%
Totals for Area of Interest			217.5	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix D

Inspection and Maintenance Plan

INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES PLAN

LEEWARD MEADOWS Oak Ridge Road Biddeford, Maine 04005

Stormwater Management Facilities include swales, paved areas, gravel areas, culverts, riprapped aprons, and level spreaders. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion, protect roadways and other gravel areas, and remove pollutants from stormwater runoff. Ginger Hill Design + Build will be responsible for the inspection and maintenance of the stormwater facilities associated with this project until all units are sold. At that time, inspection and maintenance will be transferred to the Homeowners Association.

SIGNIFICANT RAINFALL:

For the purposes of this Inspection and Maintenance Plan, a significant rainfall event shall be defined as a storm of 0.5 inches or more in a 24-hour period, heavy, intense rainfall, such as thunder showers or during periods of significant snowmelt.

SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS:

Swales, ditches, paved areas, and gravel 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. 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 and gravel areas should be visually inspected monthly during the winter. The inspector should pay particular attention for evidence of erosion. 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 repairs to eroded areas.

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.

CULVERT PIPES:

Inspect culvert 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.

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.

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.

LEEWARD MEADOWS BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS			
I: INSPECTED - C: CLEANED - S: SWEEPED - R: REPAIRED			
DATE	INITIALS	ACTION	COMMENT
5/10/19	RST	I, C	EXAMPLE: Removed sand around CB's 19 and 20. Heavy rain over the weekend.

LEEWARD MEADOWS BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
CULVERT 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.

**STORMWATER MANAGEMENT SYSTEM
MAINTENANCE PROGRAM
SUMMARY CHECKLIST**

Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
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 & Gravel Surfaces	Review for damage and buildup of debris and sand.	X	X Sweep		
Culverts	Inspect for sediment build-up in pipe. Flush and remove as required.			X	
Riprap	Inspect for erosion, sediment and vegetation. Clean and rebuild as required.			X	

Appendix E

Drainage Plans

D1.0 – Pre-Development Drainage Plan

D2.0 – Post Development Drainage Plan

D2.1 – Post Development Drainage Plan
(See Complete Plan Set)

ATTACHMENT 4
SITE PLAN

Leeward Meadows

Oak Ridge Road

Biddeford, Maine 04005

prepared for:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046
January 12, 2021

Design Consultants:

CIVIL ENGINEER
WALSH ENGINEERING ASSOCIATES, INC.
ONE KAREN DRIVE, SUITE 2A
WESTBROOK, MAINE 04092
207-553-9898

BOUNDARY SURVEYOR
TITCOMB ASSOCIATES, INC.
133 GRAY ROAD
FALMOUTH, MAINE 04105
207-797-9199

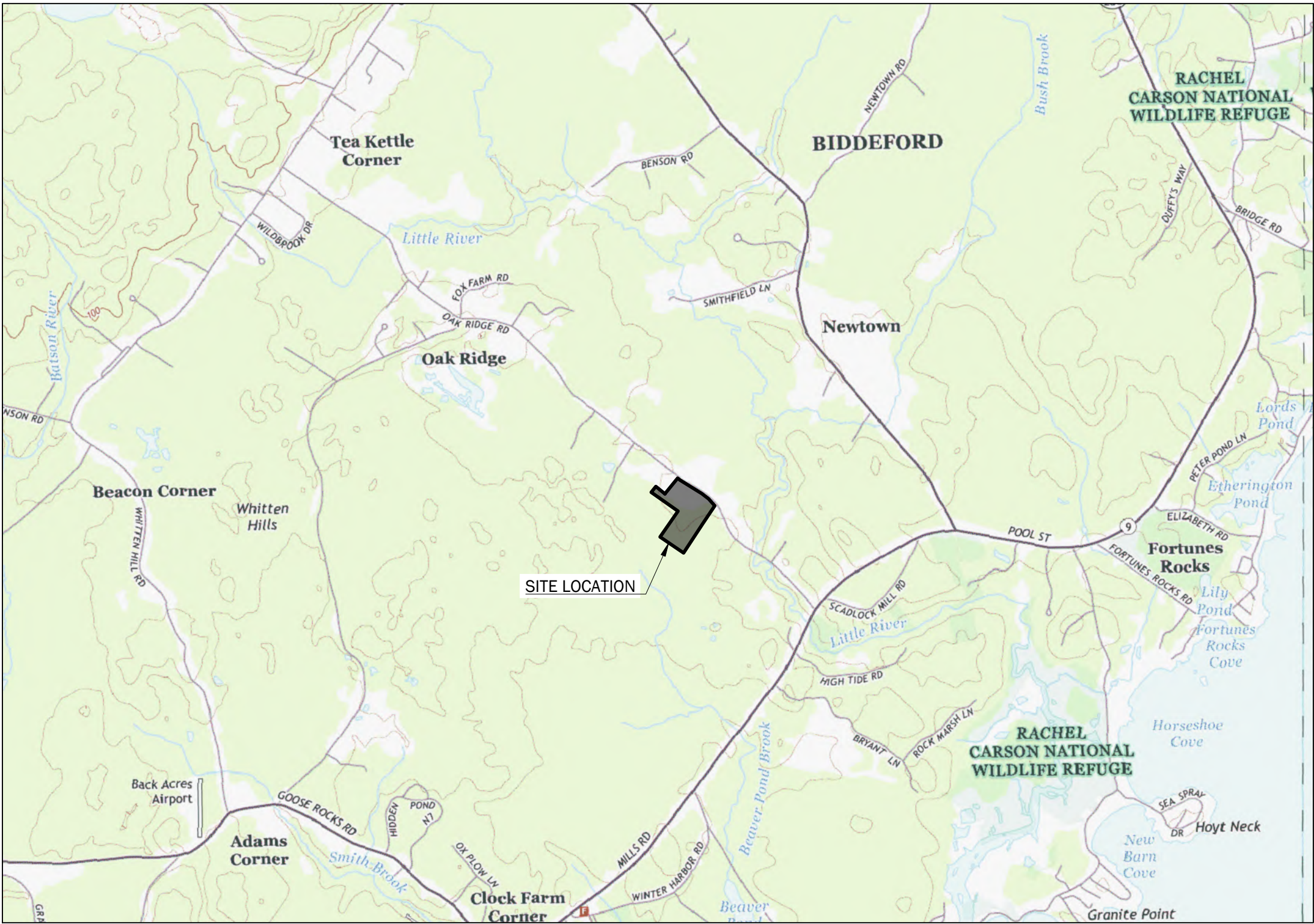
WETLAND & SOIL SCIENTIST
MARK HAMPTON ASSOCIATES, INC.
PO BOX 1931
PORTLAND, MAINE 04104
207-756-2900

WILDLIFE BIOLOGIST
JONES ASSOCIATES, INC
280 POLAND SPRING ROAD
AUBURN, MAINE 04210
207-241-0235

LANDSCAPE ARCHITECT
SCOTT STRYNAR LANDSCAPE ARCHITECT, LLC
98 MEEHAN LANE
NORTH BERWICK, MAINE 03906
207-957-4441



One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com



List of Drawings:

SHEET NO.	SHEET TITLE
S1.0	COVER SHEET SUBDIVISION PLAN PLAN OF BOUNDARY SURVEY 158 OAK RIDGE ROAD, BIDDEFORD, MAINE
C1.0	EXISTING CONDITIONS PLAN
C1.1	CONVENTIONAL LAYOUT PLAN
C1.2	CLUSTER LAYOUT PLAN
C2.0	SITE LAYOUT & UTILITIES PLAN
C2.1	GRADING & EROSION CONTROL PLAN
C2.2	LEEWARD MEADOWS PLAN & PROFILE
C3.0	SITE DETAILS
C3.1	SITE DETAILS
D1.0	PRE-DEVELOPMENT DRAINAGE PLAN
D2.0	POST DEVELOPMENT DRAINAGE PLAN
D2.1	POST DEVELOPMENT DRAINAGE PLAN
L1.0	LANDSCAPE PLAN

Record Owner:

GINGER HILL, LLC
18 EARLY WAY
ARUNDEL, MAINE 04046

Parcel ID:

MAP 4
LOT 57

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS ON THE PLANNING BOARD EVIDENCING APPROVAL OF THE FINAL PLANS.

LEGEND		
EXISTING		PROPOSED
---	PROPERTY LINE	---
---	ABUTTERS PROPERTY LINE	---
---	EASEMENT	---
---	PROPERTY SETBACK	---
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
IRF or IPF	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
☒	CONCRETE MONUMENT FOUND	
☒	GRANITE MONUMENT FOUND	
---	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
---	STORM DRAIN CULVERT	---
---	RIP RAP IN/OUT PROTECTION APRON	---
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
---	UTILITY POLE	---
---	BUILDING	---
---	RIPRAP	---
---	LANDSCAPE/RETAINING WALL	---
---	BITUMINOUS PAVEMENT	---
---	GRAVEL	---
---	CONCRETE	---
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
---	TREELINE	---
---	TREE	---

PARCEL INFORMATION:

- OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD BY DEED RECORDED AT THE (YCRD) DEED BOOK 18667, PAGE 573, DATED MAY 13, 2021.
- STREET ADDRESS: OAK RIDGE ROAD, BIDDEFORD, MAINE 04005
- PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 57.
- TOTAL AREA OF PARCEL: 15.5± AC (675,530 SF)
- CURRENT ZONE: RURAL FARM (RF)

PLAN REFERENCES:

- TOPOGRAPHIC AND PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:
 - A PLAN TITLED "PLAN OF BOUNDARY SURVEY 158 OAK RIDGE ROAD, BIDDEFORD, MAINE", MADE FOR GINGER HILL DESIGN & BUILD BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED APRIL 14, 2021.
 - A PLAN TITLED "A STANDARD BOUNDARY SURVEY MADE FOR JAMES L. THOMSON, II AND NANCY P. THOMSON", PREPARED BY DOW AND COULOMBE, INC. LAND SURVEYORS & PLANNERS OF SACO, MAINE 04072, DATED MAY 10, 1999.
 - DIGITAL ELEVATION INFORMATION OBTAINED FROM NOAA DATA VIEWER ON MARCH 29, 2021.
 - ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.
- WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON TITCOMB ASSOCIATES PLAN. NO DATE PROVIDED.
- SOIL BOUNDARIES AND PROPERTIES FROM A HIGH INTENSITY SOIL SURVEY PREPARED BY MARK HAMPTON ASSOCIATES, INC DATED MAY 03, 2021.

GENERAL NOTES:

- BOOK AND PAGE REFERENCES ARE TO THE YORK COUNTY REGISTRY OF DEEDS, (YCRD) UNLESS OTHERWISE NOTED.
- BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83.
- UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
- THE PROPERTY IS BENEFITED BY AND SUBJECT TO THE EASEMENT, COVENANTS, AND RESTRICTIONS SET FORTH IN THE MASTER DECLARATION.
- LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS OF THE PLANNING BOARD EVIDENCING APPROVAL OF THE FINAL PLANS.

State of Maine, York ss.

Registry of Deeds

Received _____, 20__

at ___h___m___M, and recorded in

Plan Book _____, Page _____

Attest: _____

Register

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston
Nicholas S. Elliston, P.L.S. #2518

FLOOD ZONE INFORMATION:

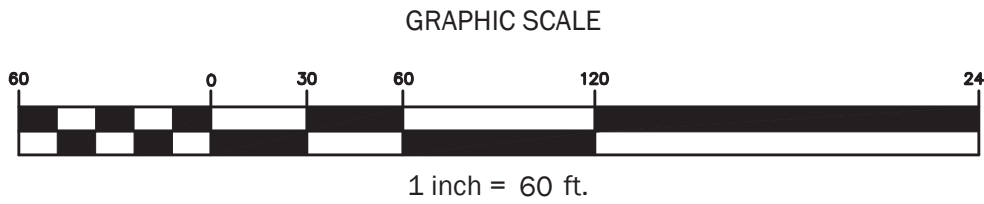
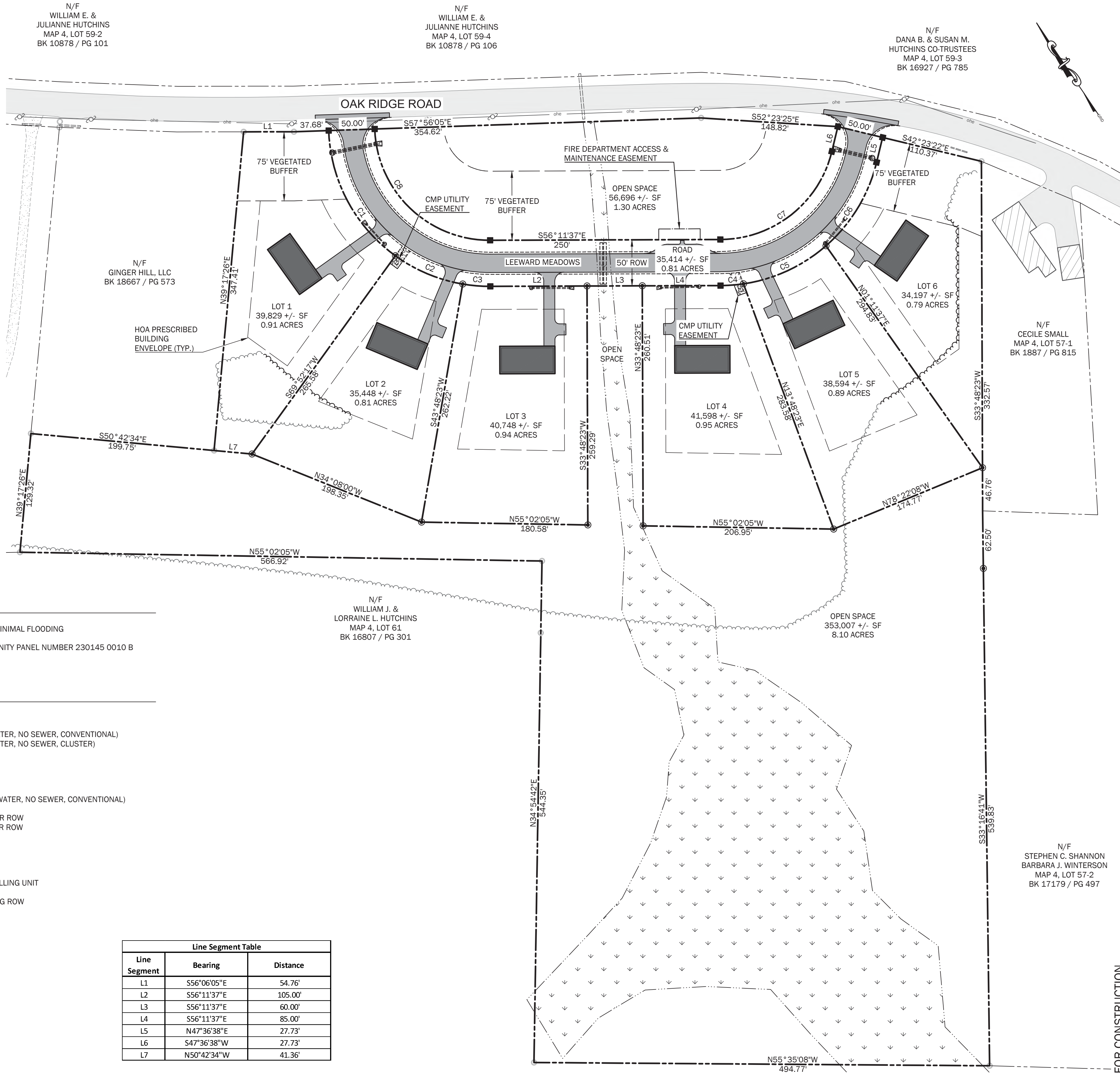
- CLASSIFICATION: ZONE C, AREAS OF MINIMAL FLOODING
- FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
- EFFECTIVE DATE: MAY 15, 1984

ZONING INFORMATION*:

- CLASSIFICATION: RURAL FARM (RF)
- MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)
- MAX. LOT COVERAGE: 30%
- MAX. BUILDING HEIGHT: 35 FT
- MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
- FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
- SIDE SETBACK: 25 FT
- REAR SETBACK: 25 FT
- PARKING REQUIREMENTS: 2 PER DWELLING UNIT
- 75' VEGETATED BUFFER FROM EXISTING ROW

Line Segment Table		
Line Segment	Bearing	Distance
L1	S56°06'05"E	54.76'
L2	S56°11'37"E	105.00'
L3	S56°11'37"E	60.00'
L4	S56°11'37"E	85.00'
L5	N47°36'38"E	27.73'
L6	S47°36'38"W	27.73'
L7	N50°42'34"W	41.36'

Curve Segment Table				
Curve Segment	Curve Radius	Curve Length	Chord Bearing	Chord Length
C1	175.00'	159.42'	S05°58'06"W	153.96'
C2	175.00'	80.00'	S33°13'29"E	79.31'
C3	175.00'	30.15'	S51°15'26"E	30.12'
C4	175.00'	25.00'	S60°17'11"E	24.98'
C5	175.00'	100.00'	S80°44'57"E	98.64'
C6	175.00'	107.73'	N65°14'44"E	106.03'
C7	125.00'	166.23'	S85°42'30"W	154.25'
C8	125.00'	192.55'	N12°03'51"W	174.07'



WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	11/10/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Subdivision Plan

Job No.: 742

Date: June 15, 2021

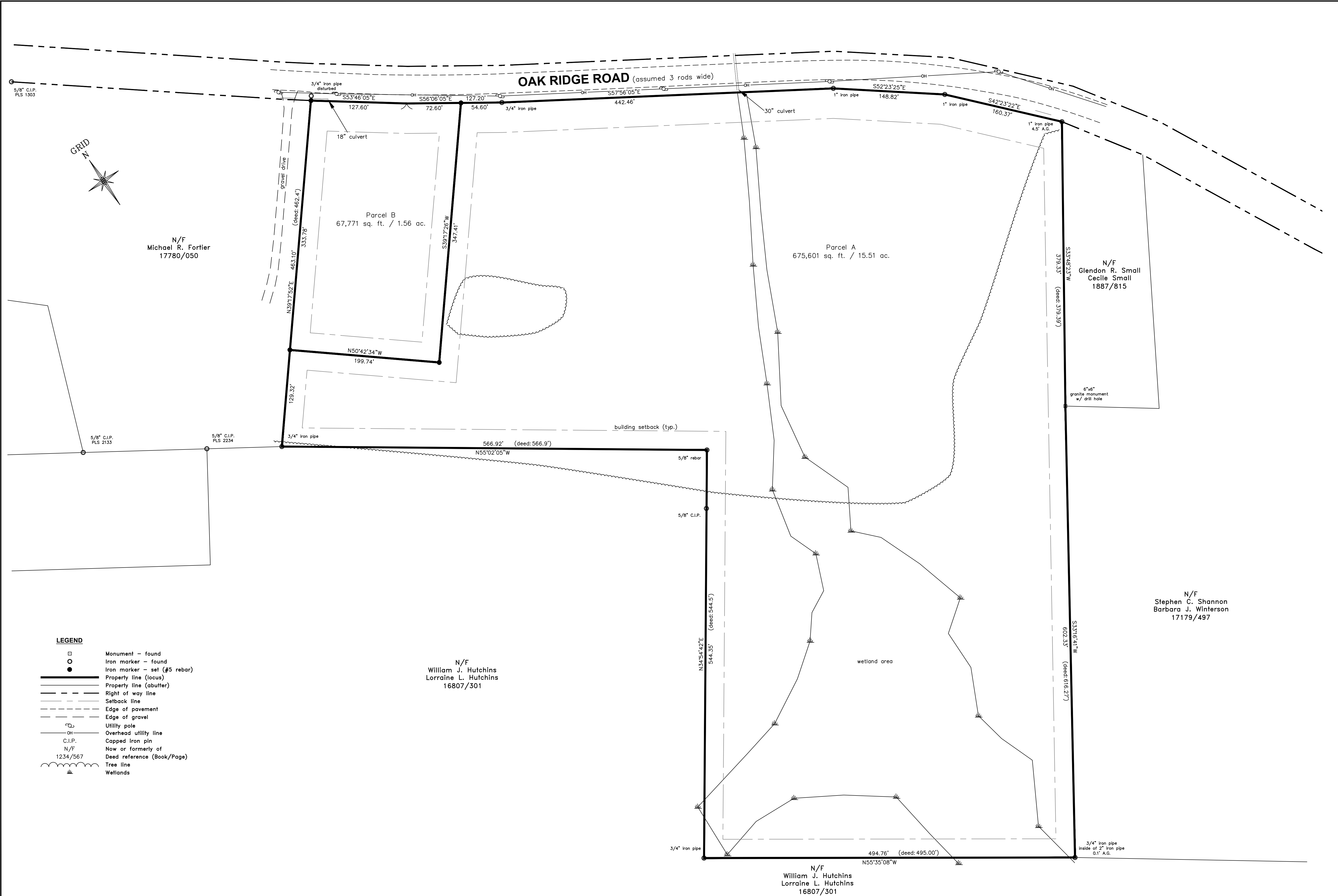
Scale: 1" = 60'

Drawn: CAR

Checked: WRW

S1.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION



VICINITY MAP

No Scale

NOTES

- 1) Book and Page references are to the York County Registry of Deeds, unless otherwise noted.
- 2) Bearings are referenced to grid north, Maine State Plane Coordinate System, West Zone, NAD83.
- 3) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.
- 4) Property lies within Zone C based on FIRM Community #230145 Panel #0010B, effective date May 15, 1984. Area of minimal flooding.
- 5) Wetlands delineated and located by Mark Hampton Associates, Inc.

PLAN REFERENCES

- 1) Plan showing Standard Boundary Survey made for James L. Thomson II & Nancy P. Thomson, by Dow & Coulombe, Inc., dated May 10, 1999 revised through March 31, 2011, recorded in Plan Book 356, Page 015.
- 2) Plan of land made for James L. Thomson II & Nancy P. Thomson, by Dow & Coulombe, Inc., dated January 13, 1995, recorded in Plan Book 222, Page 44.

ZONING— Rural Farm (RF)

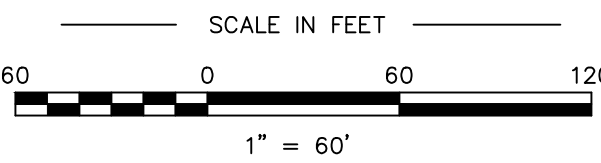
Minimum lot size	40,000 sq. ft.
Street frontage	200'
Setbacks:	
Front	40'
Side	25'
Rear	25'

AREA

Parcel A	675,523 square feet / 15.51 acres
Parcel B	67,835 square feet / 1.56 acres
Total	743,358 square feet / 17.07

OWNERS OF RECORD

Clover Leaf Investment Properties, LLC.
c/o Labrie Realty Group, LLC
56 Portland Road,
Kennebunk, Maine 04043
Book 16437, Page 645
Tax Map 4, Lot 57



PLAN OF
Boundary Survey

158 Oak Ridge Road Biddeford, Maine

MADE FOR
Ginger Hill Design & Build

18 Early Way Arundel, Maine

JOB #21337 DATE: April 14, 2021 SCALE: 1" = 60'

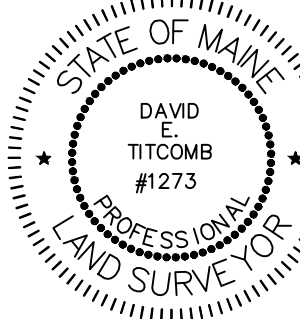
BOOK #933 21337.dwg



CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

David E. Titcomb, P.L.S. #1273



LEGEND

EXISTING

ROAD

PROPERTY LINE

RIGHT-OF-WAY LINE

ABUTTERS PROPERTY LINE

PROPERTY SETBACK

TOWN LINE

N/F

"OWNERS NAME" TAX

MAP TAX LOT DEED BOOK

AND PAGE

ABUTTER IDENTIFICATION

WETLANDS

NET LOT AREA DEDUCT AREAS

SOMEWHAT POORLY DRAINED SOILS

WETLANDS

PLAN NOTES:

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

1. CLASSIFICATION: RURAL FARM (RF)

2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)

3. MAX. LOT COVERAGE: 30%

4. MAX. BUILDING HEIGHT: 35 FT

5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)

6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW

7. SIDE SETBACK: 25 FT

8. REAR SETBACK: 25 FT

9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT

10. 75' VEGETATED BUFFER FROM EXISTING ROW

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Net Residential Density Calculation	
	Area (sf)
Gross Lot Area	675,530
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	195,097
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	120,635
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	359,799
Minimum Conventional Lot Area (RF Zone)	40,000
Total Allowable Lots	8

Net Residential Density Calculation (Lot 1)	
	Area (sf)
Gross Lot Area	90,013
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	43,628
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	2,758
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	43,628
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 5)	
	Area (sf)
Gross Lot Area	57,353
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	16,784
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,570
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 2)	
	Area (sf)
Gross Lot Area	84,196
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	33,291
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	3,751
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	47,155
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	58,397
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	3,590
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	7,826
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	46,982
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	96,509
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	44,593
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	7,324
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	44,593
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 7)	
	Area (sf)
Gross Lot Area	102,058
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	0
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	59,886
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	42,172
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 4)	
	Area (sf)
Gross Lot Area	73,566
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	33,099
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,467
Minimum Conventional Lot Area (RF Zone)	40,000

Net Residential Density Calculation (Lot 8)	
	Area (sf)
Gross Lot Area	65,682
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	6,786
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	17,990
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	40,906
Minimum Conventional Lot Area (RF Zone)	40,000

WALSH

ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

STATE OF MAINE

WILLIAM R. WALSH, III

No. 8204

LICENSED PROFESSIONAL ENGINEER

1/12/2022

Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

Rev. Date Description Drawn Check

1 6/15/2021 Biddeford Subdivision Sketch Plan Review CAR WRW

2 6/15/2021 Biddeford Subdivision Preliminary Plan Review CAR NGC

3 11/20/2021 Revised per City Review Comments Issued to City for Final Subdivision Review CAR NGC

Sheet Title:
Conventional Layout Plan

Job No.: 742

Date: June 15, 2021

Scale: 1" = 60'

Drawn: CAR

Checked: WRW

Sheet No.:
C1.1

11/20/2021 10:45 AM C:\Users\jwalsh\OneDrive\Documents\112021\112021_04046.dwg

583

PLAN NOTES:

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

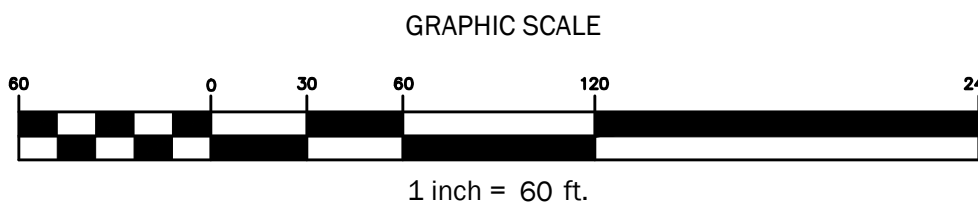
1. CLASSIFICATION: RURAL FARM (RF)
2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT
10. 75' VEGETATED BUFFER FROM EXISTING ROW

*ZONING STANDARDS FROM TOWN OF BIDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Cluster Open Space Area Calculations			
Lot	Conventional Subdivision Minimum Lot Area (sf)	Net Lot Area (sf)	Cluster Subdivision Lot Area Reduction (sf)
1	40,000	23,661	16,339
2	40,000	20,909	19,091
3	40,000	20,374	19,626
4	40,000	20,799	19,201
5	40,000	24,605	15,395
6	40,000	22,495	17,505
Required Open Space Area		107,157	
Provided Open Space Area		353,007	
% of Required Open Space Provided		329.4%	

Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	40,748
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	20,374
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	20,374
Minimum Cluster Lot Area (RF Zone)	20,000

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	34,197
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	11,702
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	22,495
Minimum Cluster Lot Area (RF Zone)	20,000



584

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
	IRON ROD OR PIN SET	CONCRETE
	CONCRETE MONUMENT FOUND	OR GRANITE
	GRANITE MONUMENT FOUND	MONUMENT TO BE SET
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	w
ss	SANITARY SEWER LINE	ss
ugu	UNDERGROUND UTILITY	ugu
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	
	SILT FENCE	SF
	EROSION CONTROL BERM	ECB
	TURF REINFORCEMENT MATTING	
	CONSTRUCTION ENTRANCE	

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

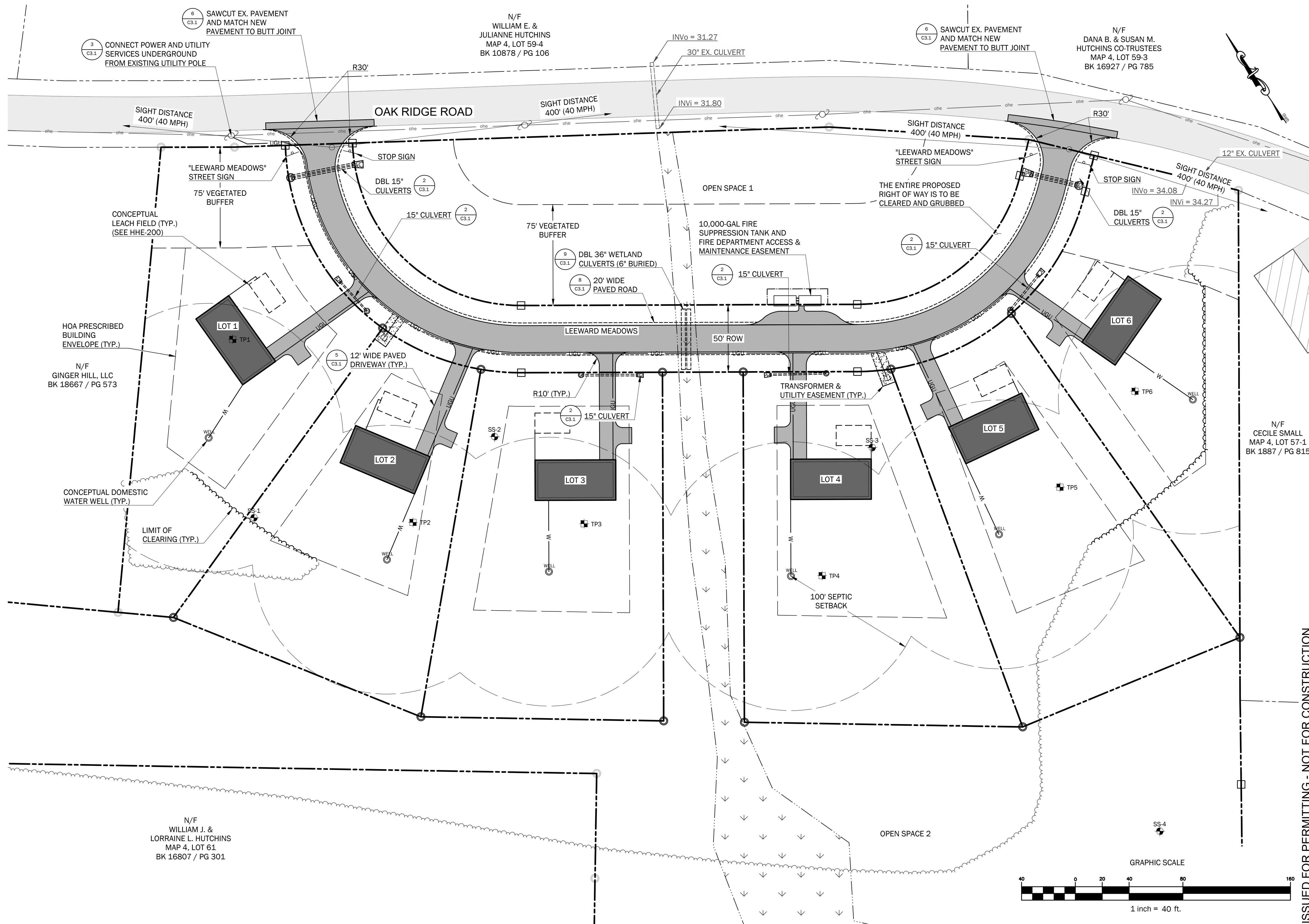
1. CLASSIFICATION: RURAL FARM (RF)
2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT
10. 75' VEGETATED BUFFER FROM EXISTING ROW

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

1. ALL DIMENSIONS, LOCATIONS AND CONTROLS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
2. DO NOT SCALE THE DRAWINGS FOR REQUIRED DIMENSIONS. ANY DISCREPANCIES IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
3. ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE SHOWN.
4. ALL EDGES OF PAVING SHALL BE STAKED OUT BY THE CONTRACTOR AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
5. PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING.
6. ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE LOAMED AND SEEDDED.
7. CENTERLINES OF DRIVEWAY AND WALKWAY, PROPOSED PARKING LOTS AND PROPOSED UTILITY LINES SHALL BE LOCATED AND LAID OUT BY PROFESSIONALLY LICENSED SURVEYOR.
8. SEE LANDSCAPING PLAN FOR NON-PAVED AREA SURFACE TREATMENTS AND CONCRETE PAVEMENT PATTERN LAYOUTS.
9. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

1. REFER TO SHEET C1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. DRAINAGE AT TERMINUS OF CURBING SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND PROJECT ENGINEER WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR PROJECT ENGINEER TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE CITY OF BIDDEFORD'S TECHNICAL GUIDELINES AND STANDARDS.

1. THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS.
2. THE CONTRACTOR SHALL COMPLY WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPs MANUAL AS PUBLISHED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BUREAU OF LAND AND WATER QUALITY, MARCH 2003 OR LATEST EDITION.
3. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. ALL DISTURBED AREAS ON SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED, OR BY OTHER METHODS AS REQUIRED BY THE WRITTEN EROSION CONTROL PLAN.
4. DISTURBED AREAS SHALL BE LIMITED TO ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION. FOR DISTURBED AREAS THAT ARE NOT UNDER ACTIVE CONSTRUCTION AND THAT CAN NOT YET UNDERGO FINAL GRADING, INSTALL TEMPORARY SEEDING AND MULCHING (REFER TO WRITTEN EROSION CONTROL PLAN).
5. PERMANENT SEEDING OR STABILIZATION SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED, OR TEMPORARY MEASURES SHALL BE APPLIED SUCH AS MULCHING OR SEEDING UNTIL PERMANENT STABILIZATION MEASURES ARE IN PLACE.
6. TOPSOIL SHALL BE STOCKPILED IN AREAS AWAY FROM PROTECTED NATURAL RESOURCES AND IN AREAS WHICH HAVE A MINIMAL POTENTIAL FOR EROSION; REFER TO OWNER FOR LOCATION OF MATERIAL STOCKPILE.
7. ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND REPAIRED IN ACCORDANCE WITH THE WRITTEN EROSION CONTROL PLAN FOR THE DURATION OF THE PROJECT UNTIL ALL AREAS ARE STABILIZED. REMOVE ACCUMULATED SILT AND SEDIMENT AS NEEDED AND MAINTAIN SILT FENCE IN GOOD, OPERABLE CONDITION.



ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022



Oak Ridge Road
Biddeford, Maine 04005

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	4/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/10/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title

Site Layout & Utilities Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 40'
Drawn:	CAR
Checked:	WRW

Sheet No. _____

C2.0

LEGEND

EXISTING		PROPOSED
---	PROPERTY LINE	---
---	ABUTTERS PROPERTY LINE	---
---	EASEMENT	---
---	PROPERTY SETBACK	---
IRF or IPF	IRON ROD OR PIN FOUND	5/8" REBAR TO BE SET
IRF or IPF	IRON ROD OR PIN SET	CONCRETE or GRANITE MONUMENT TO BE SET
IRF or IPF	CONCRETE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
IRF or IPF	GRANITE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
IRF or IPF	MONUMENT SET	CONCRETE or GRANITE MONUMENT TO BE SET
SD	STORM DRAIN LINE	SD
FD	FOUNDATION DRAIN LINE	FD
---	STORM DRAIN CULVERT	---
---	RIP RAP IN/OUT PROTECTION APRON	---
W	WATERLINE	W
SS	SANITARY SEWER LINE	SS
UGU	UNDERGROUND UTILITY	UGU
---	UTILITY POLE	---
---	BUILDING	---
---	RIPRAP	---
---	LANDSCAPE/RETAINING WALL	---
---	BITUMINOUS PAVEMENT	---
---	GRAVEL	---
---	CONCRETE	---
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
---	TREELINE	---
---	TREE	---
---	SILT FENCE	SF
---	EROSION CONTROL BERM	ECB
---	TURF REINFORCEMENT MATTING	---
---	CONSTRUCTION ENTRANCE	---

PLAN NOTES:

- SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

- CLASSIFICATION: RURAL FARM (RF)
- MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
20,000 SF (NO WATER, NO SEWER, CLUSTER)
- MAX. LOT COVERAGE: 30%
- MAX. BUILDING HEIGHT: 35 FT
- MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
- FRONT SETBACK: 40 FT FROM MAJOR ROW
25 FT FROM OTHER ROW
- SIDE SETBACK: 25 FT
- REAR SETBACK: 25 FT
- PARKING REQUIREMENTS: 2 PER DWELLING UNIT
- 75' VEGETATED BUFFER FROM EXISTING ROW

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

LAYOUT, MATERIALS, AND UTILITY NOTES:

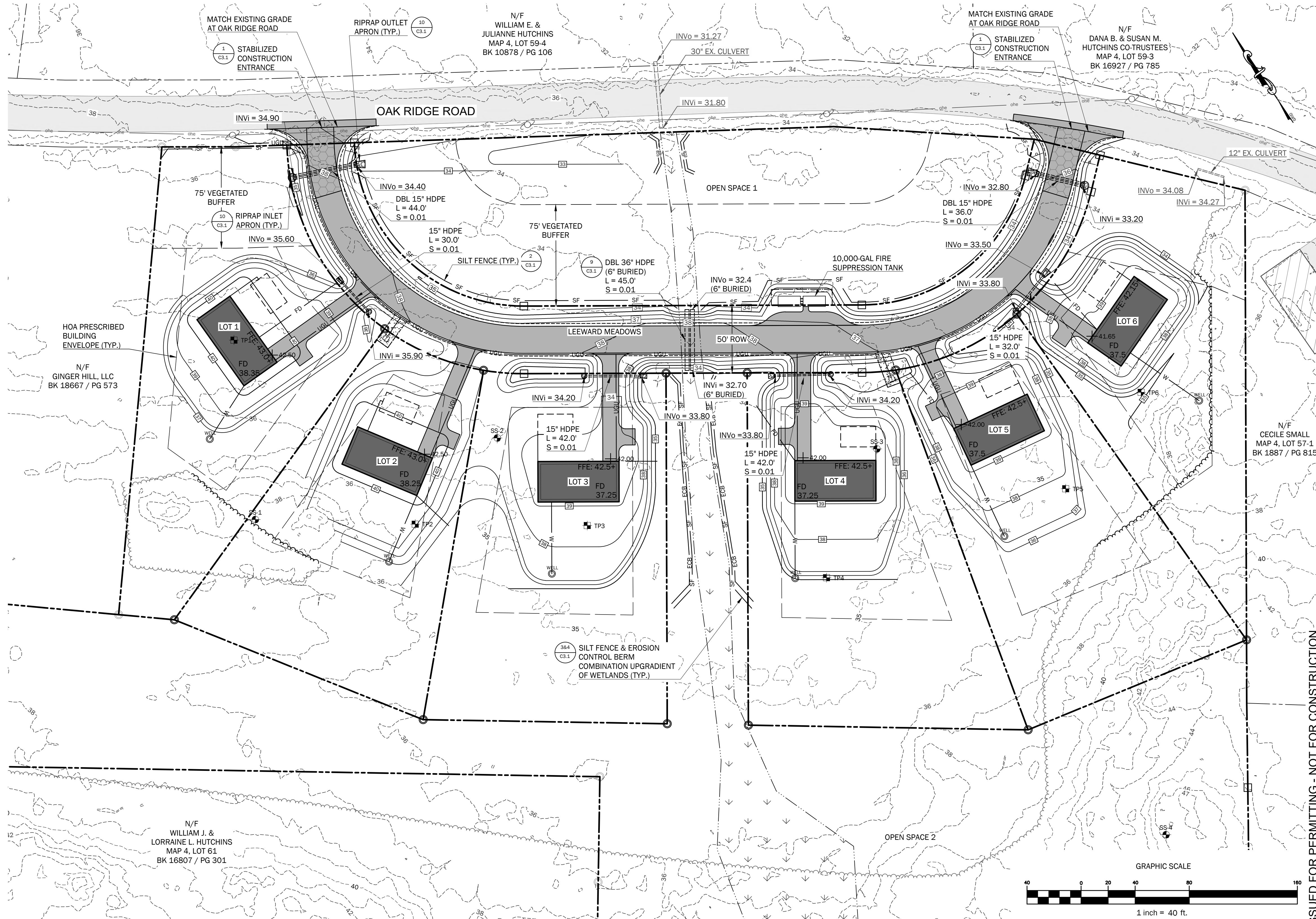
- ALL DIMENSIONS, LOCATIONS AND CONTROLS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
- DO NOT SCALE THE DRAWINGS FOR REQUIRED DIMENSIONS. ANY DISCREPANCIES IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE.
- ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE SHOWN.
- ALL EDGES OF PAVING SHALL BE STAKED OUT BY THE CONTRACTOR AND REVIEWED BY THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.
- PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING.
- ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE LOAMED AND SEEDED.
- CENTERLINES OF DRIVEWAY AND WALKWAY, PROPOSED PARKING LOTS AND PROPOSED UTILITY LINES SHALL BE LOCATED AND LAID OUT BY PROFESSIONALLY LICENSED SURVEYOR.
- SEE LANDSCAPING PLAN FOR NON-PAVED AREA SURFACE TREATMENTS AND CONCRETE PAVER PATTERN LAYOUTS.
- LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

GRADING, DRAINAGE AND UTILITIES NOTES:

- REFER TO SHEET C1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
- PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
- ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
- GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
- DRAINAGE AT TERMINUS OF CURBING SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- OWNER AND PROJECT ENGINEER WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR PROJECT ENGINEER TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
- ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE CITY OF BIDDEFORD'S TECHNICAL GUIDELINES AND STANDARDS.

EROSION CONTROL NOTES:

- THE CONTRACTOR SHALL INSTALL ALL EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS, SPECIFICATIONS.
- THE CONTRACTOR SHALL COMPLY WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPs MANUAL AS PUBLISHED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BUREAU OF LAND AND WATER QUALITY, MARCH 2003 OR LATEST EDITION.
- ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING. ALL DISTURBED AREAS ON SITE NOT COVERED BY BUILDINGS OR PAVED AREAS SHALL BE STABILIZED WITH LOAM AND SEED, OR BY OTHER METHODS AS REQUIRED BY THE WRITTEN EROSION CONTROL PLAN.
- DISTURBED AREAS SHALL BE LIMITED TO ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION. FOR DISTURBED AREAS THAT ARE NOT UNDER ACTIVE CONSTRUCTION AND THAT CAN NOT YET UNDERGO FINAL GRADING, INSTALL TEMPORARY SEEDING AND MULCHING (REFER TO WRITTEN EROSION CONTROL PLAN).
- PERMANENT SEEDING OR STABILIZATION SHALL BE CARRIED OUT IMMEDIATELY AFTER FINAL GRADING IS COMPLETED, OR TEMPORARY MEASURES SHALL BE APPLIED SUCH AS MULCHING OR SEEDING UNTIL PERMANENT STABILIZATION MEASURES ARE IN PLACE.
- TOPSOIL SHALL BE STOCKPILED IN AREAS AWAY FROM PROTECTED NATURAL RESOURCES AND IN AREAS WHICH HAVE A MINIMAL POTENTIAL FOR EROSION; REFER TO OWNER FOR LOCATION OF MATERIAL STOCKPILE.
- ALL EROSION CONTROL MEASURES SHALL BE ROUTINELY INSPECTED AND REPAIRED IN ACCORDANCE WITH THE WRITTEN EROSION CONTROL PLAN FOR THE DURATION OF THE PROJECT UNTIL ALL AREAS ARE STABILIZED. REMOVE ACCUMULATED SILT AND SEDIMENT AS NEEDED AND MAINTAIN SILT FENCE IN GOOD, OPERABLE CONDITION.



Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

Rev.	Date	Description	Drawn	Check
1	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
2	6/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
3	11/23/2021	Revised per City Review Comments	CAR	NGC
4	11/23/2021	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Grading & Erosion
Control Plan

Job No.:	742	Sheet No.:	
Date:	June 15, 2021		
Scale:	1" = 40'		
Drawn:	CAR		
Checked:	WRW		

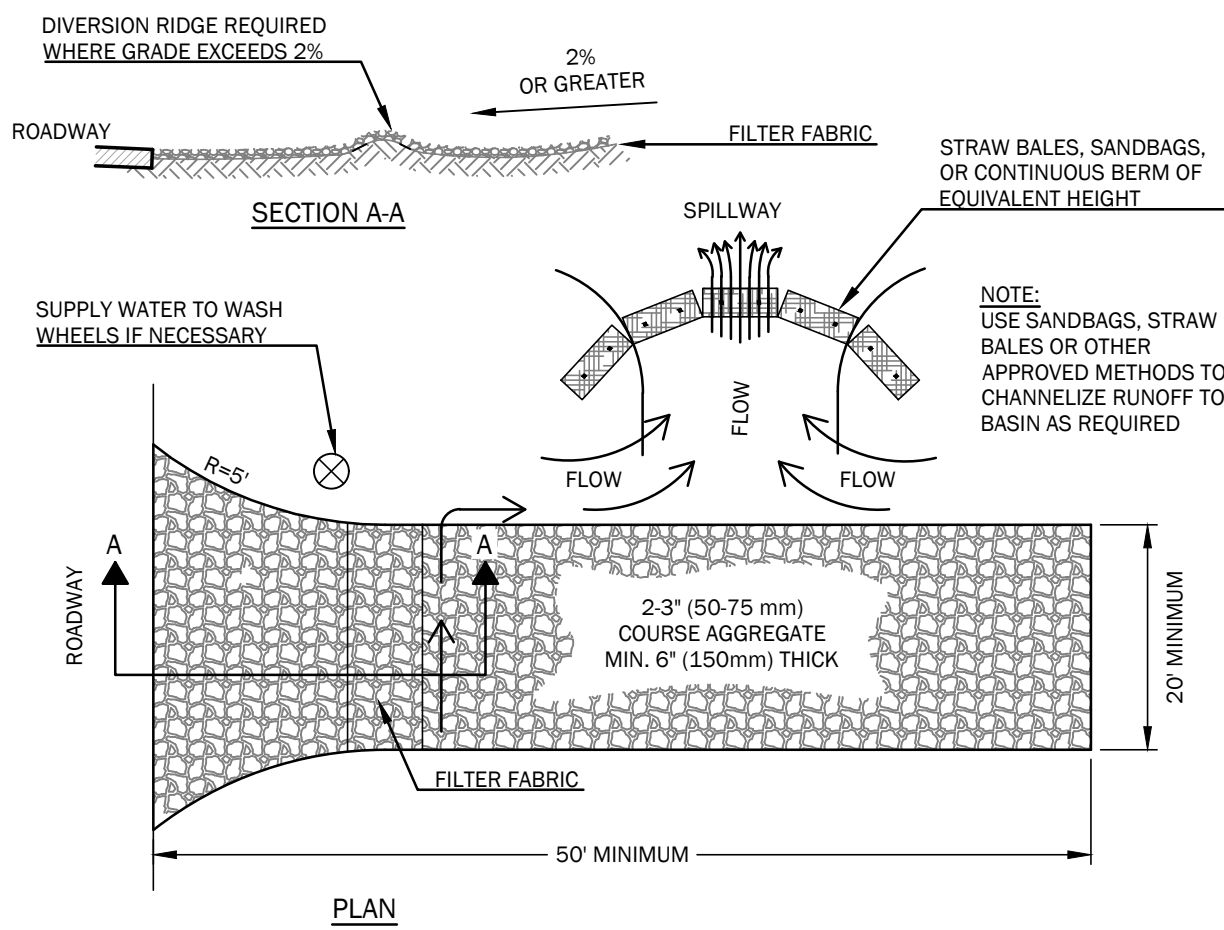
C2.1

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2022

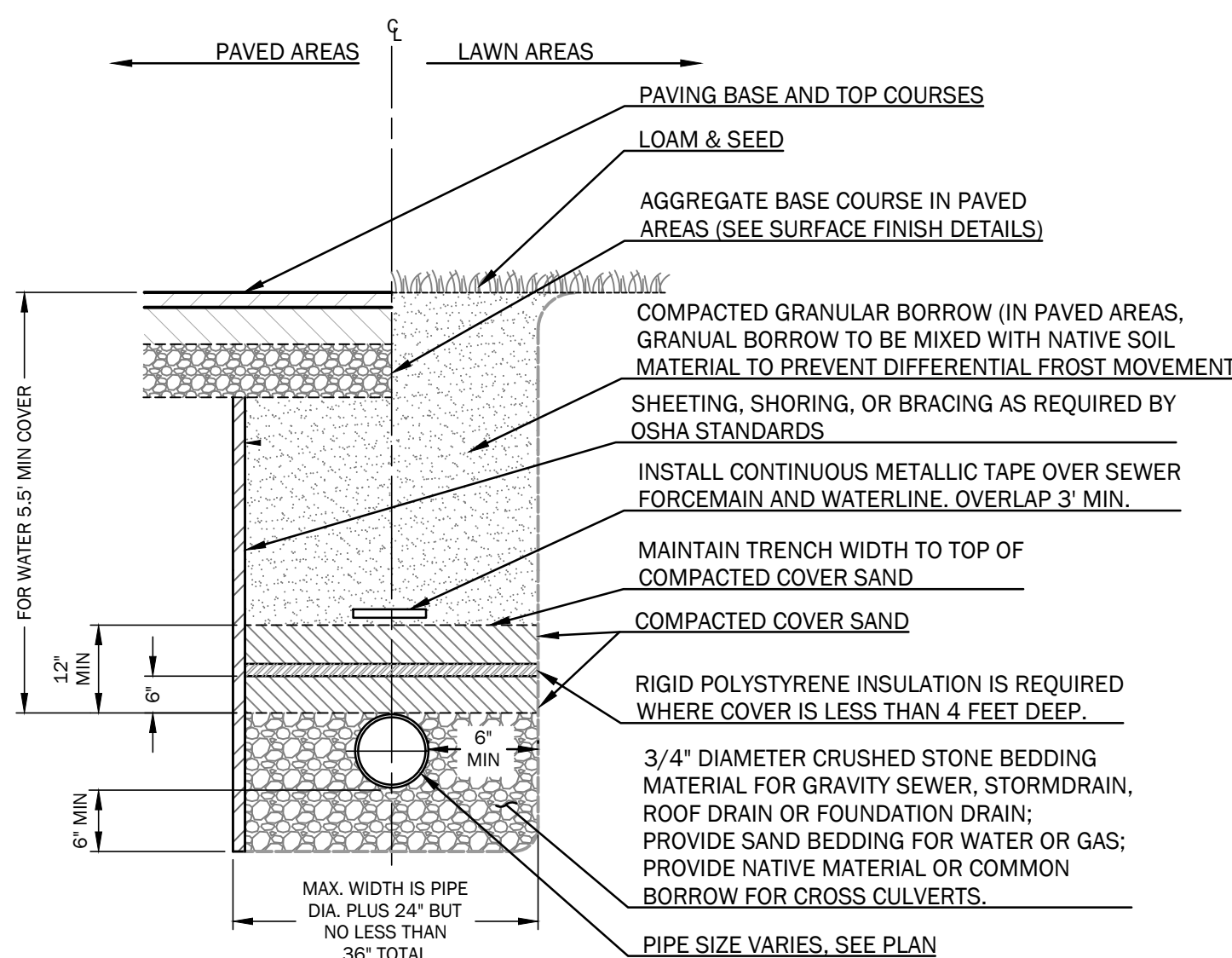




- NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS ONTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
 4. TRACKED MUD AND SEDIMENT SHALL BE REMOVED BY VACUUMING PRIOR TO THE NEXT STORM EVENT.

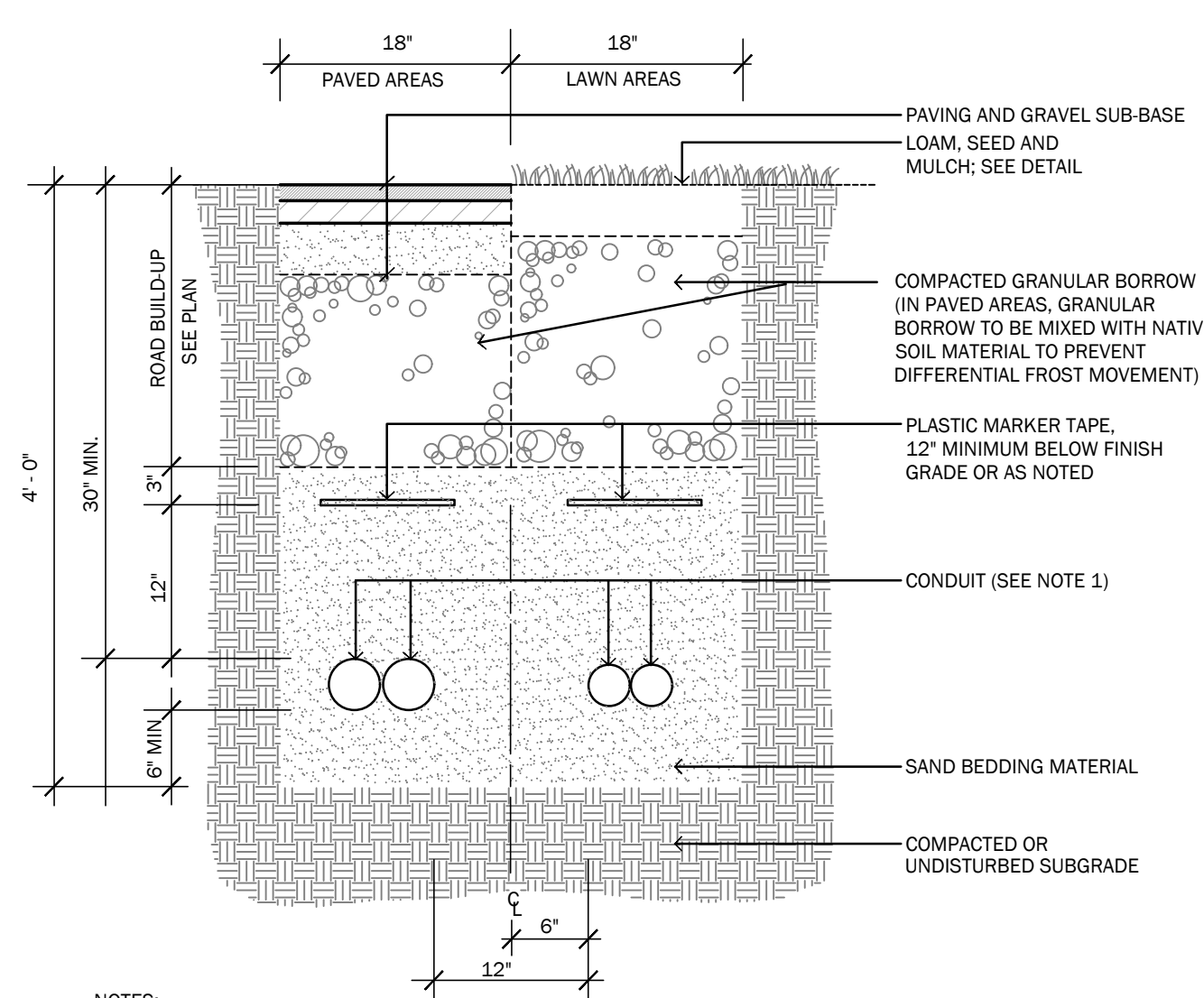
1 STABILIZED CONSTRUCTION ENTRANCE

C3.1 NOT TO SCALE



2 TYPICAL PIPE TRENCH DETAIL

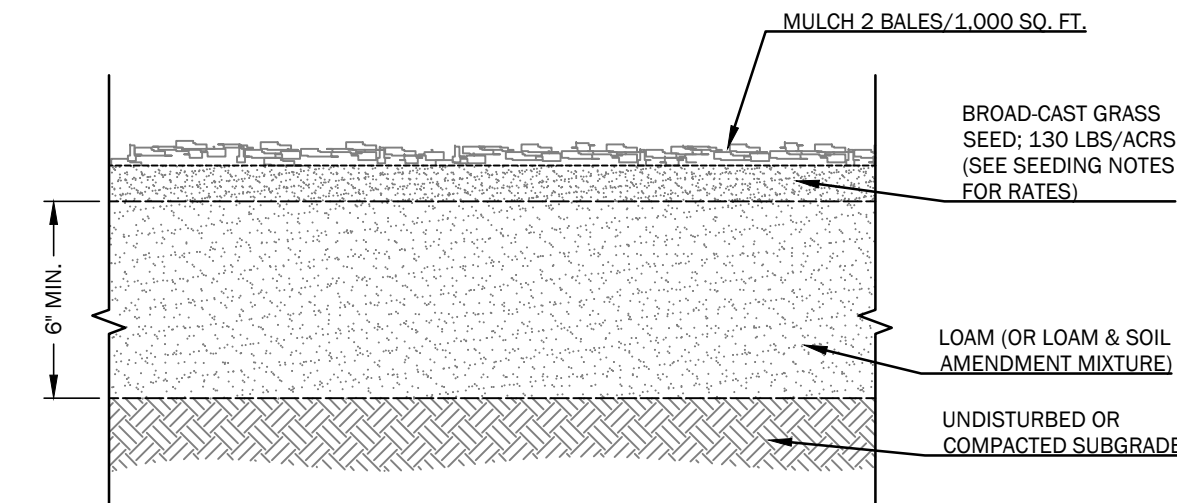
C3.1 NOT TO SCALE



- NOTES:
1. COORDINATE NUMBER & SIZE OF CONDUITS WITH ELECTRICAL PLANS.
 2. ALL WORK SHALL COMPLY WITH THE RESPECTIVE UTILITY COMPANY STANDARDS.
 3. SEE UTILITIES PLANS FOR CONDUIT LOCATIONS.
 4. CONTRACTOR TO PROVIDE 1/4\"/>

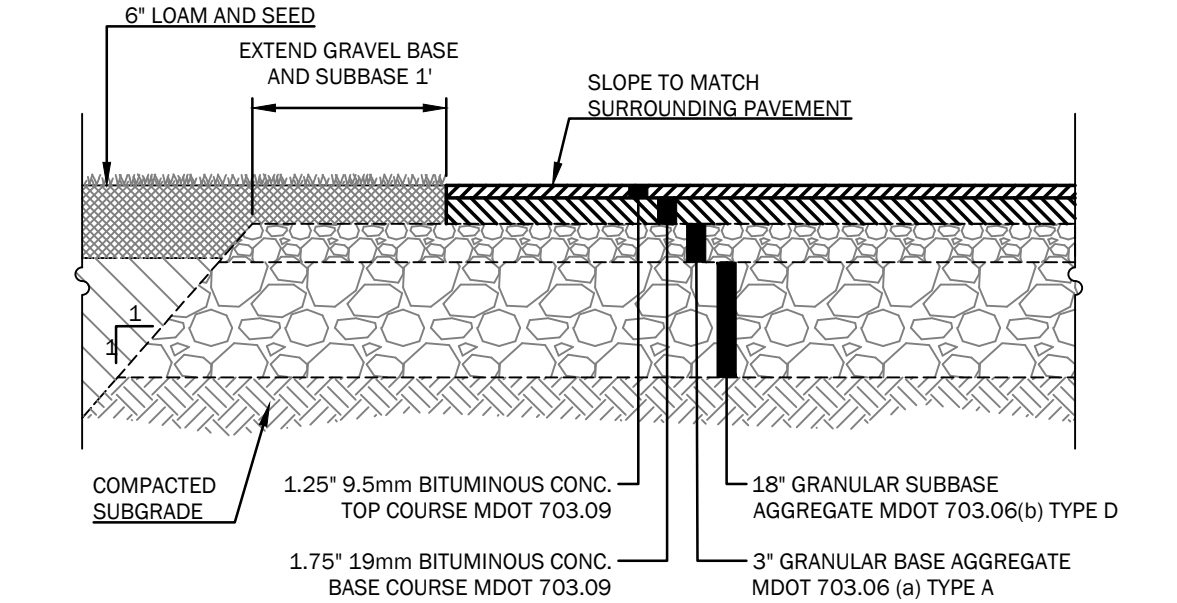
3 UNDERGROUND UTILITY TRENCH SECTION

C3.1 NOT TO SCALE



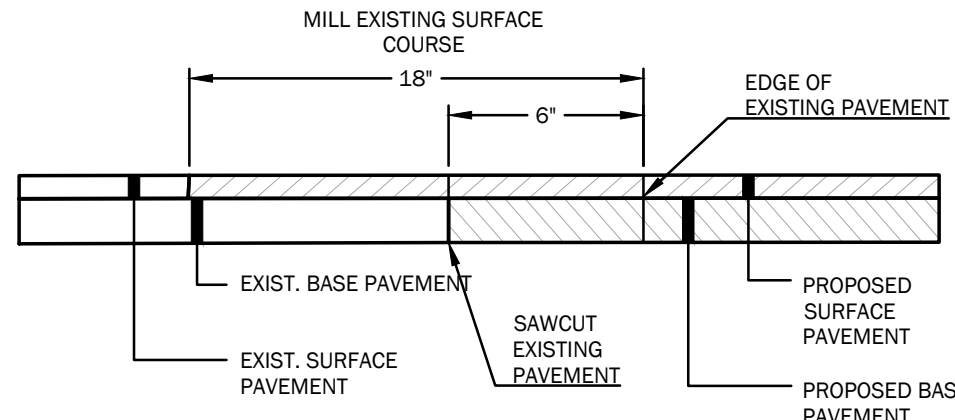
4 LOAM AND SEED DETAIL

C3.1 NOT TO SCALE



5 PAVED DRIVEWAY SECTION

C3.1 NOT TO SCALE

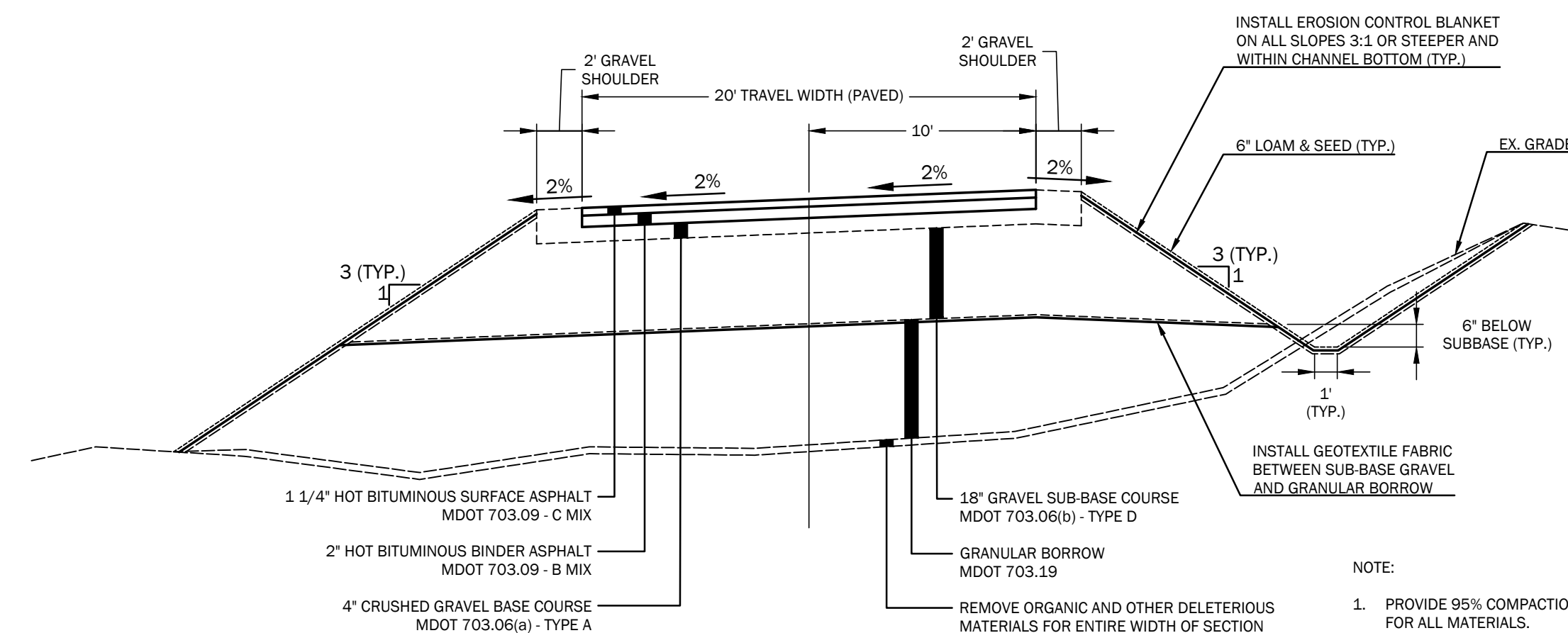


6 HMA PAVEMENT BUTT JOINT DETAIL

C3.1 NOT TO SCALE

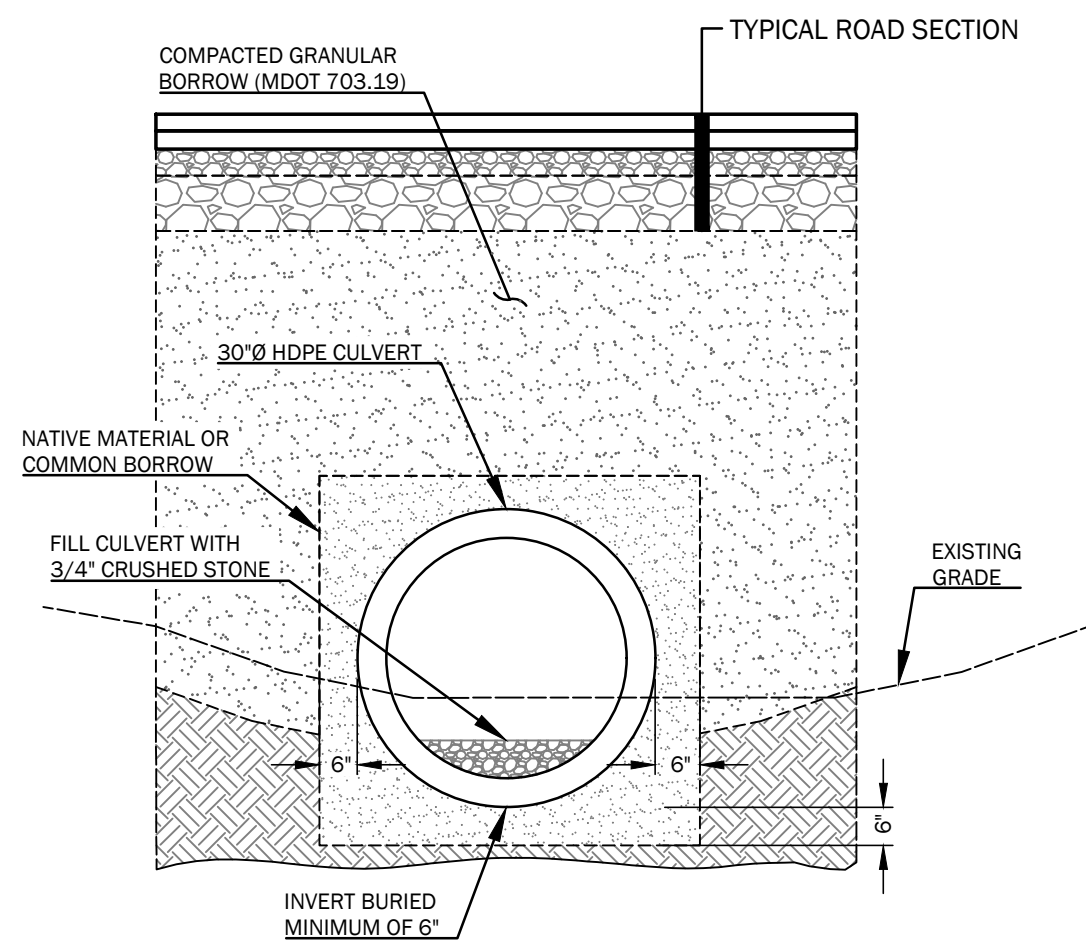
7 DETAIL NOT USED

C3.1 NOT TO SCALE



8 LEEWARD MEADOWS ROAD SECTION

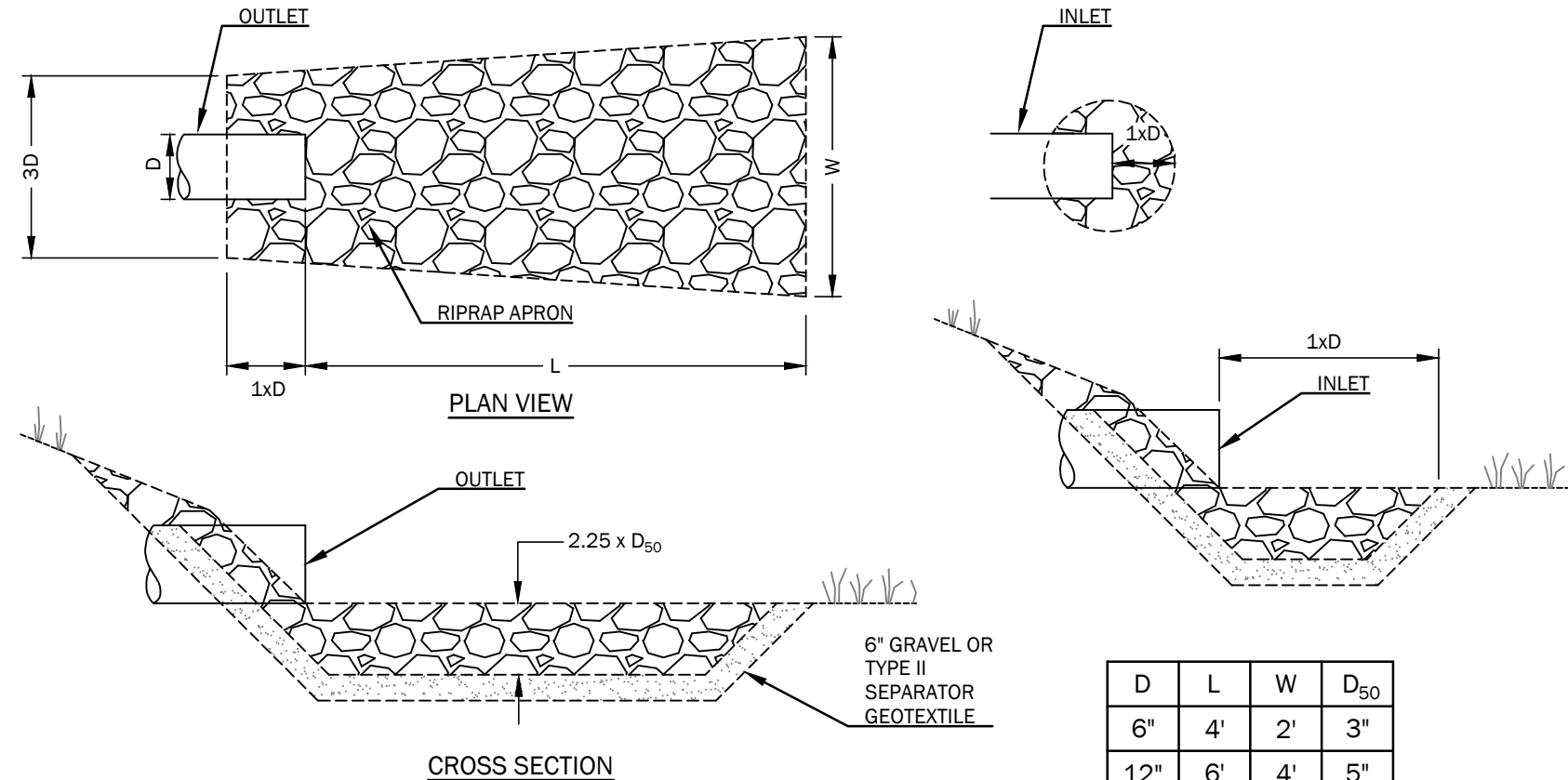
C3.1 NOT TO SCALE



- NOTES:
1. TEMPORARILY REROUTE FLOW DURING CONSTRUCTION.
 2. INSTALL CULVERTS IN DRY WEATHER CONDITIONS.
 3. REPAIR WETLAND BEYOND LIMITS OF CULVERT INSTALLATION AFTER CONSTRUCTION.
 4. CONTRACTOR SHALL VERIFY EXISTING GRADE ELEVATIONS AT PIPE INVERTS PRIOR TO INSTALLATION. PIPE INVERT SHALL BE SET 6\"/>

9 WETLAND CROSSING CULVERT INSTALLATION

C3.1 NOT TO SCALE

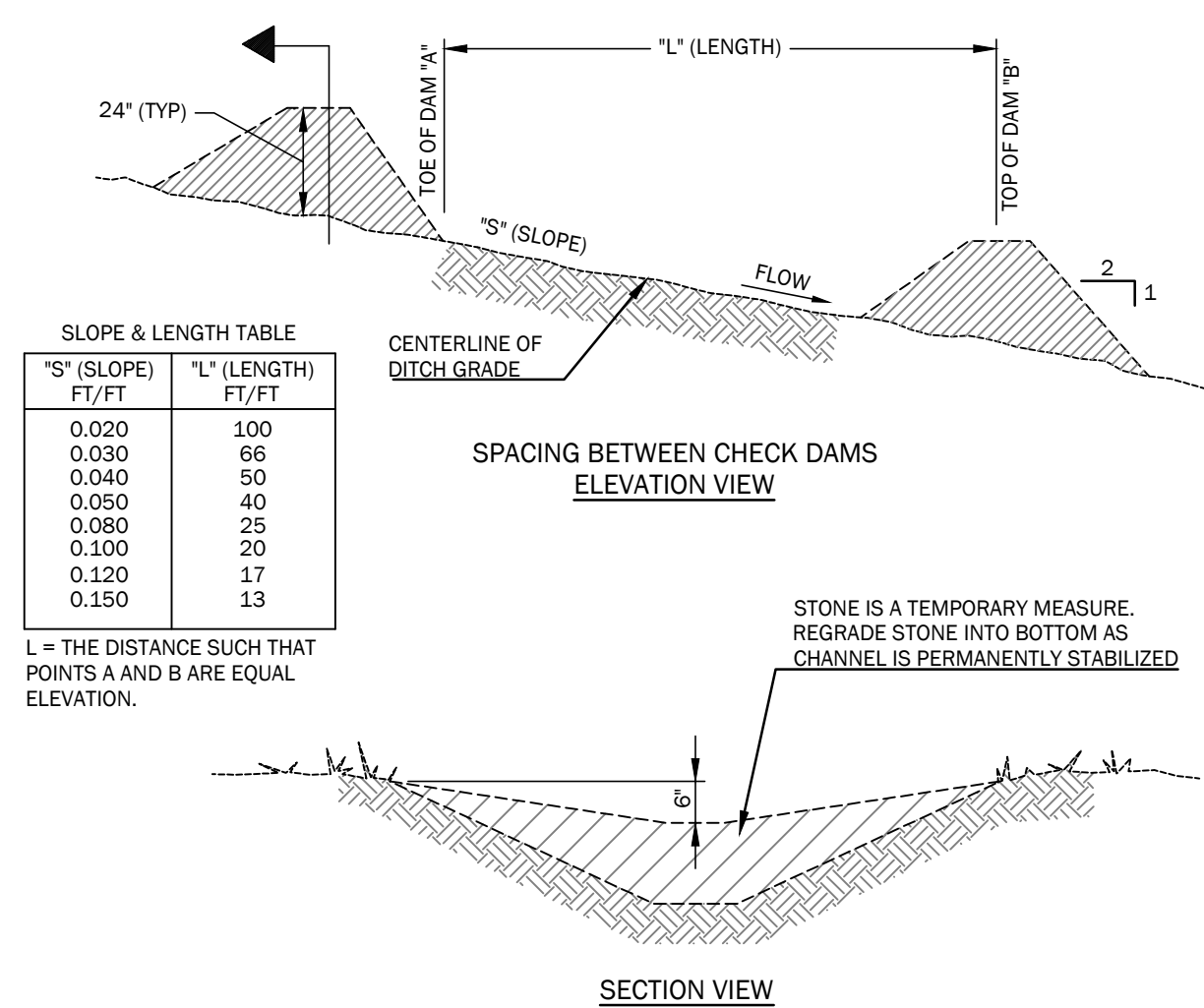


- NOTES:
1. USE D_{50} NOTED ON TABLE UNLESS OTHERWISE SPECIFIED ON PLANS.
 2. UNDERLAY RIPRAP WITH 6\"/>

D	L	W	D_{50}
6"	4'	2'	3"
12"	6'	4'	5"
15"	7'	5'	6"
18"	8'	6'	8"
24"	10'	8'	8"

10 RIPRAP INLET & OUTLET APRONS

C3.1 NOT TO SCALE



"S" (SLOPE) F7/FT	"L" (LENGTH) F7/FT
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

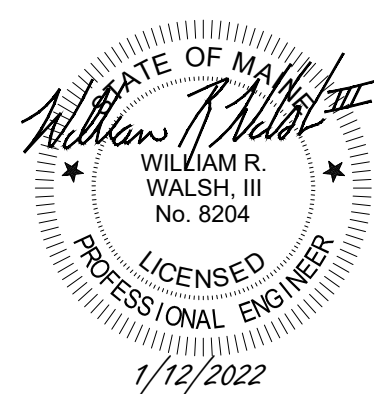
L = THE DISTANCE SUCH THAT POINTS A AND B ARE EQUAL ELEVATION.

STONE IS A TEMPORARY MEASURE. REGRADE STONE INTO BOTTOM AS CHANNEL IS PERMANENTLY STABILIZED

- NOTES:
1. STONE CHECK DAMS ARE NOT REQ'D IN PROPOSED RIPRAP DITCHES. USE IN UNLINED DITCHES DURING CONSTRUCTION.
 2. CHECK DAMS ARE NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING. SOME SEDIMENT WILL ACCUMULATE BEHIND DAMS. SEDIMENT SHOULD BE REMOVED FROM BEHIND DAMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE DAM.
 3. STONE: 2\"/>

11 STONE CHECK DAM

C3.1 NOT TO SCALE



Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

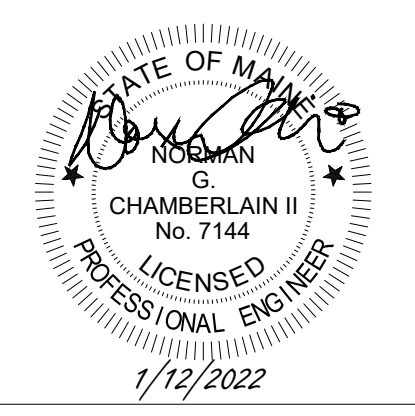
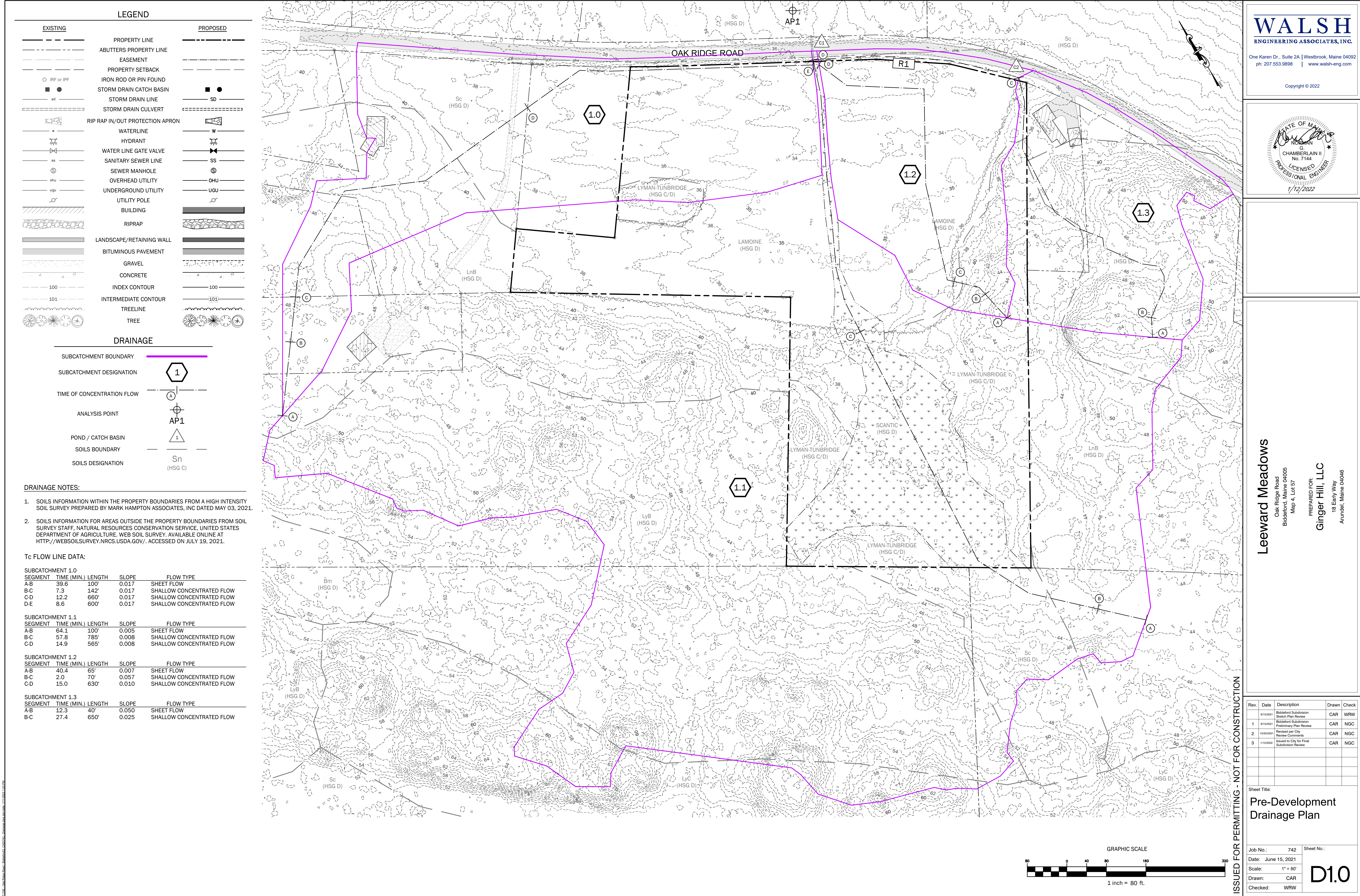
Site Details

Job No.: 742
Date: June 15, 2021
Scale: No Scale
Drawn: CAR
Checked: WRW

Sheet No.:

C3.1

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION



Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

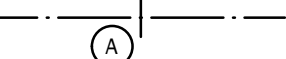
Rev.	Date	Description	Drawn	Check
01/10/2021		Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	01/10/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	11/20/2021	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Pre-Development
Drainage Plan

Job No.:	742	Sheet No.:	
Date:	June 15, 2021		
Scale:	1" = 80'		
Drawn:	CAR		
Checked:	WRW		

D1.0

	
SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	
TIME OF CONCENTRATION FLOW	
ANALYSIS POINT	
POND / CATCH BASIN	
SOILS BOUNDARY	
SOILS DESIGNATION	

1. SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY PREPARED BY MARK HAMPTON ASSOCIATES, INC DATED MAY 03, 2021.
2. SOILS INFORMATION FOR AREAS OUTSIDE THE PROPERTY BOUNDARIES FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT [HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/](http://websoilsurvey.nrcs.usda.gov/). ACCESSED ON JULY 19, 2021.

SUBCATCHMENT 1.0				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	0.3	20'	0.020	SHEET FLOW
B-C	1.2	20'	0.150	SHALLOW CONCENTRATED FLOW
C-D	6.2	276'	0.011	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	39.6	100'	0.017	SHEET FLOW
B-C	7.3	142'	0.017	SHALLOW CONCENTRATED FLOW
C-D	12.2	660'	0.017	SHALLOW CONCENTRATED FLOW
D-E	4.7	330'	0.017	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.2				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	6.9	100'	0.047	SHEET FLOW
B-C	4.2	250'	0.020	SHALLOW CONCENTRATED FLOW
C-D	11.7	460'	0.009	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.3				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

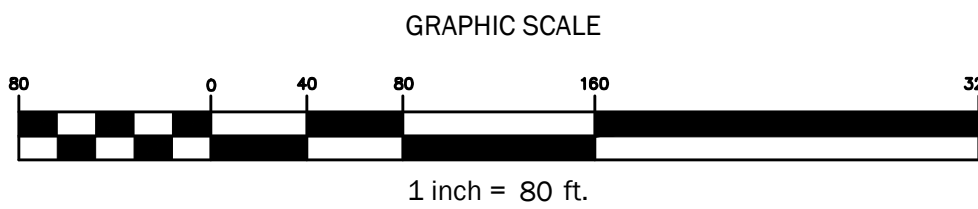
SUBCATCHMENT 1.4				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	64.1	100'	0.005	SHEET FLOW
B-C	57.8	785'	0.008	SHALLOW CONCENTRATED FLOW
C-D	10.0	380'	0.008	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.5				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

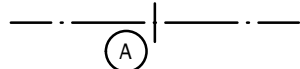
SUBCATCHMENT 1.6				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	16.9	66'	0.061	SHEET FLOW
B-C	4.2	50'	0.040	SHALLOW CONCENTRATED FLOW
C-D	4.0	142'	0.007	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.7				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

SUBCATCHMENT 1.8				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	12.3	40'	0.050	SHEET FLOW
B-C	27.4	650'	0.025	SHALLOW CONCENTRATED FLOW



591

	DRAINAGE
SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	
TIME OF CONCENTRATION FLOW	
ANALYSIS POINT	
POND / CATCH BASIN	
SOILS BOUNDARY	
SOILS DESIGNATION	Sn (HSG C)

1. SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY PREPARED BY MARK HAMPTON ASSOCIATES, INC DATED MAY 03, 2021.
2. SOILS INFORMATION FOR AREAS OUTSIDE THE PROPERTY BOUNDARIES FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT [HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/](http://websoilsurvey.nrcs.usda.gov/). ACCESSED ON JULY 19, 2021.

SUBCATCHMENT 1.0				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	0.3	20'	0.020	SHEET FLOW
B-C	1.2	20'	0.150	SHALLOW CONCENTRATED FLOW
C-D	6.2	276'	0.011	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	39.6	100'	0.017	SHEET FLOW
B-C	7.3	142'	0.017	SHALLOW CONCENTRATED FLOW
C-D	12.2	660'	0.017	SHALLOW CONCENTRATED FLOW
D-E	4.7	330'	0.017	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.2				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	6.9	100'	0.047	SHEET FLOW
B-C	4.2	250'	0.020	SHALLOW CONCENTRATED FLOW
C-D	11.7	460'	0.009	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.3				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

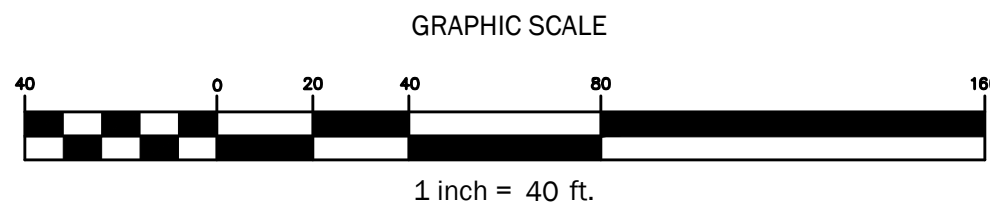
SUBCATCHMENT 1.4				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	64.1	100'	0.005	SHEET FLOW
B-C	57.8	785'	0.008	SHALLOW CONCENTRATED FLOW
C-D	10.0	380'	0.008	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.5				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

SUBCATCHMENT 1.6				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	16.9	66'	0.061	SHEET FLOW
B-C	4.2	50'	0.040	SHALLOW CONCENTRATED FLOW
C-D	4.0	142'	0.007	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.7				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	MINIMUM TC

SUBCATCHMENT 1.8				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	12.3	40'	0.050	SHEET FLOW
B-C	27.4	650'	0.025	SHALLOW CONCENTRATED FLOW



Leeward Meadows
Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Eary Way
Arundel, Maine 04046

Sheet Title:		
Post Development Drainage Plan		
Job No.:	742	Sheet No.:
Date:	June 15, 2021	D2.1
Scale:	1" = 40'	
Drawn:	CAR	
Checked:	WRW	

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

PLAN REFERENCES:
1. EXISTING CONDITIONS SURVEY, TOPOGRAPHY, TREELINE, DRAINAGE & DEVELOPMENT CONCEPT TAKEN FROM ELECTRONIC FILE. PREPARED BY WALSH ENGINEERING FOR GINGER HILL, LLC. DATED October, 6, 2021



- PLANTING NOTES:
- THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE PLAN.
 - ANY SUBSTITUTION OF SPECIFIED PLANTS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT. ONLY NATIVE SPECIES AND/OR VARIETIES WILL BE ACCEPTABLE.
 - ALL TREE, SHRUB, VINE, AND PLANT BED (GROUNDCOVERS, PERENNIALS, BULBS, ETC.) LOCATIONS SHALL BE STAKED OR MARKED BY CONTRACTOR AND THEN APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO PLANTING. CONTRACTOR MUST GIVE A MINIMUM 3 DAY NOTICE BETWEEN STAKING AND PLANTING.
 - ALL PLANTS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
 - ALL PLANTS SHALL BE DELIVERED TO THE SITE FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
 - THE LANDSCAPE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES, THE LOCATION OF WHICH SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION OPERATIONS. SHOULD THE LOCATION OF PROPOSED PLANTINGS CONFLICT WITH ANY OF SAID UTILITIES, ADJUST PLANT LOCATIONS ACCORDINGLY AFTER CONSULTATION WITH THE LANDSCAPE ARCHITECT.
 - PLANTING TREES AND SHRUBS: EXCAVATE PLANTING PITS WITH SLOPING SIDES, AND WITH BOTTOM OF EXCAVATION RAISED IN CENTER FOR DRAINAGE. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION, AND LOOSEN SOIL ON SIDES OF SLOPES. SET PLANTS IN CENTER OF PIT WITH TOP OF BALL RAISED SLIGHTLY ABOVE FINISH GRADES. PLACE A SETTING LAYER OF COMPACTED PLANTING MIX. REMOVE BURLAP AND WIRE BASKETS FROM TOP OF BALLS. ON SIDES, FOLD BACK WIRE AND REMOVE UPPER PORTIONS OF BURLAP. DO NOT USE PLANT IF ROOT BALL IS CRACKED OR BROKEN. IF CONTAINER, REMOVE CONTAINER AND SOOUP PERIMETER SOIL AND ROOTS. PLACE PLANTING MIX AROUND BALL/CONTAINER IN LAYERS, TAMPING TO ELIMINATE VOIDS AND AIR POCKETS. DO NOT COVER TOP OF ROOT BALL. PRUNE, THIN, AND SHAPE AFTER PLANTING.
 - MULCH PLANTING BEDS WITH 3" CONSERVATION MIX MULCH OR AS SPECIFIED ON THE PLAN.
 - ALL DISTURBED LAWN AREAS TO BE LAWSED AND SEEDING AS NECESSARY AT NO ADDITIONAL COST TO OWNER(S).
 - GRADES SHOWN REPRESENT PROPOSED GRADES PER CONTRACT. CONTRACTOR TO VERIFY GRADES AS NEEDED.
 - PLANT MATERIALS SHALL BE GUARANTEED FOR ONE (1) YEAR AFTER PLANTING. ANY DEAD, UNSIGHTLY, OR UNHEALTHY PLANTS SHALL BE REPLACED IN KIND AT NO COST TO THE OWNER(S).
 - THE CONTRACTOR SHALL REPLACE OR REPAIR TO ORIGINAL CONDITION ANY AND ALL UTILITIES, PAVING, CURBING, ETC., DAMAGED AS A RESULT OF THEIR OPERATIONS AT NO ADDITIONAL COST TO THE OWNER(S).
 - A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO LANDSCAPE CONTRACTOR BEGINNING CONSTRUCTION OR ORDERING PLANT MATERIALS.

PLAN LIST:

QUANTITY	TREES:	LABEL	NAME	SCIENTIFIC	SIZE
4	LT		RED MAPLE	ACER RUBRUM	1.25-1.5" CAL
3	LT		RED OAK	QUERCUS RUBRA	1.25-1.5" CAL
3	LT		SWAMP WHITE OAK	QUERCUS BICOLOR	1.25-1.5" CAL
3	LT		AMERICAN BEECH	FAGUS GRANDIOFOLIA	1.25-1.5" CAL
UNDERSTORY:					
4	ST		YELLOW BIRCH	BETULA ALLEGHANIENSIS	6-7 FT HT
6	ST		HORNBEAM	CARPINUS CAROLINIANA	6-7 FT HT
8	ST		SERVICEBERRY	AMELANCHIER CANADENSIS	4-5 FT HT
3	ST		PAGODA DOGWOOD	CORNUS ALTERNIFOLIA	6-7 FT HT
EVERGREENS:					
8	ET		WHITE SPRUCE	PICEA GLAUCA	5-6 FT HT
6	ET		WHITE PINE	PINUS STROBUS	5-6 FT HT
6	ET		BALSAM FIR	ABIES BALSAMEA	5-6 FT HT
SHRUBS:					
8	SH		WITHERED VIBURNUM	VIBURNUM CASSINOIDES	24"-30" B&B
9	SH		COMMON WITCH HAZEL	HAMAMELIS VIRGINIANA	24"-30" B&B
15	SH		FORSYTHIA	FORSYTHIA X INTERMEDIA	24"-30" B&B
24	SH1		RED CHOKEBERRY	ARONIA ARBUTIFOLIA	18-24" HT
16	SH1		WINTERBERRY	ILEX VERTICILLATA	18-24" HT
16	SH1		NORTHERN BAYBERRY	MYRICA PENNSYLVANICA	18-24" HT
14	SH1		SWEET PEPPERBUSH	CLETHRA ALNIFOLIA	18-24" HT
MEADOW:					
29,000 SF	MEADOW		NEW ENGLAND CONSERVATION / WILDLIFE MIX (NEW ENGLAND WETLAND PLANTS, INC. (413) 548-8000)		1 LB/1,750 SF

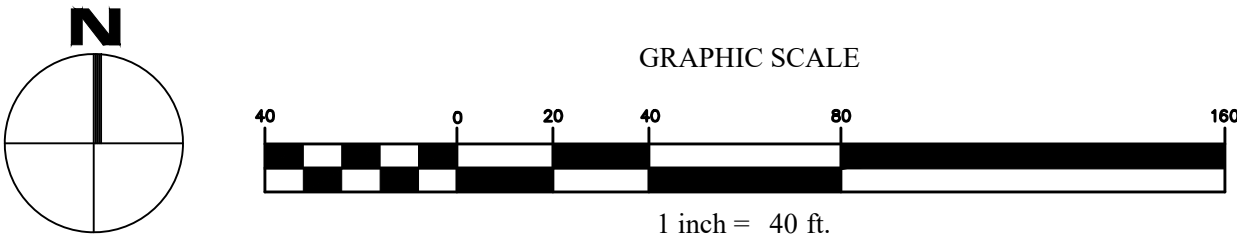
MEADOW PREPARATION & SEEDING: (3 YEAR SCOPE)

- YEAR ONE:
- INSTALL EROSION CONTROL MEASURES.
 - REMOVE ALL ALL WOODY VEGETATION AND DEEPLY ROTOTILL ENTIRE MEADOW AREA TO A DEPTH OF 12 INCHES.
 - APPLY A LAYER OF COMPOST AND LIGHTLY ROTOTILL THE MEADOW AREA TO A DEPTH NO MORE THAN 6 INCHES.
 - APPLY A ANNUAL SEED COVER CROP OF BUCKWHEAT OR APPROVED EQUAL.
 - LET GROW FOR ONE FULL SEASON, WEED AS NECESSARY. ANNUAL CROP WILL DIE AT FIRST FROST.
- YEAR TWO:
- THE FOLLOWING SPRING, LIGHTLY RAKE SOIL TO REMOVE DEAD AND DEBRIS.
 - SEED MEADOW AREA EVENLY WITH WILDFLOWER SEED MIX MIXED WITH SAND, ROLL AREA AND COVER WITH CLEAN HAY. (SEED @ RATE 0.5 LBS PER 1,000SF)
 - LET GROW FOR FULL SEASON, REMOVE WEEDS AS NECESSARY, TRY TO MINIMIZE SOIL DISTURBANCE.
- YEAR THREE:
- MONITOR MEADOW AND REMOVE WEEDS OR WOODY VEGETATION AS NEEDED.
 - CONTINUED MAINTENANCE. MOW MEADOW TO A HEIGHT OF 6" TO 8" IN HEIGHT EVERY OTHER YEAR.
 - REPAIR DAMAGED OR BARE PORTIONS STARTING WITH ITEM #6.
- WILDFLOWER SEED MIX:
NATIVE NORTHEAST WILDFLOWER SEED MIX AVAILABLE FROM AMERICAN MEADOWS (877) 309-7333 (WWW.AMERICANMEADOWS.COM) (RATE OF .5 LBS / 1,000SF)

MIXTURE OF NATIVE DECIDUOUS & CONIFEROUS TREES AND SHRUBS TO PROVIDE VISUAL SCREEN AT MATURITY.

PLANT SYMBOL / LEGEND

LT	- DECIDUOUS TREE LARGE
ST	- DECIDUOUS TREE UNDERSTORY
ET	- EVERGREEN TREE
SH	- SHRUB B&B
SH1	- SHRUB
MEADOW	- SEEDED POLLINATOR MEADOW



WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

Copyright © 2021



Scott Strynar
Landscape Architect, LLC.
98 Meehan Lane
North Berwick, ME 03906
(t) 207-957-4441
www.scottstrynarla.com

Leeward Meadows

Oak Ridge Road
Biddeford, Maine 04005
Map 4, Lot 57

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Aundell, Maine 04046

Rev.	Date	Description	Drawn	Check
01/15/2021		Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	01/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/03/2021	Revised per Engineer Review Comments	CAR	WRW
3	12/18/2021	Revised per Peer Review Comments	SS	SS

Sheet Title:

Landscape Plan

Job No.: 742
Date: June 15, 2021
Scale: 1" = 40'
Drawn: CAR
Checked: WRW

Sheet No.:
L1.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

PLANNING BOARD
REPORT

January 27, 2022

Biddeford Planning Board
Greg Tansley, City Planner
City of Biddeford
205 Main Street
Biddeford, Maine 04005

Application: New Electrical Substation– CMPCO
466-468 South Street (Tax Map 2 Lot 401)

Final Plan Review

Review Status: Sketch Plan application reviewed on 11/3/21.

Board members and Mr. Tansley,

The following application information has been provided for review:

1. Application form dated 10/12/2021.
2. Project narrative; *Central Maine Power Company Biddeford Pump Substation*, prepared by TRC Companies, LLC, dated 11/9/2021. (Includes location map)
3. Engineering Plans entitled: *Biddeford Pump S/S, Biddeford ME*. Prepared for Avangrid, prepared by Main Line Energy Consultants, LLC, that include the following drawings: *Civil Site Plan, Facility Grading Plan. Detention Pond Details, Erosion Control Plan and Details*, REV Date: 9/8/2021.
4. Building/Electrical Components Plans/Elevations entitled: *Biddeford Pump S/S, Biddeford ME*. Prepared for Avangrid, prepared by Main Line Energy Consultants, LLC, that include the following drawings: *General Arrangement* (plan), *General Arrangement* (sections), sheets 1 through 6. REV Date: 1/28/2021.
5. Visual Assessment/Rendering entitled: *Three-dimensional Model of the Biddeford Pump Substation*, and two photo simulations; *View from South Street* and *View from South Street Entrance*. Prepared for Avangrid, prepared by Westwood Professional Services. Date: 10/14/2021
6. Plan set entitled: *Biddeford Pump Biddeford, Maine.*, Landscape Buffer Screening Plan. Prepared for Avangrid, prepared by Westwood Professional Services. Date: 10/12/2021. (Includes *Overall Landscape Screening Plan* and *Landscape Screening Notes & Details*)

7. Sound Study prepared by Westwood Professional Services. Date: 11/8/2021.
8. Letter from TRC dated 1/11/2022; *RE: Response to Request for Information Land Use Application for the Central Maine Power Company Biddeford Pump Substation, South Street Biddeford, Maine*, and associated plans and documents.

With review of the above information and the Land Development Regulations, I offer the following comments on compliance with the City's ordinances. See attached for engineering related comments from Site Design Associates.

PROJECT DESCRIPTION

The project site, located on a new lot, portion of the Maine Water Company (MWC) property on South Street. The site is located in the SR-1 Zone and is outside the shoreland overlay zones associated with the Saco River and nearby Swamp Pond Brook, though falls within the 1,000-foot SRCC (Saco River Corridor Commission) Buffer. The proposal is to construct a new electrical substation, replacing an existing substation that is inadequate for MWC's new and expanded facility.

COMPLETENESS REVIEW

The proposed development is before the Planning Board as required by Article XI Site Plan Review of the City's Land Development Regulations. Per Section 4.B.II.G any development subject to a conditional use permit that will result in 5,000 SF or greater of impervious surface is subject to Major Site Plan Review. Per the Table of Land Uses in Article V, the proposed use, *Essential Services*, is a conditional use in the SR-1 Zone.

As outlined in Part II Procedure for Site Development, Sec. 3 requires major project review to be conducted in two steps; sketch plan and final plan. The sketch plan was reviewed at the 11/3 meeting.

The applicant has prepared and submitted a narrative that describe the application's compliance with applicable provisions. The applicant has also submitted engineering plans, building and equipment elevations, landscape plans for proposed screening, and visual assessment renderings/photo simulations. The Planning Board may want to consider the following for a complete application:

1. All easement information, off or on site, that pertain to the proposed development.

COMPLIANCE WITH THE CITY'S ORDINANCES

The proposed development is a public utility that is defined in the ordinance as *Essential Services*. In addition to Site Plan Review there are two primary regulatory provisions that this use and development are subject to: *Conditional Uses* (Art. VII) and Sec. 27 under Performance Standards (Art. VI) *Essential services and water supply systems*. Below are some, not all, the provisions the applicant will need to review and address in subsequent submissions.

CONDITIONAL USES (ART. VII)

1. Sec. 6. Standards. The applicant has provided responses in writing to each of the standards. There is reference to a Maine Water Co. application for the new treatment facility concerning potential impacts to environmental and archeological resources, however, no information was submitted. A sound study was prepared to address the potential impact from the proposed facility (see Exhibit 8, end of the submittal).

PERFORMANCE STANDARDS (ART. VI)

2. Essential services and water supply systems (SEC. 27). The applicant has addressed in writing these standards. As mentioned above, a sound study has been prepared. An easement on an abutting lot is referenced in response to Sec. 27.A, requiring where feasible such development to be located in the ROW. The applicant should elaborate on the easement and clarify on its location. Is it the easement shown on the lot n/f Martin Family Trust? (Civil Site Plan).

SITE PLAN REVIEW (ART. XI)

3. Sec. 5.B. Site design criteria. The applicant has addressed in writing these standards. The following are items the Board may want to further consider:
 - a. Sec. 5.B.4.c Fire protection. The applicant has addressed fire protection under the Conditional Use standards; however, it would be prudent to have the Fire Department review the proposed facility for the Board's consideration.
 - b. Sec. 5.B.4.d Landscaping. The applicant has submitted a landscape screening plan. Considering there is a fair amount of mature trees being removed, the plant palette includes only vegetation that will mature to fairly low heights. It is understood that there are specific setback requirements for tall vegetation from the substation equipment and lines, however, there appears to be opportunities outside these setbacks.
 - i. Additional evergreen trees should be considered to augment the existing deciduous trees to be preserved on South Street and along the abutting property line. Installation should be sized at 8'- 10' high. (See attached sketch)

- ii. The Northern Bayberry (NBB) proposed should be spaced closer together to make an effective screen, such as 5 feet, less than the more than eight feet which is greater than the shrubs mature width.
 - c. Sec. 5.B.4.m Historic and archeological resources. The applicant references prior submittal information from the MWC's previous regulatory review. Nothing has been submitted as part of this application. In the absence of something more tangible, it is difficult to determine conformance to this standard. At a minimum, and what is typically done with such applications, letters from the local and state historic preservation commissions stating there are no resources known to be located on the property.
4. Sound Study. The applicant has submitted a sound study for the Board's consideration. The anticipated noise level from the associated fans to cool the proposed generators is calculated and the study concludes the at the distance the abutting property line, the sound generated would be lower than the levels permitted under the noise ordinance. The Board may want to consider the following:
- a. What is the context of the existing site and surrounding area as to the ambient noise level, is it as high as the permitted noise levels or significantly lower? In other words what is the increase of noise at the property line? Is the potential noise of approximately 40 dB(A) at the property line consistent with what the noise level is today? If not, what is the increase? Perhaps if it is a significant increase it may need to be further mitigated.
5. Utility connections. The applicant states there are no utility connections required.
6. Easements: Are there easements planned or have been executed to access the existing MWC drive and use of property for the proposed driveway aprons?
7. Saco River Corridor Commission. The prior approval referenced should be submitted for the City's file.
8. Plan revisions: the following revisions should be considered:
- a. All plans should be stamped by the appropriate licensed professional and signatory approval blocks provided.
 - b. All proposed and existing easement should be depicted on the Site Plan.
 - c. The vegetated buffer limits proposed should be depicted on the Site Plan, referencing landscape plan.
 - d. Address and tax map information should be provided on the Site Plan.

WAIVER REQUESTS

None requested.

CONCLUSION

The submitted application substantially complete, however, the Planning Board may require additional information to be considered for final plan approval. The Board has received comments from the abutting single family residence that the applicant should address. The Board should determine if the items outlined above. (summarized below), and any comments from the peer-review engineer, and city staff, can be addressed as a condition of approval or will need to review revised plans prior to final approval.

Outstanding items reflected in the review comments above:

1. Proposed and existing easements (clarification/submittal)
2. Fire Department review
3. Revisions to landscape buffer planting design
4. Past permit review information that is referenced that shows compliance (e.g. Maine Historic Preservation; environmental impacts)
5. Sound study clarifications
6. Saco River Corridor Commission approval
7. Housekeeping plan revisions

Feel free to contact me with questions.

Best regards,



Christopher Di Matteo
City of Biddeford Contract Planner.
cdimatteo@longmeadowpla.com
207.604.4245

FINDINGS OF FACT AND CONCLUSIONS OF LAW

CONDITIONAL USE AND SITE PLAN REVIEW

Pursuant to the provisions of the City of Biddeford Land Development Regulations, Articles XI (Site Plan Review) and Article VII (Conditional Uses), the Biddeford Planning Board has considered the application of the **Central Maine Power Company** to construct a new replacement substation at 466-468 South Street, including supportive data, public hearing testimony and related materials contained in the record. Based on Public Comment and Staff's review and recommendation, the Planning Board makes the following Findings of Fact and Conclusions of Law:

Findings of Fact:

1.	Applicant:	Central Maine Power Company 83 Edison Drive Augusta, ME 04336
2.	Owner of Property:	Central Maine Power Company
3.	Agent:	TRC Companies, LLC 14 Gabriel Drive, Augusta, ME 04336
4.	Project Location:	466-468 South Street
5.	Project Tax Map #/Lot #:	Tax Map 2, Lot 40-1
6.	Lot Size:	1.87 AC +/-
7.	Existing Zoning:	Suburban Residential -1 (SR-1)
8.	Overlay Zoning:	None
9.	Designations:	Saco River Corridor Commission Buffer
10.	Existing Use:	Vacant (lot split from Maine Water Company Pump Facility)
11.	Proposed Use:	New electrical substation
12.	Floodplain Status:	None
13.	Approvals Required:	Site Plan Review and Conditional Use
14.	Uses in the Vicinity:	Single family residential and Public Utilities.
15.	Dimensional Requirements:*	
	Min. Setback from R.O.W: 40 FT	Minimum Rear Setback: 10 FT
	Minimum Side Setback: 10 FT	Maximum Height: 3 stories / 35 FT
	* As an <i>Essential Service</i> the proposed development is exempt from dimensional requirements	
16.	Waivers Needed:	a. None
17.	Waivers Granted:	a. None
18.	Variances Needed for Approval:	None.
19.	Other Approvals Required:	Building Permits from the Biddeford Code Enforcement Office.
20.	Other Permits Obtained:	None.
21.	Other Non-City Permits Required:	None

22.	LDR Attachment A: Fess Paid:	Yes
23.	Application Materials Submitted: 1. Application form dated 10/12/2021. 2. Project narrative; Central Maine Power Company Biddeford Pump Substation, prepared by TRC Companies, LLC, dated 11/9/2021. (Includes location map) 3. Engineering Plans entitled: Biddeford Pump S/S, Biddeford ME. Prepared for Avangrid, prepared by Main Line Energy Consultants, LLC, that include the following drawings: Civil Site Plan, Facility Grading Plan. Detention Pond Details, Erosion Control Plan and Details, REV Date: 9/8/2021. 4. Building/Electrical Components Plans/Elevations entitled: Biddeford Pump S/S, Biddeford ME. Prepared for Avangrid, prepared by Main Line Energy Consultants, LLC, that include the following drawings: General Arrangement (plan), General Arrangement (sections). REV Date: 1/28/2021. 5. Visual Assessment/Rendering entitled: Three-dimensional Model of the Biddeford Pump Substation, and two photo simulations; View from South Street and View from South Street Entrance. Prepared for Avangrid, prepared by Westwood Professional Services. Date: 10/14/2021 6. Plan set entitled: Biddeford Pump Biddeford, Maine., Landscape Buffer Screening Plan. Prepared for Avangrid, prepared by Westwood Professional Services. Date: 10/12/2021. (Includes Overall Landscape Screening Plan and Landscape Screening Notes & Details) 7. Sound Study prepared by Westwood Professional Services. Date: 11/8/2021. 8. Letter from TRC dated 1/11/2022; RE: Response to Request for Information Land Use Application for the Central Maine Power Company Biddeford Pump Substation, South Street Biddeford, Maine, and associated plans and documents.	
24.	Planning Board Review History: Conditional Use and Site Plan Review: - November 3, 2021 Meeting - Sketch Plan - February 2, 2022 Meeting – Final Plan	

Conclusions of Law:

The Planning Board concludes based on the application information submitted, peer-review and staff reports prepared and testimony provided at their meetings, the application conforms to the following provisions:

- A. Article VI Performance Standards, Section 27 Essential services and water supply systems:

- 1) Where feasible, the installation of essential services shall be limited to existing public ways and existing service corridors.
 - 2) Essential services and water supply systems structures and facilities shall be sited and developed in accordance with the provisions stated in this ordinance.
 - 3) All conditional use permit applications for essential services and water supply systems shall include an assessment of potential environmental and health impacts to abutting properties as a result from noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes as applicable, unless a waiver is requested by the applicant and granted by the Planning Board.
- B. Article VII Conditional Uses of the City's Land Development Regulations, including Section 6 Standards:
- 1) The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
 - 2) The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
 - 3) The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
 - 4) The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
 - 5) The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
 - 6) The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
 - 7) The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
 - 8) The proposed use would not have a significant, detrimental effect on the value of adjacent properties, which could be avoided by reasonable modification of the proposal;
 - 9) The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal.
 - 10) The proposed use would be in compliance with Biddeford's comprehensive plan;

- 11) The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
 - 12) The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
 - 13) Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
 - 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 project (and for fire protection purposes, if applicable.)
 - 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, historic sites, archeological resources, or on significant wildlife habitat or wetland areas and water bodies, which could be avoided by reasonable modification of the proposal;
- C. Article XI Site Plan Review of the City's Land Development Regulations, including Section 5 Site design and development criteria (subsection B):
1. **Drainage:** The proposed development has been designed by a licensed engineer and has been reviewed by the City's peer-review engineer and applicable standards related to stormwater and drainage have been adequately addressed.
 2. **Parking:** The proposed development has been designed to provide for sufficient parking spaces and adequately addresses related parking standards.
 3. **Structural Layout and Design:** The proposed development has been designed to adequately address the factors to be considered under this the Site Design criterion.

Determination:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the application with the following conditions:

Conditions of Approval:

- 1. Prior to any ground disturbance or issuance of any permits:**
 - a. All outstanding contract planner's comments, engineering peer-review comments, and Planning Board comments shall be addressed to the satisfaction of the City Planner. This includes revisions to the Landscape Plan as per comments from C. Di Matteo and as depicted on the included landscape plan revisions sheet).
 - b. Approval letter from Fire Department shall be submitted to the Planning Department.
 - c. Letters from state agencies from prior Maine Water Company Site Plan Review, including from the Department of Inland Fish and Wildlife, Natural Areas Program, and Maine Historic Preservation Commission.
 - d. Approval from the Saco River Corridor Commission shall be submitted to the Planning Department.
 - e. A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.
 - f. An Erosion and Sedimentation Control Performance Guarantee (acceptable to the Planning Department) in an amount to be determined by the City based on finalized Unit Cost Estimate shall be submitted to the Planning Department
 - g. Stabilized Construction Access shall be constructed to the satisfaction of the Engineering Department.
 - h. A Winter Maintenance plan that addresses snow storage shall be approved by the City Engineer.
 - i. The applicant shall provide to the Planning Department a draft easement to address stormwater travelling over, and possibly ponding on, Main Water property, PRIOR TO RECORDING OF THE EASEMENT.
 - j. The applicant shall provide a copy of the executed, recorded easement required per Condition of Approval 1.i above.
- 2. Prior to the issuance of any occupancy permits:**
 - a. The Planning Department shall conduct a compliance inspection and shall determine that all required site improvements related to the public's health, safety, and welfare have been completed, and that the City holds a Performance Guarantee sufficient to cover any remaining site improvements and/or deficiencies.
 - b. A performance guarantee (acceptable to the Engineering Department) in the amount of 150% of any remaining site improvements shall be submitted to the Planning Department. Amount to be determined based on City inspections and the recommendation of the City Engineer.

- 3. Best management practices shall be adhered to during all ground disturbance operations. All Catch Basin's in the vicinity of earthwork operations shall have silt sacks installed & maintained for the duration of the work.**
- 4. Copies of the maintenance logs for the stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.**
- 5. Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approval.**
- 6. As-built plans are required at the completion of the project.**
- 7. Standard Conditions of Approval apply.**

Planning Board Chairman

Date

CITY OF BIDDEFORD, MAINE
PLANNING BOARD
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

APPLICATION FORM

Type of Application:

- | | | |
|--|--|--------------------------------------|
| ☐ Shoreland Zoning Permit | ☒ Site Plan Review | ☐ Extraction |
| ☒ Conditional Use Permit | ☐ Subdivision | ☐ Private Way |
| ☐ Other: _____ | | |

Applicant Information:

Applicant's Name: Central Maine Power Company

Applicant's Mailing Address: 83 Edison Drive Augusta, ME 04336

Applicant's Telephone: 207-530-1977 c/o Jeremy Pettengill

What is Applicant's legal interest in the property?

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

Owner's Name: Central Maine Power Company

Owner's Address: 83 Edison Drive, Augusta, ME 04336

Owner's Telephone: 207-530-1977 Jeremy Pettengill

Agent's Name: TRC Companies, LLC

Agent's Address: 14 Gabriel Drive, Augusta, ME 04330

Telephone: 207-441-4225 c/o Mark Christopher

Engineer/Surveyor: MaineLine Energy Consultants, LLC

Engineer/Surveyor's Address: 11272 86th Ave N, Maple grove, MN 55369

Telephone: 585-368-8892 c/o Peter Nice

Project Location and Lot Information:

Street Address: 466-468 South Street

Tax Map: 2 Lot: 40-1

Current Zoning: SR-1 Shoreland Zoning: No

Size of lot: 1.87 ☒ acres ☐ s.f. Lot Frontage: _____

Existing Use of Property: Undeveloped

Property currently serviced by:

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

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

Description of proposed use of property:

Project/Proposed Use Description: Development of a new electrical substation to serve the new
MWC facility, The substation will connect to 1-4 distribution lines and the existing 34.5kV transmission line.

Property to be serviced by:

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

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

☐ If in a Shoreland Zone: N/A

Percent of residential lot coverage (Max. 20%): _____

Percent of structure expansion (Max. 30%): _____

☐ If Subdivision Review, number of lots proposed: _____ N/A

☐ If a Private Way is proposed, number of lots served: Existing MWC gravel road will serve as driveway

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

Total new square feet footprint of structures: Cumulative foundations 770 ft²

Total new square feet paving/parking: None

Waiver Requests (attach details): None

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

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 Dept (Sewer) - Tom Milligan 284-9118
- ☐ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

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

E. Engineered Plans, as required.

Fees (due at time of 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 it's 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 review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this 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.

☒ Project proposed to have 1 acre or more of site disturbance: Project requires Chapter 500 PBR

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of applicant:

Jack Wu

Digitally signed by Jack Wu
DN: CN = Jack Wu email = en2,
Wu2@cmppo.com C = US
Date: 2021.10.12 09:57:53 -0400

Date: 10/12/2021

Signature of owner of property:

Date: _____

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**

November 9, 2021

Mr. Greg Tansley
City Planner
City of Biddeford
P.O. Box 586
205 Main Street
Biddeford, ME 04005

RE: Land Use Application for the Central Maine Power Company Biddeford Pump Substation, South Street Biddeford, Maine

Dear Roby,

The following provides a Conditional Use and Site Plan Review application for the Central Maine Power (CMP) Company's and Biddeford Pump Substation (Project) rebuild and upgrade located on 466-468 South Street, map 2, block 40 (PID 235) (Exhibits 1 and 2). CMP has obtained title for 1.87 acres for the new substation from the Maine Water Company (MWC) as part of the MWC's efforts to rebuild and expand its water treatment facility. Construction of the substation will include, but is not limited to, the installation of two 14-mega volt ampere (MVA) transformers, four 12-kilovolt (kV) distribution circuits, switchgear house including gas insulated switchgear equipment, protection and control system, bus work, lightning masts, and areas for temporary mobile substation hookup and capacitor bank (Exhibit 3). The facility is surrounded by a chain-link security fence with barbed-wire top and has two gates for pass through ingress and egress. The electrical components range in height from 20 to 45 feet, with the lightning masts and bus-work (structure that holds the conductors entering and exiting the substation) are typically 40-45 feet. The control house is approximately 20-22 feet tall to the roof gable while the transformers are 12-15 feet tall.

The new substation parcel is located 100 feet west of the driveway to the existing water treatment facility, 80 feet southwest of the existing substation, and 120 feet east of the nearest single-family residence on South Street. Other single-family residences range from 320 to 700 feet from the Project. The northerly edge of the Project is approximately 510 feet south from the Normal High-Water Line (NHWL) of the Saco River (Exhibit 2). A portion of the Project is within the Saco River Corridor Commission (SRCC) jurisdiction and approval was obtained from the SRCC on October 27, 2021.

Project Purpose and Objectives

The re-build of the Biddeford Pump Substation is important and necessary for maintaining and improving reliability of electrical services and future needs. CMP plans to replace and upgrade the functions of the substation to support the new and expanded MWC facility and to provide significant improvements to the electrical distribution system in the westerly portion of the city.

The existing substation is below electrical reliability standards and the age and condition of the facilities do not adequately support the community and potential growth. For example, the transformer is historically overloaded during peak load times of the year, as such CMP operations division installed a mobile transformer during the summer of 2021 to bypass the old transformer due to this chronic system

overloading. The mobile transformer will likely return next summer and until the Project is built and commissioned.

The infrastructure of the existing substation also does not conform to stormwater management, drainage, and containment standards of the State of Maine Chapter 500 Stormwater Management Regulations. The existing substation site does not have subsurface oil containment for the transformer, only a gravel berm around the perimeter of the foundation slab. The new transformers will have internal secondary containment and subsurface containment in addition to a containment berm that will meet state water quality standards.

The existing substation provides a rudimentary transmission and distribution system with one 34.5 kV transmission line and one local distribution circuit that serves the local community, in addition to the service connection to the existing MWC facility. The Project will continue to support the 34.5 kV transmission circuit and will initially add up to three distribution circuits, one of which will provide service to the new MWC facility with the others serving the greater community. Even without consideration for the support of the MWC facility, the Project alone adds a substantial amount of reliability and stability to the local distribution system.

This application contains supporting materials prepared by the CMP civil and substation engineering consultants. It also provides a discussion of the applicability and compliance of the City's performance standards. Those exhibits provided as follows:

- Exhibit 1. Project Location on Topographic Map Facility Grading Plan and Details;
- Exhibit 2. Project Boundary on Aerial Imagery;
- Exhibit 3. Facility Grading Plan and Details;
- Exhibit 4. Stormwater Management Report which includes the set of civil plans and erosion controls (under separate cover);
- Exhibit 5. Electrical Components including breakers, bus work, and control house;
- Exhibit 6. Visual Assessment;
- Exhibit 7. Landscaping Details; and
- Exhibit 8. Sound Assessment.

Article VII Section 6 Conditional Use Standards

The following provides a discussion of performance standards specified in the City's Site Plan Review Ordinance for Major Developments. Each standard is addressed, although some do not apply given the nature of the work.

Compliance with applicable state & federal laws: The Project requires the issuance of a Chapter 500 Stormwater Permit By Rule (PBR) by the Maine Department of Environmental Protection (MDEP). The PBR was submitted by CMP's civil engineering consultant on October 19, 2021 and has been issued by default as of November 2, 2021 (the stormwater report and plans are provided as Exhibit 4 under separate cover). There are no impacts to protected natural resources that would require issuance or permits by the MDEP through the Natural Resources Protection Act (NRPA) or the U.S. Army Corps of Engineers through the Section 404 of the Clean Water Act. Approval has been obtained from the SRCC.

Fire safety hazard: The substation components are entirely made of various metals and insulators made of non-combustible material. In the event of a fire, electrical current is terminated from CMP's control center, and the fire allowed to burn out. CMP staff are onsite and can open facilities as needed, although access typically is not necessary for first responders. The first responders are generally responsible for fire suppression outside the substation where there are combustible materials. There is sufficient space within the substation and immediate outside access for fire trucks to approach the substation and turn around.

Exterior lighting: The substation does not require outdoor lighting except for a security light downward casting over the entrance to the control house. The entrance is located facing away from South Street and will not be visible to motorists on South Street and to residents of the nearby single-family homes. Emergency lighting is provided on the various electrical components and will be in service during times of maintenance and repair.

Provision of buffers and landscaping: Based on site specific observations and an assessment of the expected post development conditions, the Project is adequately screened (Exhibit 6) from neighboring properties through the preservation of existing vegetation and landscaping plus augmentation with plantings (Exhibit 7). The nearest residence is 120 feet from the westerly boundary of the substation site and will be screened by a 30-foot wide stand of dense mature mixed hardwoods and pines within the substation property with landscape planting along the graded portions of the site. The project will be screened from residences on the south side of South Street by a 30-foot wide buffer of native hardwoods and pines augmented with landscaping that exist on the south shoulder of the road. On the north shoulder the Project has been designed to retain existing trees and shrubs along the north boundary, except for one small area where there is an existing gap with no trees but will be buffered with landscape planting.

Peaceful enjoyment: The substation once constructed and in its operational phase will not create any vibrations, fumes, odor, dust, glare, or other attributes that could be detrimental to the neighbors' quiet enjoyment of their property. The Project by its functional necessity operates on a 24/7 over the course of 365 days, although the only regularly working components, the fans that cool the transformers run on an as-needed basis. These cooling fans create sound of approximately 75 dba within three feet of the unit. Sound attenuates with distance and the transformers are approximately 70 feet from the west property boundary and have a buffer of trees 20 feet between the Project security fence and property boundary and an additional 30 feet of trees on the neighboring property. Temporary noises relating to construction are exempt from this performance standard.

Exhibit 8 provides an assessment of sound produced by the transformer fans when they are functioning, which is only on an intermittent basis. This study shows that the unobstructed sound level at various locations along the property boundary range from 37 to 46 dba without consideration for the noise dampening benefits of topography and vegetation, including ground obstructions. For example, the substation ground level will be 10-12 feet below the crown of South Street and the resulting topography will block any sound generated by the electrical equipment. The noise level standard during daylight hours (7am-10pm) is 55 dba and 45 dba during evening hours (10pm to 7am).

Vehicular loading and traffic: During the operational phase of the Project there will be sufficient space for CMP vehicles to enter, park, and exit the substation and for staff to access all portions of the site. There is no loading or unloading of equipment, long-term parking, or traffic generated and there is no public access. Maintenance staff visit the substation on a regular but infrequent basis using light duty vehicles and essentially will not generate traffic onto South Street, hence will not create traffic congestion or safety concerns.

Value of adjacent properties: Property values of the nearby single-family homes should not adversely be affected by the rebuilding of the substation. The site is functionally in a municipal land use having been established prior to much of the nearby development. Also, the substation and transmission line has existed at the current location since construction of the MWC facility. Given these factors, land values have been established with consideration of the surrounding land-uses and should not be impacted by the upgrade and rebuild of the substation.

Privacy of residents within 500 feet: The nearest private residence is 120 feet to the west of the Project and will be buffered by a 30-foot wide strip of existing native vegetation, mixed hardwoods, and pines, augmented with landscape plantings. Furthermore, there is a dense stand of mixed hardwoods and pines on the neighboring property. The buffer will minimize if not eliminate visibility of the Project and help dissipate any sounds produced by the transformer cooling fans. The Project once in operational phase will have a minimal amount of maintenance staff onsite on an irregular basis and their presence should not be noticeable from this residence. Other single-family homes in the immediate vicinity are 320-700 feet from the Project and are screened by existing natural vegetation, as well as being augmented by landscape planting, hence the Project will have only minimal visibility if any, from these homes.

Comprehensive Plan: The Project is in compliance with the City's comprehensive plan.

Architectural design: The Project is within a tract of land that serves as municipal use, including the buildings and infrastructure, for the production and treatment of potable water and has served at this location since 1887. The existing substation is compatible with the buildings and infrastructure of the current land use and the new substation has significant screening from nearby single-family homes. The Project is consistent with the existing municipal land-uses and fits in seamlessly with the surrounding community.

Flood hazard: The Project is landward of the Federal Emergency Management Agency designated 100-year flood zone.

Water Supply & Disposal of wastewater: The Project does not require the use of water and will not generate any wastewater.

Adequate provision for erosion and sedimentation control: The Project qualifies for a PBR per the MDEP Chapter 500 Stormwater Management Rules, which was reviewed and issued by default as of November 2, 2021, due to the site of the Project and the amount of soil disturbance and impervious surfaces. The PBR standards essentially require that the Project must comply with the Maine Erosion and Sedimentation

Control Law by fully applying Maine Erosion and Sediment Control Best Management Practices (BMPs). A full erosion and sedimentation control plan, including BMP design and installation specifications, is included in the Erosion and Sediment Control (ESC) Plan (Exhibit 4) which includes the civil drawing package.

CMP and its contractors will comply with the State of Maine Erosion Control Law and will implement the Maine Erosion and Sediment Control Best Management Practices (BMPs). Implementation of the BMPs is intended to achieve these goals and includes the following:

- Minimize the extent and duration of soil disturbance;
- Protect exposed soil by diverting runoff to stabilized areas;
- Ensure proper installation of temporary and permanent erosion and sedimentation control measures (including site restoration); and
- Establish an effective erosion and sedimentation control inspection and maintenance program.

The primary goal of erosion and sedimentation control is to minimize soil movement and loss, preserve the integrity of environmentally sensitive areas, and maintain existing surface water quality. Important components of the erosion and sedimentation control efforts include placement of Erosion Control Devices (ECDs) such as silt fence, erosion control mulch berms and socks, staked hay bales, and water bars between all construction and protected resources. Upon completion of construction all exposed soils are seeded with a suitable grass seed mix and stabilized with hay mulch or other suitable stabilization methods (i.e., erosion control blanket). Typically seeding is a temporary measure to stabilize the soil while vegetation regenerates naturally.

The construction contractor will have full responsibility for the installation and maintenance of all erosion and sedimentation controls. The Stormwater PBR also requires that the project be designed and constructed to meet “Basic Standards” which are essentially the installation of proper ECDs. The locations of the ECDs are determined onsite depending upon topography, access, and the location of earthwork. Ultimately, the contractor(s) will ensure that sediments do not flow into any streams or wetlands or flow off the Project. The ESC Plan provides construction and installation specifications and details using readily available materials and widely used BMPs. The grading plan identifies the location of proposed BMPs; however, these are minimum required practices and the contractor will be responsible for adapting BMPs to account for construction phasing and actual work conditions encountered.

Sediment Barriers: Prior to construction, CMP’s contractors will properly install sediment barriers at the edge of any downgradient disturbed areas and adjacent to any drainage channels within the disturbed area. Double row barriers using either two parallel rows of silt fence or a row of silt fence with a row of hay bales or silt sock/fiber rolls. The contractor will maintain the sediment barriers until the disturbed area is permanently stabilized. Installation of silt fence and fiber rolls or silt socks are proposed to minimize sediment discharge, capture sediment in suspension, and minimize or eliminate sedimentation off site.

Temporary stabilization/restoration: During construction temporary erosion controls will be implemented. Open or disturbed soil will be stabilized with hay or straw mulch as the most common technique with the use of erosion control blankets over highly erodible locations. Temporary seeding with an annual rye grass added to the perennial grass can be used during late fall and winter construction based on the MDEP seeding specifications. During the fall and winter, November 1 through April 15, temporary and permanent stabilization will require the use of twice the amount of hay or straw mulch and seeding that would otherwise be applied during the growing season.

Permanent stabilization/restoration: Site disturbed areas which will not be worked for more than one year, or have been brought to final grade, will be permanently stabilized within seven days by planting vegetation and seeding at MDEP specified rates, or through the use of permanent mulch, riprap, or road aggregate base. Areas of heavy soil disturbance will be amended with topsoil, compost, or fertilizers with a layer of hay or straw mulch applied, typically 2-4 inches thick or erosion control blankets.

Soil management: During construction topsoil will be excavated or stripped from the ground surface. CMP's contractor will stockpile this material, surround the pile with an erosion control barrier, and cover it with hay or straw mulch. The mulch layer will be maintained through the extent of construction to prevent oxidation and wind loss. The soil will be used during the final restoration effort as a base for seeding and landscaping.

Final Stabilization: Final stabilization practices for obtaining a vegetative cover should include, as appropriate: seed mix selection and application methods; soil preparation and amendments; soil stabilization practices (e.g., mulch, hydro mulch or rolled erosion control products); and appropriate sediment control BMPs as needed until final stabilization is achieved. The permanent erosion control BMPs may be a combination of vegetative and non-vegetative cover types. Additional requirements to achieve final stabilization include.

- All soil disturbing activity is complete;
- Permanent stormwater treatment system is constructed and accumulated sediment has been removed from construction activity;
- All synthetic BMPs have been removed from the site;
- The perennial grass cover for the site is at a uniform areal cover of 80%; and
- Permanent, physical erosion reduction methods have been employed.

Adequate provision to manage stormwater runoff: A stormwater management plan has been prepared by a qualified professional in accordance with the applicable requirements of the *Maine Stormwater Management Design Manual* and is shown in detail in Exhibit 4. The Project has been designed so that final grading will not generate additional concentrated stormwater runoff and will not block any existing drainage features or drainage patterns. Grading of the substation yard will direct surface water runoff to drain through a vegetated swale to a retention basin allowing sediments of other materials to settle out before the water overflows through a 12-inch diameter culvert. Runoff from the westerly portion of the substation yard will be directed into a swale and flow through two rock-check dams before joining the drainage from the main portion of the yard. Flow from the entire substation yard is routed through the existing grading via a 24-inch diameter culvert under the existing gravel access road, which is part of the MWC project.

Transportation, storage, and disposal of hazardous substances and materials: The Project does not require the transportation, storage, and disposal of hazardous substances. Mineral oil is used within the transformers and leakage is protected by secondary containment within the equipment. Additional measures or external containment are in place, namely a protective berm and densely packed crushed rock. CMP also has a Spill Prevention, Control, and Counter-measures plan which details the process for managing a spill.

Scenic vistas, significant wildlife habitat, wetlands, and water bodies: Surveys for protected cultural and natural resources were completed by the MWC during its federal, state, and municipal permitting effort for the construction of the new water treatment facility. Those surveys included the area of the Project site and concluded that there are no wetlands, streams, or Significant Wildlife Habitat on or adjacent to the Project. Pre-contact and historic archaeological and surveys and shovel testing was completed by Independent Archaeological Consultants during the MWC state and federal permitting process and based on their summary report there were no areas determined to be potentially eligible or on the National Register of Historic Places.

Article VI Performance Standards for Essential Services

Limits to existing public ways and existing service corridors: There is insufficient area within the existing substation parcel for the construction of the new substation. CMP acquired an easement for an approximate two-acre parcel within the immediate vicinity of the existing substation and adjacent to the transmission line on property owned by the MWC.

Potential environmental & health impacts to abutting properties resulting from noise, vibrations, fumes, odor, dust, glare, hours of operation or other causes: The operation and maintenance phase of the Project will not create vibrations, fumes, odor, dust, or glare. The substation is operational 24/7, 365 days a year as an essential service. Sound is produced as needed for air cooling the transformers and would typically operate during the daytime, especially during the warmer seasons. The sound study provided as Exhibit 8 documents that municipal standards for noise are met by the Project and will not interfere with the quiet enjoyment of residential properties.

Article XI Section 5-B Site Plan Review Standards

Drainage: The section above that addresses “Adequate provision to manage stormwater runoff” under the Conditional Use Standards and Exhibits 4A and B address post-development runoff, stormwater treatment, and erosion controls.

Utilities: The Project does not require the addition of outside utilities.

Parking: The Project does not require public parking. There is adequate parking for CMP staff and equipment when visiting the substation for operations and maintenance efforts.

Structural layout & design:

- a. *Harmonious design of buildings:* Electrical substation components are designed for their specific engineering purposes and are not subject to aesthetic design alterations. CMP is using gas

insulated switchgear (GIS) system incorporated into the control house to reduce the presence of traditional breakers in the substation yard. Electrical conductors that connect equipment is placed underground in ducts for safety and reduces visibility. To fit in harmoniously, the Project has significant screening and buffering created by the preservation of native trees and shrubs and will have limited visibility from adjacent residences. The visual assessment provided in Exhibit 6 provides examples of what the site could look like post development and any areas that could benefit from additional screening have been address with the Project landscaping plan (Exhibit 7).

- b. *Setbacks:* The limits of the Project, generally demarcated by the security fence, are over 40 feet from the south property boundary, over 40 feet from the westerly property boundary, and over 30 feet from the easterly property boundary. Structures such as the control house and electrical are generally 50-60 feet from the closest property boundary.
- c. *Fire protection:* This standard is addressed in the Conditional Use Standards “fire safety hazard” referenced above.
- d. *Landscaping:* Specifics of visual buffers and landscaping are discussed above and a visual assessment is provided as Exhibit 6 and the landscaping plan is provided in Exhibit 7. The Project has significant visual screening through the preservation of native trees and shrubs and are augmented by plantings.
- e. *Service, storage & utility areas:* There is no public access to the substation. CMP has designed the Project to provide safe and sufficient access for its staff to monitor, operate, and maintain its equipment. CMP has provided sufficient storage for its equipment securely within the control house.
- f. *Paving, parking, & storage areas:* There are no areas of paving, parking, or storage within 25 feet of the side and rear property boundaries.
- g. *Handicapped accessibility:* Access for the public is not allowed, although CMP will make adequate provisions for contractors and staff.
- h. *Loading facilities:* The Project does not require loading facilities.
- i. *Parking, loading, and protective buffers:* CMP’s property is 1.87 acres of which 0.8 acre will be developed and unvegetated which represents 43% of the site which is less than the maximum non-vegetated percentage of 75%. Parking and paved areas are negligible and do not encompass more than 30% of the site. A total of 0.63 acre of native trees and shrubs and landscaped areas are proposed, which is 34% of the property, which is greater than the 25% cover required. Landscaping includes native evergreen trees and evergreen and deciduous shrubs.
- j. *Open space:* Does not apply
- k. *External lighting:* The substation yard does not require outdoor lighting although a downward casting security light over the entrance to the control house is required. The entrance is located facing away from South Street and will not be visible to motorists on South Street and to residents of the nearby single-family homes.
- l. *Signs:* The Project does not require commercial signage rather security notices are posted on the entrance gate.

- m. Historic/archaeological:* Pre-contact and historic archaeological and surveys and shovel testing was completed by Independent Archaeological Consultants during the MWC state and federal permitting process and based on their summary report there were no areas determined to be potentially eligible or on the National Register of Historic Places.

Summary

CMP plans to rebuild its Biddeford Pump Substation to accommodate the growing need for electrical power, reliability, and systems protection at the new MWC facility and to better serve the surrounding community. CMP has obtained an easement for a two-acre parcel in the immediate vicinity, less than 100 feet from the existing substation. The Project has been designed to meet the MDEP Chapter 500 stormwater management standards and provides a detailed erosion and sedimentation control plan.

The Project will be separated and screened by existing trees and augmented with landscaping between the site and the nearest single-family home and screened by roadside vegetation and dense tree cover along South Street. This buffering will limit the visibility of the substation and dissipate noise from the transformer cooling fans. The Project will not produce any pollution or create any traffic congestion due to the minimal staffing needed during operations.

There are no protected natural and cultural resources on the site, as such there will be no adverse impacts to wetlands, archaeological or historic sites. Overall, the Project will fit in with the local community and contribute to the improvements and reliable production of potable water at the new MWC facility.

Please let me know if any City staff and/or Planning Board members have any questions or would like additional information about the CMP Biddeford Pump Project. On behalf of CMP the Project team looks forward to meeting with the Planning Board at the next scheduled meeting.

Sincerely,

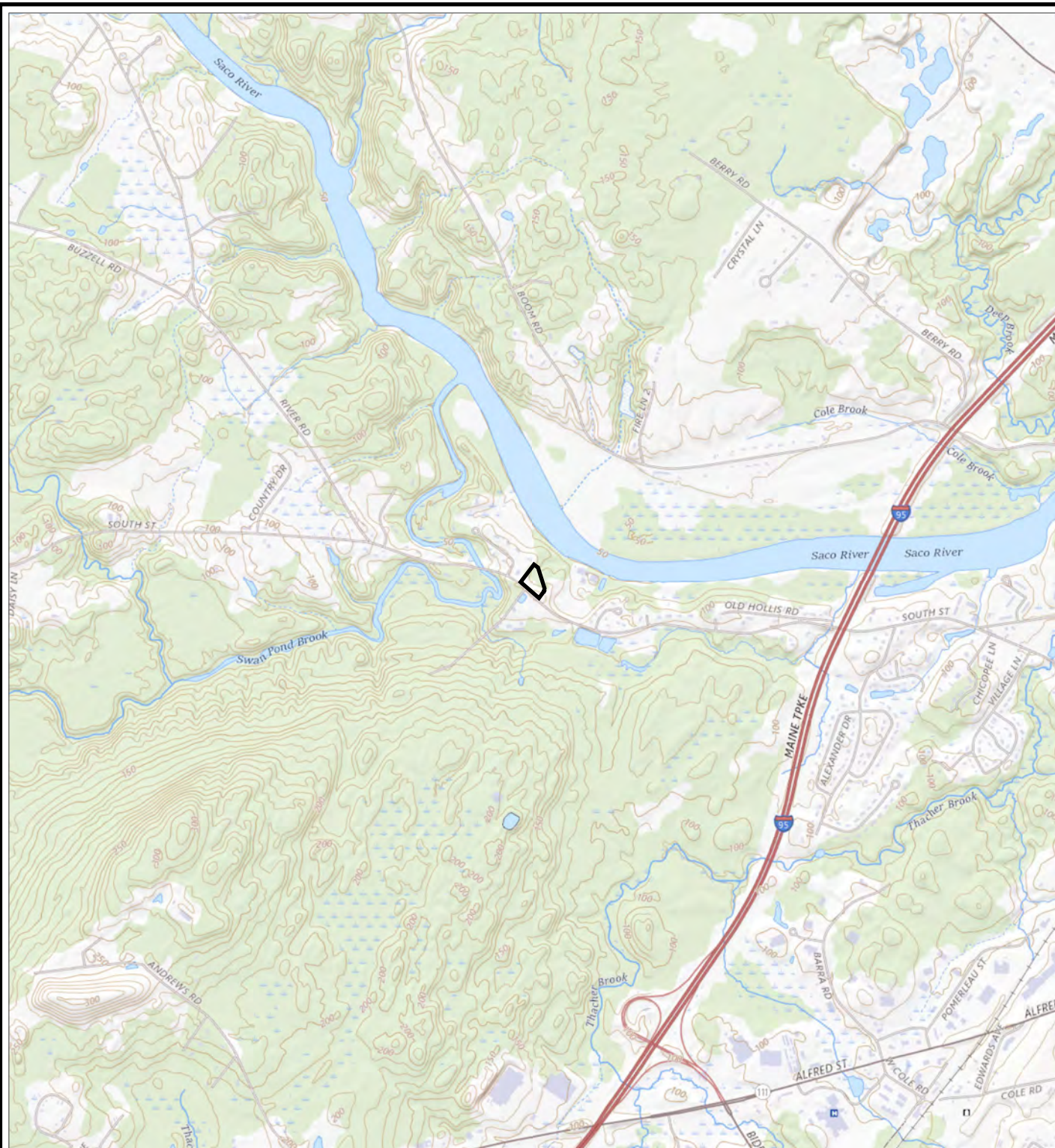


Mark W. Christopher, M.S. CWB
Project Manager

Exhibit 1

Location of the Biddeford Pump Rebuild Site

COORDINATE SYSTEM: NAD 1983 STATEPLANE MAINE WEST FIPS 1802 FEET; MAP ROTATION: 0
- SAVED BY: RNJORDAN ON 9/17/2021, 12:14:52 PM; FILE PATH: T:\PROJECTS\CMP358110 BIDDEFORD SUBSTATION\2-APR\BIDDEFORD_SS SITE LOCATION USGS 8X11P



		PROJECT: CMP	
		SOUTH STREET BIDDEFORD, ME	
	TITLE: BIDDEFORD SUBSTATION REBUILD		
	DRAWN BY: R. JORDAN	PROJ. NO.: 358110.1000	
	CHECKED BY: P. JACQUES	SITE LOCATION	
	APPROVED BY: M. CHRISTOPHER		
DATE: SEPTEMBER 2021			6 ASHLEY DRIVE 1ST FLOOR SCARBOROUGH, ME 04074
FILE: BIDDEFORD_S			

BASE MAP: USGS TOPO
DATA SOURCES: TRC, ESRI

Exhibit 2

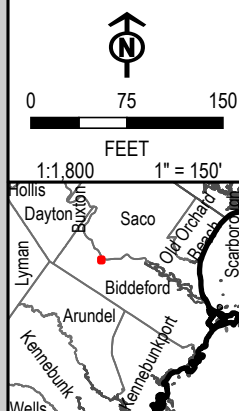
Aerial Map of the Biddeford Pump Rebuild Site

COORDINATE SYSTEM: NAD 1983 STATEPLANE MAINE WEST FIPS 1802 FEET, MAP ROTATION: 0
- SAVED BY: PJACQUES ON 11/8/2021, 12:11:27 PM, FILE PATH: T:\PROJECTS\CMP358110 BIDDEFORD SUBSTATION2-APRX\BIDDEFORD_SS.APRX: LAYOUT NAME: SRCC BUFFER APPLICATION 8X11P



- PROJECT BOUNDARY
- BIDDEFORD SITE
- MAJOR CONTOURS
- MINOR CONTOURS
- SACO RIVER BANK (NHD)

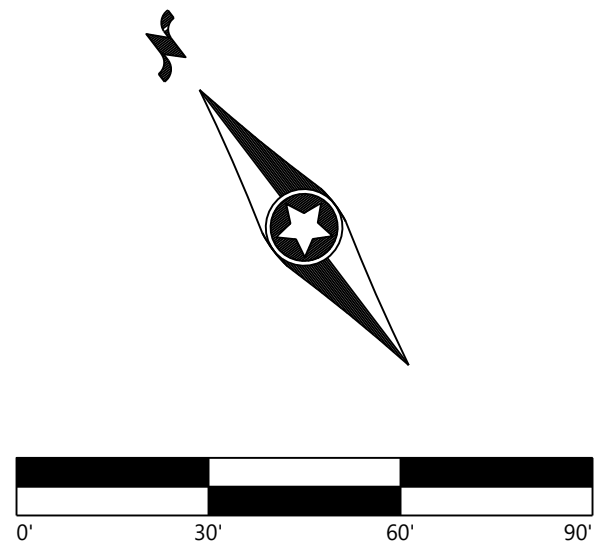
BASE MAP: ESRI WORLD IMAGERY 2019
DATA SOURCES: TRC, NHD, ESRI



PROJECT: CMP	
SOUTH STREET BIDDEFORD, ME	
TITLE: BIDDEFORD SUBSTATION REBUILD	
DRAWN BY: R. JORDAN	PROJ. NO.: 358110.1000
CHECKED BY: P. JACQUES	SITE LOCATION
APPROVED BY: M. CHRISTOPHER	
DATE: NOVEMBER 2021	
	
6 ASHLEY DRIVE 1ST FLOOR SCARBOROUGH, ME 04074	
FILE: BIDDEFORD_SS	

Exhibit 3

Facility Grading Plan and Details



LEGEND:

SITE DATA SUMMARY TABLE	
ITEM	
ZONING	SR1
PROPOSED USE	Substation
LOT AREA (SF/AC)	81,509/1.871
LOT COVERAGE	49.78%

- | | |
|--|----------------------|
| | RIGHT-OF-WAY LINES |
| | EX. PARCEL LINES |
| | EX. EASEMENT LINES |
| | EX. INDEX CONTOUR |
| | EX. INTERVAL CONTOUR |
| | EX. PUBLIC ROAD |
| | EX. FENCE |
| | EX. CULVERT |
| | EX. OVERHEAD POWER |
| | EX. GAS PIPELINE |
| | EX. TELEPHONE LINE |
| | EX. WATER LINE |
| | STORM DRAIN |
| | UNDERGROUND POWER |
| | EX. FLOODPLAIN |
| | PROP. GRAVEL |
| | EX. WETLANDS |

GENERAL NOTES:

1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

CONTROL POINTS:

1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

FOR BID ONLY
NOT FOR
CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION.
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

CIVIL SITE PLAN

AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY AND
TRADE SECRET INFORMATION
 Property of AVANGRID


AVANGRID

CIVIL SITE PLAN

South Street

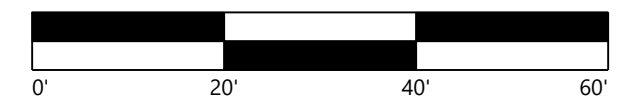
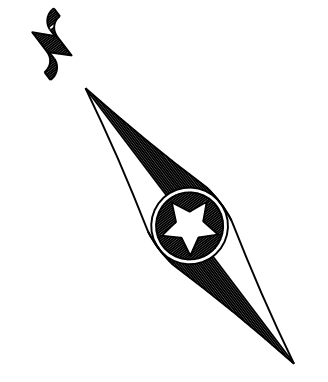
REV	DESCRIPTION	DATE	BY	CK	APP
0-00	FR2 - 95% ISSUED FOR REVIEW	09/08/2021	BSM	RAF	RAF
0-0C	60% IFB - ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-0B	IFB - ISSUED FOR BID	12/30/2020	BSM	AA	AA
	30% SUBMITTAL	11/20/2020			

n/f
ROBERT A. PELLETIER
THERESA L. SCHANG
16895/185 September 19, 2014
Biddeford Map 6 Lot 51-1
EXISTING RESIDENTIAL LOT

MAINLINE
ENERGY CONSULTANTS LLC
PH: (215) 855-7437 W: www.mtlc.com

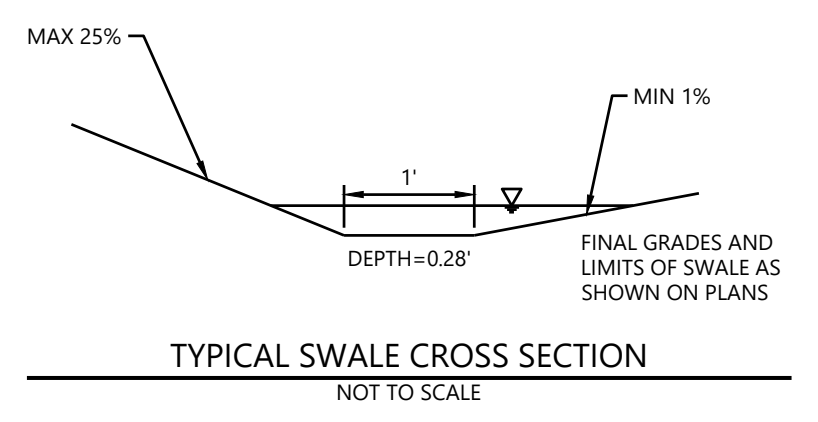
MAINLINE ENERGY CONSULTANTS LLC
A WESTWOOD TEAM
1240 S. BROAD STREET, LANSDALE, PA 19446
215-855-7437

ANSID 11/19/2020 9:30 AM



LEGEND:

- RIGHT-OF-WAY LINES
- EX. PARCEL LINES
- EX. EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. PUBLIC ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- STORM DRAIN
- UNDERGROUND POWER
- PROP. INDEX CONTOUR
- PROP. INTERVAL CONTOUR
- DRAINAGE SWALE
- NATIVE TREES AND SHRUBS LINE
- PROP. LANDSCAPED BUFFER



GENERAL NOTES:

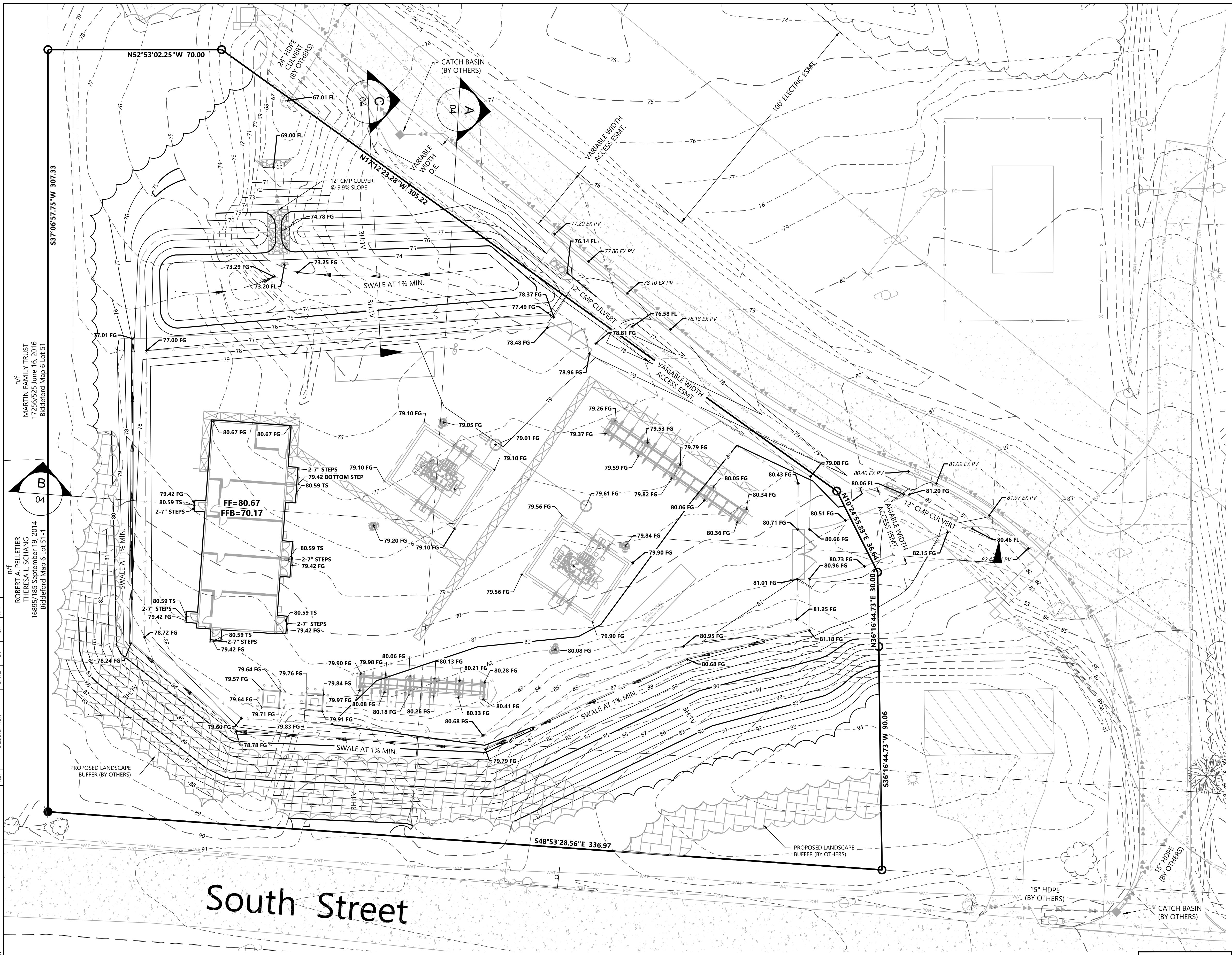
- TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
- HORIZONTAL CONTROL: NAD83, WEST ZONE
- VERTICAL CONTROL: NAVD88 (FT).
- PAD GRADING TO BE 2.00% MAX. FIELD ADJUST IF NECESSARY AND CONTACT ENGINEER OR OWNER IF ANY ELEVATIONS HAVE CHANGED.

CONTROL POINTS:

- MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
- FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
- 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

NOT FOR CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-242-8511)



PE STAMP

AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID

BIDDEFORD PUMP S/S

BIDDEFORD, ME

BY BSM
CK AA
APP AA

NO. 1050-0003-004 SH001

REV 0-00

DATE 09/08/2021

SCALE: SEE SHEET FILE

REV	DESCRIPTION	DATE	BY	CK	APP
0-01	IFR2 - 95% ISSUED FOR REVIEW	09/08/2021	BSM	RAF	RAF
0-02	IFR2 - 95% ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-03	IFR2 - 95% ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-04	IFR2 - 95% ISSUED FOR BID	01/28/2021	BSM	AA	AA

LOGO

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
PH: 610-855-7477
FAX: 610-855-7477

n/f
MARTIN FAMILY TRUST
17256/525 June 16, 2016
Biddeford Map 6 Lot 51

n/f
ROBERT A. PELLETIER
THERESA L. SCHANG
16895/185 September 19, 2014
Biddeford Map 6 Lot 51-1

ANSI D 12/30/2020 10:22 AM

DA 1	0.7531	30.00	0.30	1.61	2.44	2.96	0.36	0.55	0.67
DA 2	0.9817	30.00	0.57	1.61	2.44	2.96	0.90	1.37	1.66
OS 1	0.0807	23.00	0.30	2.00	3.02	3.65	0.05	0.07	0.09
OS 2	0.0830	23.00	0.30	2.00	3.02	3.65	0.05	0.08	0.09
OS 3	0.2011	23.00	0.75	2.00	3.02	3.65	0.30	0.46	0.55
OS 4	0.1145	23.00	0.75	2.00	3.02	3.65	0.17	0.26	0.31
OS 5	0.1976	23.00	0.75	2.00	3.02	3.65	0.30	0.45	0.54
OS 6	0.0508	23.00	0.75	2.00	3.02	3.65	0.08	0.12	0.14
EX 1	1.7904	23.00	0.30	2.00	3.02	3.65	1.08	1.62	1.96
EX 2	0.0807	23.00	0.30	2.00	3.02	3.65	0.05	0.07	0.09
EX OS-1	0.5356	23.00	0.75	2.00	3.02	3.65	0.80	1.21	1.47
EX OS-2	0.0830	23.00	0.30	2.00	3.02	3.65	0.05	0.08	0.09

DRAINAGE CRITERIA - RATIONAL METHOD

$$Q = C * I * A, \text{ CFS}$$

C = WEIGHTED RUNOFF COEFFICIENT, DIMENSIONLESS

I = AVERAGE RAINFALL INTENSITY, IN/HR

A = DRAINAGE BASIN AREA, ACRES

STEP	Conditions	K	C	Tc (Min)	I (in/hr)	Area (Acres)	Q. Peak, (cfs)
1	Existing	1.00	0.30	23.00	3.65	1.7348	1.90
2	Proposed	1.00	0.57	30.00	2.96	1.7348	2.93
	Bypass	1.00	0.30	30.00	2.96	0.7531	0.67
	Area to Pond	1.00	0.57	30.00	2.96	0.9817	1.66
	Flow Through	1.00	0.57	30.00	2.96	0.0000	0.00
						Site Release Rate	1.23
						Pond Release Rate	1.23

STEP 3										
Time Step	Storm Duration Td (Min)	Antecedent Factor K	Proposed Conditions C	K'C<=1.0	Rainfall Intensity I (in/hr)	Peak Run-Off Q (cfs)	Volume (cf)			Volume (acre-ft)
							Inflow (Td*Q*60)	Outflow 0.5*(Td+Td)*Q*60	Req. Storage Inflow-Outflow	
1	5	1.00	0.57	0.57	7.99	4.47	1,341	1,293	48	0.0011
2	10	1.00	0.57	0.57	5.66	3.17	1,900	1,478	423	0.0097
3	15	1.00	0.57	0.57	4.44	2.48	2,236	1,662	574	0.0132
4	23	1.00	0.57	0.57	3.65	2.04	2,819	1,958	861	0.0198
5	30	1.00	0.57	0.57	2.96	1.66	2,981	2,216	765	0.0176
6	40	1.00	0.57	0.57	3.85	2.15	5,172	2,586	2,586	0.0594
7	50	1.00	0.57	0.57	3.36	1.88	5,643	2,955	2,688	0.0617
8	60	1.00	0.57	0.57	3.00	1.68	6,035	3,325	2,711	0.0622
9	70	1.00	0.57	0.57	2.71	1.52	6,371	3,684	2,677	0.0616
10	80	1.00	0.57	0.57	2.48	1.39	6,666	4,063	2,603	0.0597
11	90	1.00	0.57	0.57	2.29	1.28	6,929	4,433	2,496	0.0573
12	100	1.00	0.57	0.57	2.13	1.19	7,166	4,802	2,364	0.0543
13	120	1.00	0.57	0.57	1.88	1.05	7,584	5,541	2,043	0.0469
14	180	1.00	0.57	0.57	1.41	0.79	8,545	7,757	788	0.0181
15	360	1.00	0.57	0.57	0.85	0.48	10,327	14,407	(4,079)	(0.0936)
16	720	1.00	0.57	0.57	0.51	0.29	12,346	27,705	(15,359)	(0.3526)
17	1440	1.00	0.57	0.57	0.30	0.17	14,677	54,302	(39,625)	(0.9097)

Note 1: Rainfall Intensity, I (in/hr)
 $I = b/(T_c + d)^e$

STEP 4

25-YR Design Storm
Maximum Required
Storage =

2,711 cf

Note 2: The use of the Modified Rational Method for detention basin design shall be limited to drainage basins with less than 200 acres.

Maximum Required
Storage =

0.0622 acre-ft

POND DISCHARGE/OUTLET CALCULATIONS

Use weir equation until opening is submerged

WEIR FLOW RELEASE CALCULATIONS

$Q = C_w * L * H^{3/2}$
 $Q = \text{FLOW, CFS}$
 $C_w = \text{WEIR COEFFICIENT} = 3.33$
 $L = \text{LENGTH OF WEIR, FT} =$
 $H = \text{DEPTH OF FLOW OVER WEIR, FT}$
 $H = (Qw/CwL)^{2/3}$

Use orifice equation once opening is submerged

ORIFICE FLOW RELEASE CALCULATIONS

$Q = C * A * (2 * g * H)^{0.50}$
 $Q = \text{FLOW, CFS}$
 $C = \text{ORIFICE COEFFICIENT } 0.66$
 $A = \text{ORIFICE AREA, SF}$
 $g = \text{GRAVITATIONAL CONSTANT} = 32.2 \text{ FT/S}^2$
 $H = \text{HYDRAULIC HEAD, FT}$

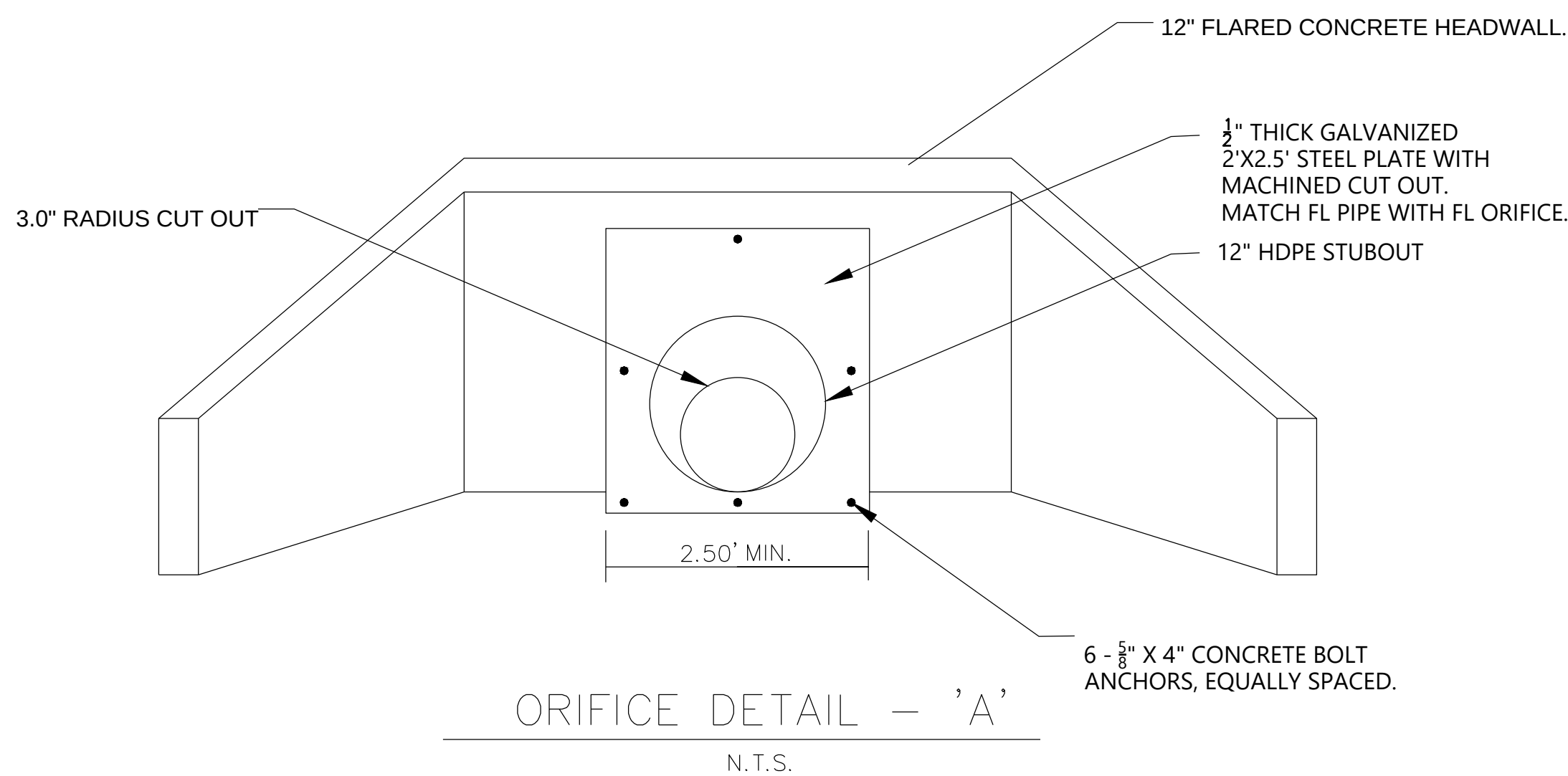
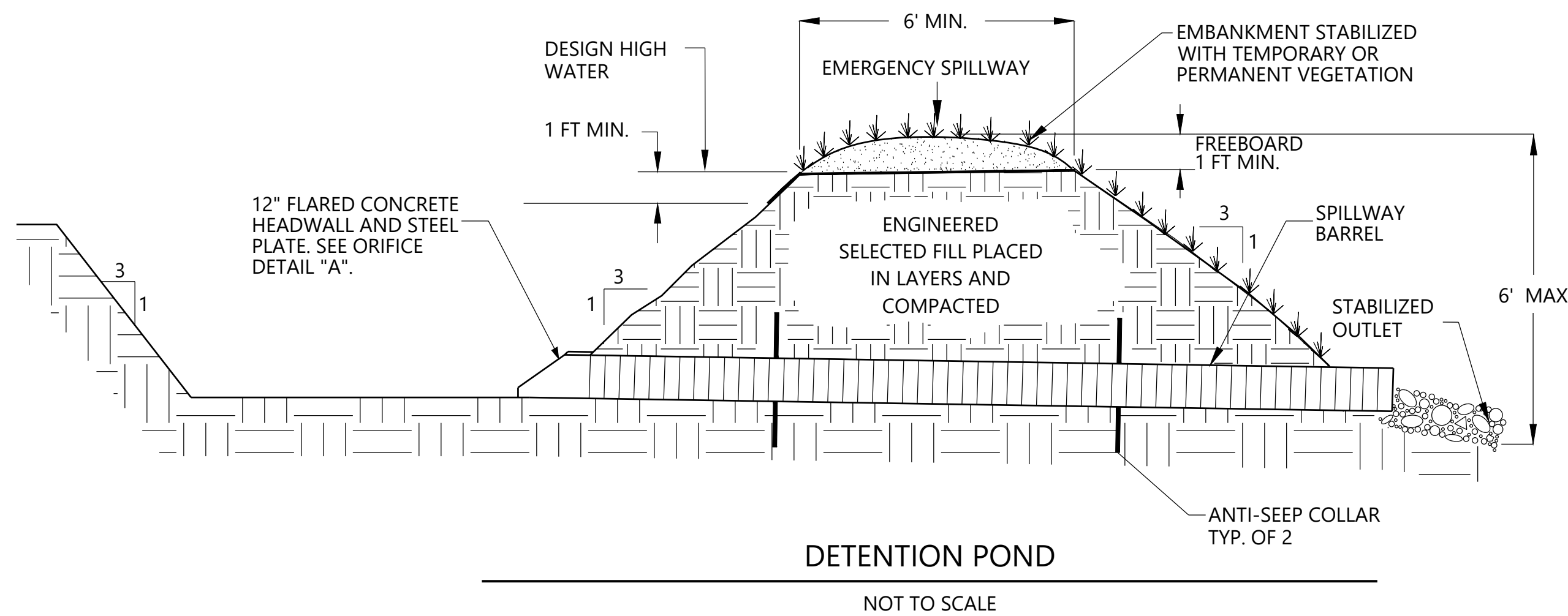
	OPENING 1					OPENING 2					
	Base = L = 0.40 FT Height = H = 0.33 FT Area = 0.13 SF Base Elev = 73.20 FT					Base = 0.40 FT Height = 0.33 FT Area = 0.13 SF Base Elev = 74.30 FT					
	WEIR		ORIFICE			WEIR		ORIFICE			
	WSEL	H1	Q1	H1	Q1	H2	Q2	H2	Q2	Q Total	
73.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
73.30	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	
73.40	0.20	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	
73.50	0.30	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	
73.60	0.40	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	
73.70	0.00	0.00	0.33	0.41	0.00	0.00	0.00	0.00	0.00	0.41	
73.80	0.00	0.00	0.43	0.46	0.00	0.00	0.00	0.00	0.00	0.46	
73.90	0.00	0.00	0.53	0.52	0.00	0.00	0.00	0.00	0.00	0.52	
74.00	0.00	0.00	0.63	0.56	0.00	0.00	0.00	0.00	0.00	0.56	
74.10	0.00	0.00	0.73	0.60	0.00	0.00	0.00	0.00	0.00	0.60	
74.20	0.00	0.00	0.83	0.64	0.00	0.00	0.00	0.00	0.00	0.64	
74.30	0.00	0.00	0.93	0.68	0.00	0.00	0.00	0.00	0.00	0.68	2 YR
74.40	0.00	0.00	1.03	0.72	0.10	0.04	0.00	0.00	0.00	0.76	
74.50	0.00	0.00	1.13	0.75	0.20	0.12	0.00	0.00	0.00	0.87	
74.60	0.00	0.00	1.23	0.78	0.30	0.22	0.00	0.00	1.00	1.00	10 YR
74.70	0.00	0.00	1.33	0.82	0.40	0.34	0.00	0.00	1.15	1.15	
74.75	0.00	0.00	1.38	0.83	0.45	0.40	0.00	0.00	1.23	1.23	25 YR

POND / STAGE / STORAGE TABLE				
POND 1				
	ELEVATION (FT)	POND SURFACE	VOLUME (CF)	CUMULATIVE VOL (CF)
Ho	73.20	50	0	0
	74.00	2,666	822	822
2 yr	74.30	2,895	834	1,656
10 yr	74.60	3,124	903	2,558
25 yr	74.75	3,239	477	3,036
	75.30	3,658	1,895	4,931
	76.00	4,728	2,927	7,858

Ho

2 yr

25 yr



NOT FOR
CONSTRUCTION

PE STAMP

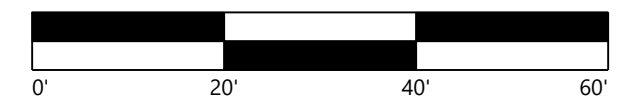
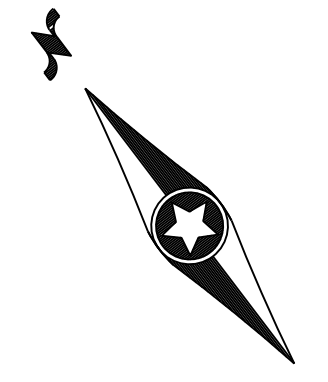
AVANGRID ENGINEERING

CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION

Property of AVANGRID



AVANGRID



LEGEND:

- RIGHT-OF-WAY LINES
- EX. PARCEL LINES
- EX. EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. PUBLIC ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- STORM DRAIN
- UNDERGROUND POWER
- PROP. INDEX CONTOUR
- PROP. INTERVAL CONTOUR
- SILT FENCE

DISTURBED AREA = 1.46 ACRES

- EROSION CONTROL GENERAL NOTES:
1. REFER TO SHEET 1050-0003-005 SH002 FOR THE EROSION CONTROL DETAILS AND POLLUTION PREVENTION PLAN NOTES/SPECIFICATIONS/REQUIREMENTS.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL MEASURES OF THIS EROSION CONTROL PLAN (SWPPP) AND COMPLYING WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS REGARDING THE SWPPP.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE MEASURES INCLUDING WATERING, MOWING AND GENERAL MAINTENANCE UNLESS OTHERWISE RELIEVED OF THESE DUTIES BY THE OWNER.

- VEGETATION NOTES:
1. ALL DISTURBED AREAS NOT BEING RE-DISTURBED WITHIN A MINIMUM OF 14 DAYS MUST BE COVERED AND STABILIZED.
 2. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF FINAL GRADING.
 3. NO PUBLIC ACCEPTANCE UNTIL (FINAL STABILIZATION) VEGETATION IS ESTABLISHED ON ALL DISTURBED AREAS.
 4. FINAL STABILIZATION IS DEFINED AS A UNIFORM PERENNIAL VEGETATIVE COVER AT A MINIMUM OF 70% RESTORATION OF THE NATIVE OR NATURAL PREEXISTING BACKGROUND COVER FOR THE AREA.

- CONSTRUCTION ACTIVITIES:
- THE CONSTRUCTION ACTIVITY INCLUDED IN THIS PLAN WILL INCLUDE THE FOLLOWING CONSTRUCTION PHASES:
- A. CLEARING AND GRUBBING
 - B. STOCK PILING
 - C. ROUGH GRADING
 - D. UTILITY INSTALLATION/EXCAVATION OF TRENCHES
 - E. FINAL OR FINISH GRADING
 - F. PAVEMENT INSTALLATION
 - G. BUILDING CONSTRUCTION
 - H. PREPARATION OF SEEDING AND PLANTING

GENERAL NOTES:

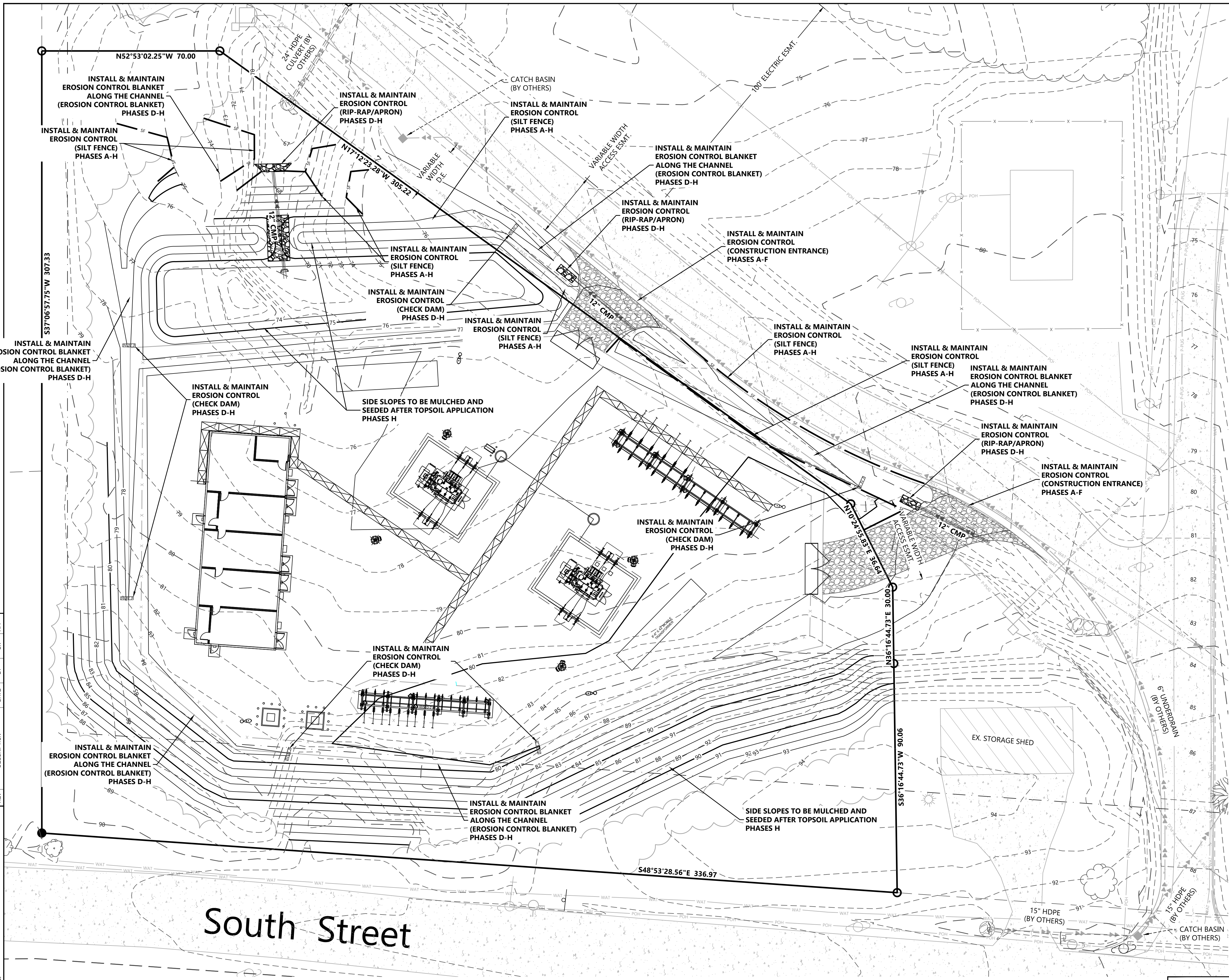
1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

CONTROL POINTS:

1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

NOT FOR CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-242-8511)



PE STAMP

AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID			
BY	BSM	NO	REV
CK	AA		
APP	AA		
DATE	09/08/2021		

EROSION CONTROL PLAN

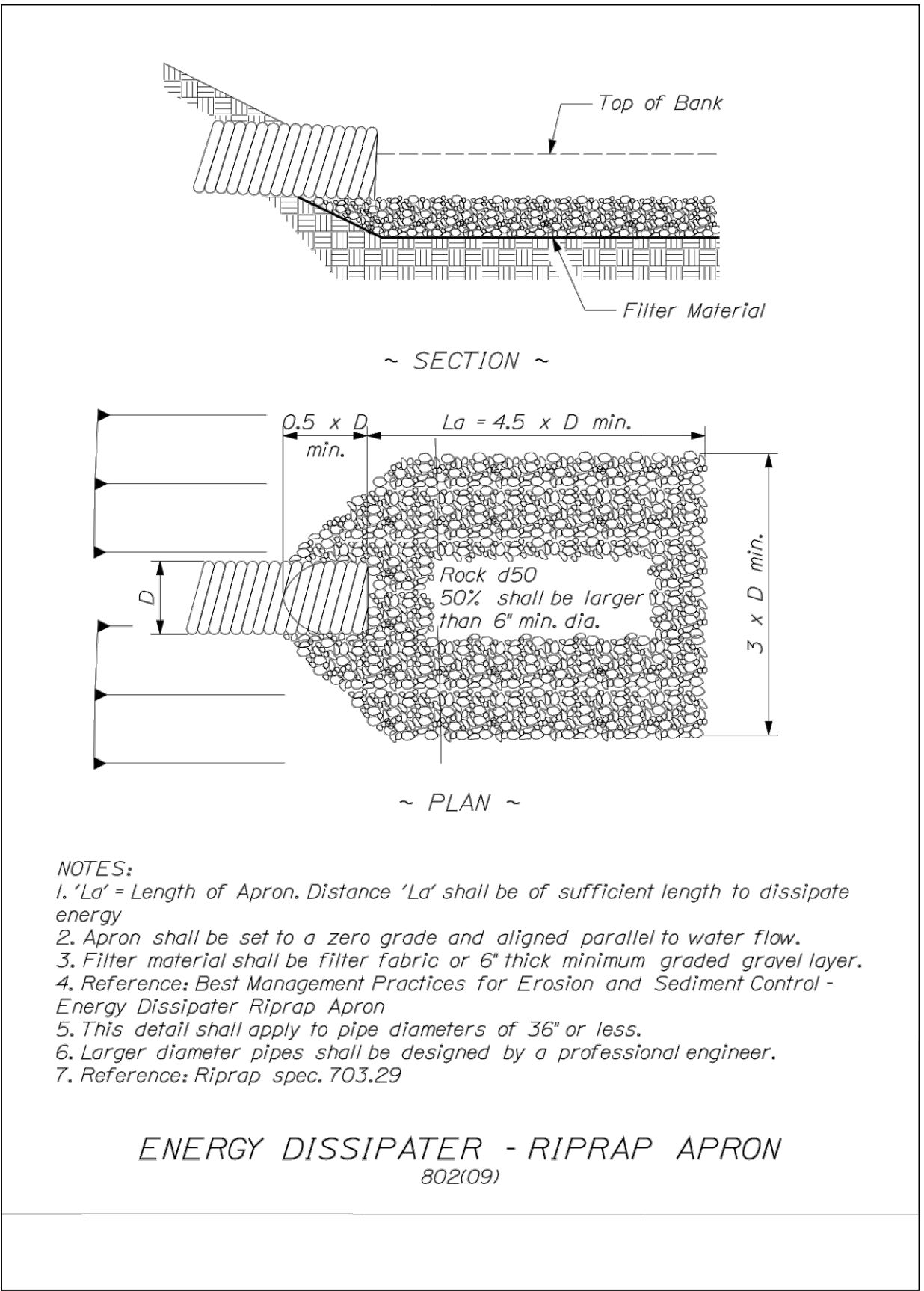
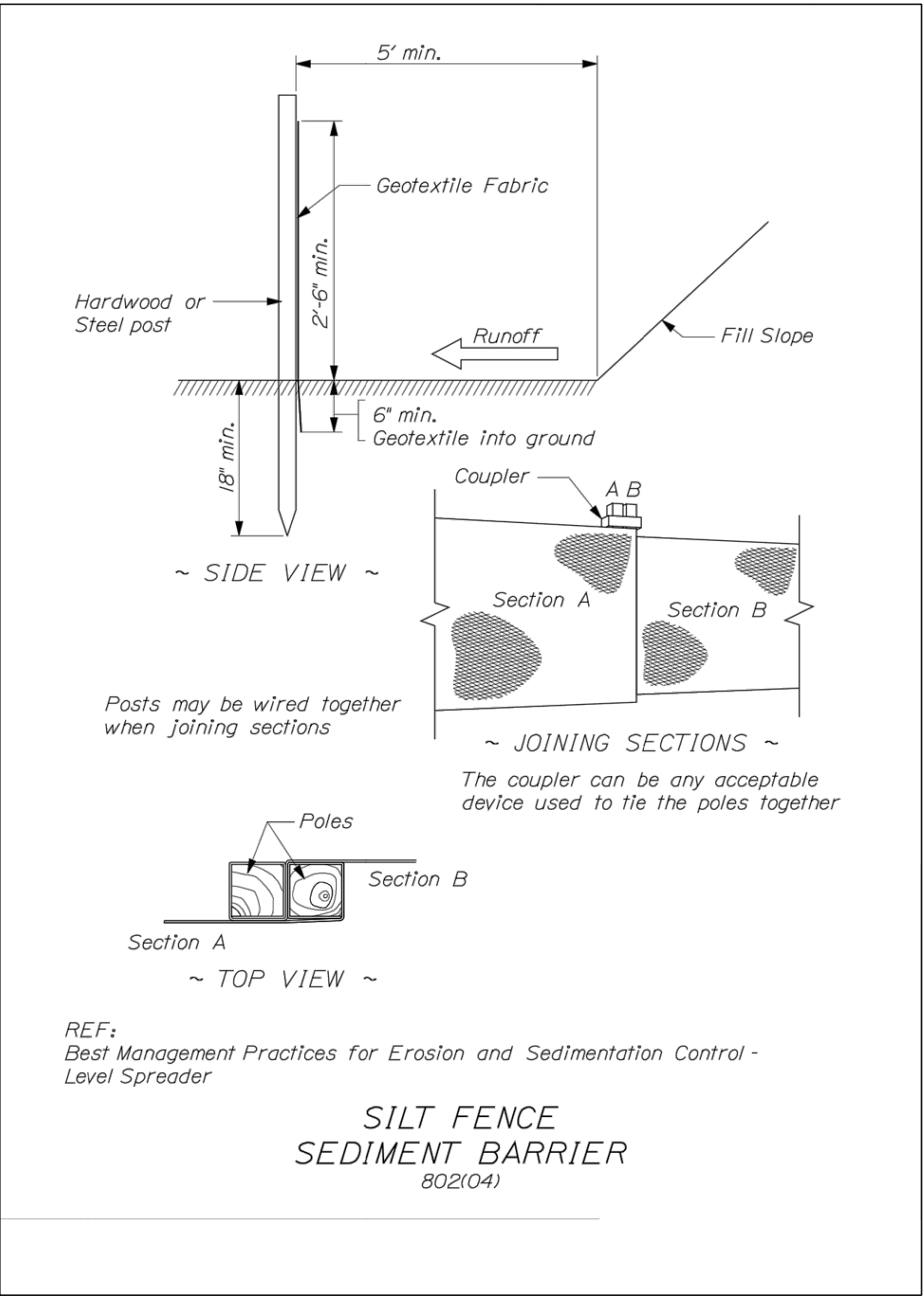
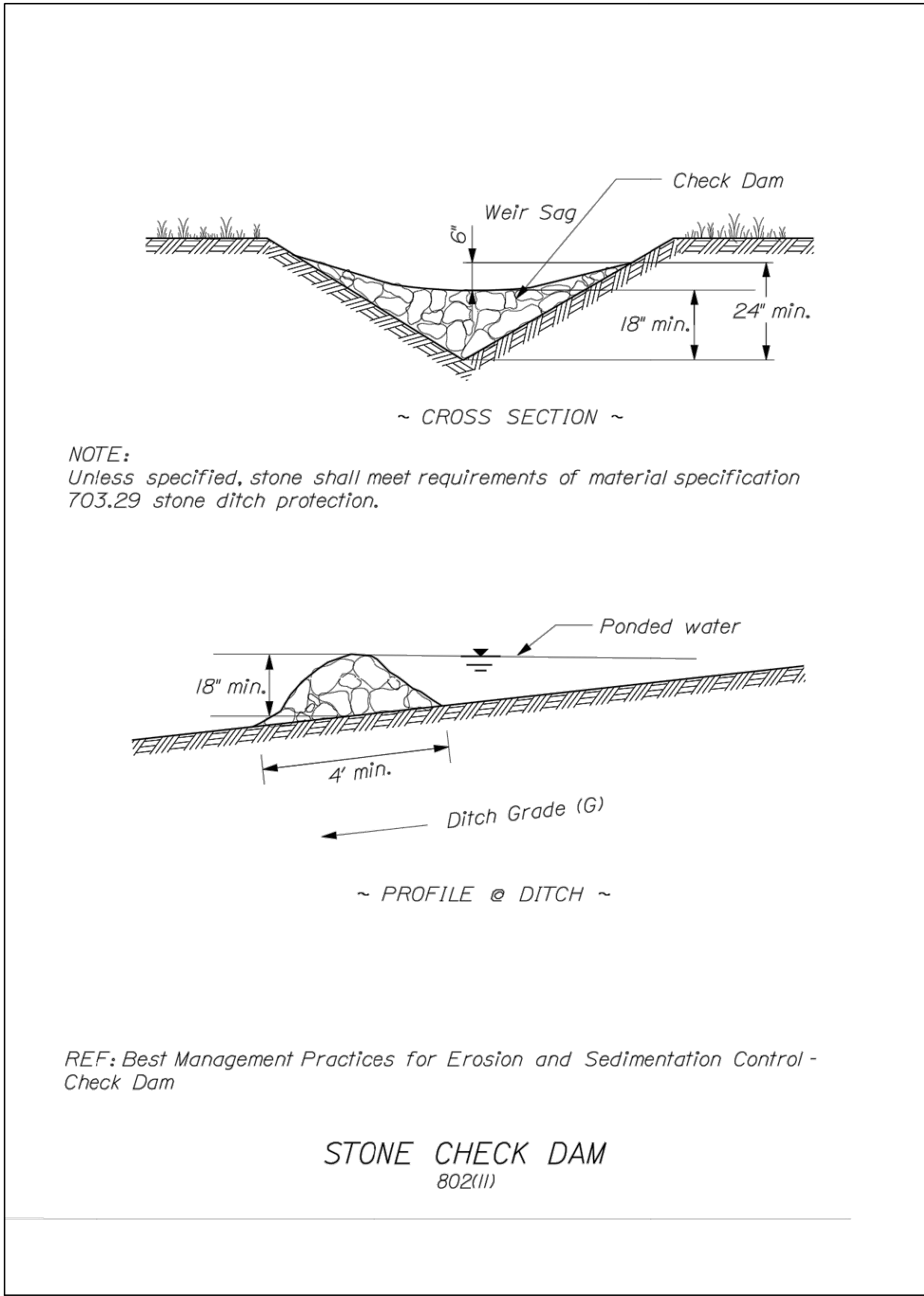
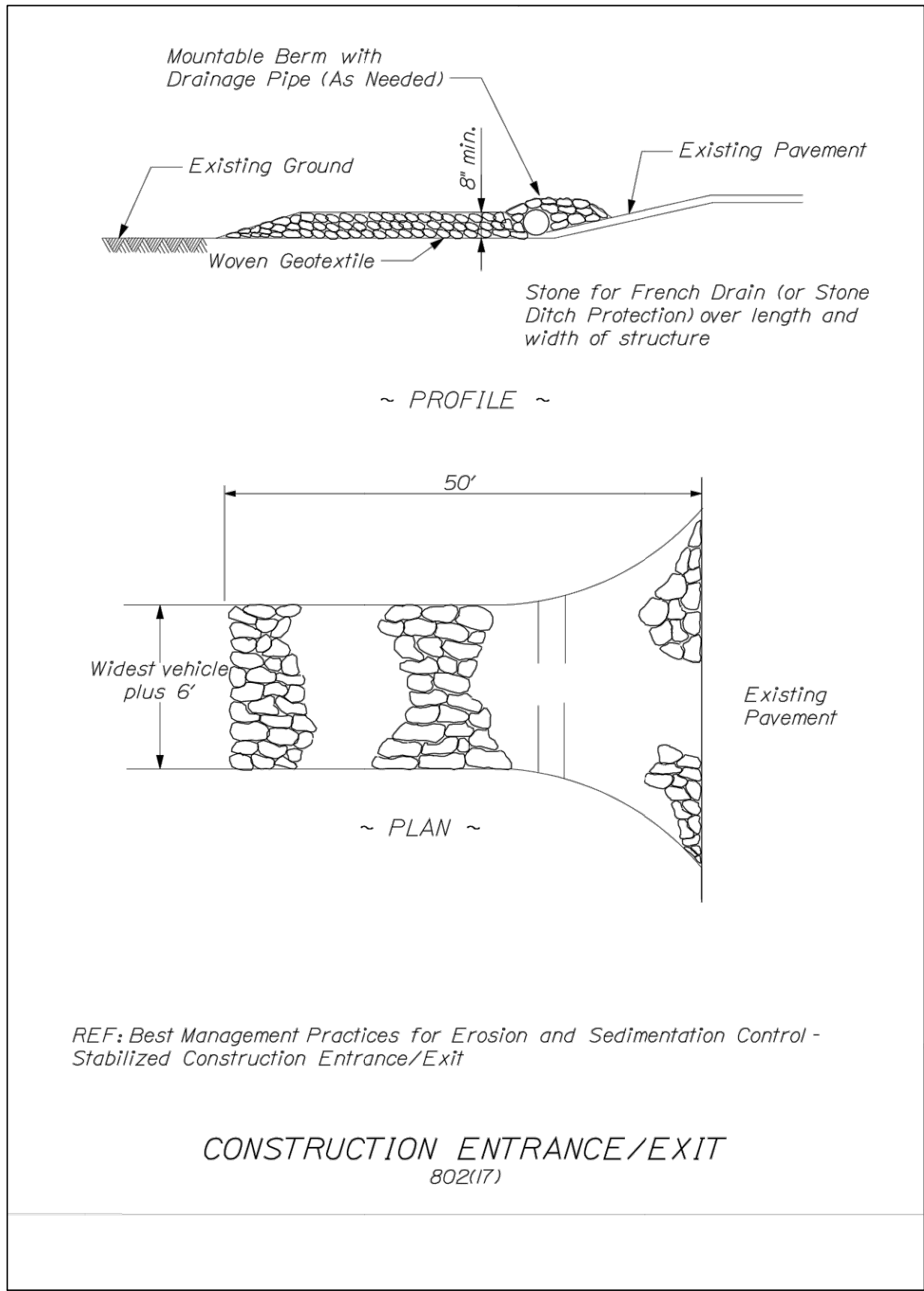
BIDDEFORD PUMP S/S		BIDDEFORD, ME	
Y	BSM	SCALE: SEE SHEET FILE:	
K	AA	NO.	REV
PP	AA	1050-0003-005 SH001	
DATE	09/08/2021	0-0D	

REV	DESCRIPTION	DATE	BY	CK	APP
0-00	IFR2 - 95% ISSUED FOR REVIEW	09/08/2021	BSM	RAF	RAF
0-01	09% IFR - ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-02	10% IFR - ISSUED FOR BID	02/28/2021	BSM	AA	AA
0-03	30% SUBMITTAL	11/20/2020	BSM	AA	AA

LOGO

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
PH: 610-855-7477 FAX: 610-855-7477

ANSI D 12/30/2020 10:22 AM



NOT FOR
CONSTRUCTION

- NOTES:
- 1) GENERAL LANDSCAPING NOTES AND PLANS TO BE PROVIDED BY OTHERS.

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID				BIDDEFORD PUMP S/S		BIDDEFORD, ME	
						BY BSM		SCALE: SEE SHEET FILE:	
						CK AA		NO.	
						APP AA		REV	
						DATE 09/08/2021		1050-0003-005 SH002	
REV		DESCRIPTION		DATE		BY		CK	

LOGO	INFO	REV	DESCRIPTION	DATE	BY	CK	APP
0-00	IFR2 - 95% ISSUED FOR REVIEW	09/08/2021	BSM			RAF	RAF
0-00	0001-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0002-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0003-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0004-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0005-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0006-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0007-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0008-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0009-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0010-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0011-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0012-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0013-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0014-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0015-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0016-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0017-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0018-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0019-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0020-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0021-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0022-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0023-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0024-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0025-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0026-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0027-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0028-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0029-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0030-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0031-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0032-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0033-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0034-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0035-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0036-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0037-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0038-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0039-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0040-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0041-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0042-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0043-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0044-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0045-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0046-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0047-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0048-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0049-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0050-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0051-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0052-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0053-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0054-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0055-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0056-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0057-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0058-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0059-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0060-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0061-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0062-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0063-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0064-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0065-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0066-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0067-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0068-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0069-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0070-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0071-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0072-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0073-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0074-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0075-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0076-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0077-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0078-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0079-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0080-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0081-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0082-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0083-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0084-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0085-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0086-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0087-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0088-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0089-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0090-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0091-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0092-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0093-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0094-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0095-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0096-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0097-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0098-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0099-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA
0-00	0100-IFB - ISSUED FOR BID	01/28/2021	BSM			AA	AA

LOGO

INFO

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
215-655-7477

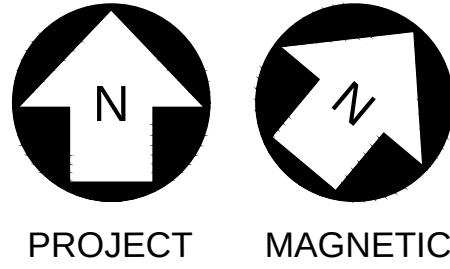
ANSI D 12/30/2020 10:22 AM

Exhibit 4

Stormwater Management Report Prepared for Permit-By-Rule Drainage Plan and Erosion Control Plan (separate cover)

Exhibit 5

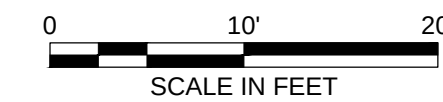
Electrical Components & Control House Views



- NOTES:
- PHASING SHALL BE A,B,C. ELECTRICAL SYSTEM PHASE RELATIONSHIP TO BE:
A B C
1 2 3
RED WHITE BLUE
 - TRENCH BASE & COVER UNIT THICKNESS & REINFORCEMENT SHALL BE ENGINEERED BY THE PRECAST SUPPLIER, AND SUBMITTED TO THE OWNER FOR APPROVAL. CABLE TRENCH COMPONENTS SHALL HAVE HS20 AASHTO LOAD RATING (32,000LBS SINGLE AXLE).
 - ALL DUCT BANKS SHALL MAINTAIN A MINIMUM SEPARATION OF 12 INCHES IN DEPTH FOR ANY DUCTBANK AND CABLE TRENCH CROSSINGS.

- REFERENCE DRAWINGS:
- 1050-0001-002 POWER ONE-LINE DIAGRAM 34.5/12.47 KV S/S
 - 1050-0005-003 CONTROL HOUSE PLAN 34.5/12.47 KV S/S
 - 1050-0002-002 SH1 GENERAL ARRANGEMENT SECTIONS A, B, C & D
 - 1050-0002-002 SH2 GENERAL ARRANGEMENT SECTIONS E, F, G & I
 - 1050-0002-002 SH3 GENERAL ARRANGEMENT SECTIONS J, K, L & M
 - 1050-0002-002 SH4 GENERAL ARRANGEMENT SECTIONS N, O, P & Q
 - 1050-0002-002 SH5 GENERAL ARRANGEMENT SECTIONS R, S, T, U & V
 - 1050-0002-002 SH6 GENERAL ARRANGEMENT SECTIONS H & W
 - 1050-0006-010 YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION

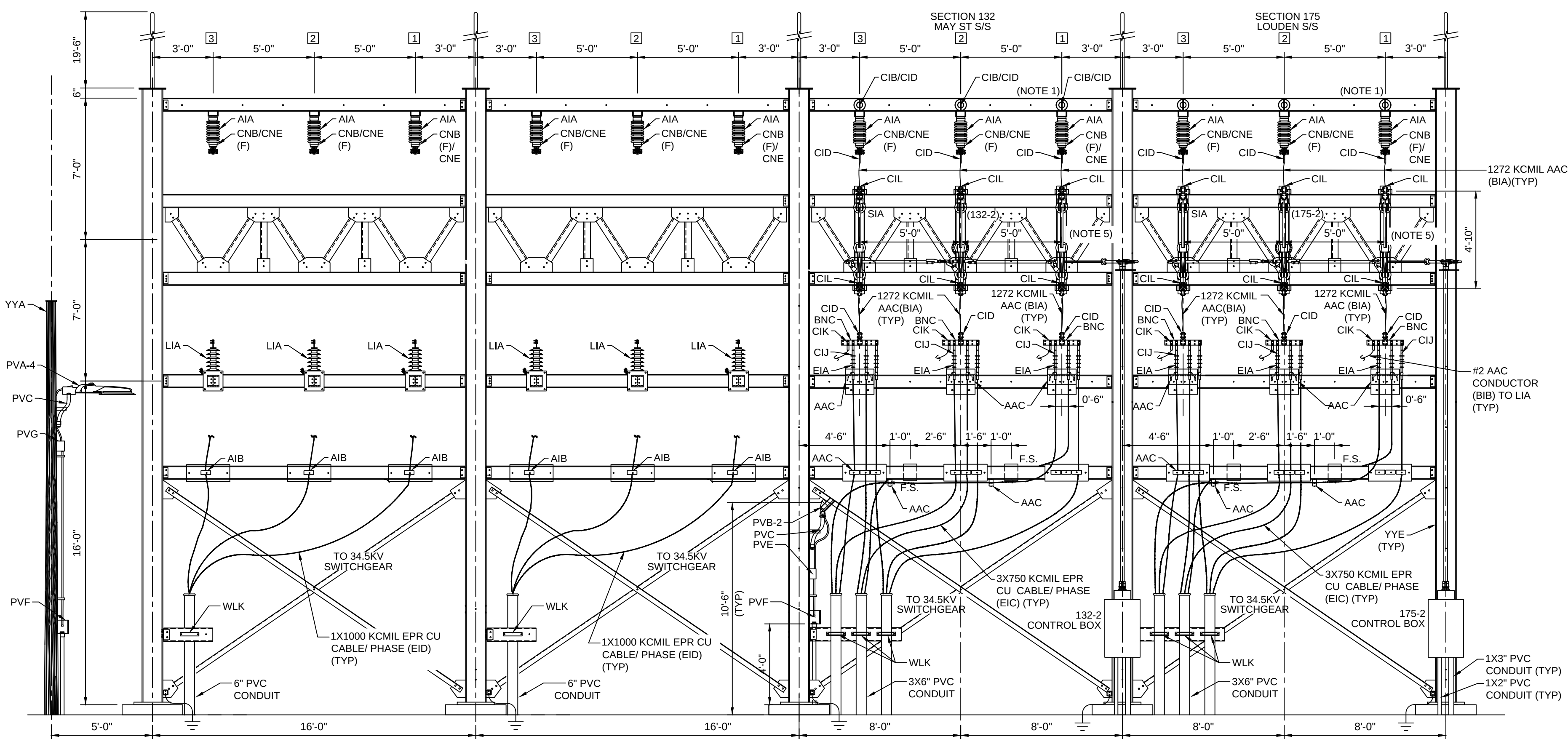


- LEGEND:
- ROAD CROSSING - HS20 (32,000LBS/AXLE)
 - TRENCH & COVER (SEE NOTE 3)

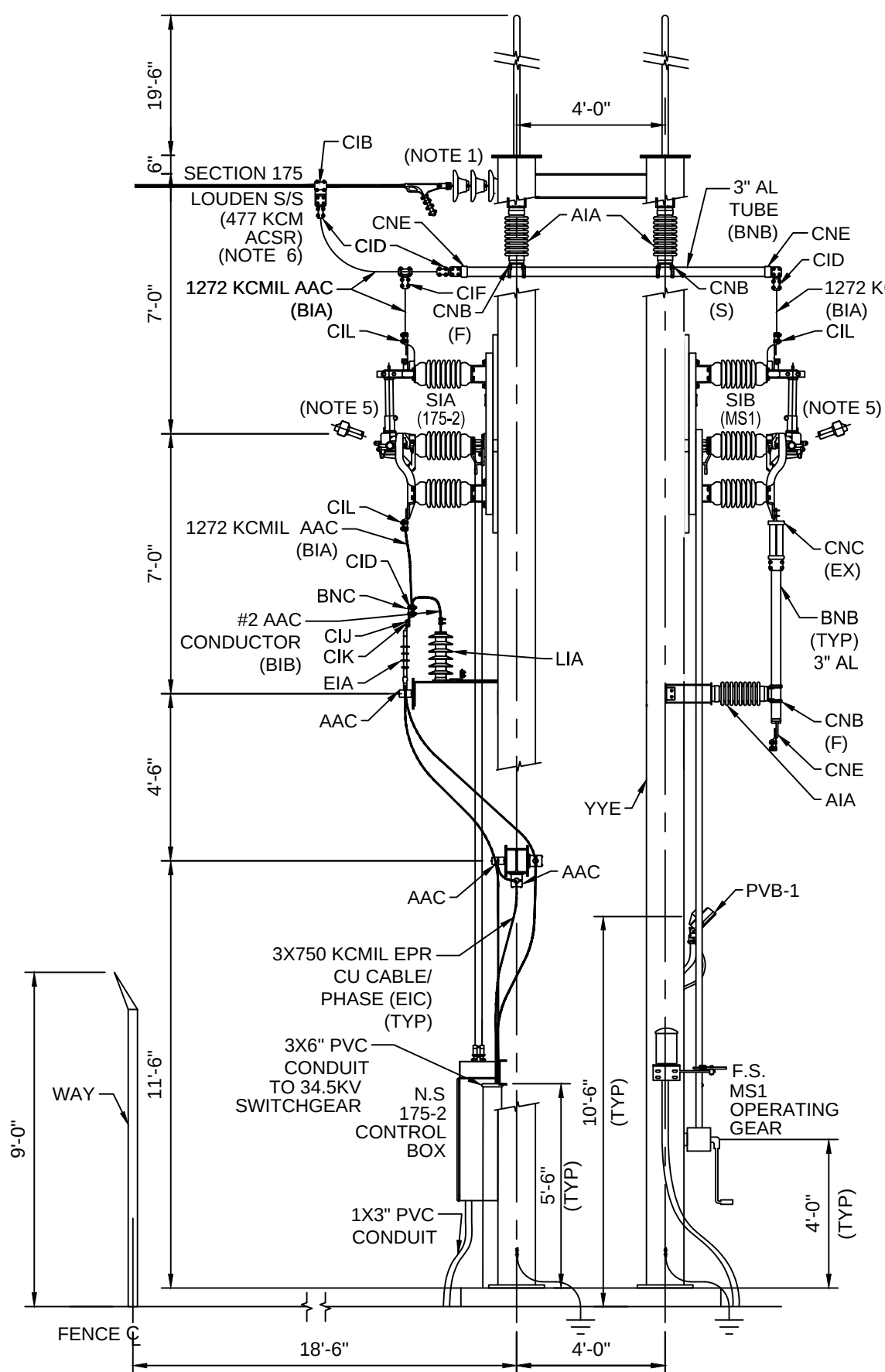
RECOMMENDED ELECTRICAL CLEARANCES					
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)					
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)		
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH
15.5	7	10	12	24-42	30
34.5	13	15	18	36-60	48

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID				GENERAL ARRANGEMENT 34.5/12.47 KV	
BY	HEALC	SCALE: 1" = 100' - 0"	FILE: 1050-0002-001	REV: 0-0B.dwg		
CK	VS.MEC	NO.				
APP	PMB/MEC		1050-0002-001	0-0B		
DATE	XX/XX/XXXX					
REV	DESCRIPTION	DATE	BY	CK	APP	

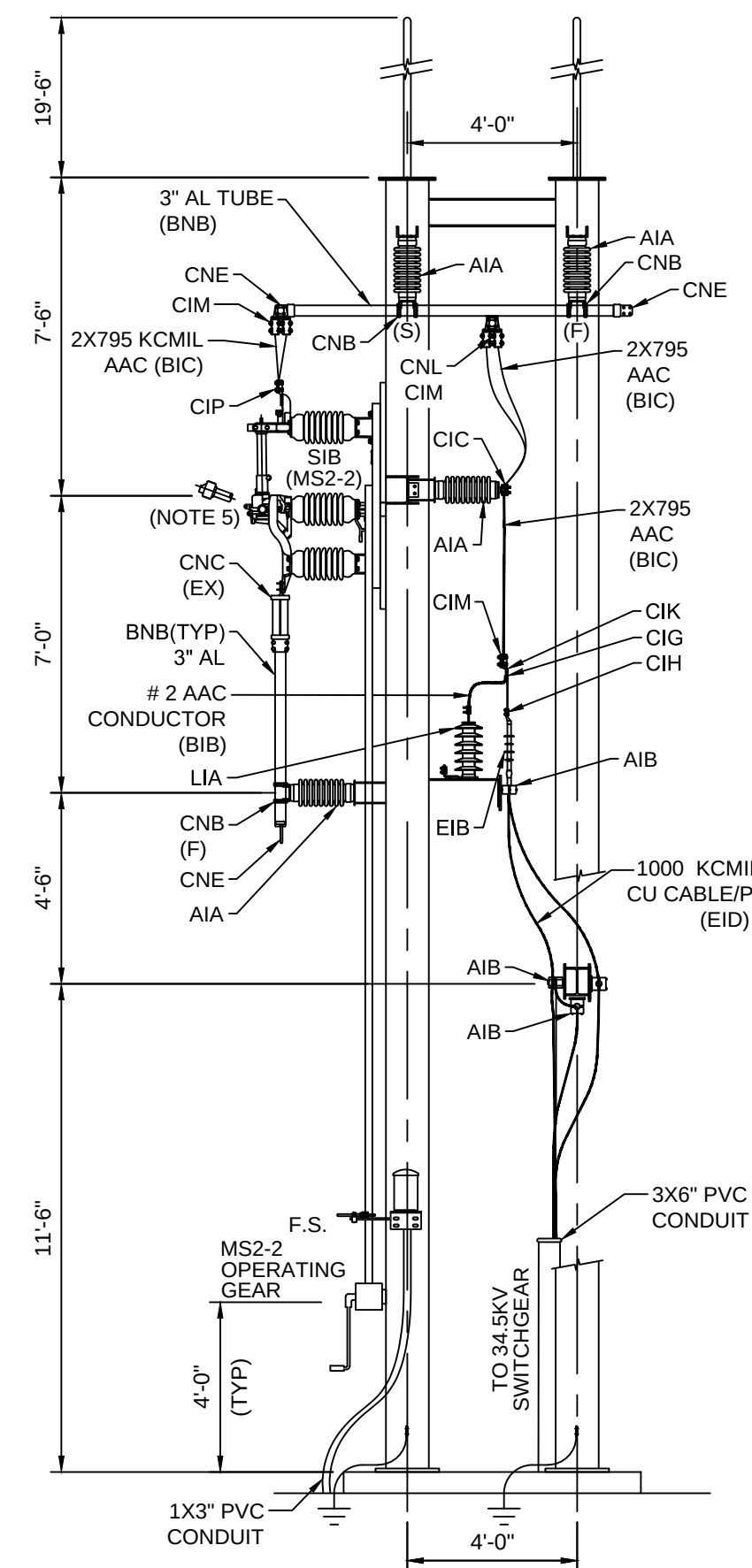
RECOMMENDED ELECTRICAL CLEARANCES						
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)						
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60



A-A SECTION
1050-2-1 SCALE: 1/4"=1'-0"



C-C SECTION
1050-2-1 SCALE: 1/4"=1'-0"



D-D SECTION
1050-2-1 SCALE: 1/4"=1'-0"

- NOTES:
- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
 - WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
 - LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
 - WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND & 4'-6" BELOW GROUND).
 - GENERAL ARRANGEMENT AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
 - TRANSMISSION CONDUCTOR IS INDICATIVE.
 - STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
 - N.S. = NEAR SIDE, F.S. = FAR SIDE

- REFERENCE DRAWING:
- | | |
|--------------------|---|
| 1050-0002-001 | GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S |
| 1050-0002-003 SH 1 | GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S |
| 1050-0002-003 SH 2 | GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S |
| 1050-0002-002 SH2 | GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H |
| 1050-0002-002 SH3 | GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M |
| 1050-0002-002 SH4 | GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q |
| 1050-0002-002 SH5 | GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V |
| 1050-0002-002 SH6 | GENERAL ARRANGEMENT SECTIONS H-H & W-W |
| 1050-0006-010 | YARD LIGHTING DIAGRAM |

FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID		CAMP AVANGRID		GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C, D-D SH 1 OF 6	
						BIDDEFORD PUMP S/S	
						BIDDEFORD, ME	
						BY: HEM/EC SCALE: 1/4" = 1'-0" FILE: 1050-0002-002 SH 001 Rev. 0-00.dwg	
						CK: HEM/EC NO.	
						APP: HEM/EC	
						DATE: XXXXXXXX	
						1050-0002-002 SH1	
						0-0C	

QAC	IFB - 6W ISSUED FOR BID	YSM/EC	PHM/EC	APP
QAB	IFB - ISSUED FOR BID	YSM/EC	PHM/EC	APP
QOA	IFB - 30% REVIEW PACKAGE	YSM/EC	PHM/EC	APP
REV	DESCRIPTION	DATE	BY	CK

LOGO

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSALE, PA 19446
215-652-4777

RECOMMENDED ELECTRICAL CLEARANCES
TM2.7.1.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)

VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60

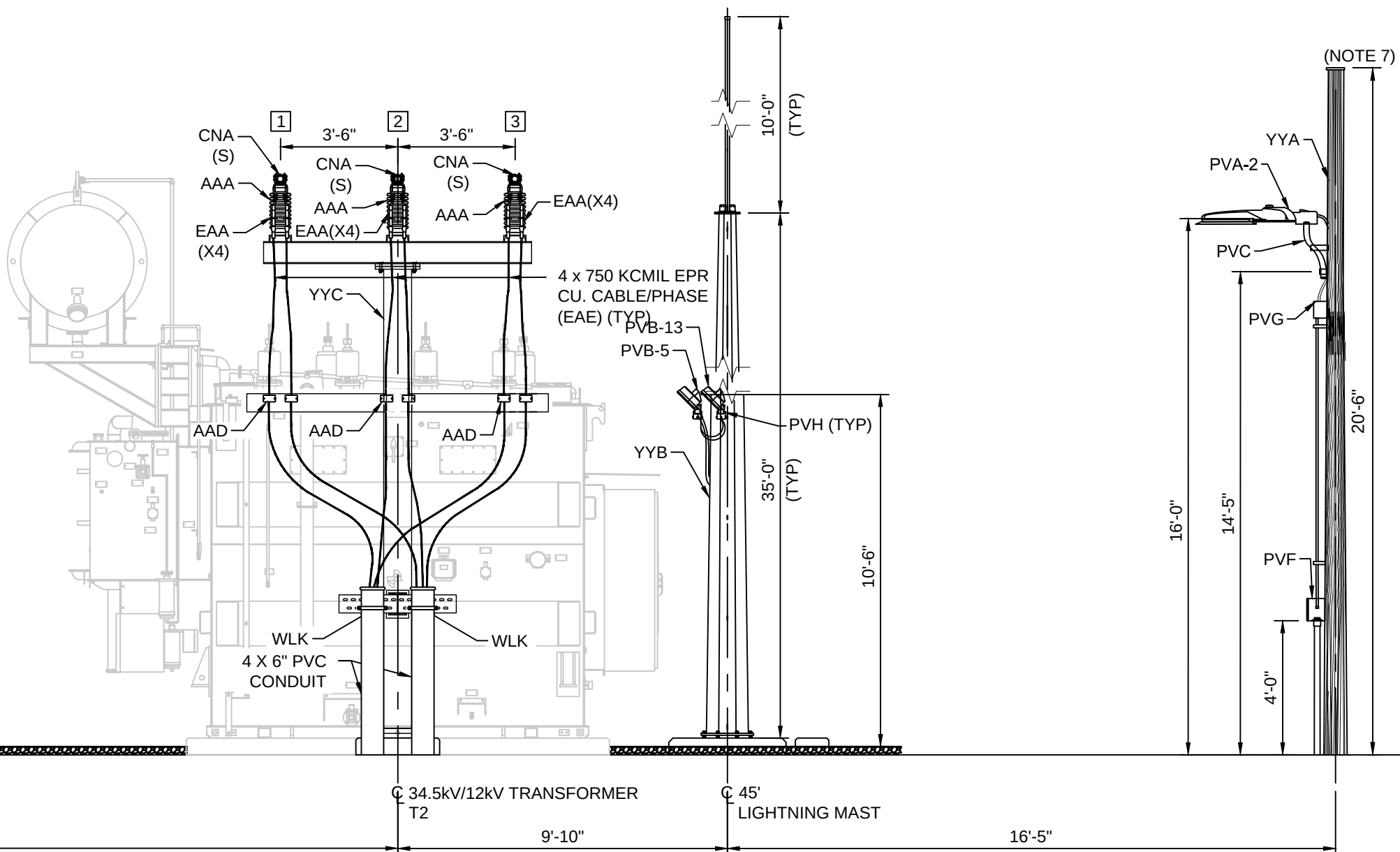
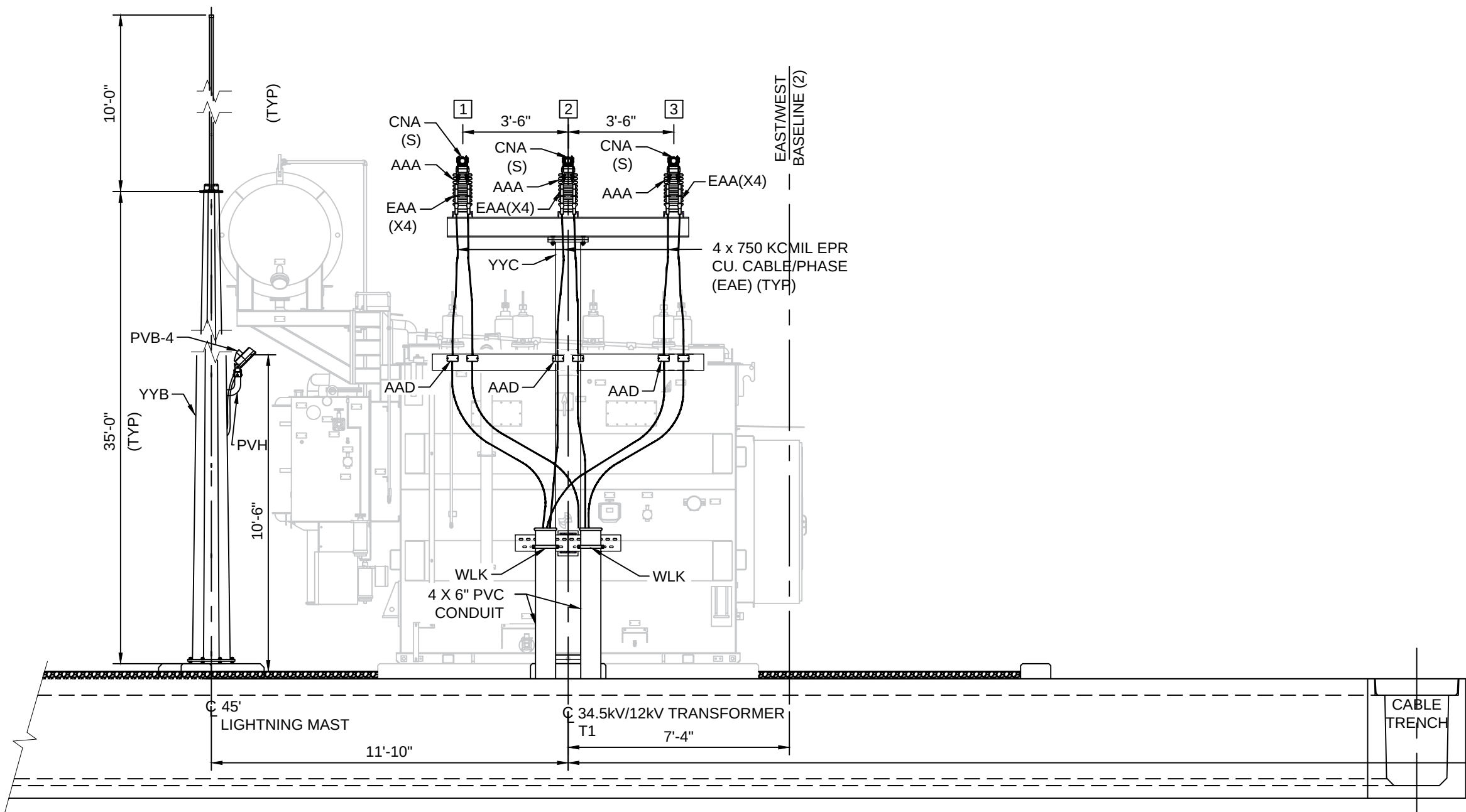
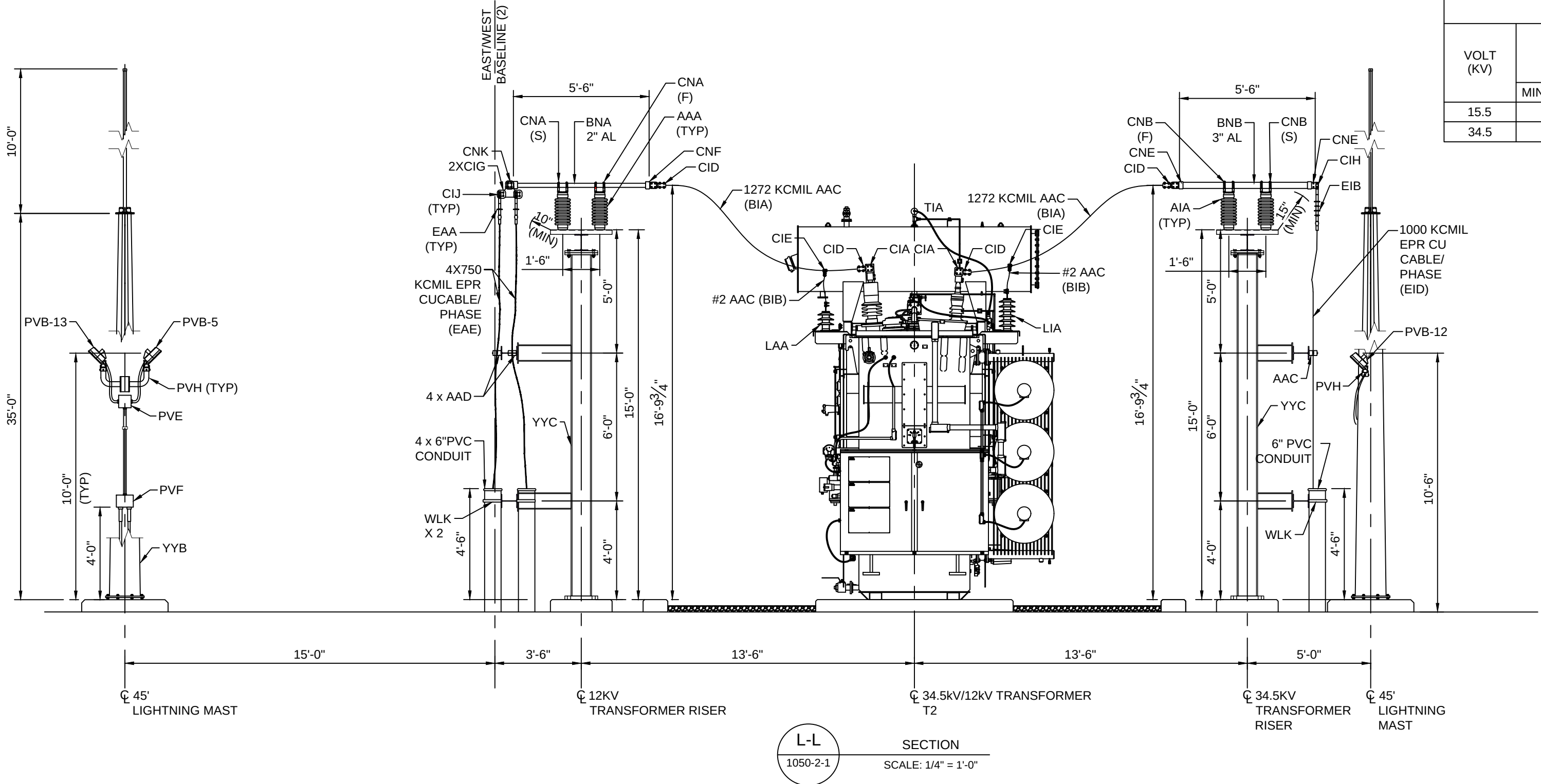
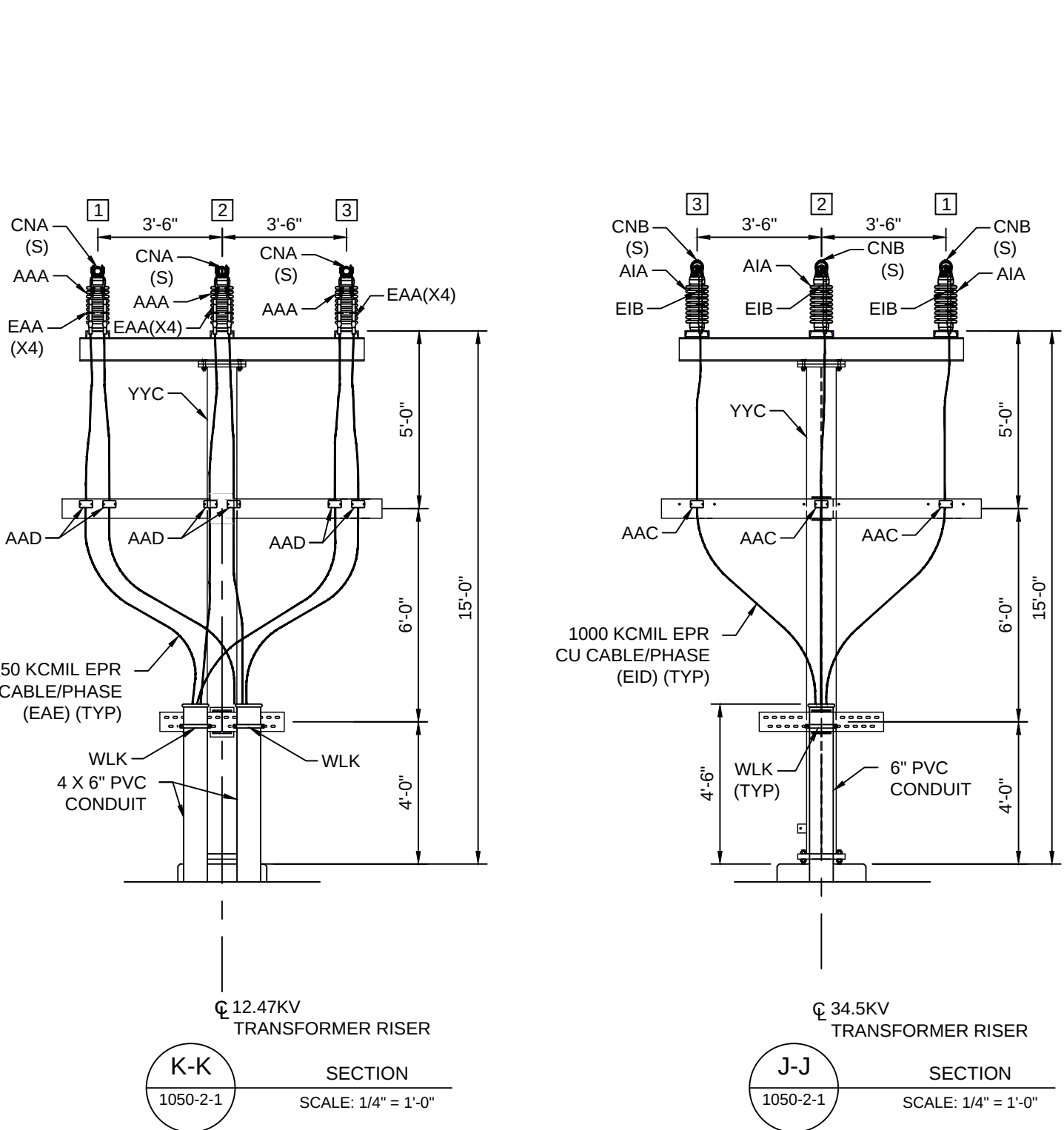
NOTES:

- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
- WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.7.1.53.
- LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
- GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
- TRANSMISSION CONDUCTOR IS INDICATIVE.
- STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
- WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND 4'-6" BELOW GROUND).

REFERENCE DRAWING:

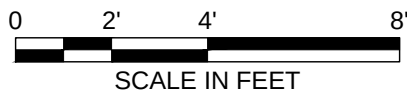
1050-0002-001
1050-0002-003 SH 1
1050-0002-003 SH 2
1050-0002-002 SH1
1050-0002-002 SH2
1050-0002-002 SH4
1050-0002-002 SH5
1050-0002-002 SH6
1050-0002-002 SH7
1050-0006-010

GENERAL ARRANGEMENT ELECTRICAL DETAILS S 34.5/12.47KV S/S
GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
GENERAL ARRANGEMENT SECTIONS H-H & W-W
ANIMAL PROTECTIONS DETAILS
YARD LIGHTING DIAGRAM



M-M SECTION
1050-2-1
SCALE: 1/4" = 1'-0"

FOR BID ONLY
NOT FOR
CONSTRUCTION



PE STAMP

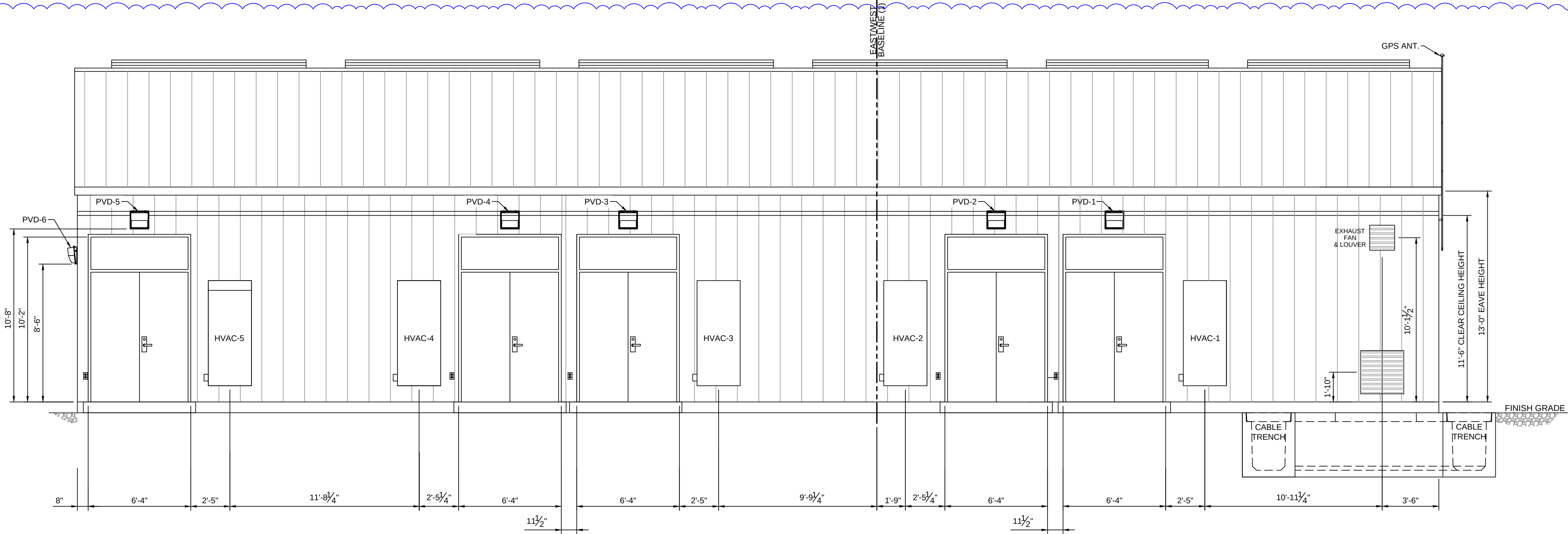
AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID



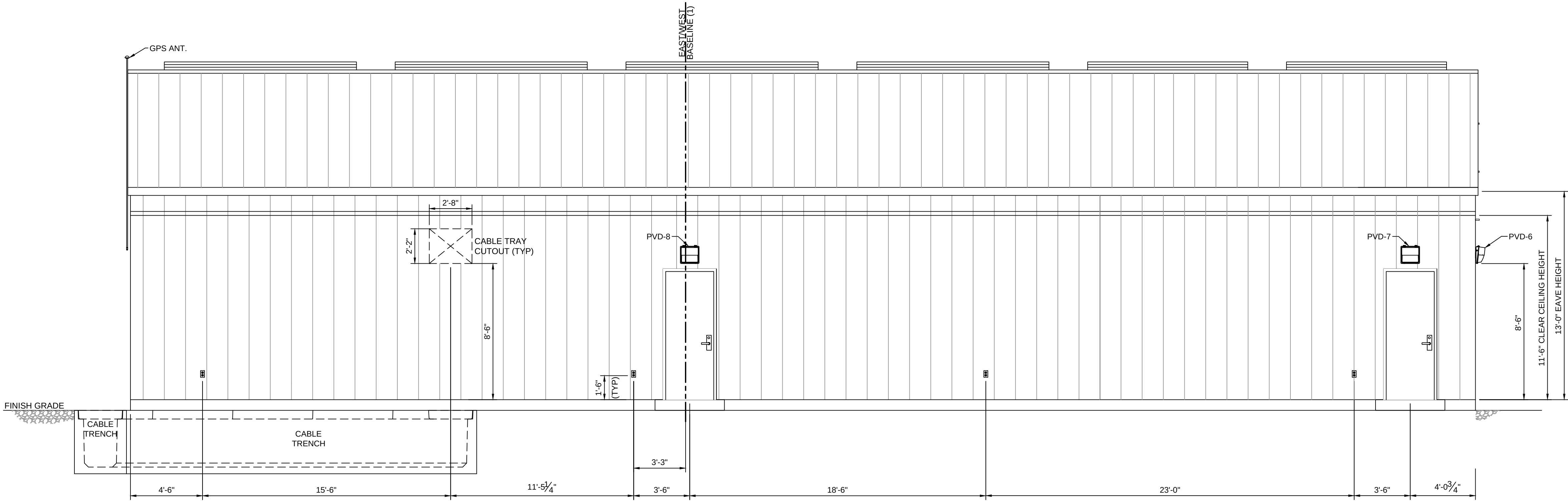
GENERAL ARRANGEMENT
SECTIONS J-J, K-K, L-L & M-M
SH 3 OF 6

						BIDDEFORD PUMP S/S		BIDDEFORD, ME	
BY		HEM/EC		SCALE: 1/4" = 1'-0"		FILE: 1050-0002-002 SH 003 Rev. 0-00.dwg			
CK		YSM/EC		NO.				REV	
APP		PMB/MLC		DATE: XXXXXXXX		1050-0002-002 SH3		0-00	
REV	DESCRIPTION	DATE	BY	CK	APP				

ON HOLD
PENDING
MANUFACTURER
DRAWING



H-H SECTION
1050-2-1 SCALE: 1/4"=1'-0"



W-W SECTION
1050-2-1 SCALE: 1/4"=1'-0"

- REFERENCE DRAWING:
- 1050-0002-001 GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S
 - 1050-0002-003 SH 1 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-003 SH 2 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-002 SH1 GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
 - 1050-0002-002 SH2 GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H
 - 1050-0002-002 SH3 GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
 - 1050-0002-002 SH4 GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
 - 1050-0002-002 SH5 GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
 - 1050-0002-002 SH7 ANIMAL PROTECTIONS DETAILS
 - 1050-0006-010 YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION

AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID						GENERAL ARRANGEMENT SECTIONS H-H & W-W SH 6 OF 6			
						BIDDEFORD PUMP S/S		BIDDEFORD, ME	
						BY HEM/EC		SCALE: 1/4" = 1'-0" FILE: 1050-0002-002 SH 006 Rev. 0-00.dwg	
						CK VS/M/EC		REV	
						APP PMB/M/EC		NO.	
						DATE XXX/XXX/XXXX		1050-0002-002 SH6	
								0-0C	
REV	DESCRIPTION	DATE	BY	CK	APP				

QAC	EPF - 60% ISSUED FOR BID	01/28/2021	TDK/M/EC	VS/M/EC	PMB/M/EC	APP
QAB	EPF - ISSUED FOR BID	12/20/2020	TDK/M/EC	VS/M/EC	PMB/M/EC	
QOA	EPF - 30% REVIEW PACKAGE	11/25/2020	HEM/EC	VS/M/EC	PMB/M/EC	
REV	DESCRIPTION	DATE	BY	CK	APP	

LOGO

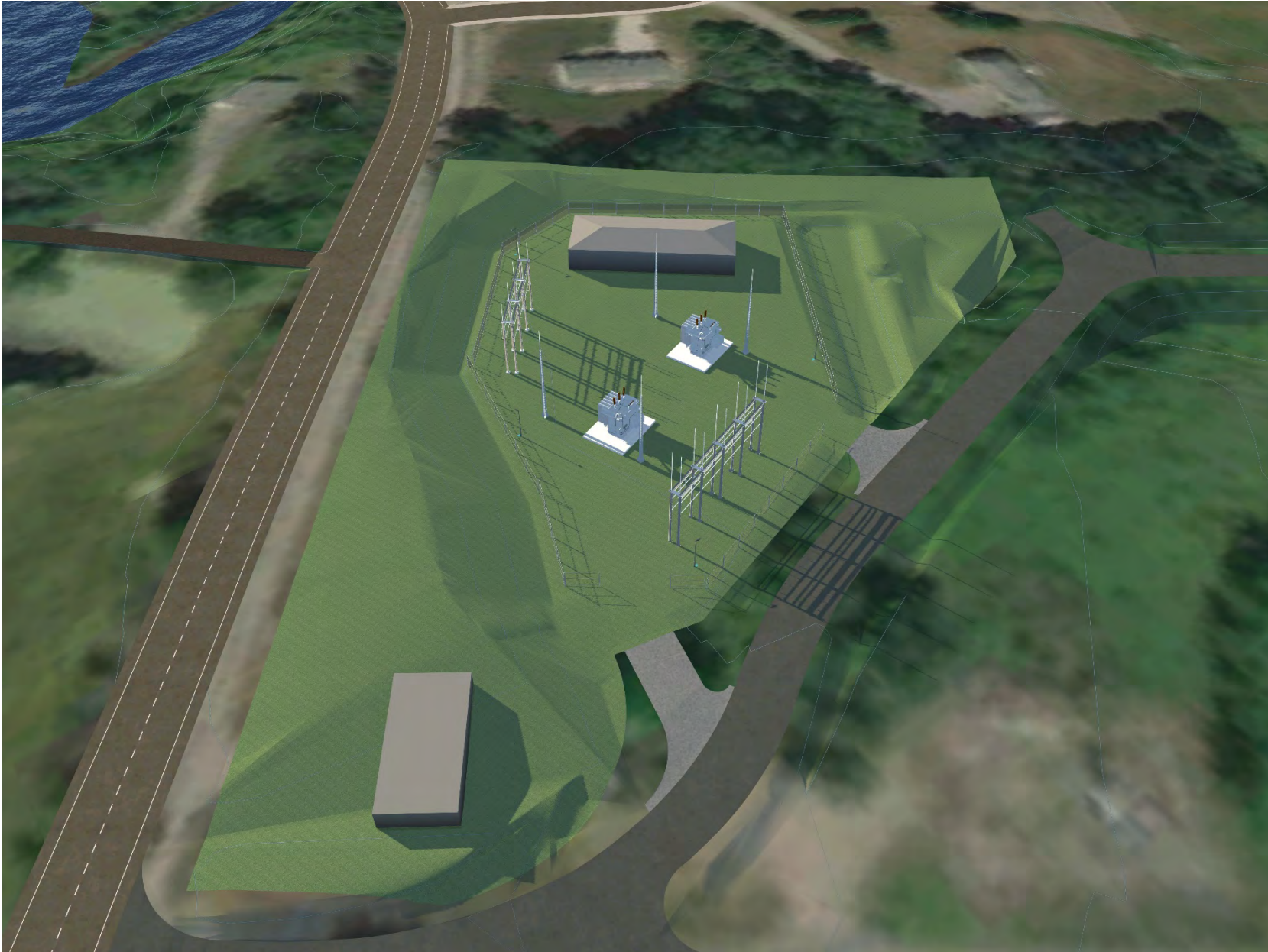
MAINLINE

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET LANSHIRE, PA 19446
PH: 610-865-9277 FAX: 610-865-9277

ANSI D 621/2021

Exhibit 6

Visual Assessment



Three-dimensional Model of the Biddeford Pump Substation

VIEW FROM SOUTH STREET



Westwood

Phone (952) 937-5150 12701 Whiteoak Drive
Fax (952) 937-5822 Minnetonka, MN 55343
Toll Free (888) 937-5150 westwoodps.com
Westwood Professional Services, Inc.

10-14-21
0027642

PREPARED FOR:



BIDDEFORD PUMP
BIDDEFORD, ME

VIEW FROM SOUTH STREET ENTRANCE



Exhibit 7

Landscaping Plan

Biddeford Pump

Biddeford, Maine

Landscape Buffer Screening Plans

REGIONAL MAP



VICINITY MAP



CONTACT INFORMATION

CONSULTANT	COMPANY	NAME	PHONE NUMBER
PROJECT MANAGER	CENTRAL MAINE POWER	JEREMY PETTENGILL	207-530-1977

Sheet List Table

Sheet Number	Sheet Title
L.100	Overall Landscape Screening Plan
L.200	Landscape Screening Notes & Details

NOT FOR
CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION.
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID				Cover	
						BIDDEFORD PUMP S/S BIDDEFORD, ME	
						BY EAC SCALE: SEE SHEET FILE: NO. REV	
						CK NTM	
						APP NTM	
						DATE 10/12/2021 T.100 0-0D	

01	CLIENT COMMENTS	10/12/21	EAC	NTM	NTM	APP
REV	DESCRIPTION	DATE	BY	CK		

INFO

WESTWOOD PROFESSIONAL SERVICES
12701 WILSON AVENUE, SUITE 100
ANN ARBOR, MI 48106
734.769.8800
WWW.WESTWOODPS.COM

N:\002764\002764.DWG PLOD.dwg 10/12/2021 5:15 PM Elm_Cmk



ORDINANCE - SCREENING REQUIREMENTS

SECTION 12 BUFFERS [ORD. NO. 2001.90, § 8, 10-16-2001; AMENDED 1-3-2017 BY ORD. NO. 2016.113]		
A.	NO STRUCTURE SHALL BE ERECTED OR ANY USE PERMITTED IN NONRESIDENTIAL DISTRICTS, WHICH ABUT RESIDENTIAL DISTRICTS, UNLESS A BUFFER STRIP AT LEAST 30 FEET WIDE IS PROVIDED AND MAINTAINED BETWEEN ANY ADJOINING RESIDENTIAL DISTRICT OR USE AND THE NONRESIDENTIAL STRUCTURE OR USE. SUCH BUFFER AREA SHALL BE FOR THE PURPOSE OF ELIMINATING OR MINIMIZING ANY ADVERSE EFFECTS UPON THE ENVIRONMENTAL OR AESTHETIC QUALITIES OF ABUTTING PROPERTIES OR ANY TYPE OF NUISANCE AFFECTING THE HEALTH, SAFETY, WELFARE AND PROPERTY VALUES OF THE RESIDENTS OF BIDDEFORD. THIS REQUIREMENT MAY BE WAIVED BY THE PLANNING BOARD UPON REQUEST OF THE APPLICANT IF IT CAN BE DEMONSTRATED THAT THE WAIVER IS WARRANTED OR NECESSARY DUE TO EXISTING CONDITIONS AND/OR IF OTHER MEANS OF ELIMINATING OR MINIMIZING ANY ADVERSE IMPACTS ON RESIDENTIAL STRUCTURES OR USES CAN ACHIEVE THE SAME PURPOSE, SUCH AS, BUT NOT LIMITED TO, THE INSTALLATION OF STOCKADE FENCING OR NOISE BARRIERS.	REQUIREMENT MET WITH PROPOSED LANDSCAPE BUFFER PLANTINGS
B.	NO BUILDING, STRUCTURE, OR PARKING SHALL BE ERECTED, PROVIDED, OR ENLARGED OR USE PERMITTED WITHIN THE INSTITUTIONAL ZONE WHICH ABUTS OR IS ADJACENT TO A SUBURBAN RESIDENTIAL (SR-1), COASTAL RESIDENTIAL (CR), OR RURAL-FARM (R-F) ZONE UNLESS A BUFFER AT LEAST 50 FEET WIDE IS PROVIDED AND MAINTAINED BETWEEN THE ADJOINING ZONE AND THE BUILDING, STRUCTURE, PARKING, OR USE IN THE INSTITUTIONAL ZONE. SUCH BUFFER AREA SHALL BE FOR THE PURPOSE OF ELIMINATING OR MINIMIZING ANY ADVERSE EFFECTS UPON THE ENVIRONMENTAL OR AESTHETIC QUALITIES OF ABUTTING PROPERTIES OR ANY TYPE OF NUISANCE AFFECTING THE HEALTH, SAFETY, WELFARE AND PROPERTY VALUES OF THE RESIDENTS OF BIDDEFORD, ESPECIALLY THE RESIDENTS OF THE SURROUNDING NEIGHBORHOODS. THE BUFFER STANDARDS RELATED TO THIS SUBSECTION (ARTICLE VI, SECTION 12B) PERTAINING TO THE INSTITUTIONAL ZONE MAY NOT BE WAIVED.	
C.	REQUIRED BUFFER AREAS SHALL NOT INCLUDE PARKING OR LOADING AREAS, AND SHALL CONSIST OF CONIFEROUS OR DECIDUOUS TREES.	

BUFFER & SCREENING PLANT SPECIES LIST

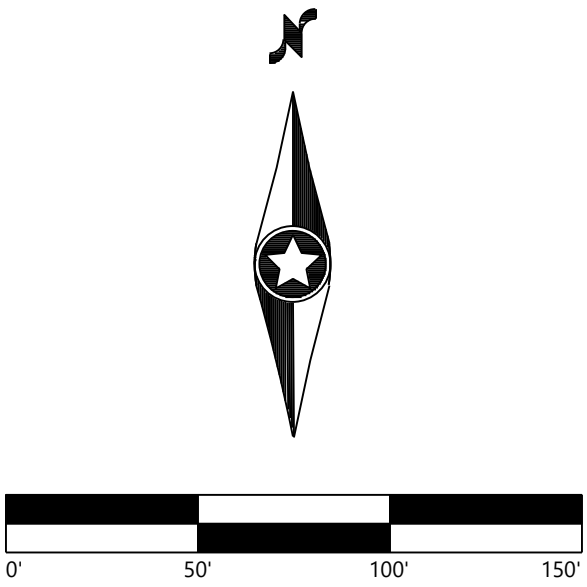
	CODE	QUANTITY	COMMON/BOTANICAL NAME	SIZE (AT INSTALLATION)	SPACING O.C.	MATURE SIZE
SMALL EVERGREEN TREES	FAS	7	Fat Albert Spruce / <i>Picea pungens</i> 'Fat Albert'	6' H.T.	AS SHOWN	H 10'-15' W 7'-10'
	TEA	6	Techny Arborvitae / <i>Thuja occidentalis</i> 'Techny'	6' H.T.	AS SHOWN	H 12'-15' W 6'-8'
SHRUBS	NBB	31	Northern Bayberry / <i>Myrica pensylvanica</i>	#5 CONT.	6' O.C.	H 5'-10' W 5'-10'
	NAV	14	Nannyberry <i>Viburnum</i> / <i>Viburnum lentago</i>	#5 CONT.	6' O.C.	H 10'-15' W 6'-12'
	ELB	20	Elderberry / <i>Sambucus canadensis</i>	#5 CONT.	6' O.C.	H 5'-12' W 5'-12'

- NOTES:
1. QUANTITIES ON PLAN SUPERSEDE LIST QUANTITIES IN THE EVENT OF A DISCREPANCY.
 2. B.B. SPECIFIES ROOT TYPE AS BALLED AND BURLAPPED.
 3. H.T. SPECIFIES MINIMUM SPECIMEN HEIGHT UPON INSTALLATION.
 4. SELECTION OF SPECIFIC VEGETATION IS STILL BEING REVIEWED.

LEGEND:

- PROJECT BOUNDARY
- EASEMENT LINES
- EX. TREELINE
- EX. PAVED ROAD
- EX. GRAVEL ROAD
- EX. OVERHEAD POWER
- EX. STREAM CHANNEL
- EX. WETLAND
- PROPOSED SECURITY FENCE
- EX. FENCE
- EX. OTHER STRUCTURES
- 30' LANDSCAPE BUFFER STRIP

NOT FOR
CONSTRUCTION



CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION.
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID			
BY		EAC		NTM	
CK		APP		DATE	
REV		DESCRIPTION		DATE	
DATE		10/12/2021		L.100	
SCALE: SEE SHEET FILE		NO.		REV	
BIDDEFORD PUMP S/S		BIDDEFORD, ME		0-00	

November 8, 2021

Mr. Jeremy Pettengill
Avingrid – Central Maine Power
83 Edison Drive
Third Floor
Augusta, ME 04336

Re: Biddeford Pump Substation; Noise Propagation and Modeling Assessment
York County, ME
Project No. R0027642.00

Mr Pettengill:

Westwood Professional Services, Inc. (Westwood) was authorized by Avingrid – Central Maine Power (the Client) to provide local noise ordinance research and noise modeling for the Biddeford Pump Project in York County, Maine. The Site is located on the south bank of the Saco River and is approximately one mile west of Maine Turnpike 85 at 466 South Street. The purpose of this modeling is to determine noise levels generated from 2 power transformers and 2 station service transformers within the proposed Biddeford Pump Substation redevelopment.

Predicted noise levels were determined using the Cadna-A noise propagation and modeling software. According to the City of Biddeford, ME / Part II: Environment Article III Noise, the Subject Property is located within a residential district of Biddeford, ME and therefore subject to the following limits:

	dB(A)	dB(C)
Daytime (7:00 am-10:00 pm)	55	67
Nighttime (10:00 pm-7:00 am)	45	57

The Subject Property has six adjoining properties that are occupied by residential dwellings, the closest of which is located approximately 160 feet west of the proposed Substation. Due to the residential nature of the Subject Property, Westwood modeled the expected A and C weighted noise levels at five property line receptors located to the northwest, west, and south of the facility (R-1 through R-5).

According to manufacturer provided data, the power transformers are expected to produce approximately 75 dB(A) at 1 meter from the noise source during peak production. The station service transformers are expected to produce a 50 dBA at 1 meter from the power source.

Predicted noise levels were determined using an aggregate of output levels from the transformers. The predicted noise levels at the property line emanating from the noise generation sources are discussed below.

Receptor	dB(A)	dB(C)
R-1	40.3	48.8
R-2	40.4	48.9
R-3	40.0	47.3
R-4	41.0	47.0
R-5	29.7	38.1

All predicted levels fall below the nighttime noise limits of 45 dB(A) and 57 dB(C). The predicted noise contours for A-weighted levels are also attached as Exhibit A and show the 45 dB(A) contour within the project boundary on the side nearest the homes.

Based on the total levels predicted at the property line, the noise levels produced by the proposed Biddeford Pump Substation would be properly mitigated by existing topography and distance and therefore no impacts are expected from the facility on the adjoining dwellings.

In performing its services, Westwood Professional Services used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

If you have any questions or wish to discuss any aspect of the project, please feel free to call Andrew Schad at (720) 387-3814. We look forward to being of continued service to you.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES



Andrew Schad
Sound/Noise Specialist

Exhibit A: Nosie Contour Map

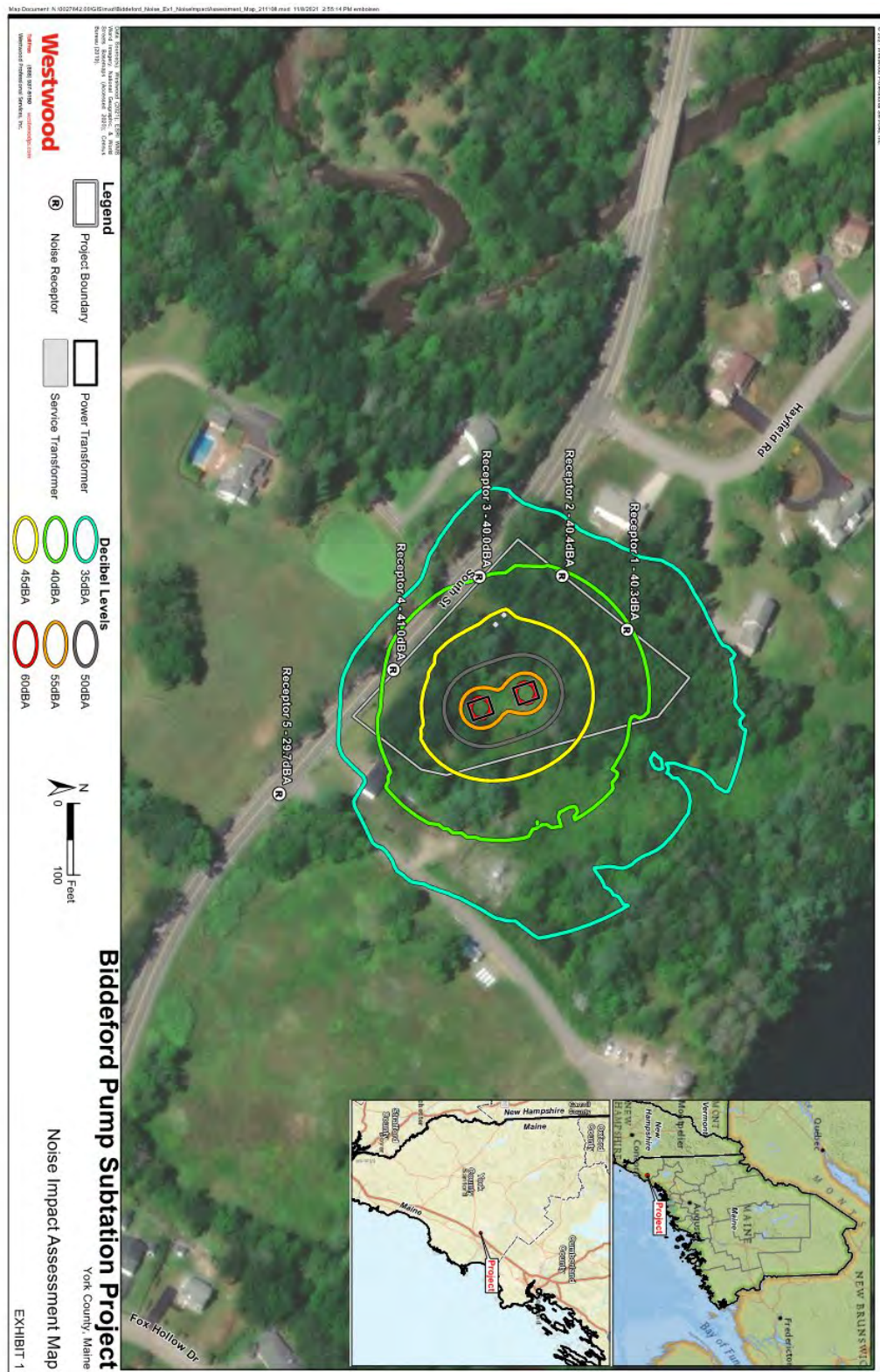


Exhibit 8

Sound Study

January 11, 2022

Mr. Greg Tansley
City Planner
City of Biddeford
P.O. Box 586
205 Main Street
Biddeford, ME 04005

**RE: Response to Request for Information
Land Use Application for the Central Maine Power Company Biddeford Pump Substation,
South Street Biddeford, Maine**

Dear Greg,

The following provides responses to requests for information and comments from the City of Biddeford's staff and consulting engineer. Central Maine Power Company (CMP) for its Biddeford Pump Substation (Project) rebuild and upgrade located on 466-468 South Street, map 2, block 40 (PID 235). CMP has obtained title for 1.87 acres for the new substation from the Maine Water Company (MWC) as part of the MWC's efforts to rebuild and expand its water treatment facility. The boundary survey and deed are included as Exhibit 1.

MWC Manhole and Duct Bank: The MWC altered its plans for placement of the electrical/communication duct bank and man-holes where one man-hole was moved to the southeast and ones near the start of the access road were replaced with a utility pole. The MWC did not make CMP aware of these changes although it appears they do not affect the Project design. CMP requested the plans that document these design changes and have requested confirmation that the catch basin and culverts have been installed per the MWC's approved plans. CMP has updated its Civil Site Plan and Facilities Grading Plan to reflect these changes (Exhibit 2).

Topographic and Other Survey: CMP obtained the topographic and other existing features data from the MWC's survey consultant that was used for the design of the new water treatment facility including the tract the CMP ultimately purchased and used that data for the design of the Project.

Adequate provision to manage stormwater runoff: A stormwater management plan has been prepared by a qualified professional in accordance with the applicable requirements of the *Maine Stormwater Management Design Manual* that requires that pre-development and post-development drainage be the same. The Project has been designed so that final grading will not generate additional concentrated stormwater runoff and will not block any existing drainage features or drainage patterns. The stormwater management plan including the size, shape, contours, materials, and locations of the substation floor and stormwater facilities are designed based on calculations are presented in Exhibit 2 as pre-development and post-development conditions which graphically demonstrate the system and its basic function. The stormwater and drainage modeling is presented in Exhibit 3. Grading of the substation yard will direct surface water runoff to drain through a vegetated swale to a retention basin allowing sediments of other materials to settle out before the water overflows through a 12-inch diameter culvert. Runoff from the westerly portion of the substation yard will be directed into a swale and flow through two rock-check

dams before joining the drainage from the main portion of the yard. Flow from the entire substation yard is routed through the existing grading via a 24-inch diameter culvert under the existing gravel access road, which is part of the MWC project. The stormwater system as designed will not cause water to pool on MWC property, rather the discharge relies on an existing drainage feature, which is also used by the MWC stormwater drainage system, on the MWC property that eventually drains into the Saco River.

Electrical Components: The dimensions and design of the major electrical components are provided in Exhibit 4.

Exterior lighting: The substation yard does not require outdoor lighting. Downward casting lighting (cut-off lighting, 2,801 lumens) is required over the control house entrance and switchgear access doors for a total of eight lights. (Sheet 4 of Exhibit 4). The lights will largely be facing away and downward from South Street and due to the lower elevation of the control house will not be visible from South Street and to residents of the nearby single-family homes. Emergency lighting is provided on the various electrical components and will be in service during times of maintenance and repair.

Drainage Easement: CMP's real estate agent is in the process of drafting a drainage easement to allow drainage from the substation across property owned by the MWC. The easement will be confirmed with MWC staff and recorded at the registry of Deeds after the Project is approved and before any construction commences. The draft easement is in process and will be provided to the City when available from CMP.

Summary

Please let me know if any City staff and/or Planning Board members have any questions or would like additional information about the CMP Biddeford Pump Project. On behalf of CMP the Project team looks forward to meeting with the Planning Board meeting on February 2, 2022.

Sincerely,



Mark W. Christopher, M.S. CWB
Project Manager
mchristopher@trccompanies.com
207-441-4225

Exhibit 1

Boundary Survey (Sackett & Brake Survey) and Recorded Deed

BOUNDARY SURVEY

PREPARED FOR THE ACQUISITION OF LAND
AND UTILITY EASEMENT BY:

CENTRAL MAINE POWER COMPANY

from:

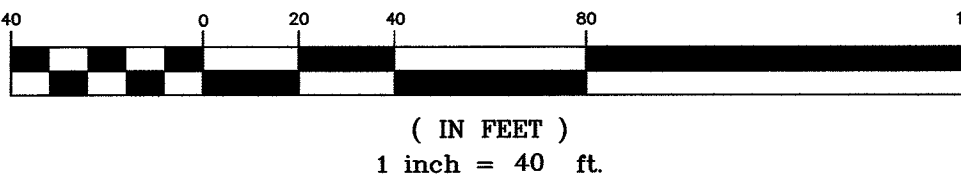
THE MAINE WATER COMPANY

LOCATION: SOUTH STREET
BIDDEFORD, YORK COUNTY, MAINE

DATE: DECEMBER 5, 2019

REVISED DATE - APRIL 7, 2020

GRAPHIC SCALE



LEGEND

● = 3/4" IRON REBAR SET WITH RED PLASTIC CAP INSCRIBED
S.W. GOULD PLS 2318 (unless otherwise noted).

○ = UTILITY POLE

PLAN REFERENCE

PLAN...1 PLAN OF LAND OF MAINE WATER COMPANY BIDDEFORD WATER
TREATMENT FACILITY SOUTH STREET, DATED February 13, 2018
PREPARED BY: JONES ASSOCIATES, INC., PROJ.#17-042BD.
UNRECORDED.

THE MAINE WATER COMPANY
Portion of:
reference 400/428 May 27, 1884
Biddeford Map 2 Lot 40

THE MAINE WATER COMPANY
Conveyance of Land To:
Central Maine Power Company
Portion of:
reference 400/428 May 27, 1884
Biddeford Map 2 Lot 40

To Be Conveyed:

1.871 acres

n/f
MARTIN FAMILY TRUST
17256/525 June 16, 2016
Biddeford Map 6 Lot 51

n/f
ROBERT A. PELLETIER
THERESA L. SCHANG
16895/185 September 19, 2014
Biddeford Map 6 Lot 51-1

South Street

LINE TABLE

LINE	LENGTH	BEARING
L1	24.25	N37°20'43"E

CURVE TABLE

CURVE	LENGTH	RADIUS	Chord Direction	Chord Distance
C1	7.85	5.00	N82°06'58"E	7.07
C2	13.93	30.00	N50°38'42"E	13.80
C3	62.47	131.21	N24°30'25"E	61.88

Owner of Record:
THE MAINE WATER COMPANY
93 Industrial Park Road
SACO, MAINE 04072

THIS SURVEY CONFORMS WITH THE RULES ADOPTED BY THE
MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND
SURVEYORS (April 1, 2001) WITH ANY EXCEPTION TAKEN TO
CHAPTER 90, PART 2, (Technical Standards) NOTED HEREON.
32 M.R.S.A. § 13903(2)

1. NO WRITTEN REPORT PREPARED AT THIS TIME.
2. NO NEW LEGAL DESCRIPTION PREPARED AT THIS TIME.

PREPARED BY: SACKETT & BRAKE SURVEY, INC.

INVALID - UNLESS SIGNED, SEALED AND/OR EMBOSSED BELOW.

P.O. BOX 207, RTE 201 N
SKOWHEGAN, MAINE 04976
207-474-6223

STATE OF MAINE
STEPHEN W. GOULD
No. 2318
PROFESSIONAL
LAND SURVEYOR
2019181

STATE OF MAINE
YORK, ss, REGISTRY OF DEEDS
Received May 20, 2020
at 12 h 08 m P.M. and recorded
in Plan File 408 pg 3
ATTEST:
Anney E. Hammond
REGISTER



QUITCLAIM DEED WITH COVENANT

THE MAINE WATER COMPANY, a Maine corporation with a mailing address of 93 Industrial Park Road, Saco, Maine 04072, successor in interest to the Biddeford & Saco Water Company (the "Grantor"), for consideration paid, the receipt whereof is hereby acknowledged, hereby GRANTS to CENTRAL MAINE POWER COMPANY, a Maine corporation with a mailing address of 83 Edison Drive, Augusta, Maine 04336 (the "Grantee"), a certain lot or parcel of unimproved land located on the northeasterly side of South Street in the City of Biddeford, County of York, and State of Maine, as more particularly bounded and described as follows:

A certain lot or parcel of land situated on the northeasterly side of South Street, so-called, in the City of Biddeford, County of York, and State of Maine, bounded and described in Exhibit A, attached hereto and made a part hereof and hereinafter referred to as the "Premises", and being a portion of the premises described in a Deed to the Biddeford & Saco Water Company, predecessor in interest to The Maine Water Company, dated May 27, 1884, and recorded in the York County Registry of Deeds in Book 400, Page 428 (the "Grantor's Deed").

Reference is to be made to a survey entitled "Boundary Survey Prepared for the Acquisition of Land and Utility Easement by: Central Maine Power Company from Maine Water Company" dated December 5, 2019, prepared by Sackett & Brake Survey, Inc., Project Number 2019181, revised April 7, 2020, and recorded in the York County Registry of Deeds in Plan Book 408, Page 3 (the "Survey").

The Survey depicts an existing and proposed driveway and roadway on the Grantor's remaining land shaded and labeled "existing driveway to buildings" and "proposed roadway" (hereinafter collectively referred to as the "Roadway"). To the extent not currently existing, the Grantor intends to construct the Roadway substantially in the location shown on the Survey in connection with the Grantor's construction of a new water treatment facility to be located in part on the Grantor's remaining property described in the Grantor's Deed and in part on additional property of the Grantor located on the southwesterly side of said South Street. The Premises are further conveyed together with a non-exclusive easement and right of way for access by men and machinery over the Roadway following its construction to and from the Premises, inclusive of a right to extend one or more driveways or entranceways from the Roadway to the Premises in the locations shown and labelled "Access Areas" on the Survey, together with a non-exclusive easement for access by men and machinery over the Roadway to and from the easement area described in a certain Easement Deed from the Grantor to the Grantee of even date and recorded herewith (the "Easement Deed"). Said easements shall include the right to maintain, repair and replace the Roadway in the location shown on the Survey to the extent necessary to permit use of the Roadway by the Grantee as set forth above provided, however, that the Grantee will provide the Grantor with reasonable prior notice before undertaking any such work. The Grantor shall not be obligated to construct the Roadway within any particular time frame nor to maintain, repair or replace the Roadway, provided that in the event the Grantor fails to construct the Roadway prior to the Grantee's construction of the substation on the Premises, the Grantee shall have the right to construct a road or access way to the Premises and the area described in the Easement Deed for such purposes within the location of the Roadway shown on the Survey.

Provided, however, that the Grantee's use of the portion of the Roadway located adjacent to the "proposed building" depicted on the Survey shall not include the parking of vehicles or the placement of machinery and equipment but shall only be used for turnaround purposes.

The above described portion of the Grantor's remaining property comprising the area subject to said rights and easements herein granted is hereinafter referred to as the "Access Easement Area".

Maine R.E. Transfer Tax Paid

(3)

4p. →

Central Maine Power
Attn: Jen Davis
83 Edison Dr
Augusta, ME 04336

Reserving to the Grantor, its successors and assigns, the non-exclusive use and enjoyment of the Access Easement Area for all purposes including, but not limited to, access to and from the Grantor's remaining property over the Roadway, as well as the installation of underground utility lines, communication lines, and pipelines within the Access Easement Area for the purpose of fulfilling the Grantor's responsibilities as a public water utility, as are not inconsistent with and shall not unreasonably interfere with the use of the Access Easement Area by the Grantee, its successors and assigns, for the purposes above-mentioned, beyond temporary interference during the installation of such utility lines, communication lines, and pipelines or during any other work within the Access Easement Area which does not cause a disruption of electric transmission service. Grantor shall provide Grantee written notice of any of the aforesaid improvements, installation of utility lines, communication lines and pipelines at least fifteen business days prior to the installation work so that Grantee shall have the right, but not the obligation, to object in the event Grantee determines prior to construction that the installation will unreasonably interfere with its transmission facilities and operations located within the Access Easement Area.

By acceptance of this Deed, the Grantee agrees for itself and its successors assigns, to indemnify and hold harmless the Grantor, its officers, directors, employees, successors and assigns, or others doing business on the Grantor's property, from and against any and all damages, liabilities, losses, expenses, claims, demands and suits (including reasonable attorneys' fees and other costs and expenses incurred in defending the same), incurred or suffered in consequence of either bodily injury to any person (including death) or damage to any property, and also any liens or encumbrances against the Grantor's property, arising out of, or in connection with, the exercise of the rights and easements conveyed herein.

IN WITNESS WHEREOF, THE MAINE WATER COMPANY has caused this instrument to be executed by Richard Knowlton, its President, thereunto duly authorized, this 7th day of May, 2020.

WITNESS:

Richard A. Shinay

THE MAINE WATER COMPANY

By:

Richard Knowlton

Richard Knowlton
Its President

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

May 7, 2020

Then personally appeared the above-named Richard Knowlton, President of THE MAINE WATER COMPANY, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of THE MAINE WATER COMPANY.

Before me,

Richard A. Shinay
Notary Public/Maine Attorney at Law

RICHARD A. SHINAY
Print Name

My commission expires

MORTGAGEE'S JOINDER

U.S. BANK NATIONAL ASSOCIATION, not individually but solely in its capacity as successor Trustee under an Indenture from Biddeford & Saco Water Company, predecessor to The Maine Water Company, to Union Safe Deposit and Trust Company, as initial Trustee, dated as of August 1, 1923, and recorded in the York County Registry of Deeds in Book 727, Page 2, as amended and supplemented to date (collectively, the "Indenture"), hereby joins in the Deed to which this Mortgagee's Joinder is attached for the sole and limited purpose of releasing the Premises described in said Deed, together with all rights and easements appurtenant thereto as described in said Deed, and no other, from the Indenture. This Mortgagee's Joinder shall in no way affect or impair the right of U.S. BANK NATIONAL ASSOCIATION to hold under the Indenture, as security for the sums remaining due thereon, all the remainder of the mortgaged premises therein conveyed or described and not hereby released.

IN WITNESS WHEREOF, U.S. BANK NATIONAL ASSOCIATION, as Trustee as aforesaid, has caused this Mortgagee's Joinder to be executed by Susan Freedman, its Vice President, thereunto duly authorized, as of the 18 day of May, 2020.

WITNESS:



U.S. BANK NATIONAL
ASSOCIATION, as Trustee as
aforesaid

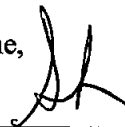
By: Susan Freedman
Susan Freedman
Its Vice President

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF SUFFOLK, ss.

May 18, 2020.

Then personally appeared the above-named Susan Freedman, Vice President of U.S. BANK NATIONAL ASSOCIATION, and acknowledged the foregoing instrument to be her free act and deed in her said capacity and the free act and deed of said U.S. BANK NATIONAL ASSOCIATION, as Trustee as aforesaid.

Before me,



Notary Public

Steven J. Gomes

Print name

My commission expires 8/20/21

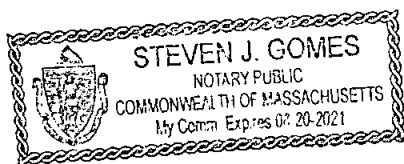


EXHIBIT A

A certain lot or parcel of land situated on the northerly side of South Street in the City of Biddeford, County of York, and State of Maine, more particularly bounded and described as follows:

Beginning on the northeasterly sideline of South Street at a point marked by a $\frac{3}{4}$ " capped iron rebar set on the southeasterly line of land conveyed to Robert A. Pelletier and Theresa L. Schang by a deed dated September 19, 2014 and recorded in the York County Registry of Deeds in Book 16895, Page 185;

Thence, northeasterly on a course of N $37^{\circ}-06'-58''$ E along the southeasterly line of land of Pelletier et. ux. and land conveyed to Martin Family Trust by a deed dated June 16, 2016 and recorded in the York County Registry of Deeds in Book 17256, Page 525, a distance of three hundred seven and thirty-three hundredths (307.33) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set;

Thence, in a generally southerly direction through land of Maine Water Company, reference is to be made to a deed dated May 27, 1884 and recorded in the York County Registry of Deeds in Book 400, Page 428, on the following (5) courses and distances:

S $52^{\circ}-53'-02''$ E a distance of seventy (70) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set;

Thence S $17^{\circ}-12'-23''$ E a distance of three hundred five and twenty-two hundredths (305.22) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set;

Thence S $10^{\circ}-24'-56''$ W a distance of thirty-six and sixty-four hundredths (36.64) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set;

Thence S $36^{\circ}-16'-45''$ W a distance of thirty and zero hundredths (30.00) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set;

Thence S $36^{\circ}-16'-45''$ W a distance of ninety and six hundredths (90.06) feet to a point marked by a $\frac{3}{4}$ " capped iron rebar set on the northeasterly sideline of South Street;

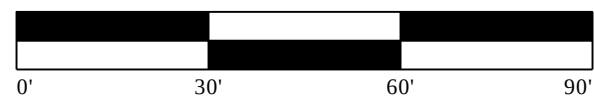
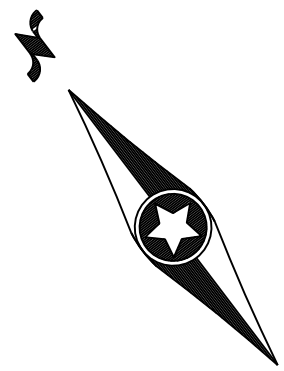
Thence northwesterly on a course of N $48^{\circ}-53'-29''$ W along the northeasterly sideline of South Street a distance of three hundred thirty-six and ninety-seven hundredths (336.97) feet to the point and place of beginning.

Containing 1.871 acres of land, more or less.

Bearings are referenced to a GPS Observation of GRID NORTH (Maine West).

Exhibit 2

Civil Site Plans Including Drainage & Erosion Controls



LEGEND:

- RIGHT-OF-WAY LINES
- EX. PARCEL LINES
- EX. EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. PUBLIC ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- STORM DRAIN
- UNDERGROUND POWER
- EX. FLOODPLAIN
- PROP. GRAVEL
- EX. WETLANDS

SITE DATA SUMMARY TABLE	
ITEM	
ZONING	SR1
PROPOSED USE	Substation
LOT AREA (SF/AC)	81,509/1.871
LOT COVERAGE	49.78%

GENERAL NOTES:

- TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
- HORIZONTAL CONTROL: NAD83, WEST ZONE
- VERTICAL CONTROL: NAVD88 (FT).

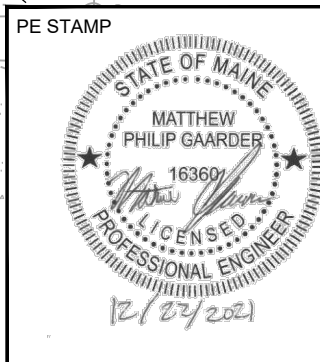
CONTROL POINTS:

- MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
- FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
- 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

FOR BID ONLY
NOT FOR
CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-242-8511)

CIVIL SITE PLAN

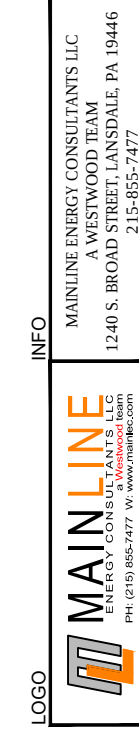


AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID

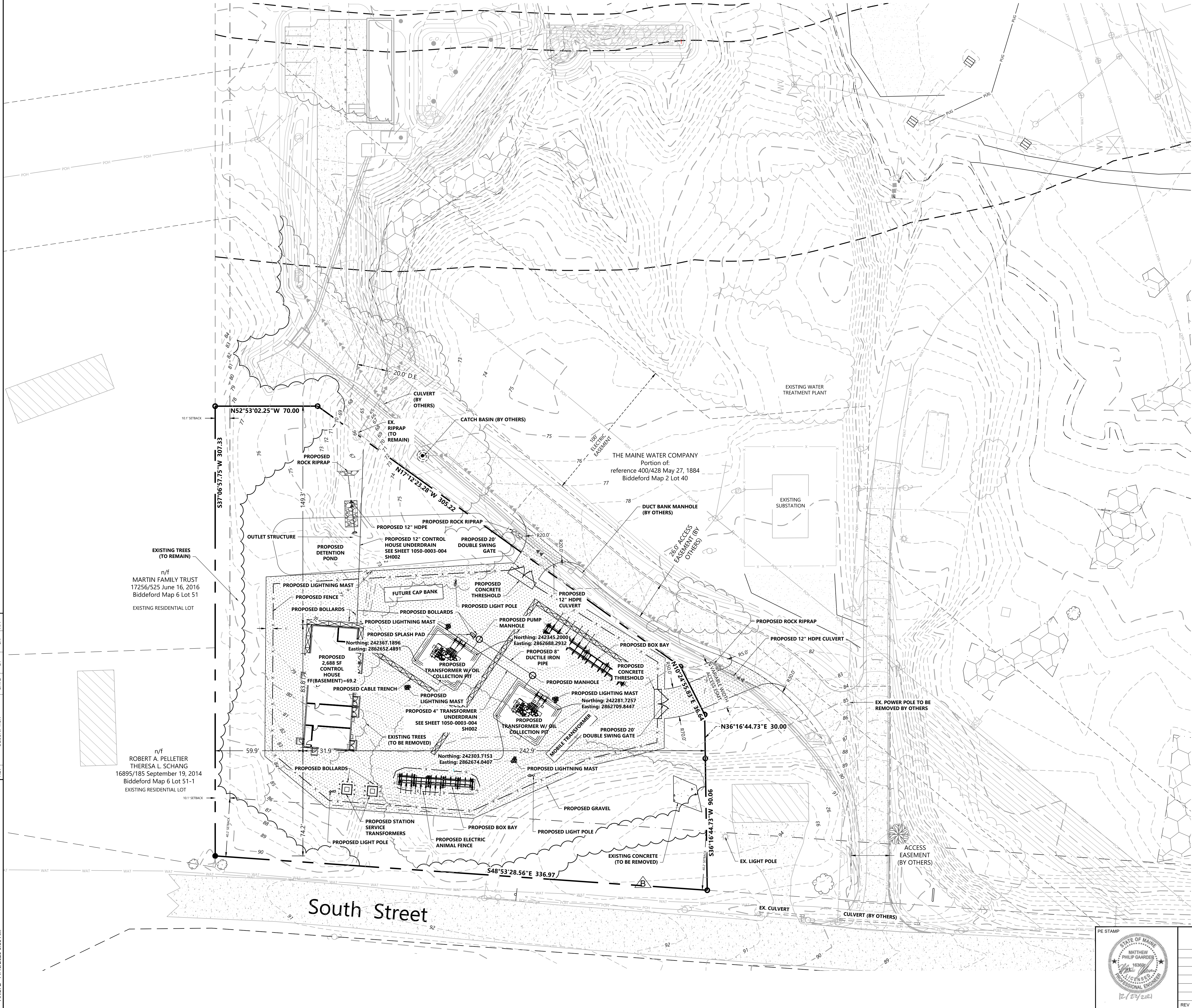


BIDDEFORD PUMP S/S		BIDDEFORD, ME
BY	BSM	SCALE: SEE SHEET FILE:
CK	AA	NO.
APP	AA	REV
DATE: 12/21/2021	1050-0003-001	0-0E

REV	DESCRIPTION	DATE	BY	CK	APP
1	ISSUED FOR REVIEW	10/20/2021	BSM	AA	AA
2	ISSUED FOR BID	12/21/2021	BSM	AA	AA
3	ISSUED FOR BID	12/21/2021	BSM	AA	AA
4	SUBMITTAL	12/21/2021	BSM	AA	AA



ASD 11/19/2020 9:30 AM

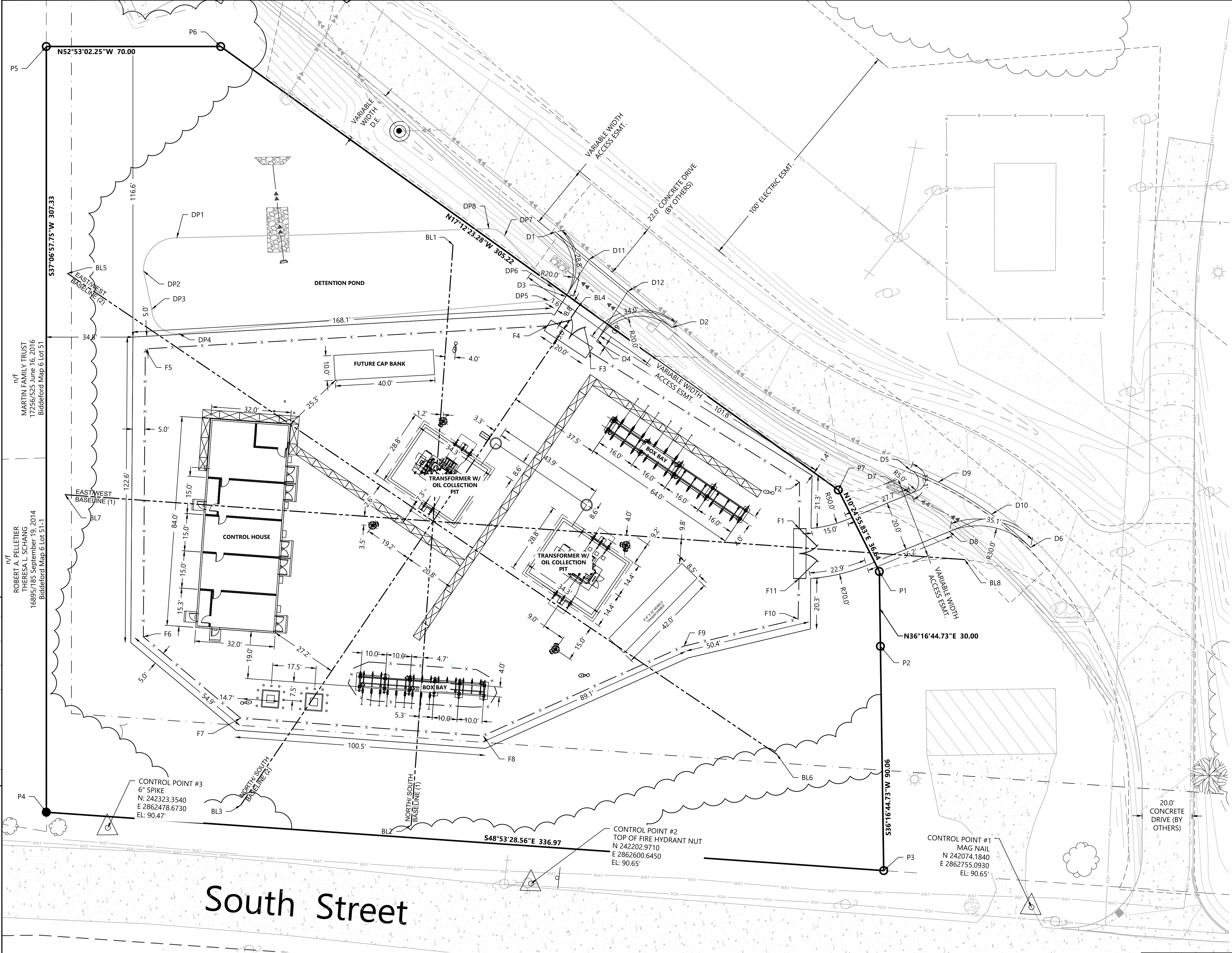


REV	DESCRIPTION	DATE	BY	CK	APP
0-0	ISSUED FOR REVIEW	11/11/2022	BSM	RAF	RAF
0-1	ISSUED FOR REVIEW	08/08/2021	BSM	RAF	RAF
0-2	ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-3	ISSUED FOR BID	12/20/2020	BSM	AA	AA
0-4	SUBMITTAL	11/20/2020	BSM	AA	AA

LOGO

MAINLINE
ENGINEERING
CONSULTANTS, LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
TEL: 610-855-2477 FAX: 610-855-2477

ANSI D 12/30/2020 10:22 AM



LEGEND:	
	RIGHT-OF-WAY LINES
	EX. PARCEL LINES
	EX. EASEMENT LINES
	EX. INDEX CONTOUR
	EX. INTERVAL CONTOUR
	EX. PUBLIC ROAD
	EX. FENCE
	EX. CULVERT
	EX. OVERHEAD POWER
	EX. GAS PIPELINE
	EX. TELEPHONE LINE
	EX. WATER LINE
	STORM DRAIN
	UNDERGROUND POWER
	PROP. GRAVEL

DESCRIPTION	POINT NO.	NORTHING	EASTING
FENCE	F1	242251.5296	2862772.3797
	F2	242266.3898	2862783.7584
	F3	242358.7759	2862748.2170
	F4	242377.4423	2862741.0359
	F5	242467.5595	2862606.6517
	F6	242375.8994	2862536.2722
	F7	242326.3096	2862548.7466
	F8	242261.8954	2862621.0861
	F9	242241.9076	2862707.1588
	F10	242222.9291	2862750.1621
	F11	242235.6502	2862760.2206
PROPERTY	P1	242218.4772	2862787.6850
	P2	242194.2928	2862769.9334
	P3	242121.6900	2862716.6421
	P4	242343.1788	2862462.8048
	P5	242588.3093	2862648.2000
	P6	242546.0692	2862704.0191
	P7	242254.5089	2862794.3081
DRIVEWAY	D1	242405.7395	2862766.2015
	D2	242346.8878	2862780.3294
	D3	242382.4047	2862753.9351
	D4	242360.8856	2862753.7008
	D5	242243.4324	2862822.1816
	D6	242189.5367	2862841.9021
	D7	242235.8051	2862816.7554
	D8	242214.2883	2862819.8822
	D9	242232.7733	2862828.2076
	D10	242209.6318	2862837.4714
	D11	242388.6975	2862770.2926
DETENTION POND	DP1	242495.4474	2862643.6515
	DP2	242492.9143	2862624.9425
	DP3	242478.6179	2862618.3284
	DP4	242464.2880	2862621.1375
	DP5	242385.3899	2862747.3459
BASE LINE	BL1	242426.2744	2862730.3204
	BL2	242250.7604	2862576.4205
	BL3	242298.4307	2862526.7012
	BL4	242376.0131	2862755.1986
	BL5	242510.5386	2862600.0241
	BL6	242184.8088	2862710.6201
	BL7	242440.3222	2862545.6604
	BL8	242201.6079	2862817.9005

NOT FOR
CONSTRUCTION

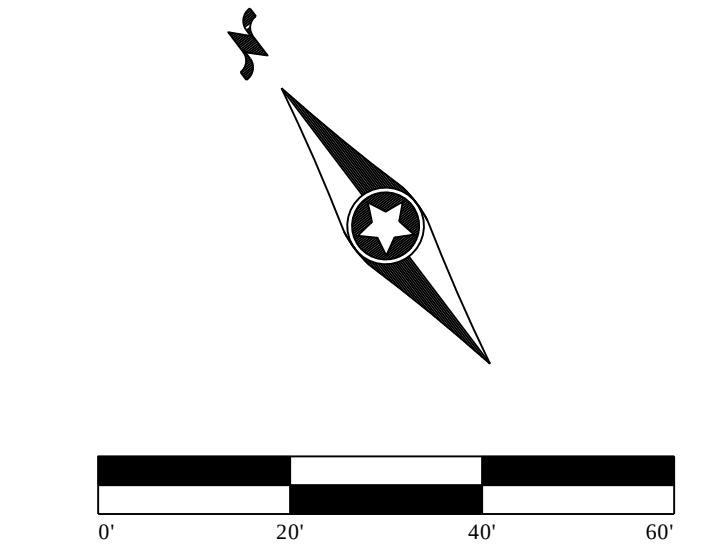
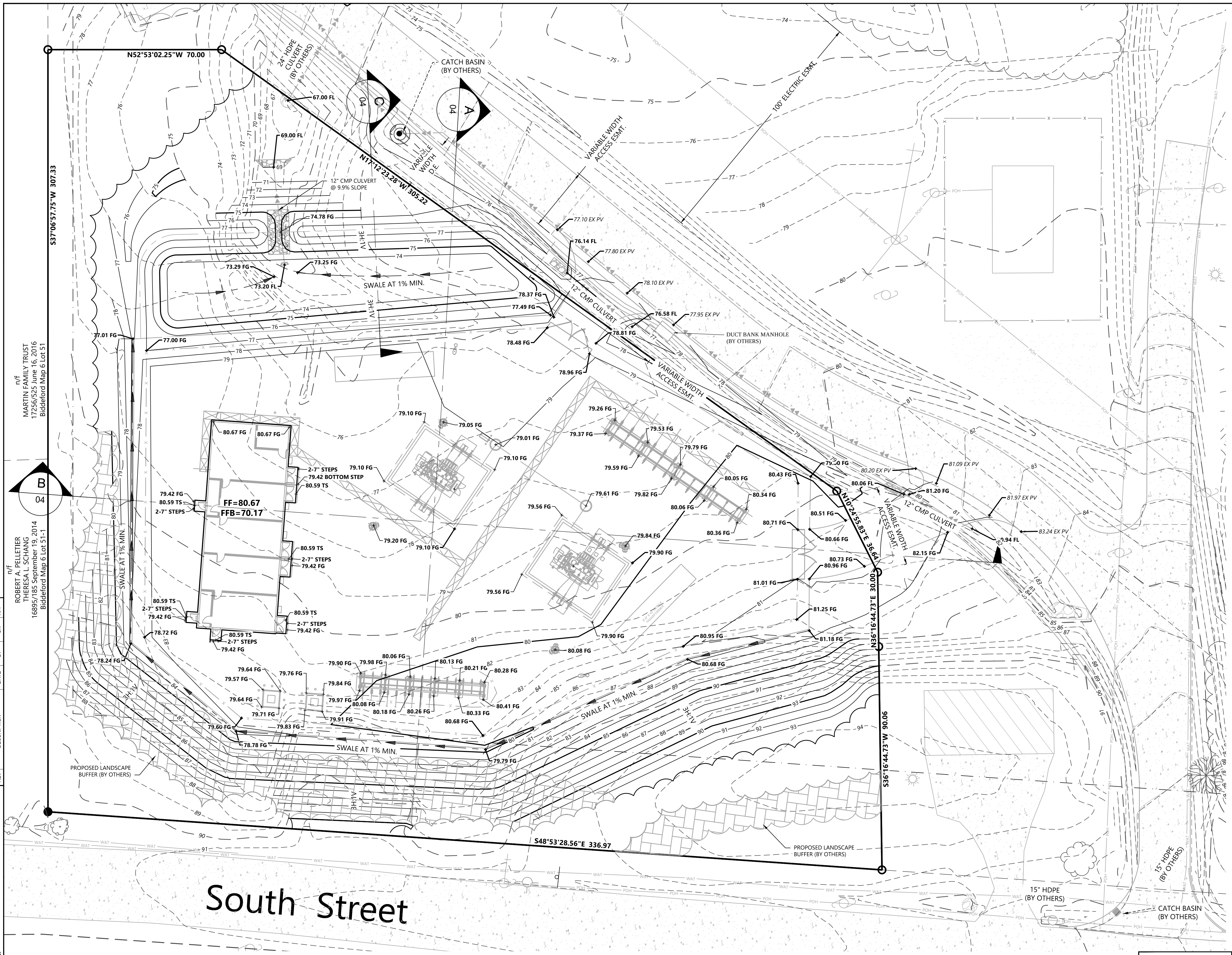
PE STAMP

AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID

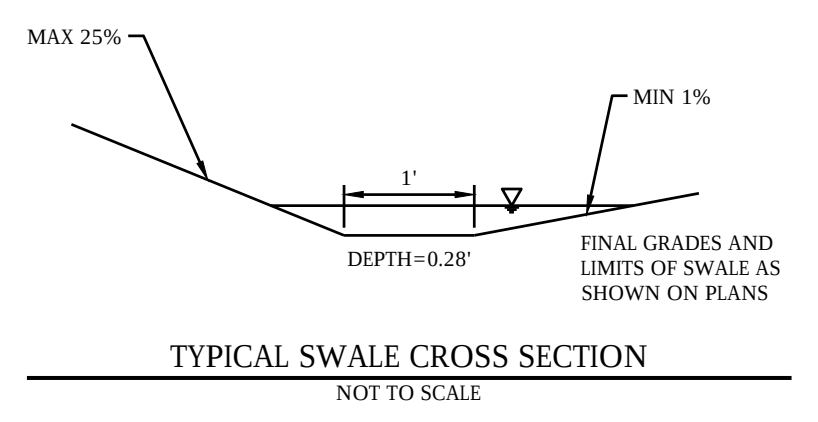
DIMENSIONAL
CONTROL PLAN

BIDDEFORD PUMP S/S BIDDEFORD, ME

BY	BSM	SCALE: SEE SHEET/FILE	REV
CK	AA	NO.	1050-0003-003
APP	AA	DATE: 01/11/2022	0-0E



- LEGEND:**
- RIGHT-OF-WAY LINES
 - - - EX. PARCEL LINES
 - - - EX. EASEMENT LINES
 - - - EX. INDEX CONTOUR
 - - - EX. INTERVAL CONTOUR
 - ==== EX. PUBLIC ROAD
 - x - EX. FENCE
 - - - EX. CULVERT
 - - - EX. OVERHEAD POWER
 - - - EX. GAS PIPELINE
 - - - EX. TELEPHONE LINE
 - - - EX. WATER LINE
 - - - STORM DRAIN
 - - - UNDERGROUND POWER
 - - - PROP. INDEX CONTOUR
 - - - PROP. INTERVAL CONTOUR
 - - - DRAINAGE SWALE
 - - - NATIVE TREES AND SHRUBS LINE
 - - - PROP. LANDSCAPED BUFFER



- GENERAL NOTES:**
- TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
 - HORIZONTAL CONTROL: NAD83, WEST ZONE
 - VERTICAL CONTROL: NAVD88 (FT).
 - PAD GRADING TO BE 2.00% MAX. FIELD ADJUST IF NECESSARY AND CONTACT ENGINEER OR OWNER IF ANY ELEVATIONS HAVE CHANGED.

- CONTROL POINTS:**
- MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
 - FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
 - 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

NOT FOR CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-242-8511)

ANSI D 12/30/2020 10:22 AM

n/f
MARTIN FAMILY TRUST
17256/525 June 16, 2016
Biddeford Map 6 Lot 51

n/f
ROBERT A. PELLETIER
THERESA L. SCHANG
16895/185 September 19, 2014
Biddeford Map 6 Lot 51-1

REV	DESCRIPTION	DATE	BY	CK	APP
0-01	ISSUED FOR REVIEW	01/11/2022	BSM	RAF	RAF
0-02	ISSUED FOR REVIEW	01/28/2021	BSM	RAF	RAF
0-03	ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-04	ISSUED FOR BID	02/20/2020	BSM	AA	AA
0-05	SUBMITTAL	11/20/2020	BSM	AA	AA

LOGO

MAINLINE
ENGINEERING
CONSULTANTS, LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
PH: 610-885-2477 FAX: 610-885-2477

PE STAMP
STATE OF MAINE
MATTHEW PHILIP GAARDER
16369
LICENSED PROFESSIONAL ENGINEER
12/21/2022

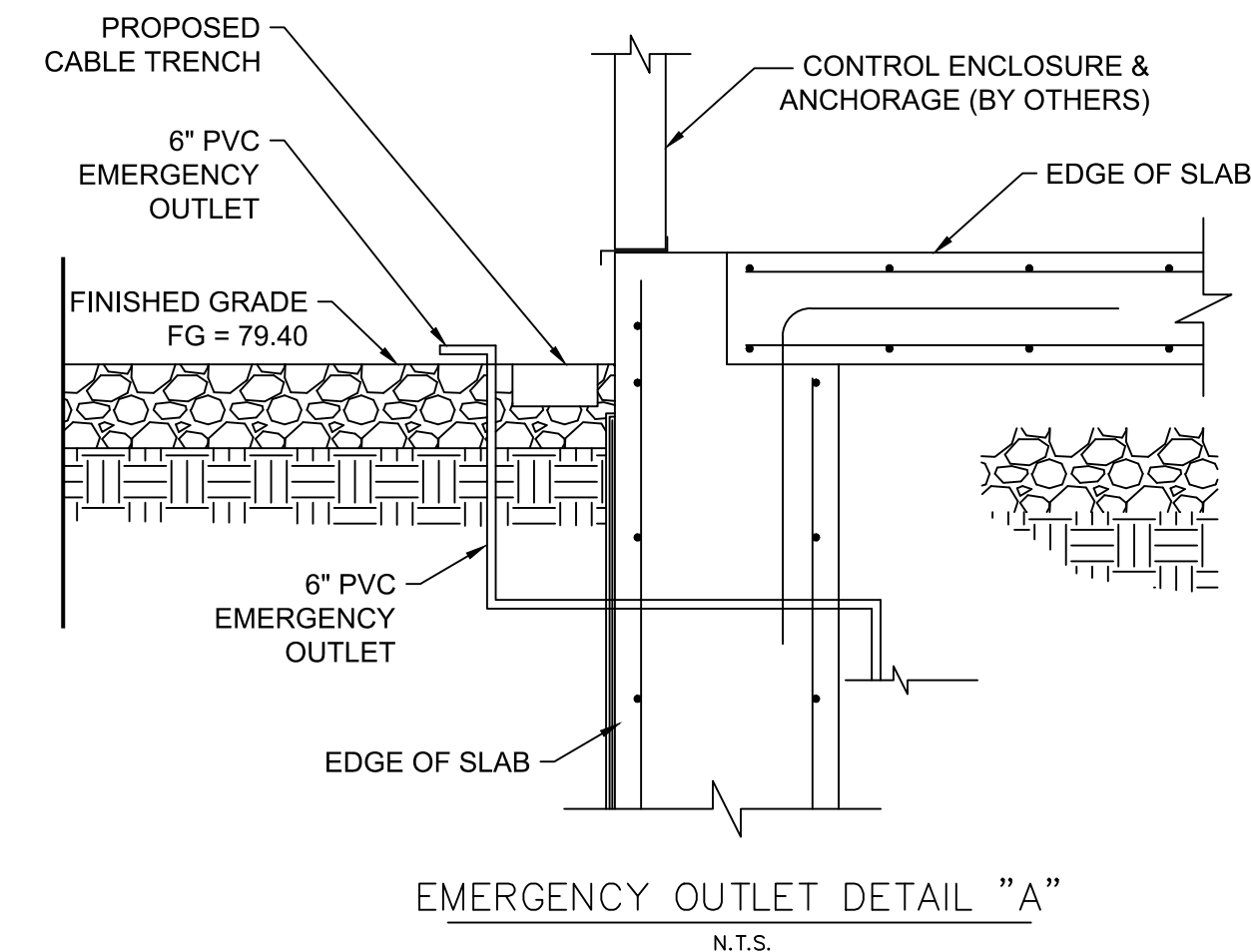
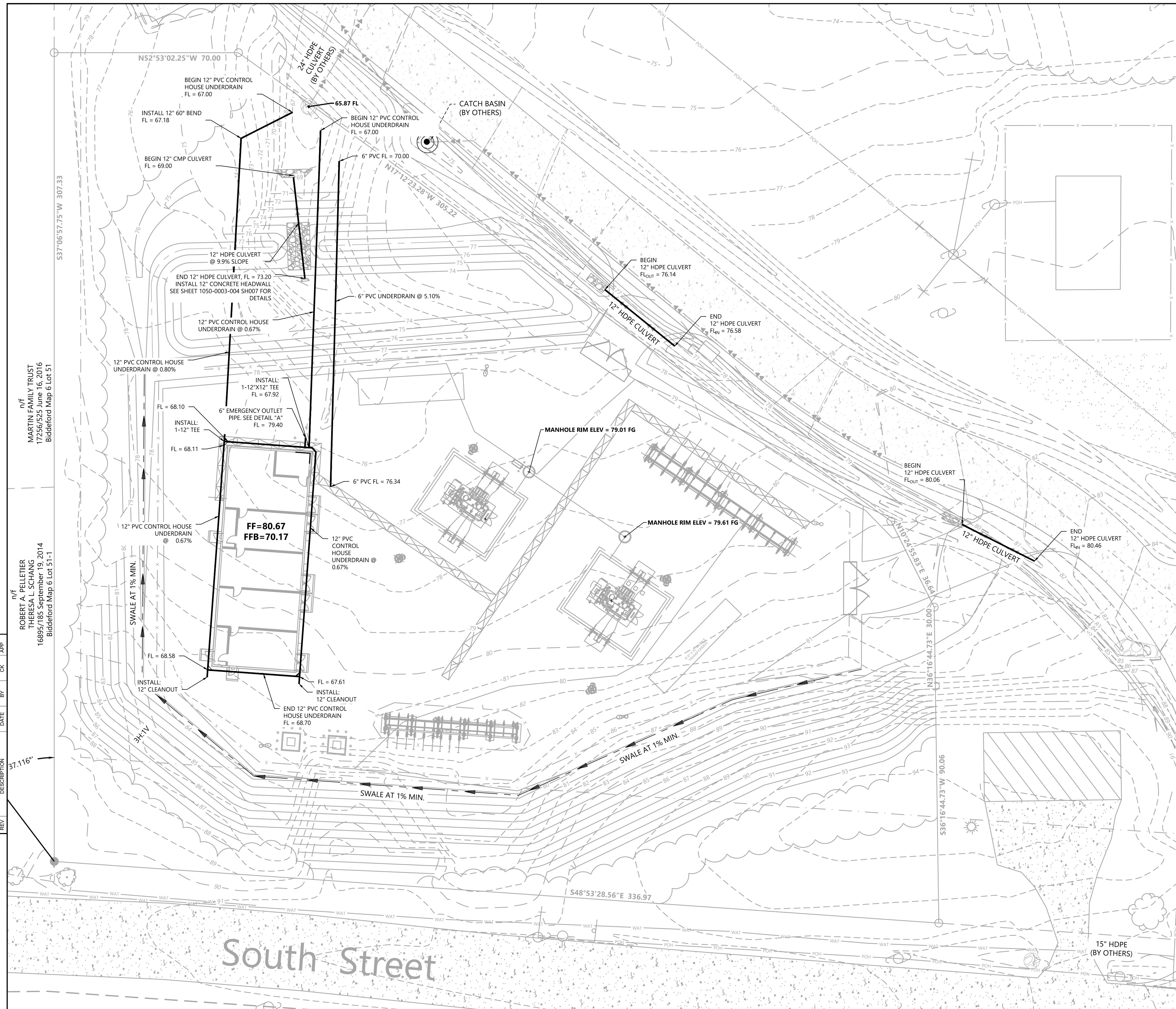
AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID

AVANGRID

FACILITY GRADING
PLAN

BIDDEFORD PUMP S/S
BIDDEFORD, ME

BY	BSM	SCALE: SEE SHEET FILE	REV
CK	AA	NO	
APP	AA	1050-0003-004 SH001	0-0E
REV	DESCRIPTION	DATE	BY



GENERAL NOTES:

1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

CONTROL POINTS:

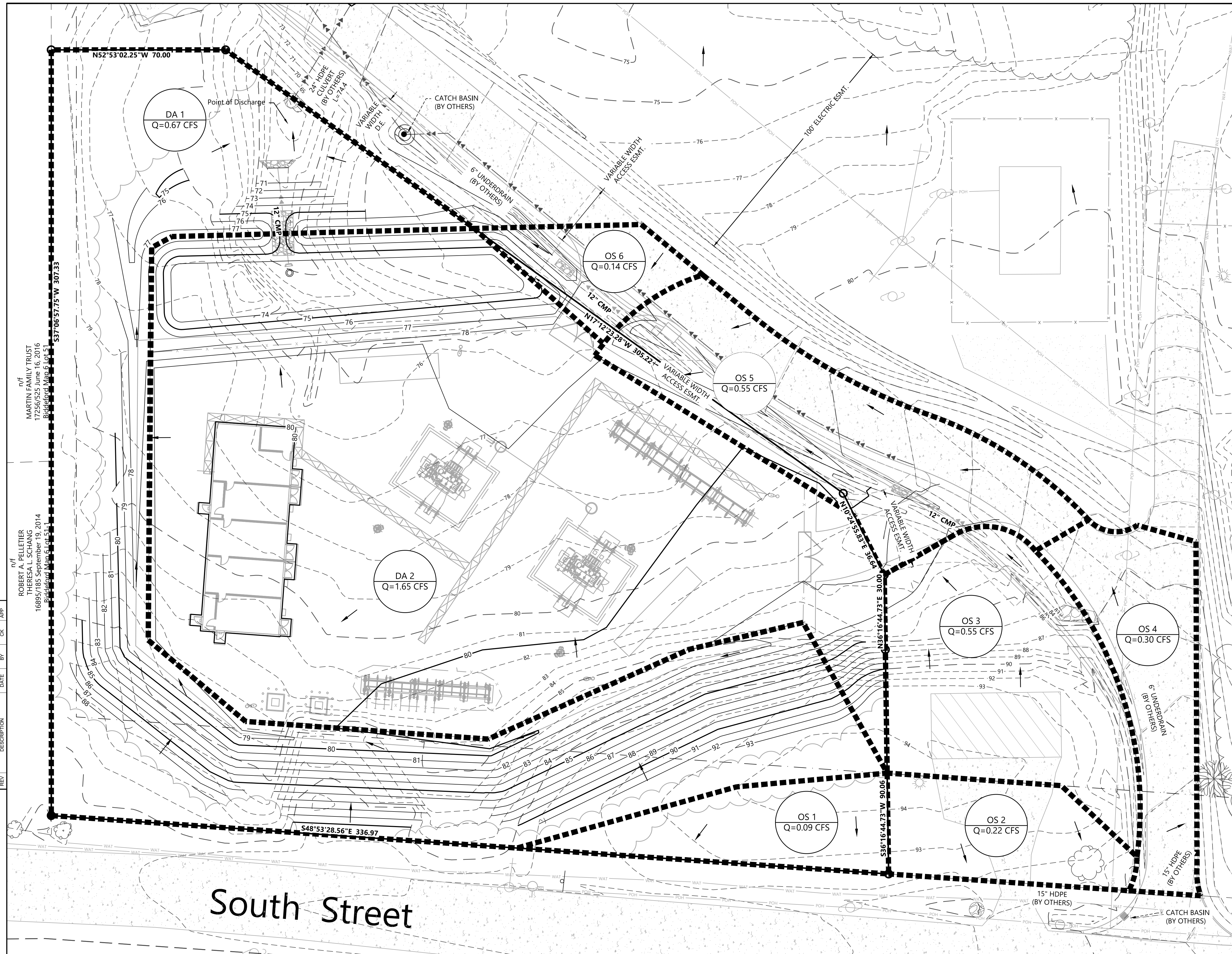
1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

NOT FOR
CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION.
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

DRAINAGE PLAN

[illegible]



DRAINAGE AREA CALCULATIONS				
AREA ID	C	I (IN/HR) 30 min Duration	AREA (AC)	Q ₂₅ (CFS)
DA 1	0.30	2.96	0.75	0.67
DA 2	0.57	2.96	0.98	1.65
OS 1	0.30	3.65	0.08	0.09
OS 2	0.75	3.65	0.08	0.22
OS 3	0.75	3.65	0.20	0.55
OS 4	0.75	3.65	0.11	0.30
OS 5	0.75	3.65	0.20	0.55
OS 6	0.75	3.65	0.05	0.14

NOT FOR
CONSTRUCTION

0-0E	FR2 - 95	ISSUED FOR REVIEW	07/11/2022	BSM	RAF	RAF
0-0D	FR2 - 95	ISSUED FOR REVIEW	09/08/2021	BSM	RAF	RAF
0-0C	60	IFB - ISSUED FOR BID	12/28/2021	BSM	AA	AA
0-0B	IFB - ISSUED FOR BID	12/30/2020	BSM	AA	AA	AA
.	30	SUBMITAL	11/20/2020			
REV	DESCRIPTION	DATE	BY	CK	APP	

 MAINLINE ENERGY CONSULTANTS LLC PH: (215) 955-7477 W: www.mainline.com	INFO MAINLINE ENERGY CONSULTANTS LLC A WESTWOOD TEAM 1240 S. BROAD STREET, LANSDALE, PA 19446 215-855-7477
--	---

2/2020 10:22 AM

[illegible]

WATERSHED PLAN (PROPOSED)

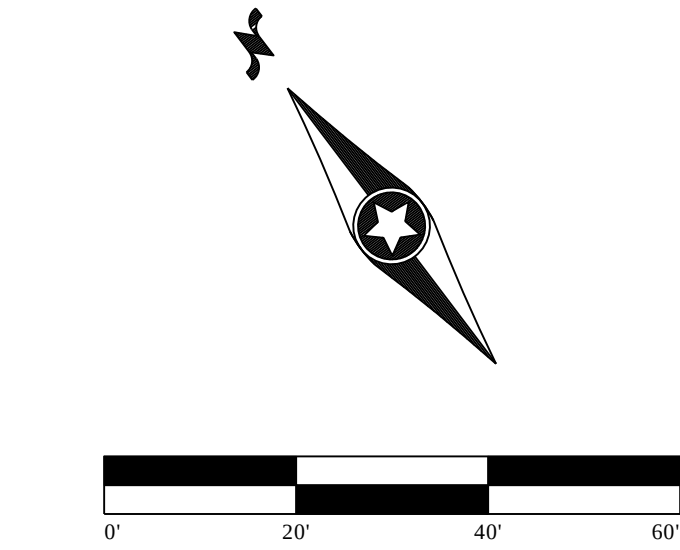
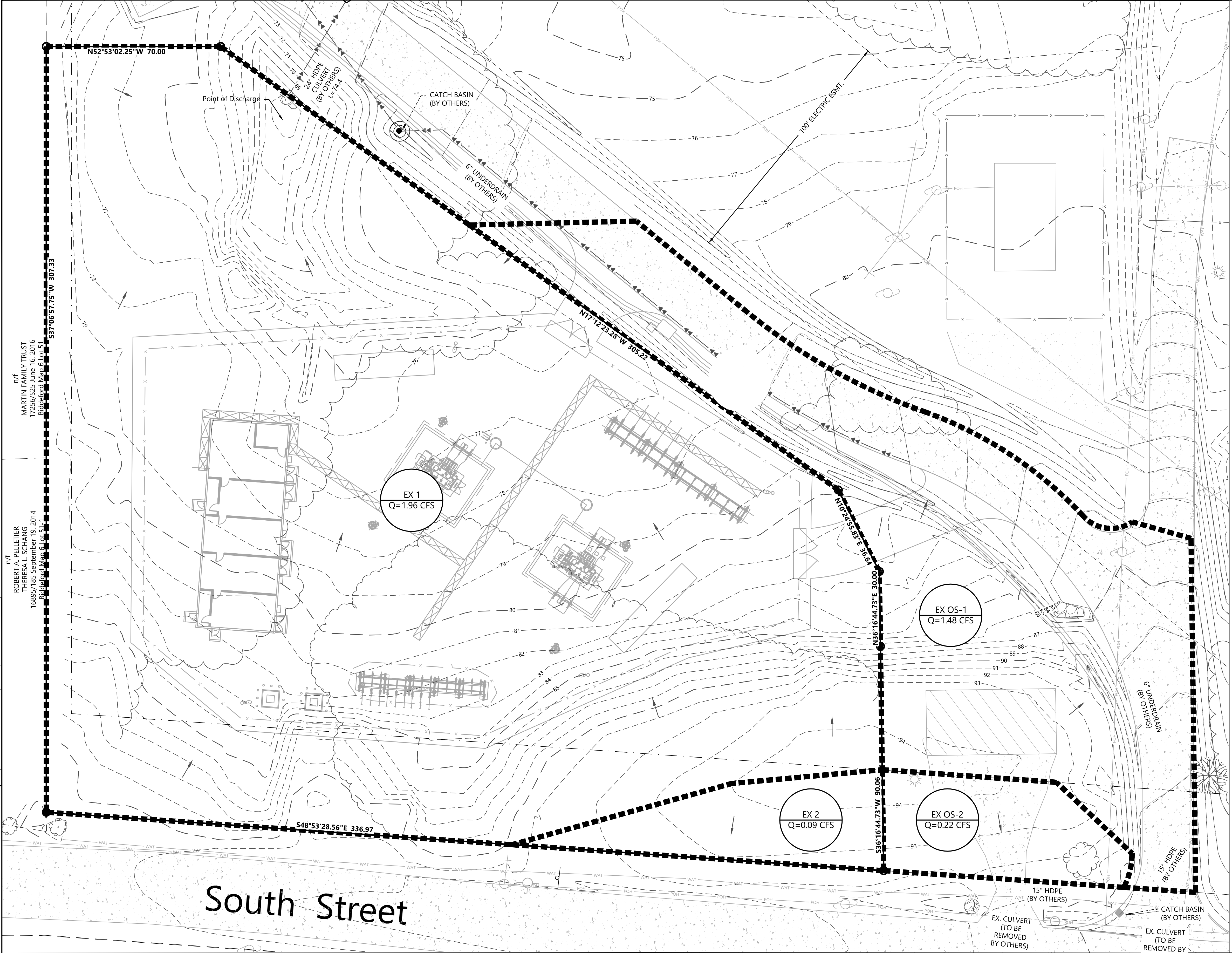
Q-C-E	1/12/2022	BSM	RAF	RAF
Q-C-D	1/12/2022	BSM	RAF	RAF
Q-C-B	1/12/2022	BSM	AA	AA
Q-C-A	1/12/2022	BSM	AA	AA
Q-C	1/12/2022	BSM	AA	AA
Q	1/12/2022	BSM	AA	AA

LOGO

MAINLINE

MAINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
215-455-7477

ANSI D 12/30/2020 10:22 AM

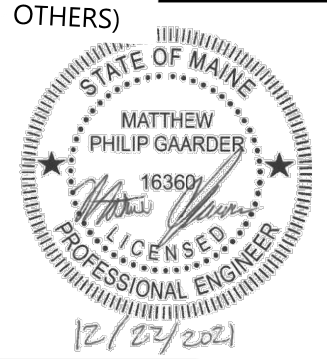


LEGEND:

- RIGHT-OF-WAY LINES
- - - EX. PARCEL LINES
- - - EX. EASEMENT LINES
- - - EX. INDEX CONTOUR
- - - EX. INTERVAL CONTOUR
- EX. PUBLIC ROAD
- x - EX. FENCE
- - - EX. CULVERT
- - - EX. OVERHEAD POWER
- - - EX. GAS PIPELINE
- - - EX. TELEPHONE LINE
- - - EX. WATER LINE
- - - EX. STORM DRAIN
- - - EX. UNDERGROUND POWER
- DRAINAGE DIVIDE

DRAINAGE AREA CALCULATIONS				
AREA ID	C	I (IN/HR) 30 min Duration	AREA (AC)	Q ₂₅ (CFS)
EX 1	0.3	3.65	1.79	1.96
EX 2	0.3	3.65	0.08	0.09
EX OS-1	0.75	3.65	0.54	1.48
EX OS-2	0.75	3.65	0.08	0.22

NOT FOR
CONSTRUCTION



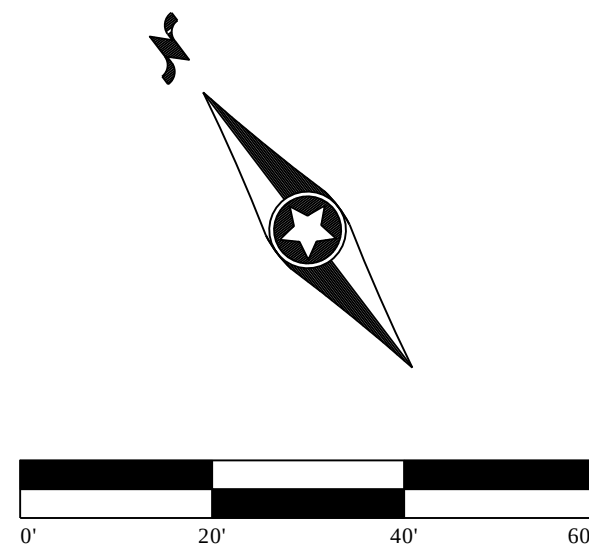
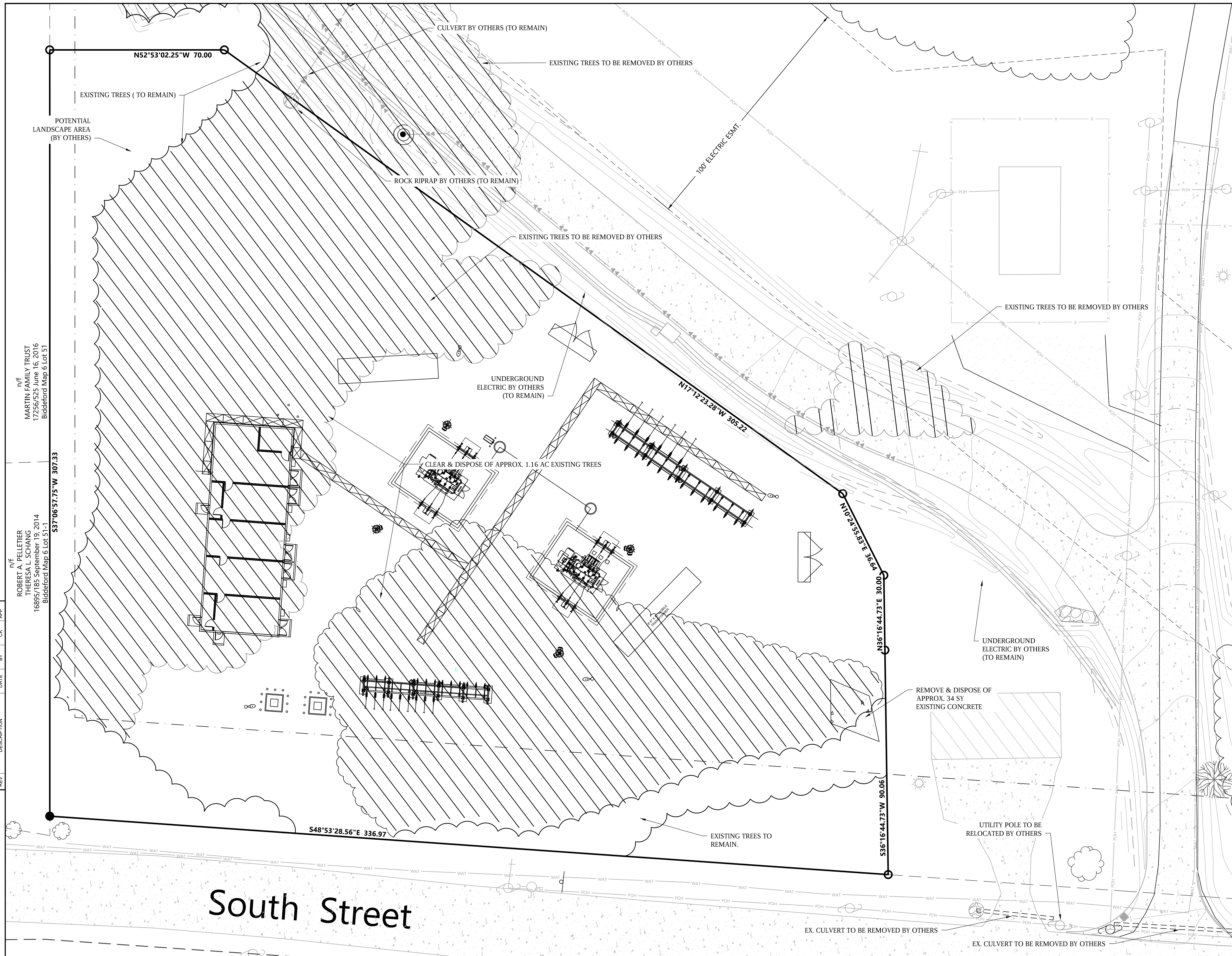
AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID

WATERSHED PLAN
(EXISTING)

BIDDEFORD PUMP S/S

BIDDEFORD, ME

BY	BSM	SCALE: SEE SHEET FILE	REV
CK	AA	NO	
APP	AA		
DATE	01/11/2022	1050-0003-004 SH004	0-0E



LEGEND:

	RIGHT-OF-WAY LINES
	EX. PARCEL LINES
	EX. EASEMENT LINES
	EX. INDEX CONTOUR
	EX. INTERVAL CONTOUR
	EX. PUBLIC ROAD
	EX. FENCE
	EX. CULVERT
	EX. OVERHEAD POWER
	EX. GAS PIPELINE
	EX. TELEPHONE LINE
	EX. WATER LINE
	STORM DRAIN
	UNDERGROUND POWER
	TREES TO BE REMOVED

GENERAL NOTES:

1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

CONTROL POINTS:

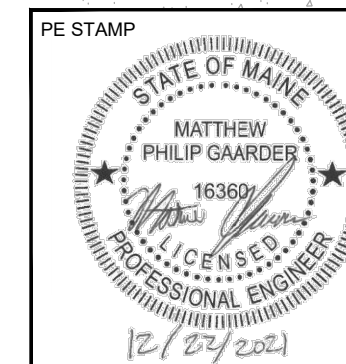
1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

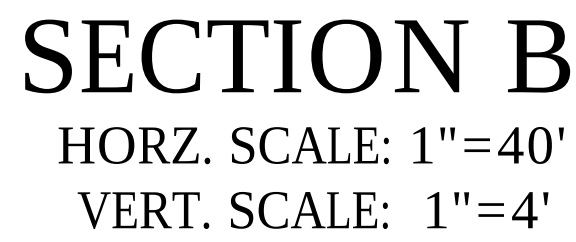
NOT FOR
CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

DEMOLITION PLAN

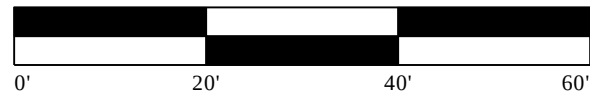
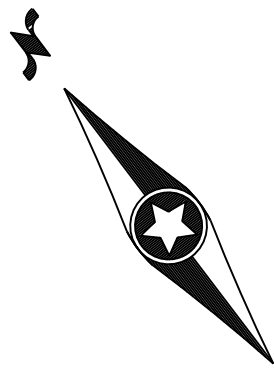
AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID							 AVANGRID		DEMOLITION PLAN		
									BIDDEFORD PUMP S/S		
									BIDDEFORD, ME		
							BY <u>BSM</u> CK <u>AA</u>		SCALE: SEE SHEET FILE: <u>NO</u>		
							APP <u>AA</u> DATE 01/11/2022		1050-0003-004 SH005		REV <u>0-0E</u>
REV	DESCRIPTION	DATE	BY	CK	APP						





NOT FOR
CONSTRUCTION

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL / PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID	PAD CROSS SECTIONS																																		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="6">BIDDEFORD PUMP S/S</th> <th>BIDDEFORD, ME</th> </tr> <tr> <td style="font-size: small;">BY</td> <td style="font-size: small;">BSM</td> <td colspan="4" style="font-size: x-small;">SCALE: SEE SHEET FILE:</td> </tr> <tr> <td style="font-size: x-small;">CRK</td> <td style="font-size: x-small;">AA</td> <td style="font-size: x-small;">NO.</td> <td colspan="4"></td> </tr> <tr> <td style="font-size: x-small;">RSP</td> <td style="font-size: x-small;">AA</td> <td colspan="5" style="font-size: large;">1050-0003-004 SH006</td> </tr> <tr> <td style="font-size: x-small;">DATE</td> <td colspan="6" style="font-size: x-small;">[01/11/2022]</td> </tr> </table>	BIDDEFORD PUMP S/S						BIDDEFORD, ME	BY	BSM	SCALE: SEE SHEET FILE:				CRK	AA	NO.					RSP	AA	1050-0003-004 SH006					DATE	[01/11/2022]					
	BIDDEFORD PUMP S/S						BIDDEFORD, ME																													
BY	BSM	SCALE: SEE SHEET FILE:																																		
CRK	AA	NO.																																		
RSP	AA	1050-0003-004 SH006																																		
DATE	[01/11/2022]																																			
REV	DESCRIPTION	DATE	BY	CK	APP	REV																														
						O-0A																														



LEGEND:

- RIGHT-OF-WAY LINES
- EX. PARCEL LINES
- EX. EASEMENT LINES
- EX. INDEX CONTOUR
- EX. INTERVAL CONTOUR
- EX. PUBLIC ROAD
- EX. FENCE
- EX. CULVERT
- EX. OVERHEAD POWER
- EX. GAS PIPELINE
- EX. TELEPHONE LINE
- EX. WATER LINE
- STORM DRAIN
- UNDERGROUND POWER
- PROP. INDEX CONTOUR
- PROP. INTERVAL CONTOUR
- SILT FENCE

DISTURBED AREA = 1.46 ACRES

- EROSION CONTROL GENERAL NOTES:
1. REFER TO SHEET 1050-0003-005 SH002 FOR THE EROSION CONTROL DETAILS AND POLLUTION PREVENTION PLAN NOTES/SPECIFICATIONS/REQUIREMENTS.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL MEASURES OF THIS EROSION CONTROL PLAN (SWPPP) AND COMPLYING WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS REGARDING THE SWPPP.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE MEASURES INCLUDING WATERING, MOWING AND GENERAL MAINTENANCE UNLESS OTHERWISE RELIEVED OF THESE DUTIES BY THE OWNER.

- VEGETATION NOTES:
1. ALL DISTURBED AREAS NOT BEING RE-DISTURBED WITHIN A MINIMUM OF 14 DAYS MUST BE COVERED AND STABILIZED.
 2. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF FINAL GRADING.
 3. NO PUBLIC ACCEPTANCE UNTIL (FINAL STABILIZATION) VEGETATION IS ESTABLISHED ON ALL DISTURBED AREAS.
 4. FINAL STABILIZATION IS DEFINED AS A UNIFORM PERENNIAL VEGETATIVE COVER AT A MINIMUM OF 70% RESTORATION OF THE NATIVE OR NATURAL PREEXISTING BACKGROUND COVER FOR THE AREA.

- CONSTRUCTION ACTIVITIES:
- THE CONSTRUCTION ACTIVITY INCLUDED IN THIS PLAN WILL INCLUDE THE FOLLOWING CONSTRUCTION PHASES:
- A. CLEARING AND GRUBBING
 - B. STOCK PILING
 - C. ROUGH GRADING
 - D. UTILITY INSTALLATION/EXCAVATION OF TRENCHES
 - E. FINAL OR FINISH GRADING
 - F. PAVEMENT INSTALLATION
 - G. BUILDING CONSTRUCTION
 - H. PREPARATION OF SEEDING AND PLANTING

GENERAL NOTES:

1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

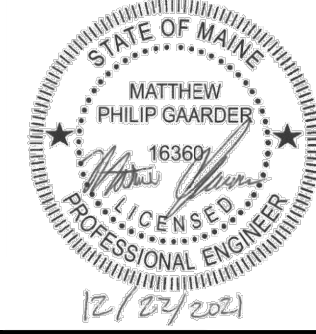
CONTROL POINTS:

1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

NOT FOR CONSTRUCTION

CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES LOCATION SHOWN ARE SCHEMATIC IN NATURE AND MAY NOT ACCURATELY REFLECT SIZE, HORIZONTAL, AND/OR VERTICAL LOCATION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION PRIOR TO BEGINNING CONSTRUCTION. CONTACT AFFECTED UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA. (1-800-242-8511)

PE STAMP



AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID



EROSION CONTROL PLAN

BIDDEFORD PUMP S/S BIDDEFORD, ME

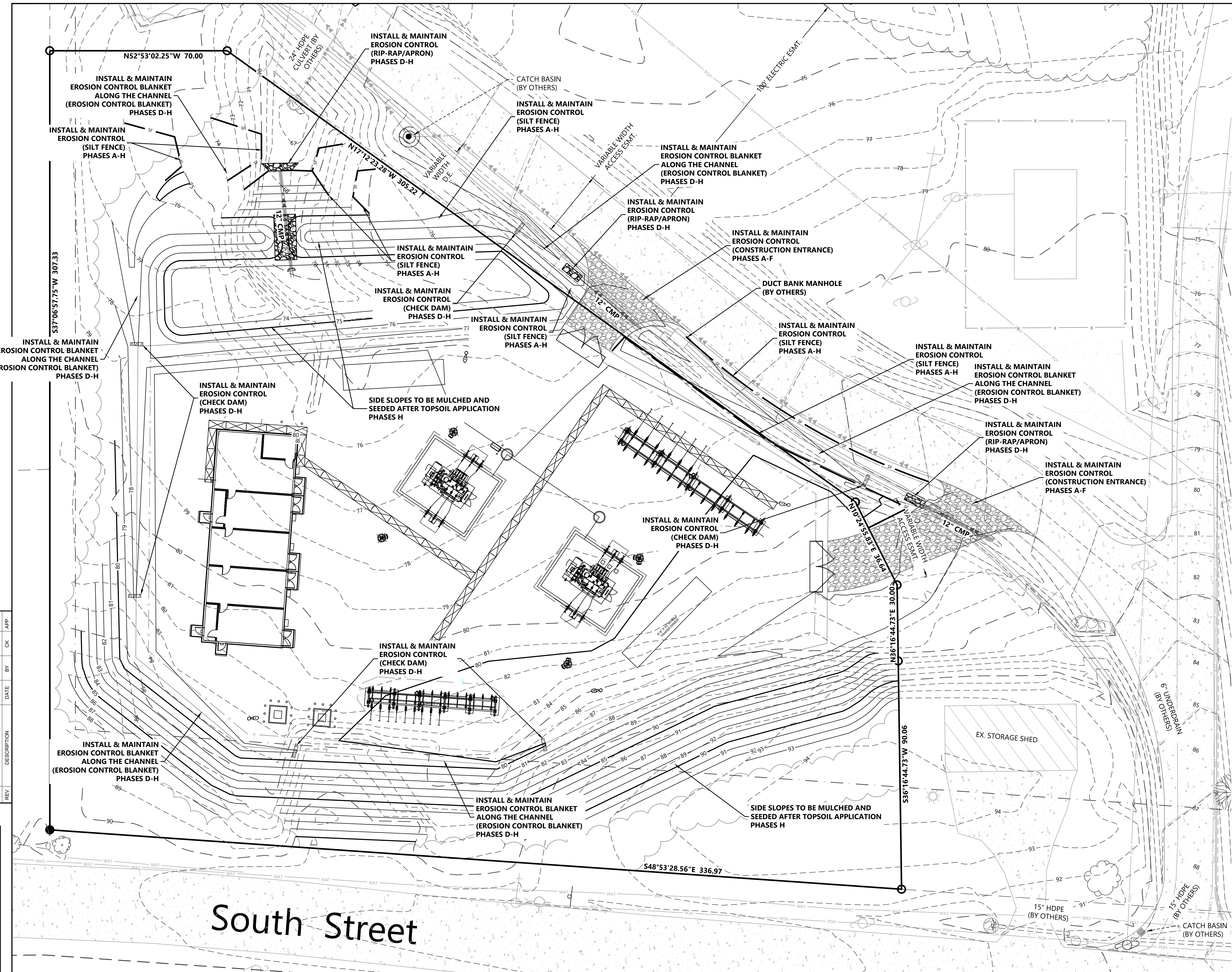
REV	DESCRIPTION	DATE	BY	CK	APP	NO.	SCALE: SEE SHEET/FILE	REV
0-0E						1050-0003-005 SH001		

REV	DESCRIPTION	DATE	BY	CK	APP
0-0E	ISSUED FOR REVIEW	11/11/2022	BSM	RAF	RAF
0-0D	ISSUED FOR REVIEW	09/08/2021	BSM	RAF	RAF
0-0C	ISSUED FOR BID	01/28/2021	BSM	AA	AA
0-0B	ISSUED FOR BID	12/20/2020	BSM	AA	AA
0-0A	SUBMITTAL	11/20/2020	BSM	AA	AA

LOGO

MAINLINE
ENGINEERING
CONSULTANTS, LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
PH: 610-855-2477
FAX: 610-855-2477

ANSI D 12/30/2020 10:22 AM



LOGO	INFO	REV	DESCRIPTION	DATE	BY	CK	APP
0-01	IFR2-95- ISSUED FOR REVIEW	11/11/2021	BSM				RAF
0-02	IFR2-96- ISSUED FOR REVIEW	09/09/2021	BSM				RAF
0-03	00- IFB - ISSUED FOR BID	01/28/2021	BSM				AA
0-04	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-05	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-06	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-07	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-08	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-09	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-10	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-11	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-12	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-13	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-14	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-15	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-16	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-17	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-18	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-19	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-20	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-21	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-22	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-23	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-24	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-25	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-26	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-27	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-28	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-29	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-30	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-31	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-32	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-33	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-34	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-35	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-36	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-37	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-38	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-39	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-40	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-41	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-42	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-43	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-44	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-45	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-46	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-47	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-48	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-49	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-50	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-51	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-52	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-53	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-54	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-55	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-56	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-57	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-58	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-59	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-60	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-61	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-62	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-63	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-64	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-65	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-66	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-67	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-68	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-69	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-70	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-71	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-72	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-73	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-74	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-75	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-76	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-77	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-78	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-79	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-80	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-81	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-82	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-83	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-84	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-85	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-86	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-87	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-88	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-89	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-90	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-91	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-92	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-93	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-94	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-95	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-96	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-97	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-98	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-99	IFB - ISSUED FOR BID	11/28/2020	BSM				AA
0-100	IFB - ISSUED FOR BID	11/28/2020	BSM				AA

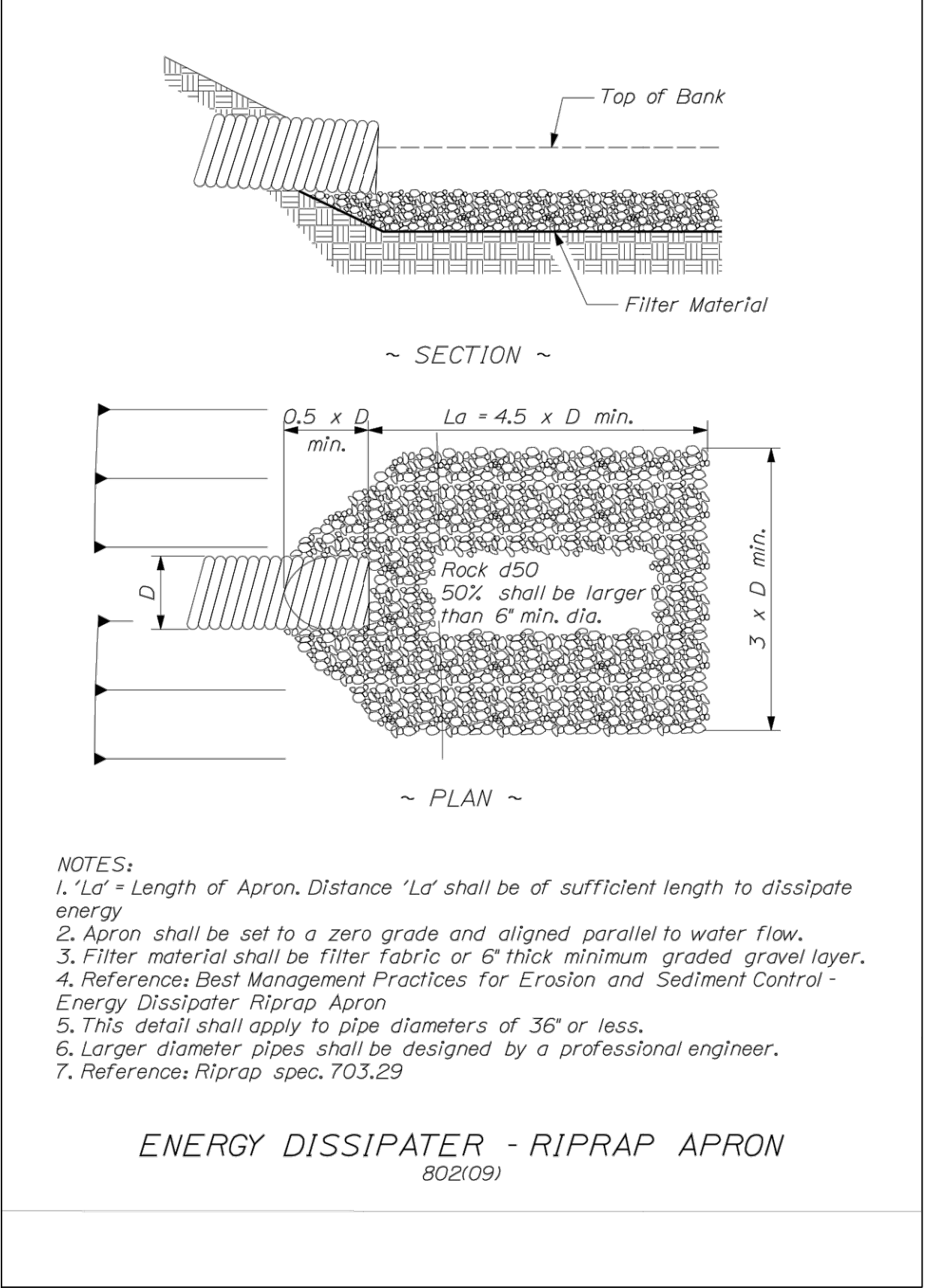
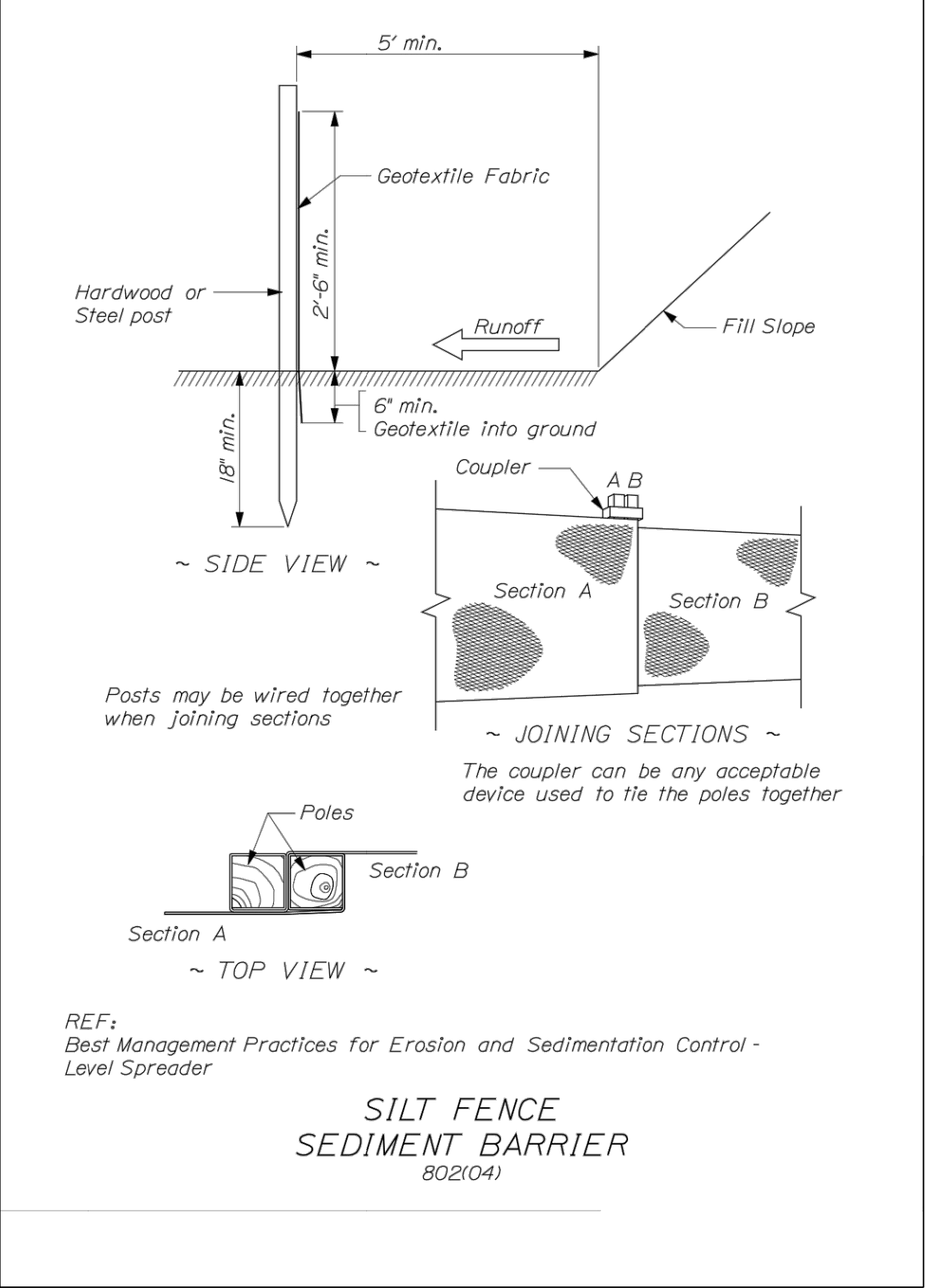
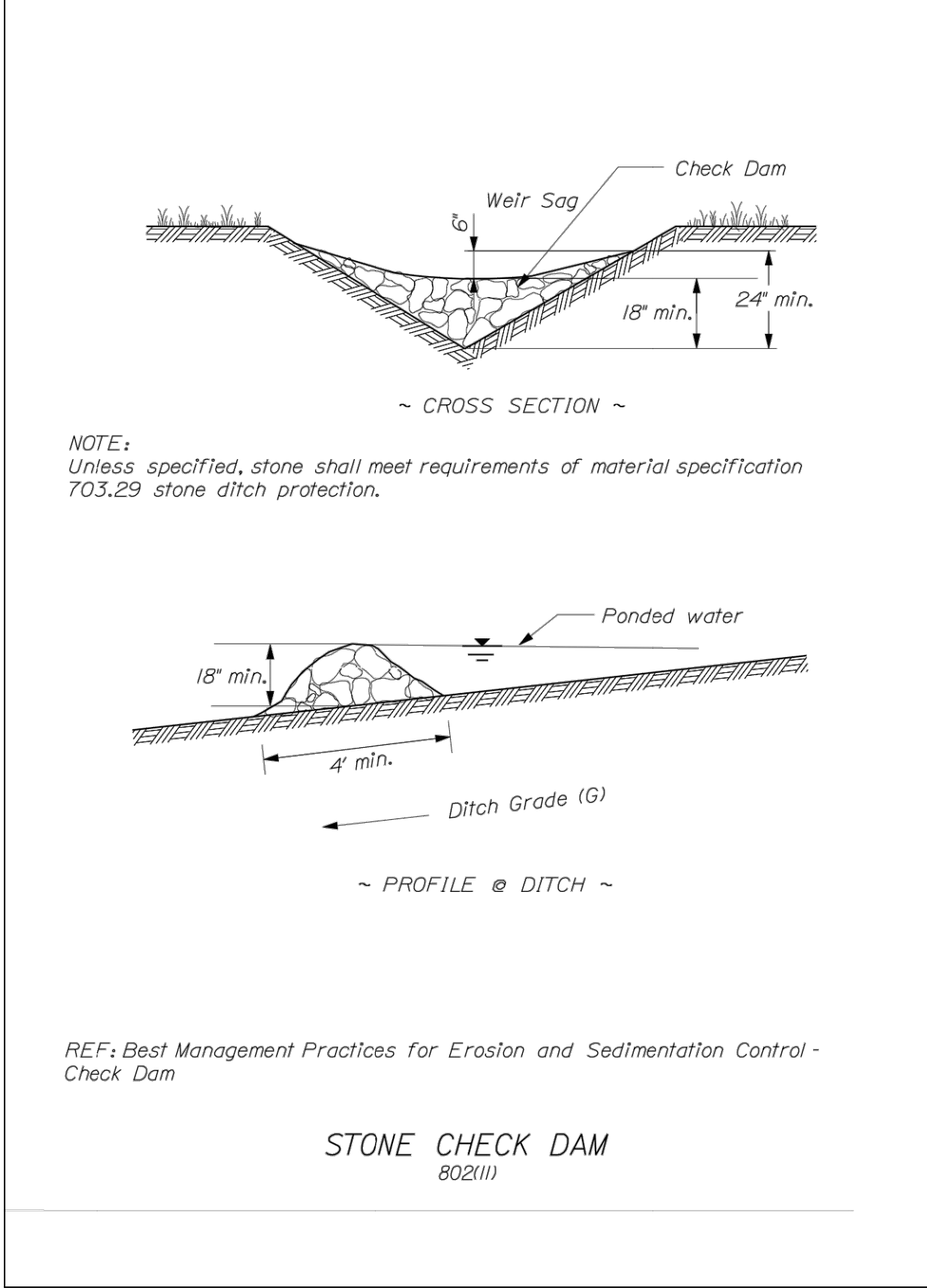
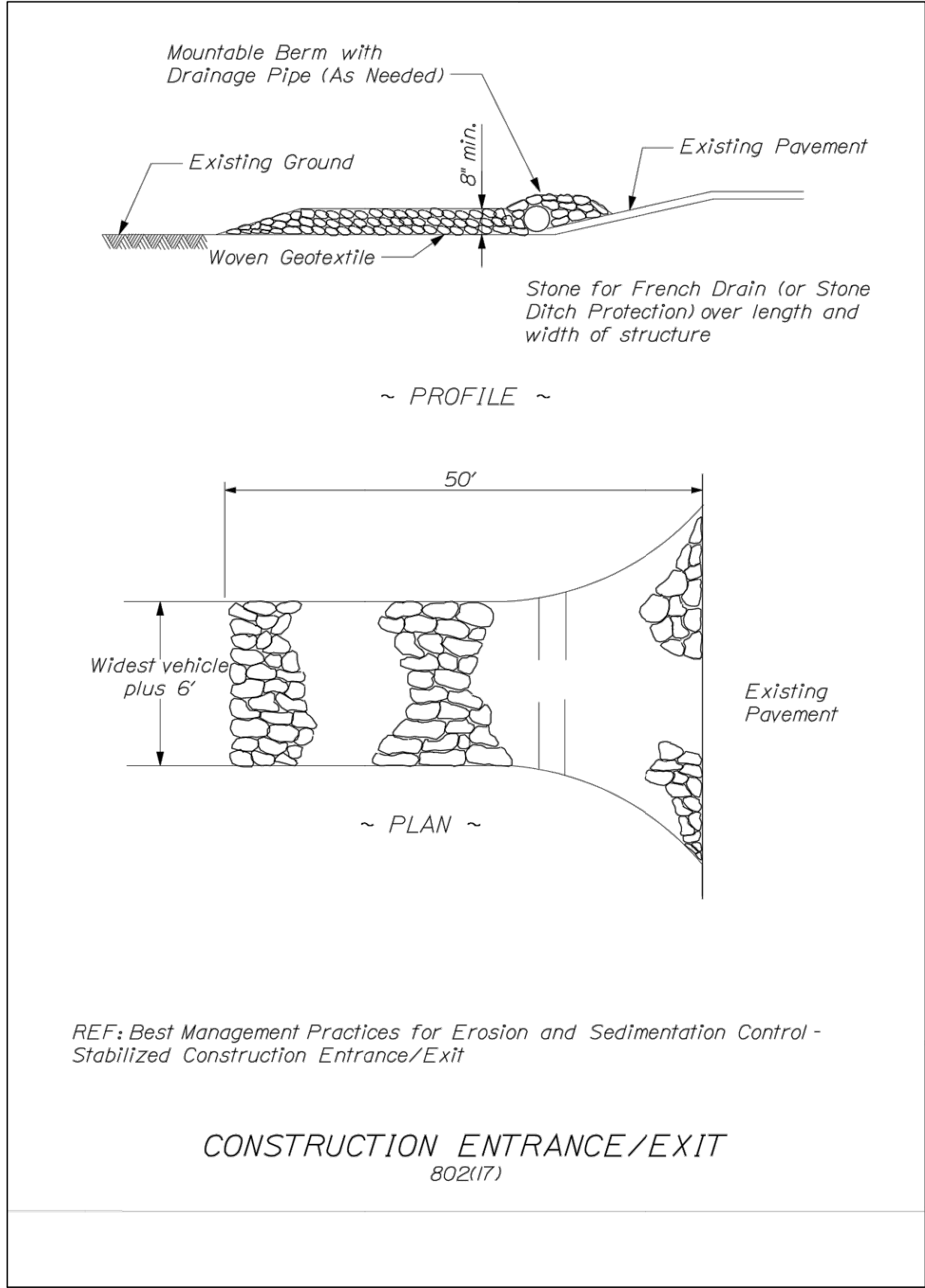
LOGO

INFO

MAINLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANSDALE, PA 19446
215-485-7477

ANSI D 12/30/2020 10:22 AM

- NOTES:
- GENERAL LANDSCAPING NOTES AND PLANS TO BE PROVIDED BY OTHERS.

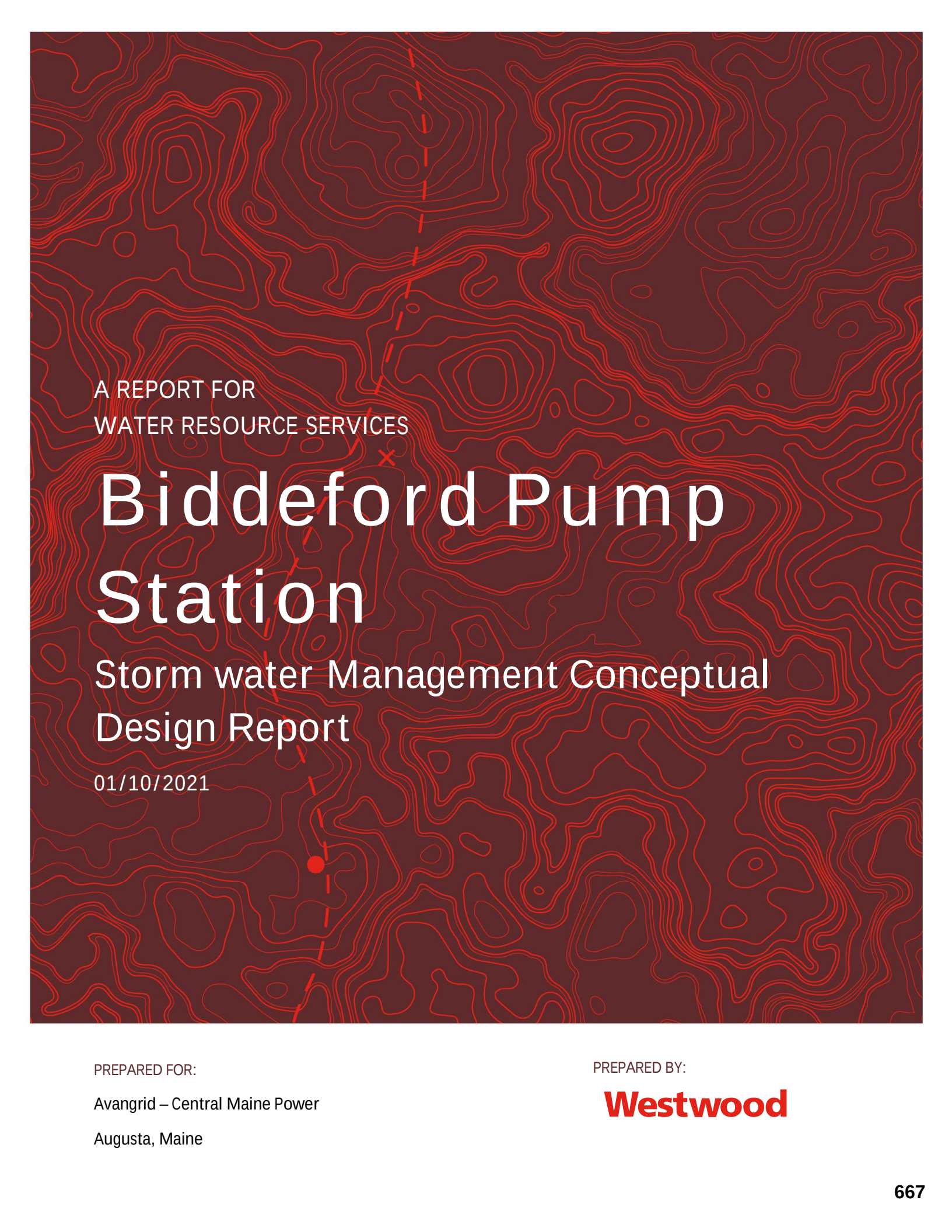


NOT FOR
CONSTRUCTION

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID	AVANGRID	BIDDEFORD PUMP S/S		BIDDEFORD, ME
BY	BSM	SCALE: SEE SHEET FILE			
CK	AA	NO.			
APP	AA	REV			
DATE	01/11/2022	1050-0003-005 SH002	0-0E		

Exhibit 3

Stormwater Management Calculations



A REPORT FOR
WATER RESOURCE SERVICES

Biddeford Pump Station

Storm water Management Conceptual
Design Report

01/10/2021

PREPARED FOR:

Avangrid – Central Maine Power

Augusta, Maine

PREPARED BY:

Westwood

Storm Water Management Conceptual Design Report

Biddeford Pump Station

Biddeford, ME

Prepared For:

Avangrid – Central Maine Power
83 Edison Drive, 3rd Floor
Augusta, ME 04336
(207) 530-1977

Prepared By:

Matt Gaarder
Westwood
1240 S. Broad Street
Lansdale, PA 19446



Project Number: R0027642

Date: 01/10/2021

Table of Contents

1.0

Introduction

2

2.0

Design Criteria

2

3.0

Design Features of the Proposed Stormwater Management System

3

4.0

References Cited.....

7

Tables

Table 1-

Land Use Area

6

Figures

Figure 1.0:

Detention Basin Design

3

Appendices

- Appendix A: Runoff Coefficients for the Rational Formula
- Appendix B: Rainfall Data

1.0 Introduction

The existing Biddeford Pump Substation has one 12kV circuit with a peak load of about 7,900 KVA, and a design limit for 12 kV distribution circuits of 5,200 KVA based on NESC clearance standards between the distribution circuit and communication equipment on the distribution poles. The existing Biddeford Pump Station uses a 605D1 circuit to tie into other substations in the area with a limited capacity, as well as a 34.5/12.47 kV mobile installation outside of the substation fence. The associated existing transformer capacity for the substation is 5000/7000 KVA based on the current rating of T1.

The purpose of replacing the existing Biddeford Pump Substation is to address the capacity issues and improve reliability at the existing site by replacing the existing station. The updated project will be comprised of a 34.5/12.47 kV substation, two (2) 34.5/12.47 kV 11.2/14 MVA LTC Transformers, and new protection and control equipment.

This stormwater management report covers the development associated with the Biddeford Pump Substation project. Westwood Professional Services have been retained by Main Line Energy to provide a site design for the proposed substation.

The purpose of this stormwater management report is to evaluate the proposed design for the project and produce a conceptual stormwater management plan that complies with all applicable design criteria and guidelines.

2.0 Design Criteria

The following are the design criteria applicable to the site:

- The Rational Method will be used for designing the conceptual stormwater management system and for calculating run-off quantities.
- Design of this project will be made using rainfall information over a 25-year period. Rainfall data was procured from (<http://precip.eas.cornell.edu/>) using the project location. All applicable charts used have been provided for reference at the end of this document.
- The FAA (Federal Aviation Administration) equation was used to calculate time of concentration.
- The spill containment pit has been designed to hold 130% of the transformer's oil.
- In order to prevent any discharge of contaminated water from the project site, adequate erosion control measures will be provided onsite during construction.

2.1 Proposed Stormwater Management System

The Biddeford Pump Substation project site is located off of South Street in Biddeford, Maine.

Stormwater management will be designed in order to hold additional flow generated from post site development because of land use change. A detention pond will be designed to effectively control peak flow rates to pre-development levels, with multistage discharge structures.

2.2 Spill Prevention System

Spill containment pits for the two power transformers will be provided. The containment pits will have concrete curbs and concrete floors. An Oil Minder Pump Manhole will be used

to collect any effluents from the two containment pits. It's operation will comply with SPCC requirements.

3.0 Design Features of the Proposed Stormwater Management System

3.1 Site Drainage System

Total area of the project station going to the detention pond is 42,761 square ft. (0.982 Acres). Predevelopment flows were calculated at 1.93 cfs and the post development flows are calculated at 2.93 cfs. The proposed ditch will collect any runoff generated in the station. The proposed detention pond will be designed to control runoff from 24-hour storms of the 2-year, 10-year, and 25-year frequencies. The basin will also be designed as per the recommended one acre-foot of storage in a detention basin from the "Maine Stormwater Management Design Manual".

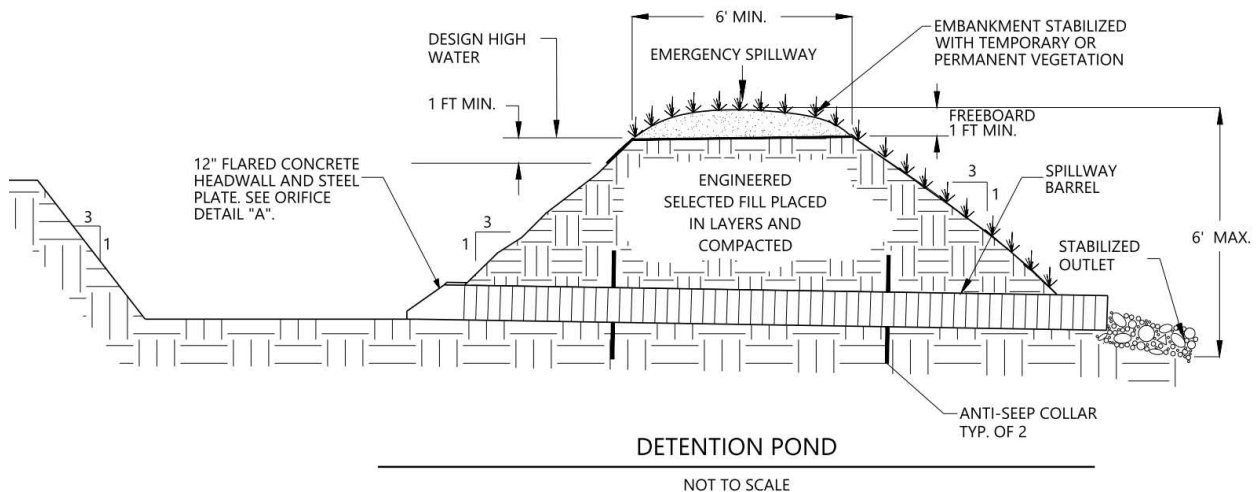


Figure 1.0: Detention Basin Design

Outlets from the detention pond will be designed to adhere to requirements from the "Maine Stormwater Management Design Manual". The outlet will be designed to be as far apart from the inlet as possible in order for runoff to travel the longest distance through the detention pond, and both inlet and outlet will be designed with energy dissipation to prevent scour.

A 10 foot drainage easement is needed to release existing flow rate through the north side property for cross lot drainage. Culverts will also need to be sized in order to meet requirements for a 25-year storm.

3.1.1 Pre-Development

The pre-development site is an unimproved industrial area. From the "Maine Stormwater Management Design Manual" the runoff coefficient is 0.30.

The Rational Method is used to calculate peak flow with the following equation:

$$Q = CiA$$

Where Q is the peak runoff rate (cu.ft/s)
 C is the runoff coefficient
 i is the rainfall intensity (inch/hour)
 A is the contributing drainage area (acres)

Time of concentration is calculated using the following FAA equation

$$T_c = \frac{G(1.1 - c)\sqrt{L}}{(100S)^{(1/3)}}$$

G = 1.8

c = Runoff coefficient = 0.30 (from Appendix A, TYP.)

L = Longest watercourse length in the watershed, ft = 400ft

S = Average slope of the watercourse, ft/ft = 0.02

$$T_c = \frac{1.8(1.1 - 0.3)\sqrt{400}}{(100 * 0.02)^{(1/3)}} = 22.91min$$

Therefore, the time of concentration taken for this calculation is 23 minutes.

Rainfall intensity information is procured from the NOAA's National Weather Service Precipitation Frequency Data Server (PFDS), where the "Maine Stormwater Management Design Manual" suggests to find rainfall data. The rainfall intensity information from the PFDS for Biddeford, Maine is attached for reference in Appendix B. For the required 2-year, 10-year, and 25-year storm events, with a duration of 23 minutes, the rainfall intensity was calculated by interpolating the 15-minute and 30-minute storm data from the PFDS table. Rainfall intensity for a 2-year storm is 2.002 inches per hour, for a 10-year storm is 3.019 inches per hour, and for a 25-year storm is 3.651 inches per hour. The runoff coefficient uses the pre-development unimproved industrial area for the Rational formula, which is 0.3 according to the "Maine Stormwater Management Design Manual". The coefficient table provided by the "Maine Stormwater Management Design Manual" is attached for reference in Appendix A.

For a 2-year storm event:

$T_c = 23 \text{ min}$

$i = 2.002 \text{ in/hour} = 0.167 \text{ ft/hour}$

C = 0.30

A = 42761 sq. ft

The peak flow for the pre-development 25-year storm event is:

$$Q_{pre-25year} = \frac{CiA}{3600} = \frac{0.30 \times 0.167 \times 42761}{3600} = 0.595 \text{ cu. ft/s}$$

For a 10-year storm event:

$$T_c = 23 \text{ min}$$

$$i = 3.019 \text{ in/hour} = 0.252 \text{ ft/hour}$$

$$C = 0.30$$

$$A = 42761 \text{ sq. ft}$$

The peak flow for the pre-development 25-year storm event is:

$$Q_{pre-10year} = \frac{CiA}{3600} = \frac{0.30 \times 0.252 \times 42761}{3600} = 0.898 \text{ cu. ft/s}$$

For a 25-year storm event:

$$T_c = 23 \text{ min}$$

$$i = 3.651 \text{ in/hour} = 0.304 \text{ ft/hour}$$

$$C = 0.30$$

$$A = 42761 \text{ sq. ft}$$

The peak flow for the pre-development 25-year storm event is:

$$Q_{pre-25year} = \frac{CiA}{3600} = \frac{0.30 \times 0.304 \times 42761}{3600} = 1.083 \text{ cu. ft/s}$$

3.1.2 Post-Development

The proposed pump substation will include transformers, electrical equipment structures and foundations, roads, and a building. Surface area on the site, other than the containment pits and building area, will be covered by gravel.

Land use area of different facilities for the post development is shown in Table 1:

Table 1- Land Use Area

Containment Pits, building Runoff CO=0.95	Gravel Runoff CO=0.55	Grass CO=0.3	Total Area
4059 ft ²	34801 ft ²	3901 ft ²	42761 ft ²

The composite runoff coefficient for the catchment area is:

$$C = \frac{4059 \times 0.95 + 34801 \times 0.55 + 3901 \times 0.3}{42761} = 0.57$$

T_c is 30 minutes for the post-development.

The peak flow for the post-development 2-year storm event of catchment area is:

$$C = 0.57 \quad A = 42761 \text{ sq. ft} \quad i = 2.002 \text{ in/hour} = 0.167 \text{ ft/hour}$$

$$Q_{\text{post-2year}} = \frac{CiA}{3600} = \frac{0.57 \times 0.167 \times 42761}{3600} = 1.131 \text{ cu. ft/s}$$

The peak flow for the post-development 10-year storm event of catchment area is:

$$C = 0.57 \quad A = 42761 \text{ sq. ft} \quad i = 3.019 \text{ in/hour} = 0.252 \text{ ft/hour}$$

$$Q_{\text{post-10year}} = \frac{CiA}{3600} = \frac{0.57 \times 0.252 \times 42761}{3600} = 1.706 \text{ cu. ft/s}$$

The peak flow for the post-development 25-year storm event of catchment area is:

$$C = 0.57 \quad A = 42761 \text{ sq. ft} \quad i = 3.651 \text{ in/hour} = 0.304 \text{ ft/hour}$$

$$Q_{\text{post-25year}} = \frac{CiA}{3600} = \frac{0.57 \times 0.304 \times 42761}{3600} = 2.058 \text{ cu. ft/s}$$

A detention pond will be constructed to control excess run-off between pre and post-development run-off flow rates.

Drainage area for the station project going to the pond is 0.982 acres. As listed in the calculations on sheet 1050-0003-004 SH005 of the civil site plan set, the total storage required

for the pond is 2,711 CF for a 25- year storm. Predevelopment Q is calculated at 1.90 cfs. Post development Q is calculated at 2.93 cfs. The site will release flow at 1.23 cfs.

3.1.3 Erosion and Sediment Control

Construction activity associated with the proposed project could result in increased rates of erosion and sedimentation within and adjacent to the site area, if uncontrolled. Erosion is defined as the process whereby soil particles are detached from an exposed surface and transported by water, wind or some other agent.

In order to minimize any potential environmental impacts, the following erosion and sedimentation control measures will guide the design and implementation phase of the Erosion and Sedimentation Control Plan:

- Limit size of disturbed area;
- Limit duration of soil exposure;
- Retain existing vegetation where feasible;
- Limit slope length and gradient of disturbed areas;
- Preserve overland sheet flow and micro-drainage;
- Stabilize stripped parcels with temporary vegetative controls.

In the sediment control plan, the following elements will be included:

- Provision of temporary interceptor/conveyor ditches to direct runoff to temporary hold locations;
- Provision of rock check dams within drainage swales/ditches;
- Placement of a series of silt control fencing for the interception of sheet flow drainage;
- Truck washing/mud matt is to be implemented and trucks are to be washed prior to leaving the site.

All sediment control measures will remain in place until the final stabilization of the site. As part of a maintenance program, any accumulated sediment will be removed from all control measures when accumulation reaches 50% of the height or volume of the control surface.

4.0 References Cited

This stormwater management report has been prepared in support of the proposed development of the Biddeford Pump Station. The findings of this report are summarized as follows:

The proposed stormwater management system includes a drainage ditch on the exterior of the substation fence and a detention pond. Design of the pond was made in accordance with the "Maine Stormwater Design Manual". Site surface grades are modified with consistent slopes and directions.

Appendix A - Runoff Coefficients for the Rational Formula

RUNOFF COEFFICIENTS FOR THE RATIONAL FORMULA			
Typical Composite Runoff Coefficients by Land Use		Normal Range of Runoff Coefficients	
Area Description	C-value	Surface Characteristic	C-value
Business		Lawns	
Downtown Areas	0.70-0.95	Sandy Soil, Flat (2%)	0.05-0.10
Neighborhood Areas	0.50-0.70	Sandy Soil, Ave. (2-7%)	0.10-0.15
		Sandy Soil, Steep (>7%)	0.15-0.20
Residential		Heavy Soil, Flat (2%)	0.13-0.17
Single Family Areas	0.30-0.50	Heavy Soil, Ave. (2-7%)	0.18-0.22
Multi-Units (detached)	0.40-0.60	Heavy Soil, Steep (>7%)	0.25-0.35
Multi-Units (attached)	0.60-0.75		
Suburban	0.25-0.40	Agricultural	
Apartments	0.50-0.70	Bare Packed Soil	
		Smooth	0.30-0.60
Industrial		Rough	0.20-0.50
Light Use	0.50-0.80	Cultivated Rows	
Heavy Use	0.60-0.90	Heavy Soil, no crop	0.30-0.60
Railroad Yards	0.20-0.35	Heavy Soil, with crop	0.20-0.50
Unimproved Areas	0.10-0.30	Sandy Soil, no crop	0.20-0.40
		Sandy Soil, with crop	0.10-0.25
Park		Pasture	
Park/Cemeteries	0.10-0.25	Heavy Soil	0.15-0.45
Playgrounds	0.20-0.35	Sandy Soil	0.05-0.25
Pavement		Woodland	0.05-0.25
Asphalt and Concrete	0.70-0.95		
Brick	0.70-0.85		
Roof	0.75-0.95		
The presented C-values are typical for return periods of 2-10-year storms with the higher values for the larger design storms. Judgement must be used to select the appropriate C-value within the range for the land use. Generally, larger areas with permeable soils, flat slopes, and dense vegetation should have the lower C-value; and smaller areas with low permeability soils, steep slopes and sparse vegetation should be assigned higher a C-value.			

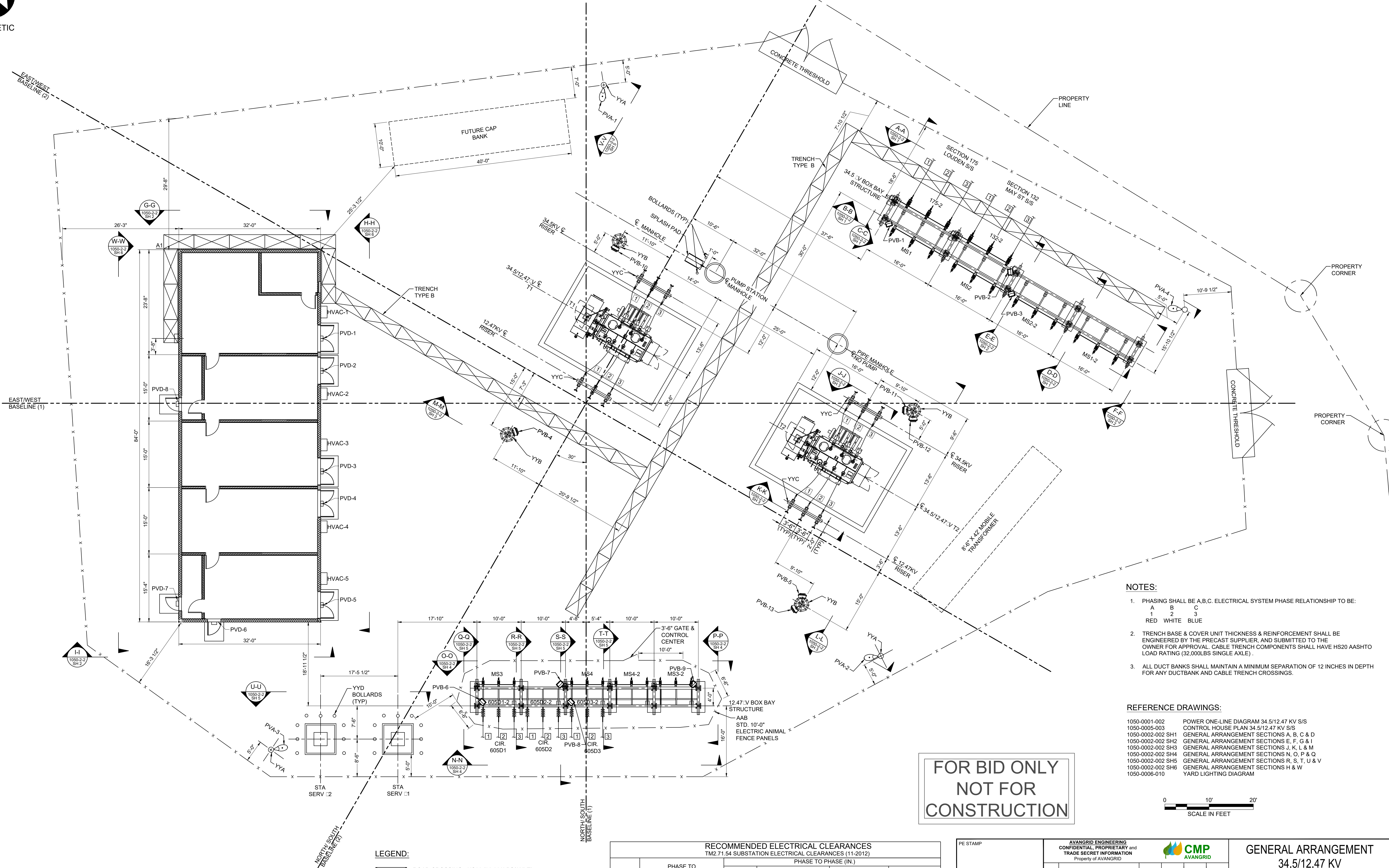
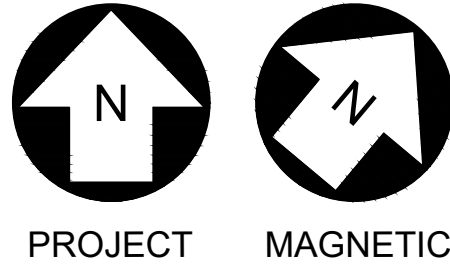
Appendix B - Rainfall Data

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	3.67 (2.82-4.78)	4.42 (3.38-5.74)	5.63 (4.30-7.33)	6.62 (5.04-8.66)	7.99 (5.90-10.9)	9.02 (6.54-12.5)	10.1 (7.14-14.6)	11.3 (7.60-16.6)	13.1 (8.48-19.8)	14.6 (9.22-22.4)
10-min	2.60 (2.00-3.38)	3.13 (2.40-4.06)	3.98 (3.04-5.19)	4.69 (3.56-6.14)	5.66 (4.18-7.72)	6.40 (4.64-8.89)	7.17 (5.06-10.3)	8.04 (5.39-11.8)	9.29 (6.01-14.0)	10.3 (6.53-15.9)
15-min	2.04 (1.57-2.65)	2.45 (1.88-3.18)	3.12 (2.39-4.07)	3.68 (2.80-4.82)	4.44 (3.28-6.06)	5.02 (3.64-6.98)	5.62 (3.97-8.08)	6.30 (4.23-9.24)	7.28 (4.71-11.0)	8.09 (5.12-12.5)
30-min	1.33 (1.02-1.73)	1.61 (1.23-2.09)	2.06 (1.58-2.69)	2.44 (1.85-3.19)	2.96 (2.18-4.03)	3.35 (2.42-4.65)	3.75 (2.65-5.39)	4.21 (2.82-6.17)	4.86 (3.15-7.35)	5.40 (3.42-8.31)
60-min	0.820 (0.630-1.07)	0.995 (0.763-1.29)	1.28 (0.979-1.67)	1.52 (1.16-1.99)	1.84 (1.36-2.51)	2.09 (1.51-2.90)	2.35 (1.66-3.37)	2.63 (1.77-3.86)	3.04 (1.97-4.60)	3.38 (2.14-5.20)
2-hr	0.556 (0.428-0.717)	0.676 (0.521-0.874)	0.873 (0.670-1.13)	1.04 (0.792-1.35)	1.26 (0.938-1.72)	1.43 (1.04-1.98)	1.61 (1.15-2.31)	1.82 (1.22-2.65)	2.12 (1.38-3.19)	2.38 (1.51-3.63)
3-hr	0.440 (0.340-0.565)	0.535 (0.414-0.690)	0.692 (0.533-0.894)	0.823 (0.631-1.07)	1.00 (0.747-1.36)	1.14 (0.831-1.57)	1.28 (0.913-1.83)	1.45 (0.975-2.10)	1.70 (1.10-2.54)	1.91 (1.21-2.90)
6-hr	0.290 (0.226-0.372)	0.354 (0.275-0.454)	0.458 (0.355-0.589)	0.545 (0.420-0.703)	0.664 (0.497-0.895)	0.752 (0.553-1.03)	0.847 (0.609-1.21)	0.960 (0.649-1.39)	1.13 (0.736-1.68)	1.27 (0.812-1.93)
12-hr	0.183 (0.143-0.233)	0.224 (0.175-0.286)	0.291 (0.226-0.372)	0.346 (0.268-0.444)	0.422 (0.318-0.566)	0.479 (0.354-0.655)	0.539 (0.389-0.766)	0.612 (0.415-0.877)	0.721 (0.472-1.07)	0.814 (0.521-1.22)
24-hr	0.109 (0.086-0.138)	0.135 (0.106-0.171)	0.177 (0.139-0.225)	0.213 (0.165-0.271)	0.261 (0.198-0.349)	0.297 (0.221-0.405)	0.336 (0.244-0.477)	0.384 (0.261-0.547)	0.457 (0.300-0.671)	0.520 (0.334-0.777)
2-day	0.061 (0.048-0.076)	0.077 (0.061-0.097)	0.103 (0.081-0.130)	0.125 (0.097-0.158)	0.154 (0.118-0.206)	0.176 (0.132-0.241)	0.201 (0.148-0.285)	0.232 (0.158-0.328)	0.281 (0.185-0.410)	0.324 (0.209-0.481)
3-day	0.044 (0.035-0.055)	0.056 (0.044-0.070)	0.074 (0.059-0.094)	0.090 (0.071-0.114)	0.111 (0.085-0.148)	0.127 (0.096-0.173)	0.145 (0.107-0.205)	0.167 (0.114-0.236)	0.204 (0.134-0.296)	0.236 (0.152-0.349)
4-day	0.036 (0.028-0.045)	0.045 (0.035-0.056)	0.059 (0.047-0.074)	0.071 (0.056-0.090)	0.088 (0.067-0.117)	0.100 (0.076-0.136)	0.114 (0.084-0.161)	0.131 (0.090-0.185)	0.160 (0.106-0.232)	0.185 (0.120-0.273)
7-day	0.025 (0.020-0.031)	0.030 (0.024-0.037)	0.039 (0.031-0.048)	0.046 (0.036-0.058)	0.056 (0.043-0.073)	0.063 (0.048-0.085)	0.071 (0.053-0.100)	0.082 (0.056-0.114)	0.099 (0.065-0.142)	0.114 (0.074-0.166)
10-day	0.020 (0.016-0.025)	0.024 (0.019-0.030)	0.030 (0.024-0.038)	0.035 (0.028-0.044)	0.042 (0.033-0.056)	0.048 (0.036-0.064)	0.054 (0.040-0.075)	0.061 (0.042-0.085)	0.073 (0.048-0.104)	0.083 (0.054-0.121)
20-day	0.014 (0.011-0.017)	0.016 (0.013-0.020)	0.020 (0.016-0.024)	0.023 (0.018-0.028)	0.026 (0.020-0.034)	0.029 (0.022-0.039)	0.033 (0.024-0.044)	0.036 (0.025-0.050)	0.041 (0.027-0.059)	0.046 (0.030-0.066)
30-day	0.012 (0.009-0.014)	0.013 (0.011-0.016)	0.016 (0.013-0.019)	0.018 (0.014-0.022)	0.021 (0.016-0.026)	0.023 (0.017-0.030)	0.025 (0.018-0.033)	0.027 (0.019-0.037)	0.030 (0.020-0.043)	0.033 (0.021-0.047)
45-day	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.013 (0.010-0.016)	0.014 (0.011-0.017)	0.016 (0.012-0.021)	0.018 (0.013-0.023)	0.019 (0.014-0.026)	0.021 (0.015-0.029)	0.023 (0.015-0.032)	0.024 (0.016-0.035)
60-day	0.009 (0.007-0.010)	0.009 (0.008-0.012)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.014 (0.011-0.017)	0.015 (0.011-0.019)	0.016 (0.012-0.021)	0.017 (0.012-0.024)	0.019 (0.013-0.026)	0.020 (0.013-0.028)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

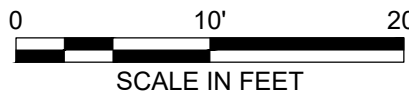
Exhibit 4

General Arrangement and Cross Sections of Electrical Components



- NOTES:
- PHASING SHALL BE A,B,C. ELECTRICAL SYSTEM PHASE RELATIONSHIP TO BE:
A B C
1 2 3
RED WHITE BLUE
 - TRENCH BASE & COVER UNIT THICKNESS & REINFORCEMENT SHALL BE ENGINEERED BY THE PRECAST SUPPLIER, AND SUBMITTED TO THE OWNER FOR APPROVAL. CABLE TRENCH COMPONENTS SHALL HAVE HS20 AASHTO LOAD RATING (32,000LBS SINGLE AXLE).
 - ALL DUCT BANKS SHALL MAINTAIN A MINIMUM SEPARATION OF 12 INCHES IN DEPTH FOR ANY DUCTBANK AND CABLE TRENCH CROSSINGS.

- REFERENCE DRAWINGS:
- 1050-0001-002 POWER ONE-LINE DIAGRAM 34.5/12.47 KV S/S
 - 1050-0005-003 CONTROL HOUSE PLAN 34.5/12.47 KV S/S
 - 1050-0002-002 SH1 GENERAL ARRANGEMENT SECTIONS A, B, C & D
 - 1050-0002-002 SH2 GENERAL ARRANGEMENT SECTIONS E, F, G & I
 - 1050-0002-002 SH3 GENERAL ARRANGEMENT SECTIONS J, K, L & M
 - 1050-0002-002 SH4 GENERAL ARRANGEMENT SECTIONS N, O, P & Q
 - 1050-0002-002 SH5 GENERAL ARRANGEMENT SECTIONS R, S, T, U & V
 - 1050-0002-002 SH6 GENERAL ARRANGEMENT SECTIONS H & W
 - 1050-0006-010 YARD LIGHTING DIAGRAM



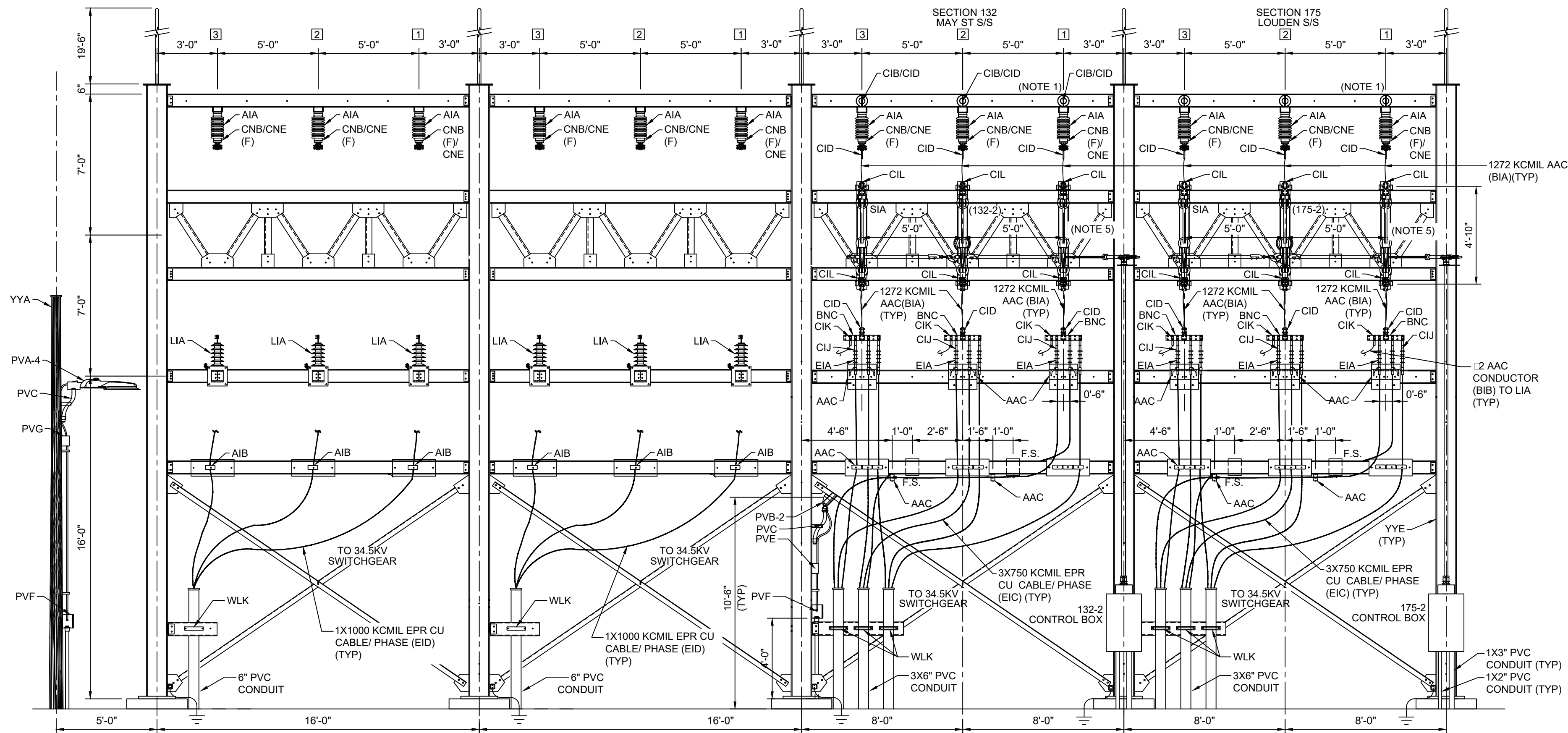
FOR BID ONLY
NOT FOR
CONSTRUCTION

- LEGEND:
- ROAD CROSSING - HS20 (32,000LBS/AXLE) TRENCH & COVER (SEE NOTE 3)

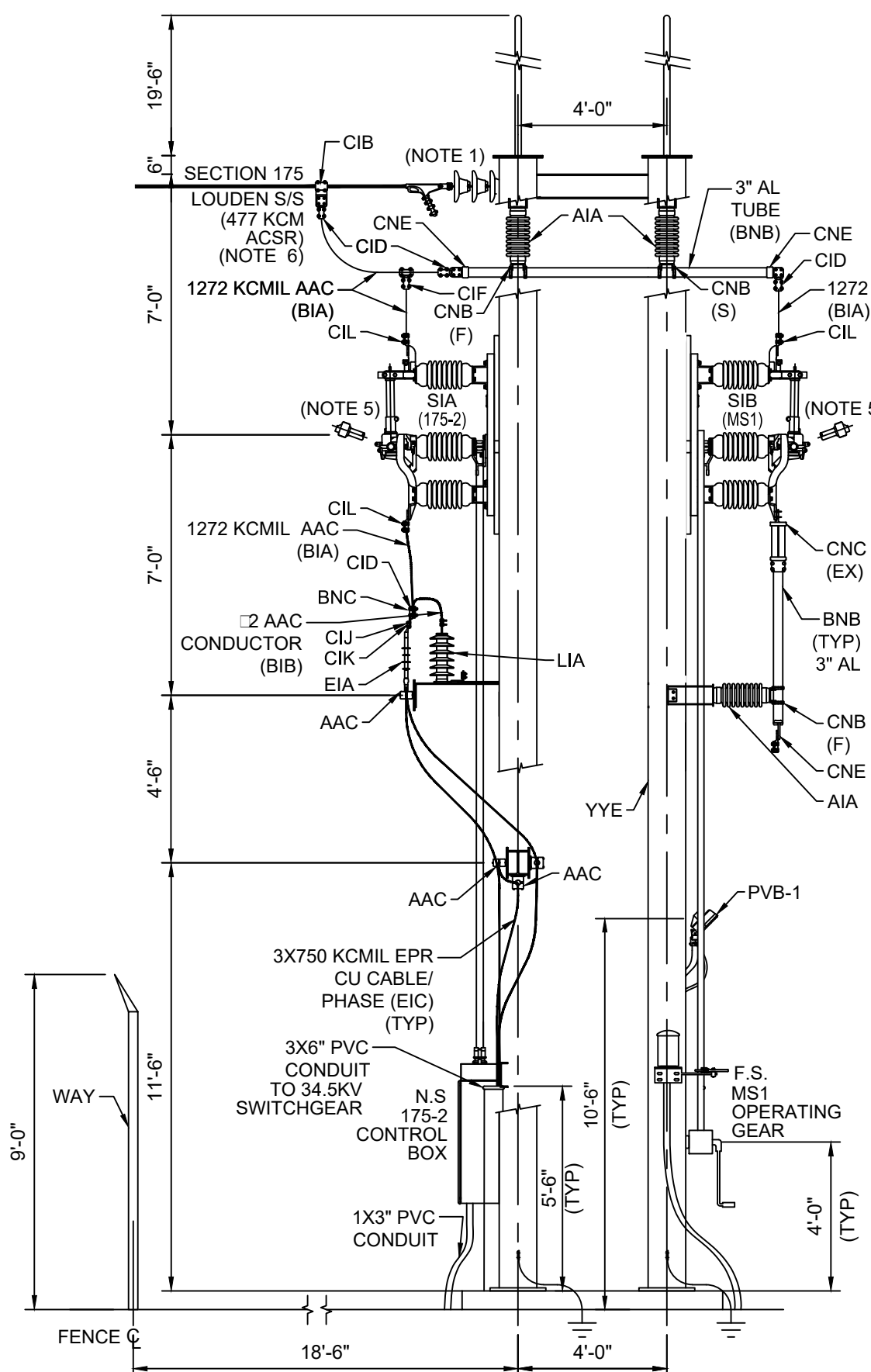
RECOMMENDED ELECTRICAL CLEARANCES					
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)					
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)		
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH
15.5	7	10	12	24-42	30
34.5	13	15	18	36-60	48

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID		CAMP AVANGRID		GENERAL ARRANGEMENT 34.5/12.47 KV	
BIDDEFORD PUMP S/S		BIDDEFORD, ME		BY: HEIMLEC		SCALE: 1" = 100'-0" FILE: 1050-0002-001 Rev. 0-08.dwg	
CK: VSMILEC		NO.		APP: PHEIMLEC		REV	
DATE: XXXXXXXX		1050-0002-001		0-08			

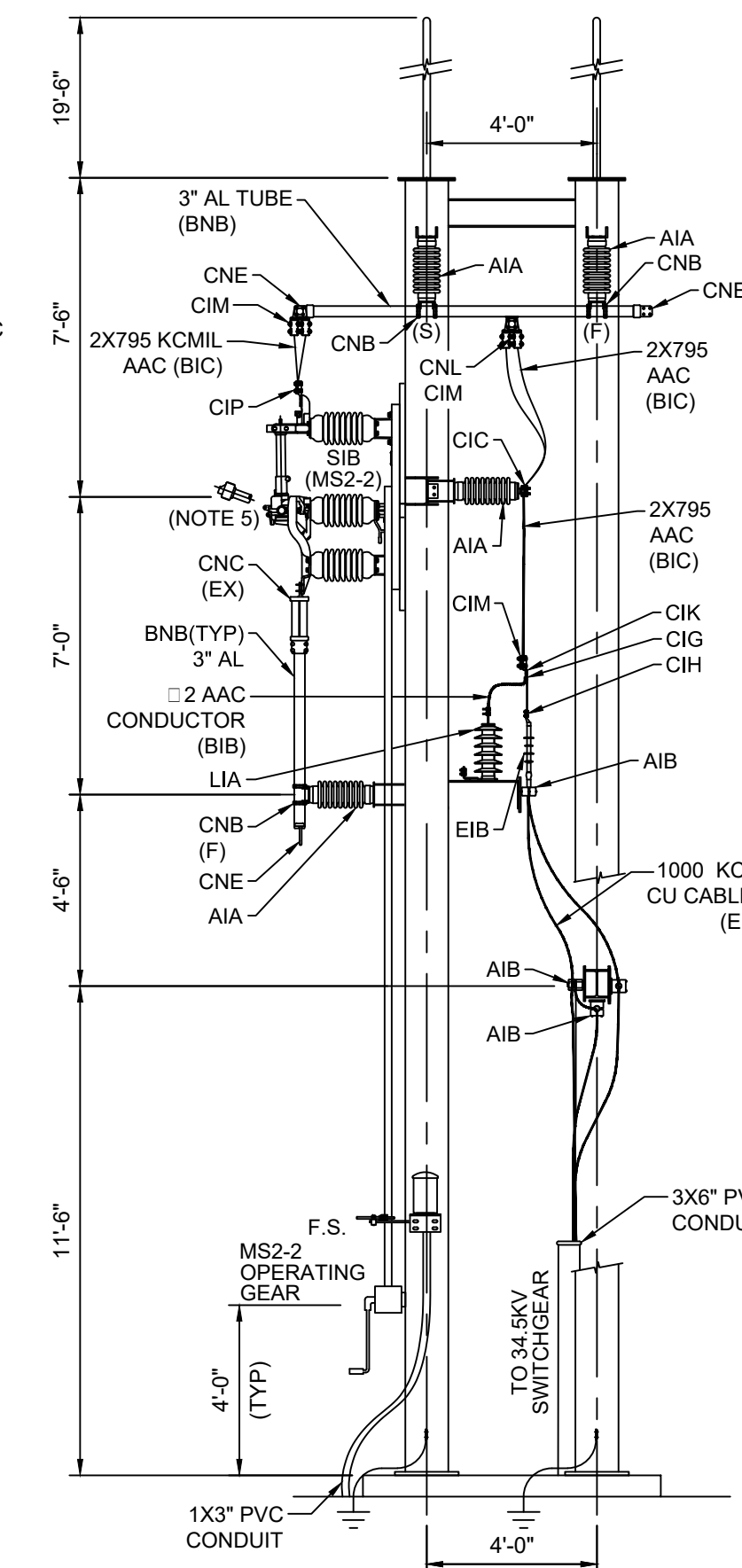
RECOMMENDED ELECTRICAL CLEARANCES						
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)						
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
			METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
	MINIMUM	RECOMMENDED	MINIMUM	RECOMMENDED	RECOMMENDED	RECOMMENDED
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60



A-A SECTION
1050-2-1 SCALE: 1/4"=1'-0"



C-C SECTION
1050-2-1 SCALE: 1/4"=1'-0"



D-D SECTION
1050-2-1 SCALE: 1/4"=1' 0"

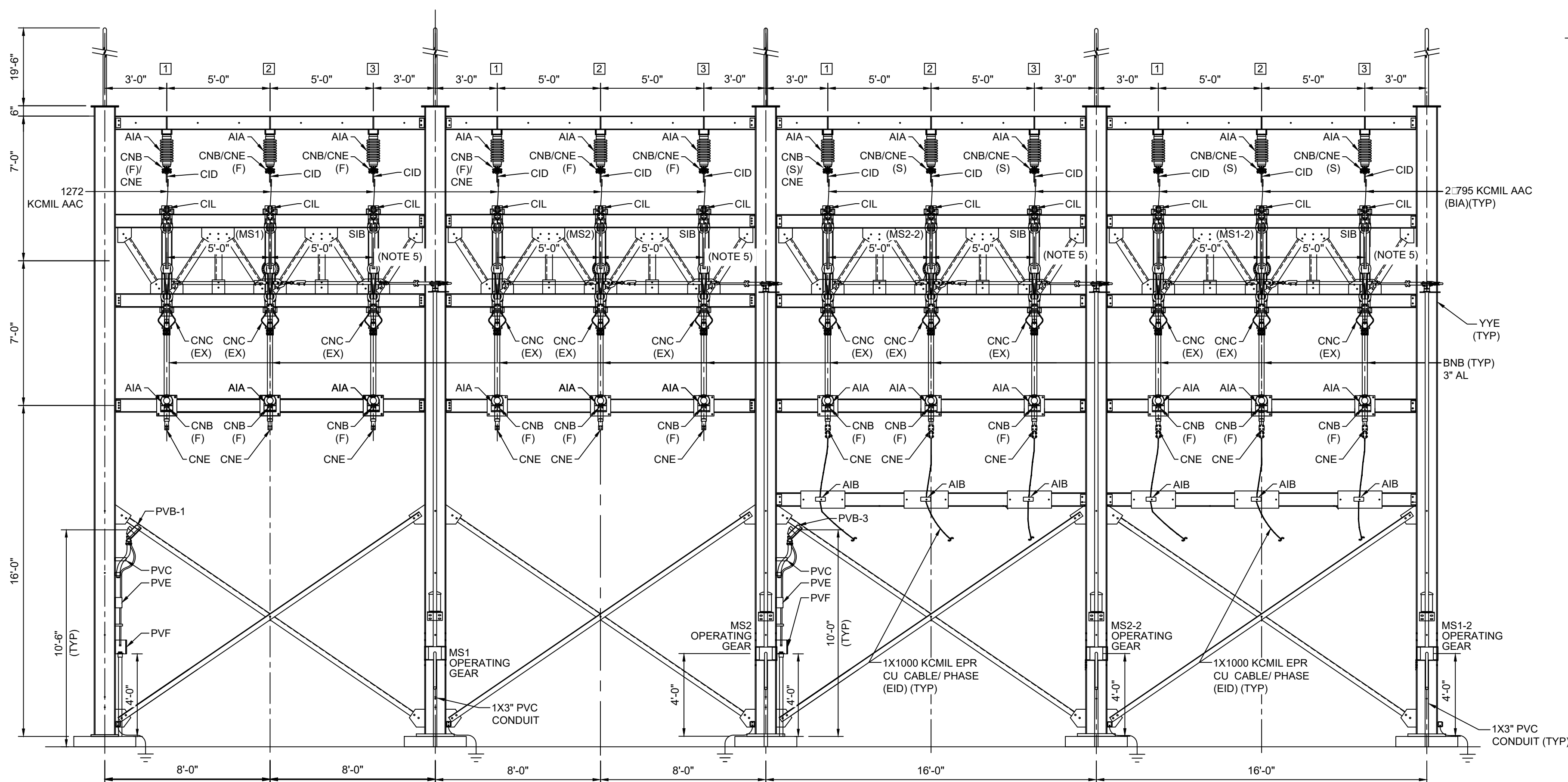
NOTES:

1. TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
2. WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
3. LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
 - S - SLIP SUPPORT
 - F - FIXED SUPPORT
 - EX - EXPANSION SUPPORT
4. WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND & 4'-6" BELOW GROUND).
5. GENERAL ARRANGEMENT AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
6. TRANSMISSION CONDUCTOR IS INDICATIVE.
7. STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
8. N.S. = NEAR SIDE, F.S. = FAR SIDE

REFERENCE DRAWING:

1050-0002-001	GENERAL ARRANGEMENT PLAN 34.5/12.47K V/S
1050-0002-003 SH 1	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47K V/S
1050-0002-003 SH 2	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47K V/S
1050-0002-002 SH2	GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
1050-0002-002 SH3	GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
1050-0002-002 SH4	GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
1050-0002-002 SH5	GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
1050-0002-002 SH6	GENERAL ARRANGEMENT SECTIONS H-H & S-W
1050-0006-010	YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION



B-B SECTION
1050-2-1 SCALE: 1/4"=1'-0"

A scale bar labeled "SCALE IN FEET" with markings at 0, 2', 4', and 8'.

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID							GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C, D-D SH 1 OF 6			
	BIDDEFORD PUMP S/S		BIDDEFORD, ME								
	BY HEMLEC	SCALE: 1/4" = 1'-0"	FILE: 1050-0002-002 SH 001 Rev_0-0D.dwg	REV							
	CK VSMLEC	NO.		0-0C							
	APP RMBLEB	DATE: XX/XX/XXXX									

REV	DESCRIPTION	DATE	BY	CHK	APP
0-04	FR. 30% REVIEW PACKAGE	11/25/2020	HEM/LEC	YSM/LEC	PMB/M/LEC
0-04	FB. ISSUED FOR BID	12/30/2020	TKM/LEC	YSM/LEC	PMB/M/LEC
0-0C	FB - 60% ISSUED FOR BID	01/28/2021	TKM/LEC	YSM/LEC	PMB/M/LEC

RECOMMENDED ELECTRICAL CLEARANCES
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)

VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60

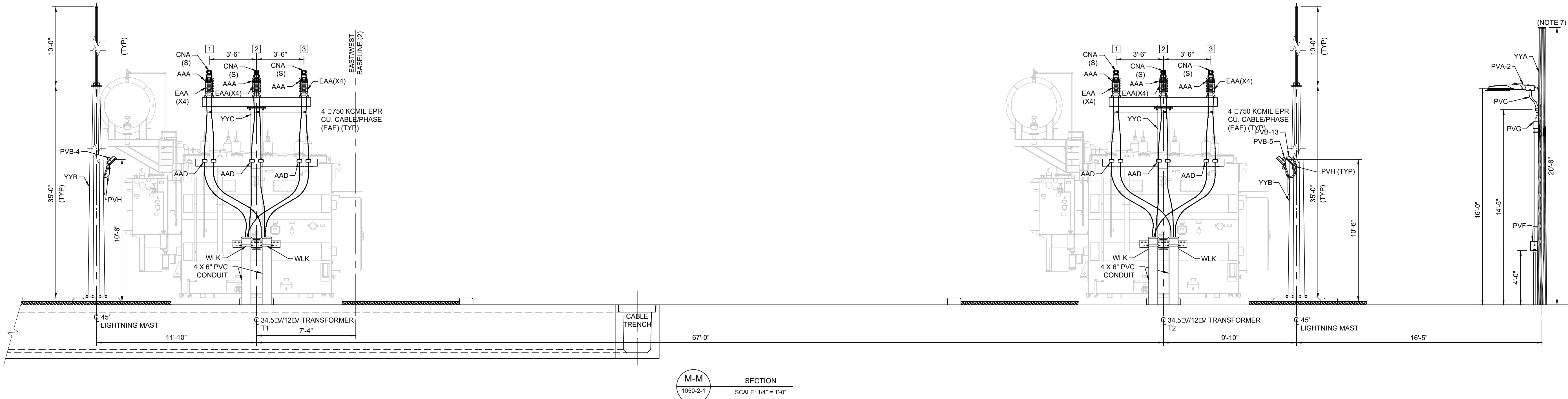
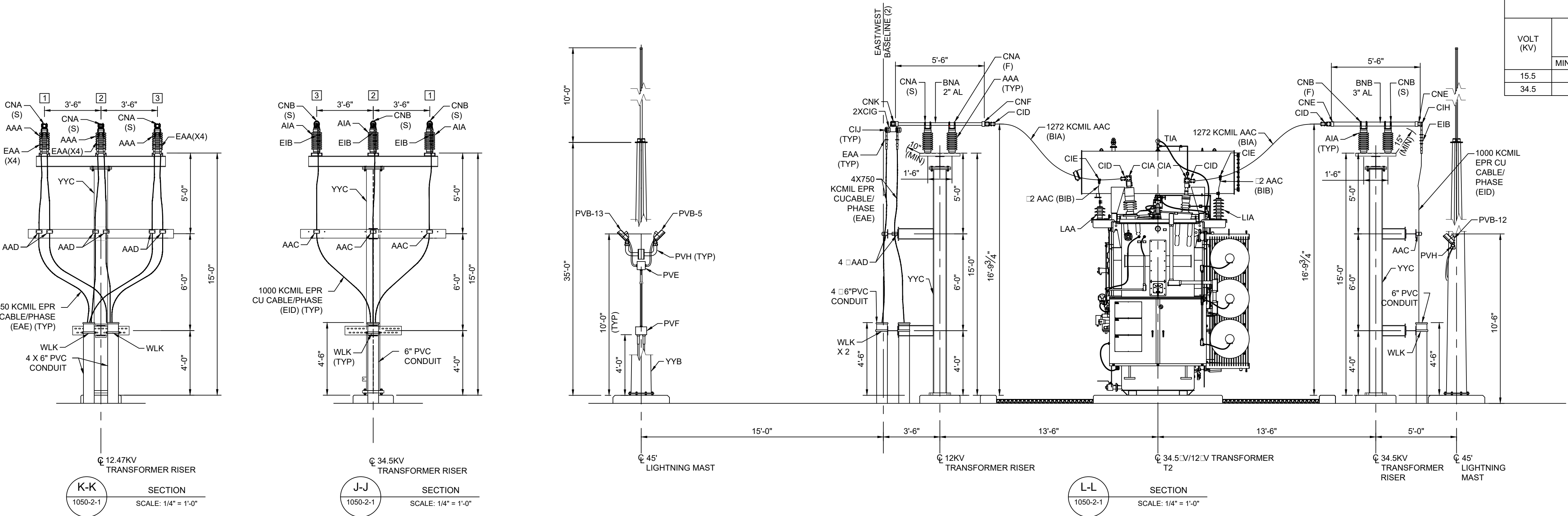
NOTES:

- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
- WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
- LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
- GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
- TRANSMISSION CONDUCTOR IS INDICATIVE.
- STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
- WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND 4'-6" BELOW GROUND).

REFERENCE DRAWING:

1050-0002-001
1050-0002-003 SH 1
1050-0002-003 SH 2
1050-0002-002 SH1
1050-0002-002 SH2
1050-0002-002 SH4
1050-0002-002 SH5
1050-0002-002 SH6
1050-0002-002 SH7
1050-0006-010

GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
GENERAL ARRANGEMENT SECTIONS H-H & W-W
ANIMAL PROTECTIONS DETAILS
YARD LIGHTING DIAGRAM

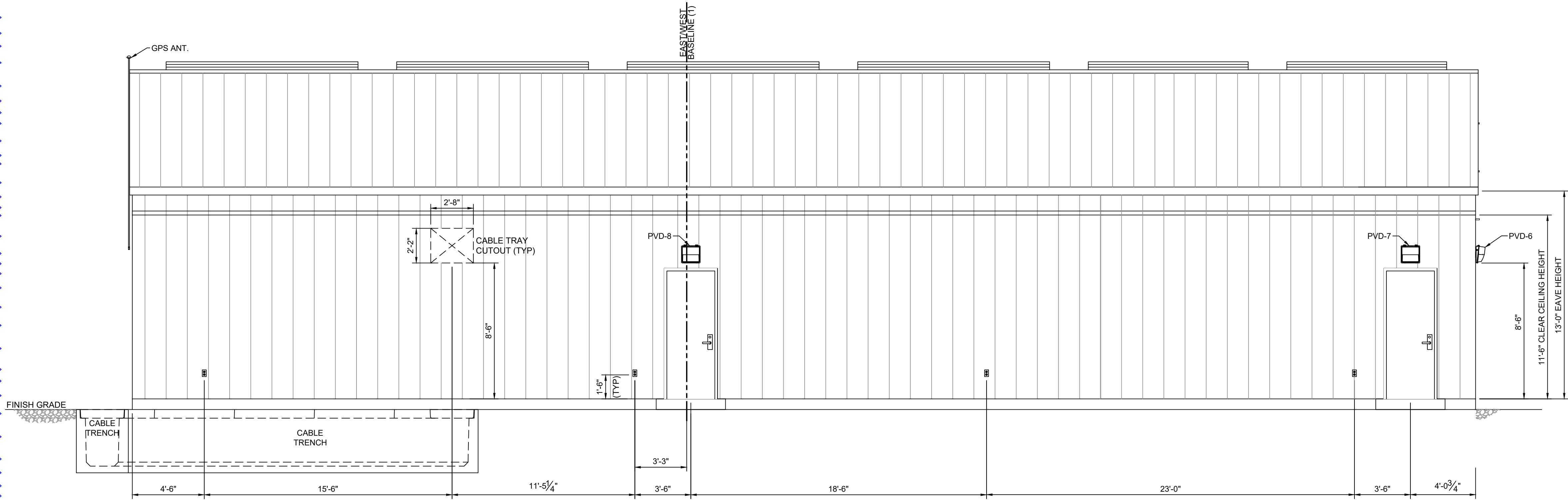
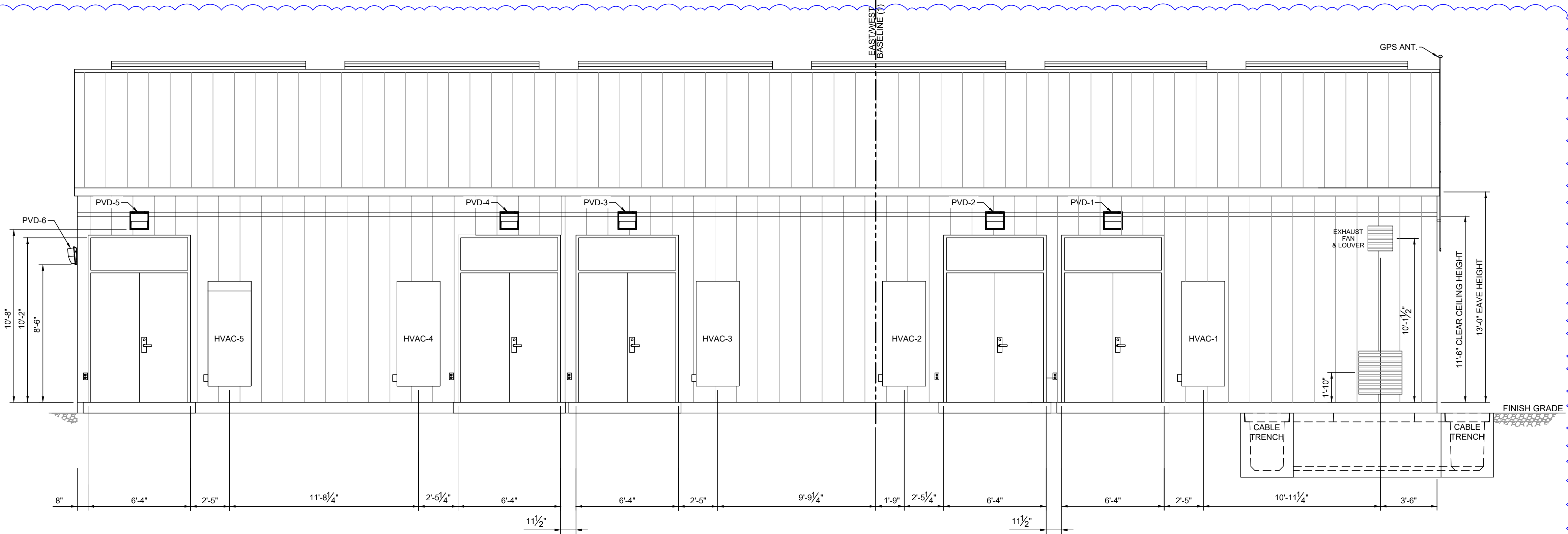


FOR BID ONLY
NOT FOR
CONSTRUCTION



PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID				GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M SH 3 OF 6	
						BIDDEFORD PUMP S/S	
						BIDDEFORD, ME	
						BY: HEM/LEC SCALE: 1/4" = 1'-0" FILE: 1050-0002-002 SH 003 Rev. 0-00.dwg	
						CK: USM/LEC NO.	
						APP: PMB/LEC	
						DATE: XX/XX/XXXX 1050-0002-002 SH3 0-0C	
REV		DESCRIPTION		DATE		BY	
						CK	
						APP	

ON HOLD
PENDING
MANUFACTURER
DRAWING



- REFERENCE DRAWING:
- 1050-0002-001 GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S
 - 1050-0002-003 SH 1 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-003 SH 2 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-002 SH1 GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
 - 1050-0002-002 SH2 GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
 - 1050-0002-002 SH3 GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
 - 1050-0002-002 SH4 GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
 - 1050-0002-002 SH5 GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
 - 1050-0002-002 SH7 ANIMAL PROTECTIONS DETAILS
 - 1050-0006-010 YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP

AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID



GENERAL ARRANGEMENT
SECTIONS H-H & W-W
SH 6 OF 6

BIDDEFORD PUMP S/S		BIDDEFORD, ME	
BY	HEM/LEC	SCALE: 1/4" = 1'-0"	FILE: 1050-0002-002 SH 006 Rev. 0-00.dwg
CK	USM/LEC	NO.	REV
APP	PMB/LEC		
DATE	XX/XX/XXXX		

REV DESCRIPTION

DATE

BY

CK

APP

DATE

1050-0002-002 SH6

0-0C

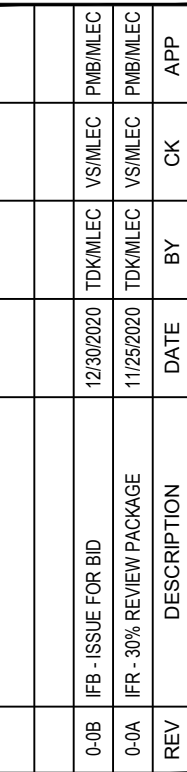
00C	FR	60% ISSUED FOR BID	01/26/2021	TDK/LEC	VS/LEC	PMB/LEC	APP
00B	FR	ISSUED FOR BID	12/30/2020	TDK/LEC	VS/LEC	PMB/LEC	APP
00A	FR	30% REVIEW PACKAGE	11/25/2020	HEM/LEC	VS/LEC	PMB/LEC	APP
REV	DESCRIPTION	DATE	BY	CK	APP		

MANLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET, LANCASTER, PA 17602
717.555.7477

ANSI D 621/2021

Exhibit 5

Draft Drainage Easement (Pending)

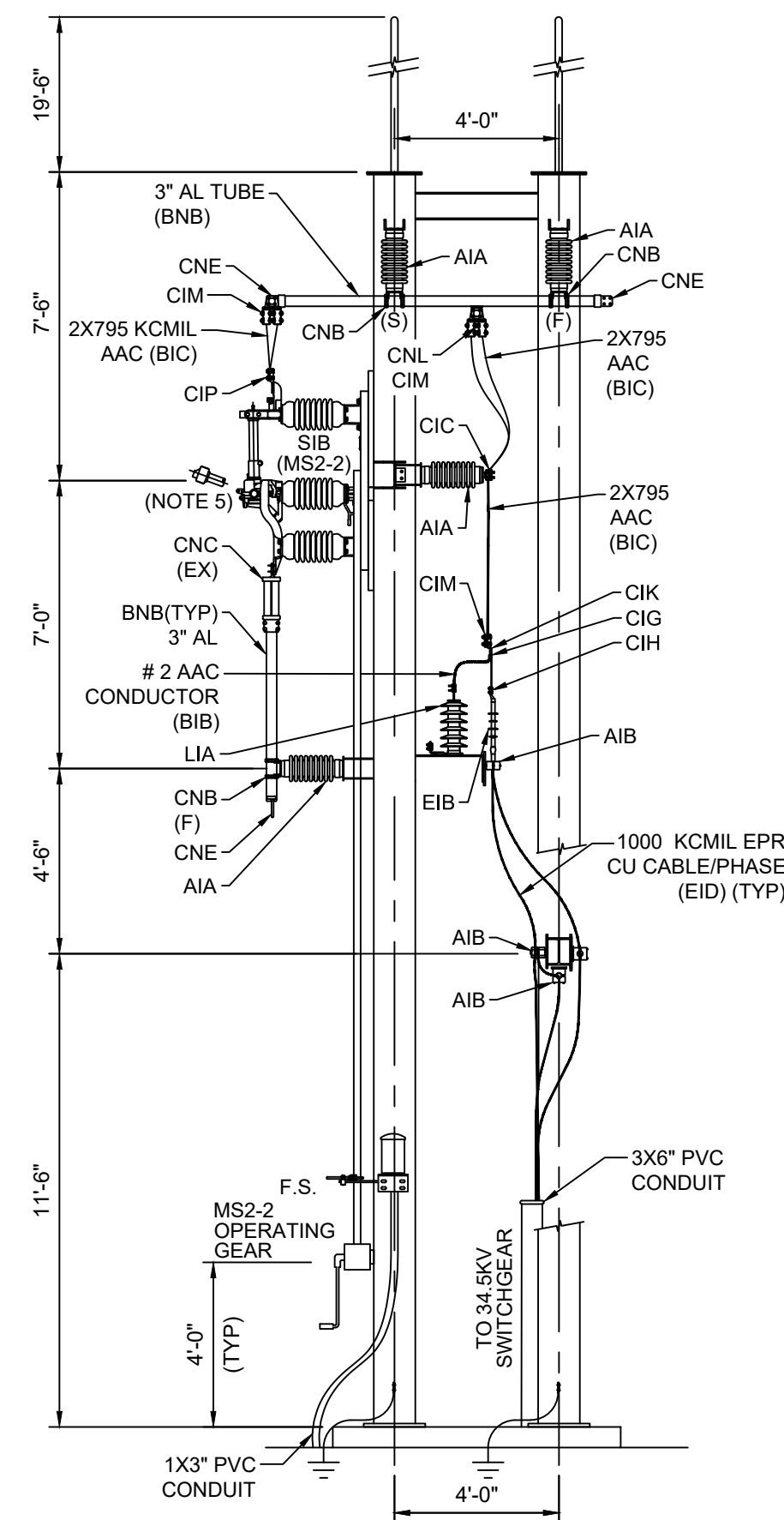


RECOMMENDED ELECTRICAL CLEARANCES						
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)						
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
			METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNPAK DISC SWITCH
	MINIMUM	RECOMMENDED	MINIMUM	RECOMMENDED	RECOMMENDED	RECOMMENDED
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60

AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID		 CMP AVANGRID			
0-0A					
REV	DESCRIPTION	DATE	BY	CK	APP

GENERAL ARRANGEMENT

BIDDEFORD PUMP S/S		BIDDEFORD, ME	
BY	HE/MLEC	SCALE: 1" = 100' - 0"	FILE: 1050-0002-001 Rev_0-0B.dwg
CK	VS/MLEC	NO.	REV
APP	PMB/MLEC	1050-0002-001	0-0B
DATE	XXXXXX/XXXXXX		



D-D SECTION
1050-2-1 SCALE: 1/4"=1'-0"

- ## NOTES:
1. TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
 2. WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
 3. LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
 - S - SLIP SUPPORT
 - F - FIXED SUPPORT
 - EX - EXPANSION SUPPORT
 4. WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND & 4'-6" BELOW GROUND).
 5. GENERAL ARRANGEMENT AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
 6. TRANSMISSION CONDUCTOR IS INDICATIVE.
 7. STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
 8. N.S. = NEAR SIDE, F.S. = FAR SIDE

REFERENCE DRAWING:

1050-0002-001	GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S
1050-0002-003 SH 1	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
1050-0002-003 SH 2	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
1050-0002-002 SH2	GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
1050-0002-002 SH3	GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
1050-0002-002 SH4	GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
1050-0002-002 SH5	GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
1050-0002-002 SH6	GENERAL ARRANGEMENT SECTIONS H-H & W-W
1050-0006-010	YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION

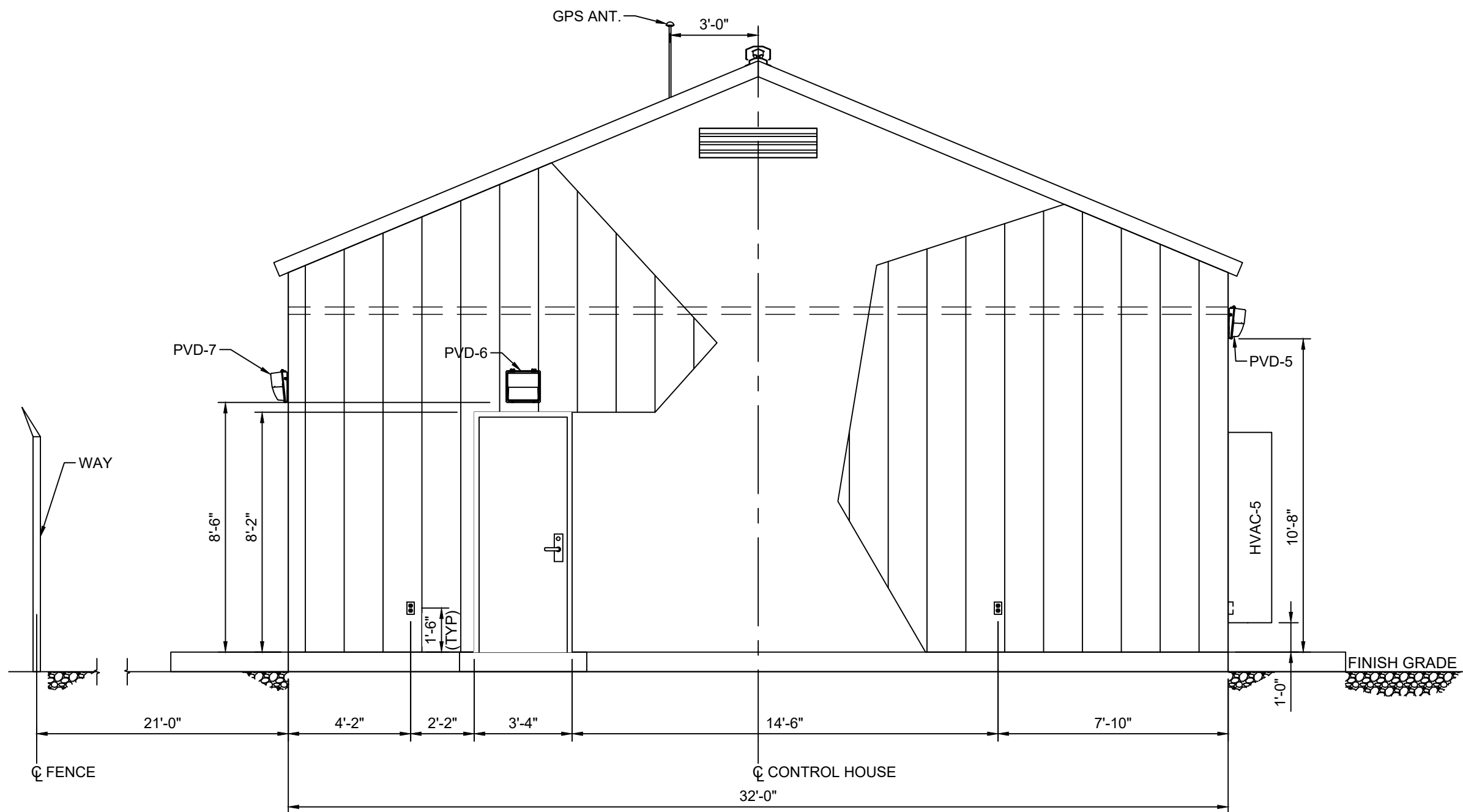
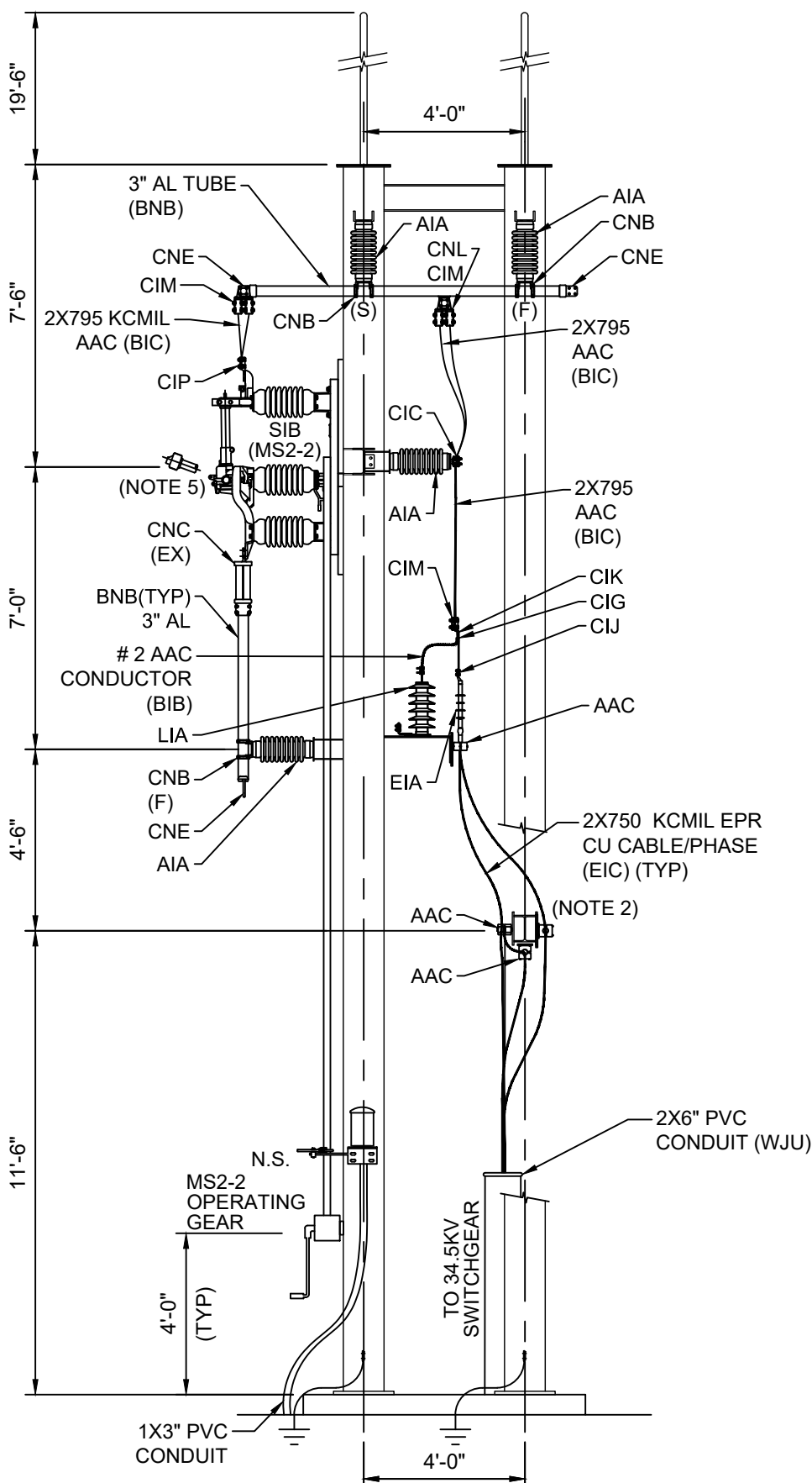
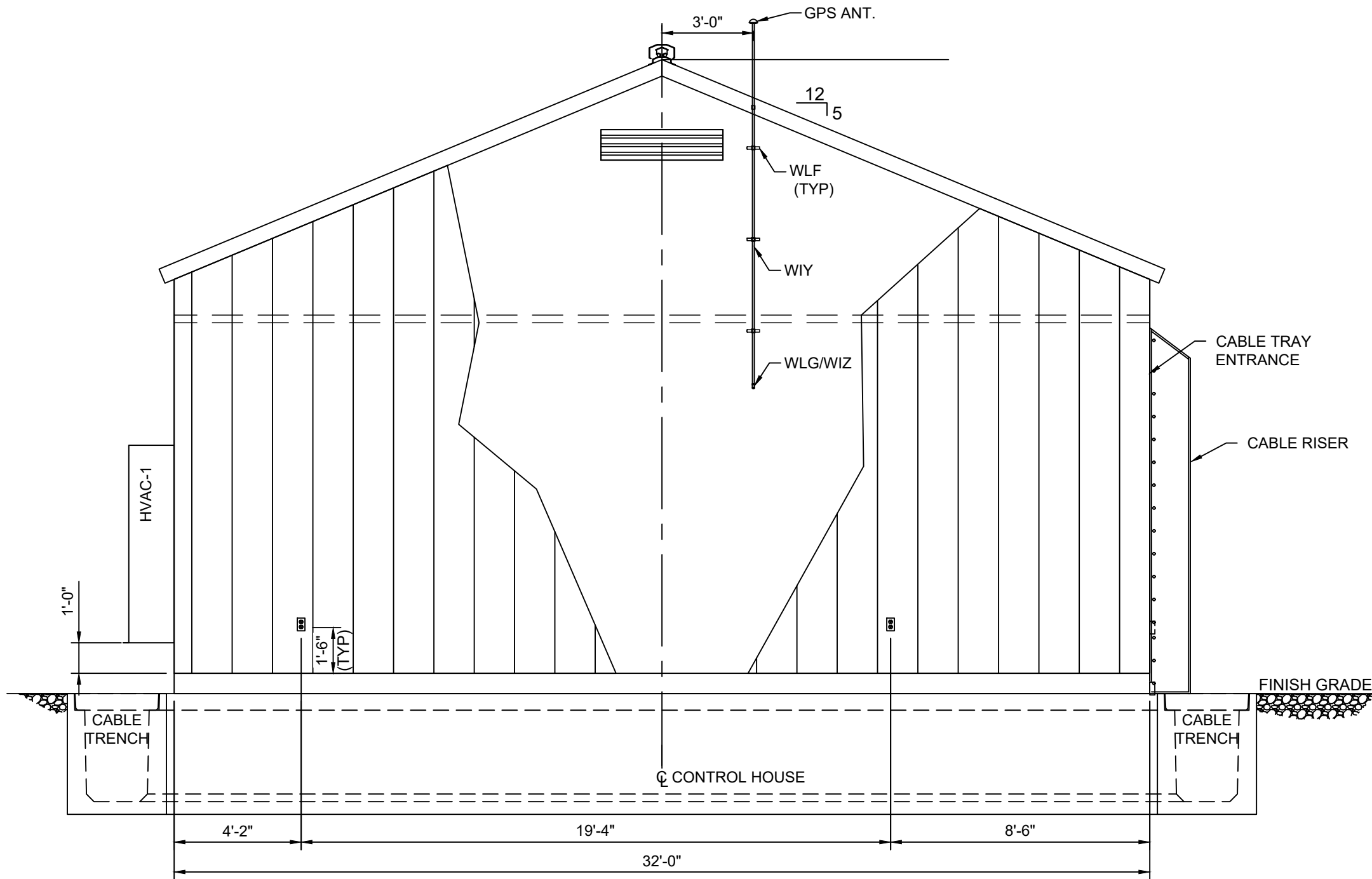
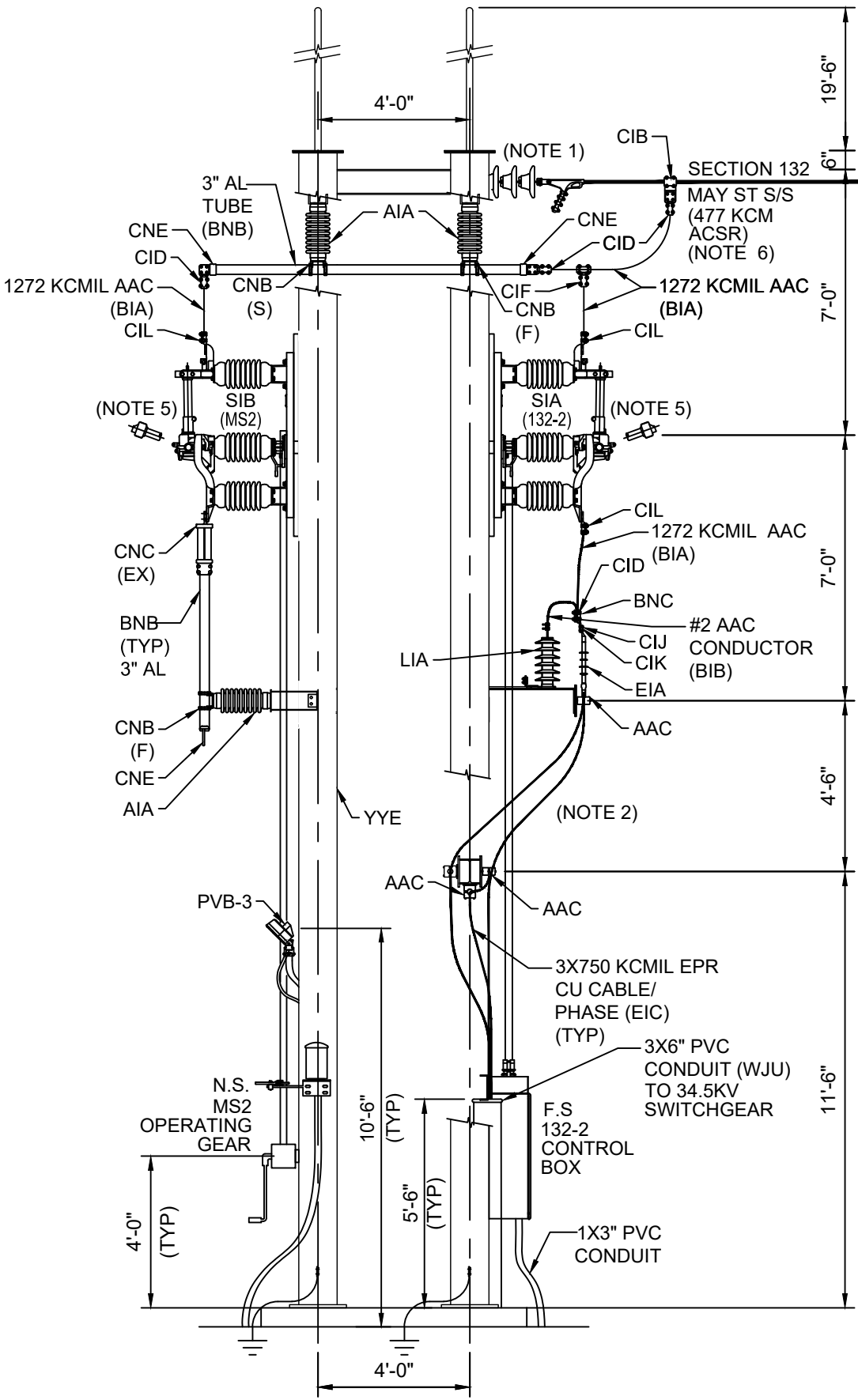
[illegible]

GENERAL ARRANGEMENT

SH 1 OF 6

BIDDEFORD PUMP S/S		BIDDEFORD, ME	
BY CK	HE/MLEC VS/MLEC	SCALE: 1/4" = 1'-0" NO.	FILE: 1050-0002-002 SH 001 Rev. 0-0D.dwg
APP DATE	PMB/MLEC XX/XX/XXXX	1050-0002-002 SH1	REV 0-0C

RECOMMENDED ELECTRICAL CLEARANCES TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)						
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60



- NOTES:
- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
 - WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
 - LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
 - WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND & 4'-6" BELOW GROUND).
 - GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
 - TRANSMISSION CONDUCTOR IS INDICATIVE.
 - STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
 - N.S. = NEAR SIDE, F.S. = FAR SIDE

- REFERENCE DRAWING:
- | | |
|--------------------|---|
| 1050-0002-001 | GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S |
| 1050-0002-003 SH 1 | GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S |
| 1050-0002-003 SH 2 | GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S |
| 1050-0002-002 SH 1 | GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D |
| 1050-0002-002 SH 3 | GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M |
| 1050-0002-002 SH 4 | GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q |
| 1050-0002-002 SH 5 | GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V |
| 1050-0002-002 SH 6 | GENERAL ARRANGEMENT SECTIONS H-H & W-W |
| 1050-0002-002 SH 7 | ANIMAL PROTECTIONS DETAILS |
| 1050-0006-010 | YARD LIGHTING DIAGRAM |
| 1050-0012-002 | ABOVE GRADE BILL OF MATERIALS |

FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID				GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & I-I SH 2 OF 6	
						BIDDEFORD PUMP S/S	
						BIDDEFORD, ME	
						BY: TKM/LEC SCALE: 1/4" = 1'-0" FILE: 1050-0002-002 SH 002.dwg	
						CK: VS/MEC NO. REV	
						APP: PBM/LEC 1050-0002-002 SH 002	
						DATE: XX/XX/XXXX 0-0E	
REV	DESCRIPTION	DATE	BY	CK	APP	DATE	REV

RECOMMENDED ELECTRICAL CLEARANCES
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)

VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
	MINIMUM	RECOMMENDED	METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60

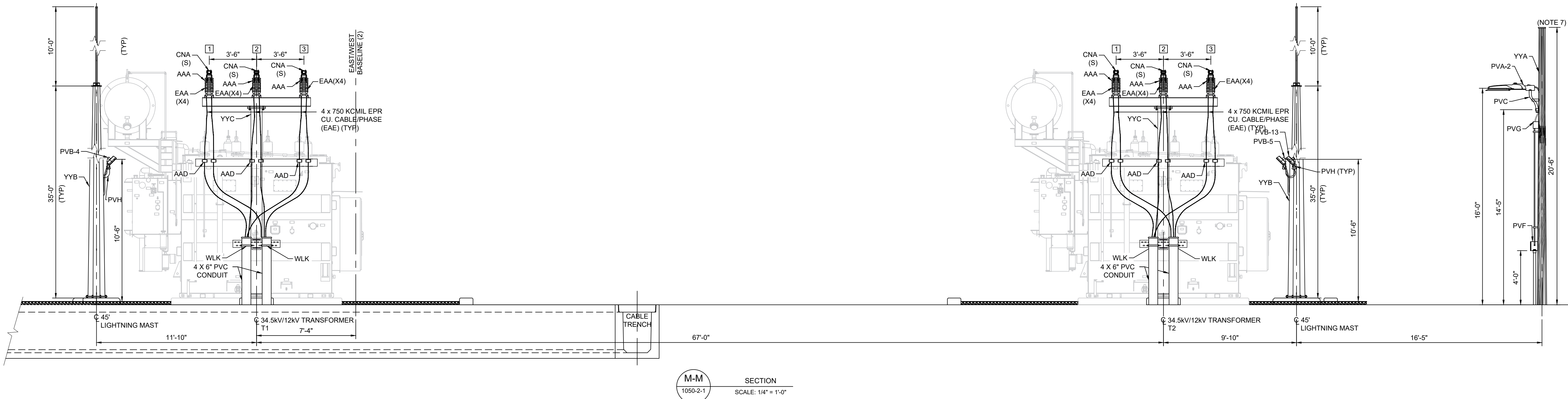
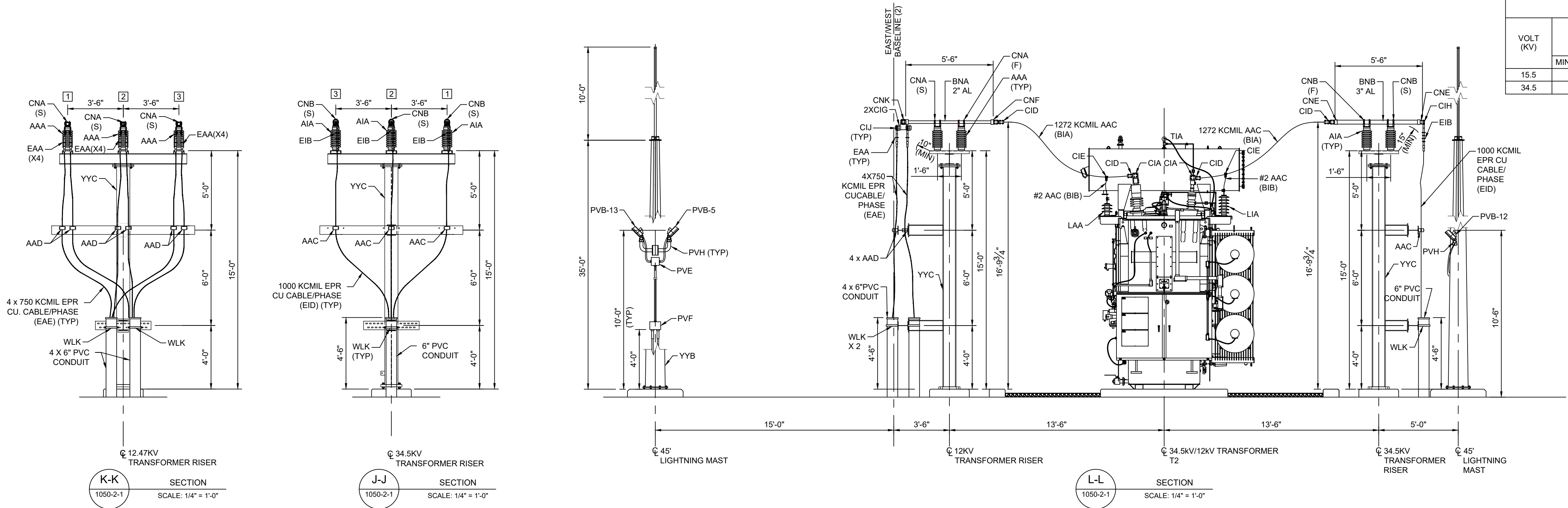
NOTES:

- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
- WIRE CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.
- LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
- GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
- TRANSMISSION CONDUCTOR IS INDICATIVE.
- STRUCTURAL DETAILS ARE INDICATIVE AND WILL BE FINALIZED BY STRUCTURAL TEAM.
- WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND 4'-6" BELOW GROUND).

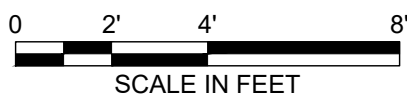
REFERENCE DRAWING:

1050-0002-001
1050-0002-003 SH 1
1050-0002-003 SH 2
1050-0002-002 SH1
1050-0002-002 SH2
1050-0002-002 SH4
1050-0002-002 SH5
1050-0002-002 SH6
1050-0002-002 SH7
1050-0006-010

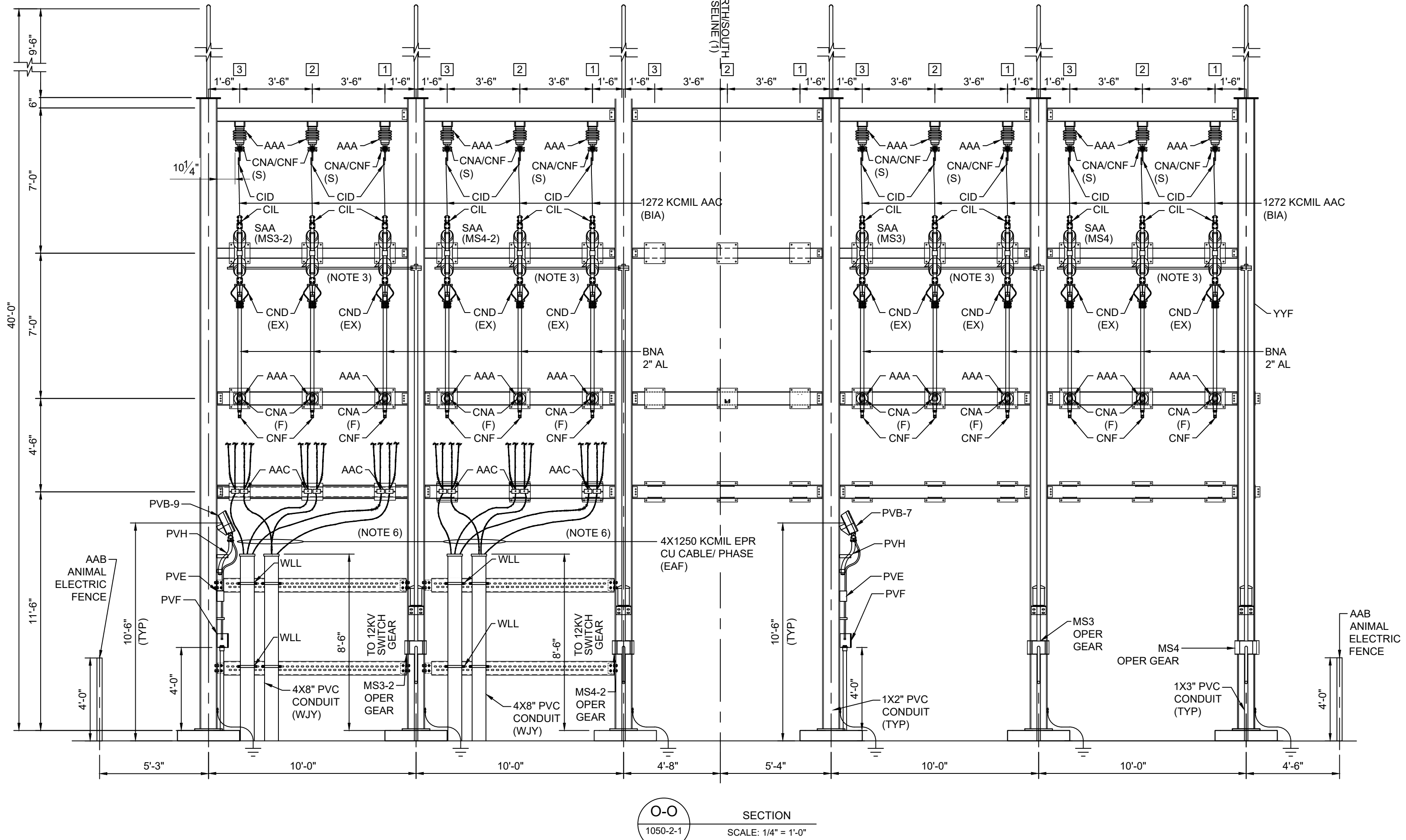
GENERAL ARRANGEMENT ELECTRICAL DETAILS S 34.5/12.47KV S/S
GENERAL ARRANGEMENT ELECTRICAL DETAILS S 34.5/12.47KV S/S
GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
GENERAL ARRANGEMENT SECTIONS H-H & W-W
ANIMAL PROTECTIONS DETAILS
YARD LIGHTING DIAGRAM



FOR BID ONLY
NOT FOR
CONSTRUCTION



PE STAMP		AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID							GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M SH 3 OF 6			
									BIDDEFORD PUMP S/S			
									BIDDEFORD, ME			
							BY HEM/LEC		SCALE: 1/4" = 1'-0"		FILE: 1050-0002-002 SH 003 Rev. 0-00.dwg	
							CK USM/EC		NO.		REV	
							APP PMB/LEC		DATE XX/XX/XXXX		1050-0002-002 SH3	
REV		DESCRIPTION			DATE	BY	CK	APP			0-00	



RECOMMENDED ELECTRICAL CLEARANCES						
TM2.71.54 SUBSTATION ELECTRICAL CLEARANCES (11-2012)						
VOLT (KV)	PHASE TO GROUND (IN.)		PHASE TO PHASE (IN.)			
			METAL TO METAL	BUS SUPPORT VERTICAL BREAK DISC. SWITCH	HORIZONTAL BREAK DISC SWITCH	HORNGAP DISC SWITCH
	MINIMUM	RECOMMENDED	MINIMUM	RECOMMENDED	RECOMMENDED	RECOMMENDED
15.5	7	10	12	24-42	30	36
34.5	13	15	18	36-60	48	60

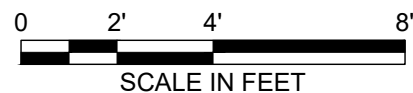
REFERENCE DRAWING:	
1050-0002-001	GENERAL ARRANGEMENT PLAN 34 5/12,47KV S/S
1050-0002-003 SH 1	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34 5/12,47KV S/S
1050-0002-003 SH 2	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34 5/12,47KV S/S
1050-0002-002 SH 1	GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
1050-0002-002 SH 2	GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & I-I
1050-0002-002 SH 3	GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
1050-0002-002 SH 5	GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
1050-0002-002 SH 6	GENERAL ARRANGEMENT SECTIONS H-H & W-W
1050-0002-002 SH 7	ANIMAL PROTECTIONS DETAILS
1050-0006-010	YARD LIGHTING DIAGRAM
1050-0012-002	ABOVE GRADE BILL OF MATERIALS

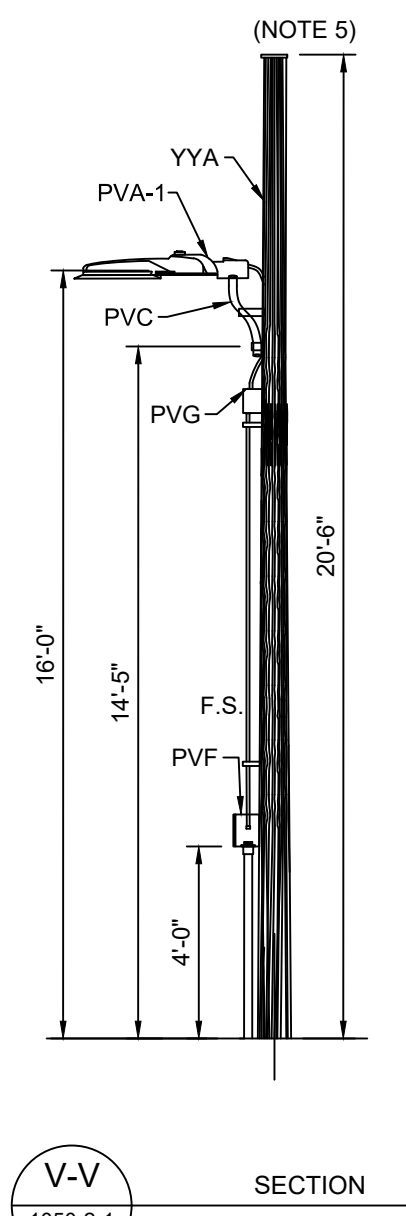
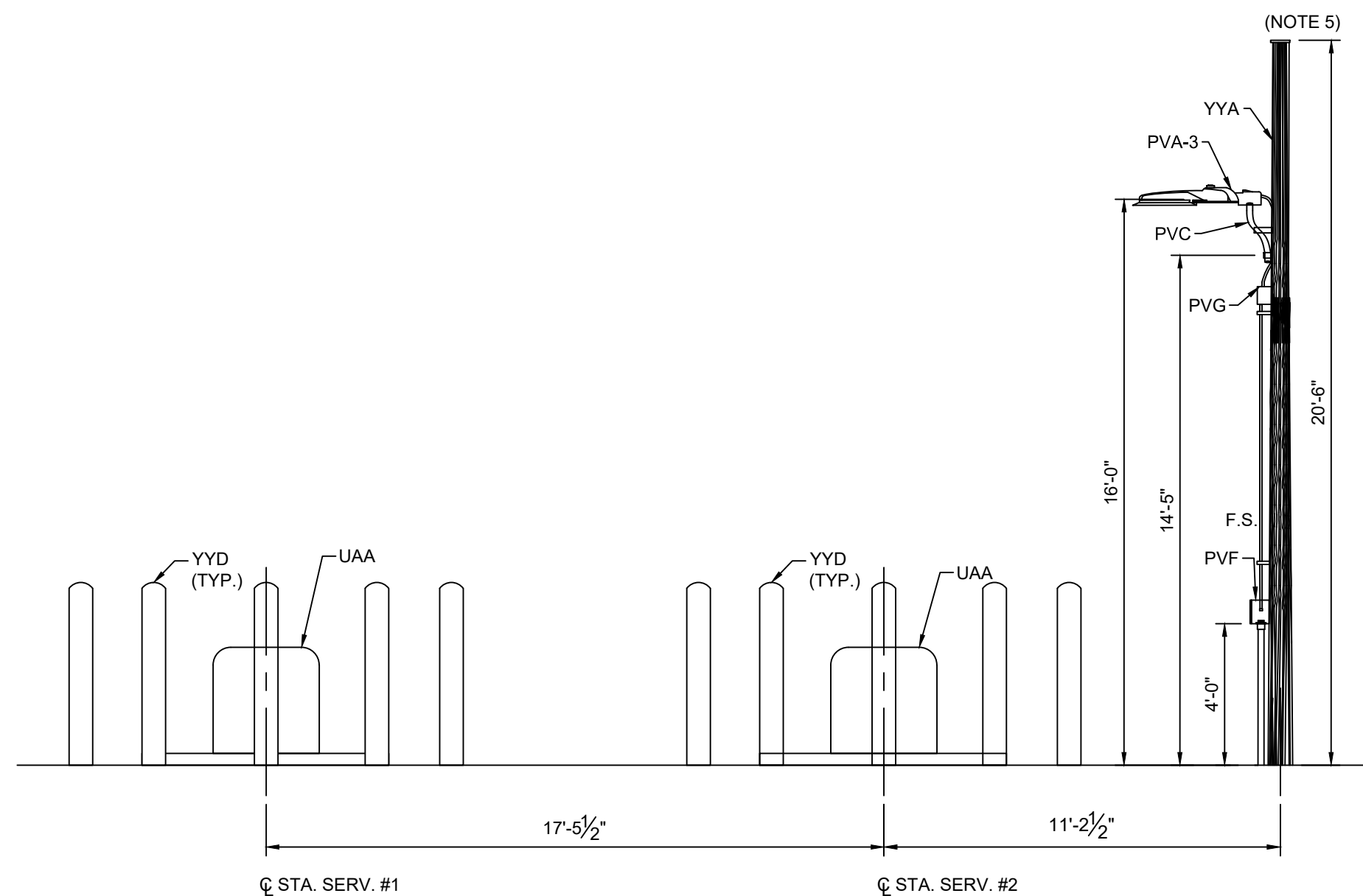
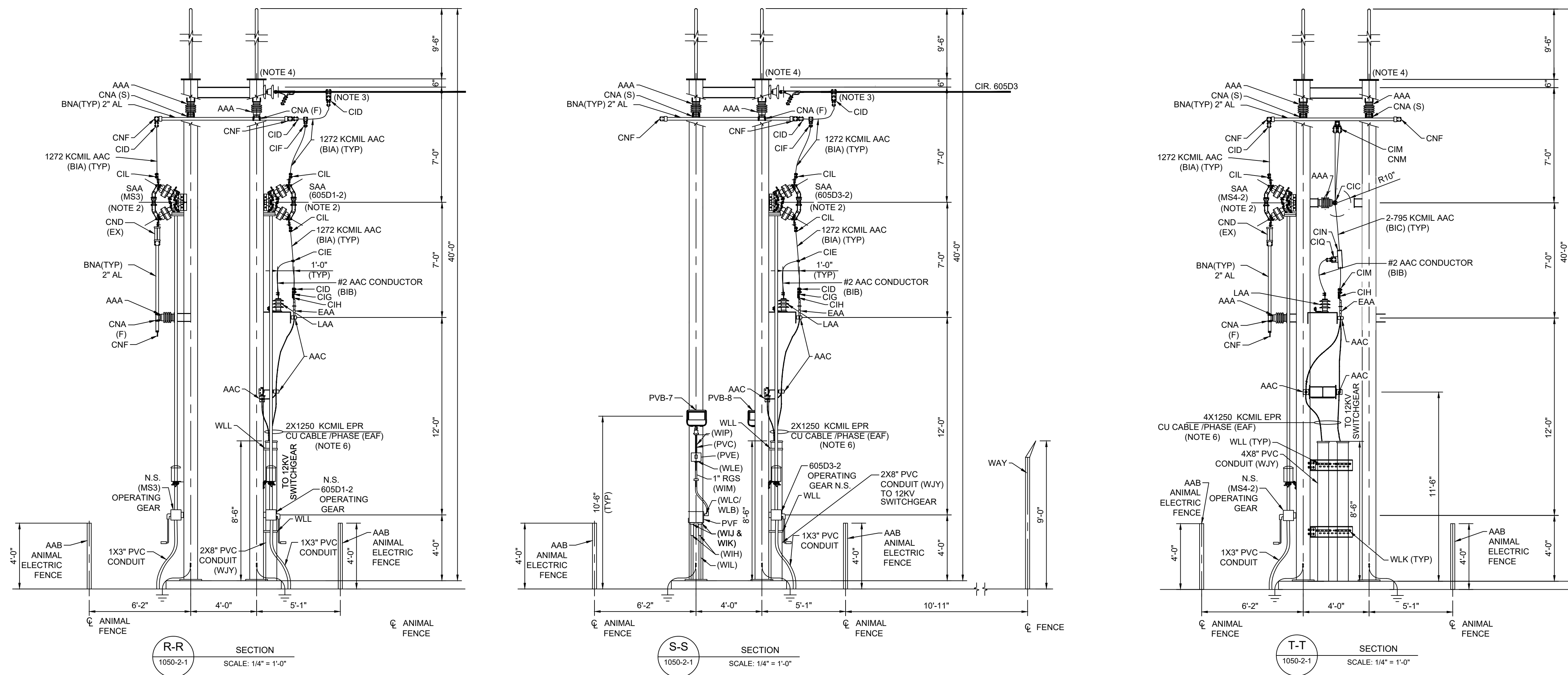
NOTES:

1. LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
2. WOOD POLE HEIGHT IS 25 FEET (20'-6" ABOVE GROUND 4'-6" BELOW GROUND).
3. GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
4. TIE CONNECTION WILL BE DECIDED AFTER CONFIRMATION OF TRANSMISSION LINE DETAILS.
5. TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
6. CONDUCTOR MINIMUM BEND RADIUS SHALL BE INSTALLED NO LESS THAN 15 TIMES THE CONDUCTOR DIAMETER IN ACCORDANCE WITH TM2.71.53.

FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID  CMP AVANGRID GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q SH 4 OF 6					
	BIDDEFORD PUMP S/S BIDDEFORD, ME					
	BY TDKMLEC SCALE: 1/4" = 1'-0" FILE: 1050-0002-002 SH 004.dwg					
	CK VSAMLEC NO.					
	APP PASMLEC					
	DATE XX/XX/XXXX					
	REV	DESCRIPTION	DATE	BY	CK	APP
	1050-0002-002 SH 004					
	0-0E					





NOTES:

- LOCATIONS & SYMBOLS FOR BUS SUPPORTS & CONNECTION TYPES ARE SHOWN AND INDICATED AS:
S - SLIP SUPPORT
F - FIXED SUPPORT
EX - EXPANSION SUPPORT
- GA AND OPERATING MECHANISM OF DISCONNECT SWITCH IS INDICATIVE. THIS WILL BE UPDATED AFTER RECEIPT OF APPROVED VENDOR DRAWING.
- TEE CONNECTION WILL BE DECIDED AFTER CONFIRMATION OF TRANSMISSION LINE DETAILS.
- TRANSMISSION HARDWARE SHALL BE PROVIDED BY TRANSMISSION GROUP.
- WOOD POLE HEIGHT IS 25 FEET (20'-6\"/>

REFERENCE DRAWING:

1050-0002-001	GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S
1050-0002-003 SH 1	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
1050-0002-003 SH 2	GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
1050-0002-002 SH1	GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
1050-0002-002 SH2	GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & I-I
1050-0002-002 SH3	GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
1050-0002-002 SH4	GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
1050-0002-002 SH6	GENERAL ARRANGEMENT SECTIONS H-H & W-W
1050-0002-002 SH7	ANIMAL PROTECTIONS DETAILS
1050-0006-010	YARD LIGHTING DIAGRAM
1050-0012-002	ABOVE GRADE BILL OF MATERIAL

**FOR BID ONLY
NOT FOR
CONSTRUCTION**

0 2' 4' 8'
SCALE IN FEET

PE STAMP

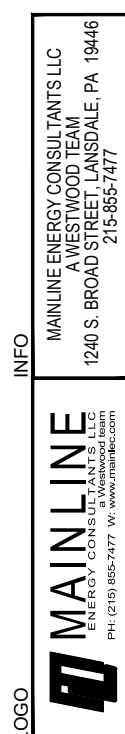
AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID



**GENERAL ARRANGEMENT
SECTIONS R-R, S-S, T-T, U-U & V-V**
SH 5 OF 6

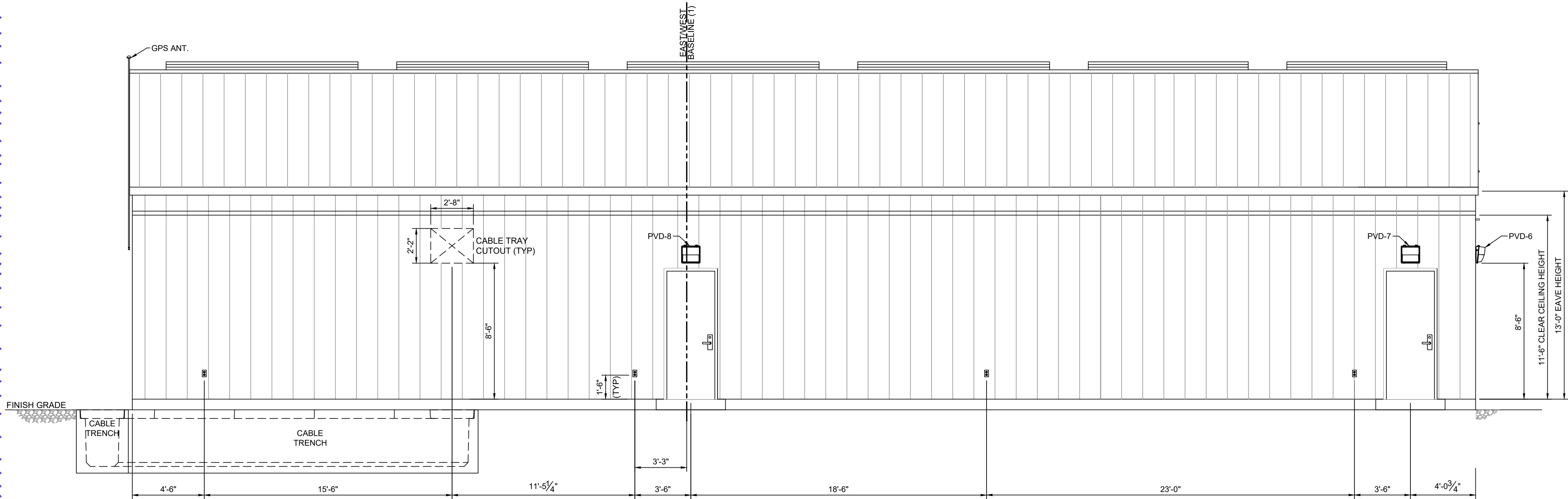
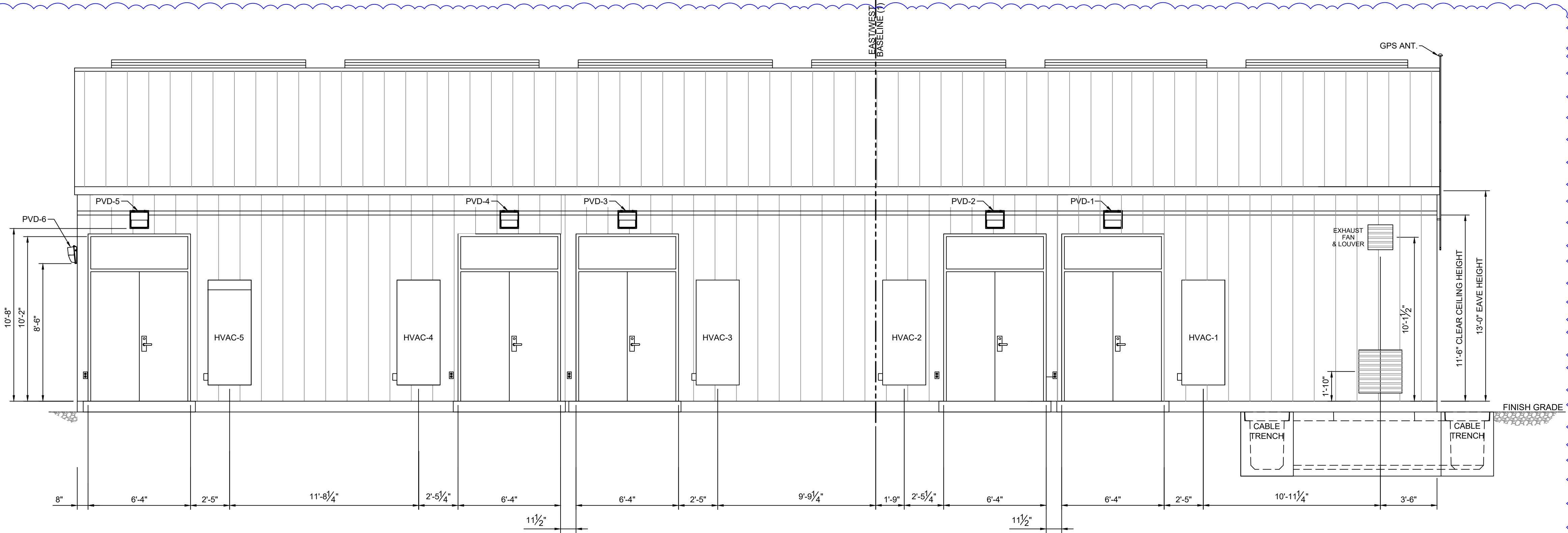
BY	HEM/LEC	SCALE: 1/4\"/>
----	---------	----------------

LOGO	INFO	REV	DESCRIPTION	DATE	BY	CK	APP
	11/19/2021	1050-0002-002 SH 5	ISSUED FOR REVIEW	11/19/2021	YMM/LEC	YMM/LEC	YMM/LEC
	07/28/2021	1050-0002-002 SH 5	ISSUED FOR BID	07/28/2021	YMM/LEC	YMM/LEC	YMM/LEC
	12/03/2020	1050-0002-002 SH 5	ISSUED FOR BIDDING	12/03/2020	YMM/LEC	YMM/LEC	YMM/LEC
	11/05/2020	1050-0002-002 SH 5	30% REVIEW PACKAGE	11/05/2020	HEM/LEC	HEM/LEC	HEM/LEC



ANSI D 11/19/2021

ON HOLD
PENDING
MANUFACTURER
DRAWING



- REFERENCE DRAWING:
- 1050-0002-001 GENERAL ARRANGEMENT PLAN 34.5/12.47KV S/S
 - 1050-0002-003 SH 1 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-003 SH 2 GENERAL ARRANGEMENT ELECTRICAL DETAILS 34.5/12.47KV S/S
 - 1050-0002-002 SH1 GENERAL ARRANGEMENT SECTIONS A-A, B-B, C-C & D-D
 - 1050-0002-002 SH2 GENERAL ARRANGEMENT SECTIONS E-E, F-F, G-G & H-H
 - 1050-0002-002 SH3 GENERAL ARRANGEMENT SECTIONS J-J, K-K, L-L & M-M
 - 1050-0002-002 SH4 GENERAL ARRANGEMENT SECTIONS N-N, O-O, P-P & Q-Q
 - 1050-0002-002 SH5 GENERAL ARRANGEMENT SECTIONS R-R, S-S, T-T, U-U & V-V
 - 1050-0002-002 SH7 ANIMAL PROTECTIONS DETAILS
 - 1050-0006-010 YARD LIGHTING DIAGRAM

FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP

AVANGRID ENGINEERING
CONFIDENTIAL, PROPRIETARY and
TRADE SECRET INFORMATION
Property of AVANGRID



GENERAL ARRANGEMENT
SECTIONS H-H & W-W
SH 6 OF 6

BIDDEFORD PUMP S/S BIDDEFORD, ME

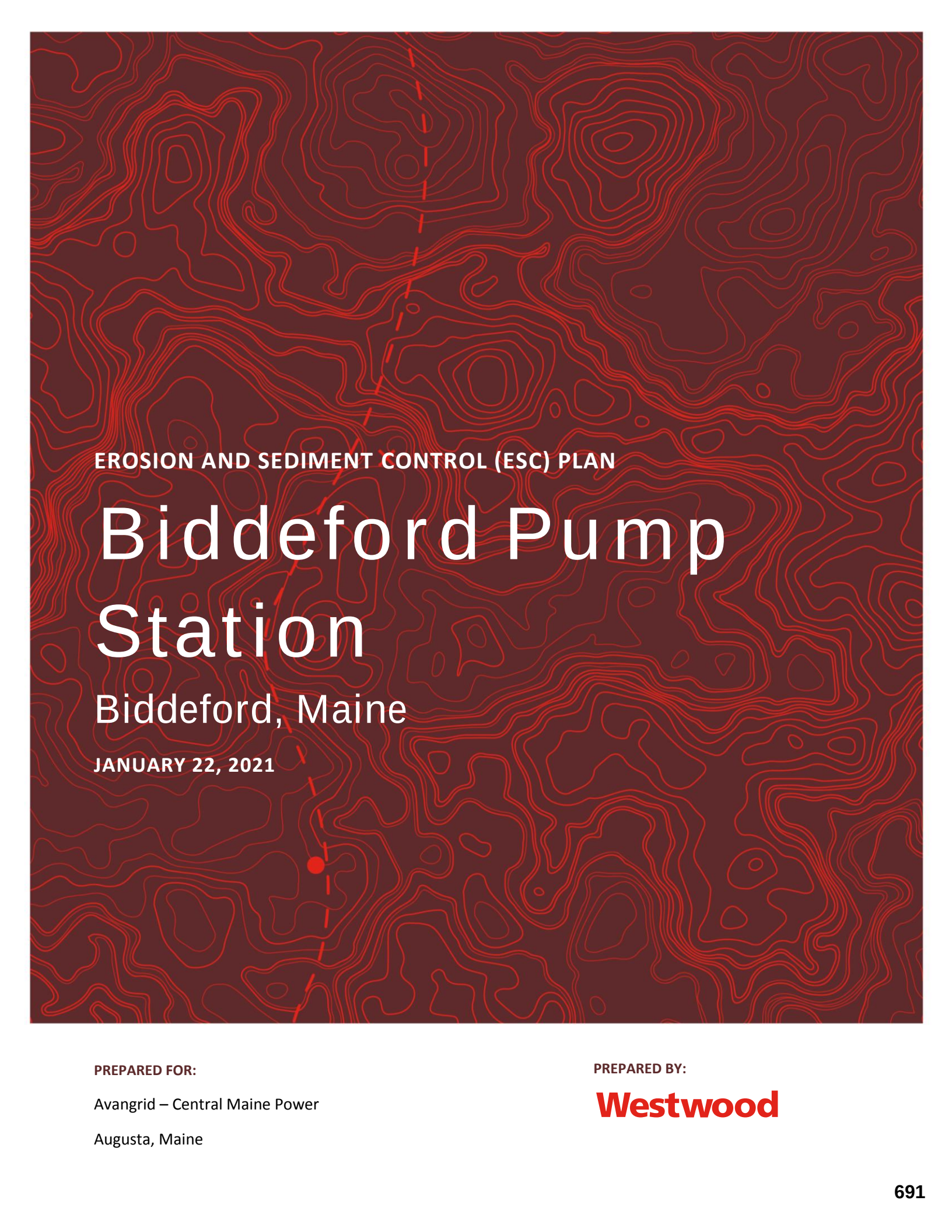
BY	HEM/LEC	SCALE: 1/4" = 1'-0"	FILE: 1050-0002-002 SH 006 Rev. 0-00.dwg
CK	USM/LEC	NO.	REV
APP	PMB/LEC		
DATE	XX/XX/XXXX		
REV	DESCRIPTION	DATE	BY
CK			
APP			
DATE			

1050-0002-002 SH6 0-0C

00C	FR	60% ISSUED FOR BID	01/26/2021	TDK/LEC	VS/LEC	PMB/LEC	APP
00B	FR	ISSUED FOR BID	12/30/2020	TDK/LEC	VS/LEC	PMB/LEC	APP
00A	FR	30% REVIEW PACKAGE	11/25/2020	HEM/LEC	VS/LEC	PMB/LEC	APP
REV	DESCRIPTION	DATE	BY	CK			

MANLINE
MANLINE ENERGY CONSULTANTS LLC
1240 S. BROAD STREET LANCASTER, PA 17403
717.555.7477

ANSI D 621/2021



EROSION AND SEDIMENT CONTROL (ESC) PLAN

Biddeford Pump Station

Biddeford, Maine

JANUARY 22, 2021

PREPARED FOR:

Avangrid – Central Maine Power

Augusta, Maine

PREPARED BY:

Westwood

¹ Name of Applicant: Avangrid - Central Maine Power		⁵ Name of Agent: Westwood Professional Services	
² Applicant's Mailing Address: 83 Edison Dr. 3rd Floor Augusta, ME 04336		⁶ Agent's Mailing Address: 12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343	
³ Applicant's Daytime Phone: 207-530-1977		⁷ Agent's Daytime Phone: 952-697-5711	
⁴ Applicant's Email Address: jeremy.pettengill@cmpcp.com		⁸ Agent's Email Address: carrie.boecher@westwoodps.com	
⁹ Location of Project: (Road, Street, Rt.) 466 South Street		¹⁰ Location Town: Biddeford	
		¹¹ Location County: York	
¹² Is this PBR for renewal of an individual stormwater permit? If yes, skip to Block 29 and signature page.			☐ Yes ☒ No
¹³ Type of Direct Watershed: (Check all that apply.) ☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming ☒ River, stream or brook ☐ Urban impaired stream ☐ Freshwater wetland ☐ Coastal wetland ☐ Wellhead of public water supply		¹⁴ Amount of Developed Area: Total <u>1.64</u> acres OR Total _____ square feet ¹⁵ Amount of Impervious Area: Total <u>0.92</u> acres OR Total _____ square feet ¹⁶ Amount of Occupied Area: Total <u>1.64</u> acres	
¹⁷ Part of a Subdivision? ☐ Yes ☒ No		¹⁸ Is this Activity Part of a Larger Project? ☐ Yes ☒ No	
¹⁹ Name of Waterbody(ies) Drained to: Saco River, Swan Brook Pond		²⁰ Name of Impaired Waterbody (if applicable) Saco River/Swan Brook Pond (neither construction related)	
²¹ Brief Project Description: Project involves replacement of a greenfield substation, including equipment, control house, access roads, and fence.			
²² Size of Lot or Parcel: ☐ _____ square feet OR ☒ <u>1.87</u> acres		UTM Northing, if known: 4817195 (19N) UTM Easting, if known: 378224 (19N)	
²³ Deed Reference Numbers: Book: 18267 Page: 376		²⁴ Map and Lot Numbers: Map: _____ Lot: _____	
²⁵ DEP Staff Previously Contacted: N/A		²⁶ Project started prior to application? ☐ Yes ☒ No If yes, Completed? ☐ Yes ☒ No	
²⁷ Resubmission of PBR Application? ☒ No ☐ Yes➔		If yes, prior application number: _____ Prior Project Manager: _____	
²⁸ Written Notice of Violation? ☒ No ☐ Yes➔		If yes, name of DEP enforcement staff involved: _____	
²⁹ Detailed Directions to the Project Site: From Biddeford, proceed west on South Street. Site is approximately 1 mi west of 1-95 on north side of South Street.			
³⁰ Renewal of individual stormwater permit? ☒ No ☐ Yes➔		DEP Permit No: _____ Project Manager: _____	
³¹ SUBMISSIONS			
☒ This Form (signed and dated) ☒ Fee		☐ Dept. of Inland Fisheries and Wildlife Approval (if in Essential Habitat) N/A ☒ Photos of Area ☒ ESC Plan ☒ Location Map ☒ Site Plan	
For Renewal of an individual Stormwater permit only: ☐ This form (signed and dated) ☐ Copy of original stormwater permit ☐ Fee			
FEE: Pay by credit card at the Payment Portal. The Stormwater Permit-by-Rule fee may be found here: https://www.maine.gov/dep/feeschedule.pdf . ☒ Attach payment confirmation from the Payment Portal when filing this notification form.			

Does the agent have an interest in this project? If yes, what is the interest?

No

CERTIFICATIONS / SIGNATURES**Applicant's Statement:**

I am applying for a Stormwater PBR and have attached the required PBR submissions. I have read the requirements herein and I affirm that my project satisfies the applicable stormwater management standards. I authorize staff of State and Federal agencies having jurisdiction over this activity, to access the project site for the purpose of determining compliance with the rules. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed):

Jaime E. Pettenyill

Date: 10/18/2021

Notice of Intent to Comply with Maine Construction General Permit

With this Stormwater PBR notification form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit. I have read and will comply with all of the MCGP standards. In addition, I will file a Notice of Termination (NOT) within 20 days of project completion.

If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed):

Date:

Carrie Boecher

From: noreply@informe.org
Sent: Tuesday, October 19, 2021 8:38 AM
Subject: DEP Payment Receipt

Payment Receipt Confirmation

Your payment was successfully processed.

Transaction Summary

Description	Amount
DEP Payment Portal	\$70.00
Service Fee	\$2.00
Maine.gov Total	\$72.00

Customer Information

Customer Name Caroline Boecher
Company Name Westwood Professional Services
Local Reference ID 1913374011
Receipt Date 10/19/2021
Receipt Time 09:38:13 AM EDT

Payment Information

Payment Type Credit Card
Credit Card Type VISA
Credit Card Number *****0974
Order ID 58903460
Billing Name Caroline A Boecher

Billing Information

Billing Address 6801 W 113TH ST
Billing City, State Bloomington, MN
ZIP/Postal Code 55438
Country US
Phone Number 9526975711

This receipt has been emailed to the address below.

Email Address carrie.boecher@westwoodps.com

Erosion and Sediment Control (ESC) Plan Narrative

Biddeford Pump Station

Biddeford, Maine

Maine Pollutant Discharge Elimination System (MPDES)

Permit Identification #: _____

Prepared For:

Avangrid – Central Maine Power
83 Edison Drive, 3rd Floor
Augusta, ME 04336
(207) 530-1977

Prepared By:

Aaron Mlynek, Construction
Stormwater Manager
Westwood Professional Services
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

Project Number: R0027642.00

Date: January 22, 2021

Table of Contents

1.0	Introduction and Purpose	1
2.0	ESC Plan Certification Statements and Signatures	2
2.1	Applicant Statement.....	2
2.2	ESC Plan Preparer Statement	2
3.0	ESC Plan Amendments	3
3.1	ESC Plan Amendment Log	3
4.0	Related Review Documents and Permits	4
4.1	Environmental Review Document.....	4
4.2	Site Law Permit (Site Location and Development)	4
4.3	Stormwater Management Permit	4
4.4	Land Use Regulation Commission (LURC) Permit.....	4
4.5	Natural Resources Protection Act (NRPA)	4
5.0	Applicant or Owner and Operator Information	5
5.1	Owner or Operator(s) and Site Contact Information	5
5.2	Project Contacts and Chain of Responsibility	6
6.0	Site Description	7
6.1	Site Location and Vicinity Map	7
6.2	Site Soils and Erosion Potential	7
6.3	Existing and Proposed Conditions	8
6.4	Project Estimates.....	9
7.0	Receiving Waters	10
7.1	Impaired Waters and Total Maximum Daily Load Waterbodies	10
8.0	Nature of Construction Activity	11
8.1	Project Activity Schedule	11
8.2	Project Phasing.....	11
8.3	Project Activity Descriptions and Proposed Sequence for Major Activities	11
9.0	Erosion and Sediment Control (Appendix A – Basic Performance Standards)	
	13	
9.1	Pollution Prevention Management	13
9.2	Sediment Barriers	14
9.3	Temporary Stabilization	15
9.4	Removal of Temporary Measures	17
9.5	Permanent Stabilization and Soil Management	17
9.6	Winter Construction	18
9.7	Stormwater Channels	19
9.8	Roads, Culverts, and Parking Areas (i.e. Laydown Yard)	19

10.0	Inspection and Maintenance (Appendix B – Basic Performance Standards)	21
10.1	Inspections	21
10.2	Maintenance Schedule	22
11.0	Housekeeping (Appendix C – Basic Performance Standards)	24
11.1	Spill Prevention.....	24
11.2	Groundwater Protection	25
11.3	Fugitive Sediment and Dust.....	26
11.4	Debris and Other Materials	26
11.5	Trench or Foundation Dewatering	28
11.6	Non-stormwater Discharges and BMPs.....	29
12.0	Final Stabilization and Record Retention	31
12.1	Final Stabilization and Notice of Termination	31
12.2	Record Retention.....	31

Tables

Table 1: Amendment Log	3
Table 2: Project Contacts	6
Table 3: Project Location	7
Table 4: Soil K Factors and Erosivity Hazards	7
Table 5: Soil Particle Sizes	8
Table 6: Project Area Estimates	9
Table 7: Receiving Waters	10
Table 8: Project Schedule	11
Table 9: Potential Pollutants List	14
Table 10: Sediment Controls	15
Table 11: Potential Nonstructural Temporary Erosion Controls and Stabilization	16
Table 12: Potential Permanent Erosion Controls and Stabilization	18
Table 13: Potential Road, Culvert, and Runoff and Stabilization BMPs	20
Table 14: Inspection Schedule	22
Table 15: Maintenance Schedule	22
Table 16: Potential Tracking Controls	26
Table 17: Non-stormwater Discharges and Potential BMPs	29

Attachments

Appendix A:	MPDES General Permit
Appendix B:	Permitting Documentation (NOI, Permit Card, Permit Letters, Blank Not, Pre-Construction Photo Log)
Appendix C:	Soil Maps
Appendix D:	Vicinity Map, Pre and Post Drainage Maps, Impaired Waters Maps
Appendix E:	Civil Plans, Erosion and Sediment Control Plans, Details, and Spill Response Information
Appendix F:	Training Documentation
Appendix G:	Inspection and Maintenance Forms

1.0 Introduction and Purpose

This Erosion and Sediment Control (ESC) Plan is prepared in accordance with the regulations as established by the Clean Water Act and required by the State of Maine for which the Department of Environmental Protection (DEP) has received delegated authority under the federal NPDES program. The Maine Pollutant Discharge Elimination System (MPDES) - Construction Activity - General Permit DEPLW0801 (Effective July 21, 2006; expires January 20, 2008 - *Administratively Extended*) provides the framework of requirements for compliance to discharge stormwater from a construction site. A violation of a condition or requirement of a general permit constitutes a violation of Maine's water quality laws and the federal Clean Water Act, and subjects the discharger to penalties under 38 M.R.S.A. § 349, and § 309 of the Clean Water Act. The general permit does not affect requirements under other applicable Maine statutes such as Site Location of Development (Site Law), Stormwater Management Permit, Land Use Regulation Commission (LURC) Permit, and Natural Resources Protection (NRPA).

This ESC plan is for implementation by the discharger, applicant, or owner, as listed in Section 5.0 of this ESC plan, at the Biddeford Pump Station site, with the project location as defined in Section 6.1 of this ESC plan. This report shall be on the site at all times during construction.

The following are outlined in this site specific ESC plan:

- Identity of potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity from the facility;
- A description of the practices to be used to reduce the pollutants in stormwater discharges associated with construction activity at the facility; and ensure the practices are selected and described in accordance with good engineering practices, including the installation, implementation, and maintenance requirements; and
- Preparations and revision procedures to ensure compliance with the terms and conditions of the permit and Appendices A-C.

2.0 ESC Plan Certification Statements and Signatures

2.1 Applicant Statement

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

Signature	Title	Date
-----------	-------	------

2.2 ESC Plan Preparer Statement

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." "I further certify that I am a Certified Professional in Erosion and Sediment Control (CPESC)".

	Construction Stormwater Manager (CPESC #3344)	01/22/2021
Aaron Mlynek	Title	Date

3.0 ESC Plan Amendments

This plan and the attachments must be amended as soon as practicable, but in no case more than seven (7) days after field changes are implemented. Documentation (such as an email) must be made before the changes are implemented to include additional requirements or modified requirements which take place during construction if one or more of the following occur:

- There is a change in design, construction, operation, maintenance, weather, or seasonal conditions that significantly impacts the discharge of pollutants from the site to surface or groundwater;
- Inspections or investigations by the site applicant or owner, operator, Environmental Protection Agency, or State of Maine Department of Environmental Protection (DEP) officials indicate this plan is not effective in eliminating or significantly minimizing the discharge of pollutants;
- This ESC plan is not achieving the general objectives of minimizing pollutants in stormwater discharges or if this plan is not consistent with the DEPLW0801 General Permit;
- If the DEP notifies the applicant or owner that additional requirements are needed, requirements are not being met for Total Maximum Daily Load (TMDL) or other water quality standards, or that the ESC plan did not incorporate the necessary requirements; or
- When Best Management Practices (BMPs) are removed, either because of ineffectiveness or they are no longer useful, the following information: date, location, and time of the maintenance, removal, or design change which took place.

3.1 ESC Plan Amendment Log

Complete the following table as necessary during construction to document changes and amendments to this document. Place the Amendment Number next to all application changes, redlines, and information in the document to reference the changes summarized below. If an additional sheet is necessary, attach the additional sheet to the ESC Plan.

Table 1: Amendment Log

Amend #	Date	Reason, location and brief description of change of amendment	Requested by:	Prepared by:

4.0 Related Review Documents and Permits

4.1 Environmental Review Document

At the time of ESC Plan completion, there are no known environmental review documents which apply to this project.

4.2 Site Law Permit (Site Location and Development)

At the time of ESC Plan completion, Site Law Permits for the project are pending. This ESC Plan will be amended upon authorization of applicable Site Law Permits.

4.3 Stormwater Management Permit

At the time of ESC Plan completion, Stormwater Management Permits for the project are pending. This ESC Plan will be amended upon authorization of applicable Stormwater Management Permits.

4.4 Land Use Regulation Commission (LURC) Permit

At the time of ESC Plan completion, LURC Permits for the project are pending. This ESC Plan will be amended upon authorization of applicable LURC Permits.

4.5 Natural Resources Protection Act (NRPA)

At the time of ESC Plan completion, NRPA Permits for the project are pending. This ESC Plan will be amended upon authorization of applicable NRPA Permits.

5.0 Applicant or Owner and Operator Information

5.1 Owner or Operator(s) and Site Contact Information

Applicant or Owner Information		Operator Information	
Company Name	Avangrid – Central Maine Power	Company Name	TBD
Contact Name	TBD	Contact Name	TBD
Titles	TBD	Titles	TBD
Address	83 Edison Dr., 3 rd Floor, Augusta, ME 04336	Address	TBD
Contact Number	TBD	Contact Number	TBD
Contact Email	TBD	Contact Email	TBD

5.1.1 Applicant or Owner Responsibilities

- Identification of personnel to develop an ESC Plan;
- Develop a chain of responsibility with the operators to ensure MPDES and ESC Plan compliance;
- Identification of personnel to oversee the ESC Plan and conduct inspections as an ESC Plan Administrator;
- Development of an ESC Plan prior to submittal of the Notice of Intent (NOI);
- Completion of an accurate NOI;
- Submittal of a complete and accurate NOI;
- Identification of personnel to install and maintain best management practices;
- Compliance with Construction General Permit (CGP) sections and parts relating to applicable construction activity requirements. See the CGP in Attachment A of this document;
- Keeping the permit up to date with the applicant or owner (partial, whole, contractor, builders, etc.);
- Submittal of the Notice of Termination (NOT) within thirty days of meeting requirement of final stabilization; and
- Identifying who has long term operation and maintenance responsibility of the permanent stormwater controls.

5.2 Project Contacts and Chain of Responsibility

Table 2: Project Contacts

Company	Name or Position	Responsibility	Contact Number
		ESC Plan Administrator	
Avangrid – Central Maine Power	Jeremy Pettengill	Site Development	207-530-1977
		Substation	
		Routine ESC Plan Inspections	
Westwood Professional Services	Aaron Mlynek, CPESC	ESC Plan Development	952-697-5710
		Restoration	
		BMP Installation	

6.0 Site Description

6.1 Site Location and Vicinity Map

The Biddeford Pump Station site is located in York County, Maine within the City of Biddeford. The nearest intersection is South Street and Hayfield Road. The site is bordered on the north by two residential lots and undeveloped woodlands, on the south by South Street, on the west by Hayfield Road, and on the east by an unnamed driveway. Refer to Appendix D of this ESC Plan for the full vicinity map.

Table 3: Project Location

Universal Transverse Mercator (UTM)	
UTM Northing	4817195 (19 N)
UTM Easting	378224 (19 N)
Latitude and Longitude Points (Degrees Minutes Seconds)	
Latitude	43°29'51.96"N
Longitude	70°30'22.47"W

6.2 Site Soils and Erosion Potential

A desktop survey of the project area was conducted on 01/14/2021 using the United States Department of Agriculture (USDA) Web Soil Survey site. Soils present at the site consist of silt loams belonging to Hydrologic Soil Groups (HSGs) C and D. Soils belonging to HSGs C and D have a moderately high and high runoff potential when wet, respectively. Comprehensive soil maps are provided in Attachment C of this ESC Plan. Source: <https://websoilsurvey.nrcs.usda.gov/app/>.

6.2.1 Soil Erosivity

Table 4: Soil K Factors and Erosivity Hazards

Soil Name / Type	K Factor	Erosivity Hazard				Reason(s) for Erosivity Rating
		Slight	Moderate	Severe	Very Severe	
Buxton silt loam, 3-8%	0.32		X			Surface kw times slope times R index
Buxton silt loam, 8-15%	0.28		X			Surface kw times slope times R index

6.2.2 Soil Particle Size

Table 5: Soil Particle Sizes

Soil Types	% Sand	% Silt	% Clay	% Site Area
Buxton silt loam, 3-8%	24.8	52.7	22.5	74.8
Buxton silt loam, 8-15%	24.8	52.7	22.5	25.2

6.3 Existing and Proposed Conditions

The slope and terrain of the site generally consists of topography sloping from the southwest to the northwest. The site currently has stormwater runoff flowing via overland flow to the northeast and southwest. The site area discharges to Saco River located to the northeast of the site and Swan Pond Brook located to the southwest of the site.

6.3.1 Existing Non-Vegetative Cover

Prior to construction, non-vegetative cover on-site included the existing substation, one building in the southeast corner of the site and two residential lots bordering the property to the northwest.

6.3.2 Existing Vegetative Cover

Prior to construction, vegetative cover on-site consisted of undeveloped woodland and small upland meadow areas.

6.3.3 Existing Land Use

Prior to construction, the site area was primarily used for residential housing. Secondary uses include undeveloped woodland areas and small upland meadow areas. At the time of ESC Plan completion, a Phase I Environmental Site Assessment (ESA) was not yet available. This ESC Plan will be amended upon completion of a Phase I ESA.

6.3.4 Proposed Non-Vegetative Cover

Following construction, non-vegetative cover at the site will include the greenfield substation and associated transformers, control house, and other ancillary equipment.

6.3.5 Proposed Vegetative Cover

Following construction, vegetative cover will be restored to pre-construction conditions to the extent feasible. Refer to Sections 9.3 and 9.5 of this ESC Plan for more information regarding vegetation establishment.

6.3.6 Proposed Land Use

Following construction, the site will house the upgraded greenfield substation that will replace the existing substation. This will include additional transformers, control and electrical equipment, and other ancillary equipment.

6.4 Project Estimates

Table 6: Project Area Estimates

Project Area	Disturbed Area
1.87 Acres	1.64 Acres

7.0 Receiving Waters

The table below summarizes the immediate receiving waters from the site. Where necessary the receiving waters have been designated immediate (for the first surface water receiving drainage from the site) and ultimate (for the surface water receiving runoff from site after the immediate receiving waters). The receiving waters listed are located within a mile, and receive water from the site discharge location(s).

The site drains via overland flow to the northeast into Saco River and to the southwest in Swan Pond Brook. Refer to Attachment D for drainage maps.

Table 7: Receiving Waters

Name of Receiving Waterbody	Immediate (I) or Ultimate (U)	Type (wetland, lake, stream, ditch)	Impaired? Y/N	MS4? Y/N
Saco River	I	river	Y*	N
Swan Pond Brook	I	brook	Y*	N

7.1 Impaired Waters and Total Maximum Daily Load Waterbodies

According to the Integrated and 303(d) Reports approved by the EPA, Saco River and Swan Pond Brook are impaired for *Escherichia coli*. However, this impairment is not considered to be construction-related and will therefore not be exacerbated by the proposed construction activities.

Source: https://www.maine.gov/dep/water/monitoring/305b/2016/28-Feb-2018_2016-ME-IntegratedREPORT.pdf (Accessed: 01/19/2021).

8.0 Nature of Construction Activity

Construction activity includes installation of a new greenfield substation that will replace the existing substation. Construction of the substation will include, but is not limited to, the installation of two 14-mega volt ampere (MVA) transformers, five 12-kilovolt (kV) distribution circuits, control house, protection and controls, and areas for mobile substation hookup and capacitor bank. The ESC Plan shall be amended to show locations and disturbance areas as necessary should locations change during construction.

Note to Operator: Mark all sensitive areas prior to start of earth disturbance activities. If any subsurface and/or surface drainage features are altered during construction, restore them to pre-construction conditions and drainage patterns. Coordinate the work with the Land Owner(s).

8.1 Project Activity Schedule

Table 8: Project Schedule

Activity	Start Date	End Date
Overall Project	XX/XX/XXXX	XX/XX/XXXX
Substation	XX/XX/XXXX	XX/XX/XXXX

8.2 Project Phasing

The project will be completed in one phase with the contractor working concurrently and in sequence to start. Substation, transformer, distribution circuits, control house, protection and controls, and ancillary activities will take place in this timeframe along with erosion/sediment control BMP installation. BMPs will be installed and maintained throughout the project as needed. Safety and site cleanliness will be emphasized throughout the entirety of the project, and site cleanup and restoration of disturbances will be ensured once construction is complete.

8.3 Project Activity Descriptions and Proposed Sequence for Major Activities

Greenfield Substation construction activities and phasing:

- Provide stable accesses to area, and install culverts, as necessary, and according to the plans; provide temporary stabilization in ditch area and side slopes with erosion control blanket and seed. .
- Install sediment controls, as necessary, and as detailed in the plan.
- Strip and stockpile topsoil as specified in plans, using temporary stabilization methods, such as tracking, and ongoing stabilization methods such as seed and mulch or ECB, as allowed by landowner.
- Temporarily cover the stockpiles with mulch or other temporary stabilization method, such as temporary mulch or surface roughening and tracking after seeding with temporary seed mix.
- Construct a concrete washout area prior to starting concrete work.

- f. Construct electrical components and fencing.
- g. Apply rock base to the designed thickness.
- h. Install/construct permanent stormwater quality facilities as required by civil plans.
- i. Return disturbed areas not part of the final gravel pad to agricultural condition, or apply seed and mulch cover for restoration to pre-construction condition.

9.0 Erosion and Sediment Control (Appendix A – Basic Performance Standards)

A person who conducts, or causes to be conducted, an activity that involves filling, displacing, or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil and sedimentation beyond the project site, or into a protected natural resource as defined in 38 M.R.S.A. § 480-B. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely, temporary and permanent stabilization measures must be taken.

NOTE: The site must be maintained to prevent unreasonable erosion and sedimentation. See 38 M.R.S.A. § 420-C (in part). A license is required for any stormwater discharge that the department "determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the State". 06-096 CMR 521(9) (a) (1) (v) (in part).

9.1 Pollution Prevention Management

The primary pollutant on site is sediment. To prevent, or minimize, sedimentation the contractors should minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable. The site discharge may not result in erosion of any open drainage channels, swales, upland, or coastal or freshwater wetlands. Buffers improve water quality by helping to filter pollutants in run-off both during and after construction. Minimizing disturbed areas through phasing limits the amount of exposed soil on the site through retention of natural cover and by retiring areas as permanently stabilized. Less exposed soil results in fewer erosion controls to install and maintain. If work within an area is not anticipated to begin within two weeks' time, consider leaving the area in its naturally existing cover.

Multiple other potential pollutants are likely present on site. The following table outlines potential pollutant sources including construction and waste materials that are used or stored at the site. Upon proper implementation of the BMPs potential pollutant sources are not reasonably expected to affect the stormwater discharges from the site. Construction materials and chemicals used or stored on site should be kept in small quantities whenever possible. Materials shall only be stored in non-sensitive areas and not in close proximity to watercourses, wetlands, or floodplains.

A Spill Prevention, Control, and Countermeasure plan (SPCC) will be needed if materials or tanks present on site contain more than, or have the ability to contain more than, 1,320 gallons of petroleum products. When not in use, petroleum products should be stored in sealed containers and out of contact with the elements to prevent direct contact with stormwater. Inadvertent spills should be cleaned up immediately upon discovery, and the materials should be disposed of in accordance with local, state, and federal requirements. Contractors should have spill kits available on site for rapid deployment to contain and cleanup spills.

Table 9: Potential Pollutants List

Potential Pollutant	Location	Control Measure*
Antifreeze	Vehicle/Equipment	S.C./Drip pan
Diesel Fuel	Vehicle/Equipment/Fuel Tank	S.C./Drip pan
Gasoline	Vehicle/Equipment/Fuel Tank	S.C./Drip pan
Hydraulic Oils/Fluids	Vehicle/Equipment	S.C./Drip pan
Grease	Vehicle/Equipment	S.C./Drip pan
Sanitary Waste Restrooms	Portable	Service Provider to secure units from tipping
Trash and Construction Debris	Various	Dumpster
Paints	Contractor	S.C. and secure/covered storage.
Glues/Adhesives/Curing Compounds	Contractor	S.C. and secure/covered storage.
Soil Amendments	Various	S.C. and secure/covered storage.
Landscaping Materials/Fertilizer	Various	S.C. and secure/covered storage.
Concrete Mortar	Mobile Mixer	S.C./Washout Area and secure/covered storage
Concrete	Trucks/Washout	Washout Area/S.C.
Bentonite	Directional Boring/Utility Contractor	S.C./Sump area
Sediment/Dirt	Exposed Soils/Disturbed Areas; tracking of soils, dust/wind erosion	Minimize disturbed areas. Install perimeter sediment barriers. Preserve vegetation and buffers. Apply temporary and permanent stabilization. Install anti-tracking BMPs, and Runoff Controls.

*S.C. refers to secure secondary containment unit or area.

9.2 Sediment Barriers

Prior to construction, properly install sediment barriers at the edge of any downgradient disturbed areas and adjacent to any drainage channels within the disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized. The following controls are anticipated to minimize sediment discharge, capture sediment in suspension, and minimize sedimentation off site.

Table 10: Sediment Controls

Potential BMPs	Construction Phase or Activity	Application Notes
	Substation	
Silt fence	X	Machine sliced install w/ wood posts at six foot spacing. Install perimeter silt fence prior to grading
Fiber rolls	X	Install on contour, minimum of six inch roll, wood or straw fiber. Secure with two inch posts every two feet on center.

T= Temporary BMPs which will be removed following construction completion and final stabilization.

P= Permanent BMPs which will provide vegetative, non-vegetative stabilization or will not be removed following completion of construction.

9.3 Temporary Stabilization

The following controls are anticipated to minimize soil loss from the construction site area. The controls should help to minimize soil from being transported by water and wind as well as aide in establishment of temporary vegetation. Prior to grading and during clearing and grubbing, the areas of vegetation preservation, buffers, and other areas of no-disturbance should be flagged, staked, or otherwise delineated.

9.3.1 Timing for Disturbed Areas and Slopes

Stabilize with mulch, or other non-erodible cover any, exposed soils that will not be worked for more than seven days. Stabilize areas within seventy-five feet of a wetland or waterbody within forty-eight hours of the initial disturbance of the soil, or prior to any storm event, whichever comes first.

NOTE: For guidance on erosion and sedimentation controls, consult the Maine Erosion and Sediment Control Practices Field Guide for Contractors, or the Maine Erosion and Sediment Control Best Management Practices (BMPs).

Table 11: Potential Nonstructural Temporary Erosion Controls and Stabilization

Potential BMPs	Construction Phase or Activity	Application Notes
	Substation	
Construction Phasing	X	Minimize soil disturbance, as feasible, per phase. Stake/flag areas that are to be left undisturbed.
Mulch	X	Apply at two tons / acre. Disc anchor to soil. Material must be certified Weed Free.
Erosion Control Blanket	X	Erosion control blanket (organic fiber or biodegradable mesh). Install per manufacturer's recommendations. Wood fiber blankets must be used, or other fiber blankets may be used if they are certified Weed Free.
*Temporary Seeding	X	Application Rate = See mix. Prepare soil prior to seeding. Drill Seed soil prior to mulch or blanket.

Maine Department of Environmental Protection Temporary Seed Mix

TEMPORARY SEED APPLICATION GUIDELINES				
SEED	Lb / Acre	Lb / 1,000 SF	Seeding Dates	Notes
Winter Rye	112	2.6	8/15 - 10/1	Select hardy species such as Aroostook Rye.
Oats	80	1.8	4/1 - 7/1 8/15 - 9/15	Best for spring seeding. Fall seeding will die over the winter.
Annual Rye Grass	40	0.9	4/1 - 7/1	Grows quickly but is of short duration. With mulch, seeding may be done throughout growing season.
Sudangrass	40	0.9	5/15 - 8/15	Good growth during periods of hot weather.
Perennial Rye Grass	40	0.9	8/15 - 9/15	Good cover, longer lasting than annual rye grass. Mulching will allow seeding throughout growing season.

*Seed mixes should be approved by the applicant or owner and land owners as necessary. Contractor shall update this documents with seed mixes for temporary and permanent restoration.

9.4 Removal of Temporary Measures

All non-biodegradable temporary sediment control measures must be removed from the site within thirty days after permanent stabilization is attained. Example of temporary control measures include, but are not limited to, silt fence, non-biodegradable fiber logs, plastic sheeting, prefabricated or proprietary sediment controls, or culvert protection devices. Remove any accumulated sediments and spread material upgradient once controls are removed. Seed and stabilize any sediments.

NOTE: It is recommended that silt fence be removed by cutting the fence materials at ground level so as to avoid additional soil disturbance.

9.5 Permanent Stabilization and Soil Management

9.5.1 Permanent Stabilization

Site disturbed areas which will not be worked for more than one year, or have been brought to final grade, must be permanently stabilized within seven days by planting vegetation and seeding, or through the use of permanent mulch, riprap, or road aggregate base. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions. Amend areas of disturbed subsoils with topsoil, compost, or fertilizers. Protect seeded areas with mulch or, if necessary, erosion control blankets. Schedule planting and seeding to avoid die-off from summer drought and fall frosts. Protect newly seeded areas from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established. Rework and re-stabilize areas if germination is sparse, plant coverage is spotty, or topsoil erosion is evident.

9.5.2 Soil Management

After clearing and grubbing, the grading contractor will strip and stockpile topsoil material for reapplication on all future permanent pervious surface areas. During development, grading, and utility construction the subsoils will be compacted as necessary for construction using typical excavation techniques. During final grading, reapply topsoil with a wide-pad dozer and other equipment to minimize compaction of the topsoil material.

Table 12: Potential Permanent Erosion Controls and Stabilization

Potential BMPs	Construction Phase or Activity	Application Notes
	Substation	
*Permanent Seeding	X	Application Rate = See mix.** Prepare soil prior to seeding. Drill Seed soil prior to mulch or ECB.
Riprap	X	Geotextile underlayment with well-graded gravel or angular rock properly sized for slopes or concentrated flow areas.
Agricultural Use		Once construction is complete the land area is reclaimed and returned to agricultural condition and operation.
Aggregate Base	X	Final stabilization of roads and/or parking lot areas.
Ditches, Channels, and Swales	X	Concentrated flow areas are stabilized once vegetation is three inches in height, or well-graded riprap with geotextile underlayment properly sized to withstand velocities and flow depths is in place.

*Seed mixes should be approved by the applicant or owner and land owners as necessary. Contractor shall update this documents with seed mixes for temporary and permanent restoration.

**In accordance with Maine Department of Transportation recommendations, permanent vegetation should be established with a seed mixture that is appropriate for the site's soil type, moisture content, sun exposure, use (frequency of mowing), etc. The application should follow the supplier's guidelines for the seed type.

9.6 Winter Construction

Construction activity taking place between November 1st and April 15th needs special attention for stabilization to prepare the site to over-winter, and withstand snow melt and spring thawing conditions. All exposed soils must be temporarily or permanently stabilized as outlined in Tables 11 and/or 12 before November 15th. If construction activity and schedules do not allow stabilization to occur before November 15th additional BMPs must be applied as detailed in this section.

9.6.1 Site Stabilization

To stabilize the site for winter apply hay mulch at twice the standard temporary stabilization rate which is two tons/acre. Therefore, application of mulch for winter stabilization should be at four tons/acre and disc anchored or otherwise secured to the soil to minimize washouts and loss of mulch from wind. The state of Maine specifies that mulch must be applied prior to snow and mulch should not be spread on top of snow cover.

9.6.2 Sediment Barriers

Disturbed areas located within seventy-five feet of a protected natural resource (e.g. surface waters) must be protected with a double row (redundant) of sediment barriers. Redundant sediment barriers may include:

- Two rows of silt fence separated by enough space to allow for skid steer access for maintenance and sediment cleanout,
- A row of silt fence and a row of fiber logs, or
- A row of silt fence or fiber logs and a topsoil berm which has been temporarily stabilized with hay mulch or hydromulch.

9.6.3 Ditch Stabilization (or other concentrated flow areas)

Ditch lines which are designed to be vegetated for final stabilization must have vegetation established before November 1st. Ditch lines not vegetated prior to November 1st, or ditch lines which are actively graded during the winter period must be stabilized with geotextile liners overlaid with stone (riprap) properly sized to withstand anticipated flow depths and velocities.

9.6.4 Slope Stabilization

Hay mulch applied on slopes steeper than eight percent must be anchored with netting or erosion control blankets for winter stabilization.

NOTE: For guidance on winter construction standards, see the Maine Erosion and Sediment Control Best Management Practices (BMPs), Maine Department of Environmental Protection.

9.7 Stormwater Channels

Ditches, swales, and open stormwater channels are designed, and must be constructed and stabilized using BMPs specified in this ESC Plan narrative, as well as detailed in the civil plan set located in Attachment E. During construction the contractor shall phase channel construction activity to complete sections within the same working day. Should there be a delay in completing the construction of the channels, use a temporary diversion berm to prevent stormwater runoff from entering the channel. Additionally, install rock check dams in the channel to slow the velocity in conjunction with temporary liners to prevent scour. Temporary liners may include, erosion control blankets, geotextile fabric, and plastic sheeting. Permanent stabilization is addressed in Section 9.5 of this document.

9.8 Roads, Culverts, and Parking Areas (i.e. Laydown Yard)

Gravel roads are designed for stormwater drainage with either crowns and/or cross drainage. Culverts have been sized for stormwater runoff management, and to prevent unintended flooding or overtopping of roadways for most storm events. Culvert design includes riprap aprons for energy dissipation and scour prevention. Additional BMPs for road drainage are included in the following table.

Table 13: Potential Road, Culvert, and Runoff and Stabilization BMPs

Potential BMPs	Construction Phase or Activity	Application Notes
	Substation	
Ditches	X	Riprap/apron will be implemented in roadside ditches. See detail in plans.
Culverts	X	Culverts have been sized for the [TBD] year storm event.
Parking Areas	X	Parking area is compacted to avoid excessive rutting and to evenly distribute runoff.
Riprap Apron / Energy Dissipation	X	See detail in plans. Install within twenty-four hours of connection to surface waters.
Rock Check Dam	X	See detail in plans.

9.8.1 National Buffers Areas

The use of natural buffers is not applicable to this project as there are no surface waters within seventy-five feet of disturbed areas.

10.0 Inspection and Maintenance (Appendix B – Basic Performance Standards)

Construction activities and all support activities must be inspected and BMPs maintained within the parameters of the schedules below. The inspector must be a person trained and familiar with the requirements of this ESC Plan and the DEPLW0801 Permit. Refer to contact table 5.2 for ESC Plan Inspector contact information.

10.1 Inspections

Scope of inspection should include the site perimeter, all disturbed areas, material, and/or storage areas that are exposed to precipitation, discharge locations, and locations where vehicles access the site. All installed BMPs must be evaluated to ensure that they are maintained and operating correctly. The minimum inspection report requirements are listed below:

- The inspection date,
- Name(s) and title(s) of personnel making the inspection,
- Location(s) of discharges of sediment or other pollutants from the site,
- Location(s) of BMPs that need to be maintained,
- Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location,
- Location(s) where additional BMPs are needed that were not in place at the time of inspection,
- Deviations from the minimum inspection schedule as provided in MPDES General Permit Appendix B, and
- Description of corrective action for items and measures taken to prevent future violations, including requisite changes to the ESC Plan.

If changes or modifications are necessary implantation must be completed within seven (7) calendar days and prior to any rainfall storm event.

Rainfall amounts should be taken from an on-site rain gauge. If a rain gauge is not feasible, the rainfall data should be obtained from the following website:

<https://forecast.weather.gov/MapClick.php?lat=43.493770000000004&lon=-70.456919999999997#.YAXX9XZKiUk>.

Table 14: Inspection Schedule

Site Status/Activity	Necessary Inspection Schedule	Notes and Information
Minimum Inspection Schedule	Once per week and before and after a storm event	Disturbed areas require regular weekly inspections until final stabilization of 90% permanent perennial vegetation or non-vegetative permanent cover (such as gravel)
Pre-Storm Event Inspections	Inspect the site within forty-eight hours of a forecast storm event with at least 0.5" rain expected	Refer to the forecast website listed above. The pre-storm could count as the routine weekly inspection.
Post-Storm Event Inspections	Conducted prior to re-commencing construction activities, but no later than forty-eight hours following the storm event.	The post storm event inspection should take place after 0.5" of rainfall has occurred.
Winter Conditions Inspections (Active Construction)	Daily inspections	Winter inspections occur between the period of November 1 st and April 15 th when construction is active. Daily inspections should focus on final graded areas and mulch cover, double rows of sediment controls, ditch stabilization, and slope stabilization with greater than 8% gradient

10.2 Maintenance Schedule

Where site inspections note the need for BMP maintenance activities, BMPs must be maintained in accordance with the ESC Plan and Appendix B of the permit. Repair, replacement, or installation of new BMPs determined necessary during site inspections to address ineffective or inadequate BMPs must be conducted in accordance with Appendix B of the permit. ESC Plan updates required as a result of deficiencies in the ESC Plan noted during site inspections must be made within seven calendar days.

Table 15: Maintenance Schedule

BMP	Observed Condition for Maintenance	Maintenance Interval
All non-functional BMPs	Sediment overtopping, under water, scoured ends, undermined, destroyed, non-functional as designed, etc.	Maintenance or replacement should be done by end of the next business day after discovery or notification, or as soon as field conditions allow.
Perimeter Sediment Control (silt fence, fiber logs, berms, etc.)	One-half full of sediment, or flattened to one-half height, driven over, undermined, scoured, moved for access etc.	Remove/cleanout sediment, or restore BMP by the end of business day after the discovery or notice or as field conditions allow.
Inlet protection BMPs, conveyances, surface waters	Sediment deposition, sediment deltas, and accumulation of sediment material	Remove/cleanout accumulated sediment and deltas by the end of the next business day or as soon as possible based upon field access.

		Stabilize as needed if soils are exposed during removal/cleanout.
Temporary sediment basins and traps; permanent sediment basins	Sediment deposition and accumulation to one-half of the storage volume	Remove/cleanout accumulated sediment material within seventy-two hours of observation, or as field conditions allow access.
Site exit locations, rock exit pads, and other anti-tracking practices	Accumulated sediment in rock or other anti-tracking BMP, or tracking of sediment from the site onto paved surfaces	Top dress rock or maintain rock exit, or other anti-tracking controls. Scrap paved surfaces, and/or sweep paved surfaces by the end of the next business day after discovery.
Paved surfaces/ adjacent streets	Tracked sediment and soil material from the site hauling or access	Sweep paved surfaces by the end of next business day after discovery. Additional, r more frequent sweeping may be needed to maintain public safety, or prevent sediment transport by forecast rains.

11.0 Housekeeping (Appendix C – Basic Performance Standards)

The following performance standards apply to the site to minimize spills, leaks, protect groundwater, and minimize fugitive sediment and generation of dust. Additionally, construction debris and materials must be managed and contained. Trench or foundation dewatering as well as non-stormwater discharges must be managed and discharged in a manner compliance with the state and federal regulations.

11.1 Spill Prevention

NOTE: To prevent certain materials from becoming a source of pollutants, 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.

11.1.1 Vehicle and Equipment Storage Areas

Inspect vehicles and equipment to ensure they are properly maintained and operating effectively. Label any designated vehicle and equipment maintenance area on the site map. Describe and implement measures to eliminate or minimize contaminants. Spill kits, drip pans, and other spill containment measures must be implemented on any active site.

11.1.2 Vehicle and Equipment Washing

If it is necessary to wash vehicles and equipment on site, develop a designated wash area with basin containment to prevent the untreated water from discharging from the site to surface waters. BMPs include, temporary basins, inspecting the vehicles and equipment for leaks prior to washing, and prohibiting washing until discovered leaks are repaired and maintenance is completed on the equipment or vehicle. Label the wash area on the site plan. Contain and pump the water from the site into a truck for proper disposal at a waste water facility. No engine degreasing may be done on site.

11.1.3 Fueling and Maintenance of Equipment and Vehicles; Spill Response

Implement the following fueling, maintenance, and spill response methods.

- Routine maintenance of vehicles may occur in staging areas only if necessary.
- Maintenance of equipment and vehicles should be avoided, and done off site where feasible.
- If fueling is done by mobile tank and dispenser, the transfer of fuel should be done under close supervision, and there should be drip pans, spill containment, and cleanup materials readily available.

- If fueling is done via temporary tank, the tank should be stored away from surface waters and within secondary containment.
- Spill Kits with absorbent materials should be available on site for use in cleaning up small spills.
- In the event of a spill or discharge of any hazardous materials reference the Spill Pollution Prevention Plan and, if applicable, contact the DEP within two (2) hours of the spill,
 - o Maine DEP 24 hour Emergency Oil Spill Hotline: (800) 482-0777, and
 - o Maine DEP Hazardous Materials Spill Hotline: (800) 452-4664 (See Form in Attachment G).
- If the hazardous condition involves the release of an EPA regulated material or an oil, as defined by the EPA, the release may also need to be reported to the National Response Center (NRC). Federal Reporting is required within 15 minutes of event occurrence or discovery. Contact the N R C at (800) 424-8802. The NRC is staffed twenty-four hours a day. For more information reference the following website:
<https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release>.

11.1.4 Portable Sanitary Facilities

Manage and maintain all temporary portable sanitary facilities considering, at minimum, the following.

- Locate facilities away from watercourses, streams, creeks, and other surface waters or conveyances.
- Place facilities upgradient from perimeter sediment controls and not on paved or other impervious surfaces.
- Secure facilities to the soil with stakes, or tether, to other non-movable structure to prevent tipping from wind or other factors.
- Schedule routine and regular cleanout and maintenance of facility from a reliable company.

11.2 Groundwater Protection

Liquid petroleum products and other hazardous materials which have potential to contaminate groundwater may not be stored or handled in areas which drain to infiltration-prone areas. Areas with potential for infiltration include either constructed stormwater treatment facilities or areas of the site with soil group A or B soils (sandy soil with high infiltration capacity). Store petroleum products and other liquid hazardous materials in original, labeled containers in a secure location with secondary containment.

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). 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.

11.3 Fugitive Sediment and Dust

The following controls are anticipated to minimize or prevent sediment track-out from construction site exits to paved surfaces, or to retrieve material tracked onto paved surfaces, to minimize or prevent the material from being washed into surface waters or stormwater culverts/inlets.

Table 16: Potential Tracking Controls

Potential BMPs	Construction Phase or Activity	Application Notes
	Substation	
Rock Pad	X	See detail in plans. Install at all site exits prior to grading. Maintain for duration of project.
Gravel or Aggregate Road Base	X	See detail and notes in plans.
Street Scraping	X	Scrape large clumps/amounts of material with soft tracked or wheeled equipment prior to sweeping.
Street Sweeping	X	Sweep paved surfaces within twenty-four hours of discovery.

11.3.1 Dust Control / Wind Erosion Controls

Generation of dust should be minimized by use of BMPs. The application of the BMPs should be performed at a frequency to minimize dust. The frequency will be subject to moisture levels from rain events. BMPs to control dust include, but are not limited to:

- Restricting traffic and equipment to low travel speeds;
- Application of water,
- Application of soil stabilizers, and
- Application of hydromulch.

11.4 Debris and Other Materials

NOTE: To prevent certain materials from becoming a source of pollutants, 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.

11.4.1 Storage and Handling

- Implement the following storage, handling, disposal methods, and requirements. Keep all products in their original container, with original labels attached, unless the container is not re-sealable.
- Return hazardous materials to the hazardous material storage area at the end of each day.
- Store only enough products to do the required job.
- Provide tanks or barrels to collect liquid byproducts that pose a pollution hazard.
- Remove pollutants from the site on a weekly basis, and disposed of them in accordance with federal, state, and local regulations.
- Clean up all spills immediately after discovery, in accordance with the manufacture's recommended methods.
- Properly store hazardous materials to prevent vandalism or unauthorized access.
- Install containment units in accordance with federal, state, and local regulations.
- No hazardous material may be stored within 200 feet of an identified critical area.
- If building materials, chemicals, or general refuse is being used, stored, disposed of, or otherwise managed inappropriately, correct such defects within twenty-four hours of detection or notification.

11.4.2 Disposal (Dumpsters)

Implement the following storage, handling, and disposal methods.

- Locate dumpsters away from watercourses, streams, creeks, and other surface waters or conveyances.
- Site inspector shall regularly look for and report excess litter and solid waste, and request pickup and retrieval of wastes.
- Deposit wastes, litter, and debris into dumpsters in a central location and/or in various satellite locations where work is active.
- Dumpsters should be supplied by, and regularly maintained, emptied, and removed by a waste management company.

11.4.3 Mobile Concrete or Mortar Mixers

Implement the following BMPs with the use of mortar or concrete mixers:

- Store bags of concrete and mortar in dry storage.
- Position mixers 100 feet from the nearest watercourse or conveyance.
- If mixers must be positioned closer than 100 feet from a conveyance, install a temporary berm to prevent runoff from the mixer from flowing into the conveyance.
- Use tarpaulins or plastic sheeting as a liner to prevent concrete or mortar from contacting the soil.
- Use buckets to contain washout/rinse water when cleaning the mobile mixer.

- Dump buckets of washout water in a designated concrete washout area.

11.4.4 Concrete Washout

Implement the following BMPs for concrete washout areas.

- Contain washout water from the tools, equipment, and the chutes of concrete trucks, mobile mixers or other containers with concrete material, and do not allow the water to be discharged into waters of the state, or drain onto adjacent properties.
- Place signage to define the washout area, and notify the contractors of the location and use.
- The washout area should be a sufficient size to contain the expected washout material, a ten-foot by ten-foot by three-foot area should suffice for most activities.
- Multiple washout areas may be needed.
- Document the locations of the washout areas on the construction plans.
- When documenting the location of the concrete washout areas, include the date of install, date of last maintenance, and date of removal.
- Install a silt fence or other perimeter control at each washout area.
- No liner is required where the ground water is deeper than three feet from the bottom of the washout area AND the soil has sufficient buffering capacity to protect the groundwater, otherwise, use thick poly sheeting to prevent contamination of the soil, and prevent infiltration of the washout material.

Once the material is hardened it can be disposed of in a dumpster. If the material is liquid or not hardened, vacuum the material and haul off site to properly dispose of, or recycle at an approved facility. Some sites will not need the separate washout area if a truck chute washout is available from the concrete supplier.

11.5 Trench or Foundation Dewatering

Construction dewatering includes discharging accumulated water, from snow melt or precipitation, within construction excavations via pump, trench, temporary ditch, or grade cuts.

Discharge clean water to a vegetated area, ditches, or other conveyance via hose. Provide energy dissipation at the discharge location to minimize scour. Alternatively, discharge uncontaminated water to receiving waters as allowed by local permits and regulations, or as long as positive drainage is provided, the water could be discharged into the surrounding areas and allowed to infiltrate or drain along existing drainage patterns provided that the water does not cause flooding, prolonged or damaging inundation, or vegetation damage.

Discharge turbid water (water that is visibly cloudy or brown in color) via pump and hose, or overland flow to a temporary sediment basin for pretreatment. Use a riprap apron (energy dissipation) at the discharge location. If riprap is not used, use an alternative form of energy

dissipation to prevent scour and re-suspension of soil at the discharge point of the hose. If discharge to a temporary sediment basin is not feasible, use dewatering dumpsters, dewatering bags, or other prefabricated product. Consider the use of rock checks, erosion control blanket, and sumps or traps for overland flow. After the use of BMPs, the water could be discharged through a vegetated buffer and energy dissipation. The discharge water should be visibly clear.

The discharge of accumulated water should not,

- Contain oil, grease, a sheen, odor, or concrete washout,
- Adversely impact adjacent properties with water or sediment,
- Adversely impact waters of the state,
- Cause erosion of slopes and channels,
- Cause nuisance conditions, or
- Contribute to inundation of wetlands which negatively impact the wetlands.

11.6 Non-stormwater Discharges and BMPs

Allowable non-stormwater discharges cannot be authorized under the Construction General Permit (CGP) unless they are directly related to, and originate from, a construction site or dedicated support activity. It is not necessary to list these sources of non-stormwater in the NOI. Eliminate or reduce non-stormwater discharges to the extent feasible, with the exception of those necessary for the completion of certain construction activities. A list of allowable non-stormwater discharges include the sources below.

Table 17: Non-stormwater Discharges and Potential BMPs

Type of Allowable Non-Stormwater Discharge	Likely to be Present at Site?
Emergency fire-fighting discharges	☐ YES ☒ NO
Fire hydrant flushing (uncontaminated and not hyperchlorinated)	☐ YES ☒ NO
Water used to wash vehicles, buildings, structures, and pavement (detergents and soaps are not allowed, and external building wash down cannot contain hazardous substances such as paint or caulk containing PCBs) to remove mud, dirt, or dust.	☒ YES ☐ NO
Water used to control dust (See Section 11.3)	☒ YES ☐ NO
Pavement wash waters (no spills, leaks or detergent use are allowed)	☒ YES ☐ NO
Uncontaminated air conditioning or compressor condensate	☐ YES ☒ NO
Uncontaminated, non-turbid discharges of ground water, spring water, or water from foundation or footing drains	☐ YES ☒ NO
Potable water including uncontaminated waterline flushing (not hyperchlorinated)	☐ YES ☒ NO

Conduct these authorized non-stormwater discharges should be conducted in accordance with the requirements of the CGP, and make every effort to minimize non-stormwater runoff from

these activities. The operators are responsible for the implementation of BMPs and management for non-stormwater discharges.

- Water Used to Wash Vehicles, Buildings, Structures, and Pavement (without detergents): Should washing be necessary to remove soil, mud, dirt, and / or dust, powered sprayers with water could be used to clean off accumulated soil and earth materials. The washing should take place within a defined area. Existing BMPs and infiltration will likely control water and runoff due to the washing activity. If existing BMPs are overloaded or not functional, maintenance or additional perimeter controls (such as silt fence) may be needed at the discretion of the inspector. NOTE: no hazardous substances, such as paint or caulk containing PCBs, may be present on buildings or structures that are washed.
- Water Used for Dust Control: This is not anticipated to be a contamination/pollution issue. During the dry periods when dust control is needed the minimal amount of water used is anticipated to be absorbed into the soil. If any runoff does occur, the standard BMPs (such as silt fence, mulch, erosion control blanket, inlet controls, and stormwater traps) should adequately control the runoff from reaching off-site surface waters.
- Pavement wash waters (no spills, leaks or detergent): Pavement wash waters should not contribute to sediment discharge or transport, or contain runoff contaminated by leaks or spills of hazardous materials. Use wash water sparingly, minimizing the amount used which would result in less runoff occurring. Should runoff occur, employ the typical sediment and erosion control BMPs to prevent the water from leaving the site.

12.0 Final Stabilization and Record Retention

12.1 Final Stabilization and Notice of Termination

Final stabilization practices for obtaining a vegetative cover should include, as appropriate: seed mix selection and application methods; soil preparation and amendments; soil stabilization practices (e.g., mulch, hydro mulch or rolled erosion control products); and appropriate sediment control BMPs as needed until final stabilization is achieved. The permanent erosion control BMPs may be a combination of vegetative and non-vegetative cover types. Additional requirements to achieving final stabilization include.

- All soil disturbing activity is complete.
- Permanent stormwater treatment system (if required) is constructed and accumulated sediment has been removed from construction activity.
- All temporary, synthetic BMPs have been removed from the site.
- Work in agriculture fields will be restored to pre-construction conditions and in conformance with land owner as much as feasible.
- The vegetative cover for the site is at a density of ninety percent of pre-disturbance levels, with a uniform perennial cover.
- Permanent, physical erosion reduction methods have been employed.

When the final stabilization conditions above are met, the applicant or owner may fill out the Notice of Termination in Attachment B. Submit the NOT within 20 days of the completion of permanent stabilization. The permit coverage terminates at midnight on the day the NOT is signed and submitted. Send the NOT form to the DEP via certified mail with a return receipt request.

12.2 Record Retention

12.2.1 During Construction

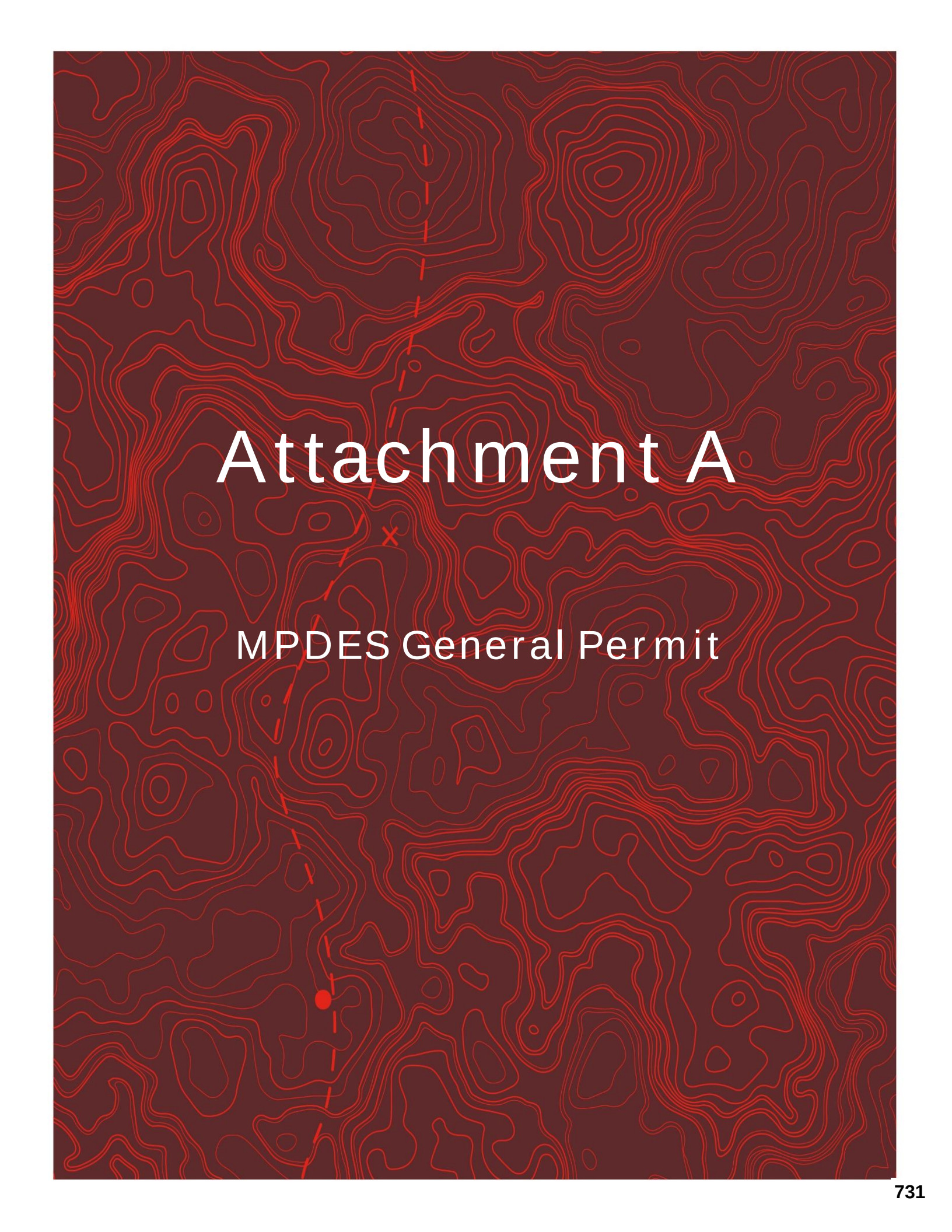
This report, amendments and attachments, inspection reports, and maintenance records should be kept on site during normal business hours. The records should be kept by the applicant or owner listed on the permit application. The records should be in a mailbox, in a vehicle, or in an on-site office trailer or model home unless another location, specified by the applicant or owner, is approved by the DEP.

12.2.2 Post Construction / Notice of Termination (NOT)

The site applicant or owner must retain all the following records for a period of at least three years after the submittal of the NOT:

- The final ESC PLAN with all field notes/amendments,
- Other stormwater related permits in addition to the MPDES permit from DEP,
- Inspection and maintenance records,

- All permanent operation and maintenance agreements, and
- All required calculations for design of the temporary and permanent stormwater management systems.



Attachment A

MPDES General Permit

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

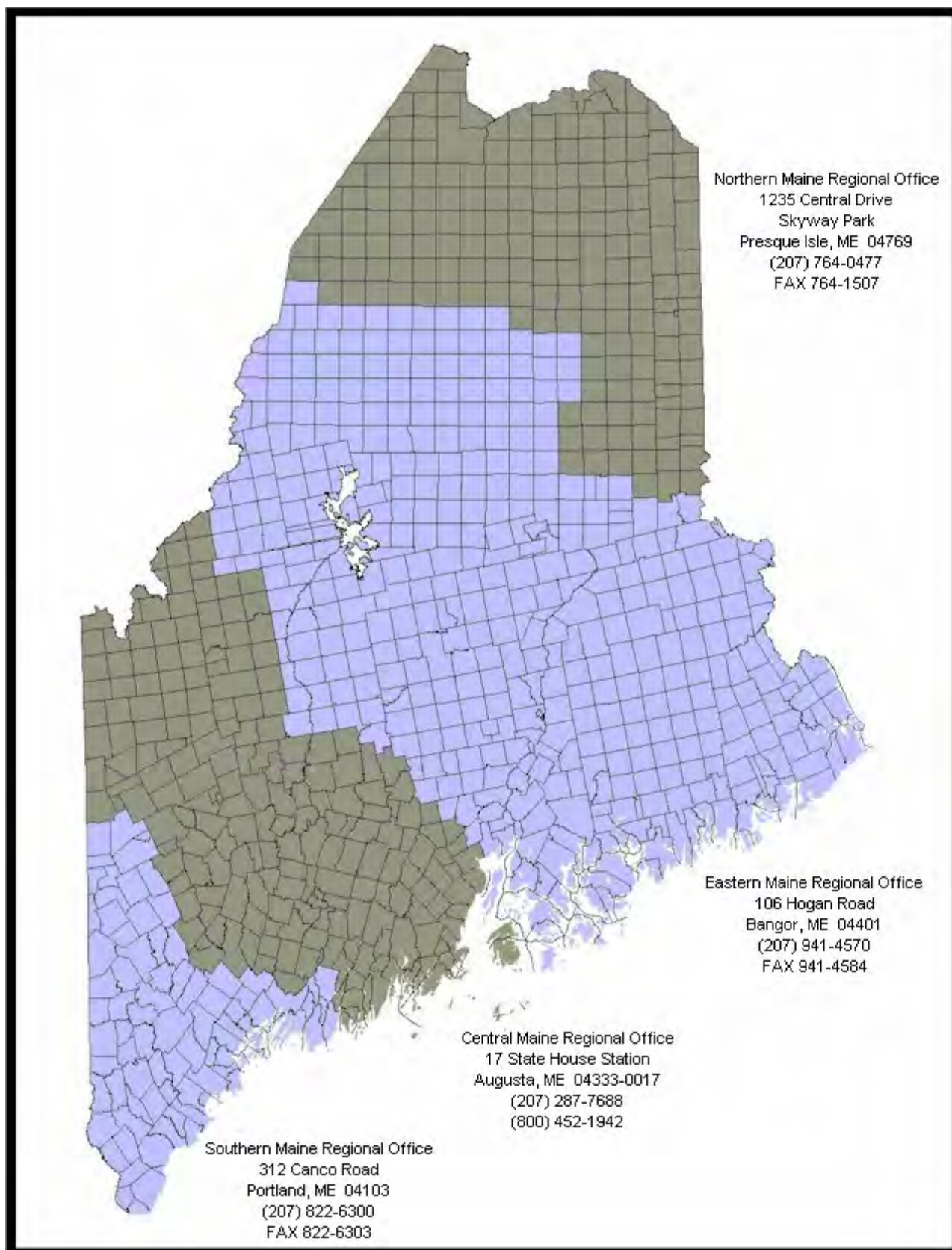
General Permit – Construction Activity

Maine Pollutant Discharge Elimination System (MPDES)
With Basic Performance Standards Appendices



Bureau of Land and Water Quality
No. DEPLW0801

July 21, 2006



GENERAL PERMIT -- CONSTRUCTION ACTIVITY

Maine Pollutant Discharge Elimination System (MPDES)

Contents

Part I.	General permit coverage.....	1
Part II.	Definitions	2
Part III.	Requirements	4
Part IV.	Procedure.....	5
Part V.	Limitations on coverage	10
Part VI.	Relationship to other programs.....	11
Part VII.	Standard conditions	12
Appendices -- Basic Performance Standards		
Appendix A.	Erosion and sedimentation control	1
Appendix B.	Inspection and maintenance.....	4
Appendix C.	Housekeeping	4

PART I -- General Permit Coverage

A. General coverage of this permit. This general permit authorizes the direct discharge (point source discharge) of stormwater associated with construction activity to waters of the state other than groundwater, provided that the discharge meets the requirements of this general permit and applicable provisions of Maine's waste discharge and water classification statutes and rules. This general permit also authorizes the direct discharge of stormwater from support activities. "Construction activity" is defined in Part II (page 2).

This general permit is effective July 21, 2006, and authorization to discharge under this general permit expires January 20, 2008. This general permit applies in those parts of the State of Maine for which the Department has received delegated authority under the federal NPDES program. See Part V (page 10), for a list of specific limitations on coverage of this general permit.

B. Authority. A permit is required for the direct or indirect discharge of pollutants to waters of the State.¹ A general permit may be issued for point discharges (direct discharges) of stormwater.² A violation of a condition or requirement of a general permit constitutes a violation of Maine's water quality laws and the federal Clean Water Act, and subjects the discharger to penalties under 38 M.R.S.A. § 349, and § 309 of the Clean Water Act. Nothing in this general permit is intended to limit the Department's authority under the waste discharge and water classification statutes or rules. This general permit does not affect requirements under other applicable Maine statutes such as Site Location of Development (Site Law), Stormwater Management, Land Use Regulation Commission (LURC), and Natural Resources Protection (NRPA).

C. Continuation of expired General Permit. If this permit is not reissued, revoked or replaced prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and effect. Any permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

¹ See 38 M.R.S.A. § 413.

² See 06-096 CMR 529(2)(a)(2)(i).

1. Reissuance or replacement of this general permit, at which time the permittee must comply with the notice of intent conditions of the new permit to maintain authorization to discharge; or
2. The permittee's submittal of a Notice of Termination; or
3. Issuance of an individual permit for the permittee's discharges; or
4. A formal permit decision by the Director not to reissue this general permit, at which time the permittee must seek coverage under an alternative general permit or individual permit.

This general permit does not prevent a municipality from adopting stricter standards than contained in this general permit, or in state or federal law.

PART II -- Definitions

The following terms have the following meanings when used in this general permit. Additional definitions are found in 06-096 CMR 520 and in the waste discharge and classification laws.

A. Construction activity. "Construction activity" or "activity" means:

1. Construction activity including one acre or more of disturbed area, or activity with less than one acre of total land area that is part of a common plan of development or sale, if the common plan of development or sale will ultimately disturb equal to or greater than one acre; or
2. Any other construction activity designated by the Department based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the State.

Note: Based upon Maine's soils, topography, and extensive water resources, the Department has determined that the great majority of construction activities disturbing one acre or more will result in discernable concentrated flows (direct discharges) to waters of the state.

B. Common plan of development or sale. A "common plan of development or sale" means a subdivision as determined by the Land Use Regulation Commission (LURC), or a subdivision under municipal law as determined by the municipality where the subdivision is located.

C. Department. "Department" means the State of Maine Department of Environmental Protection.

D. Direct discharge. "Direct discharge" or "point source" means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.³

E. Direct watershed of a waterbody or wetland. "Direct watershed of a waterbody or wetland" is the land area that drains, via overland flow, natural or man-made drainage systems, or waterbodies or wetlands, to a given waterbody or wetland without first passing through an upstream waterbody classified as GPA.

F. Disturbed area. "Disturbed area" is clearing, grading and excavation, which means all the land areas that are stripped, graded, grubbed, filled, or excavated at any time during the site preparation or removing vegetation for, or construction of, a project. "Disturbed area" does not include routine

³ 38 MRSA § 466(5) (definition of "direct discharge") and 06-096 CMR 520 (definition of "point source").

maintenance, but does include redevelopment and new impervious areas. "Routine maintenance" is maintenance performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility. Paving an impervious gravel surface while maintaining the original line and grade, hydraulic capacity and original purpose of the facility is considered *routine* maintenance. Cutting of trees, without grubbing, stump removal, disturbance or exposure of soil is not considered "disturbed area".

- G. Drainageway.** "Drainageway" is a natural or man-made channel or course within which and from which surface discharge of water may occur. Drainageways include, but are not limited to rivers, streams and brooks (whether intermittent or perennial), swales, ditches, pipes, culverts, and wetlands with localized discharge of water.
- H. Impaired waterbody.** An "impaired waterbody" means a waterbody that is not attaining water quality criteria or standards, as determined by the Department and listed in Chapter 502.⁴
- 1. Best currently available data.** The Department may use the best currently available data to determine the status of a waterbody, rather than relying upon the list published in Chapter 502, Direct Watersheds of Lakes Most at Risk from New Development, and Urban Impaired Streams, when the activity itself may have caused or contributed to the impairment, or when the Department reviews an application for a permit such as an individual Waste Discharge license or Site Law permit.
- I. Notice of Intent ("NOI").** "Notice of Intent or "NOI" means a notification of intent to seek coverage under this general permit made by the applicant to the Department on a notification form provided by the Department.
- J. Notice of Termination ("NOT").** "Notice of Termination" or "NOT" means a notification of intent to end coverage under this general permit on a form provided by the Department.
- K. Person.** "Person" means an individual, firm, corporation, municipality, quasi-municipal corporation, state agency, federal agency or other legal entity.⁵
- L. Stormwater.** "Stormwater" means the part of precipitation, including runoff from rain or melting ice and snow that flows across the surface as sheet flow, shallow concentrated flow, or in drainageways. "Stormwater" has the same meaning as "storm water".
- M. Stream.** "Stream" means a river, stream or brook as defined in the Natural Resources Protection Act at 38 M.R.S.A. § 480-B.
- N. Support activities.** "Support activities" means support activities associated with a construction activity (e.g. concrete or asphalt batch plants, equipment storage yards, material storage areas, excavated material disposal areas, borrow areas) provided the following requirements are met.
- 1. Direct relationship.** The support activity is directly related to a construction site that is required to have waste discharge permit coverage for discharges of storm water associated with construction activity.
- 2. Type of operation.** The support activity is not a commercial operation serving multiple unrelated construction projects by different persons, and does not operate beyond the completion of the construction activity at the last construction project it supports.

⁴ See 06-096 CMR 502

⁵ See 38 M.R.S.A. § 361-A(4).

PART III -- Requirements

Part III describes the requirements for obtaining authorization under this general permit. See Part IV for general submission requirements and procedures related to Notices of Intent (NOIs) and Notices of Termination (NOTs).

A person may not construct or cause to be constructed or operate or cause to be operated or, in the case of a common plan of development or sale (subdivision), sell or lease, offer for sale or lease or cause to be sold or leased any area affected by construction activity without obtaining approval from the Department. A person having an interest in or undertaking an activity on a parcel of land affected by this general permit may not act contrary to this general permit.

A. Construction activity (other than a common plan of development or sale). Construction activity including one acre or more of disturbed area on the parcel, or other construction activity designated by the Department, must meet the following requirements.

1. Submit NOI and NOT.
2. Meet the standards in Appendices A-C of this general permit.
3. Erosion and sedimentation control (ESC) plan development and maintenance. This plan demonstrates how the standards in Appendix A will be met. An ESC plan is required pursuant to the Site Law and this general permit, however additional requirements may apply pursuant to the Site Law. See Part III (D) concerning referencing a plan submitted as part of a Site Law application.

B. Common plan of development or sale. A common plan of development or sale must meet the following requirements.

1. **Site Law, Stormwater, or LURC.** A common plan of development or sale is considered to meet the requirements of this general permit if:
 - a. A Site Law, Stormwater (38 M.R.S.A. § 420-D), or LURC permit is required, and the requirements of Part III (A) are met; and
 - b. If a Stormwater permit is required, the requirements of Part III(A) are also met on all associated lots in the subdivision, as determined by the Department.

The Department will assume that one acre of disturbed area will be created per 3 lots (1/3 ac. per lot), unless the person proposing the common plan of development or sale provides information concerning actual disturbed area.

2. **Other.** If the project does not require a Site Law, Stormwater, or LURC permit, and is not located within an area subject to the jurisdiction of LURC, then the project must meet the standards of the Maine Erosion and Sedimentation Control Law. An NOI is not required.

A lot buyer or subsequent transferee within a common plan of development or sale must submit an individual NOI if he or she proposes a construction activity as defined at Part II (A), regardless of whether the developer has filed an NOI.

The standards apply to the lots in the subdivision as well as associated facilities such as roads, pads, and ponds.

Note: The LURC Development Law only applies to areas of the state administered by the Land Use Regulation Commission (LURC). The Maine Site Law (in regard to subdivisions), Erosion and Sedimentation Control Law, and Stormwater Management Law, apply to projects or portions of projects outside the jurisdiction of LURC.

- C. Total maximum daily load (TMDL).** If the waterbody to which a direct discharge drains is impaired and has an EPA approved TMDL, then the discharge must be consistent with any waste load allocation (WLA) contained in the TMDL and any implementation plan.
- D. ESC plan.** Material submitted with an application for a Site Law or Stormwater Management Law permit may be referenced to the extent it substantively addresses the standards in Appendix A. If all the standards are not addressed, supplementary material must be provided with the NOI. If an applicant wishes the Department to rely in whole or part on a submission that is part of a Site Law or Stormwater Management Law application, the applicant should submit a letter with the NOI describing the previous submission and the extent to which it should be relied upon, and listing the standards addressed by any supplementary material.

PART IV. Procedure

- A. Notice of Intent (NOI).** When the applicant submits a notification form, NOI, he or she agrees to comply with the standards and requirements of this general permit. An NOI must be submitted to the Department with the appropriate fee.

- 1. Processing of NOI.** An NOI must be reviewed and approved by the Department prior to beginning construction activity or causing soil disturbance except as provided in Part IV(K).

The NOI is deemed approved 14 calendar days after the Department receives the notification form, unless the Department approves the notification or finds the notification deficient prior to that date. Within the 14 day period, the Department may notify the applicant in writing or through verbal communication that the project is ineligible for coverage under this general permit, or that additional information is needed or further review is required.. If the DEP does not inform the applicant that the notification is unacceptable within this 14-day period, the notification is deemed accepted by the Department and the applicant may proceed to carry out the activity

Activities that require a permit under the Site Location of Development or the Storm Water Management Acts may not proceed until any required permit under those laws is obtained. Any NOI and supplementary information required by this subsection should be submitted at the same time as any required Stormwater Management or Site Law application for the activity in order to avoid delays in processing. The NOI may not be filed before these applications. The Department may consolidate application materials with these or other programs. When application materials are consolidated, the review period for the NOI is extended to coincide with the review period of the other program.

- 2. Submission.** Applicants for a Maine CGP must submit the notification form, fee and other information for the Department's review and approval. This information includes a location map, site plan, erosion and sedimentation plan, and photographs of the area to be developed. Also, if the project is located in Essential Habitat, approval from Department of Inland Fisheries and Wildlife will need to be submitted. A landowner or leasehold owner, or his or her authorized representative, must file the NOI using a form provided by the Department. The NOI must contain information specified by the Department that is listed in this subsection. The Department

may require the submission of additional information as necessary. Send the completed NOI form to the DEP office serving the area where the project is located. This general permit contains a map showing the municipalities served by the Department regional offices and the regional office mailing addresses.

- a. The legal name, address, telephone number, and any email address of the landowner or leasehold owner.
- b. The legal name, address, telephone number, and any email address of the agent or contractor.
- c. A narrative describing in detail how to get to and access the parcel and construction activities, and a USGS or similar map with the location marked.
- d. A narrative describing the project and its purpose.
- e. UTM Northing and UTM Easting (if known)
- f. The size of disturbed area proposed.
- g. Name of the receiving water(s) or if the discharge is through a municipal separate storm sewer system, the name of the municipal operator of the storm sewer.
- h. Signature of applicant (landowner or lessee) or authorized representative with documentation showing authorization. For signatory requirements, see 06-096 CMR 521(5).
- i. For any construction activity occurring within an essential habitat or that may violate protection guidelines, written approval of the activity from the Department of Inland Fisheries and Wildlife (IF&W). The applicant must follow any conditions stated in the IF&W approval.⁶

Note: Maps showing areas of essential habitat are available from the Department of Inland Fisheries and Wildlife regional headquarters, municipal offices, the Land Use Regulation Commission (or areas within LURC's jurisdiction) and DEP regional offices. If the activity is located in essential habitat, IF&W must be contacted to request and obtain a "certification of review and approval."

- B. Location map.** The Notification form must be accompanied by a photocopy of a portion of a 7.5 minute USGS topographic map or a DeLorme Atlas map showing the site's location and approximate property boundaries, if the size of the parcel and scale of the map allows it. A USGS topographic map can be useful for showing the general contour and topography of the project site.
- C. Site plan.** Submit a scaled plan showing, at a minimum, the locations of structures and roads, the extent of disturbed land, pre-construction site topography, post-construction site topography, on-site and adjacent surface waterbodies, and all erosion and sedimentation control measures to be used on the site. Such measures include, but are not limited to, sedimentation barriers, ditch lining, rip rap, and culvert inlet and outlet designs. Identify retained downgradient buffers, or explain in a narrative why such buffers will not be retained (see Pollution Prevention standard, Appendix A(1)). Identify protected natural resources, such as wetlands, streams, or high water line of ponds or coastal wetlands on the site plan. It is not necessary to have the plan professionally prepared. However, it must be legible and drawn to a scale that allows clear representation of distances and measurements on the plan.

An applicant may substitute the following information for surveyed pre-development and post-development site topography on the location plans:

1. the locations of high points on the site,
2. the locations of any ponds or other runoff storage depressions on the site,

⁶ A state agency may not license a project that will significantly alter habitat of any species designated as threatened or endangered, or violate protection guidelines, without a determination from IF&W. See 12 M.R.S.A. § 7755-A.

3. the locations and flow direction of any drainage ditches, brooks, or streams,
4. the locations of any catch basin inlets or culvert inlets, and
5. arrows showing the general direction(s) of overland drainage for the site.

D. Erosion and Sedimentation Control plan. In addition to a site plan, an erosion control plan must be included which contains, at a minimum, permanent stabilization measures to be taken (e.g. paving or planting vegetation), installation details of the erosion control measures proposed to be used, seeding and mulching rates, and a construction schedule with the proposed construction dates and timeframe for major earth moving and construction events. **This plan and its details may be included on the site plan instead of being a separate submission.**

An erosion and sedimentation control plan must be designed by a professional who is registered, licensed, or certified in a related land-use field, or by education, training, or experience is knowledgeable in erosion and sedimentation control, or has received specific training in erosion and sedimentation control at a department-sponsored erosion and sedimentation control workshop.

Note: A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 M.R.S.A. § 480-B. Sediment control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken. The site must be maintained to prevent unreasonable erosion and sedimentation. See 38 M.R.S.A § 420-C (in part). Other or additional standards may apply, under the Natural Resources Protection Act, to a project located in or adjacent to a protected natural resource.

E. Photos. Provide photographs of the project site that show the existing character and topography of the area proposed for development.

F. Notice of Termination (NOT). The permittee shall submit a Notice of Termination (NOT) on a form provided by the Department within 20 days of the completion of permanent stabilization or within 20 days of obtaining coverage under an alternative MEPDES permit. If the property is transferred and construction activity is ongoing, the permittee is not required to file an NOT if the new owner or lessee files an NOI to continue authorization under this general permit for a continuing discharge.

1. Common plan of development or sale. A person who has filed an NOI for a common plan of development or sale shall file an NOT as follows.

- a. For areas of the site over which the developer has control, the NOT must be filed after permanent stabilization has been completed.-
- b. For areas of the site over which the developer does not have control (ex. lots sold in an undeveloped or partially undeveloped state), the NOT must be filed after (i) temporary stabilization including perimeter controls for individual lots have been completed if the developer has done prep work (stripping or grading) on the lots, (ii) the developer has informed the lot buyers of the requirements of this general permit, and (iii) the developer has provided the buyers with copies of any erosion control plan, or portion of a plan applicable to the lots, required to be certified or provided to the Department under the requirements of this general permit.

A lot buyer within a common plan of development or sale is required to meet the standards of this general permit, except that residential lot buyers are not required to maintain inspection logs as provided in Appendix A(2).

2. **Timing.** A permittee's authorization to discharge under this permit terminates at midnight on the day the NOT is signed.
3. **Submission.** The NOT must include information specified by the Department, including the following:
 - a. The legal name, address, telephone number, and any email address of the landowner or leasehold owner.
 - b. The legal name, address, telephone number, of the agent or contractor.
 - c. Photographs showing the completed project and the affected area. Exception: a person filing an NOT for a common plan of development is not required to include photographs for disturbed areas created by lot buyers or lessees.
 - d. Signature of the permittee or authorized person together with documentation demonstrating authorization. If documentation has been previously submitted and is still current, it may be referenced.

G. Mail/copy. The notification forms must be sent to the DEP by certified mail (return receipt requested) or other service providing a record of DEP's receipt of the item to the sender, or hand delivered to the DEP and date stamped by the Department. The applicant must keep a copy of the notification forms and all materials provided to the Department.

H. Retention of records

1. **Documents.** The permittee shall retain copies of the ESC plan and any forms, submissions, reports, or other materials required by this general permit for a period of at least three years from the completion of permanent stabilization. This period may be extended by request of the Department.
2. **Accessibility.** Employees and agents of the Department may enter any property at reasonable hours in order to determine compliance.⁷ The permittee shall retain a copy of the ESC plan and this general permit at the construction site or other location accessible to the Department, local government officials, and any operator of a municipal separate stormwater sewer receiving discharges from the site, from project initiation to permanent stabilization. The permittee shall ensure that a copy of the ESC plan and this general permit are available for the use of any contractors on the site undertaking work regulated by this general permit.

I. Changes in the activity or owner/lessee. Coverage under this general permit will be continued provided there are no changes in the discharge as described in the NOI and associated submissions. If any changes are proposed in the activity, the person having filed the NOI must notify the Department through the submission of updated information in writing, including submitting or obtaining certification for any revisions to an ESC plan required in Part III.

The updated information must be submitted with a new NOI if the permittee proposes to expand or relocate disturbed area of one acre or more beyond what was indicated in the original NOI, or to

⁷ See 38 M.R.S.A. § 347-C(in part).

change the waterbody to which the stormwater will be discharged. Information concerning other changes may be submitted in a letter.

If the owner or lessee of the land changes, the new owner or lessee must file an NOI if he or she wishes to continue coverage under this general permit. Materials submitted with an NOI by a prior owner or lessee may be referenced if they are still current. Exception: a lot buyer or subsequent transferee of a lot within a common plan of development or sale is not required to file an NOI unless he or she proposes a construction activity as defined in Part II(A).

J. Request to be excluded. A person may request that an activity be excluded from coverage under this general permit and apply for an individual waste discharge permit pursuant to the Department's rules. When an individual permit is issued to a person otherwise subject to this general permit, the applicability of this general permit to that person is automatically terminated on the effective date of the individual permit.

K. Effect of prior approvals.

1. Construction activity including one acre or more of disturbed area. This subsection applies for purposes of determining jurisdiction under the "one acre" threshold only.

- a. Persons disturbing less than 5 acres. A person with on-going construction activity as of July 21, 2006, who received authorization to discharge under a prior MCGP(s) and whose activity includes less than 5 acres of disturbed area and, that have not submitted a NOT do not have to submit a new NOI to obtain coverage under this general permit and are authorized under this general permit provided that the activity meets the standards of this general permit.
- b. Persons disturbing 5 or more acres. A person with on-going construction activity as of July 21, 2006, who received authorization to discharge for the activity under a prior MCGP(s) and have or will disturb five or more acres shall submit a new notice of intent (NOI) prior to or on October 20, 2006. The new NOI may reference information in prior NOI submissions to the extent it is still current.

2. Common plan of development or sale. This subsection applies for purposes of determining jurisdiction under the "common plan of development or sale" threshold only.

A common plan of development or sale (subdivision) is not required to meet the requirements of this general permit if it received approval from LURC or the municipality where it is located before March 10, 2003.

- a. If a subdivision that received municipal or LURC approval prior to March 10, 2003, is modified on or after the effective date of this permit so as to add three or more subdivision lots as determined by LURC or the municipality, this general permit applies to those lots and their associated facilities as provided in Part III.
- b. If a subdivision receives approval on or after March 10, 2003, then this general permit does not apply to lots transferred before March 10, 2003.

Note: A person subdividing land must still file an NOI if he or she will undertake construction activity on the parcel that includes one or more acres of disturbed area, as provided in Part III(A). Examples of such activity would be road or pad construction, or stripping and grading. A single NOI may be filed for both the common plan of development or sale and this disturbed area.

PART V -- Limitations on Coverage

- A. Individual permit or other general permit.** This general permit does not authorize a stormwater discharge associated with construction activity that requires an individual waste discharge permit or is required to obtain coverage under another waste discharge general permit. See Part VI(A) for information on related waste discharge permits.

The Department may require any person with a discharge authorized by this general permit to apply for and obtain an individual permit.⁸ When the DEP notifies an applicant that an individual permit is required, no work may be begun or continued unless and until the individual permit is obtained. Any interested person may petition the Department to take action under this paragraph. Examples of when an individual waste discharge permit may be required are specified in rule.⁹

- B. Compliance with this general permit.** This general permit does not authorize a stormwater discharge that is not in compliance with the requirements of this general permit. If the Department determines that the standards of this general permit have not been met, the Department shall notify the person and may:

1. Authorize coverage under this general permit after appropriate controls and implementation procedures designed to bring the discharge into compliance with this general permit and water quality standards have been implemented as determined by the Department;
2. Require an individual waste discharge permit; or
3. Inform the person that the discharge is prohibited.

Compliance with this subparagraph does not preclude any enforcement activity under Maine law for an underlying violation.

- C. Non-stormwater.** This general permit does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Appendix C(6).
- D. Total maximum daily load (TMDL).** This general permit does not authorize a direct discharge that is inconsistent with any EPA approved TMDL for the waterbody to which the direct discharge drains as provided in Part III(C).
- E. Discharge of hazardous substances, chemicals, or oil.** This general permit does not authorize the discharge of hazardous substances, chemicals, or oil resulting from an on-site spill.
- F. Violation of water quality standards.** This general permit does not authorize a discharge that may cause or contribute to a violation of a water quality standard.
- G. Related laws.** This general permit does not authorize stormwater discharges that are not in conformance with the terms and conditions of permits issued under Site Location of, 38 M.R.S.A. §§ 481-490; Stormwater Management, 38 M.R.S.A. § 420-D; Natural Resources Protection, 38 M.R.S.A. §§ 480-A - 480-Z; or the Land Use Regulation Commission §§ 481 *et. seq.*. This general permit does not authorize stormwater discharges that are not in conformance with the Maine Erosion and Sedimentation Control Law, 38 M.R.S.A. § 420-C.

⁸ See 06-096 CMR 529(2)(B)(3).

⁹ 06-096 CMR 529(2)(b)(3)

- H. Post-construction discharges.** This general permit does not authorize stormwater discharges after the completion of permanent stabilization.
- I. Metallic mineral mining or advanced exploration.** This general permit does not authorize discharges from metallic mineral mining or advanced exploration. Stormwater and erosion and sedimentation standards related to construction are specified in the Site Location of Development permit and LURC permit and, if required, an individual waste discharge permit.
- J. Exemptions.** Certain exemptions apply and are specified in the Maine Waste Discharge Law. An exemption in a Maine law other than the Maine Waste Discharge Law, such as the Site Law or Maine Stormwater Management Law, does not create an exemption to the Maine Waste Discharge Law or the requirements of this general permit. Each law has its own set of statutory exemptions.
- K. Reopener.** This general permit may be modified or reopened as provided in 38 M.R.S.A. § 414-A(5).

Part VI -- Relationship to other programs

An activity may include "construction activity" and also be regulated under other programs.

A. Related waste discharge permits

- 1. Multi-sector.** A stormwater discharge requiring approval as an industrial activity other than 06-096 CMR 521(b)(14)(x) is not authorized under this general permit.
- 2. Waste discharge permit (surface water).** A waste discharge permit may be required for activities such as combined sewer overflows (CSOs), spray irrigation, process water treatment systems, metallic mine drainage, and other discharges inadequately covered by this general permit, as determined by the Department.
- 3. Waste discharge permit (groundwater).** A waste discharge permit may be required for the discharge of stormwater through any well or wells, including drywells and subsurface fluid distribution systems. For complete requirements, see 06-096 CMR 543.

A "subsurface fluid distribution system" is an assemblage of perforated pipes, drain tiles, or similar mechanisms intended to distribute fluids below the surface of the ground. A "well" is a bored, drilled, or driven shaft the depth of which is greater than the largest surface dimension, whether the shaft is typically dry or contains liquid; or a dug hole the depth of which is greater than the largest surface dimension; or a subsurface fluid distribution system. "Well injection" means the subsurface discharge of fluids into or through a well.

- B. Quarry or an excavation for borrow, clay, topsoil, or silt.** Clearing, grading or excavation activities conducted as part of the exploration and construction phase of a mineral mining operation must meet the requirements of this general permit, if they will result in the direct discharge of stormwater to waters of the state other than groundwater, will disturb one or more acres of land, and occur on or after March 10, 2003. These requirements do not apply to an area that is internally drained. Construction activity includes the building of site access roads and removal of overburden and waste rock to expose mineable materials. If the activity must meet the requirements of this general permit, the following exceptions apply.

1. **Stabilization deadlines.** The 14 day time limit for temporary stabilization in Appendix A(3), and the one-year time limit for permanent stabilization in Appendix A(5) do not apply.
2. **If under the Gravel Pit or Quarry Program -- may need to do an ESC plan.** If the clearing, grading, or excavation activity subject to this general permit is also required to meet the Performance Standards for Excavations for Borrow, Clay, Topsoil or Silt,¹⁰ or Performance Standards for Quarries¹¹, then the operator does not have to meet the requirements specified in Part III of this general permit, except for the ESC plan requirements in Part III(A)(2).

In some cases, an area that is not internally drained initially may become internally drained during construction. For an area that has become internally drained, it is not necessary to undertake stabilization as otherwise required under this general permit before filing the NOT.

- C. Other programs such as Site Law, Stormwater, and Waste.** The Department may combine application requirements for this general permit and other programs administered by the Department. Other programs may include facilities and projects regulated pursuant to programs such as 38 M.R.S.A. § 1310-N (Solid waste facility licenses), 1319-R (facility siting), 1319-X (criteria for development of waste oil facilities and biomedical facilities), 38 M.R.S.A. § 483-A (Site Location), 38 M.R.S.A. 420-C (Stormwater Management), and 12 M.R.S.A. § 685-A (LURC). In case of a conflict between the standards in Appendix A, B, and C and those adopted pursuant to any of these laws, the stricter standard applies, as determined by the Department. The review period for the NOI may be extended as provided in Part IV(A)(1)(b). The Department may waive the fee required with the NOI pursuant to this general permit for certain combined applications. Completing a stormwater Permit By Rule notification meets the requirements of this general permit.
- D. Silvicultural activities.** Authorization under this general permit is not required for non-point silvicultural activities as provided in 06-096 CMR 521(10).
- E. Maine Department of Transportation.** Construction activities conducted by the Maine Department of Transportation (MDOT) or the Maine Turnpike Authority (MTA) pursuant to a Memorandum of Agreement between the Department, and MDOT and MTA, are authorized under this general permit within the limits of coverage specified in this general permit. MDOT and MTA are considered qualifying state programs as provided in 40 CFR 122.44(s).

PART VII -- Standard Conditions

- A. General restrictions.** A discharge covered by a General Permit may not:

1. Be to a body of water classified as Class GPA, AA, A or SA;¹²
2. Be to a body of water having a drainage area of less than 10 square miles;
3. Contain any pollutant, including toxic substances, in quantities or concentrations, which may cause or contribute to any adverse impact on the receiving water;

¹⁰ 38 M.R.S.A. §§ 490-A et. seq.

¹¹ 38 M.R.S.A. §§ 490-W et. seq.

¹² This standard condition is required by 06-096 CMR 529(3), effective January 12, 2001. However, note that 38 M.R.S.A. 465-A(1)(C), 465(1)(C) allow discharge of stormwater to GPA, AA and SA waters if the discharge is in compliance with state and local requirements. For requirements applicable to discharges to Class A waters, see 38 M.R.S.A. 465(2)(C). The Department is proposing emergency legislation to allow certain stormwater discharges to Class A waters and to watersheds of less than 10 square miles. The statutory provisions control for purposes of this general permit.

4. Be to a receiving water which is not meeting its classification standard for any characteristic which may be affected by the discharge; or
 5. Impart color, taste, turbidity, radioactivity, settleable materials, floating substances or other properties that cause the receiving water to be unsuitable for the designated uses ascribed to its classification.
- B. Removed substances.** Pollutants removed or resulting from the treatment of wastewaters must be disposed of in a manner approved by the Department.
- C. Monitoring requirement.** The Department may require monitoring of an individual discharge as may be reasonably necessary in order to characterize the nature, volume or other attributes of that discharge or its sources.
- D. Other information.** When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Department, he or she shall promptly submit such facts or information.
- E. Other applicable conditions.** The conditions in 06-096 CMR 523(2) also apply to discharges pursuant to this general permit¹³ and are incorporated herein as if fully set forth. These conditions address areas such as: duty to comply; need to reduce or halt activity not a defense; duty to mitigate; permit actions; property rights; duty to provide information; and inspection and entry.
- F. Duty to reapply.** If the permittee wishes to continue an activity regulated by this general permit after the expiration date of this general permit, the permittee must apply for and obtain a new permit.
- G. Severability.** The conditions of this general permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

¹³ See 06-096 CMR 529(3)(i).

APPENDICES -- BASIC PERFORMANCE STANDARDS

Appendix A. Erosion and sedimentation control.....	1
Appendix B. Inspection and maintenance	4
Appendix C. Housekeeping.....	4

APPENDIX A. Erosion and sedimentation control

A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 MRSA § 480-B. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken.

NOTE: The site must be maintained to prevent unreasonable erosion and sedimentation. See 38 M.R.S.A § 420-C (in part). A license is required for any stormwater discharge that the department "determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the State". 06-096 CMR 521(9)(a)(1)(v)(in part).

- (1) Pollution prevention.** Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable. The discharge may not result in erosion of any open drainage channels, swales, upland, or coastal or freshwater wetlands.

Note: Buffers improve water quality by helping to filter pollutants in run-off both during and after construction. Minimizing disturbed areas through phasing limits the amount of exposed soil on the site through retention of natural cover and by retiring areas as permanently stabilized. Less exposed soil results in fewer erosion controls to install and maintain. If work within an area is not anticipated to begin within two weeks time, consider leaving the area in its naturally existing cover.

- (2) Sediment barriers.** Prior to construction, properly install sediment barriers at the edge of any downgradient disturbed area and adjacent to any drainage channels within the disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized.

- (3) Temporary stabilization.** Stabilize with mulch, or other non-erodable cover any exposed soils that will not be worked for more than 7 days. Stabilize areas within 75 feet of a wetland or waterbody within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first.

NOTE: For guidance on erosion and sedimentation controls, consult *the Maine Erosion and Sediment Control Handbook for Construction -- Best Management Practices* or *the Maine Erosion and Sedimentation Control Best Management Practices*.

- (4) Removal of temporary measures.** Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

NOTE: It is recommended that silt fence be removed by cutting the fence materials at ground level so as to avoid additional soil disturbance.

(5) Permanent stabilization. If the area will not be worked for more than one year or has been brought to final grade, then permanently stabilize the area within 7 days by planting vegetation, seeding, sod, or through the use of permanent mulch, or riprap, or road sub-base. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions; amend areas of disturbed subsoils with topsoil, compost, or fertilizers; protect seeded areas with mulch or, if necessary, erosion control blankets; and schedule sodding, planting, and seeding so to avoid die-off from summer drought and fall frosts. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. One or more of the following may apply to a particular site.

(a) Seeded areas. For seeded areas, permanent stabilization means a 90% cover of the disturbed area with mature, healthy plants with no evidence of washing or rilling of the topsoil.

(b) Sodded areas. For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.

(c) Permanent Mulch. For mulched areas, permanent mulching means total coverage of the exposed area with an approved mulch material. Erosion Control Mix may be used as mulch for permanent stabilization according to the approved application rates and limitations.

(d) Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

(e) Agricultural use. For construction projects on land used for agricultural purposes (e.g., pipelines across crop land), permanent stabilization may be accomplished by returning the disturbed land to agricultural use.

(f) Paved areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.

(g) Ditches, channels, and swales. For open channels, permanent stabilization means the channel is stabilized with mature vegetation at least three inches in height, with well-graded riprap lining, or with another non-erosive lining capable of withstanding the anticipated flow velocities and flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or down-cutting of the channel.

(6) Winter Construction. "Winter construction" is construction activity performed during the period from November 1 through April 15. If areas within the construction activity are not stabilized with temporary or permanent measures outlined above by November 15, then the site must be protected with additional stabilization measures that are specific to winter conditions. No more than one acre of the site may be without stabilization at one time.

- (a) **Site Stabilization.** For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
- (b) **Sediment Barriers.** All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
- (c) **Ditch.** All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the department.
- (d) **Slopes.** Mulch netting must be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

NOTE: For guidance on winter construction standards, see the "Maine Erosion and Sediment Control BMPs", Maine Department of Environmental Protection.

- (7) **Stormwater channels.** Ditches, swales, and other open stormwater channels must be designed, constructed, and stabilized using measures that achieve long-term erosion control. Ditches, swales and other open stormwater channels must be sized to handle, at a minimum, the expected volume run-off. Each channel should be constructed in sections so that the section's grading, shaping, and installation of the permanent lining can be completed the same day. If the channel's final grading or lining installation must be delayed, then diversion berms must be used to divert stormwater away from the channel, properly-spaced check dams must be installed in the channel to slow the water velocity, and a temporary lining installed along the channel to prevent scouring. Permanent stabilization for channels is addressed under Appendix A(5)(g) above.

NOTE: (1) The channel should receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes. (2) When the watershed draining to a ditch or swale is less than 1 acre of total drainage and less than ¼ acre of impervious area, diversion of runoff to adjacent wooded or otherwise vegetated buffer areas is encouraged where the opportunity exists.

- (8) **Roads.** Gravel and paved roads must be designed and constructed with crowns or other measures, such as water bars, to ensure that stormwater is delivered immediately to adjacent stable ditches, vegetated buffer areas, catch basin inlets, or street gutters.

NOTE: (1) Gravel and paved roads should be maintained so that they continue to conform to this standard in order to prevent erosion problems. (2) The department recommends that impervious surfaces, including roads, be designed and constructed so that stormwater is distributed in sheet flow to natural vegetated buffer areas wherever such areas are available. Road ditches should be designed so that stormwater is frequently (at least every 100 to 200 feet) discharged via ditch turnouts in sheet flow to adjacent natural buffer areas wherever possible.

- (9) **Culverts.** Culverts must be sized to avoid unintended flooding of upstream areas or frequent overtopping of roadways. Culvert inlets must be protected with appropriate materials for the

expected entrance velocity, and protection must extend at least as high as the expected maximum elevation of storage behind the culvert. Culvert outlet design must incorporate measures, such as aprons or plunge pools, to prevent scour of the stream channel. Outlet protection measures must be designed to stay within the channel limits. The design must take account of tailwater depth.

(10) Parking areas. Parking areas must be constructed to ensure runoff is delivered to adjacent swales, catch basins, curb gutters, or buffer areas without eroding areas downslope. The parking area's subbase compaction and grading must be done to ensure runoff is evenly distributed to adjacent buffers or side slopes. Catch basins must be located and set to provide enough storage depth at the inlet so to allow inflow of peak runoff rates without by-pass of runoff to other areas.

(11) Additional requirements. Additional requirements may be applied on a site-specific basis.

APPENDIX B. Inspection and maintenance

(1) Inspection and maintenance. Inspect disturbed and impervious areas, and 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 and before and after a storm event, and prior to completion of permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards in this permit and any departmental companion document to this permit, 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 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.

(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 location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

APPENDIX C. Housekeeping

These performance standards apply to all sites.

(1) Spill prevention. Controls must be used to prevent pollutants from construction and waste materials stored on-site, including storage practices to minimize exposure of the materials to

stormwater, and appropriate spill prevention, containment, and response planning and implementation.

- (2) **Groundwater protection.** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

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). 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.

- (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.

Examples of BMPS -- Operations during wet months, that experience tracking of mud off the construction site onto public roads, should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently if needed.

NOTE: Dewatering a stream without a permit from the department violates state water quality standards and the Natural Resources Protection Act.

- (4) **Debris and other materials.** Litter, construction debris, and construction chemicals exposed to stormwater must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, 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) **Trench or foundation de-watering.** Trench de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct 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.

NOTE: For guidance on de-watering controls, consult the Maine Erosion and Sediment Control BMPs", Maine Department of Environmental Protection."

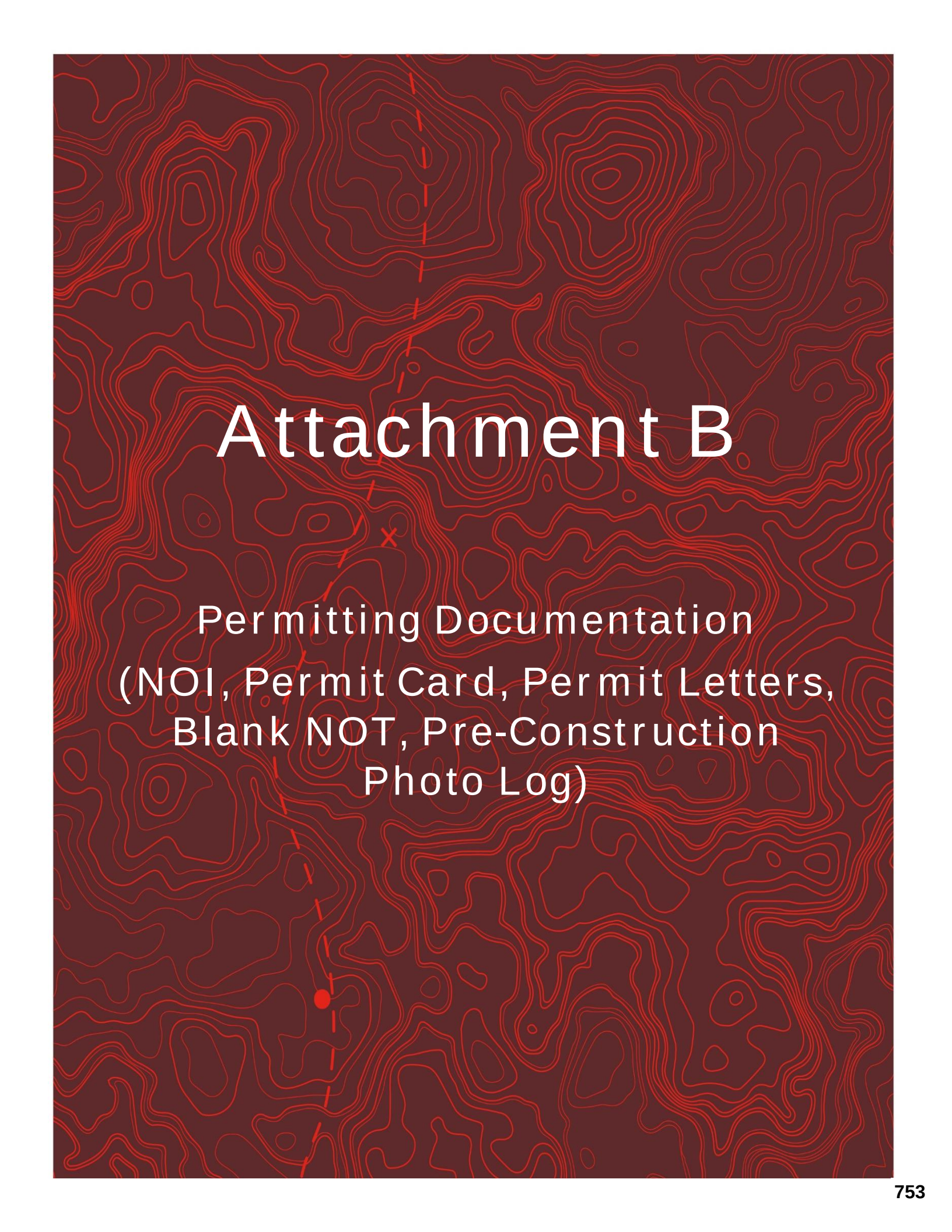
(6) Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- (i) Discharges from firefighting activity;
- (ii) Fire hydrant flushings;¹
- (iii) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- (iv) Dust control runoff in accordance with permit conditions and Appendix (C)(3);
- (v) Routine external building washdown, not including surface paint removal, that does not involve detergents;
- (vi) 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;
- (vii) Uncontaminated air conditioning or compressor condensate;
- (viii) Uncontaminated groundwater or spring water;
- (ix) Foundation or footer drain-water where flows are not contaminated; and
- (x) Uncontaminated excavation dewatering (see requirements in Appendix C(5)).
- (vi) Potable water sources including waterline flushings.²

Allowable non-stormwater discharges cannot be authorized under this permit unless they are directly related to and originate from a construction site or dedicated support activity (e.g., a pressure washing company cannot broadly use this general permit for their business operations, because general vehicle washing is not associated with a construction site). It is not necessary to list these sources of non-stormwater in the NOI.

¹ This non-stormwater discharge is authorized under this general permit until the Department issues a separate general permit containing requirements specific to this type of discharge, which would replace this authorization.

² See previous footnote.



Attachment B

Permitting Documentation
(NOI, Permit Card, Permit Letters,
Blank NOT, Pre-Construction
Photo Log)

NOTICE OF INTENT TO COMPLY WITH MAINE CONSTRUCTION GENERAL PERMIT

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

Name of Applicant (Owner):		Applicant Mailing Address:			
Town/City:		State:		Zip Code:	
Daytime phone: (with area code)		Email if available:		Name of Agent:	
Project Location: (Town/City):		UTM Northing: (if known)		UTM Easting: (if known)	
Map #:		Lot #:		Size of disturbed area proposed:	
Creating a common plan of development or sale?	Yes	No	Part of a larger project?	Yes	No
Name of waterbody(ies) to which the disturbed area drains, or name municipality if drains to an MS4:					
Does site drain to an Impaired Waterbody (C)? If so, give name:					
Detailed directions to site, including address if available:					
Description of project and its purpose:					

I am filing notice of my intent to carry out work which meets the requirements of the Construction General Permit (effective 3/10/03). I have a copy of the Construction General Permit. I have read and will comply with all of the standards. I have attached all the required submittals. *Notification forms cannot be accepted without the necessary attachments.*

- ☐ ALL: A check (non-refundable) made payable to: "Treasurer, State of Maine." **See DEP fee schedule for correct fee.** You must know # of acres being permitted to determine the fee.
- ☐ ALL: A U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.
- ☐ ALL: Drawing of the proposed activity (site plan).
- ☐ ALL: An ESC plan.
- ☐ IF this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.
- ☐ IF any construction activity will occur in essential habitat, attach written approval from the Dept. of Inland Fisheries & Wildlife.

I authorize staff of the Departments of Environmental Protection to access the project site for the purpose of determining compliance with the general permit. I also understand that **this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.**

Signature of Applicant:		Date:	
-------------------------	--	-------	--

Keep the bottom copy as a record of permit. Send the form with attachments via certified mail to the Maine Dept. of Environmental Protection at the appropriate regional office. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Check with DEP Staff to determine the expiration date on this permit. **Work carried out in violation of any standard is subject to enforcement action.**

OFFICE USE ONLY	Ck.#	Date	Staff	Staff	After Photos
NOI #	FP		Acc. Date	Def. Date	

NOTICE OF TERMINATION for use with CONSTRUCTION GENERAL PERMIT

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

Name of applicant:				Name of owner or lessee:			
Mailing Address:				Town/City:			
State:		Zip Code:		Daytime phone: (with area code)		Email if available:	
Name/description of project:							
				Permit number (if known)			
Name of waterbody(ies) to which the disturbed area drains, or name of municipality if area drains to an MS4:							
Project Location: (Town/City):				UTM Northing: (if known)		UTM Easting: (if known)	
Map #:		Lot #:		County:			

I am filing notice of my Notice of Termination indicating that permanent stabilization has been completed or, if the project was a common plan of development or sale, that the requirements of the Construction General Permit at Part IV(B)(2) have been completed. I have attached all the required submittals. *Notification forms cannot be accepted without the necessary attachments.*

- ☐ ALL: Photographs showing the completed project and affected area, except as provided in Part IV(B)(3)(c) of the MCGP.
- ☐ IF this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign; OR
- ☐ Check here to reference documentation showing authorization to sign that was submitted with the Notice of Intent if the documentation showing authorization to sign applies and is still current.

I authorize staff of the Departments of Environmental Protection to access the project site for the purpose of determining compliance with the general permit.

Signature of Applicant:		Date:	
-------------------------	--	-------	--

Retain your records. The permittee is required to retain copies of any forms, submissions, reports, or other materials required by this general permit for a period of at least three years from the completion of permanent stabilization.

OFFICE USE ONLY		Date	Staff	Staff	After Photos
NOI #	FP		Acc. Date	Def. Date	

SUPPLEMENTAL DIRECTIONS for completing certain fields in, and providing attachments, when completing the "Notice of Intent to Comply with Maine Construction General Permit" (NOI) form.

1. Read the Construction General Permit. The permit describes what activity may be approved under the permit, the process for obtaining approval, and the standards that must be met. Pay particular attention to the "Basic Performance Standards" in appendices (A) - (C).
2. Name of applicant; name of owner or lessee. If the "applicant" and the "owner or lessee" are not the same person, you must attach a statement from the owner or lessee authorizing the applicant to submit the NOI.
3. Name of waterbody(ies) to which the disturbed area drains, or name of municipality if drains to an MS4. (a) You only need to name the first waterbody/wetland to which the stormwater discharge will drain. For example, if the discharge goes to a road ditch that goes to a stream that goes to a river, name the stream. (b) "MS4" is a municipal separated storm sewer system that must meet stormwater requirements. Maps of areas designated as MS4s are at: <http://www.state.me.us/dep/blwg/docstand/stormwater/maps/maps.htm>
4. Size of disturbed area proposed. Give the total area that you expect to disturb.
5. Is the discharge to an "Impaired Waterbody (C)". These waterbodies and waterbody segments are listed on the "Construction General Permit List", which is in Appendix D of the general permit.

Important: if the project discharges to an unimpaired stream that flows into an impaired waterbody (C), the project is discharging to the impaired waterbody. If the project drains in below an impaired segment, it is not discharging to the impaired segment.

Attaching a drawing of the proposed activity (site plan). In your site plan, remember to identify downgradient buffers, or explain in a narrative why such buffers will not be retained (see Pollution Prevention standard, Appendix A(1)). Identify protected natural resources, such as wetlands, streams, or high water line of ponds or coastal wetlands. It is not necessary to have the plan professionally prepared. However, it must be legible and drawn to a scale that allows clear representation of distances and measurements on the plan.

When is an Erosion & Sedimentation Control Plan (ESC plan) required? When must it be submitted to DEP?

Projects requiring a Site Location permit

If the disturbed area is part of a Site Location development, an ESC plan is not required to be submitted with this notice. An ESC plan is required as part of the Site Location application. However, the projects must still meet the standards in Appendices A - C of the general permit.

Projects not requiring a Site Location permit

1. If the project drains to an "Impaired Waterbody (C)", an ESC must be submitted to DEP for review with the NOI form.
2. If the project includes 3 or more acres of disturbed area and discharges to any other waterbody, an ESC plan must be prepared. It must be EITHER (a) certified as provided in the Construction General Permit, Part III, OR (b) submitted to the DEP for review with the NOI form. A plan may be certified by:
 - (1) a contractor certified in erosion control practices through the Maine Nonpoint Source Training Center (see list of certified contractors at <http://www.state.me.us/dep/blwg/stormwtr/ccec.htm>)
 - (2) a person certified as a "professional in erosion and sedimentation control" under the CPESC program.
 - (3) A Maine professional engineer who by education, training, or experience is knowledgeable in stormwater management and erosion and sedimentation control.
 - (4) Soil and Water Conservation District staff person trained to develop erosion and sedimentation control plans, working in an office with which the Department has an agreement concerning review of these plans.

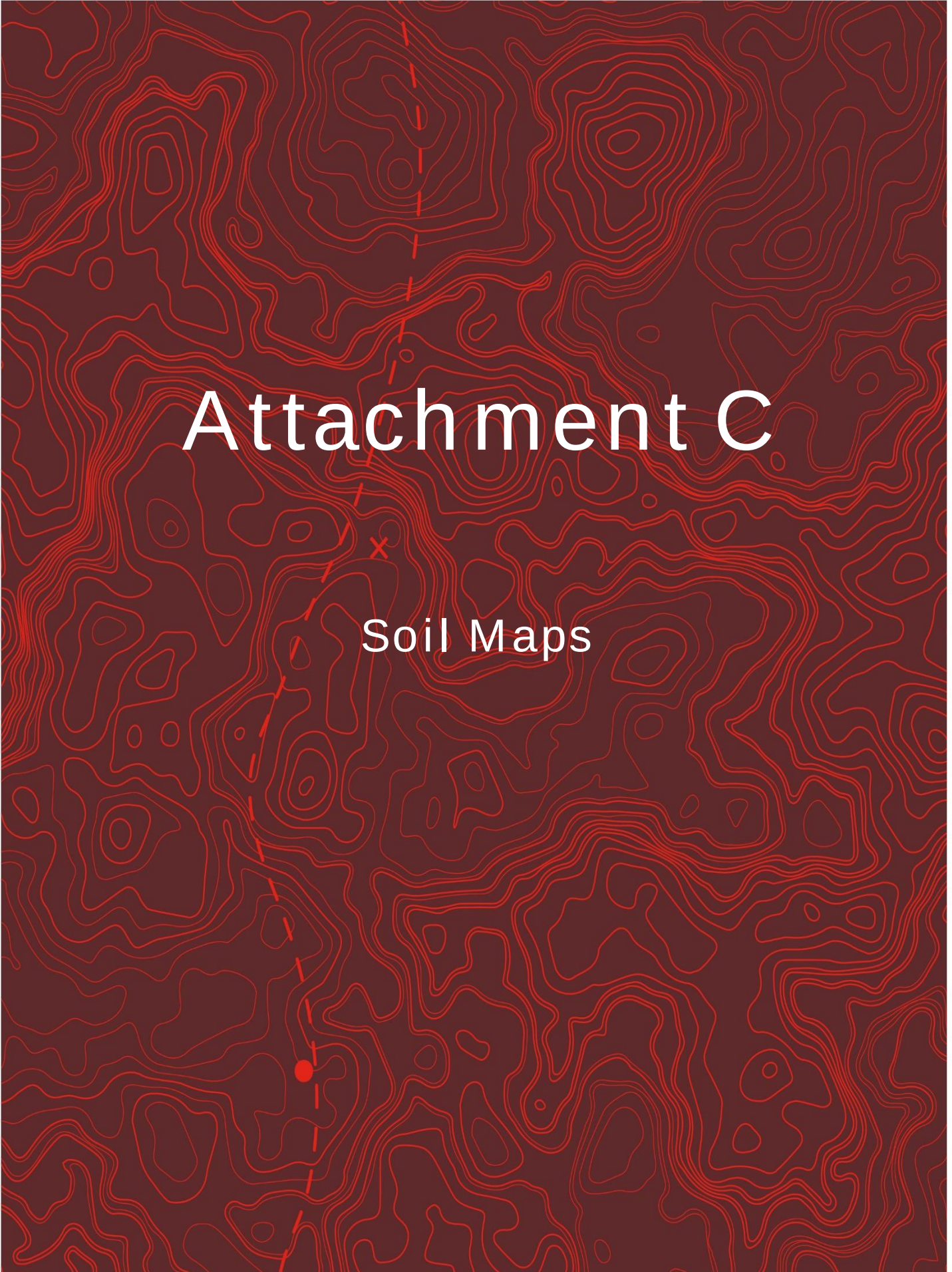
Regional Offices

AUGUSTA DEP
STATE HOUSE STATION 17
AUGUSTA, ME 04333-0017
(207)287-2111

PORTLAND DEP
312 CANCO ROAD
PORTLAND, ME 04103
(207)822-6300

BANGOR DEP
106 HOGAN ROAD
BANGOR, ME 04401
(207)941-4570

PRESQUE ISLE DEP
1235 CENTRAL DRIVE
PRESQUE ISLE, ME 04769
(207)764-0477

The background of the page is a topographic map with red contour lines on a dark red background. A dashed red line runs diagonally from the top left towards the bottom left. A red 'x' is located in the center-left area, and a red dot is located in the bottom-left area.

Attachment C

Soil Maps

Soil Map—York County, Maine (Biddeford Pump Station)



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 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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
BuB	Buxton silt loam, 3 to 8 percent slopes	1.4	74.8%
BuC	Buxton silt loam, 8 to 15 percent slopes	0.5	25.2%
Totals for Area of Interest		1.9	100.0%

Erosion Hazard (Off-Road, Off-Trail)—York County, Maine
(Biddeford Pump Station)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Very severe
-  Severe
-  Moderate
-  Slight
-  Not rated or not available

Soil Rating Lines

-  Very severe
-  Severe
-  Moderate
-  Slight
-  Not rated or not available

Soil Rating Points

-  Very severe
-  Severe
-  Moderate
-  Slight
-  Not rated or not available

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 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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.

Erosion Hazard (Off-Road, Off-Trail)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BuB	Buxton silt loam, 3 to 8 percent slopes	Moderate	Buxton (85%)	Surface kw times slope times R index (0.31)	1.4	74.8%
			Scio (1%)	Surface kw times slope times R index (0.31)		
			Buxton, 0.1 TO 3% STONE COVER (1%)	Surface kw times slope times R index (0.31)		
BuC	Buxton silt loam, 8 to 15 percent slopes	Moderate	Buxton (85%)	Surface kw times slope times R index (0.75)	0.5	25.2%
			Tunbridge (2%)	Surface kw times slope times R index (0.67)		
Totals for Area of Interest					1.9	100.0%

Rating	Acres in AOI	Percent of AOI
Moderate	1.9	100.0%
Totals for Area of Interest	1.9	100.0%

Description

The ratings in this interpretation indicate the hazard of soil loss from off-road and off-trail areas after disturbance activities that expose the soil surface. The ratings are based on slope, soil erosion factor K, and an index of rainfall erosivity (R). The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

The ratings are both verbal and numerical. The hazard is described as "slight," "moderate," "severe," or "very severe." A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

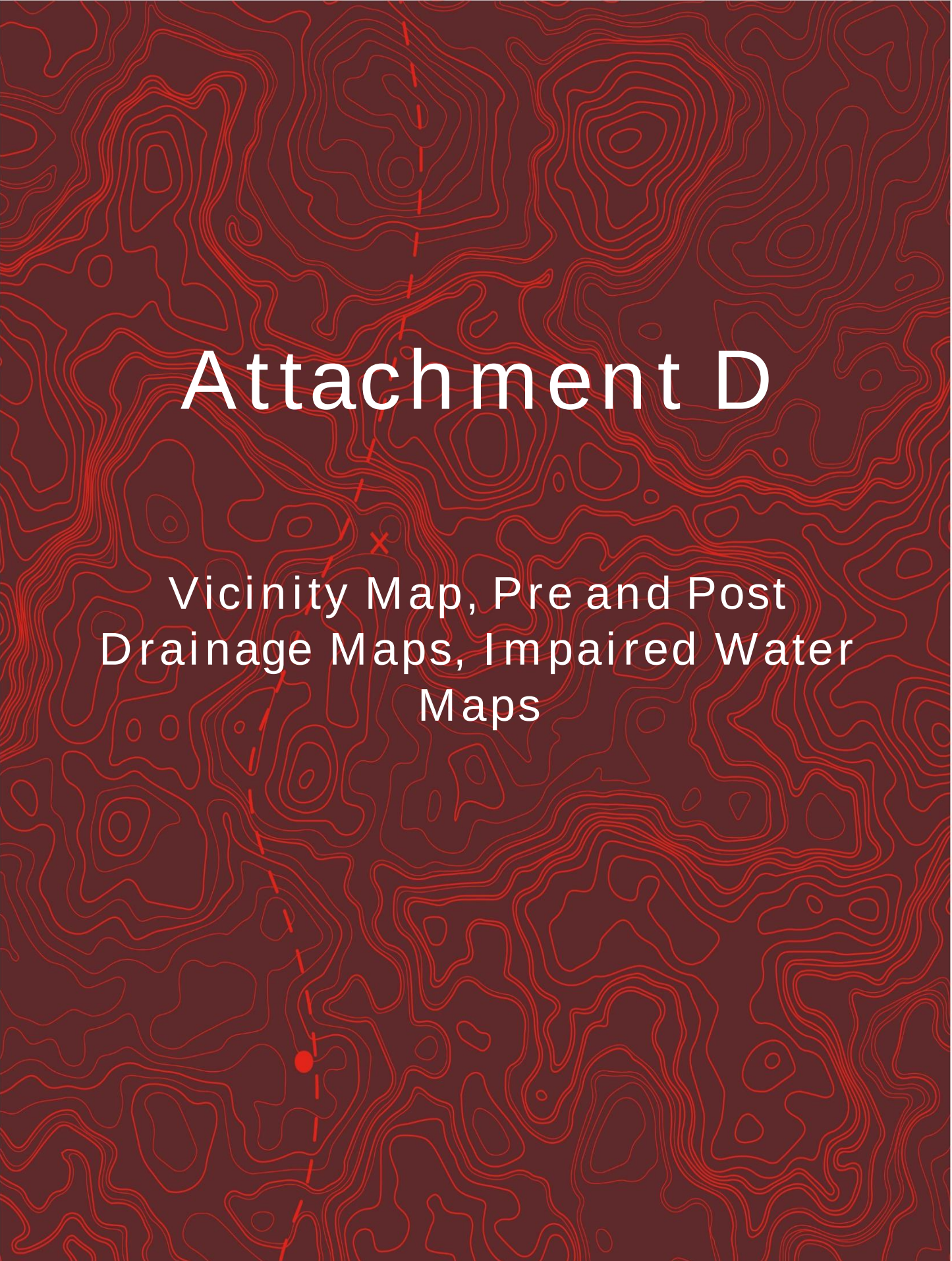
Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes—York County, Maine								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BuB—Buxton silt loam, 3 to 8 percent slopes								
Buxton	85	102	D	.32	5	24.8	52.7	22.5
BuC—Buxton silt loam, 8 to 15 percent slopes								
Buxton	85	75	C	.28	5	24.8	52.7	22.5

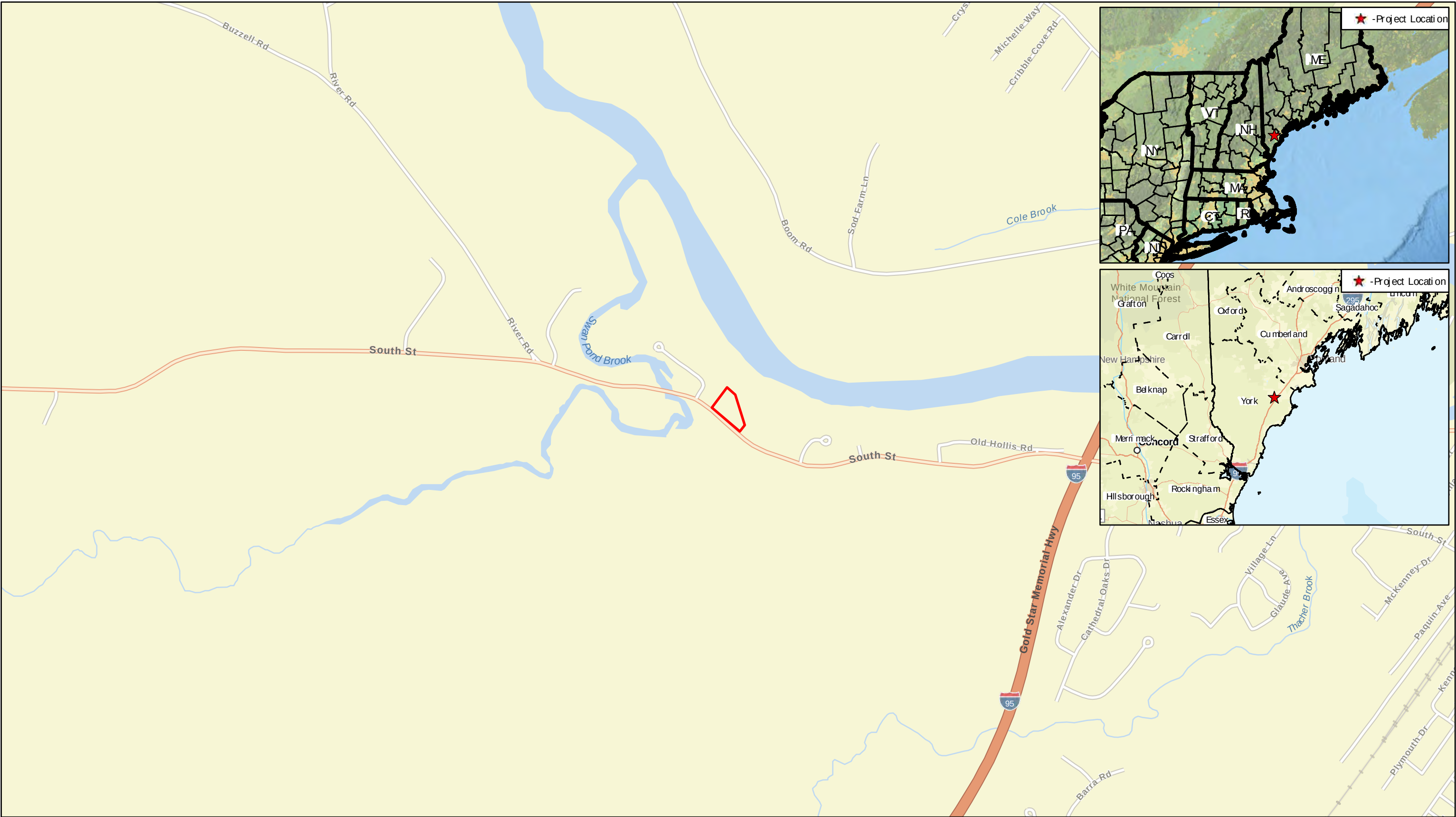
Data Source Information

Soil Survey Area: York County, Maine
 Survey Area Data: Version 19, May 29, 2020

The background of the slide is a dark red topographic map. It features numerous light red contour lines of varying thicknesses, representing elevation. A dashed red line runs diagonally from the top center towards the bottom left. A small red 'x' is located near the center of the map, and a solid red dot is positioned in the lower-left quadrant.

Attachment D

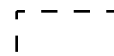
Vicinity Map, Pre and Post
Drainage Maps, Impaired Water
Maps



Data Source(s): Westwood (2021); Esri WMS Basemap Imagery (Accessed 2021); USGS (2021); FEMA (2021); USDA (2021)

Westwood
Toll Free (888) 937-5150 westwoodps.com

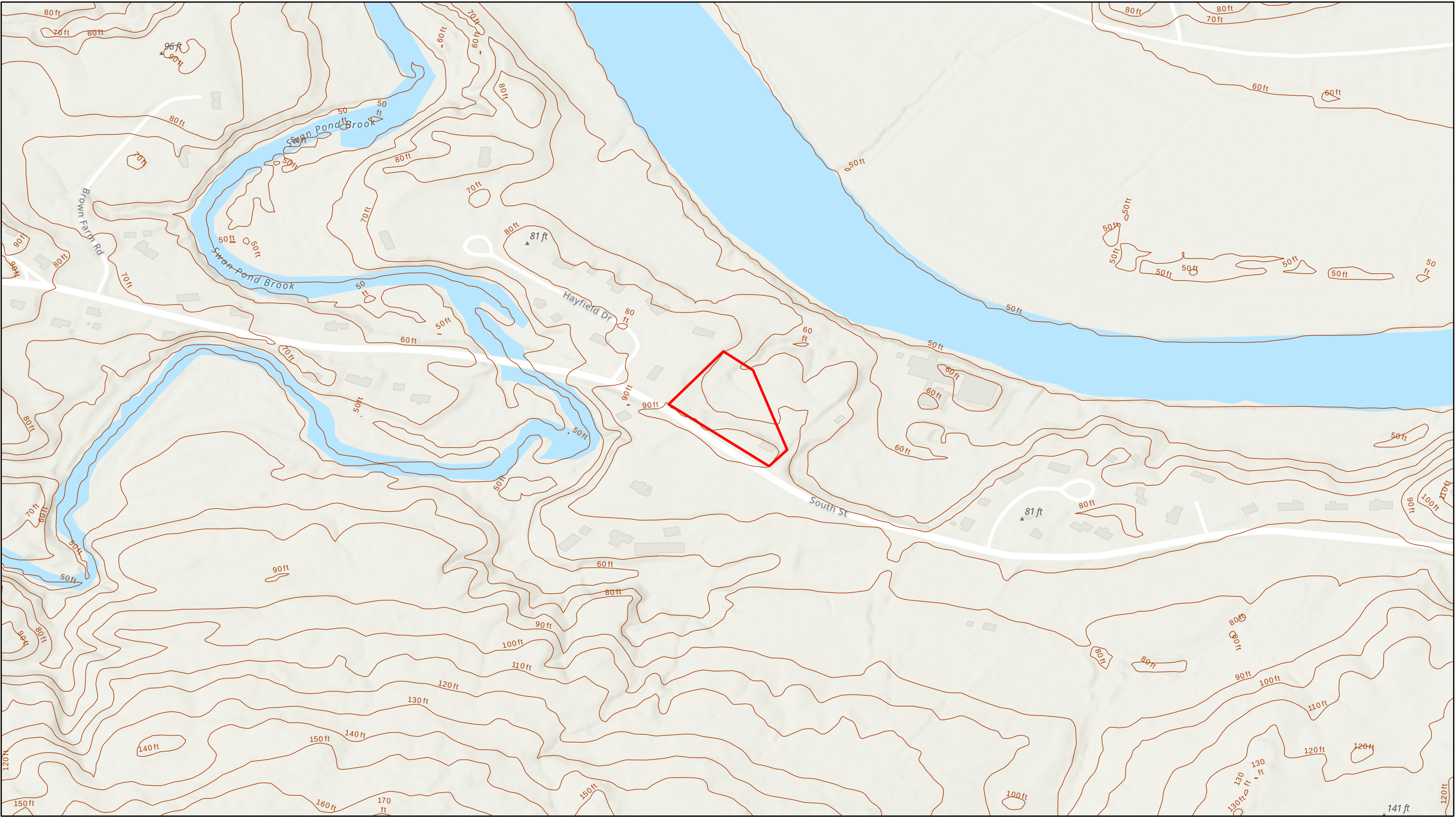
Legend

-  Project Boundary
-  County Boundary

Biddeford Pump Station
York County, Maine



Vicinity Map
January 22, 2021

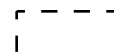


Data Source(s): Westwood (2021); Esri WMS
Basemap Imagery (Accessed 2021); USGS
(2021); FEMA (2021); USDA (2021)

Westwood

Toll Free (888) 937-5150 westwoodps.com

Legend

-  Project Boundary
-  County Boundary

Biddeford Pump Station

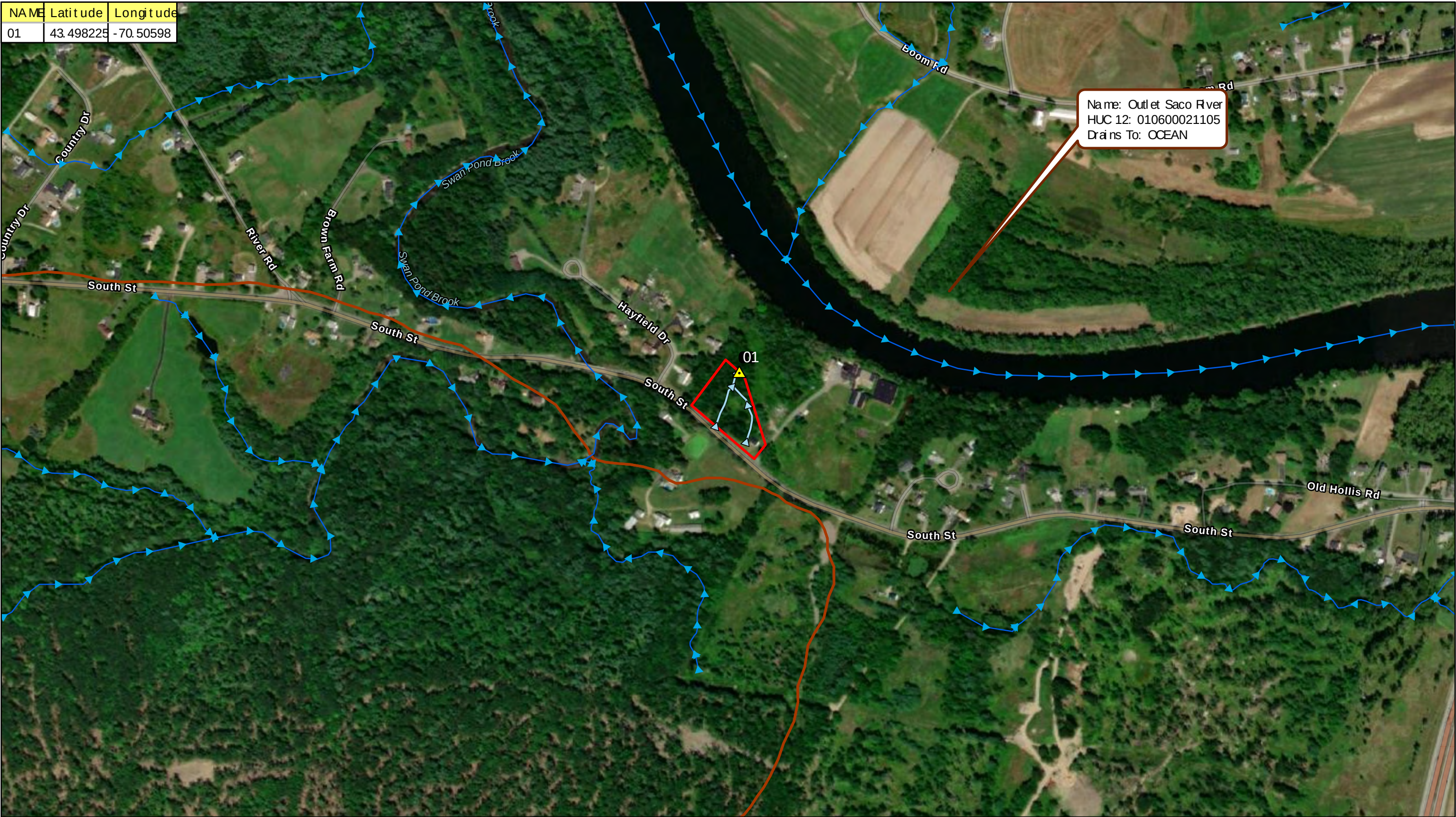
York County, Maine



USGS Topographic Map

© 2021 Westwood

NAME	Latitude	Longitude
01	43.498225	-70.50598



Data Source(s): Westwood (2021); Esri WMS Basemap Imagery (Accessed 2021); USGS (2021); FEMA (2021); USDA (2021)

Westwood
Toll Free (888) 937-5150 westwoodps.com

Legend

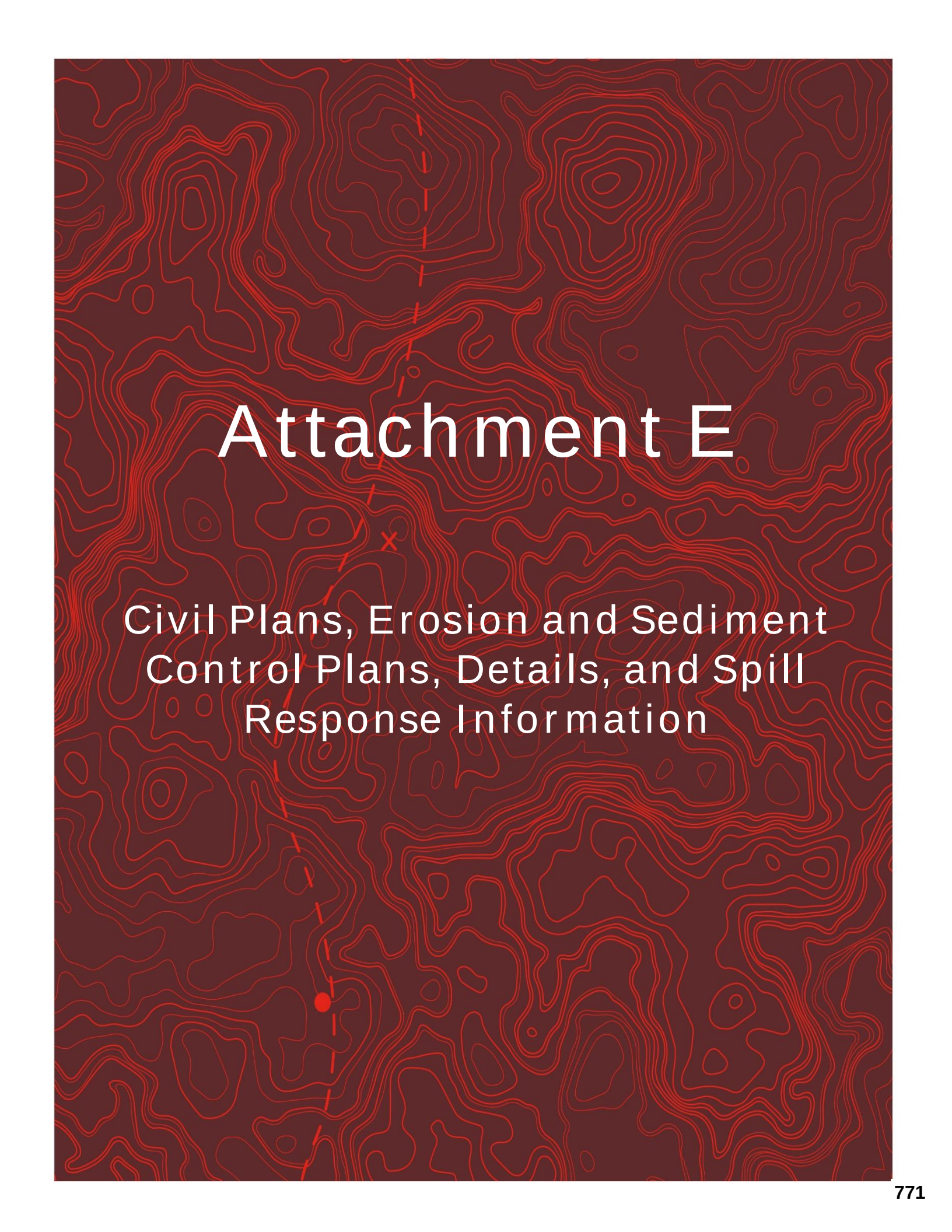
- | | | | | | |
|---|-------------------|---|-----------------|---|------------------|
|  | HUC12 Boundary |  | Drainage Points |  | Project Boundary |
|  | Onsite Flow Lines |  | NHD Flow Line |  | County Boundary |



Biddeford Pump Station
York County, Maine

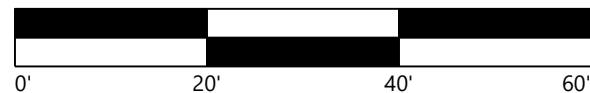
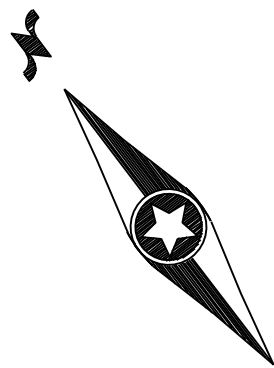
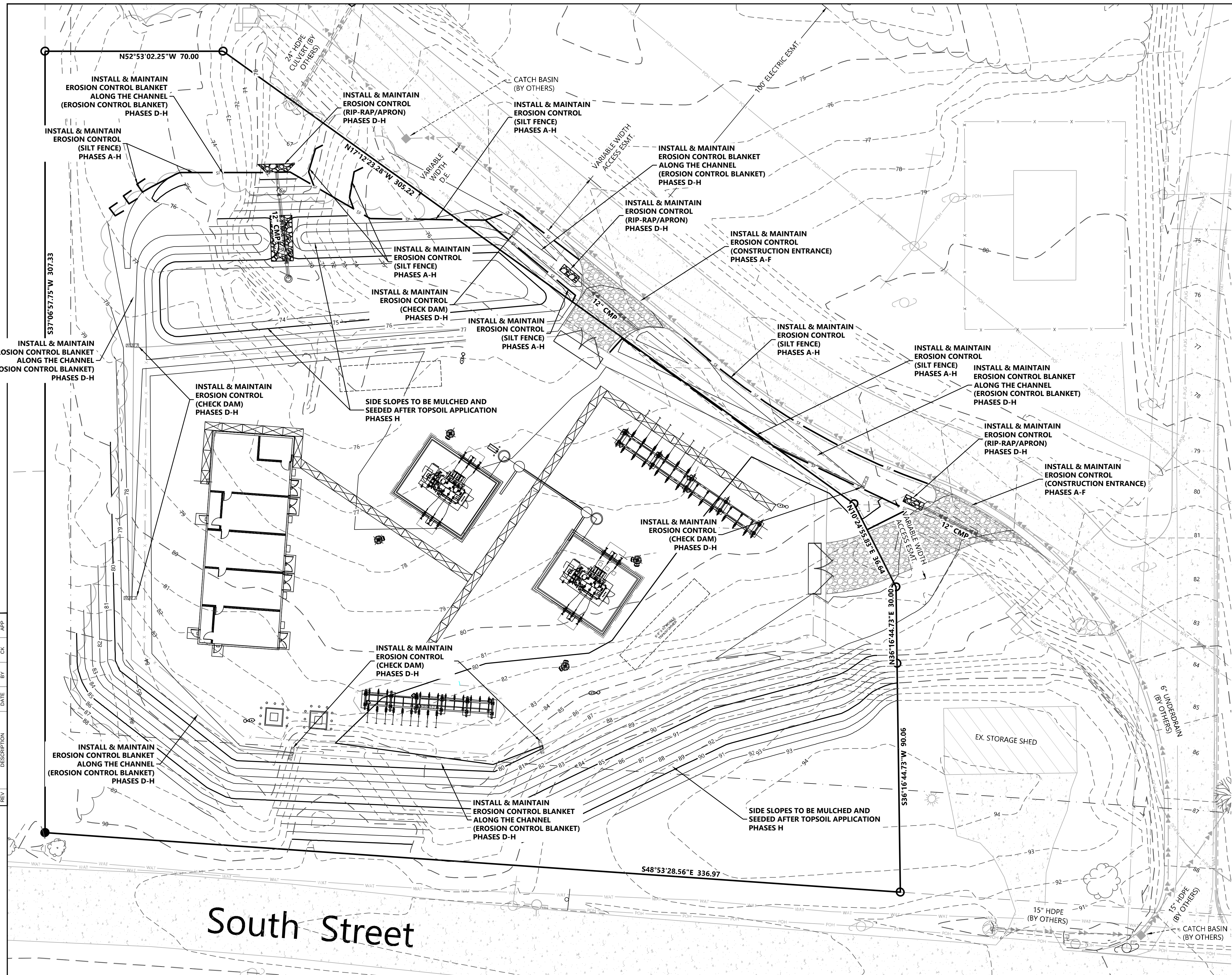
Drainage Map
January 22, 2021

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4-A	4-B	3	2					
	'12-'16				ME0106000106_612R 01_01	Goosefare Brook below I-95	Benthic-Macroinvertebrate Bioassessments (Streams)	TMDL approved by EPA (4A) 9/27/12	Approval of Statewide % Impervious Cover TMDL.
'02	'04-'16				ME0106000106_612R 01_01	Goosefare Brook	Cd, Cr, Cu, Fe, Pd, Ni, Zn	TMDL approved by EPA (4A) 9/29/2003	EPA approved TMDL 9/29/2003; name changed in 2012 - added 'below I-95'
'02-'08	'10-'16				ME0106000106_612R 01_02	Bear Brook, Saco CSO	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'02-'08	'10-'16				ME0106000106_616R 04	Bear Bk	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'04-'08				'10-'16	ME0106000204_618R 01	Saco R., Fryeburg	Escherichia coli	Applicable WQS attained; original basis for listing was incorrect	Monitoring for Statewide bacteria TMDL indicates this water attains bacteria standards
'04-'06-'08				'10-'16	ME0106000209_614R 01	Ossipee R	Escherichia coli	Applicable WQS attained; original basis for listing was incorrect	Monitoring for Statewide bacteria TMDL indicates this water attains bacteria standards
'02-'08	'10-'16				ME0106000211_616R 02	Tappan Bk	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'02-'08	'10-'16				ME0106000211_616R 03	Sawyer Bk	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'06-'10	'12-'16				ME0106000211_616R 05	Thacher Bk (Biddeford)	Benthic-Macroinvertebrate Bioassessments (Streams)	TMDL approved by EPA (4A) 9/27/12	Approval of Statewide % Impervious Cover TMDL.
'02-'08	'10-'16				ME0106000211_616R 05	Thatcher Bk (Biddeford)	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'02-'08	'10-'16				ME0106000211_616R 06	Swan Pond Brook at South Street (Biddeford)	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'06-'08	'10-'16				ME0106000211_619R 01	Saco River at Biddeford-Saco	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'02-'08	'10-'16				ME0106000301_622R 01	Kennebunk River	Escherichia coli	TMDL approved by EPA (4A) 9/28/2009	Approval of Statewide Bacteria TMDL
'06-'08	'10-'16				ME0106000301_622R 02	Lord's Brook (Lyman)	BOD, Biochemical oxygen demand	TMDL Alternative	Court-ordered controls in place



Attachment E

Civil Plans, Erosion and Sediment
Control Plans, Details, and Spill
Response Information



LEGEND:

	RIGHT-OF-WAY LINES
	EX. PARCEL LINES
	EX. EASEMENT LINES
	EX. INDEX CONTOUR
	EX. INTERVAL CONTOUR
	EX. PUBLIC ROAD
	EX. FENCE
	EX. CULVERT
	EX. OVERHEAD POWER
	EX. GAS PIPELINE
	EX. TELEPHONE LINE
	EX. WATER LINE
	STORM DRAIN
	UNDERGROUND POWER
	PROP. INDEX CONTOUR
	PROP. INTERVAL CONTOUR
	SILT FENCE

DISTURBED AREA = 1.46 ACRES

EROSION CONTROL GENERAL NOTES

1. REFER TO SHEET 1050-0003-002 SH003 FOR THE EROSION CONTROL DETAILS AND POLLUTION PREVENTION PLAN NOTES/SPECIFICATIONS/ REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL MEASURES OF THIS EROSION CONTROL PLAN (SWPPP) AND COMPLYING WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS REGARDING THE SWPPP.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING THESE MEASURE INCLUDING WATERING, MOWING AND GENERAL MAINTENANCE UNLESS OTHERWISE RELIEVED OF THESE DUTIES BY THE OWNER.

VEGETATION NOTES:

1. ALL DISTURBED AREAS NOT BEING RE-DISTURBED WITHIN A MINIMUM OF 14 DAYS MUST BE COVERED AND STABILIZED.
2. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF FINAL GRADING.
3. NO PUBLIC ACCEPTANCE UNTIL (FINAL STABILIZATION) VEGETATION IS ESTABLISHED ON ALL DISTURBED AREAS.
4. FINAL STABILIZATION IS DEFINED AS A UNIFORM PERENNIAL VEGETATIVE COVER AT A MINIMUM OF 70% RESTORATION OF THE NATIVE OR NATURAL PREEXISTING BACKGROUND COVER FOR THE AREA.

CONSTRUCTION ACTIVITIES:

THE CONSTRUCTION ACTIVITY INCLUDED IN THIS PLAN
WILL INCLUDE THE FOLLOWING CONSTRUCTION PHASES:

- A. CLEARING AND GRUBBING
- B. STOCK PILING
- C. ROUGH GRADING
- D. UTILITY INSTALLATION/EXCAVATION OF TRENCHES
- E. FINAL OR FINISH GRADING
- F. PAVEMENT INSTALLATION
- G. BUILDING CONSTRUCTION
- H. PREPARATION OF SEEDING AND PLANTING

GENERAL NOTES:

1. TOPOGRAPHIC DATA ARE FROM INPUT PROVIDED BY AVANGRID. THE PROPERTY LINE INFORMATION SHOWN ARE FROM SURVEY CONDUCTED BY JONES ASSOCIATES ON FEBRUARY 13, 2018.
2. HORIZONTAL CONTROL: NAD83, WEST ZONE
3. VERTICAL CONTROL: NAVD88 (FT).

CONTROL POINTS:

1. MAG NAIL, N: 242074.1840 E: 2862755.0930, EL: 90.65'
2. FIRE HYDRANT TOP NUT, N: 242202.9710 E: 2862600.6450, EL: 90.65'
3. 6" SPIKE, N: 242323.3640 E: 2862478.6730, EL: 90.47'

FOR BID ONLY
NOT FOR
CONSTRUCTION

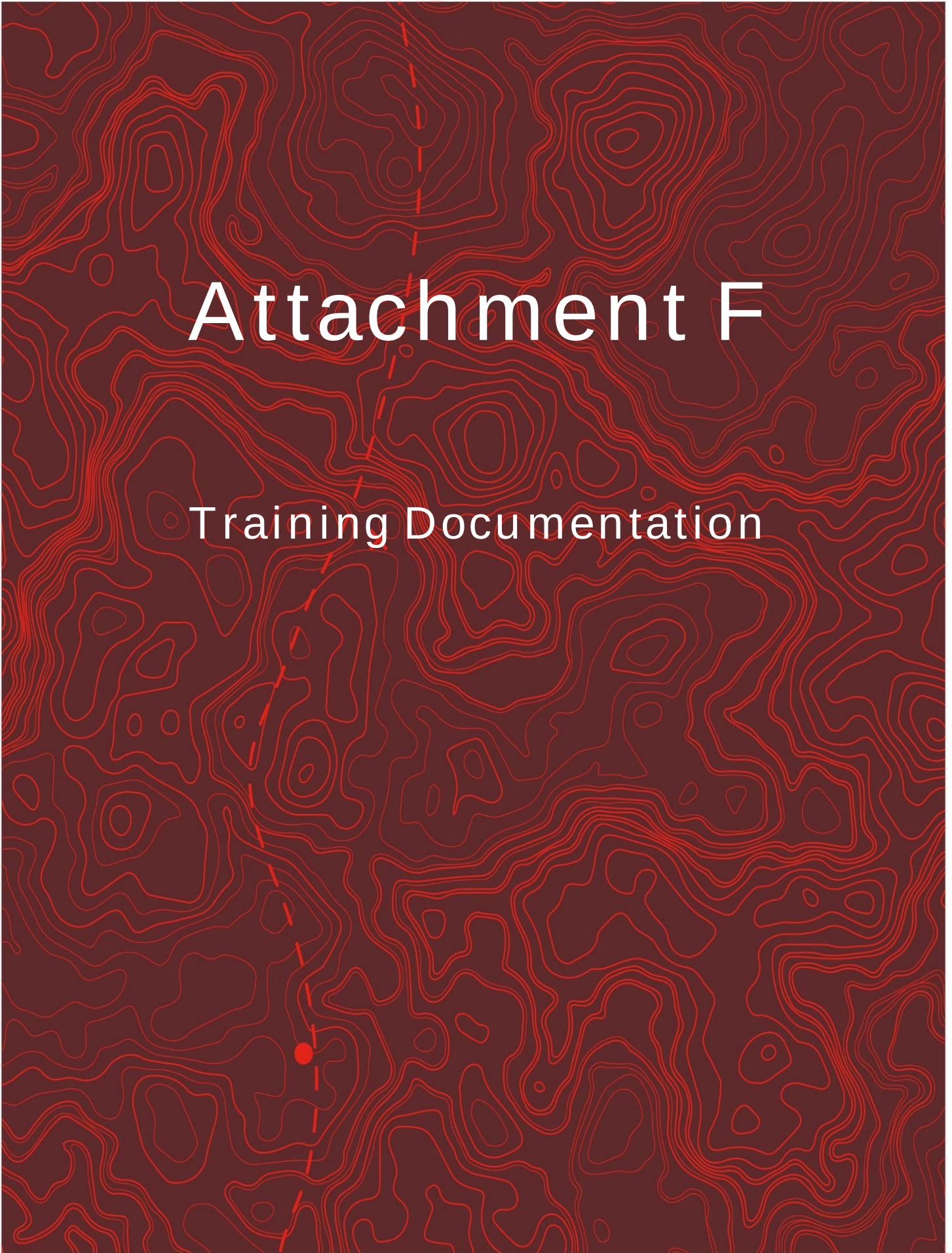
CAUTION!!!
EXISTING UTILITIES IN THE AREA. UTILITIES
LOCATION SHOWN ARE SCHEMATIC IN NATURE
AND MAY NOT ACCURATELY REFLECT SIZE,
HORIZONTAL, AND/OR VERTICAL LOCATION.
THE CONTRACTOR SHALL VERIFY THE EXACT
LOCATION PRIOR TO BEGINNING CONSTRUCTION.
CONTACT AFFECTED UTILITIES AT LEAST 48
HOURS PRIOR TO CONSTRUCTION IN THIS AREA.
(1-800-242-8511)

[illegible]

ANSI D 12/30/2020 10:22 AM

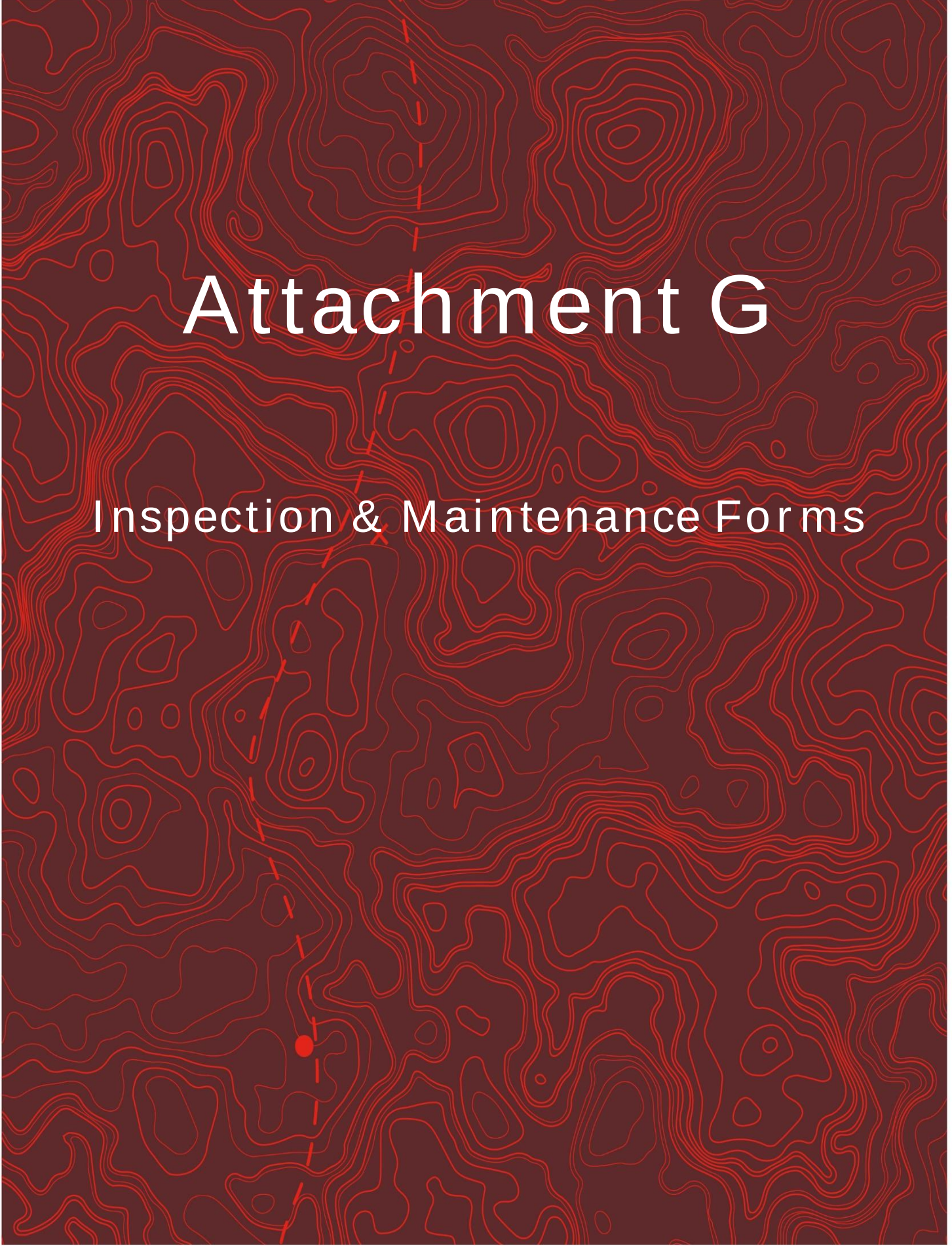
FOR BID ONLY
NOT FOR
CONSTRUCTION

PE STAMP	AVANGRID ENGINEERING CONFIDENTIAL, PROPRIETARY and TRADE SECRET INFORMATION Property of AVANGRID					 AVANGRID	Details					
								BIDDEFORD PUMP S/S		BIDDEFORD, ME		
								BY CK	BSM AA	SCALE: SEE SHEET FILE: NO.		REV 0-0C
								APP AA	DATE: XX-XX-XXXX			
	REV	DESCRIPTION	DATE	BY	CK		APP	1050-0003-002 SH003				

The background of the page is a dark red color with a complex pattern of lighter red, wavy contour lines, resembling a topographic map. A dashed red line runs vertically down the left side of the page, ending in a solid red dot near the bottom.

Attachment F

Training Documentation

The background of the page is a dark red topographic map with intricate, lighter red contour lines. A dashed red line runs vertically down the left side of the page, ending in a solid red dot near the bottom.

Attachment G

Inspection & Maintenance Forms

Maine Construction Inspection Form For Erosion And Sediment Control

General Information:		
Site Name:	Date:	Inspected by:
Owner:		
Retained 3PI:	Last Rain Date:	Amount:
Reason for Inspection (circle one):	Weekly Winter Final Pre Rain Post Rain Complaint	
Description of disturbed area:		
Photos:		
Inspection Item	YES/NO/NA	Maintenance Necessary or Comments
1. Is an Erosion and Sediment Control Plan available?		
A. ESC plan on-site and followed		
B. Other:		
2. Are all erosion control practices installed properly, maintained and functioning?		
A. Disturbed areas stable		
B. Concentrated flow inlet/outlet protection		
C. All areas at final grade		
D. Disturbed dormant areas stabilized		
E. Access roads and parking		
F. Hillsides and stockpiles		
G. Other:		
3. Are all sedimentation control practices installed properly, maintained and functioning?		
A. Construction entrance		
B. Sedimentation basins/traps/diversions		
C. Perimeter controls		
D. Check dams		
E. Other:		
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?		
A. Sedimentation/erosion in ditches		
B. Tracked Sediment or dust at exits		
C. Hazardous material storage and spill control practices		
D. Waste management (concrete, hazardous material, etc.)		
E. Other:		
5. Violation, Corrective Actions, Recommendations		
A. Sediment discharged from site?		
B. Corrective action required?		
C. Site compliant with all permits?		
D. Notice of violation or stop work order issued?		
Maintenance Action Summary		
Inspection Item Reference #	Location / Maintenance Completed	Date Completed

HAZARDOUS WASTE & HAZARDOUS MATERIAL
SPILL OR DISCHARGE REPORT FORM

All spills should be reported to the Department of Public Safety (State Police) immediately at 800-452-4664. Additionally, hazardous waste spills must be reported in writing to the DEP within 15 days. Hazardous material spills must be reported in writing to the DEP within 30 days. This form should be filled out by the spillor and returned to the DEP at the following address: Maine DEP, BRWM, 17 State House Station, Augusta, ME 04333

DATE & TIME OF CHEMICAL RELEASED: _____

NAME & ADDRESS OF COMPANY: _____
_____EXACT LOCATION OF SPILL: _____

CHEMICAL SPILLED: _____

AMOUNT: _____

CIRCUMSTANCES CAUSING RELEASE: _____

AMOUNT OF CHEMICAL RECOVERED: _____

METHOD OF RECOVERY: _____

METHOD & LOCATION OF DISPOSAL: _____
_____WERE THERE ANY PERSONAL INJURIES, HOSPITALIZATIONS OR DEATHS?

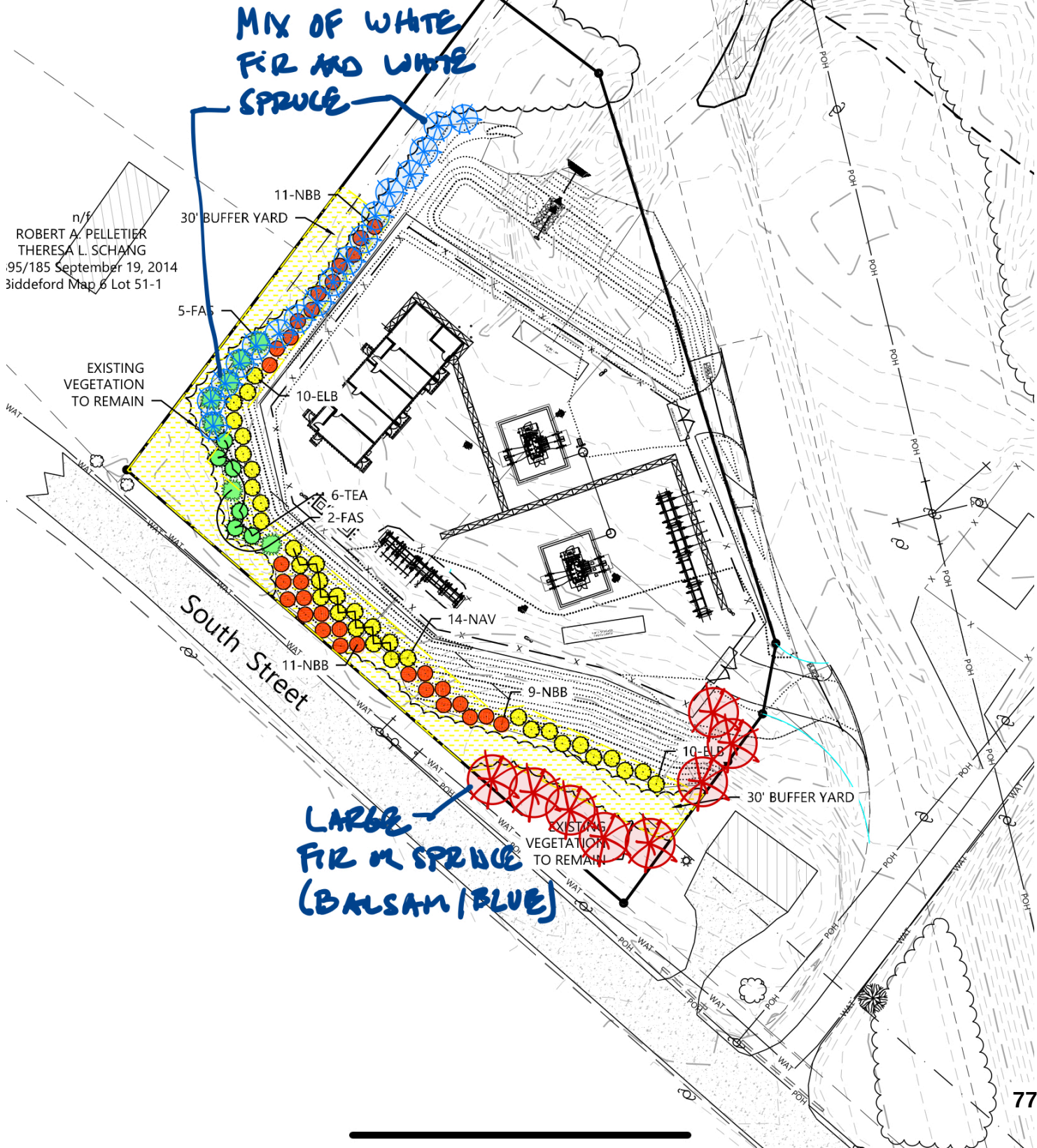
_____ACTIONS TAKEN TO PREVENT SIMILAR INCIDENT FROM RECURRING: _____

WAS THIS INCIDENT REPORTED IMMEDIATELY? DATE: _____ TIME: _____

CONTACT'S NAME: _____ PHONE# _____

REPORT PREPARED BY: _____ DATE: _____

n/f
MARTIN FAMILY TRUST
17256/525 June 16, 2016
Biddeford Map 6 Lot 51



n/f
ROBERT A. PELLETIER
THERESA L. SCHANG
.95/185 September 19, 2014
Biddeford Map 6 Lot 51-1

From: Tansley, Greg
To: ["Alex White"](#)
Cc: [Belanger, Norman](#); [Ortiz, Doris](#); [Lessard, Marc](#); [Casavant, Alan](#); [robcaribou@gmail.com](#); [abigailbrown118@gmail.com](#); [Jake Bowie](#); [Bennett, James](#)
Subject: RE: 466-468 South Street CMP Electrical Substation Application [Direct Abutter Response]
Date: Monday, January 24, 2022 8:18:00 AM

Good Morning Alex,

We will provide a copy of this email to the Planning Board and to the Applicant.

Thank you,

Greg

Greg Tansley, AICP
Deputy Director of Planning and Development
PO Box 586
Biddeford, ME 04005
207-284-9115
Greg.Tansley@Biddefordmaine.org

From: Alex White <alexlawrencewhite@gmail.com>
Sent: Sunday, January 23, 2022 9:20 AM
To: Tansley, Greg <Greg.Tansley@Biddefordmaine.org>
Cc: Belanger, Norman <Norman.Belanger@Biddefordmaine.org>; Ortiz, Doris <Doris.Ortiz@Biddefordmaine.org>; Lessard, Marc <Marc.Lessard@Biddefordmaine.org>; Casavant, Alan <Alan.Casavant@Biddefordmaine.org>; robcaribou@gmail.com; abigailbrown118@gmail.com; Tansley, Greg <Greg.Tansley@Biddefordmaine.org>; Jake Bowie <jbowie@atrlaw.pro>; Bennett, James <James.Bennett@Biddefordmaine.org>
Subject: Re: 466-468 South Street CMP Electrical Substation Application [Direct Abutter Response]

Dear Members of the Planning Board,

I am writing this email in response to the Land Use Application from The Central Maine Power Company for a Biddeford Pump Substation at 466-468 South St.

I listened to the initial sketch review during the November 3rd, 2021 Planning Board meeting and now understand that an updated submission from CMP has been made in an effort to be heard at the upcoming February 2nd, 2022 Planning Board meeting.

As a direct abutter I had some concerns when CMP presented on November 3rd, 2021 that they plan to build metal structures which are 45 feet in height. I then requested from Greg Tansley a copy of CMP's Conditional Use Application and plans which the City was using for its review. I became alarmed when I saw structures referenced along South Street but no

height and width dimensions included for these structures on any of CMP's submissions. After informing Mr Tansley that there was important information missing from these plans, I now have been sent what I understand to be a full set of architectural drawings and the final Conditional Use and Site Plan application. The originally missing architectural information for the proposed structures along South Street are now shown as electric metal structures 40 feet in height and 50 feet in width.

After carefully reviewing the Conditional Use Application as well as Biddeford zoning and conditional use standards, I have a number of concerns which I would like to submit. I have made these issues known to Mr. Tansley and I have reached out to CMP to request a meeting. CMP, after initially assuring me that they would be amenable to a meeting, have been unresponsive and we are now only 10 days away from the Planning Board meeting. Since both of these interactions I am now admittedly anxious about whether the concerns of the direct abutters are being taken seriously by CMP as well as the City.

Below is a list of concerns along with the associated required standards for a Conditional Use Permit in Biddeford which I feel CMP's application has not satisfied.

- Article VII Section 6 (B) 4: The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
 - As referenced previously, the proposed structures along South Street are 40 feet in height and 50 feet in width. CMP's proposed buffering plan, shown attached as Exhibit A, shows the addition of trees and shrubs which at planting will only be a maximum 6 feet in height. CMP also included pictures of the site which can be misleading as they are from certain angles and taken during the height of summer. I have included pictures attached as Exhibit B which were taken on January 22, 2022 from the shared driveway of 475 & 477 South Street Biddeford ME.
- Article VII Section 6 (B) 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;
 - CMP has submitted a number of projections and studies to address this standard which should be validated. At a minimum, testing should be required after a facility has been built to confirm that their projections and assumptions meet the Biddeford Conditional Use standards.
- Article VII Section 6 (B) 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;

- CMP in their submission essentially makes the argument that there is already an existing substation in the area so there should be no potential impact to home values because they are "rebuilding" the substation. I would agree with this statement if CMP was actually rebuilding a substation on their current site; however, CMP is not. CMP is proposing a new electrical substation, which is 2.5x the size of the original, on a new parcel of land which is closer to the neighboring homes and has significantly smaller setbacks from South Street than the current substation. Additionally, the parcel CMP has chosen for their new electrical substation has historically been used by single family homes and not electrical substations.
- Article VII Section 6 (B) 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;
 - Again in their application CMP makes the argument that there is an existing substation on a different parcel and that their new larger substation "fits in seamlessly with the surrounding community." They also contend that their buffering is enough to help satisfy this standard. Attached as Exhibit C is a rendering of the 40 foot in height and 50 foot in width structures which are being proposed along South Street. Since CMP is proposing adding trees 6 feet in height, even if there is a grade change and all of the landscaping is being planted at the top (which they are not) over half of the structure will be exposed.

I am putting this in writing before the February 2nd, 2022 Planning Board meeting because CMP has not responded to a request for a meeting and I have concerns that my conversations with the City are potentially falling on deaf ears. I am happy to have additional conversations about what a reasonable solution is and I invite anyone who is interested to walk the property with me to see these issues firsthand. As of right now, I do not feel CMP's application meets the standard to be granted a Conditional Use permit. I implore the Planning Board to exercise its authority and right on February 2nd, 2022 to deny the current Conditional Use Application and to require CMP to work with the neighborhood for a new solution which adequately meets the Biddeford standards for Conditional Use Approval within a residential zone.

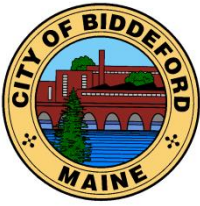
Thank you for your consideration,

Alex & Camille White 475 South Street (*direct abutter*)

Additionally Endorsed by:

Abi & Chris Brown 477 South Street (*direct abutter*)

Rob Pelletier 2 Hayfield Road (*direct abutter*)



CITY OF BIDDEFORD

Planning and Development Department

Hannah Bonine
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
Hannah.Bonine@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Southwick and Members of the Biddeford Planning Board

FROM: Hannah Bonine, Assistant City Planner *Hannah Bonine*

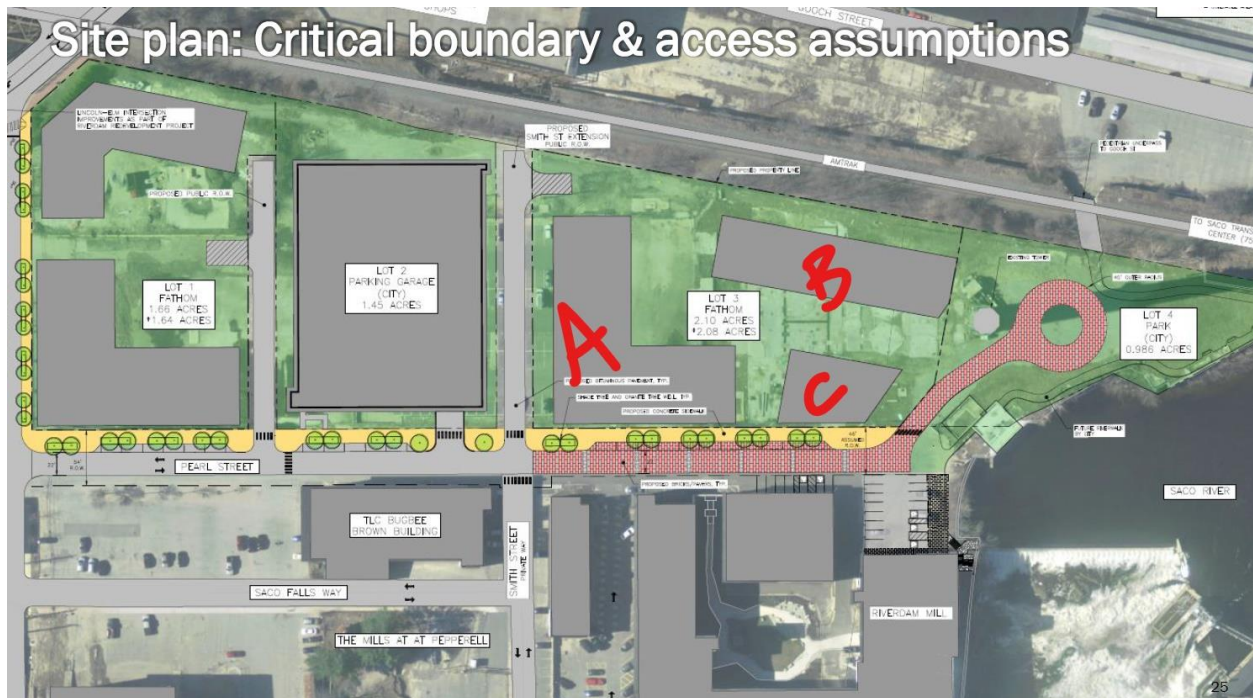
DATE: January 26, 2022

RE: **2022.02 Subdivision, Site Plan, and Shoreland Zoning Sketch Plan Review for 3 Lincoln, LLC to redevelop the former MERC site at 3 Lincoln Street (Tax Map 71, Lot 2) in the MSRD-3 zone and GD-1 Shoreland Overlay zone.**

MEETING DATE: February 2, 2022 at 6:00 PM

1. Introduction

This application proposes to subdivide the former MERC site located at 3 Lincoln Street into four (4) separate lots. Lot 1 is to be located along the corner of Lincoln Street and Pearl Street and remain undeveloped at this stage. The existing parking garage stands on the new Lot 2. Lot 3, across Pearl Street from The Lofts at Saco Falls, would have three (3) buildings constructed on it. Lot 4 is then closest to the Saco River and is being considered for a riverfront park by the city. Lot 3 is proposed to have an 83-unit residential/mixed use building (Building A), a 108-unit residential building (Building B), and a restaurant/commercial building (Building C), which would house two (2) restaurants, totaling about 298 seats. Please see the site plan submitted by Acorn Engineering below, which we marked up to show the relative locations of Buildings A, B, and C.



Please see the application packet for more details.

2. Review Process

Per City ordinance, this application is subject to Site Plan Review (Land Development Regulations, Article XI) and Subdivision review and approval (Code of Ordinances, Chapter 66). Shoreland Zoning approval may also be required, but is yet to be determined. Subdivision applications generally follow a three-tier approval process beginning with a Sketch Plan review and followed by a preliminary plan review and approval and a final plan approval.

The information contained in this Sketch Plan application satisfies the requirements stated in City ordinances for the Planning Board to review. The board then may offer general comments and concerns regarding the project and overall community impact.

Lastly, it should be noted that City Staff are working with Maine DEP to explore changes to Biddeford's Shoreland Zoning in the Downtown and Mill District areas. Future review of this project will be determined through how the amendment discussion with Maine DEP progresses. We see this as an opportunity for the applicant to present their proposal and obtain initial feedback as they continue to refine the project for future submissions and reviews.

The applicant is also required to obtain a Traffic Movement Permit (TMP) from Maine Department of Transportation. This developer has teamed with other area developers (Gooch Street and Diamond Match to be specific) to develop an approach where all three TMP's will be coordinated. More on this will follow as the process continues.

3. Waiver Requests

None at this time.

4. Recommendations

Staff provide this brief report to introduce the project to the Board. We recommend the Board listen to the applicant's presentation and public feedback. We also recommend the Board provide initial comments back to the applicant for further consideration.



SKETCH PLAN APPLICATION

3 LINCOLN STREET LOT 3 REDEVELOPMENT CITY OF BIDDEFORD, ME



Prepared By:

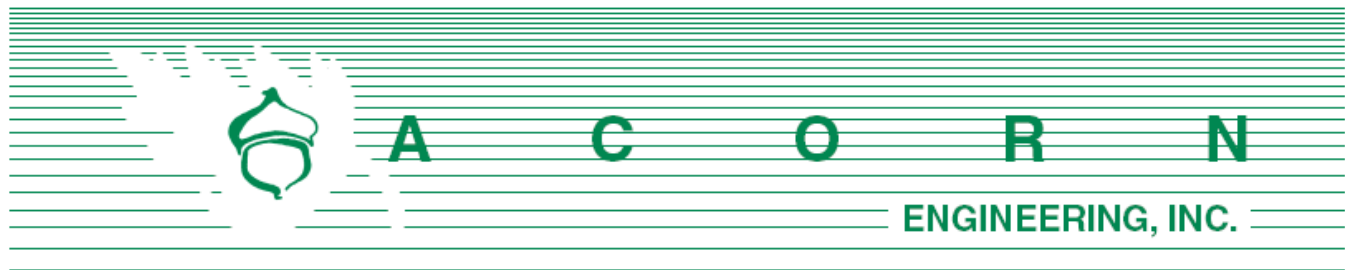
ACORN ENGINEERING, INC.

For:

3 LINCOLN, LLC.

OCTOBER, 2021





Planning Board & Planning Department
Attn: Mr. Greg Tansley
City of Biddeford, Maine
205 Main Street
Biddeford, ME 04005

October 6, 2021

Subject: Sketch Plan Application
Redevelopment 3 Lincoln Street, Lot 3, Biddeford

Members of the Board & Mr. Tansley:

On behalf of 3 Lincoln, LLC, we are pleased to submit the accompanying package of Sketch Plan and Conceptual Subdivision submission materials related to the proposed redevelopment 3 Lincoln Street, (Pearl Street Lot 3) in Biddeford, Maine. The parcel is mapped as Map: 71, Block 2, and is in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to formally subdivide the larger 3 Lincoln Street parcel into four (4) separate lots and construct three (3) buildings on Lot 3 including a 83-unit residential/mixed use building (Building A), a 108-unit residential building (Building B), and a commercial/restaurant building (Building C) with approximately 298 seats total.

Overall, this project aims to provide housing to a much-needed housing stock and build on the developing culture of Pearl Street through the addition of mixed-use developments, including two restaurants. The site will be enhanced by continuing the redeveloped of the old MERC facility, increasing the green space and providing a connection to the future Riverwalk and river front park. The team's vision for this site is to foster a community-based space for living adjacent to the scenic river. One of many redevelopments within the Mill district, this project will further increase the activity within the City's flourishing downtown.

We would respectfully request the Sketch Plan Application be placed on the November 3, 2021, Planning Board meeting. If you have any questions regarding these materials or the completeness of the application materials, please do not hesitate to contact us.

Sincerely,

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

Peter Heil P.E.
Project Manager
Acorn Engineering, Inc.

TABLE OF CONTENTS

<u>EXHIBIT #</u>	<u>TITLE</u>
1.	RIGHT, TITLE, OR INTEREST
2.	FINANCIAL & TECHNICAL CAPACITY
3.	STORMWATER MANAGEMENT REPORT
4.	EROSION & SEDIMENTATION CONTROL REPORT
5.	TRAFFIC OVERVIEW
6.	UTILITY SUMMARY
7.	PUBLIC SAFETY LETTER OF APPROVAL REQUESTS
8.	SOLID WASTE
9.	PHOTOGRAPHS
10.	VICINITY MAP



LIST OF DRAWINGS

C-01	COVER SHEET & LEGEND
C-02	GENERAL NOTES
EX	EXISTING CONDITIONS SURVEY – BY OWEN HASKELL, INC.
C-10	SITE PLAN
C-11	SUBDIVISION PLAT
C-20	UTILITY PLAN
C-40	SITE DETAILS – 1
C-41	SITE DETAILS – 2
C-42	UTILITY DETAILS - 1
C-43	UTILITY DETAILS – 2
C-44	UTILITY DETAILS - 3
C-45	DRAINAGE DETAILS
C-46	DRAINAGE & EROSION & SEDIMENTATION CONTROL DETAILS & NOTES
L-1	LANDSCAPE PLAN
	ARCHITECTURAL ELEVATIONS & FLOOR PLANS



CITY OF BIDDEFORD, MAINE
PLANNING BOARD
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

APPLICATION FORM

Type of Application:

☒ Shoreland Zoning Permit ☒ Site Plan Review ☐ Extraction
☐ Conditional Use Permit ☒ Subdivision ☐ Private Way
☐ Other: _____

Applicant Information:

Applicant's Name: 3 Lincoln, LLC
Applicant's Mailing Address: 80 Exchange Street, Suite 400, Portland, ME 04101
Applicant's Telephone: 207-317-2818

What is Applicant's legal interest in the property?

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

Owner's Name: City of Biddeford
Owner's Address: 205 Main Street, Biddeford, Maine 04005
Owner's Telephone: 207-571-0700

Agent's Name: Acorn Engineering - Peter F. Heil, PE, CPESC
Agent's Address: 65 Hanover Street, Portland, ME, 04101
Telephone: 207-775-2655

Engineer/Surveyor: Acorn Engineering / Owen Haskell
Engineer/Surveyor's Address: 65 Hanover Street, Portland, ME, 04101 / 390 U.S. Rt 1. Unit #10 Falmouth, ME, 04105
Telephone: 207-775-2655 / 207-774-0424

Project Location and Lot Information:

Street Address: Pearl Street, Biddeford, ME
Tax Map: 71 Lot: 2
Current Zoning: MSRD3 Shoreland Zoning: Yes

Size of lot: 2.08 (Lot 3) ☒ acres ☐ s.f. Lot Frontage: 324' (Pearl Street)

Existing Use on Property: Proposed Lot 3 is currently undeveloped.

Property currently serviced by:

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

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

Description of proposed use of property:

Project/Proposed Use Description: The project proposes to develop the site for three separate buildings, including a 83-unit residential/mixed use building, a 108-unit residential building, and a commercial/restaurant building with two units (approximately 298 seats total).

Property to be serviced by:

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

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

☒ If in a Shoreland Zone:Percent of residential lot coverage (Max. 20%): See sheet C-10Percent of structure expansion (Max. 30%): ☒ If Subdivision Review, number of lots proposed: 4 lots - 191 residential units☐ If a Private Way is proposed, number of lots served: ☒ If Site Plan Review, you must provide the following information:Total new square feet footprint of structures: 44,087 sfTotal new square feet paving/parking:

Waiver Requests (attach details):

1.
2.
3.
4.
5.

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 Dept (Sewer) - Tom Milligan 284-9118
- ☐ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

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

E. Engineered Plans, as required.

Fees (due at time of 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 it’s 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 review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this 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.

☒ Project proposed to have 1 acre or more of site disturbance:

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of applicant: _____

Date: _____

Signature of owner of property: _____

Date: _____

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**

CHECKLIST FOR *SITE PLAN* REQUIREMENTS

YES **NO**

- | | | |
|-------------------------------------|-------------------------------------|--|
| ☒ | ☐ | Be on sheet size of 24 by 36 inches. |
| ☒ | ☐ | The scale of said plan shall be not less than one inch equals 50 feet and shall be indicated on the plat by use of a bar scale. |
| ☒ | ☐ | The plan shall bear the date, title, north point. |
| ☒ | ☐ | The plan shall contain a location or vicinity sketch (suggested scale one inch equals 800 feet). |
| ☒ | ☐ | The plan shall contain the name and address of the developer and applicant. |
| ☒ | ☐ | All appropriate dimensional requirements. |
| ☒ | ☐ | Existing and proposed easements. |
| ☒ | ☐ | Plan of the site showing existing watercourses and water bodies, seasonal wet areas. |
| ☒ | ☐ | Plan of the site showing soil type and location of test borings. |
| ☒ | ☐ | Location of all existing and proposed utilities. |
| ☒ | ☐ | Topographic contours (every five percent for zero to three percent slope; or every two feet for steeper areas). |
| ☐ | ☒ | Plan should include preservation and supplementation of existing dominant vegetation. |
| ☒ | ☐ | Plan shall indicate which features are to be retained and which are to be removed or altered. |
| ☒ | ☐ | Location of stonewalls, graveyards, fences, stands of trees, and other important unique natural areas and site features, including but not limited to floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources, together with description of such features. |
| ☒ | ☐ | Plan view of all buildings with their use, size, location, and first-floor elevation in respect to grade. |
| ☒ | ☐ | Standard elevation view of existing and proposed buildings or structures on-site. |

YES NO

- | | | |
|-------------------------------------|--------------------------|---|
| ☒ | ☐ | Outline of any buildings located within 200 feet of such existing or proposed buildings or structures indicating their shape, size, location, heights and volume. |
| ☒ | ☐ | Existing use of abutting properties shall be identified with approximate location of any structures thereon including access roads. |
| ☒ | ☐ | Location, width, curbing, and paving of access ways, egress ways, and streets within the site for both pedestrian and vehicular use. |
| ☒ | ☐ | The location of off-street parking and loading spaces with a layout of the parking indicated. |
| ☒ | ☐ | The size and proposed location of water mains and sanitary sewerage facilities will all necessary engineering data. |
| ☒ | ☐ | The size and location of all other existing and proposed public service connections including, without limitation, gas lines, power lines, telephone lines, and fire alarm connections and locations, indicating whether above or below ground. |
| ☒ | ☐ | The type, nature, and composition of all solid, liquid, and gaseous waste, industrial or otherwise, and the location, type, and design criteria of the storage and disposal facilities dealing with such waste. |
| ☒ | ☐ | A landscape plan and open space areas indicating grade change, vegetation to be preserved, new plantings used to stabilize areas of cut and fill, screening; plus size, location, purpose and type of vegetation. |
| ☒ | ☐ | A drainage plan including location, elevation, layout of catch basins and other surface and subsurface drainage features. |
| ☒ | ☐ | Location, size and design of proposed signs and other advertising or instructional devices. |
| ☐ | ☐ | Existing and proposed contours and finished grade elevations as well as the type, extent, and location of existing and proposed landscaping and open space areas which will be retained. |
| ☒ | ☐ | Location and type of lighting for outdoor facilities. |
| ☒ | ☐ | Lines of existing and proposed abutting streets showing width. |
| ☒ | ☐ | Surveyed property lines showing their bearing and distances and monument locations. |
| ☒ | ☐ | If subdivision is involved, the lines and names of all proposed streets, lanes, ways, or easements intended to be dedicated for public or private use. |

YES **NO**

- | | | |
|-------------------------------------|-------------------------------------|---|
| ☒ | ☐ | Provide copies of any covenants or restrictions that are intended to cover all or part of the land area to be developed. |
| ☒ | ☐ | Indicate limits of the wetland areas on the property. |
| ☐ | ☒ | Delineate existing zoning boundaries within 1,000 feet of the site. |
| ☒ | ☐ | Stamp and signature of either a Maine licensed land surveyor, professional engineer, or architect responsible for said plan. |
| ☒ | ☐ | Any other exhibits or data deemed necessary by the Planning Board to evaluate the proposed development for site plan review purposes. |

Section 1: Right Title Interest

Please see attached for the Master Plan Development Agreement between 3 Lincoln, LLC and the City of Biddeford



Master Plan Development Agreement

This Master Plan Development Agreement (this “Agreement”) dated November 17, 2020 (“Effective Date”), is executed between 3 Lincoln, LLC, a Maine limited liability company (the “Developer”), having an address at P.O. Box 7486, Portland, Maine 04112 and the City of Biddeford, Maine, a Maine municipal corporation and body politic with offices at 205 Main Street, Biddeford, Maine (the “City”). The Developer and the City are collectively referred to as the “Parties.”

RECITALS

WHEREAS, the City owns the parcel of land in Biddeford, Maine commonly known as the “MERC” site located at 3 Lincoln Street, a plan of which is attached hereto as Exhibit A and a legal description of which is attached as Exhibit B (the “Site”). The Site is an irregularly shaped parcel containing approximately 8.4 acres of land bound to the west by Lincoln Street, the east by the Saco River, to the north by the Boston & Maine Railroad, Gooch Street, and to the south by Pearl Street and several commercial/industrial buildings.

WHEREAS, the City, working with a team established by the City Council, developed the 3 Lincoln Street Redevelopment Market and Feasibility Study in conjunction with Camoin Associates (the “Camoin Study”), to establish a blueprint for the redevelopment of the Site (the “Project”).

WHEREAS, the City has selected the Developer to serve as the master developer for the Project.

WHEREAS, the goals of the Project are to develop up to 400,000 square feet of new, mixed use commercial space, create between 800 and 1,800 new jobs, and increase the City’s base property value by up to \$63,000,000.

WHEREAS, the Project is expected to become an anchor within the City’s so-called “Mill District,” with the goal that the Project will support activities in the existing surrounding buildings, the RiverWalk and its amenities, and associated business development in the surrounding area.

AGREEMENT

NOW, THEREFORE, in consideration of the promises and mutual agreements contained herein and other consideration, the receipt and adequacy of which is hereby acknowledged, and intending to be bound hereby, the Parties agree as follows:

ARTICLE I

GENERAL TERMS & COMMITMENTS

1.1 **Purpose.** This Agreement sets forth the major terms and conditions under which the Parties intend to pursue the Project. The Parties recognize that, as the Project progresses, further definitions and agreements expanding the terms of this Agreement may be warranted and/or necessitated. The Parties have sought in this Agreement to (i) provide a sufficient degree of definition to facilitate planning, design and implementation within a broad scope and (ii) make certain commitments that are necessary to achieve the successful realization of the Project.

1.2 **Description of the Project.** The Project consists of the planning, permitting, and development of the Site, including coordination of the development by the City of a municipal parking garage (the “**Municipal Parking Garage**”) on the portion of the Site shown on Exhibit A as the site for those improvements (“**Garage Site**”) and the development of buildings adjacent to the Municipal Parking Garage generally located on the east and west sides of that structure on the development sites shown on Exhibit A (collectively the “**Development Sites**”) as commercial, residential, academic, hospitality, retail or other uses (collectively the “**Adjacent Buildings**”). The Parties shall progress through each stage of the Project, consistent with **Section 1.3** below, giving due consideration to Site conditions, financial feasibility, and other commercially reasonable development considerations. The Parties expressly acknowledge the need to provide reasonable flexibility to the Developer to enable the Developer to respond to changing market conditions and intend that the scope of the Project be interpreted and adjusted by the City and the Developer in a manner that will promote, and not hinder, a commercially reasonable and economically viable redevelopment of the Site. Without limitation of the foregoing, as of the date of the Agreement, the Project and its various elements are envisioned to be generally consistent with the Camoin Study. In the course of modifying and refining these initial plans throughout the development process, the Developer will seek to incorporate a mixture of residential, retail, office, hospitality, education and service uses with the adjacent Municipal Parking Garage, park area, street system, the RiverWalk and other amenities intended to foster the creation of an economically vibrant, urban style mixed use destination, generally as contemplated by the Camoin Study and in accordance with the principles enumerated in **Section 3.1** of this Agreement.

1.3 **Project Schedule.** The Project shall proceed in accordance with the following schedule (the “**Project Development Schedule**”):

As of the Effective Date, the City shall deliver to Developer a garage concept plan deemed suitable by the Developer (as set forth in **Section 3.2** below) including, without limitation, all four elevations, a section plan, parking space count, structural plan, and other AIA standard elements (“**Garage Concept Plan**”) (the date of delivery referred to as the “**Start Date**”).

1.3.2 Within three (3) months following the Start Date, the Developer shall prepare (or have prepared) and present to the City a concept plan for the development of each of the Development Sites (the “**Preliminary Concept Plan**”). In the event that the City determines that the Preliminary Concept Plan is not suitable, and the City and the Developer are unable to

agree to revisions to the Preliminary Concept Plan that make such plan suitable to the City, the City shall be permitted to terminate this Agreement in accordance with Article VI; provided, that in the event that the City terminates this Agreement pursuant to this Section 1.3.2, the City shall reimburse the Developer for all costs and expenses incurred prior to the date of termination, plus twenty percent (20%) to partially compensate the Developer for its time and effort.

1.3.3 Within the six (6) month period following written notice of acceptance of the Preliminary Concept Plan by the City, the Parties shall agree to a financial plan and, utilizing design plans associated with the Municipal Parking Garage, shall work together to create concept plans depicting the layout and design of the Development Sites and the Site as a whole, including site design concepts, internal layout, and building use scenarios (the “Site Concept Plans”). The Site Concepts Plans also shall set forth a timetable by which Developer shall complete the improvements described in the Site Concept Plans with agreed upon financial penalties if such timetables are not reasonably accomplished. In the event that the City or the Developer determines that the proposed Site Concept Plans are not suitable, and the City and the Developer are unable to agree to revisions to the Site Concept Plans that make such plans suitable to the City or the Developer, the City or Developer shall be permitted to terminate this Agreement in accordance with Article VI; provided, that in the event that the City terminates this Agreement pursuant to this Section 1.3.3, the City shall reimburse the Developer for all costs and expenses incurred prior to the date of termination, plus twenty percent (20%) to partially compensate the Developer for its time and effort.

1.3.4 During the six (6) month period following the approval by the City and Developer of the Site Concept Plans, each of the City and the Developer shall use commercially reasonable efforts to obtain all federal, state and municipal permits and approvals (“Governmental Approvals”) necessary to proceed with the development and improvements described in the Site Concept Plans. The City shall have primary responsibility for the Governmental Approvals required for the Municipal Parking Garage and related improvements and the Developer shall have primary responsibility for the Governmental Approvals required for the buildings and related improvements to be located on the Development Sites; provided that the Parties acknowledge that as an integrated master development the Governmental Approvals are likely to be highly integrated and interdependent, and therefore agree to work cooperatively and on a coordinated basis to obtain the Governmental Approvals.

1.3.5 Throughout the period specified in Sections 1.3.2-1.3.4 above, the Parties shall work together to identify candidates as potential tenants, joint venture participants, co-developers, or other users for the Development Sites.

1.3.6 The milestone dates set forth in Sections 1.3.2, 1.3.3 and 1.3.4 shall be extended in the event the Municipal Parking Garage has not achieved the same milestone as specified in each Section for the Project. The extension of the applicable milestone shall be coterminous with the date the Municipal Parking Garage achieves its corresponding milestone, in order to assure that the pace of development of the Project does not proceed at a substantially

more rapid rate than the development of the Municipal Parking Garage, which is an critical element in the Developer's ability to successfully develop the Project.

1.4 Exclusive Development. The Parties shall work exclusively with each other, in good faith, to develop the Project. This Agreement shall not extend to any other activities, transactions or relationships other than with respect to the Project and the transactions contemplated by this Agreement. Nothing in this Agreement shall preclude or restrict either Party from conducting its business as it determines in its sole and absolute discretion other than in connection with the Project, and neither Party shall have any rights or obligations in and to the other Party's independent ventures or the income or profits derived therefrom, including any ventures located proximate to the site.

1.5 Personnel and Resources. Each Party shall make available, at all reasonable times and location, the personnel and resources reasonably necessary to complete such Party's responsibilities with respect to the development of the Project.

1.6 Manner of Development. The Parties acknowledge and agree that the development of the Adjacent Buildings may be undertaken by the Developer through whatever means or transaction structure the Developer determines appropriate, including through direct ownership and development by Developer, leasing or re-sale to third parties, co-development with joint venture partners, subdivision and sale for development of all or portions of the Development Sites or Adjacent Buildings, declaration of one or more condominiums or through use of any other means or transaction structures as Developer determines appropriate, with the overall goal of developing the Development Sites on the basis described herein (the foregoing being referred to herein as "Development Relationships"). Developer agrees that in the event the development of the Adjacent Buildings is undertaken by anyone other than Developer or its related entities, Developer shall first obtain the written consent of the City to the involvement of any third party individuals or entities, which consent shall not be unreasonably withheld.

ARTICLE II PURCHASE OPTION

2.1 Purchase Option. The City hereby grants to the Developer an exclusive option (the "Option") to purchase either or both of the Development Sites, including all rights, privileges, easements and appurtenances thereto existing or as necessary or convenient for the construction, development and operation of the Adjacent Buildings and other improvements identified and defined in the Site Concept Plans, but specifically excluding the cell tower site (the "Subject Property"). This Option applies to the Subject Property both in its current state and in the event it is further developed. The Subject Property shall be conveyed together with all improvements thereon, all easements and rights of way relating thereto, all appurtenances thereto, as well as any common element interests therein, and subject to the terms and conditions set forth in this Agreement.

2.2 Terms of the Option. The Option granted hereby shall have the following terms and conditions:

2.2.1 Term: The Option shall have a term beginning on the Effective Date and expiring eighteen (18) months following receipt of all Governmental Approvals pursuant to Section 1.3.5 hereof, unless the same shall sooner be exercised or terminated in accordance with the terms hereof ("Option Term").

2.2.2 Purchase Price: The total purchase price for the Subject Properties if they are purchased together shall be One Million Two Hundred Thousand Dollars (\$1,200,000) (the "Purchase Price").

2.2.3 Exercise of Option: Upon satisfaction of the Condition of Exercise described in Section 2.2.4 below, the Option may be exercised by the Developer by the transmittal of a signed written notice of the Developer's exercise of the Option ("Notice of Exercise"), and specifying the date, time and place for closing on the purchase of the Subject Property, which shall not be later than ninety (90) days following the date of the Notice of Exercise ("Closing Date"). The Developer shall have the right to exercise the Option with respect to either or both Subject Properties, and if exercised for one of the Subject Properties the Option shall continue in force for the other Subject Property for the remainder of the Option Term. If the Developer exercises the Option separately, the purchase price for the first property shall be Seven Hundred Thousand Dollars (\$700,000) and the purchase price for the second property shall be Seven Hundred Thousand Dollars (\$700,000) for a combined purchase price of One Million Four Hundred Thousand Dollars (\$1,400,000).

2.2.4 Condition of Exercise: It shall be a condition of exercise of the Option that the Site Concept Plans shall have been completed pursuant to Section 1.3.3 above.

2.2.5 Closing: The closing of the purchase of each Subject Property hereunder shall be conducted in accordance with the following provisions:

(a) The City shall sell, assign, convey, transfer and deliver title to the Subject Property together with all easements, licenses, rights of way and appurtenant rights reasonably required in order to develop the Subject Property in accordance with the Site Concept Plan, and together therewith all surveys, plans, specifications, title commitments or policies and other records, files or information related to the development of the Subject Property in accordance with the Site Concept Plan, free and clear of any liens, encumbrances or restrictions of any nature, except for the Permitted Real Property Liens. "Permitted Real Property Liens" means: (i) real property taxes for the current tax year that are not due and payable as of the Closing date, (ii) any liens, encumbrances or other title exception or nonconformity accepted by, or not expressly objected to in writing by, the Developer at or before Closing, and (iii) local, state and federal laws, ordinances or governmental regulations, including but not limited to, building and zoning laws, ordinances and regulations.

(b) The Developer shall pay the Purchase Price by wire transfer to an account specified by the City, as increased or decreased by applicable prorations and adjustments, including (i) all real and personal property taxes and similar ad valorem obligations levied with respect to the Subject Property for a taxable period that includes (but does not end on) the Closing Date based on the number of days of such taxable period included in the period ending with and including the Closing Date, (ii) any and all other income and expenses items that relate to the Subject Property that are incurred during a period beginning before the Closing Date and ending after the Closing Date, including but not limited to (i) water, sewer, electricity, gas, oil, telephone and other utility expenses, and (ii) payments under any contracts or agreements related to the Subject Property that Developer agrees to accept an assignment (collectively, the “Prorations”). The Prorations shall be apportioned as of the Closing Date such that the City shall be liable for that portion of such Prorations relating to, or arising in respect of, periods through and including the Closing Date and Developer shall be liable for (and shall reimburse the City to the extent City shall have paid) that portion of such expense items relating to, or arising in respect to, periods after the Closing Date.

2.3 Memorandum of Option. The Parties agree that upon request of either Party, a Memorandum of Option incorporating the terms hereof may be filed in the York County Registry of Deeds in lieu of the filing of the whole of this Agreement.

ARTICLE III RESPONSIBILITIES OF PARTIES

The Developer and the City have agreed to implement the vision and objectives embodied in the Camoin Study by agreeing to complete the responsibilities of each Party enumerated in this Agreement. The Parties acknowledge that this is a joint public and private enterprise in which the Parties will work closely together to further the completion of the Project. The following responsibilities are hereby assigned to the Parties:

3.1 Developer Responsibilities. The Developer shall use commercially reasonable efforts to:

3.1.1 Perform its obligations pursuant to Article I hereof.

3.1.2 Design, develop and construct the Adjacent Buildings in accordance with the Site Concept Plans, or arrange for their design, development and construction through one or more Development Relationships. The Parties agree that the development of the Adjacent Buildings may be phased.

3.1.3 In designing and developing the Adjacent Buildings, the Developer shall consider the following factors:

- a. Site use plans that incorporate urban mixed use principles;

b. Transit and pedestrian orientation with existing or future facilities in the Mill District;

c. Connection to surrounding properties, including cross track connections to the Saco-Lowell Building, potential use of buildings and building sites on Elm Street and the potentially re-aligned Lincoln and Pearl Streets; and

d. Coordination with mill owners in the Mill District, particularly as it relates to energy self-sufficiency.

3.2 City Responsibilities. Perform its obligations pursuant to Article I hereof.

3.2.2 The City shall continue to move forward with and make progress on the development of the Municipal Parking Garage and shall use best efforts to keep the Developer apprised of all design plans and changes. The Developer's responsibilities under this Agreement shall be conditional upon the Developer's deeming suitable the Garage Concept Plan, which shall include the Developer having sufficient time and opportunity to review the Garage Concept Plan and to exercise the Developer's judgment, at its sole discretion, regarding the suitability of such Garage Concept Plan. In the event that the Developer determines that the Garage Concept Plan is not suitable, and the City and the Developer are unable to agree to revisions to the Garage Concept Plan that make such plan suitable to the Developer, the Developer shall be permitted to terminate this Agreement with no further obligation and without penalty, as specified in Article VI.

3.2.3 The City shall continue to move forward on the planning, design and construction of the next phase of the RiverWalk.

3.2.4 The City shall pursue the planning and design of smart infrastructure for the benefit of 3 Lincoln Street and downtown Biddeford, including without limitation, gigabit internet service, wireless broadband mesh network, LED lighting, video and sensor technology, and the software required to store, analyze and secure data transmitted through this smart infrastructure.

3.2.5 The City and Maine Energy Recovery Company, LP, the former owner of the Site, pursuant to a Voluntary Response Action Plan ("VRAP"), completed environmental remedial actions on the Site resulting in a Maine Department of Environmental Protection Certification of Completion of a Voluntary Response Action Plan. The Certification of Completion is recorded in the York County Registry of Deeds in Book 17072, Page 169. Developer recognizes and agrees that the Certification of Completion and the Declaration of Environmental Covenant recorded in the York County Registry of Deeds in Book 17098, Page 898 imposes certain covenants, conditions and restrictions on the Site that are binding upon Developer and its successors and assigns. Developer agrees that the Certification of Completion is satisfactory evidence that all required environmental remediation on the Site was completed as of the date of the Certification of Remediation and that the City's obligations to complete any additional environmental remediation at the Site required in order to allow for the development of the Site contemplated hereby, including the financing of such development with financial institutions, is limited to environmental conditions occurring after the date of the Certification of

Completion. In the event that any such remediation is necessary, the City will provide to Developer, on or before the Closing Date for each Subject Property, evidence of the required remediation in form reasonably acceptable to Developer and any financial institutions financing the Municipal Parking Garage and Adjacent Buildings, including the environmental clearances listed on Exhibit C hereto.

3.2.6 The City shall provide the Developer with all environmental site assessments (phase 1 and 2 together with any additional test results), geotech studies, the results from test borings, soil samples, monitoring wells, and all other background information in the City's possession, or under its control, pertaining to the Site.

3.2.7 The City will assist the Developer in any local or state reviews necessary for the development of the Site.

3.2.8 The City shall exercise best efforts to assure that the Developer is not required to bear the cost of all offsite improvements necessary to support the contemplated development of the Project, including any costs necessary to ensure that utilities adequate to support the contemplated development are delivered to the Subject Property.

3.2.9 The City will work with the Developer to identify a full range of financial, tax, and development incentives for the redevelopment of the Site; provided, that the City's obligations under this Section 3.2.9 are subject to the Developer's cooperation in providing reasonably requested financial and project-level information. Any such financial information provided by the Developer shall be treated as confidential information pursuant to this Agreement and as confidential business information to the extent allowed by law and protected as such.

3.2.10 The City shall promptly provide to the Developer all information it has related to potential Development Relationships.

3.3 Joint Party Responsibilities.

3.3.1 Performance: Time is of the essence and a material provision of this Agreement. The Developer and the City shall exercise commercially reasonable efforts to coordinate their development efforts and recognize that meeting the timelines contained herein are, in part, contingent upon the overall success of developing their respective portions of the Projects and market trends. The Parties may agree to mutually extend the timeframes specified herein as appropriate based on overall development progress; provided, however, that if one or more of the Parties does not meet a timeframe specified in this Agreement and the Parties cannot mutually agree upon an extension of such timeframe, such failure to meet the original timeframe shall be treated as an Event of Default, as defined below.

3.3.2 Access to Information: Upon reasonable request, each Party shall provide the other Party with full and complete access to data, documents, and any other information pertinent to the Project in order to permit each Party to perform an adequate due diligence review of matters related to the Project at each stage of development.

3.3.3 Cooperation: In addition to the actions recited herein and contemplated to be performed, executed and delivered by each Party, each Party shall perform, execute and deliver or cause to be performed, executed and delivered hereafter any and all further acts, deeds and assurances as the other Party may reasonably require to consummate or evidence the consummation of the transaction and/or the discharge of the obligations contemplated herein. The City and the Developer shall use reasonable efforts to coordinate the timing and installation/construction of all offsite improvements, if any, required in connection with the development of the Project.

3.3.4 Confidentiality: Neither Party, nor any permitted affiliate, agent or advisor of either Party shall: (a) disclose to any third party any information concerning the Project, the Site, prospective or actual Developer Relationships, the other Party, its affiliates or this Agreement; or (b) use any such information in any manner which may directly or indirectly negatively impact the Project, the other Party, or its affiliates, except that such information may be disclosed by such Party if required by law or, following written notice to the Party whose information is to be disclosed, to any lender or prospective lender or other entity necessary to develop or finance each portion of the Project. This confidentiality requirement shall not restrict the release of information which: (i) is or becomes generally available to the public other than as a result of disclosure by the other Party or its representatives, (ii) was or becomes available to the receiving Party on a non-confidential basis from a source other than the disclosing Party or its representatives; provided, that, to the receiving Party's knowledge and after due inquiry, such source is not prohibited from disclosing such information to the receiving Party by a contractual, legal or fiduciary obligation to the disclosing Party or its representatives, or (iii) is independently developed by the receiving Party without violating its obligations hereunder. In the event that this Agreement terminates prior to the purchase of the Subject Property by the Developer pursuant to Article 2 herein, then all such data, plans, proposals, and other materials furnished hereunder shall be returned to the Party from whom received, with an appropriate assurance that all copies thereof have been destroyed, except for those materials that were presented to the Developer, the Biddeford City Council or other governing body of the Parties. The obligations established pursuant to this section shall survive any termination of this Agreement and the withdrawal of a Party for a period of three (3) years.

ARTICLE IV LIMIT OF LIABILITY

Notwithstanding any other provision of this Agreement, in no event shall the Parties or any of their Affiliates, by reason of any of their respective acts or omissions relating to the development, negotiation, design, financing, ownership, construction, operation or maintenance of the Project, or relation to any of their obligations under this Agreement, be liable whether in contract, tort, misrepresentation, warranty, negligence, strict liability, or otherwise for any special, indirect, or consequential damages arising out of or in connection with this Agreement, or the performance, non-performance or breach thereof.

ARTICLE V

INDEMNIFICATION

Each Party shall indemnify, defend, and hold harmless the other Party and its agents, servants, officers, directors, employees and Affiliates from and against any loss, cost, liability, claim, damage, expense (including, without limitation, all out-of-pocket expenses, reasonable attorneys' and paralegal fees, disbursements and costs), penalty or fine incurred in connection with any claim or cause of action arising from or in connection with any claim or cause of action arising from or in connection with the Project or this Agreement to the extent caused by the negligence, misrepresentation, fraud, fault or misconduct of the indemnifying Party or any of its Affiliates.

The City's duty to indemnify shall not waive any defense, immunity or limitations of liability, which may be available to the City, its officers, agents, or employees, under the Maine Tort Claims Act, 14 M.R.S. §8101, et seq., or any other privileges or immunities as may be provided by law.

The Developer shall maintain commercial general liability insurance with coverage for personal injury liability and/or property damage liability with minimum limits of not less than \$1,000,000 per occurrence, and shall name the City as an additional insured on such policies.

ARTICLE VI

DEFAULT AND REMEDIES

6.1 Events of Default. The following shall each constitute an event of default under this Agreement (each, an "Event of Default"),

6.1.1 The Developer's failure to observe or perform any covenant, agreement, or obligation of the Developer set forth in this Agreement, whether or not specifically identified in this Agreement as an Event of Default.

6.1.2 The City's failure to observe or perform any covenant, agreement, or obligation of the Developer set forth in this Agreement, whether or not specifically identified in this Agreement as an Event of Default.

6.1.3 The filing by the Developer of any petition or the initiation of any proceedings under the United States Bankruptcy Code or under any act or acts, state or federal, dealing with, or relating to the subject or subjects of bankruptcy or insolvency, or under any amendment of such act or acts, either as a bankrupt or as an insolvent, or as a debtor, or in any similar capacity, by the Developer; or any involuntary petition in bankruptcy is filed against the Developer and the same is not stayed or discharged within sixty (60) days from such filing; or any other petition or any other proceedings of the foregoing or similar kind or character is filed or instituted or taken against the Developer, or a receiver of the business or of the property or assets

of the Developer, is appointed by any court, except a receiver appointed at the insistence or request of the City; or the Developer makes any assignment for the benefit of its creditors;

6.2 Opportunity to Cure. If an Event of Default occurs, the non-breaching Party shall give the breaching Party written notice of the Event of Default and an opportunity to cure of not less than thirty (30) days, and if the default is, of its nature, not curable within 30 days, then a reasonable period to effect a cure given the nature of the default.

6.3 Remedies. In the event that the breaching Party fails to cure an Event of Default within the cure period set forth in Section 6.2, then the non-breaching Party shall be entitled to pursue any and all legal or equitable remedies available to it under the circumstances.

ARTICLE VII REPRESENTATIONS AND WARRANTIES

7.1 Representations and Warranties. Each Party represents and warrants to the other that:

7.1.1 it is duly qualified to do business and is in good standing in the State of Maine;

7.1.2 it has full power and authority to execute, deliver and perform its obligations under this Agreement;

7.1.3 the execution, delivery and performance of this Agreement has been duly and validly authorized by all necessary action by such Party; and

7.1.4 the execution and delivery of this Agreement by such Party and the performance of the terms, covenants and conditions contained herein will not violate the articles of incorporation or by-laws of such Party, or any order of a court or arbitrator, and will not conflict with and will not constitute a material breach of, or default under, the provisions of any material contract by which either Party is bound.

ARTICLE VIII FORCE MAJEURE

The timeframes and deadlines for performance of the obligations of the Parties shall be specified herein shall be extended during the period of any force majeure. For the purposes of this Agreement, “force majeure” shall mean and include all factors, circumstances, transactions, occurrences and other actions beyond the direct control of the Party, including without limiting the generality of the foregoing, labor disputes, civil disturbance, war, war-like operations, invasions, rebellion, hostilities, military or usurped power, sabotage, fires or other casualty, or acts of God that have the effect of rendering practically unavailable materials or labor or other resources necessary to perform the obligation or responsibility in a timely manner.

ARTICLE IX
MISCELLANEOUS

9.1 Right to Require Performance. The failure of either Party at any time to require performance by the other Party of any provisions hereof shall in no way affect the right of such Party thereafter to enforce same. Nor shall waiver by either Party of any breach of any provisions hereof be taken or held to be a waiver of any succeeding breach of such provisions or as a waiver of any provision itself.

9.2 City Agencies and Regulators. This Agreement is not intended to supersede the authority granted by law to any regulatory board or agency of the City. Such regulatory boards and agencies must perform their responsibilities in accordance with the law governing that performance. Therefore, nothing in this Agreement shall be construed or implied to require the City's planning, zoning, land use or other regulatory boards or agencies (however designated) to approve the plans for any aspect of the Project or other action required under this Agreement. Such boards and agencies are not obligated in any way by this Agreement

9.3 Relationship of Parties This Agreement shall not be interpreted or construed to independently create an association, joint venture, or partnership between the Parties or to impose any partnership obligation or liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent of representative of, or to otherwise bind, the other Party.

9.4 Affiliates. The Developer may form or employ related Affiliates for purposes of participating in the Project. It is expressly recognized that the Developer contemplates use of one or more special purpose entities to develop the Adjacent Buildings.

9.5 Definition of Terms. It is agreed by the Parties hereto that reference in this Agreement to the City and the Developer, and all expressions referring thereto, shall mean the party, person, or persons named above as the City and the Developer, as the case may be, their successors and assigns, or any person, persons, or parties claiming by, through or under them.

9.6 Integration. This Agreement encompasses the entire Agreement of the Parties, and supersedes all previous understandings and agreements between the Parties, whether oral or written. The Parties hereby acknowledge and represent, by affixing their hands and seals hereto, that the Parties have not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this Agreement, made by or on behalf of any other Party or any other person or entity whatsoever, prior to the execution of this Agreement. The Parties hereby waive all rights and remedies, at law or in equity, arising or which may arise as the result of a Party's reliance on such representation, assertion, guarantee, warranty, collateral contract or other assurance, provided that nothing herein contained shall be construed as a restriction or limitation of the Party's right to remedies associated with the gross negligence, willful misconduct or fraud of

any person or party taking place prior to, or contemporaneously with, the execution of this Agreement.

9.7 No Oral Modifications. This Agreement may not be amended or terminated orally. This Agreement and all the covenants, terms and provisions contained herein shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns. Except for an affiliated single purpose entity organized by the Developer to construct and operate the Project, neither this Agreement nor any of the rights, interests or obligations under this Agreement may be assigned or delegated by any Party, without the prior written consent of the other Party. This Agreement is not intended to confer any rights or benefits to any entity other than to the City and to the Developer, its affiliate entity organized to construct and operate the Project, and its affiliates.

9.8 Mutual Cooperation and Further Agreements. The Parties acknowledge that the obligations set further herein may be further described in other agreements as agreed to by the Parties. The City and the Developer agree to cooperate in good faith with regard to each and every aspect required for the completion of all operations contemplated by this Agreement. The Parties further agree to negotiate in good faith and to enter such other and further agreements as may be necessary to implement any aspect of design, engineering, construction or facility operation contemplated under this Agreement.

9.9 Expenses. Each Party shall pay all charges and fees in connection with employment of its respective attorneys relating to the negotiation of this Agreement, the Option, and the Definitive Agreement.

9.10 Notice. All notices required to be given to the City or the Developer under this Agreement shall be in writing and deemed given upon the earlier of actual receipt by personal delivery or two (2) days after being mailed by U.S. priority, registered or certified mail, return receipt requested, or a reputable overnight courier as follows:

City	City of Biddeford c/o James A. Bennett, (or the then current) City Manager P.O. Box 586 205 Main Street Biddeford, Maine 04005
With a copy to	Keith R. Jacques, Esq. Woodman Edmands Danylik Austin Smith & Jacques, P.A. P.O. Box 468 234 Main Street Biddeford, Maine 04005
Developer	3 Lincoln LLC

c/o James H. Brady, manager
P.O. Box 7486
Portland, ME 04112-7486

With a copy to Christopher E. Howard
Pierce Atwood LLP
254 Commercial Street
Portland, Maine 04101

9.11 Governing Law. This Agreement is and shall constitute a contract under and is to be construed in accordance with the laws of the State of Maine. Any dispute resulting in legal action and not resolved by arbitration, mediation, or such other method as may be mutually agreed to by the Parties shall be adjudicated within the jurisdiction of the State of Maine.

9.12 Severability. Any provision or part of the Agreement held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the Parties, who agree that the Agreement shall be reformed to replace such stricken provisions or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provisions.

9.13 Survival. All express representations, warranties, indemnifications or limitations of liability made in or given in this Agreement shall survive the expiration or the termination of this Agreement for any reason.

9.14 Mediation/Arbitration. The Parties hereto agree that prior to filing litigation they will consider alternative dispute resolution techniques such as mediation and arbitration to resolve all claims, counterclaims, disputes and other matters in question between the Parties arising out of this Agreement.

[Remainder of page intentionally blank]

17 day of Nov, 2020.

3 Lincoln, LLC

Its:

By:

Title: City Manager

Witness Jonathan Benoit

Witness

City of Biddeford, Maine

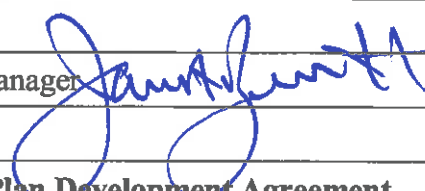


The Office of
City Manager

James A. Bennett

Email: jbennett@biddefordmaine.org

MEMORANDUM

TO:	BE Fidler LLC
FROM:	James A. Bennett, City Manager 
DATE:	December 19, 2019
RE:	Clarification to Master Plan Development Agreement

This memo issued to clarify .section 1.3.6 of the Master Plan Development agreement. That section contemplates that milestone dates within the agreement shall be extended if the parking garage was unable to meet its milestone. This section shall be broadly interpreted to include any delays that might occur that are a result of any infrastructure design, approval or construction required to serve the parking garage, including, but not limited to:

- Pearl Street Road Design and Construction;
- Pearl Street Utilities Design and Construction, including water and sewer improvements;
or
- Pearl Street Pedestrian and Landscape design and construction, including direct links to the Riverwalk.

Finally, nothing within the agreement, nor within this memo prohibits the parties to mutually extend any deadline contained within the agreement. Any extension shall be done in writing.

Exhibit A
Site Plan

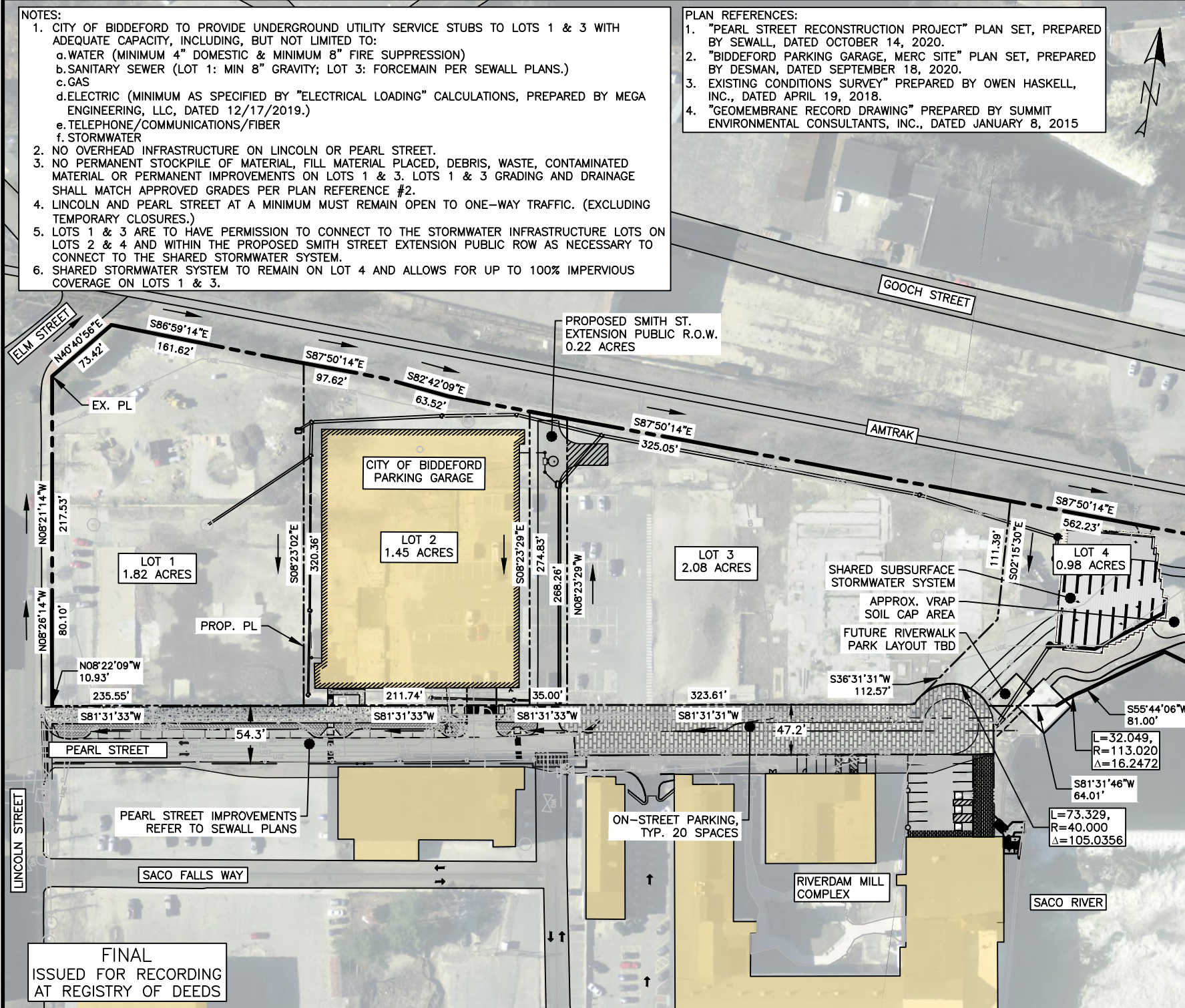
[insert Site Plan]

NOTES:

- CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - GAS
 - ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - TELEPHONE/COMMUNICATIONS/FIBER
 - STORMWATER
- NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
- NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
- LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
- LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
- SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

PLAN REFERENCES:

- "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
- "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
- EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
- "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015

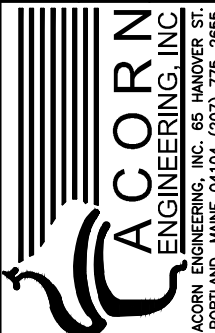


ISSUED FOR
JDA EXHIBIT

DRAWING NAME:
OVERALL SITE EXHIBIT

PROJECT NAME:
PEARL STREET &
MERC REDEVELOPMENT

CLIENT:
FATHOM/BE FITLER, LLC
BIDDEFORD, MAINE



FILE: 1124_CIVIL

JN: 1124

SCALE: 1" = 120'

DESIGN BY: PFH

DRAWN BY: ZMS

CHECKED BY: WHS

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

DRAWING NO.

EX-A

ALSO REFER TO
EX-A1 & EX-A2

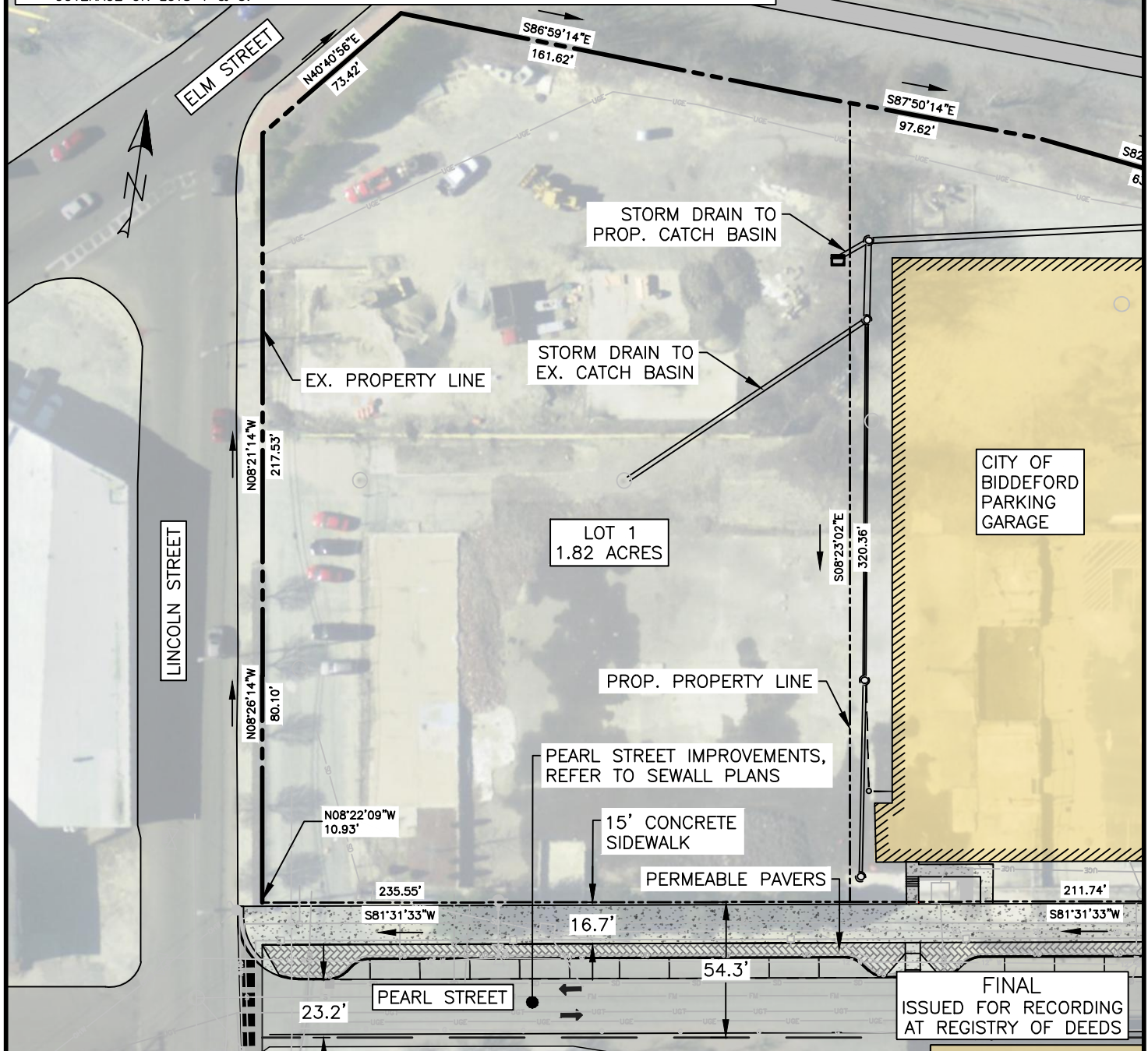
815

NOTES:

- CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - GAS
 - ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - TELEPHONE/COMMUNICATIONS/FIBER
 - STORMWATER
- NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
- NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
- LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
- LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
- SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

PLAN REFERENCES:

- "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
- "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
- EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
- "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015



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

DRAWING NO.
EX-A1

ALSO REFER TO EX-A & EX-A2

FILE: 1124_CIVIL
DATE: 11/12/20
UN: 1124
SCALE: 1" = 60'
DESIGN BY: PFH
DRAWN BY: ZMS
CHECKED BY: WHS



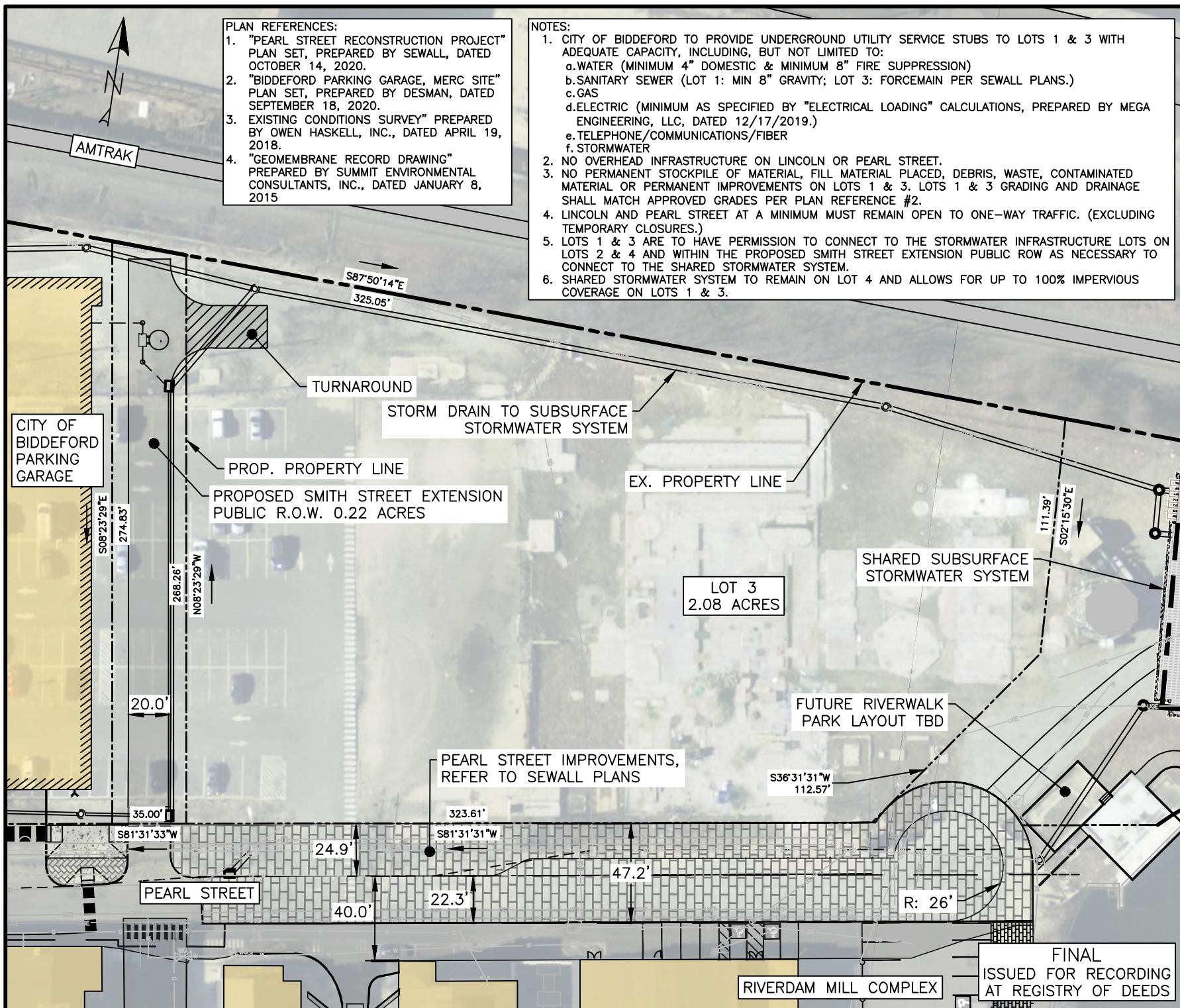
DRAWING NAME:
LOT 1 EXHIBIT

PROJECT NAME:
PEARL STREET & MERC REDEVELOPMENT

CLIENT:
FATHOM/BE FITLER, LLC
BIDDEFORD, MAINE

ISSUED FOR
JDA EXHIBIT

BY
DATE
PFH
11/12/20



PLAN REFERENCES:

1. "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
2. "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
3. EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
4. "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015

NOTES:

1. CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - a. WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - b. SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - c. GAS
 - d. ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - e. TELEPHONE/COMMUNICATIONS/FIBER
 - f. STORMWATER
2. NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
3. NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
4. LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
5. LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
6. SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

ISSUED FOR	JDA EXHIBIT
DRAWING NAME: LOT 3 EXHIBIT	
PROJECT NAME: PEARL STREET & MERC REDEVELOPMENT	
CLIENT: FATHOM/BE FITLER, LLC BIDDEFORD, MAINE	
ACORN ENGINEERING, INC. ACORN ENGINEERING, INC. 65 HANOVER ST. PORTLAND, MAINE 04104 (207) 773-2655	
FILE:	1124_CIVIL
JN:	1124
SCALE:	1" = 60'
DESIGN BY:	PFH
DRAWN BY:	ZMS
CHECKED BY:	WHS
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.	
DRAWING NO.	
EX-A2	
ALSO REFER TO EX-A & EX-A1	

Exhibit B
Legal Description

[insert legal description of Site]

Exhibit C
Environmental Clearances

Section 2: Financial and Technical Capacity

Financial Capacity

Please refer to the attached letter from the Applicant's bank confirming financial capacity for the project.

Technical Capacity

Fathom Development provides planning and development advisory services that put vision, strategy, and budget at the forefront. Through diligent project management and consultation, we maintain a focus on hitting milestones and achieving quality throughout design and construction while always watching the bottom line. We work to serve our clients with clear communication, organized project facilitation, and experience based in design, engineering, and constructability. With proven mixed use, hospitality, and historical rehabilitation experience, our expertise supports the project from planning, to groundbreaking, to opening and beyond. Our development portfolio includes many projects in southern Maine including The Press Hotel, 80 Exchange Street office building, and The Canopy Portland Waterfront Hotel all located in Portland, ME.

Acorn Engineering specializes in providing urban redevelopment, civil/site design, environmental services, municipal consulting, and construction administration. Acorn Engineering, Inc has successfully designed and permitted more than 20 Minor/Major projects in Portland & Biddeford during the past 5 years, including 1 Gooch Street Redevelopment, Riverdam, Munjoy Heights, East Bayside Lofts, and The Hiawatha.

Kaplan Thompson Architects combines the practicality of sustainable design with the artistry of architecture to deliver high-quality, low-impact buildings. Their portfolio includes multi-family projects of varying scales with both affordable housing and market rate developers across New England, including Dakota Partners and Avesta Housing. With national recognition for their achievements in high-performance construction and innovative design, Kaplan Thompson's multifamily projects have been the recipients of awards from AIA Maine and AIA New England, PHIUS, and Maine Smart Growth.

Soren DeNiord Design Studio (SDDS) is a professional landscape design firm located in Portland, Maine. Their portfolio includes award winning projects ranging in scale from residential to mixed use, commercial and institutional. As stewards of the environment and our clients' resources, we engage in projects with a commitment to sustainability and the intention of artfully responding to each site's unique challenges.





October 12th, 2021

To: City of Biddeford, Maine

The purpose of this letter is to express Mascoma Bank's support and interest in providing financing for The Fathom Companies' subsidiary 3 Lincoln, LLC and its Pearl Street Lofts (Lots 3A, 3B & 3C) mixed-use project. It is our understanding the project is for the construction of 83 residential apartment units on Lot 3A, 108 residential apartment units on Lot 3B, and a two-story commercial building on Lot 3C located in downtown of Biddeford, Maine with a maximum project budget of approximately \$50 million.

Mascoma Bank has provided financing for a number of Jim Brady's and The Fathom Companies' projects in the State of Maine. All of these projects have been successful in every aspect, and just as important, each project has been a credit to the community. Mascoma has been fortunate to work with many successful builders and developers, but none who are more devoted than Jim and The Fathom Companies to ensuring that their developments provide positive, transformative impacts to the communities where their developments are located. Jim and The Fathom Companies' projects in Southern Maine are exceptional examples of such devotion.

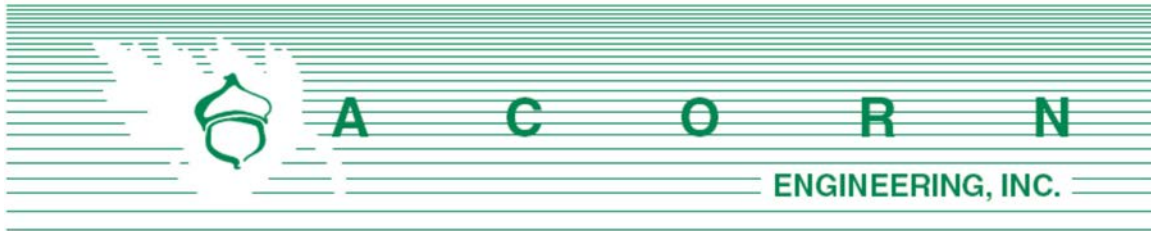
Please know that this letter is an expression of support and interest, and is not a commitment. A commitment would require further review of appropriate information by the Bank.

I hope you find this letter helpful, and if you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tad Atwell", with a long, sweeping horizontal line extending to the right.

Tad S. Atwell
Senior Vice President, Commercial Lending
48 Free Street, Portland, Maine 04101
(207) 613-0142
Tad.Atwell@MascomaBank.com



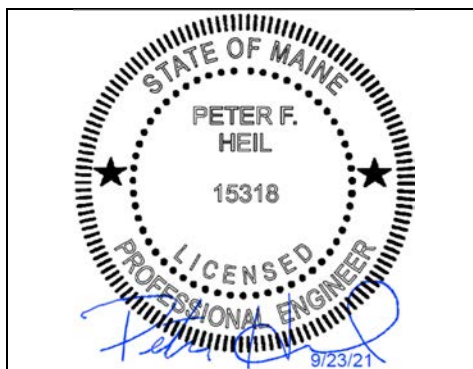
Section 3: STORMWATER MANAGEMENT REPORT

Prepared For:

**3 Lincoln, LLC
80 Exchange Street, Suite 400
Portland Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



October 2021

INTRODUCTION

Acorn Engineering, Inc. has been retained by 3 Lincoln, LLC to provide civil engineering services for the proposed redevelopment of 3 Lincoln Street (Pearl Street Lot 3). The project proposes to construct 3 buildings on Lot 3 including a 83-unit residential/mixed use building, a 108-unit residential building, and a commercial/restaurant building with approximately 298 seats total.

EXISTING CONDITIONS

The proposed site address is 3 Lincoln Street, Lot 3 and only has frontage on Pearl Street. A section of the site is location within the 250' shoreland overlay zone due to the proximity from the Saco River. An Existing Conditions Survey has been prepared by Owen Haskell Inc. Falmouth: Maine dated September 29, 2021.

The site is currently vacant and has recently been stabilized with grass coverage associated with the recent City parking garage project. Additionally, contaminated soils remain on site, which the applicant understands the City will be removing from the site prior to the end of the year. The existing grades on site are relatively flat ranging from 0 to 5 percent west to east toward the Saco River.

The project team is not aware of the presence of any existing significant natural features located on the site. Furthermore, the project is not within an urban impaired stream. The proposed Lot 3 parcel size is approximately 2.08 acres which flows to a storm drainage network system discharging into a subsurface stormwater treatment system located on Lot 4, which ultimately outlets into the Saco River.

As part of the redevelopment of the overall MERC parcel, and construction of the municipal Pearl Street garage on Lot 2, a DEP Stormwater permit was issued (L-10282-NJ-A-N), which included the installation of the subsurface stormwater system located primarily on Lot 4 (with a small section installed on Lot 3). As part of the stormwater system design, each lot was allocated a conservative impervious coverage / redevelopment pollutant ranking threshold for the individual lots to remain under once actual designs progress. The DEP Stormwater Permit includes a condition of approval that all "future development on other sections of the overall parcel, the applicants must submit a Stormwater Management application that shows the proposed project, a grading plan that includes the stormwater drainage system connections, the weighted average pollutant impacting rating with supporting information for the portion of the parcel proposed to be developed, and other material to demonstrate that the proposed development will not change the percentage of developed area that must be treated."

PROPOSED DEVELOPMENT

As part of the proposed project, three buildings will be constructed with associated infrastructure on Lot 3. Catch basins, foundation drains, and roof drains on site will be directed to a network of storm drains and tie into the existing stormwater treatment system located primarily on Lot 4. Stormwater and Erosion Control Best Management Practices will be implemented during construction.



BASIC STANDARDS – EROSION & SEDIMENT CONTROL

The project proposes measures to meet the basic standards requirements as outlined in Chapter 500. Please refer to Section 4: Erosion and Sedimentation Control Report

GENERAL STANDARDS - WATER QUALITY

The existing subsurface stormwater system previously installed as part of the overall DEP Stormwater Permit will be utilized to provide the water quality treatment for the runoff from the site. As part of the stormwater system design, each lot was allocated a conservative impervious coverage / redevelopment pollutant ranking threshold for the individual lots to remain under once actual designs progress. The current designs will remain below the allocated redevelopment pollutant rankings. Stormwater runoff from Lot 3 will be conveyed to the system via the existing storm drain that has been installed along the back of the parcel parallel to the railroad tracks.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for York County

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

Table 1 - “K” Value		
Soils Type	Subsurface	Substratum
Urban Land (Ur)	0.27	0.27

The soil “K” values for the soils, listed above, show a low to moderate susceptibility to erosion. The site’s susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although soil “K” values for the soils show a low susceptibility to erosion, implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance, given the proximity to the Saco River.

Please refer to Section 4. for the erosion and sedimentation control narrative.

PHOSPHOROUS STANDARD

As the project is not located in a watershed of a lake most-at-risk, or a proposing development of any other lake watershed, the Phosphorous Standard does not apply to this project.

URBAN IMPAIRED STREAM STANDARD

As the project is not located in an urban impaired stream watershed, the Urban Impaired Stream Standard does not apply to this project.



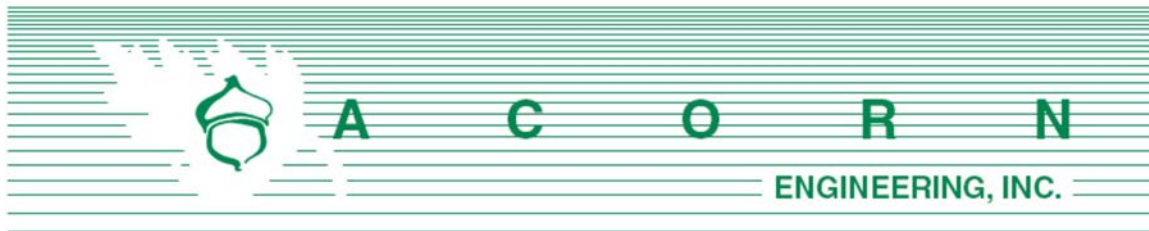
FLOODING STANDARD

As part of the overall MERC parcel development stormwater design and DEP Stormwater Permit, the site is exempt from the Flooding Standard as the project stormwater runoff discharges directly to a major river segment (Saco River). The plans are designed to be in accordance with the City's Land Development Regulations, Article IV: Performance Standards, Section 61: Stormwater Management.

Conclusion

With the previously approved conservative design of the existing subsurface stormwater treatment system, and proposed redevelopment pollutant rankings associated with the Lot 3 development, adequate treatment will be provided to the proposed site conditions. The project does not anticipate creating erosion, drainage, or runoff problems for the development, the City, or abutting properties. Please let me know if you have any questions or comments.





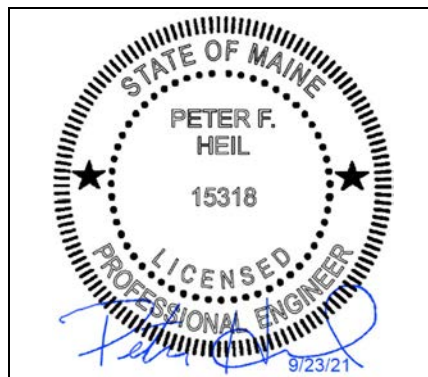
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

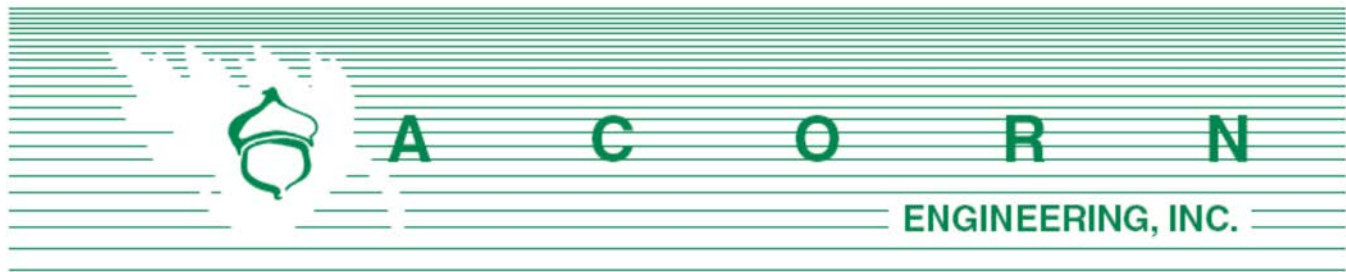
**3 Lincoln, LLC
80 Exchange Street, Suite 400
Portland Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



October 2021



RESPONSIBLE PARTY

The owner, 3 Lincoln, LLC. and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Services prior to June 15th.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Acorn Engineering, Inc.
Attn: Peter F. Heil, PE, CPESC
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #15318
- Maine DEP - Certified Third Party Inspector
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071

The inspection and maintenance criteria is based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

The applicant shall be responsible for retaining post construction and maintenance documents for at least 5 years. The Department of Environmental Protection's 5-year recertification will apply to this permit.

OPERATION AND MAINTENANCE ACTIVITY

Sweeping:

Annual sweeping of the driveways and parking areas following the snow melt for accumulated winter sand, if necessary. Appropriately dispose of all collected material.

Catch Basins:

Catch basins shall be inspected to confirm that the structure is operating properly.

- Inspect the presence of accumulated sediment or debris any sediment shall be removed. The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Sediment shall be removed when accumulation is within 6 inches of the outfall pipe invert. Legally dispose of accumulated sediment and debris from the bottom of the basin, inlet grates, and inflow channels to the basin.
- If the basin outlet is designed with a hood to trap floatable materials (e.g. Snout), check to ensure watertight seal is working.
- Appropriately dispose of all collected material.

Landscaped and Vegetated Areas:

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (<90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the contract documents.

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Sweeping	X			X
Catch Basins			X	X
Landscaped/Vegetated Areas		X		





United States
Department of
Agriculture

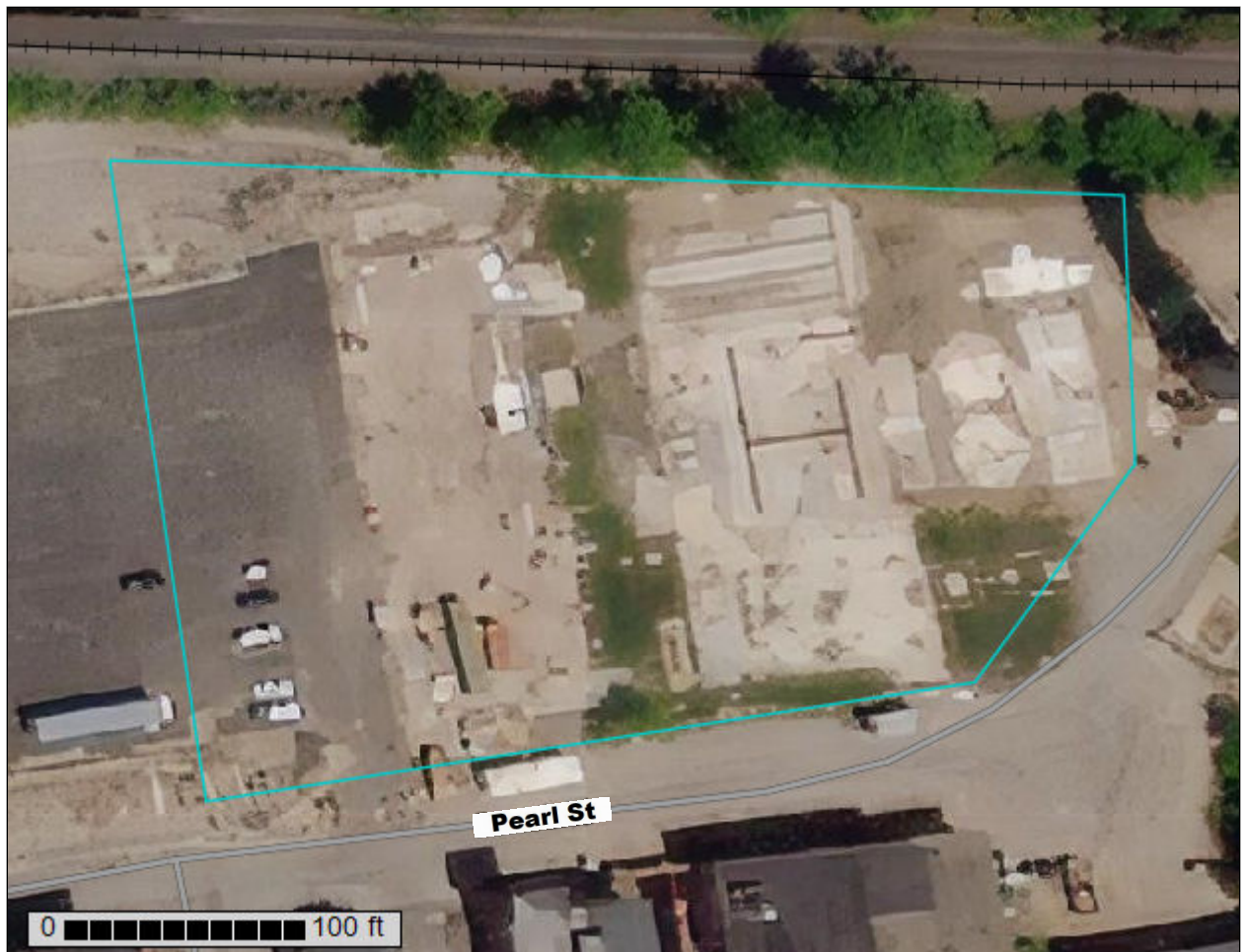
NRCS

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

PL



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

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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
Ur—Urban land.....	13
References	15

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 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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
Ur	Urban land	2.1	100.0%
Totals for Area of Interest		2.1	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

Ur—Urban land

Map Unit Setting

National map unit symbol: 9k6x
Elevation: 10 to 2,200 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 70 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent
Drainage class: Moderately well drained
Depth to water table: About 24 to 72 inches
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): 8s
Hydric soil rating: No

Minor Components

Scantic

Percent of map unit: 2 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sulfihemists

Percent of map unit: 2 percent
Landform: Salt marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear

Custom Soil Resource Report

Across-slope shape: Linear

Hydric soil rating: Yes

Adams

Percent of map unit: 2 percent

Landform: Outwash plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

Buxton

Percent of map unit: 2 percent

Landform: Coastal plains

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Croghan

Percent of map unit: 2 percent

Landform: Outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

CITY OF BIDDEFORD &	)	STORMWATER MANAGEMENT LAW
BIDDEFORD RIVERWALK	)	
COMMUNITY 1, LLC	)	
Biddeford, York County	)	
PARKING GARAGE	)	
L-10282-NJ-A-N (Approval)	)	FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. § 420-D, and Chapter 500 (06-096 C.M.R. Chapter 500, last amended August 12, 2015) of the Department's Regulations, the Department of Environmental Protection has considered the application of CITY OF BIDDEFORD and BIDDEFORD RIVERWALK COMMUNITY 1, LLC with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History: In Department Order #L-10282-05-A-N, dated December 19, 1984, the Department issued a permit to the City of Biddeford and the Maine Energy Recovery Company which approved the construction and operation of a refuse derived fuel solid waste disposal facility. The Department subsequently issued numerous solid waste permits including Department Order #S-10282-WG-AN-A, dated September 30, 2013, which was an amendment for the closure of the facility. The facility was subsequently demolished with the exception that the building foundation slabs were left in place; some of the building slabs have subsequently been used for parking. The property has a Department issued Commissioner's Certification of Completion of Remedial Actions Under A Voluntary Response Action Plan (VRAP). There are buried and capped PCB contaminated soils in the area adjacent to the river and the railroad. The parcel is located on the northeast corner of the intersection of Lincoln Street and Pearl Street in the City of Biddeford

B. Summary: The applicants propose to remove existing building foundation slabs, divide the parcel into two lots and construct a 44,895 square foot parking garage and a fire lane on Lot 2, which is a 1.63 acre lot in the approximate middle of the 7.28 acre parcel. The project also includes the construction of another fire lane and areas to be converted to lawn on Lot 1, which is 5.32 acres in size. Plan C-102 of the plan set shows an approximately 1.29 acre parking lot to the east of the proposed parking garage; most of this parking lot exists on old building foundation slabs. The applicants propose to reconstruct that parking lot to provide 114 parking spaces for use during construction of the parking garage.

When the parking garage construction is complete this parking lot will be removed and replaced with lawn, as shown on plan number C-102B titled "Biddeford Parking Garage, MERC Site, Biddeford, Maine, Site Plan Layout Phase B," prepared by Desman Design Management dated March 27, 2020. Any changes to this plan will require a modification of this permit. The project is shown on a set of plans submitted with the application and plan number C-104 is titled "Biddeford Parking Garage, MERC Site, Biddeford, ME, Site Plan-Grading and Utilities," prepared by Desman Design Management and dated March 9, 2020 with a most recent revision date on any of the plans of March 27, 2020.

The first 500 feet of Pearl Street, from the intersection with Lincoln Street, is proposed to be reconstructed as a 24-foot wide street with on street parking on the north side and eight-foot wide concrete sidewalks on both sides. The reconstruction of Pearl Street is considered to be a maintenance activity as defined by Chapter 500, § 3(R) and does not require approval from the Department.

The Department accepted a Natural Resources Protection Act (NRPA) Permit by Rule Notification Form (PBR #69437) on March 18, 2020, for activities associated with the proposed stormwater management system, shown on Plan C-102B, adjacent to the Saco River. The project will be constructed in accordance with Chapter 305, Section 2 of the Permit by Rule Standards.

C. Current Use of the Site: The site is bound by Lincoln Street to the west, Pearl Street to the south, the Saco River to the east and the Boston & Maine Railroad to the north. The site is partially occupied by the building foundation slabs that remain from the Maine Energy Recovery Company that are currently used as parking lots, gravel areas, surface parking areas, and a smoke stack with cell tower equipment.

2. STORMWATER STANDARDS:

The stormwater management system for the project has been designed to meet the stormwater management requirements for the proposed parking garage and fire lane on the 1.63 acre parcel identified as Lot 2 on Plan C-102, plus additional development on the remaining 5.65 acres. The City of Biddeford anticipates additional redevelopment on the parcel and has based the post development pollutant impact ranking calculations, the treatment level for the redevelopment project, and the sizing of the subsurface sand filter and R-Tanks to accommodate the development shown on Lots 1-4 on drawing number C-10 titled "Master Site Plan, Pearl Street & MERC Redevelopment for Fathom/BE Filter, LLC," prepared by Acorn Engineering and dated November 19, 2019. The design of the stormwater management system for the theoretical buildout of the entire parcel shown on Plan C-10 includes 6.94 acres of developed area of which 5.66 acres is impervious area. It lies within the watershed of the Saco River. The applicants submitted a stormwater management plan based on the Basic, General and Flooding Standards contained in Department Rules, Chapter 500. The proposed stormwater management system consists of a subsurface sand filter with R-Tanks™.

This Order approves the stormwater management system, the proposed parking garage, the fire lanes and Pearl Street extended to the eastern fire lane.

Future development on other sections of the overall parcel, the applicants must submit a Stormwater Management application that shows the proposed project, a grading plan that includes the stormwater drainage system connections, the weighted average pollutant impact rating with supporting information for the portion of the parcel proposed to be developed, and other material to demonstrate that the proposed development will not change the percentage of developed area that must be treated.

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicants submitted an Erosion and Sedimentation Control Plan that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of, the Cumberland County Soil and Water Conservation District (CCSWCD).

Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor.

(2) Inspection and Maintenance: The applicants submitted a maintenance plan that addresses both short and long-term maintenance requirements. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. This plan was reviewed by and revised in response to the comments of the CCSWCD. The applicants will be responsible for the maintenance of the stormwater management system.

Prior to use of the proposed parking garage, the applicants must submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) for the on-going maintenance of the subsurface sand filter and R-Tanks™ to the BLR.

Grit, sediment and other materials removed from the stormwater structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

(3) Housekeeping: The proposed project will comply with the performance standards outlined in Appendix C of Chapter 500.

Based on BLR's review of the erosion and sedimentation control plan and the maintenance plan, the Department finds that the proposed project meets the Basic Standards contained in Chapter 500, § (4)(B) provided that grit, sediment and other materials removed from the stormwater structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules and the applicants must submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) for the on-going maintenance of the subsurface sand filter and R-Tanks™ to the BLR prior to the use of the parking garage.

B. General Standards:

The applicants' stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential thermal impacts. The applicants are using treatment requirements for a redevelopment project as allowed under Chapter 500, § 4(C)(2)(d). The applicants calculated the existing and proposed pollutant impact rating using Table 2 in Chapter 500 and based on these calculations determined using Table 3 in Chapter 500 that 50 percent of development must be treated. The applicants propose to treat runoff from 70.8% of the proposed developed area on both lots.

The stormwater management system proposed by the applicants was reviewed by the CCSWCD and revised in response to comments from the CCSWCD. After a final review, the CCSWCD commented that the proposed stormwater management system is designed in accordance with the Chapter 500 General Standards.

Based on the stormwater system's design and CCSWCD's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the General Standards in Chapter 500, § 4(C)(2)(d).

C. Flooding Standard:

The applicants are proposing to utilize a stormwater management system based on estimates of pre- and post-development stormwater runoff flows obtained by using Hydrocad, a stormwater modeling software that utilizes the methodologies outlined in Technical Releases #55 and #20 from the U.S.D.A. Soil Conservation Service and detains stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. The post-development peak flow from the site will not exceed the pre-development peak flow from the site and the peak flow of the receiving waters will not be increased as a result of stormwater runoff from the development site. The subsurface sand filter and R-Tank™ system will be connected to an existing storm drain in the east end of Pearl Street that discharges into the Saco River.

The CCSWCD commented that the proposed system is designed in accordance with the Flooding Standard contained in Chapter 500, § 4(F).

Based on the system's design and BLR's review, the Department finds that the applicants have made adequate provision to ensure that the proposed project will meet the Flooding Standard contained in Chapter 500, § 4(F) for peak flow from the project site.

The Department further finds that the proposed project will meet the Chapter 500 standards for discharges to public storm sewer systems.

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. § 420-D, and Chapter 500 of the Department's Regulations:

- A. The applicants have made adequate provision to ensure that the proposed project will meet the Chapter 500 Basic Standards for: (1) erosion and sediment control; (2) inspection and maintenance; (3) housekeeping; and (4) grading and construction activity provided that grit, sediment and other materials removed from the stormwater structures during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules and that the applicants must submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) for the on-going maintenance of the subsurface sand filter and R-Tanks™ to the BLR prior to the use of the parking garage.
- B. The applicants have made adequate provision to ensure that the proposed project will meet the Chapter 500 General Standards.
- C. The applicants have made adequate provision to ensure that the proposed project will meet the Chapter 500 Flooding Standard.
- D. The applicants have made adequate provision to ensure that the proposed project will meet the Chapter 500 standards for discharges to public storm sewer systems.

THEREFORE, the Department APPROVES the above noted application of the CITY OF BIDDEFORD and BIDDEFORD RIVERWALK COMMUNITY 1, LLC to construct a stormwater management system for a parking garage and other development as described above in Biddeford, Maine, SUBJECT TO THE FOLLOWING CONDITIONS, and all applicable standards and regulations:

- 1. The Standard Conditions of Approval, a copy attached.
- 2. In addition to any specific erosion control measures described in this order, the applicants shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.
- 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. The applicants shall include in all conveyances of subdivision lots deed restrictions making the conveyance subject to all terms and conditions of this Department Order, particularly those conditions related to maintenance of the stormwater management system. These terms and conditions may be incorporated by specific and prominent reference to the permit in the deed. All conveyances required by this approval to contain

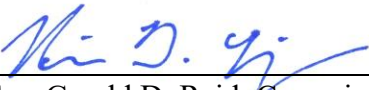
restrictions shall include in the restrictions the requirement that any subsequent conveyance shall specifically include the same restrictions.

5. Grit, sediment and other materials removed from stormwater structures during maintenance activities shall be disposed of in compliance with the Maine Solid Waste Management Rules.
6. The applicants shall submit a copy of an executed long-term maintenance contract for the on-going maintenance of the subsurface sand filter and R-Tanks™ to the BLR prior to the use of the parking garage.

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 8TH DAY OF APRIL, 2020.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: 
For: Gerald D. Reid, Commissioner

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

CGW/L10282AN/ATS#85869

FILED
April 8, 2020
State of Maine
Board of Environmental Protection

STORMWATER STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL

Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions pursuant to Chapter 500 Stormwater Management Law.

- (1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the permittee. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S. §420-D(8) and is subject to penalties under 38 M.R.S. §349.
- (2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.
- (3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.
- (4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.
- (5) Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.
- (6) Certification. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this approval with the conditions by the permittee, and the permittee and each contractor and subcontractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

- (7) Maintenance. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the Department. If maintenance responsibility is to be transferred from the permittee to another entity, a transfer request must be filed with the Department which includes the name and contact information for the person or entity responsible for this maintenance. The form must be signed by the responsible person or agent of the responsible entity.
- (8) Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.
- (a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
 - (b) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.
 - (c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.
 - (d) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.
 - (e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.
- (9) Transfer of property subject to the license. If any portion of the property subject to the license containing areas of flow or areas that are flooded are transferred to a new property owner, restrictive covenants protecting these areas must be included in any deeds or leases, and recorded at the appropriate county registry of deeds. Also, in all transfers of such areas and areas containing parts of the stormwater management system, deed restrictions must be included making the property transfer subject to all applicable terms and conditions of the permit. These terms and conditions must be incorporated by specific and prominent reference to the permit in the deed. All transfers must include in the restrictions the requirement that any subsequent transfer must specifically include the same restrictions unless their removal or modification is approved by the Department. These restrictions must be written to be enforceable by the Department, and must reference the permit number.
- (10) Severability. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.



DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: November 2018

Contact: (207) 287-2452

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner: (1) an administrative process before the Board of Environmental Protection (Board); or (2) a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This information sheet, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S. §§ 341-D(4) & 346; the *Maine Administrative Procedure Act*, 5 M.R.S. § 11001; and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 C.M.R. ch. 2.

DEADLINE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed more than 30 calendar days after the date on which the Commissioner's decision was filed with the Board will be dismissed unless notice of the Commissioner's license decision was required to be given to the person filing an appeal (appellant) and the notice was not given as required.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017. An appeal may be submitted by fax or e-mail if it contains a scanned original signature. It is recommended that a faxed or e-mailed appeal be followed by the submittal of mailed original paper documents. The complete appeal, including any attachments, must be received at DEP's offices in Augusta on or before 5:00 PM on the due date; materials received after 5:00 pm are not considered received until the following day. The risk of material not being received in a timely manner is on the sender, regardless of the method used. The appellant must also send a copy of the appeal documents to the Commissioner of the DEP; the applicant (if the appellant is not the applicant in the license proceeding at issue); and if a hearing was held on the application, any intervenor in that hearing process. All of the information listed in the next section of this information sheet must be submitted at the time the appeal is filed.

INFORMATION APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time the appeal is submitted:

1. *Aggrieved Status.* The appeal must explain how the appellant has standing to maintain an appeal. This requires an explanation of how the appellant may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions, or conditions objected to or believed to be in error.* The appeal must identify the specific findings of fact, conclusions regarding compliance with the law, license conditions, or other aspects of the written license decision or of the license review process that the appellant objects to or believes to be in error.
3. *The basis of the objections or challenge.* For the objections identified in Item #2, the appeal must state why the appellant believes that the license decision is incorrect and should be modified or reversed. If possible, the appeal should cite specific evidence in the record or specific licensing requirements that the appellant believes were not properly considered or fully addressed.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those matters specifically raised in the written notice of appeal.
6. *Request for hearing.* If the appellant wishes the Board to hold a public hearing on the appeal, a request for public hearing must be filed as part of the notice of appeal, and must include an offer of proof in accordance with Chapter 2. The Board will hear the arguments in favor of and in opposition to a hearing on the appeal and the presentations on the merits of an appeal at a regularly scheduled meeting. If the Board decides to hold a public hearing on an appeal, that hearing will then be scheduled for a later date.
7. *New or additional evidence to be offered.* If an appellant wants to provide evidence not previously provided to DEP staff during the DEP's review of the application, the request and the proposed evidence must be submitted with the appeal. The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered in an appeal only under very limited circumstances. The proposed evidence must be relevant and material, and (a) the person seeking to add information to the record must show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process; or (b) the evidence itself must be newly discovered and therefore unable to have been presented earlier in the process. Specific requirements for supplemental evidence are found in Chapter 2 § 24.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, and is made easily accessible by the DEP. Upon request, the DEP will make application materials available during normal working hours, provide space to review the file, and provide an opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer general questions regarding the appeal process.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed, the license normally remains in effect pending the processing of the appeal. Unless a stay of the decision is requested and granted, a license holder may proceed with a project pending the outcome of an appeal, but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, and will provide the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, any materials submitted in response to the appeal, and relevant excerpts from the DEP's application review file will be sent to Board members with a recommended decision from DEP staff. The appellant, the license holder if different from the appellant, and any interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. The appellant and the license holder will have an opportunity to address the Board at the Board meeting. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, the license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court (see 38 M.R.S. § 346(1); 06-096 C.M.R. ch. 2; 5 M.R.S. § 11001; and M.R. Civ. P. 80C). A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452, or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

REDEVELOPMENT POLLUTANT RANKING - BREAKDOWN OF SITE

Project: Biddeford Parking Garage
ATS:

Notes:

1. Lots 1-4 delineations are based loosely on the Lots shown on the Master Site Plan prepared by Acorn Engineering dated 11/19/19
2. The sum of the proposed areas calculated in Lots 1-4 can be found on the Redevelopment Pollutant Ranking worksheet dated 1/7/20 under 'Proposed Area & Use'

PROPOSED AREA & USE - LOT 1 (ASSUMED BASED ON MASTERPLAN)

Area	Proposed Area (sf)	Proposed Area (sf)	Proposed Pollutant Ranking	Weighed Impact	Comment
High Use Parking Lots	0	0.00	5	0.00	
Medium Use Parking Lots	68,971	1.58	4	6.33	85% assumed
Other Use Parking Lots/Driveways	0	0.00	3	0.00	
Rooftops	4,045	0.09	2	0.19	5% assumed
Walkways/Grassed Areas	6,086	0.14	2	0.28	7.5% assumed
Non-Grassed Landscaped Areas	2,040	0.05	1	0.05	2.5% assumed
	81,142	1.86		6.85	
Verify that Existing Area = Proposed Area					

PROPOSED AREA & USE - LOT 2 (DESIGNED COVERAGE)

Area	Proposed Area (sf)	Proposed Area (sf)	Proposed Pollutant Ranking	Weighed Impact	Comment
High Use Parking Lots	45,380	1.04	5	5.21	parking garage top level and entry drive
Medium Use Parking Lots	0	0.00	4	0.00	
Other Use Parking Lots/Driveways	5,830	0.13	3	0.40	fire lane to east of garage
Rooftops	0	0.00	2	0.00	
Walkways/Grassed Areas	17,858	0.41	2	0.82	sidewalks and grass
Non-Grassed Landscaped Areas	1,870	0.04	1	0.04	landscape beds
	70,928	1.62		6.47	
Verify that Existing Area = Proposed Area					

PROPOSED AREA & USE - LOT 3 (ASSUMED BASED ON MASTERPLAN)

Area	Proposed Area (sf)	Proposed Area (sf)	Proposed Pollutant Ranking	Weighed Impact	Comment
High Use Parking Lots	0	0.00	5	0.00	
Medium Use Parking Lots	88,247	2.03	4	8.10	85% assumed
Other Use Parking Lots/Driveways	0	0.00	3	0.00	
Rooftops	5,185	0.12	2	0.24	5% assumed
Walkways/Grassed Areas	7,787	0.18	2	0.36	7.5% assumed
Non-Grassed Landscaped Areas	2,601	0.06	1	0.06	2.5% assumed
	103,820	2.38		8.76	
Verify that Existing Area = Proposed Area					

PROPOSED AREA & USE - LOT 4 (ASSUMED BASED ON MASTERPLAN)

Area	Proposed Area (sf)	Proposed Area (sf)	Proposed Pollutant Ranking	Weighed Impact	Comment
High Use Parking Lots	0	0.00	5	0.00	
Medium Use Parking Lots	3,907	0.09	4	0.36	8% assumed roundabout
Other Use Parking Lots/Driveways	5,780	0.13	3	0.40	12% assumed paved surfaces/cell tower
Rooftops	0	0.00	2	0.00	
Walkways/Grassed Areas	32,244	0.74	2	1.48	70% assumed grass and walkways
Non-Grassed Landscaped Areas	4,689	0.11	1	0.11	10% Landscape Beds
	46,620	1.07		2.34	
Verify that Existing Area = Proposed Area					

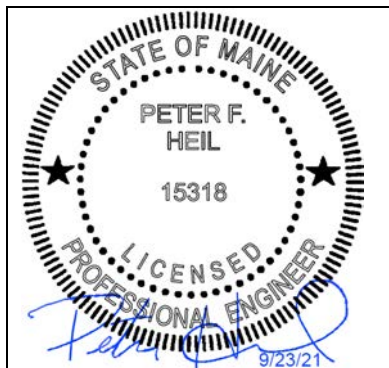
Section 4: EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

**3 Lincoln, LLC
80 Exchange Street, Suite 400
Portland Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
65 Hanover Street
Portland, Maine 04101**



October 2021

INTRODUCTION

Acorn Engineering, Inc. has been retained by 3 Lincoln, LLC to provide civil engineering services for the proposed development of Pearl Street Lot 3. The project proposes to construct three (3) buildings on Lot 3 including a 83-unit residential/mixed use building, a 108-unit residential building, and a commercial/restaurant building with approximately 298 seats total.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Biddeford Land Development Regulations, Article VI: Performance Standards, Section 26: Erosion Control and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The proposed site address is 3 Lincoln Street, Lot 3 and only has frontage on Pearl Street. A section of the site is location within the 250' shoreland overlay zone due to the proximity from the Saco River. An Existing Conditions Survey has been prepared by Owen Haskell Inc. Falmouth: Maine dated September 29, 2021.

Abutting Uses:

- | | |
|---------------|---------------------|
| ➤ North N/A | Railroad |
| ➤ East MSRD3 | Saco River |
| ➤ South MSRD3 | Riverdam Apartments |
| ➤ West MSRD3 | Parking Garage |

The site is currently vacant and has recently been stabilized with grass coverage associated with the recent City parking garage project. Additionally, contaminated soils remain on site, which the applicant understands the City will be removing from the site prior to the end of the year. The existing grades on site are relatively flat ranging from 0 to 5 percent west to east toward the Saco River.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for York County

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



Table 1 - "K" Value		
Soils Type	Subsurface	Substratum
Urban Land (Ur)	0.27	0.27

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

1.2 Existing Erosion Problems

There are no signs of existing erosion.

1.3 Critical Areas

There are no known critical areas on site.

1.4 Protected Natural Resource

The site is located near the Saco River, which is a Protected Natural Resource, and located within the 250' shoreland zone setback. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

As part of the recently constructed municipal parking garage, the overall 3 Lincoln Street parcel has recently been redeveloped, with removals associated from the old MERC facility, utility installation within the adjacent Pearl Street and site stabilization from the garage project.

1.6 Timber Harvesting

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

2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

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



2.1 Temporary Erosion Control Measures

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

- 2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:
- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
 - The thickness of the entrance stone layer shall be no less than 6 inches.
 - The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
 - Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
 - The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.
- 2.1.2 Erosion control berm mix with hay bale reinforcement shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.
- 2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.
- 2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.



- 2.1.5 Pearl Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.
- 2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.
- 2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be “toed” into the ground.
- 2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached $\frac{1}{2}$ the design height.
- 2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.
- 2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.
- 2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.



2.2 Permanent Erosion Control Measures

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

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

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

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

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

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

4.0 DETAILS AND SPECIFICATIONS

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

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

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

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

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

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



5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

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

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

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



- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

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

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.
- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.



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

6.0 INSPECTION AND MAINTENANCE

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

6.1 Sediment Barriers

Hay bale barriers and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

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



6.4 Dust Control

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

6.5 Stormwater Appurtenances

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

6.6 Erosion and Sedimentation Control Inspections:

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

Contact: Peter F. Heil, PE, CPESC

Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #15318
- Maine DEP - Certified in Third-Party Inspector
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071

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



7.0 **IMPLEMENTATION SCHEDULE**

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

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter erosion control berm with hay bale reinforcement
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence earthwork operations, associated with the roadway construction.
5. Commence installation of any utility work.
6. Continue earthwork and grading to subgrade as necessary for construction.
7. Complete installation of utilities.
8. Complete remaining earthwork operations.
9. Install sub-base and base gravels in paved areas.
10. Install paving, curbing and brickwork.
11. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
12. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
13. Touch up areas without a vigorous catch of grass with loam and seed.
14. Complete site signage and striping.

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

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

8.0 **CONCLUSION**

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

9.0 **ATTACHMENTS**

- Temporary Seeding Plan
- Permanent Seeding Plan



TEMPORARY SEEDING PLAN

Site Preparation

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

Seedbed Preparation

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

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

Seeding

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

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

Mulching

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

Conclusion

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



PERMANENT SEEDING PLAN

Site Preparation

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

Seedbed Preparation

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

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

Seeding

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

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

Mulching

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

Recommendations

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

Conclusion

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



Section 5: Traffic Overview

The project proposes to construct three (3) buildings on Lot 3 including an 83-unit residential/mixed use building, a 108-unit residential building, and a commercial/restaurant building with approximately 298 seats total. Access to Building A and Building B garage parking will be available from Smith Street, with pedestrian access from Pearl Street. As the project will produce greater than 100 peak hour trips, the project will require a Maine DOT Traffic Movement Permit. A copy of the TMP application is attached to this section.

In accordance with the City's Land Development Regulations, Performance Standards for off-street parking and loading, Table 6-49B: Parking space requirements, the project parking demand requires 1 space for every dwelling unit, plus an additional 5% for residential visitors and 1 space for every 3 restaurant seats. This results in a total of 302 spaces required $((1 \text{ space/D.U.} \times 83 \text{ D.U.}) + (0.05 \times 83 \text{ D.U.}) + (1 \text{ space/D.U.} \times 108 \text{ D.U.}) + (0.05 \times 108 \text{ D.U.}) + (1 \text{ space/3 seats} \times 298 \text{ restaurant seats}) = 302 \text{ spaces})$. The project proposes to provide garage parking on the lower level of lots 3A and 3B totaling 87 spaces, with the additional 215 required spaces to be leased from the Pearl Street City parking garage located on Lot 2. The applicant is working with the garage operating managers to secure the lease for these spaces and can forward a copy upon receipt.



**MAINE DEPARTMENT OF
TRANSPORTATION
TRAFFIC MOVEMENT PERMIT
APPLICATION
REQUEST FOR SCOPING MEETING**

3 Lincoln Street Project
Residential Apartments and Restaurant
Pearl Street, Biddeford, Maine
September 20, 2021

Submitted by:

T.Y. Lin International
12 Northbrook Drive
Building A, Suite One
Falmouth, Maine 04105

T.Y. LIN INTERNATIONAL

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE
ID#

Total Fees:
Date Received:

PERMIT APPLICATION - TRAFFIC

TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. § 704 - A

Please type or print:

This application is for: Traffic 100-200 PCE's ____
Traffic 200+ PCE's **X**

Name of Applicant **3 Lincoln, LLC**

Address: **80 Exchange Street, Suite 400, Portland, ME 04101**

Telephone: **207.808.8787**

Name of local contact or agent: **Thomas A. Errico, P.E., T.Y. Lin International**

Address: **12 Northbrook Drive, Falmouth, Maine**

Telephone: **207.347.4354**

Name and type of development: **3 Lincoln Street Project – Residential Apartments and Restaurant**

Location of development including road, street, or nearest route number: **Lot 3 Pearl Street**

City/Town/Plantation: **Biddeford**, County: **York**, Parcel #: **Map 71 / Lot 2**

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? Yes ____ No **X**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30 - A, chapter 187)?

Yes **X** No ____

Is this project located within a compact area of an urban compact municipality? Yes **X** No ____

Is this development or any portion of the site currently subject to state or municipal enforcement action?

No

Existing DEP or MDOT permit number (if applicable): **N/A**

Name(s) of DOT staff person(s) contacted concerning this application: **N/A**

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applications: **N/A**

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the application for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: Thomas A. Errico

Re/Cert/Lic No.: ME 6618

Name (print): Thomas A. Errico, PE

Date: September 20, 2021

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

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


Signature of applicant

8/26/21

Signature of applicant

Date

NOTICE OF INTENT TO FILE

Please take notice that 3 Lincoln, LLC, 80 Exchange Street, Suite 400, Portland ME 04092, (207) 808-8787 is intending to file a Traffic Movement Permit application with the Maine Department of Transportation pursuant to the provisions of 23 M.R.S.A. § 704 - A on or about August 25, 2021.

The application is for:

The development of 191 apartment units and a 298 seat restaurant. The project is expected to generate 61 new trips during the weekday AM peak hour, 296 trips during the weekday PM peak hour and 245 trips during the Saturday peak hour. Access and egress will be via Pearl Street.

At the following location:

Lot 3 Pearl Street in Biddeford, Tax Map 71 / Lot 2

A request for a public hearing 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. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Transportation Division office in Scarborough 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 Department of Transportation, Traffic Engineering Division, 16 State House Station, Augusta, Maine 04333.

SECTION 1 SITE AND TRAFFIC INFORMATION

1.A. Site Plan

The project consists of the following:

Lot 3A – 83 Residential Apartments Units

- (17) studio
- (32) 1-bedroom
- (23) 2-bedroom
- (11) 3-bedroom
- 50 parking spaces underground parking garage

Lot 3B – 108 Residential Apartments Units

- (42) studio
- (42) 1-bedroom
- (24) 2-bedroom
- 37 parking spaces underground parking garage

Lot 3C – (2) Restaurants - 298 seats total

- 170 seats in lower level
- 128 seats in upper level

Parking for the residential uses will be provided within each residential building and the adjacent parking garage. Parking for the restaurant use will be via area public parking sites and for this study it is assumed to be in the recently opened Pearl Street parking garage. A site plan prepared by Acorn Engineering Inc. is attached.

1.B. Existing and Proposed Site Uses

The project site is located on Pearl Street located off Lincoln Street in Biddeford. The parcel to be developed is identified on Biddeford Tax Map #: Lot 71 /Lot 2. Currently the site is vacant and as noted above will consist of residential and restaurant land uses.

1.C. Site and Vicinity Boundaries

Figure 1 depicts a location map illustrating roads in the vicinity of the project.

1.D. Proposed Uses in the Vicinity of the Proposed Development

TYLI has contacted the Biddeford Planning office for proposed developments that may impact the study area. Projects that have been approved and not occupied will be included as background traffic in the analysis.

1.E. Trip Generation

Trip generation from the site was based upon information contained in the Trip Generation Manual, Institute of Transportation Engineers, 10th Edition. **Table 1** summarizes Weekday AM and PM peak hour traffic volumes (see Appendix for supporting information). Traffic generated by the proposed project was based on Land Use Code 221 Multifamily Housing (Mid-Rise) and Land Use Code 932 High-Turnover (Sit-Down Restaurant). The volumes represent trip generation for the Peak Hour of Generator. The following summarizes the trip generation rates and trip distribution used for the project.

- Land Use Code 221 Multifamily Housing (Mid-Rise)
 - AM Peak Hour of Generator
 - Average Rate Per – 0.32 per unit
 - **$\text{Ln}(T) = 0.83 \text{Ln}(X) - 0.27$ [used for this Application]**
 - Directional Distribution: 20% Entering, 73% Exiting
 - PM Peak Hour of Generator
 - Average Rate Per – 0.41 per unit
 - **$\text{Ln}(T) = 0.83 \text{Ln}(X) - 0.05$ [used for this Application]**
 - Directional Distribution: 60% Entering, 40% Exiting
 - Saturday Peak Hour of Generator
 - Average Rate Per – 0.44 per unit
 - **$T = 0.42 (X) + 6.73$ [used for this Application]**
 - Directional Distribution: 49% Entering, 51% Exiting
- Land Use Code 932 High-Turnover (Sit-Down Restaurant)
 - AM Peak Hour of Generator
 - Average Rate Per – 0.59 per seat [Restaurant will not be open and thus excluded]
 - Equation not given
 - PM Peak Hour of Generator
 - **Average Rate Per – 0.73 per seat [used for this Application]**
 - Equation not given
 - Directional Distribution: 52% Entering, 48% Exiting
 - Saturday Peak Hour of Generator
 - **Average Rate Per – 0.53 per seat [used for this Application]**
 - Equation not given
 - Directional Distribution: 53% Entering, 47% Exiting

Given the type of land uses proposed, internal capture trip activity will occur (residents dining at the restaurant or employees of the restaurant living in the proposed housing, as examples). To estimate the internal capture influence NCHRP 684 methods were used. The NCHRP 684 method estimates a modest 5% reduction in the PM peak hour and 9% during the Saturday peak hour (see Appendix for calculation sheets). Given that the restaurant will be closed in the morning, no adjustments were included. Additionally, not all traffic generated by the project are new trips to area roadways. Some site trips comprise of “Pass-By” trips. According to ITE, a pass-by trip is made as an intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-By trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the generator. According to ITE a Restaurant (Land Use Code 932) has an average Pass-By trip percentage of 43 percent. Saturday Pass-By percentages are not provided, and the Weekday percentages was used. As noted in **Table 1** the project would be expected to generate 61 new trips during the morning peak hour, 162 new trips during the afternoon peak hour and 127 new trips during the Saturday peak hour.

Table 1 Trip Generation Peak Hour of Generator									
	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Residential Apartment (191 Units)	16	45	61	47	31	78	43	44	87
Restaurant (298 Seats) ¹	N/A	N/A	N/A	113	105	218	84	74	158
Sub-Total	16	45	61	160	136	296	127	118	245

Internal Capture Trips	N/A	N/A	N/A	-7	-7	-14	-11	-11	-22
Total Entering and Exiting Site	16	45	61	153	129	282	116	107	223
Restaurant Pass-By Trips (43%) ²	N/A	N/A	N/A	-60	-60	-120	-48	-48	-96
Total New Traffic	16	45	61	93	69	162	68	59	127

1 – The restaurant is not open during the morning peak hour

2 – Saturday Pass-By trips not provided, and weekday PM utilized.

1.F Trip Distribution

The assignment of trips to the area roadway system was based upon existing traffic volume patterns and approved assignment percentages defined in the Riverdam Redevelopment Traffic Impact Study. The assignment percentages proposed are noted as follows:

Entering Trips

- Left-turn from Lincoln Street onto Pearl Street – 58%
- Right-turn from Lincoln Street onto Pearl Street – 22%
- Through movement on Pearl from Elm Street – 20%

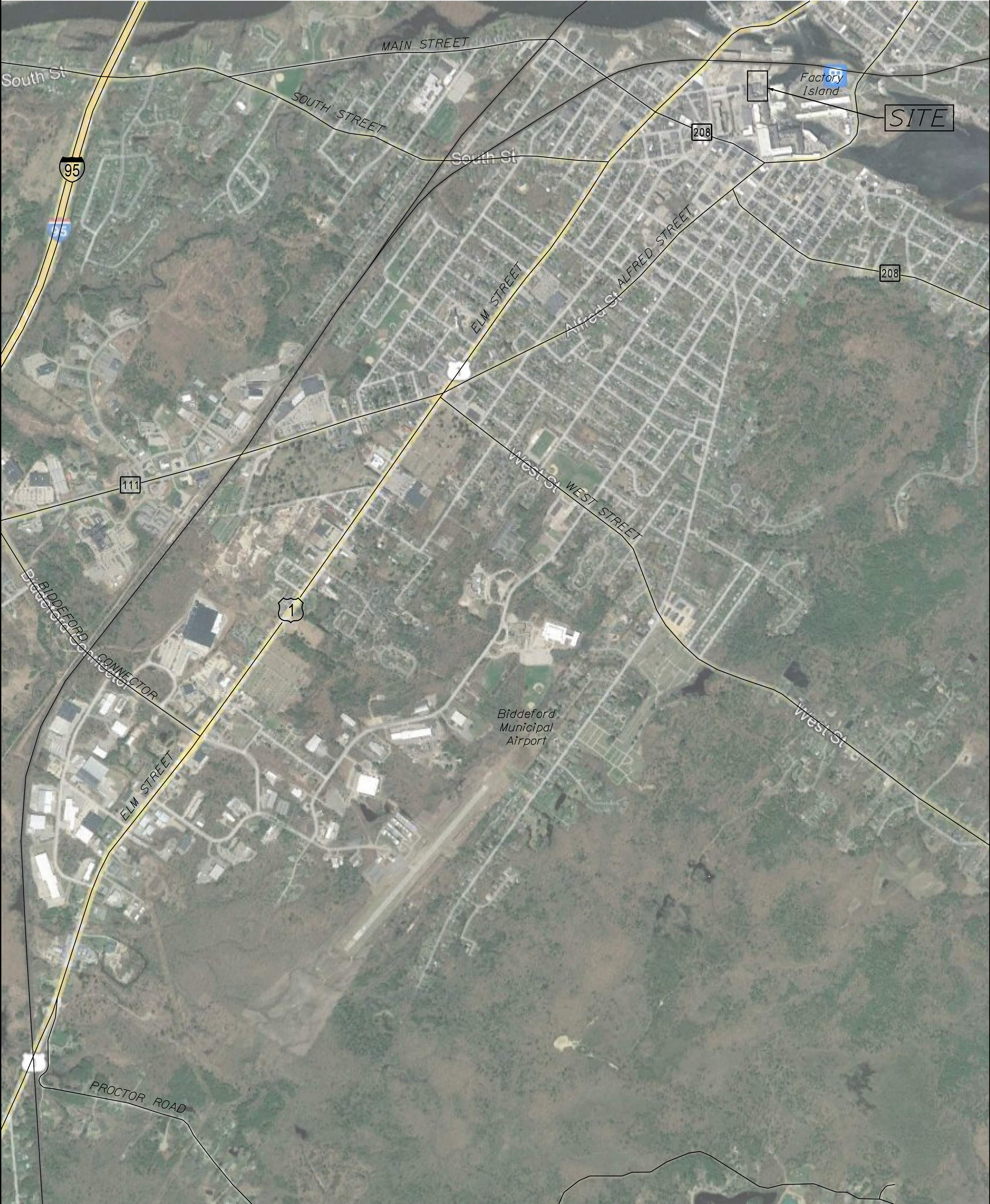
Exiting Trips

- Left-turn from Pearl Street onto Lincoln Street – 38%
- Through movement on Pearl Street to Elm Street – 10%
- Right-turn from Pearl Street onto Lincoln Street – 52%

Trips distributed above were assigned to the Main Street/Lincoln Street/Adams Street, Elm Street/Lincoln Street, Elm Street/Main Street and Pearl Street/Main Street intersections according to existing peak hour turning movement volumes. Data is not available at Elm Street and Pine and Elm Street/Water Street/Lincoln Street and was estimated according to our local knowledge. Assignments at these locations will be revised as necessary. The turning movements volumes are provided in the Appendix.

1.G Trip Assignment

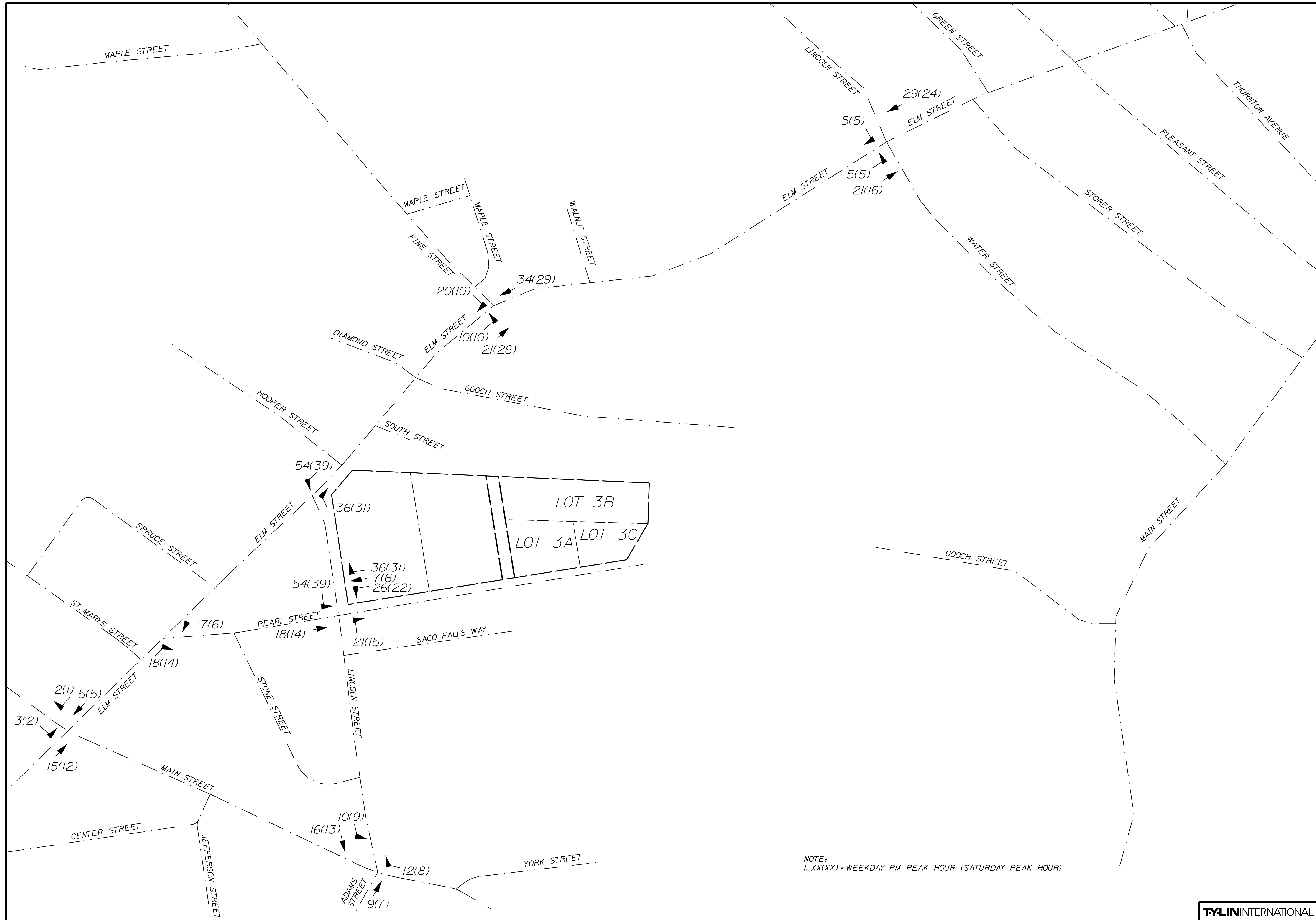
Figures 2, 3 and 4 present the assignment of Primary, Pass-By and Total trips during the Weekday AM and PM peak hours and the Saturday peak hour.

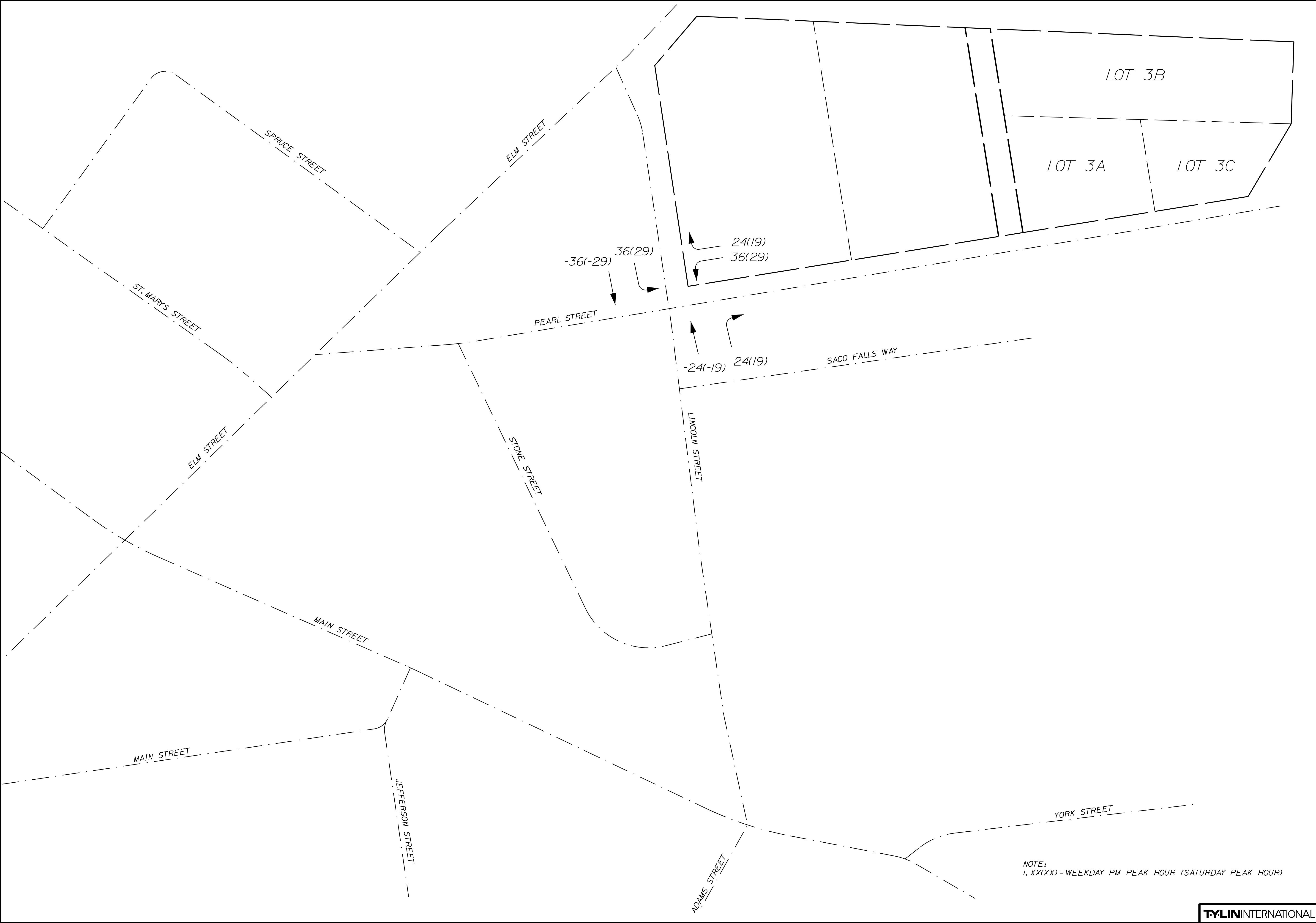


TYLININTERNATIONAL

FIGURE NUMBER 1	BIDDEFORD 3 LINCOLN STREET PROJECT	PROJ. MANAGER	T. ERRICO	BY	DATE	SIGNATURE
		DESIGN-DETAILED	S. DAVIS			
		CHECKED-REVIEWED				
		DESIGN2-DETAILED2				P.E. NUMBER
		DESIGN3-DETAILED3				DATE
	STUDY LOCATION PLAN	REVISIONS 1				
		REVISIONS 2				
		REVISIONS 3				
		REVISIONS 4				
		FIELD CHANGES				

MaineDOT TMP APPLICATION





NOTE:
1. XX(XX) = WEEKDAY PM PEAK HOUR (SATURDAY PEAK HOUR)

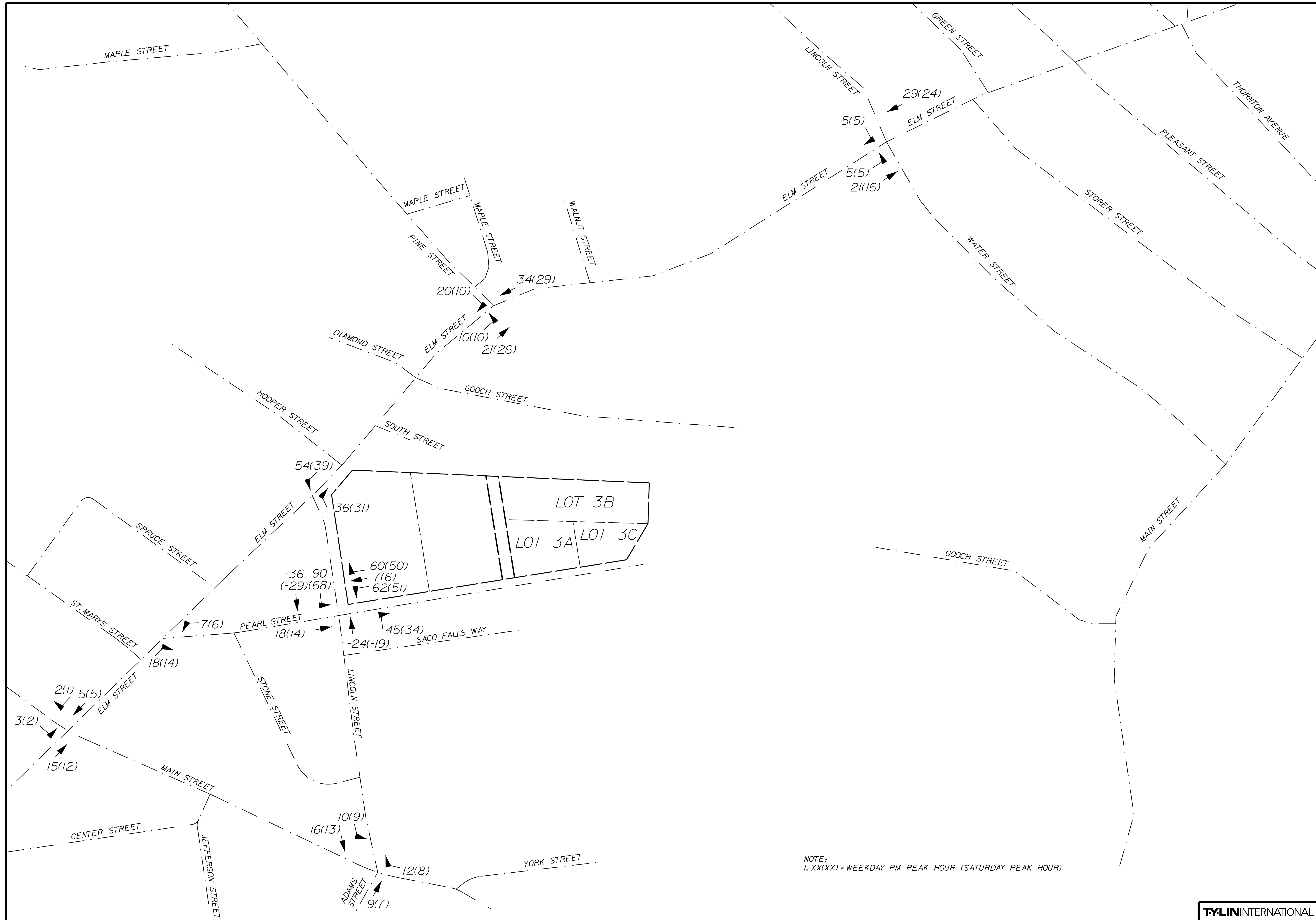
BIDDEFORD
3 LINCOLN STREET PROJECT
PASS-BY SITE TRIPS

FIGURE NUMBER
3

PROJ. MANAGER	T. ERICO	BY	DATE
CHECKED-DETAILED	S. DAVIS		
DESIGN-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

DESIGN-DETAILED	SIGNATURE
DESIGN-DETAILED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

DATE



SECTION 2 ACCIDENTS

Computer crash reports and Collision Crash Diagrams for High Crash Locations (attached at the end of this section) were obtained from MaineDOT for the most recent available three-year period (2018-2020) for the following roadways in the vicinity of the project:

- Route 1/Elm Street – Main Street to Saco TL
- Pearl Street
- Lincoln Street
- Main Street – Lincoln Street to Elm Street

Table 2 summarizes the crash data at locations that are High Crash Locations (HCL) or close to meeting the criteria.

Table 2 Crash Data		
Location	2018-2020 Crashes	Critical Rate Factor
Elm Street/Main Street	22	0.94
Elm Street/St. Mary's Street	7	1.16
Elm Street/Spruce Street	17	0.92
Elm Street/Lincoln Street	9	1.32
Elm Street/Pine Street	14	2.00
Main Street/Lincoln Street/Adams Street	18	4.31
Main Street/Jefferson Street	8	2.90

As noted, there are four HCL's in the study area and a preliminary assessment is provided as follows:

- **Elm Street/Lincoln Street** – The crash diagram indicates turn crashes are the most prevalent type. Four crashes involved vehicles turning left onto Lincoln Street, one involving a vehicle turning left from Lincoln Street and one crash involving a motorist turning left into a nearby driveway. Traffic volumes turning left onto Lincoln Street are high as is the opposing volume on northbound Elm Street. Limited gaps may be contributing to crashes. While it is an HCL, only 9 crashes were reported. Sight distance is adequate. A mitigation improvement strategy is not evident at this time.
- **Elm Street/Pine Street** – A number of different types of crashes were reported at this location. Three rear-end collisions occurred on eastbound Elm Street; two angle crashes involving right-turns from Pine Street; Three single vehicle crashes; one crash involving a pedestrian; one crash avoiding a bicyclist; and two crashes involving movements to and from Pine Street. There was not a specific pattern that would warrant a mitigation improvement strategy.
- **Main Street/Lincoln Street/Adams Street** - This location was reviewed in conjunction with the Riverdam Redevelopment project and the TMP required mitigation (four-way STOP) to address safety deficiencies. As of September 17, 2021 the improvements have not been implemented.
- **Main Street/Jefferson Street** – Four of the crashes involved vehicles turning from Jefferson Street. Two crashes involved bicyclists on the Jefferson Street crosswalk. It is likely parked vehicles obstructed sight for motorists turning off Jefferson Street. Recent improvements that tightened the intersection likely prevent vehicles from parking too close to the intersection and thus have reduced crashes. I would note that there are mailboxes on the southeast corner that do impact sight, and relocation may make sense. While it is an HCL, only 8 crashes were reported.

Further analysis of these locations will be performed in conjunction with the Section 7 study.

SECTION 3
DEVELOPMENT ENTRANCES AND EXITS

3.A. Entrance and Exit Location

The project will utilize Pearl Street to access each residential building parking garage. Restaurant customers will utilize the new Pearl Street parking garage or other public parking facilities. A service driveway is provided for the restaurant. The attached site plan illustrates the existing driveway locations.

3.B. Entrance Plan

The attached plans provide information on proposed driveways to be utilized for the project including sight distances and the posted speed limit. Sight distances for the project driveways are noted below.

Location	Measured Sight Distance (Feet)		Minimum Standard (Feet)
	Looking Left	Looking Right	
Lot 3A/3B Driveway	Sight to End of Pearl Street	200+	200'
Restaurant Service Driveway	Sight to End of Pearl Street	200+	200'

SECTION 4
TITLE, RIGHT, OR INTEREST

A copy of the deed documenting ownership rights is in the Appendix.

SECTION 5
PUBLIC OR PRIVATE RIGHTS-OF-WAY

No new right-of-way is proposed as part of this project. All work will be conducted on private property.

SECTION 6
SCHEDULE

Construction of the project is expected to be completed in 2022.

APPENDIX

TRIP GENERATION

Multifamily Housing (Mid-Rise) (221)

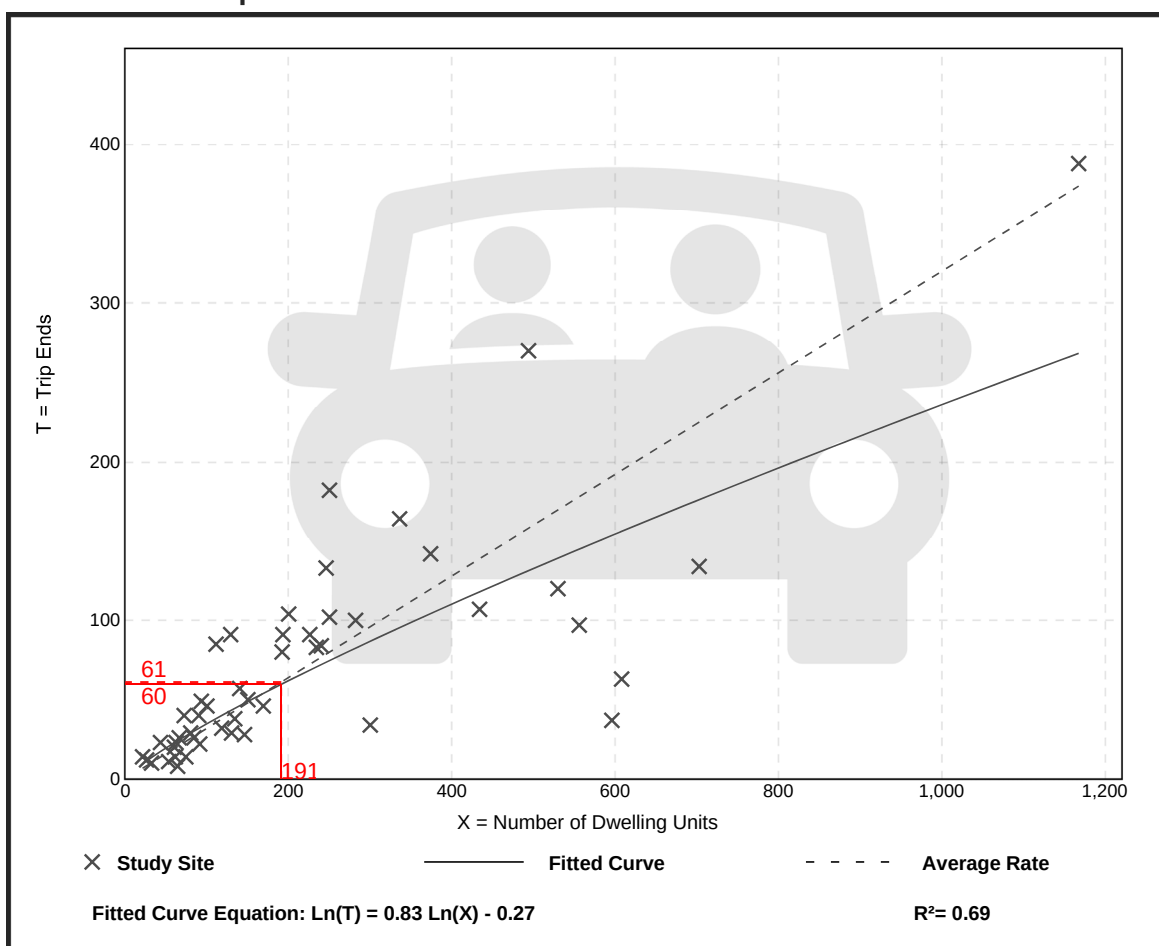
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 48
Avg. Num. of Dwelling Units: 225
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.32	0.06 - 0.77	0.17

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

Multifamily Housing (Mid-Rise) (221)

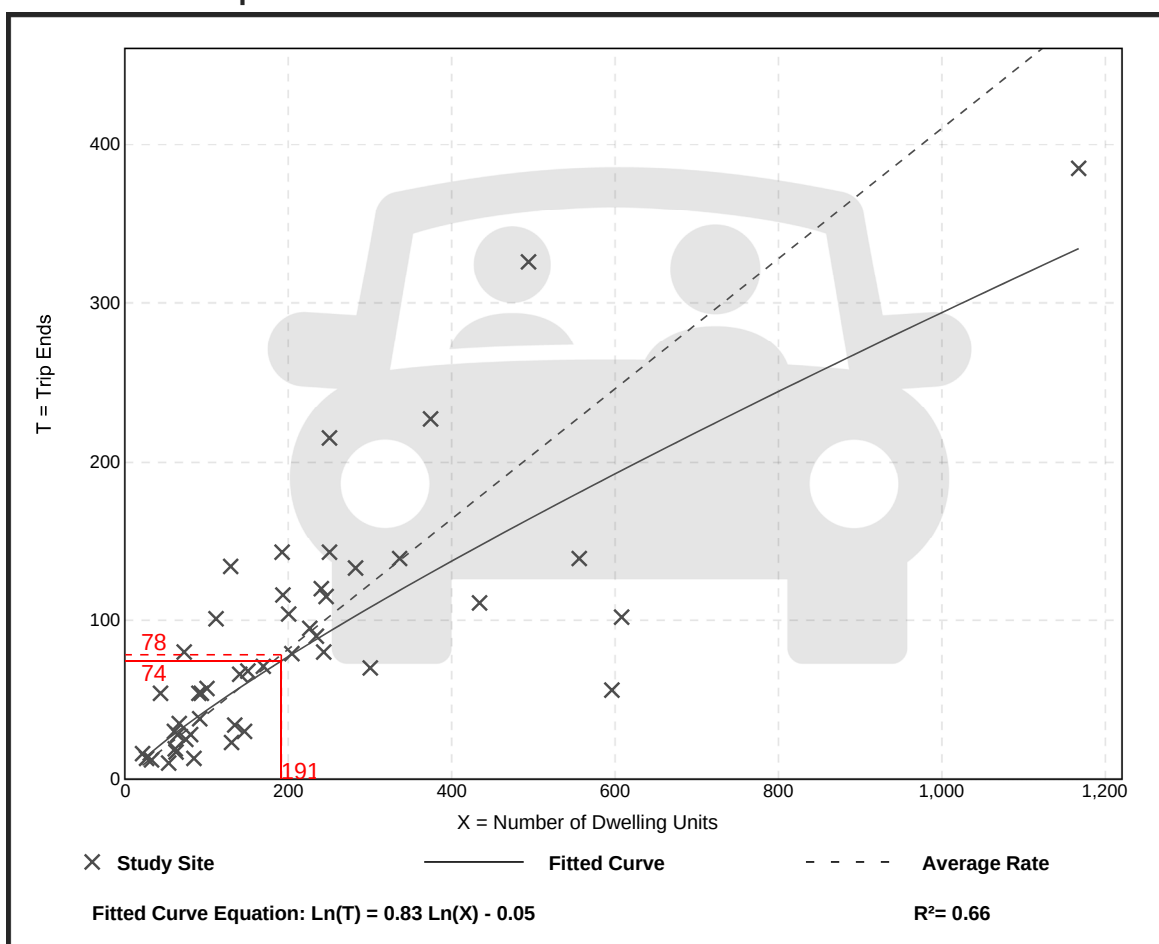
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 47
Avg. Num. of Dwelling Units: 211
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.09 - 1.26	0.22

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

Multifamily Housing (Mid-Rise) (221)

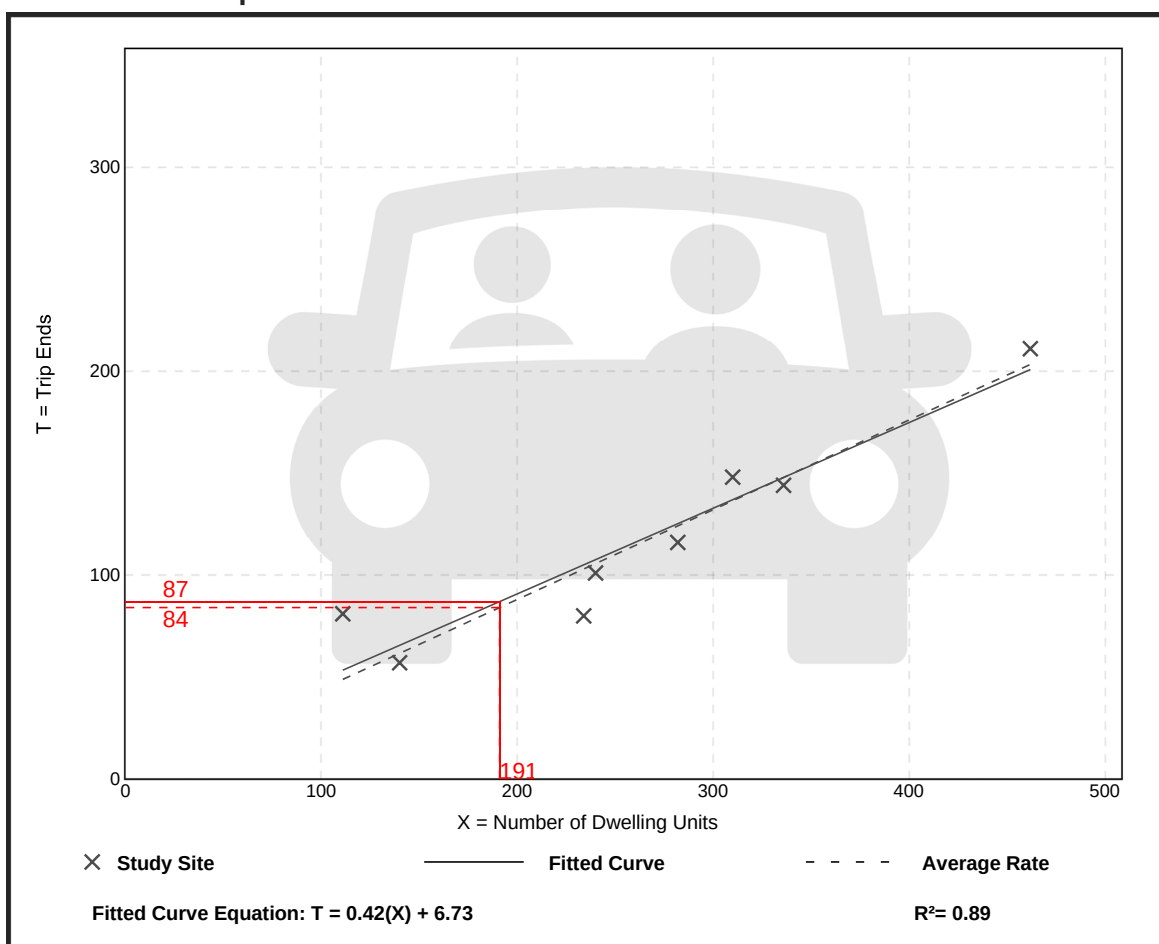
Vehicle Trip Ends vs: Dwelling Units
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Dwelling Units: 264
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.34 - 0.73	0.08

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

High-Turnover (Sit-Down) Restaurant (932)

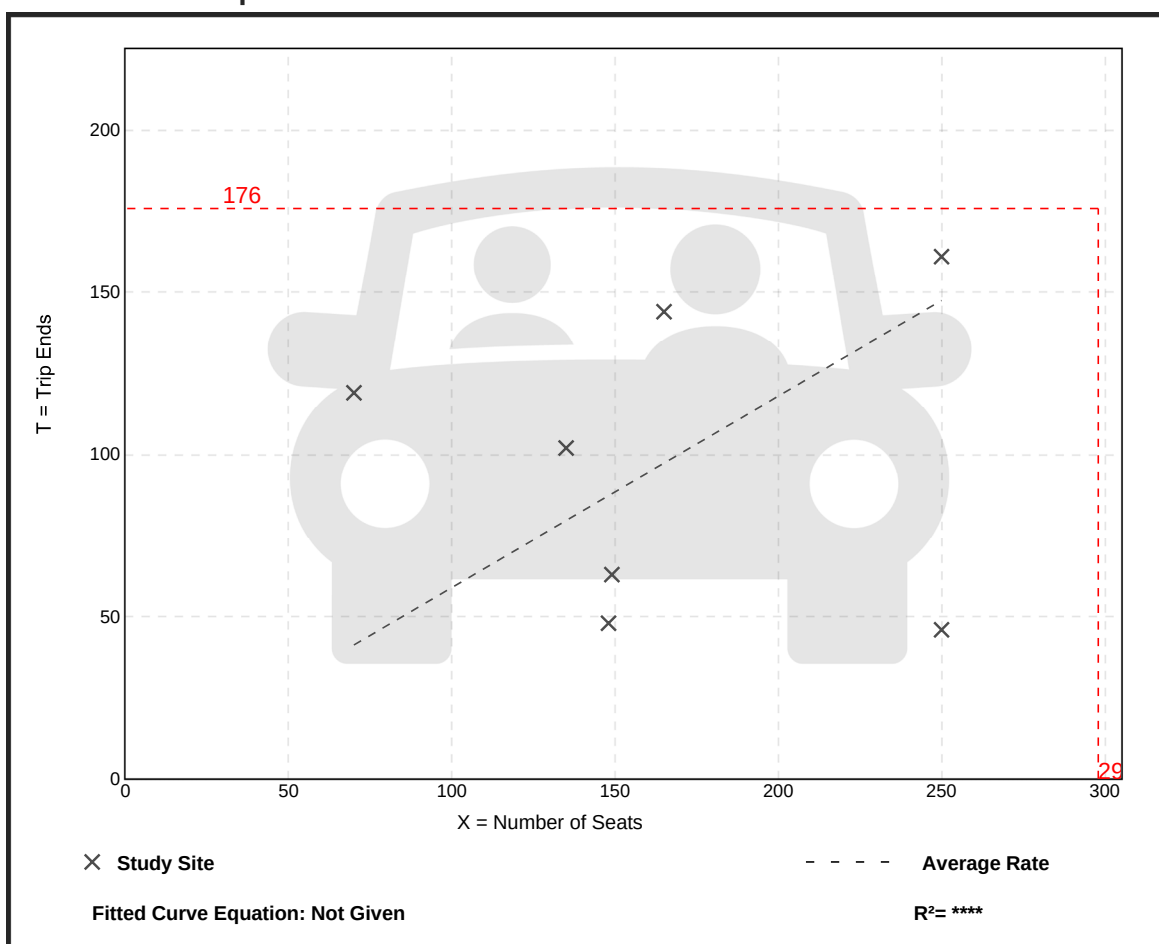
Vehicle Trip Ends vs: **Seats**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. Num. of Seats: 167
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.59	0.18 - 1.70	0.40

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

High-Turnover (Sit-Down) Restaurant (932)

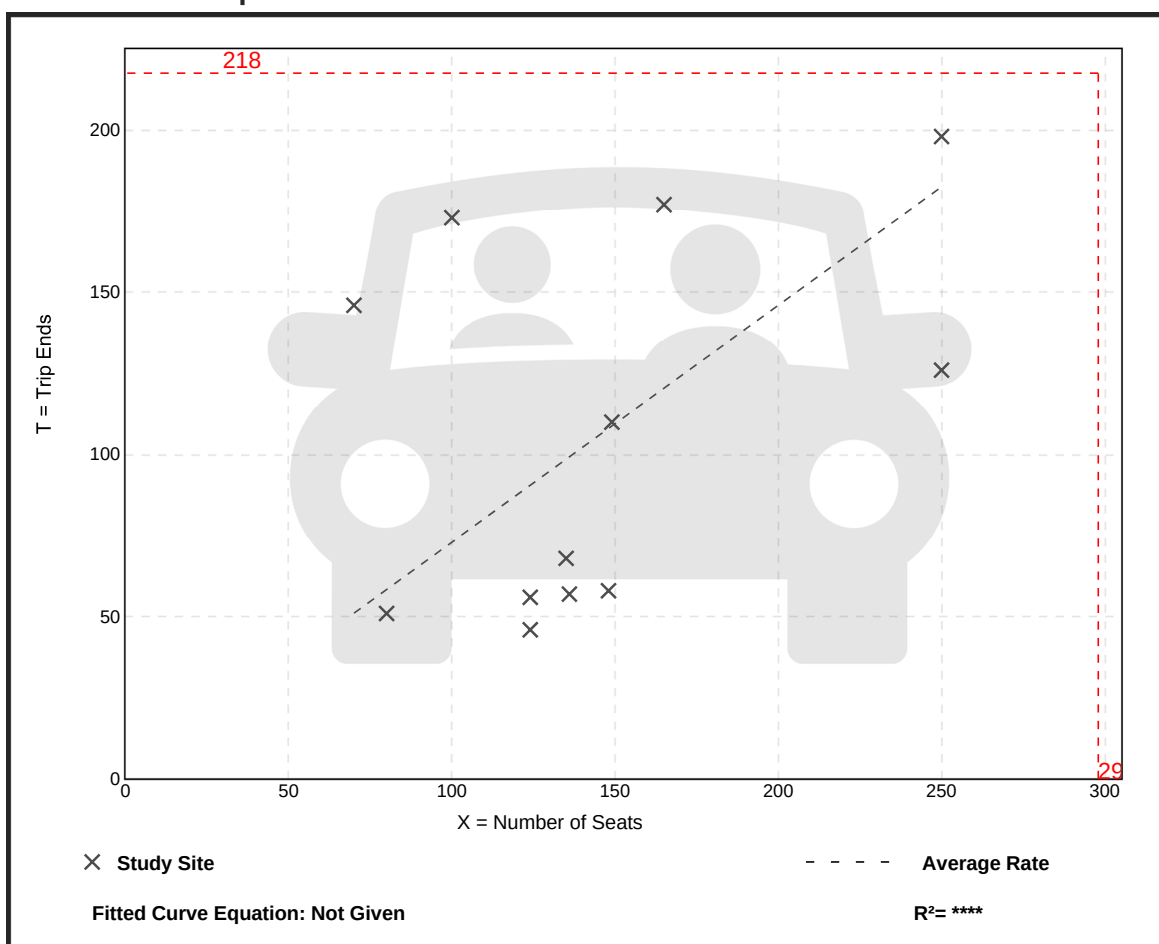
Vehicle Trip Ends vs: Seats
On a: Weekday,
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 12
Avg. Num. of Seats: 144
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.73	0.37 - 2.09	0.45

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

High-Turnover (Sit-Down) Restaurant (932)

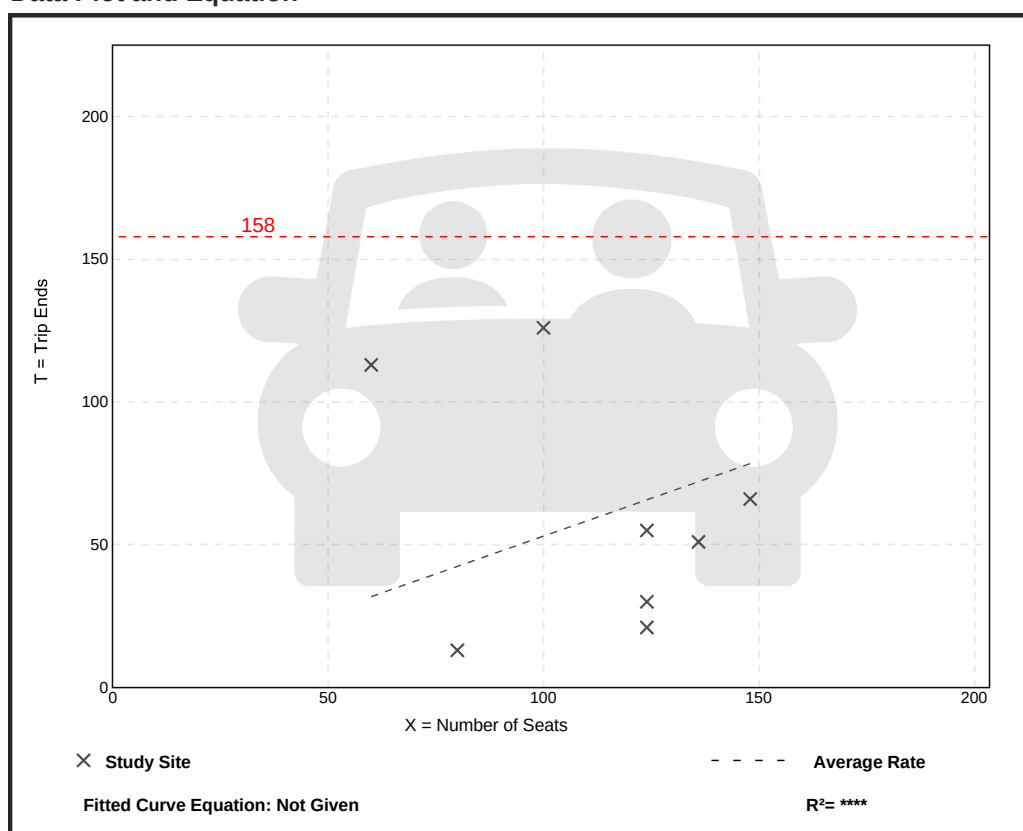
Vehicle Trip Ends vs: Seats
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 8
Avg. Num. of Seats: 112
Directional Distribution: 53% entering, 47% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.53	0.16 - 1.88	0.51

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement • Institute of Transportation Engineers

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Pearl Street		Organization:	T.Y. Lin International	
Project Location:	Biddeford, Maine		Performed By:	Tom Errico, PE	
Scenario Description:	Build		Date:	15-Sep-21	
Analysis Year:	2022		Checked By:		
Analysis Period:	PM Peak Hour		Date:		

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (<i>For Information Only</i>)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0	0	0
Retail				0	0	0
Restaurant	932	298	seats	218	113	105
Cinema/Entertainment				0		
Residential	221	191	Units	78	47	31
Hotel				0		
All Other Land Uses ²				0		
				296	160	136

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	6	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	296	160	136
Internal Capture Percentage	5%	5%	6%
External Vehicle-Trips ⁵	280	152	128
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	5%	2%
Cinema/Entertainment	N/A	N/A
Residential	4%	19%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Pearl Street		Organization:	T.Y. Lin International	
Project Location:	Biddeford, Maine		Performed By:	Tom Errico, PE	
Scenario Description:	Build		Date:	15-Sep-21	
Analysis Year:	2022		Checked By:		
Analysis Period:	Saturday Peak Hour		Date:		

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office				0	0	0
Retail				0	0	0
Restaurant	932	298	seats	158	84	74
Cinema/Entertainment				0		
Residential	221	191	Units	87	43	44
Hotel				0		
All Other Land Uses ²				0		
				245	127	118

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	9	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	245	127	118
Internal Capture Percentage	9%	9%	9%
External Vehicle-Trips ⁵	223	116	107
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	11%	3%
Cinema/Entertainment	N/A	N/A
Residential	5%	20%
Hotel	N/A	N/A

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

CRASH DATA

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 56644 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Jct of Elm St & Lincoln St

RTE # / RD #: 0001X

DATE DRAWN: 4/12/2021 DRAWN BY: Michelle

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

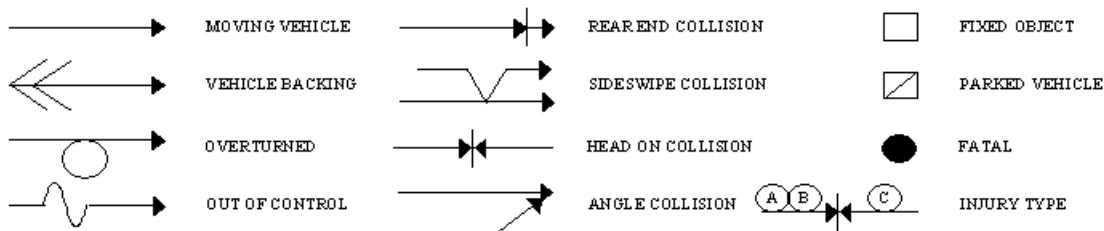
CRASH RATE: 0.49

CRF: 1.32

% INJURY: 33.3

TOTAL CRASHES: 9

LEGEND



--- PATH OF: [P] PEDESTRIAN [B] BICYCLE [A] ANIMAL [S] SLED

PAVEMENT: D - DRY, I - ICY, W - WET, S - SNOW

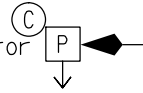
WEATHER: C - CLEAR, F - FOG, R - RAIN, SL - SLEET, S - SNOW, CL - CLOUDY

TIME: A - AM, P - PM

Scrub A Dub Carwash

Elm St/US Rte 1

4083 2-1-19 8:30A W/C Ped Error



12742 5-28-20 11:35A D/C Fail To Yield

26719 9-19-18 1:50P D/CL Electronic Device

9795 3-26-18 4:15P D/C Fail To Yield

5600 2-11-18 9:55P D/C
Improper Turn

32523 12-22-20 2:20P W/C Fail To Yield

77915 12-23-19 2:25P D/C Fail To Yield

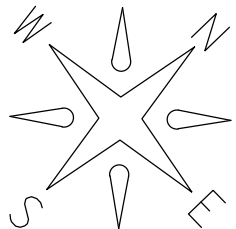
27590 9-26-18 1:30P D/CL Fail To Yield



4612 2-6-20 1:45P I/R Speed



guardrail



Biddeford

Node: 56644

Study Period: 2018-2020

of Crashes: 9 / CRF: 1.32

Prepared by Office of Safety (MP 4/12/21)

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 56648 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Jct of Elm St & Pine St

RTE # / RD #: 0001S

DATE DRAWN: 4/12/2021 DRAWN BY: Michelle

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

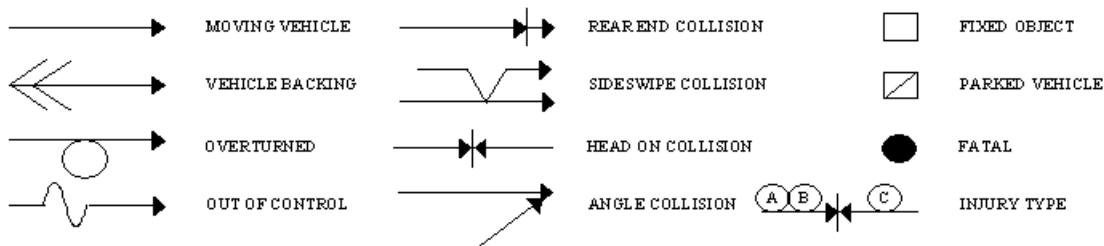
CRASH RATE: 0.74

CRF: 2

% INJURY: 14.3

TOTAL CRASHES: 14

LEGEND



--- PATH OF: [P] PEDESTRIAN [B] BICYCLE [A] ANIMAL [S] SLED

PAVEMENT: D - DRY, I - ICY, W - WET, S - SNOW

WEATHER: C - CLEAR, F - FOG, R - RAIN, SL - SLEET, S - SNOW, CL - CLOUDY

TIME: A - AM, P - PM

Pine St.

Maple St.

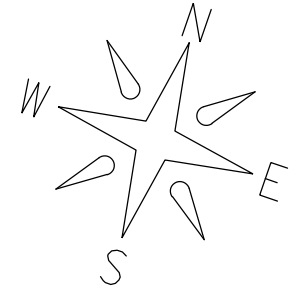
Biddeford

56648(P) 65575(A)

Study Period: 2018-2020

of Crashes: 14 /CRF: 2.00

Prepared by Office of Safety (MP 4/12/21)



65575



10347 4-18-20 6:05P D/C Fail To Yield
Yield

19260 7-15-18 11:35A
D/CL Fail To Yield

56648

bridge rail
curb

45838 3-14-19 5:40A
W/C Fail To Yield

9900 3-27-18 12:20A D/C Avoiding Bike

B

C

P

C

19203 7-13-18 2:45P D/C Follow Too Close

48375 4-1-19 6:50P D/C Internal Distraction

62147 8-14-19 9:55P D/C Reckless

56057 6-23-19 1:00P D/C Unknown

19398 8-14-20 9:50A D/C Fail To Yield

6586 2-22-18 3:20P W/S Fail To Yield

44312 3-4-19 6:50A S/S Follow Too Close

17886 7-29-20 1:20P D/C Follow Too Close

9257 3-31-20 6:15A D/C Follow Too Close

35037 11-21-18 10:00A D/CL
Fail To Keep In Lane

Elm St.

bridge

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 58493 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Jct of Main St & Jefferson St

RTE # / RD #: 3110086 DATE DRAWN: 4/9/2021 DRAWN BY: Michelle

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

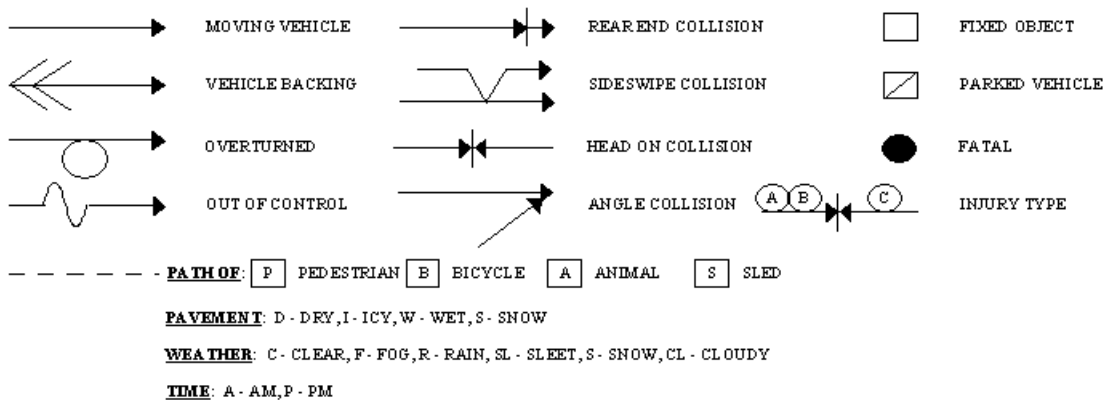
CRASH RATE: 1.39

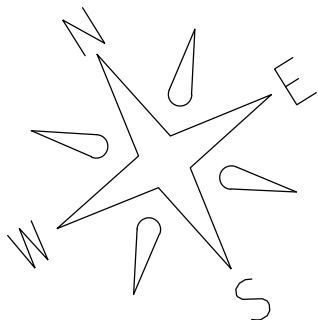
CRF: 2.9

% INJURY: 25

TOTAL CRASHES: 8

LEGEND





Biddeford

Node: 58493

Study Period: 2018-2020

of Crashes: 8 / CRF: 2.90

Prepared by Office of Safety (MP 4/9/21)

Main St.

city light pole

12286 4-12-18 1:00P D/C Other
swung wide leaving parking space

3870 1-23-20 12:30P D/CL Fail To Yield

5744 2-13-20 2:25P D/C Fail To Yield

2482 1-21-18 4:05P SL/CL Fail To Yield

23958 8-22-18 9:35A W/R Follow Too Close

Main St.

B B

30385 10-22-18 7:45A
D/C Bike Error

B C

56055 6-17-19 4:05P
D/C Fail To Yield

10542 4-23-20 3:25P D/C Fail To Yield

stop

Jefferson St.

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: YORK

TOWN: BIDDEFORD

LOW NODE: 58494 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Jct of Main St & Adams St/Lincoln St

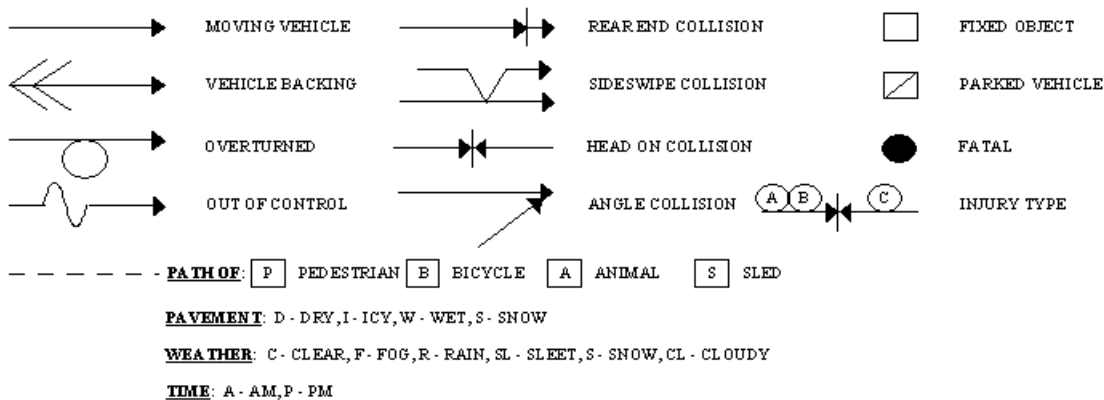
RTE # / RD #: 3110002 DATE DRAWN: 4/9/2021 DRAWN BY: Michelle

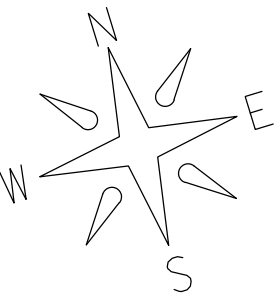
STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

CRASH RATE: 1.79 CRF: 4.31 % INJURY: 38.9 TOTAL CRASHES: 18

LEGEND





Lincoln St.

Biddeford

Node: 58494

Study Period: 2018-2020

of Crashes: 18 / CRF: 4.31

Prepared by Office Of Safety (MP 4/9/21)

Main St.

Stop

30178 11-25-20 5:10P W/C Fail To Yield
11452 5-8-20 5:10P D/C Fail To Yield
42153 12-20-18 11:25A D/C Follow Too Close

(C)

15562 6-1-18 6:20P D/C Fail To Yield
63625 8-26-19 2:55P D/C Fail To Yield

(C)

19654 7-18-18 4:25P D/C Ran Stop Sign

7978 3-13-20 12:10P W/R Fail To Yield

1135 1-8-20 1:45P D/C Fail To Yield

53999 5-31-19 12:10P D/CL Fail To Yield M/C laid bike down (B)

50613 4-22-19 3:05P D/C Fail To Yield

46554 3-22-19 5:30P W/R Fail To Yield (C)

18810 8-6-20 6:15P D/C Fail To Yield

61572 8-13-19 5:05P D/CL Fail To Yield

36214 11-28-18 2:45P W/CL Fail To Yield (C)

52332 5-17-19 8:55P D/CL Fail To Yield

Main St.

796 1-5-18 2:10P SL/CL Speed

22956 9-21-20 10:45A D/C Fail To Yield
32570 12-23-20 11:20A D/C Fail To Yield (C)

Stop

Adams St.

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I ☐ Section Detail ☒ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Biddeford
Elm St./Lincoln St./Main St./Pearl St. Area

REPORT PARAMETERS

Year 2018, Start Month 1 through Year 2020 End Month: 12

Route: 0001X	Start Node: 56640 End Node: 56649	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☐ Exclude Last Node
Route: 3110126	Start Node: 58512 End Node: 58514	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node
Route: 3110102	Start Node: 56644 End Node: 58494	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node
Route: 3110104	Start Node: 58494 End Node: 56640	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☒ Exclude Last Node
Route: 0001S	Start Node: 58711 End Node: 56648	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Crash Summary I

Nodes														
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
56640	0001X - 33.99	Int of ELM ST MAIN ST	9	22	0	0	1	4	17	22.7	6.161	1.19	1.27	0.94
												Statewide Crash Rate:	0.77	
56641	0001X - 34.04	Int of ELM ST ST MARYS ST	2	7	0	0	0	2	5	28.6	5.192	0.45	0.39	1.16
												Statewide Crash Rate:	0.16	
58514	0001X - 34.05	Int of ELM ST PEARL ST	2	3	0	0	1	0	2	33.3	4.797	0.21	0.40	0.00
												Statewide Crash Rate:	0.16	
56642	0001X - 34.09	Int of ELM ST SPRUCE ST VILLAGE MARKET Z RD	9	17	0	0	0	6	11	35.3	4.585	1.24	1.34	0.92
												Statewide Crash Rate:	0.77	
58517	0001X - 34.13	Int of ELM ST THORNTON ST	2	0	0	0	0	0	0	0.0	4.588	0.00	0.40	0.00
												Statewide Crash Rate:	0.16	
56644	0001X - 34.16	Int of ELM ST, LINCOLN ST	2	9	0	0	1	2	6	33.3	6.080	0.49	0.37	1.32
												Statewide Crash Rate:	0.16	
56645	0001X - 34.19	Int of ELM ST HOOPER ST	2	1	0	0	0	0	1	0.0	6.086	0.05	0.37	0.00
												Statewide Crash Rate:	0.16	
58519	0001X - 34.25	Int of DIAMOND ST ELM ST	2	6	0	0	2	2	2	66.7	6.084	0.33	0.37	0.00
												Statewide Crash Rate:	0.16	
56647	0001X - 34.29	BRG 3080, ELM ST over SACO RIVER (W OR S CHAN)	2	0	0	0	0	0	0	0.0	2.972	0.00	0.45	0.00
												Statewide Crash Rate:	0.16	
P56648	0001X - 34.31	Int of ELM ST PINE ST	2	14	0	0	0	2	12	14.3	6.277	0.74	0.37	2.00
												Statewide Crash Rate:	0.16	
58711	0001X - 34.33	Non Int ELM ST	2	0	0	0	0	0	0	0.0	4.753	0.00	0.40	0.00
												Statewide Crash Rate:	0.16	
56649	0001X - 34.48	TL - Biddeford, Saco	2	0	0	0	0	0	0	0.0	5.132	0.00	0.39	0.00
												Statewide Crash Rate:	0.16	
58513	3110126 - 0.06	Int of PEARL ST STONE ST	2	0	0	0	0	0	0	0.0	0.519	0.00	0.63	0.00
												Statewide Crash Rate:	0.15	
58512	3110102 - 0.07	Int of LINCOLN ST PEARL ST	2	1	0	0	0	0	1	0.0	2.008	0.17	0.47	0.00
												Statewide Crash Rate:	0.15	
58515	3110102 - 0.17	Int of LINCOLN ST STONE ST	2	0	0	0	0	0	0	0.0	2.144	0.00	0.47	0.00
												Statewide Crash Rate:	0.15	
58494	3110104 - 0.15	Int of ADAMS ST LINCOLN ST MAIN ST	2	18	0	0	2	5	11	38.9	3.353	1.79	0.41	4.31
												Statewide Crash Rate:	0.15	
58493	3110104 - 0.25	Int of JEFFERSON ST MAIN ST	2	8	0	0	1	1	6	25.0	1.923	1.39	0.48	2.90
												Statewide Crash Rate:	0.15	
Study Years:	3.00	NODE TOTALS:		106	0	0	8	24	74	30.2	72.654	0.49	0.33	1.46

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
56640	56641	3130112	0 - 0.05	0001X - 33.99	0.05	2	3	0	0	0	1	2	33.3	0.00235	425.56	624.97	0.00
Int of ELM ST MAIN ST Statewide Crash Rate: 230.30																	
56641	58514	3114278	0 - 0.01	0001X - 34.04	0.01	2	0	0	0	0	0	0	0.0	0.00049	0.00	909.62	0.00
Int of ELM ST ST MARYS ST Statewide Crash Rate: 230.30																	
56642	58514	3130113	0 - 0.04	0001X - 34.05	0.04	2	1	0	0	1	0	0	100.0	0.00177	188.67	672.93	0.00
Int of ELM ST SPRUCE ST VILLAGE MARKET Z RD Statewide Crash Rate: 230.30																	
56642	58517	3944217	0 - 0.04	0001X - 34.09	0.04	2	0	0	0	0	0	0	0.0	0.00188	0.00	662.61	0.00
Int of ELM ST SPRUCE ST VILLAGE MARKET Z RD Statewide Crash Rate: 230.30																	
56644	58517	3114282	0 - 0.03	0001X - 34.13	0.03	2	4	0	0	0	1	3	25.0	0.00133	1001.36	723.66	1.38
Int of ELM ST, LINCOLN ST Statewide Crash Rate: 230.30																	
56644	56645	3114280	0 - 0.03	0001X - 34.16	0.03	2	1	0	0	0	0	1	0.0	0.00179	186.48	670.90	0.00
Int of ELM ST, LINCOLN ST Statewide Crash Rate: 230.30																	
56645	58519	3937825	0 - 0.06	0001X - 34.19	0.06	2	2	0	0	0	0	2	0.0	0.00372	179.33	555.64	0.00
Int of ELM ST HOOPER ST Statewide Crash Rate: 230.30																	
56647	58519	3114285	0 - 0.04	0001X - 34.25	0.04	2	2	0	0	0	1	1	50.0	0.00238	280.41	623.08	0.00
BRG 3080, ELM ST over SACO RIVER (W OR S CHAN) Statewide Crash Rate: 230.30																	
56647	56648	2837611	0 - 0.02	0001X - 34.29	0.02	2	3	0	0	0	2	1	66.7	0.00119	841.23	744.72	1.13
BRG 3080, ELM ST over SACO RIVER (W OR S CHAN) Statewide Crash Rate: 230.30																	
56648	58711	3139816	0 - 0.02	0001X - 34.31	0.02	2	0	0	0	0	0	0	0.0	0.00045	0.00	922.12	0.00
Int of ELM ST PINE ST Statewide Crash Rate: 230.30																	
56649	58711	3116620	0 - 0.15	0001X - 34.33	0.15	2	6	0	0	0	0	6	0.0	0.00744	268.98	469.63	0.00
TL - Biddeford, Saco Statewide Crash Rate: 230.30																	
58512	58513	239919	0 - 0.06	3110126 - 0	0.06	2	1	0	0	0	0	1	0.0	0.00012	2855.67	1776.07	1.61
Int of LINCOLN ST PEARL ST Statewide Crash Rate: 411.49																	
58513	58514	239921	0 - 0.04	3110126 - 0.06	0.04	2	1	0	0	0	0	1	0.0	0.00011	3064.57	1771.95	1.73
Int of PEARL ST STONE ST Statewide Crash Rate: 411.49																	
56644	58512	3114281	0 - 0.07	3110102 - 0	0.07	2	1	0	0	0	0	1	0.0	0.00123	270.11	615.24	0.00
Int of ELM ST, LINCOLN ST Statewide Crash Rate: 180.89																	
58512	58515	3114626	0 - 0.10	3110102 - 0.07	0.10	2	4	0	0	0	1	3	25.0	0.00206	647.69	540.79	1.20
Int of LINCOLN ST PEARL ST Statewide Crash Rate: 180.89																	
58494	58515	3132475	0 - 0.04	3110102 - 0.17	0.04	2	0	0	0	0	0	0	0.0	0.00066	0.00	706.27	0.00
Int of ADAMS ST LINCOLN ST MAIN ST Statewide Crash Rate: 180.89																	
58493	58494	4046830	0 - 0.06	3110104 - 0.15	0.06	2	6	0	0	1	1	3	40.0	0.00093	2147.29	657.37	3.27
Int of JEFFERSON ST MAIN ST Statewide Crash Rate: 180.89																	
58493	58494	4046830	0.06 - 0.10	3110104 - 0.21	0.04	2	0	0	0	0	0	0	0.0	0.00062	0.00	715.21	0.00
Int of JEFFERSON ST MAIN ST Statewide Crash Rate: 180.89																	

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
56640	58493	3114277	0 - 0.09	3110104 - 0.25	0.09	2	5	0	0	0	2	2	50.0	0.00162	1030.79	575.27	1.79
Int of ELM ST MAIN ST				RD INV 31 10104	Statewide Crash Rate: 180.89												
58711	56648	3129094	0 - 0.02	0001S - 23.94	0.02	2	0	0	0	0	0	0	0.0	0.00045	0.00	922.12	0.00
Non Int ELM ST				US 1 SB	Statewide Crash Rate: 230.30												
Study Years:		3.00		Section Totals:		1.01	40	0	0	2	9	27	27.5	0.03258	409.23	338.05	1.21
				Grand Totals:		1.01	146	0	0	10	33	101	29.5	0.03258	1493.69	479.58	3.11

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes				Crash Report	Crash Date	Crash Mile Point	Injury Degree
A	B	C	PD											
56640	56641	3130112	0 - 0.05	0001X - 33.99	3	0	0	0	1	2	2018-4672	02/07/2018	34.01	PD
											2019-44415	03/03/2019	34.02	C
											2018-25216	09/05/2018	34.02	PD
56641	58514	3114278	0 - 0.01	0001X - 34.04	0	0	0	0	0	0				
56642	58514	3130113	0 - 0.04	0001X - 34.05	1	0	0	1	0	0	2018-32156	10/30/2018	34.07	B
56642	58517	3944217	0 - 0.04	0001X - 34.09	0	0	0	0	0	0				
56644	58517	3114282	0 - 0.03	0001X - 34.13	4	0	0	0	1	3	2019-42440	02/15/2019	34.15	C
											2018-2357	01/21/2018	34.15	PD
											2020-20414	08/25/2020	34.15	PD
											2018-24502	08/24/2018	34.15	PD
56644	56645	3114280	0 - 0.03	0001X - 34.16	1	0	0	0	0	1	2018-3772	01/31/2018	34.18	PD
56645	58519	3937825	0 - 0.06	0001X - 34.19	2	0	0	0	0	2	2018-6440	02/21/2018	34.20	PD
											2019-46111	03/15/2019	34.24	PD
56647	58519	3114285	0 - 0.04	0001X - 34.25	2	0	0	0	1	1	2018-30221	10/23/2018	34.26	PD
											2018-18747	07/06/2018	34.28	C
56647	56648	2837611	0 - 0.02	0001X - 34.29	3	0	0	0	2	1	2020-15927	07/05/2020	34.30	C
											2020-16535	07/11/2020	34.30	C
											2020-25311	10/20/2020	34.30	PD
56648	58711	3139816	0 - 0.02	0001X - 34.31	0	0	0	0	0	0				
56649	58711	3116620	0 - 0.15	0001X - 34.33	6	0	0	0	0	6	2018-26829	09/24/2018	34.34	PD
											2020-14282	06/11/2020	34.34	PD
											2018-22465	08/13/2018	34.39	PD
											2019-4073	01/25/2019	34.42	PD
											2019-75562	12/08/2019	34.43	PD
											2018-10382	04/02/2018	34.44	PD
58512	58513	239919	0 - 0.06	3110126 - 0	1	0	0	0	0	1	2020-6373	02/21/2020	0.01	PD
58513	58514	239921	0 - 0.04	3110126 - 0.06	1	0	0	0	0	1	2018-4617	02/06/2018	0.09	PD
56644	58512	3114281	0 - 0.07	3110102 - 0	1	0	0	0	0	1	2019-43804	02/18/2019	0.02	PD
58512	58515	3114626	0 - 0.10	3110102 - 0.07	4	0	0	0	1	3	2020-26347	10/31/2020	0.08	PD
											2019-48376	04/06/2019	0.09	C
											2019-67427	10/01/2019	0.16	PD
											2020-5056	02/13/2020	0.16	PD
58494	58515	3132475	0 - 0.04	3110102 - 0.17	0	0	0	0	0	0				
58493	58494	4046830	0.06 - 0.10	3110104 - 0.15	0	0	0	0	0	0				

Crash Summary

Section Details

Section Details														
Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	K	Injury Crashes				Crash Report	Crash Date	Crash Mile Point	Injury Degree
							A	B	C	PD				
58493	58494	4046830	0 - 0.06	3110104 - 0.15	6	0	0	1	1	3	2018-7638	03/05/2018	0.20	PD
											2020-22459	09/18/2020	0.22	B
											2019-62667	08/24/2019	0.22	C
											2018-1561	01/16/2018	0.22	PD
											2018-32265	11/03/2018	0.23	
											2019-75926	10/21/2019	0.24	PD
56640	58493	3114277	0 - 0.09	3110104 - 0.25	5	0	0	0	2	2	2018-9686	03/17/2018	0.27	PD
											2018-26434	09/17/2018	0.28	PD
											2018-17433	06/23/2018	0.31	C
											2018-9357	03/19/2018	0.31	C
											2018-3953	02/02/2018	0.32	
58711	56648	3129094	0 - 0.02	0001S - 23.94	0	0	0	0	0	0				
Totals:					40	0	0	2	9	27				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM											Hour of Day											PM												
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot									
SUNDAY	1	1	0	0	0	0	0	0	0	0	1	2	1	1	2	1	0	1	1	0	0	1	0	0	0	13									
MONDAY	0	0	0	0	0	0	1	1	1	0	3	0	3	1	3	4	3	2	2	0	0	0	0	0	0	24									
TUESDAY	1	0	0	0	0	0	1	0	0	1	4	1	1	3	1	1	3	1	0	1	0	1	0	0	0	20									
WEDNESDAY	0	1	0	0	0	0	0	1	0	1	2	4	2	4	2	0	4	3	1	0	0	1	0	0	0	26									
THURSDAY	0	0	0	0	0	1	0	0	1	0	0	4	1	4	1	3	2	1	1	0	0	1	0	0	0	20									
FRIDAY	1	0	0	0	0	1	2	3	2	3	0	0	3	2	3	0	1	4	1	0	1	0	0	1	0	28									
SATURDAY	0	0	0	0	0	0	0	1	1	1	0	1	1	0	2	1	1	1	2	2	0	0	1	0	0	15									
Totals	3	2	0	0	0	2	4	6	5	6	10	12	12	15	14	10	14	13	8	3	1	4	1	1	0	146									

Vehicle Counts by Type

Unit Type	Total	Unit Type	Total
1-Passenger Car	137	23-Bicyclist	5
2-(Sport) Utility Vehicle	67	24-Witness	18
3-Passenger Van	8	25-Other	1
4-Cargo Van (10K lbs or Less)	6	26-Construction	0
5-Pickup	39	27-Farm Vehicle	0
6-Motor Home	0	Total	297
7-School Bus	1		
8-Transit Bus	1		
9-Motor Coach	0		
10-Other Bus	0		
11-Motorcycle	1		
12-Moped	1		
13-Low Speed Vehicle	0		
14-Autocycle	0		
15-Experimental	0		
16-Other Light Trucks (10,000 lbs or Less)	1		
17-Medium/Heavy Trucks (More than 10,000 lbs)	6		
18-ATV - (4 wheel)	0		
20-ATV - (2 wheel)	0		
21-Snowmobile	0		
22-Pedestrian	5		

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	9	112	3	2	0	0	126
Ran Off Roadway	7	0	0	0	0	0	7
Failed to Yield Right-of-Way	38	0	0	0	0	0	38
Ran Red Light	4	0	0	0	0	0	4
Ran Stop Sign	1	0	0	0	0	0	1
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	1	0	0	0	0	0	1
Exceeded Posted Speed Limit	1	1	0	0	0	0	2
Drove Too Fast For Conditions	6	0	0	0	0	0	6
Improper Turn	3	0	0	0	0	0	3
Improper Backing	6	0	0	0	0	0	6
Improper Passing	3	0	0	0	0	0	3
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	34	0	1	0	0	0	35
Failed to Keep in Proper Lane	9	0	0	0	0	0	9
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	18	0	0	0	0	0	18
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	2	0	0	0	0	0	2
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	2	0	0	0	0	0	2
Unknown	1	1	0	0	0	0	2
Total	145	114	4	2	0	0	265

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	134	118	4	2	0	0	258
Physically Impaired or Handicapped	2	0	0	0	0	0	2
Emotional(Depressed, Angry, Disturbed, etc.)	1	1	0	0	0	0	2
Ill (Sick)	1	0	0	0	0	0	1
Asleep or Fatigued	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	5	1	0	0	0	0	6
Other	0	0	0	0	0	0	0
Total	144	120	4	2	0	0	270

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	24	0	0	0	0	24
20-24	33	0	0	0	0	33
25-29	26	0	0	0	0	26
30-39	53	0	0	0	0	53
40-49	33	0	0	0	0	33
50-59	31	0	0	0	0	31
60-69	33	0	0	0	0	33
70-79	27	0	0	0	0	27
80-Over	5	0	0	0	0	5
Unknown	4	5	0	5	0	14
Total	269	5	0	5	0	279

Crash Summary II - Characteristics

Most Harmful Event			
Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	1	38-Other Fixed Object (wall, building, tunnel, etc.)	2
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	1	Total	269
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	5		
10-Pedalcycle	5		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	231		
14-Parked Motor Vehicle	6		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	1		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	1		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	2		
22-Cable Barrier	0		
23-Culvert	1		
24-Curb	5		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	1		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	6		
33-Traffic Sign Support	1		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Traffic Control Devices		
Traffic Control Device	Total	
1-Traffic Signals (Stop & Go)	41	
2-Traffic Signals (Flashing)	1	
3-Advisory/Warning Sign	0	
4-Stop Signs - All Approaches	0	
5-Stop Signs - Other	60	
6-Yield Sign	9	
7-Curve Warning Sign	0	
8-Officer, Flagman, School Patrol	0	
9-School Bus Stop Arm	0	
10-School Zone Sign	0	
11-R.R. Crossing Device	0	
12-No Passing Zone	0	
13-None	32	
14-Other	3	
Total	146	

Injury Data		
Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	10	11
C	33	42
PD	101	0
Total	144	53

Road Character	
Road Grade	Total
1-Level	98
2-On Grade	39
3-Top of Hill	1
4-Bottom of Hill	8
5-Other	0
Total	146

Light	
Light Condition	Total
1-Daylight	124
2-Dawn	2
3-Dusk	0
4-Dark - Lighted	19
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	146

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2018	2019	2020	Total
JANUARY	7	3	3	13
FEBRUARY	7	4	4	15
MARCH	6	6	4	16
APRIL	4	3	2	9
MAY	3	3	2	8
JUNE	3	5	2	10
JULY	7	1	7	15
AUGUST	5	8	5	18
SEPTEMBER	7	0	2	9
OCTOBER	6	3	3	12
NOVEMBER	5	3	2	10
DECEMBER	3	4	4	11
Total	63	43	40	146

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rear End - Sideswipe	13	0	20	29	0	6	1	0	0	0	0	0	0	0	69
Head-on - Sideswipe	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Intersection Movement	0	0	18	22	0	4	0	0	0	0	0	0	0	0	44
Pedestrians	1	0	2	1	0	1	0	0	0	0	0	0	0	0	5
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	5	2	4	2	0	2	0	0	0	0	0	0	0	0	15
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	2	2	0	1	0	0	0	0	0	0	0	0	5
Other	1	0	0	1	0	0	4	0	0	0	0	0	0	0	6
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	2	46	57	0	14	6	0	0	0	0	0	0	0	146

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	13	0	0	0	0	0	0	0	0	0	2	15
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	1	0	0	0	0	0	0	0	0	0	1	2
Daylight	78	1	0	0	0	0	0	0	0	0	4	83
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	2	0	0	0	0	0	0	0	0	0	1	3
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	21	0	0	0	0	0	3	1	0	0	4	29
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	1	0	0	0	0	0	0	0	0	5	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	1	0	0	0	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	4	0	0	2	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	116	2	0	0	0	0	3	6	0	0	19	146



EXISTING TURNING MOVEMENT VOLUMES

Cover

MAINE_DOT_TM - 000031050042 - US 1 (Elm St), Main St, 05/08/2021 - Thursday, August 5, 2021

Study Name US 1 (Elm St), Main St, 05/08/2021

Study Description US 1 (Elm St), Main St, 05/08/2021 turning movement

Date of Survey Thursday, August 5, 2021

Time Period 06:00 - 18:00

Comments -

Location



Classes

Mcl

Car

Bus

SUT

Semis

Bicycle

15:00	0	0	0	0	0	0	0	15:00	0	23	0	1	0	0	0	24	15:00	0	18	0	0	0	0
15:15	0	0	0	0	0	0	0	0 15:15	0	28	0	0	0	0	0	28	15:15	0	15	0	0	0	0
15:30	0	0	0	0	0	0	0	0 15:30	0	30	0	0	0	0	0	30	15:30	0	27	0	0	0	0
15:45	0	0	0	0	0	0	0	0 15:45	0	19	0	3	0	0	0	22	15:45	1	27	0	0	0	0
16:00	0	0	0	0	0	0	0	0 16:00	0	29	0	1	0	0	0	30	16:00	0	14	0	0	0	0
16:15	0	0	0	0	0	0	0	0 16:15	0	27	0	0	0	0	0	27	16:15	1	22	0	0	0	0
16:30	0	0	0	0	0	0	0	0 16:30	0	27	0	0	0	0	0	27	16:30	0	22	0	0	0	0
16:45	0	0	0	0	0	0	0	0 16:45	0	24	0	0	0	0	0	24	16:45	1	27	0	0	0	0
17:00	0	0	0	0	0	0	0	0 17:00	0	29	0	0	0	0	0	29	17:00	0	22	0	0	0	0
17:15	0	0	0	0	0	0	0	0 17:15	0	30	0	0	0	0	0	30	17:15	1	17	0	0	0	0
17:30	0	0	0	0	0	0	0	0 17:30	0	33	0	0	0	0	0	33	17:30	0	19	0	0	0	0
17:45	0	0	0	0	0	0	0	0 17:45	1	31	0	0	0	0	0	32	17:45	0	20	0	0	0	0
Total	0	0	0	0	0	0	0	0 Total	6	1159	1	18	2	0	0	1186	Total	5	853	0	11	3	0
% of Total	-	-	-	-	-	-	-	- % of Total	0.5%	97.7%	0.1%	1.5%	0.2%	0%	100%	% of Total	0.6%	97.6%	0%	1.3%	0.3%	0.2	
% of Approach	0%	0%	0%	0%	0%	0%	0%	0% % of Approach	54.5%	52.6%	100%	60%	40%	0%	52.6%	% of Approach	45.5%	38.7%	0%	36.7%	60%	100	
From: US 1 (Elm St) (NorthEast)																							
To: Main St (NorthWest)												To: US 1 (Elm St) (NorthEast)											
Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	
06:00	0	7	0	0	0	0	7	06:00	0	0	0	0	0	0	0	06:00	0	4	0	0	0	0	
06:15	0	4	0	0	0	0	4	06:15	0	0	0	0	0	0	0	06:15	0	1	0	0	0	0	
06:30	0	8	0	0	0	0	8	06:30	0	0	0	0	0	0	0	06:30	0	5	0	1	0	0	
06:45	0	9	0	0	0	0	9	06:45	0	0	0	0	0	0	0	06:45	0	6	0	0	0	0	
07:00	0	11	0	0	0	0	11	07:00	0	0	0	0	0	0	0	07:00	0	4	0	0	0	0	
07:15	0	15	0	1	0	0	16	07:15	0	0	0	0	0	0	0	07:15	0	4	0	1	0	0	
07:30	0	17	0	0	0	0	17	07:30	0	0	0	0	0	0	0	07:30	0	7	0	0	0	0	
07:45	0	19	0	0	0	0	19	07:45	0	0	0	0	0	0	0	07:45	0	8	0	0	0	0	
08:00	0	12	0	0	0	0	12	08:00	0	0	0	0	0	0	0	08:00	0	4	0	0	0	0	
08:15	0	8	0	0	0	0	8	08:15	0	0	0	0	0	0	0	08:15	0	7	0	0	0	0	
08:30	0	14	0	0	0	0	14	08:30	0	0	0	0	0	0	0	08:30	0	13	0	0	0	0	
08:45	0	12	0	0	0	0	12	08:45	0	0	0	0	0	0	0	08:45	0	10	0	0	0	0	
09:00	0	15	0	0	0	0	15	09:00	0	0	0	0	0	0	0	09:00	0	10	0	0	0	0	
09:15	0	14	0	0	0	0	14	09:15	0	0	0	0	0	0	0	09:15	0	14	0	0	0	0	
09:30	0	12	0	0	0	0	12	09:30	0	0	0	0	0	0	0	09:30	0	6	0	0	0	0	
09:45	0	6	0	0	0	0	6	09:45	0	0	0	0	0	0	0	09:45	0	4	0	0	0	0	
10:00	0	14	0	0	0	0	14	10:00	0	0	0	0	0	0	0	10:00	0	5	0	0	0	0	
10:15	0	12	0	0	0	0	12	10:15	0	0	0	0	0	0	0	10:15	0	12	0	0	0	0	
10:30	0	13	0	1	0	0	14	10:30	0	0	0	0	0	0	0	10:30	0	6	0	0	0	0	
10:45	0	13	0	1	0	0	14	10:45	0	0	0	0	0	0	0	10:45	0	12	0	0	0	0	
11:00	0	13	0	0	0	0	13	11:00	0	0	0	0	0	0	0	11:00	0	13	0	0	0	0	
11:15	0	17	0	0	0	0	17	11:15	0	0	0	0	0	0	0	11:15	0	12	0	0	0	0	
11:30	0	23	0	0	0	0	23	11:30	0	0	0	0	0	0	0	11:30	0	11	0	0	0	0	
11:45	0	15	0	0	0	0	15	11:45	0	0	0	0	0	0	0	11:45	0	13	0	0	0	0	
12:00	0	18	0	1	0	0	19	12:00	0	0	0	0	0	0	0	12:00	0	11	0	0	0	0	
12:15	4	21	0	0	0	0	25	12:15	0	0	0	0	0	0	0	12:15	0	10	0	0	0	0	
12:30	2	27	0	1	0	0	30	12:30	0	0	0	0	0	0	0	12:30	0	7	0	0	0	0	
12:45	0	22	0	0	0	0	22	12:45	0	0	0	0	0	0	0	12:45	0	17	0	0	0	0	
13:00	0	21	0	0	0	0	21	13:00	0	0	0	0	0	0	0	13:00	1	7	0	0	0	0	
13:15	1	32	0	0	0	0	33	13:15	0	0	0	0	0	0	0	13:15	0	19	0	0	1	0	
13:30	0	19	0	1	0	0	20	13:30	0	0	0	0	0	0	0	13:30	1	12	0	0	0	0	
13:45	0	18	0	0	0	0	18	13:45	0	0	0	0	0	0	0	13:45	0	9	0	0	0	0	
14:00	0	26	0	0	0	0	26	14:00	0	0	0	0	0	0	0	14:00	0	9	0	0	0	0	
14:15	0	21	0	0	0	0	21	14:15	0	0	0	0	0	0	0	14:15	0	11	0	0	0	0	
14:30	0	18	0	0	0	0	18	14:30	0	0	0	0	0	0	0	14:30	0	10	0	0	0	0	
14:45	0	28	0	0	0	0	28	14:45	0	0	0	0	0	0	0	14:45	0	11	0	0	0	0	
15:00	1	27	0	1	0	0	29	15:00	0	0	0	0	0	0	0	15:00	0	11	0	0	0	0	
15:15	0	25	0	0	1	0	26	15:15	0	0	0	0	0	0	0	15:15	0	7	0	0	0	0	
15:30	0	24	0	2	0	0	26	15:30	0	0	0	0	0	0	0	15:30	1	13	0	1	0	0	
15:45	0	34	0	0	0	1	35	15:45	0	0	0	0	0	0	0	15:45	0	12	0	0	0	0	
16:00	0	29	0	0	0	0	29	16:00	0	0	0	0	0	0	0	16:00	0	10	0	0	0	0	
16:15	0	29	0	0	0	0	29	16:15	0	0	0	0	0	0	0	16:15	0	12	0	0	0	0	
16:30	1	28	0	1	0	0	30	16:30	0	0	0	0	0	0	0	16:30	0	10	0	0	0	0	
16:45	0	35	0	0	0	0	35	16:45	0	0	0	0	0	0	0	16:45	0	10	0	0	0	0	
17:00	0	36	0	0	0	0	36	17:00	0	0	0	0	0	0	0	17:00	0	12	0	0	0	0	
17:15	0	32	0	0	0	0	32	17:15	0	0	0	0	0	0	0	17:15	0	13	0	0	0	0	
17:30	0	44	0	0	0	0	44	17:30	0	0	0	0	0	0	0	17:30	0	11	0	0	0	0	
17:45	0	34	0	0	0	0	34	17:45	0	0	0	0	0	0	0	17:45	0	11	0	0	0	0	
Total	9	951	0	10	1	1	972	Total	0	0	0	0	0	0	0	0 Total	3	456	0	3	1	0	
% of Total	0.9%	97.8%	0%	1%	0.1%	0.1%	100%	% of Total	-	-	-	-	-	-	-	- % of Total	0.6%	98.1%	0%	0.6%	0.2%	0.4	
% of Approach	28.1%	14.7%	0%	6.9%	4.5%	25%	14.6%	% of Approach															

14:30	0	16	0	1	0	1	18	14:30	0	12	0	0	0	0	12	14:30	0	0	0	0	0	0
14:45	0	20	0	0	0	0	20	14:45	0	14	0	0	0	0	14	14:45	0	0	0	0	0	0
15:00	0	24	0	0	0	0	24	15:00	1	15	0	0	0	1	17	15:00	0	0	0	0	0	0
15:15	0	15	0	1	0	0	16	15:15	0	15	0	0	0	0	15	15:15	0	0	0	0	0	0
15:30	0	17	0	0	0	0	17	15:30	1	14	0	0	0	0	15	15:30	0	0	0	0	0	0
15:45	0	17	0	2	0	0	19	15:45	1	15	0	0	0	0	16	15:45	0	0	0	0	0	0
16:00	1	25	0	0	0	0	26	16:00	0	13	0	0	0	0	13	16:00	0	0	0	0	0	0
16:15	0	15	0	0	0	0	15	16:15	0	24	0	0	0	0	24	16:15	0	0	0	0	0	0
16:30	0	18	0	0	0	0	18	16:30	0	22	0	0	0	0	22	16:30	0	0	0	0	0	0
16:45	0	31	0	0	0	0	31	16:45	0	20	0	0	0	0	20	16:45	0	0	0	0	0	0
17:00	1	24	0	0	0	0	25	17:00	0	18	0	0	0	0	18	17:00	0	0	0	0	0	0
17:15	0	31	0	0	0	0	31	17:15	0	23	0	0	0	0	23	17:15	0	0	0	0	0	0
17:30	1	21	0	0	0	1	23	17:30	0	23	0	0	0	0	23	17:30	0	0	0	0	0	0
17:45	0	13	0	0	0	0	13	17:45	0	15	0	0	0	0	15	17:45	0	0	0	0	0	0
Total	7	657	0	14	1	3	682	Total	4	821	0	5	1	1	832	Total	0	0	0	0	0	0
% of Total	1%	96.3%	0%	2.1%	0.1%	0.4%	100%	% of Total	0.5%	98.7%	0%	0.6%	0.1%	0.1%	100%	% of Total	-	-	-	-	-	-
% of Approach	41.2%	30.3%	0%	45.2%	25%	75%	30.6%	% of Approach	23.5%	37.9%	0%	16.1%	25%	25%	37.4%	% of Approach	0%	0%	0%	0%	0%	0
From: US 1 (Elm St) (SouthWest)																						
To: Main St (NorthWest)							To: US 1 (Elm St) (NorthEast)							To: Main St (SouthEast)								
Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle
06:00	0	0	0	0	0	0	0	06:00	0	19	0	1	0	0	20	06:00	0	3	2	0	0	0
06:15	0	0	0	0	0	0	0	06:15	0	32	0	2	0	0	34	06:15	0	0	0	0	0	0
06:30	0	1	0	0	0	0	1	06:30	0	40	0	1	1	0	42	06:30	0	1	0	1	0	0
06:45	0	1	0	0	0	0	1	06:45	0	48	0	2	2	0	52	06:45	0	3	0	0	0	0
07:00	0	0	0	0	0	0	0	07:00	0	50	0	0	0	0	50	07:00	0	6	0	0	0	0
07:15	0	2	0	0	0	0	2	07:15	0	62	0	1	0	0	63	07:15	0	8	0	0	0	0
07:30	0	2	0	0	0	0	2	07:30	0	71	0	3	1	0	75	07:30	0	4	0	0	0	0
07:45	0	0	0	0	0	0	0	07:45	0	82	0	1	0	0	83	07:45	0	6	0	1	0	0
08:00	0	0	0	1	0	0	1	08:00	0	46	0	3	3	0	52	08:00	0	6	0	0	0	0
08:15	0	1	0	0	0	0	1	08:15	0	71	0	5	0	0	76	08:15	0	5	1	0	0	0
08:30	0	1	0	0	0	0	1	08:30	1	74	0	1	2	0	78	08:30	0	3	0	0	0	0
08:45	0	2	0	0	0	0	2	08:45	0	65	0	2	1	0	68	08:45	0	12	0	0	0	0
09:00	0	0	0	0	0	0	0	09:00	0	65	0	5	2	0	72	09:00	0	8	0	1	0	0
09:15	0	1	0	0	0	0	1	09:15	0	68	0	0	1	0	69	09:15	0	10	0	0	0	0
09:30	0	4	0	0	0	0	4	09:30	0	72	0	1	2	0	75	09:30	0	7	0	0	0	0
09:45	0	1	0	0	0	0	1	09:45	0	92	0	2	1	0	95	09:45	0	8	0	0	0	0
10:00	0	4	0	0	0	0	4	10:00	0	94	0	4	0	0	98	10:00	0	3	0	0	0	0
10:15	0	2	0	0	0	0	2	10:15	0	99	0	4	0	0	103	10:15	0	12	0	0	0	0
10:30	0	1	0	0	0	0	1	10:30	0	81	0	5	0	0	86	10:30	0	8	0	1	0	0
10:45	0	2	0	0	0	0	2	10:45	0	103	0	5	0	0	108	10:45	0	19	1	0	0	0
11:00	0	2	0	0	0	0	2	11:00	0	81	0	4	1	0	86	11:00	0	2	0	0	0	0
11:15	0	0	0	0	0	0	0	11:15	0	126	0	7	0	0	133	11:15	0	13	0	0	0	0
11:30	0	1	0	0	0	0	1	11:30	0	112	0	5	1	0	118	11:30	0	13	0	0	0	0
11:45	0	2	0	0	0	0	2	11:45	0	95	0	6	0	0	101	11:45	0	15	0	1	0	0
12:00	0	3	0	0	0	0	3	12:00	2	99	0	2	2	0	105	12:00	0	17	0	0	0	0
12:15	1	1	0	0	0	0	2	12:15	0	98	0	4	1	0	103	12:15	0	8	0	0	0	0
12:30	0	1	0	0	0	0	1	12:30	0	116	0	4	0	1	121	12:30	0	10	0	0	1	0
12:45	0	7	0	0	0	0	7	12:45	2	100	0	7	1	0	110	12:45	0	13	0	0	0	0
13:00	0	2	0	0	0	0	2	13:00	0	116	0	1	0	0	117	13:00	0	10	0	0	0	0
13:15	2	3	0	0	0	0	5	13:15	0	97	0	1	1	0	99	13:15	0	10	1	0	0	0
13:30	0	2	0	1	0	0	3	13:30	1	114	1	4	0	0	120	13:30	0	9	0	0	0	0
13:45	0	4	0	0	0	0	4	13:45	5	119	0	7	0	0	131	13:45	0	15	0	0	0	0
14:00	0	2	0	0	0	0	2	14:00	0	92	1	2	0	0	95	14:00	0	7	0	0	0	0
14:15	1	2	0	0	0	0	3	14:15	1	119	0	2	1	0	123	14:15	0	16	0	0	0	0
14:30	0	3	0	0	0	0	3	14:30	0	128	0	0	2	0	130	14:30	0	14	0	0	0	0
14:45	0	5	0	0	0	0	5	14:45	1	140	0	1	1	0	143	14:45	0	13	0	0	0	0
15:00	0	2	0	0	0	0	2	15:00	1	124	1	4	2	0	132	15:00	1	15	0	0	0	0
15:15	0	2	0	1	0	0	3	15:15	1	119	0	4	1	0	125	15:15	0	12	0	0	0	0
15:30	0	2	0	0	0	0	2	15:30	4	144	0	2	0	0	150	15:30	0	5	0	0	0	0
15:45	0	2	0	0	0	0	2	15:45	1	144	0	0	0	0	145	15:45	0	15	1	0	0	0
16:00	0	1	0	0	0	0	1	16:00	1	139	0	3	1	0	144	16:00	0	11	0	0	0	0
16:15	0	2	0	0	0	0	2	16:15	0	152	0	4	1	0	157	16:15	0	11	0	0	0	0
16:30	0	1	0	0	0	0	1	16:30	0	126	0	1	0	0	127	16:30	0	10	0	0	0	0
16:45	1	2	0	0	0	0	3	16:45	2	126	0	3	0	0	131	16:45	0	9	0	0	0	0
17:00	0	7	0	0	0	0	7	17:00	1	122	0	0	1	0	124	17:00	0	9	0	0	0	0
17:15	0	5	0	0	0	0	5	17:15	1	145	0	1	0	0	147	17:15	0	8	0	0	0	0
17:30	0	2	0	0	0	0	2	17:30	1	111	0	2	0	0	114	17:30	0	9	0	0	0	0
17:45	0	2	0	0	0	0	2	17:45	0	120	0	1	0	0	121	17:45	1	8	0	0	0	0
Total	5	95	0	3	0	0	103	Total	26	4658	3	130	33	1	4851	Total	2	439	6	5	1	0
% of Total	4.9%	92.2%	0%	2.9%	0%	0%	100%	% of Total	0.5%	96%	0.1%	2.7%	0.7%	0%	100%	% of Total	0.4%	96.9%	1.3%	1.1%	0.2%	0
% of Approach	15.2%	1.8%	0%	2.2%	0%	0%	1.9%	% of Approach	78.8%	89.7%	33.3%	94.2%	97.1%	100%	89.7%	% of Approach	6.1%	8.5%	66.7%	3.6%	2.9%	0

Legs

MAINE_DOT_TM - 000031050042 - US 1 (Elm St), Main St, 05/08/2021 - Thursday, August 5, 2021

Main St (NorthWest)																							
Towards Junction								Away From Junction								Both Directions							
Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total
06:00	0	20	0	0	0	0	20	06:00	0	8	0	0	0	0	8	06:00	0	28	0	0	0	0	28
06:15	0	22	0	0	0	0	22	06:15	0	4	0	0	0	0	4	06:15	0	26	0	0	0	0	26
06:30	0	34	0	0	0	0	34	06:30	0	11	0	0	0	0	11	06:30	0	45	0	0	0	0	45
06:45	1	44	0	0	0	0	45	06:45	0	15	0	0	0	0	15	06:45	1	59	0	0	0	0	60
07:00	0	37	0	1	0	0	38	07:00	0	21	0	0	0	0	21	07:00	0	58	0	1	0	0	59
07:15	0	50	0	0	0	0	50	07:15	0	22	0	1	0	0	23	07:15	0	72	0	1	0	0	73
07:30	0	50	0	0	0	0	50	07:30	0	29	0	1	0	0	30	07:30	0	79	0	1	0	0	80
07:45	0	57	0	0	0	0	57	07:45	0	30	0	1	0	0	31	07:45	0	87	0	1	0	0	88
08:00	0	57	0	0	0	0	57	08:00	0	23	0	1	0	0	24	08:00	0	80	0	1	0	0	81
08:15	0	33	0	3	0	0	36	08:15	0	18	0	1	0	0	19	08:15	0	51	0	4	0	0	55
08:30	0	42	0	0	1	0	43	08:30	0	20	0	1	0	0	21	08:30	0	62	0	1	1	0	64
08:45	0	49	0	1	1	0	51	08:45	0	23	0	2	0	0	25	08:45	0	72	0	3	1	0	76
09:00	0	29	0	1	0	0	30	09:00	0	28	0	0	0	0	28	09:00	0	57	0	1	0	0	58
09:15	0	36	0	0	1	0	37	09:15	0	28	0	0	0	0	28	09:15	0	64	0	0	1	0	65
09:30	0	37	0	0	0	0	37	09:30	0	26	0	0	0	0	26	09:30	0	63	0	0	0	0	63
09:45	0	43	0	1	0	0	44	09:45	0	18	0	1	0	0	19	09:45	0	61	0	2	0	0	63
10:00	0	28	0	2	0	0	30	10:00	0	25	0	0	0	0	25	10:00	0	53	0	2	0	0	55
10:15	0	48	0	1	0	0	49	10:15	0	28	0	1	0	0	29	10:15	0	76	0	2	0	0	78
10:30	0	51	0	0	0	0	51	10:30	0	26	0	1	0	0	27	10:30	0	77	0	1	0	0	78
10:45	0	42	0	0	0	0	42	10:45	0	30	0	1	0	0	31	10:45	0	72	0	1	0	0	73
11:00	0	37	0	2	0	0	39	11:00	0	24	0	1	0	0	25	11:00	0	61	0	3	0	0	64
11:15	0	34	0	1	0	0	35	11:15	0	22	0	0	0	0	22	11:15	0	56	0	1	0	0	57
11:30	0	37	0	2	0	0	39	11:30	0	39	0	0	0	0	39	11:30	0	76	0	2	0	0	78
11:45	0	49	0	0	0	0	49	11:45	0	29	0	1	0	0	30	11:45	0	78	0	1	0	0	79
12:00	0	65	0	0	0	0	65	12:00	1	36	0	1	0	0	38	12:00	1	101	0	1	0	0	103
12:15	0	45	0	0	0	0	45	12:15	5	36	0	0	0	0	41	12:15	5	81	0	0	0	0	86

12:30	0	51	0	2	0	0	53	12:30	4	45	0	1	0	1	51	12:30	4	96	0	3	0	1	104
12:45	2	52	1	1	0	0	56	12:45	0	46	0	0	0	0	46	12:45	2	98	1	1	0	0	102
13:00	0	57	0	0	0	0	57	13:00	0	39	0	0	0	0	39	13:00	0	96	0	0	0	0	96
13:15	0	49	0	1	0	0	50	13:15	4	53	0	0	0	0	57	13:15	4	102	0	1	0	0	107
13:30	0	48	0	0	0	0	48	13:30	0	39	0	2	0	0	41	13:30	0	87	0	2	0	0	89
13:45	0	44	0	0	1	0	45	13:45	0	36	0	0	0	0	36	13:45	0	80	0	0	1	0	81
14:00	0	49	0	3	0	0	52	14:00	0	42	0	0	0	0	42	14:00	0	91	0	3	0	0	94
14:15	2	42	0	0	0	0	44	14:15	1	36	0	0	1	0	38	14:15	3	78	0	0	1	0	82
14:30	1	42	0	2	1	1	47	14:30	0	37	0	1	0	1	39	14:30	1	79	0	3	1	2	86
14:45	0	61	0	1	0	0	62	14:45	0	53	0	0	0	0	53	14:45	0	114	0	1	0	0	115
15:00	0	43	0	1	0	0	44	15:00	1	53	0	1	0	0	55	15:00	1	96	0	2	0	0	99
15:15	0	46	0	0	0	0	46	15:15	0	42	0	2	1	0	45	15:15	0	88	0	2	1	0	91
15:30	0	60	0	0	0	0	60	15:30	0	43	0	2	0	0	45	15:30	0	103	0	2	0	0	105
15:45	1	49	0	3	0	0	53	15:45	0	53	0	2	0	1	56	15:45	1	102	0	5	0	1	109
16:00	0	47	0	1	0	0	48	16:00	1	55	0	0	0	0	56	16:00	1	102	0	1	0	0	104
16:15	1	55	0	0	0	0	56	16:15	0	46	0	0	0	0	46	16:15	1	101	0	0	0	0	102
16:30	0	51	0	0	0	0	51	16:30	1	47	0	1	0	0	49	16:30	1	98	0	1	0	0	100
16:45	1	56	0	0	0	1	58	16:45	1	68	0	0	0	0	69	16:45	2	124	0	0	0	1	127
17:00	0	57	0	0	0	0	57	17:00	1	67	0	0	0	0	68	17:00	1	124	0	0	0	0	125
17:15	1	53	0	0	0	0	54	17:15	0	68	0	0	0	0	68	17:15	1	121	0	0	0	0	122
17:30	0	62	0	0	0	0	62	17:30	1	67	0	0	0	1	69	17:30	1	129	0	0	0	1	131
17:45	1	55	0	0	0	0	56	17:45	0	49	0	0	0	0	49	17:45	1	104	0	0	0	0	105
Total	11	2205	1	30	5	2	2254	Total	21	1703	0	27	2	4	1757	Total	32	3908	1	57	7	6	4011
% of Total	0.5%	97.8%	0%	1.3%	0.2%	0.1%	100%	% of Total	1.2%	96.9%	0%	1.5%	0.1%	0.2%	100%	% of Total	0.8%	97.4%	0%	1.4%	0.2%	0.1%	100%

US 1 (Elm St) (NorthEast)

Towards Junction								Away From Junction								Both Directions							
Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total
06:00	0	42	0	1	1	1	45	06:00	0	34	0	1	1	0	36	06:00	0	76	0	2	2	1	81
06:15	0	50	0	0	0	0	50	06:15	0	58	0	2	0	0	60	06:15	0	108	0	2	0	0	110
06:30	0	78	0	4	1	0	83	06:30	0	71	0	1	1	0	73	06:30	0	149	0	5	2	0	156
06:45	0	99	1	3	0	0	103	06:45	1	83	0	2	2	0	88	06:45	1	182	1	5	2	0	191
07:00	0	85	0	2	0	0	87	07:00	0	88	0	1	0	0	89	07:00	0	173	0	3	0	0	176
07:15	0	114	0	4	0	0	118	07:15	0	108	0	1	0	0	109	07:15	0	222	0	5	0	0	227
07:30	0	114	0	2	0	0	116	07:30	0	114	0	3	1	0	118	07:30	0	228	0	5	1	0	234
07:45	0	124	0	7	0	0	131	07:45	0	128	0	1	0	0	129	07:45	0	252	0	8	0	0	260
08:00	1	110	0	2	2	0	115	08:00	0	95	0	3	3	0	101	08:00	1	205	0	5	5	0	216
08:15	0	113	0	3	1	0	117	08:15	0	105	0	7	0	0	112	08:15	0	218	0	10	1	0	229
08:30	0	108	0	2	1	0	111	08:30	1	120	0	1	2	0	124	08:30	1	228	0	3	3	0	235
08:45	0	139	0	6	0	0	145	08:45	0	111	0	2	1	0	114	08:45	0	250	0	8	1	0	259
09:00	0	105	0	2	1	0	108	09:00	0	92	0	6	2	0	100	09:00	0	197	0	8	3	0	208
09:15	0	117	0	7	0	0	124	09:15	0	104	0	0	2	0	106	09:15	0	221	0	7	2	0	230
09:30	0	123	0	4	0	0	127	09:30	0	108	0	2	2	0	112	09:30	0	231	0	6	2	0	239
09:45	0	116	0	3	2	0	121	09:45	0	138	0	2	1	0	141	09:45	0	254	0	5	3	0	262
10:00	0	137	0	3	0	0	140	10:00	0	124	0	6	0	0	130	10:00	0	261	0	9	0	0	270
10:15	0	143	0	5	0	0	148	10:15	0	144	0	5	0	0	149	10:15	0	287	0	10	0	0	297
10:30	0	137	0	4	0	0	141	10:30	0	128	0	5	0	0	133	10:30	0	265	0	9	0	0	274
10:45	0	127	0	1	1	0	129	10:45	0	144	0	5	0	0	149	10:45	0	271	0	6	1	0	278
11:00	0	136	0	2	0	0	138	11:00	0	111	0	6	1	0	118	11:00	0	247	0	8	1	0	256
11:15	0	141	0	4	0	0	145	11:15	0	164	0	8	0	0	172	11:15	0	305	0	12	0	0	317
11:30	0	148	0	5	1	0	154	11:30	0	152	0	6	1	0	159	11:30	0	300	0	11	2	0	313
11:45	0	136	0	3	1	0	140	11:45	0	144	0	6	0	0	150	11:45	0	280	0	9	1	0	290
12:00	0	126	1	2	1	0	130	12:00	2	151	0	2	2	0	157	12:00	2	277	1	4	3	0	287
12:15	4	134	0	0	1	0	139	12:15	1	143	0	5	1	0	150	12:15	5	277	0	5	2	0	289
12:30	4	153	0	6	0	0	163	12:30	0	158	0	4	0	1	163	12:30	4	311	0	10	0	1	326
12:45	1	164	0	3	1	0	169	12:45	4	142	1	8	1	0	156	12:45	5	306	1	11	2	0	325
13:00	3	140	0	3	0	0	146	13:00	0	168	0	1	0	0	169	13:00	3	308	0	4	0	0	315
13:15	2	167	0	2	1	0	172	13:15	0	139	0	2	1	0	142	13:15	2	306	0	4	2	0	314
13:30	2	157	1	5	0	0	165	13:30	1	162	1	4	0	0	168	13:30	3	319	2	9	0	0	333
13:45	0	146	0	3	0	0	149	13:45	5	154	0	7	1	0	167	13:45	5	300	0	10	1	0	316
14:00	0	135	1	3	0	0	139	14:00	0	135	1	2	0	0	138	14:00	0	270	2	5	0	0	277
14:15	0	160	0	6	0	0	166	14:15	2	160	0	3	1	0	166	14:15	2	320	0	9	1	0	332
14:30	1	143	0	2	1	0	147	14:30	1	167	0	2	2	0	172	14:30	2	310	0	4	3	0	319
14:45	0	152	1	2	1	0	156	14:45	1	172	0	1	1	0	175	14:45	1	324	1	3	2	0	331
15:00	1	156	0	3	0	0	160	15:00	2	162	1	5	2	1	173	15:00	3	318	1	8	2	1	333
15:15	2	156	0	2	2	0	162	15:15	1	162	0	4	1	0	168	15:15	3	318	0	6	3	0	330
15:30	1	164	0	6	0	0	171	15:30	5	188	0	2	0	0	195	15:30	6	352	0	8	0	0	366
15:45	2	177	0	2	0	1	182	15:45	2	178	0	3	0	0	183	15:45	4	355	0	5	0	1	365
16:00	1	150	0	1	0	1	153	16:00	1	181	0	4	1	0	187	16:00	2	331	0	5	1	1	340
16:15	0	161	0	3	0	1	165	16:15	0	203	0	4	1	0	208	16:15	0	364	0	7	1	1	373
16:30	2	163	0	2	0	0	167	16:30	0	175	0	1	0	0	176	16:30	2	338	0	3	0	0	343
16:45	2	174	0	0	0	0	176	16:45	2	170	0	3	0	0	175	16:45	4	344	0	3	0	0	351
17:00	0	158	0	1	0	0	159	17:00	1	169	0	0	1	0	171	17:00	1	327	0	1	1	0	330

12:30	2	51	0	0	0	1	54	12:30	0	35	0	1	1	0	37	12:30	2	86	0	1	1	1	91
12:45	0	48	0	1	1	0	50	12:45	0	50	0	0	0	0	50	12:45	0	98	0	1	1	0	100
13:00	2	57	0	1	1	0	61	13:00	1	41	0	0	0	0	42	13:00	3	98	0	1	1	0	103
13:15	2	54	0	0	0	0	56	13:15	0	52	1	0	1	0	54	13:15	2	106	1	0	1	0	110
13:30	0	64	0	0	0	0	64	13:30	1	42	0	0	0	0	43	13:30	1	106	0	0	0	0	107
13:45	0	45	1	0	0	0	46	13:45	0	47	0	0	0	0	47	13:45	0	92	1	0	0	0	93
14:00	0	49	0	0	0	0	49	14:00	0	33	0	3	0	0	36	14:00	0	82	0	3	0	0	85
14:15	1	39	0	1	1	0	42	14:15	1	40	0	0	0	0	41	14:15	2	79	0	1	1	0	83
14:30	0	49	0	1	0	1	51	14:30	0	32	0	0	1	1	34	14:30	0	81	0	1	1	2	85
14:45	0	48	0	0	0	0	48	14:45	0	57	0	1	0	0	58	14:45	0	105	0	1	0	0	106
15:00	1	61	0	0	0	1	63	15:00	1	44	0	0	0	0	45	15:00	2	105	0	0	0	1	108
15:15	0	46	0	1	0	0	47	15:15	0	34	0	0	0	0	34	15:15	0	80	0	1	0	0	81
15:30	1	51	0	0	0	0	52	15:30	1	45	0	1	0	0	47	15:30	2	96	0	1	0	0	99
15:45	1	45	0	2	0	0	48	15:45	1	54	1	0	0	0	56	15:45	2	99	1	2	0	0	104
16:00	1	54	0	0	0	0	55	16:00	0	35	0	0	0	1	36	16:00	1	89	0	0	0	1	91
16:15	1	48	1	1	0	0	51	16:15	1	45	0	0	0	0	46	16:15	2	93	1	1	0	0	97
16:30	0	62	0	1	0	0	63	16:30	0	42	0	0	0	0	42	16:30	0	104	0	1	0	0	105
16:45	0	69	0	0	0	0	69	16:45	1	46	0	0	0	1	48	16:45	1	115	0	0	0	1	117
17:00	1	54	0	1	0	0	56	17:00	0	43	0	0	0	0	43	17:00	1	97	0	1	0	0	99
17:15	0	73	0	0	0	0	73	17:15	1	38	0	0	0	0	39	17:15	1	111	0	0	0	0	112
17:30	1	60	0	0	0	1	62	17:30	0	39	0	0	0	0	39	17:30	1	99	0	0	0	1	101
17:45	1	44	0	0	0	0	45	17:45	1	39	0	0	0	0	40	17:45	2	83	0	0	0	0	85
Total	17	2165	5	31	4	4	2226	Total	10	1748	6	19	5	4	1792	Total	27	3913	11	50	9	8	4018
% of Total	0.8%	97.3%	0.2%	1.4%	0.2%	0.2%	100%	% of Total	0.6%	97.5%	0.3%	1.1%	0.3%	0.2%	100%	% of Total	0.7%	97.4%	0.3%	1.2%	0.2%	0.2%	100%

US 1 (Elm St) (SouthWest)

Towards Junction

Away From Junction

Both Directions

Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total	Period	Mcl	Car	Bus	SUT	Semis	Bicycle	Total
06:00	0	22	2	1	0	0	25	06:00	0	35	0	1	1	0	37	06:00	0	57	2	2	1	0	62
06:15	0	32	0	2	0	0	34	06:15	0	54	1	0	0	0	55	06:15	0	86	1	2	0	0	89
06:30	0	42	0	2	1	0	45	06:30	0	66	0	3	1	0	70	06:30	0	108	0	5	2	0	115
06:45	0	52	0	2	2	0	56	06:45	0	92	1	3	0	0	96	06:45	0	144	1	5	2	0	152
07:00	0	56	0	0	0	0	56	07:00	0	75	0	2	0	0	77	07:00	0	131	0	2	0	0	133
07:15	0	72	0	1	0	0	73	07:15	0	102	0	3	0	0	105	07:15	0	174	0	4	0	0	178
07:30	0	77	0	3	1	0	81	07:30	0	107	0	3	0	0	110	07:30	0	184	0	6	1	0	191
07:45	0	88	0	2	0	0	90	07:45	0	109	0	7	0	0	116	07:45	0	197	0	9	0	0	206
08:00	0	52	0	4	3	0	59	08:00	1	103	0	2	2	0	108	08:00	1	155	0	6	5	0	167
08:15	0	77	1	5	0	0	83	08:15	0	107	0	3	1	0	111	08:15	0	184	1	8	1	0	194
08:30	1	78	0	1	2	0	82	08:30	0	93	0	2	1	0	96	08:30	1	171	0	3	3	0	178
08:45	0	79	0	2	1	0	82	08:45	0	137	1	6	0	0	144	08:45	0	216	1	8	1	0	226
09:00	0	73	0	6	2	0	81	09:00	0	101	0	2	1	0	104	09:00	0	174	0	8	3	0	185
09:15	0	79	0	0	1	0	80	09:15	0	105	0	7	0	0	112	09:15	0	184	0	7	1	0	192
09:30	0	83	0	1	2	0	86	09:30	0	119	0	4	0	0	123	09:30	0	202	0	5	2	0	209
09:45	0	101	0	2	1	0	104	09:45	0	131	0	3	2	0	136	09:45	0	232	0	5	3	0	240
10:00	0	101	0	4	0	0	105	10:00	0	138	0	4	0	0	142	10:00	0	239	0	8	0	0	247
10:15	0	113	0	4	0	0	117	10:15	0	136	0	5	0	0	141	10:15	0	249	0	9	0	0	258
10:30	0	90	0	6	0	0	96	10:30	0	141	0	3	0	0	144	10:30	0	231	0	9	0	0	240
10:45	0	124	1	5	0	0	130	10:45	0	121	0	1	1	0	123	10:45	0	245	1	6	1	0	253
11:00	0	85	0	4	1	0	90	11:00	0	134	0	2	0	0	136	11:00	0	219	0	6	1	0	226
11:15	0	139	0	7	0	0	146	11:15	0	129	1	5	0	0	135	11:15	0	268	1	12	0	0	281
11:30	0	126	0	5	1	0	132	11:30	0	131	0	6	1	0	138	11:30	0	257	0	11	2	0	270
11:45	0	112	0	7	0	0	119	11:45	0	131	0	4	1	0	136	11:45	0	243	0	11	1	0	255
12:00	2	119	0	2	2	0	125	12:00	0	135	1	1	1	0	138	12:00	2	254	1	3	3	0	263
12:15	1	107	0	4	1	0	113	12:15	0	123	0	0	1	0	124	12:15	1	230	0	4	2	0	237
12:30	0	127	0	4	1	1	133	12:30	2	144	0	6	0	0	152	12:30	2	271	0	10	1	1	285
12:45	2	120	0	7	1	0	130	12:45	1	146	0	4	2	0	153	12:45	3	266	0	11	3	0	283
13:00	0	128	0	1	0	0	129	13:00	4	134	0	4	1	0	143	13:00	4	262	0	5	1	0	272
13:15	2	110	1	1	1	0	115	13:15	2	136	0	2	0	0	140	13:15	4	246	1	3	1	0	255
13:30	1	125	1	5	0	0	132	13:30	1	151	1	4	0	0	157	13:30	2	276	2	9	0	0	289
13:45	5	138	0	7	0	0	150	13:45	0	136	1	3	0	0	140	13:45	5	274	1	10	0	0	290
14:00	0	101	1	2	0	0	104	14:00	0	124	1	3	0	0	128	14:00	0	225	2	5	0	0	232
14:15	2	137	0	2	1	0	142	14:15	1	142	0	6	0	0	149	14:15	3	279	0	8	1	0	291
14:30	0	145	0	0	2	0	147	14:30	1	143	0	2	1	0	147	14:30	1	288	0	2	3	0	294
14:45	1	158	0	1	1	0	161	14:45	0	137	1	2	1	0	141	14:45	1	295	1	3	2	0	302
15:00	2	141	1	4	2	0	150	15:00	0	142	0	2	0	0	144	15:00	2	283	1	6	2	0	294
15:15	1	133	0	5	1	0	140	15:15	2	143	0	2	1	0	148	15:15	3	276	0	7	2	0	288
15:30	4	151	0	2	0	0	157	15:30	0	150	0	3	0	0	153	15:30	4	301	0	5	0	0	310
15:45	1	161	1	0	0	0	163	15:45	2	147	0	2	0	0	151	15:45	3	308	1	2	0	0	314
16:00	1	151	0	3	1	0	156	16:00	1	131	0	1	0	0	133	16:00	2	282	0	4	1	0	289
16:15	0	165	0	4	1	0	170	16:15	1	135	1	4	0	1	142	16:15	1	300	1	8	1	1	312
16:30	0	137	0	1	0	0	138	16:30	1	149	0	2	0	0	152	16:30	1	286	0	3	0	0	290
16:45	3	137	0	3	0	0	143	16:45	2	152	0	0	0	0	154	16:45	5	289	0	3	0	0	297
17:00	1	138	0	0	1	0	140	17:00	0	128	0	2	0	0	130	17:00	1	266	0	2	1	0	270
17:15	1	158	0	1	0	0	160	17:15	1	134	0	4	0	0	139	17:15	2	292	0	5	0	0	299
17:30	1	122	0	2	0	0	125	17:30	1	130	0	4	2	0	137	17:30	2	252	0	6	2	0	262
17:45	1	130	0	1	0	0	132	17:45	2	146	0	1	0	0	149	17:45	3	276	0	2	0	0	281
Total	33	5192	9	138	34	1	5407	Total	26	5935	10	145	22	1	6139	Total	59	11127	19	283	56	2	11546
% of Total	0.6%	96%	0.2%	2.6%	0.6%	0%	100%	% of Total	0.4%	96.7%	0.2%	2.4%	0.4%	0%	100%	% of Total	0.5%	96.4%	0.2%	2.5%	0.5%	0%	100%

Overall Peak Hour	15:30 - 16:30	119	Overall Peak Hour	15:30 - 16:30	0	Overall Peak Hour	15:30 - 16:30	50	Overall Peak Hour	15:30 - 16:30	502
Overall PHF	0.85		Overall PHF	-		Overall PHF	0.833		Overall PHF	0.93	
From: Main St (SouthEast)											
To: Main St (NorthWest)			To: US 1 (Elm St) (NorthEast)			To: Main St (SouthEast)			To: US 1 (Elm St) (SouthWest)		
Total	682		Total	832		Total	0		Total	712	
% of Approach	30.6%		% of Approach	37.4%		% of Approach	0%		% of Approach	32%	
AM Peak Hour	11:00 - 12:00	43	AM Peak Hour	11:00 - 12:00	84	AM Peak Hour	11:00 - 12:00	0	AM Peak Hour	11:00 - 12:00	68
AM PHF	0.717		AM PHF	0.778		AM PHF	-		AM PHF	0.85	
PM Peak Hour	15:30 - 16:30	77	PM Peak Hour	15:30 - 16:30	68	PM Peak Hour	15:30 - 16:30	0	PM Peak Hour	15:30 - 16:30	61
PM PHF	0.74		PM PHF	0.708		PM PHF	-		PM PHF	0.762	
Overall Peak Hour	15:30 - 16:30	77	Overall Peak Hour	15:30 - 16:30	68	Overall Peak Hour	15:30 - 16:30	0	Overall Peak Hour	15:30 - 16:30	61
Overall PHF	0.74		Overall PHF	0.708		Overall PHF	-		Overall PHF	0.762	
From: US 1 (Elm St) (SouthWest)											
To: Main St (NorthWest)			To: US 1 (Elm St) (NorthEast)			To: Main St (SouthEast)			To: US 1 (Elm St) (SouthWest)		
Total	103		Total	4851		Total	453		Total	0	
% of Approach	1.9%		% of Approach	89.7%		% of Approach	8.4%		% of Approach	0%	
AM Peak Hour	11:00 - 12:00	5	AM Peak Hour	11:00 - 12:00	438	AM Peak Hour	11:00 - 12:00	44	AM Peak Hour	11:00 - 12:00	0
AM PHF	0.625		AM PHF	0.823		AM PHF	0.688		AM PHF	-	
PM Peak Hour	15:30 - 16:30	7	PM Peak Hour	15:30 - 16:30	596	PM Peak Hour	15:30 - 16:30	43	PM Peak Hour	15:30 - 16:30	0
PM PHF	0.875		PM PHF	0.949		PM PHF	0.672		PM PHF	-	
Overall Peak Hour	15:30 - 16:30	7	Overall Peak Hour	15:30 - 16:30	596	Overall Peak Hour	15:30 - 16:30	43	Overall Peak Hour	15:30 - 16:30	0
Overall PHF	0.875		Overall PHF	0.949		Overall PHF	0.672		Overall PHF	-	

Leg Summary

MAINE_DOT_TM - 000031050042 - US 1 (Elm St), Main St, 05/08/2021 - Thursday, August 5, 2021

Main St (NorthWest)											
Towards Junction			Away From Junction			Both Directions			Crossing		
Total	2254		Total	1757		Total	4011		Total	39	
AM Peak Hour	11:00 - 12:00	162	AM Peak Hour	11:00 - 12:00	116	AM Peak Hour	11:00 - 12:00	278	AM Peak Hour	11:00 - 12:00	4
AM PHF	0.827		AM PHF	0.744		AM PHF	0.88		AM PHF	0.333	
PM Peak Hour	15:30 - 16:30	217	PM Peak Hour	15:30 - 16:30	203	PM Peak Hour	15:30 - 16:30	420	PM Peak Hour	15:30 - 16:30	4
PM PHF	0.904		PM PHF	0.906		PM PHF	0.963		PM PHF	0.333	
Overall Peak Hour	15:30 - 16:30	217	Overall Peak Hour	15:30 - 16:30	203	Overall Peak Hour	15:30 - 16:30	420	Overall Peak Hour	15:30 - 16:30	4
Overall PHF	0.904		Overall PHF	0.906		Overall PHF	0.963		Overall PHF	0.333	
US 1 (Elm St) (NorthEast)											
Towards Junction			Away From Junction			Both Directions			Crossing		
Total	6670		Total	6869		Total	13539		Total	48	
AM Peak Hour	11:00 - 12:00	577	AM Peak Hour	11:00 - 12:00	599	AM Peak Hour	11:00 - 12:00	1176	AM Peak Hour	11:00 - 12:00	4
AM PHF	0.937		AM PHF	0.871		AM PHF	0.927		AM PHF	0.333	
PM Peak Hour	15:30 - 16:30	671	PM Peak Hour	15:30 - 16:30	773	PM Peak Hour	15:30 - 16:30	1444	PM Peak Hour	15:30 - 16:30	6
PM PHF	0.922		PM PHF	0.929		PM PHF	0.968		PM PHF	0.5	
Overall Peak Hour	15:30 - 16:30	671	Overall Peak Hour	15:30 - 16:30	773	Overall Peak Hour	15:30 - 16:30	1444	Overall Peak Hour	15:30 - 16:30	6
Overall PHF	0.922		Overall PHF	0.929		Overall PHF	0.968		Overall PHF	0.5	
Main St (SouthEast)											
Towards Junction			Away From Junction			Both Directions			Crossing		
Total	2226		Total	1792		Total	4018		Total	62	
AM Peak Hour	11:00 - 12:00	195	AM Peak Hour	11:00 - 12:00	161	AM Peak Hour	11:00 - 12:00	356	AM Peak Hour	11:00 - 12:00	0
AM PHF	0.855		AM PHF	0.821		AM PHF	0.84		AM PHF	-	
PM Peak Hour	15:30 - 16:30	206	PM Peak Hour	15:30 - 16:30	185	PM Peak Hour	15:30 - 16:30	391	PM Peak Hour	15:30 - 16:30	4
PM PHF	0.936		PM PHF	0.826		PM PHF	0.94		PM PHF	0.5	
Overall Peak Hour	15:30 - 16:30	206	Overall Peak Hour	15:30 - 16:30	185	Overall Peak Hour	15:30 - 16:30	391	Overall Peak Hour	15:30 - 16:30	4
Overall PHF	0.936		Overall PHF	0.826		Overall PHF	0.94		Overall PHF	0.5	
US 1 (Elm St) (SouthWest)											
Towards Junction			Away From Junction			Both Directions			Crossing		
Total	5407		Total	6139		Total	11546		Total	71	
AM Peak Hour	11:00 - 12:00	487	AM Peak Hour	11:00 - 12:00	545	AM Peak Hour	11:00 - 12:00	1032	AM Peak Hour	11:00 - 12:00	2
AM PHF	0.834		AM PHF	0.987		AM PHF	0.918		AM PHF	0.5	
PM Peak Hour	15:30 - 16:30	646	PM Peak Hour	15:30 - 16:30	579	PM Peak Hour	15:30 - 16:30	1225	PM Peak Hour	15:30 - 16:30	6
PM PHF	0.95		PM PHF	0.946		PM PHF	0.975		PM PHF	0.5	
Overall Peak Hour	15:30 - 16:30	646	Overall Peak Hour	15:30 - 16:30	579	Overall Peak Hour	15:30 - 16:30	1225	Overall Peak Hour	15:30 - 16:30	6
Overall PHF	0.95		Overall PHF	0.946		Overall PHF	0.975		Overall PHF	0.5	

Total Flow

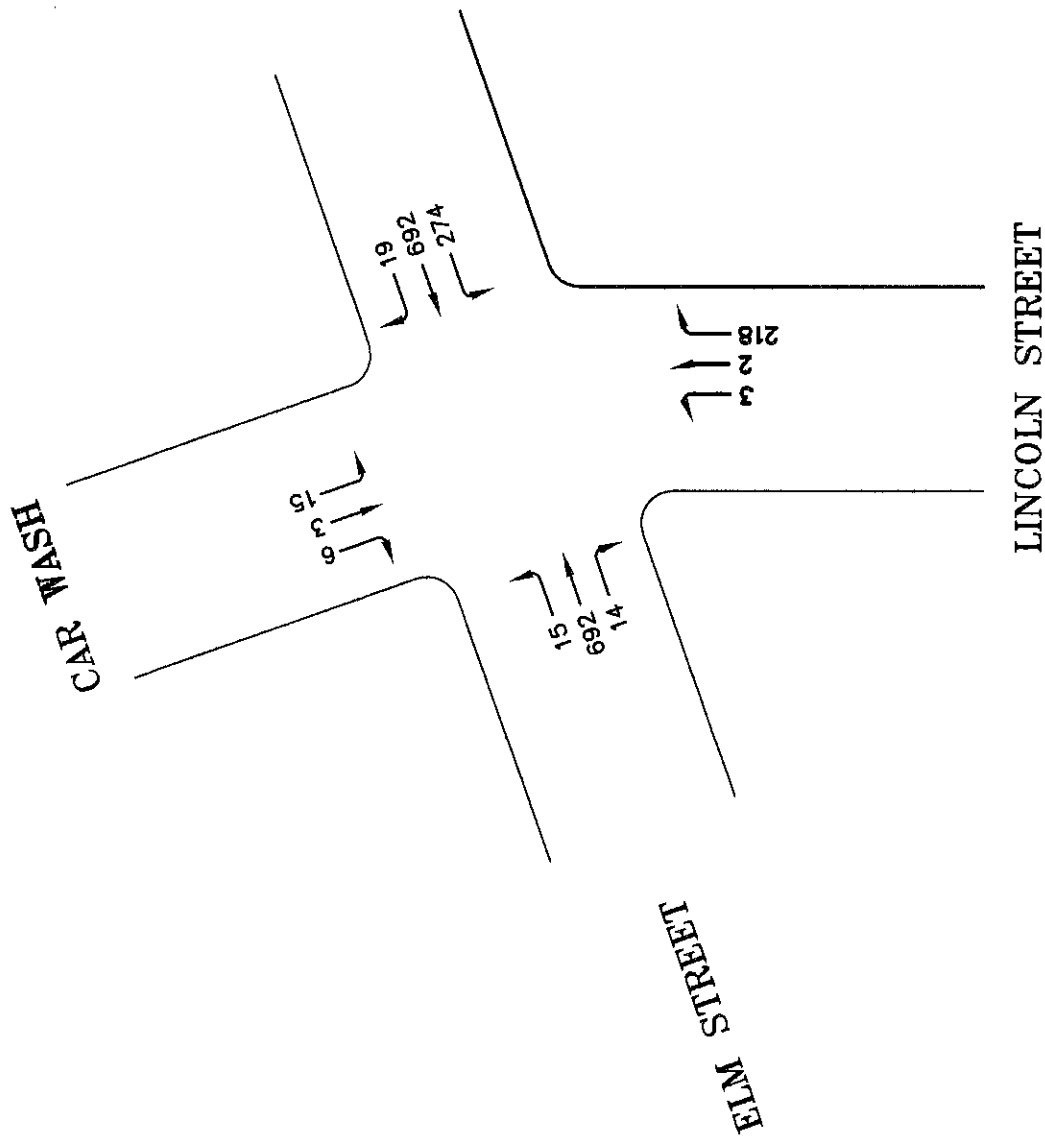
MAINE_DOT_TM - 000031050042 - US 1 (Elm St), Main St, 05/08/2021 - Thursday, August 5, 2021

Traffic								Crossing			
Period	Mtd	Car	Bus	SUT	Semis	Bicycle	Total	Period	Bicycle	Ped	Total
06:00	0	91	2	2	2	1	98	06:00	0	0	0
06:15	0	122	1	2	0	0	125	06:15	0	5	5
06:30	0	164	0	6	2	0	172	06:30	0	3	3
06:45	1	215	1	5	2	0	224	06:45	0	1	1
07:00	0	201	0	3	0	0	204	07:00	0	1	1
07:15	0	260	0	6	0	0	266	07:15	0	1	1
07:30	0	281	0	7	1	0	289	07:30	0	1	1
07:45	0	302	0	10	0	0	312	07:45	0	2	2
08:00	1	252	0	6	5	0	264	08:00	0	1	1
08:15	0	258	1	12	1	0	272	08:15	0	1	1
08:30	1	261	0	4	4	0	270	08:30	1	2	3
08:45	0	314	1	11	2	0	328	08:45	0	0	0
09:00	0	252	0	9	3	0	264	09:00	0	5	5
09:15	0	275	0	7	2	0	284	09:15	0	6	6
09:30	0	276	0	6	2	0	284	09:30	0	1	1
09:45	0	314	0	7	3	0	324	09:45	0	1	1
10:00	0	307	0	10	0	0	317	10:00	0	2	2
10:15	0	349	0	11	0	0	360	10:15	0	4	4
10:30	0	330	0	10	0	0	340	10:30	1	4	5
10:45	0	347	1	7	1	0	356	10:45	0	1	1

11:00	0	302	0	11	1	0	314	11:00	0	1	1
11:15	0	354	1	13	0	0	368	11:15	0	4	4
11:30	0	359	0	13	2	0	374	11:30	0	4	4
11:45	0	352	0	12	1	0	365	11:45	0	1	1
12:00	3	374	1	4	3	0	385	12:00	1	3	4
12:15	6	339	0	5	2	0	352	12:15	1	10	11
12:30	6	382	0	12	1	2	403	12:30	1	4	5
12:45	5	384	1	12	3	0	405	12:45	2	12	14
13:00	5	382	0	5	1	0	393	13:00	0	9	9
13:15	6	380	1	4	2	0	393	13:15	1	8	9
13:30	3	394	2	10	0	0	409	13:30	0	5	5
13:45	5	373	1	10	1	0	390	13:45	0	5	5
14:00	0	334	2	8	0	0	344	14:00	0	4	4
14:15	5	378	0	9	2	0	394	14:15	0	5	5
14:30	2	379	0	5	4	2	392	14:30	0	4	4
14:45	1	419	1	4	2	0	427	14:45	7	7	14
15:00	4	401	1	8	2	1	417	15:00	1	7	8
15:15	3	381	0	8	3	0	395	15:15	3	4	7
15:30	6	426	0	8	0	0	440	15:30	2	7	9
15:45	5	432	1	7	0	1	446	15:45	0	3	3
16:00	3	402	0	5	1	1	412	16:00	1	6	7
16:15	2	429	1	8	1	1	442	16:15	0	1	1
16:30	2	413	0	4	0	0	419	16:30	1	2	3
16:45	6	436	0	3	0	1	446	16:45	2	5	7
17:00	2	407	0	2	1	0	412	17:00	1	5	6
17:15	3	438	0	5	0	0	446	17:15	1	11	12
17:30	3	403	0	6	2	1	415	17:30	0	6	6
17:45	4	400	0	2	0	0	406	17:45	0	8	8
Total	93	16024	20	344	65	11	16557	Total	27	193	220
% of Total	0.6%	96.8%	0.1%	2.1%	0.4%	0.1%	100%	% of Total	12.3%	87.7%	100%

Total Summary**MAINE_DOT_TM - 000031050042 - US 1 (Elm St), Main St, 05/08/2021 - Thursday, August 5, 2021**

Traffic Summary				Crossing Summary			
Total			16557	Total			220
AM Peak Hour	11:00 - 12:00	1421		AM Peak Hour	11:00 - 12:00	10	
AM PHF	0.95			AM PHF	0.625		
PM Peak Hour	15:30 - 16:30	1740		PM Peak Hour	15:30 - 16:30	20	
PM PHF	0.975			PM PHF	0.556		
Overall Peak Hour	15:30 - 16:30	1740		Overall Peak Hour	15:30 - 16:30	20	
Overall PHF	0.975			Overall PHF	0.556		



**EXISTING 2019 TRAFFIC
WEEKDAY PM PEAK HOUR
FIGURE 1b**

ES:\LAND PROJECTS\4400\4400-0000 TRAFFIC SOLUTIONS\INTERIM REDEVELOPMENT\PLANSET\FIGURE 0072.DWG

RIVERDAM REDEVELOPMENT
BRIDGEPORT, MAINE

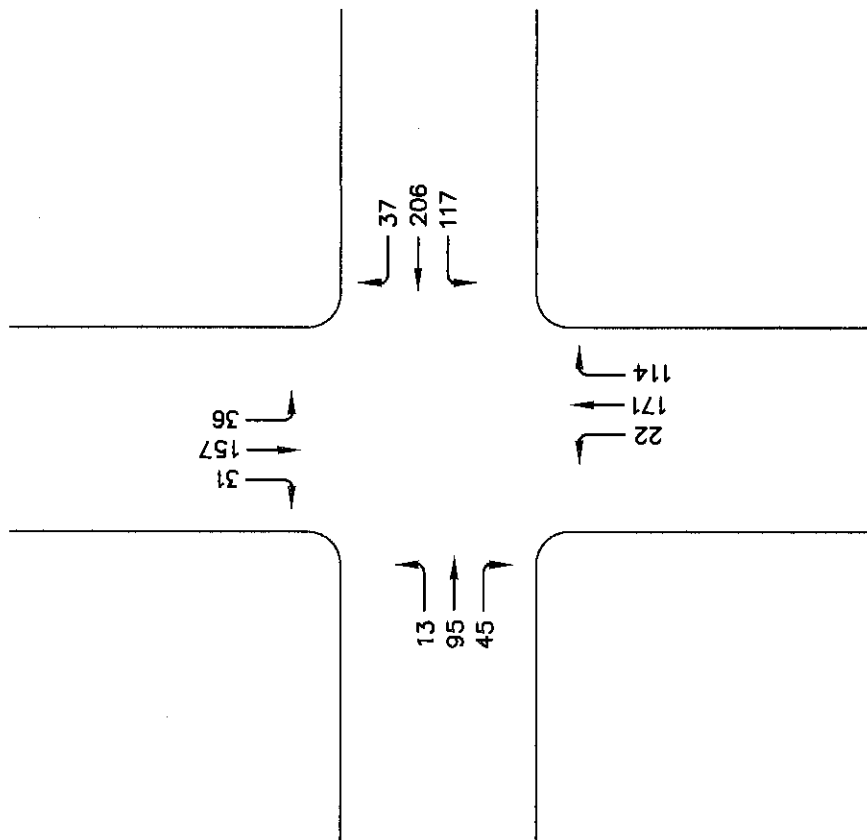
DATE: OCTOBER, 2019

FIGURE 1b

TRAFFIC SOLUTIONS
17 MOUNTAIN DRIVE, CONSUMERS, MAINE 04038



MAIN STREET



ADAMS STREET

LINCOLN STREET

EXISTING 2019 TRAFFIC
WEEKDAY PM PEAK HOUR
FIGURE 1a

E:\LAND PROJECTS\4000\4000\4000 TRAFFIC SOLUTIONS\RIVERDAM REDEVELOPMENT\PLANSET\WEEKDAY OCTOBER

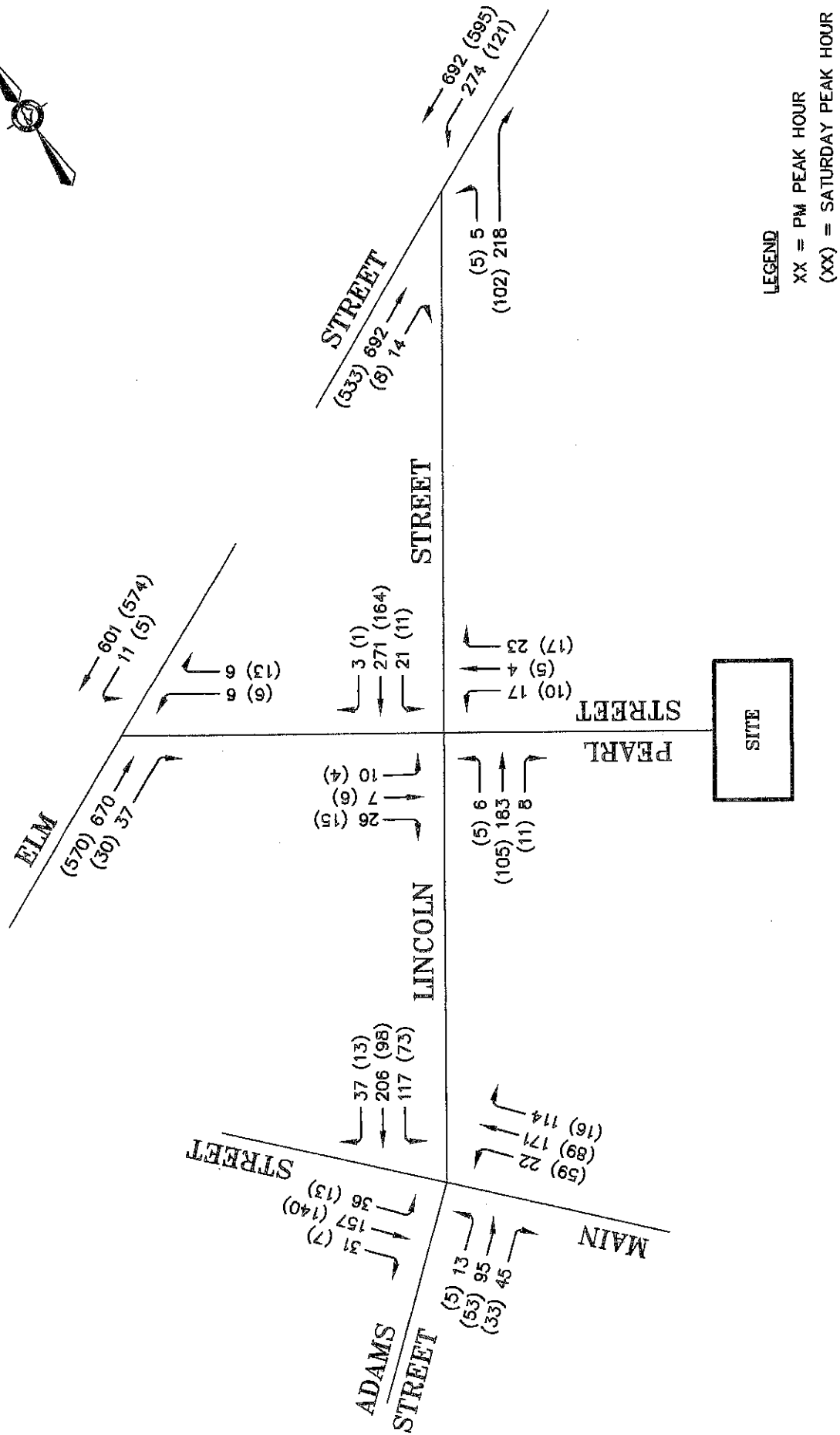
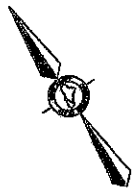
Project Name and Location
RIVERDAM REDEVELOPMENT
BOSTON, MAINE

TRAFFIC SOLUTIONS

17 MOUNTAIN DRIVE, CONSUM, MAINE 04039

DATE: OCTOBER, 2019

FIGURE: 1a



EXISTING 2019 PEAK HOUR TRAFFIC
(PM PEAK HOUR & SATURDAY PEAK HOUR)

FIGURE 1

RIVERDAM REDEVELOPMENT		DATE: AUGUST, 2019	SCALE: 1
TRAFFIC SOLUTIONS		17 MONROVIE DRIVE, COVINGTON, MISSISSIPPI 39426	

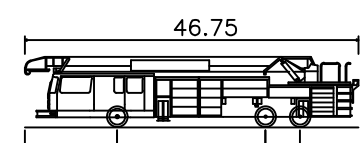
SITE PLAN

GENERAL NOTES:

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF BIDDEFORD STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF BIDDEFORD STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

PLAN REFERENCES:

1. PLAN TITLED "BIDDEFORD PARKING GARAGE, MERC SITE" PREPARED BY DESMAN DESIGN MANAGEMENT DATED 12/20/2019 AND REVISED 1/14/2020.
2. PLAN TITLED "PEARL STREET RECONSTRUCTION PROJECT" PREPARED BY SEWALL DATED 10/14/2020
3. PLAN TITLED "EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC. DATED 8/5/2021

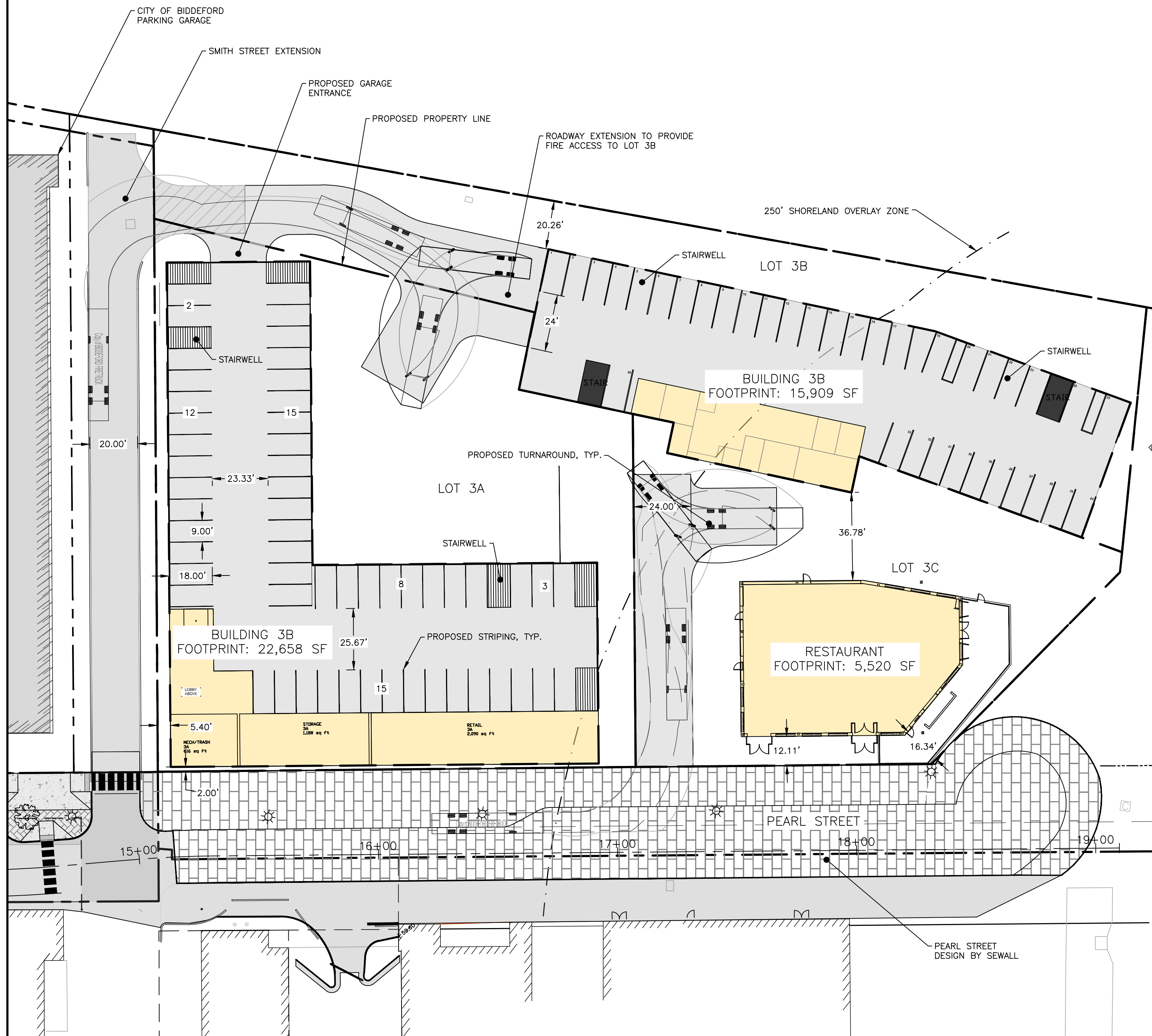


BIDDEFORD FIRETRUCK
Overall Length 46.750ft
Overall Width 8.500ft
Overall Body Height 9.851ft
Min Body Ground Clearance 0.920ft
Track Width 6.333ft
Lock-to-lock time 6.00s
Max Wheel Angle 45.00°

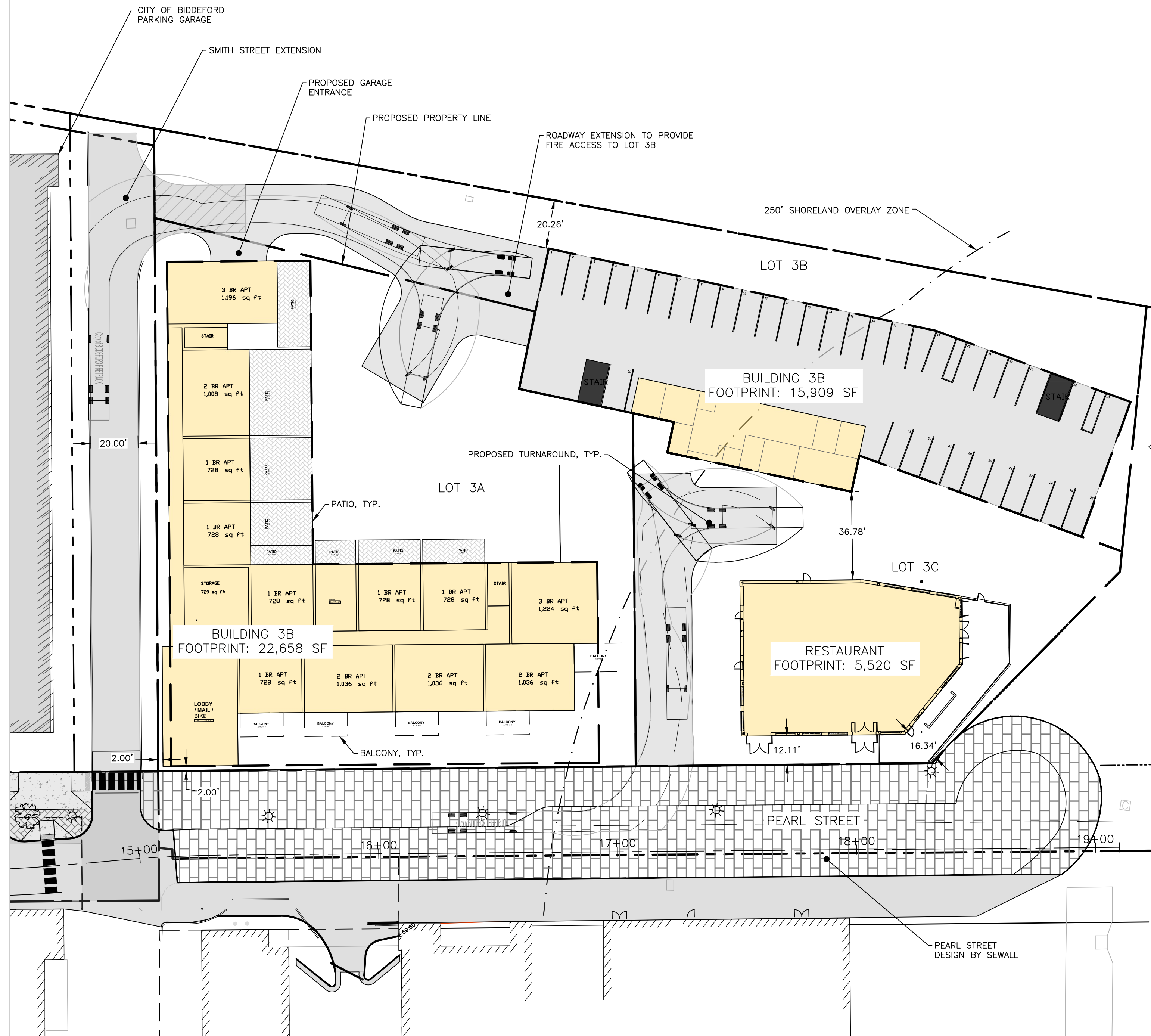
PARKING SUMMARY			
USE	UNITS	SPACES REQUIRED	PROPOSED
LOT 3A	64	1 SPACE / DWELLING UNIT (EXCLUSIVELY FOR & OCCUPANCY RESTRICTED) = 64 SPACES	50
—	—	INCREASE OF 5% (OF 64 SPACES) TO ALLOW FOR VISITORS = 4 SPACES	—
LOT 3B	76	1 SPACE / DWELLING UNIT (EXCLUSIVELY FOR & OCCUPANCY RESTRICTED) = 76 SPACES	42
—	—	INCREASE OF 5% (OF 76 SPACES) TO ALLOW FOR VISITORS = 4 SPACES	—
LOT 3C	170 SEATS & 128 SEATS	1 SPACE / 3 SEATS = 100 SPACES	N/A
ADA (8'X18')	—	—	TBD
STANDARD (9'X18')	—	—	TBD
TOTAL SPACES	—	248	92
ADDITIONAL SPACES NEEDED IN PARKING GARAGE	—	—	156

LOT 3A SPACE AND BULK STANDARDS

ZONE:	REQUIRED (MSRD3)	REQUIRED (GD-1)	EXISTING LOT 3	PROPOSED LOT 3A	PROPOSED LOT 3B	PROPOSED LOT 3C
MINIMUM LOT SIZE	NONE	NONE (WITHIN EX. STRUCTURES ONLY)	—	39,629 SF	30,230 SF	20,580 SF
MINIMUM STREET FRONTAGE	NONE	—	324'	200'	—	124'
MINIMUM FRONT YARD SETBACK	NONE	—	N/A	2.00'	0'	12.11'
MINIMUM REAR YARD SETBACK	NONE	—	N/A	5.18'	20.26'	36.78'
MINIMUM SIDE YARD SETBACK	NONE	—	N/A	2.00'	0'	16.34'
MINIMUM BUILDING HEIGHT	MIN. 2 STORIES OR 26 FEET	—	N/A	TBD	TBD	TBD
MINIMUM SHORE FRONTAGE	—	NONE (WITHIN EX. STRUCTURES ONLY)	N/A	—	—	—
SACO RIVER SETBACK (INCLUDING PARKING AREAS)	—	100' FROM NORMAL HIGH-WATER LINE	—	—	—	—
SACO RIVER NO-CUT ZONE (SRCC)	—	75'	—	—	—	—
MAX LOT COVERAGE	100%	70% WITHN SHORELAND ZONE	—	57.2%	52.6%	26.8%



GARAGE FLOOR PLAN
1" = 30'



PRELIMINARY
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
TMP REVIEW	DATE
	PFH
	9/9/21

SITE PLAN

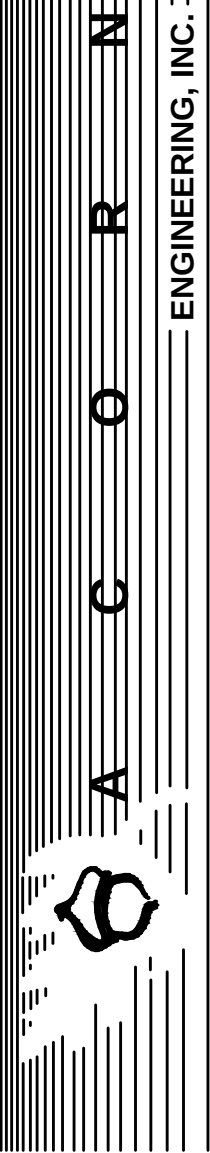
PEARL STREET LOT 3 REDEVELOPMENT

FATHOM COMPANIES
80 EXCHANGE STREET, SUITE 400 PORTLAND, ME 04101

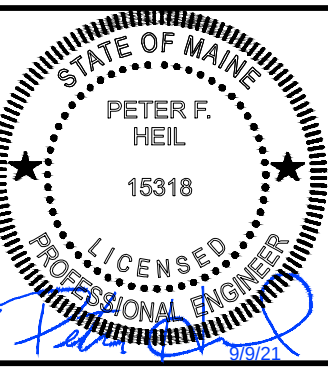
DRAWING NAME:

PROJECT NAME:

CLIENT:

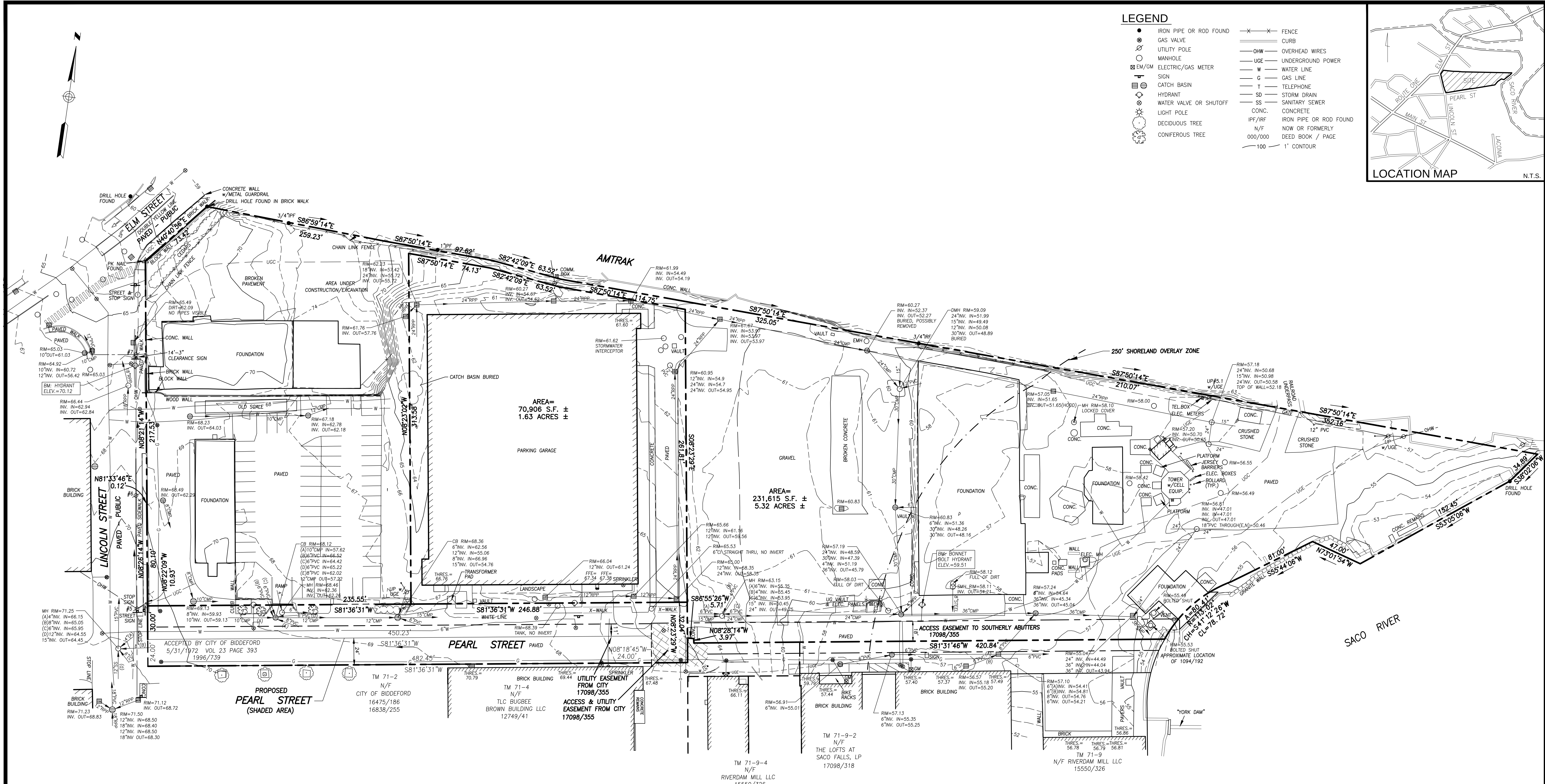


FILE: 1124_CIVIL
JN: 1124
SCALE: AS NOTED
DESIGNED BY: PFH
DRAWN BY: ZMS
CHECKED BY: WHS/PFH



DRAWING NO.
C-10

BOUNDARY SURVEY



LEGEND

●	IRON PIPE OR ROD FOUND	—X—X—	FENCE
⊙	GAS VALVE	—	CURB
⊙	UTILITY POLE	—OHW—	OVERHEAD WIRES
⊙	MANHOLE	—UG—	UNDERGROUND POWER
⊙	EM/GM	—W—	WATER LINE
⊙	SIGN	—G—	GAS LINE
⊙	CATCH BASIN	—T—	TELEPHONE
⊙	HYDRANT	—SD—	STORM DRAIN
⊙	WATER VALVE OR SHUTOFF	—SS—	SANITARY SEWER
⊙	LIGHT POLE	CONC.	CONCRETE
⊙	DECIDUOUS TREE	IPF/IRF	IRON PIPE OR ROD FOUND
⊙	CONIFEROUS TREE	N/F	NOW OR FORMERLY
		000/000	DEED BOOK / PAGE
		—100—	1' CONTOUR

LOCATION MAP

N.T.S.

PLAN REFERENCES

1. PLAN SHOWING LAND SURVEYED FOR MAINE ENERGY RECOVERY COMPANY BIDDEFORD MAINE BY DOW & COULOMBE, INC. DATED JANUARY 15, 1985 REVISED THROUGH OCT. 4, 1986.
2. ALTA/ACSM LAND TITLE SURVEY (URBAN) MADE FOR MAINE ENERGY RECOVERY COMPANY BIDDEFORD, MAINE BY DOW & COULOMBE, INC. DATED MARCH 15, 1996 REVISED THROUGH MAY 14, 2009.
3. ALTA/NSPS LAND TITLE SURVEY AT 75 SACO FALLS WAY, BIDDEFORD, MAINE MADE FOR THE LOFTS AT SACO FALLS, LP BY OWEN HASKELL, INC. DATED JULY 30, 2015 REVISED THROUGH 12-20-16.
4. EXHIBIT PLAN OF EASEMENT AT 75 SACO FALLS WAY, BIDDEFORD, MAINE MADE FOR THE LOFTS AT SACO FALLS, LP BY OWEN HASKELL, INC. DATED AUGUST 27, 2015 REVISED THROUGH DEC. 20, 2106.
5. EXISTING CONDITIONS SURVEY ON PEARL STREET, BIDDEFORD, MAINE MADE FOR MILONE & MCBROOM BY OWEN HASKELL, INC. DATED APRIL 19, 2018.
6. LAND DIVISION PLAN ON LINCOLN STREET & PEARL STREET BIDDEFORD, MAINE MADE FOR DESMAN DESIGN MANAGEMENT BY OWEN HASKELL, INC. DATED FEB. 4, 2020.

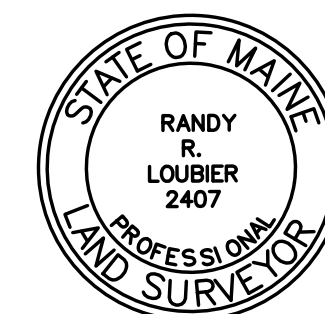
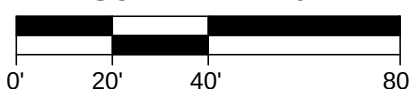
GENERAL NOTES

1. OWNER OF RECORD: CITY OF BIDDEFORD
TAX MAP 71 LOT 2
Y.C.R.D. BOOK 16838 PAGE 255
Y.C.R.D. BOOK 16475 PAGE 186
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83.
3. ELEVATIONS ARE BASED ON NAVD 88 DATUM.

UTILITY NOTE

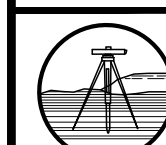
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

SCALE: 1" = 40'



Randy R. Loubier
RANDY R. LOUBIER, PLS #2407

Existing Conditions Survey
On
Pearl Street, Biddeford, Maine
Made for
City of Biddeford
205 Main St. Biddeford, ME 04005



OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105

DRAWN BY: RRL/JLW	DATE: AUGUST 20, 2021	JOB NO. 2021-168 B-Y
CHECKED BY: RRL	SCALE: 1" = 40'	DRWG. NO. 1

TITLE, RIGHT, OR INTEREST

Master Plan Development Agreement

This Master Plan Development Agreement (this “Agreement”) dated November 17, 2020 (“Effective Date”), is executed between 3 Lincoln, LLC, a Maine limited liability company (the “Developer”), having an address at P.O. Box 7486, Portland, Maine 04112 and the City of Biddeford, Maine, a Maine municipal corporation and body politic with offices at 205 Main Street, Biddeford, Maine (the “City”). The Developer and the City are collectively referred to as the “Parties.”

RECITALS

WHEREAS, the City owns the parcel of land in Biddeford, Maine commonly known as the “MERC” site located at 3 Lincoln Street, a plan of which is attached hereto as Exhibit A and a legal description of which is attached as Exhibit B (the “Site”). The Site is an irregularly shaped parcel containing approximately 8.4 acres of land bound to the west by Lincoln Street, the east by the Saco River, to the north by the Boston & Maine Railroad, Gooch Street, and to the south by Pearl Street and several commercial/industrial buildings.

WHEREAS, the City, working with a team established by the City Council, developed the 3 Lincoln Street Redevelopment Market and Feasibility Study in conjunction with Camoin Associates (the “Camoin Study”), to establish a blueprint for the redevelopment of the Site (the “Project”).

WHEREAS, the City has selected the Developer to serve as the master developer for the Project.

WHEREAS, the goals of the Project are to develop up to 400,000 square feet of new, mixed use commercial space, create between 800 and 1,800 new jobs, and increase the City’s base property value by up to \$63,000,000.

WHEREAS, the Project is expected to become an anchor within the City’s so-called “Mill District,” with the goal that the Project will support activities in the existing surrounding buildings, the RiverWalk and its amenities, and associated business development in the surrounding area.

AGREEMENT

NOW, THEREFORE, in consideration of the promises and mutual agreements contained herein and other consideration, the receipt and adequacy of which is hereby acknowledged, and intending to be bound hereby, the Parties agree as follows:

ARTICLE I

GENERAL TERMS & COMMITMENTS

1.1 Purpose. This Agreement sets forth the major terms and conditions under which the Parties intend to pursue the Project. The Parties recognize that, as the Project progresses, further definitions and agreements expanding the terms of this Agreement may be warranted and/or necessitated. The Parties have sought in this Agreement to (i) provide a sufficient degree of definition to facilitate planning, design and implementation within a broad scope and (ii) make certain commitments that are necessary to achieve the successful realization of the Project.

1.2 Description of the Project. The Project consists of the planning, permitting, and development of the Site, including coordination of the development by the City of a municipal parking garage (the “Municipal Parking Garage”) on the portion of the Site shown on Exhibit A as the site for those improvements (“Garage Site”) and the development of buildings adjacent to the Municipal Parking Garage generally located on the east and west sides of that structure on the development sites shown on Exhibit A (collectively the “Development Sites”) as commercial, residential, academic, hospitality, retail or other uses (collectively the “Adjacent Buildings”). The Parties shall progress through each stage of the Project, consistent with Section 1.3 below, giving due consideration to Site conditions, financial feasibility, and other commercially reasonable development considerations. The Parties expressly acknowledge the need to provide reasonable flexibility to the Developer to enable the Developer to respond to changing market conditions and intend that the scope of the Project be interpreted and adjusted by the City and the Developer in a manner that will promote, and not hinder, a commercially reasonable and economically viable redevelopment of the Site. Without limitation of the foregoing, as of the date of the Agreement, the Project and its various elements are envisioned to be generally consistent with the Camoin Study. In the course of modifying and refining these initial plans throughout the development process, the Developer will seek to incorporate a mixture of residential, retail, office, hospitality, education and service uses with the adjacent Municipal Parking Garage, park area, street system, the RiverWalk and other amenities intended to foster the creation of an economically vibrant, urban style mixed use destination, generally as contemplated by the Camoin Study and in accordance with the principles enumerated in Section 3.1 of this Agreement.

1.3 Project Schedule. The Project shall proceed in accordance with the following schedule (the “Project Development Schedule”):

As of the Effective Date, the City shall deliver to Developer a garage concept plan deemed suitable by the Developer (as set forth in Section 3.2 below) including, without limitation, all four elevations, a section plan, parking space count, structural plan, and other AIA standard elements (“Garage Concept Plan”) (the date of delivery referred to as the “Start Date”).

1.3.2 Within three (3) months following the Start Date, the Developer shall prepare (or have prepared) and present to the City a concept plan for the development of each of the Development Sites (the “Preliminary Concept Plan”). In the event that the City determines that the Preliminary Concept Plan is not suitable, and the City and the Developer are unable to

agree to revisions to the Preliminary Concept Plan that make such plan suitable to the City, the City shall be permitted to terminate this Agreement in accordance with Article VI; provided, that in the event that the City terminates this Agreement pursuant to this Section 1.3.2, the City shall reimburse the Developer for all costs and expenses incurred prior to the date of termination, plus twenty percent (20%) to partially compensate the Developer for its time and effort.

1.3.3 Within the six (6) month period following written notice of acceptance of the Preliminary Concept Plan by the City, the Parties shall agree to a financial plan and, utilizing design plans associated with the Municipal Parking Garage, shall work together to create concept plans depicting the layout and design of the Development Sites and the Site as a whole, including site design concepts, internal layout, and building use scenarios (the “Site Concept Plans”). The Site Concepts Plans also shall set forth a timetable by which Developer shall complete the improvements described in the Site Concept Plans with agreed upon financial penalties if such timetables are not reasonably accomplished. In the event that the City or the Developer determines that the proposed Site Concept Plans are not suitable, and the City and the Developer are unable to agree to revisions to the Site Concept Plans that make such plans suitable to the City or the Developer, the City or Developer shall be permitted to terminate this Agreement in accordance with Article VI; provided, that in the event that the City terminates this Agreement pursuant to this Section 1.3.3, the City shall reimburse the Developer for all costs and expenses incurred prior to the date of termination, plus twenty percent (20%) to partially compensate the Developer for its time and effort.

1.3.4 During the six (6) month period following the approval by the City and Developer of the Site Concept Plans, each of the City and the Developer shall use commercially reasonable efforts to obtain all federal, state and municipal permits and approvals (“Governmental Approvals”) necessary to proceed with the development and improvements described in the Site Concept Plans. The City shall have primary responsibility for the Governmental Approvals required for the Municipal Parking Garage and related improvements and the Developer shall have primary responsibility for the Governmental Approvals required for the buildings and related improvements to be located on the Development Sites; provided that the Parties acknowledge that as an integrated master development the Governmental Approvals are likely to be highly integrated and interdependent, and therefore agree to work cooperatively and on a coordinated basis to obtain the Governmental Approvals.

1.3.5 Throughout the period specified in Sections 1.3.2-1.3.4 above, the Parties shall work together to identify candidates as potential tenants, joint venture participants, co-developers, or other users for the Development Sites.

1.3.6 The milestone dates set forth in Sections 1.3.2, 1.3.3 and 1.3.4 shall be extended in the event the Municipal Parking Garage has not achieved the same milestone as specified in each Section for the Project. The extension of the applicable milestone shall be coterminous with the date the Municipal Parking Garage achieves its corresponding milestone, in order to assure that the pace of development of the Project does not proceed at a substantially

more rapid rate than the development of the Municipal Parking Garage, which is an critical element in the Developer's ability to successfully develop the Project.

1.4 Exclusive Development. The Parties shall work exclusively with each other, in good faith, to develop the Project. This Agreement shall not extend to any other activities, transactions or relationships other than with respect to the Project and the transactions contemplated by this Agreement. Nothing in this Agreement shall preclude or restrict either Party from conducting its business as it determines in its sole and absolute discretion other than in connection with the Project, and neither Party shall have any rights or obligations in and to the other Party's independent ventures or the income or profits derived therefrom, including any ventures located proximate to the site.

1.5 Personnel and Resources. Each Party shall make available, at all reasonable times and location, the personnel and resources reasonably necessary to complete such Party's responsibilities with respect to the development of the Project.

1.6 Manner of Development. The Parties acknowledge and agree that the development of the Adjacent Buildings may be undertaken by the Developer through whatever means or transaction structure the Developer determines appropriate, including through direct ownership and development by Developer, leasing or re-sale to third parties, co-development with joint venture partners, subdivision and sale for development of all or portions of the Development Sites or Adjacent Buildings, declaration of one or more condominiums or through use of any other means or transaction structures as Developer determines appropriate, with the overall goal of developing the Development Sites on the basis described herein (the foregoing being referred to herein as "Development Relationships"). Developer agrees that in the event the development of the Adjacent Buildings is undertaken by anyone other than Developer or its related entities, Developer shall first obtain the written consent of the City to the involvement of any third party individuals or entities, which consent shall not be unreasonably withheld.

ARTICLE II PURCHASE OPTION

2.1 Purchase Option. The City hereby grants to the Developer an exclusive option (the "Option") to purchase either or both of the Development Sites, including all rights, privileges, easements and appurtenances thereto existing or as necessary or convenient for the construction, development and operation of the Adjacent Buildings and other improvements identified and defined in the Site Concept Plans, but specifically excluding the cell tower site (the "Subject Property"). This Option applies to the Subject Property both in its current state and in the event it is further developed. The Subject Property shall be conveyed together with all improvements thereon, all easements and rights of way relating thereto, all appurtenances thereto, as well as any common element interests therein, and subject to the terms and conditions set forth in this Agreement.

2.2 Terms of the Option. The Option granted hereby shall have the following terms and conditions:

2.2.1 Term: The Option shall have a term beginning on the Effective Date and expiring eighteen (18) months following receipt of all Governmental Approvals pursuant to Section 1.3.5 hereof, unless the same shall sooner be exercised or terminated in accordance with the terms hereof ("Option Term").

2.2.2 Purchase Price: The total purchase price for the Subject Properties if they are purchased together shall be One Million Two Hundred Thousand Dollars (\$1,200,000) (the "Purchase Price").

2.2.3 Exercise of Option: Upon satisfaction of the Condition of Exercise described in Section 2.2.4 below, the Option may be exercised by the Developer by the transmittal of a signed written notice of the Developer's exercise of the Option ("Notice of Exercise"), and specifying the date, time and place for closing on the purchase of the Subject Property, which shall not be later than ninety (90) days following the date of the Notice of Exercise ("Closing Date"). The Developer shall have the right to exercise the Option with respect to either or both Subject Properties, and if exercised for one of the Subject Properties the Option shall continue in force for the other Subject Property for the remainder of the Option Term. If the Developer exercises the Option separately, the purchase price for the first property shall be Seven Hundred Thousand Dollars (\$700,000) and the purchase price for the second property shall be Seven Hundred Thousand Dollars (\$700,000) for a combined purchase price of One Million Four Hundred Thousand Dollars (\$1,400,000).

2.2.4 Condition of Exercise: It shall be a condition of exercise of the Option that the Site Concept Plans shall have been completed pursuant to Section 1.3.3 above.

2.2.5 Closing: The closing of the purchase of each Subject Property hereunder shall be conducted in accordance with the following provisions:

(a) The City shall sell, assign, convey, transfer and deliver title to the Subject Property together with all easements, licenses, rights of way and appurtenant rights reasonably required in order to develop the Subject Property in accordance with the Site Concept Plan, and together therewith all surveys, plans, specifications, title commitments or policies and other records, files or information related to the development of the Subject Property in accordance with the Site Concept Plan, free and clear of any liens, encumbrances or restrictions of any nature, except for the Permitted Real Property Liens. "Permitted Real Property Liens" means: (i) real property taxes for the current tax year that are not due and payable as of the Closing date, (ii) any liens, encumbrances or other title exception or nonconformity accepted by, or not expressly objected to in writing by, the Developer at or before Closing, and (iii) local, state and federal laws, ordinances or governmental regulations, including but not limited to, building and zoning laws, ordinances and regulations.

(b) The Developer shall pay the Purchase Price by wire transfer to an account specified by the City, as increased or decreased by applicable prorations and adjustments, including (i) all real and personal property taxes and similar ad valorem obligations levied with respect to the Subject Property for a taxable period that includes (but does not end on) the Closing Date based on the number of days of such taxable period included in the period ending with and including the Closing Date, (ii) any and all other income and expenses items that relate to the Subject Property that are incurred during a period beginning before the Closing Date and ending after the Closing Date, including but not limited to (i) water, sewer, electricity, gas, oil, telephone and other utility expenses, and (ii) payments under any contracts or agreements related to the Subject Property that Developer agrees to accept an assignment (collectively, the “Prorations”). The Prorations shall be apportioned as of the Closing Date such that the City shall be liable for that portion of such Prorations relating to, or arising in respect of, periods through and including the Closing Date and Developer shall be liable for (and shall reimburse the City to the extent City shall have paid) that portion of such expense items relating to, or arising in respect to, periods after the Closing Date.

2.3 Memorandum of Option. The Parties agree that upon request of either Party, a Memorandum of Option incorporating the terms hereof may be filed in the York County Registry of Deeds in lieu of the filing of the whole of this Agreement.

ARTICLE III RESPONSIBILITIES OF PARTIES

The Developer and the City have agreed to implement the vision and objectives embodied in the Camoin Study by agreeing to complete the responsibilities of each Party enumerated in this Agreement. The Parties acknowledge that this is a joint public and private enterprise in which the Parties will work closely together to further the completion of the Project. The following responsibilities are hereby assigned to the Parties:

3.1 Developer Responsibilities. The Developer shall use commercially reasonable efforts to:

3.1.1 Perform its obligations pursuant to Article I hereof.

3.1.2 Design, develop and construct the Adjacent Buildings in accordance with the Site Concept Plans, or arrange for their design, development and construction through one or more Development Relationships. The Parties agree that the development of the Adjacent Buildings may be phased.

3.1.3 In designing and developing the Adjacent Buildings, the Developer shall consider the following factors:

- a. Site use plans that incorporate urban mixed use principles;

b. Transit and pedestrian orientation with existing or future facilities in the Mill District;

c. Connection to surrounding properties, including cross track connections to the Saco-Lowell Building, potential use of buildings and building sites on Elm Street and the potentially re-aligned Lincoln and Pearl Streets; and

d. Coordination with mill owners in the Mill District, particularly as it relates to energy self-sufficiency.

3.2 City Responsibilities. Perform its obligations pursuant to Article I hereof.

3.2.2 The City shall continue to move forward with and make progress on the development of the Municipal Parking Garage and shall use best efforts to keep the Developer apprised of all design plans and changes. The Developer's responsibilities under this Agreement shall be conditional upon the Developer's deeming suitable the Garage Concept Plan, which shall include the Developer having sufficient time and opportunity to review the Garage Concept Plan and to exercise the Developer's judgment, at its sole discretion, regarding the suitability of such Garage Concept Plan. In the event that the Developer determines that the Garage Concept Plan is not suitable, and the City and the Developer are unable to agree to revisions to the Garage Concept Plan that make such plan suitable to the Developer, the Developer shall be permitted to terminate this Agreement with no further obligation and without penalty, as specified in Article VI.

3.2.3 The City shall continue to move forward on the planning, design and construction of the next phase of the RiverWalk.

3.2.4 The City shall pursue the planning and design of smart infrastructure for the benefit of 3 Lincoln Street and downtown Biddeford, including without limitation, gigabit internet service, wireless broadband mesh network, LED lighting, video and sensor technology, and the software required to store, analyze and secure data transmitted through this smart infrastructure.

3.2.5 The City and Maine Energy Recovery Company, LP, the former owner of the Site, pursuant to a Voluntary Response Action Plan ("VRAP"), completed environmental remedial actions on the Site resulting in a Maine Department of Environmental Protection Certification of Completion of a Voluntary Response Action Plan. The Certification of Completion is recorded in the York County Registry of Deeds in Book 17072, Page 169. Developer recognizes and agrees that the Certification of Completion and the Declaration of Environmental Covenant recorded in the York County Registry of Deeds in Book 17098, Page 898 imposes certain covenants, conditions and restrictions on the Site that are binding upon Developer and its successors and assigns. Developer agrees that the Certification of Completion is satisfactory evidence that all required environmental remediation on the Site was completed as of the date of the Certification of Remediation and that the City's obligations to complete any additional environmental remediation at the Site required in order to allow for the development of the Site contemplated hereby, including the financing of such development with financial institutions, is limited to environmental conditions occurring after the date of the Certification of

Completion. In the event that any such remediation is necessary, the City will provide to Developer, on or before the Closing Date for each Subject Property, evidence of the required remediation in form reasonably acceptable to Developer and any financial institutions financing the Municipal Parking Garage and Adjacent Buildings, including the environmental clearances listed on Exhibit C hereto.

3.2.6 The City shall provide the Developer with all environmental site assessments (phase 1 and 2 together with any additional test results), geotech studies, the results from test borings, soil samples, monitoring wells, and all other background information in the City's possession, or under its control, pertaining to the Site.

3.2.7 The City will assist the Developer in any local or state reviews necessary for the development of the Site.

3.2.8 The City shall exercise best efforts to assure that the Developer is not required to bear the cost of all offsite improvements necessary to support the contemplated development of the Project, including any costs necessary to ensure that utilities adequate to support the contemplated development are delivered to the Subject Property.

3.2.9 The City will work with the Developer to identify a full range of financial, tax, and development incentives for the redevelopment of the Site; provided, that the City's obligations under this Section 3.2.9 are subject to the Developer's cooperation in providing reasonably requested financial and project-level information. Any such financial information provided by the Developer shall be treated as confidential information pursuant to this Agreement and as confidential business information to the extent allowed by law and protected as such.

3.2.10 The City shall promptly provide to the Developer all information it has related to potential Development Relationships.

3.3 Joint Party Responsibilities.

3.3.1 Performance: Time is of the essence and a material provision of this Agreement. The Developer and the City shall exercise commercially reasonable efforts to coordinate their development efforts and recognize that meeting the timelines contained herein are, in part, contingent upon the overall success of developing their respective portions of the Projects and market trends. The Parties may agree to mutually extend the timeframes specified herein as appropriate based on overall development progress; provided, however, that if one or more of the Parties does not meet a timeframe specified in this Agreement and the Parties cannot mutually agree upon an extension of such timeframe, such failure to meet the original timeframe shall be treated as an Event of Default, as defined below.

3.3.2 Access to Information: Upon reasonable request, each Party shall provide the other Party with full and complete access to data, documents, and any other information pertinent to the Project in order to permit each Party to perform an adequate due diligence review of matters related to the Project at each stage of development.

3.3.3 Cooperation: In addition to the actions recited herein and contemplated to be performed, executed and delivered by each Party, each Party shall perform, execute and deliver or cause to be performed, executed and delivered hereafter any and all further acts, deeds and assurances as the other Party may reasonably require to consummate or evidence the consummation of the transaction and/or the discharge of the obligations contemplated herein. The City and the Developer shall use reasonable efforts to coordinate the timing and installation/construction of all offsite improvements, if any, required in connection with the development of the Project.

3.3.4 Confidentiality: Neither Party, nor any permitted affiliate, agent or advisor of either Party shall: (a) disclose to any third party any information concerning the Project, the Site, prospective or actual Developer Relationships, the other Party, its affiliates or this Agreement; or (b) use any such information in any manner which may directly or indirectly negatively impact the Project, the other Party, or its affiliates, except that such information may be disclosed by such Party if required by law or, following written notice to the Party whose information is to be disclosed, to any lender or prospective lender or other entity necessary to develop or finance each portion of the Project. This confidentiality requirement shall not restrict the release of information which: (i) is or becomes generally available to the public other than as a result of disclosure by the other Party or its representatives, (ii) was or becomes available to the receiving Party on a non-confidential basis from a source other than the disclosing Party or its representatives; provided, that, to the receiving Party's knowledge and after due inquiry, such source is not prohibited from disclosing such information to the receiving Party by a contractual, legal or fiduciary obligation to the disclosing Party or its representatives, or (iii) is independently developed by the receiving Party without violating its obligations hereunder. In the event that this Agreement terminates prior to the purchase of the Subject Property by the Developer pursuant to Article 2 herein, then all such data, plans, proposals, and other materials furnished hereunder shall be returned to the Party from whom received, with an appropriate assurance that all copies thereof have been destroyed, except for those materials that were presented to the Developer, the Biddeford City Council or other governing body of the Parties. The obligations established pursuant to this section shall survive any termination of this Agreement and the withdrawal of a Party for a period of three (3) years.

ARTICLE IV LIMIT OF LIABILITY

Notwithstanding any other provision of this Agreement, in no event shall the Parties or any of their Affiliates, by reason of any of their respective acts or omissions relating to the development, negotiation, design, financing, ownership, construction, operation or maintenance of the Project, or relation to any of their obligations under this Agreement, be liable whether in contract, tort, misrepresentation, warranty, negligence, strict liability, or otherwise for any special, indirect, or consequential damages arising out of or in connection with this Agreement, or the performance, non-performance or breach thereof.

ARTICLE V

INDEMNIFICATION

Each Party shall indemnify, defend, and hold harmless the other Party and its agents, servants, officers, directors, employees and Affiliates from and against any loss, cost, liability, claim, damage, expense (including, without limitation, all out-of-pocket expenses, reasonable attorneys' and paralegal fees, disbursements and costs), penalty or fine incurred in connection with any claim or cause of action arising from or in connection with any claim or cause of action arising from or in connection with the Project or this Agreement to the extent caused by the negligence, misrepresentation, fraud, fault or misconduct of the indemnifying Party or any of its Affiliates.

The City's duty to indemnify shall not waive any defense, immunity or limitations of liability, which may be available to the City, its officers, agents, or employees, under the Maine Tort Claims Act, 14 M.R.S. §8101, et seq., or any other privileges or immunities as may be provided by law.

The Developer shall maintain commercial general liability insurance with coverage for personal injury liability and/or property damage liability with minimum limits of not less than \$1,000,000 per occurrence, and shall name the City as an additional insured on such policies.

ARTICLE VI

DEFAULT AND REMEDIES

6.1 Events of Default. The following shall each constitute an event of default under this Agreement (each, an "Event of Default"),

6.1.1 The Developer's failure to observe or perform any covenant, agreement, or obligation of the Developer set forth in this Agreement, whether or not specifically identified in this Agreement as an Event of Default.

6.1.2 The City's failure to observe or perform any covenant, agreement, or obligation of the Developer set forth in this Agreement, whether or not specifically identified in this Agreement as an Event of Default.

6.1.3 The filing by the Developer of any petition or the initiation of any proceedings under the United States Bankruptcy Code or under any act or acts, state or federal, dealing with, or relating to the subject or subjects of bankruptcy or insolvency, or under any amendment of such act or acts, either as a bankrupt or as an insolvent, or as a debtor, or in any similar capacity, by the Developer; or any involuntary petition in bankruptcy is filed against the Developer and the same is not stayed or discharged within sixty (60) days from such filing; or any other petition or any other proceedings of the foregoing or similar kind or character is filed or instituted or taken against the Developer, or a receiver of the business or of the property or assets

of the Developer, is appointed by any court, except a receiver appointed at the insistence or request of the City; or the Developer makes any assignment for the benefit of its creditors;

6.2 Opportunity to Cure. If an Event of Default occurs, the non-breaching Party shall give the breaching Party written notice of the Event of Default and an opportunity to cure of not less than thirty (30) days, and if the default is, of its nature, not curable within 30 days, then a reasonable period to effect a cure given the nature of the default.

6.3 Remedies. In the event that the breaching Party fails to cure an Event of Default within the cure period set forth in Section 6.2, then the non-breaching Party shall be entitled to pursue any and all legal or equitable remedies available to it under the circumstances.

ARTICLE VII REPRESENTATIONS AND WARRANTIES

7.1 Representations and Warranties. Each Party represents and warrants to the other that:

7.1.1 it is duly qualified to do business and is in good standing in the State of Maine;

7.1.2 it has full power and authority to execute, deliver and perform its obligations under this Agreement;

7.1.3 the execution, delivery and performance of this Agreement has been duly and validly authorized by all necessary action by such Party; and

7.1.4 the execution and delivery of this Agreement by such Party and the performance of the terms, covenants and conditions contained herein will not violate the articles of incorporation or by-laws of such Party, or any order of a court or arbitrator, and will not conflict with and will not constitute a material breach of, or default under, the provisions of any material contract by which either Party is bound.

ARTICLE VIII FORCE MAJEURE

The timeframes and deadlines for performance of the obligations of the Parties shall be specified herein shall be extended during the period of any force majeure. For the purposes of this Agreement, “force majeure” shall mean and include all factors, circumstances, transactions, occurrences and other actions beyond the direct control of the Party, including without limiting the generality of the foregoing, labor disputes, civil disturbance, war, war-like operations, invasions, rebellion, hostilities, military or usurped power, sabotage, fires or other casualty, or acts of God that have the effect of rendering practically unavailable materials or labor or other resources necessary to perform the obligation or responsibility in a timely manner.

ARTICLE IX
MISCELLANEOUS

9.1 Right to Require Performance. The failure of either Party at any time to require performance by the other Party of any provisions hereof shall in no way affect the right of such Party thereafter to enforce same. Nor shall waiver by either Party of any breach of any provisions hereof be taken or held to be a waiver of any succeeding breach of such provisions or as a waiver of any provision itself.

9.2 City Agencies and Regulators. This Agreement is not intended to supersede the authority granted by law to any regulatory board or agency of the City. Such regulatory boards and agencies must perform their responsibilities in accordance with the law governing that performance. Therefore, nothing in this Agreement shall be construed or implied to require the City's planning, zoning, land use or other regulatory boards or agencies (however designated) to approve the plans for any aspect of the Project or other action required under this Agreement. Such boards and agencies are not obligated in any way by this Agreement

9.3 Relationship of Parties This Agreement shall not be interpreted or construed to independently create an association, joint venture, or partnership between the Parties or to impose any partnership obligation or liability upon either Party. Neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent of representative of, or to otherwise bind, the other Party.

9.4 Affiliates. The Developer may form or employ related Affiliates for purposes of participating in the Project. It is expressly recognized that the Developer contemplates use of one or more special purpose entities to develop the Adjacent Buildings.

9.5 Definition of Terms. It is agreed by the Parties hereto that reference in this Agreement to the City and the Developer, and all expressions referring thereto, shall mean the party, person, or persons named above as the City and the Developer, as the case may be, their successors and assigns, or any person, persons, or parties claiming by, through or under them.

9.6 Integration. This Agreement encompasses the entire Agreement of the Parties, and supersedes all previous understandings and agreements between the Parties, whether oral or written. The Parties hereby acknowledge and represent, by affixing their hands and seals hereto, that the Parties have not relied on any representation, assertion, guarantee, warranty, collateral contract or other assurance, except those set out in this Agreement, made by or on behalf of any other Party or any other person or entity whatsoever, prior to the execution of this Agreement. The Parties hereby waive all rights and remedies, at law or in equity, arising or which may arise as the result of a Party's reliance on such representation, assertion, guarantee, warranty, collateral contract or other assurance, provided that nothing herein contained shall be construed as a restriction or limitation of the Party's right to remedies associated with the gross negligence, willful misconduct or fraud of

any person or party taking place prior to, or contemporaneously with, the execution of this Agreement.

9.7 No Oral Modifications. This Agreement may not be amended or terminated orally. This Agreement and all the covenants, terms and provisions contained herein shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns. Except for an affiliated single purpose entity organized by the Developer to construct and operate the Project, neither this Agreement nor any of the rights, interests or obligations under this Agreement may be assigned or delegated by any Party, without the prior written consent of the other Party. This Agreement is not intended to confer any rights or benefits to any entity other than to the City and to the Developer, its affiliate entity organized to construct and operate the Project, and its affiliates.

9.8 Mutual Cooperation and Further Agreements. The Parties acknowledge that the obligations set further herein may be further described in other agreements as agreed to by the Parties. The City and the Developer agree to cooperate in good faith with regard to each and every aspect required for the completion of all operations contemplated by this Agreement. The Parties further agree to negotiate in good faith and to enter such other and further agreements as may be necessary to implement any aspect of design, engineering, construction or facility operation contemplated under this Agreement.

9.9 Expenses. Each Party shall pay all charges and fees in connection with employment of its respective attorneys relating to the negotiation of this Agreement, the Option, and the Definitive Agreement.

9.10 Notice. All notices required to be given to the City or the Developer under this Agreement shall be in writing and deemed given upon the earlier of actual receipt by personal delivery or two (2) days after being mailed by U.S. priority, registered or certified mail, return receipt requested, or a reputable overnight courier as follows:

City	City of Biddeford c/o James A. Bennett, (or the then current) City Manager P.O. Box 586 205 Main Street Biddeford, Maine 04005
With a copy to	Keith R. Jacques, Esq. Woodman Edmands Danylik Austin Smith & Jacques, P.A. P.O. Box 468 234 Main Street Biddeford, Maine 04005
Developer	3 Lincoln LLC

c/o James H. Brady, manager
P.O. Box 7486
Portland, ME 04112-7486

With a copy to Christopher E. Howard
Pierce Atwood LLP
254 Commercial Street
Portland, Maine 04101

9.11 Governing Law. This Agreement is and shall constitute a contract under and is to be construed in accordance with the laws of the State of Maine. Any dispute resulting in legal action and not resolved by arbitration, mediation, or such other method as may be mutually agreed to by the Parties shall be adjudicated within the jurisdiction of the State of Maine.

9.12 Severability. Any provision or part of the Agreement held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon the Parties, who agree that the Agreement shall be reformed to replace such stricken provisions or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provisions.

9.13 Survival. All express representations, warranties, indemnifications or limitations of liability made in or given in this Agreement shall survive the expiration or the termination of this Agreement for any reason.

9.14 Mediation/Arbitration. The Parties hereto agree that prior to filing litigation they will consider alternative dispute resolution techniques such as mediation and arbitration to resolve all claims, counterclaims, disputes and other matters in question between the Parties arising out of this Agreement.

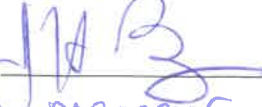
[Remainder of page intentionally blank]

IN WITNESS WHEREOF, the Parties hereto have set their hands and seals as of this
17 day of Nov, 2020.



Witness Jonathan Benoit

DEVELOPER:
3 Lincoln, LLC

By: 

Its: manager

CITY OF BIDDEFORD

Witness

By: _____
Name: James A. Bennett
Title: City Manager

City of Biddeford, Maine

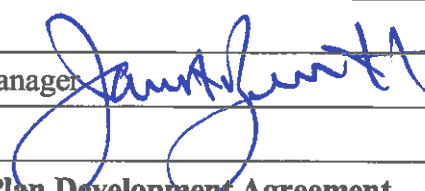


The Office of
City Manager

James A. Bennett

Email: jbennett@biddefordmaine.org

MEMORANDUM

TO:	BE Fidler LLC
FROM:	James A. Bennett, City Manager 
DATE:	December 19, 2019
RE:	Clarification to Master Plan Development Agreement

This memo issued to clarify .section 1.3.6 of the Master Plan Development agreement. That section contemplates that milestone dates within the agreement shall be extended if the parking garage was unable to meet its milestone. This section shall be broadly interpreted to include any delays that might occur that are a result of any infrastructure design, approval or construction required to serve the parking garage, including, but not limited to:

- Pearl Street Road Design and Construction;
- Pearl Street Utilities Design and Construction, including water and sewer improvements;
or
- Pearl Street Pedestrian and Landscape design and construction, including direct links to the Riverwalk.

Finally, nothing within the agreement, nor within this memo prohibits the parties to mutually extend any deadline contained within the agreement. Any extension shall be done in writing.

Exhibit A
Site Plan

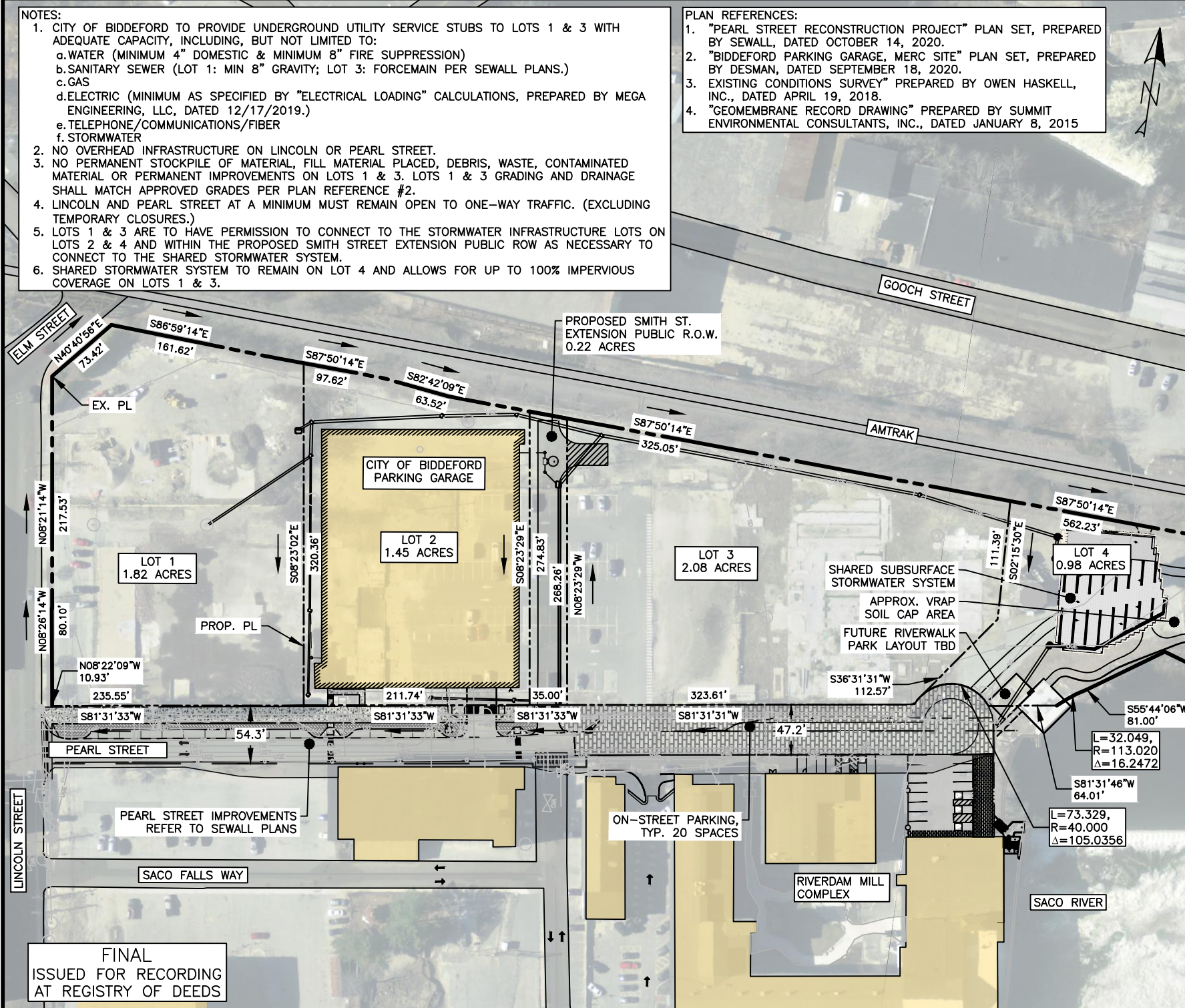
[insert Site Plan]

NOTES:

- CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - GAS
 - ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - TELEPHONE/COMMUNICATIONS/FIBER
 - STORMWATER
- NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
- NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
- LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
- LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
- SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

PLAN REFERENCES:

- "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
- "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
- EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
- "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015



ISSUED FOR
JDA EXHIBIT

956

DRAWING NAME:
OVERALL SITE EXHIBIT

PROJECT NAME:
PEARL STREET &
MERC REDEVELOPMENT

CLIENT:
FATHOM/BE FITLER, LLC
BIDDEFORD, MAINE



FILE: 1124_CIVIL

JN: 1124

SCALE: 1" = 120'

DESIGN BY: PFH

DRAWN BY: ZMS

CHECKED BY: WHS

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

DRAWING NO.

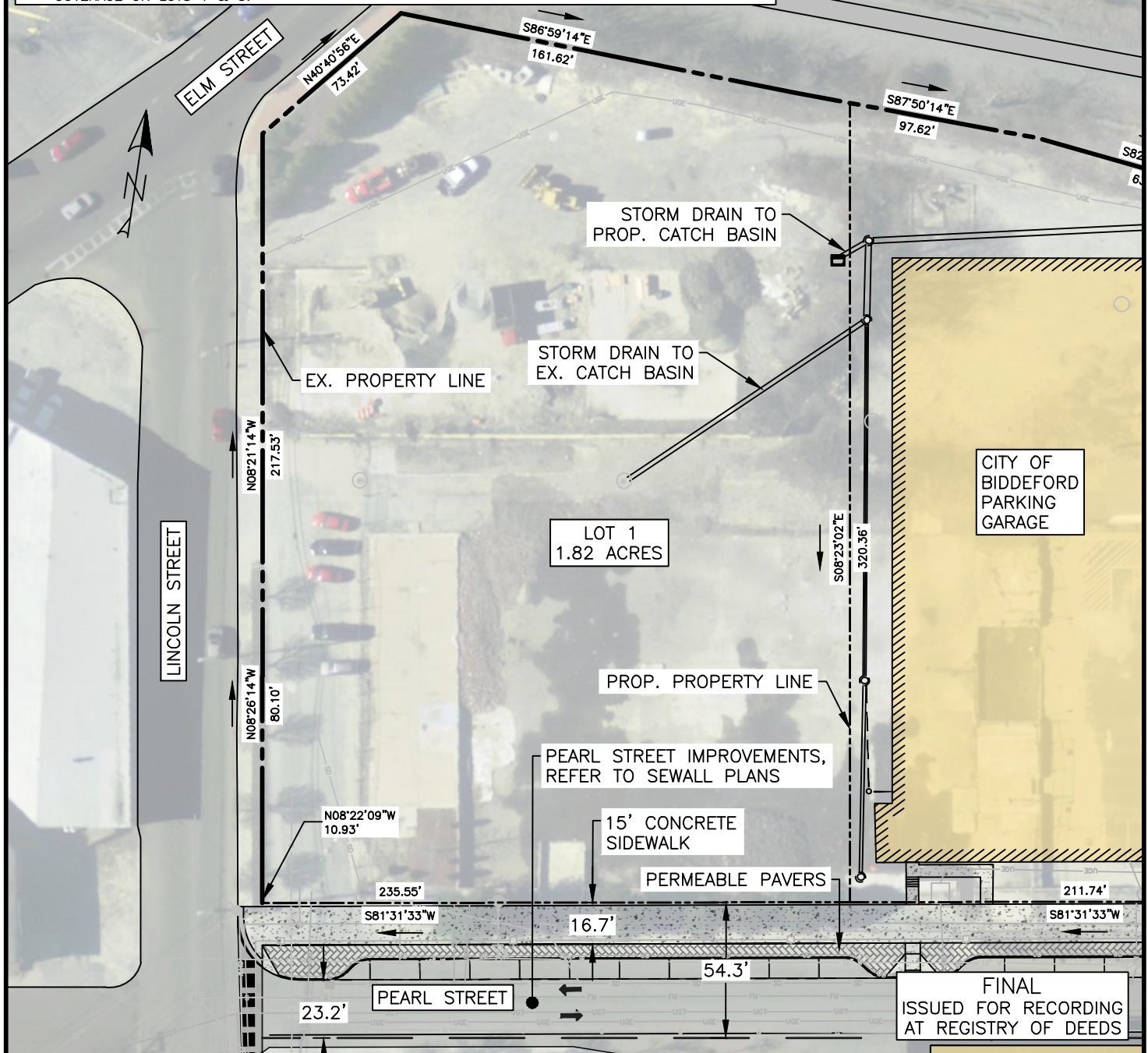
EX-A
ALSO REFER TO
EX-A1 & EX-A2

NOTES:

- CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - GAS
 - ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - TELEPHONE/COMMUNICATIONS/FIBER
 - STORMWATER
- NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
- NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
- LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
- LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
- SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

PLAN REFERENCES:

- "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
- "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
- EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
- "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015



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

DRAWING NO.
EX-A1

ALSO REFER TO EX-A & EX-A2

FILE: 1124_CIVIL
DATE: 11/12/20
UN: 1124
SCALE: 1" = 60'
DESIGN BY: PFH
DRAWN BY: ZMS
CHECKED BY: WHS



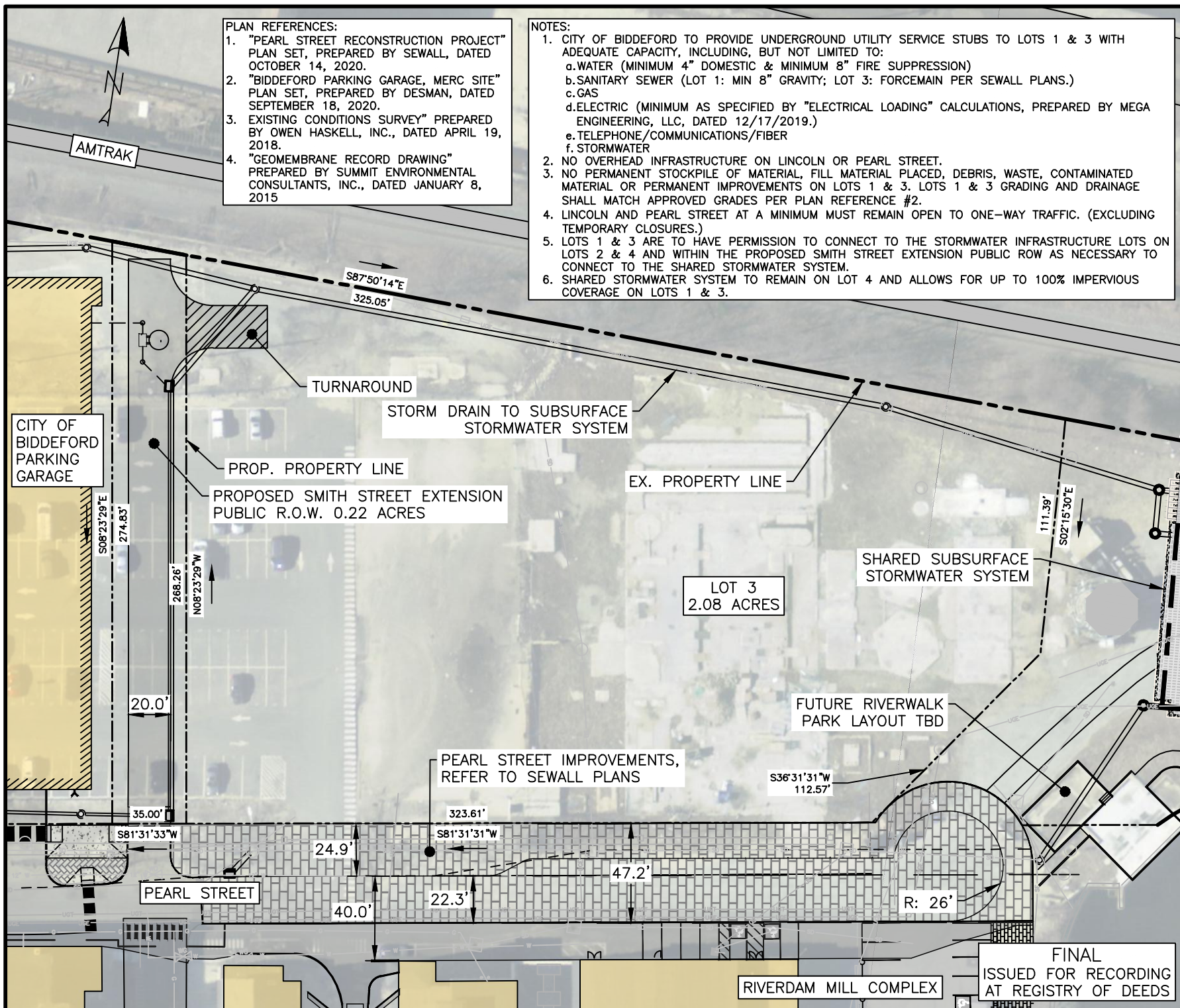
DRAWING NAME:
LOT 1 EXHIBIT

PROJECT NAME:
PEARL STREET & MERC REDEVELOPMENT

CLIENT:
FATHOM/BE FITLER, LLC
BIDDEFORD, MAINE

ISSUED FOR
JDA EXHIBIT

BY
DATE
PFH
11/12/20

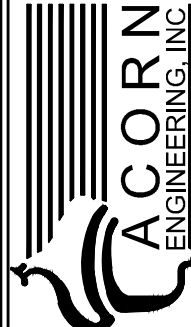


PLAN REFERENCES:

1. "PEARL STREET RECONSTRUCTION PROJECT" PLAN SET, PREPARED BY SEWALL, DATED OCTOBER 14, 2020.
2. "BIDDEFORD PARKING GARAGE, MERC SITE" PLAN SET, PREPARED BY DESMAN, DATED SEPTEMBER 18, 2020.
3. EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC., DATED APRIL 19, 2018.
4. "GEOMEMBRANE RECORD DRAWING" PREPARED BY SUMMIT ENVIRONMENTAL CONSULTANTS, INC., DATED JANUARY 8, 2015

NOTES:

1. CITY OF BIDDEFORD TO PROVIDE UNDERGROUND UTILITY SERVICE STUBS TO LOTS 1 & 3 WITH ADEQUATE CAPACITY, INCLUDING, BUT NOT LIMITED TO:
 - a. WATER (MINIMUM 4" DOMESTIC & MINIMUM 8" FIRE SUPPRESSION)
 - b. SANITARY SEWER (LOT 1: MIN 8" GRAVITY; LOT 3: FORCEMAIN PER SEWALL PLANS.)
 - c. GAS
 - d. ELECTRIC (MINIMUM AS SPECIFIED BY "ELECTRICAL LOADING" CALCULATIONS, PREPARED BY MEGA ENGINEERING, LLC, DATED 12/17/2019.)
 - e. TELEPHONE/COMMUNICATIONS/FIBER
 - f. STORMWATER
2. NO OVERHEAD INFRASTRUCTURE ON LINCOLN OR PEARL STREET.
3. NO PERMANENT STOCKPILE OF MATERIAL, FILL MATERIAL PLACED, DEBRIS, WASTE, CONTAMINATED MATERIAL OR PERMANENT IMPROVEMENTS ON LOTS 1 & 3. LOTS 1 & 3 GRADING AND DRAINAGE SHALL MATCH APPROVED GRADES PER PLAN REFERENCE #2.
4. LINCOLN AND PEARL STREET AT A MINIMUM MUST REMAIN OPEN TO ONE-WAY TRAFFIC. (EXCLUDING TEMPORARY CLOSURES.)
5. LOTS 1 & 3 ARE TO HAVE PERMISSION TO CONNECT TO THE STORMWATER INFRASTRUCTURE LOTS ON LOTS 2 & 4 AND WITHIN THE PROPOSED SMITH STREET EXTENSION PUBLIC ROW AS NECESSARY TO CONNECT TO THE SHARED STORMWATER SYSTEM.
6. SHARED STORMWATER SYSTEM TO REMAIN ON LOT 4 AND ALLOWS FOR UP TO 100% IMPERVIOUS COVERAGE ON LOTS 1 & 3.

ISSUED FOR	JDA EXHIBIT	17	958
DRAWING NAME: LOT 3 EXHIBIT			
PROJECT NAME: PEARL STREET & MERC REDEVELOPMENT			
CLIENT: FATHOM/BE FITLER, LLC BIDDEFORD, MAINE			
 ACORN ENGINEERING, INC. 65 HANOVER ST. PORTLAND, MAINE 04104 (207) 773-2655			
FILE:	1124_CIVIL		
JN:	1124		
SCALE:	1" = 60'		
DESIGN BY:	PFH		
DRAWN BY:	ZMS		
CHECKED BY:	WHS		
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.			
DRAWING NO.			
EX-A2			
ALSO REFER TO EX-A & EX-A1			

Section 6: Utilities Summary

The project proposes to utilize existing infrastructure to provide sufficient services for the proposed project. Please refer to the proposed utility plan (Sheet C-20) for additional information. Summaries of each utility are as follows:

Water:

It is our understanding that the City of Biddeford is finalizing designs of Pearl Street improvements, that include a proposed 8" D.I water service stub into Lot 3 that connects to the 12" watermain within Pearl Street. This project proposes to extend the 8" D.I. water main within the lot and provide 6" D.I. fire protection water services with a 6" gate valves and 4" domestic D.I. water services with 4" gate valves for each structure located on Lot 3. Please see the attached Utility Plan for more information.

Sewer:

It is our understanding that the City of Biddeford is finalizing designs of Pearl Street improvements, that include proposed 2" SDR 11 PVC force main sanitary forcemain sewer stub located on site. As part of the project the 2" force main will be extended within the parcel with connections to each buildings individual pump stations on Lot 3. Each 2" service will have a shut off and proposed sanitary sewer pump station that collects drainage/waste from each lots associated use, including, oil water separators, floor drains, elevator sumps, and residential loads. Additional pump station design will be provided during the preliminary application submittal. Please see the attached Utility Plan for more information.

Stormwater:

Each of the three proposed buildings will be constructed with roof drains and foundation drains. Stormwater runoff from the site will be directed to a series of catch basins and storm drain network which will tie into the existing storm drain installed parallel to the railroad tracks towards the rear of the parcel, ultimately discharging into the existing subsurface stormwater treatment system that was recently installed as part of the City Garage project and located on Lot 4. The subsurface stormwater system was designed to convey and treat stormwater runoff from the overall 3 Lincoln Street parcel and had obtained a Maine DEP Stormwater Law permit (#L-10282-NJ-A-N). As the designs for Lot 3 progress, an amendment to the DEP Stormwater Permit will be required to show the proposed uses on Lot 3 will remain below the previously authorized redevelopment pollutant rankings.

Electric:

It is our understanding is that the City of Biddeford is finalizing designs of Pearl Street improvements, that include proposed underground electric stub that connects to the main within Pearl Street. As part of this project an underground electric service is proposed to extend the stub and run to underground power to each building (A, B, and C) with installation of individual pad mounted transformers. Please see the attached Utility Plan for more information.



Cable/Telephone:

It is our understanding is that City of Biddeford is finalizing designs of Pearl Street improvements, that include proposed telecom/cable stubs that connect to the main within Pearl Street. As part of this project underground telecom/cable services are proposed to tie into the proposed stub and service each building (A, B, and C). A pedestal is proposed at the end of each service line within 5' of each respective building. Please see the attached Utility Plan for more information.

Gas:

It is our understanding is that the City of Biddeford is finalizing designs of Pearl Street improvements, that include proposed gas stub that connects to the main within Pearl Street. As part of this project a gas main is proposed to tie into the existing stub and have service connections for proposed buildings A, B, and C.

In addition to the summaries above, Ability to serve letters have been sent out to the respective utility companies. Responses will be provided upon receipt and submitted to the Planning Department within the subsequent application.





Acorn Engineering
Attn: Peter F. Heil P.E.
65 Hanover St.
Portland Maine, 04101

August 23, 2021

Re: Ability to Serve Redevelopment of Pearl Street Lot 3, Biddeford

Dear Mr. Heil:

Thank you for your interest in using natural gas for the above referenced project. This letter confirms that natural gas can be made available from our distribution system to serve your proposed project.

Any improvements to the existing distribution system that are necessary to provide this service, as well as the design of the gas system in the project itself, will be established as the overall design and scope of your project progresses.

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

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

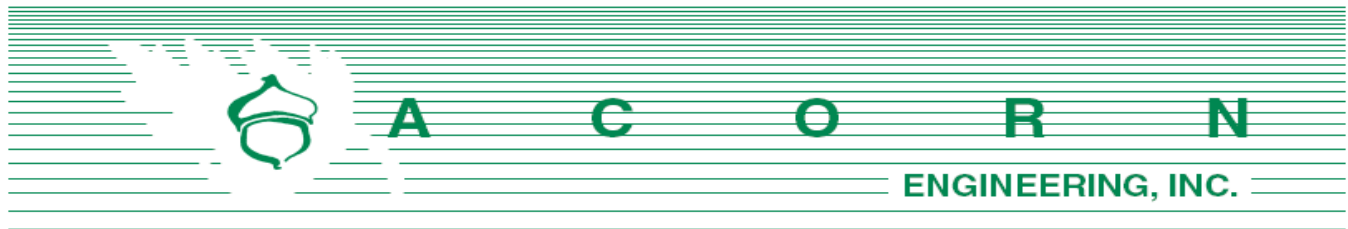
Sincerely,

Bridget L. Harmon
Business Development
harmon@unitil.com
(T) 207-541-2536 (F) 207-541-2536

Section 7: Public Safety Letter of Approvals

Please refer to the attached letters that were sent to the Fire and Police Departments on September 14, 2021. Responses from the Fire and Police Departments will be provided to the Planning Department upon receipt.





Biddeford Fire Dept.
Attn: Mr. Scott Gagne, Chief of Fire Department
152 Alfred St
Biddeford, ME 04005

September 14, 2021

Subject: Redevelopment 3 Lincoln Street, Lot 3, Biddeford
Re: Letter of Approval

Mr. Gagne:

On behalf of 3 Lincoln, LLC, we are pleased to submit the following request for a letter of approval as required by the City of Biddeford Subdivision & Site Plan application. The parcel is mapped as Map: 71, Block 2, and is in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to develop Lot 3 into three (3) separate lots each with its own associated infrastructure, including a 83-unit residential/mixed use building on Lot 3A, a 108-unit residential building on Lot 3B, and a commercial/restaurant building with approximately 298 seats total, on Lot 3C.

From a fire protection standpoint, it is our understanding that the City of Biddeford is finalizing designs of Pearl Street improvements that include the existing fire hydrant to be removed and replaced along the frontage of the proposed Lot 3, a proposed 8" D.I fire protection service stub, and a 4" domestic service stub that connects to the 12" watermain within Pearl Street. The proposed project anticipates extending the 8" D.I. fire protection main and the 4" domestic main within Lot 3 and provide a 6" D.I. fire protection water service with a 6" gate valve and a 4" domestic D.I. water service with 4" gate valve for each structure located on Lots 3A, 3B, and 3C.

Please let me know if you have any questions or if you would like additional information from the sprinkler designer or code summaries from the architect.

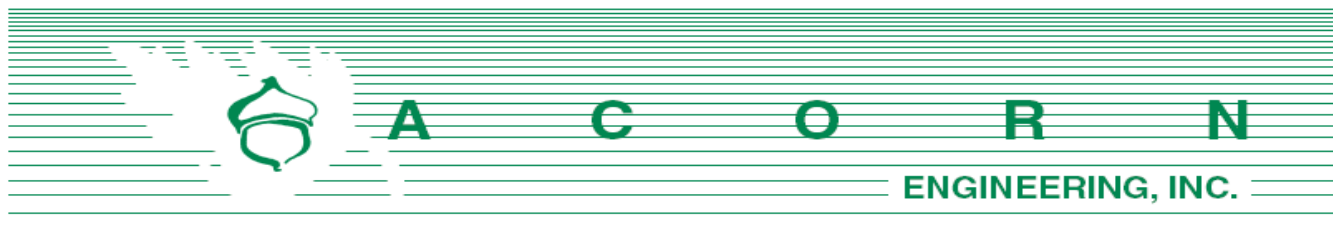
Sincerely,

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

Sincerely,

Peter F. Heil, P.E.
Project Manager
Acorn Engineering, Inc.





Biddeford Police Dept.
Attn: Roger P. Beaupre, Chief of Police
39 Alfred St
Biddeford, ME 04005

September 14, 2021

Subject: Pearl Street Redevelopment
Re: Letter of Approval

Mr. Beaupre:

On behalf of 3 Lincoln, LLC, we are pleased to submit the following request for a letter of approval as required by the City of Biddeford Subdivision & Site Plan application. The parcel is mapped as Map: 71, Block 2, and is in the Main Street Revitalization District – High Density / Mixed-Use (MSRD-3), General Development (G-1) Shoreland Overlay Zoning Districts. The project proposes to develop Lot 3 into three (3) separate lots each with its own associated infrastructure, including a 83-unit residential/mixed use building on Lot 3A, a 108-unit residential building on Lot 3B, and a commercial/restaurant building with approximately 298 seats total, on Lot 3C.

The project anticipates multiple wall pack lighting fixtures along the new buildings, thus increasing nighttime visibility for patrons and residents. Furthermore, the additional “eyes on the street” created by the proposed restaurant and renters of the 191 units on Lot 3A and 3B will provide another layer of security on Pearl Street and the abutting properties.

Accessways for emergency vehicles will be maintained and generally provide ample opportunity to access the site. We envision the newly developed Lot 3 functioning as a small community and overall feel the proposed project will improve public safety when compared to the existing condition by ensuring adequate lighting and increasing the occupancy of the neighborhood.

Please do not hesitate to contact me for any questions or clarifications.

Sincerely,

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

Sincerely,

Peter F. Heil, P.E.
Project Manager
Acorn Engineering, Inc.



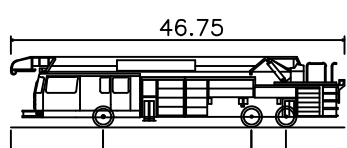
ACORN Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

GENERAL NOTES:

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF BIDDEFORD STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF BIDDEFORD STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.

PLAN REFERENCES:

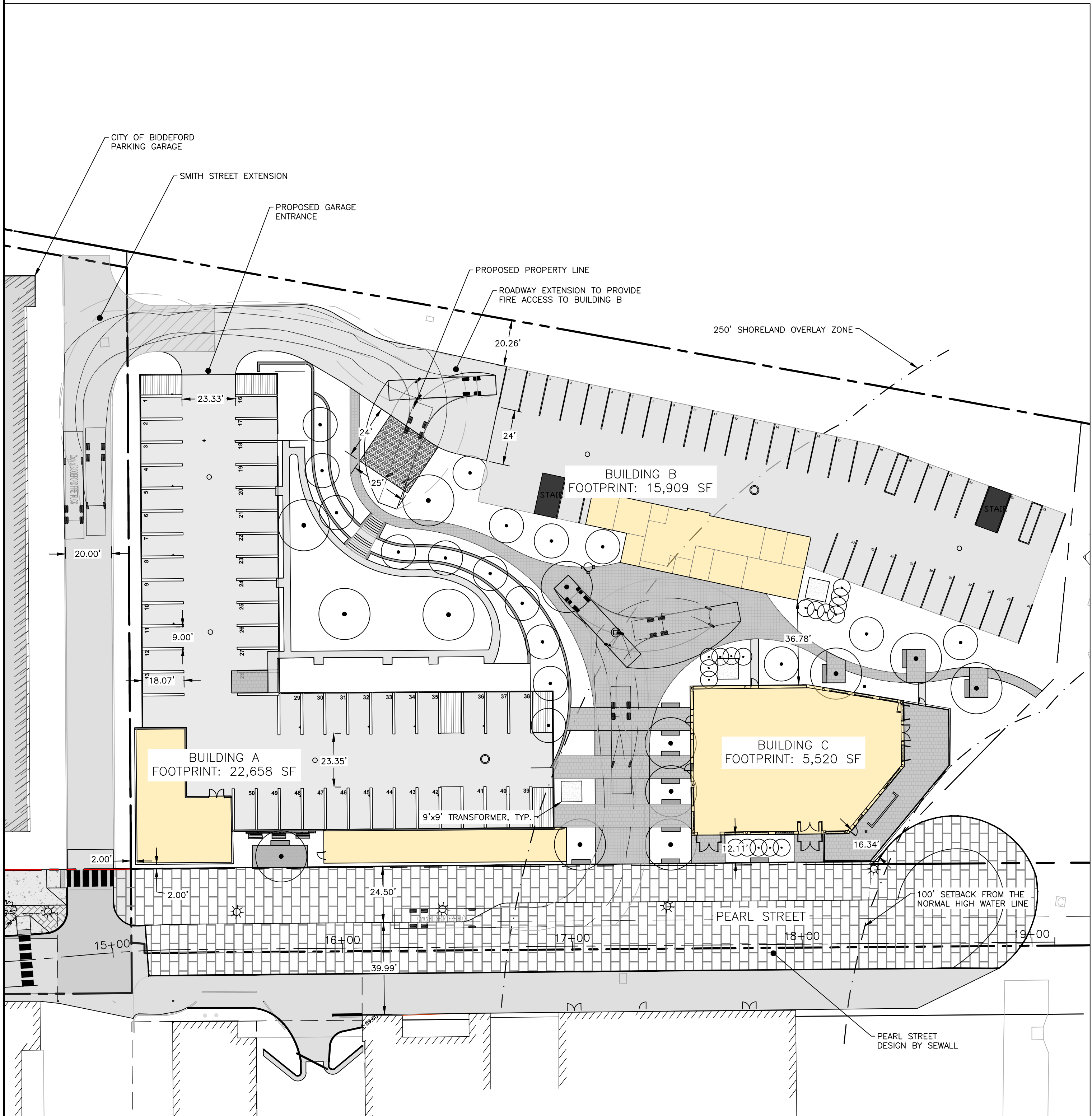
1. PLAN TITLED "BIDDEFORD PARKING GARAGE, MERC SITE" PREPARED BY DESMAN DESIGN MANAGEMENT DATED 12/20/2019 AND REVISED 1/14/2020.
2. PLAN TITLED "PEARL STREET RECONSTRUCTION PROJECT" PREPARED BY SEWALL DATED 10/14/2020
3. PLAN TITLED "EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC. DATED 8/5/2021



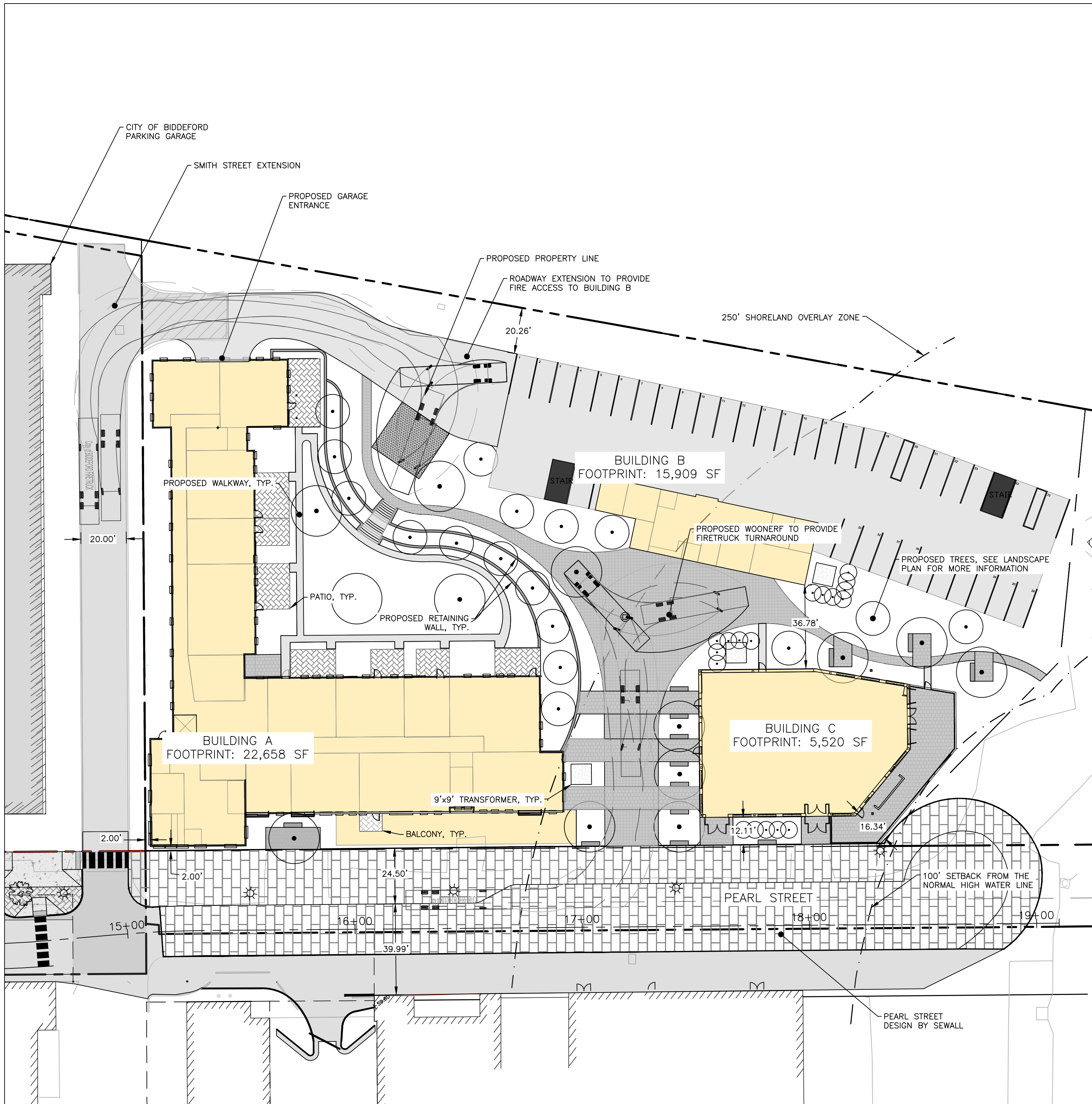
BIDDEFORD FIRETRUCK
Overall Length 46.750ft
Overall Width 8.500ft
Overall Body Height 9.851ft
Min Body Ground Clearance 0.920ft
Track Width 6.333ft
Lock-to-lock time 6.00s
Max Wheel Angle 45.00°

PARKING SUMMARY			
USE	UNITS	SPACES REQUIRED	PROPOSED
BUILDING A	83	1 SPACE / DWELLING UNIT (EXCLUSIVELY FOR & OCCUPANCY RESTRICTED) = 83 SPACES	50
-	-	INCREASE OF 5% (OF 83 SPACES) TO ALLOW FOR VISITORS = 5 SPACES	-
BUILDING B	108	1 SPACE / DWELLING UNIT (EXCLUSIVELY FOR & OCCUPANCY RESTRICTED) = 108 SPACES	37
-	-	INCREASE OF 5% (OF 108 SPACES) TO ALLOW FOR VISITORS = 6 SPACES	-
BUILDING C	170 SEATS & 128 SEATS	1 SPACE / 3 SEATS = 100 SPACES	N/A
ADA (8'X18')	-	-	TBD
STANDARD (9'X18')	-	-	TBD
TOTAL SPACES	-	302	87
ADDITIONAL SPACES TO BE PROVIDED IN PARKING GARAGE	-	-	215

LOT 3 SPACE AND BULK STANDARDS			
ZONE:	REQUIRED (MSRD3)	REQUIRED (GD-1)	PROPOSED LOT 3
MINIMUM LOT SIZE	NONE	NONE (WITHIN EX. STRUCTURES ONLY)	90,655
MINIMUM STREET FRONTAGE	NONE	-	322'
MINIMUM FRONT YARD SETBACK	NONE	-	2.00'
MINIMUM REAR YARD SETBACK	NONE	-	20.26'
MINIMUM SIDE YARD SETBACK	NONE	-	2.00'
MINIMUM BUILDING HEIGHT	MIN. 2 STORIES OR 26 FEET	-	TBD
MINIMUM SHORE FRONTAGE	-	NONE (WITHIN EX. STRUCTURES ONLY)	N/A
SACO RIVER SETBACK (INCLUDING PARKING AREAS)	-	100' FROM NORMAL HIGH-WATER LINE	115.10'
SACO RIVER NO-CUT ZONE (SRCC)	-	75'	N/A
MAX LOT COVERAGE	100%	70% WITHIN SHORELAND ZONE	SHORELAND: 57.2%



GARAGE FLOOR PLAN
1" = 30'



SITE PLAN
1" = 30'

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
SKETCH PLAN

BY
DATE
10/6/21

SITE PLAN

PROJECT NAME/ADDRESS
PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

CLIENT/OWNER OF RECORD
3 LINCOLN, LLC
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101

DRAWING NAME

ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04101
(207) 775-2655

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

FILE: 1124_DETAILS

JN: 1124

SCALE: AS NOTED

DESIGNED BY: PFH

DRAWN BY: ZMS

CHECKED BY: WHS

STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER

DRAWING NO.
C-10

Section 8: Solid Waste

The property management company or owner shall be responsible for managing and contracting with a private hauler to remove solid waste. The expectation is that solid waste would be collected weekly by the private hauler. Solid waste containers will be located internally within each building.

Solid waste produced by the redevelopment is predictable in that it will generate a fair amount of recyclable material such as cardboard and plastic due to residents' daily needs. Garbage generation is anticipated to be relatively low when compared to a typical residential use given the urban environment that provides amenities and services in proximity to the living space.



Section 9: Photographs



Figure 1. Standing east of existing parking garage, facing east toward the proposed Lot 3.



Figure 2. Standing east of existing parking garage, facing south toward Pearl Street. See Lot 3 on the left and Lot 2 on the right.





Figure 3. Standing east of existing parking garage, facing east toward Lot 3.



Figure 4. Standing east of existing parking garage, facing southeast toward Lot 3.



Figure 5. Standing east of existing parking garage, facing northwest toward the rear of Lot 3. See 1 Gooch Street building in background.



Figure 6. Standing near base of existing Cell Tower (Lot 4), facing west toward Lot 3 and parking garage (Lot 2).

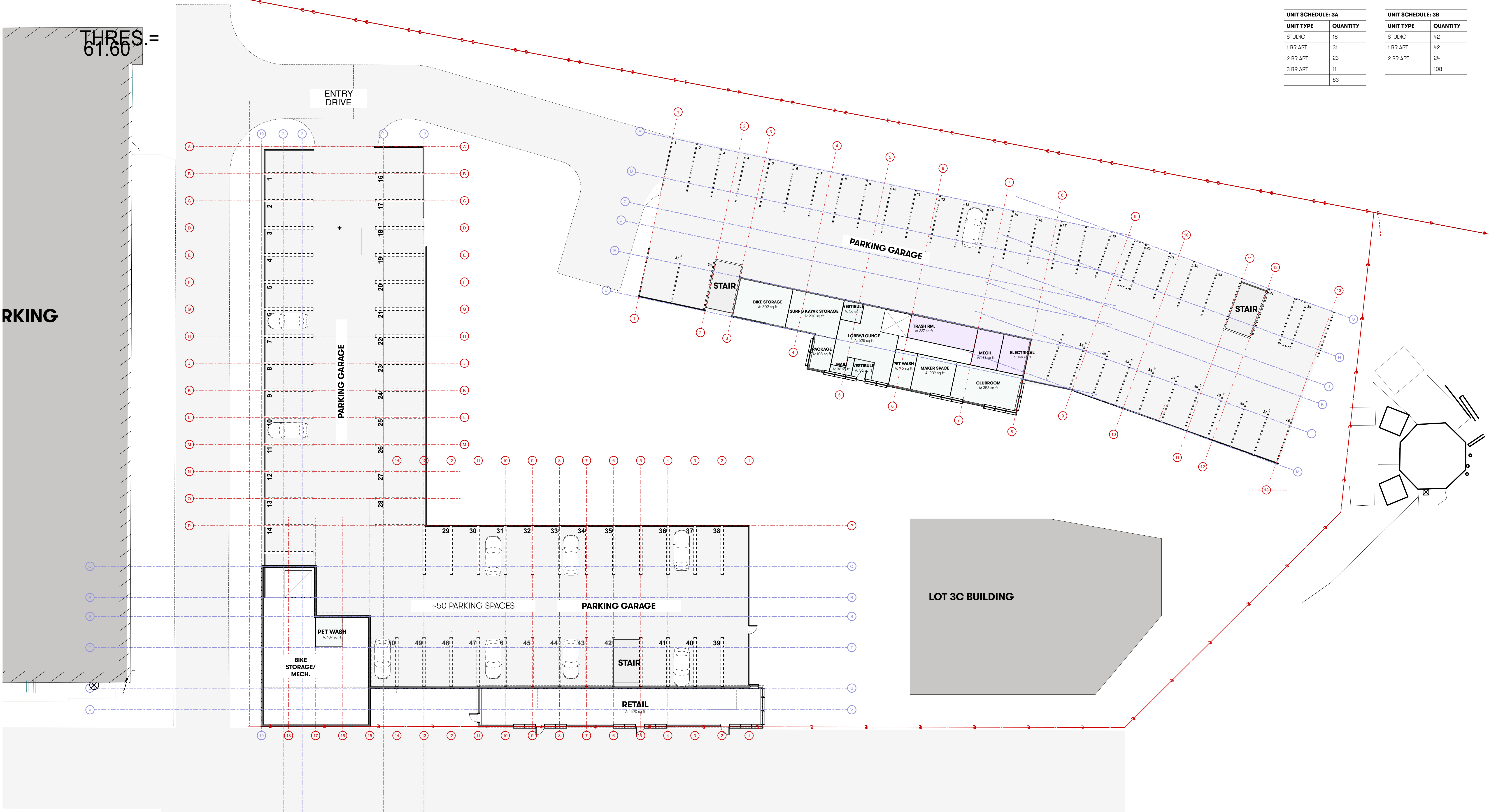


Figure 7. Standing near base of existing Cell Tower east of Lot 3, facing northwest toward Cell Tower and partial rear of lot 3.

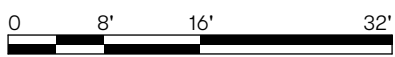


UNIT SCHEDULE: 3A	
UNIT TYPE	QUANTITY
STUDIO	18
1 BR APT	31
2 BR APT	23
3 BR APT	11
	83

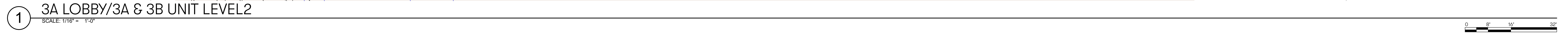
UNIT SCHEDULE: 3B	
UNIT TYPE	QUANTITY
STUDIO	42
1 BR APT	42
2 BR APT	24
	108



1 3A PARKING & RETAIL/3B PARKING & LOBBY
SCALE: 1/16" = 1'-0"



UNIT SCHEDULE: 3B	
UNIT TYPE	QUANTITY
STUDIO	42
1 BR APT	42
2 BR APT	24
	108

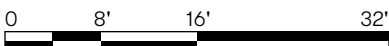


UNIT SCHEDULE: 3A	
UNIT TYPE	QUANTITY
STUDIO	18
1 BR APT	31
2 BR APT	23
3 BR APT	11
	83

UNIT SCHEDULE: 3B	
UNIT TYPE	QUANTITY
STUDIO	42
1 BR APT	42
2 BR APT	24
	108



1 3A & 3B UPPER LEVELS
SCALE: 1/16" = 1'-0"



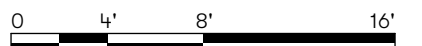
Upper Levels

PEARL STREET LOFTS





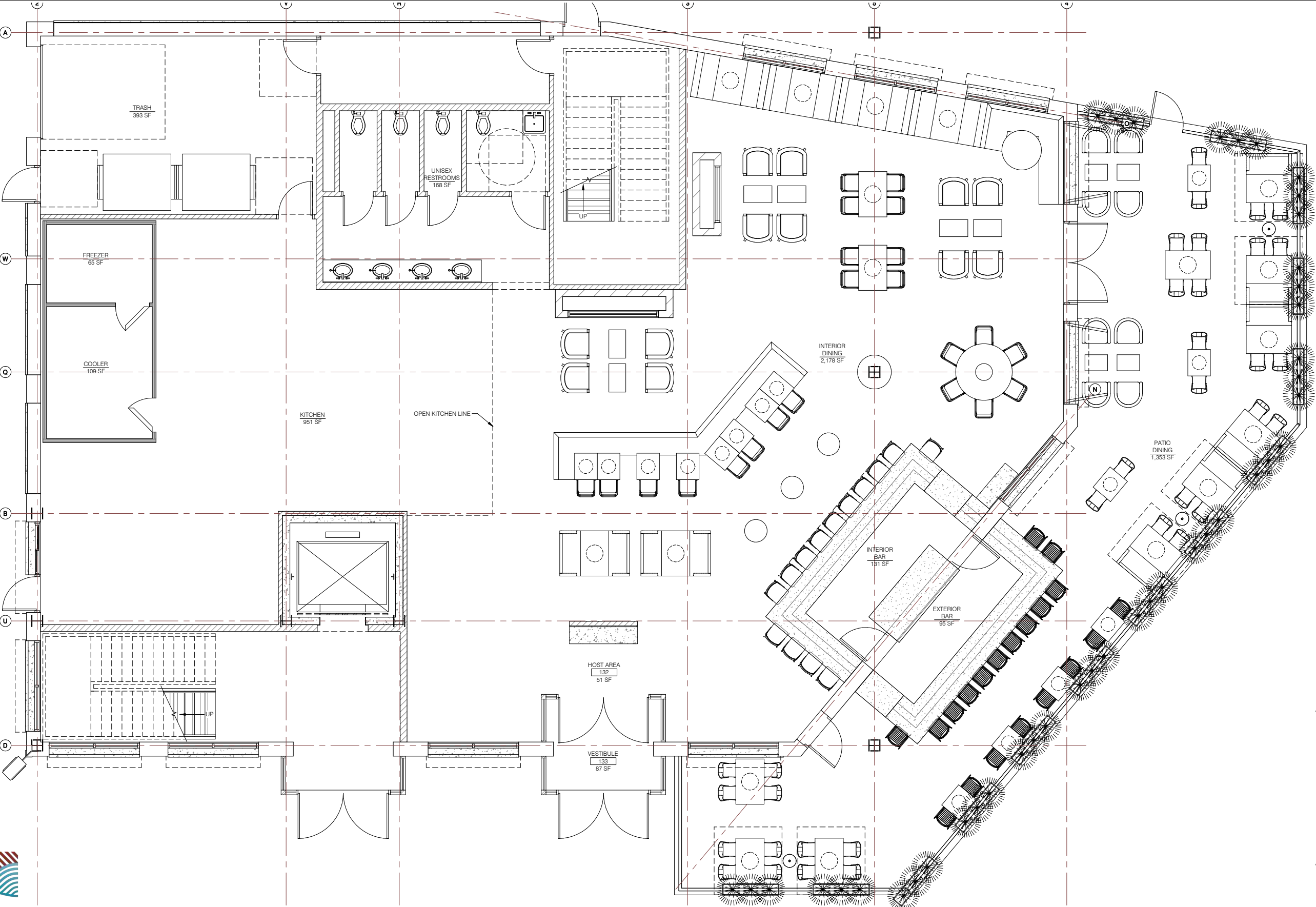
1 COURTYARD ELEVATION - LOT 3A
SCALE: 1/8" = 1'-0"





Main Level Floor Plan

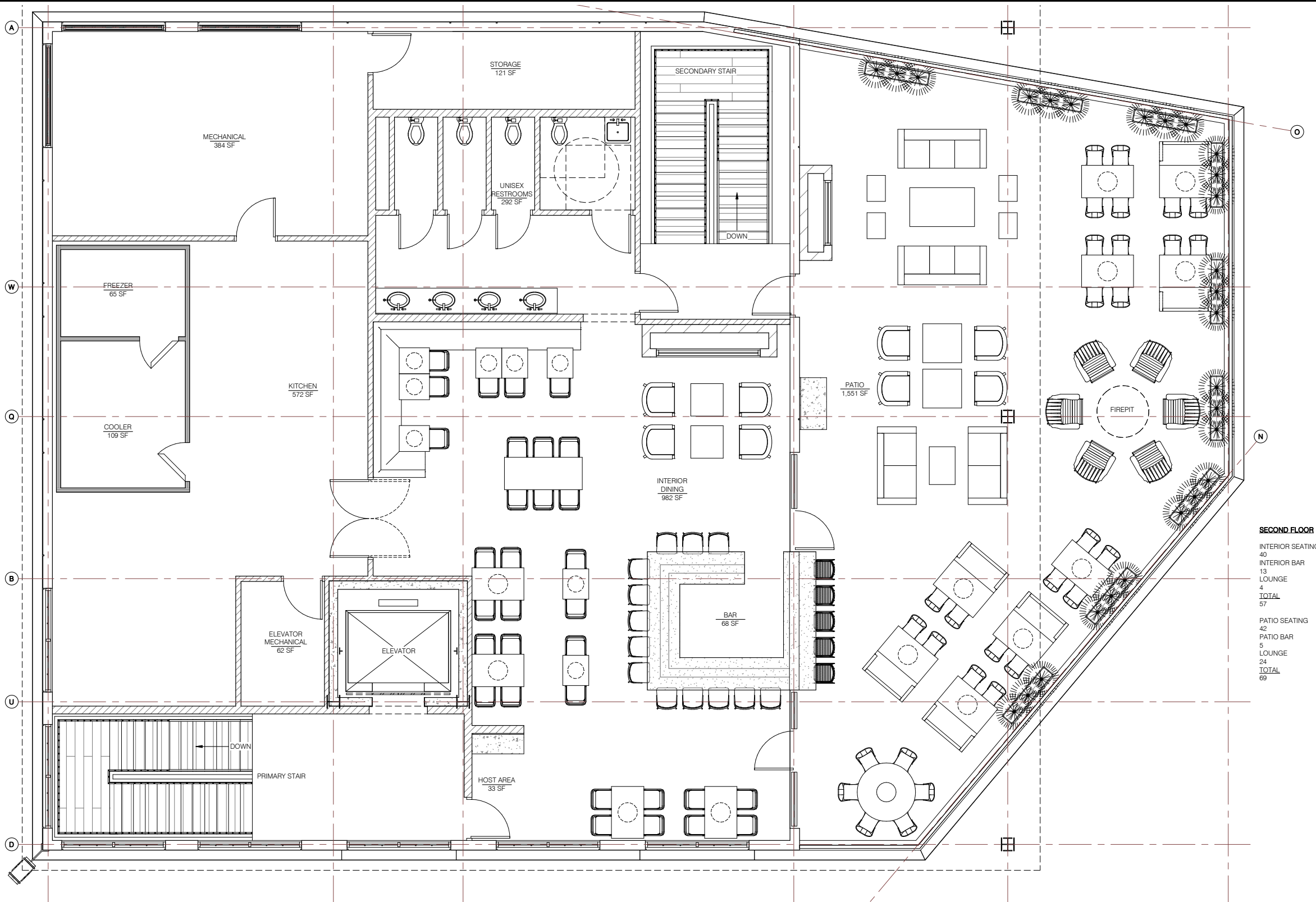
JULY 22, 2021
BIDDEFORD, ME



SEAT COUNT	
LOWER LEVEL	
BAR	14
DINING	82
PATIO BAR	12
PATIO DINING	62
TOTAL TENANT 1	170
UPPER LEVEL	
BAR	13
DINING	44
PATIO BAR	5
PATIO DINING	66
TOTAL TENANT 2	128

Upper Level Floor Plan

JULY 22, 2021
BIDDEFORD, ME



SECOND FLOOR

INTERIOR SEATING	40
INTERIOR BAR	13
LOUNGE	4
TOTAL	57
PATIO SEATING	42
PATIO BAR	5
LOUNGE	24
TOTAL	69

SEAT COUNT	
LOWER LEVEL	
BAR	14
DINING	82
PATIO BAR	12
PATIO DINING	62

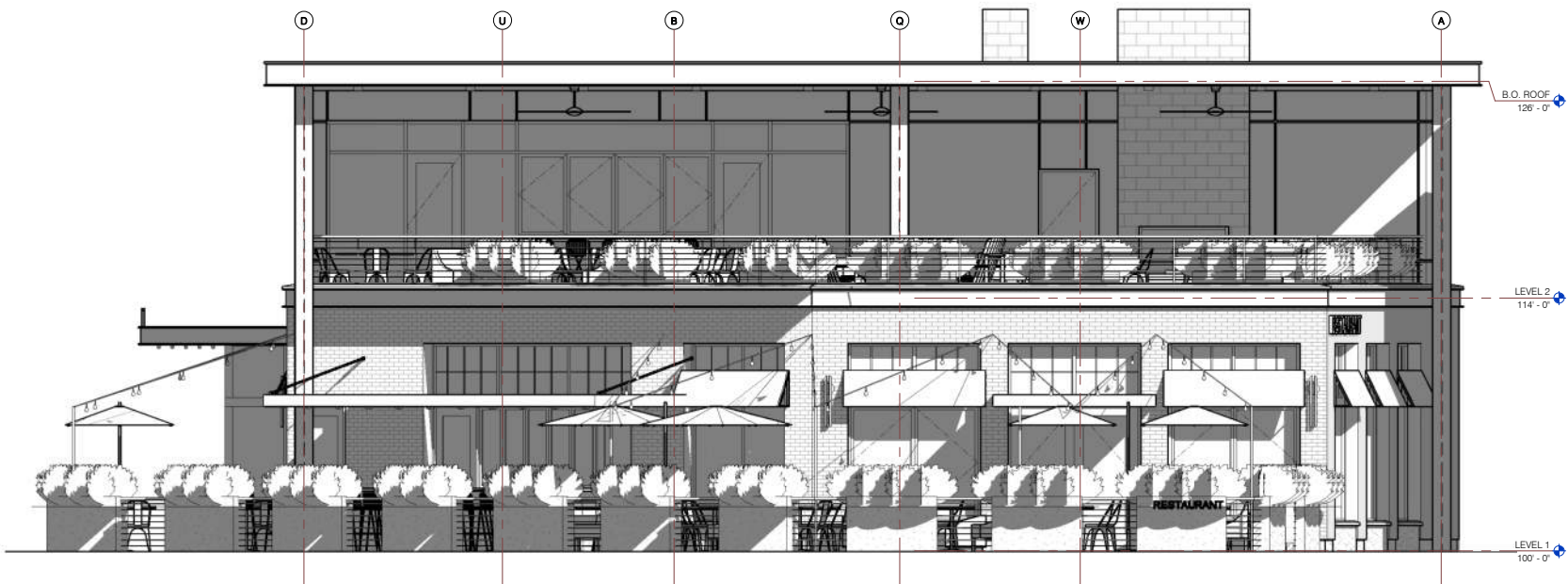
TOTAL TENANT 1 170

UPPER LEVEL	
BAR	13
DINING	44
PATIO BAR	5
PATIO DINING	66

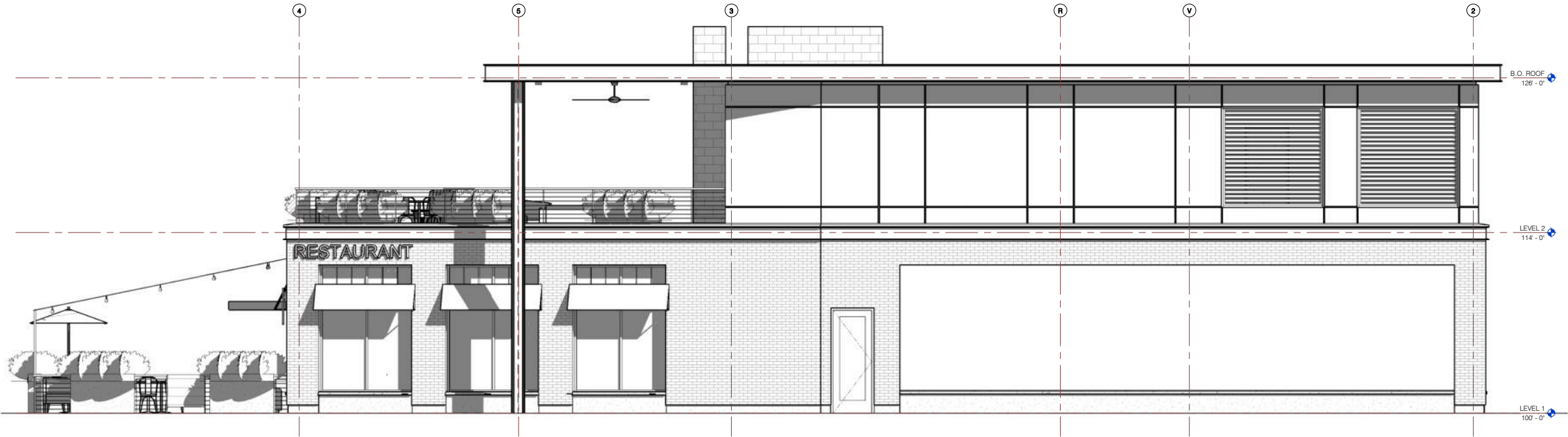
TOTAL TENANT 2 128



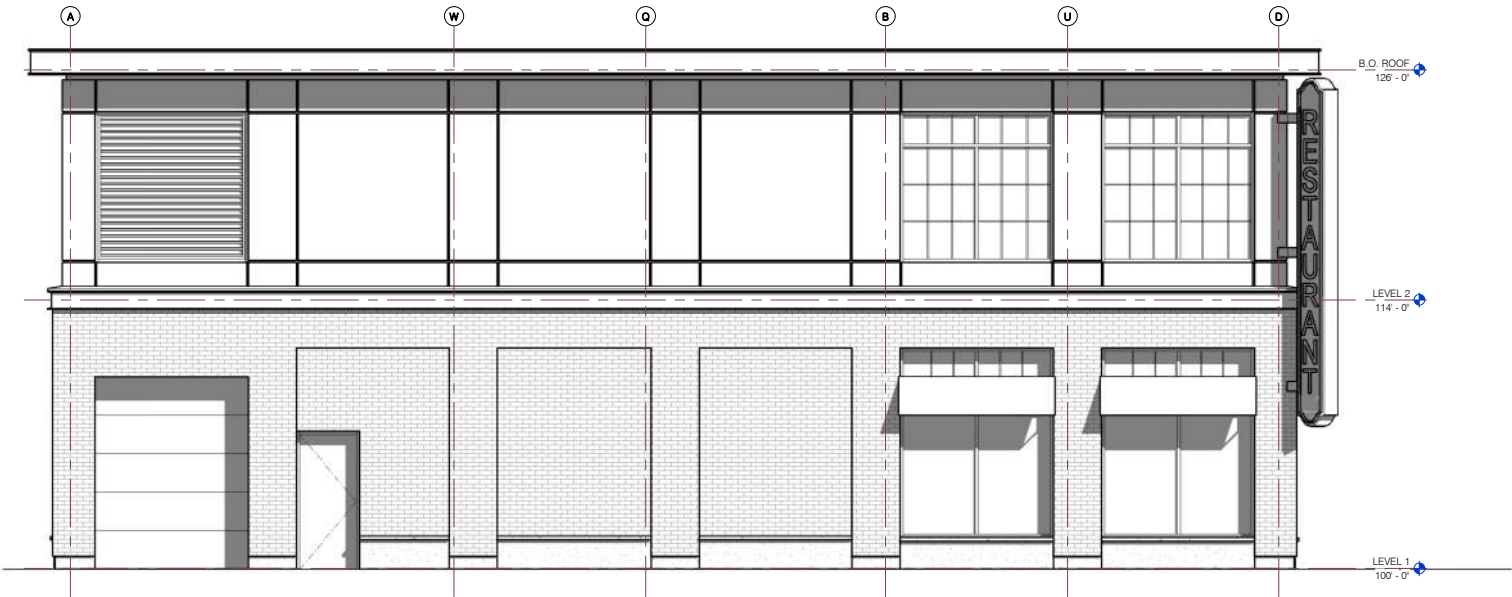
South Elevation



East Elevation



North Elevation - with Mural Opportunity



West Elevation

PEARL STREET LOT 3 REDEVELOPMENT

3 LINCOLN, LLC
BIDDEFORD, ME

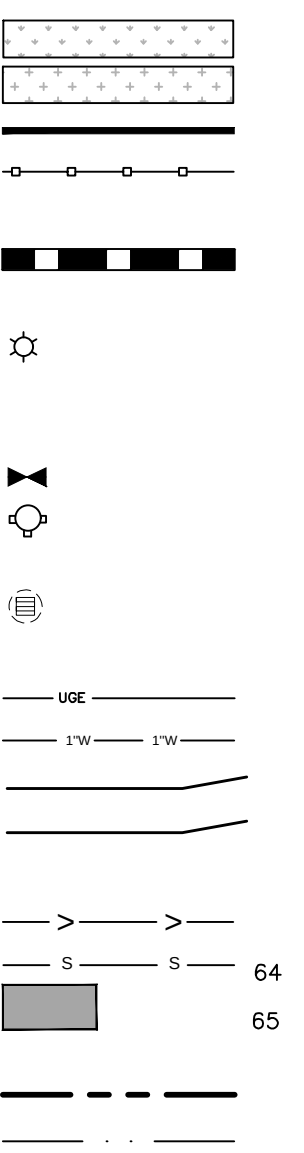
LEGEND

EXISTING

REFER TO THE
EXISTING
CONDITIONS PLAN
FOR ADDITIONAL
INFORMATION



PROPOSED



INDEX

- C-01 COVER SHEET & LEGEND
- C-02 GENERAL NOTES
- EX EXISTING CONDITIONS SURVEY DATED 8/20/21 & REVISED 9/29/21 BY OWEN HASKELL, INC.
- C-10 SITE PLAN
- C-11 SUBDIVISION PLAT
- C-20 UTILITY PLAN
- C-40 SITE DETAILS - 1
- C-41 SITE DETAILS - 2
- C-42 UTILITY DETAILS - 1
- C-43 UTILITY DETAILS - 2
- C-44 UTILITY DETAILS - 3
- C-45 DRAINAGE DETAILS
- C-46 EROSION CONTROL DETAILS & NOTES

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

UTILITIES

SEWER:

DEPARTMENT OF PUBLIC WORKS (DPW)
205 MAIN STREET
BIDDEFORD, MAINE 04005
CONTACT: TOM MILLIGAN, P.E.
(207) 284-9118



WATER:

MAINE WATER COMPANY
93 INDUSTRIAL PARK ROAD
SACO, MAINE 04072
CONTACT: MARCUS KNIPP
(207) 282-1543



ELECTRIC:

CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: JAMIE COUGH
(207) 207-842-2367



TELEPHONE:

CONSOLIDATED COMMUNICATIONS
45 FOREST AVENUE
PORTLAND, MAINE 04101
CONTACT: JAY CUNHA
(207) 745-9363



CABLE:

SPECTRUM CABLE
118 JOHNSON ROAD
PORTLAND, MAINE 04102
CONTACT: DAN MINCHEV
(207) 253-2334



NATURAL GAS:

UNITIL SERVICE CORP.
376 RIVERSIDE INDUSTRIAL PARKWAY
PORTLAND, MAINE 04103
CONTACT: BRIDGET HARMON
(207) 541-2505



PROJECT TEAM

DEVELOPER:

3 LINCOLN, LLC
PORTLAND, MAINE
CONTACT: JIM BRADY
(207) 317-2818

ARCHITECT:

KAPLAN THOMPSON ARCHITECTS
PORTLAND, MAINE
CONTACT: DANIELLE FOISY, RA
(207) 842-2888



SURVEYOR:

OWEN HASKELL, INC.
FALMOUTH, MAINE
CONTACT: RANDY LOUBIER, PLS
(207) 774-0424



OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS

CIVIL ENGINEER:

ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: PETER F HEIL, P.E.
(207) 775-2655



LANDSCAPE ARCHITECT

SOREN DENIORD DESIGN STUDIO
PORTLAND, MAINE
CONTACT: SOREN DENIORD, PLA
(207) 400-2450



VICINITY MAP

NTS

ABBREVIATIONS

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION

APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
HDPE	HIGH DENSITY POLY ETHYLENE
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDEP	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
M.E.P	MECHANICAL, ELECTRICAL, PLUMBING DESIGNER
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
VIF	VERIFY IN FIELD

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
SKETCH PLAN

BY
DATE
PFH
10/6/21

COVER SHEET & LEGEND

DRAWING NAME:
PROJECT NAME/ADDRESS:
PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

CLIENT/OWNER OF RECORD:
3 LINCOLN, LLC
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101

ACORN ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04101
(207) 775-2655

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

FILE: 1124_DETAILS

JN: 1124

SCALE: AS NOTED

DESIGNED BY: PFH

DRAWN BY: ZMS

CHECKED BY: WHS

STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER

10/6/21

DRAWING NO.

C-01

- THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE (IF APPLICABLE), ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF BIDDEFORD AND SERVING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN .DWG FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD CAPABILITY IS NOT AVAILABLE, EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED EXISTING CONDITIONS SURVEY BY OWEN HASKELL, DATED 8/5/21 & REVISED ON 9/29/21.
8. SUBSURFACE DATA TO BE INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REVIEW THE REPORT PRIOR TO SUBMITTING A BID.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE BIDDEFORD DEPARTMENT OF PUBLIC WORKS AND ENGINEERING DEPARTMENT ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
10. CONSTRUCTION MANAGEMENT PLAN AND SITE LOGISTICS NARRATIVE SHALL BE REFERRED TO FOR ANTICIPATED PROJECT SCHEDULE AND CLOSURES. TRAFFIC CONTROL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
12. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
13. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL BE COMPLETED AT A MINIMUM FOR ADJACENT STRUCTURES AND STRONGLY RECOMMENDED FOR STRUCTURES DIRECTLY ACROSS THE SITE ALONG PEARL STREET. A COPY OF THE SURVEY SHOULD BE PROVIDED TO THE OWNER. DOCUMENT WITH PICTURES AT A MINIMUM.
14. THE CONTRACTOR SHALL PROVIDE A GPS MODEL OF THE PROPERTY TO PROVIDE TO ACORN ENGINEERING.
15. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH THE ENGINEER, ACORN ENGINEERING INC. (ACORN), IF ANY.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES AND SHRUBS ON THE PROJECT WHICH ARE NOT TO BE REMOVED.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING, OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY. REMOVAL OF WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE WARRANTY PERIOD. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO ACORN TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP, ERECTION, AND CONSTRUCTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION FOR ACORN'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY ACORN OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
9. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
10. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED. PRIOR TO BACKFILLING, CONCRETE SHALL BE CURED PER STRUCTURAL ENGINEER'S SPECIFICATIONS.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE, IF APPLICABLE.
12. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
13. ACORN BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND SITE OBSERVATION VISITS DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.
14. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTION IN ACCORDANCE WITH SUBPART P OF 29 CRF PART 1926.650--.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).
15. ALL TRENCH PAVEMENT REPAIR SHALL BE COMPLETED WITH THE USE OF A STREET PAYER WITH A SCREED WIDTH CAPABLE OF SPANNING THE FULL WIDTH OF THE TRENCH UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN ENGINEERING.
3. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.

4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
- 5.1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
- 5.2. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.
- 5.3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.
- 5.4. SPECIAL INSPECTOR SHALL BE EMPLOYED BY OWNER AND COORDINATED BY THE CONTRACTOR.

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO ITS ORIGINAL LOCATION AND ELEVATION BY A LICENSED PROFESSIONAL LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITIONS SHALL BE IMMEDIATELY REPORTED TO ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
3. SIGNAGE, STRIPING, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF BIDDEFORD, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE AND TO LOCATE PROPOSED STRUCTURE CORNERS.
6. CONTRACTOR TO ENSURE THAT ACCESS, INCLUDING BUT NOT LIMITED TO WALKWAYS, DRIVEWAYS, AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND AVAILABLE FOR USE AT ALL TIMES.

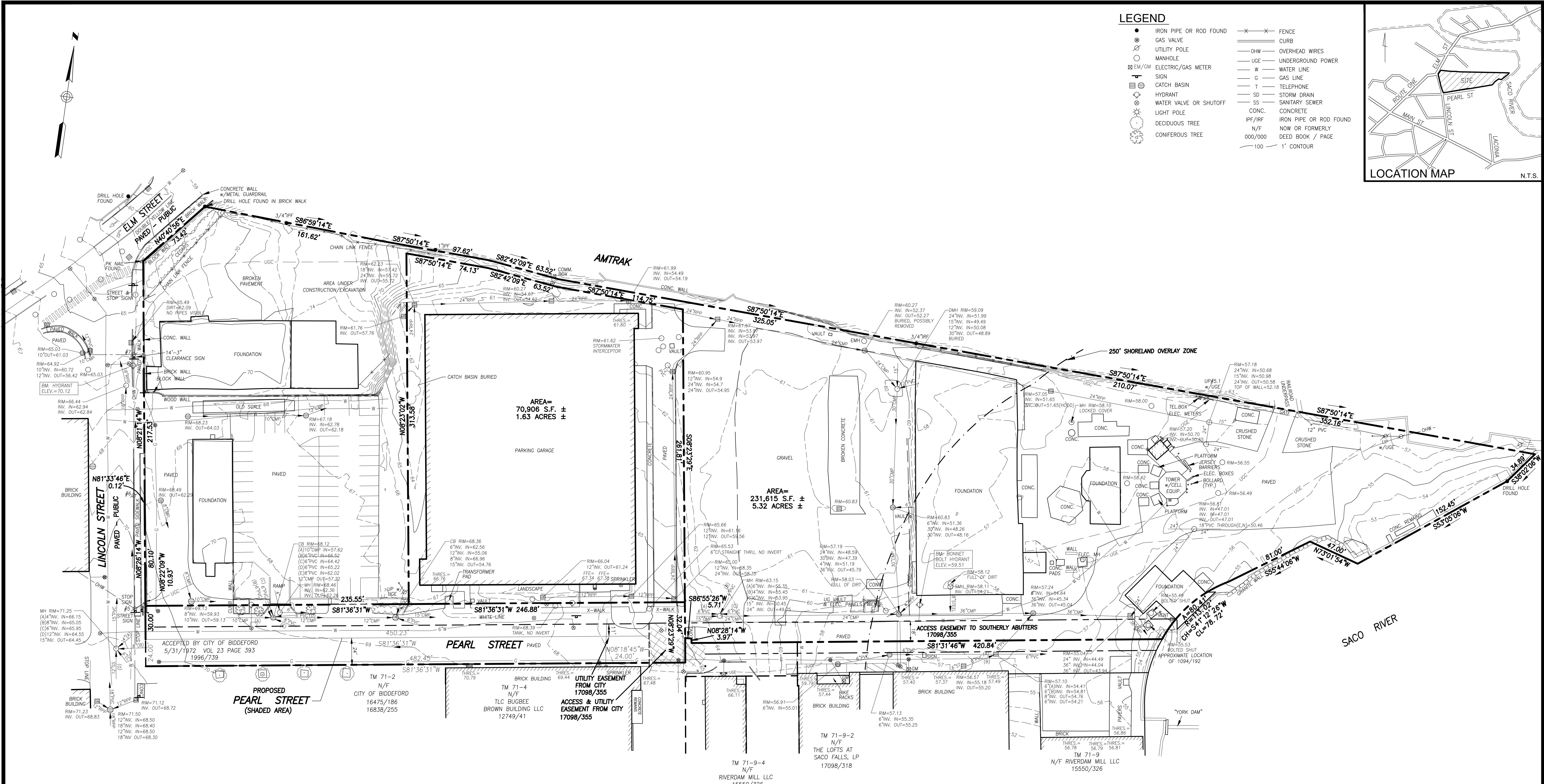
1. THIS PROJECT IS SUBJECT TO THE MAJOR SUBDIVISION AND SITE PLAN PERMIT FROM THE CITY OF BIDDEFORD, PERMIT FROM THE SACO RIVER CORRIDOR COMMISSION, A MAINE DEP STORMWATER PERMIT, AND A TRAFFIC MOVEMENT PERMIT FROM THE MAINE DOT.
2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.
3. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A STREET OPENING PERMIT FROM THE CITY OF BIDDEFORD. ADDITIONALLY, COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS.

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM (MEETS THE REQUIREMENTS WITHIN SECTION 615 OF THE MDOT STANDARD SPECIFICATIONS, MOST RECENT VERSION AND IS FREE OF TRACEABLE AMOUNTS OF CONTAMINANTS) SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY STRIPPED TOPSOIL WILL BE ACCEPTABLE FOR REUSE WITH THEIR ESTIMATE.
2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING. DEWATERING SHALL INCLUDE TREATMENT OF SILT THROUGH THE USE OF A DIRTBAG BY ACORN ENVIRONMENTAL OR APPROVED EQUIVALENT. FLOWS FROM DEWATERING ACTIVITIES SHALL NOT BE DISCHARGED INTO SANITARY SEWERS. SEE BORING LOGS FOR ADDITIONAL INFORMATION.
3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY PRIVATE ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE ADJACENT LAND OWNERS. PRIOR TO THE CONTRACTOR PRICING THE WORK, THEY SHALL PROVIDE ACORN WITH PROOF OF SUCH EASEMENT OR TEMPORARY RIGHTS. SHOULD EASEMENTS OR TEMPORARY RIGHTS NOT BE AVAILABLE, THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.
4. THE MINIMUM SLOPE SHALL MEET OR EXCEED 0.5% IN ALL CASES WHERE NOT NOTED ON THE GRADING PLAN. SLOPES IDENTIFIED ON THE GRADING PLAN TAKE PRECEDENT. ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER.
6. NO ADDITIONAL PAYMENT WILL BE MADE FOR UNSUITABLE MATERIALS THAT MAY EXIST ON SITE.
7. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF $N=0.012$ OR LESS.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. NATIVE SOILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, CONTACT ACORN. THE DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.

1. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. ALL ROUTINE WORK ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
3. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
4. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
5. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

4. THE CLIENT HAS NOT REQUESTED NOR HAS ACORN COMPLETED A PHASE I – ENVIRONMENTAL SITE ASSESSMENT FOR THE PROPERTY.

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION



LEGEND

●	IRON PIPE OR ROD FOUND	—X—X—	FENCE
⊙	GAS VALVE	—	CURB
⊙	UTILITY POLE	—OHW—	OVERHEAD WIRES
⊙	MANHOLE	—UG—	UNDERGROUND POWER
⊙	ELECTRIC/GAS METER	—W—	WATER LINE
⊙	SIGN	—G—	GAS LINE
⊙	CATCH BASIN	—T—	TELEPHONE
⊙	HYDRANT	—SD—	STORM DRAIN
⊙	WATER VALVE OR SHUTOFF	—SS—	SANITARY SEWER
⊙	LIGHT POLE	CONC.	CONCRETE
⊙	DECIDUOUS TREE	IPF/IRF	IRON PIPE OR ROD FOUND
⊙	CONIFEROUS TREE	N/F	NOW OR FORMERLY
		000/000	DEED BOOK / PAGE
		—100—	1' CONTOUR

LOCATION MAP

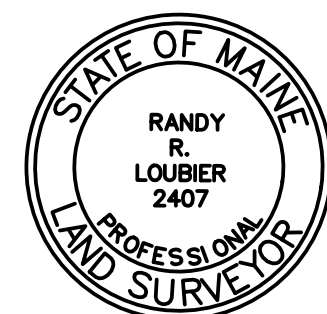
N.T.S.

PLAN REFERENCES

1. PLAN SHOWING LAND SURVEYED FOR MAINE ENERGY RECOVERY COMPANY BIDDEFORD MAINE BY DOW & COULOMBE, INC. DATED JANUARY 15, 1985 REVISED THROUGH OCT. 4, 1986.
2. ALTA/ACSM LAND TITLE SURVEY (URBAN) MADE FOR MAINE ENERGY RECOVERY COMPANY BIDDEFORD, MAINE BY DOW & COULOMBE, INC. DATED MARCH 15, 1996 REVISED THROUGH MAY 14, 2009.
3. ALTA/NSPS LAND TITLE SURVEY AT 75 SACO FALLS WAY, BIDDEFORD, MAINE MADE FOR THE LOFTS AT SACO FALLS, LP BY OWEN HASKELL, INC. DATED JULY 30, 2015 REVISED THROUGH 12-20-16.
4. EXHIBIT PLAN OF EASEMENT AT 75 SACO FALLS WAY, BIDDEFORD, MAINE MADE FOR THE LOFTS AT SACO FALLS, LP BY OWEN HASKELL, INC. DATED AUGUST 27, 2015 REVISED THROUGH DEC. 20, 2106.
5. EXISTING CONDITIONS SURVEY ON PEARL STREET, BIDDEFORD, MAINE MADE FOR MILONE & MCBROOM BY OWEN HASKELL, INC. DATED APRIL 19, 2018.
6. LAND DIVISION PLAN ON LINCOLN STREET & PEARL STREET BIDDEFORD, MAINE MADE FOR DESMAN DESIGN MANAGEMENT BY OWEN HASKELL, INC. DATED FEB. 4, 2020.

GENERAL NOTES

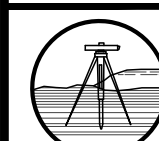
1. OWNER OF RECORD: CITY OF BIDDEFORD
TAX MAP 71 LOT 2
Y.C.R.D. BOOK 16838 PAGE 255
Y.C.R.D. BOOK 16475 PAGE 186
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83.
3. ELEVATIONS ARE BASED ON NAVD 88 DATUM.



Randy R. Loubier
RANDY R. LOUBIER, PLS #2407

REV.1 9/29/21 REVISED PROPERTY LINE DISTANCE AT NW CORNER

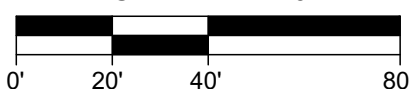
Existing Conditions Survey
On
Pearl Street, Biddeford, Maine
Made for
City of Biddeford
205 Main St. Biddeford, ME 04005



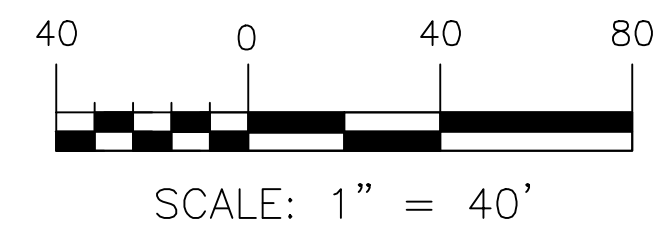
OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105

DRAWN BY: RRL/JLW DATE: AUGUST 5, 2021 JOB NO. 2021-168 B-Y
CHECKED BY: RRL SCALE: 1" = 40' DRWG. NO. 1

SCALE: 1" = 40'



1. PLAN TITLED "BIDDEFORD PARKING GARAGE MERC SITE" PREPARED BY DESMAN DESIGN MANAGEMENT DATED 12/20/2019 AND REVISED 1/14/2020.
2. PLAN TITLED "PEARL STREET RECONSTRUCTION PROJECT" PREPARED BY SEWALL DATED 10/14/2020
3. PLAN TITLED "EXISTING CONDITIONS SURVEY" PREPARED BY OWEN HASKELL, INC. DATED 8/5/2021 & REVISED 9/29/21



DRAFT
NOT ISSUED FOR
RECORDING

[illegible]

DRAWING NAME: SUBDIVISION PLAT

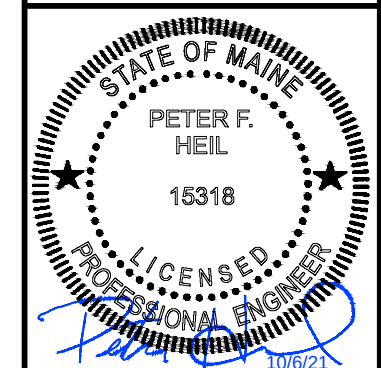
PROJECT NAME/ADDRESS: PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

CLIENT/OWNER OF RECORD: 3 LINCOLN, LLC
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101


A C O R N
ENGINEERING, INC.

 ACORN ENGINEERING, INC. 04101
 PO BOX 3372, PORTLAND, MAINE
 (207) 775-2645

FILE:	1124_DETAILS
JN:	1124
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	ZMS
CHECKED BY:	WHS



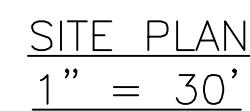
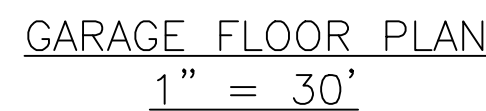
DRAWING NO.

PLAT

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
2. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH UTILITY COMPANY AND DIG SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED CONSTRUCTION. CONTRACTOR'S INDENTIFICATION OF UTILITIES PRIOR TO EXCAVATION. CONTRACTOR TO NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
3. FOR ALL UTILITIES, ACCORD ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. ENGINEER SPECIFIED OTHERWISE.
4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
5. SEWER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF BIDEFORD TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SERVICE CONNECTION. CONTRACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
6. WATER UTILITIES: CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. CONTRACTOR TO FIELD VERIFY METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. GAS UTILITIES: PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND IN ACCORDANCE WITH UNTIL.
8. ELECTRIC UTILITIES: ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE IF NECESSARY DEFINED BY M.E.P. METER TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRICAL CONSTRUCTION SHALL CONFORM TO CWP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CWP.
9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY SPECTRUM AND CONSOLIDATED COMMUNICATIONS PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

MINIMUM HORIZONTAL UTILITY SEPARATION					
UTILITY	UGE/T/C	WATER	SEWER	GAS	STORMWATER
UGE/T/C	—	6'	5'	4'	6'
WATER	6'	—	5*	6'	3'
SEWER	5'	5*	—	5'	10'
GAS	4'	6'	5'	—	3'
STORMWATER	6'	3'	10'	3'	—

*PERMISSIBLE ONLY IF SEWER IS LAID MIN. 18" BELOW WATER SERVICE; OTHERWISE, 10' OF HORIZONTAL SEPARATION MUST BE MAINTAINED.



PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

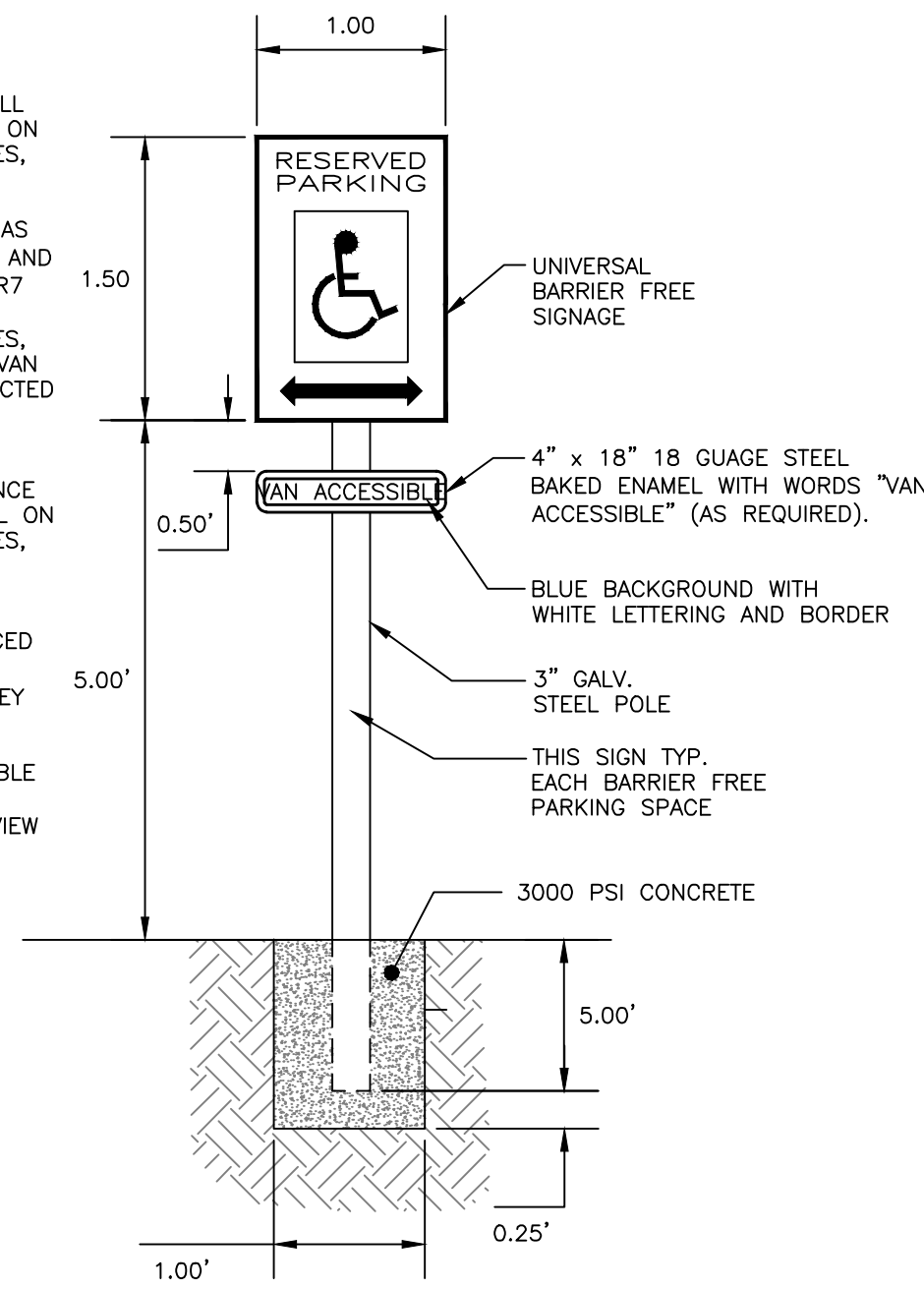
[illegible]

1. ALL ASPECTS OF RESERVED
PARKING SIGN CONSTRUCTION SHALL
BE IN ACCORDANCE WITH MANUAL ON
UNIFORM TRAFFIC CONTROL DEVICES,
2009 OR MOST RECENT EDITION

2. SIGN SHALL BE CONSTRUCTED AS SIGN R7-8 UNDER THE "PARKING AND STANDING SIGNS AND PLAQUES" (R7 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION. VAN ACCESSIBILITY SHALL BE CONSTRUCTED AS SIGN R7-8a OR R7-8b.

3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.

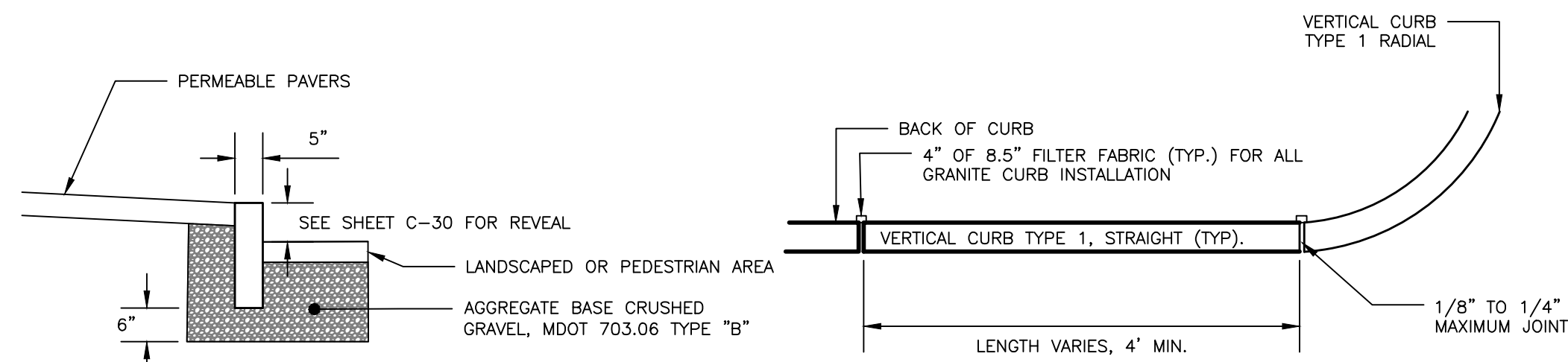
4. SIGN SHALL BE INSTALLED ON BUILDING. SIGNS SHOULD BE PLACED AT SUCH A HEIGHT (AT LEAST 60 INCHES ABOVE SURFACE) THAT THEY DO NOT GET OBSCURED BY ANY PARKED VEHICLES OR OTHER OBSTRUCTIONS AND MUST BE VISIBLE FROM THE DRIVER'S SEAT OF THE VEHICLE AND LOCATED RIGHT IN VIEW OF PARKING.



BARRIER FREE PARKING SIGN
NOT TO SCALE

NOTES:

1. CURB SHALL BE RESET IN ACCORDANCE WITH MDOT 609.08 WITH THE EXCEPTION OF CURB SPACING TO BE INSTALLED PER DETAIL.



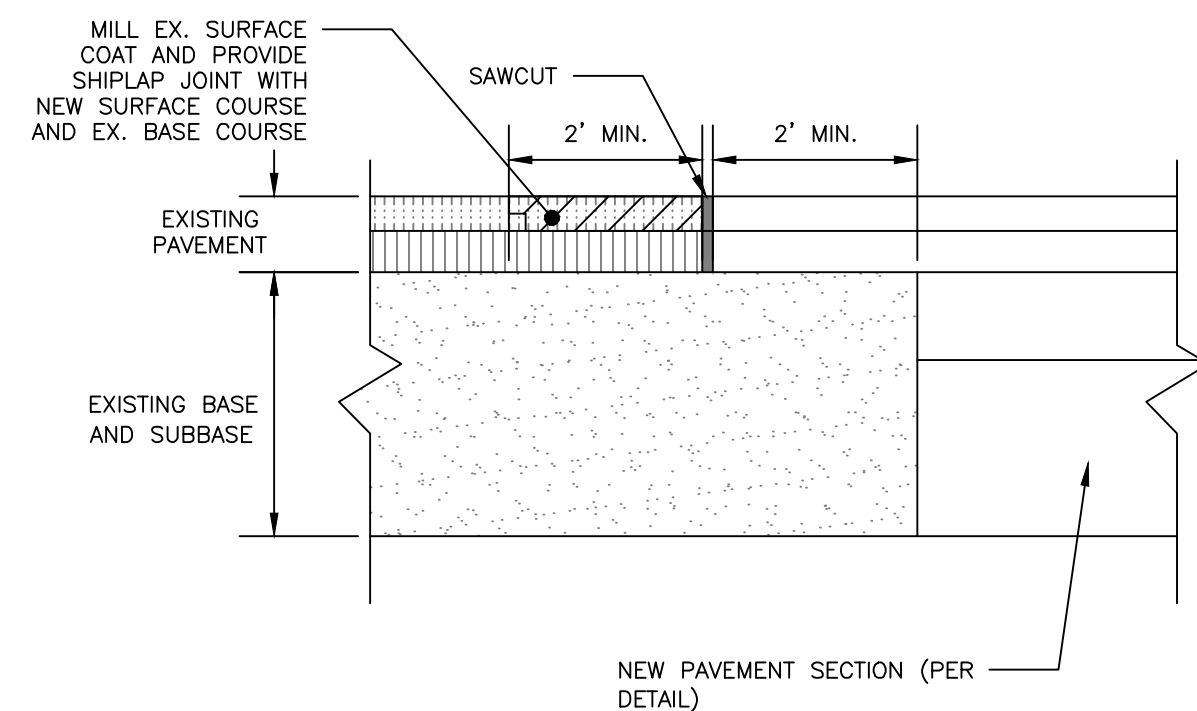
VERTICAL GRANITE CURB CROSS SECTION

VERTICAL GRANITE CURB PLAN VIEW

VERTICAL GRANITE CURB DETAIL
NOT TO SCALE

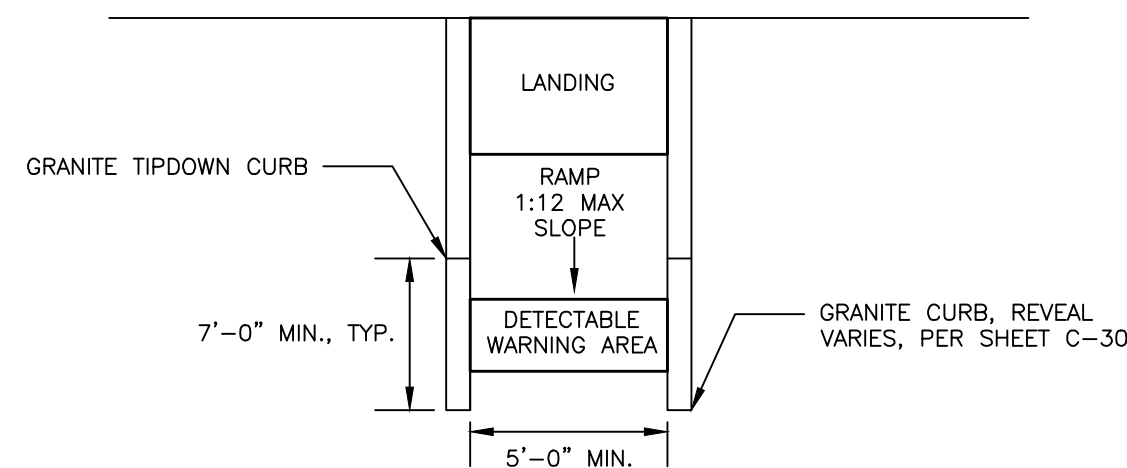
1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. CREATE UNIFORM AND RIGID BUTT JOINT AND APPLY BITUMINOUS TACK COAT AT AN APPLICATION RATE OF 0.10 TO 0.14 GALLONS PER SQUARE YARD PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.

2. THE NEW PAVEMENT SECTION SHALL MEET PAVEMENT SECTION DETAIL AT A MINIMUM OR THE THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



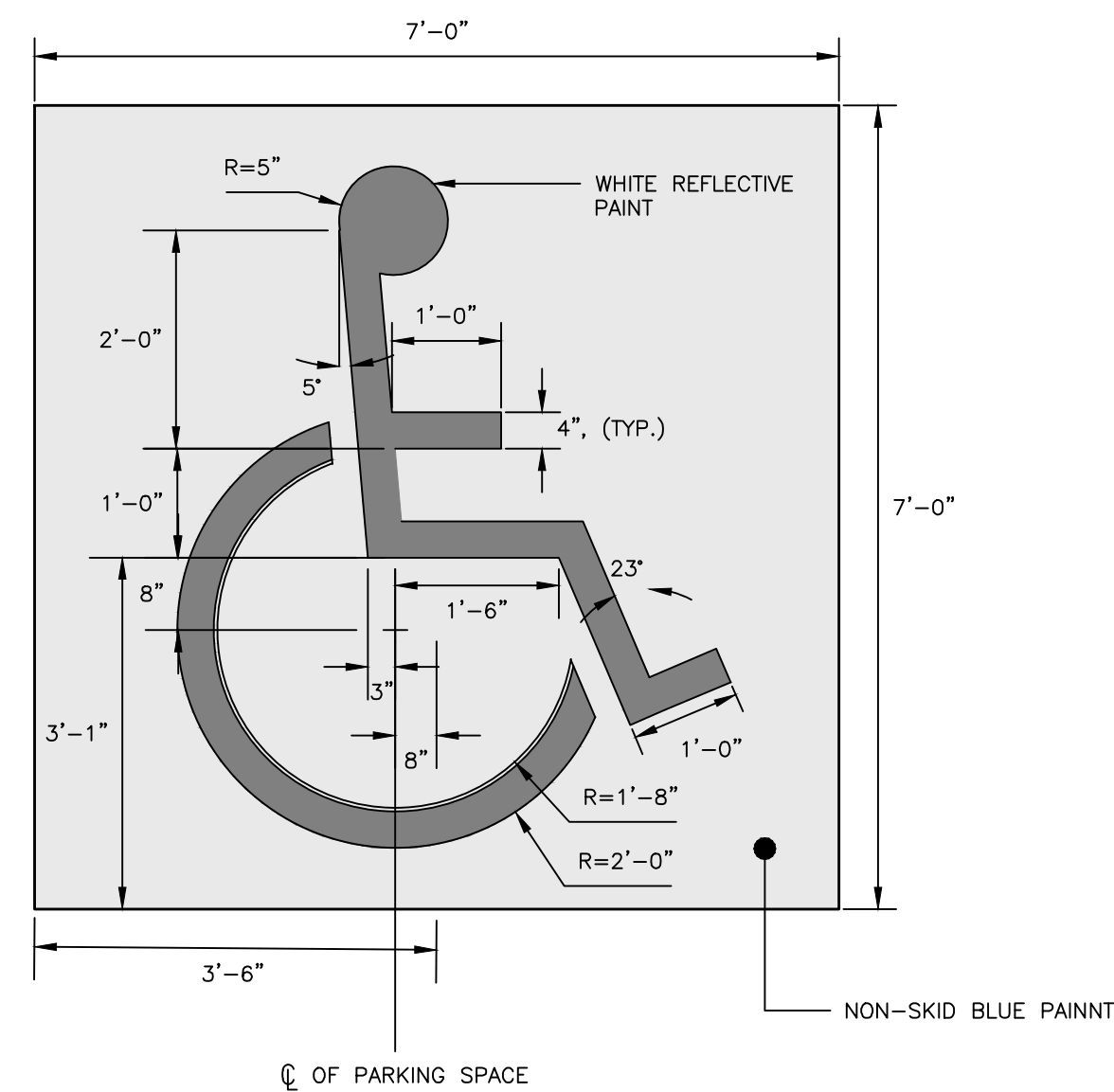
PAVEMENT SAWCUT DETAIL
NOT TO SCALE

1. ALL RAMPS SHALL COMPLY WITH CITY OF BIDDEFORD AND ADA STANDARDS.
2. SIDEWALK MATERIAL SHALL BE PER CITY SIDEWALK MATERIAL POLICY.
3. FLARED SECTIONS SHOULD MATCH SURFACE MATERIAL USED FOR SIDEWALK CONSTRUCTION.



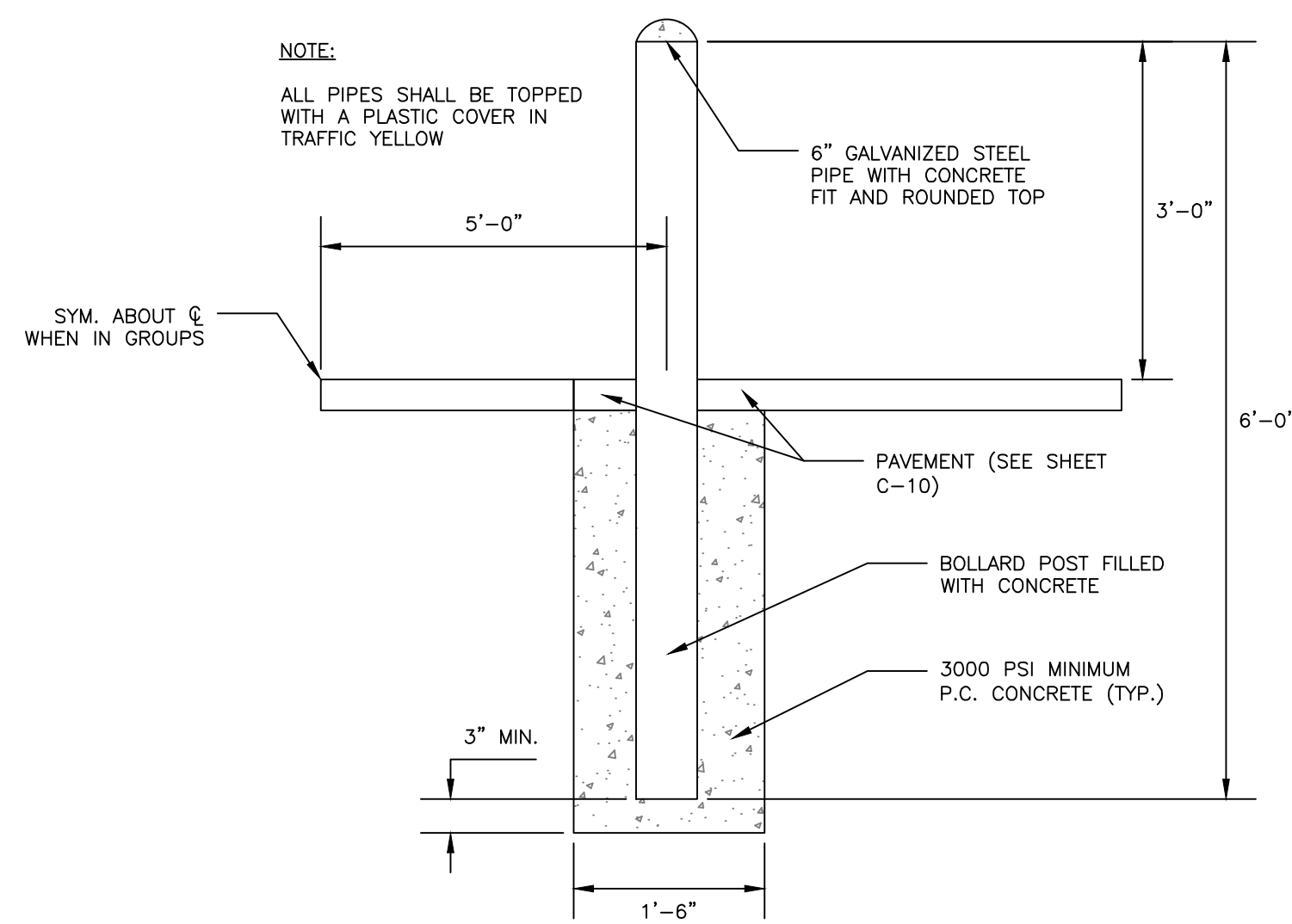
DESIGN ELEMENT	SLOPE IN DIRECTION OF TRAVEL	CROSS SLOPE
APPROACH	8.33% MAX	2%
LANDING	2%	2%
RAMP	8.33% MAX	MATCH STREET GRADE
SIDEWALK	PER C-30	2%

SIDEWALK RAMP LAYOUT
NOT TO SCALE



INTERNATIONAL BARRIER FREE SYMBOL
NOT TO SCALE

ALL PIPES SHALL BE TOPPED
WITH A PLASTIC COVER IN
TRAFFIC YELLOW



PIPE BOLLARD
NOT TO SCALE

SCHEDULE		
HEIGHT OF POLE	MIN DIAMETER	MIN EMBEDMENT
<20'	18"	5'
20'–40'	2'	6'
>40'	3'	8'

REVEALS	
APPLICATIONS	REVEAL
STREET/SIDEWALK	4"
OTHER PED HARDSCAPE	FLUSH
PEDESTRIAN LAWN/MULCH	4"
PARKING AREAS (OPEN TRAFFIC)	24-36"

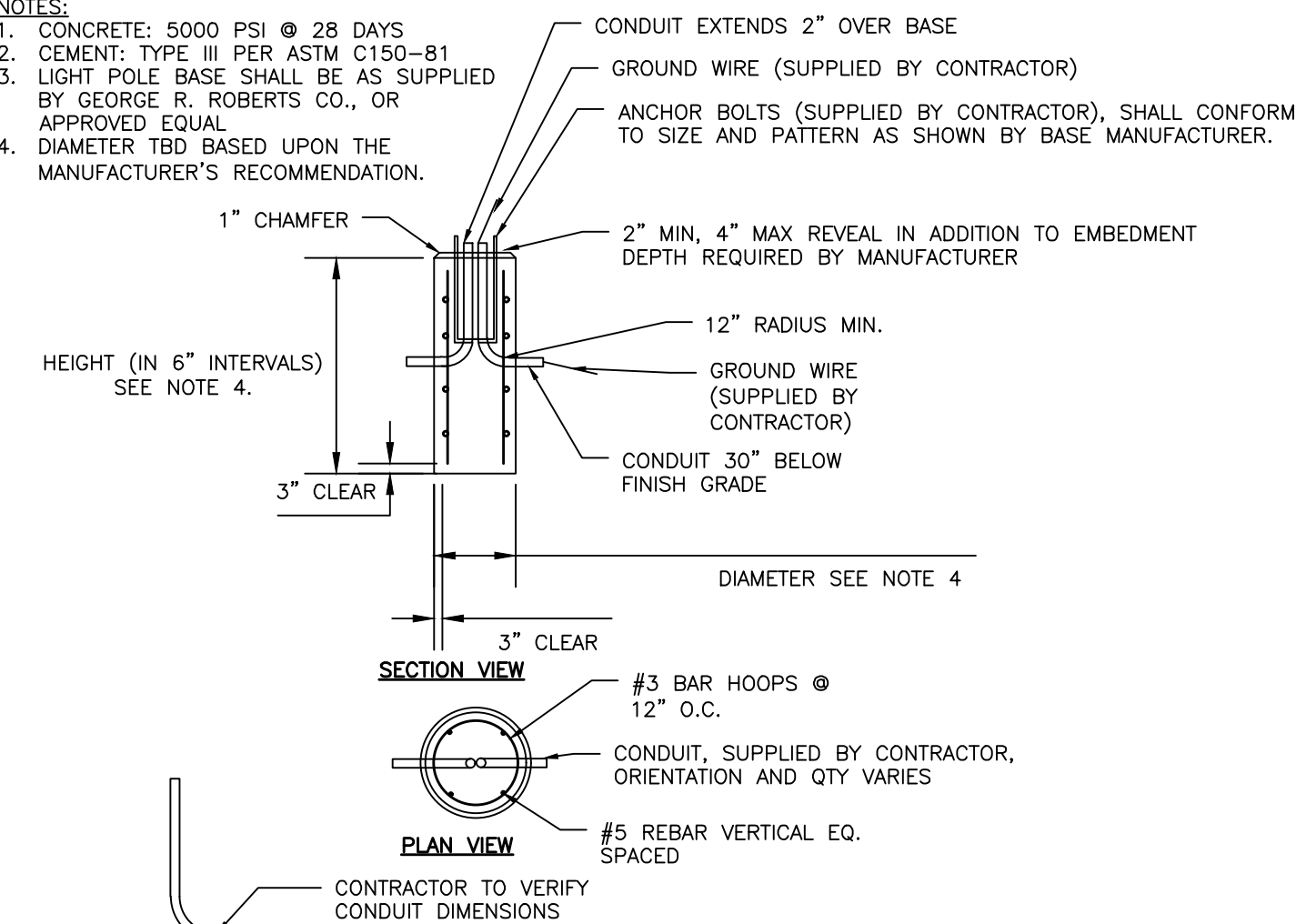
2. CEMENT: TYPE III PER ASTM C150-81

3. LIGHT POLE BASE SHALL BE AS SUPPLIED BY GEORGE R. ROBERTS CO., OR APPROVED EQUAL

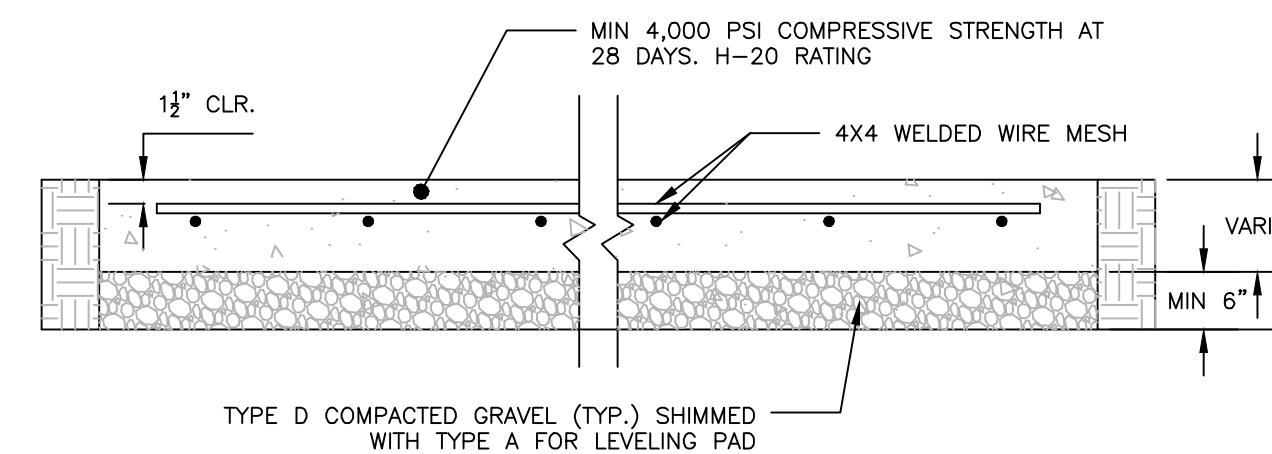
4. DIAMETER TBD BASED UPON THE MANUFACTURER'S RECOMMENDATION.

GROUND WIRE (SUPPLIED BY CONTRACTOR)

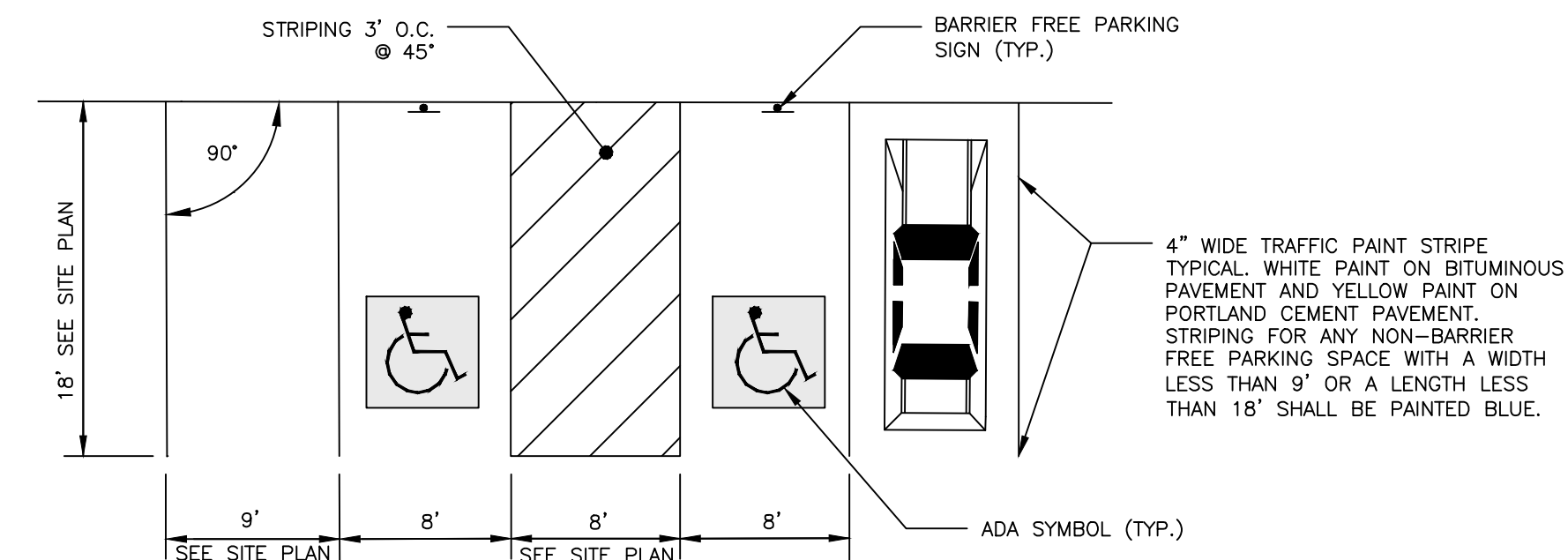
ANCHOR BOLTS (SUPPLIED BY CONTRACTOR), SHALL CONFORM TO SIZE AND PATTERN AS SHOWN BY BASE MANUFACTURER.



LIGHT POLE BASE
NOT TO SCALE



CONCRETE PAD DETAIL
NOT TO SCALE



PARKING SPACE DIMENSIONS
NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
SKETCH PLAN	DATE
	PFH
	10/6/21

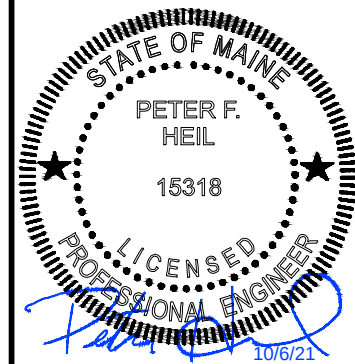
DRAWING NAME: SITE DETAILS - 1

PROJECT NAME/ADDRESS: PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

CLIENT/OWNER OF RECORD: 3 LINCOLN, LLC
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101


ACORN ENGINEERING, INC.
 100 PO. BOX 3372, DALLAS, TEXAS 75210 (4101)
 (214) 342-1100 (214) 342-1101
 (214) 342-1102 (214) 342-1103
 (214) 342-1104 (214) 342-1105
 (214) 342-1106 (214) 342-1107
 (214) 342-1108 (214) 342-1109
 (214) 342-1110 (214) 342-1111
 (214) 342-1112 (214) 342-1113
 (214) 342-1114 (214) 342-1115
 (214) 342-1116 (214) 342-1117
 (214) 342-1118 (214) 342-1119
 (214) 342-1120 (214) 342-1121
 (214) 342-1122 (214) 342-1123
 (214) 342-1124 (214) 342-1125
 (214) 342-1126 (214) 342-1127
 (214) 342-1128 (214) 342-1129
 (214) 342-1130 (214) 342-1131
 (214) 342-1132 (214) 342-1133
 (214) 342-1134 (214) 342-1135
 (214) 342-1136 (214) 342-1137
 (214) 342-1138 (214) 342-1139
 (214) 342-1140 (214) 342-1141
 (214) 342-1142 (214) 342-1143
 (214) 342-1144 (214) 342-1145
 (214) 342-1146 (214) 342-1147
 (214) 342-1148 (214) 342-1149
 (214) 342-1150 (214) 342-1151
 (214) 342-1152 (214) 342-1153
 (214) 342-1154 (214) 342-1155
 (214) 342-1156 (214) 342-1157
 (214) 342-1158 (214) 342-1159
 (214) 342-1160 (214) 342-1161
 (214) 342-1162 (214) 342-1163
 (214) 342-1164 (214) 342-1165
 (214) 342-1166 (214) 342-1167
 (214) 342-1168 (214) 342-1169
 (214) 342-1170 (214) 342-1171
 (214) 342-1172 (214) 342-1173
 (214) 342-1174 (214) 342-1175
 (214) 342-1176 (214) 342-1177
 (214) 342-1178 (214) 342-1179
 (214) 342-1180 (214) 342-1181
 (214) 342-1182 (214) 342-1183
 (214) 342-1184 (214) 342-1185
 (214) 342-1186 (214) 342-1187
 (214) 342-1188 (214) 342-1189
 (214) 342-1190 (214) 342-1191
 (214) 342-1192 (214) 342-1193
 (214) 342-1194 (214) 342-1195
 (214) 342-1196 (214) 342-1197
 (214) 342-1198 (214) 342-1199
 (214) 342-1200 (214) 342-1201
 (214) 342-1202 (214) 342-1203
 (214) 342-1204 (214) 342-1205
 (214) 342-1206 (214) 342-1207
 (214) 342-1208 (214) 342-1209
 (214) 342-1210 (214) 342-1211
 (214) 342-1212 (214) 342-1213
 (214) 342-1214 (214) 342-1215
 (214) 342-1216 (214) 342-1217
 (214) 342-1218 (214) 342-1219
 (214) 342-1220 (214) 342-1221
 (214) 342-1222 (214) 342-1223
 (214) 342-1224 (214) 342-1225
 (214) 342-1226 (214) 342-1227
 (214) 342-1228 (214) 342-1229
 (214) 342-1230 (214) 342-1231
 (214) 342-1232 (214) 342-1233
 (214) 342-1234 (214) 342-1235
 (214) 342-1236 (214) 342-1237
 (214) 342-1238 (214) 342-1239
 (214) 342-1240 (214) 342-1241
 (214) 342-1242 (214) 342-1243
 (214) 342-1244 (214) 342-1245
 (214) 342-1246 (214) 342-1247
 (214) 342-1248 (214) 342-1249
 (214) 342-1250 (214) 342-1251
 (214) 342-1252 (214) 342-1253
 (214) 342-1254 (214) 342-1255
 (214) 342-1256 (214) 342-1257
 (214) 342-1258 (214) 342-1259
 (214) 342-1260 (214) 342-1261
 (214) 342-1262 (214) 342-1263
 (214) 342-1264 (214) 342-1265
 (214) 342-1266 (214) 342-1267
 (214) 342-1268 (214) 342-1269
 (214) 342-1270 (214) 342-1271
 (214) 342-1272 (214) 342-1273
 (214) 342-1274 (214) 342-1275
 (214) 342-1276 (214) 342-1277
 (214) 342-1278 (214) 342-1279
 (214) 342-1280 (214) 342-1281
 (214) 342-1282 (214) 342-1283
 (214) 342-1284 (214) 342-1285
 (214) 342-1286 (214) 342-1287
 (214) 342-1288 (214) 342-1289
 (214) 342-1290 (214) 342-1291
 (214) 342-1292 (214) 342-1293
 (214) 342-1294 (214) 342-1295
 (214) 342-1296 (214) 342-1297
 (214) 342-1298 (214) 342-1299
 (214) 342-1300 (214) 342-1301
 (214) 342-1302 (214) 342-1303
 (214) 342-1304 (214) 342-1305
 (214) 342-1306 (214) 342-1307
 (214) 342-1308 (214) 342-1309
 (214) 342-1310 (214) 342-1311
 (214) 342-1312 (214) 342-1313
 (214) 342-1314 (214) 342-1315
 (214) 342-1316 (214) 342-1317
 (214) 342-1318 (214) 342-1319
 (214) 342-1320 (214) 342-1321
 (214) 342-1322 (214) 342-1323
 (214) 342-1324 (214) 342-1325
 (214) 342-1326 (214) 342-1327
 (214) 342-1328 (214) 342-1329
 (214) 342-1330 (214) 342-1331
 (214) 342-1332 (214) 342-1333
 (214) 342-1334 (214) 342-1335
 (214) 342-1336 (214) 342-1337
 (214) 342-1338 (214) 342-1339
 (214) 342-1340 (214) 342-1341
 (214) 342-1342 (214) 342-1343
 (214) 342-1344 (214) 342-1345
 (214) 342-1346 (214) 342-1347
 (214)

FILE:	1124_DETAILS
JN:	1124
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	ZMS
CHECKED BY:	WHS

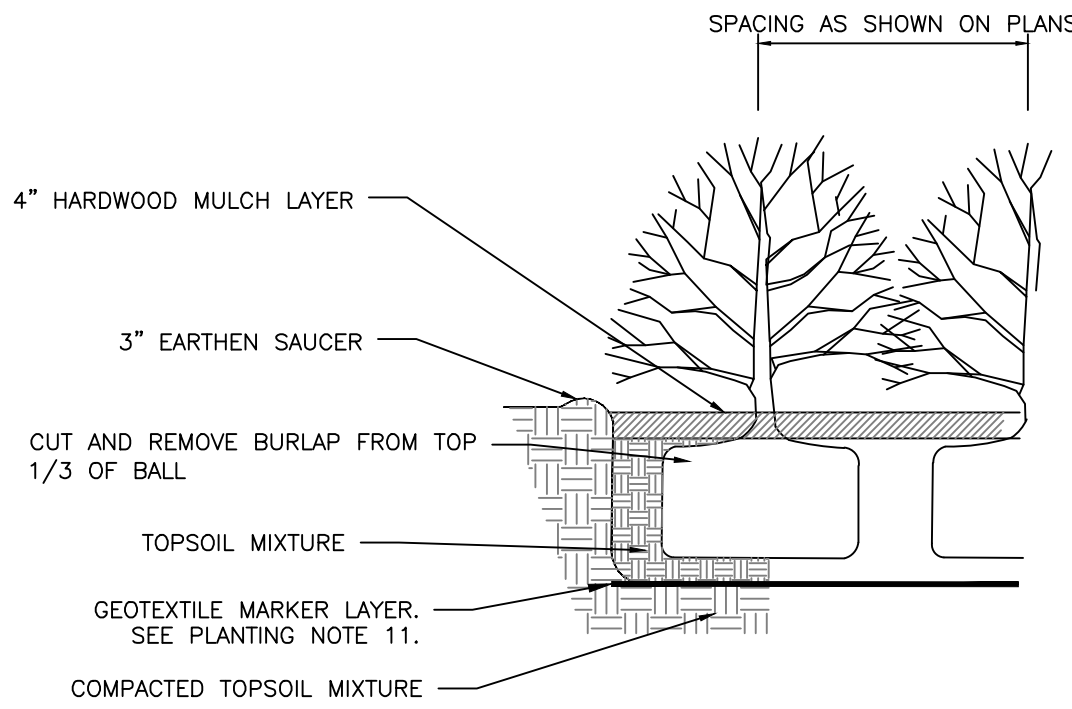


DRAWING NO.

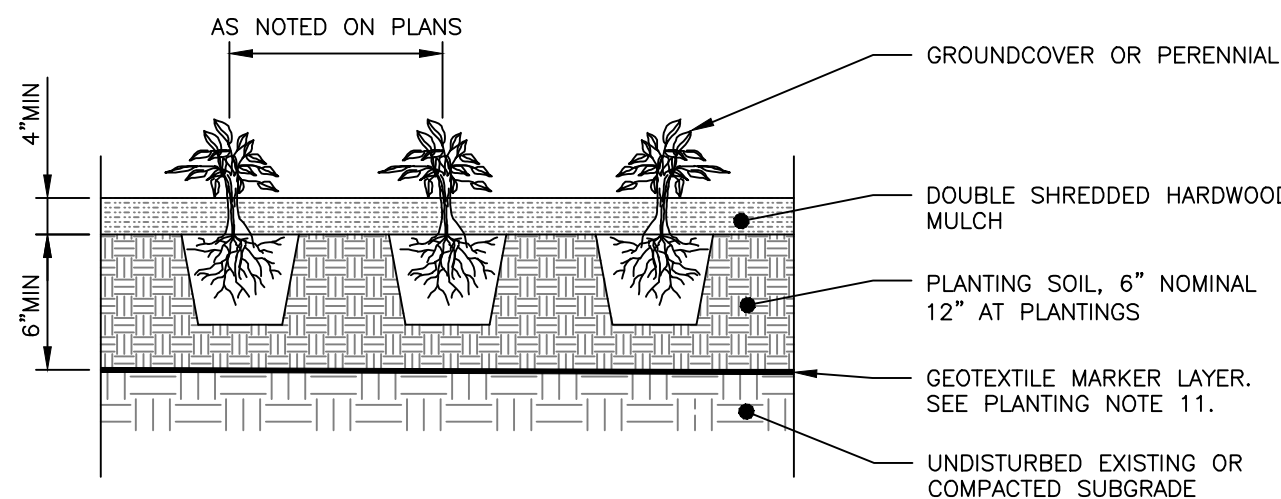
C-40

PLANTING NOTES:

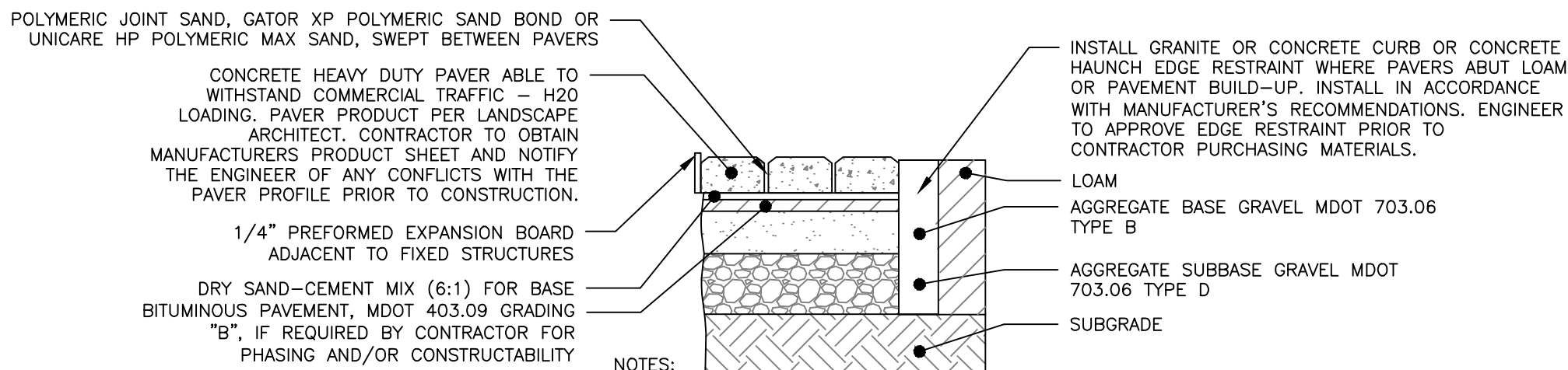
1. ALL PLANT SELECTION AND INSTALLATION WILL BE IN COMPLIANCE WILL THE CITY OF BIDDEFORD TECHNICAL MANUAL.
2. CONTRACTOR TO VERIFY ALL UTILITIES ON PROPERTY AND TO PROTECT ALL UTILITIES DURING EXCAVATION FOR PLANTS.
3. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND THE NUMBER OF PLANTS SHOWN IN PLANT LIST (IF ANY), THE NUMBER OF PLANTS SHOWN ON PLAN WILL TAKE PRECEDENCE.
4. ALL MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AMERICAN ASSOCIATION OF NURSERYMAN.
5. ALL DISTURBED AREAS NOT TO BE PAVED OR PLANTED SHALL BE LOAMED AND SEEDED AS SHOWN. THE SEED MIX SPECIFICATIONS ARE AS FOLLOWS: LESCO FINE FESCUE LINKS BLEND OF 35% HARD FESCUE, 35% CREEPING RED FESCUE, 20% CHEWINGS FESCUE AND 10% SHEEP FESCUE. ADD 5% LITTLE BLUESTEM AND 5% NORTHEAST WILDFLOWER SEED MIXTURE BY WEIGHT TO THE LINKS BLEND.
6. FOR PRICING PURPOSES, PROVIDE A PER TREE UNIT COST FOR STAKING AND GUYING. IF STAKING AND GUYING IS REQUIRED, REMOVE TREE WRAP, STAKES, AND GUY WIRES AT END OF FIRST GROWING SEASON.
7. FOR TREE PLANTING IN LAWN AREAS, ANY DISTURBED LAWN SHALL BE LOAMED AND SEEDED AS NECESSARY.
8. NEW TREES TO BE INSTALLED WITH A SLOW RELEASE WATERING BAG.
9. CONTRACTOR TO BE HELD RESPONSIBLE FOR THE WATERING AND MAINTENANCE OF ALL PLANT MATERIAL AND LANDSCAPING IMPROVEMENTS FOR AT LEAST 30 DAYS FOLLOWING INSTALLATION. FOLLOWING THIS PERIOD, THE LANDOWNER OR PROPERTY MANAGEMENT SHALL BE RESPONSIBLE FOR CONTINUED WATERING AND MAINTENANCE. CONTRACTOR TO MAINTAIN A ONE YEAR WARRANTY ON ALL PLANTINGS FOLLOWING FINAL INSTALLATION.
10. ALL PROPOSED PLANTS SHALL BE LOCATED AS SHOWN ON THE PLANS. CONTRACTOR TO NOTIFY ENGINEER WHEN PLANTINGS HAVE BEEN MOBILIZED ON SITE. ENGINEER TO INSPECT AND ACCEPT OR REJECT ANY SPECIMENS ON THE BASIS OF APPARENT HEALTH, HARDINESS, AND CONFORMANCE WITH THE PLANTING SCHEDULE. REJECTED SPECIMENS ARE TO BE REPLACED BY THE CONTRACTOR AT NO ADDED COST TO THE OWNER. ACCEPTANCE DOES NOT WAIVE THE REQUIRED ONE YEAR PLANTING WARRANTY.
11. GEOTEXTILE MARKER LAYER REQUIRED IN AREAS WHERE EXISTING SUBGRADE IS COMPRISED OF URBAN FILL - SEE ENVIRONMENTAL MEDIA MANAGEMENT PLAN.



SHRUB PLANTING DETAIL
NOT TO SCALE



PERENNIAL PLANTING DETAIL
NOT TO SCALE



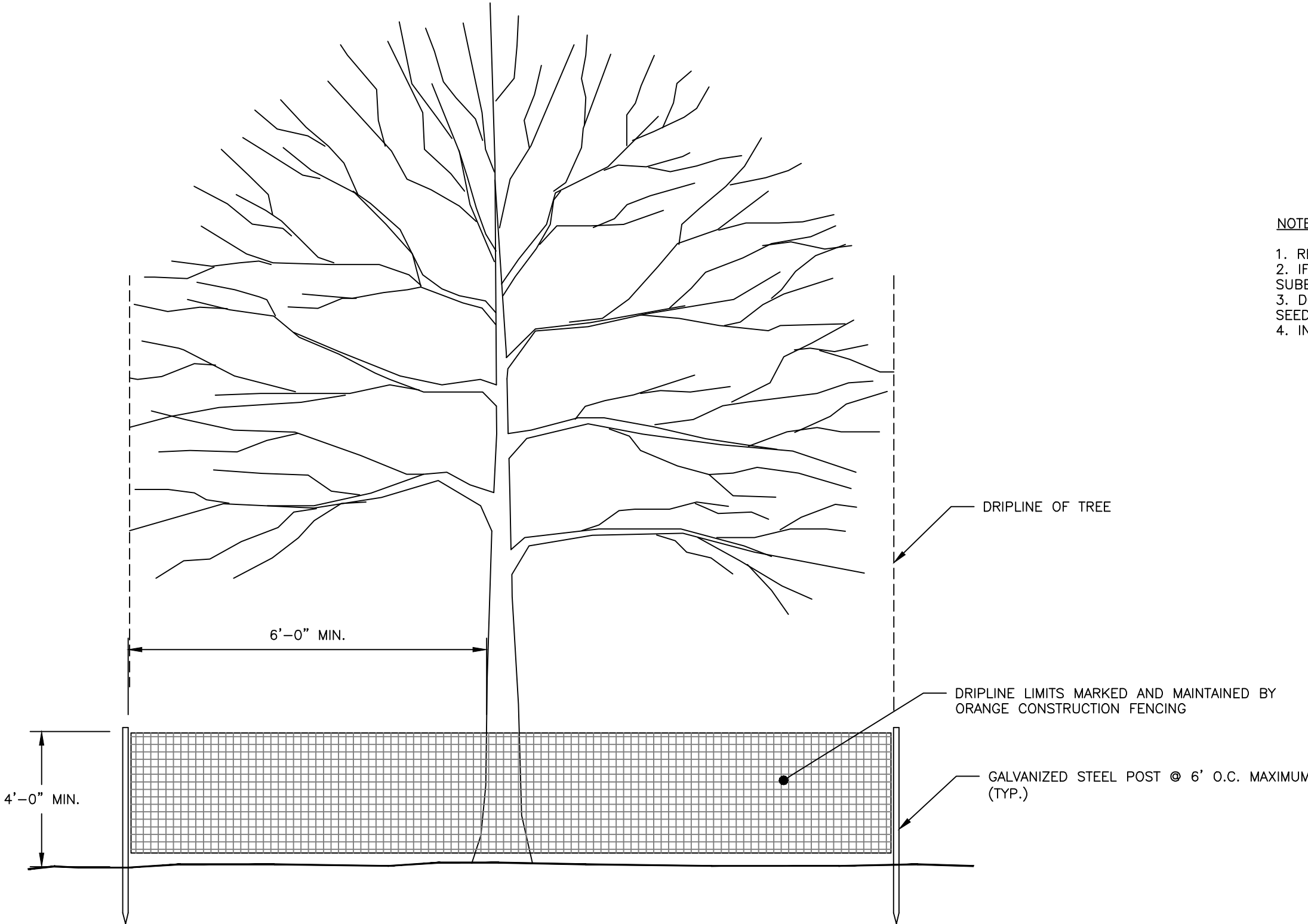
NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557
2. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF BIDDEFORD STANDARDS IN ADDITION TO MDT STANDARDS.
3. JOINT SAND COMPRESSION STRENGTH: PROVEN RESISTANCE TO COMPRESSION OF 550 PSI AFTER DRYING FOR 7 DAYS UNDER CONTROLLED CONDITIONS (73 DEGREE F AT 50% HUMIDITY)

GRADATION REQUIREMENTS FOR JOINT SAND		
SIEVE SIZE	NATURAL SAND PERCENT PASSING	MANUFACTURED SAND PERCENT PASSING
NO. 4 (4.75mm)	100	100
NO. 8 (2.36mm)	95-100	95-100
NO. 16 (1.18mm)	70-100	70-100
NO. 30 (0.60mm)	40-75	40-75
NO. 50 (0.30mm)	10-30	20-40
NO. 100 (0.15mm)	2-15	10-25
NO. 200 (0.075)	0-1	0-10

THICKNESS OF LAYERS	
STANDARD	LAYERS
2-3/4"	CONCRETE PAVES (DEPTH TBD BASED UPON MANUFACTURER)
1"	DRY SAND-CEMENT MIX (6:1)
2"	BITUMINOUS MDT 403.09 GRADING "B"
3"	AGGREGATE BASE GRAVEL MDT 703.06 TYPE B
15"	AGGREGATE SUBBASE GRAVEL MDT 703.06 TYPE D

PAVER PROFILE
NOT TO SCALE



NOTES:

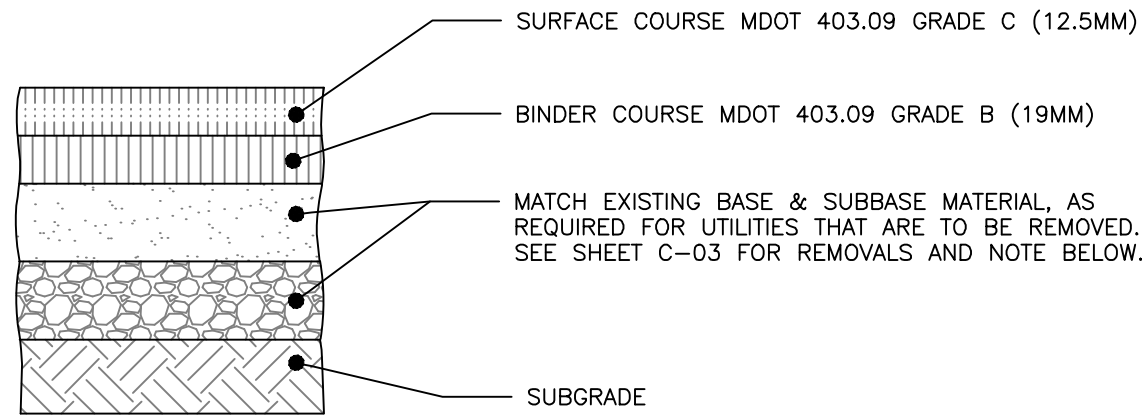
1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
2. INSTALL PROTECTIVE FENCING TO LIMIT OF DRIPLINE ON TREE OR A MINIMUM OF 6' FROM TRUNK WHEN NECESSARY, WITH PRIOR PERMISSION OF LANDSCAPE ARCHITECT.
3. DO NOT STORE CONSTRUCTION EQUIPMENT, MATERIALS, TOOLS, ETC. WITHIN PROTECTIVE FENCING.
4. MAINTAIN FENCING IN A NEAT AND ORDERLY FASHION THROUGHOUT CONSTRUCTION PERIOD.

TREE PROTECTION DETAIL
NOT TO SCALE

NOTES:

1. DIG HOLE AT LEAST 2 TIMES THE DIAMETER OF THE ROOT BALL AND AS DEEP AS THE ROOT BALL (NO DEEPER). SET ROOT BALL CENTERED, WITH THE TOP AT DOWNHILL EDGE OF THE HOLE.
2. TOPSOIL BACKFILL SHALL BE NATURAL FRIABLE, FERTILE, FINE LOAMY SOIL POSSESSING THE CHARACTERISTICS OF TOPSOIL IN THE VICINITY WHICH PRODUCE A HEAVY GROWTH. TOPSOIL SHALL CONTAIN NOT LESS THAN 6% NOR MORE THAN 20% ORGANIC MATTER. TOP SOIL SHALL HAVE A PH VALUE OF NOT LESS THAN 5.5 NOR MORE THAN 7.0.
3. CONTAINER GROWN STOCK - REMOVE CONTAINER PROTECTING THE ROOT BALL. GENTLY COMB OUT THE ROOTS. PRUNE DAMAGED ROOTS.
4. BACKFILL THE HOLE WITH TOPSOIL TO A DEPTH NOT TO EXCEED 8" THEN WATER SUFFICIENTLY TO SETTLE TOPSOIL. REPEAT SOIL BACKFILL, WATER, DRAIN. TOPSOIL SHALL BE TAMPED UNDER EDGES OF THE BALLED PLANTS. BACKFILL TO FINISH GRADE AND CREATE AN EARTHEN SAUCER. SOAK PLANTS TWICE WITHIN THE FIRST TWENTY-FOUR HOURS OF PLANTING.

TYPICAL PLANTING
NOT TO SCALE

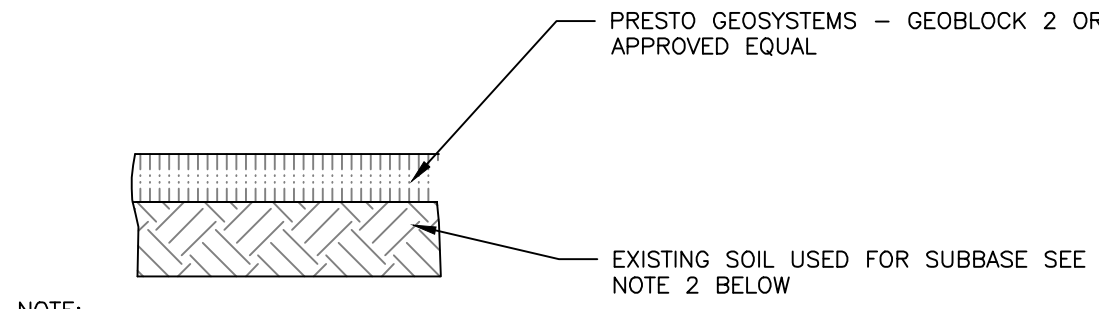


NOTE:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
2. CONTRACTOR TO VERIFY EXISTING GOODH STREET BASE AND SUBBASE MATERIALS AND MATCH EXISTING.
3. PROJECT PROPOSES TO MILL EXISTING PAVEMENT AND INSTALL NEW BITUMINOUS PAVEMENT PER DETAIL. REFER TO APPLICABLE UTILITY CROSS SECTIONS FOR NEW UTILITY INSTALLATION.

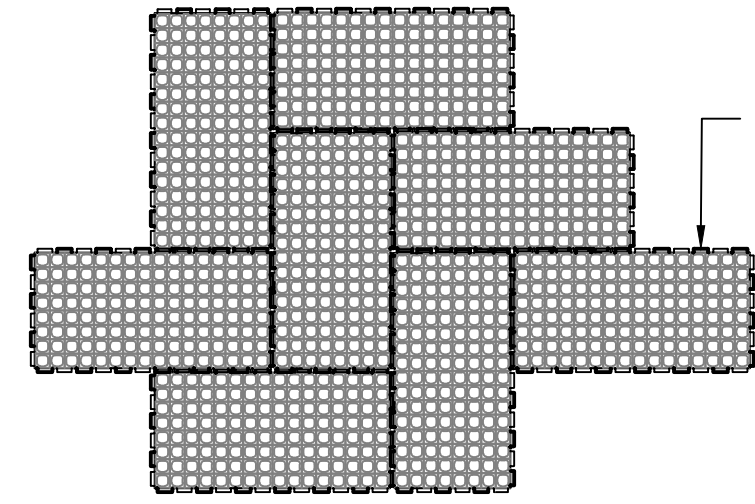
THICKNESS OF LAYERS	
STANDARD	LAYERS
1.25"	SURFACE COURSE MDT 403.09 GRADE C (12.5mm)
2"	BINDER COURSE MDT 403.09 GRADE B (19mm)
4"	AGGREGATE BASE GRAVEL MDT 703.06 TYPE B OR A
18"	AGGREGATE SUBBASE GRAVEL MDT 703.06 TYPE D

PAVEMENT PROFILE:
NOT TO SCALE



NOTE:

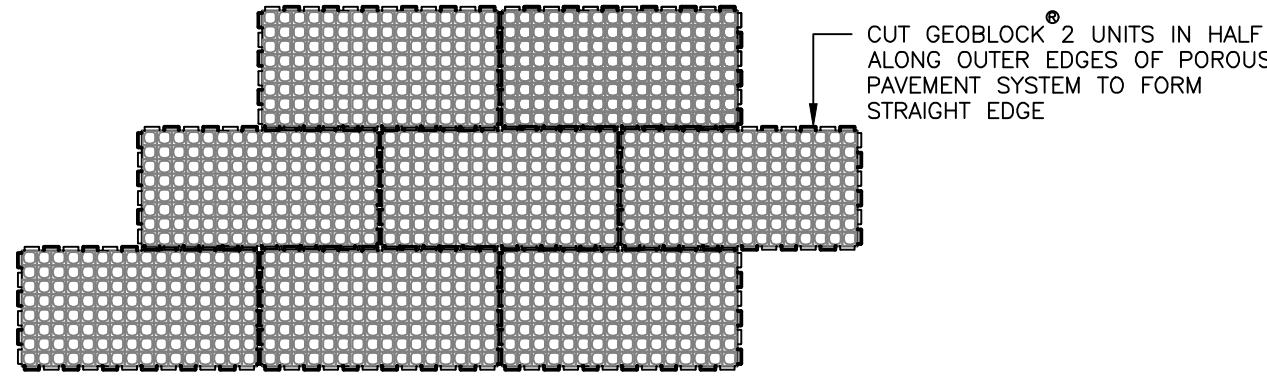
1. REMOVE EXISTING PAVEMENT ONLY. MAINTAIN THE EXISTING SLOPE.
2. IF THE SUBBASE IS DISTURBED TO REMOVE THE PAVEMENT THEN PROOF ROLL THE SUBBASE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.
3. DO NOT COMPACT THE LOAM INSTALLED WITHIN THE GRASS PAVER. SEED PER THE SEEDING PLAN.
4. INSTALL AND MAINTAIN PER THE MANUFACTURERS RECOMMENDATIONS.



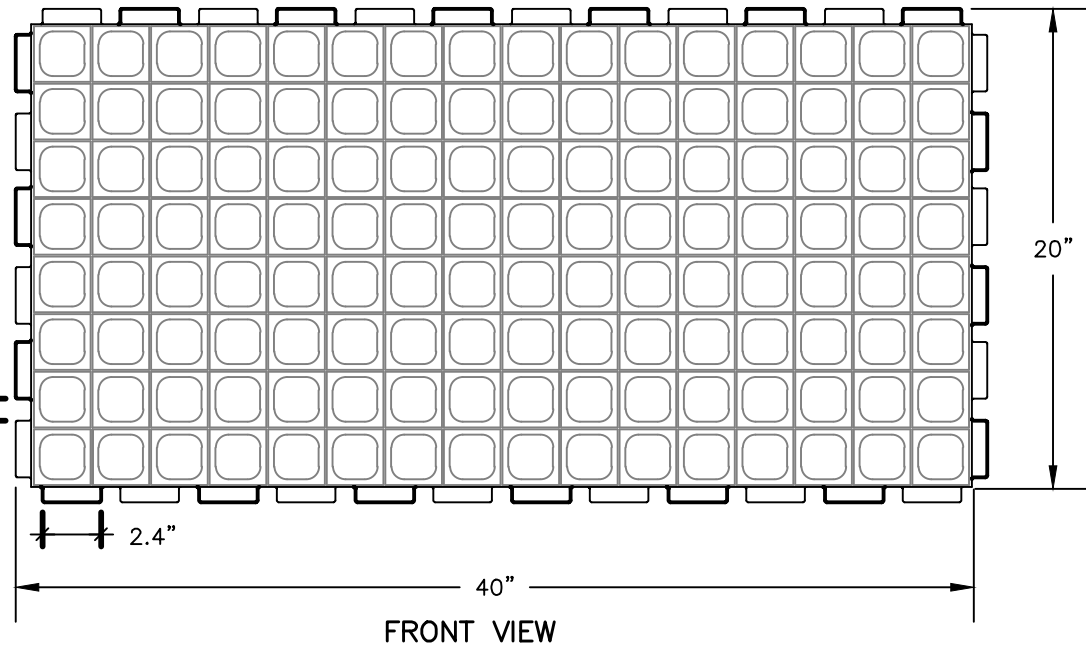
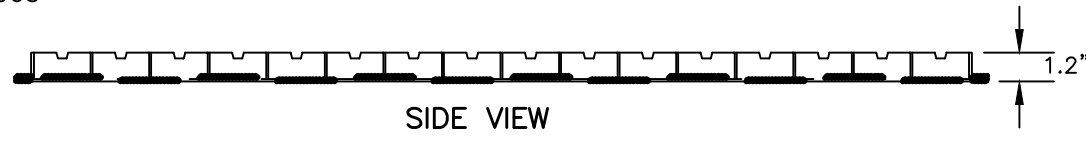
TYPICAL LAYOUT - HERRINGBONE PATTERN



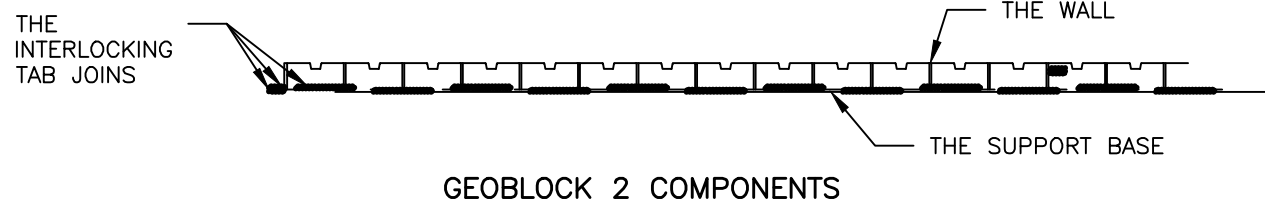
END VIEW



TYPICAL LAYOUT - BRICKLAYER PATTERN



GEOBLOCK 2 DIMENSIONS

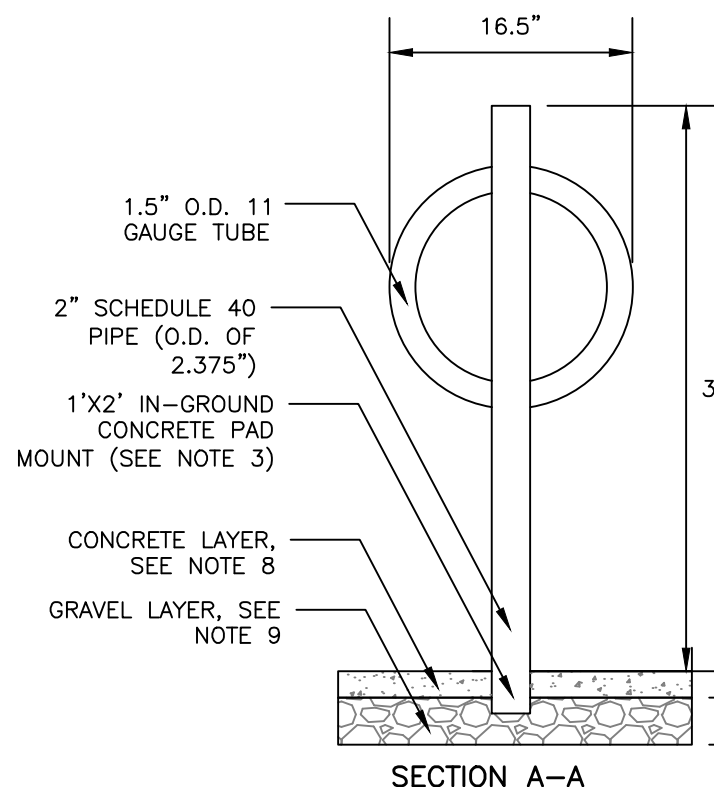


GEOBLOCK 2 COMPONENTS

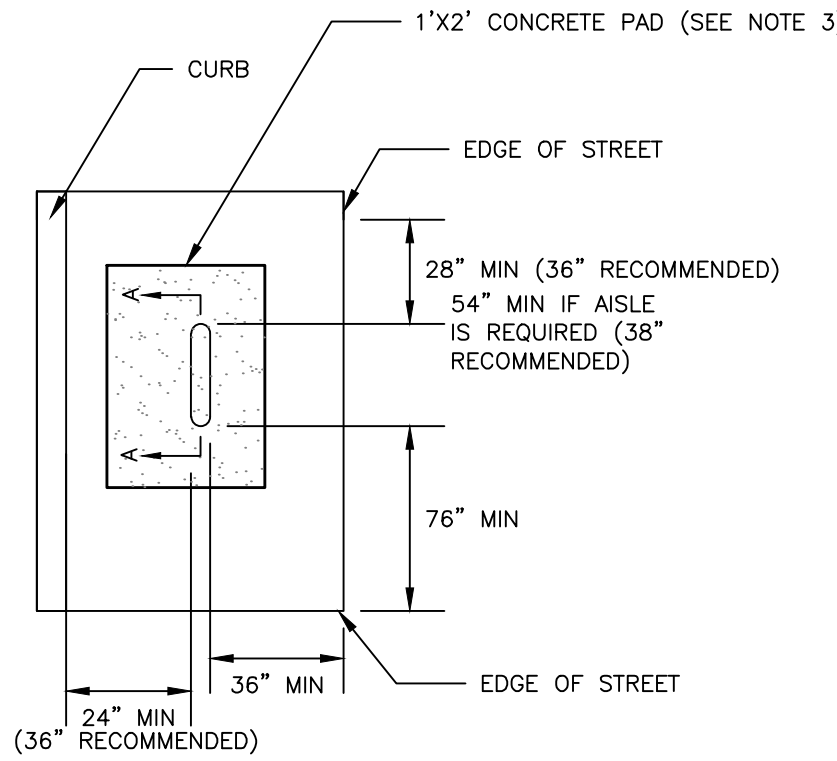
PERVIOUS GRASS PAVERS (FIRE TRUCK TURNAROUND)
NOT TO SCALE

NOTES:

1. BICYCLE RACK SHALL BE "DERO BIKE HITCH", AS MANUFACTURED BY DERO BIKE RACKS.
2. BICYCLE RACK SHALL HAVE CAPACITY FOR TWO BICYCLES.
3. BICYCLE RACK PARTS SHALL BE OF UNIFORM COLOR AND SHALL BE FINISHED IN ACCORDANCE WITH PRODUCT SPECIFICATION.
4. BICYCLE RACK SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S MOST RECENT INSTALLATION RECOMMENDATIONS, AND SHALL BE INSTALLED WITH AN IN-GROUND MOUNT UNLESS OTHERWISE APPROVED BY ENGINEER.
5. MINIMUM OFFSETS SHOWN. MANUFACTURER'S RECOMMENDED OFFSETS SHALL BE ENFORCED WHERE POSSIBLE.
6. MINIMUM DISTANCE BETWEEN BICYCLE RACKS SHALL BE 24". RECOMMENDED DISTANCE BETWEEN BICYCLE RACKS SHALL BE 38".
7. ALL OFFSETS ARE FROM OUTSIDE EDGES OF ITEMS.
8. CONCRETE SHALL BE 4000 PSI @28 DAYS. BOTTOM OF CONCRETE SHALL BE AT TOP OF SIDEWALK GRAVEL ELEVATION. DEPTH VARIES APPROX. 4"-7".
9. GRAVEL LAYER SHALL BE INSTALLED IN ACCORDANCE WITH CONCRETE SIDEWALK DETAIL, AND SHALL BE MAINTAINED TO 703.06 TYPE B.



DERO BIKE HITCH
NOT TO SCALE



PLAN VIEW

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
SKETCH PLAN

BY
DATE
PFH
10/6/21

SITE DETAILS - 2

PROJECT NAME/ADDRESS
PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

CLIENT/OWNER OF RECORD
3 LINCOLN, LLC
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101

DRAWING NAME
ACORN ENGINEERING, INC.

THE PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY THE CLIENT, SHALL BE INDICATED BY A RED LINE AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1124_DETAILS
JN: 1124
SCALE: AS NOTED
DESIGNED BY: PFH
DRAWN BY: ZMS
CHECKED BY: WHS

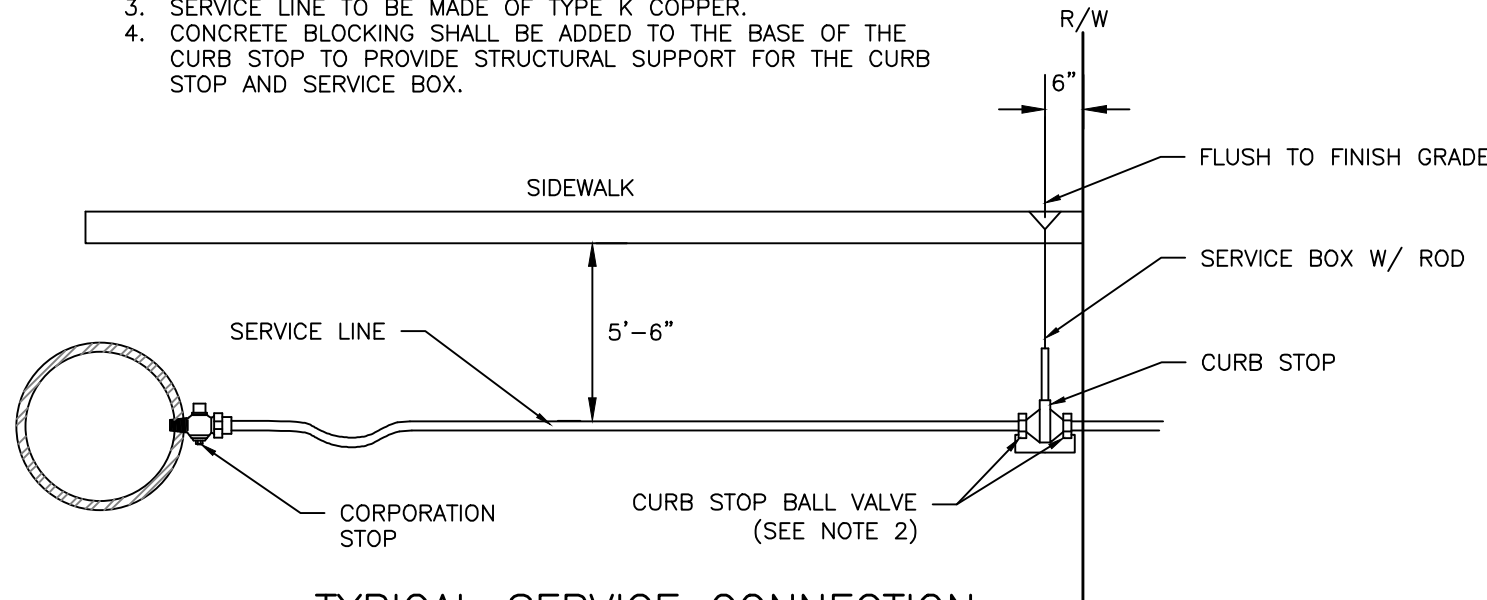
STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER
100621

DRAWING NO.
C-41

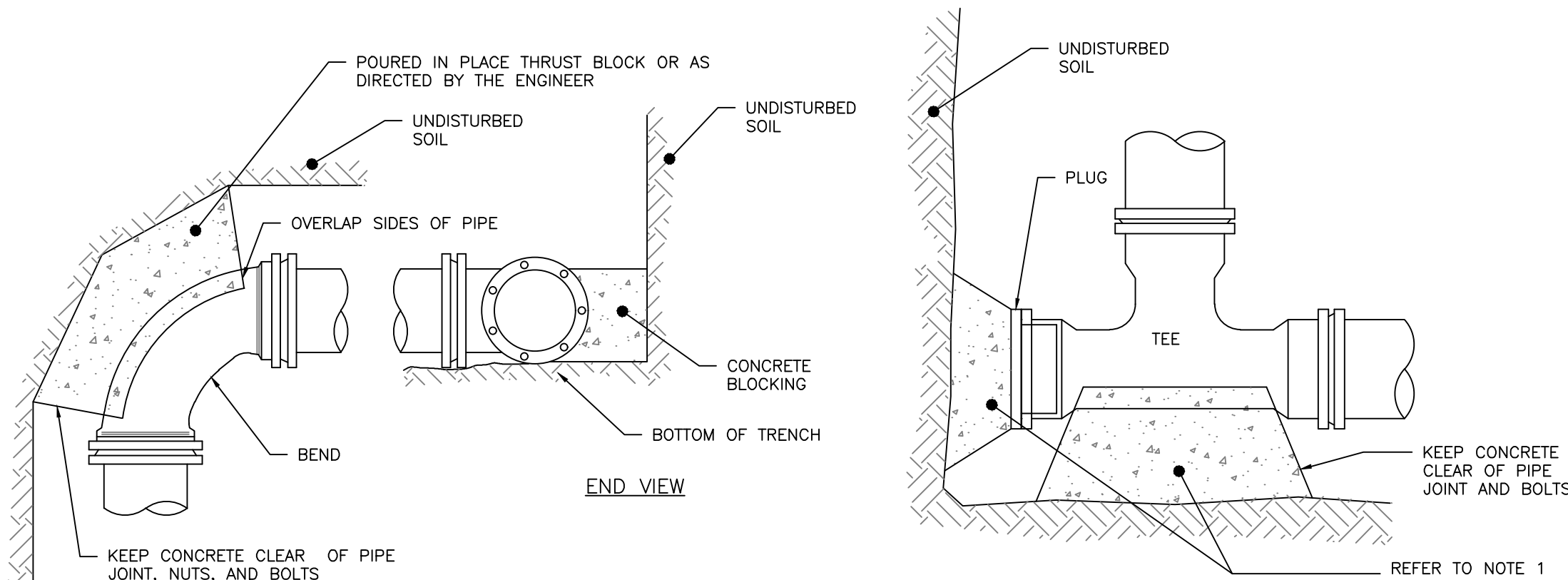
989

NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH THE MAINE WATER DISTRICT (MWD) SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE MAINE WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.

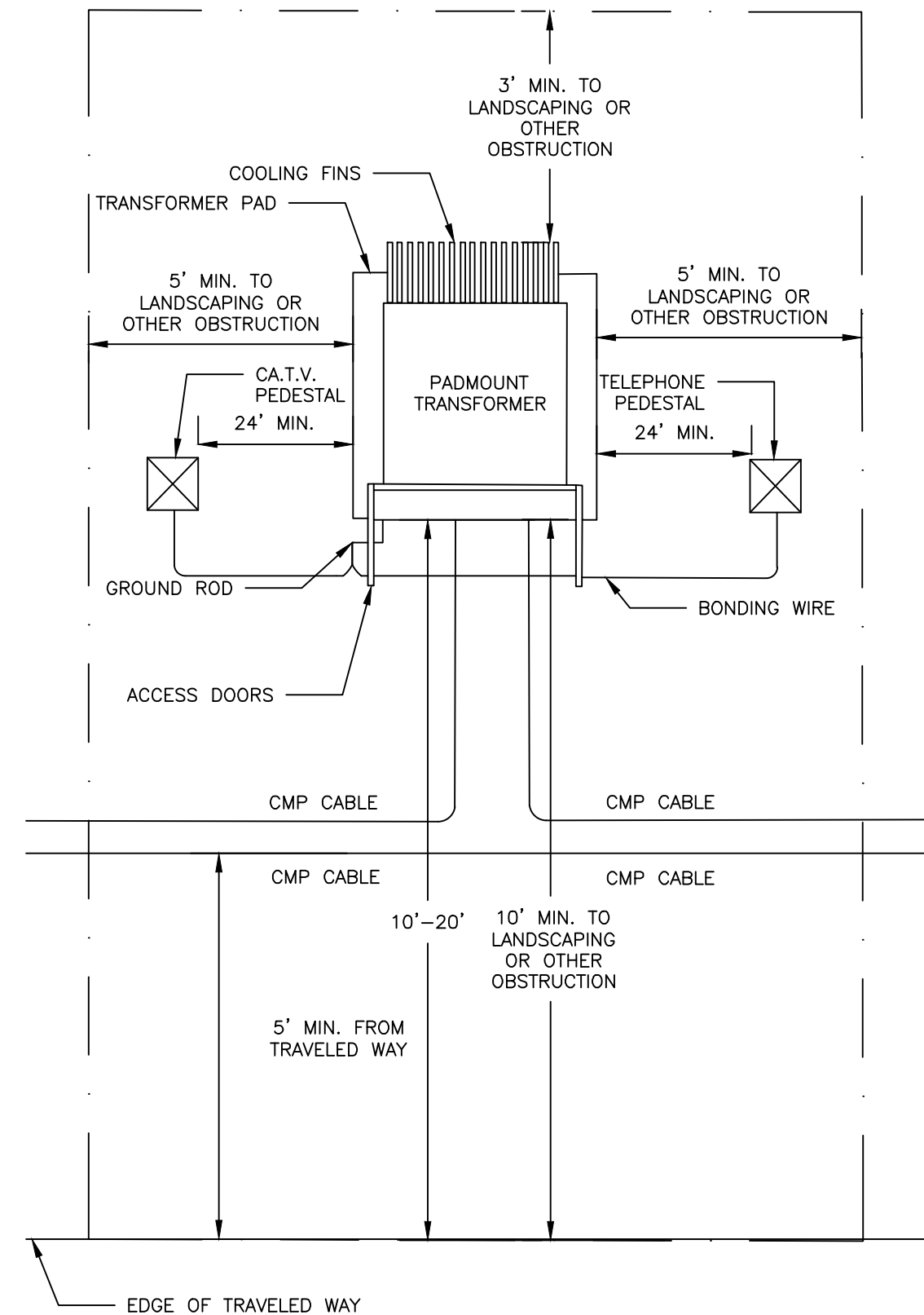


TYPICAL SERVICE CONNECTION
NOT TO SCALE



- NOTES:
1. IF DEAD END WITH TEE, THRUST BLOCK WOULD BE REQUIRED OR AS DIRECTED BY THE ENGINEER
 2. SEE THRUST/RETAINER GLAND SCHEDULE FOR TYPE OF BLOCKING TO BE USED ON BENDS

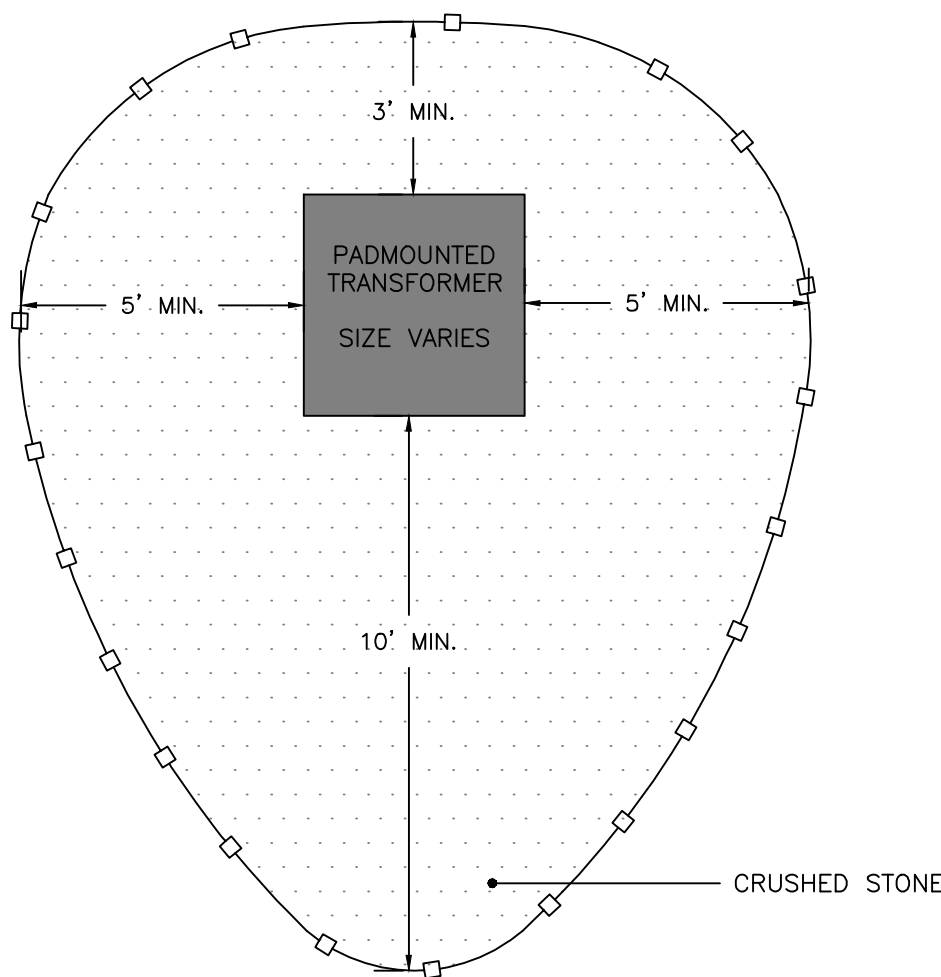
THRUST BLOCKING: REGULAR BEND
NOT TO SCALE



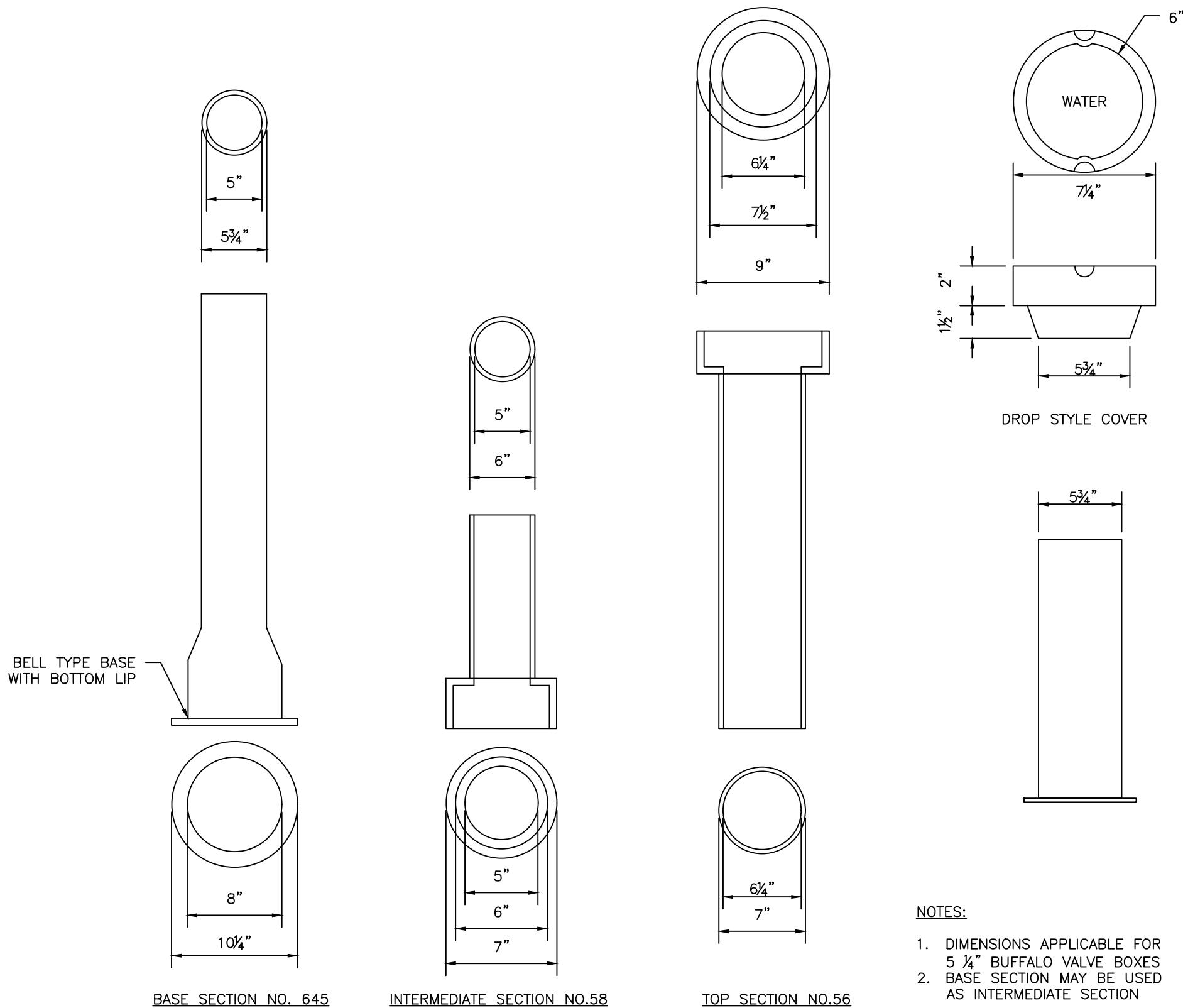
PAD MOUNTED TRANSFORMER
NOT TO SCALE

NOTES:

1. WHERE DANGER OF PLOW OR TRAFFIC DAMAGE EXISTS, BARRIERS CONSISTING OF CONCRETE FILLED 6 INCH IPS STEEL POSTS SET 4 FEET DEEP SHALL BE PROVIDED FOR PROTECTION (PRESSURE TREATED 6X6 INCH MIN. TIMBER POSTS MAY BE SUBSTITUTED IN RESIDENTIAL AREAS). POSTS SHALL NOT INTERFERE WITH TRANSFORMER ACCESS. GENERALLY THE POSTS SHALL BE LOCATED NEAR THE CORNERS OF THE TRANSFORMERS.
2. THE SETBACKS DEPICT CLEARANCES FROM OBSTRUCTIONS INCLUDING TREES, SHRUBS, AND FENCES.
3. THERE SHALL BE NO OPENINGS IN THE BUILDING WALL IN BACK OF, BESIDE, OR OVER THE TRANSFORMER UNLESS THE TRANSFORMER IS A MIN. OF 10 FEET FROM THE BUILDING.
4. SIDE CLEARANCES FROM DOORS OR WINDOWS SHALL NOT BE LESS THAN 10 FEET.
5. THERE SHALL BE A MIN. OF 10 FEET BETWEEN THE TRANSFORMER AND ANY GAS METER/REGULATOR, GAS RELIEF VALVE, GAS VENT DISCHARGE, GAS FILLING CONNECTION, OR PROPANE TANK. SOME INSURANCE COMPANIES MAY REQUIRE INCREASED CLEARANCES.
6. TRANSFORMER SHALL BE LOCATED FAR ENOUGH AWAY FROM BUILDING OVERHANGS SO THAT THEY WILL NOT BE SUBJECT TO DAMAGE BY FALLING ICE AND SNOW.
7. IF TRANSFORMER IS NOT INSTALLED IMMEDIATELY UPON THE INSTALLATION OF THE CABLE IN THE PAD, THE DEVELOPER SHALL PROVIDE AND INSTALL A CMP APPROVED CONCRETE, STEEL, OR FIBERGLASS COVER OVER THE PAD OPENING TO ELIMINATE EXPOSURE OF THE CABLE.



CMP TRANSFORMER SETBACKS
NOT TO SCALE

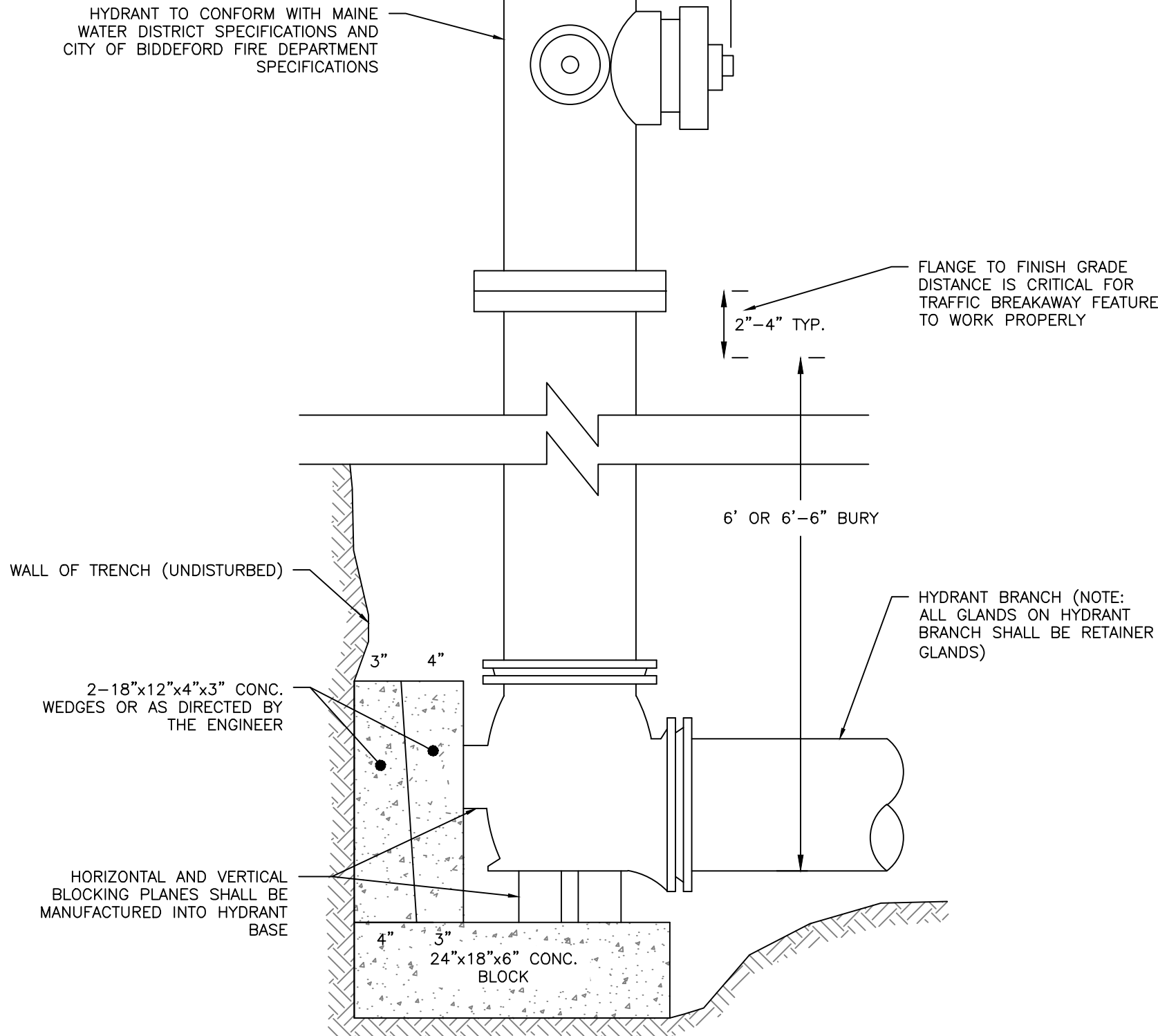


- NOTES:
1. DIMENSIONS APPLICABLE FOR 5 1/2" BUFFALO VALVE BOXES
 2. BASE SECTION MAY BE USED AS INTERMEDIATE SECTION

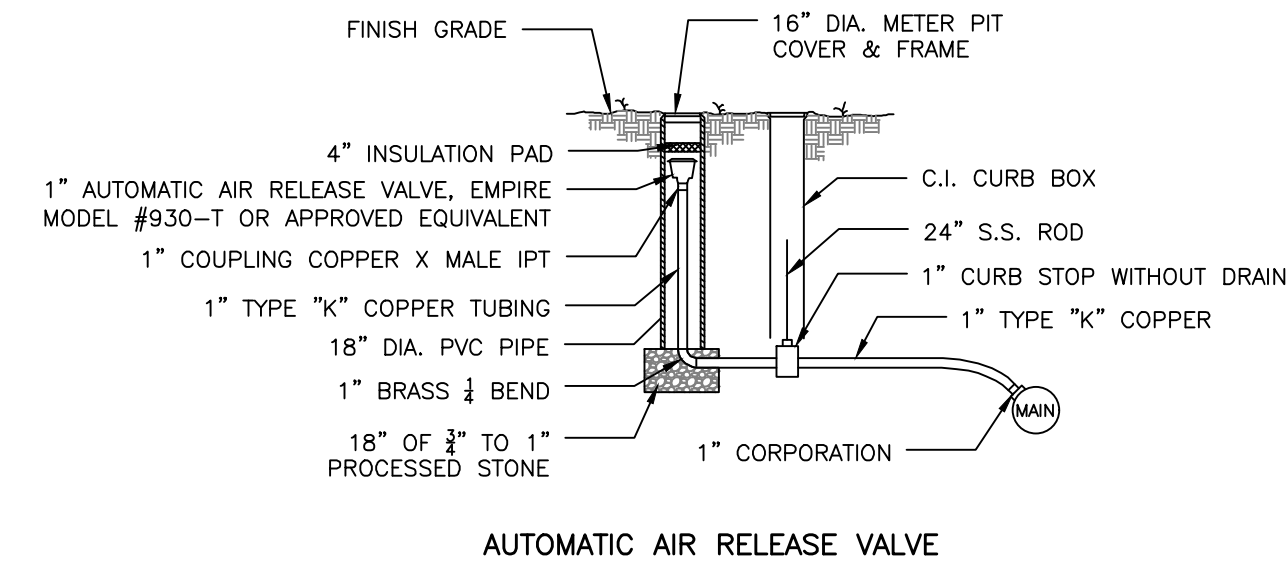
VALVE BOX & COVER
NOT TO SCALE

FOR STATE ROADS
SETBACK SHALL CONFORM TO M.D.O.T. POLICY
FOR ABOVE GROUND UTILITY LOCATIONS. FOR
SPEED LIMITS >35MPH 6 1/2' FROM EDGE OF
SHOULDER OR FACE OF CURB. FOR SPEED
LIMITS <35MPH 3' FROM EDGE OF SHOULDER
OR 1' FROM FACE OF CURB.

FOR CITY OR TOWN ROADS CHECK WITH
MUNICIPALITY FOR REQUIREMENTS

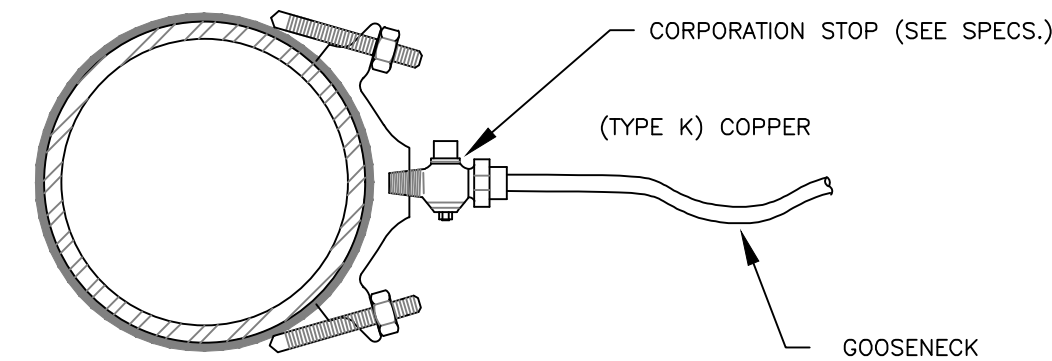


TYPICAL HYDRANT
INSTALLATION DETAIL
NOT TO SCALE

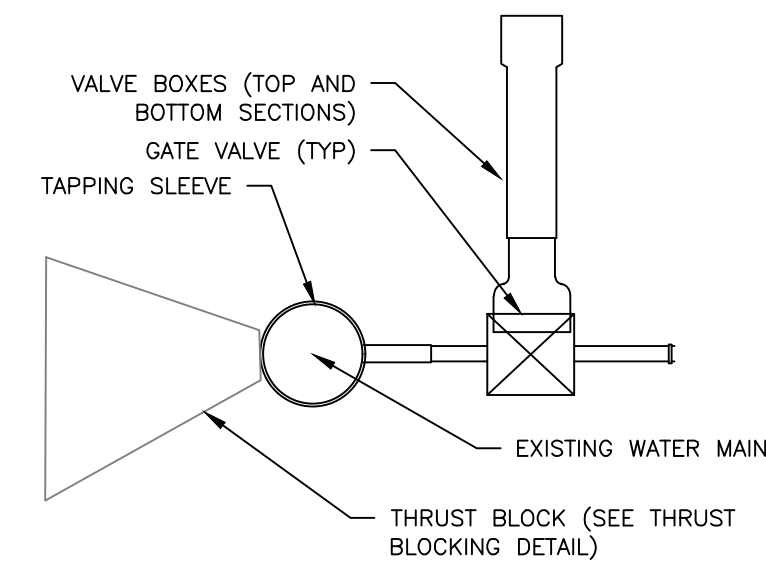


AUTOMATIC AIR RELEASE VALVE

AIR RELEASE VALVE DETAIL
NOT TO SCALE



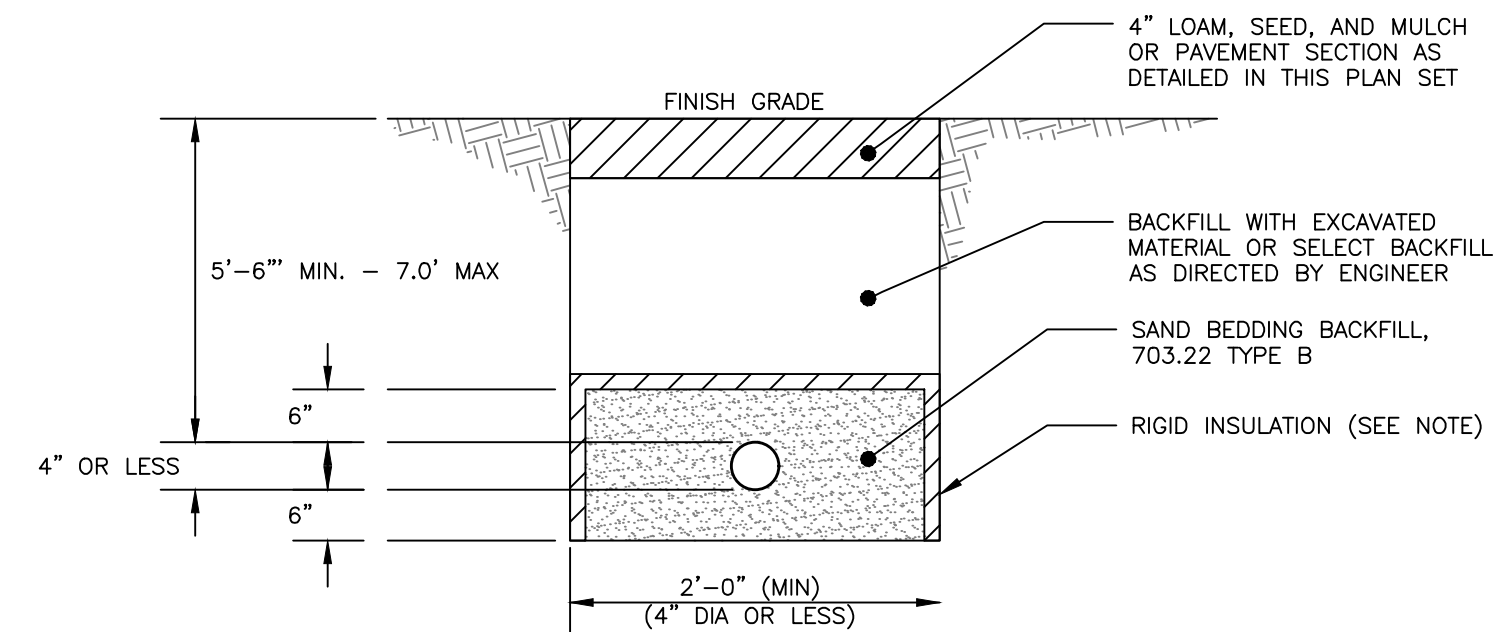
SERVICE SADDLE: 1-1/2" AND 2" C.C. THREAD
NOT TO SCALE



TAPPING SLEEVE AND VALVE
NOT TO SCALE

NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MAINE WATER DISTRICT STANDARD DETAILS & SPECIFICATIONS.
2. IF LESS THAN 5'-6" OF COVER IS POSSIBLE ADD TWO LAYERS OF 2-INCH "BLUE DOW" RIGID INSULATION.



WATER SERVICE TRENCH SECTION DETAIL
NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
DATE
10/6/21

SKETCH PLAN

UTILITY DETAILS - 1
PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

PROJECT NAME/ADDRESS:

ENGINEERING, INC.

ACORN ENGINEERING, INC.

FILE: 1124_DETAILS

JN: 1124

SCALE: AS NOTED

DESIGNED BY: PFH

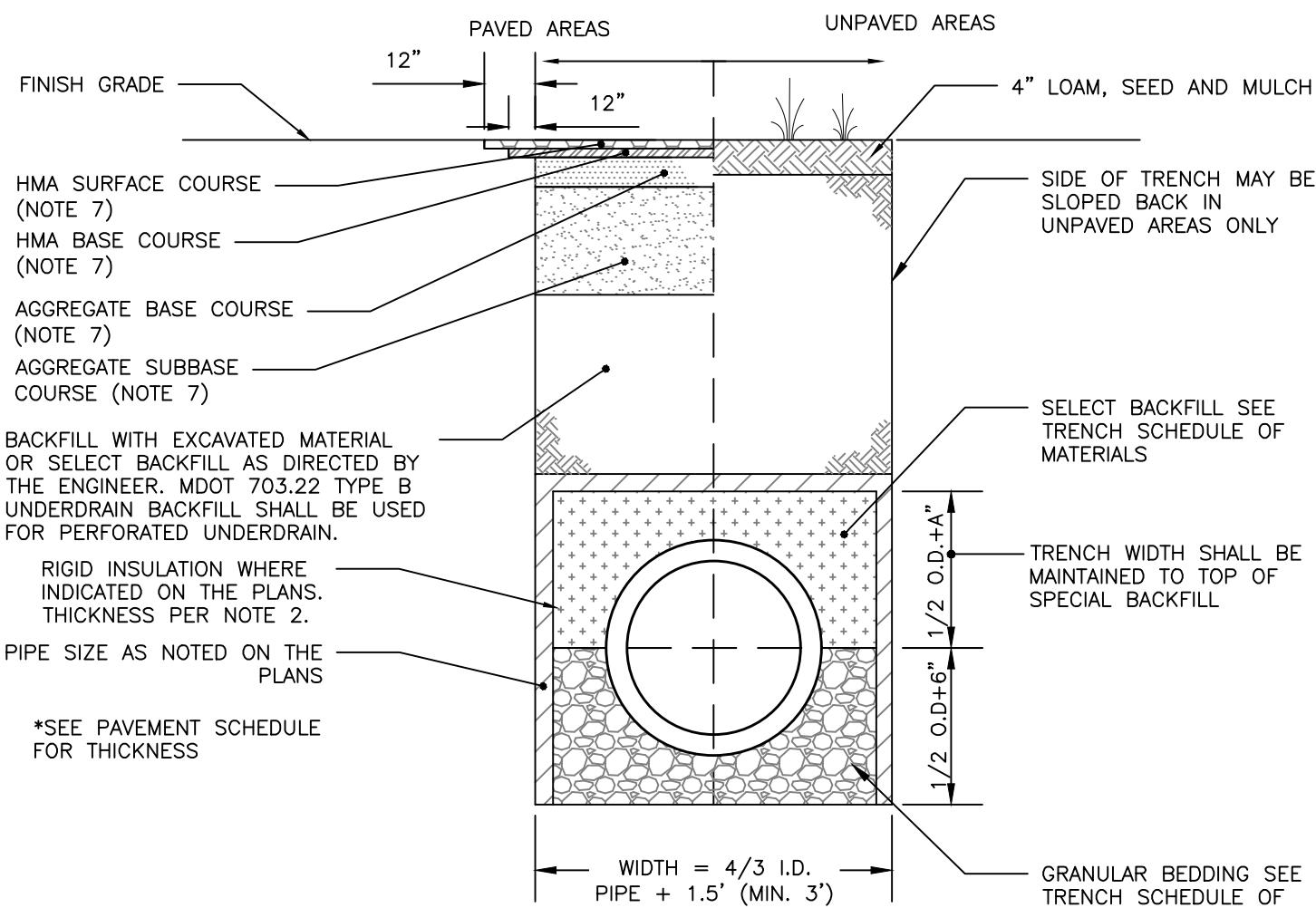
DRAWN BY: ZMS

CHECKED BY: WHS



DRAWING NO.

C-42



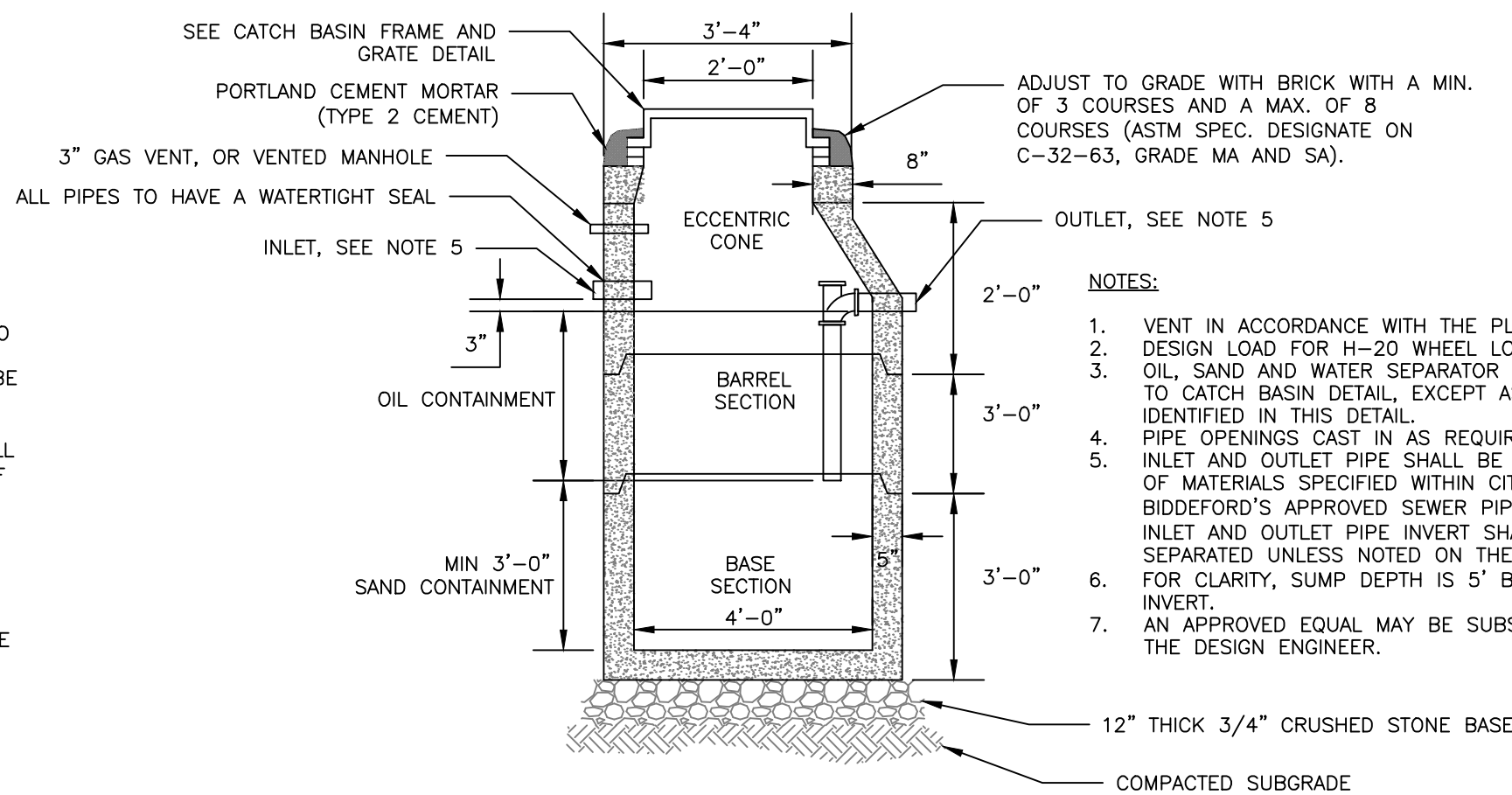
ALLOWABLE PIPE MATERIALS:
 - REINFORCED CONCRETE PIPE (RCP) MIN. STRENGTH OF CLASS III
 - PVC RING TYPE SEWER (SDR 35) OR EQUIVALENT, MIN PS-46 RATING
 - PVC RING TYPE SEWER PIPE MEETING ASTM F 789
 - DUCTILE IRON PIPE (DIP)
 - ADS N-12 HP TRIPLE-WALL MIN PS-46 RATING
 - ADS SANITITE HP MIN. PS-46

SCHEDULE OF MATERIALS		
TYPE OF PIPE	GRANULAR BEDDING	SELECT BACKFILL
CMP DUCTILE IRON RCP	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
PVC/HDPE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL
CMP	MDOT 703.22 TYPE C 3/4" CRUSHED STONE	MDOT 703.22 TYPE C 3/4" CRUSHED STONE

- NOTES:
- BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - STORM DRAIN COVER BETWEEN 2' AND 3' SHALL INCLUDE 4" OF RIGID INSULATION. COVER BETWEEN 3' AND 4' SHALL INCLUDE 2" RIGID INSULATION. OTHER UTILITIES: ADD 2" OF RIGID INSULATION FOR EACH FOOT ABOVE MINIMUM DEPTH.
 - INSTALL WARNING TAPE DIRECTLY ABOVE UTILITIES AT THE TOP OF SUBGRADE.
 - MINIMUM COVER
 - 2'-0" - STORM DRAIN
 - 5'-0" - SEWER
 - NO TREES SHALL BE PLANTED WITHIN 5' OF A SEWER PIPE OR SERVICE
 - THIS DETAIL SHALL BE APPLIED ONLY TO DRAINAGE PIPE TRENCHES OUTSIDE OF THE CITY OF BIDEFORD ROW.
 - THICKNESS AS NOTED BY SURFACE DETAILS
 - ALL PROPOSED TREES PLANTED WITHIN 10' OF A STORM OR SEWER PIPE SHALL BE PLANTED AT A DEPTH NO GREATER THAN 3' DEEP. PERMEABLE LANDSCAPE FABRIC SHALL CREATE A ROOT BARRIER AROUND THE PIPES. CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE DRAWINGS.

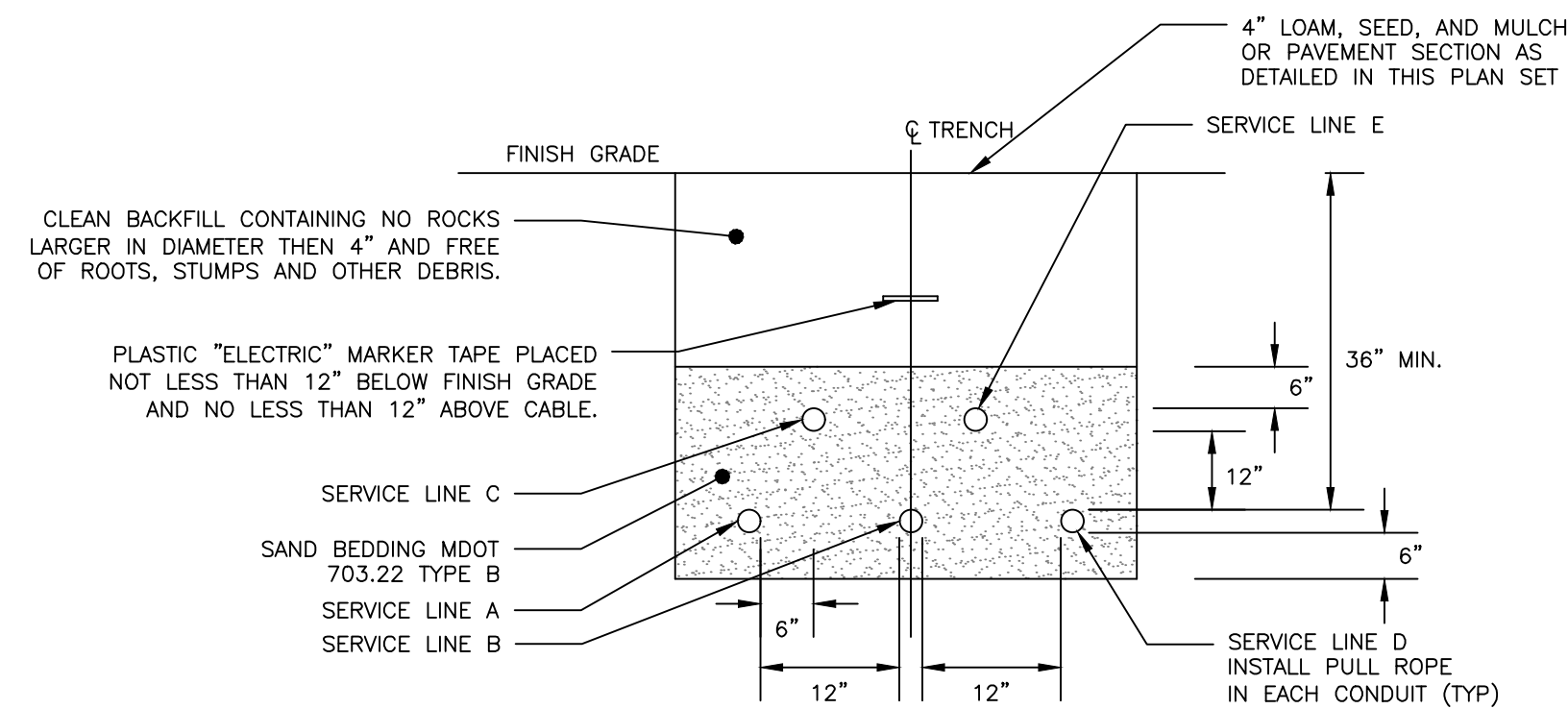
STORM DRAIN AND SEWER TYPICAL TRENCH SECTION WITHIN PROPERTY

NOT TO SCALE



4'-0" DIAMETER PRECAST OIL AND WATER SEPARATOR

NOT TO SCALE



CONDUIT TYPE				
SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
C	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	COMMUNICATION	-
D	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	SPARE	SEE NOTE 1
E	2-4"	SCHEDULE 40 PVC ELECTRICAL GRADE	CABLE	-

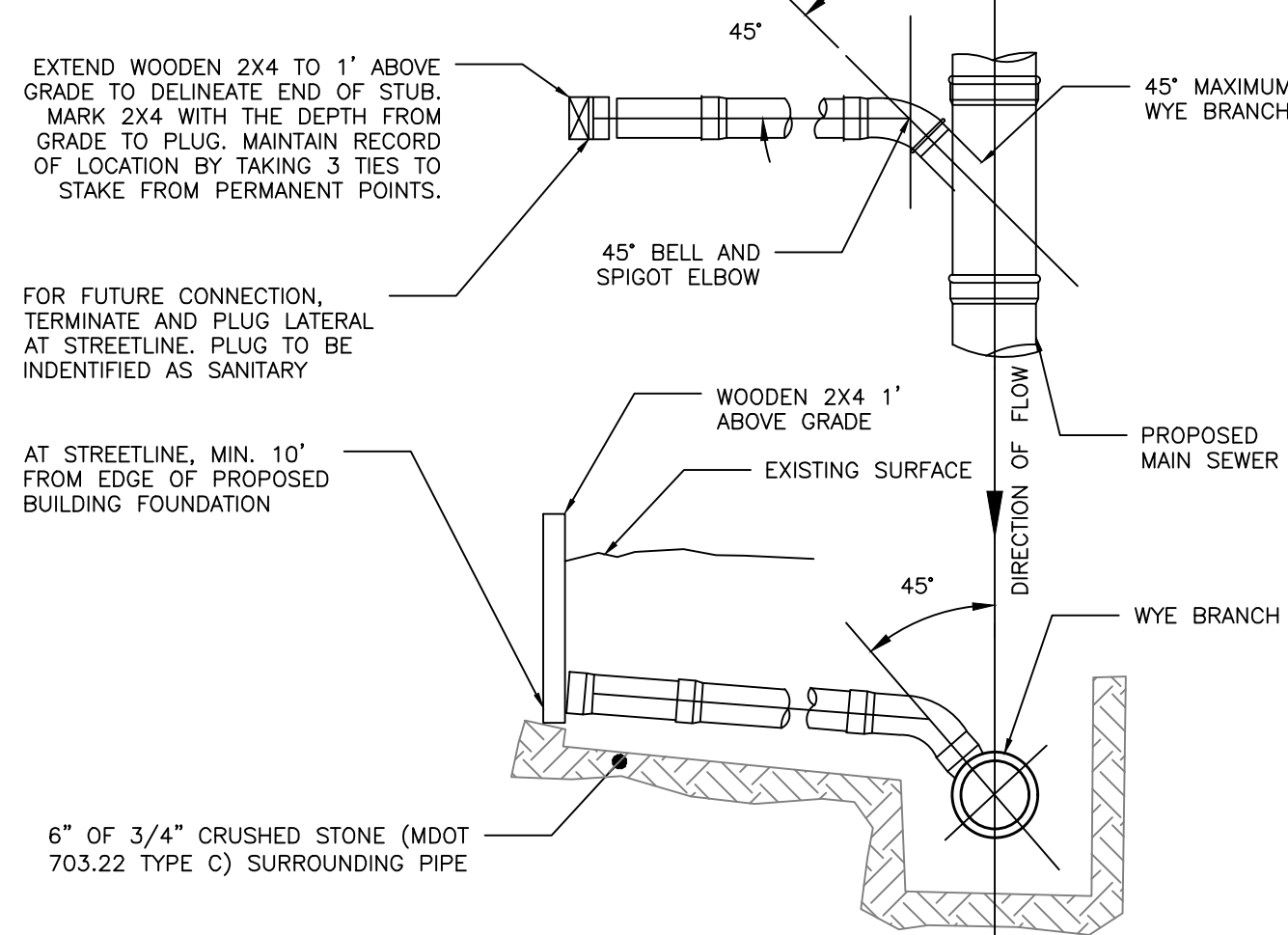
- NOTES:
- ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
 - MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
 - CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.
 - FINAL SIZE OF CONDUITS TO BE SPECIFIED BY MEP, ELECTRICIAN, OR DESIGN/BUILD ELECTRICAL CONTRACTOR.

UTILITY TRENCH - PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE

NOT TO SCALE

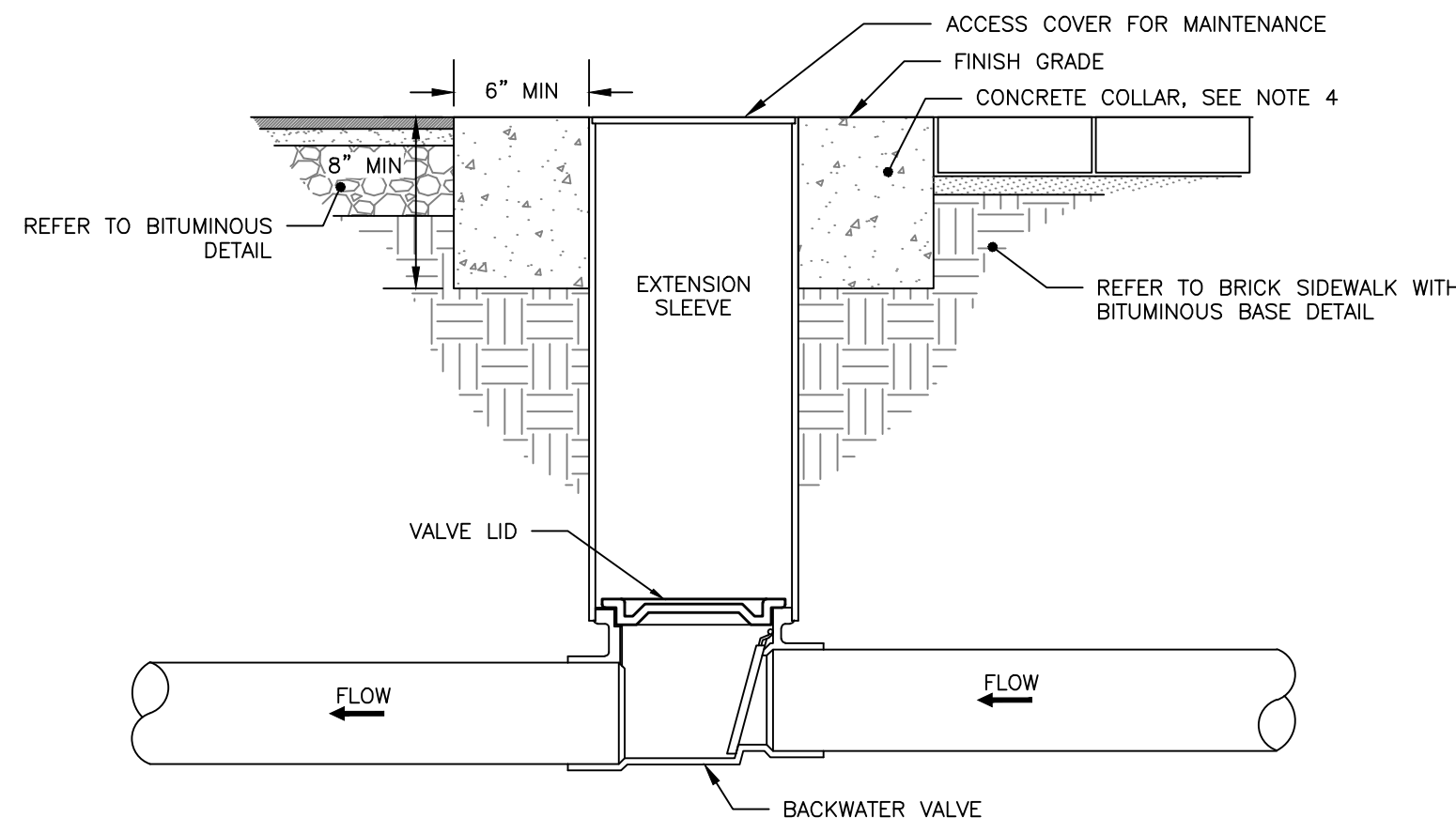
NOTES:

- LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
- SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO STRUCTURE PLUMBING WITH ARCHITECTURAL CONTRACTOR.
- CONNECTION OF PROPOSED SEWER LATERAL TO STRUCTURE PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.



SEWER TEE/WYE CONNECTION DETAIL

NOT TO SCALE



NOTES:

- BACKFLOW VALVE TO BE PROVIDED BY AGRI DRAIN CORPORATION OR AN APPROVED EQUAL.
- VALVE TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS AND COMPLY WITH RULES AND REGULATIONS AS OUTLINED IN SECTION 2 OF THE CITY OF BIDEFORD TECHNICAL MANUAL.
- VALVE SHALL BE INSTALLED WITH A VALVE BOX AND COVER TO PROVIDE EASY ACCESS AND MAINTENANCE. VALVE COVER SHALL STATE 'SEWER' ON LID FLUSH TO SURFACE. REFER TO VALVE & BOX COVER DETAIL FOR ADDITIONAL INFORMATION.
- CONCRETE COLLAR AT A MINIMUM 24-HOUR COMPRESSIVE STRENGTH OF 3,000 PSI.

BACKFLOW VALVE ASSEMBLY

NOT TO SCALE

PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
SKETCH PLAN

BY
DATE
PFI
10/6/21

UTILITY DETAILS - 2
 PROJECT NAME/ADDRESS:
 PEARL STREET LOT 3 REDEVELOPMENT BIDEFORD
 CLIENT/OWNER OF RECORD:
 3 LINCOLN, LLC
 80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101

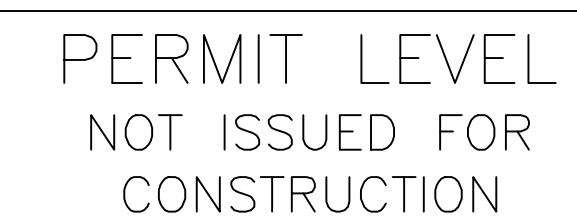
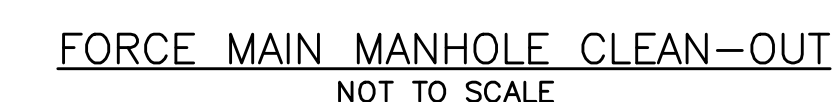
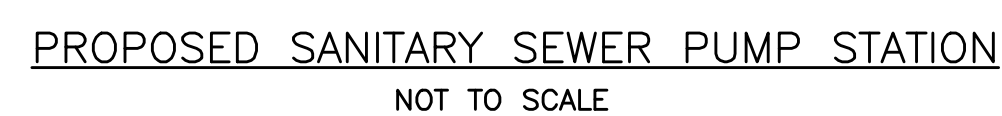
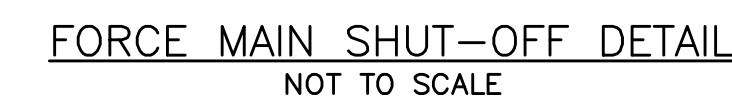
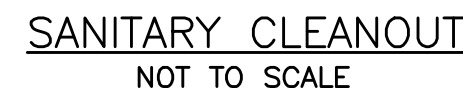
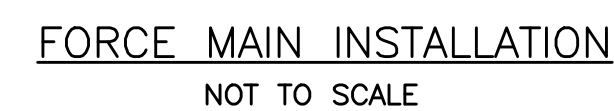
DRAWING NAME:
 ENGINEERING, INC.
 ACORN ENGINEERING, INC.
 PO BOX 3372, PORTLAND MAINE 04101
 (207) 775-2655
 THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY THE CLIENT, SHALL BE INDICATED BY A REVISION TABLE AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1124_DETAILS
 JN: 1124
 SCALE: AS NOTED
 DESIGNED BY: PFI
 DRAWN BY: ZMS
 CHECKED BY: WHS

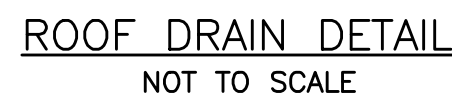
STATE OF MAINE
 PETER F. HEIL
 15318
 LICENSED PROFESSIONAL ENGINEER
 10/6/21

DRAWING NO.

C-43

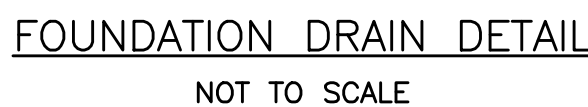


1. CONTRACTOR RESPONSIBLE FOR THE INSTALLATION OF THE ROOF DRAIN, ADAPTER AND COVER, GUTTERS, AND DOWNSPOUTS, UNLESS OTHERWISE DIRECTED.
2. ALL PIPES SHALL BE OF UNIFORM SIZE.



1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLD AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. ALL MANHOLE RISERS SHALL BE ETHERIDGE 24" OR APPROVAL EQUAL.
7. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATION ON C-32-63, GRADE MA AND SA.
8. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
9. CATCH BASIN FRAMES FOR TYPE A4 CATCH BASIN CURB INLETS SHALL BE ETHERIDGE DR5A OR APPROVED EQUAL.
10. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
11. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF BIDEDEFORD.
12. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CASCO TRAP PER DETAIL.

1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.



1. INSTALL CATCH BASIN HOODS IN ALL CATCH BASINS.
2. PREFERRED STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION REQUIREMENTS

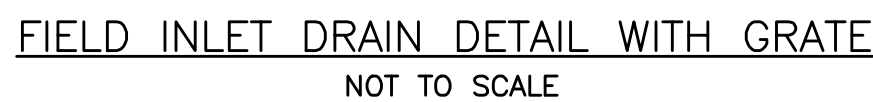


1. APPROVED CATCH BASIN FRAMES:
 - 1.1. EAST JORDAN = 7375Z
 - 1.2. NEENAH = R-3248
 - 1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
 - 2.1. EAST JORDAN = 2440M
 - 2.2. NEENAH = R-3248
 - 2.3. OR APPROVED EQUAL



FRAME & GRATE
NOT TO SCALE

NOTES:
1. REFER TO THE GRADING & DRAINAGE PLAN
FOR LAYOUT, ELEVATIONS OTHER DETAILS.



PERMIT LEVEL
NOT ISSUED FOR
CONSTRUCTION

[illegible]

DRAINAGE DETAILS

PROJECT NAME/ADDRESS: PEARL STREET LOT 3 REDEVELOPMENT BIDDEFORD

3 LINCOLN, LLC

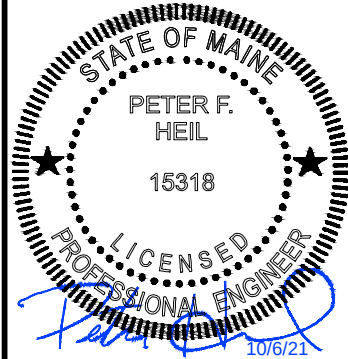
80 EXCHANGE STREET, SUITE 400, PORTLAND, ME, 04101

CLIENT/OWNER OF RECORD:

 **A C O R N** **ENGINEERING, INC.**

YES YOU CAN! NOT BE ACQUIRED WITHOUT LOSING YOUR
INDEPENDENCE! NO MATTER HOW BIG ANY CORPORATION
OR OTHER ENGINEER, SHALL BE AT USER'S SOLE RISK
IF THEY ATTEMPT TO TAKE OVER YOUR FUTURE!
PO BOX 3312, PORT CHARLOTTE, FLORIDA 34685
(207) 735-2655

FILE:	1124_DETAILS
JN:	1124
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	ZMS
CHECKED BY:	WHS



DRAWING NO.

C-45

